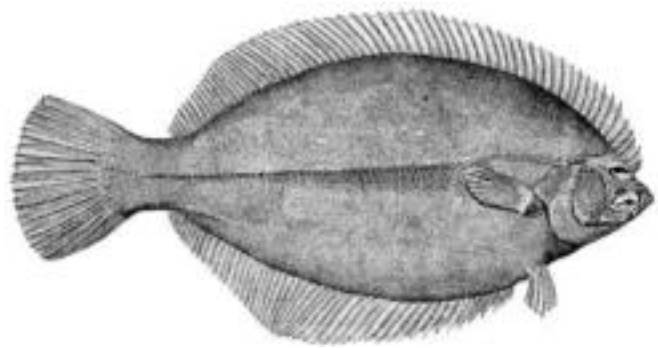
Northeast Multispecies
Fishery Management Plan

Secretarial Interim Action to Implement Measures to Reduce Overfishing in the Northeast Multispecies Fishery Complex



Winter flounder *Pseudopleuronectes americanus*

Environmental Assessment

Regulatory Impact Review
Final Regulatory Flexibility Analysis

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April 6, 2009

1.0 Executive Summary

The Secretary of Commerce (Secretary) finds that interim action, under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), is necessary to reduce fishing mortality and contribute toward the rebuilding of overfished stocks managed by the Northeast (NE) Multispecies Fishery Management Plan (FMP). The principal goal of this interim action is to reduce overfishing and help ensure that stocks rebuild, to the extent practicable, during an interim period, while the New England Fishery Management Council (Council) develops more comprehensive, permanent measures.

In response to new scientific information, this action will take the following actions, described in more detail below: (1) Revise stock status determination criteria, and mortality targets; (2) implement measures to reduce groundfish fishing mortality (F) by the commercial fishery through fishing effort restrictions such as differential Days-at-Sea (DAS) counting in Southern New England (SNE), and trip limits or retention prohibitions; (3) implement measures to reduce groundfish fishing mortality by the recreational fishery through restrictions such as extending the closure on Gulf of Maine (GOM) cod into mid-April and implementing a party/charter bag limit for Georges Bank (GB) cod of 10 cod per person; (4) specify annual measures for the shared U.S./Canada stocks which include hard TACs for Eastern GB cod and haddock and GB yellowtail flounder; and (5) implement mitigation measures including expansion of the Closed Area I Hook Gear Haddock Special Access Program (SAP), reduction in the haddock minimum size, extension of the Eastern U.S./Canada Haddock SAP, and changes to the Regular B DAS Program and the DAS Leasing and Transfer Programs. No changes have been made to the Amendment 13 default DAS reduction scheduled for May 1, 2009. Therefore, in addtition to measures included in this interim action, vessels will be subject to an 18% reduction in Category A DAS.

The Preferred Alternative intends to achieve an appropriate balance of short-term costs and benefits, that will maintain adherence to current rebuilding plans, with the exception of SNE/Mid-Atlantic (MA) winter flounder and GB cod, and reduce fishing mortality to Fmsy or below for all stocks except Northern windowpane flounder, GB cod, pollock, and witch flounder.

Amendment 13 to the FMP, implemented on May 1, 2004, established a process whereby the NE multispecies complex of 19 stocks is routinely evaluated and necessary changes to the stock status determination criteria and management measures are made through biennial or other required adjustments. Amendment 13 further specified that a benchmark stock assessment and review of the biological reference points (stock status determination criteria) be completed in 2008. The latest stock assessment, the Groundfish Assessment Review Meeting (GARM III), was completed in August 2008. GARM III evaluated the biological reference points (status determination criteria) and established new reference points; and assessed the current biomass and fishing mortality status of the groundfish stocks. This action adopts the revised stock status determination criteria and implements management measures to reduce overfishing. Table 1 contains a summary of the GARM III stock status results as compared to the previous stock assessment (GARM II, completed in 2004).

Table 1. Stock Status: Comparison of Current (2007) and Previous (2004); Groundfish Assessment Review Meetings (GARM)

Stock Status	GARM II (2004)	GARM III (2007)
Overfished and Overfishing Biomass < ½ Bmsy F > Fmsy	Georges Bank cod Georges Bank yellowtail Southern New England/Mid Atlantic yellowtail flounder Gulf of Maine/ Cape Cod yellowtail flounder Southern New England/Mid Atlantic winter flounder white hake Gulf of Maine cod	Georges Bank cod Georges Bank yellowtail Southern New England/Mid Atlantic yellowtail flounder Gulf of Maine/ Cape Cod yellowtail flounder Southern New England/Mid Atlantic winter flounder white hake witch flounder Georges Bank winter flounder windowpane flounder north ■ pollock
Overfished, but No Overfishing Biomass < ½ Bmsy F ≤ Fmsy	Georges Bank haddock GOM haddock windowpane flounder south American plaice ocean pout	ocean pout Atlantic halibut
Not Overfished, but Overfishing Biomass ≥ ½ Bmsy F > Fmsy	Georges Bank winter flounder	Gulf of Maine cod windowpane flounder south
Not Overfished and No Overfishing Biomass ≥ ½ Bmsy F ≤ Fmsy	pollock redfish windowpane flounder north Gulf of Maine winter flounder Witch flounder	redfish American plaice Georges Bank haddock Gulf of Maine haddock * Gulf of Maine winter flounder

* Given the information in GARM III, the status of GOM winter flounder is uncertain, but may likely be overfished. ■ Pollock status was revised and updated after GARM III based on fall 2008 trawl survey data.

The Council is developing Amendment 16 which, based on new scientific information from GARM III, proposes to implement several modifications to the FMP, including modifications to the biological reference points, new rebuilding programs, and management measures necessary to rebuild stocks in accordance with the required rebuilding time periods. In addition, Amendment 16 proposes to revise the FMP to comply with the new MSA requirements, such as annual catch limits and accountability measures.

The Council's goal was to develop Amendment 16 in time for the National Marine Fisheries Service (NMFS) to approve and implement the Amendment on May 1, 2009, the start of the 2009 fishing year (FY), consistent with the Amendment 13 schedule. At its June 3, 2008, meeting the Council voted to modify the initial development schedule of the Amendment in order to have the finalized scientific information from GARM III in August 2008, before further development of Amendment 16 management measures. The Council also voted on September 4, 2008, to request that NMFS implement an interim action for the duration of the 2009 FY (May 1, 2009-April 30, 2010). Based on the Council's revised Amendment 16 schedule, the implementation of Amendment 16, if approved, is scheduled for implementation on May 1, 2010.

Due to the need to reduce fishing mortality and approach consistency with the rebuilding schedules of the FMP, this interim action has been developed. This interim action is more narrow in scope than Amendment 16 and focuses on the required adjustments to the FMP. Some of the adjustments are the result of previously scheduled reductions in fishing mortality that were implemented as a part of Amendment 13 rebuilding programs, and some are unanticipated. Due to the nature and scope of the proposed action, and the fact that this National Environmental Policy Act (NEPA) analysis resulted in a finding of no significant impacts to the environment, the time period for review and approval is less than that required for Amendment 16. Therefore, if approved, this action is scheduled for implementation at the start of the May 1, 2009 FY, and remain in effect in the interim period through April 30, 2010, when Amendment 16 is anticipated to be implemented.

This Environment Assessment (EA) analyzes four principal alternatives to reduce fishing mortality in the commercial fishery that rely on different strategies to reduce fishing effort: One alternative based upon a large DAS reduction; and three alternatives that rely upon smaller DAS reductions combined with differential DAS areas. Fishing mortality reductions will be borne by both commercial and recreational vessels, and all four alternatives include management measures to mitigate the negative economic impacts of the FMP and provide flexibility to the industry. A proposed rule was published in the Federal Register on January 16, 2009 (74 FR 2959), that solicited public comments through February 17, 2009. The Preferred Alternative as originally analyzed was Alternative 3 in the Draft EA dated November 18, 2008 (referred to in this document as Alternative 3, "Proposed Rule Alternative"). The Preferred Alternative in this final EA is Alternative 4, which was developed after the comment period based on additional analyses and public comment.

The No Action alternative consists of management measures currently in effect for the FMP, as well as the May 1, 2009, DAS default measure specified under Amendment 13. Under the default measure, NE multispecies Category A DAS would be reduced by approximately 18 percent.

The Preferred Alternative (Alternative 4) includes: A 2:1 differential DAS area in Southern New England and the status quo Gulf of Maine Differential DAS Area; a trip limit of 1,000 lb/DAS, up to 5,000 lb per trip, for witch flounder; and a zero retention limit of ocean pout, SNE/MA winter flounder, and the northern stock of windowpane flounder. The two current regulatory programs that allow vessels to retain winter flounder that would otherwise be prohibited will be eliminated, i.e., the Southern New England Winter (SNE) Flounder Special Access Program (SAP) and the State Waters Winter Flounder Exemption. As state previously, no changes are made in this action to the automatic 18% default Category A DAS reduction.

The Preferred Alternative also includes the following measures for the recreational sector: Extension of the current seasonal prohibition on the retention of GOM cod (for both private recreational and party/charter vessels) by two weeks, with the resulting seasonal closure of November through April 15; a prohibition from possessing more than 10 cod per day (caught anywhere) for persons fishing on party/charter vessels, a more restrictive limit than the current limit of 10 cod per day when fishng only in the GOM; and a zero retention limit of SNE/MA winter flounder for private recreational and party/charter vessels.

In addition, the Preferred Alternative contains the following mitigation measures: Modification of the DAS Transfer Program to remove the DAS tax on transferred DAS; expansion of Closed Area (CA) I Hook Gear Haddock Special Access Program (SAP) in area and season, with removal of the subdivision between the common pool and sectors; renewal of the Eastern U.S./Canada Haddock SAP, which is scheduled to expire on April 30, 2009; modification of the DAS Leasing Program rules will be modified to allow leasing between sector and common pool vessels, and the cap on the number of DAS that can be leased will be removed; reduction in the minimum size for haddock from 19 inches to 18 inches for both the recreational and commercial fisheries; and modification of the Regular B DAS Program to include potential roll-over of quarterly incidental catch Total Allowable Catches (TACs). Also, Category C and D Monkfish vessels fishing in one of the differential DAS areas will be allowed to use additional monkfish-only DAS in proportion to the amount of groundfish DAS used in the differential DAS area to mitigate impacts on such vessels.

In addition to the measures to reduce fishing mortality, this document describes the expected impacts of the proposed FY 2009 TAC specifications and management measures for the U.S/Canada Management Area, as well as specification of trips for the CA II Yellowtail Flounder SAP, which are aspects of the FMP that are specified on an annual basis. Specifically, the interim action will specify the FY 2009 TACs for Eastern GB cod and haddock, and GB yellowtail flounder in the U.S./Canada Management Area, delay the opening of the Eastern U.S./Canada Area for vessels using trawl gear, set a GB yellowtail flounder trip limit, authorize use of the Ruhle trawl in the Eastern U.S./Canada Area, and specify zero trips for the CA II Yellowtail Flounder SAP. This action is needed to ensure that the stocks of GB cod, haddock, and yellowtail flounder that are shared between the U.S. and Canada, are managed as required by the FMP and as outlined in the U.S./Canada Resource Sharing Understanding (Understanding).

The Preferred Alternative will implement U.S. TACs for the shared GB stocks recommended by the Transboundary Management Guidance Committee (TMGC) and approved by the Council. The proposed U.S. TACs for FY 2009 are as follows: 527 mt cod; 11,100 mt haddock; and 1,617 mt yellowtail flounder. Under the No Action alternative, no TACs would be specified for the three shared GB stocks. The proposed TACs are consistent with the Understanding and the FMP and will contribute toward the rebuilding of the GB cod and yellowtail flounder stocks, and sustainable yield for GB haddock.

The following table summarizes the alternatives analyzed in this EA, described in more detail in the body of this document.

Table 2. Alternatives Analyzed in Environmental Assessement

Major Alternatives for the Commercial Fishery to Reduce Fishing Mortality	
No Action	Default DAS reduction (18%)
Alternative 1	Default DAS reduction (18%) 2 Differential DAS Areas (inshore GOM and offshore GOM) SNE Closure Area Modifications to trip limits

Alternative 2	40% DAS reduction 2 Differential DAS Areas (inshore GOM and offshore GOM) SNE Closure Area Modifications to trip limits
Alternative 3 (Proposed Rule Alternative)	Default DAS reduction (18%) 1 Differential DAS Area (entire GOM and northern portion of GB) SNE Closure Area Modifications to trip limits
Alternative 4 (Preferred Alternative)	Default DAS reduction (18%) SNE Differential DAS Area (expanded) Modifications to trip limits

Other Commercial Measures Applicable to Alternatives 1 through 4	
Specification of Target TACs	
Revisions to Incidental Catch TACs and Allocation to Special Management Programs	
Elimination of the SNE Winter Flounder SAP	
Elimination of the State Waters Winter Flounder Exemption	
Measures for U.S./Canada Management Area	
	Specification of TACs (cod, haddock, and yellowtail)
	Delayed Opening of Eastern Area for trawlers
	Allowance of Ruhle trawl in Eastern Area
	Implementation of 5,000 lb yellowtail flounder trip limit
	Specification of zero trips into the CA II yellowtail flounder SAP

Measures for the Recreational Fishery to Reduce Fishing Mortality Applicable to Alternatives 1 through 4
Extension of GOM seasonal prohibition on cod possession
Implementation of GB cod possession limit for party/charter vessels
Prohibition on retention of SNE winter flounder

Measures to Mitigate Negative Impacts of FMP and Increase Yield Applicable to Alternatives 1 through 4
Revision of the DAS Transfer Program
* Modification of CA I Hook Gear Haddock SAP
Extension of the Eastern U.S./Canada Haddock SAP
Modification of Regular B DAS Program
Reduction of haddock minimum size to 18”
Modification of the DAS Leasing Program
* Modification of Monkfish Category C and D vessel rules regarding monkfish only DAS

* These measures were not a part of the proposed rule or the Draft EA, but could apply to all alternatives.

Alternatives that were considered, but rejected, include a complete fishery closure, a Regular B DAS Program fishery only, the Council’s recommended alternative, a hard TAC alternative, and two additional alternatives that modified the Proposed Rule Alternative (3). One mitigation measure included in draft Amendment 16 that was considered but rejected was the Amendment 16 proposed changes to the CA II Yellowtail Flounder SAP.

Based on GARM III information, and subsequent data from NMFS's Northeast Fisheries Science Center's (NEFSC) trawl survey, new rebuilding plans are needed for GB winter flounder, the northern stock of windowpane flounder, witch flounder, and pollock (and possibly for GOM winter flounder). Implementation of new rebuilding plans for these stocks through Amendment 16 would enable the Council to make important decisions regarding the rebuilding strategies and comply with the timing requirements of the MSA. Therefore, this interim action does not propose new rebuilding programs for these stocks that are newly declared overfished.

Under the Preferred Alternative to be implemented under an interim final rule, management measures were developed that would reduce fishing mortality on all targeted stocks, however, due to the magnitude of some of these reductions, fishing exploitation would be reduced for all NE multispecies stocks, with the percentage reductions in fishing mortality ranging from approximately 13 to 62 percent. Implementation of the Preferred Alternative (Alternative 4) would result in reductions in fishing exploitation as follows in Table 3:

Table 3. Preferred Alternative (Alternative 4) – Estimated Reductions in Fishing Mortality

Preferred Alternative (Alternative 4)				
Species	Stock	Goal	Objective (Reduction in F by Proposed Measures)	Estimated Reduction in F Achieved by Proposed Measures
Cod	GB	Fmsy*	40%	28%
	GOM	Fmsy	21%	18%
Haddock	GB	Fmsy	na	25%
	GOM	Fmsy	na	18%
Yellowtail Flounder	GB	Frebuild	16%	16%
	SNE/MA	Frebuild	38%	39%
	CC/GOM	Frebuild	18%	42%
American plaice		Fmsy	na	15%
Witch flounder		Fmsy	32%	17%
Winter flounder	GB	Fmsy	na	13%
	GOM	Fmsy	11%	16%
	SNE/MA	Frebuild	100%	62%
Redfish		Fmsy	na	13%
White hake		Frebuild	na	17%
Pollock		Fmsy **	51%	19%

Windowpane flounder	North	Fmsy**	83%	22%
	South	Fmsy**	29%	32%
Ocean pout		Fmsy	not calculated	not calculated
Atlantic halibut		Frebuild	27%	not calculated

* Fmsy for GB cod was selected as the appropriate goal for the interim action due to the uncertainty resulting from the GARM III and the US/Canada TRAC stock assessements, and the scope of the interim action. ** Expressed in terms of exploitation rate.

The iterative process of designing management measures, as explained in the body of this document, revealed that the management measures required to fully achieve the objectives for the northern stock of windowpane flounder, SNE winter flounder, GB cod, witch flounder, and pollock would have resulted in reductions in fishing exploitation for all other groundfish stocks that far exceeded the amount of reduction necessary (for other the stocks). In addition, further reductions in fishing exploitation on the SNE/MA stock of winter flounder would have required severe restrictions on non-groundfish fisheries and would have caused negative economic impacts disproportionate to the marginal gains in the biological goals. Because there is virtually no directed fishery for the northern stock of windowpane flounder, it is not likely that further reductions in fishing effort through additional management measures would have substantively decreased fishing mortality on that stock.

This decision to modify measures from the proposed rule means that, for certain stocks--notably GB cod, witch flounder, pollock, and windowpane north--even though substantial reductions in fishing mortality will be achieved by this rule, overfishing on these stocks will not be ended during the duration of this interim action. Furthermore, adherence to current Amendment 13 rebuilding plans will be maintained for all but two stocks, i.e., GB cod and SNE/MA winter flounder. We have determined that NMFS has the flexibility, in implementing an interim rule under section 305(c) of the Magnuson-Stevens Act, to reduce overfishing on overfished stocks, without necessarily eliminating it, provided that such action does not fatally jeopardize the likelihood that such stocks can be rebuilt in accordance with Amendment 13 objectives. This determination is based, in part, on the plain reading of section 305(c), which allows NMFS to implement an interim rule to “reduce” and “address” overfishing, without a specific requirement to end overfishing. We believe this interpretation is reasonable, given the short-term nature of interim rules and the impracticability of developing and implementing sufficiently effective mitigation measures that can be developed and implemented under the normal amendment process. In the context of this action, this rationale is clearly apparent. To end all overfishing in this interim rule would result in extreme negative consequences to the fishing industry, as indicated by the comments received on the proposed rule. The Council is developing mitigating measures in Amendment 16, primarily through sector proposals, that should help to offset these negative consequences. The full range of possible mitigation measures cannot be implemented in this interim rule because they have not been fully developed and analyzed. Therefore, in exercising the flexibility provided by section 305(c), we have determined that the modifications to the proposed rule are justifiable because they are necessary to mitigate impacts on the fishing industry to the extent practicable, without fatally jeopardizing the likelihood that overfished multispecies stocks will achieve their rebuilding objectives through Amendment 16 measures.

Biological Impacts

The Closed Area Model (CAM) model results for the Preferred Alternative indicate fishing mortality reductions ranging from 13 percent (GB winter flounder and redfish), to 62 percent (SNE/MA winter flounder). These results indicate a reduced fishing exploitation on all stocks, including stocks that do not need any reduction in exploitation. However, the Preferred Alternative does not achieve the fishing mortality objectives for 5 stocks (GB cod (Fmsy), witch flounder (Fmsy), SNE/MA winter flounder (Frebuild), pollock (Fmsy), and windowpane north (Fmsy)), 4 of which will still be subject to overfishing (GB cod, witch flounder, pollock, and windowpane north). Although the CAM results indicate that overfishing will be occurring on 4 stocks, the measures will make large proportional gains in the elimination of overfishing. Furthermore, of the 4 stocks subject to overfishing, 3 of the stocks are not yet under a rebuilding program (witch flounder, windowpane north, and pollock). The rebuilding plan for GB cod ends in 2026. NMFS has determined that it has the flexibility, in implementing an interim rule under section 305(c) of the Magnuson-Stevens Act, to reduce overfishing on overfished stocks, without necessarily eliminating it, provided that such action does not fatally jeopardize the likelihood that such stocks can be rebuilt in accordance with Amendment 13 objectives.

The biological impacts of the changes to the DAS Leasing and Transfer programs would be minimal, given the cost of DAS leasing and transfers serves as a constraint to leasing, as well as the fact that new DAS restrictions would limit the number of DAS available for leasing by reducing DAS allocations and increasing the rate at which DAS are used in a portion of the fishery.

Proposed new restrictions for the recreational fishery for GOM cod, GB cod, and SNE/MA winter flounder, will provide reductions in fishing mortality comparable to those achieved by the commercial fishery for those stocks. The recreational prohibition on retaining SNE/MA winter flounder will have a positive, but slight impact on total winter flounder catch from the EEZ. The implementation of a 10 fish per person GB cod bag limit for charter/party vessels, and the extension of the existing seasonal closure for GOM cod will reduce total recreational harvests by 10 percent and 20 percent, respectively.

The U.S./Canada Management Area specifications will maintain compliance with the GB yellowtail flounder rebuilding plan, consistency with the FMP and Understanding, and continue successful coordination with Canada.

Other biological impacts of the Preferred Alternative include benefits to habitat protection primarily due to overall effort reductions.

The principal effort reduction measures may reduce monkfish fishing effort due to the requirement that limited access monkfish Category C and D vessels that also hold a NE multispecies DAS permit use a NE multispecies DAS in conjunction with a monkfish DAS. A modification to the Preferred Alternative (as originally proposed) was made in order to mitigate the impact of the proposed measures on monkfish Category C and D vessels. Specifically, such vessels will be allowed to fish additional “monkfish only”

DAS in order to take into account the additional groundfish DAS used in differential DAS areas. The overall biological effect on monkfish would be neutral or slightly positive.

The two primary skate fisheries, a wing fishery and a lobster bait fishery, are largely interwoven with the NE multispecies fishery. The regulations require that vessels must be fishing on a multispecies, monkfish, or scallop DAS, or fish in an exempted fishery in order to possess skates. The vast majority of skate landings are landed on multispecies Category A DAS, and the DAS restrictions of the preferred alternative would reduce fishing effort on skates. The Preferred Alternative would have a positive biological impacts on skate stocks.

The overall effect of the Preferred Alternative to reduce fishing mortality in the commercial fishery is positive for protected species because it would be expected to result in a decrease in the likelihood of interactions between protected species and gear used in the fishery.

In contrast, measures under the No Action alternative would achieve less of the necessary fishing mortality reductions to either achieve Fmsy or maintain the rebuilding programs established under Amendment 13. Furthermore, the objective for SNE/MA yellowtail flounder would not be met. The rebuilding for the SNE/MA yellowtail flounder stock ends in 2014, and failure to meet the object may undermine rebuilding of this stock.

Economic Impacts

If the Preferred Alternative remains in effect for the entire 2009 FY, it would result in an overall reduction in total trip revenue for commercial vessels of about 9 percent, or approximately $ 17.4 million. The impact on a vessel's total revenue would vary depending on the vessel's dependence on groundfish and port, with the greatest reductions for Massachusetts and Maine vessels (12% and 12%, respectively). The estimated reduction in total revenue to New Hampshire port vessels was 10%, and was 9% for Connecticut home port vessels. In all other states, the expected reduction ranged from 1% in New Jersey to 6% in Rhode Island. Vessels with high dependence on groundfish trip revenue may be expected to be more adversely affected by the Preferred Alternative than less dependent vessels. For vessels with a low dependence on groundfish, even the Amendment 13 default reduction in DAS may not result in a large reduction in total revenue. It is the combination of where vessels fish and higher dependence on groundfish trip income that results in the highest impacts on fishing revenue. The relative distribution of adverse impacts differed between states that border the Gulf of Maine (GOM) (Maine, New Hampshire, and Massachusetts) and those that do not. Adverse revenue impacts on home port vessels from New York, Connecticut, and Rhode Island were approximately half that of vessels from Maine, Massachusetts or New Hampshire at intervals below the 80^{th} percentile.

In relative terms, the Preferred Alternative would have similar impacts among commercial vessels of different sizes. Among the most affected vessels (the 20% that would experience the greatest impacts), the adverse impact on small and medium-sized vessels was less than for large vessels. For those vessels least affected by the Preferred Alternative, with respect to impacts by primary fishing gear, the reduction in total revenue was similar for vessels using gillnet or trawl gear. However, for those vessels more highly impacted by the Preferred Alternative, trawl gear impacts were higher than for either gillnet or hook gear vessels. For trawl vessels, an average to above average level of severity of impacts would mean a 12 to 17% reduction in total revenue, whereas gillnet and hook gear vessels would experience a 10 and 13% reduction, respectively. In addition to overall revenue decline, groundfish revenue (included in the estimate of overall revenue reductions) would decline approximately 15%, from $101 million to $86 million.

Although past experience suggests that realized revenue losses have been lower than estimated, the interim restrictions would make it more difficult for vessels to cover fixed costs on available groundfish trips and would place greater pressure on vessels to earn additional income from non-groundfish fishing opportunities. The proposed action would implement some mitigating measures but not all vessels would be able to take advantage of these opportunities and some would still require financial outlays that may not be supportable given the reduced fishing opportunities that would be available.

The No Action alternative would result in a reduction of total revenue of 8 percent ($13 million), with a reduction in groundfish revenue of 12% ($12 million). Vessels with high dependence on groundfish trip revenue may be expected to be more adversely affected by the No Action alternative than less dependent vessels. The No Action alternative would have very similar impacts on vessels of different size, and vessels using trawls, gillnets, and hooks. Because the No Action alternative would not include mitigation measures, there would be revenue loss in addition to that analyzed by the CAM (i.e., greater than $13 million).

An evaluation of the number of DAS a vessel needs to break-even in the New England groundfish fishery was conducted using data from several sources. Break-even DAS are defined as the number of Category A DAS needed to cover annual fixed costs. Fixed-cost data were collected from a sample of permit holders surveyed during 2007 and 2008. Based on a review of the fixed-cost data received during 2007 and 2008, the cost burden varied widely with some vessels incurring higher costs than others. These costs also depended on the type of gear used and vessel size. These differences have implications for the minimum number of DAS that would be needed in order to break-even, i.e., to cover all fixed costs over and above operating costs. Estimated break-even DAS where highest for otter trawl vessels more than 75 feet in length that also had high fixed costs. The number of DAS required to break even depends upon a vessel's dependence upon groundfish. Many vessels cannot break-even on their DAS allocations alone and rely on the DAS Leasing Program to acquire the additional DAS needed to remain profitable. It is likely that many vessels will find themselves with allocations that are below their break-even needs and the number of DAS available to lease will not likely be sufficient to meet demand. The precise number will depend upon the number of DAS used in the differential DAS areas and the number of carry-over DAS. The break-even analysis suggests that larger vessels have higher fixed costs than smaller vessels, and their ability to lease DAS may be the difference between continued viability and financial failure.

The interim recreational measures would affect both private recreational anglers and operators of party/charter vessels. The total number of private recreational anglers affected by the prohibition on the rentention of SNE winter flounder is likely to be relatively small. The impact of extending the closed season for recreational caught GOM cod is difficult to predict due to the highly variable catch during the month of April. Reducing the size limit for haddock would increase the number of opportunities to keep haddock on all fishing trips. Of the 92 federally permitted charter/party vessels that reported keeping cod, haddock, or winter flounder, approximately one third would be affected by one or more of the proposed measures. Party/charter receipts may be expected to be reduced by approximately 6 percent. The implementation of a 10 fish per person GB cod bag limit for charter/party vessels, and the extension of the existing seasonal closure for GOM cod would reduce total recreational harvests by 10 percent and 20 percent, respectively.

Including declines in sales by party/charter and commercial fishing vessels, the economic impact of the proposed action was estimated to be $21.4 million during FY 2009. The impact on the commercial fishery was estimated to be approximately $17.4 million.

The overall economic impact of the FY 2009 U.S./Canada TACs will likely be similar or slightly negative, compared to the economic impacts of the TACs specified for FY 2008. The specification of the proposed U.S./Canada TACs would result in a similar, or slightly reduced level of income from trips into the U.S./Canada Management Area. The FY 2009 cod, and yellowtail flounder TACs represent a decrease from the FY 2008 TAC levels. The changes in TAC reflect changes in stock size and the U.S. percentage share.

As in years past, the net amount of fish landed will likely be constrained by the GB yellowtail or cod TACs. The amount of fish landed and sold may be reduced further as a result of discards. In addition, reductions to the value of the fish may result from fishing derby behavior and the potential impact on markets. If the status quo TACs were adopted for FY 2009, the potential harvest of cod and yellowtail flounder may be more than the recommended TACs for these stocks, based on the shared harvest strategy, and result in a gain of potential economic benefits. However, the long-term economic impacts of the status quo TACs would likely be negative compared to the impacts of the proposed TACs.

Under the No Action alternative, if no hard TAC levels are implemented, the potential harvest of cod, haddock and yellowtail flounder could exceed the level of harvest that has been recommended for these stocks, based on the shared harvest strategy, and could result in increased risk that the fishing mortality objectives are compromised. If fish are abundant in the U.S./Canada Management Area, there may be higher economic returns when compared with the proposed TACs because it would be possible to harvest GB cod, haddock and yellowtail flounder in greater amounts. However, if such harvest levels are associated with an increased risk that the fishing mortality objectives are compromised, the long term economic gains could be reduced.

Although unlikely, a downward adjustment to the amount of TACs specified for FY 2009 could occur after the start of the fishing year if it is determined that the U.S. catch of one or more of the shared stocks during FY 2008 exceeded the relevant TACs specified for FY 2008.

The principal effort reduction measures may reduce monkfish fishing effort due to the requirement that limited access monkfish Category C and D vessels that also hold a NE multispecies DAS permit use a NE multispecies DAS in conjunction with a monkfish

DAS. However, the measure to expand the scope of the use of monkfish only DAS due to the restrictions of the differential DAS areas would mitigate the impact of the groundfish measures on the monkfish fishery.

The Preferred Alternative would have a negative economic impact on the skate fishery. The Interim SNE Differential DAS Area may have a greater negative impact on the skate bait fishery than the skate wing fishery, because the The Interim SNE Differential DAS Area encompasses the bulk of the area fished in the skate bait fishery.

The expansion of the Closed Area I Hook Gear Haddock SAP, continuation of the Eastern U.S./Canada Haddock SAP, and modifications to the Regular B DAS Program, the DAS Leasing Program and the DAS Transfer Program would provide additional flexibility for vessels to help mitigate the negative economic impacts of the FMP.

The reductions in fishing mortality accomplished by this action would, in large measure, implement the necessary fishing mortality reductions required for the 2009 fishing year to eliminate overfishing and comply to a large degree with the FMP rebuilding plans. The impacts on regulated and non-regulated groundfish stocks, endangered and other protected species and habitat are not significant. However, impacts on human communities in the short-term are expected to be significant. Overall, the impact of this action will not be significant. A net positive impact on the NE multispecies stocks is anticipated.

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ALWTRP	Atlantic Large Whale Take Reduction Plan
CFR	Code of Federal Regulations
Council	New England Fishery Management Council
CZMA	Coastal Zone Management Act
DAS	Days-at-Sea
DPS	Distinct Population Segment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
ESA	Endangered Species Act
F	Fishing Mortality Rate
FMP	Fishery Management Plan
FSEIS	Final Supplemental Environmental Impact Statement
FW	Framework Adjustment
GB	Georges Bank
GOM	Gulf of Maine
HAPC	Habitat Area of Particular Concern
MMPA	Marine Mammal Protection Act
MA	Mid-Atlantic
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAO	NOAA Administrative Order
NE	Northeast
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
PDT	Plan Development Team

RMA	Regulated Mesh Area
SAP	Special Access Program
SBA	Small Business Administration
SFA	Sustainable Fisheries Act
SNE	Southern New England
TAC	Total Allowable Catch
TMGC	Transboundary Management Guidance Committee
TRAC	Transboundary Resources Assessment Committee
VEC	Valued Environmental Component
Understanding	U.S./Canada Resource Sharing Understanding

3.0 Background

The primary statute governing the management of fishery resources in the U.S. EEZ is the Magnuson-Stevens Act. In New England, the Council is responsible for developing FMPs that comply with the Magnuson-Stevens Act and other applicable laws. Section 303 of the Magnuson-Stevens Act requires that each FMP contain management measures that prevent overfishing and rebuild overfished stocks. Overfishing is occurring when the fishing mortality on a particular stock exceeds the fishing mortality threshold. A stock is overfished if the stock biomass is below the biomass level of a fully rebuilt stock, which is the biomass that can produce maximum sustainable yield (MSY), generally ½ B_{MSY} or its proxy. These status determination criteria are defined for each stock managed by a FMP and are used to evaluate the success of a management program.

The NE Multispecies FMP specifies the management measures for 12 species in Federal waters off the New England and Mid-Atlantic coasts, which are defined as Atlantic cod, haddock, yellowtail flounder, pollock, American plaice, witch flounder, white hake, windowpane flounder, Atlantic halibut, winter flounder, ocean pout, and redfish, comprising a total of 19 individual stocks. This FMP was originally implemented in 1977 and has continued to evolve through a series of framework adjustments and amendments (implemented through Federal regulations) that have implemented management measures in an attempt to prevent overfishing and rebuild overfished stocks.

A major overhaul of the FMP occurred in 2004 with the implementation of Amendment 13. Amendment 13 implemented substantial fishing effort reductions, special management programs designed to mitigate the negative economic and social impacts of the effort reductions, and established rebuilding programs for all stocks managed by the FMP (including specification of status determination criteria for all of the stocks managed by this FMP to fully comply with the Magnuson-Stevens Act).

Amendment 13 established two different strategies for rebuilding, and the rebuilding plan for each overfished stock was developed in accordance with one of the two strategies. Under the Amendment 13 "adaptive" rebuilding strategy fishing mortality is held at Fmsy through 2008, and then subsequently reduced to the level required to rebuild by the selected end date of the rebuilding period. Under the Amendment 13 "phased" rebuilding strategy, fishing mortality was allowed to remain above Fmsy at the start of the rebuilding period, and then reduced sequentially in 2006 and 2009. The rebuilding period for all stocks is 2014, with the exception of GB cod (2026), Cape Cod (CC)/GOM yellowtail flounder (2023), and redfish (2051). In order to implement these rebuilding strategies, Amendment 13 included default management measures for 2006 and 2009 designed to reduce fishing mortality on certain stocks and established criteria to determine conditions under which the default measures would not be triggered. The default measure for 2009 is a modification to the Category A DAS and Category B DAS ratio from 55: 45, to 45: 55 (respectively). This decrease in the amount of A DAS represents an 18.2 percent decrease in the number of A DAS a vessel may fish. Amendment 13 noted the challenge of implementing the rebuilding program due to the difficulty of designing effort controls that will precisely achieve the desired fishing mortality reductions for all stocks.

Lastly, Amendment 13 also implemented a process whereby the NE multispecies complex is routinely evaluated through a biennial adjustment. This adjustment process provides an update of the scientific information on the status of the stocks and an evaluation of the effectiveness of the regulations. The FMP further specified a benchmark stock assessment and review of the biological reference points (stock status determination criteria) in 2008. This planned assessment of the biological reference points (in 2008) was part of the adaptive rebuilding strategy for seven stocks (GOM cod, GB haddock, GOM haddock, SNE/MA winter flounder, redfish, windowpane flounder (southern stock), and ocean pout). The adaptive rebuilding strategy was developed to take into account biological and management uncertainty by providing a full evaluation in 2008, of both the effectiveness of the management measures as well as the validity of the biological information.

Based on an assessment in 2005 (GARM II), which updated the estimates of biomass and fishing mortality, the Council developed Framework Adjustment 42, the scheduled 2006 biennial adjustment. FW 42 was implemented in November 2006 to further reduce fishing mortality on six stocks and included the scheduled reduction in DAS.

The Council began developing Amendment 16 in 2006, based on the required fishing mortality reductions of the rebuilding plans and the anticipation that new scientific information (from GARM III) would indicate that additional fishing mortality reductions may be necessary for 2009 in order to continue rebuilding at the required rate. Thus, the Council is currently developing management measures that would replace the default DAS reductions and reduce fishing mortality to the levels necessary to rebuild the stocks in the appropriate period.

The second scheduled stock assessment, GARM III, was a more extensive benchmark assessment completed in August, 2008. GARM III evaluated the underlying data and models utilized for assessment of the groundfish stocks, evaluated the biological reference points (status determination criteria) and established new reference points; assessed the biomass and fishing mortality status of the groundfish stocks in 2007 and provided examples of fishing mortality rates that would rebuild stocks.

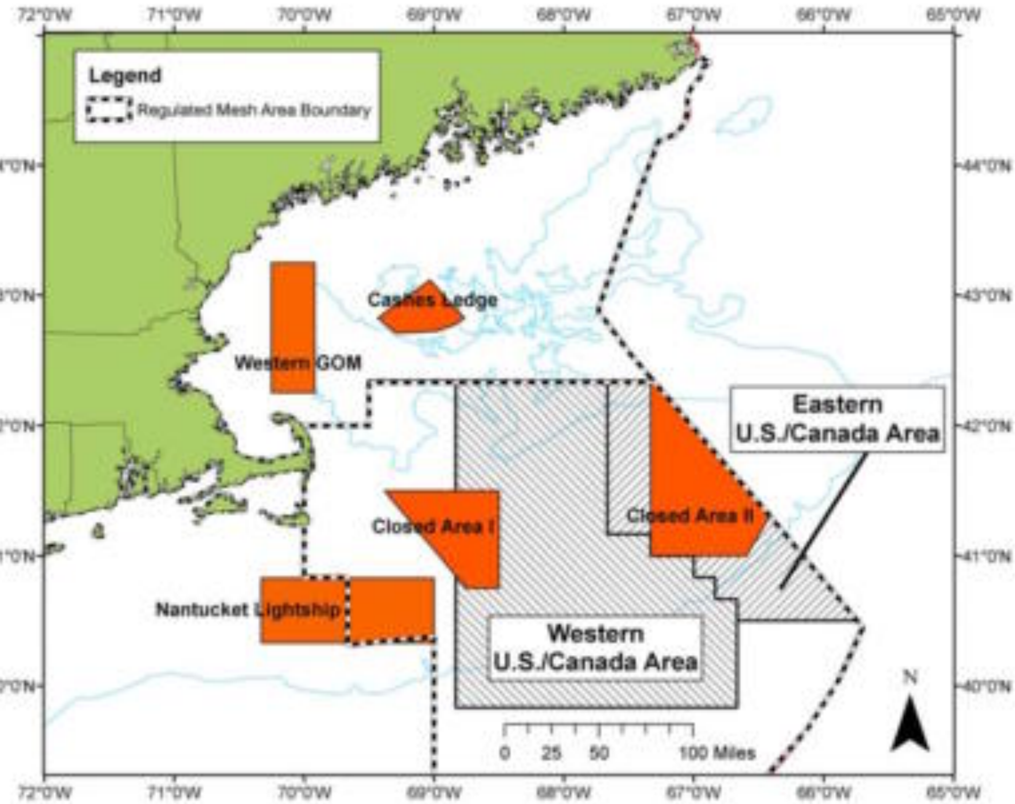
A transboundary stock is one whose distribution spans the boundary between Canada and the U.S., and for which there can be migration across the boundary. It was recognized that coordinated efforts to manage transboundary stocks would result in enhanced management and utilization of resources by both countries. In 1998, the Transboundary Resource Assessment Committee (TRAC) was formed with representatives from both the U.S. and Canada to conduct joint stock assessments for Eastern GB cod, Eastern GB haddock, and GB yellowtail flounder between the two countries in order to ensure that management was based upon the best available, combined information. More information on the TRAC may be found on the internet at the following address: http://www.mar.dfo-mpo.gc.ca/science/TRAC/trac.html. Subsequently, a management advisory process was developed, and a second committee was formed, with members from the U.S. and Canada, to provide non-binding guidance to each country (Transboundary Management Guidance Committee); (TMGC). More information on the TMGC may be found on the internet at the following address: http://www.mar.dfo-mpo.gc.ca/science/tmgc/TMGC-e.html.

Background

It was recognized by both Canadian and U.S. managers that the independent conservation actions taken by each country could be compromised by other management actions that were not coordinated, and could result in reduced benefits to both countries. Therefore, an informal agreement (Understanding) was developed to achieve consistency of management efforts (Development of a Sharing Allocation Proposal for Transboundary Resources of Cod, Haddock, and Yellowtail Flounder on Georges Bank; Transboundary Management Guidance Committee; January 2002). The Understanding outlines a process for the management of the shared GB groundfish resources and specifies an allocation of TACs for these three stocks for each country based on a formula that considers historical catch percentages and current resource distribution.

In May 2004, Amendment 13 to the FMP implemented a large number of new management measures, including measures designed to implement the Understanding (50 CFR 648.85(a)). The specific intent of such management measures was to constrain catches of the three shared stocks by U.S. vessels to ensure that the catch does not exceed the U.S. allocations (i.e., the Amendment 13 regulations in support of the Understanding included the definition of the Western U.S./Canada Area and the Eastern U.S./Canada Area, hard TACs, monitoring requirements, reporting requirements, trip limits, and administrative measures). In U.S. waters, the shared stock of GB yellowtail flounder is located in both the Western U.S./Canada Area and the Eastern U.S./Canada Area, while the shared resources of cod and haddock are found in the Eastern U.S./Canada Area (Figure 1).

Figure 1. U.S./Canada Management Areas and Year-Round NE Multispecies FMP Closed Areas (Habitat Closure Areas not depicted).



Annual TACs are determined through a process involving the Council, the TMGC, and the U.S./Canada Transboundary Resources Steering Committee (50 CFR 648.85(a)(2)(i)). The agreed upon 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 implementation of Amendment 13 and utilization of the process outlined in the Understanding resulted in the specification of hard TACs for GB cod, haddock, and yellowtail flounder for the 2004 through 2008 fishing years.

The primary intent of this action is to reduce fishing mortality by implementing management measures that as much as practicable, build upon the default measures and include major elements of the Council's Amendment 16 alternatives (management tools that the FMP lists as frameworkable measures). This strategy is intended to provide consistency with Council intent and minimize disruption in the groundfish fishery that would result from implementing management measures outside the scope of Council consideration. Measures that are similar to Amendment 16 would ensure industry understanding and compliance with these measures, enable NMFS to administer such short-term measures, and allow vessels to adapt to follow-up measures implemented by Amendment 16. Further, it is important that NMFS can enforce and administer the Interim measures, and that such measures be simple and fair. The management measures of the Interim Action would be more narrowly focused than the Council's Amendment 16 action, which contains other management measures in addition to those designed to reduce fishing mortality.

The Preferred Alternative would supplement the default DAS reduction measures with additional management measures to eliminate overfishing on all stocks except four (northern windowpane flounder, witch flounder, pollock, and GB cod). If NMFS were to take no action for the 2009 fishing year, the failure to reduce or prevent overfishing while the Council completes Amendment 16, would result in higher fishing mortality rates and would require even more stringent future measures, with more severe economic and social consequences.

Secondly, this Interim Action is intended to implement measures that would mitigate some impacts of the restrictive management measures of the FMP by providing additional fishing opportunity and flexibility to the fishery, as explained below. Those mitigation measures are a subset of some of the mitigation measures proposed in Amendment 16.

Specifically, the Secretarial Interim action that is the subject of this Environmental Assessment would put in place a suite of relatively simple, short-term management measures that are intended to further reduce fishing mortality on twelve groundfish stocks and modify special management programs (the DAS Transfer Program, DAS Leasing Program, Regular B DAS Program, Closed Area I Hook Gear Haddock SAP, and the Eastern U.S./Canada Haddock SAP) in order to provide flexibility to the groundfish fishery, mitigate negative economic impacts of the FMP, and respond to revised scientific information. The stocks for which the management measures are designed are the following: GOM cod, GB cod, CC/GOM yellowtail flounder, GB yellowtail flounder, SNE/MA yellowtail flounder, witch flounder, GOM winter flounder, SNE/MA winter flounder, pollock, Atlantic halibut, and the northern and southern stocks of windowpane flounder. As is more fully discussed later in this document, these measures would result in both quantifiable and non-quantifiable reductions in fishing mortality for all of the NE multispecies stocks managed under the FMP.

Also, as explained in more detail in subsequent sections of this document, the specific biological objectives, management measures, and analyses of this Environmental Assessment are based upon the existing FMP, current regulations, the most recent scientific information, draft Amendment 16 information, and the work of the Council's Plan Development Team (PDT). Although the numeric values of the biological objectives differ from Amendment 13, because they have been revised based upon best available scientific information, the rebuilding timelines and strategy established in the FMP by Amendment 13 and Framework Adjustment 42 have not been changed, and represent one of the three elements that determine the overall biological goals (the other two elements being MSA and GARM III). Table 4 contains information of stock status and rebuilding periods.

Table 4. GARM III Stock Status Information, 2007, and Rebuilding Period End Dates of FMP.

Species	Stock	F 2007/Fmsy	B 2007/Bmsy	Rebuilding Period End
Cod	GB	1.2	0.12	2026
	GOM	1.9	0.58	2014
Haddock	GB	0.49	2.05	2014
	GOM	0.8	0.99	2014
Yellowtail Flounder	GB	1.1	0.22	2014
	SNE/MA	1.6	0.13	2014
	CC/GOM	1.7	0.25	2023
American plaice		0.5	0.51	2014
Witch flounder		1.5	0.30	na
Winter flounder	GB	1.1	0.31	na
	GOM	1.5	0.29	na
	SNE/MA	2.6	0.09	2014
Redfish		0.1	0.64	2051
White hake		1.2	0.35	2014
Pollock		1.2	0.45	na
Windowpane flounder	North	3.9	0.38	na
	South	1.3	0.62	2014
Ocean pout		0.5	0.10	2014
Atlantic halibut		0.9	0.03	unknown

* Pollock and windowpane flounder information was revised subsequent to GARM III in order to utilize 3 yr averages, and incorporate the fall survey data for pollock;
n/a indicates no rebuilding plan yet.

Lastly, this action would implement the annual TAC levels for the U.S./Canada Management Area for 2009, as required under the FMP, delay the opening of the Eastern U.S./Canada Area, set an initial trip limit for GB yellowtail flounder, and authorize the use of the Ruhle trawl in the Eastern U.S./Canada Area. The FMP specifies a procedure for setting annual hard TACs for Eastern GB cod, Eastern GB haddock, and GB yellowtail flounder. The regulations governing the annual development of hard TACs (50 CFR 648.85(a)(2)) were implemented by Amendment 13 to the FMP (69 FR 22906, April 27, 2004) in order to be consistent with the Understanding.

Specification of TACs is needed to ensure that the transboundary resources of GB cod, haddock, and yellowtail flounder that are shared between the U.S. and Canada, are managed in a consistent manner, as outlined in the Understanding. The Understanding specifies an allocation of TAC for these three shared resources for each country, based on a formula that considers historical catch percentages and current resource distribution. The purpose of this action is to implement TACs for these three resources that will be consistent with the Understanding and the FMP in order to enhance the management and utilization of the resources.

Although NMFS typically analyzes the U.S./Canada TACs recommended by the Council in a stand-alone Environmental Assesment annually, because NMFS is proposing Interim Action for FY 2009, an analysis of these TAC, as well as the measures proposed for FY 2009 is included in this environmental assessment.

The Interim measures are designed to work in conjunction with the current FMP to achieve the majority of the fishing mortality requirements of the FMP. The analysis of this action presumes a subsequent management action (Amendment 16) will be implemented by May 1, 2010.

The background described above summarizes most of the pertinent milestones in the recent fishery. Further, there have been some recent developments in the fishery resulting from a lawsuit that may impact fishing mortality during the 2008 fishing year. On November 21, 2006, the Commonwealth of Massachusetts and the State of New Hampshire filed a legal challenge of FW 42 and requested that it should be vacated on the basis that it violated several provisions of the Magnuson-Stevens Act, including National Standard 1. With respect to the National Standard 1 challenge, plaintiffs alleged that the Agency did not adequately consider the applicability of the mixed-stock exception in approving FW 42. As a result, plaintiffs claim that FW 42 measures, such as the 2:1 DAS counting provision, was overly strict.

On January 26, 2009, the U.S. District Court, District of Massachusetts, in the case of Commonwealth of Massachusetts and State of New Hampshire v. Carlos M. Gutierrez (Civil Action No. 06-12110-EFH), issued a Memorandum and Order that temporarily suspended FW 42, "pending serious consideration and analysis" of the mixed-stock exception.

On February 2, 2009, the Secretary of Commerce filed two motions: A motion to alter or amend the Court's Order to lift the suspension of the FW 42 measure; and a motion to stay the temporary suspension of FW 42 pending resolution of the motion to alter or amend. On February 2, 2009, the Court denied the Secretary's motion to stay.

On February 13, 2009, the Commonwealth of Massachusetts and State of New Hampshire opposed, in part, the Secretary's February 2, 2009, motion to alter or amend and asked the Court to modify its Order by reinstating all FW 42 measures, except differential DAS counting (2:1 counting of DAS) in the GOM. The plaintiffs also requested that the March 1, 2009, deadline for submitting DAS leasing application to NMFS be extended by 30 days.

On February 17, 2009, the U.S. District Court of Massachusetts issued a second Order granting, in part, the Secretary's February 2, 2009, motion to alter or amend. Specifically, the February 17, 2009, Court Order reinstated FW 42, with the exception of 2:1 differential DAS counting and specified that differential DAS counting should remain suspended for 38 days from the date of the Order; i.e., through March 27, 2009. In addition, the Court ruled that the March 1, 2009, deadline for submitting applications for the DAS Leasing Program be extended by 30 days, i.e., March 31, 2009.

On February 19, 2009, NMFS filed an analysis of the mixed-stock exception with the Court which essentially concluded that this exception was not a viable alternative to consider or to implement in FW 42 because it could not be shown, in either the 1998 and 2009 National Standard 1 guidelines, that the threshold criterion regarding rebuilding programs specified for the mixed-stock exception would have been met.

On February 23, 2009, the Court issued a third Order, extending the suspension of differential DAS counting through April 10, 2009, to allow the Council time to review NMFS analysis of the mixed-stock exception, as submitted to the Court on February 19, 2009, as submitted to the Council during its regularly scheduled April 2009 meeting.

In response to the February 17, 2009, and February 23, 2009, Court Orders, NMFS, through a final interim rule (74 FR 10513; March 11, 2009) temporarily suspended the FW 42 differential DAS counting regulations through April 10, 2009, and extended the fishing year 2008 March 1 deadline for submission of DAS leasing applications to March 31. The potential impact on fishing effort will affect calendar year 2009 data for future actions.

3.1 Purpose and Need for Action

In order to comply with the requirements of the FMP, the Council worked on the development of Amendment 16 on a schedule that would enable implementation on May 1, 2009, however, based on the status of development, and the stock assessment schedule, the schedule for Amendment 16 development was modified. At the Council meeting on June 3, 2008, the NEFSC presented preliminary estimates of stock size and fishing mortality in 2006. Based on this information, the NEFSC expressed concern that the draft effort control measures under development for Amendment 16 may not be targeting the correct stocks. Based on this preliminary information, the Council decided to wait until the final GARM assessment results were received in September 2008, to design appropriate management measures and hold public hearings. This delay, in combination with the Council's request that NMFS implement an Interim Action for the entire 2009 FY, results in a revised implementation date for Amendment 16 of May 1, 2010.

Based on data from GARM III, modifications to the FMP are necessary to reduce or eliminate overfishing, and to continue rebuilding at the rate necessary to comply with the rebuilding schedules. Because the FMP requires that necessary fishing mortality reductions be implemented on May 1, 2009, and the Council's revised schedule of Amendment 16 development would result in implementation of measures after May 1, 2009, an interim action is required starting May 1, 2009, in order to reduce fishing mortality in a timely manner. Thus the proposed Secretarial Interim Action would implement the revised stock status determination criteria and management measures to reduce overfishing during the interim period.

For several groups of alternatives (e.g., Section 7.0, Specifications for Fishing Year 2009; Section 8.0, Measures for the Recreational Fishery to Reduce Fishing Mortality; and Section 9.0, Mitigating Measures) only the action and no action alternatives were considered. While in some instances, these were the only two reasonable options because this is a short-term interim action, it was also important that the alternatives be relatively simple measures designed to work in conjunction with the current FMP and measures anticipated for Amendment 16, as well as designed to be easily implemented.

Section 305(c) of the Magnuson-Stevens Act authorizes the Secretary to amend an FMP if the fishery requires conservation and management and if the appropriate Council fails to develop and submit to the Secretary any necessary amendment to a fishery management plan. Further, the Secretary may prepare proposed regulations as necessary and appropriate to carry out the amendment prepared by the Secretary. NMFS promulgated guidelines to further clarify how this authority should be interpreted (63 FR 24212; May 1, 1998). The Secretary, on his/her own initiative may implement interim measures to reduce overfishing under section 305(c), until such measures can be replaced by an FMP amendment or regulations taking remedial action. The measures may remain in place for 180 days, but may be extended for an additional 186 days if the public has had an opportunity to comment on the measures. Although the primary purpose of the proposed measures is to reduce overfishing, this action proposes mitigation measures in compliance with the other national standards. Further, mitigation measures are intended to provide flexibility for vessels and therefore facilitate compliance with regulations.

3.2 Development of Alternatives

This document analyzes four alternatives (and the No Action Alternative) that are largely based on management measures used by the Council when developing the original Amendment 16 alternatives. The Council's Amendment 16 alternatives were developed by the PDT and the Council's Groundfish Oversight Committee to achieve the required fishing mortality reductions specified in the rebuilding plan of the FMP. The alternatives rely principally upon the tools utilized in the FMP to restrict fishing effort (DAS restrictions, trip limits)

In a manner similar to the PDT, NMFS developed alternatives through the iterative analysis of many management measures in the attempt to develop alternatives that achieve the required fishing effort reductions on particular stocks, while minimizing fishing effort reductions on other stocks. Due to the 'broad brush' nature of DAS reductions, closed areas, and differential DAS areas, as well as the multispecies nature of the fishery, in order to achieve the necessary fishing mortality reductions for all stocks, management alternatives, unfortunately result in a substantial reduction of fishing effort for stocks that need little or no reduction in fishing effort. During the development of alternatives, the Closed Area Model (CAM) was used to estimate the reductions in exploitation that may result for each stock. NMFS then evaluated the alternative using the criteria of achieving the necessary reduction in fishing mortality (but not reducing F too far), and minimizing fishing effort reductions on other stocks. If a particular combination of management measures does not achieve the necessary reductions for a particular stock(s), or excessively reduces fishing mortality on other stocks, measures were modified and reanalyzed using the CAM. The premise behind this process is that if management measures result in fishing mortality reductions in excess of what is required, it would result in a loss of potential yield, and lower revenue and, therefore, should be avoided. In that sense, the preliminary CAM analyses and development of the alternatives take into consideration both biological and economic considerations.

The process used by NMFS to develop the alternatives was similar to that utilized by the PDT, which is an iterative approach that analyzes and evaluates combinations of management measures in an attempt to develop an alternative that achieved the required fishing effort reductions on particular stocks, while minimizing fishing effort reductions on other stocks. The preferred alternative was based upon utilization of both DAS reductions, trip limits, and differential DAS to achieve the required fishing mortality reductions, rather than rely heavily on one particular effort reduction tool. In addition, the Preferred Alternative was selected because the analysis indicated that its measures would result in less economic impacts, while still substantially reducing fishing mortality in the FMP.

A proposed rule was published in the Federal Register on January 16, 2009 (74 FR 2959), that solicited public comments through February 17, 2009. The Preferred Alternative as originally analyzed in the Draft EA dated November 18, 2008, was modified based on public comment and additional analyses.

4.0 Analytical Foundation

4.1 Stock Status Determination Criteria

4.1.1 No Action

In accordance with the Magnuson-Stevens Act, the FMP currently has objective, measurable criteria with which to determine the status of stocks under its purview. Under the No Action alternative, the Amendment 13 status determination criteria of the FMP (maximum fishing mortality threshold, and minimum biomass threshold), as well as other important parameters (maximum sustainable yield and optimum yield) would be maintained, and would therefore not incorporate the most recent scientific information developed by GARM III. The Amendment 13 status determination criteria parameters, and numerical estimates of the status determination criteria, are found in Tables 2 and 4 of the Amendment 13 SEIS document.

4.1.2 Preferred Alternative

GARM III revised status determination criteria for the stocks in the FMP, based upon benchmark stock assessment models and recent data through 2007. Most of the GARM III biomass reference points are lower and fishing mortality reference points higher than those determined in GARM II. The Magnuson-Stevens Act requires that every fishery management plan specify "objective and measurable 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. As explained above in the Background section of this document, the FMP implemented status determination criteria in 2001 (Amendment 13), and the FMP rebuilding strategy includes the 2007 evaluation of status determination criteria.

Although the FMP states that the Council will formally adopt both the parameters for the biological reference points and, for the 2009 adjustment, the numerical estimates of these parameters, this alternative would adopt such parameters and values for the 2009 FY. This alternative would incorporate the revised status determination criteria in order to be consistent with the FMP and MSA, which requires that conservation and management measures shall be based upon the best scientific information available. The process described by the FMP presumes that adoption of revisions to the biological reference points would coincide with revisions to the FMP management measures. Formal adoption by NMFS makes the record clear that this proposed action would be based upon the best available science.

The GARM III biological reference points adopted by this action are identified in Table 5. The parameters that form the basis of the values are described in the GARM III documents and subsequent corrections and can be found on the internet at the following address: http://www.nefsc.noaa.gov/nefsc/publications/crd/crd0815/.

Table 5. Proposed Biological Reference Point Values

Species	Stock	Fmsy or Proxy	Bmsy or Proxy (mt)	MSY (mt)
Cod	GB	0.25	148,084	31,159
	GOM	0.24	58,248	10,014
Haddock	GB	0.35	158,873	32,746
	GOM	0.43	5,900	1,360
Yellowtail flounder	GB	0.25	43,200	9,400
	SNE/MA	0.25	27,400	6,100
	CC/GOM	0.24	7,790	1,720
American plaice		0.19	21,940	4,011
Witch flounder		0.20	11,447	2,352
Winter flounder	GB	0.26	16,000	3,500
	GOM	0.28	3,792	917
	SNE/MA	0.25	38,761	9,742
Redfish		0.04	271,000	10,139
White hake		0.13	56,254	5,800
Pollock		5.66 c/i	2.00 kg/tow	11,320
Windowpane	North	0.50 c/i	1.40 kg/tow	700
	South	1.47 c/i	0.34 kg/tow	500
Ocean pout		0.76 c/i	4.94 kg/tow	3,754
Atlantic halibut		0.07	49,000	3,500

c/i = catch (mt)/survey index (kg/tow).

4.2 Fishing Mortality Targets for Formal Rebuilding Programs

4.2.1 No Action

In accordance with the Magnuson-Stevens Act, the FMP currently has formal rebuilding programs (implemented by Amendment 13, and Framework Adjustment 42 for GB yellowtail flounder) that specify the estimated fishing mortality rates (by stock and year) necessary to rebuild the stocks according to the pertinent rebuilding strategy and timeline. These fishing mortality rates are requirements of the FMP, and work in conjunction with the biennial review process and stock assessments described in Amendment 13. Under the No Action alternative, the fishing mortality targets of the rebuilding program would remain as previously implemented, and not be revised to incorporate the most recent scientific information developed by GARM III. The fishing mortality rates for the rebuilding program are found in Table 10 of the Amendment 13 SEIS, and Table 3 of Framework Adjustment 42.

4.2.2 Preferred Alternative

Amendment 13 and Framework Adjustment 42 implemented formal rebuilding programs for overfished groundfish stocks, including target fishing mortality levels that would achieve stock rebuilding within the specified rebuilding time period. Because GARM III revised the biological reference points and the 2007 stock status determination for the majority of stocks, and the current status of stocks is different from the understanding of stock status based on GARM I, it is necessary to utilize new fishing mortality targets that are appropriate to the revised stock status. This alternative would utilize the revised biological reference points as the basis for developing fishing mortality targets in order to be consistent with National Standard 2, which requires that conservation and management measures shall be based upon the best scientific information available.

New rebuilding plans for those stocks not previously under a rebuilding plan, but which need a rebuilding plan based on the most recent science (windowpane flounder (northern stock), pollock, GB winter flounder, witch flounder) are not proposed because this action focuses on addressing the fishing mortality reductions for FY 2009. NMFS anticipates that Amendment 16 would adopt new rebuilding plans as identified by results from GARM III, which would comply with the timing requirements of the MSA. For these 4 stocks, the fishing mortality target of the Interim Action is Fmsy.

For those five stocks that are either rebuilt (GB haddock) or for stocks currently in a rebuilding program where Fmsy rebuilds the stock (GOM haddock, GOM cod, American plaice, redfish) the fishing mortality target for the interim action is Fmsy. In other words, for these stocks which are currently in rebuilding programs, Fmsy is the appropriate target fishing mortality rate because Fmsy is lower than F rebuild, and the stocks are projected to rebuild to Bmsy within their rebuilding periods.

For stocks currently under rebuilding programs (GB yellowtail, SNE yellowtail, CC yellowtail, SNE winter flounder, white hake) and for which the fishing mortality required to rebuild the stock (Frebuild) is less than Fmsy, the target is Frebuild (with the exception of GB cod).

Lastly, for GB cod, Fmsy will be the fishing mortality target for this stock during the interim period. Although the fishing mortality rate required to rebuild the stock is 25 percent lower than Fmsy, NMFS believes that Fmsy is appropriate for the Interim Action for the following reasons: The two stock assessments that pertain to GB cod (GARM III for the entire stock; TRAC 2008 for the eastern portion of the stock) are difficult to reconcile, with the assessment of the size of the overall stock relatively low and the assessment of the size of the Eastern portion of the stock relatively high. In light of this uncertainty, the fact that the fishing mortality of the Eastern portion of the stock is strictly controlled through a hard TAC, and the limited scope of this action, this alternative adopts Fmsy as the appropriate objective for GB cod. Furthermore, there would be additional losses in yield for other GB stocks that would be associated with more restrictive management measures.

4.3 New Stock Rebuilding Plans

4.3.1 No Action/Preferred Alternative

Under the No Action alternative, no new rebuilding plans would be implemented by this action. Stocks that do not currently have a rebuilding plan, but for which a rebuilding plan is required based on the recent information in GARM III, will not have a rebuilding plan implemented by this action. This alternative presumes that any necessary rebuilding plans would be proposed by the Council in Amendment 16, which is anticipated by May 2010. Under the current national standard guidelines, Magnuson-Stevens Act requires that the Council take remedial action within 1 year of the time the Secretary identifies that a stock is overfished. The Amendment 13 rebuilding programs are found in Table 10 of the Amendment 13 SEIS, and Table 3 of Framework Adjustment 42. The No Action alternative for new stock rebuilding plans is the Preferred Alternative.

4.4 Calculation of Frebuild and the Required Reductions in Fishing Mortality

GARM III provides example estimates of Frebuild, making assumptions about the rebuild period end dates, and the starting conditions at the beginning of the rebuilding period. GARM III assumed the catch in 2008 equals the catch in 2007 in calculating the Frebuilds. In contrast, for this Interim Action, an estimated catch in 2008 was used to recalculate the starting conditions in 2008 (F 2008), and the Frebuilds. For Amendment 16 (currently under development), the PDT estimated catch for the entire 2008 year based upon an extrapolation of landings data for calendar year 2008 through June. This Interim Action relies on the PDT's estimated landings for 2008 (Appendix A) and a derived estimate of fishing mortality for 2008 and the recalculated Frebuilds. The probabilities associated with the Frebuilds and rebuilding end dates are consistent with the current FMP. Stocks would rebuild with a 50 percent probability, with the exception of GB yellowtail flounder, which has a 75 percent probability. The end of the rebuilding period for all stocks is 2014, with the exception of GB cod (2026), CC/GOM yellowtail flounder (2023), and redfish (2051). Because the measures to be implemented by this action will begin in 2009, an estimate of fishing mortality in 2008 more closely represents the starting conditions of the remainder of the rebuilding periods. For GB yellowtail flounder, Frebuild was calculated utilizing an assumed catch in 2008 of 2,500 mt.

In a similar manner, in order to calculate the amount of reduction in fishing mortality required for pertinent stocks, the estimated fishing mortality in 2008 was considered as the starting condition. For example, in order to calculate the required fishing mortality reduction for the CC/GOM stock of yellowtail flounder, Frebuild (0.238) was compared to F 2008 (.289). An 18 percent reduction in fishing mortality is required to reduce fishing mortality from .289 in 2008 to achieve an Frebuild of .238 in 2009. Table 6 contains the proposed fishing mortality targets for the interim measures.

Table 6. Proposed Fishing Mortality Targets for Interim Measures

Species	Stock	Estimated 2008 Fishing Mortality	Target	Target Fishing Mortality	Percent Reduction in Fishing Mortality
Cod	GB	0.410	Fmsy	0.2466	-40%
	GOM	0.300	Fmsy	0.237	-21%
Haddock	GB	0.083	Fmsy	0.350	na
	GOM	0.250	Fmsy	0.430	na
Yellowtail flounder	GB	0.130	Frebuild	0.109	-16%
	SNE/MA	0.120	Frebuild	0.075	-38%
	CC/GOM	0.289	Frebuild	0.238	-18%
American plaice		0.099	Fmsy	0.190	na
Witch flounder		0.296	Fmsy	0.200	-32%
Winter flounder	GB	0.131	Fmsy	0.260	na
	GOM	0.317	Fmsy	0.283	-11%
	SNE/MA	0.265	Frebuild	0.000	-100%
Redfish		0.008	Fmsy	0.038	na
White hake		0.065	Frebuild	0.084	na
Pollock		11.5	Fmsy*	5.66	-51%
Windowpane	North	2.86	Fmsy*	0.50	-83%
	South	2.055	Fmsy*	1.47	-29%
Ocean pout			Fmsy	0.760	na
Atlantic halibut		0.060	Frebuild	0.044	-27%

* exploitation rate

The target reductions for pollock and the two windowpane flounder stocks were revised from the proposed rule in order to be consistent with the other stocks. In the proposed rule, the target reductions for all stocks except these three were based upon an estimate of fishing mortality in 2008. The target reductions for pollock and the two windowpane flounder stocks were based upon the fishing mortality in 2007. In contrast, for these three stocks, this final rule utilizes a starting fishing mortality estimate in 2008. Because the estimate of fishing mortality in 2008 was greater than for 2007, the effect of this change is an increase in the percentage reduction necessary to reduce fishing mortality to Fmsy. To determine the calculation of F in 2008, for pollock, the PDT calculated an assumed catch in 2008, and for the two windowpane flounder stocks, NMFS used the assumption that catch in 2008 was equal to the catch in 2007.

5.0 Measures for the Commercial Fishery to Reduce Fishing Mortality

5.1 No Action

Under the No Action alternative, no new measures would be implemented to reduce fishing mortality on the commercial fishery. The current regulations of the FMP would remain in place, including the default DAS reduction for 2009 that was promulgated under Amendment 13 to the FMP. The default measure for 2009 is a modification to the Category A DAS and Category B DAS ratio from 55:45, to 45:55 (respectively). This decrease in the amount of A DAS represents an 18.2 percent decrease in the number of A DAS a vessel may fish. Further, under the No Action alternative, the default measure would not be implemented if the status of the stocks met the criteria and conditions specified currently in the FMP. If these criteria and conditions implemented by Amendment 13 were met (based on GARM III information), it would mean that the default DAS reductions are not necessary, and that the stocks are in compliance with the Amendment 13 rebuilding plan. The essence of the criteria and conditions is that overfishing is not occurring on any stock and additional fishing mortality reductions would not be necessary to rebuild any stock. However, this exception to implementing the default DAS reduction was not met.

Under the No Action alternative, the GOM cod trip limit would remain at 800 lb/DAS up to 4,000 lb/trip; the CC/GOM and SNE/MA yellowtail trip limits would remain at 250 lb/DAS up to 1,000 lb/trip; the GB winter flounder trip limit would remain at 5,000 lb/trip; and the white hake trip limit would remain at 1,000 lb/DAS up to 10,000 lb/trip. The closures, gear requirements, and all other management measures would remain as currently specified in the FMP (including the default DAS reduction) until Amendment 16 is approved and implemented. It is anticipated that the Council will submit Amendment 16 to NMFS in early FY 2009, and if approved by NMFS, Amendment 16 would be implemented by May 2010.

Under the No Action alternative, no new target TACs would be specified.

Under the No Action alternative, the currently approved sectors (GB Cod Hook Sector, and GB Cod Fixed Gear Sector) could operate if a FY 2009 Operations Plan is approved by the Regional Administrator.

5.2 Alternative 1

5.2.1 Differential DAS Areas and Default DAS Reductions

Alternative 1 was based upon one of the Council's alternatives for Amendment 16 and modified by NMFS in order to achieve fishing mortality reductions for particular stocks, and to reduce the amount of excessive fishing mortality reduction on other stocks. This alternative includes the default DAS reductions for 2009 specified in Amendment 13 to the FMP. This decrease in the amount of A DAS represents an 18.2 percent decrease in the number of A DAS a vessel may fish.

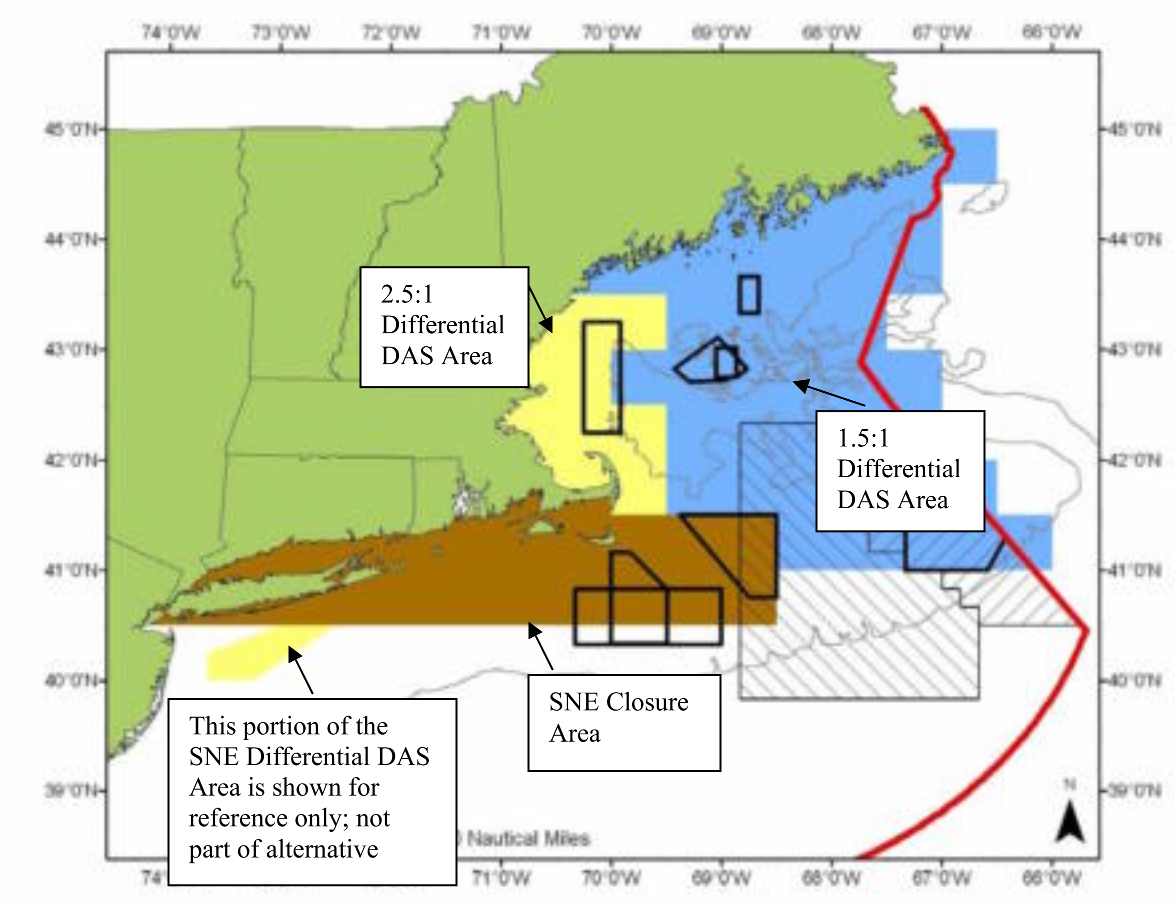
Secondly, Alternative 1 would implement a year-round closure in SNE in order to reduce fishing mortality of SNE winter flounder as close to zero as practicable. A closure avoids further reductions in DAS allocations, which would impact all DAS vessels in the fishery.

Under Alternative 1, the DAS rate for vessels fishing in the existing GOM Differential DAS Area would be counted at the rate of 2.25:1. The following 30 minute square blocks in offshore GOM and northern GB (Offshore GOM Differential DAS Area), north of 41^{o} 00' N. lat. would be counted at a 1.5:1 rate: Blocks 92-96, 108-113, 118-122, 126-131, 134-137, and 141-155 (Figure 2).

If a vessel is fishing in the GOM Differential DAS Area where the DAS accrual rate is 2.25:1, the vessel's DAS balance would be debited 27 hours if a vessel is in the DAS differential area for 12 hours. A vessel will not be charged at the differential DAS rate if they are transiting to another area. For example, if a vessel steams through the 2.25:1 area on its way to and from the fishing grounds, and then fishes in a 1.5:1 area, it would not be charged at the 2.25:1 rate for the part of the trip spent steaming to the fishing grounds. If a vessel fishes in multiple differential DAS areas on a particular trip, it would be charged according to the most restrictive differential DAS area.

Under the alternative, the 30 minute square blocks of 97-107 and 80-90 in SNE (Figure 2) would be closed to vessels fishing under a NE multispecies DAS, with the exception of vessels using hook gear, provided such vessels do not retain winter flounder. Open access groundfish vessels using hook gear may also fish for and possess groundfish in this area, but may not retain any winter flounder. Groundfish vessels using hook gear are exempt from the SNE Closure Area restrictions because the catch rate of winter flounder is likely to be very low. Recreational trips (both charter/party and private), and non-groundfish commercial trips in exempted fisheries or using exempted gear may also fish in the SNE Closure Area.

Figure 2. The SNE Closure Area and GOM Differential DAS Areas



5.2.2 Trip Limits

Stocks would be subject to the following trip limits (Table 7) below:

Table 7. Trip Limits

Stock	Trip Limit	Status
GOM cod	800 lb/DAS; 4,000 lb/trip	Status quo
GB cod	1,000 lb/DAS; 10,000 lb/trip	Status quo
Eastern U.S./Canada Area	500 lb/DAS; 5,000 lb/trip	Status quo
White hake	2,000 lb/DAS; 10,000 lb/trip	*Modified (previously 1,000/DAS; 10,000/trip)*
GOM/CC yellowtail flounder	250/DAS; 1,000 lb/trip	Status quo
GB yellowtail flounder	5,000 lb/trip	Status quo
SNE yellowtail flounder	250/DAS; 1,000 lb/trip	Status quo
GB winter flounder	No trip limit	*Modified (previously 5,000*

		lb/trip)
SNE winter flounder	Zero retention	*Modified (no previous limit)*
Windowpane flounder north	Zero retention	*Modified (no previoius limit)*
Ocean pout	Zero retention	*Modified (no previous limit)*
Atlantic halibut	1 fish/trip	Status quo

The current rolling and year-round closures, GB seasonal closure, and all other fishing effort control measures of the FMP, with the exception of the SNE Differential DAS Area, would remain in effect. Under this alternative, the currently approved sectors (GBank Cod Hook Sector, and GB Cod Fixed Gear Sector) could operate if a FY 2009 Operations Plan is approved by the Regional Administrator.

5.2.3 <u>Specification of Target TACs</u>

Consistent with the current FMP, target TACs are utilized as one means to evaluate the success of management measures, and provide a way to make simple comparisons between different fishing years. Table 8, below lists the target TACs for fishing year 2009 for this alternative.

Table 8. 2009 Fishing Year 2009 Target TACs (mt)

Species	Stock	GARM III TAC
Cod	GB	3,506
Cod	GOM	10,327
Haddock	GB	86,520
Haddock	GOM	1,564
Yellowtail	GB	1,617
Yellowtail	SNE/MA	389
Yellowtail	CC/GOM	860
Plaice		3,214
Witch		928
Winter	GB	2,004
Winter	GOM	379
Redfish		8,614
White hake		2,376
Pollock		6,486
Windowpane flounder N.		299
Windowpane flounder S.		338
Halibut		68

5.2.4 Revisions to Incidental Catch TACs and Allocations to Special Management Programs

This alternative would revise the specification of incidental catch TACs applicable to the Special Management Programs of the FMP based upon the most recent scientific information (Table 9). Incidental catch TACs are specified for certain stocks in the individual Special Management Programs in order to limit the amount of catch of stocks of concern that can be caught under such programs and fully account for fishing mortality. The incidental catch TACs apply to catch (landings and discards) caught under Category B DAS, on trips that end on a Category B DAS. The catch of stocks for which incidental catch TACs are specified on trips that start under a Category B DAS and then flip to a Category A DAS do not accrue toward such TACs.

Due to the change in the status of stocks (GARM III), an incidental catch TAC is no longer appropriate for American plaice in FY 2009 because it is no longer a stock of concern. Conversely, new incidental catch TACs are required for GOM winter flounder and pollock, because they are now considered stocks of concern. The percentages that the TACs are currently based on will remain unchanged, with the exception of witch flounder, which will be reduced from 5% to 2% due to the status of the stock and the fact that the fishing mortality and total catch need to be reduced. The incidental catch TACs for GOM winter flounder is set at 5%, based on the rationale described in FW 40A: If the recent catch levels are less than the expected future catch levels and proposed management measures are likely to achieve more than the required reduction in fishing mortality, then the size of an incidental catch TAC relative to the size of the overall TAC is larger (set as a larger percent). The incidental catch TAC for pollock is set at 5%, because of the prevalence of pollock catch in Special Management Programs. The utility of the Special Management Programs would be severely constrained if the incidental catch TAC is set too low. The number of total incidental catch TACs would increase from the current number (8) to 10. Due to the severe fishing mortality reduction necessary for the SNE/MA stock of winter flounder, no retention of this stock is allowed under this alternative, and there is no incidental catch TAC specified.

Table 9. Differential DAS Alternative Incidental Catch TACs (mt)

Stock	Percentage of Total TAC	Initial TAC	Incidental TAC
GB cod	Two	3,506	70.1
GOM cod	One	10,327	103.3
GB yellowtail	Two	1,617	32.3
CC/GOM yellowtail	One	860	8.6
SNE/MA yellowtail	One	389	3.9
Pollock	Five	6,486	324.3
Witch flounder	Two	928	18.6
GB winter flounder	Two	2,004	40.1
White hake	Two	2,376	47.5
GOM winter	Five	379	19.0

This alternative would also modify the allocation of the incidental catch TACs to the various special management programs. A modification is necessary due to the change in status of stocks as well as to optimize the design of the programs based on the operation of the programs since their inception. The changes to the allocations are summarized in Table 10 below. Because the Eastern U.S./Canada Haddock SAP was not used at all in 2007, and only 2 trips were taken in the area in 2006, the percent allocation to this SAP is modified for GB cod, GB yellowtail, and GB winter flounder. It is difficult to estimate the level of participation and rate of catch of stocks of concern in the various programs, and therefore Regional Administrator authority to modify the allocations will help to optimize the usefulness of the programs, if necessary. Table 11 contains the resultant TAC specifications when the TAC allocations of Table 10 are applied to the Incidental Catch TACs in Table 9.

Table 10. Modifications to the Incidental Catch TAC Allocations (mt)

	Regular B DAS Program		Eastern U.S./Canada Haddock SAP		Closed Area I Hook Gear Haddock SAP	
Stock	Current	New	Current	New	Current	New
GB cod	50%	70%	34%	14%	16%	no change
GB yellowtail	50%	80%	50%	20%		
GB winter	50%	80%	50%	20%		
pollock	none	90%	none	5%	none	5%
GOM winter	none	100%				
GOM cod	100%	100%				
white hake	100%	100%				
CC/GOM yellowtail	100%	100%				
SNE/MA yellowtail	100%	100%				
witch flounder	100%	100%				
plaice	100%	none				

Table 11. Specification of TACs for Special Management Programs (mt)

Stock	Regular B DAS Program	Eastern U.S./Canada Haddock SAP	Closed Area I SAP
GB cod	49.1	9.8	11.2
GOM cod	103.3	na	na
GB yellowtail	25.9	6.5	na
CC/GOM yellowtail	8.6	na	na
SNE/MA yellowtail	3.9	na	na
Pollock	291.9	16.2	16.2
Witch flounder	18.6	na	na
GB winter flounder	32.1	8.0	na
White hake	47.5	na	na
GOM winter	19.0	na	na

5.3 Alternative 2

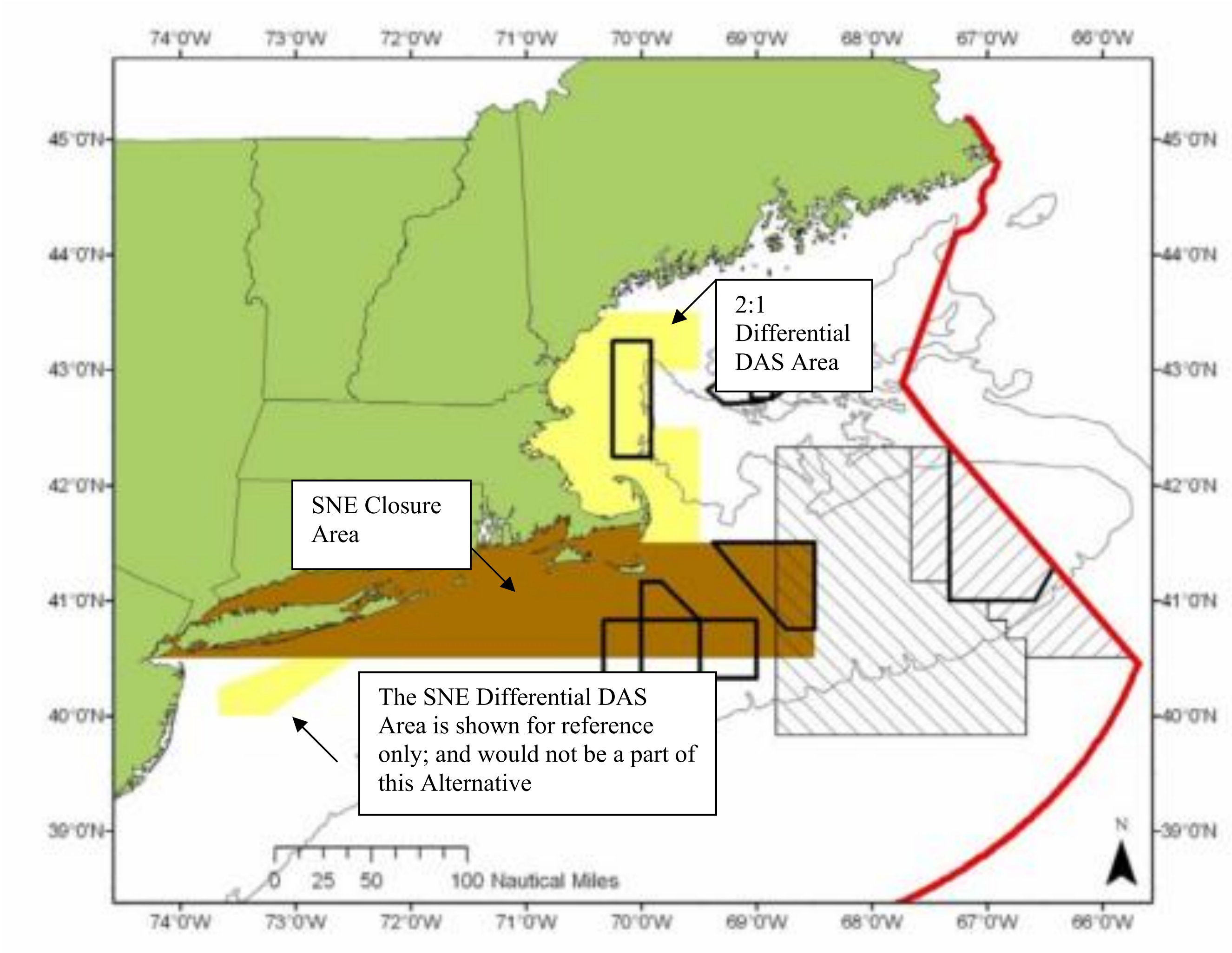
5.3.1 DAS Reduction

Under Alternative 2, DAS will be reduced by a total of 40 percent from the DAS allocation specified by Amendment 13, and implemented by Framework Adjustment 42 (2006) with a corresponding increase in B DAS. In other words, the ratio of Category A to B DAS would change from the current ratio of 55:45 to 33:67, which represents a 40 percent in the number of allocated Category A DAS from the previous allocation. A vessel's Category A DAS would be 33 percent of the vessel's Amendment 13 used DAS baseline. The total proposed DAS reduction of 40% includes the default DAS reduction, but proposes an additional DAS reduction in order to fully achieve the required fishing mortality levels. The current GOM Differential DAS Area would remain and DAS in that area would accrue at the rate of 2:1. In other words, if a vessel was fishing in the DAS program for 8 hours, the vessel would be charged a total of 16 hours DAS time. If a vessel fishes inside and outside of the GOM Differential DAS Area on the same trip it would be charged at the differential rate for the entire trip. As under current rules, a vessel would not be charged for transitting through the GOM Differential DAS Area.

Secondly, Alternative 2 would implement a year-round closure in SNE in order to reduce fishing mortality of SNE winter flounder as close to zero as practicable. A closure avoids further reductions in DAS allocations, which would impact all DAS vessels in the fishery.

The 30 minute square blocks of 97-107 and 80-90 in Southern New England (Figure 3) will be closed to vessels fishing under a NE multispecies DAS (with the exception of vessels using hook gear, provided such vessels do not retain winter flounder). Open access groundfish vessels using hook gear may also fish for and possess groundfish in this area, but may not retain any winter flounder. Groundfish vessels using hook-gear-only on a particular trip may fish in the SNE Closure Area because the catch rate of winter flounder is likely to be very low. Recreational trips (both charter/party and private), and non-groundfish commercial trips in exempted fisheries or using exempted gear, may also fish in the SNE Closure Area.

Figure 3. The SNE Closure Area



5.3.2 Trip Limits

Stocks would be subject to the following trip limits (Table 12) below:

Table 12. Trip Limits

Stock	Trip Limit	Status
GOM cod	800 lb/DAS; 4,000 lb/trip	Status quo
GB cod	1,000 lb/DAS; 10,000 lb/trip	Status quo
Eastern U.S./Canada Area	500 lb/DAS; 5,000 lb/trip	Status quo
White hake	2,000 lb/DAS; 10,000 lb/trip	*Modified (previously 1,000/DAS; 10,000/trip)*
GOM/CC yellowtail flounder	250/DAS; 1,000 lb/trip	Status quo
GB yellowtail flounder	5,000 lb/trip	Status quo

SNE yellowtail flounder	250/DAS; 1,000 lb/trip	Status quo
GB winter flounder	No trip limit	*Modified (previously 5,000 lb/trip)*
SNE winter flounder	Zero retention	*Modified (no previous limit)*
Windowpane flounder north	Zero retention	*Modified (no previoius limit)*
Ocean pout	Zero retention	*Modified (no previous limit)*
Atlantic halibut	1 fish/trip	Status quo

The current rolling and year-round closures, GB seasonal closure, and all other fishing effort control measures of the FMP, with the exception of the SNE Differential DAS Area would remain in effect. Under this alternative, the currently approved sectors (GB Cod Hook Sector, and GB Cod Fixed Gear Sector) could operate if a FY 2009 Operations Plan is approved by the Regional Administrator, and the U.S./Canada Management Area regulations would be maintained (with new TACs specified), as described below.

5.3.3 Specification of Target TACs

Consistent with the current FMP, target TACs are utilized as one means to evaluate the success of management measures, and provide a way to make simple comparisons between different fishing years. Table 13, below lists the Target TACs for fishing year 2009.

Table 13. 2009 Fishing Year 2009 Target TACs

Species	Stock	GARM III TAC
Cod	GB	3,506
Cod	GOM	10,327
Haddock	GB	86,520
Haddock	GOM	1,564
Yellowtail	GB	1,617
Yellowtail	SNE/MA	389
Yellowtail	CC/GOM	860
Plaice		3,214
Witch		928
Winter	GB	2,004
Winter	GOM	379
Redfish		8,614
White hake		2,376
Pollock		6,486
Windowpane flounder N.		299
Windowpane		338

flounder S.		
Halibut		68

5.3.4 Revisions to Incidental Catch TACs and Allocations to Special Management Programs

This alternative would revise the specification of incidental catch TACs applicable to the Special Management Programs of the FMP based upon the most recent scientific information (Table 14). Incidental catch TACs are specified for certain stocks of concern for Special Management Programs in order to limit the amount of catch of stocks of concern that can be caught under such programs and fully account for fishing mortality. The incidental catch TACs apply to catch (landings and discards) caught under Category B DAS, on trips that end on a Category B DAS. The catch of stocks for which incidental catch TACs are specified on trips that start under a Category A DAS and then flip to a Category B DAS do not accrue toward such TACs.

Due to the change in the status of stocks (GARM III), an incidental catch TAC is no longer appropriate for American plaice because it is no longer a stock of concern, and new incidental catch TACs are required for GOM winter flounder and pollock, because they are now considered stocks of concern. The percentages that the TACs are currently based on will remain unchanged, with the exception of witch flounder, which will be reduced from 5% to 2% due to the status of the stock and the fact that the fishing mortality and total catch need to be reduced. The incidental catch TACs for GOM winter flounder is set at 5%, based on the rationale described in FW 40A: If the recent catch levels are less than the expected future catch levels and proposed management measures are likely to achieve more than the required reduction in fishing mortality, then the size of an incidental catch TAC relative to the size of the overall TAC is larger (set as a larger percent). The incidental catch TAC for pollock is set at 5%, because of the prevalence of pollock catch in Special Management Programs. The utility of the Special Management Programs would be severely constrained if the incidental catch TAC is set too low. The number of total incidental catch TACs would increase from the current number (8) to 10. Due to the severe fishing mortality reduction necessary for the SNE/MA stock of winter flounder, no retention of this stock is allowed under this alternative, and there is no incidental catch TAC specified.

This alternative would also modify the allocation of the incidental catch TACs to the various special management programs, and provide the Regional Administrator the authority to modify the allocations among programs in-season, or prior to the beginning of the season to optimize operation of the programs. A modification is necessary due to the change in status of stocks as well as to optimize the design of the programs based on the operation of the programs since their inception. The changes to the allocations are summarized in Table 15 below. Because the Eastern U.S./Canada Haddock SAP was no used at all in 2007, and only 2 trips were taken in the area in 2006, the percent allocation to this SAP is modified for GB cod, GB yellowtail, and GB winter flounder. It is difficult to estimate the level of participation and rate of catch of stocks of concern in the various programs, and therefore Regional Administrator authority to modify the allocations will help to optimize the usefulness of the programs, if necessary. Table 16 contains the resultant TAC specifications when the TAC allocations of Table 15 are applied to the Incidental Catch TACs in Table 14.

Table 14. Alternative Two Incidental Catch TACs

Stock	Percentage of Total TAC	Initial TAC	Incidental TAC
GB cod	Two	3,506	70.1
GOM cod	One	10,327	103.3
GB yellowtail	Two	1,617	32.3
CC/GOM yellowtail	One	860	8.6
SNE/MA yellowtail	One	389	3.9
Pollock	Five	6,486	324.3
Witch flounder	Two	928	18.6
GB winter flounder	Two	2,004	40.1
White hake	Two	2,376	47.5
GOM winter	Five	379	19.0

Table 15. Modifications to the Incidental Catch TAC Allocations.

	Regular B DAS Program		Eastern U.S./Canada Haddock SAP		Closed Area I Hook Gear Haddock SAP	
Stock	Current	New	Current	New	Current	New
GB cod	50 %	70 %	34 %	14 %	16 %	no change
GB yellowtail	50 %	80 %	50 %	20 %		
GB winter	50 %	80 %	50 %	20 %		
pollock	none	90 %	none	5 %	none	5 %
GOM winter	none	100 %				
GOM cod	100 %	100 %				
white hake	100 %	100 %				
CC/GOM yellowtail	100 %	100 %				
SNE/MA yellowtail	100 %	100 %				
witch flounder	100 %	100 %				
plaice	100 %	none				

Table 16. Specification of TACs for Special Management Programs (mt)

Stock	Regular B DAS Program	Eastern U.S./Canada Haddock SAP	Closed Area I SAP
GB cod	49.1	9.8	11.2
GOM cod	103.3	na	na
GB yellowtail	25.9	6.5	na
CC/GOM yellowtail	8.6	na	na
SNE/MA yellowtail	3.9	na	na
Pollock	291.9	16.2	16.2
Witch flounder	18.6	na	na
GB winter flounder	32.1	8.0	na
White hake	47.5	na	na
GOM winter	19.0	na	na

5.4 Alternative 3 (Alternative as proposed in the Federal Register Proposed Rule, i.e. the "Proposed Rule" Alternative)

In the Draft EA for this interim action, Alternative 3 was characterized as the Preferred Alternative. After review of public comment, and additional analyses, Alternative 3 is no longer the Preferred Alternative, and is now referred to as the Proposed Rule Alternative.

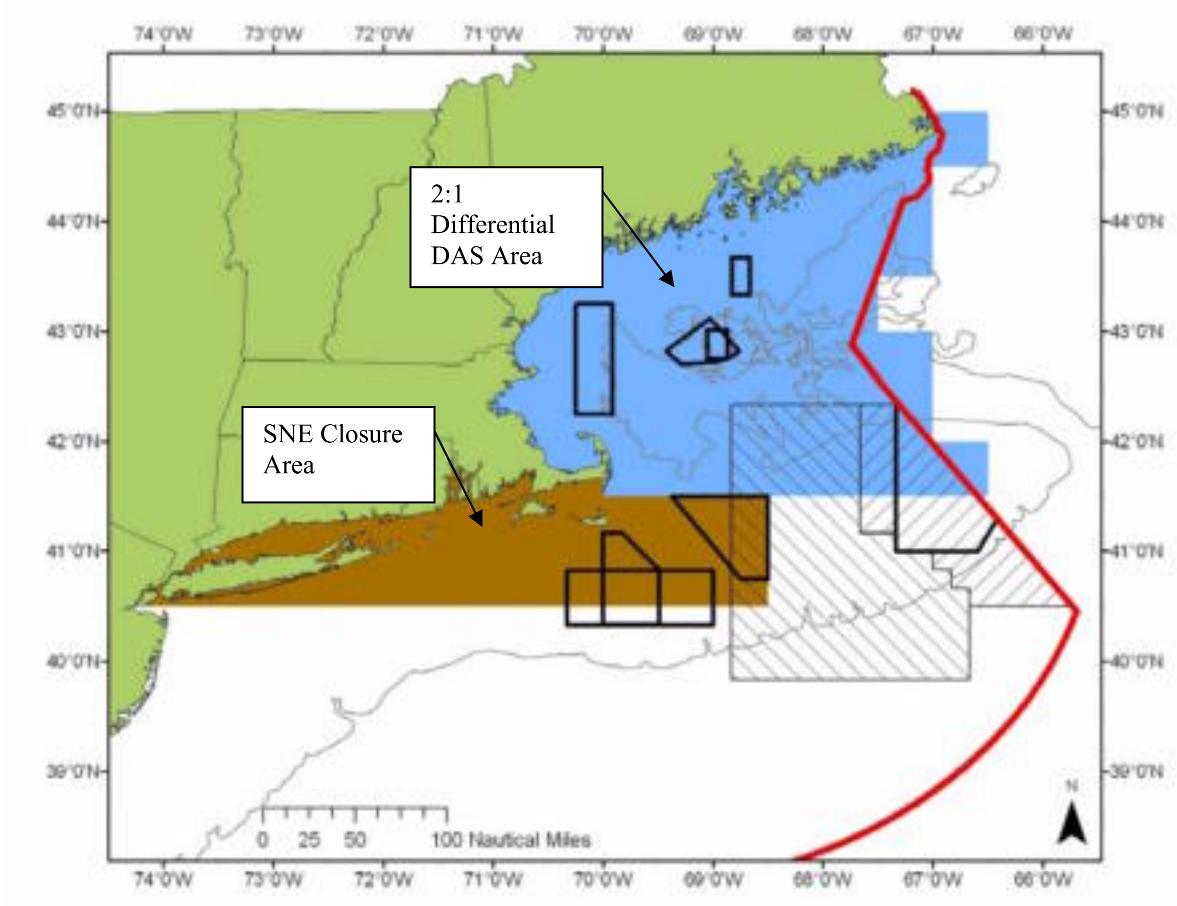
5.4.1 Interim GOM Differential DAS Area and Interim SNE Closure Area

Under Alternative 3, a new differential DAS area, whereby vessels are charged 2 days for every 1 day fished, combined with the default Amendment 13 DAS reduction will be utilized to achieve the necessary fishing mortality reductions. This alternative is very similar to Alternative 1, but there is one differential DAS area instead of two. Secondly, Alternative 3 would implement a year-round closure in Southern New England in order to reduce fishing mortality of SNE winter flounder as close to zero as practicable (Figure 4). A closure avoids further reductions in DAS allocations, which would impact all DAS vessels in the fishery.

The existing differential DAS areas (GOM and SNE) would no longer apply, a single, larger differential DAS area would be implemented in the entire GOM and northern portion of GB, north of 41^{o} 30'N. lat. For the Interim Differential DAS Area, the DAS accrual rate will be 2:1. In other words, if a vessel is in the Interim Differential DAS Area where the DAS accrual rate is 2:1, the vessel's DAS balance would be debited 18 hours if a vessel is in the DAS differential area for 9 hours. Vessels would be charged at the differential DAS rate for the time spent fishing in any portion of the differential area. A vessel will not be charged at the differential DAS rate if they are transiting to another area outside of the GOM differential DAS Area. For example, if a vessel steams through the 2:1 area on its way to and from the fishing grounds in the southern portion of the U.S./Canada Management Area, and then fishes in the 1:1 area, it would not be charged at the 2:1 rate for part of the trip spend steaming to the fishing grounds. If a vessel fishes in both the GOM Differential DAS Area and outside the Differential DAS Area on a particular trip, it would be charged differential DAS for the entire trip.

The 30 minute square blocks of 97-107 and 80-90 in SNE will be closed to vessels fishing under a NE multispecies DAS (with the exception of vessels using hook gear, provided such vessels do not retain winter flounder). Open access groundfish vessels using hook gear may also fish for and possess groundfish in this area, but may not retain any winter flounder. Groundfish vessels using hook gear only a particular trip may fish in the SNE Closure Area because the catch rate of winter flounder is likely to be very low. Recreational trips (both charter/party and private), and non-groundfish commercial trips in exempted fisheries or using exempted gear may also fish in the SNE Closure Area.

Figure 4. The GOM Differential DAS Area and the SNE Closure Area.



5.4.2 Trip Limits

Stocks would be subject to the following trip limits (Table 17) below:

Table 17. Trip Limits

Stock	Trip Limit	Status
GOM cod	800 lb/DAS; 4,000 lb/trip	Status quo
GB cod	1,000 lb/DAS; 10,000 lb/trip	Status quo
Eastern U.S./Canada Area	500 lb/DAS; 5,000 lb/trip	Status quo
White hake	2,000 lb/DAS; 10,000 lb/trip	*Modified (previously 1,000/DAS; 10,000/trip)*
GOM/CC yellowtail flounder	250/DAS; 1,000 lb/trip	Status quo
GB yellowtail flounder	5,000 lb/trip	Status quo
SNE yellowtail flounder	250/DAS; 1,000 lb/trip	Status quo

GB winter flounder	No trip limit	*Modified (previously 5,000 lb/trip)*
SNE winter flounder	Zero retention	*Modified (no previous limit)*
Windowpane flounder north	Zero retention	*Modified (no previoius limit)*
Ocean pout	Zero retention	*Modified (no previous limit)*
Atlantic halibut	1 fish/trip	Status quo

Other Current Measures

The current rolling and year-round closures, GB seasonal closure, and all other fishing effort control measures of the FMP, with the exception of the differential DAS areas would remain in effect. Under this alternative, the currently approved sectors (GB Cod Hook Sector, and GB Cod Fixed Gear Sector) could operate if a FY 2009 Operations Plan is approved by the Regional Administrator, and the U.S./Canada Management Area regulations would be maintained (with new TACs specified), as described below.

5.4.3 Specification of Target TACs

Consistent with the current FMP, target TACs are utilized as one means to evaluate the success of management measures, and provide a way to make simple comparisons between different fishing years. Table 18, below lists the Target TACs for fishing year 2009.

Table 18. 2009 Fishing Year 2009 Target TACs (mt)

Species	Stock	GARM III TAC
Cod	GB	3,506
Cod	GOM	10,327
Haddock	GB	86,520
Haddock	GOM	1,564
Yellowtail	GB	1,617
Yellowtail	SNE/MA	389
Yellowtail	CC/GOM	860
Plaice		3,214
Witch		928
Winter	GB	2,004
Winter	GOM	379
Redfish		8,614
White hake		2,376
Pollock		6,486
Windowpane flounder N.		299
Windowpane		338

flounder S.		
Halibut		68

5.4.4 Revisions to Incidental Catch TACs and Allocations to Special Management Programs

This alternative would revise the specification of incidental catch TACs applicable to the Special Management Programs of the FMP based upon the most recent scientific information. Incidental catch TACs are specified for certain stocks of concern for Special Management Programs in order to limit the amount of catch of stocks of concern that can be caught under such programs and fully account for fishing mortality. The incidental catch TACs apply to catch (landings and discards) caught under Category B DAS, on trips that end on a Category B DAS. The catch of stocks for which incidental catch TACs are specified on trips that start under a Category A DAS and then flip to a Category B DAS do not accrue toward such TACs.

Due to the change in the status of stocks (GARM III), an incidental catch TAC is no longer appropriate for American plaice because it is no longer a stock of concern, and new incidental catch TACs are required for GOM winter flounder and pollock, because they are now considered stocks of concern. The percentages that the TACs are currently based on would remain unchanged, with the exception of witch flounder, which will be reduced from 5% to 2% due to the status of the stock and the fact that the fishing mortality and total catch need to be reduced. The incidental catch TACs for GOM winter flounder would be set at 5%, based on the rationale described in FW 40A: If the recent catch levels are less than the expected future catch levels and proposed management measures are likely to achieve more than the required reduction in fishing mortality, then the size of an incidental catch TAC relative to the size of the overall TAC is larger (set as a larger percent). The incidental catch TAC for pollock would be set at 5%, because of the prevalence of pollock catch in Special Management Programs. The utility of the Special Management Programs would be severely constrained if the incidental catch TAC is set too low. The number of total incidental catch TACs would increase from the current number (8) to 10. Due to the severe fishing mortality reduction necessary for the SNE/MA stock of winter flounder, no retention of this stock is allowed under this alternative, and there is no incidental catch TAC specified.

This alternative would also modify the allocation of the incidental catch TACs to the various special management programs, and provide the Regional Administrator the authority to modify the allocations among programs in-season, or prior to the beginning of the season to optimize operation of the programs. A modification is necessary due to the change in status of stocks as well as to optimize the design of the programs based on the operation of the programs since their inception. The changes to the allocations are summarized in Table 19 below. Because the Eastern U.S./Canada Haddock SAP was no used at all in 2007, and only 2 trips were taken in the area in 2006, the percent allocation to this SAP is modified for GB cod, GB yellowtail, and GB winter flounder. It is difficult to estimate the level of participation and rate of catch of stocks of concern in the various programs, and therefore Regional Administrator authority to modify the allocations will help to optimize the usefulness of the programs, if necessary. The resultant Incidental Catch TACs, combining Tables 19, and 20 are in Table 21.

Table 19. Alternative Three Incidental Catch TACs

Stock	Percentage of Total TAC	Initial TAC	Incidental TAC
GB cod	Two	3,506	70.1
GOM cod	One	10,327	103.3
GB yellowtail	Two	1,617	32.3
CC/GOM yellowtail	One	860	8.6
SNE/MA yellowtail	One	389	3.9
Pollock	Five	6,486	324.3
Witch flounder	Two	928	18.6
GB winter flounder	Two	2,004	40.1
White hake	Two	2,376	47.5
GOM winter	Five	379	19.0

Table 20. Modifications to the Incidental Catch TAC Allocations.

	Regular B DAS Program		Eastern U.S./Canada Haddock SAP		Closed Area I Hook Gear Haddock SAP	
Stock	Current	New	Current	New	Current	New
GB cod	50 %	70 %	34 %	14 %	16 %	no change
GB yellowtail	50 %	80 %	50 %	20 %		
GB winter	50 %	80 %	50 %	20 %		
pollock	none	90 %	none	5 %	none	5 %
GOM winter	none	100 %				
GOM cod	100 %	100 %				
white hake	100 %	100 %				
CC/GOM yellowtail	100 %	100 %				
SNE/MA yellowtail	100 %	100 %				
witch flounder	100 %	100 %				
plaice	100 %	none				

Table 21. Specification of TACs for Special Management Programs (mt)

Stock	Regular B DAS Program	Eastern U.S./Canada Haddock SAP	Closed Area I SAP
GB cod	49.1	9.8	11.2
GOM cod	103.3	na	na
GB yellowtail	25.9	6.5	na
CC/GOM yellowtail	8.6	na	na
SNE/MA yellowtail	3.9	na	na
Pollock	291.9	16.2	16.2
Witch flounder	18.6	na	na
GB winter flounder	32.1	8.0	na
White hake	47.5	na	na
GOM winter	19.0	na	na

5.5 Alternative 4 - Preferred Alternative

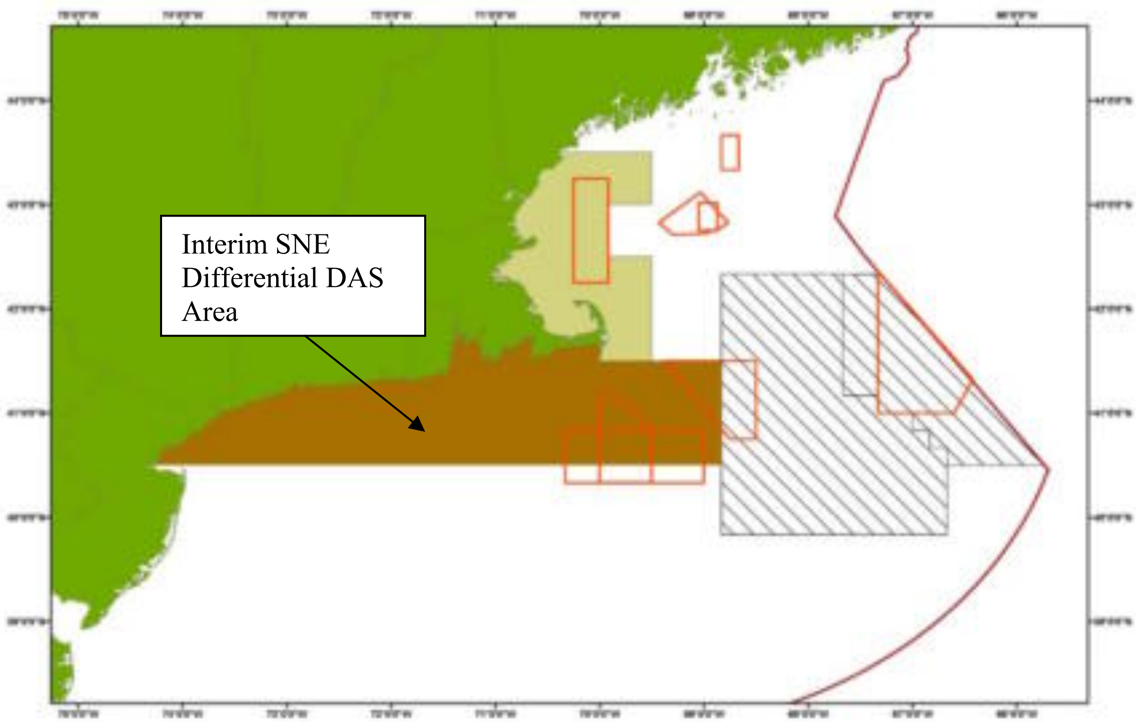
Alternative 4 is the Preferred Alternative based upon the estimated biological and economic impacts of the alternative, and the comparison of the alternative to other alternatives, as described in Section 24.0, Comparison of Alternatives. Alternative 4 was not analyzed in the Draft EA. The development of this alternative after the publication of the proposed rule in the Federal Register, and subsequent selection of this new alternative as the Preferred Alternative, was based upon public comment received on the proposed rule and the objective of reducing the economic impacts of interim measures, while retaining substantial reductions in fishing mortality. Among the alternatives the mitigation measures, U.S./Canada TACs, and recreational restrictions are the same. Alternative 4 differs from Alternatives 1 through 3 in the principal measures to reduce fishing mortality on the commercial fishery; and the Target TACs and Incidental Catch TACs.

5.5.1 Default DAS and Interim SNE Differential DAS Area

Alternative 4 was developed after the publication of the proposed rule in the Federal Register (74 FR 2959; January 16, 2009) and the receipt of 88 comments on the rule. The elements of Alternative 4 are closer to the proposed Council's proposed alternative for the interim action (see considered but rejected section) than Alternatives 1 through 3, but provides additional fishing mortality reduction for SNE winter flounder. Alternative 4, the Preferred Alternative, maintains the Amendment 13 default DAS reduction of 18 percent. In other words, the ratio of Category A to B DAS would go from the current ratio of 55:45 to 45:55. Thus, a vessel's Category A DAS would be 45 percent of the vessel's Amendment 13 used DAS baseline. Secondly, under Alternative 4, a new differential DAS area, whereby NE multispecies DAS vessels (with the exception of vessels fishing with hook gear) are charged 2 days for every 1 day fished, will be utilized to achieve additional fishing mortality reductions in SNE, targeting primarily SNE/MA winter flounder. Under Alternative 4, the current GOM Differential DAS Area as implemented by FW 42 would remain in effect, and an expanded differential DAS area would be implemented in SNE.

Specifically, the Interim SNE Differential DAS Area would be between 40^{o} 30' and 41^{o} 30' north latitude and west of the U.S./Canada Management Area to the shore (Figure 5). For the Interim SNE Differential DAS Area, the DAS accrual rate would be 2:1. In other words, if a vessel is fishing with gear other than hook gear in the SNE Interim Differential DAS Area where the DAS accrual rate is 2:1, the vessel's DAS balance would be debited 18 hours if a vessel is in the DAS differential area for 9 hours. Hook vessels are exempt from the differential DAS rate due to the low catch rate of winter flounder and yellowtail flounder by hook gear. Vessels fishing any portion of a trip in the Interim SNE Differential DAS Area, would be charged at the differential DAS rate for the entire trip. As discussed by the Council during the development of FW 42, this DAS charging rule provides a disincentive for vessels fishing outside of the differential DAS area to fish in the differential area ("top-off" their catch) on the way back to port, and is consistent with the differential DAS counting rules in the GOM. A vessel would not be charged at the differential DAS rate if they are transiting to another area outside of the SNE Interim Differential DAS Area, and not fishing in the InterimSNE Differential DAS Area. Groundfish vessels using hook gear only on a particular trip may fish in the Interim SNE Differential DAS Area because the catch rate of winter flounder is likely to be very low. Recreational trips (both charter/party and private), and non-groundfish commercial trips in exempted fisheries or using exempted gear may also fish in the Interim SNE Differential DAS Area.

Figure 5. The Interim SNE Differential DAS Area



5.5.2 Trip Limits

Stocks would be subject to the following trip limits (Table 22) below:

Table 22. Trip Limits

Stock	Trip Limit	Status
GOM cod	800 lb/DAS; 4,000 lb/trip	Status quo
GB cod	1,000 lb/DAS; 10,000 lb/trip	Status quo
Eastern U.S./Canada Area	500 lb/DAS; 5,000 lb/trip	Status quo
White hake	1,000 lb/DAS; 10,000 lb/trip	Status quo
GOM/CC yellowtail flounder	250/DAS; 1,000 lb/trip	Status quo
GB yellowtail flounder	5,000 lb/trip	Status quo

SNE yellowtail flounder	250/DAS; 1,000 lb/trip	Status quo
GB winter flounder	5,000 lb/trip	Status quo
SNE winter flounder	Zero retention	*Modified (no previous limit)*
Windowpane flounder north	Zero retention	*Modified (no previous limit)*
Ocean pout	Zero retention	*Modified (no previous limit)*
Witch flounder	1,000 lb/DAS; 5,000 lb/trip	*Modified (no previous limit)*
Atlantic halibut	1 fish/trip	Status quo

Other Current Measures

The current rolling and year-round closures, GB seasonal closure, and all other fishing effort control measures of the FMP, with the exception of the Interim SNE Differential DAS area, would remain in effect. Under this alternative, the currently approved sectors (GB Cod Hook Sector, and GB Cod Fixed Gear Sector) could operate if a FY 2009 Operations Plan is approved by the Regional Administrator, and the U.S./Canada Management Area regulations would be maintained (with new TACs specified), as described below.

5.5.3 Specification of Target TACs

Consistent with the current FMP, target TACs are utilized as one means to evaluate the success of management measures, and provide a way to make simple comparisons between different fishing years. Table 23, below lists the Target TACs for fishing year 2009. The target TACs for the Preferred Alternative are different from those included in the Draft EA and proposed rule due to revisions to the estimated fishing mortality rate that represents the current stock status (as explained in section 4.0), and the use of the fishing mortality estimate associated with the management measures to project future catch instead of the use of target fishing mortality rate for certain stocks (GB cod, GOM cod, witch flounder, pollock, and windowpane flounder (north). In other works, this alternative specifies target TACs based upon either the F-target for each stock (i.e., Fmsy or F rebuild) or the F resulting from the measures implemented by this alternative (i.e., estimated F), whichever is higher. For stocks where the estimated F is lower than the target F, implementing TACs based upon the target F would allow for increased yield from these stocks. For stocks where the estimated F is higher than the target F, implementing TACs based upon the estimated F more accurately reflects catch anticipated from the management measures under the Preferred Alternative. Furthermore, the target TAC for GB cod in the Draft EA and proposed rule did not include Canadian catch, which by convention is included in the overall target TAC. The haddock TAC was revised to reflect a correction to the discard input data and revised stock size.

Table 23. 2009 Fishing Year 2009 Target TACs (mt)

Species	Stock	2009 TAC
Cod	GB	5,501
Cod	GOM	10,724
Haddock	GB	89,055
Haddock	GOM	1,564
Yellowtail	GB	1,617
Yellowtail	SNE/MA	389
Yellowtail	CC/GOM	860
Plaice		3,214
Witch		1,129
Winter	GB	2,004
Winter	GOM	379
Winter	SNE	0
Redfish		8,614
White hake		2,376
Pollock		6,346
Windowpane flounder N.		581
Windowpane flounder S.		279
Halibut		68

5.5.4 Revisions to Incidental Catch TACs and Allocations to Special Management Programs

The revisions of this alternative apply only to Alternative 4, the Preferred Alternative. This alternative would revise the specification of incidental catch TACs applicable to the Special Management Programs of the FMP based upon the most recent scientific information. Incidental catch TACs are specified for certain stocks of concern for Special Management Programs in order to limit the amount of catch of stocks of concern that can be caught under such programs and fully account for fishing mortality. The incidental catch TACs apply to catch (landings and discards) caught under Category B DAS, on trips that end on a Category B DAS. The catch of stocks for which incidental catch TACs are specified on trips that start under a Category B DAS and then flip to a Category A DAS do not accrue toward such TACs.

Due to the change in the status of stocks (GARM III), an incidental catch TAC is no longer appropriate for American plaice because it is no longer a stock of concern, and new incidental catch TACs are required for GOM winter flounder and pollock, because they are now considered stocks of concern. The percentages that the TACs are currently based on would remain unchanged, with the exception of witch flounder, which will be reduced from 5% to 2% due to the status of the stock and the fact that the fishing mortality and total catch need to be reduced. The incidental catch TACs for GOM winter flounder would be set at 5%, based on the rationale described in FW 40A: If the recent catch levels are less than the expected future catch levels and proposed management measures are likely to achieve more than the required reduction in fishing mortality, then the size of an incidental catch TAC relative to the size of the overall TAC is larger (set as a larger percent). The incidental catch TAC for pollock would be set at 5%, because of the prevalence of pollock catch in Special Management Programs. The utility of the Special Management Programs would be severely constrained if the incidental catch TAC is set too low. The number of total incidental catch TACs would increase from the current number (8) to 10. Due to the severe fishing mortality reduction necessary for the SNE/MA stock of winter flounder, no retention of this stock is allowed under this alternative, and there is no incidental catch TAC specified.

This alternative would also modify the allocation of the incidental catch TACs to the various special management programs, and provide the Regional Administrator the authority to modify the allocations among programs in-season, or prior to the beginning of the season to optimize operation of the programs. A modification is necessary due to the change in status of stocks as well as to optimize the design of the programs based on the operation of the programs since their inception. The changes to the allocations are summarized in Table 24 below. Because the Eastern U.S./Canada Haddock SAP was no used at all in 2007, and only 2 trips were taken in the area in 2006, the percent allocation to this SAP is modified for GB cod, GB yellowtail, and GB winter flounder. It is difficult to estimate the level of participation and rate of catch of stocks of concern in the various programs, and therefore Regional Administrator authority to modify the allocations will help to optimize the usefulness of the programs, if necessary. The resultant Incidental Catch TACs, combining Tables 24, and 25 are in Table 26. These TACs are modified slightly from the Draft EA and proposed rule due to the changes in the target TACs, as explained above. Tables 24 and 26 apply only to Alternative 4, the Preferred Alternative.

Table 24. Alternative Three Incidental Catch TACs (mt)

Stock	Percentage of Total TAC	Initial TAC	Incidental TAC
GB cod	Two	5,501	110
GOM cod	One	10,724	107.2
GB yellowtail	Two	1,617	32.3
CC/GOM yellowtail	One	860	8.6
SNE/MA yellowtail	One	389	3.9
Pollock	Five	6,346	317.3
Witch flounder	Two	1,129	22.6
GB winter flounder	Two	2,004	40.1
White hake	Two	2,376	47.5
GOM winter	Five	379	19.0

Table 25. Modifications to the Incidental Catch TAC Allocations

	Regular B DAS Program		Eastern U.S./Canada Haddock SAP		Closed Area I Hook Gear Haddock SAP	
Stock	Current	New	Current	New	Current	New
GB cod	50 %	70 %	34 %	14 %	16 %	no change
GB yellowtail	50 %	80 %	50 %	20 %		
GB winter	50 %	80 %	50 %	20 %		
pollock	none	90 %	none	5 %	none	5 %
GOM winter	none	100 %				
GOM cod	100 %	100 %				
white hake	100 %	100 %				
CC/GOM yellowtail	100 %	100 %				
SNE/MA yellowtail	100 %	100 %				
witch flounder	100 %	100 %				
plaice	100 %	none				

Table 26. Specification of TACs for Special Management Programs (mt)

Stock	Regular B DAS Program	Eastern U.S./Canada Haddock SAP	Closed Area I SAP
GB cod	77	15.4	17.6
GOM cod	107.2	na	na
GB yellowtail	25.8	6.5	na
CC/GOM yellowtail	8.6	na	na
SNE/MA yellowtail	3.9	na	na
Pollock	285.6	15.9	15.9
Witch flounder	22.6	na	na
GB winter flounder	32.1	8.0	na
White hake	47.5	na	na
GOM winter	19.0	na	na

6.0 Additional Measures to Reduce Commercial Fishing Mortality

6.1 Elimination of the SNE/MA Winter Flounder SAP

6.1.1 No Action

Under the No Action Alternative the SNE/MA Winter Flounder SAP would remain in effect allowing a limited access NE multispecies permitted vessel fishing for summer flounder west of 72^{o} 30’ W. lat. to retain up to 200 lb of winter flounder while not under a NE multispecies DAS, provided the vessel complies with various restrictions.

6.1.2 Preferred Alternative

The SNE/MA Winter Flounder SAP allows a limited access NE multispecies vessel fishing for summer flounder west of 72^{o} 30’ W. latitude to retain up to 200 lb of winter flounder while not under a NE multispecies DAS, provided the vessel complies with various restrictions. Due to the severely depleted status of the SNE/MA winter flounder stock, and the goal of reducing fishing mortality to as close to zero as practicable, this SAP will be eliminated under this alternative. Elimination of the SAP will likely prevent some winter flounder from being caught.

6.2 Elimination of the State Waters Winter Flounder Exemption

6.2.1 No Action

Under the No Action Alternative, the State Waters Winter Flounder Exemption that allows vessels issued a NE multispecies permit to fish in state waters for winter flounder using gear with mesh smaller than required for other vessels in the fishery would remain in place and available for states to enroll in (provided various requirements and criteria are met).

6.2.2 Preferred Alternative

The State Waters Winter Flounder Exemption allows vessels issued a NE multispecies permit to fish in state waters for winter flounder using gear with mesh smaller than required for other vessels in the fishery (provided various requirements and criteria are met). Due to the severely depleted status of the SNE/MA winter flounder stock, and the goal of reducing fishing mortality to as close to zero as practicable, this SAP will be eliminated under this alternative. Elimination of the SAP will likely prevent some winter flounder from being caught.

7.0 Specifications for Fishing Year 2009

7.1 Measures for U.S./Canada Management Area

7.1.1 No Action

Under this alternative, No Action would be taken by NMFS to implement the recommendations of the TMGC and the Council and, therefore, no TAC for GB cod, haddock, or yellowtail flounder would be implemented for FY 2009 via this Interim Action. Vessels would still be constrained by the other regulations of the FMP, including DAS and closed areas. Measures to optimize the harvest of the U.S./Canada TACs, such as closure of the Eastern U.S./Canada Area to trawl vessels during May through July, would not be implemented.

7.1.2 Preferred Alternative

The Preferred Alternative would implement hard TACs for the U.S./Canada Management Area for FY 2009 (May 1, 2009 – April 30, 2010) as indicated in Table 27 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 2008 exceeded the pertinent 2008 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 adjustment in the first quarter of the fishing year.

Table 27. Proposed FY 2009 U.S./Canada TACs (mt) and Percentage Shares

	Eastern GB Cod	Eastern GB Haddock	GB Yellowtail Flounder
Total Shared TAC	1,700	30,000	2,100
U.S. TAC	527 (31%)	11,100 (37%)	1,617 (77%)
Canada TAC	1,173 (69%)	18,900 (63%)	483 (23%)

These proposed TACs are based on the TRAC's guidance to the TMGC (July 2008), and the TMGC's recommendations (TMGC Meeting of September 9, 10, 2008). The Council voted on October 8, 2008, to adopt the recommendations of the TMGC. The increases in haddock TAC over the 2008 fishing year reflects the increase in stock size as well as increases in the percentage shares for the U.S. The decrease in the TACs for Eastern GB cod and GB yellowtail flounder reflect mostly the stock status. The weighting formula used to determine the percentage shares was 85/15 (resource distribution/historic utilization). 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.

Secondly, similar to what was implemented in FY 2008 at the request of the Council, this alternative would delay the opening of the Eastern U.S./Canada Area until

August 1, 2009, for trawl vessels, in order to prolong access to the area during the fishing year. Vessels fishing with longline gear, which is more selective, will be allowed to fish during the May through July period, but will be subject to a limit on the total amount of cod they may catch equal to 5 percent of the Eastern U.S./Canada GB cod TAC, i.e., 26.4 mt. Because the period of May through July has historically been a period with a high catch rate of cod, prohibiting trawl vessels from fishing in the Eastern U.S./Canada Area during this time period will reduce the bycatch of cod and minimize the likelihood that the cod TAC will be harvested. The overall goal is the maximization of the use of the cod, haddock, and yellowtail flounder TACs.

Third, this alternative would specify a 5,000 lb per trip possession limit for yellowtail flounder for vessels fishing in the U.S./Canada Management Area. Although the default regulations specify a 10,000 lb possession limit, data from the 2008 fishing year, during which there was a 5,000 lb per trip possession limit was successful early in the fishing year at maintaining catches at a rate that would harvest, but not exceed the annual yellowtail flounder TAC. Although the proposed TAC for GB yellowtail flounder for 2009 is less than that set for 2008, NMFS believes that 5,000 lb per trip is a reasonable possession limit to implement at the start of the fishing year.

Fourth, this alternative would authorize the use of the Ruhle Trawl (a.k.a."eliminator trawl") in the Eastern U.S./Canada Area in order to provide another specialized trawl option for vessels operators. The Ruhle Trawl has very large mesh on the forward portion of the net that enables escapement of many stocks of concern. Providing fishers with a total of 3 different trawl nets to choose from when fishing in the Eastern U.S./Canada Area (i.e., flatfish trawl, haddock separator trawl, and Ruhle trawl) will increase the likelihood that vessels may fish in the area and reduce catch rates of stocks of concern.

Lastly, this alternative would allocate zero trips in the CA II Yellowtail Flounder SAP during the 2009 fishing year, based on a determination that the available GB yellowtail flounder TAC is insufficient to support a minimum level of fishing activity within the CA II SAP. The Regional Administrator has the authority to determine the allocation of the total number of trips into the CA II SAP based upon several criteria, including the GB yellowtail flounder TAC level and the amount of GB yellowtail flounder caught outside of the SAP. As implemented by FW 40B, zero trips to this SAP should be allocated if the available GB yellowtail flounder catch is not sufficient to support 150 trips with a 15,000 lb trip limit (i.e., if the available GB yellowtail flounder catch is less than 1,021 mt). This calculation takes into account the projected catch from the area outside of the SAP. Based on the estimate for catch outside of the SAP utilized for the 2008 fishing year (1,376 mt), and the proposed GB yellowtail TAC for 2009 (1,617 mt) there is insufficient available catch to allow the SAP to proceed (i.e., 1,617 – 1,376 = 241; 241 < 1,021 mt).

7.2 Haddock TAC for the Closed Area I Hook Gear Haddock SAP

7.2.1 No Action

Under the No Action Alternative, the haddock TAC for the CA I Hook Gear Haddock SAP would remain the same, and would not be revised to reflect the most recent scientific information (GARM III stock assessment for GB haddock).

7.2.2 Preferred Alternative - Revised Haddock TAC

A haddock TAC for the CA I Hook Gear Haddock SAP would be specified based upon the formula implemented in FW 42. The haddock TAC in a particular year is based upon the TAC that was specified for the SAP in 2004 (1,130 mt), and scaled according to the size of the exploitable biomass of western GB haddock compared to the biomass size in 2004 (35,317 mt). The size of the western component of the GB haddock stock is estimated as 35 percent of the size of the total GB haddock stock. Therefore, if the 2007 exploitable biomass of haddock is 322,149.2 mt, the formula and resultant TAC is as follows: ((.35)(322,149.2)/35,317) X 1,130 = 3,607.6 mt. This TAC is 3.4 mt larger than calculated for the Draft EA and the proposed rule due to a minor input error into the stock assessment that was corrected and resulted in a re-estimate of the stock size.

8.0 Measures for the Recreational Fishery to Reduce Fishing Mortality

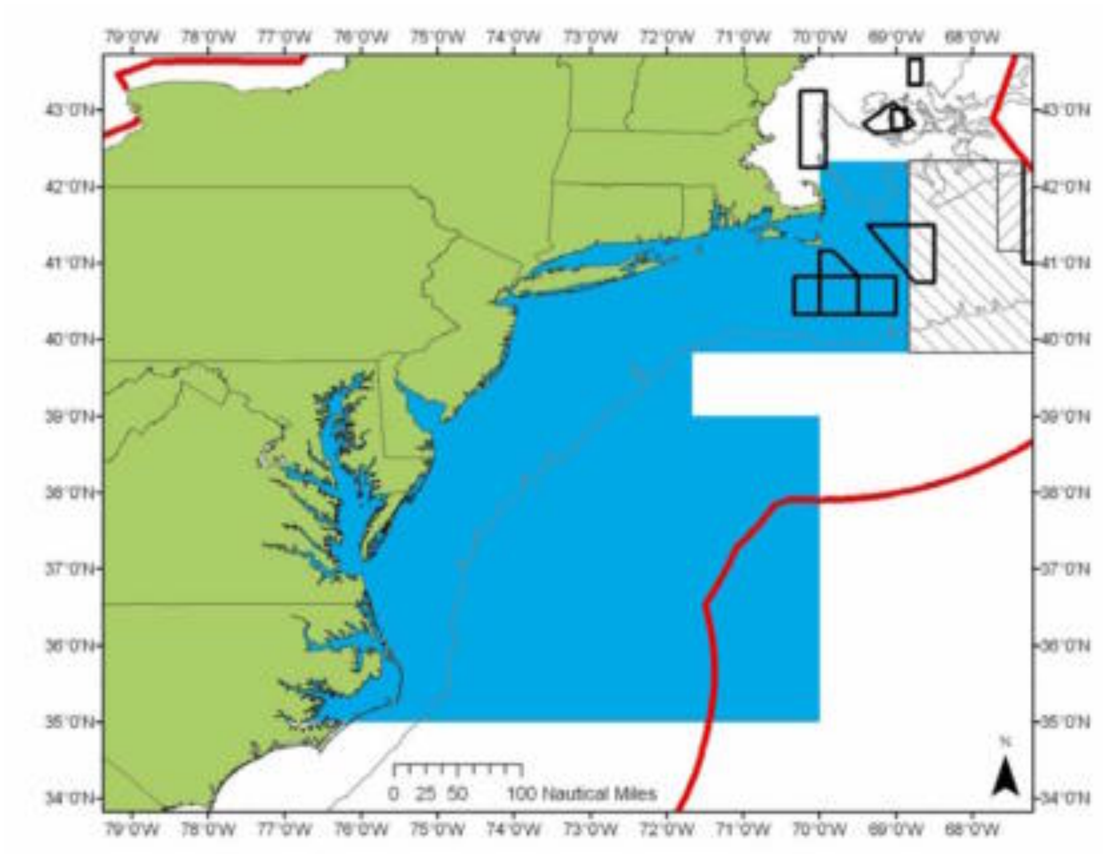
8.1 No Action Alternative

Under the No Action alternative, no new measures would be implemented to reduce fishing mortality on the recreational fishery (neither for private recreational vessels or party/charter vessels). Under the No Action alternative, the current suite of management restrictions in the FMP that apply to private recreational vessels and party/charter vessels (bag limits, size restrictions, area restrictions, etc, as implemented by current regulations) would remain in effect until Amendment 16 is implemented. NMFS anticipates that the Council will submit Amendment 16 to NMFS in early 2009 fishing year, and if approved by NMFS, Amendment 16 would be implemented by May 2010.

8.2 Preferred Alternative

This alternative would modify the current recreational restrictions in order to further reduce fishing mortality on GOM cod, GB cod, and SNE winter flounder. The current seasonal prohibition on the possession of GOM cod for both private recreational and charter/party vessels will be extended from its current duration of November through March to November through April 15. Secondly this alternative would implement a GB cod trip limit for party/charter vessels of 10 cod per person per day (consistent with the GOM cod trip limit for party/charter vessels). Lastly, retention of winter flounder caught in the SNE/MA stock area will be prohibited. The SNE/MA winter flounder stock area is depicted in Figure 6.

Figure 6. The Southern New England/Mid Atlantic Winter Flounder Stock Area



9.0 Mitigating Measures

9.1 Reduction of Haddock Minimum Size

9.1.1 No Action

The No Action alternative would take no action to reduce the haddock minimum size to 18 inches, and therefore the current 19 inch minimum size restriction for haddock would remain in place.

9.1.2 Preferred Alternative

Under this alternative the haddock minimum size for both commercial and recreational vessels would be reduced from 19 inches to 18 inches in order to increase yield and decrease discarding. The GB stock is rebuilt, while the GOM stock is 99 percent rebuilt. Furthermore, a portion of the large 2003 year class of haddock is still below the current 19 inch minimum fish size.

9.2 Extension of the Eastern U.S./Canada Haddock SAP

9.2.1 No Action

The No Action alternative would take no action to reauthorize the Eastern U.S./Canada Haddock SAP, and therefore this SAP would not be in effect for FY 2009 because, as specified in the FMP, this SAP expires at the end of FY 2008 (i.e., April 30, 2009).

9.2.2 Preferred Alternative

Under this alternative the Eastern U.S./Canada Haddock SAP, which is set to expire at the end of the 2008 fishing year on April 30, 2009, would be extended for the duration of the interim action, in order to continue to facilitate access to GB haddock. This SAP allows vessels fishing with trawl gear to fish in a portion of the Eastern U.S./Canada Area, including a section of the northern portion of CA II (the “triangle”), under a Regular B DAS or a Reserve B DAS. This SAP allows a vessel to utilize a Category B DAS and fish in the “triangle”, not otherwise excessible. The geographic area would remain unchanged, and the rules that apply would remain unchanged, with the exception of the reallocation of the incidental catch TACs (Table 10). It should be noted that most of the area in the SAP (the area to the west of CA II) may be fished by vessels under an A DAS, when not enrolled in the SAP.

Vessels must fish with either a haddock separator trawl or the Ruhle Trawl, and are subject to restrictive possession limits in order to provide an incentive to correctly use the specialized trawl gear to help minimize bycatch of stocks of concern. Catch of stocks of concern on trips that end under a B DAS count toward the incidental catch TACs specified for pollock, GB cod, GB winter flounder, and GB yellowtail flounder. The total amount of these stocks of concern caught is limited by these incidental catch TACs, and the program is subject to a higher level of observer coverage than the NE multispecies fishery at large. Furthermore, there are specialized rules that are required when fishing in this SAP, including those regarding observer notification, VMS declaration, reporting requirements, and a no discard provision.

9.3 Regular B DAS Program Modifications

9.3.1 No Action

The No Action alternative would take no action to revise the Regular B DAS Program based on updated scientific information, or to optimize the operation of the program.

9.3.2 Preferred Alternative

The Regular B DAS Program was designed to provide opportunities to target healthy stocks without threatening stocks for which a mortality reduction is required. The program allows the use of Regular B DAS provided the Program requirements designed to minimize impacts of stocks of concern are met. Under this alternative several revisions would be made to the Regular B DAS Program in order to address the current status of stocks and necessary reductions to fishing mortality, as well as maintain the usefulness of the Regular B DAS Program. Due to the change in the status of stocks, an incidental catch TAC is no longer appropriate for American plaice because, based on information in GARM III, it is no longer a stock of concern. Further, new incidental catch TACs would be required for GOM winter flounder and pollock, because they are now considered stocks of concern based on the most recent scientific information. The size of the witch flounder TAC for this program is reduced from 5% to 2% due to the status of the stock and the fact that the fishing mortality and total catch need to be reduced. The incidental catch TACs for GOM winter flounder and pollock are set at 5%, based on the rationale described in FW40A: If the recent catch levels are less than the expected future catch levels and proposed management measures are likely to achieve more than the required reduction in fishing mortality, then the size of an incidental catch TAC relative to the size of the overall TAC is larger (set as a larger percent). The number of total incidental catch TACs would increase from the current number (8) to 10. Due to the severe fishing mortality reduction necessary for the SNE/MA stock of winter flounder, no retention of this stock is allowed under this alternative, and there is no incidental catch TAC specified. Under current regulations, the Regional Administrator has the authority to close the Regular B DAS Program if it is projected that continuation of the Regular B DAS Program would undermine the achievement of the objectives of the FMP. NMFS will closely monitor the level of discarding of SNE/MA winter flounder in the Program, as well as all stocks of concern, to ensure that all fishing mortality objectives are not jeopardized.

In order to prevent the quarterly incidental catch TACs from limiting the usefulness of the program, any quarterly incidental catch TAC that remains uncaught from quarters one, two and three will roll over into the subsequent quarter.

Due to the number of flatfish stocks that need reductions in fishing mortality, the use of low profile (tie-down) gillnets would be prohibited on trips fishing under the Regular B DAS Program. Within the NE multispecies fishery, flatfish are traditionally targeted by reducing the vertical height of bottom-set gillnets by tying the floatline of a gillnet to the leadline, or modifying the contruction of the floatline to reduce or eliminate its buoyancy. Thus, because targeting flatfish stocks of concern is not consistent with the goals of the Regular B DAS Program, the use of low profile gillnet gear would be prohibited under this Program.

Under current regulations, when 100 percent of the incidental catch TAC for white hake has been harvested, vessels fishing under a Regular B DAS are prohibited from retaining white hake. This is in contrast to the rules pertaining to the other incidental catch TACs in the Regular B DAS Program, whereby when the TAC is projected to be harvested, the use of Regular B DAS are prohibited in the pertinent stock area for the duration of the quarter. This alternative would treat pollock and witch flounder in the same manner as white hake. Thus, when 100 percent of the incidental catch TAC for white hake, or pollock, or witch flounder has been harvested, vessels fishing under a Regular B DAS are prohibited from retaining white hake, or pollock, or witch flounder. Because white hake, pollock and witch flounders have stock areas that cover the GOM, GB, and SNE/MA areas, if the harvest of the TAC were to trigger a shutdown of the pertinent stock area, the entire Regular B DAS Program would be shut down. The Regional Administrator will be provided the authority to modify the pertinent possession restriction, or implement other measures including a partial closure for the regular B DAS Program, in order to prevent excessive discarding of the stock.

9.4 DAS Leasing Program Modifications

9.4.1 No Action

The No Action alternative would take no action to eliminate the current prohibition on leasing DAS between sector and common pool vessels. The prohibition that sectors may not lease to or from common pool vessels would remain in effect. The no action alternative would not remove the DAS leasing cap that limits the number of DAS a lessee may lease.

9.4.2 Preferred Alternative

Under the Preferred Alternative, the current prohibition on leasing DAS between sector and common pool vessels would be eliminated in order to increase flexibility and efficiency in the DAS leasing market. Secondly, the limit on the maximum number of DAS that a vessel sector and common-pool vessels) may lease is eliminated. Amendment 13 implemented a restriction that a lessee may lease Category A DAS in an amount up to the vessel's 2001 fishing year allocation (excluding carry-over DAS from the previous year, or additional DAS associated with obtaining a Large Mesh permit). This restriction would be removed in order to increase flexibility and efficiency in the DAS leasing market.

9.5 DAS Transfer Program Modifications

9.5.1 The No Action

The No Action Alternative would make no modifications to the DAS Transfer Program. A DAS conservation tax would remain in effect for all DAS transfers (20 percent DAS tax on Category A and B DAS and 90 percent DAS tax on Category C DAS).

9.5.2 Preferred Alternative

Under the Preferred Alternative, the DAS conservation tax would be removed from the DAS Transfer Program. Specifically, the mandatory reduction in Category A and B DAS (twenty percent), and in Category C DAS (ninety percent), would no longer apply when vessels participate in the DAS Transfer Program. No DAS tax refunds will be made for permits that were historical participants in the DAS Transfer Program that were charged the DAS conservation tax. The Council proposed modifications to the DAS Transfer Program in Amendment 16 in order to provide an additional incentive to permanently transfer groundfish DAS, provide for parity of the DAS Transfer Program with the DAS Leasing Program, facilitate consolidation of permits, and provide flexibility for vessels to mitigate the negative impacts of DAS reductions and other management measures. NMFS is proposing this temporary modification to the program for the same reasons the Council proposed such changes. The limited duration of the tax-free period (due to the limited duration of the proposed Interim Action) would limit the amount of any effect the change may have on increasing the overall DAS use rate. NMFS is not proposing a DAS tax refund because it would be counter to the regulations that have been in place.

9.6 Closed Area I Hook Gear Haddock SAP Modification

9.6.1 No Action

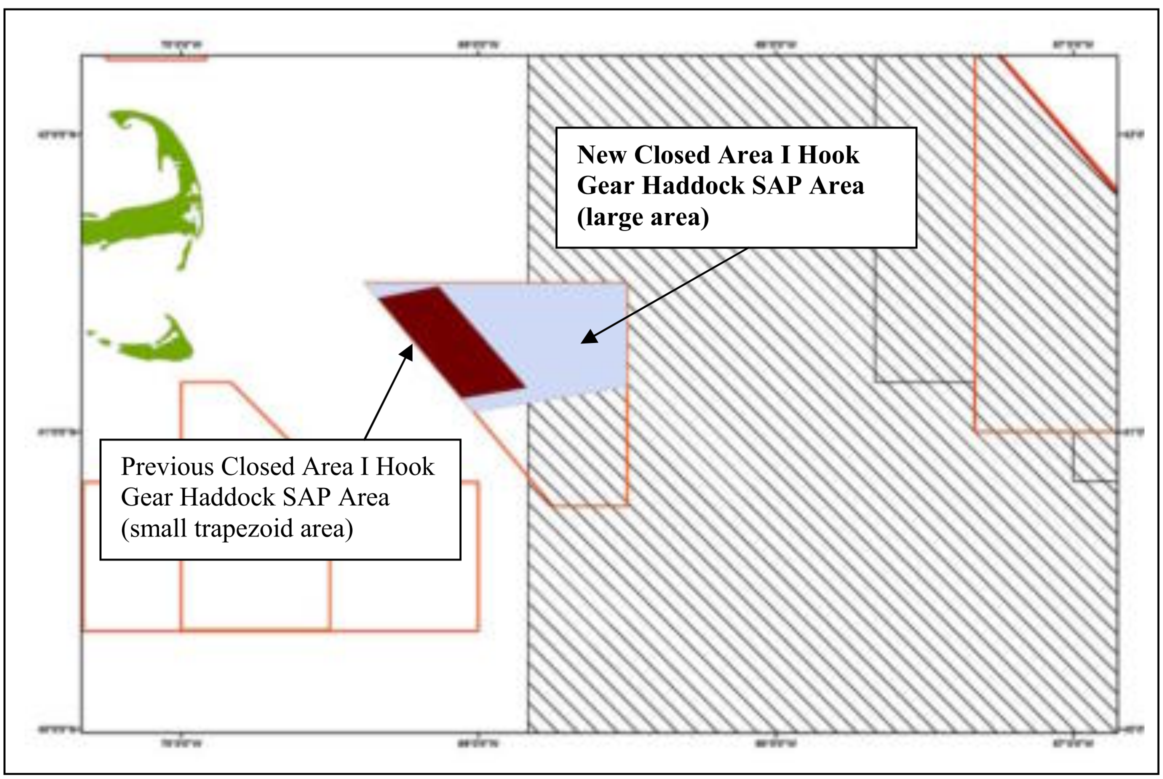
Under the No Action Alternative, no modifications to the SAP will be made.

9.6.2 Preferred Alternative

In the draft EA and in the January 16, 2009 proposed rule, NMFS considered but rejected the Council’s Amendment 16 proposed mitigating measures (and the Council’s proposed interim measure) to modify the CA I Hook Gear Haddock SAP. The Council’s request for the 2009 interim action to modify the CA I Hook Gear Haddock SAP would expand the geographic and temporal scope of the SAP, and remove the division of the SAP into two time periods (for common pool and sector vessels). At the time of the proposed rule, NMFS determined that the expansion of the CA I Hook Gear Haddock SAP was not supported by relevant research. Subsequent to the proposed rule, NMFS was made aware of pertinent data that supported the expansion of the SAP, and is therefore now including the Council's requested SAP modifications as part of the preferred alternative.

The modifications to the CA I Hook Gear Haddock SAP are intended to increase opportunity to access GB haddock and provide additional flexibility to vessels. The time period for the SAP is modified from October through December to May through January, and expands the area within CA I where vessels may fish to the east and south to encompass a substantial portion of CA I (Figure 7). The division of the SAP and the corresponding haddock TAC into two time periods, will be eliminated. All limited access NE multispecies DAS vessels fishing with hook gear may fish in the SAP at any time (provided the SAP is open), regardless of whether the vessel is enrolled in a sector or is in the "common pool." This preferred alternative will also implement a provision that was not included in the Council's proposed measure, i.e., the elimination of the requirement that vessels intending to participate in the SAP provide a one-time notification to the observer program in advance of the SAP season. The requirement to notify the observer program in advance of each trip is maintained and unchanged. In addition, this preferred alternative will also prohibit the use of squid as bait for vessels when fishing in this SAP in order to decrease the likelihood of catching cod

Figure 7. Revised CA I Hook Gear Haddock SAP Area Definition



The coordinates that define the revised CA I Hook Gear Haddock SAP are as follows: 41° 09' N. lat., 68° 30' W. long.; 41° 30' N. lat., 68° 30' W. long; 41° 30' N. lat., 69° 23' W. long; and 41° 04' N. lat., 69° 01' W. long.

9.7 Monkfish Mitigation Measure

9.7.1 No Action

No modification of the monkfish rules will be implemented to mitigate impacts of the NE multispecies differential DAS restrictions.

9.7.2 Modification of Monkfish Only DAS Rules

Because vessels with a limited access Monkfish Category C and D permit are required to concurrently use a groundfish DAS in most circumstances, the differential DAS requirements of Preferred Alternative 4 impact such vessels. Although vessels fishing under concurrent monkfish and groundfish DAS in a differential DAS area still utilize monkfish DAS at a 1:1 rate, the fact that their groundfish DAS are used at the rate of 2:1 indirectly limits the ability for such vessels to fish for monkfish in the future because once a vessel runs out of groundfish DAS, their ability to fish under a monkfish-only DAS is limited. This mitigation measure would provide economic relief to groundfish vessels that also possess either a Category C or D monkfish permit by allowing these vessels to accrue a monkfish only DAS while fishing for groundfish in a 2:1 differential DAS counting area.

For example, a vessel with 40 groundfish DAS and 31 monkfish DAS that fished under a groundfish (or groundfish/monkfish) DAS in a 2:1 differential DAS counting area for 20 days would use all of its 40 groundfish DAS allocation, and concurrently, 20 of its monkfish DAS allocation (because monkfish DAS are counted on a 1:1 basis in the differential DAS area). In other words, the vessel would have used a total of 20 of the 31 allocated monkfish DAS, and have a remaining balance of 11 monkfish DAS, and zero groundfish DAS. Without a regulatory change that allows a vessel to accrue a monkfish only DAS while fishing for groundfish in a 2:1 differential DAS area, once the vessel used up its groundfish DAS, the vessel would be unable to fish monkfish only DAS, and in this example 11 remaining monkfish DAS would have to be forgone. In this example, the mitigation measure would restore the ability for the vessel to use the remaining 11 monkfish DAS as monkfish only DAS. Vessels with monkfish only DAS may fish these DAS in the exempted fishery programs allowed under 50 CFR §648.80.

10.0 Alternatives Considered but Rejected

10.1 New Rebuilding Plans

NMFS considered but rejected implementing new stock rebuilding plans. Although GARM III indicated that 4 stocks were newly overfished and therefore, do not have rebuilding plans (windowpane north, witch flounder, GOM winter flounder, and GB winter flounder), the primary purpose of this action is to comply with the current rebuilding plan requirements to reduce fishing mortality (for a duration of up to one year). Implementation of new rebuilding plans and permanent modification of the FMP is outside the scope of this action. Under the current national standard guidelines, Magnuson-Stevens Act requires that the Council take remedial action within 1 year of the time the Secretary identifies that a stock is overfished. On September 2, 2008, NMFS informed the Council of overfished stocks (pollock, northern windowpane flounder, GOM and GB winter flounder, and witch flounder), and subsequently modified that letter on October 3, 2008. NMFS presumes that the Council will propose the necessary rebuilding plans in Amendment 16.

10.2 Management Measures to Reduce Fishing Mortality in the Commercial Fishery

10.2.1 NE Council's Recommended Alternative

NMFS considered but rejected the Council's recommended alternative for the interim action. This alternative proposes maintaining the Amendment 13 18% default DAS reduction and target TACs for GB yellowtail flounder, SNE/MA yellowtail flounder, CC/GOM yellowtail flounder, American plaice, witch flounder, GB winter flounder, GOM winter flounder, redfish, white hake, pollock, GB cod, and GOM cod. The proposed TACs would be those associated with Frebuild for all stocks except for the two cod stocks which would be the TACs associated with Fmsy, and the TAC for SNE/MA winter flounder would be lower than that associated with Fmsy. The Council's proposal also included a 5,000 lb trip limit on SNE/MA winter flounder, and a 1,000 lb/DAS and 5,000 lb/trip limit on witch flounder. TAC overharvests in 2009 would be deducted from the FY 2010 TACs, and sectors would not be held responsible for 2009 over-harvests that they were not responsible for. Amendment 16 was proposed by the Council as the means by which the 2009 TAC overharvests would be reconciled in 2010.

Proposed mitigation measures included in the Council's recommended alternative are as follows: An 18-inch haddock minimum size; an extension of the Eastern U.S./Canada Haddock SAP; expansion of the CA I Hook Gear Haddock SAP; removal of the DAS Transfer Program's conservation tax; and removal of the restriction that prohibited sector members from leasing to and from common pool vessels.

Although it is true for some stocks that the appropriate amount of catch in 2009 (i.e., the projected TACs associated with Fmsy or F rebuild) are similar to or larger than recent catch levels for many stocks, because of the large fishing mortality reductions necessary to end overfishing, particulary for SNE/MA winter flounder, NMFS has determined that the Council's recommended alternative is insufficient to meet these objectives.

In order to estimate the amount of fishing mortality that can be expected from a given allocation of DAS, NMFS utilizes the CAM, which incorporates multiple factors, and provides indications of relative changes in fishing exploitation. Data used by the model include average catch per unit effort by species, gear type, block and month, prices by species and month, and effort by vessel and month. A CAM analysis was conducted that verified that the No Action Alternative resulted in essentially the same fishing mortality reductions as the Council's Proposed Alternative (overage deductions of the Council's specified target TACs was not analyzed as part of this alternative, given that it such deductions are outside the authority of the interim action). NMFS rejected the Council's alternative because CAM analyses of the No Action Alternative indicated that fishing mortality reductions were not sufficient to meet the stated fishing mortality goals for 7 stocks (Table 146).

The Preferred Alternative of this EA would be insufficient for 6 stocks, however, the Council's proposed alternative would not have achieved the rebuilding fishing mortality for SNE/MA yellowtail flounder and SNE/MA winter flounder, two stocks of particular concern, and would have achieved slightly less fishing mortality reduction for 4 of the other stocks where the target mortality reductions are not achieved (i.e., GB cod, pollock, and northern and southern windowpane flounder). The Council's proposed alternative would have achieved approximately the same reduction as the Preferred Alternative for GOM cod. The economic impacts of the Council's alternative were inferred from the economic analysis of the No Action Alternative.

10.2.2 Expanded Regular B DAS Program Alternative

NMFS considered but rejected an alternative to reduce commercial fishing effort that would have modified and expanded the scope of the Regular B DAS Program such that only a Category B DAS could be utilized. Although such an alternative would have likely been effective at reducing fishing mortality of stocks of concern, the requirement that trawl vessels utilize specialized nets would have been very costly for the industry, and the program as a whole would have resulted in unnecessary loss of yield from several groundfish stocks.

10.2.3 Modified Council Alternative; Hard TAC Alternative

A hard TAC alternative was developed, but rejected. This alternative was developed based upon a September 4, 2008, Council motion that recommended the interim action rely on the default DAS reduction in conjunction with target TACs and trip limits for SNE/MA winter flounder and witch flounder to achieve the required fishing mortality reductions. Under this alternative, the default DAS reductions for 2009 (modification to the Category A DAS and Category B DAS ratio from 55: 45, to 45: 55 (respectively)) implemented by Amendment 13 to the FMP would remain in effect and many of the groundfish stocks in need of a fishing mortality reduction would be under a hard TAC. This decrease in the amount of A DAS represents an 18.2 percent decrease in the number of A DAS a vessel may fish. This alternative was rejected due to two principle reasons: 1) It is likely that the TACs for at least two stocks (GB cod and pollock) would have resulted in fishery closures relatively early in each trimester; and 2) the complexity of a hard TAC management system and the associated cost and difficulties in its implementation to both the fishing industry and NMFS would make it impractical to successfully implement in the short period of an interim action and possibly inconsistent with Magnuson-Stevens Act National Standards and required provisions.

NMFS modified the Council's alternative to include 'hard' TACs, instead of target TACs in order to reduce the risk that appropriate catch levels would be exceeded. A target, or 'soft' TAC system does not have any immediate management measures that are triggered when the specified amount of TAC has been caught, and thus, the harvest could exceed a TAC and overfishing could ocurr. In contrast, under the 'hard' TAC system of this alternative, when it is projected that the TAC for a particular stock will be caught, the pertinent geographic area for that stock would close to the use of gear capable of catching that species. Secondly, the Council's alternative proposed an accountability system that overharvests of the FY 2009 target TACs would be deducted from FY 2010 TACs. For such a system to work, the Council would need to implement a management system in Amendment 16 to deduct FY 2009 overharvests from FY 2010 TACs. Such a system, that is intended to affect multiple fishing years, may be unlawful to implement through an interim action, because in order for the management system to be complete and include TAC deductions, it would have to rely on a future management measures that are not being implemented (because the interim action only would affect FY 2009).

Under this rejected alternative, hard TACs would have been specified for all stocks, with the exception of Atlantic halibut, ocean pout, SNE/MA winter flounder, and both the southern and northern stocks of windowpane flounder. For Atlantic halibut and ocean pout no hard TACs were considered because the species are not targeted, and recent bycatch levels are expected to be similar to the catch level associated with the fishing mortality level estimated to rebuild the stocks. Furthermore, the DAS reduction will further reduce the risk that the catch levels will increase for these stocks. No hard TACs were considered for SNE/MA winter flounder or the southern stock of windowpane due to the severe measures that would be necessary. Instead, the following management measures for the SNE/MA were considered as described below in this section.

The overall hard TAC amounts would be calculated using projected catch levels that are associated with the required fishing mortality rate and the projected stock size in 2009. For each stock with a hard TAC, the annual TACs would be divided into three trimester TACs in order to minimize the scope of derby fishing behavior and to increase the likelihood that the fishery would be conducted throughout the fishing year. For most stocks, the TACs would be divided evenly among trimesters, but for those stocks that have shown a distinct seasonality during fishing years 2005 to 2007, the trimester TAC allocations would be based upon the average percent of the annual landings in a trimester. The uncaught TAC for the first two trimesters would roll over into the following trimester in order to provide flexibility for the fishery to maximize catch of the available TAC.

In order to administer a hard TAC system, four geographic areas would be defined (GOM, Inshore GB (IGB), GB, and SNE/MA) that correspond to the stock area boundaries common to multiple groundfish stocks (Figure 8). When NMFS projects that 100% of a TAC would be caught (landings plus discards), the area that corresponds to the stock area will be closed to the use of Category A DAS by vessels fishing with gear capable of catching the respective stock (Table 28). Because a hard TAC system of this type is novel to the FMP, in order to ensure the system has adequate flexibility to prevent catch from exceeding the TACs and also prevent under-utilization of TACs, the Regional Administrator would have authority to implement in-season action that would modify gear types and trip limits in addition to closure authority.

Figure 8. TAC Management Areas

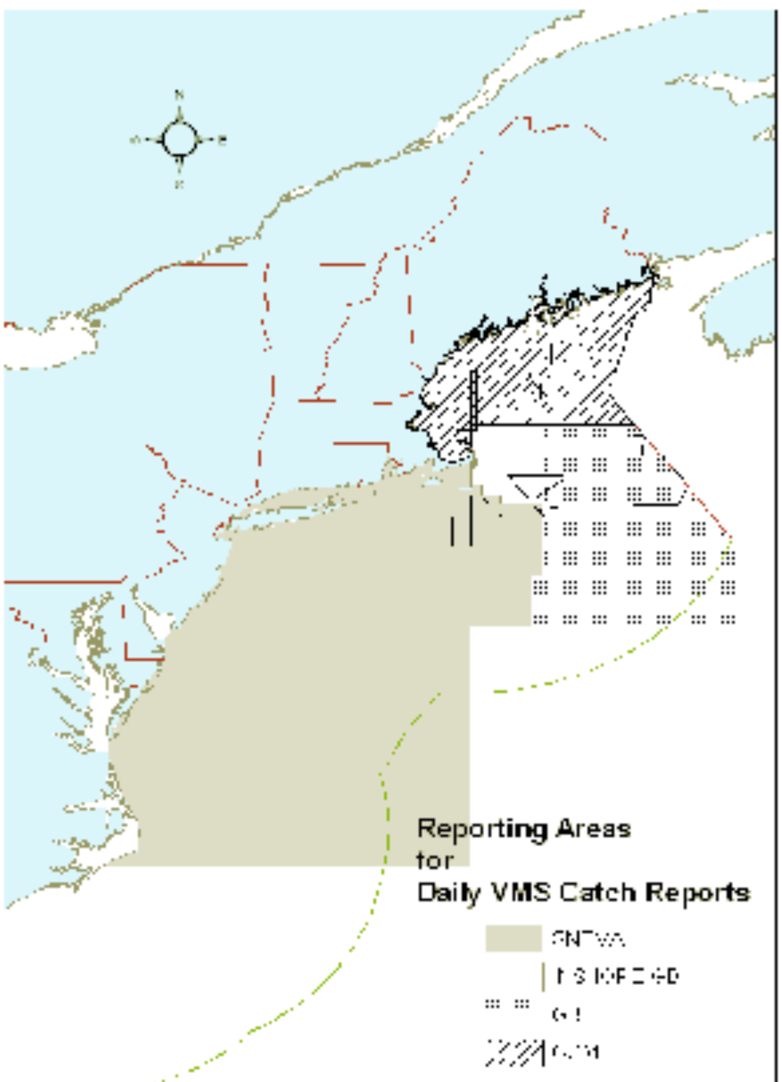


Table 28. Gears Prohibited in TAC Mangement Areas when a TAC is caught

Species	Stock	Area/Gear Prohibited When TAC is Caught	
		TAC Management Area	Gear
Cod	GB	IGB, GB, SNE	Trawl, gillnet, longline/hook
	GOM	GOM	Trawl, gillnet, longline/hook
Haddock	GB	GOM, IGB	Trawl, gillnet, longline/hook
	GOM	GOM	Trawl, gillnet, longline/hook
Yellowtail flounder	GB	GB	Trawl, gillnet
	SNE/MA	SNE	Trawl, gillnet
	CC/GOM	GOM, IGB	Trawl, gillnet
American plaice		GOM, IGB, GB, SNE	Trawl
Witch flounder		GOM, IGB, GB, SNE	Trawl
Winter flounder	GB	GB	Trawl
	GOM	GOM	Trawl, gillnet
	SNE/MA	SNE	Trawl
Redfish		GOM, IGB, GB, SNE	Trawl
White hake		GOM, IGB, GB, SNE	Trawl, gillnet, longline/hook
Pollock		GOM, IGB, GB, SNE	Trawl, gillnet, longline/hook

IGB = Inshore Georges Bank

Catch Monitoring

Modifications to the current catch monitoring program would be required in order to monitor landings and discards under this hard TAC alternative, within a timeframe that can allow NMFS to estimate the level of catch, make catch projections, and close a stock area prior to a TAC being exceeded. For each trip, vessels would be required to report the TAC Management Area fished (Figure 8) and the kept catch for each hard TAC species, for each area fished, prior to crossing the VMS demarcation line on the return to port. NMFS would calculate an assumed discard rate by gear that would be applied to each trip. The assumed discard rates would be based upon available discard information in the GARM III stock assessments. These methods were not fully developed. For stocks (or portions of stocks) managed under the U.S./Canada regulations, where a system is currently in place to monitor landings and estimate discards, the current U.S./Canada monitoring methodology would be used.

For the two current sectors, GB cod would be monitored in accordance with the Sector's approved Operations Plan, but sector members would be subject to the reporting requirements described above for the other hard TAC stocks. Vessels would be required to submit their VTR weekly instead of monthly (by the following Tuesday after the trip's landing date).

Trip Limits

The current trip limits would remain in place, with the following modifications in Table 29 below:

Table 29. Trip Limits

Stock	Trip Limit	Status
GOM cod	800 lb/DAS; 4,000 lb/trip	Status quo
GB cod	1,000 lb/DAS; 10,000 lb/trip	Status quo
Eastern U.S./Canada Area	500 lb/DAS; 5,000 lb/trip	Status quo
White hake	2,000 lb/DAS; 10,000 lb/trip	*Modified (previously 1,000/DAS; 10,000/trip)*
GOM/CC yellowtail flounder	250/DAS; 1,000 lb/trip	Status quo
GB yellowtail flounder	5,000 lb/trip	Status quo
SNE yellowtail flounder	250/DAS; 1,000 lb/trip	Status quo
GB winter flounder	No trip limit	*Modified (previously 5,000 lb/trip)*
SNE winter flounder	Zero retention	*Modified (no previous limit)*
Windowpane flounder north	Zero retention	*Modified (no previoius limit)*
Ocean pout	Zero retention	*Modified (no previous limit)*
Atlantic halibut	1 fish/trip	Status quo

New Closure Areas

This alternative includes new year round closed areas in order to reduce fishing mortality of particular stocks, target management measures in a relatively narrow manner and avoid further reductions in DAS allocations, which would impact all DAS vessels in the fishery. Specifically, closed areas in the GOM and SNE were developed to reduce fishing mortality on pollock, and the SNE/MA stock of winter flounder (respectively).

The current rolling and year-round closures, GB seasonal closure, and all other fishing effort control measures of the FMP, with the exception of the differential DAS areas would remain in effect. The differential DAS areas would be eliminated. Under this alternative, the currently approved sectors (GB Cod Hook Sector, and GB Cod Fixed Gear Sector) could operate if a FY 2009 Operations Plan is approved by the Regional Administrator, and the U.S./Canada Management Area regulations would be maintained (with new TACs specified), as described below.

Specification of Hard TACs

Hard TAC developed for this alternative were based upon GARM III assessments and projections using an estimated 2008 fishing mortality as described for Alternatives 1-3. A deduction for catch by non-groundfish fisheries and recreational catch was made for pertinent stocks, based upon draft Amendment 16 measures and historical catch information in GARM III. The deductions for non-groundfish fisheries is 5 percent for all stocks, with the exception of SNE/MA yellowtail flounder, which is 15 percent (10% for the scallop fishery); and 15% for GOM cod (10% for state waters fishery). The recreational deduction is based upon the average of recreational landings from 1997 through 2007, expressed as a percentage of total catch. No deduction for non-groundfish fisheries was made for GB yellowtail flounder because the in-season management of GB yellowtail flounder in the U.S./Canada Management Area enables consideration of the catch of GB yellowtail flounder by other fisheries. The final TACs reflect an additional small downward adjustment for certain stocks of concern to account for TAC allocations to special management programs. Each of the final TACs were divided into 3 trimester TACs based upon the average percentage of annual landings by trimester by species during fishing years 2005 through 2007 (NMFS, Preliminary Fishery Statistics Reports; http://www.nero.noaa.gov/ro/fso/mul.htm). (Appendix) The allocation of TACs to special management programs is described in Alternatives 1-3. The pertinent information on the TACs is described below in Tables 30 and 31.

Table 30. Derivation of Hard TACs (mt).

Species	Stock	GARM III TAC	Deduction for other fisheries	Deduction for recreational landings	Initial TAC	Final TAC
Cod	GB	3,506	526	210	2,770	2,714
Cod	GOM	10,327	516	2,375	7,435	7,361
Haddock	GB	86,520	4,326	Na	82,194	na
Haddock	GOM	1,564	78	532	954	na
Yellowtail	GB	1,617	*	Na	1,617	**
Yellowtail	SNE/MA	389	58	Na	331	327
Yellowtail	CC/GOM	860	43	Na	817	809
Plaice		3,214	161	Na	3,053	na
Witch		928	46	Na	882	864
Winter	GB	2,004	100	Na	1,904	1,866
Winter	GOM	379	19	19	341	324
Redfish		8,614	431	Na	8,183	na
White hake		2,376	119	Na	2,257	2,212

Pollock		8,015	401	561	7,053	6,701

Table 31. Trimester TACs (mt)

	Trimester 1		Trimester 2		Trimester 3	
Stock	%	Value	%	Value	%	Value
GB cod	37	1,004.31	32	868.59	31	841.45
GOM cod	37	2,723.58	32	2,355.53	31	2,281.92
GB haddock	38	31,233.72	31	25,480.14	31	25,480.14
GOM haddock	38	362.54	31	295.75	31	295.75
SNE/NA yellowtail	40	130.94	29	94.93	31	101.48
CC/GOM yellowtail	40	323.52	29	234.55	31	250.73
American plaice	37	1,129.72	36	1,099.19	26	793.86
Witch flounder	41	354.24	25	216	34	293.76
GB winter flounder	52	970.16	36	671.65	12	223.88
GOM winter flounder	52	168.48	36	116.64	12	38.88
Redfish	24	1,963.99	29	2,373.16	47	3,846.15
White hake	41	906.96	33	729.99	27	597.27
Pollock	29	1,943.15	39	2,613.2	32	2,144.16

10.2.4 Restrictions on Non-Groundfish SNE Fisheries

Restrictions on the non-groundfish fisheries in SNE in order to reduce the fishing mortality of SNE winter flounder were consideredd, but rejected. The principal non-groundfish fisheries in SNE that have a bycatch of SNE winter flounder are the fluke and scallop fisheries that catch winter flounder with a bottom trawl and scallop dredge, respectively. GARM III (Table J5), which assumes zero survival of winter flounder discards, estimates that a total of 228 mt of SNE winter flounder was discarded in 2007. Of these discards, trawl gear was responsible for approximately 151 mt (66%), while scallop dredge gear was responsible for approximately 77 mt (34%). With respect to the toal catch of SNE winter flounder in 2007 (1,966 mt, including recreational landings), discards by scallop dredge represents approximately 4 percent. The GARM III data did not break down the estimate of trawl discards into small and large mesh, therefore additional analytical deductions must be made.

A 2008 paper by Wigley et. al. ("A Brief Description of the Discard Estimation for the National Bycatch Report") estimated discards of groundfish based on 2005 data, and provided information on the percentage of winter flounder discards by trawl that were attributed to the groundfish fishery and the fluke fishery. The fluke fishery discards comprised 65% of the total trawl discards. Applying the 65% from the above paper to the GARM III information results in a 2007 estimate of SNE winter flounder discards by the fluke fishery of 98 mt (compared to 51 mt of discards by the groundfish fishery). With respect to the total catch of SNE winter flounder in 2007 (1,966 mt), the discards by the fluke fishery represent approximately 5 percent.

Because only about 10% of the SNE winter flounder catch is attributable to the fluke and scallop fisheries, the short term duration of the proposed action, and the fact that this action would not impose management measures on the groundfish fishery to achieve greater than a 79% reduction in fishing exploitation, restrictions on non-groundfish fisheries in SNE were considered, but rejected. Measures directed at non-groundfish fisheries in a short-term interim action would likely be disruptive to such fisheries, with a low benefit to cost ratio. The Council is developing a long-term strategy in Amendment 16 that will include measures for addressing SNE winter flounder in a comprehensive manner.

Alternatives to Reduce Commercial Fishing Mortality Considered After the Comment Period

NMFS considered but rejected two additional alternatives after the comment period on the proposed rule closed. The first was similar to the Proposed Rule Alternative (Alternative 3), but utilized a 2:1 Interim Differential DAS Area in SNE instead of the Closure Area (retaining the large proposed Interim GOM Differential DAS Area). The second considered, but rejected alternative contained the same measures as the first one, with the exception that the overlap of interim differential DAS areas with the U.S./Canada Management Area was removed. Based on a CAM analysis, compared to the Preferred Alternative, both of these rejected alternatives would have resulted in greater reduction in fishing mortality and greater reduction in revenue. Compared with the Proposed Rule Alternative, both of these rejected alternatives would have resulted in less reduction in fishing mortality and less reduction in revenue.

10.3 Mitigating Measures

In the draft EA and in the January 16, 2009 proposed rule, NMFS considered but rejected the Council's Amendment 16 proposed mitigating measures to modify the Closed Area I SAP. Based on pertinent information received during the comment period, as explain in the Environmental Impacts section of this EA, NMFS subsequently incorporated this mitigating measure into the Preferred Alternative in this Final EA.

The Council's proposal for the Closed Area II SAP, which would allow targeting of either haddock or yellowtail flounder when fishing in this area, would represent a major modification to this SAP. NMFS is unaware of pertinent research that would support the conclusion that the expansion would have minimal impacts on stocks of concern. Therefore, the proposed SAP modification may have potential adverse impacts on stocks of concern, and could undermine the utility of Closed Area II.

11.0 Affected Environment

The following section includes a brief description of the various resources and entities likely to be affected by the actions proposed by this action. Although this section deals with the affected environment, it does not present the affects of the proposed management program. This section presents the baseline against which the alternatives are compared.

11.1 Physical Environment

The Northeast U.S. Shelf Ecosystem has been described as including the area from the GOM south to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream (Figure 9). The continental slope includes the area east of the shelf, out to a depth of 2000 m. Four distinct sub-regions comprise the NOAA Fisheries Northeast Region: the GOM, GB, the Mid-Atlantic Bight, and the continental slope. Occasionally another sub-region, SNE, is described; however, we incorporated discussions of any distinctive features of this area into the sections describing GB and the Mid-Atlantic Bight.

The GOM is an enclosed coastal sea, characterized by relatively cold waters and deep basins, with a patchwork of various sediment types. GB is a relatively shallow coastal plateau that slopes gently from north to south and has steep submarine canyons on its eastern and southeastern edge. It is characterized by highly productive, well-mixed waters and strong currents. The Mid-Atlantic Bight is comprised of the sandy, relatively flat, gently sloping continental shelf from southern New England to Cape Hatteras, NC. The continental slope begins at the continental shelf break and continues eastward with increasing depth until it becomes the continental rise. It is fairly homogenous, with exceptions at the shelf break, some of the canyons, the Hudson Shelf Valley, and in areas of glacially rafted hard bottom.

Pertinent physical characteristics of the three sub-regions that could potentially be affected by this action are described in this section. Information included in this document was extracted from Stevenson et al. (2004).

11.1.1 Gulf of Maine

Although not obvious in appearance, the GOM is actually 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 GB (Figure 10). The GOM was glacially derived, and is characterized by a system of deep basins, moraines and rocky protrusions with limited access to the open ocean. This geomorphology influences complex oceanographic processes that result in a rich biological community.

The GOM is topographically unlike any other part of the continental border along the U.S. Atlantic coast. The GOM's geologic features, when coupled with the vertical variation in water properties, result in a great diversity of habitat types. It contains twenty-one distinct basins separated by ridges, banks, and swells. The three largest basins are Wilkinson, Georges, and Jordan. Depths in the basins exceed 250 meters (m), with a maximum depth of 350 m in Georges Basin, just north of GB. The Northeast Channel between GB and Browns Bank leads into Georges Basin, and is one of the primary avenues for exchange of water between the GOM and the North Atlantic Ocean.

Figure 9. Northeast U.S Shelf Ecosystem.

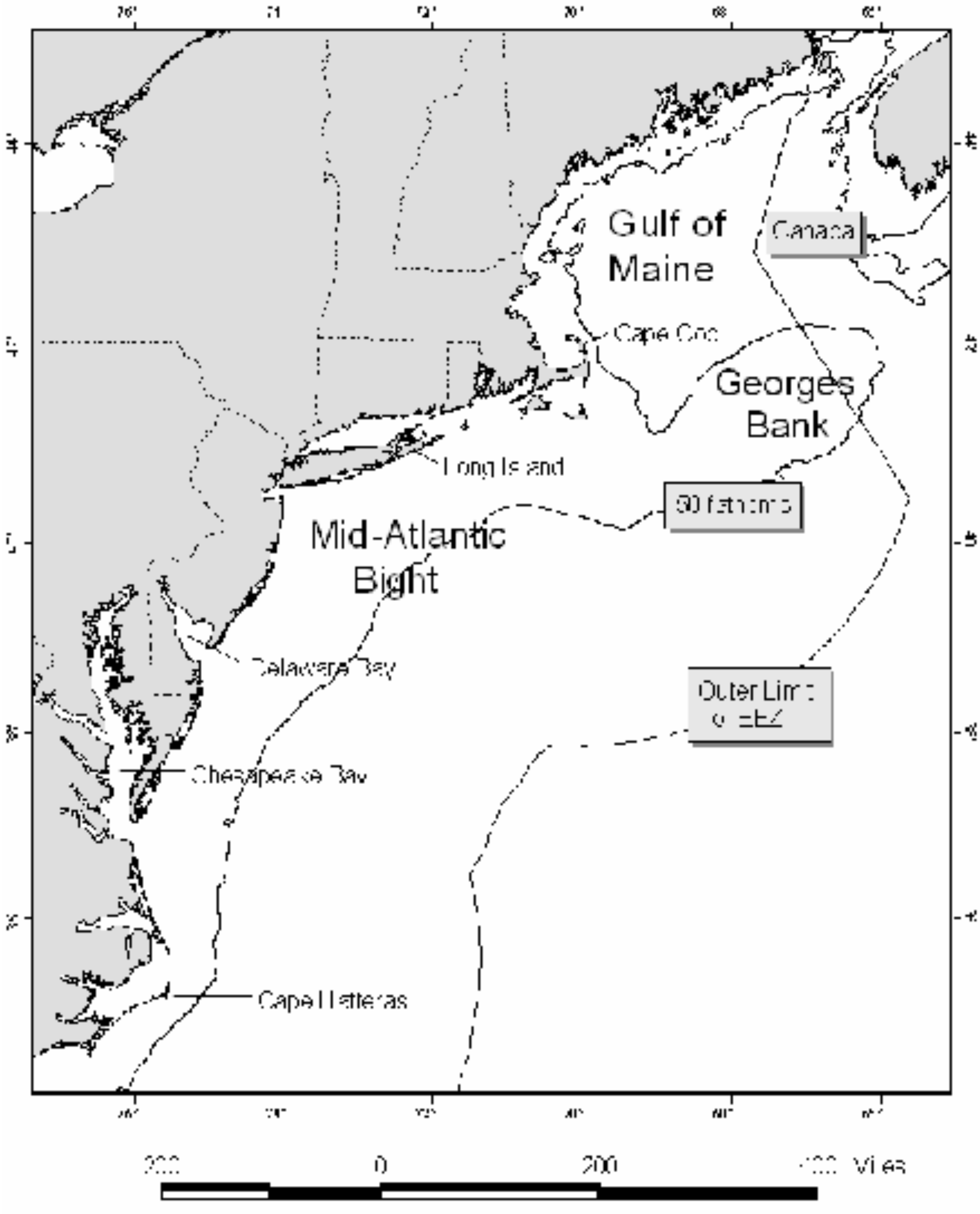
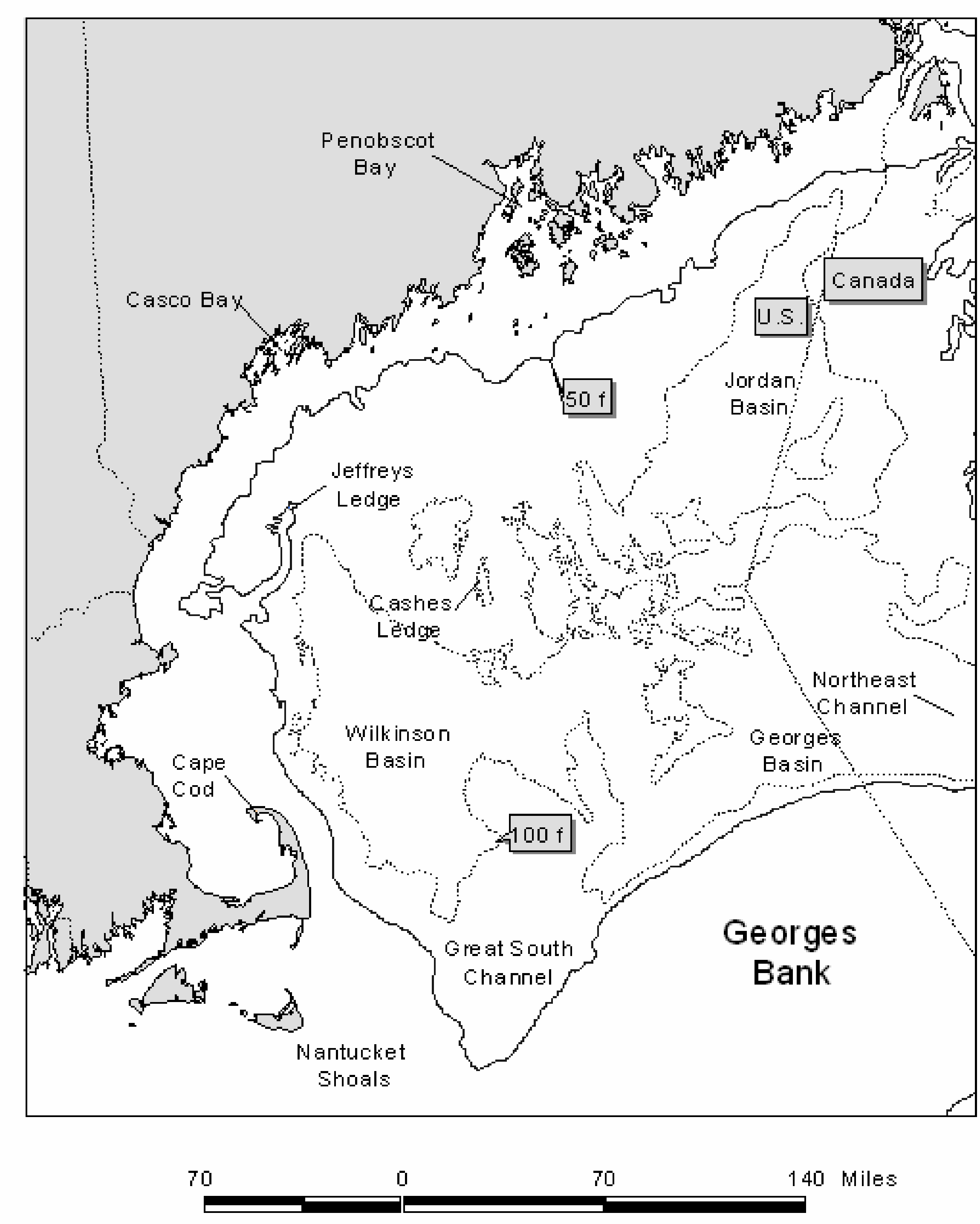


Figure 10. Gulf of Maine



High points within the Gulf include irregular ridges, such as Cashes Ledge, which peaks at 9 m below the surface, as well as lower flat topped banks and gentle swells. Some of these rises are remnants of the sedimentary shelf that was left after most of it was removed by the glaciers. Others are glacial moraines and a few, like Cashes Ledge, are outcroppings of bedrock. Very fine sediment particles created and eroded by the glaciers have collected in thick deposits over much of the GOM, particularly in its deep basins (Figure 10). These mud deposits blanket and obscure the irregularities of the underlying bedrock, forming topographically smooth terrains. Some shallower basins are covered with mud as well, including some in coastal waters. In the rises between the basins, other materials are usually at the surface. Unsorted glacial till covers some morainal areas, as on Sewell Ridge to the north of Georges Basin and on Truxton Swell to the south of Jordan Basin. Sand predominates on some high areas and gravel, sometimes with boulders, predominates on others.

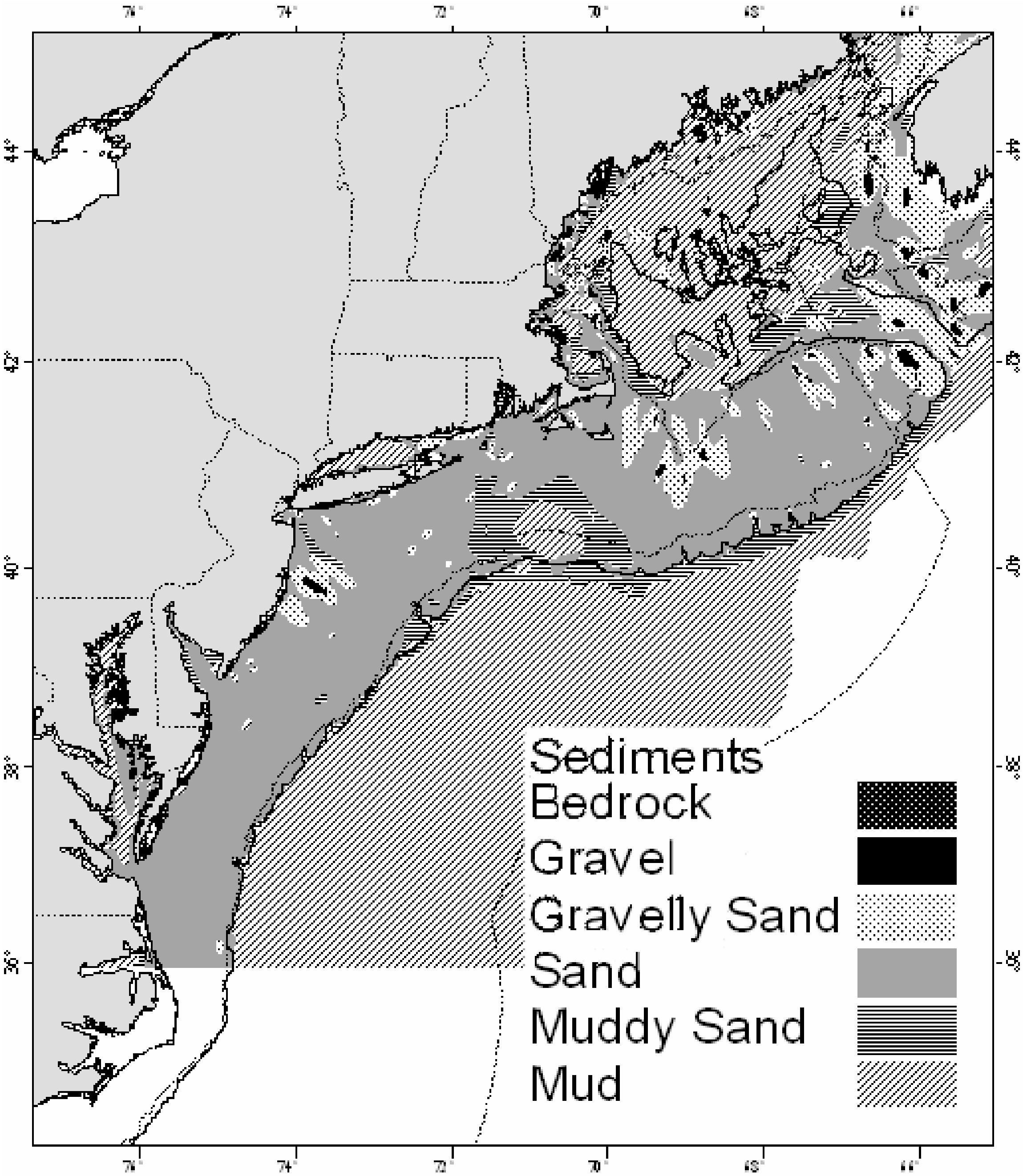
Coastal sediments exhibit a high degree of small-scale variability. Bedrock is the predominant substrate along the western edge of the GOM north of Cape Cod in a narrow band out to a depth of about 60 m. Rocky areas become less common with increasing depth, but some rock outcrops poke through the mud covering the deeper sea floor. Mud is the second most common substrate on the inner continental shelf. Mud predominates in coastal valleys and basins that often abruptly border rocky substrates. Many of these basins extend without interruption into deeper water. Gravel, often mixed with shell, is common adjacent to bedrock outcrops and in fractures in the rock. Large expanses of gravel are not common, but do occur near reworked glacial moraines and in areas where the seabed has been scoured by bottom currents. Gravel is most abundant at depths of 20 - 40 m, except in eastern Maine where a gravel-covered plain exists to depths of at least 100 m. Bottom currents are stronger in eastern Maine where the mean tidal range exceeds 5 m. Sandy areas are relatively rare along the inner shelf of the western GOM, but are more common south of Casco Bay, especially offshore of sandy beaches.

11.1.2 Georges Bank

Georges Bank (GB) is a shallow (3 - 150 m depth), elongate (161 km wide by 322 km long) extension of the continental shelf that was formed by the Wisconsinian glacial episode. It is characterized by a steep slope on its northern edge and a broad, flat, gently sloping southern flank. The Great South Channel lies to the west. Natural processes continue to erode and rework the sediments on GB. It is anticipated that erosion and reworking of sediments will reduce the amount of sand available to the sand sheets, and cause an overall coarsening of the bottom sediments (Valentine and Lough 1991).

Glacial retreat during the late Pleistocene deposited the bottom sediments currently observed on the eastern section of Georges Bank, and the sediments have been continuously reworked and redistributed by the action of rising sea level, and by tidal, storm and other currents. The strong, erosive currents affect the character of the biological community. Bottom topography on eastern GB is characterized by linear ridges in the western shoal areas; a relatively smooth, gently dipping sea floor 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.

Figure 11. Northeast region sediments, modified from Poppe *et al*. (1989a and b).



The central region of the Bank is shallow, and the bottom is characterized by shoals and troughs, with sand dunes superimposed upon them. The two most prominent elevations on the ridge and trough area are Cultivator and Georges Shoals. This shoal and trough area is a region of strong currents, with average flood and ebb tidal currents greater than 4 km/h, and as high as 7 km/h. The dunes migrate at variable rates, and the ridges may also move. In an area that lies between the central part and Northeast Peak, Almeida *et al.* (2000) identified high-energy areas as between 35 - 65 m deep, where sand is transported on a daily basis by tidal currents, and a low-energy area at depths > 65 m that is affected only by storm currents.

The area west of the Great South Channel, known as Nantucket Shoals (Figure 11), is similar in nature to the central region of the Bank. Currents in these areas are strongest where water depth is shallower than 50 m. This type of traveling dune and swale morphology is also found in the Mid-Atlantic Bight, and further described in that section of the document. The Great South Channel separates the main part of GB from Nantucket Shoals. 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 (Valentine, pers. comm.).

11.1.3 Mid-Atlantic Bight

The Mid-Atlantic Bight includes the shelf and slope waters from GB south to Cape Hatteras, and east to the Gulf Stream. Like the rest of the continental shelf, the topography of the Mid-Atlantic Bight was shaped largely by sea level fluctuations caused by past ice ages. The shelf's basic morphology and sediments derive from the retreat of the last ice sheet, and the subsequent rise in sea level. Since that time, currents and waves have modified this basic structure.

Shelf and slope waters of the Mid-Atlantic Bight have a slow southwestward flow that is occasionally interrupted by warm core rings or meanders from the Gulf Stream. On average, shelf water moves parallel to bathymetry isobars at speeds of 5 - 10 cm/s at the surface and 2 cm/s or less at the bottom. Storm events can cause much more energetic variations in flow. Tidal currents on the inner shelf have a higher flow rate of 20 cm/s that increases to 100 cm/s near inlets.

The shelf slopes gently from shore out to between 100 and 200 km offshore where it transforms to the slope (100 - 200 m water depth) at the shelf break. In both the Mid-Atlantic and on GB, numerous canyons incise the slope, and some cut up onto the shelf itself. The primary morphological features of the shelf include shelf valleys and channels, shoal massifs, scarps, and sand ridges and swales. Most of these structures are relic except for some sand ridges and smaller sand-formed features. Shelf valleys and slope canyons were formed by rivers of glacier outwash that deposited sediments on the outer shelf edge as they entered the ocean. Most valleys cut about 10 m into the shelf, with the exception of the Hudson Shelf Valley that is about 35 m deep. The valleys were partially filled as the glacier melted and retreated across the shelf. The glacier also left behind a lengthy scarp near the shelf break from Chesapeake Bay north to the eastern end of Long Island. Shoal retreat massifs were produced by extensive deposition at a cape or estuary mouth. Massifs were also formed as estuaries retreated across the shelf.

Some sand ridges are more modern in origin than the shelf's glaciated morphology. Their formation is not well understood; however, they appear to develop from the sediments that erode from the shore face. They maintain their shape, so it is assumed that they are in equilibrium with modern current and storm regimes. They are usually grouped, with heights of about 10 m, lengths of 10 - 50 km and spacing of 2 km. Ridges are usually oriented at a slight angle towards shore, running in length from northeast to southwest. The seaward face usually has the steepest slope. Sand ridges are often covered with smaller similar forms such as sand waves, megaripples, and ripples. Swales occur between sand ridges. Since ridges are higher than the adjacent swales, they are exposed to more energy from water currents, and experience more sediment mobility than swales. Ridges tend to contain less fine sand, silt and clay while relatively sheltered swales contain more of the finer particles. Swales have greater benthic macrofaunal density, species richness and biomass, due in part to the increased abundance of detrital food and the physically less rigorous conditions.

Sand waves are usually found in patches of 5 - 10 with heights of about 2 m, lengths of 50 - 100 m and 1 - 2 km between patches. Sand waves are primarily found on the inner shelf, and often observed on sides of sand ridges. They may remain intact over several seasons. Megaripples occur on sand waves or separately on the inner or central shelf. During the winter storm season, they may cover as much as 15% of the inner shelf. They tend to form in large patches and usually have lengths of 3 - 5 m with heights of 0.5 - 1 m. Megaripples tend to survive for less than a season. They can form during a storm and reshape the upper 50 - 100 cm of the sediments within a few hours. Ripples are also found everywhere on the shelf, and appear or disappear within hours or days, depending upon storms and currents. Ripples usually have lengths of about 1 - 150 cm and heights of a few centimeters.

Sediments are uniformly distributed over the shelf in this region. A sheet of sand and gravel varying in thickness from 0 - 10 m covers most of the shelf. The mean bottom flow from the constant southwesterly current is not fast enough to move sand, so sediment transport must be episodic. Net sediment movement is in the same southwesterly direction as the current. The sands are mostly medium to coarse grains, with finer sand in the Hudson Shelf Valley and on the outer shelf. Mud is rare over most of the shelf, but is common in the Hudson Shelf Valley. Occasionally relic estuarine mud deposits are re-exposed in the swales between sand ridges. Fine sediment content increases rapidly at the shelf break, which is sometimes called the "mud line," and sediments are 70 - 100% fines on the slope. On the slope, silty sand, silt, and clay predominate.

The northern portion of the Mid-Atlantic Bight is sometimes referred to as southern New England. Most of this area was discussed under GB; however, one other formation of this region deserves note. The mud patch is located just southwest of Nantucket Shoals and southeast of Long Island and Rhode Island. Tidal currents in this area slow significantly, which allows silts and clays to settle out. The mud is mixed with sand, and is occasionally resuspended by large storms. This habitat is an anomaly of the outer continental shelf.

Artificial reefs are another significant Mid-Atlantic 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). While some of materials have been deposited specifically for use as fish habitat, most have an alternative primary purpose; however, they have all become an integral part of the coastal and shelf ecosystem. It is expected that the increase in these materials has had an impact on living marine resources and fisheries, but these effects are not well known. In general, reefs are important for attachment sites, shelter, and food for many species, and fish predators such as tunas may be attracted by prey aggregations, or may be behaviorally attracted to the reef structure.

11.2 Essential Fish Habitat

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 NE Multispecies; 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 Fishery Management Plans. 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 depth ranges and bottom types for all the benthic life stages of the species managed under these FMPs are summarized in the following table. EFH maps for each species and life stage are available on the NMFS Northeast Region web site at http://www.nero.noaa.gov/hcd/index2a.htm. Table 32 contains the EFH descriptions for all benthic life stages of federally-managed species in the U.S. Northeast Shelf Ecosystem. Species with EFH vulnerable to bottom tending gear are shaded.

Table 32. EFH descriptions for all benthic life stages of federally-managed species in the U.S. Northeast Shelf Ecosystem.

Species	Life Stage	Depth (meters)	EFH Description
American plaice	juvenile	45 - 150	Bottom habitats with fine grained sediments or a substrate of sand or gravel
American plaice	adult	45 - 175	Bottom habitats with fine grained sediments or a substrate of sand or gravel
Atlantic cod	juvenile	25 - 75	Bottom habitats with a substrate of cobble or gravel
Atlantic cod	adult	10 - 150	Bottom habitats with a substrate of rocks, pebbles, or gravel
Atlantic halibut	juvenile	20 - 60	Bottom habitats with a substrate of sand, gravel, or clay
Atlantic halibut	adult	100 - 700	Bottom habitats with a substrate of sand, gravel, or clay
Atlantic herring	eggs	20 – 80	Bottom habitats with a substrate of gravel, sand, cobble and shell fragments, also on macrophytes
Atlantic sea scallop	juvenile	18 - 110	Bottom habitats with a substrate of cobble, shells, and silt
Atlantic sea scallop	adult	18 - 110	Bottom habitats with a substrate of cobble, shells, coarse/gravelly sand, and sand
Haddock	juvenile	35 - 100	Bottom habitats with a substrate of pebble and gravel

Species	Life Stage	Depth (meters)	EFH Description
Haddock	adult	40 - 150	Bottom habitats with a substrate of broken ground, pebbles, smooth hard sand, and smooth areas between rocky patches
Monkfish	juvenile	25 - 200	Bottom habitats with substrates of a sandshell mix, algae covered rocks, hard sand, pebbly gravel, or mud
Monkfish	adult	25 - 200	Bottom habitats with substrates of a sandshell mix, algae covered rocks, hard sand, pebbly gravel, or mud
Ocean pout	eggs	<50	Bottom habitats, generally in hard bottom sheltered nests, holes, or crevices
Ocean pout	juvenile	< 50	Bottom habitats in close proximity to hard bottom nesting areas
Ocean pout	adult	< 80	Bottom habitats, often smooth bottom near rocks or algae
Offshore hake	juvenile	170 - 350	Bottom habitats
Offshore hake	adult	150 - 380	Bottom habitats
Pollock	juvenile	0 – 250	Bottom habitats with aquatic vegetation or a substrate of sand, mud, or rocks
Pollock	adult	15 – 365	Hard bottom habitats including artificial reefs
Red hake	juvenile	< 100	Bottom habitats with substrate of shell fragments, including areas with an abundance of live scallops
Red hake	adult	10 - 130	Bottom habitats in depressions with a substrate of sand and mud
Redfish	juvenile	25 - 400	Bottom habitats with a substrate of silt, mud, or hard bottom
Redfish	adult	50 - 350	Bottom habitats with a substrate of silt, mud, or hard bottom
White hake	adult	5 - 325	Bottom habitats with substrate of mud or fine grained sand
Silver hake	juvenile	20 – 270	Bottom habitats of all substrate types
Silver hake	adult	30 – 325	Bottom habitats of all substrate types
Windowpane flounder	juvenile	1 - 100	Bottom habitats with substrate of mud or fine grained sand
Windowpane flounder	adult	1 - 75	Bottom habitats with substrate of mud or fine grained sand
Winter flounder	juvenile	0.1 – 10 (1 - 50, age 1+)	Bottom habitats with a substrate of mud or fine grained sand
Winter flounder	adult	1 - 100	Bottom habitats including estuaries with substrates of mud, sand, grave
Witch flounder	juvenile	50 - 450 to 1500	Bottom habitats with fine grained substrate
Witch flounder	adult	25 - 300	Bottom habitats with fine grained substrate
Yellowtail flounder	juvenile	20 - 50	Bottom habitats with substrate of sand or sand and mud
Yellowtail flounder	adult	20 - 50	Bottom habitats with substrate of sand or sand and mud
Red crab	juvenile	700 - 1800	Bottom habitats of continental slope with a substrate of silts, clays, and all silt-clay-sand composites
Red crab	adult	200 - 1300	Bottom habitats of continental slope with a substrate of silts, clays, and all silt-clay-sand composites
Black sea bass	juvenile	1 - 38	Rough bottom, shellfish and eelgrass beds, manmade structures in sandy-shelly areas, offshore clam beds, and shell patches may be used during wintering
Black sea bass	adult	20 - 50	Structured habitats (natural and manmade), sand and shell substrates preferred

Species	Life Stage	Depth (meters)	EFH Description
Ocean quahog	juvenile	8 - 245	Throughout substrate to a depth of 3 ft within federal waters, occurs progressively further offshore between Cape Cod and Cape Hatteras
Ocean quahog	adult	8 - 245	Throughout substrate to a depth of 3 ft within federal waters, occurs progressively further offshore between Cape Cod and Cape Hatteras
Atlantic surfclam	juvenile	0 - 60, low density beyond 38	Throughout substrate to a depth of 3 ft within federal waters, burrow in medium to coarse sand and gravel substrates, also found in silty to fine sand, but not in mud
Atlantic surfclam	adult	0 - 60, low density beyond 38	Throughout substrate to a depth of 3 ft within federal waters
Scup	juvenile	(0 - 38)	Demersal waters north of Cape Hatteras and inshore on various sands, mud, mussel, and eelgrass bed type substrates
Scup	adult	(2 -185)	Demersal waters north of Cape Hatteras and inshore estuaries (various substrate types)
Summer flounder	juvenile	0.5 – 5 in estuary	Demersal waters, on muddy substrate but prefer mostly sand; found in the lower estuaries in flats, channels, salt marsh creeks, and eelgrass beds
Summer flounder	adult	0 - 25	Demersal waters and estuaries
Tilefish	juvenile	76 - 365	Rough bottom, small burrows, and sheltered areas; substrate rocky, stiff clay, human debris
Tilefish	adult	76 - 365	Rough bottom, small burrows, and sheltered areas; substrate rocky, stiff clay, human debris
Longfin squid	eggs	<50	Egg masses attached to rocks, boulders and vegetation on sand or mud bottom
Golden crab	juvenile	290 - 570	Continental slope in flat areas of foraminifera ooze, on distinct mounds of dead coral, ripple habitat, dunes, black pebble habitat, low outcrop, and soft bioturbated habitat
Golden crab	adult	290 - 570	Continental slope in flat areas of foraminifera ooze, on distinct mounds of dead coral, ripple habitat, dunes, black pebble habitat, low outcrop, and soft bioturbated habitat
Barndoor skate	juvenile	l0 - 750, mostly < 150	Bottom habitats with mud, gravel, and sand substrates
Barndoor skate	adult	l0 - 750, mostly < 150	Bottom habitats with mud, gravel, and sand substrates
Clearnose skate	juvenile	0 – 500, mostly < 111	Bottom habitats with substrate of soft bottom along continental shelf and rocky or gravelly bottom
Clearnose skate	adult	0 – 500, mostly < 111	Bottom habitats with substrate of soft bottom along continental shelf and rocky or gravelly bottom
Little skate	juvenile	0 - 137, mostly 73 - 91	Bottom habitats with sandy or gravelly substrate or mud
Little skate	adult	0 - 137, mostly 73 - 91	Bottom habitats with sandy or gravelly substrate or mud
Rosette skate	juvenile	33 - 530, mostly 74 - 274	Bottom habitats with soft substrate, including sand/mud bottoms, mud with echinoid and ophiuroid fragments, and shell and pteropod ooze

Species	Life Stage	Depth (meters)	EFH Description
Rosette skate	adult	33 - 530, mostly 74 - 274	Bottom habitats with soft substrate, including sand/mud bottoms, mud with echinoid and ophiuroid fragments, and shell and pteropod ooze
Smooth skate	juvenile	31 – 874, mostly 110 - 457	Bottom habitats with a substrate of soft mud (silt and clay), sand, broken shells, gravel and pebbles
Smooth skate	adult	31 – 874, mostly 110 - 457	Bottom habitats with a substrate of soft mud (silt and clay), sand, broken shells, gravel and pebbles
Thorny skate	juvenile	18 - 2000, mostly 111 - 366	Bottom habitats with a substrate of sand, gravel, broken shell, pebbles, and soft mud
Thorny skate	adult	18 - 2000, mostly 111 - 366	Bottom habitats with a substrate of sand, gravel, broken shell, pebbles, and soft mud
Winter skate	juvenile	0 - 371, mostly < 111	Bottom habitats with substrate of sand and gravel or mud
Winter skate	adult	0 - 371, mostly < 111	Bottom habitats with substrate of sand and gravel or mud
White hake	juvenile	5 - 225	Pelagic stage - pelagic waters; demersal stage - bottom habitat with seagrass beds or substrate of mud or fine grained sand

Species with EFH vulnerable to bottom tending gear are shaded (see Stevenson et al. 2004).

11.3 Habitat Effects of Fishing

Amendment 13 (NEFMC 2003) describes the general effects of bottom trawls and dredges 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 2000) that identified a number of possible effects of beam trawls and bottom otter trawls on benthic habitats. 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 can affect 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 can in turn lead to the local loss of species and species assemblages dependant 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 and can lead to an overall change in habitat diversity which can in turn lead to the local loss of species and species assemblages dependant 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 decease in the physical patchiness of the sea floor (changes are not likely to be permanent);

- Alteration of the detailed physical features of the sea floor by reshaping seabed features such as sand ripples and damaging burrows and associated structures which 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 by the Committee included bottom otter trawls and beam trawls. Dredge gear included hydraulic clam dredges, non-hydraulic oyster, conch, and crab dredges, and scallop dredges with and without teeth. This report identified four general conclusions regarding the types of habitat modifications caused by trawls and dredges.

- Trawling and dredging reduce habitat complexity
- Repeated trawling and dredging result in discernable changes in benthic communities
- Bottom trawling reduces the productivity of benthic habitats
- Fauna that live in low natural disturbance regimes are generally more vulnerable to fishing gear disturbance

An additional source of information 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 New England and Mid-Atlantic Fishery Management Councils 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 was convened for the purpose of assisting the New England Fishery Management Council (NEFMC), the Mid-Atlantic Fishery Management Council (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, New Bedford style scallop dredges, and hydraulic clam dredges. Relying on this information plus professional judgment, the panel identified the effects, and the degree of impact, of these three gears plus bottom gillnets, pots, and longlines on mud, sand, and gravel/rock bottom habitats.

Additional information is provided in this report on the recovery times for each type of impact for all three gears 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 and dredging, although other factors such as frequency of disturbance from fishing and from natural events are also important. In general, impacts were determined to be greater in gravel/rock habitats with attached epifauna. Impacts on biological structure were ranked higher than impacts on physical structure and otter trawls and scallop dredges were ranked much higher than hydraulic dredges or stationary gears. 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. For scallop dredges in gravel, recovery from impacts to biological structure was estimated to take several years and, for impacts to physical structure, months to years. In sand, biological structure was estimated to recover within months to years and physical structure within days to months.

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 ten different commercial fishing gears used in U.S. waters. The report concluded that bottom trawls and dredges have very high habitat impacts, bottom gillnets and pots and traps have low to medium impacts, and bottom longlines have low impacts. As in the ICES and NRC reports, individual types of trawls and dredges were not evaluated. The impacts of bottom gill nets, traps, and longlines were limited to warm or shallow-water environments with rooted aquatic vegetation or "live bottom" environments (e.g., coral reefs).

Results of a review of 44 gear effect studies published through the summer of 2002 that were relevant (same gears and habitats) to the NE region of the U.S. (see Stevenson et al. 2004) are also summarized in Amendment 13. Based on these studies, positive and negative effects of bottom otter trawls, New Bedford-style scallop dredges, and hydraulic clam dredges are summarized by substrate type, along with recovery times (when known). Whenever possible, only statistically significant results were reported. In general, these studies confirm the previous determinations of potential adverse impacts of trawls and dredges found in the ICES (2000), NRC (2002), NEFSC (2002), and Morgan and Chuenpagdee (2003) reports. The results of these 44 studies are summarized below for each gear/habitat type combination. Studies of the effects of multiple gear types are not included. Physical and biological effects for each gear-substrate category are summarized in separate paragraphs. When necessary, biological effects are summarized separately for single disturbance and repeated disturbance experimental studies, and for non-experimental studies. For more detailed information, including the identification of each study, see Stevenson et al. (2004). An up-dated summary of gear effects research studies that are relevant to the NE region will be included in the revised gear effects section of the NEFMC Omnibus EFH Amendment 2 (Phase 2), which is currently being developed.

11.3.1 Otter Trawls – Mud

Results of 11 studies are summarized, five done in North America, four in Europe, and one in Australia. One was performed in an inter-tidal habitat, one in very deep water (250 m), and the rest in a depth range of 14-90 meters. Seven of them were experimental studies, three were observational, and one was both. Two examined physical effects, six of them assessed biological effects, and three studies examined physical and biological effects. One study evaluated geochemical sediment effects. In this habitat type, biological evaluations focused on infauna: all nine biological assessments examined infaunal organisms and four of them also included epifauna. Habitat recovery was monitored on five occasions. Two studies evaluated the long-term effects of commercial trawling, one by comparing benthic samples from a fishing ground with samples collected near a shipwreck, while another evaluated changes in macrofaunal abundance during periods of low, moderate, and high fishing effort during a 27-year time period. Four of the experimental studies were done in closed or previously un-trawled areas and three in commercially fished areas. One study examined the effects of a single tow and six involved multiple tows, five restricted trawling to a single event (e.g., one day) and two examined the cumulative effects of continuous disturbance.

Physical Effects

Trawl doors produce furrows up to 10 cm deep and berms 10-20 cm high on mud bottom. Evidence from four studies indicates that there is a large variation in the duration of these features (2-18 months). There is also evidence that repeated tows increase bottom roughness, fine surface sediments are re-suspended and dispersed, and rollers compress sediment. A single pass of a trawl did not cause sediments to be turned over, but single and multiple tows smoothed surface features.

Biological Effects

Single disturbance experimental studies

Two single-event studies were conducted in commercially trawled areas. Experimental trawling in intertidal mud habitat in the Bay of Fundy (Canada) disrupted diatom mats and reduced the abundance of nematodes in trawl door furrows, but recovery was complete after 1-3 months. There were no effects on infaunal polychaetes. In a sub-tidal mud habitat (30-40 m deep), benthic infauna were not affected. In two assessments performed in areas that had not been affected by mobile bottom gear for many years, effects were more severe. In both cases, total infaunal abundance and the abundance of individual polychaete and bivalve species declined immediately after trawling. In one of these studies, there were also immediate and significant reductions in the number of species and species diversity. Positive effects included reduced porosity, increased food value, and increased chlorophyll production in surface sediments. Most of these effects lasted less than 3.5 months. In the other, two tows removed 28% of the epifauna on mud and sand substrate and epifauna in all trawled quadrats showed signs of damage. These results were not reported separately for mud bottom.

Repeated disturbance experimental studies

Two studies of the effects of repeated trawling were conducted in areas that had been closed to fishing for six years and >25 years. In one, multiple tows were made weekly for a year and, in the other, monthly for 16 months. In one case, 61% of the benthic species sampled tended to be negatively affected, but significant reductions were only noted for brittlestars. In the other, repeated trawling had no significant effect on the numbers of infaunal individuals or biomass. In this study, the number of infaunal species increased by the end of the disturbance period. Some species (e.g., polychaetes) increased in abundance, while others (e.g., bivalves) decreased. Community structure was altered after five months of trawling and did not fully recover until 18 months after trawling ended.

Observational studies

An analysis of benthic sample data collected from a fishing ground over a 27-year period of high, medium, and low levels of fishing effort showed an increased abundance of organisms belonging to taxa that were expected to increase at higher disturbance levels, whereas those that were expected to decrease did not change in abundance. Results of another study indicated that a trawling ground had fewer benthic organisms and fewer species than an un-exploited site near a shipwreck. Trawling in deep water apparently dislodged infaunal polychaetes, causing them to be suspended in near-bottom water.

11.3.2 Otter Trawls – Sand

Results of 14 studies are summarized. Six studies were conducted in North America (three in a single long-term experiment on the Grand Banks), four in Australia, and four in Europe. Ten are experimental studies. Eight of them were done in depths less than 60 m, one at 80 m, and four in depths greater than 100 m. Three studies examined the physical effects of trawling, ten were limited to biological effects, and one examined both. Five of the biological studies were restricted to epifauna, one only examined infauna, and five included epifauna and infauna. The only experiment that was designed to monitor recovery was the one on the Grand Banks, although surveys conducted in Australia documented changes in the abundance of benthic organisms five years after closed areas were established. Two studies compared benthic communities in trawled areas of sandy substrate with undisturbed areas near a shipwreck. Six studies were performed in commercially exploited areas, five in closed areas, two compared closed and open areas, and one was done in a test tank. All the experimental studies examined the effects of multiple tows (up to 6 per unit area of bottom) and observational studies in Australia assessed the effects of 1-4 tows on emergent epifauna. Trawling in four studies was limited to a single event (1 day to 1 week), whereas the Grand Banks experiment was designed to evaluate the immediate and cumulative effects of annual 5-day trawling events in a closed area over a three-year period.

Physical effects

A test tank experiment showed that trawl doors produce furrows in sandy bottom that are 2 cm deep, with a berm 5.5 cm high. In sandy substrate, trawls smoothed seafloor topographic features, re-suspended and dispersed finer surface sediment, but had no lasting effects on sediment composition. Trawl door tracks lasted up to one year in deep water, but only for a few days in shallow water. Seafloor topography recovered within a year.

Biological effects

Single disturbance experimental studies

Two single-event studies were conducted in commercially trawled areas. In one of these studies, otter trawling caused high mortalities of large sedentary and/or immobile epifaunal species. In the other, there were no effects on benthic community diversity. Neither of these studies investigated effects on total abundance or biomass. Two studies were performed in un-exploited areas. One study documented effects on attached epifauna. In one, single tows reduced the density of attached macrobenthos (>20 cm) by 15% and four tows by 50%. In the other, two tows removed 28% of the epifauna on mud and sand substrate and epifauna in all trawled quadrats showed signs of damage. These results were not reported separately for sand bottom. Total infaunal abundance was not affected, but the abundance of one family of polychaetes was reduced.

Repeated disturbance experimental studies

Intensive experimental trawling on the Grand Banks reduced the total abundance and biomass of epibenthic organisms and the biomass and average size of a number of epibenthic species. Significant reductions in total infaunal abundance and the abundance of 15 taxa (mostly polychaetes) were detected during only one of three years, and there were no effects on biomass or taxonomic diversity.

Observational studies

Changes in macrofaunal abundance in a lightly trawled location in the North Sea were not correlated with historical changes in fishing effort, but there were fewer benthic organisms and species in a trawling ground in the Irish Sea than in an un-exploited site near a shipwreck. In the other "shipwreck study," however, changes in infaunal community structure at increasing distances from the wreck were related to changes in sediment grain size and organic carbon content. The Alaska study showed that epifauna attached to sand were less abundant inside a closed area, significantly so for sponges and anemones. A single tow in a closed area in Australia removed 89% of the large sponges in the trawl path.

11.3.3 Otter Trawls – Gravel/Rocky Substrate

Three studies of otter trawl effects were conducted on gravel and rocky substrates. All three were conducted in North America. Two were done in glacially-affected areas in depths of about 100 to 300 meters using submersibles and the third was done in a shallow coastal area in the southeast U.S. One involved observations made in a gravel/boulder habitat in two different years before and after trawling affected the bottom. The other two were experimental studies of the effects of single trawl tows. One of these was done in a relatively un-exploited gravel habitat and the other on a smooth rock substrate in an area not affected by trawling. Two studies examined effects to the seafloor and on attached epifauna and one only examined effects on epifauna. There were no assessments of effects on infauna. Recovery was evaluated in one case for a year.

Physical effects

Trawling displaced boulders and removed mud covering boulders and rocks and rubber tire ground gear left furrows 1-8 cm deep in less compact gravel sediment.

Biological effects

Trawling in gravel and rocky substrate reduced the abundance of attached benthic organisms (e.g., sponges, anemones, and soft corals) and their associated epifauna and damaged sponges, soft corals, and brittle stars. Sponges were more severely damaged by a single pass of a trawl than soft corals, but 12 months after trawling all affected species – including one species of stony coral – had fully recovered to their original abundance and there were no signs of damage.

11.3.4 Otter Trawls – Mixed Substrates

Three studies of the effects of otter trawls on mixed substrates are summarized. All three were conducted in North America and relied on sonar and observations made by divers or from a submersible. One of them combined submersible observations and benthic sampling to compare the physical and biological effects of trawling in a lightly fished and heavily fished location in California with the same depth and variety of sediment types. One was a survey of seafloor features produced by trawls in a variety of bottom types and the other primarily examined the physical effects of single trawl tows on sand and mud bottom.

Physical effects

Trawl doors left tracks in sediments that ranged from less than 5 cm deep in sand to 15 cm deep in mud. In mud, fainter marks were also made between the door tracks, presumably by the footgear. A heavily trawled area had fewer rocks, shell fragments, and biogenic mounds than a lightly trawled area.

Biological effects

The heavily trawled area in California had lower densities of large epifaunal species (e.g., sea slugs, sea pens, starfish, and anemones) and higher densities of brittle stars and infaunal nematodes, oligochaetes, and one species of polychaete. There were no differences in the abundance of molluscs, crustaceans, or nemerteans between the two areas. However, since this was not a controlled experiment, these differences could not be attributed to trawling. Single trawl tows in Long Island Sound attracted predators and suspended epibenthic organisms into the water column.

11.4 Stock Status

A summary of the status of the groundfish stocks managed under the FMP is provided below. A brief synopsis of the status of non-groundfish stocks that frequently co-occur with groundfish, and caught in conjunction with the groundfish fishery is also below.

11.4.1 Groundfish Stock Status in 2007

The Groundfish Assessment Review Meeting (GARM III)) conducted during October 2007 – August 2008 provide benchmark assessments for the 19 groundfish stocks managed under the NE Multispecies FMP. The GARM III process involved in-depth reviews of the data, models, biological reference points, and assessments of each of the 19 groundfish stocks. 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). Additional information on these meetings may be accessed at the following internet address: http://www.nefsc.noaa.gov/nefsc/saw/.

The GARM III results show which groundfish stocks were overfished or experiencing overfishing in 2007 (Table 33). A total of 12 stocks are overfished (B less than ½ B_{MSY}). Similarly, a total of 12 stocks are experiencing overfishing (F greater than F_{MSY}). Ten of the stocks are both overfished and experiencing overfishing. Pollock, witch flounder, GB winter flounder, 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 experience overfishing. Subsequent to the GARM III conclusion, NMFS corrected the status of pollock to “approaching overfishing” and noted that regarding the overfished status of GOM winter flounder, it is a policy decision whether to use the results of the model to make a determination or to characterize the status as unknown.

The GARM III report incorrectly used the single fall biomass survey index from 2007 as the basis for making a status determination about whether the pollock stock is overfished. To be consistent with the approaches used by the Plan Development Team in the past, the appropriate method for determining stock status should have been based on an average of recent fall survey biomass indices. The conclusion regarding pollock status is sensitive to the method used and inclusion of particular data points (lagged vs. centered; latest 3 yrs vs. latest two yrs). The revised stock status, which included the fall 2009 survey data indicated that the stock is overfished, and subject to overfishing (Table 1)

With respect to GOM winter flounder, GARM III provided conflicting information on the status, due to the uncertainty of the assessment. Based strictly on the model results a conclusion could not be reached (e.g., overfished status unknown), however, the panel concluded that "it is highly likely that biomass is below Bmsy, and that there is a substantial probability that it is below ½ Bmsy". Therefore NMFS believes that it is a policy decision whether to use the results of the model to make a determination or to characterize the status as unknown.

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.

Table 33. Summary of groundfish stock status in 2007.

Stock	*in 2007*	*Fmsy*	*to Fmsy*	*in 2007*	*Bmsy*	*to achieve Bmsy*	*MSY*	*Status*	*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 [5]	Overfishing [5]
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	Overfished [4]	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 2005, 2006 & 2007 is 6.64).*

[3] *Index point estimates are in the table. Status determination is made using the 3 year average (pollock = 1.42, N windowpane = 0.53, S windowpane = 0.21 kg / tow).*

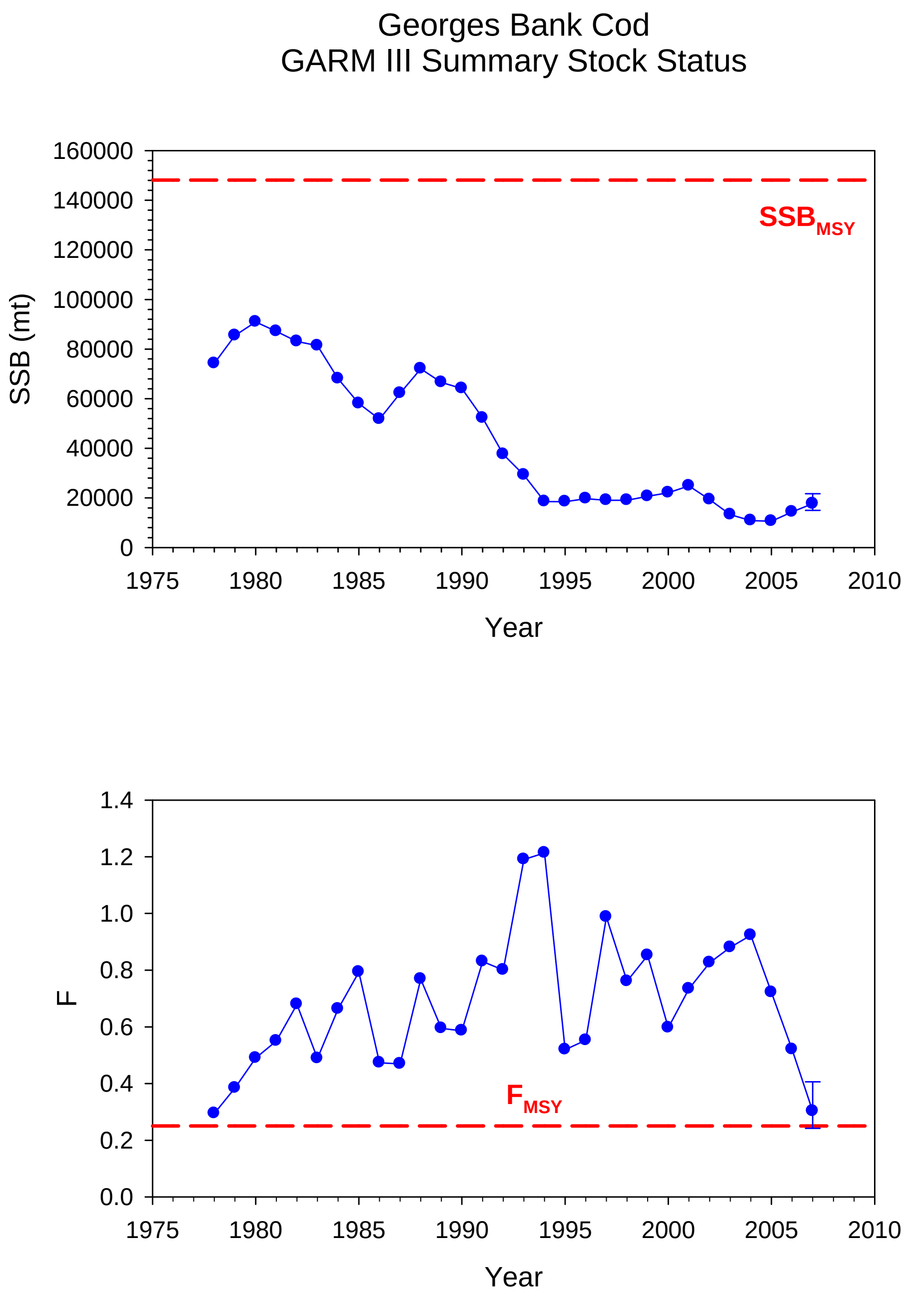
[4] *Status determination for pollock based on calculations including the 2008 fall survey index.*

[5] Status of GOM winter flounder is uncertain

A. Georges Bank cod was overfished and was experiencing overfishing in 2007.

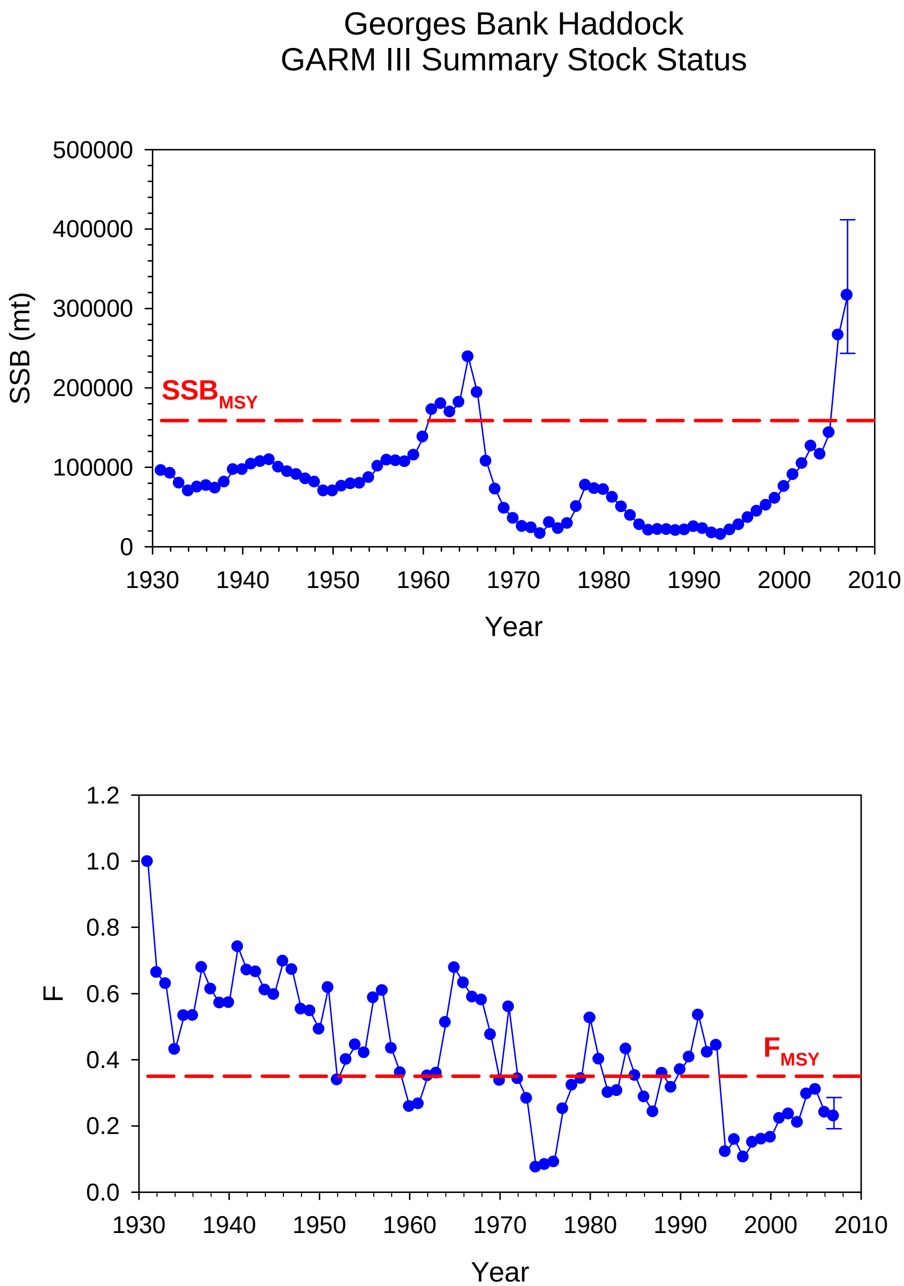
Spawning biomass has remained low since 1994. Fishing mortality has been decreasing since 2004. A split in the survey time series was used to adjust for the retrospective pattern.

Figure 12. GB cod SSB and F estimates during 1978-2007 reported in GARM III along with 80% confidence intervals for 2007 estimates.



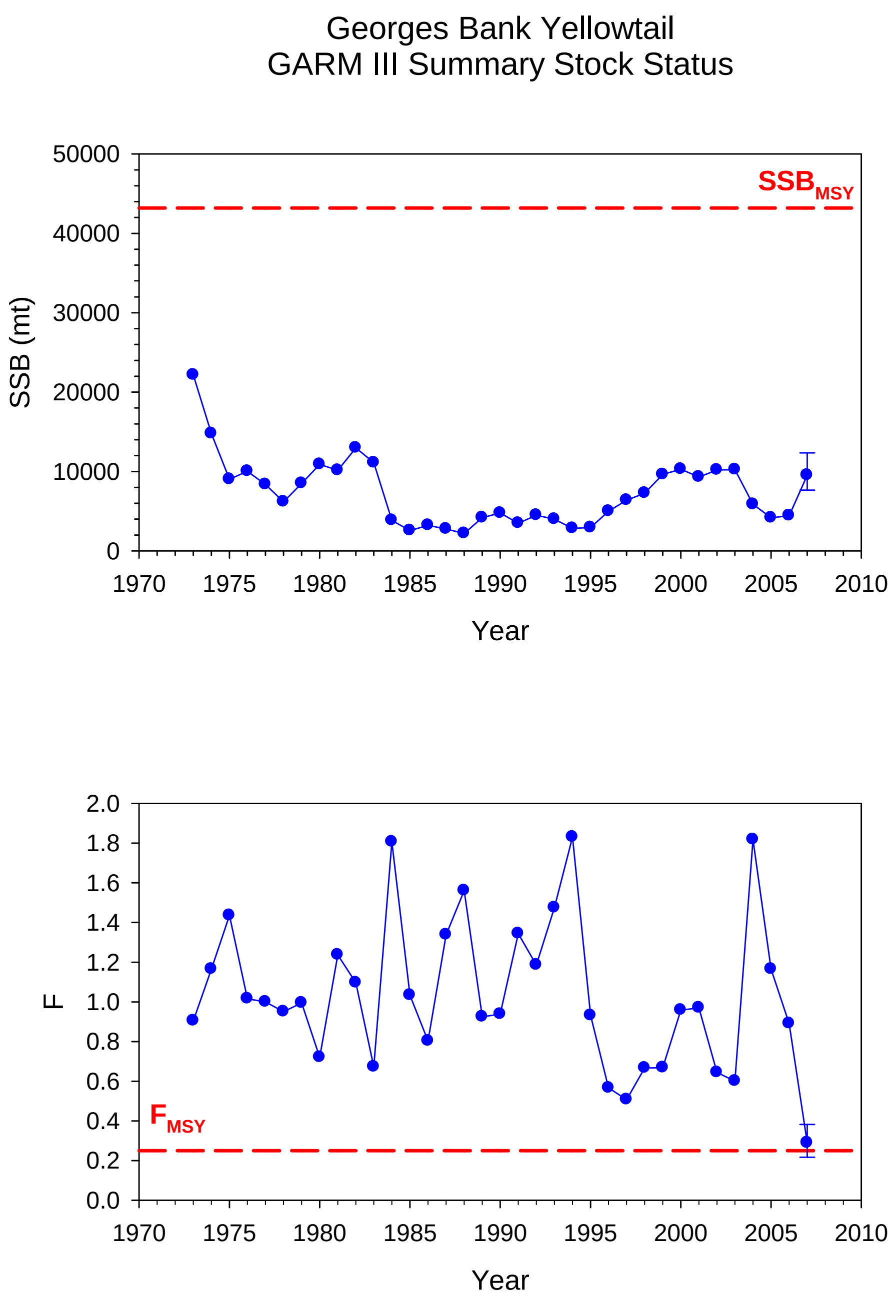
<u>B. GB haddock was not overfished and was not experiencing overfishing in 2007</u>. GB haddock has been rebuilt to about twice B_{msy}. Spawning biomass has increased since 1993. Fishing mortality has remained below F_{msy} since 1995. The partial recruited strong 2003 year class made up most of the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

Figure 13. Georges Bank haddock SSB and F estimates during 1931-2007 reported in GARM III along with 80% confidence intervals for 2007 estimates.



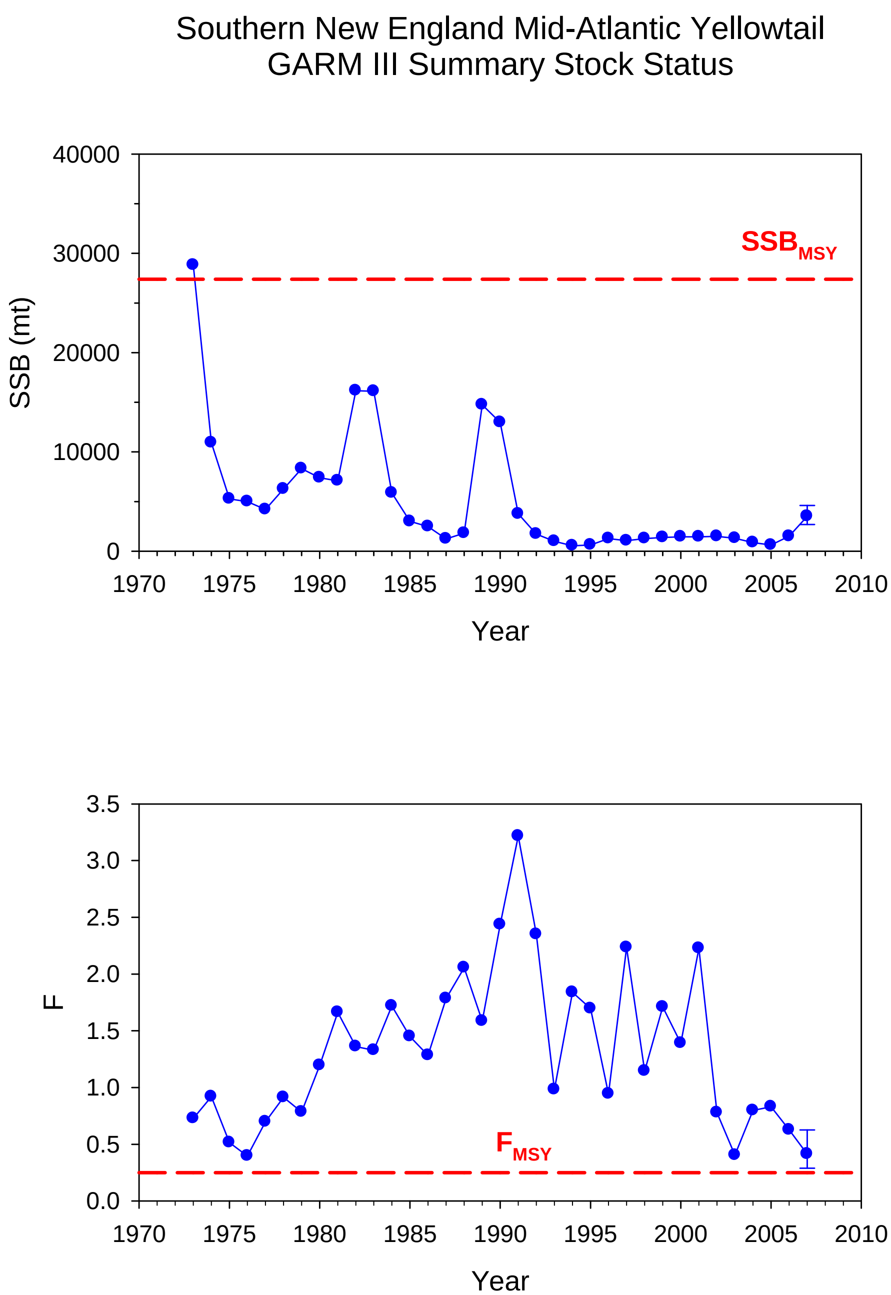
C. Georges Bank yellowtail flounder was overfished and was experiencing overfishing in 2007. Spawning biomass has been relatively low since 1984. There has been a slight increase in spawning biomass since the late 1980s. Fishing mortality has had a decreasing trend since 2004. A split in the survey time series was used to adjust for the retrospective pattern.

Figure 14. GB yellowtail flounder SSB and F estimates during 1973-2007 reported in GARM III along with 80% confidence intervals for 2007 estimates.



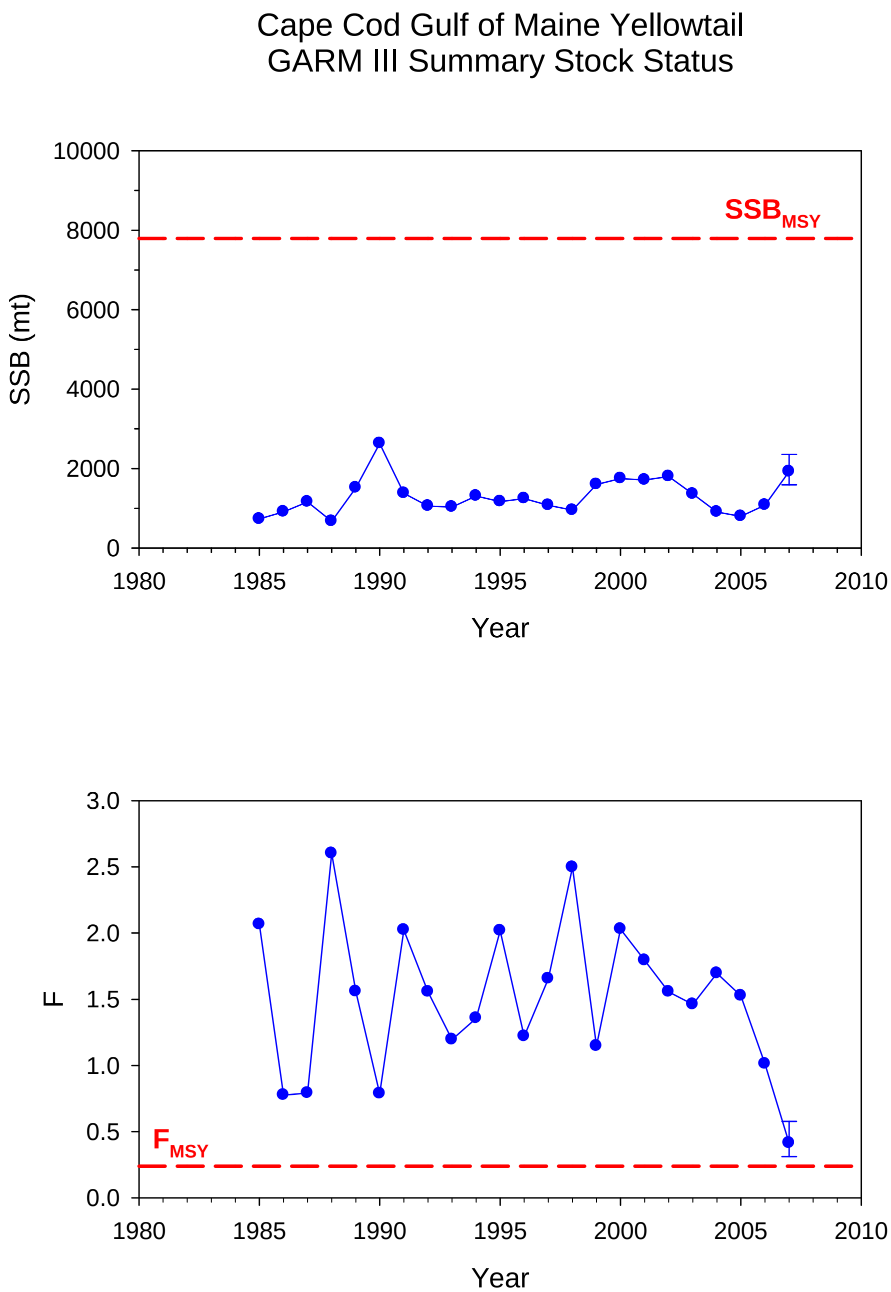
<u>D. SNE/MA yellowtail flounder was overfished and was experiencing overfishing in 2007</u>. Spawning biomass has been low since 1991. There are some signs of rebuilding from a strong 2005 year class. Fishing mortality has had a decreasing trend since 2001 but remains slightly above F_{MSY}. No retrospective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

Figure 15. Southern New England/Mid-Atlantic yellowtail flounder SSB and F estimates during 1973-2007 reported in GARM III along with 80% confidence intervals for 2007 estimates.



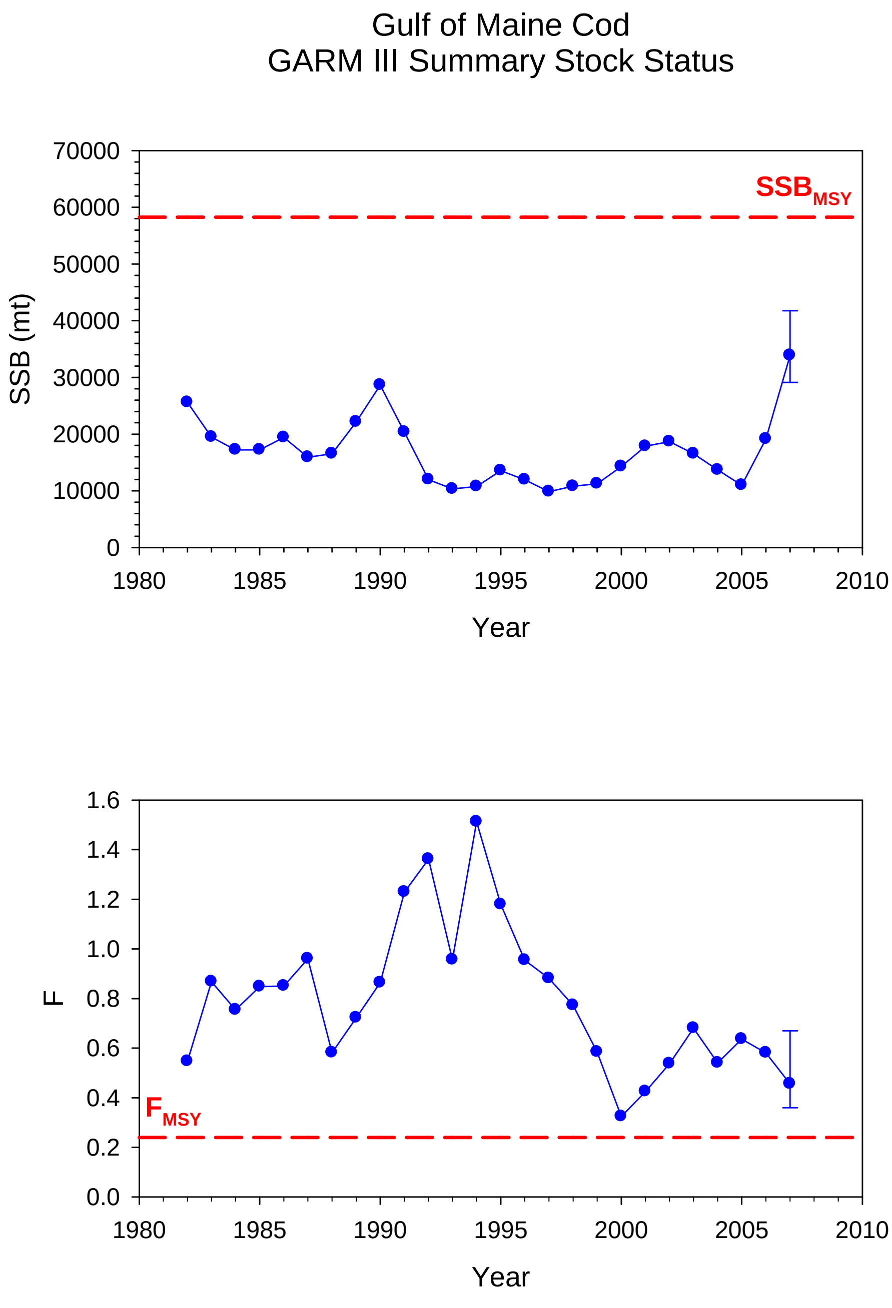
<u>E. CC/GOM yellowtail flounder was overfished and was experiencing overfishing in 2007</u>. Spawning biomass been relatively low over the time series. There appears to be a moderately strong 2005 year class. Fishing mortality has decreased since 2004. No retrospective adjustment was made for CC/GOM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

Figure 16. CC/GOM yellowtail flounder SSB and F estimates during 1985-2007 reported in GARM III along with 80% confidence intervals for 2007 estimates.



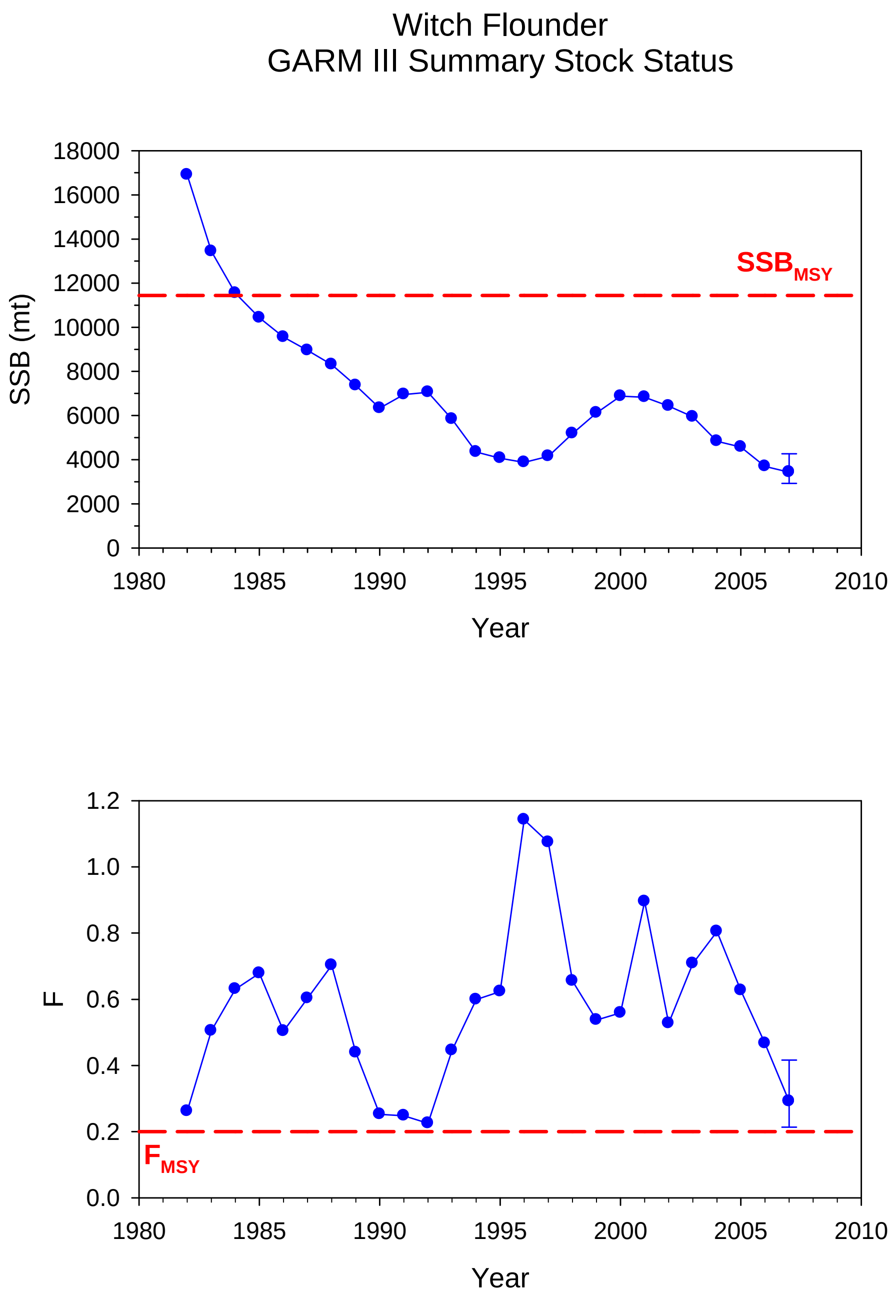
<u>F. GOM cod was not overfished but was experiencing overfishing in 2007</u>. Spawning biomass increased in 2006 and 2007. An above average 2005 year class was estimated. Fishing mortality decreased from 1994 to 2000 but has remained above F_{msy} since then. No retrospective adjustment was made for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

Figure 17. Gulf of Maine cod SSB and F estimates during 1982-2007 using GARM III data along with 80% confidence intervals for 2007 estimates.



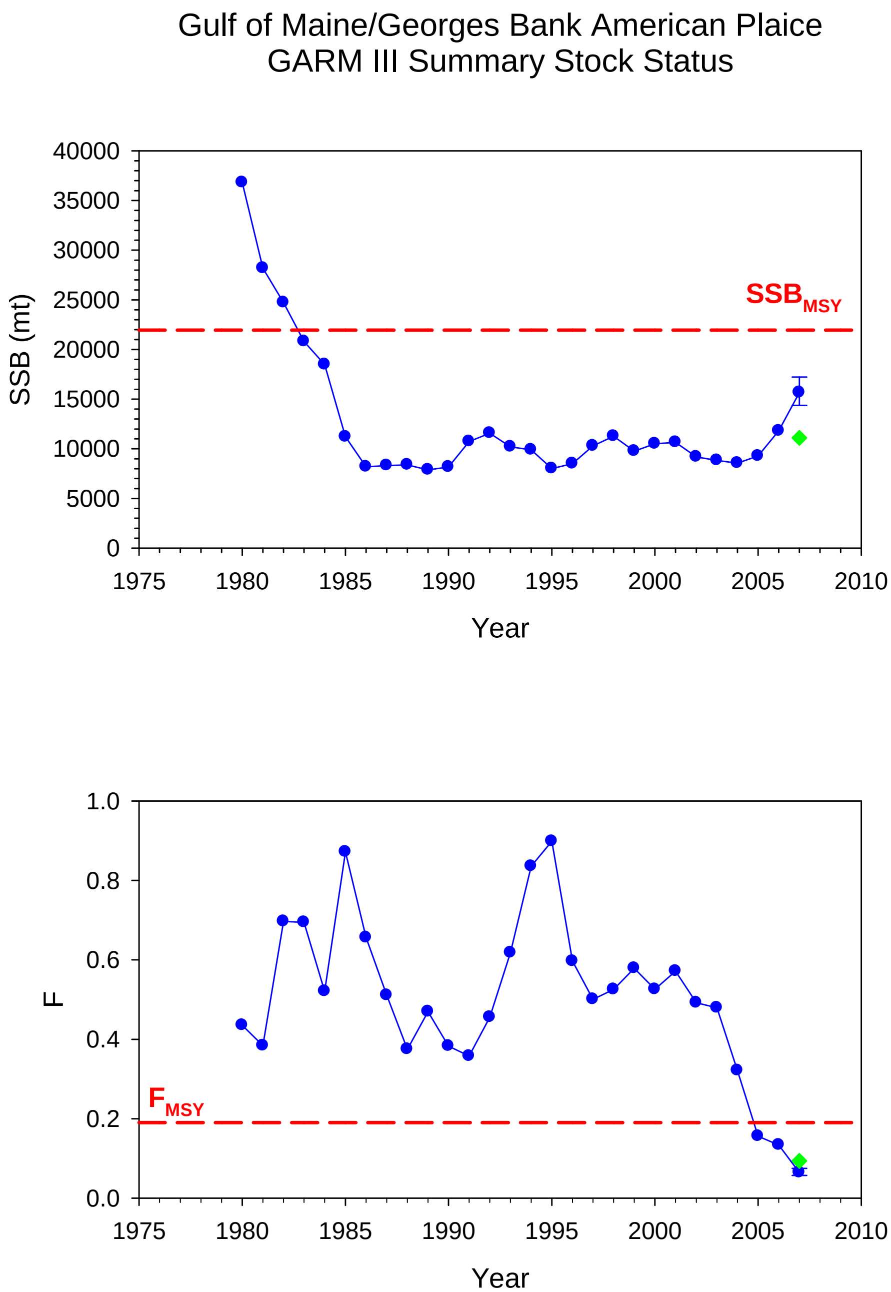
G. Witch flounder was overfished and was experiencing overfishing in 2007. Spawning biomass has declined since 2001 to a record low in 2007. Fishing mortality has decreased since 2004. A split in the survey time series was used to adjust for the retrospective pattern.

Figure 18. Witch flounder SSB and F estimates during 1982-2007 reported in GARM III along with 80% confidence intervals for 2007 estimates.



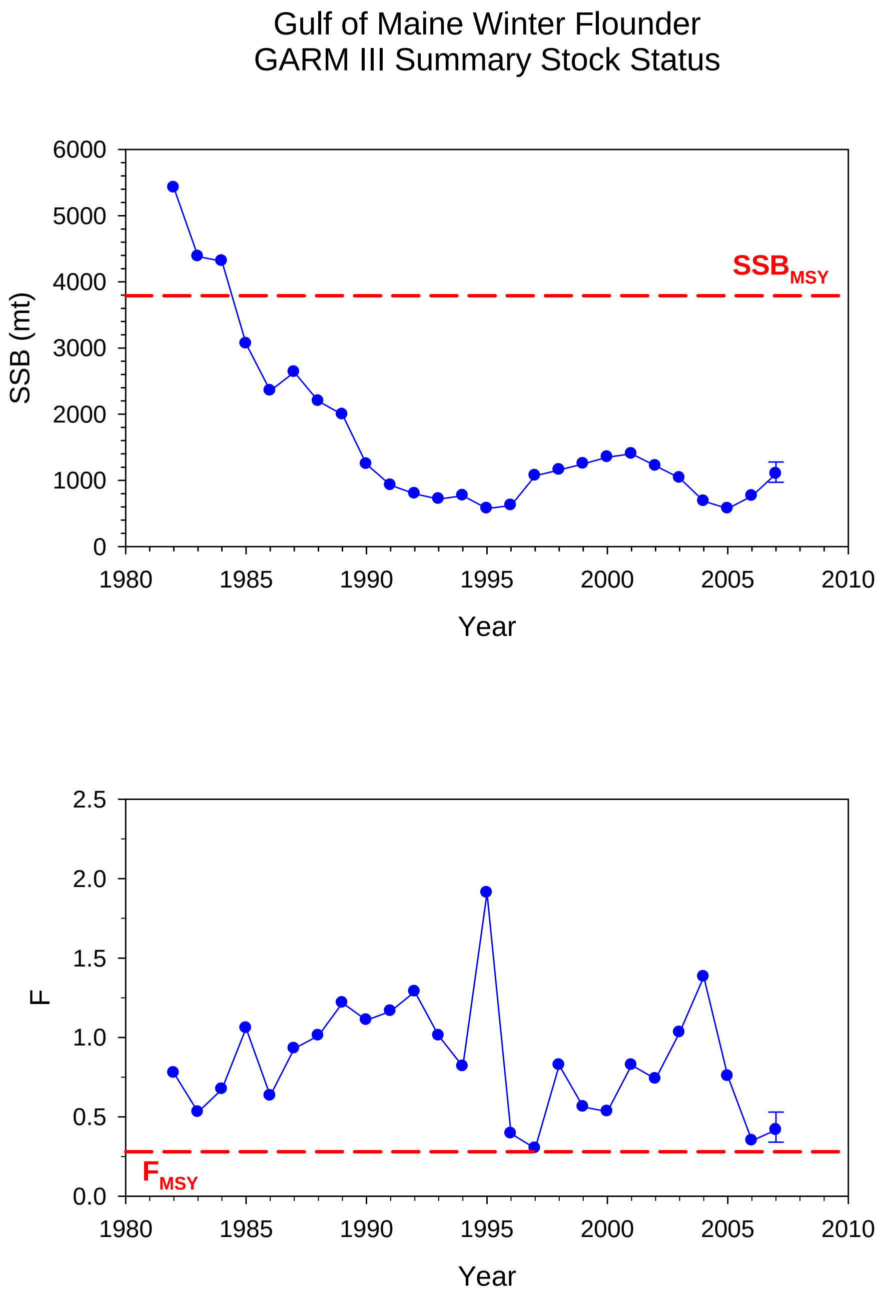
H. American plaice was not overfished and was not experiencing overfishing in 2007. Spawning biomass has been low with a slight increasing trend since 1986. Fishing mortality has had a decreasing trend since 1995. Terminal year population numbers and fishing mortality were adjusted with Mohn's rho estimates.

Figure 19. American plaice SSB and F estimates during 1980-2007 reported in GARM III along with 80% confidence intervals for 2007 estimates. Mohn's rho adjusted SSB and F are shown in the terminal year with a diamond.



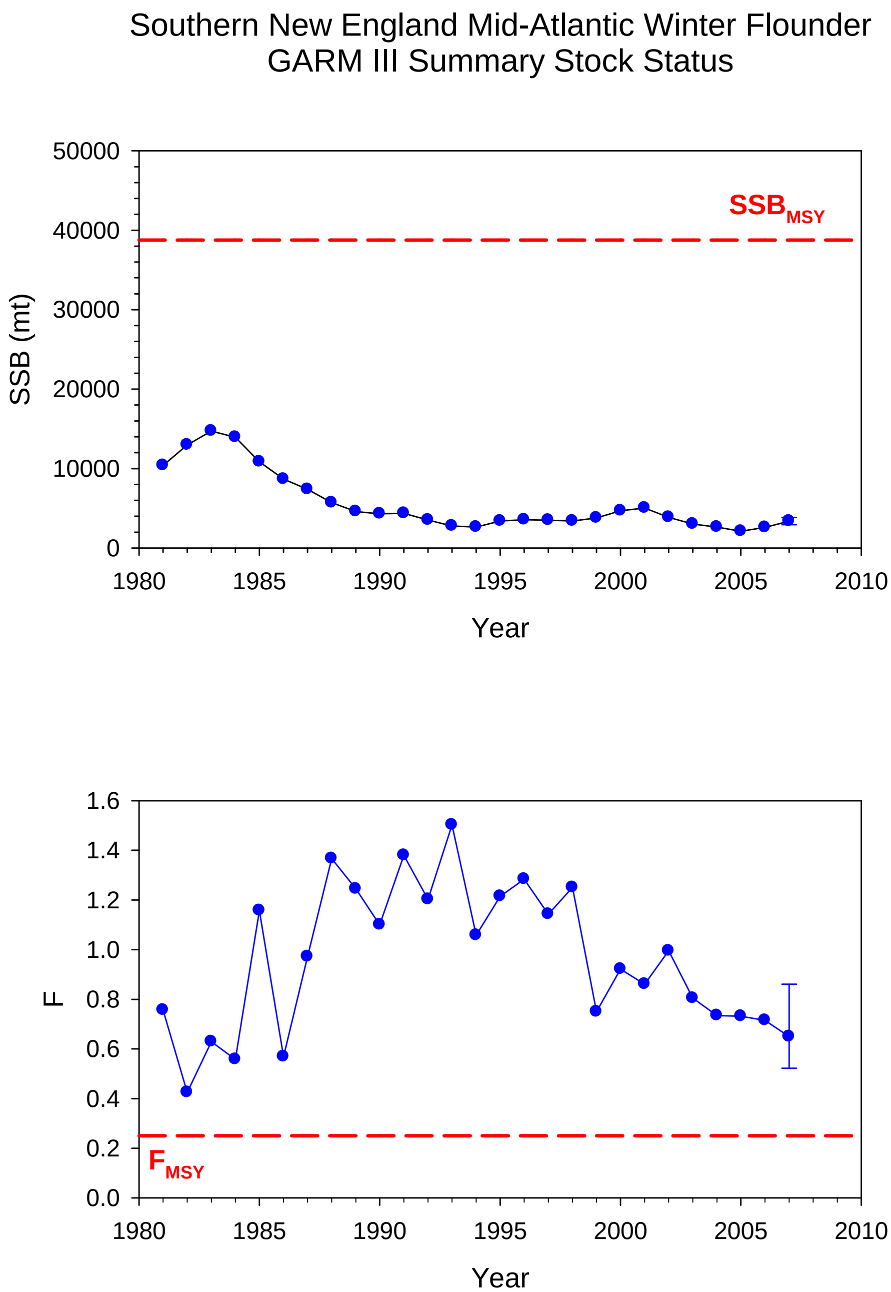
<u>I. GOM winter flounder status determination is unknown</u>. Status determination from the split survey run suggests the stock is overfished and overfishing is occurring in 2007. Exact status determination was unknown due to the severity of the retrospective pattern and the magnitude of the change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

Figure 20. GOM winter flounder SSB and F estimates during 1982-2007 reported in GARM III along with 80% confidence intervals for 2007 estimates from the split survey run.



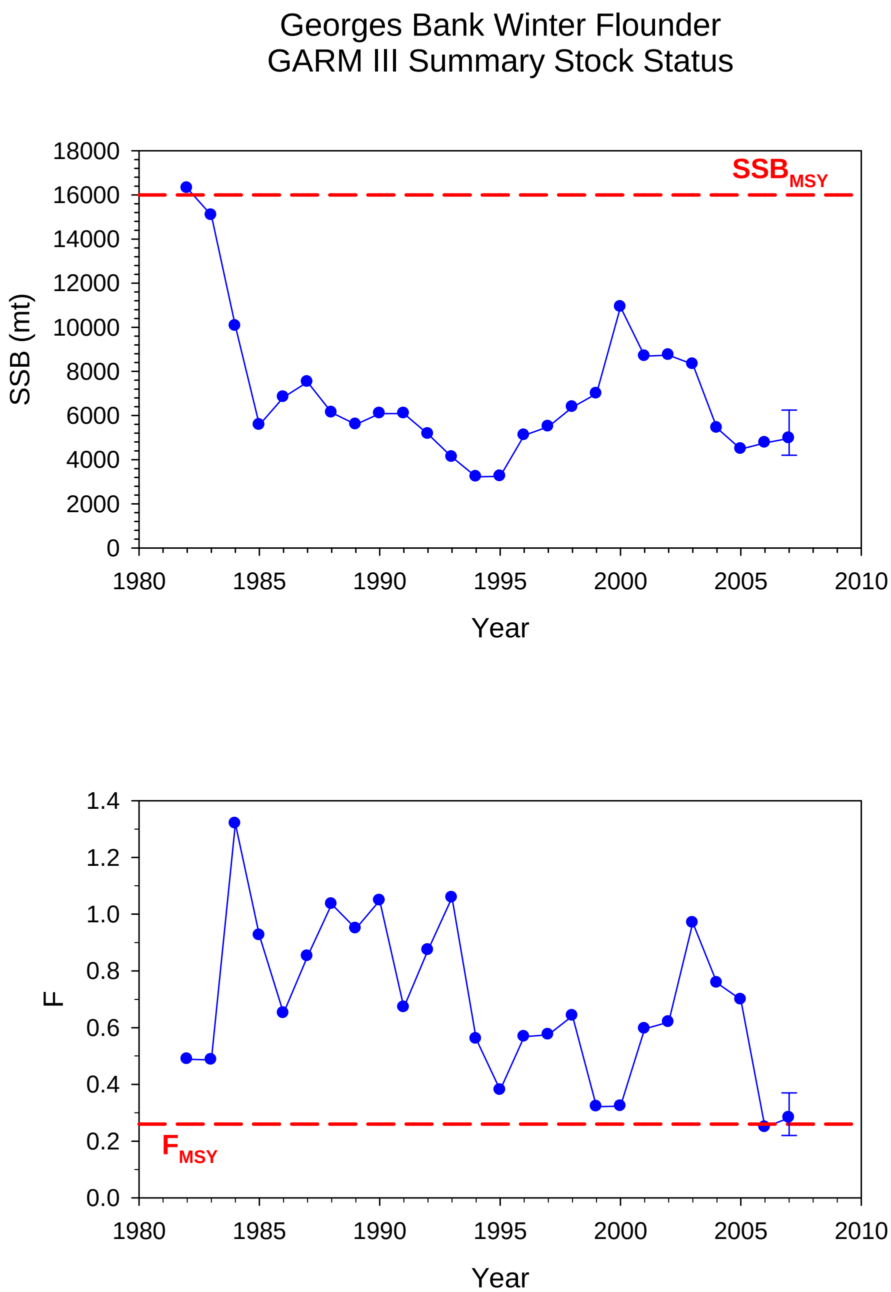
J. SNE/MA winter flounder was overfished and was experiencing overfishing in 2007. Spawning biomass has been very low since the late-1980s. Fishing mortality has been declining since 1993 but remain well above F_{msy}. A split in the survey time series was used to adjust for the retrospective pattern.

Figure 21. SNE/MA winter flounder SSB and F estimates during 1981-2007 reported in GARM III along with 80% confidence intervals for 2007 estimates.



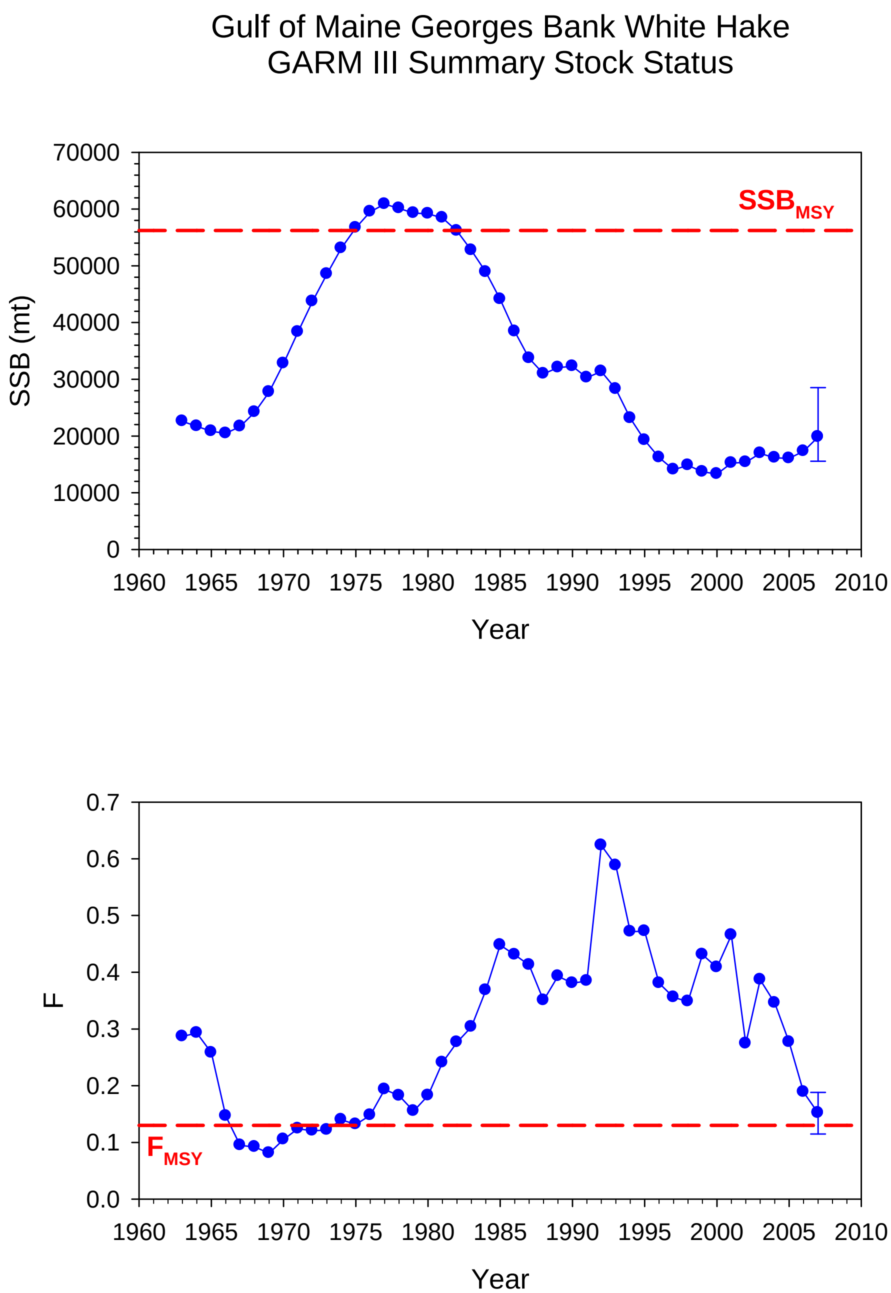
<u>K. GB winter flounder was overfished and was experiencing overfishing in 2007</u>. Spawning Biomass has declined since 2000. Fishing mortality declined from 2003 but was just above F_{msy} in 2007. No retrospective adjustment was made for GB winter flounder.

Figure 22. GB winter flounder SSB and F estimates during 1982-2007 reported in GARM III along with 80% confidence intervals for 2007 estimates.



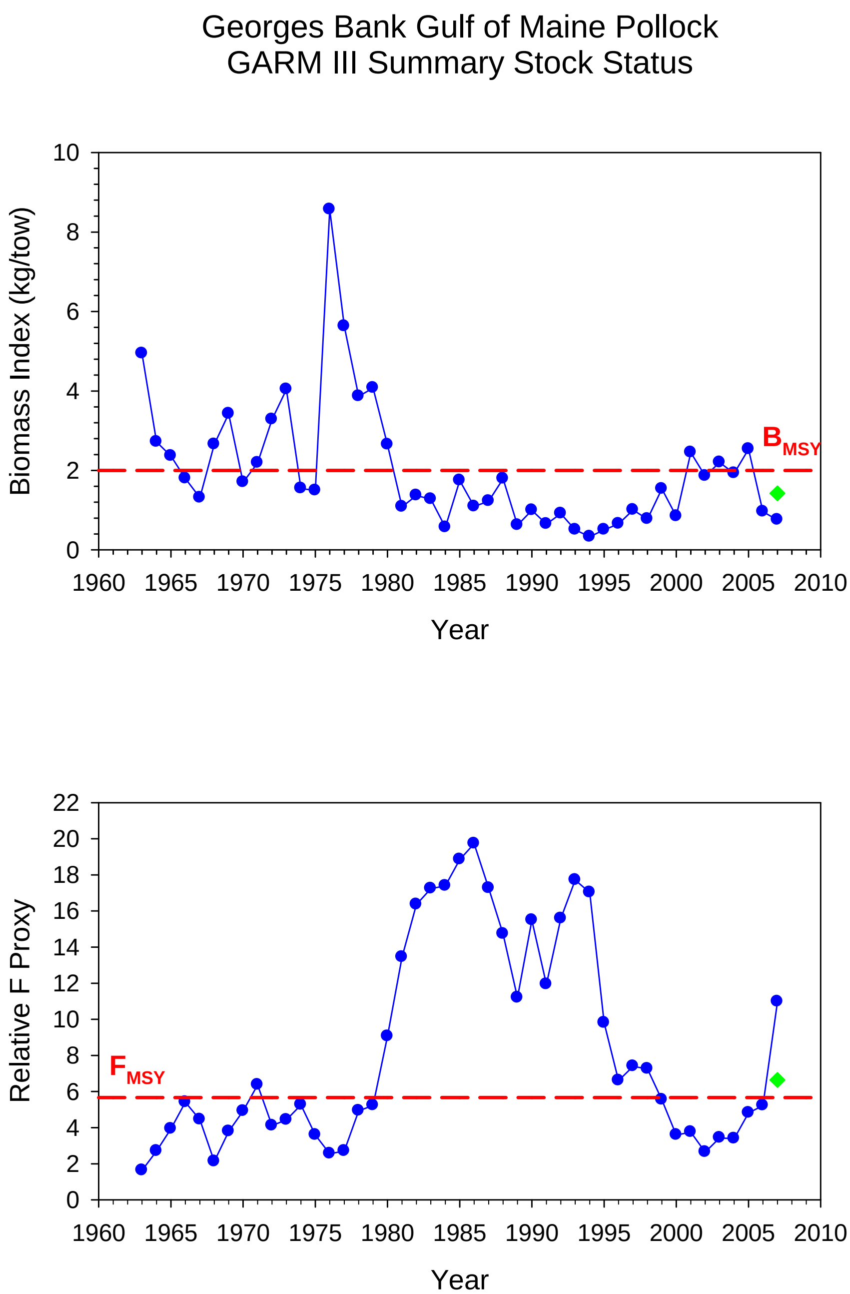
<u>L. White hake was overfished and was experiencing overfishing in 2007</u>. Biomass increased slightly during 2000-2007. Fishing mortality has declined since 2003. No retrospective adjustment was made for white hake.

Figure 23. GB/GOM white hake SSB and fishing mortality rate F during 1963-2007 reported in GARM III.



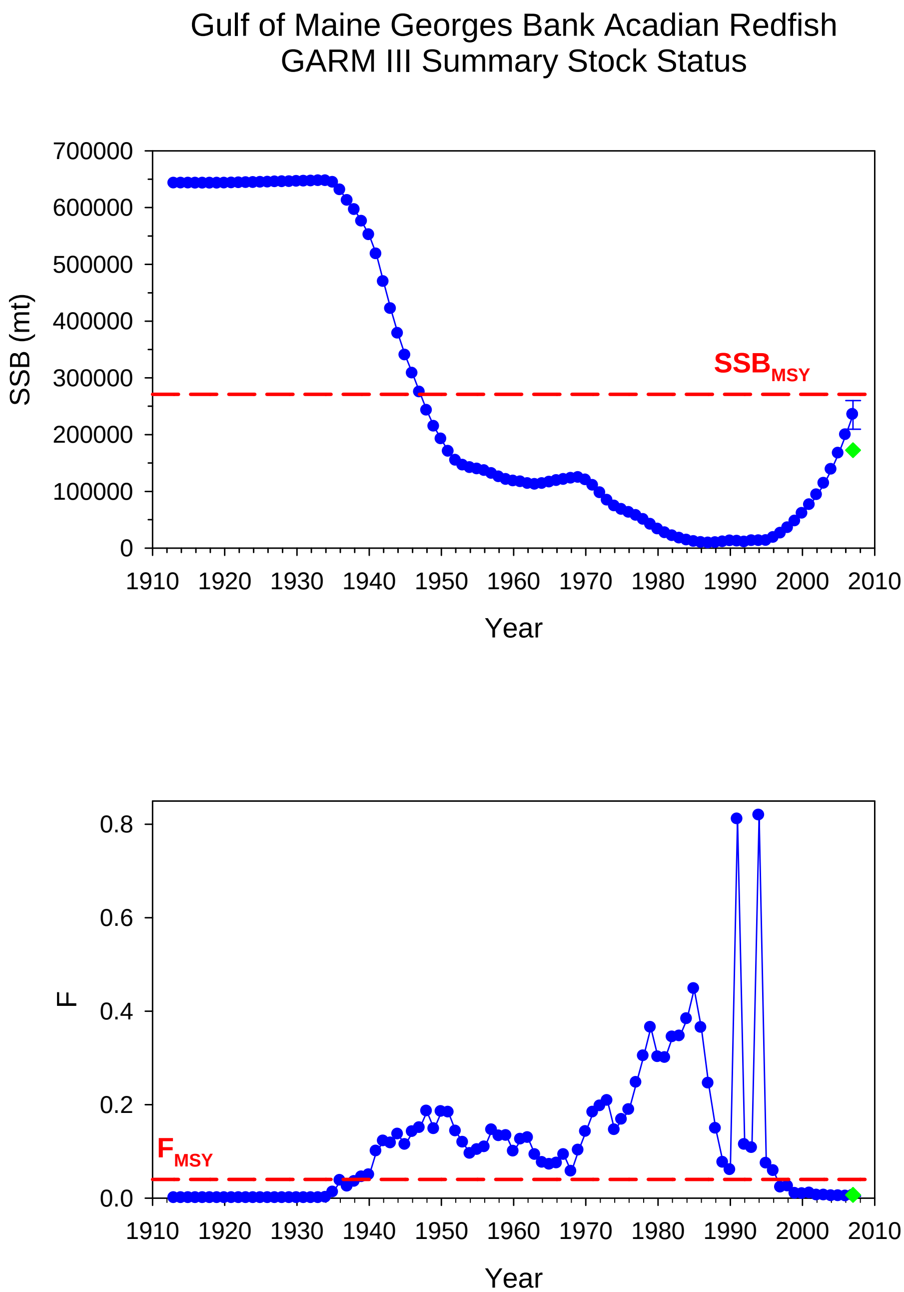
<u>M. Pollock was not overfished and was experiencing overfishing in 2007</u>. Biomass index has decreased since 2005. Biomass status determination is made using the three year moving average of the biomass index. Relative F has increased since 2002.

Figure 24. Georges Bank/Gulf of Maine pollock biomass index (B) and relative exploitation rate (F) during 1963-2007 reported in GARM III. Status determination is based on the three year average plotted with a green diamond.



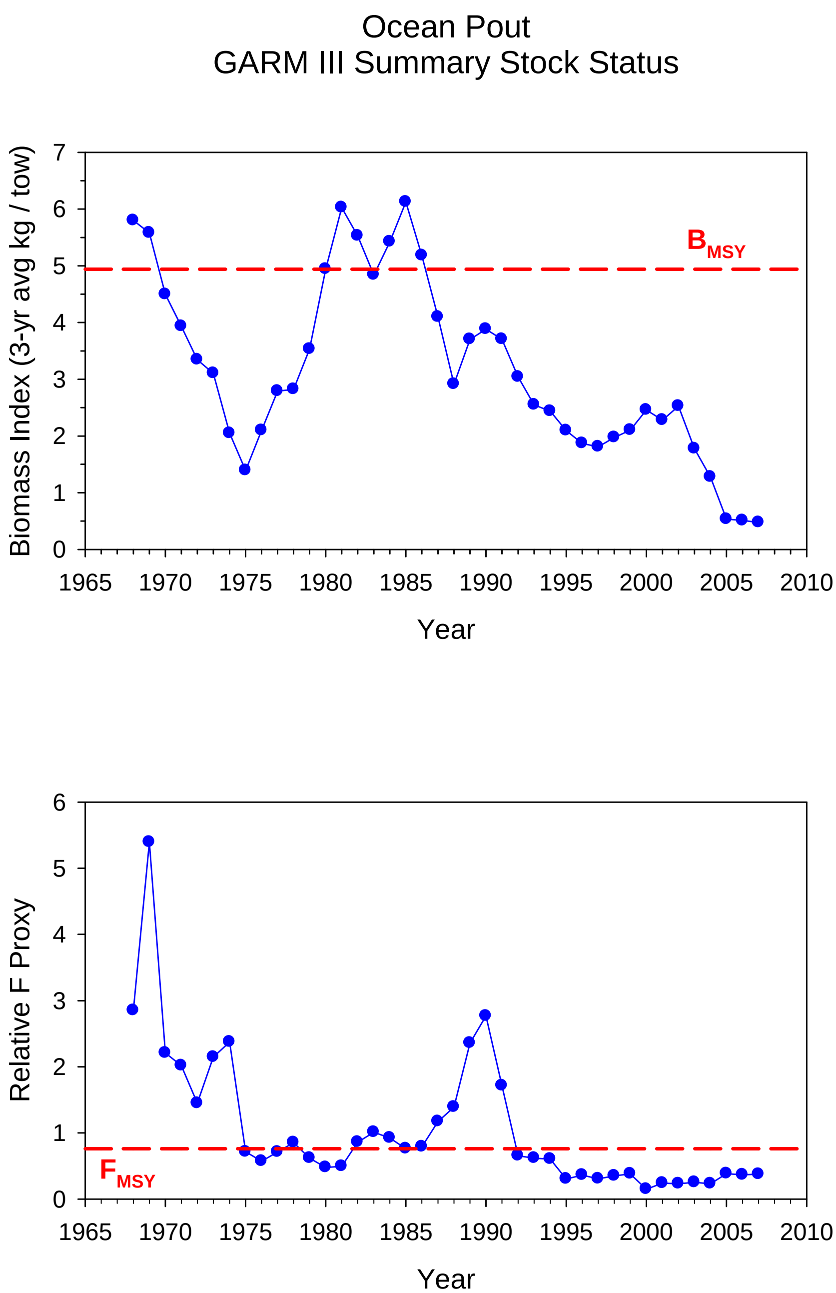
N. Acadian redfish was not overfished and was not experiencing overfishing in 2007. Spawning biomass has increased substantially since the mid-1990s. Fishing mortality has been below F_{msy} since 1997. Terminal year population numbers and F were adjusted with Mohn's rho estimates.

Figure 25. Gulf of Maine/Georges Bank Acadian redfish SSB and F estimates during 1913-2007 reported in GARM III along with 80% confidence intervals for 2007 estimates. Mohn's rho adjusted SSB and F are shown in the terminal year with a diamond.



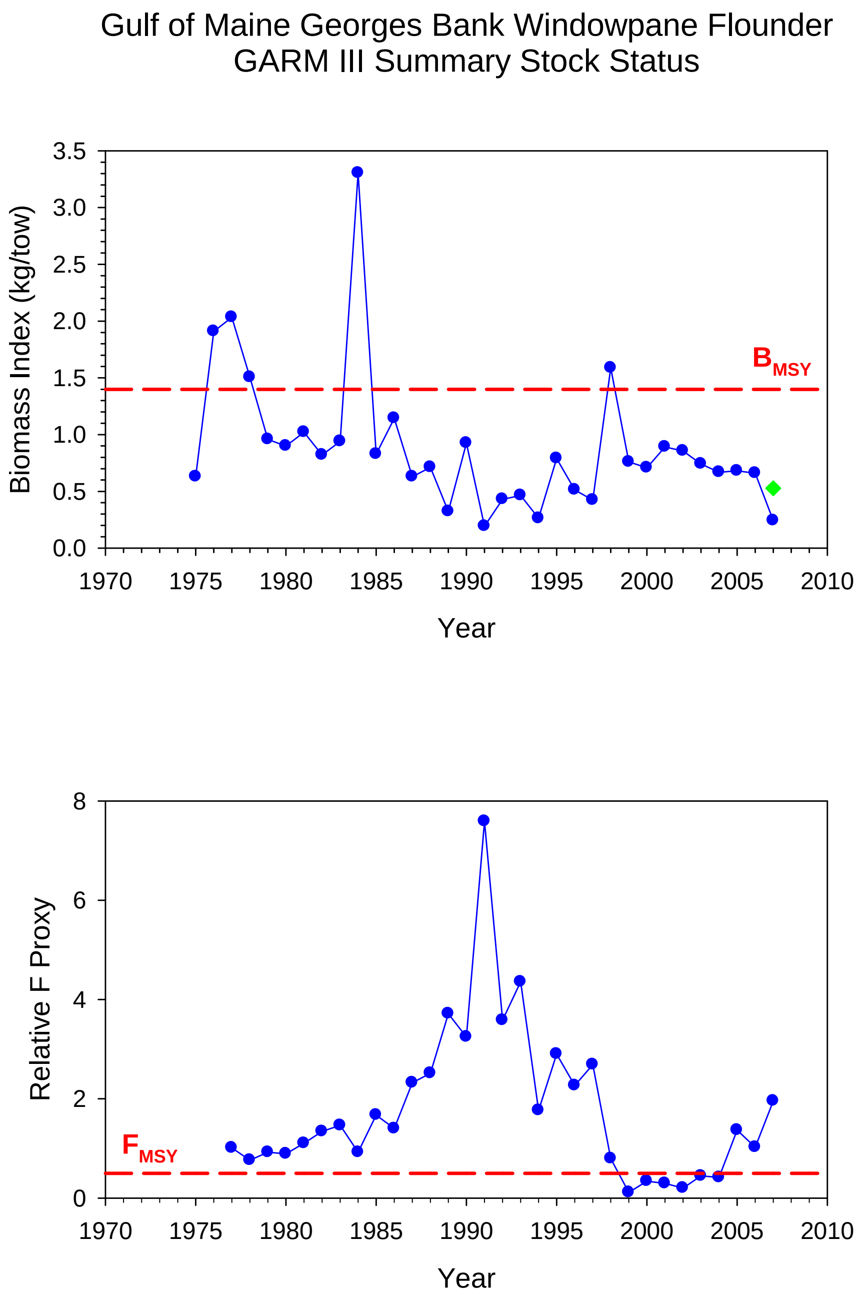
<u>O. Ocean pout was overfished and was not experiencing overfishing in 2007</u>. Biomass has had a decreasing trend since 2002. Fishing mortality has been well below F_{msy} since 1992. There are no signs of stock rebuilding despite that F is relatively low.

Figure 26. Ocean pout biomass index (B) and relative exploitation rate (F) during 1968-2007 reported in GARM III.



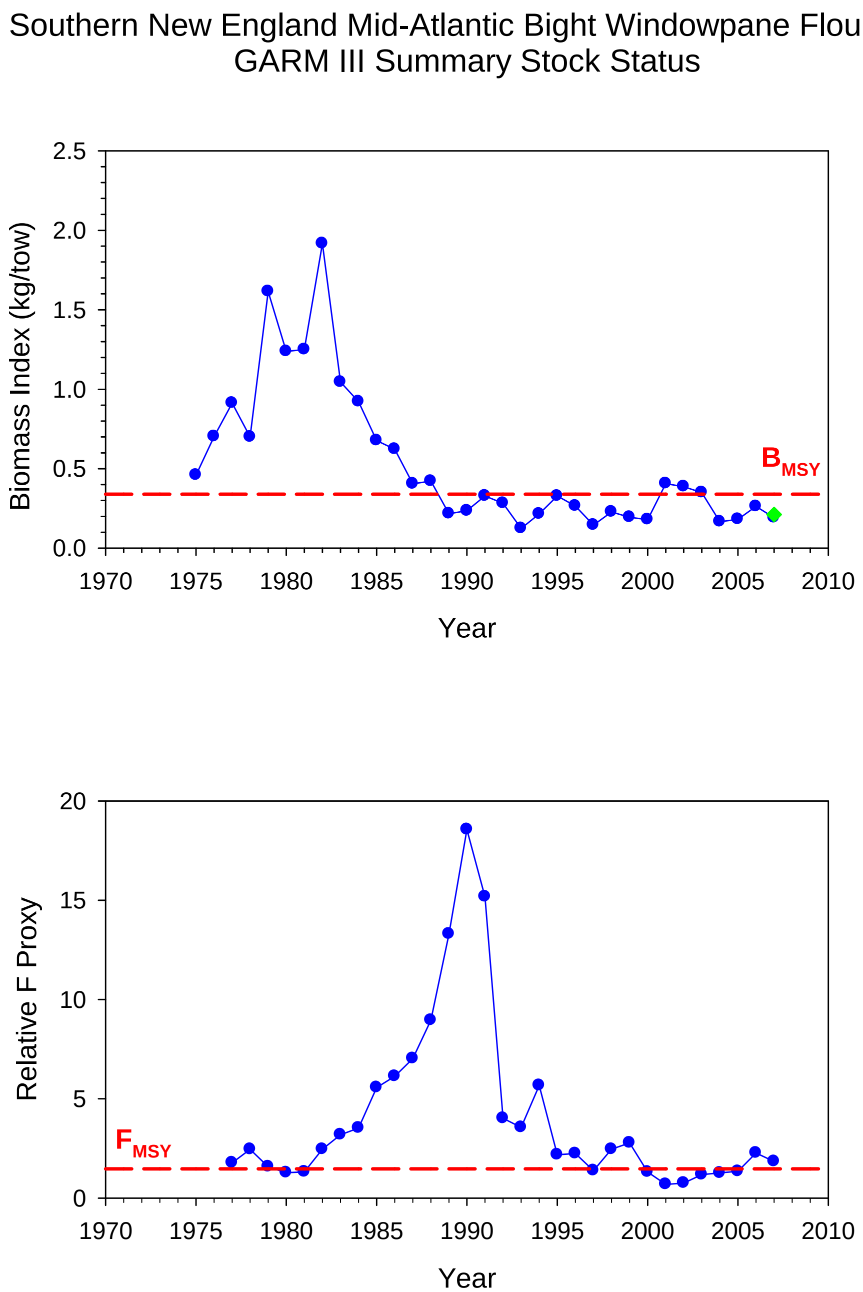
<u>P. Northern windowpane flounder was overfished and was experiencing overfishing in 2007</u>. Biomass has decreased since 2001. Fishing mortality has been increasing since 2002.

Figure 27. GOM/GB windowpane flounder biomass index (B) and relative exploitation rate (F) during 1975-2007 reported in GARM III. Biomass status determination is based on the three year average plotted with a diamond.



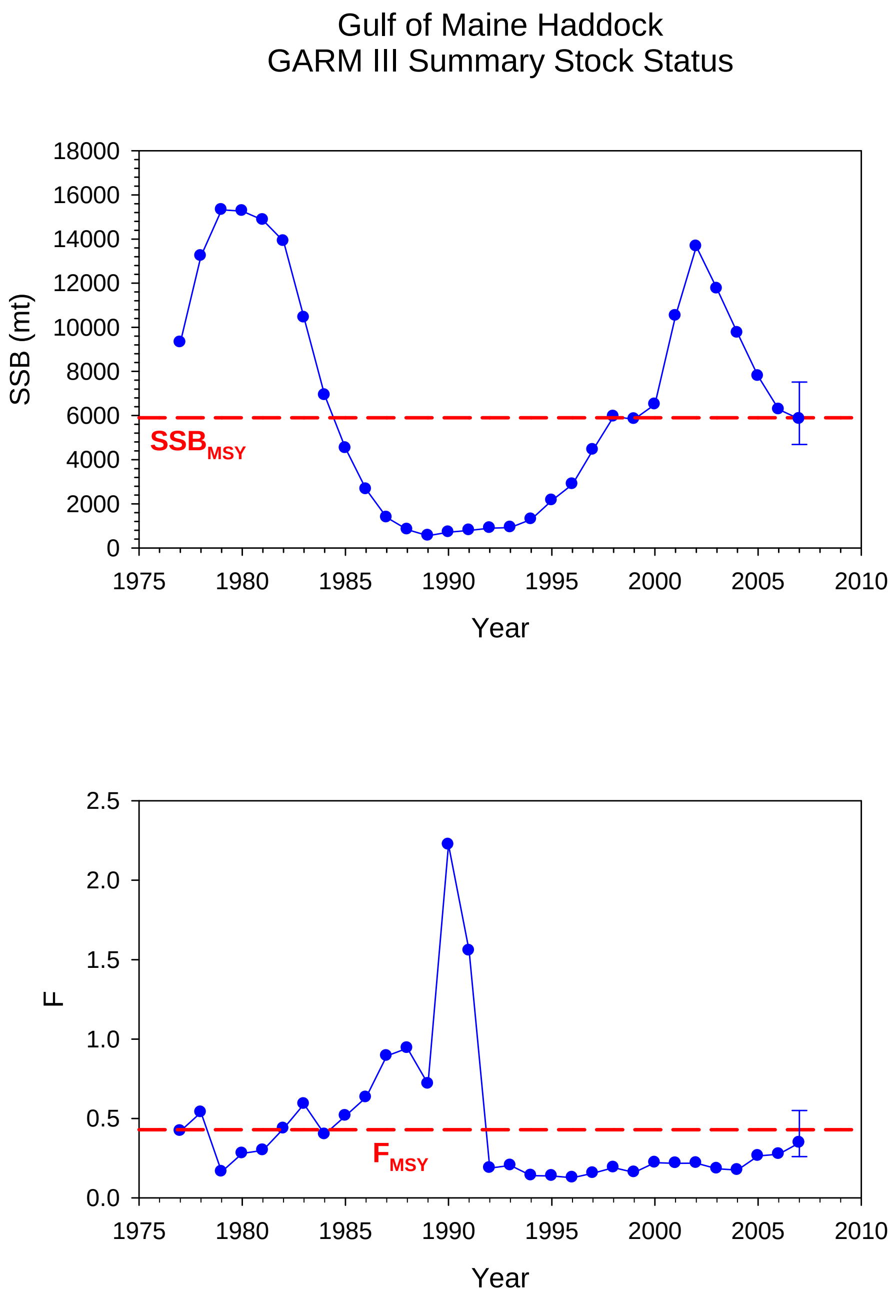
Q. Southern windowpane flounder was not overfished and was experiencing overfishing in 2007. Biomass has been low and fluctuated without trend since the late-1980s. The relative F has increased above F_{msy} in 2006 and 2007.

Figure 28 SNE/MA windowpane flounder biomass index (B) and relative exploitation rate (F) during 1975-2007 reported in GARM III. Biomass status determination is based on the three year average plotted with a diamond.



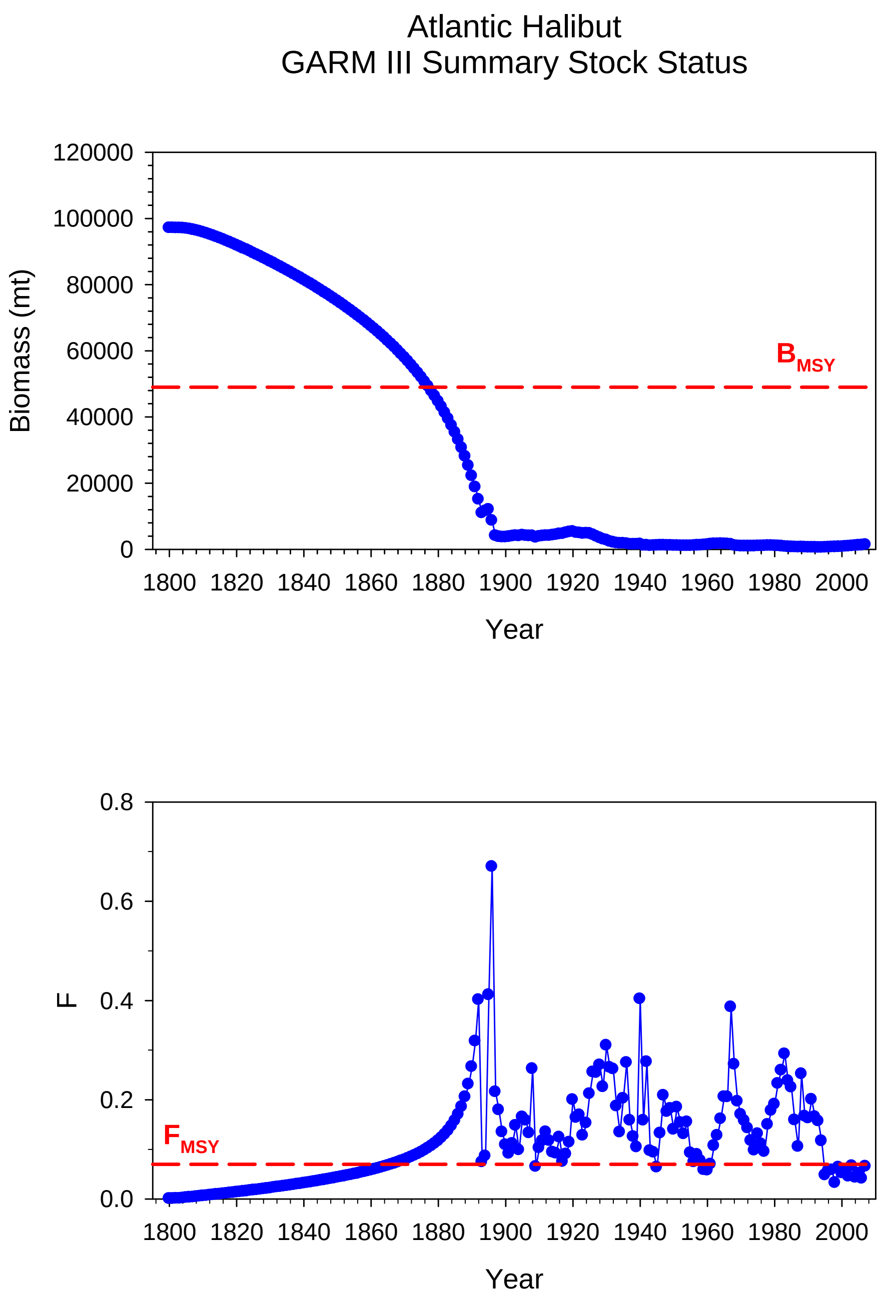
R. GOM haddock was not overfished and was not experiencing overfishing in 2007. Spawning biomass increased from 1989 to 2002 and has decreased since then. F has been below F_{msy} since 1992. No retrospective adjustment was made for Gulf of Maine haddock.

Figure 29. Gulf of Maine haddock SSB and F during 1977-2007 reported in GARM III along with 80% confidence intervals for 2007 estimates.



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

Figure 30. Atlantic halibut biomass (B) and F during 1800-2007 reported in GARM III.



<u>Transboundary Stocks</u>

Two of the U.S./Canada transboundary stocks (Eastern GB cod and Eastern GB haddock) were assessed at the Transboundary Resource Assessment Committee (TRAC) meeting in June, 2008, while GB yellowtail flounder was assessed at the August GARM III meeting, and subsequently discussed by the TRAC via teleconference. Information on the TRAC process and the stock status reports (TSR) may be accessed at the following internet address: http://www.mar.dfo-mpo.gc.ca/science/TRAC/trac.html. Additional information on the fishery exploitation, status of resources, productivity, and special considerations are contained in the Transboundary Management Guidance Committee (TMGC) Guidance Documents at the following internet address: http://www.mar.dfo-mpo.gc.ca/science/tmgc/publications/GD2008_1_E.pdf. Pertinent excerpts from the TMGC documents for 2008 are below:

The TMGC concluded that the most appropriate combined U.S./Canada TAC for Eastern GB cod for the 2009 fishing year is 1,700 mt. This corresponds to a low risk (less than 25%) of exceeding the Fref of 0.18 in 2009. However, due to poor recruitment, there is a high risk (greater than 75%) that stock biomass will not increase from 2009 to 2010. The annual allocation shares between countries for 2009 are based on a combination of historical catches (15% weighting) and resource distribution based on trawl surveys (85% weighting). Combining these factors entitles the U.S. to 31% and Canada to 69%, resulting in a national quota of 527 mt for the U.S. and 1,173 mt for Canada.

The TMGC concluded that the most appropriate combined U.S./Canada TAC for Eastern GB haddock for the 2009 fishing year is 30,000 mt. This represents a low to neutral risk (greater than 25% but less than 50%) of exceeding the Fref of 0.26. Adult biomass is projected to peak at 158,000 mt in 2008, reflecting the recruitment and growth of the exceptional 2003 year class, and decline to 131,000 mt in 2010. The annual allocation shares between countries for 2009 are based on a combination of historical catches (15% weighting) and resource distribution based on trawl surveys (85% weighting). Combining these factors entitles the U.S. to 37% and Canada to 63%, resulting in a national quota of 11,100 mt for the U.S. and 18,900 mt for Canada.

The TMGC concluded that the most appropriate combined U.S./Canada TAC for the 2009 fishing year is 2,100 mt. This corresponds to an F of 0.11, lower than the Fref of 0.25. With a catch of 2,100 mt in 2009, the age 3+ biomass is expected to increase by about 21%. The annual allocation shares between countries for 2008 are based on a combination of historical catches (15% weighting) and resource distribution based on trawl surveys (85% weighting). Combining these factors entitles the U.S. to 77% and Canada to 23%, resulting in a national quota of 1,617 mt for the U.S. and 483 mt for Canada. This F (0.11) was calculated as the Frebuild required to rebuild the stock by the end of the rebuilding period (2014).

11.4.2 Non-Groundfish Stock Status

Monkfish

Monkfish on GB tend to occur in the deeper waters (the canyon areas) during the winter months. The Monkfish FMP uses the NMFS fall bottom trawl survey to determine monkfish stock status (biomass) relative to management reference points. Based on the 2007 monkfish stock assessment (Northeast Data Poor Stocks Working Group 2007), which used a new method for determining stock status, and recommended revised biological reference points, the northern and southern stock components are both above the minimum biomass threshold, and are therefore not overfished. This is a change from 2005 – 2006, when both stocks were considered overfished. The Councils are currently in the process of updating the biological reference points in the Monkfish FMP, through Framework Adjustment 5, to be consistent with this assessment.

Dogfish

The Northwest Atlantic spiny dogfish stock is no longer classified as overfished, nor is ovefishing occurring. Short term forecasts of spiny dogfish biomass (mt) are influenced by the current biomass and size structure of the population. Biomass of mature female spiny dogfish is expected to continue increasing through 2008 and 2009 as fish <80cm grow into mature size ranges. Subsequently, the biomass should decline due to the low number of recruits that were born during 1997-2003. If recruitment returns to levels consistent with expected size-specific reproduction, the biomass should begin to rebound again by 2015 (NMFS, 43rd SAW).

Skates

There are seven skate species managed under the NE Skate Complex FMP (Skate FMP). Three species commonly occur on GB: winter, little, and barndoor skates. Two species are more common in the GOM: thorny and smooth skates. The remaining two species in the complex, clearnose and rosette skates, are mainly distributed in Mid-Atlantic waters. Catches of these species are largely interrelated with the NE multispecies, monkfish, and scallop fisheries. The Skate FMP was implemented in 2003, after it was determined that barndoor, thorny, and smooth skates were overfished. Possession of these species is currently prohibited. The NMFS bottom trawl survey is used to monitor stock status, and a stock assessment was completed for all seven species in the complex in 2006 (SAW 44). Winter skate was determined to be overfished, and an amendment to the Skate FMP is under development to rebuild this, and other overfished skate stocks.

The stock status of the skate complex is updated annually, and the most recent update (June 2008) determined the following: Winter, thorny, and smooth skates are in an overfished condition. Thorny skate is also subject to overfishing, despite a prohibition on possession since 2003. Barndoor skate is not overfished and is rebuilding toward its biomass target. Little skate is not overfished, although it is close to the overfished biomass threshold. Clearnose and rosette skates are not overfished or experiencing overfishing.

11.5 Endangered and Other Protected Species

The following protected species are found in the environment utilized by the groundfish fishery. A number of them are listed under the Endangered Species Act of 1973 (ESA) as “endangered” or “threatened”, while others are identified as protected under the Marine Mammal Protection Act of 1972 (MMPA).

Cetaceans	***Status***
North Atlantic right whale (*Eubalaena glacialis*)	Endangered
Humpback whale (*Megaptera novaengliae*)	Endangered
Fin whale (*Balaenoptera physalus*)	Endangered

Sei whale (*Balaenoptera borealis*)	Endangered
Sperm whale (*Physeter macrocephalus*)	Endangered
Minke whale (*Balaenoptera acutorostrata*)	Protected
Long-finned pilot whale (*Globicephala melas*)	Protected
Short-finned pilot whale (*Globicephala macrorynchus*)	Protected
Spotted dolphin (*Stenella frontalis*)	Protected
Risso's dolphin (*Grampus griseus*)	Protected
White-sided dolphin (*Lagenorhynchus acutus*)	Protected
Common dolphin (*Delphinus delphis*)	Protected
Bottlenose dolphin: coastal stocks (*Tursiops truncatus*)	Protected
Harbor porpoise (*Phocoena phocoena*)	Protected
Seals	
Harbor seal (*Phoca vitulina*)	Protected
Grey seal (*Halichoerus grypus*)	Protected
Harp seal (*Phoca groenlandica*)	Protected
Hooded seal (*Crystophora cristata*)	Protected
Sea Turtles	
Loggerhead sea turtles (*Caretta caretta*)	Threatened
Leatherback sea turtles (*Dermochelys coriacea*)	Endangered
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered
Green sea turtle (*Chelonia mydas*)	Endangered
Fish	
Gulf of Maine Distinct Population Segment (DPS) of Atlantic salmon (*Salmo salar*)	Endangered

11.5.1 Protected Species Likely to be Affected

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. Although these salmon belonging to the Gulf of Maine DPS of Atlantic salmon occur within the general geographical area covered by the Northeast Multispecies FMP, they are unlikely to occur in the area where the fishery is prosecuted given their numbers and distribution. Therefore, the DPS is not likely to be affected by the groundfish fishery.

It is expected that all of the remaining species identified have the potential to be affected by the operation of the groundfish fishery. The remainder of this section summarizes the life history information of the protected species likely to be affected by the groundfish fishery as a result of capture in or entanglement in gear used in the fishery. More detailed information is available in a number of published documents. These include sea turtle status reviews and biological reports (NMFS and USFWS 1995; Hirth 1997; USFWS 1997; Marine Turtle Expert Working Group (TEWG) 1998 & 2000; NMFS and USFWS 2007a; 2007b; 2007c; 2007d; Leatherback TEWG 2007), recovery plans for ESA-listed cetaceans and sea turtles (NMFS 1991; 2005; NMFS and USFWS 1991a; NMFS and USFWS 1991b; NMFS and USFWS 1992; USFWS and NMFS 1992), the marine mammal stock assessment reports (e.g., Waring et al. 2006; 2008), and other publications (e.g., Clapham et al. 1999; Perry et al. 1999; Best et al. 2001; Perrin et al. 2002).

11.5.2 Large Cetaceans (Baleen Whales and Sperm Whale)

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, and 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. 2006). 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).

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).

The most recent Marine Mammal Stock Assessment Report (SAR) (Waring et al. 2008) reviewed the current population trend for each of these cetacean species within U.S. Exclusive Economic Zone (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.

For North Atlantic right whales, the available information continues to indicate a decline in the population trend (Waring et al. 2007). While calf production in recent years has been higher than recorded in the late 1990’s, the minimum rate of annual human-caused mortality and serious injury to right whales averaged 3.2 per year (Waring et al. 2007). Recent mortalities included 6 female right whales, including three that were pregnant at the time of death (Kraus et al. 2005). The total number of North Atlantic right whales is estimated to be less than 400 animals.

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. 2007). The best estimate for the Gulf of Maine stock of humpback whales is 847 whales (Waring et al. 2007). Current data suggest that the trend for the Gulf of Maine stock is increasing. The best estimate available for the western North Atlantic fin whale stock is 2,269 whales but is considered a very conservative estimate (Waring et al. 2007). The population trend was considered positive for the SAR, although the current productivity rate is unknown.

Total numbers of sperm whales, sei whales, and minke whales in the North Atlantic or in U.S. waters are unknown, and there are insufficient data to determine population trends for these cetacean species (Waring et al. 2007). Based on data available for selected areas and time periods, the best estimate of abundance for the North Atlantic stock of sperm whales is 4,804 with a minimum population estimate of 3,538 for western North Atlantic sperm whales (Waring et al. 2007). The best estimate of abundance for minke whales was reported as 3,312 animals with a minimum population estimate for the Canadian East Coast minke whale of 1,899 animals (Waring et al. 2007). The Nova Scotia stock of sei whales is considered to be less numerous than either of these two species with a best estimate of 207 animals, albeit it is considered to be very conservative, and a minimum estimate of 128 sei whales (Waring et al. 2007).

There have been no known interactions of sei whales or sperm whales with groundfish fishing gear. Entanglements of right whales, humpback whales, fin whales, and minke whales in fishing gear, including unidentified gear as well as gillnet gear of unknown fishery origin have been recorded (Johnson et al. 2005; Waring et al. 2007). The Atlantic Large Whale Take Reduction Plan (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, including gear used in the ground fish fishery, and to reduce the risk of death and serious injury from entanglements that do occur.

11.5.3 Small Cetaceans (Dolphins, Harbor Porpoise and Pilot Whale)

Numerous small cetacean species (dolphins, pilot whales, 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. (2006).

Entanglement of small cetaceans in gear used in the groundfish fishery are known to occur (Waring et al. 2007). Measures have been taken to address the bycatch of small cetaceans in fishing gear including gear used in the groundfish fishery. On December 1, 1998, NMFS published a final rule in the Federal Register to implement the Harbor Porpoise Take Reduction Plan (HPTRP). The HPTRP was developed to reduce interactions between harbor porpoises and commercial gillnet gear capable of catching multispecies in both the Gulf of Maine and the Mid-Atlantic. The Gulf of Maine portion of the HPTRP pertains to all fishing with sink gillnets and other gillnets capable of catching multispecies in New England waters from Maine through Rhode Island east of 72° 30' W longitude. Vessels using pelagic gillnets/baitnets (as described in 50 CFR 648.81 (f)(2)(ii)) are exempt from this plan. It includes time and area closures, some of which are complete closures. Others are closures to multispecies gillnet fishing unless pingers are used in the prescribed manner. The Mid-Atlantic portion of the HPTRP pertains to waters west of 72° 30' W. longitude to the Mid-Atlantic shoreline from the

Connecticut/New York border to the North Carolina/South Carolina border. It includes time and area closures to gillnet fishing unless the gear meets certain specifications. Gillnet fishing in Mid-Atlantic waters during regulated periods is regulated differently for small mesh and large mesh gear. The plan also includes some time and area closures in which gillnet fishing is prohibited regardless of the gear specifications. In response to an increase in harbor porpoise bycatch in commercial gillnet fisheries, NMFS convened the Harbor Porpoise Take Reduction Team in 2007 to consider revisions and updates to the current HPTRP. Additional action is anticipated in the future.

A take reduction team for Northeast and Mid-Atlantic bottom and mid-water trawl fisheries interacting with pilot whales, common dolphins, and white-sided dolphins was convened in 2006. The objective of the ATGTRT is to reduce the serious injury and mortality (bycatch) of long-finned pilot whales, short-finned pilot whales, white-sided dolphins, and common dolphins in several trawl gear fisheries in the Atlantic Ocean. An Atlantic Trawl Gear Take Reduction Strategy (ATGTRS) has been developed that identifies education and research needs and outlines a strategy for addressing these needs with the goal of reducing incidental bycatch of small cetaceans in both bottom and mid-water trawl gear.

11.5.4 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. In general, turtles move up the coast from southern wintering areas as water temperatures warm in the spring (James et al. 2005; Morreale and Standora 2005; Braun-McNeill and Epperly 2004; Morreale and Standora 1998; Musick and Limpus 1997; Shoop and Kenney 1992; Keinath et al. 1987). 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. 2005; Morreale and Standora 2005; Braun-McNeill and Epperly 2004; Morreale and Standora 1998; Musick and Limpus 1997; Shoop and Kenney 1992; Keinath et al. 1987). Hard-shelled species 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).

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 reflect the reproductive output of the nesting group each year. Based on the most recent information, a decline in the annual nest counts has been measured or suggested for four of five western Atlantic loggerhead nesting groups (NMFS and USFWS 2007a). 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).

The Northeast Fisheries Science Center has estimated that an average of 616 loggerhead sea turtles were caught annually from 1996-2004 in bottom otter trawl gear fished in waters south of 41° 30'N and 66° W to 35° N and 75° 30' W longitude (Murray 2006). The estimate was based on observer reports collected during the timeframe, some of which occurred as a result of observer coverage of vessels targeting groundfish using bottom otter trawl gear. Of the 66 documented loggerhead turtle interactions with bottom otter trawl gear (excludes decomposed turtle carcasses) reported from 1994-2004, 3 percent were caught on vessels targeting groundfish (Murray 2006).

11.5.5 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). Grey 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. 2005). Pupping colonies for both species are also present in New England, although the majority of pupping occurs in Canada. Harp and hooded seals are less commonly observed in U.S. EEZ waters. Both species form aggregations for pupping and breeding off of eastern Canada in the late winter/early spring, and then travel to more northern latitudes for molting and summer feeding (Waring et al. 2006). However, individuals of both species are also known to travel south into U.S. EEZ waters and sightings as well as strandings of each species have been recorded for both New England and Mid-Atlantic waters (Waring et al. 2006).

11.6 Fishing Communities

The Affected Human Communities for the NE multispecies fishery for FY 1994 through 2002 was described in detail in Section 9.4 of Amendment 13 (NEFMC 2003). The Affected Environment section of FW 42 (NEFMC 2006) included updated information on the fishery from FY 2001 through 2004. This document provides a brief summary of the commercial and recreational fishing sectors from FY 2005 through 2007. Information in this section is that which is most pertinent to the proposed management measures. The information in this section is supplemented by data and narrative in Appendix D. A fishing community is a community which is substantially dependent on or substantially engaged in the harvesting or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and U.S. fish processors that are based in such community. Although fishing communities are geographically based, they rely on a complicated network of business and social interaction that extend well beyond the geographic boundaries of the communities.

Amendment 13 identified primary port groups that are considered to be fishing communities that are substantially engaged in the groundfish fishery, which are likely to be impacted by groundfish management measures. In Amendment 13, groundfish landings by port were examined for the period 1994-1999 using seafood dealer data. Primary port groups represent the most active ports and were selected based on groundfish landings greater than one million pounds annually since 1994 and/or the presence of significant groundfish infrastructure. Framework Adjustment 42 considered the same ports as primary ports: Portland, ME.; Portsmouth, NH.; Gloucester, MA.; Boston, MA.; Chatham/Harwichport, MA.; New Bedford/Fairhaven, MA.; Point Judith, RI.; and Eastern Long Island, NY (Montauk, Hampton Bay, Shinnecock, Greenport).

This environmental assessment also considers these ports as the primary groundfish communities that are likely to be impacted by the proposed alternatives.

11.7 Commercial Harvesting Sector

The commercial sector consists of a wide range of vessels of different sizes and using different gear types. These vessels are homeported in several coastal states, with most vessels claiming homeports in Maine, New Hampshire, Massachusetts, and Rhode Island. Gears that are typically used to prosecute the fishery include otter trawls, sink gillnets, bottom longlines, and hook gear. Detailed descriptions of these gears, and their impacts on EFH, are provided in Section 9.3.

Both limited access and open access permit are issued to vessels to harvest different species of groundfish. Limited access vessels target large mesh regulated species (e.g., cod, haddock, flounder, etc.), while open access vessels generally target small mesh species such as whiting and hake. Since the implementation of Amendment 5 in 1994, all vessels that land regulated groundfish for commercial sale have been required to have a permit. Permits are issued in different categories, depending on the activity and history of the vessel. Further description of the permit types may be found in the Appendix.

11.7.1 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 number of vessels active in the NE 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 NE 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 quantity of vessels which possess NE multispecies permits and were active in the *groundfish* fishery, having landed at least one pound of regulated groundfish, in that given fishing year. The total number of active vessels with NE multispecies permits that land *any* species is not equal to the total number of vessels with NE multispecies permits, because some of these permitted vessels may not be active in any fishery in a given fishing year. This value, the total number of active and inactive vessels with NE multispecies permits, is discussed below. In all sections, the fishing activity discussed is associated only with vessels that hold a NE multispecies permit--one large-mesh limited access NE multispecies permit *OR* one or more open access multispecies permits.

11.7.2 Permit Categories

Amendments 5, 7, and 13 all changed the permit category definitions. Limited access permits are divided into DAS permits and non-DAS permits. Vessels issued a DAS permit are generally larger vessels capable of fishing farther offshore, while non-DAS permits are smaller vessels fishing in the near-shore waters mainly within the GOM.

The permit categories referred to below are those established in Amendment 7 (1996), and subsequently revised by Amendment 13 (2004). 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 revenue data for charter/party vessels are not discussed in conjunction with other commercial sector permit categories since charter/party landings are reported in number of fish, rather than weight.

11.7.3 Fishing Activity in the Commercial Harvesting Sector

Since the implementation of Amendment 5 in 1994, some major additions to the existing management plan have included a DAS program to control effort, large year-round and seasonal closed areas, trip limits, and inshore rolling closures. The data presented by year reflect changes in fishing activity over time within the commercial harvesting sector resulting from these management actions. The commercial harvesting sector may be described as a function of its multiple components, including gear types, vessels, and communities. In this section and in Appendix D, activity in the commercial sector is characterized in terms of permit category, vessel length class, gear type, home port state, and landing port state. 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. Where such anomalies occur, we have attempted to provide a clear explanation.

Landings and Revenues

Landings and revenues by fishing year were summarized in Amendment 13, FW 40A, FW 40B, FW 41, and FW 42. This section updates this information for FY 2004 through 2007. Minor differences exist between the information previously reported and this section due to updates to the databases and revisions to data queries. 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.

Groundfish landings and revenues are summarized in Table 35. This table includes all landings reported to the NMFS dealer database system, regardless of whether the landings can be attributed to a NE 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 NE 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 61 million pounds (landed weight) in FY 2007, or 24 percent. Nominal revenues increased 9.9 percent from FY 2004 ($96.7 million) to FY 2007 ($106.2 million), but revenues in constant 1999 dollars declined slightly from $84.5 million in FY 2004 to $84.2 million in FY 2007, or 0.3 percent. The following sections summarize landings and revenues for groundfish permit holders only.

Table 34. Total Groundfish Landings and Revenues, 2004-2007

Year	2004	2005	2006	2007
Total Groundfish Landed (Live weight)	87,021,916	71,809,881	54,812,140	67,212,138
Total Groundfish Landed (landed weight)	79,619,512	65,497,279	49,956,475	60,584,026
Nominal Revenues	$ 96,674,423	97,934,270	90,992,393	106,206,490
Constant (1999) Revenues	$ 84,489,706	85,074,085	76,800,650	84,241,285

Number of Vessels and Fishing Activity by Permit Category

The total number of permits is separated into the seven limited access permit categories below (Table 35). These categories are the primary commercial categories, and do not include party/charter permits, permits for small mesh fisheries, and the scallop vessel possession permit. The total number of multispecies permits decreased from 3,263 permits in 2004 to 2,515 permits in 2007, a decline of 23%. The number declined steadily in each year between 2004 and 2007. For all years from 2004-2007, Handgear B permits make up the greatest percentage of permits, while Individual DAS vessels make up the greatest percentage of DAS vessels. In general, while numbers of individual, fleet DAS, and small vessel exemption permits declined from 2001 to 2004, numbers of combination vessel permits remained relatively constant across the time period.

Table 35. Number of groundfish permits by permit category, 2004-2007

Year	2004	2005	2006	2007	2008	Grand Total
Individual DAS	1,249	1,215	1,205	1,196	1,082	5,947
Fleet DAS	47					47
Small Vessel Exemption	8	8	7	14	13	50
Hook Gear	119	103	93	87	73	475
Combination Vessel	47	47	50	48	47	239
Large Mesh Individual DAS	62	50	46	38	33	229
Handgear A	177	173	149	147	130	776
Handgear B	1,554	1,495	1,361	1,292	1,137	6,839
Grand Total	**3,263**	**3,091**	**2,911**	**2,822**	**2,515**	**14,602**

The total number of vessels active in the groundfish fishery by permit category, or those which landed at least one pound of groundfish in each of the given fishing years, is shown in Table 36. These vessels are associated with groundfish landings) and groundfish revenues. The number of total active vessels (those which landed at least one pound of any species) generally trended downward from 2004 to 2007. Active Individual DAS vessels decreased each year, with 76.7% of the number of active vessels in 2007 compared with 2004. Large Mesh Individual DAS and Handgear A vessels both decreased substantially, with 2007 seeing 37.0% and 52.2% of 2004 levels in 2007, respectively. The total numbers of vessels active in the groundfish fishery decreased an average of 7.5% per year across that time period.

Table 36. Total number of NE multispecies vessels landing groundfish by permit category, 2004-2007

Year	2004	2005	2006	2007
Individual DAS	691	637	590	530
Fleet DAS				
Small Vessel Exemption	2	1	2	4
Hook Gear	34	32	20	18
Combination Vessel	16	16	10	16
Large Mesh Ind. DAS	27	22	16	10
Large Mesh Fleet DAS	1			
Handgear - A	44	32	26	23
Handgear - B	75	63	59	73
Other Open Access	65	57	64	65
Total	**955**	**860**	**787**	**739**

Landings and Revenues by Permit Category

The total number of NE multispecies permits declined from each year, for a total 23% decline between 2004 and 2007. From 2001 to 2003, the highest total landings were brought in by Fleet DAS and Open Access vessels (Table 37). From 2004 through 2007, Individual DAS, Open Access, and Handgear vessels brought the highest landings. This change principally reflects a change in the structuring of the permit categories and not a change in the nature of the fishery. As of 2004, the Fleet category no longer existed. Large Mesh Individual DAS vessels which expanded their total landings from 1,241,612 pounds in 2001 to 4,144,467 pounds in 2007.

Groundfish landings generally declined in each permit group, with the exception that some groups saw a spike in landings in 2004, including Individual DAS, Hook Gear, Large Mesh Individual DAS, and Handgear (Table 38). Individual DAS permits were by far the leading contributor to groundfish landings, with 96.8% of all landings in 2006. That category also appears to have experienced the least steep decrease in groundfish landings, although several groups fluctuated more severely. As discussed previously, these changes primarily represent shifts in participation among different permit categories rather than extensive movement in and out of the fishery entirely. Vessels in the Small Vessel Exemption category contributed least to groundfish landings in all years. To maintain confidentiality, landings associated with the small number of Small Vessel Exemption vessels were not reported.

Total revenue trends did not closely mimic total landings trends across all years due to changes in species composition of total landings and the differing market values of those species (Table 39). Groundfish revenues were variable across permit categories. For Individual DAS vessels, the greatest groundfish revenues were seen in 2005, while groundfish revenues in the fishery overall declined steadily from 2001-2006 and increased only slightly in 2007 (Table 40). Across all years, Individual DAS vessels were more financially dependent on groundfish than vessels in other permit categories. Groundfish revenues accounted for, on average, 37% of total revenues in this permit category. This represents a lower degree of dependency than in the preceding decade. This is also reflected in DAS use by Individual DAS vessels, which generally used the greatest percentage of their allocated category DAS in each year from 2001 to 2007.

Table 37. Total Landings (lbs) of NE Multispecies Vessels by Permit Category, 2001-2007

Permit Category	2001	2002	2003	2004	2005	2006	2007
Individual DAS	67,082,886	60,555,258	55,545,268	242,216,070	203,926,862	197,040,056	197,707,109
Fleet DAS	231,268,872	188,132,355	186,143,621	604,024			
Small Vessel Exemption	Conf.	Conf.	Conf.	Conf.	Conf.	Conf.	119,178
Hook-Gear	2,770,964	1,675,134	1,818,524	8,659,676	2,879,912	1,208,856	1,067,947
Combination Vessel	12,926,924	13,218,161	17,743,414	14,555,114	11,253,416	12,057,866	10,342,028
Large Mesh Individual DAS	1,241,612	671,808	741,089	12,537,228	4,882,785	4,304,701	4,144,467
Large Mesh Fleet DAS	7,070,364	6,743,331	7,050,035	150,183			
Handgear Permit	126,761,476	72,361,485	143,865,251	37,656			
Handgear A				2,237,854	29,716,819	17,976,142	7,607,092
Handgear B				150,143,857	147,995,484	113,703,477	125,831,090
Charter/Party Permit	62,461	83,677	225,138	97,280	193,786	1,047,238	326,473
Scallop Multispecies Possession Limit	120,662,986	49,086,722	53,414,417	57,971,815	46,537,016	46,278,750	47,817,415
Non-regulated Multispecies Permit	36,403,185	47,558,906	47,233,538	61,660,547	50,942,242	43,554,915	48,026,137
Grand Total	**606,251,730**	**440,086,837**	**513,780,295**	**550,871,304**	**498,328,322**	**437,172,001**	**442,988,936**
Open Access Combined	157,128,632	96,729,305	100,873,093	119,729,642	97,673,044	90,880,903	96,170,025

Table 38. Groundfish landings of NE multispecies vessels by permit category, 2001-2007

Permit Category	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Individual DAS	50,301,967	40,864,820	38,216,342	71,419,801	61,129,151	46,431,701	57,383,983
Fleet DAS	45,007,575	38,017,046	37,911,377	95,194			
Small Vessel Exemption	Conf.	Conf.	Conf.	Conf.	Conf.	Conf.	1,848
Hook-Gear	1,098,050	528,342	478,978	627,033	517,076	183,794	192,508
Combination Vessel	3,820,879	2,465,981	2,839,056	1,884,694	845,275	397,290	557,921
Large Mesh Individual DAS	630,967	301,661	526,329	1,513,209	667,854	589,244	162,909
Large Mesh Fleet DAS	2,048,611	1,050,912	777,373	10,308			
Handgear Permit	454,907	178,787	136,244				
Handgear A				243,634	30,436	122,380	78,723
Handgear B				68,427	49,167	45,221	150,401
Charter/Party Permit	4,497	10,187	14,849	2,169		369	1,815
Scallop Multispecies Possession Limit	15,910	8,215	72,338	65,209	5,638	10,504	11,157
Non-regulated Multispecies Permit	29,434	51,213	50,589	33,223	53,349	187,341	102,907
Grand Total	**103,412,797**	**83,477,164**	**81,023,475**	**75,962,901**	**63,297,946**	**47,967,844**	**58,644,172**
Open Access Combined	49,841	69,615	137,776	100,601	58,987	198,214	115,879

Table 39. Total revenues by NE multispecies vessels by permit category, 2001-2007

Permit Category	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Individual DAS	63,005,926	61,734,890	52,738,496	161,345,808	180,720,578	162,456,700	148,031,135
Fleet DAS	120,721,087	117,177,937	112,644,270	597,359			
Small Vessel Exemption	Conf.	Conf.	Conf.	Conf.	Conf.	Conf.	146,985
Hook-Gear	2,854,182	2,676,627	2,445,595	3,802,250	3,847,800	3,632,903	2,984,595
Combination Vessel	27,857,876	31,513,079	33,708,899	40,408,428	47,519,266	45,235,888	38,476,835
Large Mesh Individual DAS	1,389,315	780,598	559,777	6,395,127	6,673,046	4,811,600	3,618,879
Large Mesh Fleet DAS	7,963,406	7,431,761	6,403,526	107,855			
Handgear Permit	28,884,772	24,452,876	28,581,585	51,059			
Handgear A				1,331,175	4,869,667	4,011,817	3,029,108
Handgear B				28,537,771	58,199,971	55,049,963	55,395,127
Charter/Party Permit	48,601	60,715	98,809	152,604	642,393	670,277	802,337
Scallop Multispecies Possession	130,016,851	145,796,833	171,160,049	227,792,979	256,080,479	230,785,954	233,761,327
Non-regulated Multispecies Permit	10,276,640	12,220,858	13,917,671	16,953,650	26,474,296	24,721,525	23,540,195
Grand Total	**393,018,657**	**403,846,172**	**422,258,677**	**487,476,065**	**585,027,495**	**531,376,627**	**509,786,521**
Open Access Combined	140,342,092	158,078,405	185,176,530	244,899,234	283,197,167	256,177,755	258,103,859

Table 40. Groundfish revenues by NE multispecies vessels by permit category, 2001-2007

Permit Category	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Individual DAS	47,329,837	45,305,967	36,299,927	65,626,188	68,122,719	60,126,373	62,490,491
Fleet DAS	43,106,389	44,351,025	39,424,405	60,968			
Small Vessel Exemption	Conf.	Conf.	Conf.	Conf.	Conf.	Conf.	2,987
Hook-Gear	1,258,845	762,310	645,903	824,186	820,322	338,831	337,265
Combination Vessel	3,802,377	2,903,858	2,958,558	1,752,166	1,195,012	535,507	729,559
Large Mesh Individual DAS	497,441	275,430	348,782	1,380,613	757,251	552,363	201,407
Large Mesh Fleet DAS	2,129,146	1,336,680	839,130	11,148			
Handgear Permit	463,326	243,824	170,583				
Handgear A				177,697	46,031	117,683	108,658
Handgear B				90,013	76,550	66,820	205,424
Charter/Party Permit	5,714	15,714	15,392	2,744		743	3,000
Scallop Multispecies Possession Limit	10,870	7,743	58,123	63,814	6,750	14,101	17,903
Non-regulated Multispecies Permit	27,719	58,817	53,991	38,761	76,689	279,648	147,374
Grand Total	**98,631,663**	**95,261,368**	**80,814,794**	**70,028,298**	**71,101,325**	**62,032,069**	**62,244,069**
Open Access Combined	44,302	82,275	127,506	105,319	83,439	294,492	168,277

Fishing Activity, Landings, and Revenue by Vessel Length Class

Data on fishing activity, landings, and revenue were compiled by length classes. Based on the recommendations of the NEFMC Groundfish Oversight Committee for Amendment 13, four distinct ranges were identified as separate vessel length classes:

Length Class 1: Vessels less than 30 feet in length
Length Class 2: Vessels 30 feet to less than 50 feet in length
Length Class 3: Vessels 50 feet to less than 75 feet in length
Length Class 4: Vessels greater than or equal to 75 feet in length

The vessel length data were gathered from the vessels' permit applications for each fishing year and compiled on a trip-by-trip basis. The total number of vessels by length class was generated from the NMFS permit database and includes all active and inactive permitted multispecies vessels with reported lengths. Data are reported since 2001. Data and summary information on fishing activity, landings and revenue may be found in the Appendix.

Sector Participation

In 2004, the Council adopted a process for the development and approval of sectors. A sector is a group of like-minded vessel owners who develop a set of fishing rules under which to operate that may differ from the rules that apply to the fishery as a whole. In the context of the NE Multispecies FMP, a sector is allocated fishing privileges in the form of hard TACs or DAS based upon the collective fishing histories of participating vessels and must fish according to the provisions of a yearly sector operations plan approved by the Regional Administrator. The Council approved the formation of one sector under Amendment 13 (the GB Cod Hook Sector) in 2004 and another under Framework Adjustment 42 (the GB Cod Fixed Gear Sector) in 2006. In 2005, Framework Adjustment 40B allowed vessels interested in participating in the GB Cod Hook Sector to use all fishing history regardless of gear fished towards the sector allocation.

Both of the currently approved sectors rely upon DAS in conjunction with a hard TAC for GB cod as the primary effort controls. Yearly allocations of GB cod are based upon the fishing histories of participating vessels during fishing years 1996-2001. Participation in the GB Cod Hook Sector has steadily dropped from 59 vessels in 2004 to 19 vessels in 2008, while GB Cod Fixed Gear Sector has increased from 2 vessels in 2006 to 29 vessels in 2008. Table 41 shows the TAC allocations and percent of allocation caught for each sector since its inception.

Table 41. Sector Allocations of Georges Bank Cod (in mt and Percent of Overall Yearly Target TAC) and the Percentage of Allocation Caught for Fishing Years 2004-2008.

Sector	TAC Allocated/Landed	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
GB Cod Hook Sector	TAC Allocated	371 mt (12.59%)	455 mt (11.12%)	455 mt (11.12%)	675 mt (8.02%)	658 mt (6.44%)
	TAC Landed	35%	27%	20%	13%	-
GB Cod Fixed Gear Sector	TAC Allocated	NA	NA	Confidential	771 mt (9.16%)	1,430 mt (13.99%)
	TAC Landed	NA	NA	Confidential	54.3%	-

The current regulations prohibit sector vessels from leasing DAS to and from vessels outside of their particular sector. In addition, until 2006, all sector vessels were limited by the size restrictions of the DAS Leasing Program (i.e. a vessel could not lease DAS to another vessel if the DAS leasing baseline of the lessee vessel was more than 10 percent larger than the baseline length or 20 percent larger than the baseline horsepower of the lessor vessel). Since 2006, NMFS has exempted vessels participating in the GB Cod Hook Sector from the size restrictions of the DAS Leasing Program as part of the approval of that sector's yearly operations plan. However, participation in the DAS Leasing Program by sector vessels has been small, with only five leases approved for GB Cod Hook Sector participants and eight leases approved for the GB Cod Fixed Gear Sector since 2004. These leases represent between 0.6 – 1 percent of leasing activity and between 0.4 – 0.6 percent of DAS leased in the years in which they occurred (see below for further description of the DAS Leasing Program). Such leases resulted in the exchange of 224 DAS among GB Cod Hook Sector vessels and 87 DAS among GB Cod Fixed Gear Sector vessels since 2004 and 2006, respectively. It should be noted that two of these leases (one from each sector) occurred between a sector vessel and a non-sector vessel, while the rest were among participants of the same sector. Finally, one sector participant acquired additional groundfish DAS and other fishery permits from another non-sector vessel as part of the DAS Transfer Program.

DAS Use, Landings and Revenue by Length Class

Data on DAS use, landings and revenue by length class is in the Appendix. A summary of trends follows. The total number of vessels using DAS in 2007 was 52% of the number in 2001. Between 2001 and 2007, the total number of permitted limited access vessels declined by 20 percent. Generally, larger vessels used a higher percentage of their allocated DAS in all years. Active limited access vessels generally used a greater percentage of their allocated DAS in 2007 than in 2001, with the exception of vessels less than 30 feet in length. Vessels in the 30-49 foot length class used the greatest raw number of DAS in each year except 2005, when vessels in the 50-74 foot length class used the most.

The largest vessels demonstrated the greatest annual percent decreases in total landings on average from 2001 to 2007. However, revenues for these vessels stayed fairly constant during that same time period. All length classes experienced relative constancy in total revenues through 2007, with the exception of 75+ foot vessels, which saw an overall increase.

Groundfish landings generally decreased across all length classes between 2001 and 2007. The largest vessels, while making up the smallest percentage of total vessels, were responsible for the highest total landings in every year from 2001 to 2007. However, vessels 50 to less than 75 feet contributed to the highest *groundfish* landings in each year except 2005 and 2007, with vessels 75 feet and greater taking the lead in those two years and following closely in the others. The smallest vessels contributed the least groundfish landings in all years from 2001 to 2007, and also showed the greatest percent decrease in those landings. Groundfish revenues essentially decreased in all length classes from 2001 to 2007, with the exception of a slight increase in revenue for vessels 20 to 50 feet in length from 2004 to 2005 and slight increases for two categories in 2007.

Fishing Activity by Gear Type

Many different gear types are used to harvest the resource in the multispecies fishery. The four primary gear types in the multispecies fishery, as determined from the monetary value of landings associated with that type of gear, are the bottom trawl, bottom longline, hook and line and sink gillnet.

Vessel owners are required to report their primary gear type on their multispecies permit application. On each Vessel Trip Report, the permit holder is instructed to list the actual gear used to harvest the landed catch on that trip. The gear actually used to catch the fish landed may or may not coincide with the primary gear designation on the vessel's permit application.

Data Caveats

Primary Gear Types and Landings by Gear

Total and groundfish landings in this section are reported by the gear type physically used to harvest the fish landed. In some cases, the gear used to harvest the catch on a specific trip was not equivalent to the gear reported by the vessel owner as the primary gear type. "All other" gears represent permits that did not report a primary gear type or permits indicating actual gear types that do not fall into any of the specific categories listed. For landings and revenues, the values associated with the "other" gear category may also represent aggregate records reported by dealers that include multiple trips of one or more vessels.

Landings, Revenues and DAS use by Gear Used

Data on landings, revenue, and DAS use by gear used is found in Appendix D. A summary of trends follows. Between 2001 and 2007, bottom trawls and midwater trawls accounted for a large majority of total landings in each year. Bottom trawls, followed by sink gillnets, accounted for the majority of groundfish landings. Total bottom trawl landings decreased in nearly every year except 2004, and groundfish landings by bottom trawls decreased significantly in every year over this time period as well. Sink gillnets landed the second highest percentage of groundfish, and both total and groundfish landings by gillnets were variable in the years 2001 to 2007. Bottom longlines ranked third in contribution to groundfish landings from 2001 until 2004, while handlines took the third place category (aside from the "other" category) from 2005 through 2007. Revenue trends generally mimicked landings trends from 2001 to 2007.

DAS use generally increased from 2001 to 2007 for each of the four primary gear types. Bottom trawls and sink gillnets used the greatest percentage of allocated DAS from 2001 to 2007, while hook and line and bottom longline vessels utilized the smallest percentage of days allocated.

Fishing Activity by Home Port State

Data Caveats

Home Port vs. Principal Port

In order to examine dependence on the groundfish fishery by state, the number of vessels and their associated landings and revenues are reported primarily by home port state. Home port state is indicated on the permit and represents the state in which the associated vessel resides. Principal port is also indicated on the permit and represents the state in which the associated vessel reports the majority of its landings. This is declared by the permit holder. Principal port and home port may be one and the same or may differ. For example, a vessel which obtained its permit in Stonington, Connecticut may land its catch in Point Judith, Rhode Island. In this case, the home port state is Connecticut while the principal port state is Rhode Island. Principal port may also differ from principal port of *landing*, which is determined based on the actual port in which the vessel landed the majority of its catch over the year, as determined solely from dealer records. For example, a vessel may declare a principal port of Portsmouth, New Hampshire with the intention of landing the majority of its annual catch there but actually land a greater percentage of its catch in Gloucester, Massachusetts within a given fishing year. Principal port is not discussed in the Affected Human Environment of Amendment 16. However, where home port was not reported or documented incorrectly, principal port state replaced home port state. The majority of the permits were associated with a true home port.

"Other" States

States in which the number of vessels made up less than 1% of the total number in each fishing year from 2001 to 2007 were combined into an "Other" category. The landings associated with these states are very low.

Landings and Revenues by Home Port State

Data on landings and revenue by home port state is in the Appendix. Trends in landings and revenue by home port state follow. Total landings and groundfish landings were highest for Massachusetts vessels in all years from 2001 to 2007. Landings in Massachusetts, Rhode Island, and New Jersey, three or the four highest contributing states to total landings, generally declined from about 2001 to around 2003, increased slightly or stayed constant, declined again through 2006, and increased in 2007. Maine, the other state with the greatest contribution to total landings, saw a steady decrease in those landings from 2001 to 2006, and a slight increase in 2007. Massachusetts and Rhode Island groundfish landings decreased fairly steadily from 2001 to 2006, with Massachusetts increasing in 2007. New Hampshire and Maine groundfish landings also saw decreases, but mixed with periods of constancy. Groundfish landings also generally decreased each year in all other states except New Jersey (which decreased through 2002 and then remained constant) and Connecticut, which fluctuated.

For the most part, changes in revenues do not reflect landings trends and have generally fluctuated, increased, or stayed roughly constant in all states. Groundfish revenues, however, decreased in nearly every state except Connecticut, which fluctuated greatly, through 2006 and rose slightly in several states in 2007. Maine fisheries are most heavily dependent on groundfish, followed by New Hampshire fisheries.

In general, all of the New England states increased their use of allocated DAS. Active vessels in Maine, New Hampshire, and, in recent years, Massachusetts have used a higher percentage of allocated DAS than vessels in other states since 2001. Active vessels in New York and New Jersey have used a lower percentage of allocated DAS than vessels in other states since 2001.

Landings and Revenues for Primary Fishing Ports

Amendment 13 identified eight primary groundfish ports (see section 6.5.5). This section summarizes recent activity in those ports. All ports, except Boston and Eastern Long Island, experienced a decline in the number of vessels with groundfish permits that landed regulated groundfish (Table 42). The largest decline was in Chatham/Harwichport, which experienced a 55 percent decline in the number of permitted vessels landing regulated groundfish. Portsmouth experienced the second largest decline, 44 percent, over this period. Gloucester and New Bedford/Fairhaven, two other large ports, respectively experienced a 27 percent and a 26 percent decline.

Most ports experienced a decline in total landings between FY 2001 and FY 2007, with New Bedford and Boston the sole exceptions (Table 43). Boston, New Bedford/Fairhaven, and Gloucester saw an increase in total revenues, while all other ports experienced a decline. Groundfish landings increased in Gloucester and Boston, and declined in all other ports. Groundfish landings declined 59 percent in Portland and 63 percent in New Bedford/Fairhaven, and increased 10 percent in Gloucester. Landings declined 70 percent in Chatham/Harwichport.

Table 42. Number of vessels landing groundfish by port, 2004-2007

Port	2004	2005	2006	2007
Portland ME	116	111	98	77
Portsmouth NH	41	26	24	23
Gloucester MA	218	204	183	160
Boston MA	24	25	26	30
Chatham/Harwichport MA 2	126	95	82	57
New Bedford/Fairhaven MA	211	167	151	156
Pt Judith RI	81	73	78	75
Eastern Long Island NY	87	65	72	74

Table 43. Total landings of NE multispecies vessels by landing port, 2001-2007

Port	2001	2002	2003	2004	2005	2006	2007
Portland ME	75,554,441	46,867,048	56,192,626	44,330,373	37,095,011	37,078,662	26,230,582
Portsmouth NH	4,290,244	2,639,830	5,447,754	3,622,453	2,740,709	2,543,267	1,174,551
Gloucester MA	112,723,002	53,717,051	97,359,033	73,215,332	115,101,665	89,449,904	83,743,114
Boston MA	7,835,595	6,245,445	5,619,980	5,449,678	5,972,573	5,851,506	8,264,696
Chatham/Harwichport MA	11,284,149	7,675,769	8,832,267	7,244,056	7,643,926	7,070,652	7,368,030
New Bedford/Fairhaven MA	80,549,608	81,598,357	99,595,979	109,957,181	93,618,200	79,529,725	100,390,066
Pt Judith RI	35,696,124	37,656,523	38,237,745	33,777,861	37,323,069	37,173,851	30,102,612
Eastern Long Island NY	20,953,207	18,458,011	16,745,447	14,291,397	11,646,338	13,429,984	13,985,621
Grand Total	**348,886,370**	**254,858,034**	**328,030,831**	**291,888,331**	**311,141,491**	**272,127,551**	**271,259,272**

Table 44. Groundfish landings by NE multispecies vessels by landing port, 2001-2007

Port	2001	2002	2003	2004	2005	2006	2007
Portland ME	17,127,475	13,120,369	13,248,132	13,336,041	10,916,605	6,424,222	7,022,856
Portsmouth NH	2,292,399	1,249,678	1,574,926	1,604,137	1,162,945	1,243,795	539,957
Gloucester MA	16,995,463	14,766,480	15,911,942	13,755,265	14,612,245	13,811,580	18,852,948
Boston MA	4,179,936	4,023,466	3,614,632	3,846,639	3,777,135	3,440,531	6,876,819
Chatham/Harwichport	6,568,867	3,621,805	3,385,319	2,742,502	2,719,987	1,547,488	1,950,982
New Bedford/Fairhaven MA	40,730,450	34,234,312	31,693,078	31,339,886	21,862,612	13,943,843	15,150,104
Pt Judith RI	2,206,179	1,863,781	1,602,789	1,685,393	1,322,237	1,895,221	1,988,119
Eastern Long Island NY	1,163,630	546,352	615,226	337,261	291,363	492,911	456,849
Grand Total	**91,264,399**	**73,426,243**	**71,646,044**	**68,647,124**	**56,665,129**	**42,799,591**	**52,838,634**

Table 45. Total revenues by NE multispecies vessels by landing port, 2001-2007

Port	2001	2002	2003	2004	2005	2006	2007
Portland ME	24,492,427	22,408,828	20,431,170	19,590,657	17,342,076	12,964,153	10,119,019
Portsmouth NH	4,344,821	3,438,192	2,599,265	3,341,081	2,868,611	2,590,482	1,593,287
Gloucester MA	29,682,600	25,628,287	28,947,402	24,260,338	36,273,126	32,342,134	33,083,655
Boston MA	6,161,983	7,261,531	5,990,071	6,406,083	7,559,978	7,869,313	8,860,509
Chatham/Harwichport MA	9,196,598	6,974,961	7,523,908	7,536,609	10,559,562	8,859,087	8,413,117
New Bedford/Fairhaven MA	135,473,081	152,728,842	154,473,400	185,918,232	228,493,307	222,152,859	216,125,108
Pt Judith RI	21,622,547	20,459,470	21,103,854	22,396,590	26,501,537	29,538,487	20,867,699
Eastern Long Island NY	17,519,661	15,704,263	14,462,531	13,571,759	15,217,042	15,991,848	13,906,444
Grand Total	**248,493,718**	**254,604,374**	**255,531,602**	**283,021,349**	**344,815,238**	**332,308,363**	**312,968,838**

Table 46. Groundfish revenues by NE multispecies vessels by landing port, 2001-2007

Port	2001	2002	2003	2004	2005	2006	2007
Portland ME	15,831,973	13,949,319	11,940,738	11,833,754	11,333,926	7,372,058	6,562,637
Portsmouth NH	1,954,723	1,287,453	1,272,101	1,372,199	993,292	938,511	363,121
Gloucester MA	16,909,239	17,328,174	16,926,894	14,306,231	16,904,699	16,218,901	18,159,498
Boston MA	4,213,026	4,861,423	3,854,806	3,947,175	4,308,760	4,479,993	6,363,534
Chatham/Harwichport MA	6,827,926	4,812,280	3,803,943	3,422,921	3,836,214	2,289,157	2,583,334
New Bedford/Fairhaven MA	38,355,882	38,386,869	30,446,143	25,722,137	23,984,942	20,509,976	19,828,362
Pt Judith RI	2,053,878	2,154,229	1,696,455	1,425,630	1,718,495	3,062,600	2,890,548
Eastern Long Island NY	1,082,762	657,188	696,782	363,029	391,002	714,862	657,784
Grand Total	**87,229,410**	**83,436,935**	**70,637,862**	**62,393,076**	**63,471,329**	**55,586,058**	**57,408,818**

Fishing Activity by Port Group

Amendment 13 identified port groups that participated in the groundfish fishery and described changes in landings and revenues over time for those port groups. This section summarized updated information for the period FY 2001 – FY 2007, contained in Appendix D. Amendment 13 was adopted in FY 2004, and FW 42 in the middle of FY 2007. These data reflect landings in a port group by vessels with a NE multispecies permit, regardless of the homeport state of the vessel that landed the catch. It does not include landings of groundfish by vessels that did not have a groundfish permit (primarily state registered and permitted vessels fishing in state waters).

New Bedford/Fairhaven is the port group with the largest total landings and total revenues, driven by the scallop fishery. In FY 2001, New Bedford/Fairhaven led all port groups in groundfish landings and revenues, followed by Lower Midcoast Maine (which includes Portland, ME), and Gloucester and the North Shore of Massachusetts. By FY 2004, Gloucester and the North Shore had surpassed Lower Midcoast Maine, but New Bedford/Fairhaven remained the top groundfish port. This changed in FY 2006, when Gloucester and the North Shore and New Bedford/Fairhaven were essentially equal. In FY 2007, Gloucester and the North Shore replaced New Bedford/Fairhaven as the leading groundfish port and Boston edged Lower Midcoast Maine as the third larges port. All four of these ports showed an increase in groundfish revenues (in constant 1999 dollars) from FY 2006 to FY 2007. Groundfish revenues for Gloucester and the North Shore (+26%) and Boston MA (+52%) increased in FY 2004 compared to FY 2007, while those in New Bedford/Fairhaven (-23%) and Lower Midcoast Maine (-45%) declined. Of the four leading ports, Gloucester and the North Shore and Boston saw an increase in groundfish revenues in FY 2007 compared to FY 2001.

For smaller groundfish ports the changes are mixed. FY 2007 revenues were lower than FY 2004 revenues in Southern Maine (-65%), Upper Midcoast Maine (-67%), Coastal New Hampshire (-33%) and the Cape and Islands (-21%). They were higher for Downeast Maine, Coastal Rhode Island (+70%), Long Island (+94%), and Northern Coastal New Jersey (+36%).

Overall, 78% of groundfish revenues were landed in Massachusetts port groups in FY 2007, compared to 72% in FY 2004 and FY 2001. Twenty-nine percent were landed in Gloucester and the North Shore, compared to 19% in FY 2001. The changes since FY 2001 reflect a shift in groundfish landings to the Gloucester and North Shore area, and away from New Bedford/Fairhaven and Lower Midcoast Maine. The declines in the latter two ports may be due to a combination of reduced opportunities to target offshore stocks as regulations restricted landings of GB yellowtail flounder, GB cod, GB winter flounder, and SNE/MA yellowtail flounder, as well as increased costs for fishing in certain areas. These increased costs are both monetary (e.g., fuel) and regulatory, as some areas became subject to differential DAS beginning in FY 2006.

Vessel Trip Costs

The NMFS observer program collects cost information on selected observed trips. Data were queried to provide information on variable trip costs in recent fishing years. A value per day absent was calculated for each trip and then an annual average value determined for the primary groundfish gears. Data for FY 2007 is incomplete and only reflects trips through the beginning of February, 2008. Table 47 provides a summary of these data trips that reported keeping regulated groundfish. Note that this information does not reflect all vessel costs. In addition to fixed costs that are not reported, costs to lease DAS are not included. Nominal values are shown.

Variable costs on these observed trips increased between FY 2003 and FY 2007 with much of the increase due to increased fuel costs. Total costs per day absent declined slightly for gillnet gear from FY 2005 to FY 2006, and for longline gear between FY 2004 and FY 2006, while costs for trawl gear increased steadily. Using FY 2004 as a base year (implementation of Amendment 13), total costs for gillnet gear increased by 17 percent, longline gear increased by 11 percent, and trawl gear increased by 47 percent. Fuel costs per gallon more than doubled for all three gear categories. Examining average fuel costs for FY 2007 indicate that fuel prices climbed steadily through the period observed, from about $2.40/gallon at the beginning of the fishing year to over $3.20/gallon by January. The average price for FY 2007 is likely to be higher than shown here when all data are available.

Table 47. Variable costs on observed trips landing regulated groundfish (FY 2007 data incomplete). Data are averages.

		FY				
Gear	**Data**	**2003**	**2004**	**2005**	**2006**	**2007**
	Number of Trips	38	174	184	108	87
	CREW	3	3	3	3	3
	GRTONS	18	20	21	25	18
	BHP	378	337	330	328	302
	STEAMTIME	3.2	2.2	3.0	3.9	2.7
Gillnet	FOODCOST/DA	$32	$27	$29	$31	$31
	ICECOST/DA	$15	$23	$21	$27	$22
	FUELPRICE/DA	$1.36	$1.57	$2.16	$2.30	$2.68
	FUELCOST/DA	$105	$79	$122	$149	$143
	MISCCOST/DA	$60	$89	$88	$39	$47
	TOTALCOST/DA	$192	$195	$244	$225	$228
	Number of Trips	3	44	45	32	9
	CREW	2	2	2	2	2
	GRTONS	20	16	21	20	18
	BHP	305	356	387	357	422
	STEAMTIME	2.0	3.6	5.5	4.3	5.8
Longline	FOODCOST/DA	$13	$25	$27	$24	$23
	ICECOST/DA	$15	$46	$23	$25	$33
	FUELPRICE/DA	$1.35	$1.82	$2.30	$2.23	$2.94
	FUELCOST/DA	$72	$195	$227	$200	$308
	MISCCOST/DA	$68	$393	$236	$201	$332
	TOTALCOST/DA	$158	$618	$493	$423	$689
Trawl	Number of Trips	78	281	379	257	255
	CREW	3	3	3	3	3
	GRTONS	121	104	90	108	97
	BHP	548	525	482	545	490
	STEAMTIM	9.8	10.0	8.9	10.6	9.1
	FOODCOST/DA	$86	$82	$68	$78	$73

ICECOST/DA	$105	$78	$87	$86	$82
FUELPRICE/DA	$1.24	$1.63	$2.11	$2.26	$2.65
FUELCOST/DA	$419	$541	$601	$769	$795
MISCCOST/DA	$102	$122	$89	$83	$164
TOTALCOST/DA	$681	$793	$817	$989	$1,084

11.7.3.1 DAS Leasing and Transfer Programs

Amendment 13 implemented two programs that allowed the transfer of DAS between permit holders. The DAS Leasing Program provided an opportunity for the temporary transfer of DAS from one permit to another vessel, while the DAS Transfer Program provided an opportunity for the indefinite transfer of DAS from one groundfish permit to another. The DAS Leasing Program was most frequently used, with only limited participation in the DAS Transfer Program until recently. This section updates participation in both programs along with a more in-depth evaluation of the DAS Transfer Program.

DAS Leasing Program

The DAS Leasing Program was first implemented in 2004 and has not been revised to date. While Amendment 13 adopted the program for a period of 2 years, Framework Adjustment 42 extended the program indefinitely. Appendix I of Framework Adjustment 42 provides a detailed summary and analysis for the DAS Leasing Program through FY 2004.

Table 48 summarizes recent participation in the DAS Leasing Program during FYs 2005-2007. Participation in the DAS Leasing Program has gradually increased since the program's inception in 2004 in both number of permits involved and DAS transferred. The number of distinct permits participating in the program during FY 2007 represents nearly half of the number of valid limited access groundfish permits in the fishery and over 60 percent of the number of permits allocated DAS during FY 2007. While the number of DAS transferred has increased, the average number of DAS transferred with each approved lease request has declined.

Table 48. General Summary of Participation in the DAS Leasing Program During Fishing Years 2005-2007

	2005	2006	2007
Total Leases Processed	378	493	677
Total Leases Approved	340	469	645
Number of Distinct Participating Vessels	407	552	656
Number of Distinct Lessor Vessels	207	313	386
Number of Distinct Lessee Vessels	200	239	271
Total DAS Transferred	8,129.04	11,244.69	13,909.79
Average Number of DAS Transferred	24.05	23.98	21.56
Average Cost per DAS Transferred	$287.75	$379.39	$408.12
Highest Cost per DAS Transferred	$3,409.09	$4,312.20	$10,000.00

Lowest Cost per DAS Transferred	$0.00	$0.00	$0.00

Table 49 reveals that an increasing proportion of allocated DAS are being leased and that vessels are increasingly relying upon the DAS Leasing Program to acquire additional DAS to maintain vessel operations. In 2004, over 6,000 DAS were leased, or roughly 14 percent of all Category A DAS that were allocated and 20 percent of the Category A DAS that were used during FY 2004. In 2005, 8,129 DAS were leased, representing 16 percent of allocated Category A DAS and 25 percent of used Category A DAS. In FY 2006 and 2007, 11,245 and 13,910 DAS were leased, representing 23 percent and 29 percent of allocated Category A DAS and 35 percent and 42 percent of used DAS, respectively. It also appears that the recent increasing trend in DAS leasing activity continues during the first few months of FY 2008. Through September 12, 2008, over 6,600 DAS were leased, compared to just over 5,900 in FY 2007 (Appendix). Therefore, it is likely that the recent trend in DAS leasing will continue, with the number of DAS leased during FY 2008 likely to exceed the number of DAS leased during previous fishing years.

Table 49. Number of DAS Leased as a Proportion of Category A DAS Allocated and Used by Fishing Year

Fishing Year	DAS Leased	Proportion of Allocated DAS	Proportion of Used DAS
2004	6,123	14%	20%
2005	8,129	16%	25%
2006	11,245	23%	35%
2007	13,910	29%	42%

In 2004, Amendment 13 implemented a cap on the number of DAS that a vessel could lease from another vessel. This cap was set at the 2001 DAS allocation of lessee vessels. For example, if a vessel was allocated 88 DAS in 2001, it could only lease up to 88 DAS from other vessels during each fishing year. As noted below, a vessel could increase its DAS leasing cap by merging permit histories through the DAS Transfer Program. This allowed five vessels to lease-in additional DAS beyond their original 2001 DAS leasing cap during FY 2007.

Table 50 lists the number and proportion of lessee vessels that were affected by the DAS leasing cap since the program was implemented in 2004. A vessel was affected by the DAS leasing cap if the number of DAS leased from other vessels approached its DAS Leasing cap. For example, a vessel was considered affected by the DAS Leasing cap if it leased-in DAS equal to at least 90 percent of its DAS leasing cap. For a lessee vessel with a 2001 DAS allocation of 88 DAS, the DAS leasing cap was limiting if it leased in at least 79.2 DAS (e.g., 90 percent of 88 DAS) from another vessel. In total, 83 vessels have been affected by the DAS leasing cap, representing as much as 15 percent of lessee vessels during FY 2007. Thirty two of these vessels leased-in DAS equal to their DAS leasing cap, while five vessels actually leased in more DAS than their DAS leasing cap in both FYs 2005 and 2007 (NMFS implemented mechanisms to prevent vessels from leasing in more DAS than their DAS leasing cap, but temporarily removed them during FYs 2005 and 2007 due to technical issues).

Table 50. Number and Proportion of Lessee Vessels Affected by the DAS Leasing Cap

Fishing Year	Number of Vessels	Percent of Lessee Vessels
2004	6	4%
2005	14	7%
2006	23	10%
2007	40	15%

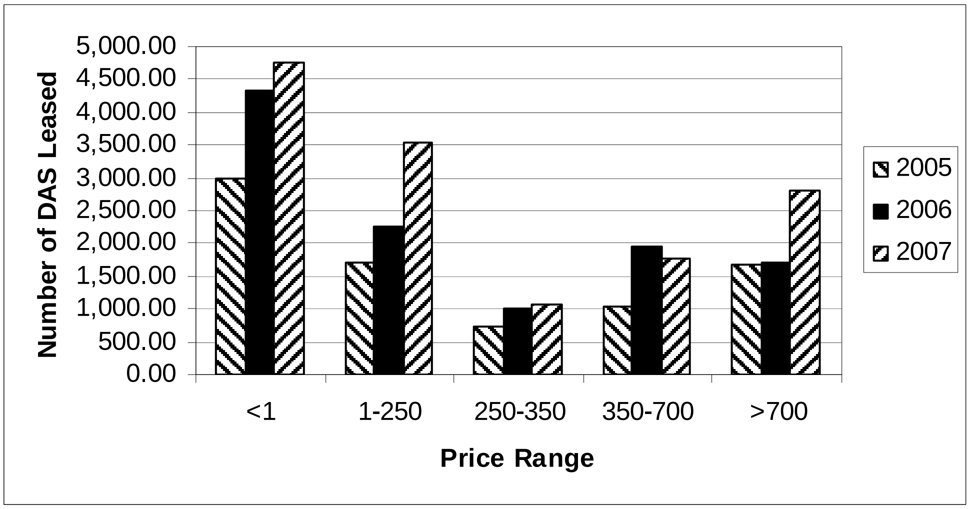
Leasing price data is entered by participants on the DAS leasing request form. Average price per DAS leased was derived by taking the price listed on the form and dividing it by the number of DAS leased. Despite a distinct spike in prices in September, both the average number and price of DAS leased has decreased throughout the fishing year with highest numbers and prices observed in May and lowest in the following April (Appendix D).

Overall, the average price paid for leased DAS has increased during FY 2005-2007 (Table 51). The maximum price per DAS observed during this time period ranged from $3,409 in 2005 to over $10,000 per DAS in 2007 (Figure 31). Figure 31 shows the number of DAS leased within five price ranges as well as the trend of increasing prices since FY 2005. These data indicate that most DAS were leased for less than $1 per DAS. This suggests that vessel owners possess multiple groundfish DAS permits and lease to themselves. However, this suggestion should not be considered a definitive conclusion, as it is unknown whether the prices submitted on DAS lease request forms are accurate, or whether participants are refusing to provide such price information.

Table 51. Average Price per DAS Leased During Fishing Years 2005-2007

Fishing Year	Average Price per DAS Leased
2005	$287.74
2006	$283.13
2007	$313.21

Figure 31. Number of DAS Leased by Price Range During Fishing Years 2005-2007



Consistent with earlier analysis in both Amendment 13 and Framework 42, DAS have been leased from southern states generally less active in the groundfish fishery to more northerly states that are more active in the groundfish fishery. Since the implementation of the DAS Leasing Program, vessels based out of Massachusetts have been the most active participants in the DAS Leasing Program, leasing in more DAS than any other state and leasing an increasing proportion of DAS leased overall (see Tables 52 through 54). In general, there appears to be a funneling of DAS from other states to vessels based out of Massachusetts, although some intrastate leasing is also prevalent in states with the most active groundfish vessels such as Maine and New Hampshire. The existence of the DAS Leasing Program has allowed active groundfish vessels to continue fishing in the groundfish fishery despite recent reductions in fishing effort. This is particularly evident for vessels based out of Massachusetts where fishing effort has been substantially reduced due to the implementation of differential DAS counting in the inshore GOM since FY 2006. In addition, the DAS Leasing Program provides some revenue to those vessels that are less involved with the groundfish fishery. It is likely that the DAS Leasing Program benefited some SNE/MA stocks by shifting effort into the GOM and on GB, but in doing so it may have also contributed to increased catches of several GOM and GB stocks. However, as noted in previous analysis of the DAS Leasing Program, while leasing DAS may not be conservation neutral for all stocks, it is difficult to separate the biological impacts of other management measures from the impacts of the DAS Leasing Program.

Table 52. Number of DAS Leased by Home Port State During Fishing Year 2005

Lessor Vessel Home Port by State	Lessee Vessel Home Port by State							
	ME	NH	MA	RI	NY	DE	NC	Grand Total
ME	1,871	63	461	58				2,453
NH	108	363	225					695
MA	71	75	3,256	33	50	10		3,495
RI			238	98				336
CT			69					69
NY			98		145			242
NJ	94	20	254	85	20			473
PA			9					9
DE						89		89
VA			94					94
NC			68	20			40	128
FL			46					46
Grand Total	2,144	521	4,817	294	215	99	40	8,129
Net Change	-309	-175	1,323	-42	-28	10	-88	

Table 53. Number of DAS Leased by Home Port State During Fishing Year 2006

Lessor Vessel Home Port State	Lessee Vessel Home Port State								
	ME	NH	MA	RI	NY	CT	DE	NC	Grand Total
ME	1,618	124	656						2,398
NH	63	650	290						1,002
MA	211	33	5,483	76	31				5,834
RI	20		298	142					460
CT			21		26	10			57
NY	10		417	20	63				510
NJ		18	445	68	55				587
PA			11						11
DE							89		89
VA			64						64
NC		20	112					60	192
FL			42						42
Grand Total	1,922	845	7,839	306	175	10	89	60	11,245
Net Change	1	-157	2,004	-153	-335	-47	0	-132	

Table 54. Number of DAS Leased by Home Port State During Fishing Year 2007

Lessor Vessel Home Port State	Lessee Vessel Home Port State								
	ME	NH	MA	RI	CT	NY	DE	NC	Grand Total
ME	1,949	203	843	30					3,024
NH	81	671	132	30					915
MA	333	168	7,373	156		20			8,051
RI	20		315	136					471
CT			47	48	44				139
NY			402	18		34			454
NJ	27	5	224	197					453
PA			9						9
DE							74		74
VA			81						81
NC		26	65					107	198
FL			42						42
Grand Total	2,410	1,074	9,532	615	44	54	74	107	13,910
Net Change	-614	159	1,482	145	-95	-400	0	-91	

DAS Transfer Program

The DAS Transfer Program was first adopted by Amendment 13 in 2004, but has been revised twice in an attempt to increase participation in the program. Framework Adjustment 40B (2005) reduced the conservation tax applied to Category A and B DAS transferred from 40 percent to 20 percent and Framework Adjustment 42 (2006) eliminated the provision that the vessel transferring NE multispecies DAS to another vessel (i.e., the transferor vessel) must retire from all state and Federal fisheries, among other revisions. In doing so, Framework Adjustment 42 allowed the vessel receiving NE multispecies DAS from another vessel (i.e., the transferee vessel) to retain all other limited access fishery permits not already issued to that vessel. Until both of these changes were made, no vessels participated in the DAS Transfer Program.

Table 55 summarizes recent participation in the DAS Transfer Program since its inception in FY 2004. Due to confidentiality issues, data from transfers occurring during FY 2008 cannot be released. In summary, participation in the program has increased between FYs 2006 and 2007, with over 430 DAS transferred among 14 permits during FY 2007. This represents only 0.6 percent of the total number of DAS (Category A and B only) allocated to the fishery as a whole and 1.3 percent of the number of DAS used during FY 2007.

With only two years of data and few transfers per year, it is difficult to draw any conclusions regarding trends in participation or price for the DAS Transfer Program. While the average number of DAS transferred has increased slightly, the average price paid per DAS has fallen by more than 50 percent since FY 2006. This is not necessarily a reflection of the true value of a DAS, but rather indicative of an incomplete data set, as more applicants reported prices on transfer request forms during FY 2006 than FY 2007.

Because the price information is self-reported, there are concerns about the accuracy of the price data, including whether the price information submitted reflects the price paid per DAS, or for the total number of DAS to be transferred. In addition, price could also be affected by whether the individual purchased an operational fishing vessel associated with the permit, or a skiff temporarily holding the permit, as noted further below.

The average price per DAS transferred in Table 55 is similar to prices submitted for the DAS Leasing Program (see Table 51 above). Because leases are temporary, one would expect the price paid per DAS leased to be much lower than the prices paid per DAS transferred, which confers an indefinite use of transferred DAS. However, that was not observed, as the price paid per DAS transferred was similar to than that paid for each DAS leased in FY 2007. However, when considering only reported total prices greater than $100, a likely more accurate depiction of the average price per DAS transferred, the average price per DAS transferred is closer to $1,400.

Table 55. General Summary of Participation in the DAS Transfer Program

	FY 2006	FY 2007	FY 2008
Total Transfers Received	5	8	1
Total Transfers Approved	5	7	1
Number of Distinct Permits	9	14	2
Total DAS Transferred	260.75	436.52	Confidential
Category A DAS	142.9	223.43	Confidential
Category B Regular DAS	52.41	91.41	Confidential
Category B Reserve DAS	52.41	91.41	Confidential
Category C DAS	13.04	30.27	Confidential
Average Number of DAS Transferred	52.15	54.57	Confidential
Category A DAS	28.58	27.93	Confidential
Category B Regular DAS	10.48	11043	Confidential
Category B Reserve DAS	10.48	11.43	Confidential
Category C DAS	2.61	3.78	Confidential
Average Cost per DAS Transferred	$719.65	$338.93	Confidential
Highest Cost per DAS Transferred	$1,704.55	$1,630.43	Confidential
Lowest Cost per DAS Transferred	$0.01	$0.00	Confidential

Table 56 shows the total number of DAS transferred by home port state during FYs 2006 and 2007, while Tables 57 through 60 break down these data by DAS category. Data for two states cannot be presented due to confidentiality concerns. In total, nearly 700 DAS were transferred under the DAS Transfer Program. Similar to the summary of DAS Leasing Program presented above, vessels based out of Massachusetts ports have acquired more DAS through the DAS Transfer Program than any other state. However, in contrast to the DAS Leasing Program, there appears to be no regional shift of DAS from more southerly states to states bordering the GOM. With the exception of two transfers of permits allocated only Category C DAS, most of the DAS transferred came from vessels within the same state, often within the same port as the transferee vessel. This later fact could be an artifact of the requirement that the individual requesting the

DAS transfer already own both vessels. Further inquiry into previous ownership may reveal movement among home ports and associated states.

Table 56. Total Number of DAS Transferred by Home Port State During FYs 2006 and 2007

Transferor Vessel Home Port State	Transferee Vessel Home Port State		
	ME	MA	Grand Total*
ME	172.20		172.20
MA		473.78	473.78

Data from two states cannot be presented due to confidentiality concerns.

Table 57. Total Number of Category A DAS Transferred by Home Port State During FYs 2006 and 2007

Transferor Vessel Home Port State	Transferee Vessel Home Port State		
	ME	MA	Grand Total*
ME	98.30		98.30
MA		252.39	252.39

* Data from two states cannot be presented due to confidentiality concerns.

Table 58. Total Number of Category B Regular DAS Transferred by Home Port State During FYs 2006 and 2007

Transferor Vessel Home Port State	Transferee Vessel Home Port State		
	ME	MA	Grand Total*
ME	34.17		34.17
MA		103.25	103.25

*Data from two states cannot be presented due to confidentiality concerns.

Table 59. Total Number of Category B Reserve DAS Transferred by Home Port State During FYs 2006 and 2007

Transferor Vessel Home Port State	Transferee Vessel Home Port State		
	ME	MA	Grand Total*
ME	34.17		34.17
MA		103.25	103.25

*Data from two states cannot be presented due to confidentiality concerns.

Table 60. Total Number of Category C DAS Transferred by Home Port State During FYs 2006 and 2007

Transferor Vessel Home Port State	Transferee Vessel Home Port State		
	ME	MA	Grand Total*
ME	5.57		5.57
MA		14.89	14.89

*Data from two states cannot be presented due to confidentiality concerns.

Table 61 indicates the average physical characteristics of vessels participating in the DAS Transfer Program. It should be noted that 8 out of the 14 transferor vessels during FYs 2006 and 2007 were less than 17 feet in length and are considered to be skiffs rather than operational fishing vessels. Because the current regulations require permits to be transferred in association with a vessel, these skiffs are often used as platforms to facilitate the exchange of permits without incurring the high cost of purchasing the larger fishing vessel that originally established the fishing history for the permit. Therefore, the size of the transferor vessel is not indicative of the fishing capacity being removed from Northeast fisheries, while the size of the transferee vessels represents actual ongoing fishing capacity, as these vessels are operational fishing platforms.

Table 61. Average Physical Characteristics of Transferor and Transferee Vessels Participating in the DAS Transfer Program

Vessel Characteristic	Transferor Vessels	Transferee Vessels
Length	23	52
Gross Tons	11	42
Horsepower	234	323

Due to confidentiality reasons, data on the numbers of DAS transferred among the various size categories cannot be presented. Because vessels can only transfer DAS to other vessels within specific size parameters (i.e., within 10% of the baseline length and within 20% of the baseline horsepower), most DAS were transferred within vessels of the same size category resulting in no net increase in fishing capacity due to this program.

As noted above, two fundamental changes to the DAS Transfer Program were thought necessary to entice vessels to participate in this program: (1) Removal of the requirement to retire from all state and Federal fisheries; and (2) reduction of the conservation tax. The removal of the requirement to retire from all fisheries in 2005 did not result in any new participation in the program, but reducing the conservation tax in 2006 did. It is important to describe the implications of both revisions on the current participation in the DAS Transfer Program.

The current regulations for the DAS Transfer Program allow the transferee vessel to be issued any of the limited access permits previously held by the transferor vessel, with the exception that any duplicate limited access permits must be forfeited. Table 62 lists the number of limited access permits gained and lost as a result of the DAS Transfer Program. Overall, participating vessels lost more permits than were gained. However, this is misleading and is not indicative of the benefits/costs of participating in this program. Most active fishing vessels have been issued American lobster permits, so forfeiting duplicate American lobster permits is not necessarily reducing fishing opportunity for these vessels. In fact, it may increase fishing opportunities by allowing the vessel owner to choose which American lobster permit to forfeit, enabling the vessel owner to retain the one with the best fishing history and, therefore, trap allocation. In addition, participating vessels gained more fishing opportunities through the acquisition of 9 permits in Mid-Atlantic fisheries such as summer flounder, scup, black sea bass, and *Loligo*/butterfish. It is unclear whether such vessels will actually participate in those Mid-Atlantic fisheries, or whether the vessel owner will concentrate on increasing their participation in the groundfish fishery due to the additional DAS gained from the transfer.

Table 62. Number of Limited Access Permits Gained and Lost Through the DAS Transfer Program

Species Permit	Number of Permits Gained	Number of Permits Lost
American Lobster	2	8
Summer Flounder	3	0
Monkfish	1	0
Black Sea Bass	1	2
***Loligo*/Butterfish**	1	1
Scup	1	4
Total	9	15

Out of the 14 vessels that transferred NE multispecies DAS and other associated permits under the DAS Transfer Program, only 2 vessels continue to participate in any fisheries within the Northeast. After the transfer was approved, one vessel acquired additional limited access permits in several fisheries from another vessel, while the other vessel was issued only new open access permits. In any case, there is still a net reduction in fishing capacity throughout NE fisheries due to the forfeiture of 15 limited access permits as a result of this program.

On several occasions, the transferor vessel was issued nothing more than a NE multispecies permit with Category C DAS. While such permits would seemingly have minimal value, they do provide the opportunity for the transferee vessel to greatly increase the number of DAS it could lease from other vessels. This is because the current regulations governing the DAS Leasing Program limit the number of DAS that a vessel could lease by its 2001 DAS allocation. By combining fishing histories of the participating vessels, the transferee vessel is also combining the 2001 DAS allocations of the associated permits and, therefore, increasing the number DAS that the vessel could lease. In doing so, the transferee vessel is able to increase potential future revenue from landings associated with the use of additional groundfish DAS.

Table 63 highlights the number of DAS that were lost due to the conservation tax in the DAS Transfer Program. It is important to note that the number of DAS transferred (see Table 55 above) is not the same as the number of DAS that were taxed. This is because of a revision in Framework Adjustment 42 that allows the conservation tax to be applied to either the DAS associated with the transferor or transferee vessel. Most often, but not always, the vessel owner chose to apply the conservation tax to the vessel with the lowest DAS allocation to minimize the number of DAS lost due to the tax.

Currently, the tax applied to Category A and B DAS transferred is 20 percent, while Category C DAS transferred are taxed at a rate of 90 percent. The 14 transfers processed through FY 2007 reduced the number of Category A DAS available by 81.5 DAS, or roughly 0.2 percent of the 40,000 Category A DAS allocated to vessels during FY 2007. In total, the 148.22 Category A and B DAS eliminated by the DAS Transfer Program also represent 0.2 percent of the combined 77,000 Category A and B DAS allocated during FY 2007 and represent a net reduction in fishing effort.

Table 63. Number of DAS Lost Due to the Conservation Tax in the DAS Transfer Program

DAS Category	DAS Originally Allocated	DAS Actually Transferred	DAS Lost Due to Conservation Tax
A DAS	407.61	326.09	81.52
B Regular DAS	166.76	133.41	33.35
B Reserve DAS	166.76	133.41	33.35
C DAS	462.68	46.27	416.41
Total	1203.81	639.17	564.64

11.7.3.2 U.S./Canada Management Area Fishery

Three transboundary stocks are currently managed differently than other stocks in the FMP (Eastern GB cod, Eastern GB haddock, and GB yellowtail flounder). A transboundary stock is one whose distribution spans the boundary between Canada and the U.S., and for which there can be migration across the boundary. It was recognized that coordinated efforts to manage transboundary stocks would result in enhanced management and utilization of resources by both countries. In 1998, the Transboundary Resource Assessment Committee (TRAC) was formed with representatives from both the U.S. and Canada to conduct joint stock assessments between the two countries in order to ensure that management was based upon the best available, combined information. More information on the TRAC may be found on the internet at the following address: http://www.mar.dfo-mpo.gc.ca/science/TRAC/trac.html. Subsequently, a management advisory process was developed, and a second committee was formed, with members from the U.S. and Canada, to provide non-binding guidance to each country (Transboundary Management Guidance Committee); (TMGC). More information on the TMGC may be found on the internet at the following address: http://www.mar.dfo-mpo.gc.ca/science/tmgc/TMGC-e.html.

It was recognized by both Canadian and U.S. managers that the independent conservation actions taken by each country could be compromised by other management actions that were not coordinated, and could result in reduced benefits to both countries. Therefore, an informal agreement was developed to achieve consistency of management efforts (Development of a Sharing Allocation Proposal for Transboundary Resources of

Cod, Haddock, and Yellowtail Flounder on Georges Bank. Transboundary Management Guidance Committee, January 2002). The Understanding outlines a process for the management of the shared GB groundfish resources and specifies an allocation of TACs for these three stocks for each country based on a formula that considers historical catch percentages and current resource distribution.

Management measures designed to implement the Understanding were implemented in May 2004. The specific intent of such management measures was to constrain catches of the three shared stocks by U.S. vessels to ensure that the catch does not exceed the U.S. allocations (i.e., the Amendment 13 regulations in support of the Understanding included the definition of the Western U.S./Canada Area and the Eastern U.S./Canada Area, hard TACs, gear restrictions, monitoring requirements, reporting requirements, trip limits, and administrative measures). In U.S. waters, the shared stock of GB yellowtail flounder is located in both the Western U.S./Canada Area and the Eastern U.S./Canada Area, while the shared resources of cod and haddock are found in the Eastern U.S./Canada Area (Figure 32). Information on the U.S./Canada Management Area is summarized separately from the groundfish fishery as a whole (in addition to being included in the data for the fishery as a whole) because it is managed with hard TACs for three transboundary stocks, and the Regional Administrator has the authority to implement in-season management measures (e.g., trip limit adjustments, closures, and gear restrictions) in order to optimize the harvest of the TACs. Table 64 summarizes the pertinent TACs for the shared stocks since implementation of the U.S./Canada regulations.

Figure 32. U.S./Canada Management Areas and Year-Round NE Multispecies FMP Closed Areas (Habitat Closure Areas not depicted)

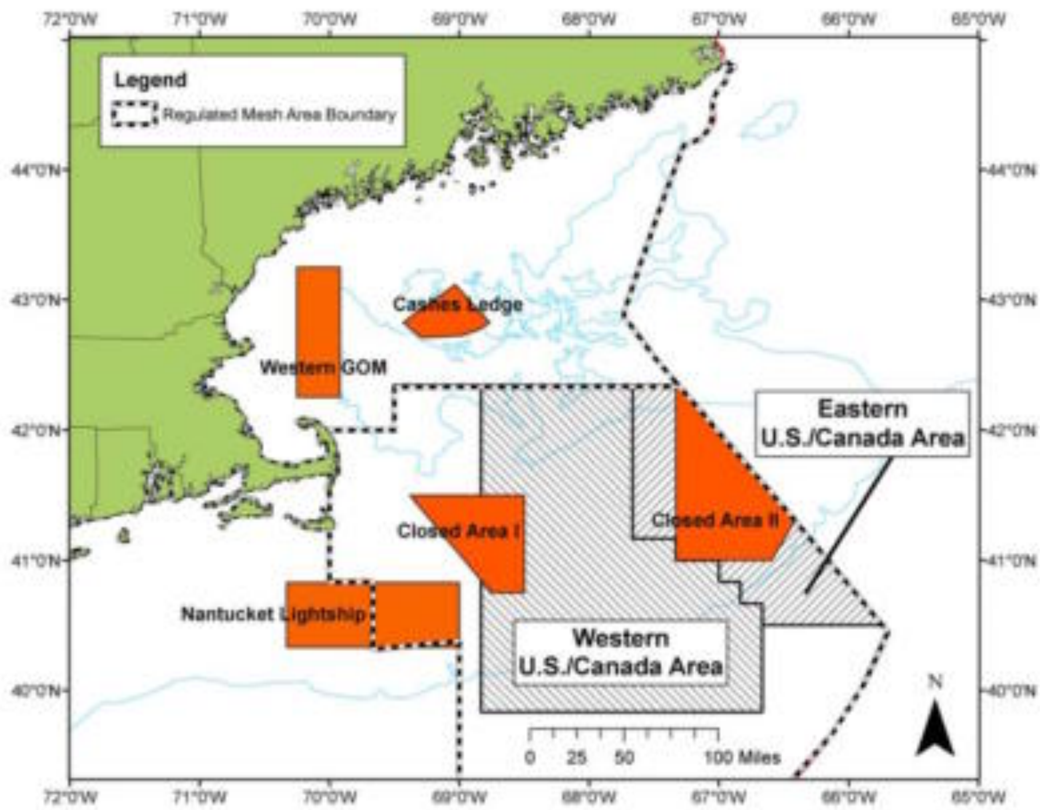


Table 64. U.S./Canada TACs (mt) and Percentage Share by Year

Year	TAC Type	Cod	Haddock	Yellowtail Flounder
2008				
* 80/20	Total Shared TAC	2,300	23,000	2,500
	U.S. TAC	667 (29%)	8,050 (35%)	1,950 (78%)
	Canada TAC	1,633 (71%)	14,950 (65%)	550 (22%)
2007				
75/25	Total Shared TAC	1,900	19,000	1,250
	U.S. TAC	494 (26%)	6,270 (33%)	900 (72%)
	Canada TAC	1,406 (74%)	12,730 (67%)	350 (28%)
2006				
70/30	Total Shared TAC	1,700	22,000	3,000
	U.S. TAC	374 (22%)	7,480 (34%)	2,070 (69%)
	Canada TAC	1,326 (78%)	14,520 (66%)	930 (31%)

2005				
65/35	Total Shared TAC	1,000	23,000	6,000
	U.S. TAC	260 (26%)	7,590 (33%)	4,260 (71%)
	Canada TAC	740 (74%)	15,410 (67%)	1,740 (29%)
2004				
60/40	Total Shared TAC	1,300	15,000	7,900
	U.S. TAC	300 (23 %)	5,100 (34 %)	6,000 (76 %)
	Canada TAC	1,000 (77 %)	9,900 (66 %)	1,900 (24 %)

* Weighting formula: x/y resource distribution/utilization
* * Adjusted downward to 1,868.7 mt due to overharvest of 2007 TAC

Based on Table 64 above, since 2004, the percentage of the shared TAC allocated to the U.S. has increased slightly for Eastern GB cod and GB yellowtail flounder, and stayed fairly constant for Eastern GB haddock. The change in the weighting formula over time and the estimate of resource distribution results in the change in these values. The actual size of the TACs (mt) have increased slightly for cod, substantially for haddock, and declined for yellowtail flounder. The changes in the sizes of the TACs are probably influenced more by the status of the shared stocks and scientific advice regarding appropriate ranges of TACs (determined annually), rather than the allocation formula.

The Northeast Fisheries Observer Program (NEFOP) has a goal of deploying observers on approximately thirty percent of trips into the U.S./Canada Area. Table 65. contains a summary of the coverage in recent years.

Table 65. Estimates of Observer Coverage in U.S./Canada Area (percent of trips)

Fishing Year	Approximate Percentage
2006	19 %
2007	26 %
2008	30 %

Tables 66, 67, and 68 contain summary information on the catch from, numbers of trips into, Days-at-Sea used, and number of distinct NE multispecies vessels fishing in the U.S./Canada Area, based upon data compiled by the NMFS' Fishery Statistics Office (FSO), Northeast Region. The methodology of estimating catch and discards is described in detail in an unpublished paper (Caless and Wang, 2004).

Table 66. U.S. Catch from Shared Georges Bank Stocks (through Sept 14, 2008

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	8 %	54	15 %

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	2 %	182	4 %

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	34 %	636	18 %

Table 67. 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	410	325	85	2,208	1,919	289

* A, B regular, and B reserve groundfish DAS,

Table 68. 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

As illustrated in Table 66, the U.S./Canada Management Area measures have been successful in preventing catch (landings and discards) from exceeding the pertinent TAC in all cases, with the exception of the GB yellowtail flounder TAC in 2007. The reason for the overharvest in that instance was a combination of two factors: Yellowtail discards by the scallop fishery (from areas outside of the scallop access areas) that were incorporated into the catch estimate (at a late date), and data from groundfish trips that was reported late. 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 (starting in 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 VMS data and dealer data.

As noted, the catch in many cases has not approached the TAC and resulted in a loss of potential yield from the stocks and loss of potential revenue (most notably for Eastern GB haddock). Because haddock, cod, and yellowtail flounder occur together and due to the relatively small TACs for haddock and cod, full utilization of the resources has not been achieved. The overall catch numbers principally reflect the size of the TAC and the amount of access to the Eastern Area. During FYs 2004-2007 there were several Special Access Programs (SAPs), which provided vessel 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 amounts from 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.

When considering the overall revenue associated with groundfish trips in the U.S./Canada ManagementArea, 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 Management Area. For example, based on estimates of total revenue of trips to the U.S./Canada Management Area during FY 2007, the revenue associate with cod, haddock, and yellowtail flounder represented about 16%, 23%, and 6%, respectively of the total revenue from these trips. It should be noted that some of the landings from such trips were caught outside of the U.S./Canada Management Area. Other high value species landed from trips to the U.S./Canada Management Area are monkfish, winter flounder, American lobster, and pollock.

During the period from May through July 2008, trawl vessels were prohibited from fishing in the Eastern U.S./Canada Area, and a cap was set on the amount of cod that could be caught by hook vessels equal to five percent of the Eastern U.S./Canada TAC. During that period the estimate of cod caught by hook vessels was a total of 61,711 lb, or 84 percent of the TAC set for that period.

Table 69 contains information on revenue from trips into the Eastern U.S./Canada Area. Based on estimates of total revenue of trips to this area during FY 2007, the total revenue was approximately \$ 3,658,544. The revenue associated with cod, and haddock from the Eastern Area was \$ 1,400,547, or 38% of the total revenue. It should be noted that some of the landings from such trips were caught outside the U.S./Canada Management Area.

Table 69. Total Estimated Revenue from Trips to the Eastern U.S./Canada Management Area in FY 2007.

Species	Revenue	Percent of Total Revenue on Trips to Eastern U.S./Canada Management Area
Haddock	$ 1,010,564	28%
Winter flounder	$ 733,522	20%
Cod	$ 389,983	11%
Skates	$ 362,607	10%
Yellowtail flounder	$ 262,708	7%
Monkfish	$ 213,166	6%
Lobster	$ 211,645	6%
Witch flounder	$ 163,911	4%
Pollock	$ 126,355	3%
American plaice	$ 58,031	2%
White hake	$ 50,549	1%
Other	$ 75,503	2%
Total	$ 3,658,544	100%

11.7.3.3 Regular B DAS Program

The Regular B DAS Program was implemented on November 19, 2004, through FW 40A and was extended and modified through FW 42 (November 22, 2006). The Regular B DAS Program was designed to provide opportunities to target healthy stocks without threatening stocks for which a mortality reduction is required. The program allows the use of Regular B DAS provided the Program requirements designed to minimize impacts of stocks of concern are met. The Program requirements include management measures that do not apply to the fishery at-large i.e., additional effort controls, incidental catch TACs, catch limits, trawl gear restrictions and reporting requirements. The central premise of the program is that vessels can under certain conditions, avoid catching substantial amounts of stocks of concern and that adequate incentives exist for vessel operators to avoid such stocks of concern.

The primary tool used to reduce incentive to target stocks of concern are low catch limits (100 lb per DAS up to 1,000 lb per trip), with further restrictions for flatfish. Even if participating vessels catch and discard stocks of concern, reporting requirements and observer coverage enable NMFS to monitoring the incidental catch TACs. The Regional Administrator has the authority to prohibit the use of Regular B DAS if the continuation of the Program would undermine the achievement of the objectives of the FMP. Vessels may fish a Regular B DAS and essentially add more fishing effort into the fishery, provided they are successful at fishing selectively. The potential target species since FW 42 was implemented have been haddock, pollock, redfish, and GOM winter flounder. The stocks of concern for which incidental catch TACs and low trip limits have been set are: GB cod; GOM cod; GB, SNE/MA, and CC/GOM yellowtail flounder; American plaice; witch flounder; white hake; and SNE/MA winter flounder.

The FW 42 analysis (Nov 2004 through July 2005 data; 600 total trips) indicated that, of the vessels that participated in the Program, six species accounted for about 85 percent of the total catch: Skates, monkfish, haddock, yellowtail, and winter flounder. Further, the analysis stated that 37 percent of trips ‘flipped’ from a B DAS to an A DAS, which indicates that on such trips, the vessel was not able to maintain catch below the low catch limits specified for stocks of concern. In other words, 37 percent of the trips were not successful in fishing selectively, and therefore could not utilize a Regular B DAS. The analysis also noted that the observed flipping rate was higher for observed trips than non-observed trips and suggested that flipping rates were not independent of whether an observer is present on the trip (i.e., an observer effect).

In contrast to the data from 2004 and 2005, the data from fishing years 2006 and 2007 in Table 70 below show a reduced number of trips and a reduced percentage of trips flipped. Also, there is not a notable difference in the flipping rate between the observed and unobserved trips.

Table 70. Number of flipped and unflipped B-Regular DAS Program Trips and Flipping Rates on Unobserved and Observed Trips in Fishing Years 2006 and 2007 by quarter.

		Unobserved				Observed				Grand Total
Fishing Year	Quarter	No flip	flip	total	prop. Flip	No flip	flip	total	prop. Flip	Trips
2006	1		3	3	100.0%		1	1	100 %	4
	2						1	1	100 %	1
	3	25	2	27	7.4%		1	4	25 %	31
	4	41	3	44	6.8%	3	0	9	0.0%	53
2006 Total		66	8	74	10.8%	9	3	15	20 %	89
2007	1	78	3	81	3.7%	34	1	35	2.9%	116
	2	72	6	78	7.7%	23	1	24	4.2%	102
	3	20	1	21	4.8%	6	0	6	0.0%	27
	4	22	2	24	8.3%	6	1	7	1.4%	31
2007 Total		192	12	204	5.9%	69	3	72	4.2%	276
Grand Total		258	20	278	7.2%	81	6	87	6.9%	365

In FY 2007, the total number of allocated Regular B DAS was 19,411, which represents 40 percent of the number of Category A DAS allocated. Although 19,411 Regular B DAS are allocated, the Program restricts the total use to 3,500 DAS distributed to the four quarters of the fishing year (500 to first quarter and 1,000 to each subsequent quarter). The number of Regular B DAS used in the Regular B DAS Program was a total of 188 DAS in the last two quarters of 2006, and 484 DAS during fishing year 2007. It should be noted that these Regular B DAS are for ‘unflipped’ trip. For trips that flipped from a Regular B DAS to a Category A DAS, no Regular B DAS would have been used.

Although the FW 42 analysis indicated that the incidental catch TACs were likely to constrain the number of Regular B DAS used, neither the incidental catch TACs nor the DAS allocated were constraining. Regular B DAS use in this Program was constrained by some other factor(s).

A more detailed characterization of the Regular B DAS Program fishery in FY 2006 and 2007 is found below in Table 72 and in Appendix D. The analysis is divided into trips that ended on a Regular B DAS, and those that ended on a Category A DAS (‘flipped’ trips). Trips that ended on a Regular B DAS can be considered to be successful trips based on the criterion that such trips were able to avoid catching stocks of concern in excess of the low trips limits set for such stocks.

Trips Ending on a Regular B DAS

Table 71 below contains information on the number of trips in the Regular B DAS Program that landed various species. The information is based on dealer data, and is a subset of the total number of trips ending on a Regular B DAS in 2006 and 2007 (* only trips where the dealer database was matched with the DAS database).

Table 71. Number of Regular B DAS Trips Landing Various Species. FY 2006 and 2007 combined. Trips ending on Regular B DAS.

	Number of Trips that Landed Species	* Percent of Trips that Landed Species
Monkfish	226	82
Skates	175	63
Cod	121	44
Pollock	97	35
Dogfish	86	31
Haddock	97	29
Redfish	75	27
White hake	68	25
Lobster	64	23
Witch flounder	61	22
Cusk	56	20
American plaice	56	20
Bluefish	37	13
Wolffish	28	10
Winter flounder	17	6
Yellowtail flounder	11	4
Atlantic halibut	3	1
Summer flounder	1	<1
Total Number of Trips	277	

The species that generated the most revenue per trip, based on dealer data were pollock, skates, haddock, redfish, lobster, and monkfish. Although the precise ranking of the top revenue species varied from FY 2006 and 2007, in both years pollock and skates represented the top two revenue products on a per trip and per B DAS basis.

Table 72. Average Pounds Per Trip Landed of Stocks of Concern. 2006 and 2007 Data. UnFlipped Versus Flipped Trips.

Species	Unflipped Trips	Flipped Trips
Cod	234	3,254
American plaice	83	806
Witch flounder	124	606
White hake	296	908
Winter flounder	28	966
Yellowtail flounder	49	1,696

Based on a comparison of unflipped versus flipped trips, there were differences in the species landed, trip length, and revenue between the two types of trips (Appendix D). Unflipped trips were shorter in duration and the revenue per trip and per DAS wassubstantially less than for flipped trips. Stocks of concern were more prevalent among flipped trips (Table 72). For example, cod was landed on 75 percent of flipped trips, and 44 percent of unflipped trips. Stocks of concern were landed in greater amounts on flipped trips.

A summary of the top species landed on flipped trips for gillnet gear and trawl gear for FY 2006 and 2007 (combined years) is the Appendix. For both gillnet and trawl gear, pollock, cod and skates were among the top three species landed, although for gillnet gear skates were ranked higher than cod, and there was relatively more skates landed. Bottom trawls caught haddock and flatfish (yellowtail flounder, winter flounder, and American plaice) on a high percentage of trips, whereas gillnet vessels caught haddock and flatfish on relatively few trips.

11.7.3.4 Eastern U.S./Canada Haddock Special Access Program

The Eastern U.S./Canada Haddock SAP was implemented on November 19, 2004, through FW 40A and was extended and modified through FW 42 (November 22, 2006). FW 42 modified the starting date from May 1 to August 1 in order to reduce discards of cod and winter flounder; established a mechanism to approve additional types of trawl gear in the SAP; and set the expiration date of the program at the end of fishing year 2008. The Eastern U.S./Canada Haddock SAP was designed to provide opportunities to target haddock while fishing on a Category B DAS in the Eastern U.S./Canada Area and a northernmost tip of Closed Area II. Gear restrictions, incidental catch TACs, trip limits, and reporting requirements are the principle means of minimizing impacts on stocks of concern.

Participation in the Eastern U.S./Canada Haddock SAP has been very low. There were 58 trips into the SAP in FY 2005, 2 trips in FY 2006, and no trips in 2004 and 2007. Tables 182 and 183 in Appendix D represent data from trips for which the dealer data was matched with the VMS activity declaration, and contain information on the number of trips on which various species were caught as well as revenue. Table 74 below contains summary information on DAS charged per trip, revenue per DAS charged, and revenue per trip.

Table 73. Eastern U.S./Canada Haddock SAP. Average DAS Charged Per Trip, Revenue Per DAS Charged, and Average Revenue Per Trip; FY 2005.

Average DAS Charged Per Trip	5.02 DAS
Average Revenue Per DAS Charged	$ 7,611
Average Revenue Per Trip	$ 38,217

11.7.4 Seafood Dealers

All Federally permitted groundfish vessels are required to sell to a Federally permitted dealer. Further, Federally permitted dealers are required to report all purchases of seafood regardless of whether the vessels held a Federal or a state-waters only permit. Note that since Federal dealer permits are issued on a calendar year basis all reported data contained in this section are on a calendar year basis. Additionally, all reported data refer purchased of seafood from commercial fishing vessels. Dealers may obtain product from many other sources so the activity levels included herein are likely to capture only a portion of business activity by seafood wholesalers.

Data on dealers can be found in the Appendix, and various trends are described below. Given dealer reporting requirements, dealer records account for 99% of reported sales of groundfish in the Northeast region. Issued on a calendar year basis, the number of groundfish permitted dealers has declined by about 10% averaging 366 permits during 2005 to 2007 compared to an average of 408 permits issued during 2001 to 2004.

Based on the state mailing address for each dealer permit, the majority of groundfish permits were issued to dealers located in Massachusetts, followed by New York, New Jersey, Rhode Island, and Maine. Note that the number of permits reported in the Appendix includes dealer permits issued to seafood auctions (Portland Fish Exchange, Whaling City Display Auction, Gloucester Fish Exchange, and New England Fish Exchange). These auctions function as clearinghouses where member dealers purchase seafood, but do not necessarily possess a Federal dealer permit since the auction itself is the dealer of record. This means that the total number of entities involved in seafood wholesale trade is likely to be larger than what official dealer records may suggest.

Overall, only about 40% of dealers issued a Federal groundfish permit actually report any purchases of groundfish. The total number of reporting dealers with purchases of groundfish has been declining over time from 170 in 2001 to 133 in 2007.

Including auction markets, seafood dealers in Massachusetts alone accounted for more than 70% of the value of groundfish purchased and the combined purchases by Maine and Massachusetts dealers accounted for over 90% of total groundfish purchased. A substantial proportion of groundfish have been purchased through the four auctions located in New England averaging 54% of total groundfish purchased. However, the share of groundfish purchased through auctions has declined in both 2006 and 2007 to 50% and 46% of total purchases respectively.

Three of the four auction markets are located in Massachusetts, while the Portland Fish Exchange is located in Maine. The Portland Fish Exchange accounts for nearly all of the groundfish purchased in Maine, while the auction markets in Massachusetts account for less than 40% of reported purchases. Omitting auctions, Massachusetts based dealers accounted for nearly 80% of the value of groundfish purchased during 2001 to 2007. Permitted dealers from New Hampshire and Rhode Island averaged 6% and 8% of dealer purchases of groundfish respectively.

In most states the number of dealers reporting purchases of groundfish is too small to report detailed statistics due to confidentiality concerns. The states with sufficient numbers of participating dealers include Massachusetts, New York, New Jersey, and Rhode Island. Compared to all purchases of seafood from commercial fishing vessels the median proportion of groundfish has declined from more than 19% during 2001 and 2002 to less than 4% during 2005 to 2007. Similarly, the share of groundfish value at the 80th percentile also declined for Massachusetts dealers from an average of 78% during 2001 to 2004 to 55% during 2005 to 2007. The decline in relative share of groundfish of total seafood purchased from fishing vessels was partially due to a decline in the total value of groundfish available to seafood dealers (13% comparing the 2001-2004 to 2005-2007 average), but was also do to an 80% increase in the value of seafood purchases comprised of species other than groundfish. Thus, reductions in groundfish supplies were more than offset by purchases of other seafood products.

11.7.5 Seafood Processing

Available data make it difficult to characterize the seafood processing industry particularly as it relates to the groundfish fishery. Studies of the processing industry suggest that it is relatively less susceptible to fluctuations in the availability of domestic sources of wild-caught fish as processors are able to find alternative sources of supply or use substitute species to maintain product lines (Jin, Hoagland, and Thunberg, 2005; Dirlam and Georgianna, 1994). Note that this does not necessarily mean that all segments of the processing industry are readily able to find alternatives as some processors may be more reliant on local sources of seafood to meet customer demand.

The processing sector was characterized by using County Business Patterns (CBP) data. CBP is an annual survey of establishments to ascertain numbers of employees and wages paid. Although the survey is conducted annually, the data are not released until about two calendar years afterward. This means that the most recent data include calendar year 2006. The survey is conducted by the U.S. Bureau of the Census where the unit of observation is an establishment, which is defined as being a single physical location or place of business. In cases where multiple activities are carried out under the same ownership, all activities are classified under a single establishment. The industrial classification for that multi-activity establishment is based on its major activity. This means that the reported number of establishments may underestimate the total number of establishments that may be engaged in a particular kind of activity. For example, seafood businesses may process fish or shellfish and may also act as wholesale distributors or buyers/sellers of unprocessed seafood. Any such establishment would be assigned to a single industrial classification (either processing or wholesale trade) depending on which activity was the larger source of revenue. For this reason, the CBP data will underestimate the total number of establishments that may be engaged in some level of processing activity. Nevertheless, the survey should reflect establishments that specialize in seafood processing.

Region-wide, the number of processing establishments has been declining in consecutive years from 224 during 2003 to 197 in 2006 (Table 74). Since availability of groundfish is most likely to affect states in New England the focus will be on these states. The number of processing establishments has not changed in Rhode Island (7) since 2003 and in Connecticut has increased from 2 to 4 processors between 2003 and 2006. In New Hampshire, the number of processing establishments was constant at 10 during 2004 to 2006. By contrast, the number of processing establishments has declined in both Maine and Massachusetts. The number of processing establishments in Massachusetts was 47 during 2006; down from a high of 55 processors in 2003. In Maine the number of processors did not change from 2005 to 2006, but was down from 35 establishments in 2003.

Table 74. Number of Seafood Processing Establishments (2001 - 2006)

Year	CT	DE	MA	MD	ME	NC	NH	NJ	NY	RI	VA	NER Total
2001	2	1	41	26	36	27	8	18	21	6	42	228
2002	2	1	45	24	33	21	9	17	16	9	39	216
2003	2	1	55	23	35	18	11	16	18	7	38	224
2004	3	1	53	23	28	18	10	15	17	7	42	217
2005	3	1	50	23	27	17	10	17	18	7	39	212
2006	4	1	47	19	27	18	10	16	15	7	33	197

Although the number of processors declined in Maine, employment has not declined at the same rate. That is, employment per establishment was 18.7 in 2003 but had risen to 22.8 in 2006. This suggests that at least some of the processing employment associated with a decline in establishments has been absorbed by the establishments that remain. This was also the case for Massachusetts as employment per establishment increased to 55.5 in 2006 compared to 49.4 in 2003. By contrast, processing employment declined in both New Hampshire and Rhode Island during 2004 to 2006 even as the number of establishments remained the same. Connecticut was the only New England state where processing employment increased in 2006 compared to prior years. However, the number of employees per establishment declined from 37.7 during 2005 to 29.8 during 2006.

Table 75. Seafood Processing Mid-March Employment (2001 – 2006)

Year	CT	DE	MA	MD	ME	NC	NH	NJ	NY	RI	VA	NER Total
2001	103	357	2164	889	1007	381	296	1100	370	240	1259	8165
2002	109	333	2231	807	639	280	368	928	352	184	1035	7267
2003	112	172	2717	762	656	427	322	846	271	355	1256	7896
2004	108	312	2743	895	576	610	448	749	323	355	1231	8350

2005	113	312	2671	1141	614	439	418	969	324	270	1336	8607
2006	119	191	2607	1053	616	475	369	667	298	231	871	7496

11.8 Recreational Affected Human Environment

This sector consists of two main components: Recreational fishermen who access the resource either from shore or through the use of privately-owned vessels, and recreational fishermen who access the resource by using a vessel that carries passengers for hire. The latter group is referred to as "party/charter" vessels. The distinction between the two is that party vessels carry large numbers of passengers and are generally licensed and inspected by the Coast Guard to carry passengers for hire, while charter vessels are usually smaller vessels that carry up to six passengers. Of the recreational sector, only party/charter vessels are required to have a permit issued under the NE multispecies FMP. Recreational fishermen generally target cod, haddock, pollock, and winter flounder, though they catch other regulated groundfish species. The targeted stocks include GOM and GB cod, GOM and GB haddock, and GOM and SNE/MA winter flounder. The recreational groundfish fishery with access to these resources is concentrated between southern Maine and Rhode Island, though winter flounder is targeted by recreational fishermen as far south as New Jersey.

The affected environment for recreational fisheries described in Framework 42 focuses primarily on GOM cod. The Council is considering developing recreational allocations and accountability measures for additional groundfish species. These species include winter flounder, pollock, and haddock. This section updates information provide in Framework 42 for GOM cod and provides baseline descriptions of recreational fisheries for winter flounder, pollock, and haddock.

Data to describe these recreational fisheries come from two sources; the Marine Recreational Information Program (MRIP, formerly the MRFSS) and recreational party/charter logbook data. The MRIP provides the primary source of data for catch statistics including harvested and released catch, distance from shore, size distribution of harvested catch, catch class (numbers of fish per angler trip), and seasonal distribution of harvested catch. For the party/charter mode, logbook data are used to characterize numbers of participating vessels, trips, and passengers.

11.8.1 Winter Flounder

The recreational fishery for winter flounder takes place predominately in State waters with less than 2% of total catch coming from beyond the three mile limit (Appendix). Total catch of all winter flounder has declined from 1.6 million fish in 2001 to 364 thousand fish in 2007; a 77% reduction in catch.

Under the NE multispecies FMP, winter flounder is comprised of three stocks, but given the characteristics of the recreational fishery only the GOM and SNE/MA winter flounder assessments include recreational data. According to GARM III, about 87% of winter flounder catch came from the SNE/MA stock. These data show substantial declines in catch, although the decline in the SNE/MA stock (79.7%) was higher than the decline (57.2% in GOM winter flounder).

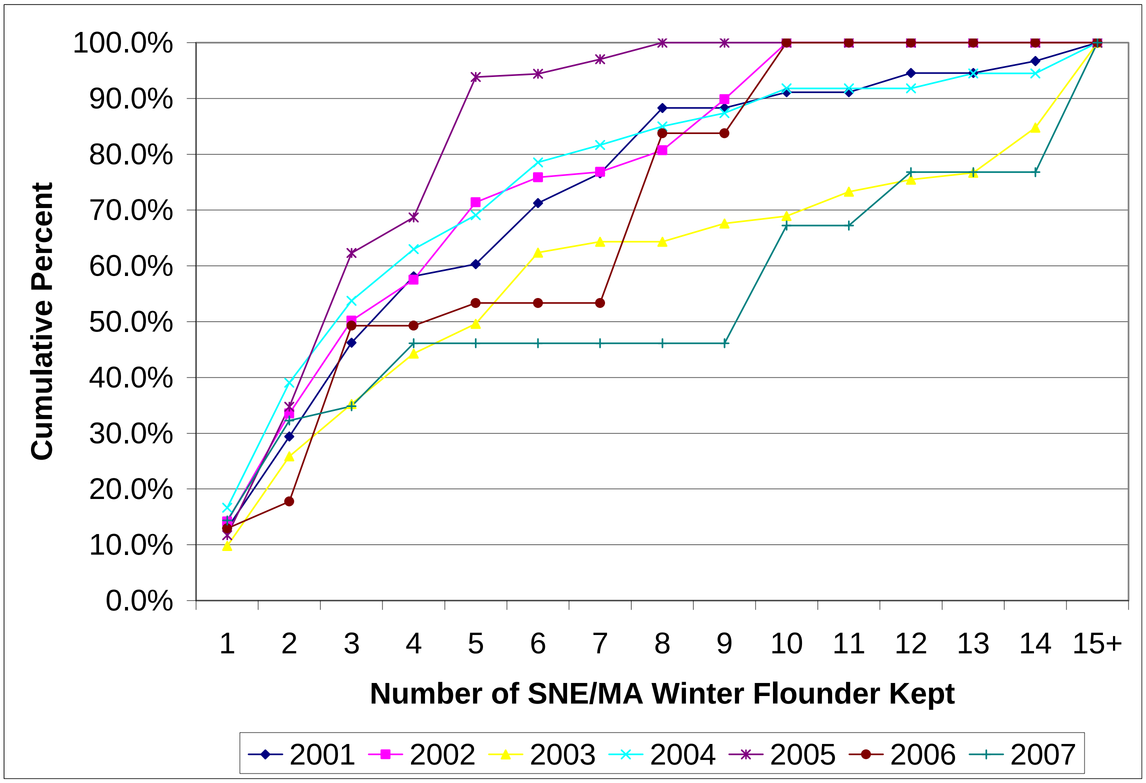
Winter flounder is harvested by party/charter, private boat, and shore-based anglers. The majority of winter flounder are harvested by private boat anglers averaging 74.4% and 77.3% of GOM and SNE/MA harvested fish, respectively (Table 76). Note that the MRIP estimate of zero harvested GOM winter flounder in the party/charter mode during 2006 was due to the fact that winter flounder was not encountered through the creel survey in that year. While it is unlikely that no winter flounder at all were harvested by party/charter anglers in the GOM, this result is a reflection of the low harvest rates of winter flounder in the party/charter mode.

Table 76. Winter flounder harvest by stock area and mode (numbers of fish)

	Gulf of Maine Stock			SNE/MA Stock		
Year	Party/ Charter	Private Boat	Shore	Party/ Charter	Private Boat	Shore
2001	1387	58504	9269	34574	638583	156550
2002	441	48502	10273	28772	268754	98786
2003	1721	39926	11212	51146	448776	42264
2004	312	25951	12568	47526	221769	75718
2005	6150	21264	17729	6502	147270	43744
2006	0	46931	5102	2214	191811	51009
2007	5283	36789	7157	1089	200292	6151

On a trip basis, recreational anglers may retain one or more fish. For example, during 2001, 60% of SNE/MA winter flounder kept was caught on trips that harvested 5 or fewer fish and 90% of was kept on trips landing 10 or fewer fish (Figure 33). In both 2005 and 2006, all SNE/MA winter flounder retained were caught on trips where 10 or fewer fish were landed.

Figure 33. Cumulative Percent of SNE/MA Winter Flounder Kept by Number of fish per Angler (all modes combined)



Even though trips that retained a small number of SNE/MA winter flounder represent a low proportion of the total number of winter flounder kept, these trips represent a comparatively larger proportion of total trips where winter flounder were kept. For example, trips where only one winter flounder were kept averaged 13% of total winter flounder kept, but averaged 38% of trips (Figure 33). Trips landing 5 fish accounted for 89% of total trips, as compared to 60% of retained winter flounder.

As part of the field intercept survey interviewers request to measure and weigh fish that are in the possession of each respondent. During 2001, 522 winter flounder were measured as part of the intercept survey (Appendix). With a decline in harvested winter flounder the number of occasions where winter flounder were encountered by MRIP interviewers declined resulting in declining numbers of measured fish to fewer than 100 in 2007. For this reason, there available data were deemed insufficient to estimate a size distribution of harvested catch by stock area or by mode. As explained in the Appendix, the size distribution of harvested winter flounder was estimated by pooling across all modes and stock areas.

During 2001 to 2005, between 7% and 15% of the harvested winter flounder were less than 12-inches. In 2006 and 2007, 7% and 5% respectively, of the winter flounder harvest was less than 12-inches. Thus, the size limits imposed since 2005 have affected the size distribution of the recreational harvest of winter flounder. Across all years nearly 98% of the winter flounder harvest was 17-inches or less. This means that between 80 and 90% of winter flounder harvest was between 12 and 17 inches in length.

In the SNE/MA area, winter flounder is predominately harvested during wave 2 (March and April) in the party/charter mode, except for 2006, 80 to 100% of all harvested fish were caught by the end of April. The majority of winter flounder in the private boat and shore modes combined is also caught relatively early in the year although, the private boat/shore mode season extends into wave 3 (May and June).

During 2001 to 2004, at least 93% of the party/charter harvest occurred during waves 2 and 3 in the GOM. This pattern appears to have shifted to later waves as the majority of harvested GOM winter flounder were taken by party/charter anglers during wave 4 (August and September). Winter flounder harvested by private boat or shore mode anglers also tended to be taken somewhat later in the year during 2005 to 2007 compared to 2001 to 2004.

11.8.2 Haddock

Total recreational catches of haddock have been increasing during 2001 to 2007 from 232,800 fish to 507,800 thousand haddock; an increase of 118% (Appendix). The vast majority of haddock are caught in the EEZ. For example, during 2001 to 2006, over 98% of haddock were caught outside of state waters. In 2007, the number of haddock caught inside three miles from shore increased from no more than 13,000 fish to 103,000.

Haddock are known to be harvested by recreational anglers in both the GOM and on GB. However, 99.7% of haddock were caught in the GOM during 2001 to 2007. For this reason, harvest rates on GB haddock are too low to provide reliable estimates of recreational catch which is the reason recreational catch is not included in the GB haddock assessment. In the GOM, haddock has been a recreational target of increased interest particularly as recreational measures implemented for cod have become more restrictive. Recreational catch increased in every year from 232,700 fish during 2001 to 560,900 fish during 2005. The number of haddock caught in 2006 dropped to 442,100 fish but increased to 503,600 haddock during 2007.

Haddock are harvested in the GOM by both party/charter and private boat anglers. During 2001 to 2007 harvest by the two modes averaged 47% party/charter and 53% private boat. Harvest by party/charter anglers more than doubled from 2003 to 2004 and doubled again from 2004 to 2005. Since 2005, party/charter harvest has been declining to 105,000 fish in 2007. Private boat harvest also increased significantly from 2003 through 2005 but declined sharply to 88 thousand haddock in 2006 before rebounding to 236,000 haddock during 2007. The reason for such a large one year change in private boat harvest is uncertain.

The number of measured haddock ranged from 5 to 42 fish in the private boat mode but was at least 100 fish in every year in the party/charter mode (Table 77). The MRIP changed its sampling methods for the party/charter mode beginning in 2004 in the North Atlantic region. As part of this change, MRIP surveyors were placed on-board party boats to weigh and measure fish as they were harvested as well as fish that were released. This change increased the number of measured haddock to over 900 fish in 2004 and more than 1000 haddock in each year during 2005 to 2007. The sampling strategy also measured over 100 released haddock every year during 2005 to 2007. Given the low numbers of measured haddock in the private boat mode and in the party/charter mode during 2001 a reliable size distribution was not possible to estimate.

Whether the size distribution of harvested haddock differs across fishing modes is uncertain.

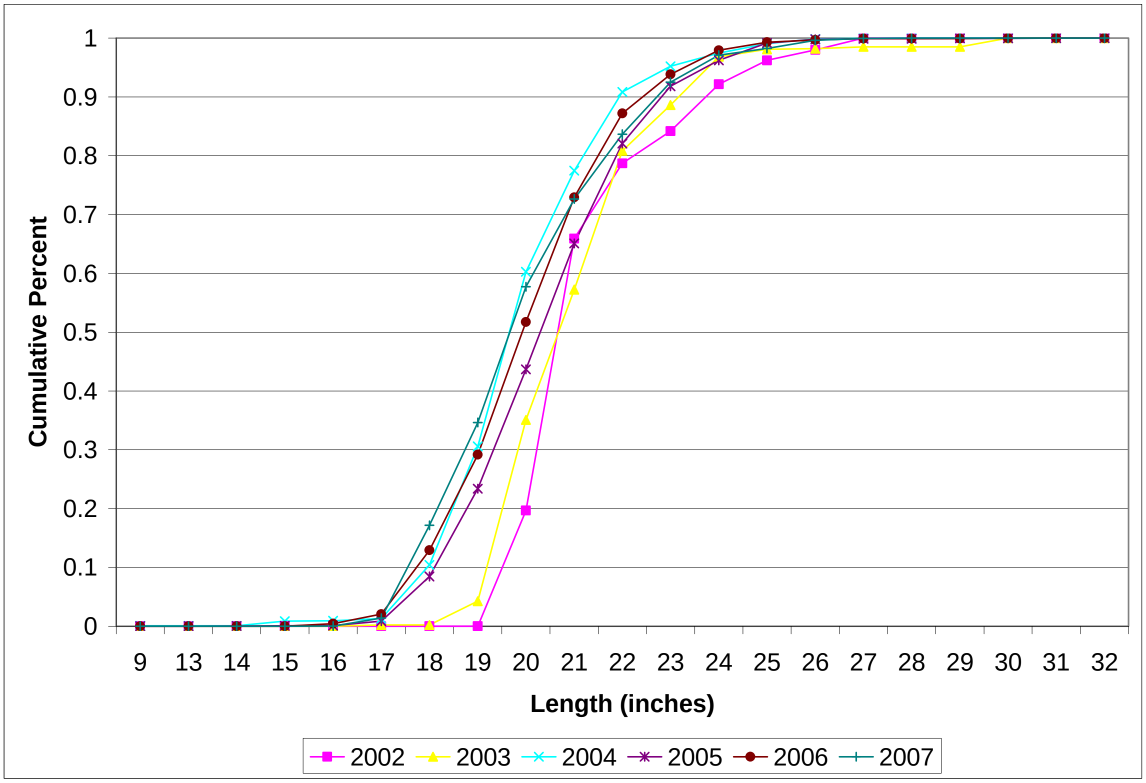
Table 77. Number of Measured GOM Haddock by Mode and Catch Disposition

Year	Party/Charter Kept	Private Boat Kept	Party Released
2001	20	5	
2002	111	8	
2003	194	16	
2004	923	7	
2005	1650	42	138
2006	1156	15	216
2007	1056	12	135

The number of measured haddock in the party/charter mode during 2004 to 2007 includes fish measured in both the party and charter modes. However, the large increase in sampling occurred only in the party mode since these vessels tend to be larger and can accommodate an MRIP surveyor. This means that the length data for these years will primarily reflect the size distribution in the party mode which may or may not be similar to that of charter boat anglers.

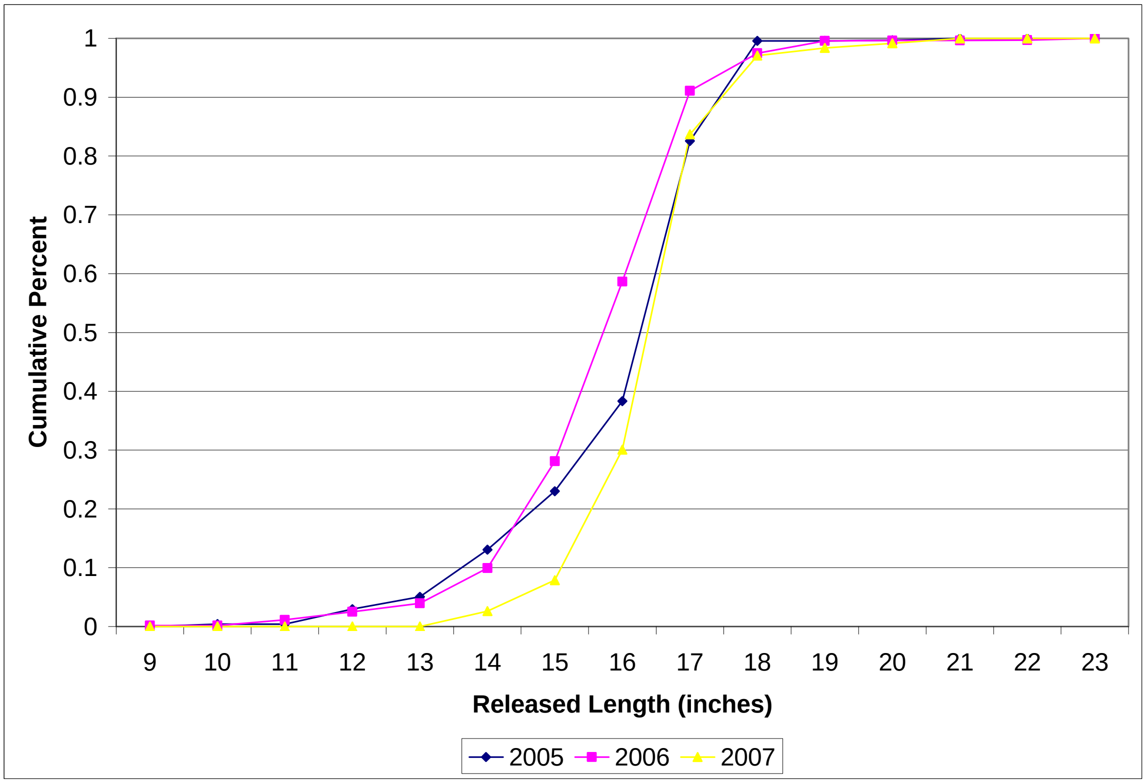
The minimum size for haddock changed several times between August 1, 2002 and May 1, 2004. From January to August the size limit was 19-inches then was raised to 23-inches until July 2003, when the haddock size limit was lowered to 21-inches. Amendment 13, implemented May 1, 2004, returned the haddock size limit to 19-inches. The size distribution of harvested haddock reflects these changes as the distribution for 2002 and 2003 is truncated at 19-inches (Figure 34). Given the size limits that were in place during these two years one may have expected the size distribution to be even more truncated than they were. However, the MRIP data are annual which does fully reflect size changes made either based on a fishing year or at some other date during a calendar year. Additionally, the size limit changes at the Federal level may not have been made the states. Since the majority of recreational fishery enforcement takes place dock-side, enforcement of possession and size limits usually reflect state regulations. During 2004 to 2007, the size distribution of harvested GOM haddock has remained relatively stable. On average, 12% of the party/charter harvest was 18-inches or less while the majority of harvest (88%) was at least 19-inches.

Figure 34. Size Distribution of Kept GOM Haddock for Party/Charter Mode



In addition to measuring retained catch on-board party vessels, MRIP surveyors measure fish that are released. During 2005 to 2007, less than 1% of released GOM haddock were 19-inches or greater (Figure 35). Thus, virtually all legal sized haddock are retained by party boat anglers. On average, 17" GOM haddock have accounted for the largest percentage (43%) of released fish while an 18" haddock accounted for 12% of released catch.

Figure 35. Distribution of Released GOM Haddock by Party Mode Anglers



The seasonal pattern of GOM haddock harvest differs somewhat between party/charter and private boat anglers. Although inter-annual differences occur, on average the proportion of GOM haddock harvested in the party/charter mode was similar from May through September ranging between 15 and 18% during 2001 to 2007 (Appendix). The tendency for GOM haddock harvest in the party/charter mode to be roughly evenly spread from May to September was also evident during more recent years from 2005 to 2007. After September, party/charter harvest of GOM haddock tapers off to less than 1% of total annual harvest in November and December before picking up again in March and April.

In the private boat mode, GOM haddock harvest tended to spike during April or May and again in August. Relatively little GOM haddock private boat mode harvest occurred October through March. Harvest tended to pick up in April and May followed by a drop-off during the month of June.

11.8.3 Pollock

Recreational catches of pollock were over one million fish in 2001, but have declined steadily to 239,000 fish in 2007 (Appendix). During 2001 to 2007, the EEZ accounted for an average of 49% of total pollock catch. For reasons that are uncertain, the split between the EEZ and state waters has exceeded 50% in either state or EEZ waters in alternating years. In state waters, the proportion of pollock caught inland as compared to other waters has ranged from a high of 64% in 2003 to a time series low of just under 15% in 2004.

As indicatged in the Appendix, total recreational catch of pollock has declined by 77%. However, the number of pollock harvested has not declined by the same proportion. Harvested pollock has declined by nearly 55% as the proportion of pollock catch that was harvested increased from one-third of total catch during 2001 to two-thirds of total catch during 2007.

Pollock are harvested by anglers in a variety of different fishing modes. Although pollock are harvested by shore-based anglers, the majority of pollock are harvested by private boat anglers as the proportion of private boat harvest ranged from 56% during 2007 to 82% during 2003. The number of pollock harvested by party/charter anglers was as low as 23,000 fish during both 2002 and 2003, but was at least twice as great in all other years.

11.8.4 Cod

During 2001 to 2007, the total number of cod caught in the Northeast region has ranged from a high of 2.5 million fish during 2001 to just over one million fish during 2006 (Table 78). Although cod are caught by recreational anglers in both the EEZ and in state waters, the majority are caught in the EEZ, averaging 80% of all cod caught. In the EEZ, total recreational catch peaked during 2005 at 1.9 million fish, but declined to less than one million fish during 2006 before rebounding to 1.2 million cod during 2007. In state waters, the split between inland and other state waters varied significantly, ranging from 2% of cod from inland waters during 2003 to almost 90% during 2007.

Table 78. Number of Cod Caught by Distance from Shore (1,000's)

Year	<= 3 Mi	> 3 mi	Inland	Total	EEZ Proportion
2001	507.1	1612.5	361.9	2481.5	65.0%
2002	418.9	1316.4	51.6	1786.9	73.7%
2003	202.0	1674.5	4.0	1880.6	89.0%
2004	172.7	1284.4	95.8	1552.9	82.7%
2005	269.7	1853.4	54.9	2178.0	85.1%
2006	151.4	879.6	34.4	1065.4	82.6%
2007	32.7	1184.8	279.1	1496.6	79.2%

Although cod are caught in GOM and GB stock areas, the proportion caught in the GOM exceeded 90% in all years, except 2004 and 2005 (Table 79). Catches of GB cod averaged about 160,000 fish during 2001 to 2003 before increasing in consecutive years to 511,000 cod in 2005. However, during 2005 less than 30% of cod caught on GB were harvested; down from an average of 58% during 2001 to 2004. During 2006 recreational catch of GB cod fell to 79,000 fish and fell again during 2007 to less than 25 thousand fish. The number of harvested GB cod during 2007 was less than 4,000.

Over two million cod were caught in the GOM by recreational anglers during 2001. The number of Gulf of Maine cod caught has been below this level since 2001, but averaged 1.7 million fish during 2002 to 2005. During 2006 the number of GOM cod caught was a recent time series low of 932,000 before increasing to 1.3 million fish during 2007; an increase of 43%. The percentage of harvested GOM cod averaged about 38% of total catch. However, the percentage of harvested GOM cod has been declining in consecutive years since 2004 to 23% of the catch during 2007.

Table 79. Number of Cod by Catch Disposition and Stock Area

	GOM			GB		
Year	Catch (A+B1+B2	Harvested (A+B1)	Released Alive (B2)	Catch (A+B1+B2	Harvested (A+B1)	Released Alive (B2)
2001	2,330.3	1,018.3	1,312.0	168.6	99.3	69.3
2002	1,640.6	551.4	1,089.2	146.5	93.1	53.4
2003	1,721.0	613.0	1,108.0	162.4	94.2	68.2
2004	1,427.6	531.9	895.7	245.2	130.1	115.1
2005	1,859.0	584.2	1,274.8	511.2	141.8	369.4
2006	932.4	249.7	682.7	79.4	39.6	39.8
2007	1,337.1	307.0	1,030.1	24.8	3.9	20.9

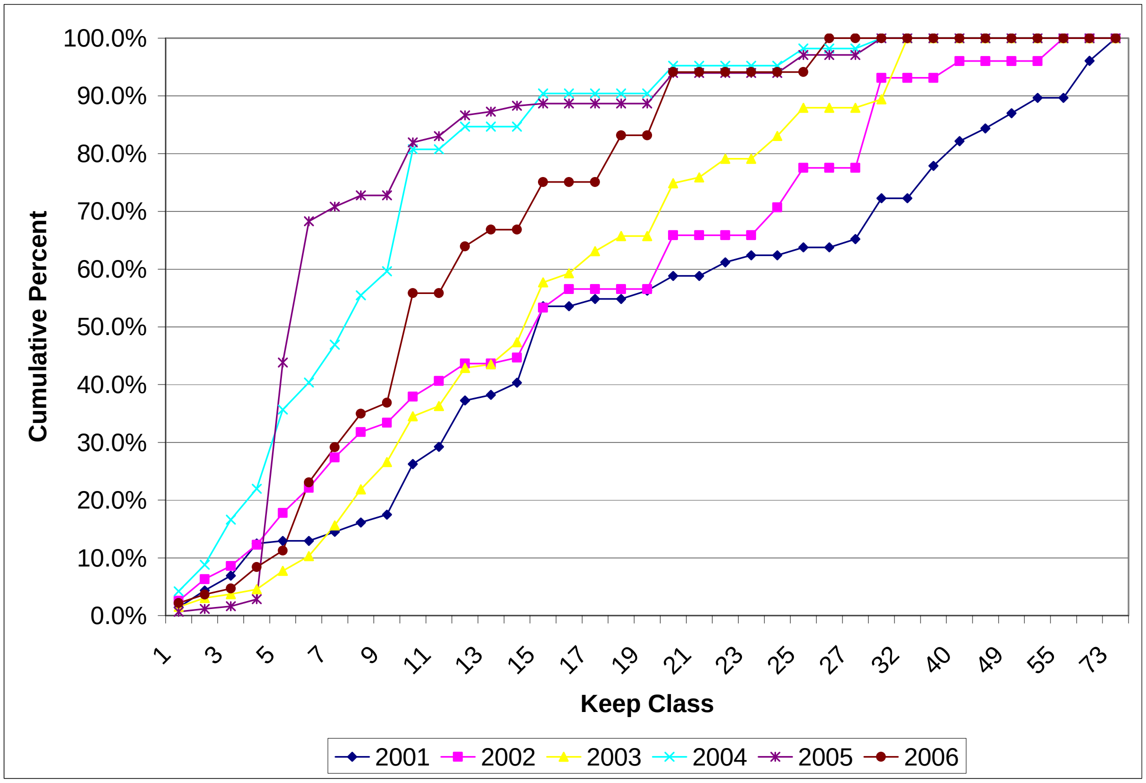
Compared to the GOM, the overwhelming majority of GB cod were harvested by party/charter anglers (Table 80). Party/charter anglers accounted for more than 90% of harvested GB, whereas party/charter anglers averaged 25% of harvested GOM cod in during 2001 to 2007, except for 2006 where 55% of harvested were caught by party/charter anglers.

Table 80. Number of Harvested Cod by Stock and Mode

	GOM		GB	
Year	Party/Charter	Private Boat	Party/Charter	Private Boat
2001	252.6	741.7	78.9	17.9
2002	92.7	437.2	56.1	34.5
2003	139.4	449.5	92.1	0.9
2004	129.5	404.0	93.7	8.2
2005	162.3	420.8	127.3	14.2
2006	121.3	100.2	38.8	0.0
2007	77.2	173.6	2.1	0.9

The distribution of number of GB cod kept per angler trip differed during 2001 to 2003 compared to 2004 to 2006 (Figure 36). Note that due to very low numbers of GB cod caught during 2007, it was not possible to estimate the distribution of numbers of kept cod per angler trip. Also, for the same reason, the distribution of GB kept by private boat anglers could not be estimated for any year. During 2001 to 2003, only about one-third of GB cod were kept on trips where 10 or fewer cod were kept. By contrast, 73% of Georges Bank cod were kept on trips landing 10 or fewer cod during 2004 to 2006.

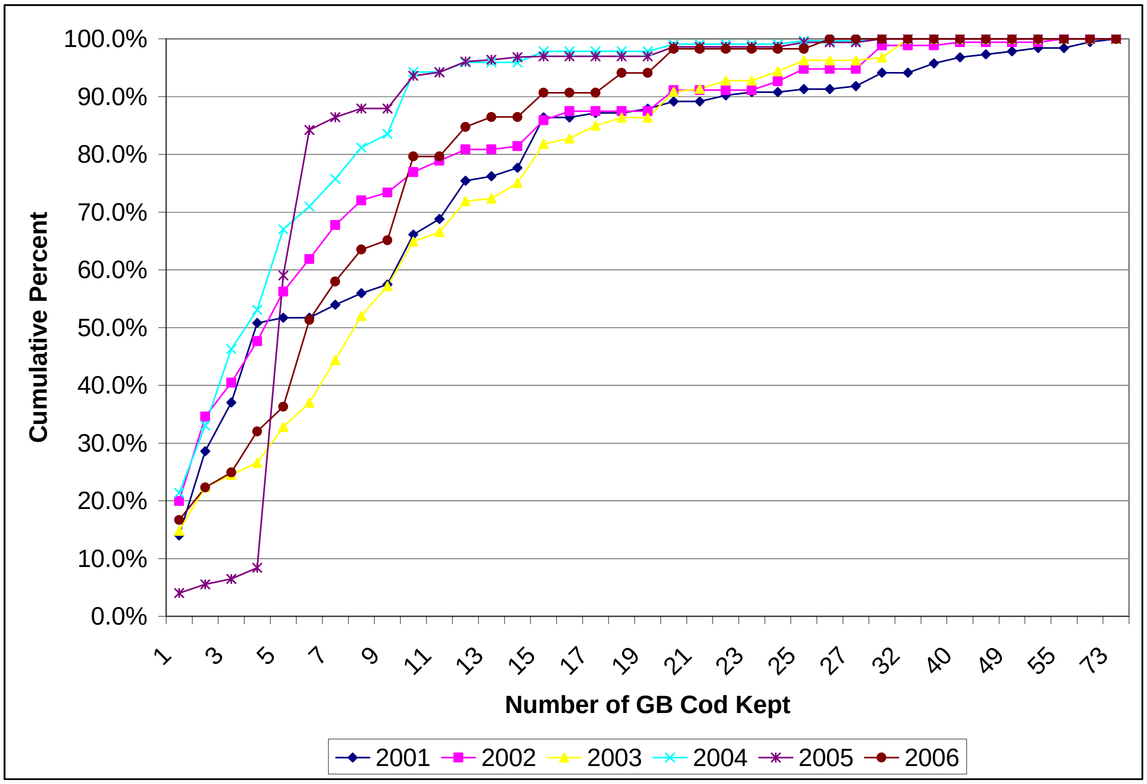
Figure 36. Cumulative Percent of GB Cod Kept by Party/Charter Anglers by Number of Fish Kept per Angler Trip



The reason for the change in the distribution of kept GB cod is uncertain. While the MRIP data collection program during 2004 to 2006 was changed for the party/charter mode, the difference between these years and prior years in the distribution of retained GB cod was not evident for other species, and as will be seen later, was not evident for GOM cod.

The cumulative distribution of party/charter angler trips that kept GB cod also exhibited differences between calendar years 2001 to 2003, and 2004 to 2006, although the difference was not as pronounced (Figure 37). During 2001 to 2003, 50% of angler trips kept six or fewer GB cod even though these trips accounted for only about 15% of total keep. During 2004 to 2006, there was closer correspondence between the distribution of angler trips and kept GB cod as 54% of trips retained five or fewer fish which accounted for 30% of kept cod.

Figure 37. Cumulative Percent of Party/Charter Angler Trips that Kept GB Cod



On average, 57% of total GOM cod kept by party/charter anglers were caught on trips where four or fewer cod were landed (Figure 38). Note that these trips accounted for 87% of total angler trips that kept GOM cod (Figure 39). This also means that 13% of party/charter angler trips accounted for 43% of total kept GOM cod in the party/charter mode. At least since 2004, the possession limit on GOM cod has been 10 cod per person. During 2004 to 2007, about 94% of GOM cod were caught on trips that retained 10 or fewer fish. This indicates that about 6% of the cod kept on party/charter angler trips may not have been in compliance with the Federal possession limit. Note that these occasions represent a small percent (about 1%) of total trips that retained GOM cod and may be associated with over-night trips. If the latter, then possessing up to 20 cod would be legal since the bag limit is a daily limit.

Figure 38. Cumulative Percent of GOM Cod Kept in the Party/Charter Mode

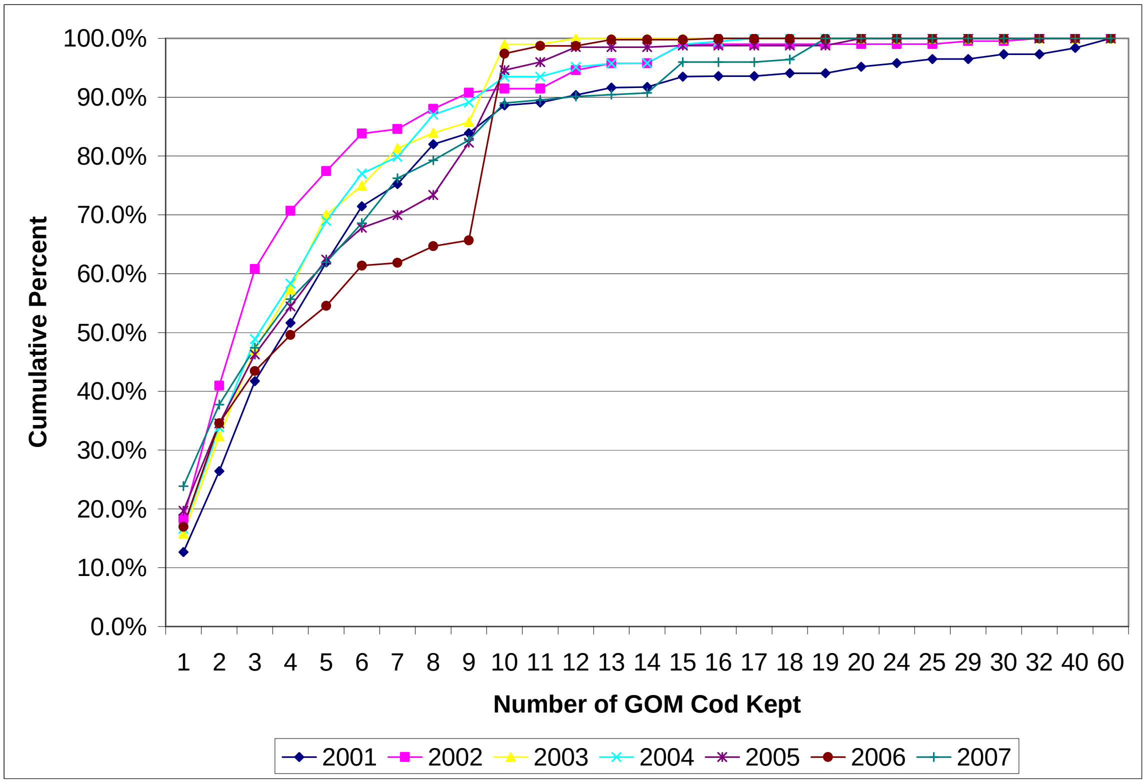
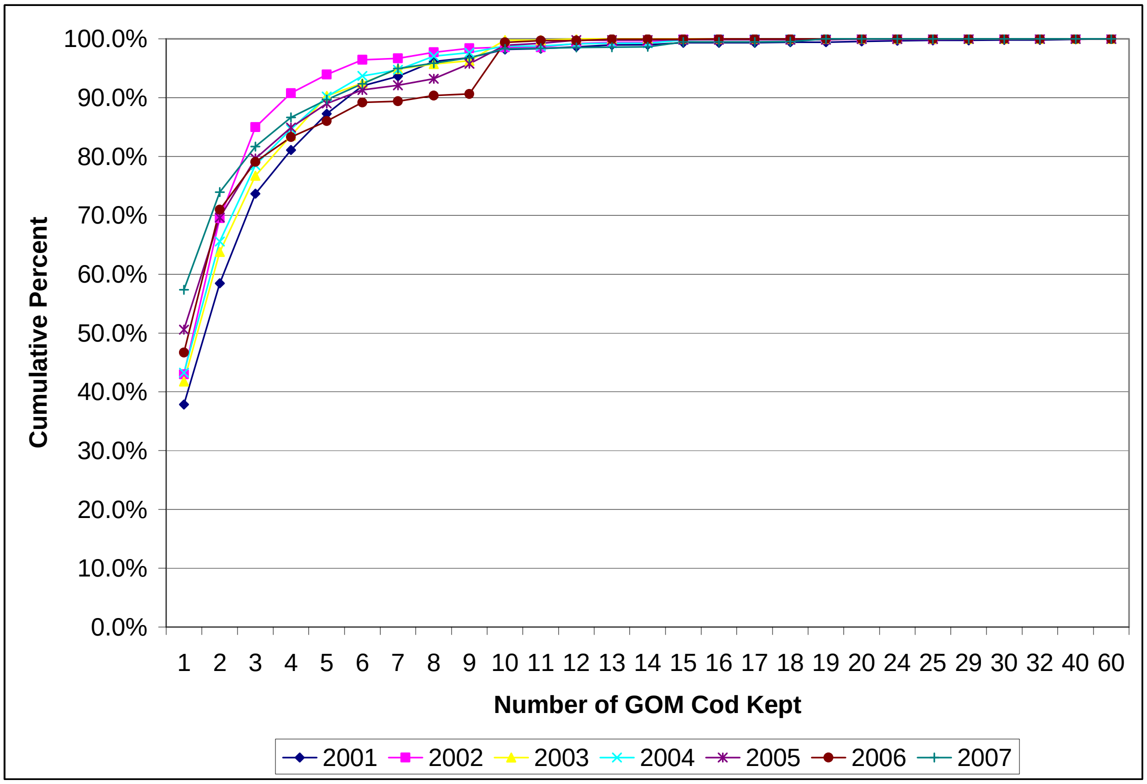
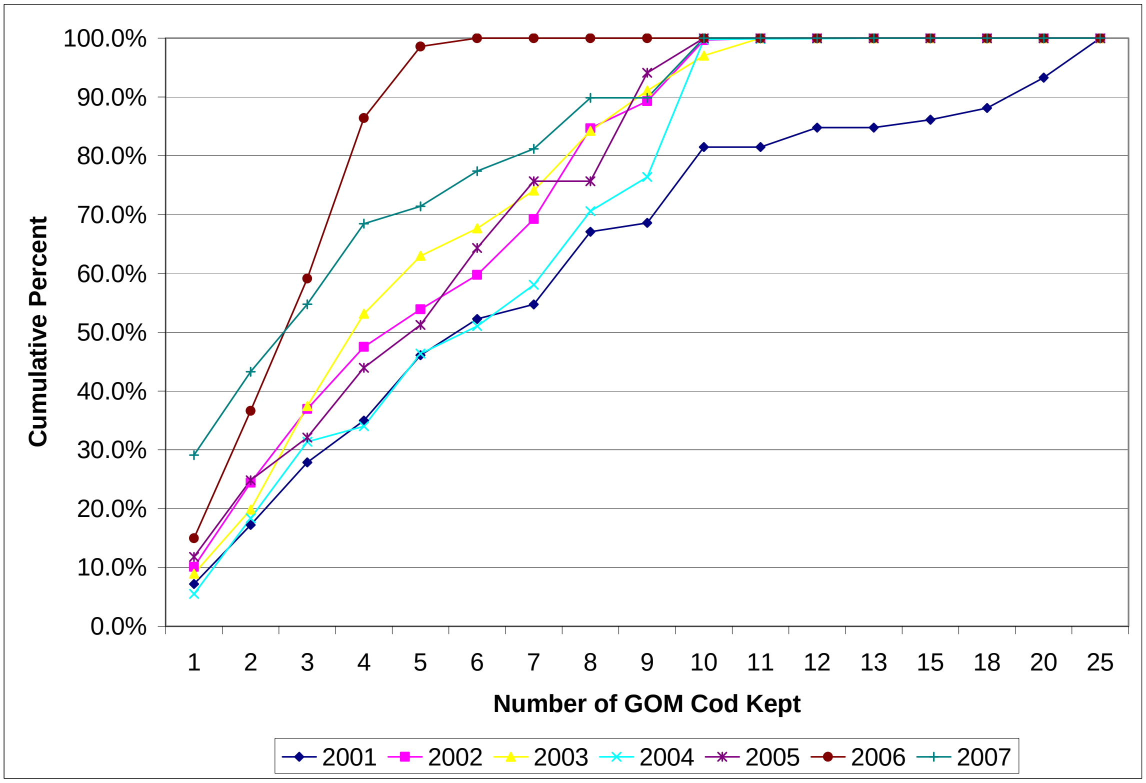


Figure 39. Cumulative Percent of Party/Charter Angler Trips that Retained GOM Cod



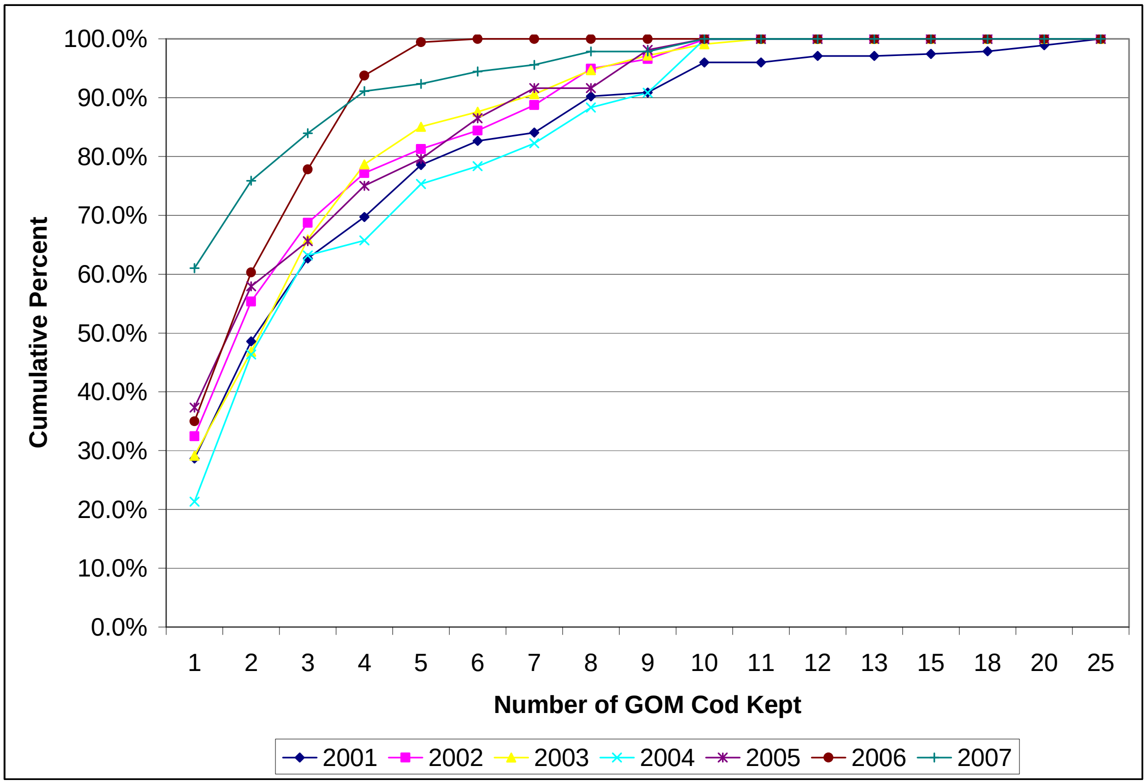
Compared to the party/charter mode, the range of retained cod by number kept per angler trip in the private boat mode was more compact, but there was substantially greater inter-annual variability in the cumulative distribution of retained GOM cod (Figure 40). For example, during 2001 to 2007, private boat angler trips that kept five of fewer GOM cod ranged from 46% to 98% whereas the percentage kept by party/charter anglers ranged between 55% and 77%. Also, since 2002 the number of GOM kept by private boat anglers has been truncated at 11 cod in all but one year, and during 2005 to 2007, has been truncated at the 10 cod possession limit.

Figure 40. Cumulative Percent of Kept GOM Cod Private Boat Mode by Number Kept per Angler Trip



On average, more than half of all private boat angler trips that retained GOM cod kept either one or two fish per trip during 2001 to 2007 (Figure 41). The cumulative distribution of private boat angler trips during 2006 and 2007 were more truncated than in other years as 92% of trips kept four or fewer cod as compared to 73% in all other years. This difference may be due to the November to March closed season implemented in 2006.

Figure 41. Cumulative Percent of Private Boat Angler Trips that Retained GOM Cod



During 2001 to 2007, the number of measured cod increased from 141 during 2001 to more than 600 cod during 2003 to 2007 (Table 81). Additionally, more than 1,000 released cod were measured during 2005 to 2007 in the party mode. By contrast, the number of measured cod was just over 100 in the private boat mode during 2001 to 2003 but has dwindled to only 20 cod during 2007. For this reason the size distribution of harvested cod in the private boat mode could not be estimated. Note also that the majority of measured cod were from the GOM a size distribution for GB cod could not be estimated.

Table 81. Numbers of Measured Atlantic Cod by Year and Mode

YEAR	Party/Charter Kept	Private Boat Kept	Party Released
2001	141	104	
2002	343	119	
2003	647	104	
2004	901	81	
2005	774	28	1364
2006	817	20	1608
2007	681	19	1606

During 2001 to 2007, the GOM cod minimum size limit changed from 21-inches during 2001 to 23-inches during 2002 to 2005, and was raised again to 24-inches as part of Framework 42 during 2006. During 2001, when the size limit for GOM cod was 21-inches, 17% of harvested cod was 20-inches or less (Figure 42). During the full calendar years over which the size limit was 23-inches (2003 to 2005) the percentage of GOM cod below the legal size averaged 30% of total harvest. During 2006 and 2007 the percentage of cod harvested by GOM party/charter anglers that was less than 24-inches averaged 22%.

Nearly all GOM cod caught by party-boat anglers are at or above the minimum legal size as less than 1% of the released catch was above the minimum size (Figure 43). The size distribution for 2007 is suggestive of a shift toward proportionally more released cod at higher sizes. For example, about 35% of the released GOM cod were less than 15-inches during 2005 and 2006. This also means that 65% of the released catch was greater than 15-inches. During 2007, more than 80% of the released GOM cod were more than 15-inches. Similarly, about 10% of the released GOM cod harvest was above 20-inches during 2005 and 2006 but was 22% of the released catch during 2007.

Figure 42. Cumulative Distribution of GOM Cod Party/Charter Mode Harvest by Length

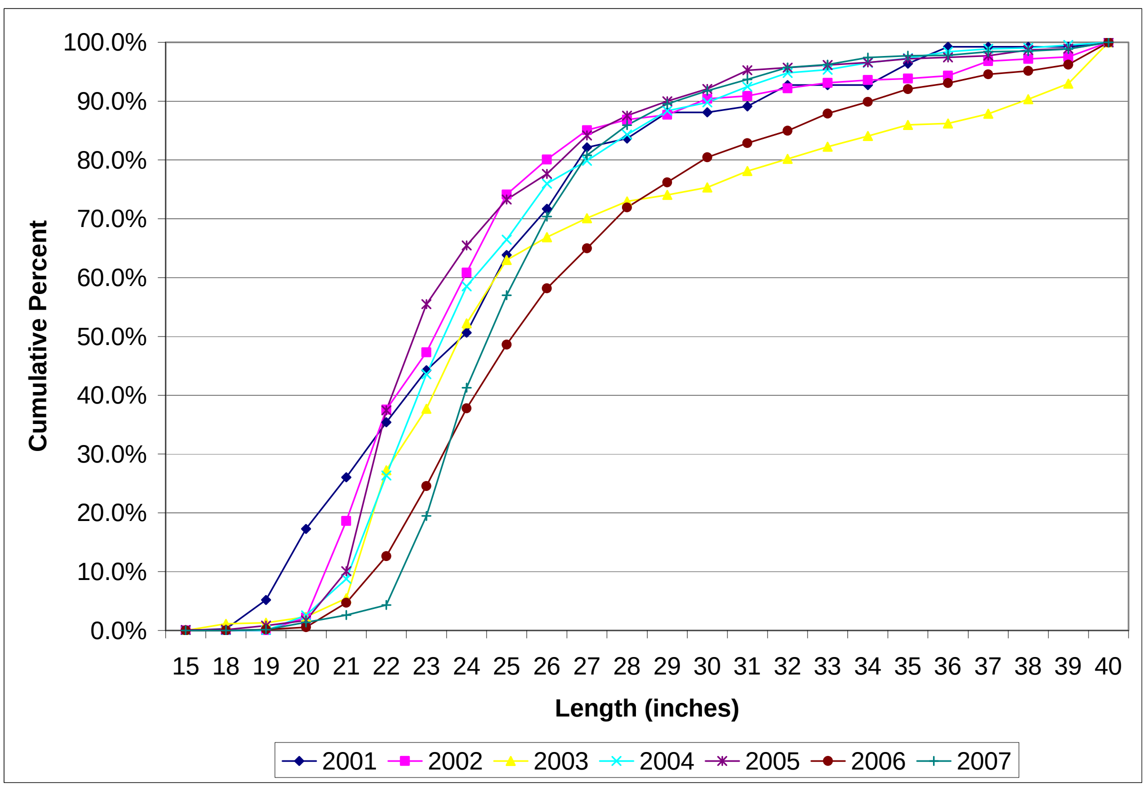
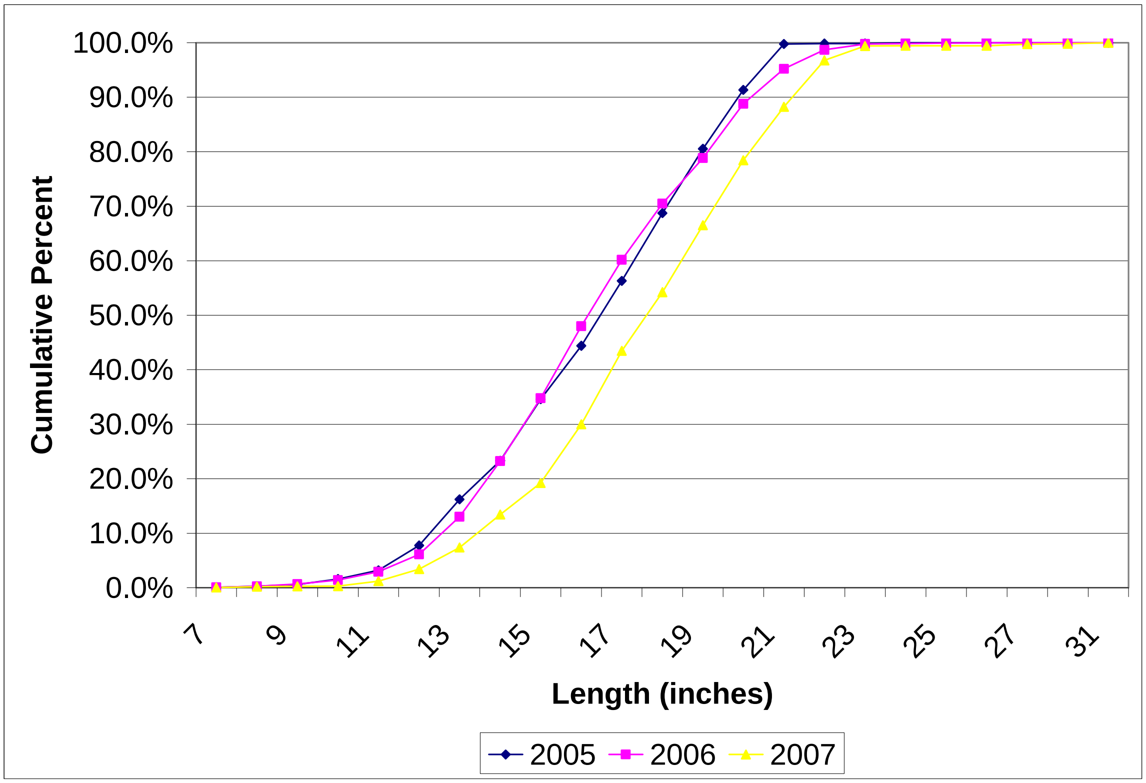


Figure 43. Cumulative Distribution of Gulf of Maine Cod Party Mode Released Catch by Length.



The seasonal distribution of the party/charter harvest of GOM cod differs somewhat between party/charter anglers and private boat anglers. The party/charter season begins in April peaks in May or June, but remains reasonably steady through the summer months before tapering off in October and November. Party/charter harvest averaged less than 2% of total harvest in November and less than 1% of harvest during December. Note that during November of 2006 and March 2007, party/charter harvest of GOM cod was zero as these months have been closed to possession of cod since implementation of Framework 42.

The seasonal distribution of private boat mode harvest varied more than that of the party/charter mode (Table 82). In some years harvest peaked during spring and early summer while in others, harvest peaked during the fall. This results in somewhat of a bimodal season with highs during the spring and fall with lulls occurring during summer and winter.

Table 82. Monthly Distribution of GOM Cod Harvest by Mode

	2001	2002	2003	2004	2005	2006	2007
Private Boat Mode							
Mar	0.5%	2.1%	0.0%	0.0%	0.0%	2.9%	0.0%
Apr	11.4%	21.3%	19.0%	0.3%	40.7%	5.6%	23.4%
May	21.7%	14.4%	34.4%	18.7%	21.0%	29.3%	12.0%
Jun	12.2%	4.1%	6.2%	11.8%	8.0%	4.9%	3.4%
Jul	21.1%	11.4%	15.7%	2.2%	5.7%	16.1%	6.2%
Aug	4.5%	10.1%	5.6%	2.4%	12.9%	14.6%	10.8%
Sep	5.8%	4.8%	14.8%	37.0%	3.5%	0.8%	28.7%
Oct	9.7%	8.6%	0.4%	4.7%	0.5%	25.8%	2.1%
Nov	11.4%	19.9%	2.7%	17.4%	7.9%	0.0%	13.5%
Dec	1.8%	3.4%	1.1%	5.6%	0.0%	0.0%	0.0%
Party/Charter Mode							
Mar	0.0%	6.1%	0.0%	0.8%	1.9%	12.4%	0.0%
Apr	0.8%	7.5%	4.6%	8.4%	28.4%	26.1%	15.4%
May	19.6%	16.5%	37.1%	25.5%	17.6%	9.2%	29.0%
Jun	4.7%	17.7%	11.6%	14.1%	16.3%	27.7%	14.1%
Jul	34.8%	7.7%	8.4%	7.7%	11.2%	9.0%	17.5%
Aug	6.1%	11.3%	6.8%	17.3%	11.6%	7.9%	6.4%
Sep	16.3%	18.7%	17.8%	14.9%	5.2%	6.0%	15.3%
Oct	16.4%	11.5%	9.5%	5.8%	5.8%	1.7%	2.4%
Nov	1.4%	1.4%	4.4%	4.5%	1.7%	0.0%	0.0%
Dec	0.0%	1.7%	0.0%	0.9%	0.3%	0.0%	0.0%

12.0 Analysis of Impacts – Commercial Measures - No Action

This section summarizes the impacts of the No Action Alternative, including a brief discussion of the methods used to analyze proposed measures.

12.1 Biological Impacts of No Action Alternative

12.1.1 Impacts on Groundfish – Commercial Measures

The Closed Area Model (CAM) is the principal analytical tool used to estimate the biological impacts of the management measures. Results for each alternative are calculated in relation to the status-quo management measures. The CAM is able to incorporate changes in allowable DAS ("A" days), trip limits, differential DAS, and additional seasonal and year-round closures, in relation to the status-quo. These are one-year changes only, and changes cannot be projected beyond that time period. This same approach was used for both Amendment 13 and Framework 42. Estimated changes can be used to rank alternatives, in order to determine which is more likely to meet all the individual mortality changes needed. It should be noted, as was the case with Amendment 13, that the model is a simulation of behavioral responses to changes in fishery regulations, and the results should be interpreted as broad indicators of relative changes, rather than as precise predictions of mortality impacts. Small percentage changes, for example, should be viewed as less likely relative outcomes than large percentage changes. Because many of the stocks are caught together in the same areas, often the management options will return larger reductions in exploitation for one species in order to achieve the reductions necessary for another species. Estimated reductions which are larger than necessary are likely to be less "risky" in terms of not meeting the mortality targets.

Because the CAM results are expressed as exploitation rates, the target fishing mortality reductions for each stock must be expressed in terms of equivalent reductions in exploitation. Changes in exploitation are calculated by taking the current estimated F and target F, converting both to an exploitation rate, and then calculating the percentage change necessary to move from the current exploitation rate to the target exploitation rate.

The changes in exploitation for the No Action Alternative compared with the targeted reductions in exploitation is shown below in Table 83. The CAM results indicate that the targeted reductions in exploitation associated with the objectives (Fmsy or F rebuild) will be attained for 4 of the 11 stocks that require fishing mortality reductions (GOM cod, GOM winter flounder, CC/GOM yellowtail flounder, and GB yellowtail flounder). The stocks for which the No Action Alternative would not result in the targeted reduction in fishing mortality are GB cod, SNE winter flounder, witch flounder, windowpane north, windowpane south, SNE/MA yellowtail flounder, and pollock. For these seven stocks, fishing exploitation is reduced, but falls short of the exploitation rate target. Thus, based on the results of the CAM, the No Action Alternative reduces fishing exploitation on all stocks, including those stocks for which a reduction is being sought, as well as stocks that do not need any reduction in exploitation, however, it dows not reduce exploitation sufficiently for several stocks (Table 83).

Table 83. No Action Alternative Changes in Exploitation Compared to Targeted Reduction (median value from CAM).

Species	Stock	Target	Target Reduction in Exploitation	Estimated Reduction in Exploitation Achieved by No Action Alternative
Cod	GB	Fmsy	- 35.2 %	-17.1 %
	GOM	Fmsy	-18.7 %	-16.3 %
Haddock	GB	Fmsy	na	-18.7 %
	GOM	Fmsy	na	-17.5 %
Yellowtail flounder	GB	F rebuild	-15.3 %	-20.0 %
	SNE/MA	F rebuild	-36.1 %	-18.3 %
	CC/GOM	F rebuild	-15.7 %	-18.4 %
American plaice		Fmsy	na	-16.3 %
Witch flounder		Fmsy	-29.3 %	-16.3%
Winter flounder	GB	Fmsy	na	-18.6 %
	GOM	Fmsy	-9.3 %	-15.0 %
	SNE/MA	F rebuild	-100 %	-20.3 %
Redfish		Fmsy	na	-17.7 %
White hake		F rebuild	na	-17.2 %
Pollock		Fmsy	-51 %	-17.3 %
Windowpane	North	Fmsy	-83 %	-18.6 %
	South	Fmsy	-29 %	-20.8 %
Ocean pout		Fmsy	*	*
Atlantic halibut		F rebuild	*	*

* The CAM has not been utilized to analyze impacts for these stocks in the past or currently because very limited fishery for these stocks.

The relative exploitation ratio for Ocean Pout indicated that the fishing mortality was well below the fishing mortality threshold (Fmsy proxy), and that landings from the SNE/MA area have dominated the catch (GARM III). The 2007 catch (178 mt) was the lowest since 1963. The default DAS reduction will likely result in some reduced catch of Ocean Pout.

Although the catch of Atlantic halibut increased in 2007 over recent levels, the future catch of Atlantic halibut will likely remain at similar levels or decline due to the default DAS reduction. A limit of one halibut per trip will continue to result in a reduction of catch to the lowest practicable level. A limit of one halibut per trip does not result in any incentive to target halibut, but minimizes wasteful discarding of halibut.

12.1.2 Impacts on Other Species/Bycatch

Background

The No Action Alternative would result in the status quo measures in effect (Amendment 13 and FW 42), with the exception of the Amendment 13 DAS regulations scheduled for FY 2009, which would reduce allocations of Category A DAS by approximately 18 percent. Although the objective of this Amendment 13 measure was the targeted reduction of fishing effort on certain groundfish stocks in order to enable rebuilding, the reduction in fishing effort that will be achieved by the DAS reductions will impact other stocks, including bycatch. Some of the stocks managed by the FMP that are less frequently targeted and caught as bycatch by multispecies vessels include ocean pout, Atlantic halibut, windowpane flounder and GOM winter flounder. The principal non-groundfish species caught by the groundfish fishery are skates, monkfish, dogfish, and lobster. The fishing effort reductions associated with the No Action Alternative would likely reduce the overall catch of associated bycatch species, and therefore have a positive impact on such species. The particular species imacted would depend upon the gear fished with and the location and season of the fishing trips. If vessels increase their participation in non-groundfish exempted fisheries while not under a DAS, the net reduction in bycatch would be less.

The No Action Alternatives for the Interim action is evaluated below with respect to its impacts on protected species. As described in the Affected Environment section, ESA-listed sea turtles and cetaceans as well as other marine mammals protected by the MMPA are likely to occur in the area affected by the Interim action measures.

Species protected under the ESA and/or MMPA are known to be captured or entangled in gear types that are used in the groundfish fishery (e.g., sink gillnet gear, bottom otter trawl gear). For example, large whale entanglements in sink gillnet gear have occurred (Johnson et al. 2005; Waring et al. 2007). Fixed gillnet gear and trawl gear pose a risk of entanglement and capture for sea turtles and small cetaceans (Waring et al. 2007; Murray 2008; Final 2009 List of Fisheries 73 FR 73032, December 1, 2008).

NMFS has considered the potential for other effects to protected species as a result of operation of the groundfish fishery but has not determined any other effects that are likely to occur. The operation of the groundfish fishery is not expected to effect the abundance and of protected species prey. Small prey such as copepods and krill will pass through multispecies fishing gear rather than being captured in it. The multispecies fishery does not target small schooling fish (*e.g.* herring, mackerel), squid or deep water organisms that are preyed upon by small cetaceans and some large cetaceans (humpback whales, fin whales, sperm whales) (Wynne and Schwartz 1999; Aguilar 2002; Baird 2002; Clapham 2002; Perrin 2002;Whitehead 2002). Likewise, typical prey items of leatherback sea turtles and green sea turtles (neritic juvenile and adult age classes) (Rebel 1974; Mortimer 1982; Bjorndal 1985; USFWS and NMFS 1992; Bjorndal 1997) are not targeted in the groundfish fishery and are not typically caught as bycatch. Benthic fish species as well as crabs, and other benthic organisms may be caught as either targeted catch or bycatch in the multispecies fishery. Neritic juveniles and adults of both loggerhead and Kemp's ridley sea turtles are known to feed on crab species and other benthic organisms (Keinath et al. 1987; Lutcavage and Musick 1985; Dodd 1988; Burke et al. 1993; Burke et al. 1994; Morreale and Standora 2005; Seney and Musick 2005) as are harbor porpoise, white-sided dolphins, and spotted dolphins (Bjørge and Tolley 2002; Cipriano 2002; Perrin 2002). Nevertheless, the removal of benthic fish species and benthic invertebrates from the water as bycatch or targeted catch in the groundfish fishery is not expected to affect the availability of prey for loggerhead or Kemp's ridley sea turtles or for these small cetaceans since each species has a diverse diet including prey items that are not caught in the groundfish fishery. In addition, food items caught as bycatch will be returned to the water where they could still be preyed upon, particularly by loggerheads which are known to eat a variety of live prey as well as scavenge dead organisms. Gear types used in the multispecies groundfish fishery are expected to have an impact on bottom habitat particularly mobile gear, such as bottom otter trawl gear, that is used in the groundfish fishery. A panel of experts have previously concluded that the effects of even light weight otter trawl gear would include: (a) the scraping or plowing of the doors on the bottom, sometimes creating furrows along their path, (b) sediment suspension resulting from the turbulence caused by the doors and the ground gear on the bottom, (c) the removal or damage benthic or demersal species, and (d) the removal or damage to structure forming biota (NREFHSC 2002). Fixed gear such as sink gillnet gear is expected to have less of an effect on bottom habitat than mobile gear given that it is not towed or dragged along the bottom. Portions of the area where the groundfish fishery occurs are closed to fishing permanently or seasonally in order to protect that bottom habitat that is most susceptible to damage affecting the organisms that occur there. Therefore, while (a) the disturbance of prey items during groundfish fishing operations in an area may attract foraging protected species to that area (potentially increasing the likelihood of a protected species capture of entanglement in the gear), and (b) the use of fishing gear does have some impact on bottom habitat, the operation of the groundfish fishery is not expected to effect the abundance of prey items for any protected species.

NMFS has also determined that the use of fishing vessels in the groundfish fishery is not expected to result in injury and mortality to the aforementioned protected species as a result of vessel strikes given that the fishing vessels operate at relatively slow speeds and the protected species have the speed and maneuverability to move away before being struck by the vessels hull. In addition, all of the species occur seasonally in the area where the multispecies fishery operates and, when they are present, spend part of their time at depths below the depth of the vessels hull, thus limiting their exposure to vessels used in the multispecies fishery. Finally, the groundfish fishery does not occur in low latitude waters where calving and nursing occurs for large cetaceans (Aguilar 2002; Clapham 2002; Horwood 2002; Kenney 2002; Sears 2002; Whitehead 2002). Therefore, the groundfish fishery is not expected to affect the oceanographic conditions that are conducive for calving and nursing of these large whales.

As described elsewhere in this document, the No Action alternative would result in an 18 percent reduction of groundfish DAS beginning with the start of the 2009 groundfish fishing year (May 1, 2009). This reduction is the default DAS reduction for 2009 that was implemented by Amendment 13 to the Northeast Multispecies FMP.

NMFS has previously considered the effects to protected species as a result of the continued authorization of the groundfish fishery. These include consideration of the effects of Amendment 13 and Framework Adjustment 42 to the Northeast Multispecies FMP; actions which contributed to the current management measures for groundfish.

The exact relationship of the level of groundfish fishing effort and the likelihood of capture or entanglement of protected species in the fishing gear is unknown. However, it is reasonable to assume that, in general, a reduction in effort reduces the risk of capture or entanglement of protected species in the gear if the reduction in effort reduces the amount of gear that is in the water and does not result in an effort shift to areas and at times when one or more protected species are likely to be present. Given the restrictions that are already in place for the use of groundfish fishing gear, including seasonal and permanent closures as well as measures implemented under the ALWTRP and HPTRP affecting the use of groundline gear, it is unlikely that an 18 percent reduction in DAS would result in any effort shift that could increase the likelihood of entanglement or capture of large whales or harbor porpoise in groundfish fishing gear. Research conducted for the ATGTRT meetings found that the capture of small cetaceans in trawl gear are highly correlated with specific ranges in sea surface temperature, bottom depth and bottom slope. Some of these ranges overlap with high concentration of multispecies trawl effort in specific areas of Georges Bank and the Gulf of Maine. A reduction if effort, leading to a reduction in the amount of gear fished in these high concentration areas could help to reduce the likelihood of small cetacean captures in gear used in the groundfish fishery.

As described in the Affected Environment section, all of the protected species considered here occur seasonally in areas where the groundfish fishery operates. Therefore, the overall effect of the No Action Alternative on protected species will also vary depending on how the alternative impacts effort temporally and spatially. Species that are not present in an area or at a time when effort is reduced will be less affected by the alternative than those that are present in an area and at a time where effort has been reduced.

12.1.3. Habitat Impacts

The No Action Alternative would not have any new adverse impacts on essential marine habitats utilized by federally-managed fish species in the Northeast Region. It would reduce DAS in the multispecies fishery by an additional 18% and maintain the rest of the current management measures of the FMP. Overall, the No Action management measures would slightly reduce the amount of bottom trawling effort in the fishery. The net effect of this alternative on benthic habitats in the region would therefore be positive. The current impacts of fishing gear on habitat is described in the Affected Environment Section of this document (Section 9.3), and depend principally upon the type of gear and the bottom type. The location of fishing is controlled primarily through the FMP rules regarding closed areas.

12.1.4 Impacts on Threatened, Endangered, and other Protected Resources

As described in the Affected Environment section, ESA-listed sea turtles and cetaceans as well as other marine mammals protected by the MMPA are likely to occur in the area affected by the Interim action measures. Some of these species are known to be captured in the type(s) of gear used in the groundfish fishery resulting in the injury or death. Others of these protected species are likely to be injured or killed as a result of capture or entanglement in gear types used in the fishery given the distribution of each species relative to the distribution of groundfish fishing effort.

The exact relationship between fishing effort and the likelihood of interactions between protected species and fishing gear is unknown. However, in general, an increase in fishing effort at times and in areas where protected species occur would be expected to increase the likelihood of interactions between fishing gear used and the protected species present. Conversely, a decrease in fishing effort would be expected to result in a decrease in the likelihood of interactions between protected species and gear used in the fishery. Similarly, a shift in effort away from areas and times when protected species are present would help to reduce the likelihood of interactions while a shift in effort to areas and at times when protected species are present would be expected to increase the likelihood of interactions. As described in the Affected Environment section, all of the protected species considered here occur seasonally in areas where the groundfish fishery operates. The seasonal distribution of these species is considered below in context with the alternatives for the Interim action, and what is known of protected species interactions with groundfish gear to evaluate the effects of the alternatives for protected species.

As described elsewhere in this document, the No Action alternative would result in an 18 percent reduction of groundfish DAS beginning with the start of the 2009 groundfish fishing year (May 1, 2009). This reduction is the default DAS reduction for 2009 that was implemented by Amendment 13 to the Northeast Multispecies FMP. NMFS has previously considered the effects to protected species as a result of the continued authorization of the groundfish fishery. These include consideration of the effects of Amendment 13 and Framework Adjustment 42 to the Northeast Multispecies FMP; actions which contributed to the current management measures for groundfish.

As described above, the exact relationship of the level of multispecies fishing effort and the likelihood of interactions between multispecies fishing gear and ESA and/or MMPA-listed species is unknown. However, it is reasonable to assume that a reduction in effort reduces the risk of interactions since there is less gear in the water. Therefore, under the No action, an 18 percent reduction in DAS would result in a decrease in the amount of time that gear can be fished, and would be expected to reduce to some extent the likelihood of protected species interactions with groundfish gear provided the measure did not result in a shift in effort to times and areas where protected species were more likely to occur. However, such a shift is unlikely given the restrictions already in place for the use of groundfish fishing gear including seasonal and permanent closures as well as measures implemented under the ALWTRP and HPTRP affecting the use of groundline gear.

12.2 Economic Impacts of No Action Alternative

Taking no action would leave all current management measures including the 2:1 differential DAS areas in the Gulf of Maine and Southern New England as well as adding the default 18% reduction in allocated Category A DAS prescribed by Amendment 13. Economic impacts of taking no action were estimated in a manner consistent with previous analyses conducted for Framework 42 and Amendment 13. Specifically, changes in total revenue on groundfish trips were estimated by comparing the change in gross revenue from groundfish trips (i.e. revenue from all species landed while fishing for groundfish) to a baseline condition defined as being the three year average revenue from FY2005-FY2007. Change in total fishing revenue relative to status quo conditions (i.e. all regulatory measures implemented under Framework 42) was estimated by adding groundfish trip revenue under No Action to fishing revenue from non-groundfish trips. Note that these estimates are conditioned on the assumptions that prices remain constant, and vessels do not alter their fishing practices on non-groundfish trips. In a report to Congress on the impacts of Framework 42, comparisons of predicted and realized impacts indicate that these assumptions tend to lead to greater adverse predicted economic impacts than realized as both prices and revenues from non-groundfish species tended to be higher than predicted.

12.2.1 Aggregate Impacts

Average groundfish trip revenue for the vessels included in the analysis was $101 million during FY2005 to FY2007 and average total revenue was $158 million. Under no action the estimated groundfish trip revenue would decline by 12.1% to $89 million and total fishing revenue would decline by 7.7% to $145 million (Table 84). The relative reduction in groundfish trip revenue varied little by home port state ranging from 10.3% to 12.8%. However, the change in total trip revenue varied among home port states primarily based on the relative contribution of groundfish trip revenue to total revenue. This is why total trip revenue declined by approximately 10% in Maine, New Hampshire, and Massachusetts, but declined by no more than 6% in any other state.

In general, the estimated impacts are lower than what may have been expected given an 18% reduction in A DAS. However, even though Amendment 13 significantly reduced latent effort in the groundfish fishery latent effort was not eliminated. For example, in both FY2005 and FY2006 only 63% of allocated DAS were used. In 2007, 66% of allocated DAS were used (Section 23.1.5). Even when vessels that did not call in any DAS at all are removed, the DAS use rate increased to just 72%. Given these use rates, DAS would have to be reduced by more than 28% before total allocated DAS would become a binding constraint on all permitted vessels. Of course a reduction of this magnitude would have large impacts on vessels that have high DAS utilization rates. Under No Action, any vessel whose current DAS use rate was low would be unaffected since their allocated A DAS under no action would still be greater than the DAS they used.

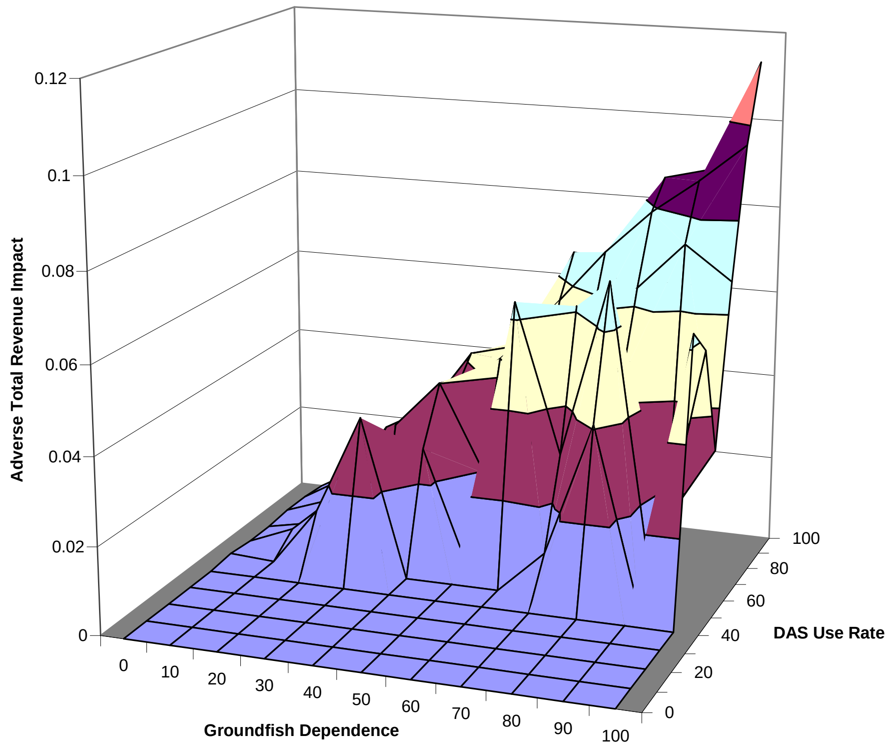
Table 84. Change in Groundfish Trip and Total Trip Revenue by Home Port State

State	2005-2007 Average Total Revenue	Estimated Total Revenue	Change in Total Revenue	2005-2007 Average Groundfish Trip Revenue	Estimated Groundfish Trip Revenue	Change in Groundfish Trip Revenue
CT	$471,853	$442,888	-6.1%	$234,954	$205,989	-12.3%
MA	$76,335,101	$68,953,330	-9.7%	$61,075,061	$53,693,291	-12.1%
ME	$18,692,050	$16,704,109	-10.6%	$16,887,629	$14,899,688	-11.8%
NH	$5,260,523	$4,754,542	-9.6%	$4,381,575	$3,875,595	-11.5%
NJ	$6,897,309	$6,668,471	-3.3%	$1,874,151	$1,645,313	-12.2%
NY	$14,307,651	$13,789,798	-3.6%	$4,035,033	$3,517,180	-12.8%
RI	$31,466,190	$30,046,466	-4.5%	$11,430,282	$10,010,558	-12.4%
Other	$4,121,225	$3,987,817	-3.2%	$1,292,992	$1,159,583	-10.3%
Total	$157,551,903	$145,347,419	-7.7%	$101,211,678	$89,007,195	-12.1%

12.2.2 Vessel-Level Impacts

The change in total fishing revenue ranged between no change and 18% reduction in total sales. Just where any given vessel fell within this range depended on DAS use rates as described above and the vessel owner's dependence on groundfish trip revenue for total fishing business income (see Figure 44). Figure 44 plots dependence on groundfish trip income for intervals of 10-percentage points on the horizontal x-axis with dependence increasing from left to right. Similarly, intervals of DAS use rates are plotted on the horizontal y-axis, also increasing from left to right. The resulting grid shows the possible combinations of dependence and DAS use rates where the cells of the grid are the calculated average reduction in total fishing revenue for all values that fall within the use rate/dependence grid. These averages (multiplied by -1 for purposes of exposition) are plotted on the vertical z-axis. As both dependence and DAS use rates increase the estimated impact on total revenues increases. The figure also shows that estimated impacts are very low even at high dependence on groundfish trip income for vessels with low DAS use rates. Similarly, estimated impacts are also low for vessels with high DAS use rates that have low dependence on groundfish trip income for total fishing business income.

Figure 44. Relationship between groundfish dependence, DAS use rate and average revenue impact.



Across all vessels gross revenues for 32 (6.4%) of the 502 included in the analysis would not change relative to status quo conditions. (Table 85). For purposes of reporting the remaining vessels were sorted into four different categories depending upon whether the estimated impact was at or below the 20th percentile, between the 20th percentile and the median, between the median and 80th percentile, or above the 80th percentile. Based on these categories each of the first and fourth represent 20% of affected vessels while the second and third represent 30% of affected vessels in each. The average estimated adverse impact was then calculated for each category. Vessels in the 20% of least affected vessel may be expected to lose 2% of total fishing revenue while, on average, the 20% of most affected vessels may be expected to lose 13% of total revenue.

Table 85. Estimated Impact and Number of Affected Vessels by Impact Category

Impact Category	Number of Vessels	Average Adverse Impact
No Impact	32	0%
Up to 20th Percentile	95	2%
20th Percentile to Median	143	6%
Median to 80th Percentile	142	10%
Above 80th Percentile	95	13%

In relative terms, the No Action alternative would have similar impacts among vessels of different sizes (Table 86). The average adverse impact on total fishing revenue was identical below the 20th percentile (2%) and above the 80th percentile (13%) for all vessels size classes. At other intervals the estimated impacts were similar by vessel size class.

Table 86. Estimated Adverse Impact and Affected Vessels by Vessel Length Class

	Less than 50 feet		50 to 70 feet		Over 70 feet	
Impact Category	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact
Up to 20th Percentile	44	2%	28	2%	25	2%
20th Percentile to Median	65	6%	40	5%	36	6%
Median to 80th Percentile	65	10%	41	10%	37	12%
Above 80th Percentile	43	13%	27	13%	24	13%

Among primary gears the relative distribution of adverse impact on total revenue was nearly identical for vessels using gillnet or trawl gear (Table 87). However, hook vessels between the 20th percentile and the median may be expected to have lower revenue reductions (3%) compared to 6%, on average, for gillnet and trawl vessels. By contrast, the average adverse impact among the most affected hook vessels (above the 80th percentile) was larger (16%) compared to either gillnet or trawl gear (13%).

Table 87. Estimated Adverse Impact and Affected Vessels by Primary Gear

	Gillnet		Hook		Trawl	
Impact Category	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact
Up to 20th Percentile	24	1%	4	1%	69	2%
20th Percentile to Median	34	6%	4	3%	103	6%
Median to 80th Percentile	35	10%	5	10%	103	11%
Above 80th Percentile	23	13%	3	16%	68	13%

The relative distribution of adverse impacts differed between states that border the Gulf of Maine (Maine, New Hampshire, and Massachusetts) and those that do not (Table 88). At any given interval, the average adverse impact for vessels with a home port in these Gulf of Maine states was twice that for other states. For example, the impact for Maine, New Hampshire, and Massachusetts was between 3 and 5% up to the 20th percentile compared to less than 0.5% to 2% in all other states. Similarly, home port vessels from Maine, New Hampshire, and Massachusetts were estimated to lose about 13% of total revenue among vessels above the 80th percentile compared to an average of 8% for vessels from other home port states. Note that for confidentiality concerns, impacts on Connecticut home port vessels had to be combined with Rohde Island home port vessels. Home port state vessels south of New Jersey had to be combined with New Jersey home port vessels for the same reason.

Table 88. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Home Port State

Home Port State	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
MA	46	69	69	46
ME	13	19	20	12
NH	7	10	10	6
NJ – South	7	9	10	6
NY	9	13	14	8
RI & CT	15	21	22	14
	Average Adverse Affect on Total Revenue			
MA	3.0%	8.0%	12.0%	14.0%
ME	5.0%	9.0%	11.0%	13.0%
NH	5.0%	9.0%	11.0%	15.0%
NJ	0.0%	2.0%	4.0%	7.0%
NY	1.0%	2.0%	5.0%	9.0%
RI & CT	2.0%	4.0%	6.0%	9.0%

As noted previously, vessels with high dependence on groundfish trip revenue may be expected to be more adversely affected by the No Action alternative than less dependent vessels. This effect is evident as the estimated average adverse impact of fishing revenue increases with dependence on groundfish trip revenue (Table 89). For example, the estimated impact on vessels that depend on groundfish trips for less than 20% of fishing revenue ranged from less than 0.5% up to the 20th percentile to 2% for vessels above the 80th percentile. By contrast, impacts on vessels that depend on groundfish for at least 80% of fishing revenue ranged from an average of 9% up to the 20th percentile and 14% above the 80th percentile.

Table 89. Estimated Impacts and Number of Affected Vessels by Dependence on Groundfish Trip Revenue

Dependence Category	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
0 to 19%	13	18	18	12
20 to 39%	16	23	24	15
40 to 59%	12	18	18	11
60 to 79%	13	20	19	13
80 to 100%	43	63	64	42
	Average Adverse Affect on Total Revenue			
0 to 19%	0.0%	1.0%	1.0%	2.0%

20 to 39%	2.0%	4.0%	4.0%	5.0%
40 to 59%	4.0%	5.0%	7.0%	8.0%
60 to 79%	7.0%	8.0%	9.0%	10.0%
80 to 100%	9.0%	11.0%	12.0%	14.0%

Unlike dependence on groundfish dependence the estimated average impact on total fishing revenue was nearly identical for each percentile category regardless of gross sales (Table 90). In each category of gross sales the estimated average adverse change in gross sales ranged from 1-2% for all vessels up to the 20th percentile to 13-14% for vessels above the 80th percentile.

Table 90. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Gross Sales Category

Gross Sales Category ($1,000)	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
Less than $90 k	16	24	24	16
$90 k to $159 k	19	28	28	18
$160k to $269 k	21	31	32	20
$270 k to $500 k	19	29	28	19
More then $500 k	21	31	31	20
	Average Adverse Affect on Total Revenue			
Less than $90 k	2.0%	6.0%	10.0%	14.0%
$90 k to $159 k	1.0%	6.0%	10.0%	13.0%
$160k to $269 k	2.0%	6.0%	10.0%	13.0%
$270 k to $500 k	2.0%	6.0%	11.0%	13.0%
More then $500 k	2.0%	6.0%	12.0%	13.0%

Among port groups the estimated revenue impacts follow a pattern similar to that of home port states. That is, impacts on port groups in Maine, New Hampshire, and Massachusetts tended to be larger than the impacts on vessels from port groups in other states (Table 91). Overall, adverse impacts on the Portsmouth area and the Scituate-Boston port group were slightly higher for vessels above the 80th percentile than in other port groups. Note that in most instances the port groups listed in Table 91 consist of combined port groups due to confidentiality concerns.

Table 91. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Port Groups

Port Group	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
Cape & Islands	5	7	7	4
Long Island, NY	9	13	14	8
Gloucester	17	25	25	16
Mid-Coast Maine	6	9	9	6
North Shore, Massachusetts	5	7	8	4
New Bedford	15	22	22	14
New Jersey	7	9	10	6
Other Rhode Island	6	8	9	5
Point Judith	9	13	14	8
Portsmouth Area	7	10	10	6
Scituate - Boston	6	8	8	5
Portland - So. Maine	7	10	11	6
	Average Adverse Affect on Total Revenue			
Cape & Islands	1.0%	3.0%	6.0%	11.0%
Long Island, NY	1.0%	2.0%	5.0%	9.0%
Gloucester	5.0%	10.0%	12.0%	14.0%
Mid-Coast Maine	5.0%	9.0%	11.0%	13.0%
North Shore, Massachusetts	2.0%	8.0%	11.0%	13.0%
New Bedford	3.0%	9.0%	12.0%	13.0%
New Jersey	0.0%	2.0%	4.0%	7.0%
Other Rhode Island	1.0%	4.0%	7.0%	9.0%
Point Judith	2.0%	5.0%	6.0%	10.0%
Portsmouth Area	5.0%	9.0%	11.0%	15.0%
Scituate - Boston	5.0%	10.0%	12.0%	15.0%
Portland - So. Maine	5.0%	9.0%	11.0%	13.0%

12.3 Social Impacts of No Action Alternative

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 wasteful of valuable resources and distasteful. Modifications to daily routines can make long term planning difficult. New gear purchases must be ordered in advance and result in a change to daily routine when equipment cannot be used in a timely or cost effective manner. Changes in management measures that limit access to fishing may alter economic incentives that change the likelihood of risky fishing practices. Increased risk can result when fishermen spend longer periods at sea, or travel excessive distances, operate with fewer crew, or fish under 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 alternative of these factors will be discussed below. The primary port groups that are most affected by changes in groundfish management are identified in section 9.6.

Regulatory Discarding

Because the current regulatory structure and this alternative rely heavily on the combined effects of DAS, closed areas, and trip limits, to reduce fishing mortality, regulatory discarding will continue to frustrate fisherman and cause waste.

Safety

There is little empirical data with which to evaluate the types of management measures that improve or threaten the safety of fishing vessel operators. One study attempted to identify factors that contributed to serious vessel accidents in the Northeast Region. Di Jin and Thunberg (2005) examined fishing vessel accidents in the Northeast United States from 1981 through 2000, updating an earlier report. The modeled fishing vessel accident probability using U.S. Coast Guard data and NMFS data. The data were for all fisheries and the results are not specific to the groundfish fishery. In all cases, the model showed that increasing wind speed and decreasing distance from shore result in an increase in accident rates.

Framework Adjustment 42 stated that the inshore and offshore differential DAS counting areas may affect vessel safety because of the possibility that some vessel may attempt to fish farther offshore to avoid the 2:1 differential DAS area. Under current regulations, the closest area that is not subject to a differential DAS counting rate is approximately 40 miles from the ports of Gloucester, Provincetown, and Portsmouth.

This Alternative would not alleviate this problem.

Disruption in Daily Living

Amendment 13 defines the disruption in daily living as “changes in the routine living and work activities of affected fishery participants, including the potential for alternate in their regular social and work patterns to adapt to new management measures” (NEFMC 2003). This alternative may cause additional disruptions in daily living that the from the default reduction in DAS. Unless vessel owners spend additional money to lease DAS, the alternative will result in less DAS available for use for targeting groundfish (or other species such as monkfish or skates). There would be increased incentives to pursue non-groundfish fisheries or other non-fisheries sources of income. If vessel owners can lease in DAS in order to maintain or increase their activity in the groundfish fishery, the cost of leasing those DAS may represent a disruption in daily living.

Changes in Occupational Opportunities and Community Infrastructure

Changes in occupational opportunities and community infrastructure is defined as the degree to which the occupational profile of the affected communities would be affected by the proposed action. In the short term, this alternative is the least likely to alter the composition of the existing groundfish fleet and the fleets of other fisheries by indirectly providing incentives for groundfish vessels to pursue other sources of fishing revenue. During FY 2009, due to the recution in DAS, landings of regulated groundfish are likely to decline a modest amount, and could result in changes in the ability of shoreside infrastructure to maintain year-round operations. While there may be increased effort in other fisheries that may partially compensate for these changes, it is not known if the same business that serve the groundfish fishery also support other fisheries.

Based on the trend in total groundfish landings and revenue from 2005 to 2007 (Table 35), the recent trend in revenue has been fairly stable. However, there has been a decline in the number of active vessels (Table 37). Although the net amount of revenue and landings over time may not be contributing to a change in community infrastructure per sae, the fact that there are declining number of vessels participating in the fishery is likely to have an impact on both occupational opportunities, and community infrastructure. Although mitigating measures may provide some relief, the number of vessels that have participated in the special management programs has been very limited, and the DAS Leasing and Transfer Programs offer only limited relief to disruptions due to the costs of these programs.

Formation of Attitudes

Formation of attitudes refers to positions expressing support for, or opposition to a proposed management measure. Many industry members seem resigned to the fact that there will be at least the default DAS reduction implemented in FY 2009. Many in the fishing industry were hoping to avoid additional restrictions under the current management system (principally DAS restrictions) by fishing in sectors. Although it is not clear whether sectors will eliminate some frustrations and create new frustrations, the perception for many is that sectors would provide some net benefits to the industry. Under this alternative, additional mitigating measures would not be implemented and therefore frustration at the lack of additional flexibility concurrent with new DAS reductions would be opposed.

13.0 Analysis of Impacts - Revisions to Stock Status Determination Criteria

13.1 No Action

The No Ation Alternative would maintain the Amendment 13 stock status determination criteria. For many stocks, such criteria would result in a different understanding of the status of the stock, and management measures that would not correspond to the current understanding of the status of the stocks. However, a direct one-to-one comparison between the old and new biological reference points is inappropriate due to changes in weights-at-age and partial recruitment at age. For this reason it is very difficult to quantitatively compare the overall biological impacts of the revisions to the stock status determination criteria. From a qualitative perspective, reliance upon unrevised historical biological reference points will have a negative impact on the status of the stocks and undermine efforts to rebuild stocks.

13.2 Preferred Alternative

The revisions to the stock status determination criteria (biological reference points) reflect an in-depth review of the biological reference points. GARM II biological reference points for each of the 19 groundfish stocks were based upon a 2002 biological reference point working group. Whereas an array of methods were used to compute Biological Reference Points utilized in GARM II, the principal method used in GARM III was to (a) estimate Fmsy based upon $F_{40\%MSP}$ (50% for redfish) from a spawning biomass per recruit analysis, and (b) to estimate the associated Bmsy using the complete population recruitment series in a 100 year forward projection. While several stocks in GARM I and GARM II had biological reference points based upon index or age-aggregated approaches, some of these stock now have biological reference points based upon age-based models in GARM III. Most of the GARM III biomass reference points are lower and fishing mortality reference points higher than those determined in GARM II. However, a direct one-to-one comparison between the old and new biological reference points is inappropriate due to changes in weights-at-age and partial recruitment at age. For this reason it is very difficult to quantitatively compare the overall biological impacts of the revisions to the stock status determination criteria. From a qualitative perspective, reliance upon revised and improved biological reference points will have a positive impact on the status of the stocks and facilitate stock rebuilding.

Establishing stock status determination criteria and setting fishing mortality targets or the methods used for calculating F rebuilds and reductions in fishing mortality are administrative in nature in that they do not directly change fishing effort or result in a shift in fishing effort. Therefore, these alternatives will have no effect on protected species. Alternatives to address management of the fishery as a result of the stock status determination criteria adopted, the fishing mortality targets established and the calculations of F rebuild and required reductions in fishing mortality do affect the level of effort on the fishery and are discussed further below

Similarly it is very difficult to quantitatively compare the overall economic and solial impacts of the revisions to the stock status determination criteria. One of the social impacts is the potential for confusion resulting from changes, and a loss of trust in the science by industry members.

14.0 Analysis of Impacts - Alternative 1

This section summarizes the impacts of alternative one.

14.1 Biological Impacts of Alternative One

14.1.1 Impacts on Groundfish – Commercial Measures

The Closed Area Model (CAM) is the principal analytical tool used to estimate the biological impacts of the management measures. Results for each alternative are calculated in relation to the status-quo management measures. Additional information on the CAM is in Section 24.0, Comparison of Alternatives.

Because the CAM results are expressed as exploitation rates, the target fishing mortality reductions for each stock must be expressed in terms of equivalent reductions in exploitation. Changes in exploitation are calculated by taking the current estimated F and target F, converting both to an exploitation rate, and then calculating the percentage change necessary to move from the current exploitation rate to the target exploitation rate.

The changes in exploitation for Alternative 1 compared with the targeted reductions in exploitation is shown below in Table 92. The CAM results indicate that the targeted reductions in exploitation associated with the objectives (Fmsy or F rebuild) will be attained for 8 of the 11 stocks that require fishing mortality reductions (Table 92). The stocks for which fishing exploitation is reduced, but falls short of the exploitation rate target are SNE/MA winter flounder, pollock and northern windowpane flounder. Based on the results of the CAM, the Alternative 1 management measures reduce fishing exploitation on all stocks, including those stocks for which a reduction is being sought, as well as stocks that do not need any reduction in exploitation. Furthermore, the reduction in exploitation is greater than the targeted amount of reduction for most stocks.

Table 92. Alternative 1 Changes in Exploitation (median value from CAM).

Species	Stock	Target	Target Reduction in Exploitation	Estimated Reduction in Exploitation Achieved
Cod	GB	Fmsy	- 35.2 %	-37.8 %
	GOM	Fmsy	-18.7 %	-29.5 %
Haddock	GB	Fmsy	na	-33.6 %
	GOM	Fmsy	na	-32.3 %
Yellowtail flounder	GB	F rebuild	-15.3 %	-20.8 %
	SNE/MA	F rebuild	-36.1 %	-85.1 %
	CC/GOM	F rebuild	-15.7 %	-45.4 %
American plaice		Fmsy	na	-34.2 %

Witch flounder		Fmsy	-29.3 %	-32 %
Winter flounder	GB	Fmsy	na	-19.9 %
	GOM	Fmsy	-9.3 %	-19.6 %
	SNE/MA	F rebuild	-100 %	-78 %
Redfish		Fmsy	na	-40.2 %
White hake		F rebuild	na	-38.6 %
Pollock		Fmsy	-51 %	-36.2 %
Windowpane	North	Fmsy	-83 %	-24.4 %
	South	Fmsy	-29 %	-55.4 %
Ocean pout		Fmsy	*	*
Atlantic halibut		F rebuild	*	*

* The CAM has not been utilized to analyze impacts for these stocks in the past or currently because very limited fishery for these stocks.

Although the model results indicate that the reduction in exploitation of the northern stock of windowpane flounder would not be sufficient to bring the fishing mortality down to Fmsy, the CAM indicates that exploitation will be reduced one third of that necessary to achieve Fmsy. In contrast to many other stocks in the complex, this stock is principally a bycatch species, with landings representing only 12 % of the catch in calendar year 2007 (Catch: 1,032 mt, Landings: 119 mt; GARM III). Because this stock is principally a bycatch species with relatively low catch already, additional reductions in fishing exploitation may be very difficult to achieve through reductions in fishing effort. Since 2000, most of the landings have occurred in statistical area 525, south-central Georges Bank, and the bycatch of this stock is likely higher during winter and spring when the species is distributed across a broader area of Georges Bank. Most of the discards are in the large-mesh bottom trawl fishery. The prohibition of retention of windowpane north would eliminate landings and eliminate any incentive to target this stock.

Similarly, the model results indicate that the reduction in exploitation of the SNE/MA stock of winter flounder would not be sufficient to fully bring the fishing mortality down to Frebuild (zero fishing mortality), the CAM indicates that exploitation will be reduced by 78 percent. In 2007 landings and discards of SNE/MA winter flounder were as follows in Table 93.

Table 93. SNE/MA Winter Flounder Landings and Discards in FY 2007, assuming zero survival of discards (GARM III).

Source	Mt	Percent of Total
Commercial landings	1,622 mt	83 %
Recreational landings	116	6 %
Discards	228	12 %
Total Catch	1,966	

If landings in 2009 are zero, due to the prohibition on retention of winter flounder, and discards either remain the same as in 2007 (228 mt), or double (456 mt), such reductions in total catch would represent an 88 percent and 77 percent reduction in catch. Based upon a NMFS bycatch report (Wigley, et. al., 2008), in 2005, approximately 65 percent of trawl discards were from the small mesh fishery and 34 percent from the large mesh fishery. The amount of reduction in fishing mortality that will result from the measures is difficult to predict. If vessels are currently targeting winter flounder, and a prohibition on retention alters fishing behavior, then fishing mortality will be effectively reduced. However, if current catch levels reflect that catch from vessels that are not targeting winter flounder, but are still encountering them then a prohibition on retention would be less effective. The proposed recreational prohibition on retention of SNE winter flounder and the elimination of the SNE Winter Flounder SAP and the State Waters Exemption, may contribute some additional fishery mortality reductions that are not captured in the CAM. Fishing by NE multispecies vessels using hook gear in the SNE Closure Area is not expected to cause any meaningful impact on winter flounder, due to the very low catch rate of winter flounder by hook gear. An indication of the catch rate that could be expected is that of the Georges Bank Cod Hook Sector (Sector). The Sector's annual report for 2007 includes the following data: 2007 landings of winter flounder: 1,529 lb; 2006 landings of winter flounder: 1,435 lb. The Sector's total landings (all species) in 2007 were 478,843 lb.

The relative exploitation ratio for Ocean Pout indicated that the fishing mortality was well below the fishing mortality threshold (Fmsy proxy), and that landings from the SNE/MA area have dominated the catch (GARM III). The 2007 catch (178 mt) was the lowest since 1963. The DAS reduction, Differential DAS Area, and SNE Closure Area will likely result in some reduced catch of Ocean Pout.

Although the catch of Atlantic halibut increased in 2007 over recent levels, the future catch of Atlantic halibut will likely remain at similar levels or decline due to the DAS reduction and Differential DAS Area. A limit of one halibut per trip will continue to result in a reduction of catch to the lowest practicable level. A limit of one halibut per trip does not result in any incentive to target halibut, but minimizes wasteful discarding of halibut.

14.1.2 Impacts on Other Species/Bycatch

Impacts on Groundfish Bycatch

This interim action would implement restrictive measures to reduce fishing mortality on groundfish stocks in the NE. Although the goal of the interim measures is to reduce fishing mortality on certain stocks, the reduction in fishing effort that will be achieved will impact other stocks, including bycatch. Some of the stocks managed by the FMP that are less frequently targeted and caught as bycatch by multispecies vessels include ocean pout, Atlantic halibut, windowpane flounder and GOM winter flounder. The SNE Closure Area will eliminate fishing effort by groundfish vessels fishing with trawl gear and gillnet gear, and reduce bycatch in that area from the groundfish fishery. The prohibition on retention of SNE winter flounder by other fisheries may increase discarding if vessels continue to encounter SNE winter flounder. The implementation of a higher daily possession limit for white hake and removal of the trip limit for GB winter flounder may reduce discards of these stocks, while the implementation of prohibitions on retention of several other stocks may increase discarding on those trips that encounter these species (SNE winter flounder, ocean pout, and windowpane flounder north). However, due to the overall reduction in fishing effort likely, and the fact that there will be no legal incentive to ever target the stocks than cannot be retained, the net amount of bycatch of such species may decline. Additional trip limits for species that do not current have limits were not considered in order to prevent discarding (e.g., witch flounder, windowpane south). The reduction of minimum size for haddock will reduce discards in both the commercial and recreational fisheries. Althought the DAS Leasing Program and DAS Transfer Program modifications will facilitate the use of DAS in some cases, the major constraint that limits DAS leasing for individual vessel owners (i.e., cost) will continue to limit the effort associated with DAS leasing and transfers.

The implementation of a trip limit for GB yellowtail flounder reduces the likelihood that the hard TAC for this stock in the U.S./Canada Management Area will be achieved prior to the end of the fishing year. Should the TAC be achieved before the end of the fishing year, possession of GB yellowtail flounder would be prohibited, but discarding would continue. The restriction on the use of low-profile gillnets in the Regular B DAS Program will reduce bycatch of flatfish. All catch of groundfish stocks of concern in the Regular B DAS Program count toward the incidental catch TACs, regardless of whether such catch is kept or discarded. The accounting of all fish caught serves as an incentive for fishers to reduce bycatch in order to decrease the rate at which the TAC is harvested, and enable more fishing opportunity to target healthy groundfish stocks under this program. The current gear restrictions for the U.S./Canada Area and Special Management Programs will continue to provide valuable reductions in the catch of stocks of concern.

Impacts on Monkfish Fishery

The 18 percent DAS reduction may reduce monkfish fishing effort due to the requirement that limited access monkfish Category C and D vessels that also hold a NE multispecies DAS permit use a NE multispecies DAS in conjunction with a monkfish DAS (see 50 CFR 648.92(b)(1)(i)). However, the existing provision under § 648.92(b)(2) that allows limited access monkfish Category C and D vessels with fewer allocated NE multispecies DAS than allocate monkfish DAS to use the difference between these two allocations as monkfish-only DAS will help mitigate such impact on monkfish fishing effort.

The proposed revision to the GOM Differential Area, may negatively affect inshore limited access monkfish Category C and D vessels since the differential rate is higher than the status quo. Therefore such vessels would be using NE multispecies DAS (which they must use in conjunction with a monkfish DAS) at a higher rate, potentially impacting their ability to use their allocated monkfish DAS. This proposed measure may also negatively affect limited access monkfish Category C and D vessels fishing in the offshore areas of the GOM and the northern portion of GB since these vessels would also be using NE multispecies DAS at a higher rate. In comparison to the preferred alternative, this action would likely have a greater impact on inshore vessels, but less of an impact on offshore vessels. However, it is difficult to quantify which alternative would a greater biological benefit and less of an economic and social impact since it is difficult to assess how vessels would compensate for the proposed changes to these differential areas. Monkfish Category C and D vessels landed 38% of the total monkfish landings north 42 degress 30 minutes north latitude in 2006, and 59% of the total monkfish landings from this area in 2007.

The SNE year-round closure, although smaller in size than the SNE Differential Area currently in effect, will likely impact inshore monkfish gillnet vessels that fish in this region, reducing monkfish fishing effort overall in this area with a subsequent positive biological impact to the monkfish resource. The extent of this potential negative social and economic impact, and positive biological impact depends on the number of limited access monkfish Category C and D vessels actively fishing in the statistical areas encompassed by the closure, how much monkfish is landed from these areas, and whether or not these vessels could move their fishing operations into an open area in an effort to mitigate the impacts of the closure. This action will not affect limited access monkfish Category A and B vessels, since these vessels do not use NE multispecies DAS.

Revisions to NE multispecies trip limits are not expected to have any impacts to the monkfish resource. The delayed opening of the Eastern US/Canada area may have some impact on total monkfish fishing effort in that area. However, monkfish fishing effort in that area is not substantial, thus the total impact to the monkfish resource is likely to be minimal. The allocation of zero trips to CA II Yellowtail Flounder SAP would eliminate any monkfish potential bycatch from this area, having a positive impact on the resource.

The recreational measures will not have any direct biological impact to monkfish stocks.

Revisions to the DAS Transfer Program, by increasing overall flexibility, could encourage consolidation of NE multispecies DAS permits, which may result in the elimination of some monkfish permits both vessels involved in the DAS transfer holding limited access monkfish permits. Conversely, consolidation of NE multispecies DAS on a single vessel could encourage vessels to use monkfish DAS that were previously not utilized since vessels would have additional NE multispecies DAS to use in conjunction with a monkfish DAS (as required in the regulations at § 648.92(b)(1)(i)). As a result of these opposing possible effects on monkfish fishing effort, and the inability to determine if one effect is more likely than the other, the proposed measure is expected to have a neutral effect on monkfish fishing effort. Therefore, no biological impacts to the monkfish resource are expected.

Similar to the modifications to the DAS transfer program, by increasing flexibility, the proposed modifications to the DAS leasing program would increase the ability of limited access monkfish Category C and D vessels to lease in NE multispecies DAS; thereby potentially increasing their ability to utilize monkfish DAS that were previously not used in conjunction with the leased NE multispecies DAS. This activity could potentially increase monkfish fishing effort. Conversely, depending on the value of leasing out a NE multispecies DAS in relation to fishing a monkfish DAS, limited access Category C and D monkfish vessels may lease out more NE multispecies DAS under the proposed revisions to the DAS leasing program, forfeiting monkfish DAS as a result. This activity could potentially decrease monkfish fishing effort depending on whether or not the vessel was actively using the monkfish DAS being forfeited as a result of leasing out NE multispecies DAS. As a result of these opposing possible effects on monkfish fishing effort, and the inability to determine if one effect is more likely than the other, the proposed measure is expected to have a neutral effect on monkfish fishing effort. Therefore, no biological impacts to the monkfish resource are expected.

The continuation of the Eastern U.S./Canada Area Haddock SAP is not expected to result in increased bycatch of monkfish beyond that already occurring in this SAP, which is minimal due to the low program participation and the program restrictions on monkfish catch. Therefore, no additional biological impact to monkfish stocks are expected to result from this measure.

The prohibition on the use of low profile gillnets on Regular B DAS trips could help reduce monkfish bycatch in the Regular B DAS fishery, resulting in positive biological benefits to this resource.

Impacts on Skate Fishery

The two primary skate fisheries, a wing fishery and a lobster bait fishery, are largely interwoven with the Multispecies fishery. The regulations require that vessels must be fishing on a Multispecies, Monkfish, or Scallop DAS, or fish in an exempted fishery in order to possess skates. Winter skate is the major component of the skate wing fishery, and little skate is the major component of the whole/bait fishery. Despite prohibitions on possession since 2003, thorny, barndoor, and smooth skates are still caught and discarded in the groundfish fishery. The vast majority of skate landings are landed on Multispecies Category A DAS (Table 94). Changes to DAS regulations, therefore, will directly impact skate catch.

Table 94. Total skate landings (lb live weight) by DAS program, 2000-2007.

Calender Year	MUL A	MUL B	MNK	MNK/MUL	SC
2000	16,673,711	NA	1,037,993	2,817,080	66,012
2001	15,320,262	NA	764,437	3,037,382	6,405
2002	17,538,086	NA	665,661	3,845,897	2,796
2003	22,205,726	NA	601,063	4,123,343	63
2004	19,760,823	547,717	1,271,352	1,991,829	0
2005	17,715,403	967,069	1,911,588	2,754,418	10,835
2006	19,083,200	64,956	1,358,881	5,652,650	4,629
2007	20,349,972	1,715,633	1,087,857	2,571,196	0

Source: NMFS, Fisheries Statistics Office

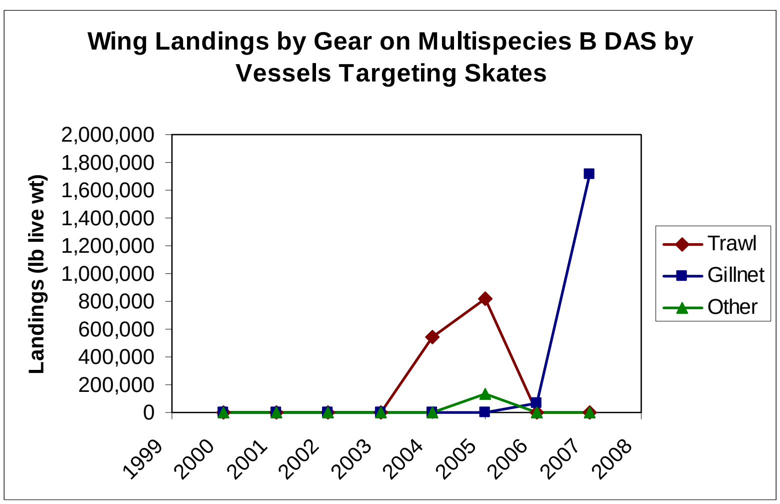
Of the seven skate species managed under the Northeast Skate Complex FMP (Skate FMP), thorny, winter, and smooth skates are currently overfished, and thorny skate is also subject to overfishing. Additionally, barndoor skate is in a rebuilding program, but is above the overfished biomass threshold specified in the Skate FMP. Little, clearnose, and rosette skates are not overfished or experiencing overfishing. Thorny and smooth skates are predominantly distributed in the Gulf of Maine, whereas winter, little, and barndoor skates are mainly distributed on Georges Bank and in Southern New England waters. Clearnose and rosette skates have a more Mid-Atlantic distribution. Due to the different ranges of these species, area-based management measures may differentially impact each species.

Relative to No Action, all of the proposed alternatives are anticipated to have positive biological impacts on skate stocks. Reductions in bottom fishing effort in the Gulf of Maine, Georges Bank, and Southern New England areas will likely reduce skate landings and discards. The proposed restrictions in the Gulf of Maine will benefit thorny and smooth skate populations, while restrictions on Georges Bank and in Southern New England will benefit winter, little, and barndoor skates.

Alternative 1 may be more beneficial to thorny and smooth skate populations than the preferred alternative, due to the presence of a 2.25:1 differential DAS area in the western Gulf of Maine where high concentrations of these species are found. Alternative 1 would also reduce effort over a larger portion of Georges Bank (down to 41° N latitude), which would be more beneficial to barndoor, winter, and little skate populations in that area. Under the preferred alternative, fishing effort is likely to shift to some extent to the remaining 1:1 DAS counting areas (i.e., the southern U.S./Canada Area), which could cause localized depletions of barndoor, winter, and little skates in that area.

The Southern New England closure area, under all alternatives, may provide significant positive biological impacts to winter and little skates, and moderate positive impacts on barndoor, clearnose, thorny, and smooth skates. The Great South Channel, in particular, is a productive ground where all of the overfished skate species overlap in range. The prohibition on the use of low-profile gillnets in the Regular B DAS program would also likely reduce skate bycatch in this fishery, resulting in positive biological benefits to skate stocks.

Figure 45. Skate wing landings in the Regular B DAS program by gear. *Source: Skate Amendment 3 DEIS*



Proposed changes to the US/Canada Area management measures, including delayed opening of the Eastern US/Canada Area, allowance of the Ruhle trawl, and allocation of zero trips to the CA II Yellowtail Flounder SAP, would all have positive biological impacts on skate resources in the US/Canada Area (primarily winter, little, and barndoor skates). These measures would reduce effort and potential skate bycatch.

Elimination of the SNE Winter Flounder SAP and Winter Flounder State Waters Exemption would likely result in positive biological impacts to skate resources by reducing the potential for skate bycatch in these programs.

All other measures included in this action are not anticipated to have any direct biological impacts on skate resources.

14.1.3 Habitat Impacts

In addition to the default 18% reduction in DAS, the DAS rate for vessels fishing in the existing GOM Differential DAS Area would be counted at the rate of 2.25:1 and offshore GOM and northern GB (Offshore GOM Differential DAS Area), north of 41 degrees north latitude would be counted at a 1.5:1 rate It would also prohibit the use of bottom trawls and gill nets on groundfish trips in twenty-one 30-minute squares in southern New England, an area of approximately 11,500 square nautical miles, and require modified trip limits for a number of groundfish stocks harvested in the fishery. The effect of implementing differential DAS would be a reduction in the use of bottom trawls in the affected areas with some displacement of trawling effort from those areas into other fishing grounds where differential DAS do not apply. If groundfish are more available to capture in areas subject to the 1.5:1 DAS restriction than they are in 1:1 DAS areas (the most likely scenario), there could be an increase in bottom contact by trawls in the 1:1 DAS areas because more effort is required to catch less fish. However, since these areas are likely to be impacted to some extent already by bottom trawls and scallop dredges, and by natural disturbance, the habitat impact of any additional trawling activity is expected to be minimal. The year-round closure of 11,500 square nautical miles of benthic habitat in southern New England to bottom trawling would provide an opportunity for the partial recovery of benthic habitats in southern New England that have been exposed to mobile, bottom-tending fishing gear to partially recover from the adverse effects of bottom trawling. Because bottom trawling for groundfish would be prohibited in these areas for a year, gains in habitat quality inside the closed areas would be expected to exceed any losses in habitat quality resulting from the displacement of trawling activity into actively fished open areas from either the closed areas in southern New England or the differential DAS areas in the GOM and on eastern GB. The net effect of all the management measures included in this alternative is expected to be positive for EFH, i.e., there would be no adverse impacts on essential habitats utilized by federally-managed fish species in the Northeast Region.

14.1.4 Impacts on Threatened, Endangered, and other Protected Resources

Background

Alternative One for the Interim action is evaluated below with respect to its impacts on protected species. As described in the Affected Environment section, ESA-listed sea turtles and cetaceans as well as other marine mammals protected by the MMPA are likely to occur in the area affected by the Interim action measures.

Species protected under the ESA and/or MMPA are known to be captured or entangled in gear types that are used in the groundfish fishery (e.g., sink gillnet gear, bottom otter trawl gear). For example, large whale entanglements in sink gillnet gear have occurred (Johnson et al. 2005; Waring et al. 2007). Fixed gillnet gear and trawl gear pose a risk of entanglement and capture for sea turtles and small cetaceans (Waring et al. 2007; Murray 2008; Final 2009 List of Fisheries 73 FR 73032, December 1, 2008).

NMFS has considered the potential for other effects to protected species as a result of operation of the groundfish fishery but has not determined any other effects that are likely to occur. The operation of the groundfish fishery is not expected to effect the abundance and of protected species prey. Small prey such as copepods and krill will pass through multispecies fishing gear rather than being captured in it. The multispecies fishery does not target small schooling fish (*e.g.* herring, mackerel), squid or deep water organisms that are preyed upon by small cetaceans and some large cetaceans (humpback whales, fin whales, sperm whales) (Wynne and Schwartz 1999; Aguilar 2002; Baird 2002; Clapham 2002; Perrin 2002;Whitehead 2002). Likewise, typical prey items of leatherback sea turtles and green sea turtles (neritic juvenile and adult age classes) (Rebel 1974; Mortimer 1982; Bjorndal 1985; USFWS and NMFS 1992; Bjorndal 1997) are not targeted in the groundfish fishery and are not typically caught as bycatch. Benthic fish species as well as crabs, and other benthic organisms may be caught as either targeted catch or bycatch in the multispecies fishery. Neritic juveniles and adults of both loggerhead and Kemp's ridley sea turtles are known to feed on crab species and other benthic organisms (Keinath et al. 1987; Lutcavage and Musick 1985; Dodd 1988; Burke et al. 1993; Burke et al. 1994; Morreale and Standora 2005; Seney and Musick 2005) as are harbor porpoise, white-sided dolphins, and spotted dolphins (Bjørge and Tolley 2002; Cipriano 2002; Perrin 2002). Nevertheless, the removal of benthic fish species and benthic invertebrates from the water as bycatch or targeted catch in the groundfish fishery is not expected to affect the availability of prey for loggerhead or Kemp's ridley sea turtles or for these small cetaceans since each species has a diverse diet including prey items that are not caught in the groundfish fishery. In addition, food items caught as bycatch will be returned to the water where they could still be preyed upon, particularly by loggerheads which are known to eat a variety of live prey as well as scavenge dead organisms. Gear types used in the multispecies groundfish fishery are expected to have an impact on bottom habitat particularly mobile gear, such as bottom otter trawl gear, that is used in the groundfish fishery. A panel of experts have previously concluded that the effects of even light weight otter trawl gear would include: (a) the scraping or plowing of the doors on the bottom, sometimes creating furrows along their path, (b) sediment suspension resulting from the turbulence caused by the doors and the ground gear on the bottom, (c) the removal or damage benthic or demersal species, and (d) the removal or damage to structure forming biota (NREFHSC 2002). Fixed gear such as sink gillnet gear is expected to have less of an effect on bottom habitat than mobile gear given that it is not towed or dragged along the bottom. Portions of the area where the groundfish fishery occurs are closed to fishing permanently or seasonally in order to protect that bottom habitat that is most susceptible to damage affecting the organisms that occur there. Therefore, while (a) the disturbance of prey items during groundfish fishing operations in an area may attract foraging protected species to that area (potentially increasing the likelihood of a protected species capture of entanglement in the gear), and (b) the use of fishing gear does have some impact on bottom habitat, the operation of the groundfish fishery is not expected to effect the abundance of prey items for any protected species.

NMFS has also determined that the use of fishing vessels in the groundfish fishery is not expected to result in injury and mortality to the aforementioned protected species as a result of vessel strikes given that the fishing vessels operate at relatively slow speeds and the protected species have the speed and maneuverability to move away before being struck by the vessels hull. In addition, all of the species occur seasonally in the area where the multispecies fishery operates and, when they are present, spend part of their time at depths below the depth of the vessels hull, thus limiting their exposure to vessels used in the multispecies fishery. Finally, the groundfish fishery does not occur in low latitude waters where calving and nursing occurs for large cetaceans (Aguilar 2002; Clapham 2002; Horwood 2002; Kenney 2002; Sears 2002; Whitehead 2002). Therefore, the groundfish fishery is not expected to affect the oceanographic conditions that are conducive for calving and nursing of these large whales.

The overall effect of the Alternative One measures to reduce fishing mortality in the commercial fishery is positive for protected species given the required reductions in effort. As compared to the No Action alternative, Alternative One would require greater reductions in effort by virtue of having the same percentage of DAS reduction plus the differential DAS counting. In addition, the year round closure in Southern New England would likely remove some effort if fishers who would have fished there choose not to fish that same amount of effort anywhere else. However, some displacement of effort would be expected to occur as a result of the closure with fishers who would have fished in Southern New England fishing the same or similar level of effort in other parts of the multispecies management area. To the extent that the closure results in effort not being used, the measure would be positive for protected species. To the extent that the measure results in a shift in effort to areas where and times when one or more protected species is not present, then the measure would also have a positive effect. To the extent that the measure resulted in a shift in effort to areas where and at times when protected species were more likely to occur, then the measure would have a negative effect for protected species. However, the latter scenario is unlikely to occur given: (a) the overall reduction in DAS for the fishery, (b) the differential DAS counting for the existing GOM differential DAS area and Offshore GOM differential DAS area (resulting in a further reduction if effort for any effort that shifted to these areas or a disincentive for shifting effort to these areas), (c) the measures already in place under the ALWTRP and HPTRP to address large whale and harbor porpoise entanglements in multispecies fishing gear, (d) the reduced abundance and distribution of sea turtles in New England waters, and (e) the reduced abundance of groundfish in Mid-Atlantic waters (thus a disincentive for shifting effort to Mid-Atlantic waters where sea turtles are more likely to occur in comparison to Southern New England and New England waters). Therefore, the overall effect of the Southern New England closure is expected to be positive for protected species.

14.2 Economic Impacts – Alternative One

14.2.1 Aggregate Impacts

Average groundfish trip revenue for the vessels included in the analysis was $101 million during FY2005 to FY2007 and average total revenue was $158 million. Under

Alternative 1 the estimated groundfish trip revenue would decline by 28% to $72 million and total fishing revenue would decline by 18% to $129 million (Table 95). Except for New Jersey, the relative reduction in groundfish trip revenue varied by home port state, ranging from less than 21% in New York to 34% in Connecticut. The small increase in revenues to some New Jersey home port vessels was due to the Southern New England/Mid-Atlantic closure area compared to the No Action differential DAS counting area. The SNE Closure Area does not cover some high revenue areas that were previously subject to differential DAS counting, allowing vessels fishing in the area to offset the reduction in DAS. This reconfigured area benefitted a total of 23 vessels of which all but six were from a New Jersey home port. Furthermore, these New Jersey home port vessels had low dependence on groundfish trip revenue for total fishing sales and did not fish in other areas where differential DAS were applied under this alternative.

Table 95. Change in Groundfish Trip and Total Trip Revenue by Home Port State

State	2005-2007 Average Total Revenue	Estimated Total Revenue	Change in Total Revenue	2005-2007 Average Groundfish Trip Revenue	Estimated Groundfish Trip Revenue	Change in Groundfish Trip Revenue
CT	$471,853	$392,528	-17%	$234,954	$155,630	-34%
MA	$76,335,101	$57,653,179	-24%	$61,075,061	$42,393,139	-31%
ME	$18,692,050	$13,414,173	-28%	$16,887,629	$11,609,752	-31%
NH	$5,260,523	$4,355,524	-17%	$4,381,575	$3,476,576	-21%
NJ	$6,897,309	$6,924,694	0%	$1,874,151	$1,901,536	1%
NY	$14,307,651	$13,445,289	-6%	$4,035,033	$3,172,671	-21%
RI	$31,466,190	$28,857,947	-8%	$11,430,282	$8,822,039	-23%
Other	$4,121,225	$3,747,716	-9%	$1,292,992	$919,482	-29%
Total	$157,551,903	$128,791,050	-18%	$101,211,678	$72,450,826	-28%

14.2.2 Vessel-Level Impacts

As noted above, a total of 23 vessels were estimated to obtain at least some modest improvement in groundfish trip income due to a more favorable change in the Southern New England/Mid-Atlantic closure area under this alternative. Almost all of these vessels were from either a New Jersey (17) or New York (4) home port. The median increase in total fishing revenue was 1.3%, but ranged from 0.02% to over 6%. Due to the small number of vessels that may experience improved fishing revenue the remaining discussion will focus on the vessels that are expected to be adversely affected by the proposed action.

Alternative 1 would have an adverse impact on 477 of the 509 vessels included in the analysis. A total of 9 vessels were estimated to be unaffected due to low DAS use rates which more than offset the DAS reduction and the differential DAS counting areas (Table 96). Of the remaining vessels the estimated adverse impact of total revenue ranged from an average of 3% up to the 20th percentile to 36% for vessels above the 80th percentile.

Table 96. Estimated Impact and Number of Affected Vessels by Impact Category

Impact Category	Number of Vessels	Average Adverse Impact
No Impact	9	0%
Up to 20th Percentile	96	3%
20th Percentile to Median	143	12%
Median to 80th Percentile	143	24%
Above 80th Percentile	95	36%

With a few exceptions, Alternative 1 would have similar impacts among vessels of different sizes (Table 97). The average impact up to the 20th percentile for vessels under 50 feet was higher (4%) compared to either medium (2%) or large (2%) vessels, but was similar to that of large vessels or medium vessels at all other intervals. For the most adversely affected vessels (above the 80th percentile) there was little difference in estimated impact between small (34%), medium (37%), or large (36%) vessels.

Table 97. Estimated Adverse Impact and Affected Vessels by Vessel Length Class

	Less than 50 feet		50 to 70 feet		Over 70 feet	
Impact Category	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact
Up to 20th Percentile	44	4%	27	2%	25	2%
20th Percentile to Median	66	14%	41	9%	37	13%
Median to 80th Percentile	66	21%	40	25%	37	29%
Above 80th Percentile	43	34%	27	37%	24	36%

Among primary gears the relative distribution of adverse impact on total revenue varied. At percentiles below the median impacts on gillnet gear tended to be higher than either hook or trawl gear (Table 98). However, at percentiles above the median gillnet gear impacts tended to be lower than other gears. Compared to hook gear impacts, adverse impacts on trawl gear were higher between the 20th percentile and the median (12%) and between the median and 80th percentile (26%). Above the 80th percentile trawl gear impacts (37%) exceeded that of gillnet gear by 10 percentage points, but were nearly identical to that of hook gear (38%).

Table 98. Estimated Adverse Impact and Affected Vessels by Primary Gear

	Gillnet		Hook		Trawl	
Impact Category	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact
Up to 20th Percentile	23	4%	4	1%	69	2%
20th Percentile to Median	34	14%	5	5%	104	12%
Median to 80th Percentile	35	21%	6	17%	103	26%
Above 80th Percentile	22	27%	3	38%	69	37%

The adverse impacts on vessels from New York and New Jersey homeports were lower at all intervals for reasons previously identified. That is, vessels from these home port states tend to be less dependent on groundfish trip income for total fishing sales and the adverse effect on total revenue was mitigated by the change in the configuration of the Southern New England/Mid-Atlantic closure area. For the remaining home port states the distribution of adverse impact on total revenue was similar in Massachusetts and New Hampshire, although the impacts at intervals above the 20th percentile were consistently higher for Massachusetts home port vessels (Table 100). Compared to all other states adverse impact on fishing revenue for Maine home port vessels was much higher for vessels up to the 20th percentile (12%), and was higher for vessels between the 20th percentile and the median (21%). At intervals above the median, the impacts on Maine home port vessels were similar to that of Massachusetts home port vessels.

Table 99. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Home Port State

Home Port State	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
MA	50	73	74	49
ME	13	19	20	12
NH	7	11	10	7
NJ - South	4	4	5	3
NY	9	13	13	8
RI & CT	15	22	22	14
	Average Adverse Affect on Total Revenue			
MA	4%	17%	27%	36%
ME	12%	21%	28%	35%
NH	4%	13%	21%	27%
NJ	0%	1%	7%	22%
NY	1%	3%	7%	25%
RI & CT	3%	7%	13%	39%

Vessels with high dependence on groundfish trip revenue may be expected to be more adversely affected by Alternative 1 than less dependent vessels. This effect is evident as the estimated average adverse impact of fishing revenue increases with dependence on groundfish trip revenue (Table 100). For example, the estimated impact on vessels that depend on groundfish trips for less than 20% of fishing revenue ranged from less than 0.5% up to the 20th percentile to 7% for vessels above the 80th percentile. By contrast, impacts on vessels that depend on groundfish for at least 80% of fishing revenue ranged from an average of 15% up to the 20th percentile and 40% above the 80th percentile.

Table 100. Estimated Impacts and Number of Affected Vessels by Dependence on Groundfish Trip Revenue

Dependence Category	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
0 to 19%	12	17	18	11
20 to 39%	15	21	21	14
40 to 59%	13	18	18	12
60 to 79%	14	19	20	13
80 to 100%	45	66	66	44
	Average Adverse Affect on Total Revenue			
0 to 19%	0%	1%	3%	7%
20 to 39%	3%	6%	8%	13%
40 to 59%	4%	10%	14%	27%
60 to 79%	10%	16%	21%	33%
80 to 100%	15%	24%	30%	40%

Unlike dependence on groundfish dependence the estimated average impact on total fishing revenue was similar in most instances for each percentile category regardless of gross sales (Table 101). In each category of gross sales the estimated average adverse change in gross sales ranged from 2-4% for all vessels up to the 20th percentile to 31-43% for vessels above the 80th percentile.

Table 101. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Gross Sales Category

Gross Sales Category ($1,000)	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
Less than $90 k	18	27	27	18
$90 k to $159 k	19	27	28	18

$160k to $269 k	20	30	30	19
$270 k to $500 k	19	28	28	18
More then $500 k	21	31	31	20
	Average Adverse Affect on Total Revenue			
Less than $90 k	2%	12%	21%	43%
$90 k to $159 k	2%	11%	22%	31%
$160k to $269 k	3%	13%	23%	33%
$270 k to $500 k	4%	14%	27%	36%
More then $500 k	3%	11%	29%	35%

Among port groups the estimated revenue impacts follow a pattern similar to that of home port states. That is, impacts on port groups in Maine, New Hampshire, and Massachusetts tended to be larger than the impacts on vessels from port groups in other states (Table 102). Overall, adverse impacts at percentile intervals below the median were highest in the Mid-Coast Maine port group. Impacts up to the 20th percentile averaged (16%), while adverse impact on total fishing revenue average 25% between the 20th percentile and the median. At higher percentiles the adverse impact on the Mid-Coast Maine port group was similar to that of the Gloucester, New Bedford, Scituate-Boston, and Portland-So Maine port groups. Above the 80th percentile revenue losses were highest among vessels from the Other Rhode Island port group (68%) most likely due to revenue losses associated with the zero possession of winter flounder and the Southern New England/Mid-Atlantic closure area.

Table 102. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Port Groups

Port Group	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
Cape & Islands	7	9	9	6
Long Island, NY	9	13	13	8
Gloucester	17	25	26	16
Mid-Coast Maine	6	9	9	6
North Shore, Massachusetts	5	8	7	5
New Bedford	16	23	23	15
New Jersey	4	4	5	3
Other Rhode Island	6	8	9	5
Point Judith	9	14	13	9
Portsmouth Area	7	11	10	7
Scituate – Boston	6	9	9	5
Portland - So. Maine	7	10	11	6
	Average Adverse Affect on Total Revenue			
Cape & Islands	1%	8%	21%	38%
Long Island, NY	1%	3%	7%	25%
Gloucester	8%	20%	29%	35%
Mid-Coast Maine	13%	25%	29%	34%

North Shore, Massachusetts	2%	13%	18%	25%
New Bedford	6%	21%	29%	38%
New Jersey	0%	1%	7%	22%
Other Rhode Island	4%	8%	13%	68%
Point Judith	2%	7%	12%	23%
Portsmouth Area	4%	13%	21%	27%
Scituate – Boston	6%	19%	29%	36%
Portland - So. Maine	11%	19%	26%	35%

14.2.3 Economic Impacts on Other Fisheries

There are currently 1,051vessels that have both Skate and NE Multispecies DAS permits. In 2007, total skate fishery revenues in the Northeast Region were an estimated $4.1 million. Approximately 80% of this revenue was derived from the skate wing fishery, while the rest was derived from the skate bait fishery. Skate landings on Multispecies A DAS valued approximately $2.7 million, Regular B DAS skate revenues were approximately $228,000, and skate revenues on combination Monkfish and A DAS trips were approximately $403,000. Since average total revenue from the multispecies fishery from 2005-2007 was approximately $157.5 million, skate revenues represent a relatively small component of total revenues in groundfish fisheries.

Compared to the No Action alternative, all of the alternatives are expected to have negative economic impacts on skate fishing vessels. Each of the alternatives reduce fishing effort in some fashion, and therefore reduce opportunities to catch and land skates. Due to regional variations in skate fisheries and fishing effort, the alternatives may disproportionately impact the different sectors of the skate fishery, and some ports may be more severely impacted than others.

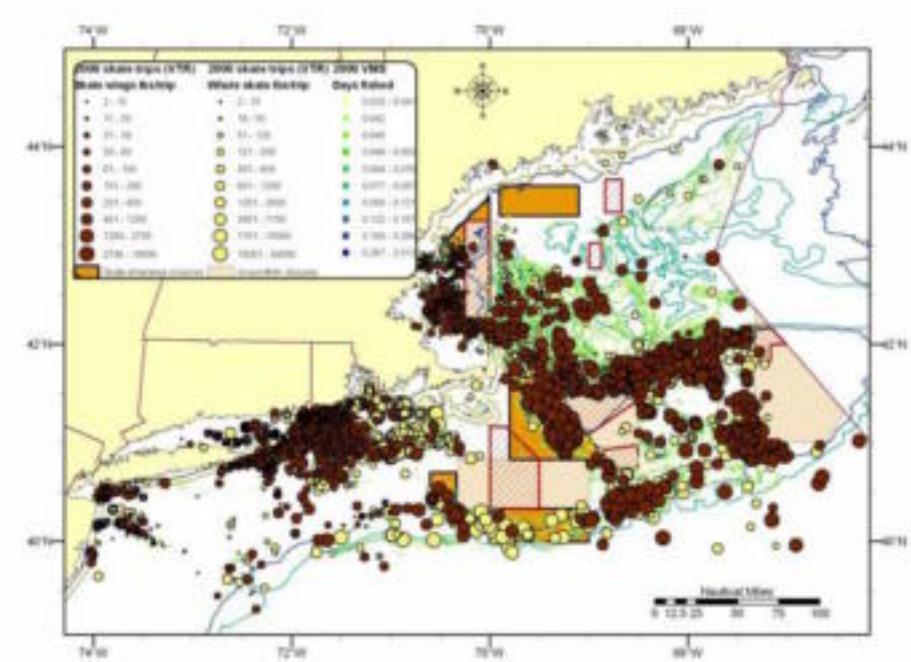
The Southern New England closure area is likely to negatively impact skate vessels that have traditionally fished in that area, including vessels from Long Island, NY; Point Judith and Tiverton, RI; and New Bedford and Chatham, MA. The distribution of fishing effort by trawl and gillnet vessels in the skate wing and bait fisheries in 2007 is plotted in Figure 46 below. The SNE closure encompasses the bulk of the area fished in the skate bait fishery, which is primarily focused in nearshore and offshore waters between eastern Long Island and Martha's Vineyard. The majority of bait skate catch is landed in Point Judith, Tiverton, and Newport, RI; and New Bedford, MA. Therefore, the SNE closure area may have greater negative economic impacts on the skate bait fishery than on the skate wing fishery.

A large amount of skate wing catch has also historically occurred in the proposed SNE closure area, particularly in the Great South Channel area (Figure 47). While trawl vessels that have landed skate wings have distributed their effort throughout Georges Bank and in the western Gulf of Maine, gillnet vessels that landed skate wings predominantly fish in SNE waters. Skate wing vessels that fish with gillnets, therefore, may be more impacted by the proposed measures.

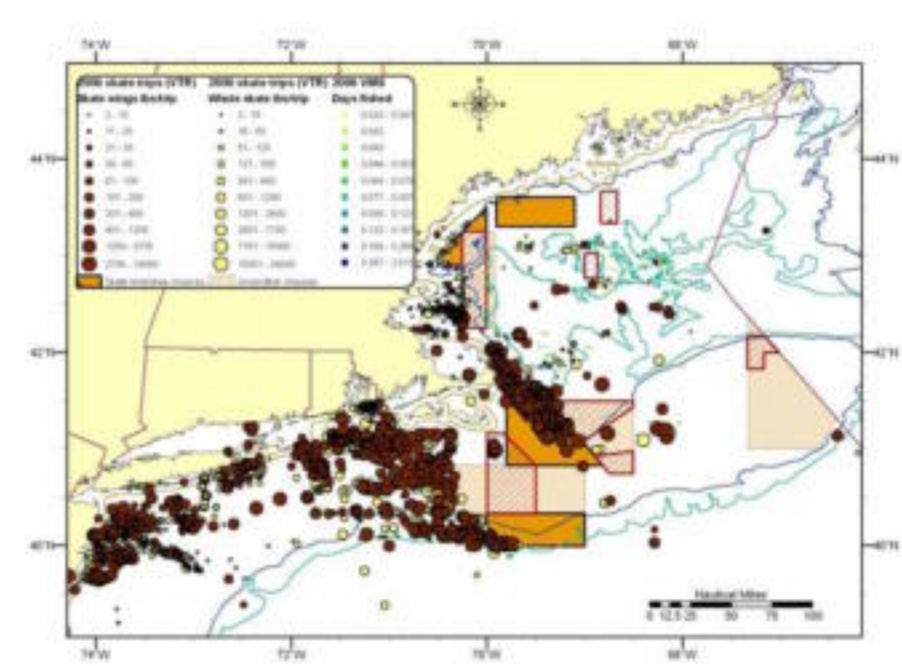
Figure 46. Distribution of fishing effort by gear type for trips landing skates in 2007

(as reported in VTRs. Brown symbols represent skate wing landings, and yellow symbols represent whole skate landings. The orange areas are skate time/area closures being proposed in Amendment 3 to the Skate FMP. *Source: Skate Amendment 3 DEIS)*.

<u>Trawl Gear</u>



<u>Gillnet Gear</u>



Skate vessels potentially impacted by the SNE closure area may be able to mitigate some of their revenue losses by fishing in exempted fisheries. The SNE Monkfish and Skate Gillnet Exemption Area and SNE Monkfish and Skate Trawl Exemption Area allow vessels to fish for monkfish and skates while not using a DAS (refer to 50 CFR 648.80(b)(5) and (6)). Vessels could also redistribute their effort to areas outside of the closure, or fish in other non-DAS fisheries to help make up for economic losses.

In general terms, Alternative 1 could have greater negative economic impacts on skate vessels than the other alternatives due to the 2.25:1 differential DAS area in the western Gulf of Maine, where a great deal of skate fishing occurs (Figure 47). Alternative 1 also reduces effort over a larger portion of Georges Bank than the other alternatives, and would negatively impact vessels that have historically landed skates in the 1.5:1 differential DAS area (mainly trawl vessels).

Proposed changes to the US/Canada Area management measures, including delayed opening of the Eastern US/Canada Area, allowance of the Ruhle trawl, and allocation of zero trips to the CA II Yellowtail Flounder SAP, would all likely have negative economic impacts on skate vessels that have landed skates while fishing in those areas. These measures would reduce effort and potential skate bycatch, and therefore reduce opportunities to land skates. Historically, there has not been a great deal of revenue derived from skates in these programs.

All other measures included in this action are not anticipated to have any direct economic impacts on skate vessels.

Due to the inability to predict fishing vessel behavior in response to these new measures, it is not possible to accurately quantify the actual economic impacts of the proposed action on the skate fishery. Nevertheless, vessels that target skates while fishing on Multispecies DAS (e.g. vessels that solely fish for bait skates in SNE) may incur greater negative economic impacts than vessels that have traditionally landed skates incidental to other species. The skate bait fishery may be particularly at risk due to its proximity to the SNE closure area, and its reliance on directed skate trips. If the supply of bait skate is reduced by this action, there may also be impacts on the lobster fishery, which relies on whole skates for lobster bait. Assuming constant demand for bait, the lobster fishery may have to pay higher prices for skate bait, or switch to other bait sources such as herring.

Impacts on Monkfish Fishery

The 18 percent DAS reduction may reduce monkfish fishing effort due to the requirement that limited access monkfish Category C and D vessels that also hold a NE multispecies DAS permit use a NE multispecies DAS in conjunction with a monkfish DAS (see 50 CFR 648.92(b)(1)(i)). However, the existing provision under § 648.92(b)(2) that allows limited access monkfish Category C and D vessels with fewer allocated NE multispecies DAS than allocate monkfish DAS to use the difference between these two allocations as monkfish-only DAS will help mitigate such impact on monkfish fishing effort.

The proposed revision to the Differential DAS Areas, may negatively affect inshore limited access monkfish Category C and D vessels since the differential rate would be higher than the status quo. Therefore such vessels would be using NE multispecies DAS (which they must use in conjunction with a monkfish DAS) at a higher rate, potentially impacting their ability to use their allocated monkfish DAS. This proposed measure may also negatively affect limited access monkfish Category C and D vessels fishing in the offshore areas of the GOM and the northern portion of GB since these vessels would also be using NE multispecies DAS at a higher rate. In comparison to the preferred alternative, this action would likely have a greater impact on inshore vessels, but less of an impact on offshore vessels. However, it is difficult to quantify which alternative would less of an economic and social impact since it is difficult to assess how vessels would compensate for the proposed changes to these differential areas. Category C and D vessels comprised approximately 94% of the active vessels in the Monkfish Northern Fishery Management Area in 2006-2007. Monkfish Category C and D vessels landed 38% of the total monkfish landings north 42 degress 30 minutes north latitude in 2006, and 59% of the total monkfish landings from this area in 2007. In 2006 and 2007, 249 and 207 Monkfish Category C and D vessels fished north of 42 degress 30 minutes north latitude.

The SNE year-round closure, although smaller in size than the SNE Differential Area currently in effect, will likely impact inshore monkfish gillnet vessels that fish in this region, reducing monkfish fishing effort overall in this area with a subsequent negative economic impact to the monkfish fishery. The extent of this potential negative social and economic impact, depends on the number of limited access monkfish Category C and D vessels actively fishing in the statistical areas encompassed by the closure, how much monkfish is landed from these areas, and whether or not these vessels could move their fishing operations into an open area in an effort to mitigate the impacts of the closure. Category C and D vessels comprised approximately 43% of the active vessels in the Monkfish Southern Fishery Management Area in 2006-2007. In 2006 and 2007, approximately 43% and 41% (respectively) of the monkfish landed from the Southern Monkfish Management Area was caught from the area covered by the proposed SNE

Closure Area by monkfish Category C and D vessels. In 2006 and 2007, 188 and 186 monkfish Category C and D vessels (respectively) fished in the area that would be affected by the proposed SNE Closure Area. There, based on historic patterns, the maximum economic impacts of this alternative therefore would be a 42% reduction in monkfish landing, if vessels did not increase there fishing effort in the area outside of the SNE Closure Area. Secondly, the impacts would be mitigated by the fact that the SNE Differential DAS Area would no longer exist. This action would not affect limited access monkfish Category A and B vessels, since these vessels do not use NE multispecies DAS.

14.3 Social Impacts of Alternative One

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 wasteful of valuable resources and distasteful. Modifications to daily routines can make long term planning difficult. New gear purchases must be ordered in advance and result in a change to daily routine when equipment cannot be used in a timely or cost effective manner. Changes in management measures that limit access to fishing may alter economic incentives that change the likelihood of risky fishing practices. Increased risk can result when fishermen spend longer periods at sea, or travel excessive distances, operate with fewer crew, or fish under 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 alternative of these factors will be discussed below. The primary port groups that are most affected by changes in groundfish management are identified in section 9.6.

Regulatory Discarding

Because the current regulatory structure and this alternative rely heavily on the combined effects of DAS, closed areas, and trip limits, to reduce fishing mortality, regulatory discarding will continue to frustrate fisherman and cause waste. Modifications to trip limits under this alternative will alleviate discarding for some stocks, but may cause increased discarding for other stocks. The current trip limit for GB winter flounder woould be removed, and the per DAS limit for white hake will increase from 1,000 lb per DAS to 2,000 lb per DAS, and provide some relief from discarding. New very restrictive limits (zero retention allowed) would be implemented for SNE winter flounder, windowpane north, and ocean pout, which could cause discarding and frustrate vessel owners.

Safety

There is little empirical data with which to evaluate the types of management measures that improve or threaten the safety of fishing vessel operators. One study attempted to identify factors that contributed to serious vessel accidents in the Northeast Region. Di Jin and Thunberg (2005) examined fishing vessel accidents in the Northeast United States from 1981 through 2000, updating an earlier report. The modeled fishing vessel accident probability using U.S. Coast Guard data and NMFS data. The data were for all fisheries and the results are not specific to the groundfish fishery. In all cases, the model showed that increasing wind speed and decreasing distance from shore result in an increase in accident rates.

Framework Adjustment 42 stated that the inshore and offshore differential DAS counting areas may affect vessel safety because of the possibility that some vessel may attempt to fish farther offshore to avoid the 2:1 differential DAS area. Under current regulations, the closest area that is not subject to a differential DAS counting rate is approximately 40 miles from the ports of Gloucester, Provincetown, and Portsmouth.

This Alternative would not alleviate this problem and could worsen the issue if the DAS reduction provides additional incentive for vessels to fish in areas outside of the GOM Differential DAS Area (the area with the highest DAS counting rate), or for vessels to travel further to reach areas outside of the SNE Closure Area.

Disruption in Daily Living

Amendment 13 defines the disruption in daily living as "changes in the routine living and work activities of affected fishery participants, including the potential for alternate in their regular social and work patterns to adapt to new management measures" (NEFMC 2003). This alternative would cause disruptions in daily living, most notably, from the reductions in DAS, the increased DAS counting rates in the Gulf of Maine and the SNE Closure Area. Unless vessel owners spend additional money to lease DAS, the alternative will result in less DAS available for use for targeting groundfish (or other species such as monkfish or skates). There would be increased incentives to pursue non-groundfish fisheries or other non-fisheries sources of income. If vessel owners can lease in DAS in order to maintain or increase their activity in the groundfish fishery, the cost of leasing those DAS may represent a disruption in daily living. Vessels that currently fish for groundfish in SNE may be more acutely impacted by the SNE Closure Area, and experience disruption in daily living. Although mitigating measures may provide some relief, the number of vessels that have participated in the special management programs has been very limited, and the DAS Leasing and Transfer Programs offer only limited relief to disruptions due to the costs of these programs.

Changes in Occupational Opportunities and Community Infrastructure

Changes in occupational opportunities and community infrastructure is defined as the degree to which the occupational profile of the affected communities would be affected by the proposed action. This alternative could alter the composition of the existing groundfish fleet and the fleets of other fisheries by indirectly providing incentives for groundfish vessels to pursue other sources of fishing revenue. During FY 2009, the longest duration this alternative may be in place, landings of regulated groundfish are likely to decline, and could result in changes in the ability of shoreside infrastructure to maintain year-round operations. While there may be increased effort in other fisheries that may partially compensate for these changes, it is not known if the same business that serve the groundfish fishery also support other fisheries.

Based on the trend in total groundfish landings and revenue from 2005 to 2007 (Table 35), the recent trend in revenue has been fairly stable. However, there has been a decline in the number of active vessels (Table 37). Although the net amount of revenue and landings over time may not be contributing to a change in community infrastructure per sae, the fact that there are declining number of vessels participating in the fishery is likely to have an impact on both occupational opportunities, and community infrastructure. Although mitigating measures may provide some relief, the number of vessels that have participated in the special management programs has been very limited, and the DAS Leasing and Transfer Programs offer only limited relief to disruptions due to the costs of these programs.

Formation of Attitudes

Formation of attitudes refers to positions expressing support for, or opposition to a proposed management measure. The relatively large closure area in SNE will likely cause strong opposition to this alternative. The imposition of a differential DAS rate in the offshore portion of the GOM will also be opposed. It is likely that changes in the understanding of the status of stocks and the changes to the biological reference points will frustrate or anger fishing industry members due to significant changes in the status of some stocks. Many vessels owners are frustrated that new sectors are not available as an opportunity for the 2009 fishing year. Many in the fishing industry were hoping to avoid additional restrictions under the current management system (principally DAS restrictions) by fishing in sectors. Although it is not clear whether sectors will eliminate some frustrations and create new frustrations, the perception for many is that sectors would provide some net benefits to the industry.

Impact on Skate Ports

The social and community impacts of this action are likely to be similar between the skate fishery and the multispecies fishery. Again this is due to the fact that skate fisheries are largely interrelated with groundfish fisheries. Relative to No Action, all alternatives are anticipated to have some level of negative social impacts on skate fishing communities, derived from the anticipated economic losses. According to data presented in the DEIS for Amendment 3 to the Skate FMP, the top ports in 2007 for skate bait landings included Point Judith, RI; Tiverton, RI; New Bedford, MA; Newport, RI; and Stonington, CT. The top ports for skate wing landings included New Bedford, MA; Chatham, MA; Point Judith, RI; Boston, MA; and Barnegat Light, NJ. Although some vessels and ports (e.g. Chatham, MA and Point Judith, RI) rely on skate revenue for a substantial part of their total fishing income, most New England ports derive the majority of their revenues from the landings of other species.

15.0 Analysis of Impacts - Alternative 2

15.1 Biological Impacts of Alternative Two

15.1.1 Impacts on Groundfish – Commercial Measures

The Closed Area Model (CAM) is the principal analytical tool used to estimate the biological impacts of the management measures. Results for each alternative are calculated in relation to the status-quo management measures. Additional information on the CAM is in Section 24.0, Comparison of Alternatives.

Because the CAM results are expressed as exploitation rates, the target fishing mortality reductions for each stock must be expressed in terms of equivalent reductions in exploitation. Changes in exploitation are calculated by taking the current estimated F and target F, converting both to an exploitation rate, and then calculating the percentage change necessary to move from the current exploitation rate to the target exploitation rate.

The changes in exploitation for Alternative 2 compared with the targeted reductions in exploitation is shown below in Table 103. The CAM results indicate that the targeted reductions in exploitation associated with the objectives (Fmsy or F rebuild) will be attained for 8 of the 11 stocks that require fishing mortality reductions. The stocks for which fishing exploitation is reduced, but falls short of the exploitation rate target are SNE/MA winter flounder, pollock and northern windowpane flounder. Based on the results of the CAM, the Alternative 2 management measures reduce fishing exploitation on all stocks, including those stocks for which a reduction is being sought, as well as stocks that do not need any reduction in exploitation. Furthermore, the reduction in exploitation is greater than the targeted amount of reduction for most stocks.

Table 103. Alternative 2 Changes in Exploitation (median value from CAM).

Species	Stock	Target	Target Reduction in Exploitation	Estimated Reduction in Exploitation Achieved
Cod	GB	Fmsy	- 35.2 %	-37.2 %
	GOM	Fmsy	-18.7 %	-35.0 %
Haddock	GB	Fmsy	na	-33.1 %
	GOM	Fmsy	na	-36.6 %
Yellowtail flounder	GB	F rebuild	-15.3 %	-26.5 %
	SNE/MA	F rebuild	-36.1 %	-88.7 %
	CC/GOM	F rebuild	-15.7 %	-56.2 %
American plaice		Fmsy	na	-31.5 %
Witch flounder		Fmsy	-29.3 %	-31.2 %

Winter flounder	GB	Fmsy	na	-21.3 %
	GOM	Fmsy	-9.3 %	-33.5 %
	SNE/MA	F rebuild	-100 %	-81.5 %
Redfish		Fmsy	na	-36.2 %
White hake		F rebuild	na	-35.5 %
Pollock		Fmsy	-51 %	-35.4 %
Windowpane	North	Fmsy	-83 %	-33.1 %
	South	Fmsy	-29 %	-67.1 %
Ocean pout		Fmsy	*	*
Atlantic halibut		F rebuild	*	*

* The CAM has not been utilized to analyze impacts for these stocks in the past or currently because very limited fishery for these stocks.

Although the model results indicate that the reduction in exploitation of the northern stock of windowpane flounder would not be sufficient to bring the fishing mortality down to Fmsy, the CAM indicates that exploitation will be reduced about 45 percent of that necessary to achieve Fmsy. In contrast to many other stocks in the complex, this stock is principally a bycatch species, with landings representing only 12 % of the catch in calendar year 2007 (Catch: 1,032 mt, Landings: 119 mt; GARM III). Because this stock is principally a bycatch species with relatively low catch already, additional reductions in fishing exploitation may be very difficult to achieve through reductions in fishing effort. Since 2000, most of the landings have occurred in statistical area 525, south-central Georges Bank, and the bycatch of this stock is likely higher during winter and spring when the species is distributed across a broader area of Georges Bank. Most of the discards are in the large-mesh bottom trawl fishery. The prohibition of retention of windowpane north will eliminate landings and eliminate any incentive to target this stock.

Similarly, the model results indicate that the reduction in exploitation of the SNE/MA stock of winter flounder would not be sufficient to fully bring the fishing mortality down to Frebuild (zero fishing mortality), the CAM indicates that exploitation will be reduced by 82 percent. In 2007 landings and discards of SNE/MA winter flounder were as follows in Table 104.

Table 104. SNE/MA Winter Flounder Landings and Discards in FY 2007, assuming zero survival of discards (GARM III).

Source	Mt	Percent of Total
Commercial landings	1,622 mt	83 %
Recreational landings	116	6 %
Discards	228	12 %
Total Catch	1,966	

If landings in 2009 are zero, due to the prohibition on retention of winter flounder, and discards either remain the same as in 2007 (228 mt), or double (456 mt), such reductions in total catch would represent an 88 percent and 77 percent reduction in catch. Based upon a NMFS bycatch report (Wigley, et. al., 2008), in 2005, approximately 65 percent of trawl discards were from the small mesh fishery and 34 percent from the large mesh fishery. The amount of reduction in fishing mortality that will result from the measures is difficult to predict. If vessels are currently targeting winter flounder, and a prohibition on retention alters fishing behavior, then fishing mortality will be effectively reduced. However, if current catch levels reflect that catch from vessels that are not targeting winter flounder, but are still encountering them then a prohibition on retention would be less effective. The proposed recreational prohibition on retention of SNE winter flounder and the elimination of the SNE Winter Flounder SAP and the State Waters Exemption (described below), may contribute some additional fishery mortality reductions that are not captured in the CAM. Fishing by NE multispecies vessels using hook gear in the SNE Closure Area is not expected to cause any meaningful impact on winter flounder, due to the very low catch rate of winter flounder by hook gear. An indication of the catch rate that could be expected is that of the Georges Bank Cod Hook Sector (Sector). The Sector's annual report for 2007 includes the following data: 2007 landings of winter flounder: 1,529 lb; 2006 landings of winter flounder: 1,435 lb. The Sector's total landings (all species) in 2007 were 478,843 lb.

The relative exploitation ratio for Ocean Pout indicated that the fishing mortality was well below the fishing mortality threshold (Fmsy proxy), and that landings from the SNE/MA area have dominated the catch (GARM III). The 2007 catch (178 mt) was the lowest since 1963. The DAS reduction, Differential DAS Area, and SNE Closure Area will likely result in some reduced catch of Ocean Pout.

Although the catch of Atlantic halibut increased in 2007 over recent levels, the future catch of Atlantic halibut will likely remain at similar levels or decline due to the DAS reduction and Differential DAS Area. A limit of one halibut per trip will continue to result in a reduction of catch to the lowest practicable level. A limit of one halibut per trip does not result in any incentive to target halibut, but minimizes wasteful discarding of halibut.

15.1.2 Impacts on Other Species/Bycatch

Impacts on Groundfish Bycatch

This interim action would implement restrictive measures to reduce fishing mortality on groundfish stocks in the NE. Some of the stocks managed by the FMP that are less frequently targeted and caught as bycatch by multispecies vessels include ocean pout, Atlantic halibut, windowpane flounder and GOM winter flounder. Although the goal of the interim measures is to reduce fishing mortality on certain stocks, the reduction in fishing effort that will be achieved will impact other stocks, including bycatch. The SNE Closure Area will eliminate fishing effort by groundfish vessels fishing with trawl gear and gillnet gear, and reduce bycatch in that area from the groundfish fishery. The prohibition on retention of SNE winter flounder by other fisheries may increase discarding if vessels continue to encounter SNE winter flounder. The implementation of a higher daily possession limit for white hake and removal of the trip limit for GB winter flounder may reduce discards of these stocks, while the implementation of prohibitions on retention of several other stocks may increase discarding on those trips that encounter these species (SNE winter flounder, ocean pout, and windowpane flounder north). However, due to the overall reduction in fishing effort likely, and the fact that there will be no legal incentive to ever target the stocks than cannot be retained, the net amount of bycatch of such species may decline. Additional trip limits for species that do not current have limits were not considered in order to prevent discarding (e.g., witch flounder, windowpane south). The reduction of minimum size for haddock will reduce discards in both the commercial and recreational fisheries. Althought the DAS Leasing Program and DAS Transfer Program modifications will facilitate the use of DAS in some cases, the major constraint that limits DAS leasing for individual vessel owners (i.e., cost) will continue to limit the effort associated with DAS leasing and transfers.

The implementation of a trip limit for GB yellowtail flounder reduces the likelihood that the hard TAC for this stock in the U.S./Canada Management Area will be achieved prior to the end of the fishing year. Should the TAC be achieved before the end of the fishing year, possession of GB yellowtail flounder would be prohibited, but discarding would continue. The restriction on the use of low-profile gillnets in the Regular B DAS Program will reduce bycatch of flatfish. All catch of groundfish stocks of concern in the Regular B DAS Program count toward the incidental catch TACs, regardless of whether such catch is kept or discarded. The accounting of all fish caught serves as an incentive for fishers to reduce bycatch in order to decrease the rate at which the TAC is harvested, and enable more fishing opportunity to target healthy groundfish stocks under this program. The current gear restrictions for the U.S./Canada Area and Special Management Programs will continue to provide valuable reductions in the catch of stocks of concern.

Impacts on the Monkfish Fishery

The 40 percent DAS reduction may reduce monkfish fishing effort due to the requirement that limited access monkfish Category C and D vessels that also hold a NE multispecies DAS permit use a NE multispecies DAS in conjunction with a monkfish. However, the existing provision under § 648.92(b)(2) that allows limited access monkfish Category C and D vessels with fewer allocated NE multispecies DAS than allocate monkfish DAS to use the difference between these two allocations as monkfish-only DAS will help mitigate such impact on monkfish fishing effort. Monkfish Category C and D vessels landed 38% of the total monkfish landings north 42 degress 30 minutes north latitude in 2006, and 59% of the total monkfish landings from this area in 2007.

The SNE year-round closure, although smaller in size than the SNE Differential Area currently in effect, will likely impact inshore monkfish gillnet vessels that fish in this region, reducing monkfish fishing effort overall in this area with a subsequent positive biological impact to the monkfish resource. The extent of this potential negative social and economic impact, and positive biological impact depends on the number of limited access monkfish Category C and D vessels actively fishing in the statistical areas encompassed by the closure, how much monkfish is landed from these areas, and whether or not these vessels could move their fishing operations into an open area in an effort to mitigate the impacts of the closure. This action will not affect limited access monkfish Category A and B vessels, since these vessels do not use NE multispecies DAS.

Revisions to NE multispecies trip limits are not expected to have any impacts to the monkfish resource. The delayed opening of the Eastern US/Canada area may have some impact on total monkfish fishing effort in that area. However, monkfish fishing effort in that area is not substantial, thus the total impact to the monkfish resource is likely to be minimal. The allocation of zero trips to CA II Yellowtail Flounder SAP would eliminate any monkfish potential bycatch from this area, having a positive impact on the resource.

The recreational measures will not have any direct biological impact to monkfish stocks.

Revisions to the DAS Transfer Program, by increasing overall flexibility, could encourage consolidation of NE multispecies DAS permits, which may result in the elimination of some monkfish permits both vessels involved in the DAS transfer holding limited access monkfish permits. Conversely, consolidation of NE multispecies DAS on a single vessel could encourage vessels to use monkfish DAS that were previously not utilized since vessels would have additional NE multispecies DAS to use in conjunction with a monkfish DAS (as required in the regulations at § 648.92(b)(1)(i)). As a result of these opposing possible effects on monkfish fishing effort, and the inability to determine if one effect is more likely than the other, the proposed measure is expected to have a neutral effect on monkfish fishing effort. Therefore, no biological impacts to the monkfish resource are expected.

Similar to the modifications to the DAS transfer program, by increasing flexibility, the proposed modifications to the DAS leasing program would increase the ability of limited access monkfish Category C and D vessels to lease in NE multispecies DAS; thereby potentially increasing their ability to utilize monkfish DAS that were previously not used in conjunction with the leased NE multispecies DAS. This activity could potentially increase monkfish fishing effort. Conversely, depending on the value of leasing out a NE multispecies DAS in relation to fishing a monkfish DAS, limited access Category C and D monkfish vessels may lease out more NE multispecies DAS under the proposed revisions to the DAS leasing program, forfeiting monkfish DAS as a result. This activity could potentially decrease monkfish fishing effort depending on whether or not the vessel was actively using the monkfish DAS being forfeited as a result of leasing out NE multispecies DAS. As a result of these opposing possible effects on monkfish fishing effort, and the inability to determine if one effect is more likely than the other, the proposed measure is expected to have a neutral effect on monkfish fishing effort. Therefore, no biological impacts to the monkfish resource are expected.

The continuation of the Eastern U.S./Canada Area Haddock SAP is not expected to result in increased bycatch of monkfish beyond that already occurring in this SAP, which is minimal due to the low program participation and the program restrictions on monkfish catch. Therefore, no additional biological impact to monkfish stocks are expected to result from this measure.

The prohibition on the use of low profile gillnets on Regular B DAS trips could help reduce monkfish bycatch in the Regular B DAS fishery, resulting in positive biological benefits to this resource.

Impacts on the Skate Fishery

The two primary skate fisheries, a wing fishery and a lobster bait fishery, are largely interwoven with the Multispecies fishery. The regulations require that vessels must be fishing on a Multispecies, Monkfish, or Scallop DAS, or fish in an exempted fishery in order to possess skates. Winter skate is the major component of the skate wing fishery, and little skate is the major component of the whole/bait fishery. Despite prohibitions on possession since 2003, thorny, barndoor, and smooth skates are still caught and discarded in the groundfish fishery. The vast majority of skate landings are landed on Multispecies Category A DAS (Table 105). Changes to DAS regulations, therefore, will directly impact skate catch.

Table 105. Total skate landings (lb live weight) by DAS program, 2000-2007.

Calender Year	MUL A	MUL B	MNK	MNK/MUL	SC
2000	16,673,711	NA	1,037,993	2,817,080	66,012
2001	15,320,262	NA	764,437	3,037,382	6,405
2002	17,538,086	NA	665,661	3,845,897	2,796
2003	22,205,726	NA	601,063	4,123,343	63
2004	19,760,823	547,717	1,271,352	1,991,829	0
2005	17,715,403	967,069	1,911,588	2,754,418	10,835
2006	19,083,200	64,956	1,358,881	5,652,650	4,629
2007	20,349,972	1,715,633	1,087,857	2,571,196	0

Source: NMFS, Fisheries Statistics Office

Of the seven skate species managed under the Northeast Skate Complex FMP (Skate FMP), thorny, winter, and smooth skates are currently overfished, and thorny skate is also subject to overfishing. Additionally, barndoor skate is in a rebuilding program, but is above the overfished biomass threshold specified in the Skate FMP. Little, clearnose, and rosette skates are not overfished or experiencing overfishing. Thorny and smooth skates are predominantly distributed in the Gulf of Maine, whereas winter, little, and barndoor skates are mainly distributed on Georges Bank and in Southern New England waters. Clearnose and rosette skates have a more Mid-Atlantic distribution. Due to the different ranges of these species, area-based management measures may differentially impact each species.

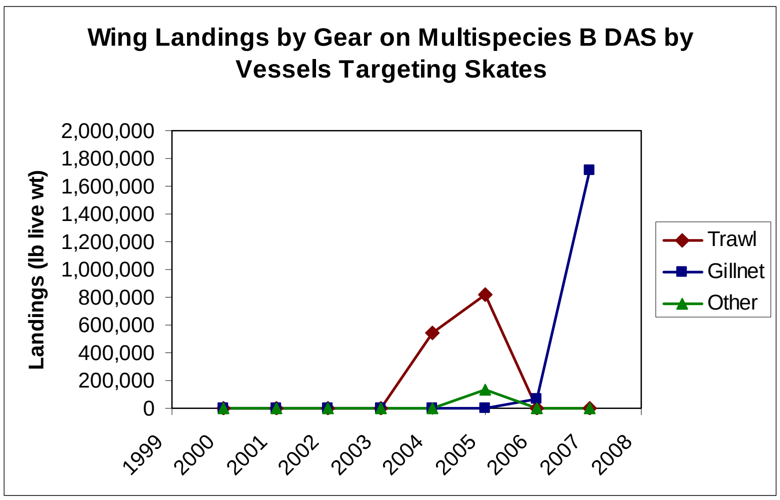
Relative to No Action, all of the proposed alternatives are anticipated to have positive biological impacts on skate stocks. Reductions in bottom fishing effort in the Gulf of Maine, Georges Bank, and Southern New England areas will likely reduce skate landings and discards. The proposed restrictions in the Gulf of Maine will benefit thorny and smooth skate populations, while restrictions on Georges Bank and in Southern New England will benefit winter, little, and barndoor skates.

Alternative 2 would also have positive biological impacts on skate populations, but relies less on area-based measures than a general 40% reduction in DAS. It is therefore difficult to project how the positive impacts would be distributed across the species in the skate complex. The western Gulf of Maine 2:1 differential DAS area would continue to provide some protection to thorny and smooth skates in that area, as well as some portion of winter and little skate stocks, but the remainder of the offshore Gulf of Maine would remain a 1:1 DAS counting area.

The Southern New England closure area, under all alternatives, may provide significant positive biological impacts to winter and little skates, and moderate positive impacts on barndoor, clearnose, thorny, and smooth skates. The Great South Channel, in particular, is a productive ground where all of the overfished skate species overlap in range.

The prohibition on the use of low-profile gillnets in the Regular B DAS program would also likely reduce skate bycatch in this fishery, resulting in positive biological benefits to skate stocks.

Figure 47. Skate wing landings in the Regular B DAS program by gear. *Source: Skate Amendment 3 DEIS*



Proposed changes to the US/Canada Area management measures, including delayed opening of the Eastern US/Canada Area, allowance of the Ruhle trawl, and allocation of zero trips to the CA II Yellowtail Flounder SAP, would all have positive biological impacts on skate resources in the US/Canada Area (primarily winter, little, and barndoor skates). These measures would reduce effort and potential skate bycatch.

Elimination of the SNE Winter Flounder SAP and Winter Flounder State Waters Exemption would likely result in positive biological impacts to skate resources by reducing the potential for skate bycatch in these programs.

All other measures included in this action are not anticipated to have any direct biological impacts on skate resources.

15.1.3 Habitat Impacts

This alternative would reduce DAS in the multispecies fishery by an additional 22% compared to the default 18% DAS reduction that is part of the No Action alternative and would also prohibit the use of bottom trawls and gill nets on groundfish trips in twenty-one 30-minute squares in southern New England, an area of approximately 11,500 square nautical miles. This alternative would also require modified trip limits for a number of groundfish stocks harvested in the fishery. Further reductions in DAS would have a direct effect on the amount of fishing effort and, more specifically, reduce the amount of bottom trawling activity in the areas that would remain open to fishing. The year-round closure of 11,500 square nautical miles of benthic habitat in southern New England to bottom trawling would provide an opportunity for the partial recovery of benthic habitats in southern New England that have been exposed to mobile, bottom-tending fishing gear to partially recover from the adverse effects of bottom trawling. Because bottom trawling by groundfish vessels would be prohibited in these areas for a year, gains in habitat quality inside the closed areas would be expected to exceed any losses in habitat quality resulting from the displacement of trawling activity into actively fished open areas. The net effect of all the management measures included in this alternative is expected to be positive for EFH, i.e., there would be no adverse impacts on essential habitats utilized by federally-managed fish species in the Northeast Region.

15.1.4 Impacts on Threatened, Endangered, and other Protected Resources

Background

Alternative Two for the Interim action is evaluated below with respect to its impacts on protected species. As described in the Affected Environment section, ESA-listed sea turtles and cetaceans as well as other marine mammals protected by the MMPA are likely to occur in the area affected by the Interim action measures.

Species protected under the ESA and/or MMPA are known to be captured or entangled in gear types that are used in the groundfish fishery (e.g., sink gillnet gear, bottom otter trawl gear). For example, large whale entanglements in sink gillnet gear have occurred (Johnson et al. 2005; Waring et al. 2007). Fixed gillnet gear and trawl gear pose a risk of entanglement and capture for sea turtles and small cetaceans (Waring et al. 2007; Murray 2008; Final 2009 List of Fisheries 73 FR 73032, December 1, 2008).

NMFS has considered the potential for other effects to protected species as a result of operation of the groundfish fishery but has not determined any other effects that are likely to occur. The operation of the groundfish fishery is not expected to effect the abundance and of protected species prey. Small prey such as copepods and krill will pass through multispecies fishing gear rather than being captured in it. The multispecies fishery does not target small schooling fish (*e.g.* herring, mackerel), squid or deep water organisms that are preyed upon by small cetaceans and some large cetaceans (humpback whales, fin whales, sperm whales) (Wynne and Schwartz 1999; Aguilar 2002; Baird 2002; Clapham 2002; Perrin 2002;Whitehead 2002). Likewise, typical prey items of leatherback sea turtles and green sea turtles (neritic juvenile and adult age classes) (Rebel 1974; Mortimer 1982; Bjorndal 1985; USFWS and NMFS 1992; Bjorndal 1997) are not targeted in the groundfish fishery and are not typically caught as bycatch. Benthic fish species as well as crabs, and other benthic organisms may be caught as either targeted catch or bycatch in the multispecies fishery. Neritic juveniles and adults of both loggerhead and Kemp’s ridley sea turtles are known to feed on crab species and other benthic organisms (Keinath et al. 1987; Lutcavage and Musick 1985; Dodd 1988; Burke et al. 1993; Burke et al. 1994; Morreale and Standora 2005; Seney and Musick 2005) as are harbor porpoise, white-sided dolphins, and spotted dolphins (Bjørge and Tolley 2002; Cipriano 2002; Perrin 2002). Nevertheless, the removal of benthic fish species and benthic invertebrates from the water as bycatch or targeted catch in the groundfish fishery is not expected to affect the availability of prey for loggerhead or Kemp's ridley sea turtles or for these small cetaceans since each species has a diverse diet including prey items that are not caught in the groundfish fishery. In addition, food items caught as bycatch will be returned to the water where they could still be preyed upon, particularly by loggerheads which are known to eat a variety of live prey as well as scavenge dead organisms. Gear types used in the multispecies groundfish fishery are expected to have an impact on bottom habitat particularly mobile gear, such as bottom otter trawl gear, that is used in the groundfish fishery. A panel of experts have previously concluded that the effects of even light weight otter trawl gear would include: (a) the scraping or plowing of the doors on the bottom, sometimes creating furrows along their path, (b) sediment suspension resulting from the turbulence caused by the doors and the ground gear on the bottom, (c) the removal or damage benthic or demersal species, and (d) the removal or damage to structure forming biota (NREFHSC 2002). Fixed gear such as sink gillnet gear is expected to have less of an effect on bottom habitat than mobile gear given that it is not towed or dragged along the bottom. Portions of the area where the groundfish fishery occurs are closed to fishing permanently or seasonally in order to protect that bottom habitat that is most susceptible to damage affecting the organisms that occur there. Therefore, while (a) the disturbance of prey items during groundfish fishing operations in an area may attract foraging protected species to that area (potentially increasing the likelihood of a protected species capture of entanglement in the gear), and (b) the use of fishing gear does have some impact on bottom habitat, the operation of the groundfish fishery is not expected to effect the abundance of prey items for any protected species.

NMFS has also determined that the use of fishing vessels in the groundfish fishery is not expected to result in injury and mortality to the aforementioned protected species as a result of vessel strikes given that the fishing vessels operate at relatively slow speeds and the protected species have the speed and maneuverability to move away before being struck by the vessels hull. In addition, all of the species occur seasonally in the area where the multispecies fishery operates and, when they are present, spend part of their time at depths below the depth of the vessels hull, thus limiting their exposure to vessels used in the multispecies fishery. Finally, the groundfish fishery does not occur in low latitude waters where calving and nursing occurs for large cetaceans (Aguilar 2002; Clapham 2002; Horwood 2002; Kenney 2002; Sears 2002; Whitehead 2002). Therefore, the groundfish fishery is not expected to affect the oceanographic conditions that are conducive for calving and nursing of these large whales.

The overall effect of the Alternative 2 measures to reduce fishing mortality in the commercial fishery is positive for protected species given the required reductions in effort. As compared to the No Action alternative and Alternative 1, Alternative 2 would require greater reductions in effort by virtue of having a greater reduction in DAS. Differential DAS counting, although different than Alternative 1, are similar and would further help to reduce effort. The effect of the Southern New England closure would be as described for Alternative 1 which is an overall positive effect on protected species.

15.2 Economic Impacts of Alternative Two

15.2.1 Aggregate Impacts

Average groundfish trip revenue for the vessels included in the analysis was $101 million during FY 2005 to FY 2007 and average total revenue was $158 million. Under Alternative 2 the estimated groundfish trip revenue would decline by 33% to $68 million and total fishing revenue would decline by 21% to $124 million (Table 106). The relative reduction in groundfish trip revenue varied by home port state, ranging from 16% in New Jersey to nearly 45% in Connecticut. Reflecting the relatively larger share of groundfish trip income in total revenue, the expected reduction in total fishing revenue was estimated to be at least 25% in Maine (27%), and Massachusetts (27%). The estimated reduction in total revenue to Connecticut home port vessels was 22%, but in all other states the expected reduction ranged from 4% in New Jersey to 13% in Rhode Island.

Table 106. Change in Groundfish Trip and Total Trip Revenue by Home Port State

State	2005-2007 Average Total Revenue	Estimated Total Revenue	Change in Total Revenue	2005-2007 Average Groundfish Trip Revenue	Estimated Groundfish Trip Revenue	Change in Groundfish Trip Revenue
CT	$471,853	$366,706	-22%	$234,954	$129,808	-45%
MA	$76,335,101	$55,771,984	-27%	$61,075,061	$40,511,944	-34%
ME	$18,692,050	$13,685,653	-27%	$16,887,629	$11,881,232	-30%
NH	$5,260,523	$4,058,004	-23%	$4,381,575	$3,179,056	-27%
NJ	$6,897,309	$6,589,268	-4%	$1,874,151	$1,566,110	-16%
NY	$14,307,651	$12,956,679	-9%	$4,035,033	$2,684,061	-33%
RI	$31,466,190	$27,481,534	-13%	$11,430,282	$7,445,626	-35%
Other	$4,121,225	$3,722,768	-10%	$1,292,992	$894,535	-31%
Total	$157,551,903	$124,632,596	-21%	$101,211,678	$68,292,371	-33%

15.2.2 Vessel-Level Impacts

Across all vessels gross revenues for only 8 of the vessels included in the analysis would not change relative to status quo conditions (Table 107). For the remaining vessels the estimated reduction in total revenue ranged from 3% to 37%. That is, on average, vessels at or below the 20th percentile would be expected to lose 3% of total fishing revenue, while vessels above the 80th percentile may be expected to lose 37% of total fishing revenue. At intermediate percentiles expected revenue losses would still average 15 to 27%.

Table 107. Estimated Impact and Number of Affected Vessels by Impact Category

Impact Category	Number of Vessels	Average Adverse Impact
No Impact	8	0%
Up to 20th Percentile	100	3%
20th Percentile to Median	149	15%
Median to 80th Percentile	150	27%
Above 80th Percentile	99	37%

In relative terms, Alternative 2 would have somewhat similar impacts among vessels of different sizes (Table 108). The average adverse impact on total fishing revenue ranged from 3 to 5% for all vessel size classes up to the 20th percentile. Between the 20th percentile and the median the average reduction in total revenue was identical for small and large vessels but was about six percentage points lower for medium sized vessels. However, between the median and the 80th percentile, average impacts on small and medium sized vessels was similar while average impacts on large vessels was higher. Among the most affected vessels (above the 80th percentile) there was no appreciable difference in estimated adverse revenue effect regardless of vessel size class.

Table 108. Estimated Adverse Impact and Affected Vessels by Vessel Length Class

	Less than 50 feet		50 to 70 feet		Over 70 feet	
Impact Category	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact
Up to 20th Percentile	45	5%	30	2%	25	3%
20th Percentile to Median	68	17%	44	11%	38	17%
Median to 80th Percentile	67	25%	45	25%	37	31%
Above 80th Percentile	45	36%	29	36%	25	37%

Among primary gears the relative distribution of adverse impact on total revenue was similar for vessels using gillnet or trawl gear (Table 109). Differences between these two gears were notable for vessels between the 20th percentile and the median where the average adverse impact on gillnet vessels was estimated to be 19% compared to 14% for trawl gear and above the 80th percentile where the average adverse impacts was estimated to be larger for trawl vessels (27%). By contrast, for hook gear the estimated impacts for vessels below the median were estimated to be lower than either trawl or gillnet vessels.

However, at intervals above the median hook vessels impacts were estimated to be similar to that of other gears and above the 80th percentile were higher (46%) than either trawl (38%) or gillnet (32%) gears.

Table 109. Estimated Adverse Impact and Affected Vessels by Primary Gear

	Gillnet		Hook		Trawl	
Impact Category	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact
Up to 20th Percentile	23	5%	4	2%	73	3%
20th Percentile to Median	35	19%	5	9%	110	14%
Median to 80th Percentile	34	25%	6	24%	109	27%
Above 80th Percentile	23	32%	3	46%	73	38%

The relative distribution of adverse impacts differed between states that border the Gulf of Maine (Maine, New Hampshire, and Massachusetts) and those that do not (Table 110). Among these states the estimated adverse impacts in Maine tended was higher for vessels up to the 20th percentile (13%) than in Massachusetts (6%) or New Hampshire (7%). However, at other percentiles the relative impact on Maine, Massachusetts and New Hampshire home port vessels was similar although impacts on Massachusetts were consistently higher. In other states the estimated revenue impacts tended to be lowest among New Jersey home port vessels although expected revenue losses among these vessels were still high above the 80th percentile. Note that the magnitude of economic impacts on New York and New Jersey vessels was mitigated by the reconfigured Southern New England-Mid-Atlantic closure area. However, unlike Alternative 1 that relied on differential DAS the larger DAS reduction associated with Alternative 2 limited the ability of these Mid-Atlantic vessels to take full advantage of the configuration of the SNE closure area (as compared to the SNE Differential DAS Area). Although estimated impacts on vessels from Connecticut and Rhode Island home ports were generally below that of Maine, New Hampshire, and Massachusetts the average impact above the 80th percentile (44%) was highest among all states.

Table 110. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Home Port State

Home Port State	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
MA	50	74	74	49
ME	13	20	19	13
NH	7	11	10	7
NJ - South	7	9	10	6
NY	10	13	14	9
RI & CT	15	22	22	14
	Average Adverse Affect on Total Revenue			
MA	6%	22%	30%	37%
ME	13%	22%	26%	32%
NH	7%	20%	26%	34%

NJ	0%	2%	6%	16%
NY	1%	5%	12%	27%
RI & CT	5%	12%	18%	44%

Vessels with high dependence on groundfish trip revenue may be expected to be more adversely affected by Alternative 2 than less dependent vessels. This effect is evident as the estimated average adverse impact of fishing revenue increases with dependence on groundfish trip revenue (Table 111). For example, the estimated impact on vessels that depend on groundfish trips for less than 20% of fishing revenue ranged from less than 0.5% up to the 20th percentile to 8% for vessels above the 80th percentile. By contrast, impacts on vessels that depend on groundfish for at least 80% of fishing revenue ranged from an average of 20% up to the 20th percentile and 41% above the 80th percentile.

Table 111. Estimated Impacts and Number of Affected Vessels by Dependence on Groundfish Trip Revenue

Dependence Category	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
0 to 19%	13	19	20	12
20 to 39%	16	24	24	16
40 to 59%	13	19	20	12
60 to 79%	14	21	21	13
80 to 100%	45	66	66	44
	Average Adverse Affect on Total Revenue			
0 to 19%	0%	2%	4%	8%
20 to 39%	5%	9%	11%	15%
40 to 59%	5%	15%	19%	27%
60 to 79%	11%	21%	25%	36%
80 to 100%	20%	27%	32%	41%

Unlike dependence on groundfish dependence the estimated average impact on total fishing revenue was similar across gross sales categories although the impacts on vessels with sales above $270 thousand tended to be higher compared to vessels with lower gross sales (Table 112). However, note that the adverse impact among the most affected vessels (above the 80th percentile) was highest (46%) for vessels in the lowest sales category.

Table 112. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Gross Sales Category

Gross Sales Category ($1,000)	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
Less than $90 k	19	27	27	18
$90 k to $159 k	20	29	29	19
$160k to $269 k	22	33	33	21
$270 k to $500 k	20	29	29	19
More then $500 k	21	31	32	20
	Average Adverse Affect on Total Revenue			
Less than $90 k	3%	15%	26%	46%
$90 k to $159 k	3%	15%	25%	32%
$160k to $269 k	3%	14%	25%	32%
$270 k to $500 k	5%	18%	30%	37%
More then $500 k	5%	15%	30%	36%

Among port groups the estimated revenue impacts follow a pattern similar to that of home port states. That is, impacts on port groups in Maine, New Hampshire, and Massachusetts tended to be larger than the impacts on vessels from port groups in other states (Table 113). The exception was the Other Rhode Island port group where the average impact on vessels above the 80th percentile was 71%.

Table 113. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Port Groups

Port Group	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
Cape & Islands	7	9	10	6
Long Island, NY	10	13	14	9
Gloucester	17	25	26	16
Mid-Coast Maine	6	9	9	6
North Shore, Massachusetts	5	8	7	5
New Bedford	16	23	23	15
New Jersey	7	9	10	6
Other Rhode Island	6	8	9	5
Point Judith	9	14	13	9
Portsmouth Area	7	11	10	7
Scituate – Boston	6	9	9	5
Portland - So. Maine	7	11	10	7
	Average Adverse Affect on Total Revenue			
Cape & Islands	2%	10%	24%	41%

Long Island, NY	1%	5%	12%	27%
Gloucester	10%	25%	29%	34%
Mid-Coast Maine	14%	23%	26%	31%
North Shore, Massachusetts	3%	17%	25%	30%
New Bedford	7%	26%	34%	40%
New Jersey	0%	2%	6%	16%
Other Rhode Island	6%	11%	19%	70%
Point Judith	4%	12%	18%	29%
Portsmouth Area	7%	20%	26%	34%
Scituate – Boston	8%	23%	31%	35%
Portland - So. Maine	12%	21%	26%	32%

15.2.3 Economic Impacts on Other Fisheries

There are currently 1,051vessels that have both Skate and NE Multispecies DAS permits. In 2007, total skate fishery revenues in the Northeast Region were an estimated $4.1 million. Approximately 80% of this revenue was derived from the skate wing fishery, while the rest was derived from the skate bait fishery. Skate landings on Multispecies A DAS valued approximately $2.7 million, Regular B DAS skate revenues were approximately $228,000, and skate revenues on combination Monkfish and A DAS trips were approximately $403,000. Since average total revenue from the multispecies fishery from 2005-2007 was approximately $157.5 million, skate revenues represent a relatively small component of total revenues in groundfish fisheries.

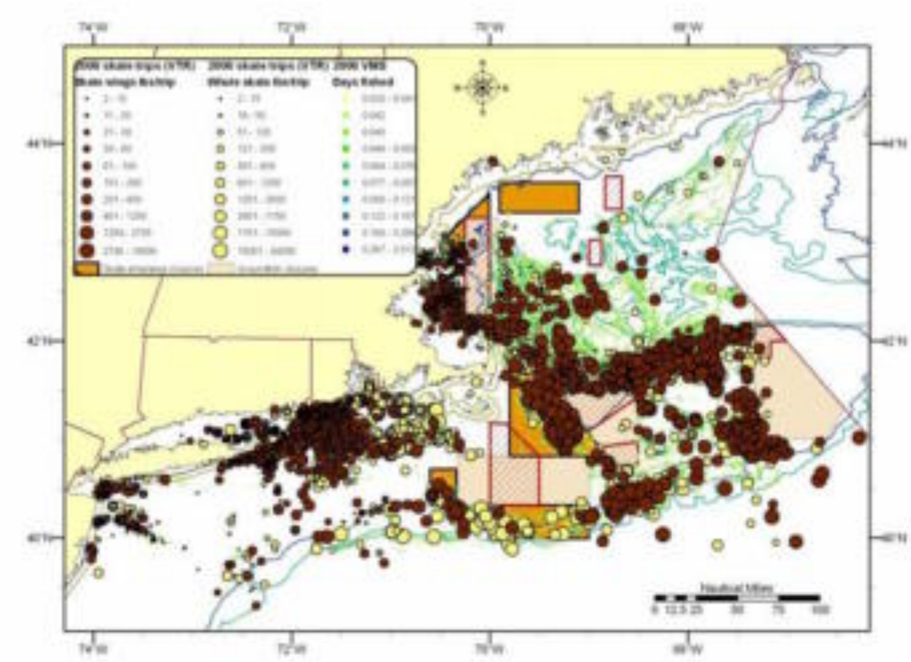
Compared to the No Action alternative, all of the alternatives are expected to have negative economic impacts on skate fishing vessels. Each of the alternatives reduce fishing effort in some fashion, and therefore reduce opportunities to catch and land skates. Due to regional variations in skate fisheries and fishing effort, the alternatives may disproportionately impact the different sectors of the skate fishery, and some ports may be more severely impacted than others.

The Southern New England Closure Area is likely to negatively impact skate vessels that have traditionally fished in that area, including vessels from Long Island, NY; Point Judith and Tiverton, RI; and New Bedford and Chatham, MA. The distribution of fishing effort by trawl and gillnet vessels in the skate wing and bait fisheries in 2007 is plotted in Figure 48 below. The SNE closure encompasses the bulk of the area fished in the skate bait fishery, which is primarily focused in nearshore and offshore waters between eastern Long Island and Martha's Vineyard. The majority of bait skate catch is landed in Point Judith, Tiverton, and Newport, RI; and New Bedford, MA. Therefore, the SNE closure area may have greater negative economic impacts on the skate bait fishery than on the skate wing fishery.

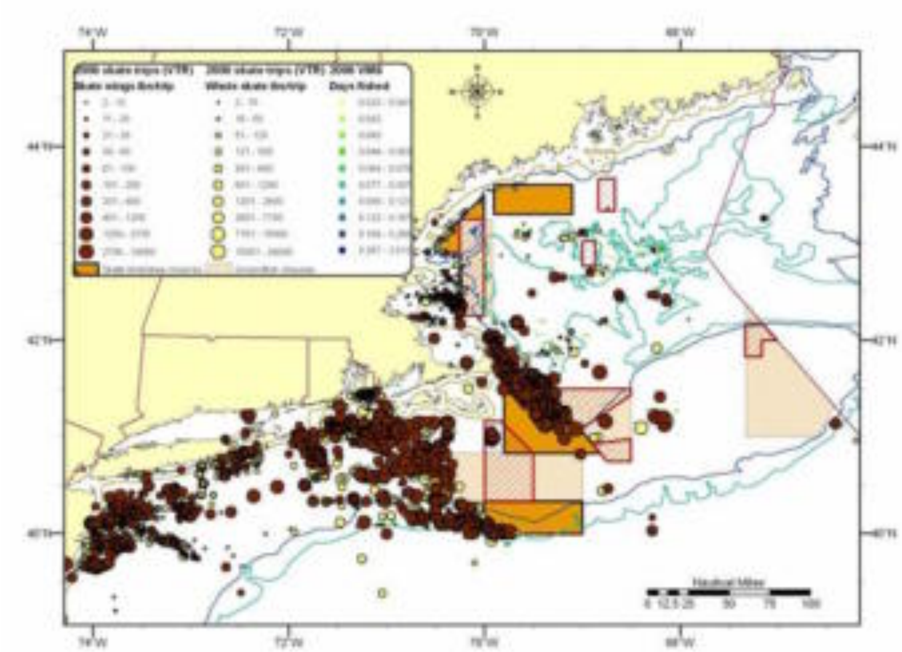
A large amount of skate wing catch has also historically occurred in the proposed SNE closure area, particularly in the Great South Channel area (Figure 48). While trawl vessels that have landed skate wings have distributed their effort throughout Georges Bank and in the western Gulf of Maine, gillnet vessels that landed skate wings predominantly fish in SNE waters. Skate wing vessels that fish with gillnets, therefore, may be more impacted by the proposed measures.

Figure 48. Distribution of fishing effort by gear type for trips landing skates in 2007 (as reported in VTRs. Brown symbols represent skate wing landings, and yellow symbols represent whole skate landings. The orange areas are skate time/area closures being proposed in Amendment 3 to the Skate FMP. *Source: Skate Amendment 3 DEIS)*.

Trawl Gear



Gillnet Gear



Skate vessels potentially impacted by the SNE closure area may be able to mitigate some of their revenue losses by fishing in exempted fisheries. The SNE Monkfish and Skate Gillnet Exemption Area and SNE Monkfish and Skate Trawl Exemption Area allow vessels to fish for monkfish and skates while not using a DAS (refer to 50 CFR 648.80(b)(5) and (6)). Vessels could also redistribute their effort to areas outside of the closure, or fish in other non-DAS fisheries to help make up for economic losses.

Alternatives 2 and 3 are difficult to differentiate from an economic impact standpoint. Both would reduce effort, negatively impacting the skate fishery, but Alternative 2 would possibly provide more flexibility to vessels that fish in the Gulf of Maine, who could minimize fuel costs and sea time by fishing for skates closer to shore. Alternatives 1 and 3, on the other hand, may promote the redistribution of effort as vessels try to avoid fishing in the differential DAS areas.

Proposed changes to the US/Canada Management Area management measures, including delayed opening of the Eastern US/Canada Management Area, allowance of the Ruhle trawl, and allocation of zero trips to the CA II Yellowtail Flounder SAP, would all likely have negative economic impacts on skate vessels that have landed skates while fishing in those areas. These measures would reduce effort and potential skate bycatch, and therefore reduce opportunities to land skates. Historically, there has not been a great deal of revenue derived from skates in these programs.

All other measures included in this action are not anticipated to have any direct economic impacts on skate vessels.

Due to the inability to predict fishing vessel behavior in response to these new measures, it is not possible to accurately quantify the actual economic impacts of the proposed action on the skate fishery. Nevertheless, vessels that target skates while fishing on Multispecies DAS (e.g. vessels that solely fish for bait skates in SNE) may incur greater negative economic impacts than vessels that have traditionally landed skates incidental to other species. The skate bait fishery may be particularly at risk due to its proximity to the SNE closure area, and its reliance on directed skate trips. If the supply of bait skate is reduced by this action, there may also be impacts on the lobster fishery, which relies on whole skates for lobster bait. Assuming constant demand for bait, the lobster fishery may have to pay higher prices for skate bait, or switch to other bait sources such as herring.

Monkfish Fishery

The 40 percent DAS reduction may reduce monkfish fishing effort due to the requirement that limited access monkfish Category C and D vessels that also hold a NE multispecies DAS permit use a NE multispecies DAS in conjunction with a monkfish. However, the existing provision under § 648.92(b)(2) that allows limited access monkfish Category C and D vessels with fewer allocated NE multispecies DAS than allocate monkfish DAS to use the difference between these two allocations as monkfish-only DAS will help mitigate such impact on monkfish fishing effort. Category C and D vessels comprised approximately 94% of the active vessels in the Monkfish Northern Fishery Management Area in 2006-2007. Monkfish Category C and D vessels landed 38% of the total monkfish landings north 42 degress 30 minutes north latitude in 2006, and 59% of the total monkfish landings from this area in 2007. In 2006 and 2007, 249 and 207 Monkfish Category C and D vessels fished north of 42 degress 30 minutes north latitude.

The SNE year-round closure, although smaller in size than the SNE Differential Area currently in effect, will likely impact inshore monkfish gillnet vessels that fish in this region, reducing monkfish fishing effort overall in this area with a subsequent negative economic impact to the monkfish fishery. The extent of this potential negative social and economic impact, depends on the number of limited access monkfish Category C and D vessels actively fishing in the statistical areas encompassed by the closure, how much monkfish is landed from these areas, and whether or not these vessels could move their fishing operations into an open area in an effort to mitigate the impacts of the closure. Category C and D vessels comprised approximately 43% of the active vessels in the Monkfish Southern Fishery Management Area in 2006-2007. In 2006 and 2007, approximately 43% and 41% (respectively) of the monkfish landed from the Southern Monkfish Management Area was caught from the area covered by the proposed SNE Closure Area by monkfish Category C and D vessels. In 2006 and 2007, 188 and 186 monkfish Category C and D vessels (respectively) fished in the area that would be affected by the proposed SNE Closure Area. There, based on historic patterns, the maximum economic impacts of this alternative therefore would be a 42% reduction in monkfish landing, if vessels did not increase there fishing effort in the area outside of the SNE Closure Area. Secondly, the impacts would be mitigated by the fact that the SNE Differential DAS Area would no longer exist. This action would not affect limited access monkfish Category A and B vessels, since these vessels do not use NE multispecies DAS.

15.3 Social Impacts of Alternative Two

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 wasteful of valuable resources and distasteful. Modifications to daily routines can make long term planning difficult. New gear purchases must be ordered in advance and result in a change to daily routine when equipment cannot be used in a timely or cost effective manner. Changes in management measures that limit access to fishing may alter economic incentives that change the likelihood of risky fishing practices. Increased risk can result when fishermen spend longer periods at sea, or travel excessive distances, operate with fewer crew, or fish under 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 alternative of these factors will be discussed below. The primary port groups that are most affected by changes in groundfish management are identified in section 9.6 (of Amendment 13).

Regulatory Discarding

Because the current regulatory structure and this alternative rely heavily on the combined effects of DAS, closed areas, and trip limits, to reduce fishing mortality, regulatory discarding will continue to frustrate fisherman and cause waste. Modifications to trip limits under this alternative will alleviate discarding for some stocks, but may cause increased discarding for other stocks. The current trip limit for GB winter flounder woould be removed, and the per DAS limit for white hake will increase from 1,000 lb per DAS to 2,000 lb per DAS, and provide some relief from discarding. New very restrictive limits (zero retention allowed) would be implemented for SNE winter flounder, windowpane north, and ocean pout, which could cause discarding and frustrate vessel owners.

Safety

There is little empirical data with which to evaluate the types of management measures that improve or threaten the safety of fishing vessel operators. One study attempted to identify factors that contributed to serious vessel accidents in the Northeast Region. Di Jin and Thunberg (2005) examined fishing vessel accidents in the Northeast United States from 1981 through 2000, updating an earlier report. The modeled fishing vessel accident probability using U.S. Coast Guard data and NMFS data. The data were for all fisheries and the results are not specific to the groundfish fishery. In all cases, the model showed that increasing wind speed and decreasing distance from shore result in an increase in accident rates.

Framework Adjustment 42 stated that the inshore and offshore differential DAS counting areas may affect vessel safety because of the possibility that some vessel may attempt to fish farther offshore to avoid the 2:1 differential DAS area. Under current regulations, the closest area that is not subject to a differential DAS counting rate is approximately 40 miles from the ports of Gloucester, Provincetown, and Portsmouth.

This Alternative would not alleviate this problem and could worsen the issue if the DAS reduction provides additional incentive for vessels to fish in areas outside of the GOM Differential DAS Area (the area with the highest DAS counting rate), or for vessels to travel further to reach areas outside of the SNE Closure Area.

Disruption in Daily Living

Amendment 13 defines the disruption in daily living as “changes in the routine living and work activities of affected fishery participants, including the potential for alternate in their regular social and work patterns to adapt to new management measures” (NEFMC 2003). This alternative may cause more disruptions in daily living that the other alternatives, most notably, from the larger reductions in DAS. Unless vessel owners spend additional money to lease DAS, the alternative will result in less DAS available for use for targeting groundfish (or other species such as monkfish or skates). There would be increased incentives to pursue non-groundfish fisheries or other non-fisheries sources of income. If vessel owners can lease in DAS in order to maintain or increase their activity in the groundfish fishery, the cost of leasing those DAS may represent a disruption in daily living. Vessels that currently fish for groundfish in SNE may be more acutely impacted by the SNE Closure Area, and experience disruption in daily living. Although mitigating measures may provide some relief, the number of vessels that have participated in the special management programs has been very limited, and the DAS Leasing and Transfer Programs offer only limited relief to disruptions due to the costs of these programs.

Changes in Occupational Opportunities and Community Infrastructure

Changes in occupational opportunities and community infrastructure is defined as the degree to which the occupational profile of the affected communities would be affected by the proposed action. This alternative could alter the composition of the existing groundfish fleet and the fleets of other fisheries by indirectly providing incentives for groundfish vessels to pursue other sources of fishing revenue. During FY 2009, the longest duration this alternative may be in place, landings of regulated groundfish are likely to decline, and could result in changes in the ability of shoreside infrastructure to maintain year-round operations. While there may be increased effort in other fisheries that may partially compensate for these changes, it is not known if the same business that serve the groundfish fishery also support other fisheries.

Based on the trend in total groundfish landings and revenue from 2005 to 2007 (Table 34), the recent trend in revenue has been fairly stable. However, there has been a decline in the number of active vessels (Table 36). Although the net amount of revenue and landings over time may not be contributing to a change in community infrastructure per sae, the fact that there are declining number of vessels participating in the fishery is likely to have an impact on both occupational opportunities, and community infrastructure. Although mitigating measures may provide some relief, the number of vessels that have participated in the special management programs has been very limited, and the DAS Leasing and Transfer Programs offer only limited relief to disruptions due to the costs of these programs.

Formation of Attitudes

Formation of attitudes refers to positions expressing support for, or opposition to a proposed management measure. A large DAS reduction is perceived as being particularly burdensome (even in contrast to a differential DAS alternative that also severely restricts fishing effort). The relatively large closure area in SNE will likely cause strong opposition to this alternative. It is likely that changes in the understanding of the status of stocks and the changes to the biological reference points will frustrate or anger fishing industry members due to significant changes in the status of some stocks. Many vessels owners are frustrated that new sectors are not available as an opportunity for the 2009 fishing year. Many in the fishing industry were hoping to avoid additional restrictions under the current management system (principally DAS restrictions) by fishing in sectors. Although it is not clear whether sectors will eliminate some frustrations and create new frustrations, the perception for many is that sectors would provide some net benefits to the industry.

Impact on Skate Ports

The social and community impacts of this action are likely to be similar between the skate fishery and the multispecies fishery. Again this is due to the fact that skate fisheries are largely interrelated with groundfish fisheries. Relative to No Action, all alternatives are anticipated to have some level of negative social impacts on skate fishing communities, derived from the anticipated economic losses. According to data presented in the DEIS for Amendment 3 to the Skate FMP, the top ports in 2007 for skate bait landings included Point Judith, RI; Tiverton, RI; New Bedford, MA; Newport, RI; and Stonington, CT. The top ports for skate wing landings included New Bedford, MA; Chatham, MA; Point Judith, RI; Boston, MA; and Barnegat Light, NJ. Although some vessels and ports (e.g. Chatham, MA and Point Judith, RI) rely on skate revenue for a substantial part of their total fishing income, most New England ports derive the majority of their revenues from the landings of other species.

16.0 Analysis of Impacts - Alternative 3 – Proposed Rule Alternative

16.1 Biological Impacts of Proposed Rule Alternative

16.1.1 Impacts on Groundfish – Commercial Measures

The Closed Area Model (CAM) is the principal analytical tool used to estimate the biological impacts of the management measures. Results for each alternative are calculated in relation to the status-quo management measures. Additional information on the CAM is in Section 24.0, Comparison of Alternatives.

Because the CAM results are expressed as exploitation rates, the target fishing mortality reductions for each stock must be expressed in terms of equivalent reductions in exploitation. Changes in exploitation are calculated by taking the current estimated F and target F, converting both to an exploitation rate, and then calculating the percentage change necessary to move from the current exploitation rate to the target exploitation rate.

The changes in exploitation for Alternative 3 compared with the targeted reductions in exploitation is shown below in Table 114. The CAM results indicate that the targeted reductions in exploitation associated with the objectives (Fmsy or F rebuild) will be attained for 8 of the 11 stocks that require fishing mortality reductions. The stocks for which fishing exploitation is reduced, but falls short of the exploitation rate target are SNE/MA winter flounder, pollock and northern windowpane flounder. Based on the results of the CAM, the Alternative 3 management measures reduce fishing exploitation on all stocks, including those stocks for which a reduction is being sought, as well as stocks that do not need any reduction in exploitation. Furthermore, the reduction in exploitation is greater than the targeted amount of reduction for most stocks.

Table 114. Alternative 3 Changes in Exploitation (median value from CAM).

Species	Stock	Target	Target Reduction in Exploitation	Estimated Reduction in Exploitation Achieved
Cod	GB	Fmsy	- 35.2 %	-44.4 %
	GOM	Fmsy	-18.7 %	-29.1 %
Haddock	GB	Fmsy	na	-37.5 %
	GOM	Fmsy	na	-33.7 %
Yellowtail flounder	GB	F rebuild	-15.3 %	-15.0 %
	SNE/MA	F rebuild	-36.1 %	-84.8 %
	CC/GOM	F rebuild	-15.7 %	-36.6 %
American plaice		Fmsy	na	-42.7 %
Witch flounder		Fmsy	-29.3 %	-40.0 %

Winter flounder	GB	Fmsy	na	-16.9 %
	GOM	Fmsy	-9.3 %	-8.4 %
	SNE/MA	F rebuild	-100 %	-78.5 %
Redfish		Fmsy	na	-51.9 %
White hake		F rebuild	na	-49.2 %
Pollock		Fmsy	-51 %	-43.3 %
Windowpane	North	Fmsy	-83 %	-22.6 %
	South	Fmsy	-29 %	-55.3 %
Ocean pout		Fmsy	*	*
Atlantic halibut		F rebuild	*	*

* The CAM has not been utilized to analyze impacts for these stocks in the past or currently because very limited fishery for these stocks.

Although the model results indicate that the reduction in exploitation of the northern stock of windowpane flounder would not be sufficient to bring the fishing mortality down to Fmsy, the CAM indicates that exploitation will be reduced by one third of that necessary to achieve Fmsy. In contrast to many other stocks in the complex, this stock is principally a bycatch species, with landings representing only 12 % of the catch in calendar year 2007 (Catch: 1,032 mt, Landings: 119 mt; GARM III). Because this stock is principally a bycatch species with relatively low catch already, additional reductions in fishing exploitation may be very difficult to achieve through reductions in fishing effort. Since 2000, most of the landings have occurred in statistical area 525, south-central Georges Bank, and the bycatch of this stock is likely higher during winter and spring when the species is distributed across a broader area of Georges Bank. Most of the discards are in the large-mesh bottom trawl fishery. The prohibition of retention of windowpane north will eliminate landings and eliminate any incentive to target this stock.

Similarly, the model results indicate that the reduction in exploitation of the SNE/MA stock of winter flounder would not be sufficient to fully bring the fishing mortality down to Frebuild (zero fishing mortality), the CAM indicates that exploitation will be reduced by 79 percent. In 2007 landings and discards of SNE/MA winter flounder were as follows in Table 115.

Table 115. SNE/MA Winter Flounder Landings and Discards in FY 2007, assuming zero survival of discards (GARM III).

Source	Mt	Percent of Total
Commercial landings	1,622 mt	83 %
Recreational landings	116	6 %
Discards	228	12 %
Total Catch	1,966	

If landings in 2009 are zero, due to the prohibition on retention of winter flounder, and discards either remain the same as in 2007 (228 mt), or double (456 mt), such reductions in total catch would represent an 88% and 77% reduction in catch.
Based upon a NMFS bycatch report (Wigley, et. al., 2008), in 2005, approximately 65 percent of trawl discards were from the small mesh fishery and 34 percent from the large mesh fishery. The amount of reduction in fishing mortality that will result from the prohibition on retention is difficult to predict. If vessels are currently targeting winter flounder, and a prohibition on retention alters fishing behavior, then fishing mortality will be effectively reduced. However, if current catch levels reflect that catch from vessels that are not currently targeting winter flounder, but are still encountering them then a prohibition on retention would be less effective. The proposed recreational prohibition on retention of SNE winter flounder and the elimination of the SNE Winter Flounder SAP and the State Waters Exemption (described below), may contribute some additional fishery mortality reductions that are not captured in the CAM. Fishing by NE multispecies vessels using hook gear in the SNE Closure Area is not expected to cause any meaningful impact on winter flounder, due to the very low catch rate of winter flounder by hook gear. An indication of the catch rate that could be expected is that of the Georges Bank Cod Hook Sector (Sector). The Sector's annual report for 2007 includes the following data: 2007 landings of winter flounder: 1,529 lb; 2006 landings of winter flounder: 1,435 lb. The Sector's total landings (all species) in 2007 were 478,843 lb.

The relative exploitation ratio for Ocean Pout indicated that the fishing mortality was well below the fishing mortality threshold (Fmsy proxy), and that landings from the SNE/MA area have dominated the catch (GARM III). The 2007 catch (178 mt) was the lowest since 1963. The DAS reduction, Differential DAS Area, and SNE Closure Area will likely result in some reduced catch of Ocean Pout.

Although the catch of Atlantic halibut increased in 2007 over recent levels, the future catch of Atlantic halibut will likely remain at similar levels or decline due to the DAS reduction and Differential DAS Area. A limit of one halibut per trip will continue to result in a reduction of catch to the lowest practicable level. A limit of one halibut per trip does not result in any incentive to target halibut, but minimizes wasteful discarding of halibut.

16.1.2 Impacts on Other Species/Bycatch

Impacts on Groundfish Bycatch

This interim action would implement restrictive measures to reduce fishing mortality on groundfish stocks in the NE. Some of the stocks managed by the FMP that are less frequently targeted and caught as bycatch by multispecies vessels include ocean pout, Atlantic halibut, windowpane flounder and GOM winter flounder. Although the goal of the interim measures is to reduce fishing mortality on certain stocks, the reduction in fishing effort that will be achieved will impact other stocks, including bycatch. The SNE Closure Area will eliminate fishing effort by groundfish vessels fishing with trawl gear and gillnet gear, and reduce bycatch in that area from the groundfish fishery. The prohibition on retention of SNE winter flounder by other fisheries may increase discarding if vessels continue to encounter SNE winter flounder. The implementation of a higher daily possession limit for white hake and removal of the trip limit for GB winter flounder may reduce discards of these stocks, while the implementation of prohibitions on retention of several other stocks may increase discarding on those trips that encounter these species (SNE winter flounder, ocean pout, and windowpane flounder north). However, due to the overall reduction in fishing effort likely, and the fact that there will be no legal incentive to ever target the stocks than cannot be retained, the net amount of bycatch of such species may decline. Additional trip limits for species that do not current have limits were not considered in order to prevent discarding (e.g., witch flounder, windowpane south). The reduction of minimum size for haddock will reduce discards in both the commercial and recreational fisheries. Although the DAS Leasing Program and DAS Transfer Program modifications will facilitate the use of DAS in some cases, the major constraint that limits DAS leasing for individual vessel owners (i.e., cost) will continue to limit the effort associated with DAS leasing and transfers.

The implementation of a trip limit for GB yellowtail flounder reduces the likelihood that the hard TAC for this stock in the U.S./Canada Management Area will be achieved prior to the end of the fishing year. Should the TAC be achieved before the end of the fishing year, possession of GB yellowtail flounder would be prohibited, but discarding would continue. The restriction on the use of low-profile gillnets in the Regular B DAS Program will reduce bycatch of flatfish. All catch of groundfish stocks of concern in the Regular B DAS Program count toward the incidental catch TACs, regardless of whether such catch is kept or discarded. The accounting of all fish caught serves as an incentive for fishers to reduce bycatch in order to decrease the rate at which the TAC is harvested, and enable more fishing opportunity to target healthy groundfish stocks under this program. The current gear restrictions for the U.S./Canada Area and Special Management Programs will continue to provide valuable reductions in the catch of stocks of concern.

Impacts on the Monkfish Fishery

The 18 percent DAS reduction may reduce monkfish fishing effort due to the requirement that limited access monkfish Category C and D vessels that also hold a NE multispecies DAS permit use a NE multispecies DAS in conjunction with a monkfish DAS (see 50 CFR 648.92(b)(1)(i)). However, the existing provision under § 648.92(b)(2) that allows limited access monkfish Category C and D vessels with fewer allocated NE multispecies DAS than allocate monkfish DAS to use the difference between these two allocations as monkfish-only DAS will help mitigate such impact on monkfish fishing effort.

The SNE year-round closure, although smaller in size than the SNE Differential Area currently in effect, will likely impact inshore monkfish gillnet vessels that fish in this region, reducing monkfish fishing effort overall in this area with a subsequent positive biological impact to the monkfish resource. The extent of this potential negative social and economic impact, and positive biological impact depends on the number of limited access monkfish Category C and D vessels actively fishing in the statistical areas encompassed by the closure, how much monkfish is landed from these areas, and whether or not these vessels could move their fishing operations into an open area in an effort to mitigate the impacts of the closure. This action will not affect limited access monkfish Category A and B vessels, since these vessels do not use NE multispecies DAS.

The expanded differential area (Interim Differential DAS Area) may negatively affect any limited access monkfish Category C or D vessels that target monkfish in the Northern Fishery Management Area (NFMA) (i.e., that uses monkfish DAS), by potentially limiting a vessel's ability to use its available monkfish DAS if it does not have sufficient NE multispecies DAS to cover the monkfish DAS it intends to use during the period of the interim action. This measure will particularly impact those vessels with relatively few multispecies DAS and those that are fishing in the offshore areas not affected by the Interim Differential Area currently in effect. As a result, the proposed measure could reduce monkfish fishing effort in the NFMA, having negative social and economic impacts, but positive biological impacts. Monkfish Category C and D vessels landed 38% of the total monkfish landings north 42 degress 30 minutes north latitude in 2006, and 59% of the total monkfish landings from this area in 2007.

Revisions to NE multispecies trip limits are not expected to have any impacts to the monkfish resource. The delayed opening of the Eastern US/Canada area may have some impact on total monkfish fishing effort in that area. However, monkfish fishing effort in that area is not substantial, thus the total impact to the monkfish resource is likely to be minimal. The allocation of zero trips to CA II Yellowtail Flounder SAP would eliminate any monkfish potential bycatch from this area, having a positive impact on the resource.

The recreational measures will not have any direct biological impact to monkfish stocks.

Revisions to the DAS Transfer Program, by increasing overall flexibility, could encourage consolidation of NE multispecies DAS permits, which may result in the elimination of some monkfish permits both vessels involved in the DAS transfer holding limited access monkfish permits. Conversely, consolidation of NE multispecies DAS on a single vessel could encourage vessels to use monkfish DAS that were previously not utilized since vessels would have additional NE multispecies DAS to use in conjunction with a monkfish DAS (as required in the regulations at § 648.92(b)(1)(i)). As a result of these opposing possible effects on monkfish fishing effort, and the inability to determine if one effect is more likely than the other, the proposed measure is expected to have a neutral effect on monkfish fishing effort. Therefore, no biological impacts to the monkfish resource are expected.

Similar to the modifications to the DAS transfer program, by increasing flexibility, the proposed modifications to the DAS leasing program would increase the ability of limited access monkfish Category C and D vessels to lease in NE multispecies DAS; thereby potentially increasing their ability to utilize monkfish DAS that were previously not used in conjunction with the leased NE multispecies DAS. This activity could potentially increase monkfish fishing effort. Conversely, depending on the value of leasing out a NE multispecies DAS in relation to fishing a monkfish DAS, limited access Category C and D monkfish vessels may lease out more NE multispecies DAS under the proposed revisions to the DAS leasing program, forfeiting monkfish DAS as a result. This activity could potentially decrease monkfish fishing effort depending on whether or not the vessel was actively using the monkfish DAS being forfeited as a result of leasing out NE multispecies DAS. As a result of these opposing possible effects on monkfish fishing effort, and the inability to determine if one effect is more likely than the other, the proposed measure is expected to have a neutral effect on monkfish fishing effort. Therefore, no biological impacts to the monkfish resource are expected.

The continuation of the Eastern U.S./Canada Area Haddock SAP is not expected to result in increased bycatch of monkfish beyond that already occurring in this SAP, which is minimal due to the low program participation and the program restrictions on monkfish catch. Therefore, no additional biological impact to monkfish stocks are expected to result from this measure.

The prohibition on the use of low profile gillnets on Regular B DAS trips could help reduce monkfish bycatch in the Regular B DAS fishery, resulting in positive biological benefits to this resource.

Impacts on the Skate Fishery

The two primary skate fisheries, a wing fishery and a lobster bait fishery, are largely interwoven with the Multispecies fishery. The regulations require that vessels must be fishing on a Multispecies, Monkfish, or Scallop DAS, or fish in an exempted fishery in order to possess skates. Winter skate is the major component of the skate wing fishery, and little skate is the major component of the whole/bait fishery. Despite prohibitions on possession since 2003, thorny, barndoor, and smooth skates are still caught and discarded in the groundfish fishery. The vast majority of skate landings are landed on Multispecies Category A DAS (Table 116). Changes to DAS regulations, therefore, will directly impact skate catch.

Table 116. Total skate landings (lb live weight) by DAS program, 2000-2007.

Calender Year	MUL A	MUL B	MNK	MNK/MUL	SC
2000	16,673,711	NA	1,037,993	2,817,080	66,012
2001	15,320,262	NA	764,437	3,037,382	6,405
2002	17,538,086	NA	665,661	3,845,897	2,796
2003	22,205,726	NA	601,063	4,123,343	63
2004	19,760,823	547,717	1,271,352	1,991,829	0
2005	17,715,403	967,069	1,911,588	2,754,418	10,835
2006	19,083,200	64,956	1,358,881	5,652,650	4,629
2007	20,349,972	1,715,633	1,087,857	2,571,196	0

Source: NMFS, Fisheries Statistics Office

Of the seven skate species managed under the Northeast Skate Complex FMP (Skate FMP), thorny, winter, and smooth skates are currently overfished, and thorny skate is also subject to overfishing. Additionally, barndoor skate is in a rebuilding program, but is above the overfished biomass threshold specified in the Skate FMP. Little, clearnose, and rosette skates are not overfished or experiencing overfishing. Thorny and smooth skates are predominantly distributed in the Gulf of Maine, whereas winter, little, and barndoor skates are mainly distributed on Georges Bank and in Southern New England waters. Clearnose and rosette skates have a more Mid-Atlantic distribution. Due to the different ranges of these species, area-based management measures may differentially impact each species.

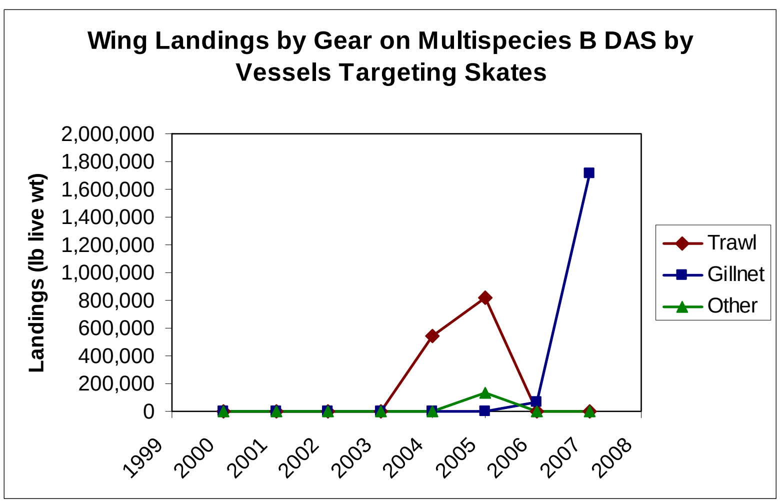
Relative to No Action, all of three principal alternatives are anticipated to have positive biological impacts on skate stocks. Reductions in bottom fishing effort in the Gulf of Maine, Georges Bank, and Southern New England areas will likely reduce skate landings and discards. The proposed restrictions in the Gulf of Maine will benefit thorny and smooth skate populations, while restrictions on Georges Bank and in Southern New England will benefit winter, little, and barndoor skates.

Alternative 1 may be more beneficial to thorny and smooth skate populations than the preferred alternative, due to the presence of a 2.25:1 differential DAS area in the western Gulf of Maine where high concentrations of these species are found. Alternative 1 would also reduce effort over a larger portion of Georges Bank (down to 41° N latitude), which would be more beneficial to barndoor, winter, and little skate populations in that area. Under the preferred alternative, fishing effort is likely to shift to some extent to the remaining 1:1 DAS counting areas (i.e., the southern U.S./Canada Area), which could cause localized depletions of barndoor, winter, and little skates in that area.

The Southern New England closure area, under all alternatives, may provide significant positive biological impacts to winter and little skates, and moderate positive impacts on barndoor, clearnose, thorny, and smooth skates. The Great South Channel, in particular, is a productive ground where all of the overfished skate species overlap in range.

The prohibition on the use of low-profile gillnets in the Regular B DAS program would also likely reduce skate bycatch in this fishery, resulting in positive biological benefits to skate stocks.

Figure 49. Skate wing landings in the Regular B DAS program by gear. *Source: Skate Amendment 3 DEIS*



Proposed changes to the US/Canada Area management measures, including delayed opening of the Eastern US/Canada Area, allowance of the Ruhle trawl, and allocation of zero trips to the CA II Yellowtail Flounder SAP, would all have positive biological impacts on skate resources in the US/Canada Area (primarily winter, little, and barndoor skates). These measures would reduce effort and potential skate bycatch.

Elimination of the SNE Winter Flounder SAP and Winter Flounder State Waters Exemption would likely result in positive biological impacts to skate resources by reducing the potential for skate bycatch in these programs.

All other measures included in this action are not anticipated to have any direct biological impacts on skate resources.

16.1.3 Habitat Impacts

This alternative would reduce the number of DAS for vessels in the fishery (by 18%) and apply a 2:1 differential DAS rate over a broader area in the GOM. It would also prohibit the use of bottom trawls and gill nets on groundfish trips in twenty-one 30-minute squares in southern New England, an area of approximately 11,500 square nautical miles, and require modified trip limits for a number of groundfish stocks harvested in the fishery. The 18% reduction in DAS would cause a decline in fishing effort in the areas that remain open to the fishery and have a similar effect on bottom trawling activity. The effect of implementing a 2:1 differential DAS rate in a broader area of the GOM would be to reduce the use of bottom trawls in the affected areas with some displacement of trawling effort from those areas into other fishing grounds where differential DAS do not apply. If groundfish are more available to capture in areas subject to the 2:1 DAS restriction than they are in 1:1 DAS areas (the most likely scenario), there could be an increase in bottom contact by trawls in the 1:1 DAS areas because more effort is required to catch less fish. However, since these areas are likely to be impacted to some extent already by bottom trawls and scallop dredges, and by natural disturbance, the habitat impact of any additional trawling activity is expected to be minimal. The year-round closure of 11,500 square nautical miles of benthic habitat in southern New England to bottom trawling would provide an opportunity for the partial recovery of benthic habitats in southern New England that have been exposed to mobile, bottom-tending fishing gear to partially recover from the adverse effects of bottom trawling. Because bottom trawling by groundfish vessels would be prohibited in these areas for a year, gains in habitat quality inside the closed areas would be expected to exceed any losses in habitat quality resulting from the displacement of trawling activity into actively fished open areas from either the closed areas in southern New England or the differential DAS areas in the GOM and on eastern GB. The net effect of all the management measures included in this alternative is expected to be positive for EFH, i.e., there would be no adverse impacts on essential habitats utilized by federally-managed fish species in the Northeast Region.

16.1.4 Impacts on Threatened, Endangered, and other Protected Resources

Background

Alternative Two for the Interim action is evaluated below with respect to its impacts on protected species. As described in the Affected Environment section, ESA-listed sea turtles and cetaceans as well as other marine mammals protected by the MMPA are likely to occur in the area affected by the Interim action measures.

Species protected under the ESA and/or MMPA are known to be captured or entangled in gear types that are used in the groundfish fishery (e.g., sink gillnet gear, bottom otter trawl gear). For example, large whale entanglements in sink gillnet gear have occurred (Johnson et al. 2005; Waring et al. 2007). Fixed gillnet gear and trawl gear pose a risk of entanglement and capture for sea turtles and small cetaceans (Waring et al. 2007; Murray 2008; Final 2009 List of Fisheries 73 FR 73032, December 1, 2008).

NMFS has considered the potential for other effects to protected species as a result of operation of the groundfish fishery but has not determined any other effects that are likely to occur. The operation of the groundfish fishery is not expected to effect the abundance and of protected species prey. Small prey such as copepods and krill will pass through multispecies fishing gear rather than being captured in it. The multispecies fishery does not target small schooling fish (*e.g.* herring, mackerel), squid or deep water organisms that are preyed upon by small cetaceans and some large cetaceans (humpback whales, fin whales, sperm whales) (Wynne and Schwartz 1999; Aguilar 2002; Baird 2002; Clapham 2002; Perrin 2002;Whitehead 2002). Likewise, typical prey items of leatherback sea turtles and green sea turtles (neritic juvenile and adult age classes) (Rebel 1974; Mortimer 1982; Bjorndal 1985; USFWS and NMFS 1992; Bjorndal 1997) are not targeted in the groundfish fishery and are not typically caught as bycatch. Benthic fish species as well as crabs, and other benthic organisms may be caught as either targeted catch or bycatch in the multispecies fishery. Neritic juveniles and adults of both loggerhead and Kemp's ridley sea turtles are known to feed on crab species and other benthic organisms (Keinath et al. 1987; Lutcavage and Musick 1985; Dodd 1988; Burke et al. 1993; Burke et al. 1994; Morreale and Standora 2005; Seney and Musick 2005) as are harbor porpoise, white-sided dolphins, and spotted dolphins (Bjørge and Tolley 2002; Cipriano 2002; Perrin 2002). Nevertheless, the removal of benthic fish species and benthic invertebrates from the water as bycatch or targeted catch in the groundfish fishery is not expected to affect the availability of prey for loggerhead or Kemp's ridley sea turtles or for these small cetaceans since each species has a diverse diet including prey items that are not caught in the groundfish fishery. In addition, food items caught as bycatch will be returned to the water where they could still be preyed upon, particularly by loggerheads which are known to eat a variety of live prey as well as scavenge dead organisms. Gear types used in the multispecies groundfish fishery are expected to have an impact on bottom habitat particularly mobile gear, such as bottom otter trawl gear, that is used in the groundfish fishery. A panel of experts have previously concluded that the effects of even light weight otter trawl gear would include: (a) the scraping or plowing of the doors on the bottom, sometimes creating furrows along their path, (b) sediment suspension resulting from the turbulence caused by the doors and the ground gear on the bottom, (c) the removal or damage benthic or demersal species, and (d) the removal or damage to structure forming biota (NREFHSC 2002). Fixed gear such as sink gillnet gear is expected to have less of an effect on bottom habitat than mobile gear given that it is not towed or dragged along the bottom. Portions of the area where the groundfish fishery occurs are closed to fishing permanently or seasonally in order to protect that bottom habitat that is most susceptible to damage affecting the organisms that occur there. Therefore, while (a) the disturbance of prey items during groundfish fishing operations in an area may attract foraging protected species to that area (potentially increasing the likelihood of a protected species capture of entanglement in the gear), and (b) the use of fishing gear does have some impact on bottom habitat, the operation of the groundfish fishery is not expected to effect the abundance of prey items for any protected species.

NMFS has also determined that the use of fishing vessels in the groundfish fishery is not expected to result in injury and mortality to the aforementioned protected species as a result of vessel strikes given that the fishing vessels operate at relatively slow speeds and the protected species have the speed and maneuverability to move away before being struck by the vessels hull. In addition, all of the species occur seasonally in the area where the multispecies fishery operates and, when they are present, spend part of their time at depths below the depth of the vessels hull, thus limiting their exposure to vessels used in the multispecies fishery. Finally, the groundfish fishery does not occur in low latitude waters where calving and nursing occurs for large cetaceans (Aguilar 2002; Clapham 2002; Horwood 2002; Kenney 2002; Sears 2002; Whitehead 2002). Therefore, the groundfish fishery is not expected to affect the oceanographic conditions that are conducive for calving and nursing of these large whales.

The overall effect of the Alternative 3, the Preferred Alternative measures to reduce fishing mortality in the commercial fishery is positive for protected species given the required reductions in effort. As compared to the No Action as well as Alternatives 1 and 2, Alternative 3 would require the same percentage of DAS reductions as the No Action and Alternative 1, but less than that which would be required by Alternative 2. Differential DAS counting for Alternative 3 is different than but similar to the differential DAS measures for Alternatives 1 and 2 and would further help to reduce effort. Similar to Alternative 1 and 2, Alternative 3 would also require a year round closure in Southern New England. As described above, a year-round closure in Southern New England would have an overall positive effect on protected species.

16.2 Economic Impacts of Proposed Rule Alternative

16.2.1 Aggregate Impacts

Average groundfish trip revenue for the vessels included in the analysis was $101 million during FY 2005 to FY 2007 and average total revenue was $158 million. The state level and total impacts in Table 130 were estimated using a subset of the total fishery due to missing data. The percentage reductions in the table represent the best estimation of the amount of revenue reduction anticipated, however the amount of revenue reduction expressed in dollars is an underestimation of the amount of revenue reduction by state. Under Alternative 3 the estimated groundfish trip revenue would decline by 31% to $70 million and total fishing revenue would decline by 20% to $126 million (Table 117). The relative reduction in groundfish trip revenue varied by home port state, ranging from a small increase in New Jersey to 38% in Maine. As was the case for other alternatives the configuration of the Southern New England closure area (compared with the SNE Differential DAS Area) made it possible for some vessels to mitigate the effects of Alternative 3. Reflecting the relatively larger share of groundfish trip income in total revenue, the expected reduction in total fishing revenue was estimated to be at least 25% in Maine (34%) and Massachusetts (27%). The estimated reduction in total revenue to New Hampshire port vessels was 16% and was 17% for Connecticut home port vessels. In all other states the expected reduction ranged from 6% in New York to 8% in Rhode Island.

Table 117. Change in Groundfish Trip and Total Trip Revenue by Home Port State

State	2005-2007 Average Total Revenue	Estimated Total Revenue	Change in Total Revenue	2005-2007 Average Groundfish Trip Revenue	Estimated Groundfish Trip Revenue	Change in Groundfish Trip Revenue
CT	$471,853	$393,690	-17%	$234,954	$156,791	-33%
MA	$76,335,101	$55,962,137	-27%	$61,075,061	$40,702,098	-33%
ME	$18,692,050	$12,277,101	-34%	$16,887,629	$10,472,680	-38%
NH	$5,260,523	$4,427,255	-16%	$4,381,575	$3,548,307	-19%
NJ	$6,897,309	$6,917,932	0%	$1,874,151	$1,894,774	1%
NY	$14,307,651	$13,430,633	-6%	$4,035,033	$3,158,015	-22%
RI	$31,466,190	$29,003,641	-8%	$11,430,282	$8,967,733	-22%
Other	$4,121,225	$3,715,622	-10%	$1,292,992	$887,388	-31%
Total	$157,551,903	$126,128,010	-20%	$101,211,678	$69,787,786	-31%

16.2.2 Vessel-Level Impacts

There were a total of 23 vessels that had an estimated increase in fishing opportunities associated with the reconfigures closure area in the Southern New England-Mid-Atlantic stock area. The increase in revenue for these vessels ranged from 0.2% at the 10th percentile to 6% at the 90th percentile. Almost all of these positively affected vessels were from Mid-Atlantic home ports, principally New Jersey. Since the number of positively affected vessels was so small the remainder of this discussion will focus only on the vessels that were not estimated to gain in total fishing revenue. Of the remaining vessels gross revenues for only 9 of the vessels included in the analysis would not change relative to status quo conditions (Table 118). For the remaining vessels the estimated reduction in total revenue ranged from 2% to 42%. That is, on average, vessels at or below the 20th percentile would be expected to lose 2% of total fishing revenue, while vessels above the 80th percentile may be expected to lose 42% of total fishing revenue. At intermediate percentiles expected revenue losses would still average 10 to 25%.

Table 118. Estimated Impact and Number of Affected Vessels by Impact Category

Impact Category	Number of Vessels	Average Adverse Impact
No Impact	9	0%
Up to 20th Percentile	96	2%
20th Percentile to Median	143	10%
Median to 80th Percentile	143	25%
Above 80th Percentile	95	42%

In relative terms, Alternative 3 would have somewhat similar impacts among vessels of different sizes (Table 119). The average adverse impact on total fishing revenue ranged from 2 to 3% for all vessel size classes up to the 20th percentile. Between the 20th percentile and the median the average reduction in total revenue was similar small and large vessels but was about two to four percentage points lower for medium sized vessels. However, between the median and the 80th percentile average impacts on small vessels were lower (20%) than for medium sized vessels (28%) or large vessels (32%). Among the most affected vessels (above the 80th percentile) the adverse impact on small vessels was there was less (39%) than for either medium or large vessels.

Table 119. Estimated Adverse Impact and Affected Vessels by Vessel Length Class

	Less than 50 feet		50 to 70 feet		Over 70 feet	
Impact Category	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact
Up to 20th Percentile	44	3%	27	2%	25	2%
20th Percentile to Median	66	11%	41	9%	37	13%
Median to 80th Percentile	66	20%	40	28%	37	32%
Above 80th Percentile	43	39%	27	43%	24	43%

Among primary gears the relative distribution of adverse impact on total revenue was similar for vessels using gillnet or trawl gear at intervals below the median (Table 120). However, at percentiles above the median, trawl gear impacts were higher than either gillnet or hook gear. Trawl gear adverse impacts on total fishing revenue averaged 30% among vessels between the median and the 80th percentile and averaged 44% above the 80th percentile. Adverse impacts on gillnet and hook gear respectively averaged 19% and 12% between the median and 80th percentile and 29% and 35% for vessels above the 80th percentile.

Table 120. Estimated Adverse Impact and Affected Vessels by Primary Gear

	Gillnet		Hook		Trawl	
Impact Category	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact
Up to 20th Percentile	23	4%	4	1%	69	2%
20th Percentile to Median	34	12%	5	4%	104	10%
Median to 80th Percentile	35	19%	6	12%	103	30%
Above 80th Percentile	22	29%	3	35%	69	44%

The relative distribution of adverse impacts differed between states that border the Gulf of Maine (Maine, New Hampshire, and Massachusetts) and those that do not (Table 121). Among these states the estimated adverse impacts in Maine was higher for vessels up to the 20th percentile (10%) than in Massachusetts (3%) or New Hampshire (4%).

Impacts on Maine home port vessels were also higher between the 20th percentile and the median than other states. However, above the median the relative impact on Maine and Massachusetts home port vessels was similar. In other states the estimated revenue impacts tended to be lowest among New Jersey home port vessels although expected revenue losses among these vessels were still high above the 80th percentile. Note that the magnitude of economic impacts on New York and New Jersey vessels was mitigated by the reconfigured Southern New England-Mid-Atlantic closure area. Although estimated impacts on vessels from Connecticut and Rhode Island home ports were generally below that of Maine, New Hampshire, and Massachusetts the average impact above the 80th percentile (39%) was highest among all states.

Table 121. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Home Port State

Home Port State	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
MA	50	73	74	49
ME	13	19	20	12
NH	7	11	10	7
NJ - South	4	4	5	3
NY	9	13	13	8
RI & CT	15	22	22	14
	Average Adverse Affect on Total Revenue			
MA	3%	15%	30%	42%
ME	10%	25%	37%	43%
NH	4%	9%	16%	31%
NJ	0%	1%	7%	25%
NY	1%	3%	7%	26%
RI & CT	3%	7%	12%	39%

Vessels with high dependence on groundfish trip revenue may be expected to be more adversely affected by Alternative 3 than less dependent vessels. This effect is evident as the estimated average adverse impact of fishing revenue increases with dependence on groundfish trip revenue (Table 122). For example, the estimated impact on vessels that depend on groundfish trips for less than 20% of fishing revenue ranged from less than 0.5% up to the 20th percentile to 6% for vessels above the 80th percentile. By contrast, impacts on vessels that depend on groundfish for at least 80% of fishing revenue ranged from an average of 12% up to the 20th percentile and 47% above the 80th percentile.

Table 122. Estimated Impacts and Number of Affected Vessels by Dependence on Groundfish Trip Revenue

Dependence Category	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
0 to 19%	12	17	18	11
20 to 39%	15	21	21	14
40 to 59%	13	18	18	12
60 to 79%	14	19	20	13
80 to 100%	45	66	66	44
	Average Adverse Affect on Total Revenue			
0 to 19%	0%	1%	3%	6%
20 to 39%	3%	5%	8%	14%
40 to 59%	4%	9%	14%	28%
60 to 79%	7%	14%	21%	36%
80 to 100%	12%	25%	36%	47%

Unlike dependence on groundfish dependence the estimated average impact on total fishing revenue was similar across gross sales categories although the impacts on vessels with sales above $270 thousand tended to be slightly higher compared to vessels with lower gross sales (Table 123). However, note that the adverse impact among the most affected vessels (above the 80th percentile) was highest (49%) for vessels in the lowest sales category.

Table 123. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Gross Sales Category

Gross Sales Category ($1,000)	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
Less than $90 k	18	27	27	18
$90 k to $159 k	19	27	28	18
$160k to $269 k	20	30	30	19
$270 k to $500 k	19	28	28	18
More then $500 k	21	31	31	20
	Average Adverse Affect on Total Revenue			
Less than $90 k	2%	10%	19%	49%
$90 k to $159 k	2%	9%	21%	38%
$160k to $269 k	2%	11%	24%	39%
$270 k to $500 k	4%	13%	28%	41%
More then $500 k	2%	10%	33%	42%

Among port groups the estimated revenue impacts follow a pattern similar to that of home port states. That is, impacts on port groups in Maine, New Hampshire, and Massachusetts tended to be larger than the impacts on vessels from port groups in other states (Table 124). The exception was the Other Rhode Island port group where the average impact on vessels above the 80th percentile was 67%. Overall, estimated adverse impacts on vessels from the Mid-Coast Maine port group were highest for vessels below the 80th percentile. The average impact in the Mid-Coast port group was 16% for vessels below the 20th percentile and was 32% between the 20th percentile and the median. Between the median and the 80th percentile Mid-Coast Maine home port vessels were estimated to lose an average of 39% of total fishing revenue. Among other port groups the distribution of estimated adverse effect was similar in Gloucester, New Bedford, Scituate-Boston, and the Portland-Southern Maine port group.

Table 124. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Port Groups

Port Group	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
Cape & Islands	7	9	9	6
Long Island, NY	9	13	13	8
Gloucester	17	25	26	16
Mid-Coast Maine	6	9	9	6
North Shore, Massachusetts	5	8	7	5
New Bedford	16	23	23	15
New Jersey	4	4	5	3
Other Rhode Island	6	8	9	5
Point Judith	9	14	13	9
Portsmouth Area	7	11	10	7
Scituate - Boston	6	9	9	5
Portland - So. Maine	7	10	11	6
	Average Adverse Affect on Total Revenue			
Cape & Islands	1%	7%	20%	39%
Long Island, NY	1%	3%	7%	26%
Gloucester	6%	18%	34%	42%
Mid-Coast Maine	16%	32%	39%	44%
North Shore, Massachusetts	2%	8%	15%	26%
New Bedford	5%	20%	31%	40%
New Jersey	0%	1%	7%	25%
Other Rhode Island	4%	7%	13%	67%
Point Judith	2%	7%	11%	23%
Portsmouth Area	4%	9%	16%	31%
Scituate - Boston	6%	16%	35%	45%

Portland - So. Maine	9%	20%	32%	42%

16.2.3 Economic Impacts on Other Fisheries

There are currently 1,051vessels that have both Skate and NE Multispecies DAS permits. In 2007, total skate fishery revenues in the Northeast Region were an estimated $4.1 million. Approximately 80% of this revenue was derived from the skate wing fishery, while the rest was derived from the skate bait fishery. Skate landings on Multispecies A DAS valued approximately $2.7 million, Regular B DAS skate revenues were approximately $228,000, and skate revenues on combination Monkfish and A DAS trips were approximately $403,000. Since average total revenue from the multispecies fishery from 2005-2007 was approximately $157.5 million, skate revenues represent a relatively small component of total revenues in groundfish fisheries.

Compared to the No Action alternative, all of the alternatives are expected to have negative economic impacts on skate fishing vessels. Each of the alternatives reduce fishing effort in some fashion, and therefore reduce opportunities to catch and land skates. Due to regional variations in skate fisheries and fishing effort, the alternatives may disproportionately impact the different sectors of the skate fishery, and some ports may be more severely impacted than others.

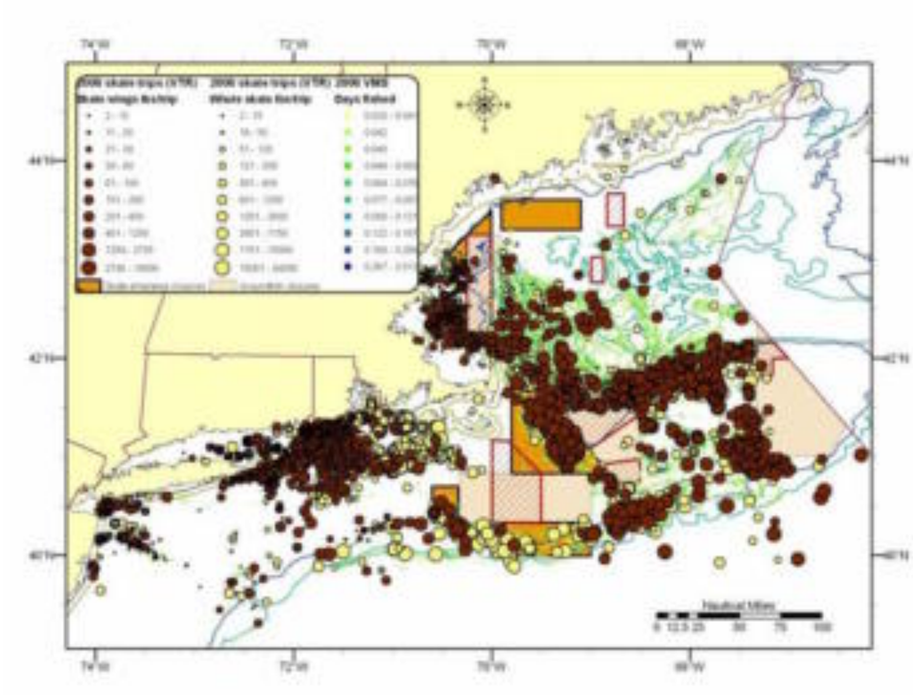
The Southern New England closure area is likely to negatively impact skate vessels that have traditionally fished in that area, including vessels from Long Island, NY; Point Judith and Tiverton, RI; and New Bedford and Chatham, MA. The distribution of fishing effort by trawl and gillnet vessels in the skate wing and bait fisheries in 2007 is plotted in Figure 70 below. The SNE closure encompasses the bulk of the area fished in the skate bait fishery, which is primarily focused in nearshore and offshore waters between eastern Long Island and Martha's Vineyard. The majority of bait skate catch is landed in Point Judith, Tiverton, and Newport, RI; and New Bedford, MA. Therefore, the SNE closure area may have greater negative economic impacts on the skate bait fishery than on the skate wing fishery.

A large amount of skate wing catch has also historically occurred in the proposed SNE closure area, particularly in the Great South Channel area (Figure 50). While trawl vessels that have landed skate wings have distributed their effort throughout Georges Bank and in the western Gulf of Maine, gillnet vessels that landed skate wings predominantly fish in SNE waters. Skate wing vessels that fish with gillnets, therefore, may be more impacted by the proposed measures.

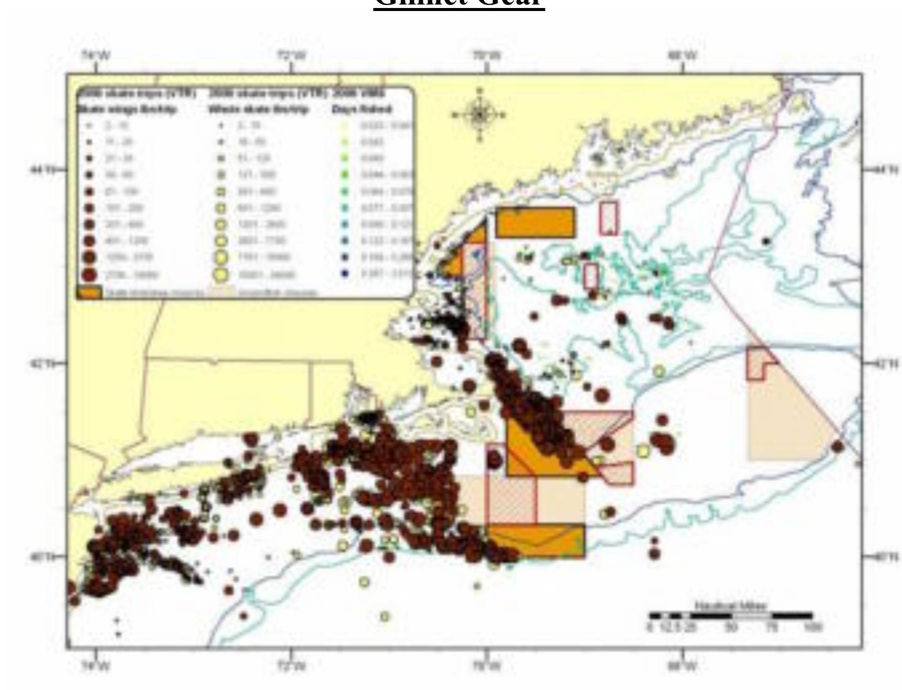
Figure 50. Distribution of fishing effort by gear type for trips landing skates in 2007

(as reported in VTRs. Brown symbols represent skate wing landings, and yellow symbols represent whole skate landings. The orange areas are skate time/area closures being proposed in Amendment 3 to the Skate FMP. *Source: Skate Amendment 3 DEIS*.)

Trawl Gear



Gillnet Gear



Skate vessels potentially impacted by the SNE closure area may be able to mitigate some of their revenue losses by fishing in exempted fisheries. The SNE Monkfish and Skate Gillnet Exemption Area and SNE Monkfish and Skate Trawl Exemption Area allow vessels to fish for monkfish and skates while not using a DAS (refer to 50 CFR 648.80(b)(5) and (6)). Vessels could also redistribute their effort to areas outside of the closure, or fish in other non-DAS fisheries to help make up for economic losses.

Alternatives 2 and 3 are difficult to differentiate from an economic impact standpoint. Both would reduce effort, negatively impacting the skate fishery, but Alternative 2 would possibly provide more flexibility to vessels that fish in the Gulf of Maine, who could minimize fuel costs and sea time by fishing for skates closer to shore. Alternatives 1 and 3, on the other hand, may promote the redistribution of effort as vessels try to avoid fishing in the differential DAS areas.

Proposed changes to the US/Canada Area management measures, including delayed opening of the Eastern US/Canada Area, allowance of the Ruhle trawl, and allocation of zero trips to the CA II Yellowtail Flounder SAP, would all likely have negative economic impacts on skate vessels that have landed skates while fishing in those areas. These measures would reduce effort and potential skate bycatch, and therefore reduce opportunities to land skates. Historically, there has not been a great deal of revenue derived from skates in these programs.

All other measures included in this action are not anticipated to have any direct economic impacts on skate vessels.

Due to the inability to predict fishing vessel behavior in response to these new measures, it is not possible to accurately quantify the actual economic impacts of the proposed action on the skate fishery. Nevertheless, vessels that target skates while fishing on Multispecies DAS (e.g. vessels that solely fish for bait skates in SNE) may incur greater negative economic impacts than vessels that have traditionally landed skates incidental to other species. The skate bait fishery may be particularly at risk due to its proximity to the SNE closure area, and its reliance on directed skate trips. If the supply of bait skate is reduced by this action, there may also be impacts on the lobster fishery, which relies on whole skates for lobster bait. Assuming constant demand for bait, the lobster fishery may have to pay higher prices for skate bait, or switch to other bait sources such as herring.

Monkfish Fishery

The 18 percent DAS reduction may reduce monkfish fishing effort due to the requirement that limited access monkfish Category C and D vessels that also hold a NE multispecies DAS permit use a NE multispecies DAS in conjunction with a monkfish DAS (see 50 CFR 648.92(b)(1)(i)). However, the existing provision under § 648.92(b)(2) that allows limited access monkfish Category C and D vessels with fewer allocated NE multispecies DAS than allocate monkfish DAS to use the difference between these two allocations as monkfish-only DAS will help mitigate such impact on monkfish fishing effort.

The expanded differential area may negatively affect any limited access monkfish Category C or D vessels that target monkfish in the Northern Fishery Management Area

(NFMA) (i.e., that uses monkfish DAS), by potentially limiting a vessel's ability to use its available monkfish DAS if it does not have sufficient NE multispecies DAS to cover the monkfish DAS it intends to use during the period of the interim action. This measure will particularly impact those vessels with relatively few multispecies DAS and those that are fishing in the offshore areas not affected by the GOM Differential Area currently in effect. As a result, the proposed measure could reduce monkfish fishing effort in the NFMA, having negative social and economic impacts. Category C and D vessels comprised approximately 94% of the active vessels in the Monkfish Northern Fishery Management Area in 2006-2007. Monkfish Category C and D vessels landed 38% of the total monkfish landings north 42 degress 30 minutes north latitude in 2006, and 59% of the total monkfish landings from this area in 2007. In 2006 and 2007, 249 and 207 Monkfish Category C and D vessels fished north of 42 degress 30 minutes north latitude.

The SNE Closure Area, although smaller in size than the SNE Differential Area currently in effect, would likely impact inshore monkfish gillnet vessels that fish in this region, reducing monkfish fishing effort overall in this area with a subsequent negative economic impact to the monkfish fishery. The extent of this potential negative social and economic impact, depends on the number of limited access monkfish Category C and D vessels actively fishing in the statistical areas encompassed by the closure, how much monkfish is landed from these areas, and whether or not these vessels could move their fishing operations into an open area in an effort to mitigate the impacts of the closure. Category C and D vessels comprised approximately 43% of the active vessels in the Monkfish Southern Fishery Management Area in 2006-2007. In 2006 and 2007, approximately 43% and 41% (respectively) of the monkfish landed from the Southern Monkfish Management Area was caught from the area covered by the proposed SNE Closure Area by monkfish Category C and D vessels. In 2006 and 2007, 188 and 186 monkfish Category C and D vessels (respectively) fished in the area that would be affected by the proposed SNE Closure Area. Therefore, based on historic patterns, the maximum economic impacts of this alternative therefore would be a 42% reduction in monkfish landing, if vessels did not increase there fishing effort in the area outside of the SNE Closure Area. Secondly, the impacts would be mitigated by the fact that the SNE Differential DAS Area would no longer exist. This action would not affect limited access monkfish Category A and B vessels, since these vessels do not use NE multispecies DAS.

16.3 Social Impacts

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 wasteful of valuable resources and distasteful. Modifications to daily routines can make long term planning difficult. New gear purchases must be ordered in advance and result in a change to daily routine when equipment cannot be used in a timely or cost effective manner. Changes in management measures that limit access to fishing may alter economic incentives that change the likelihood of risky fishing practices. Increased risk can result when fishermen spend longer periods at sea, or travel excessive distances, operate with fewer crew, or fish under 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 alternative of these factors will be discussed below. The primary port groups that are most affected by changes in groundfish management are identified in section 9.6.

Regulatory Discarding

Because the current regulatory structure and this alternative rely heavily on the combined effects of DAS, closed areas, and trip limits, to reduce fishing mortality, regulatory discarding will continue to frustrate fisherman and cause waste. Modifications to trip limits under this alternative will alleviate discarding for some stocks, but may cause increased discarding for other stocks. The current trip limit for GB winter flounder woould be removed, and the per DAS limit for white hake will increase from 1,000 lb per DAS to 2,000 lb per DAS, and provide some relief from discarding. New very restrictive limits (zero retention allowed) would be implemented for SNE winter flounder, windowpane north, and ocean pout, which could cause discarding and frustrate vessel owners.

Safety

There is little empirical data with which to evaluate the types of management measures that improve or threaten the safety of fishing vessel operators. One study attempted to identify factors that contributed to serious vessel accidents in the Northeast Region. Di Jin and Thunberg (2005) examined fishing vessel accidents in the Northeast United States from 1981 through 2000, updating an earlier report. The modeled fishing vessel accident probability using U.S. Coast Guard data and NMFS data. The data were for all fisheries and the results are not specific to the groundfish fishery. In all cases, the model showed that increasing wind speed and decreasing distance from shore result in an increase in accident rates.

Framework Adjustment 42 stated that the inshore and offshore differential DAS counting areas may affect vessel safety because of the possibility that some vessel may attempt to fish farther offshore to avoid the 2:1 differential DAS area. Under current regulations, the closest area that is not subject to a differential DAS counting rate is approximately 40 miles from the ports of Gloucester, Provincetown, and Portsmouth.

This Alternative would alleviate this problem in the GOM by making the DAS counting rate uniform throughout the GOM and in northern GB. This alternative may cause a new safety issue if vessels have a strong incentive to travel further to reach areas outside of the SNE Closure Area.

Disruption in Daily Living

Amendment 13 defines the disruption in daily living as "changes in the routine living and work activities of affected fishery participants, including the potential for alternate in their regular social and work patterns to adapt to new management measures" (NEFMC 2003). This alternative would cause disruptions in daily living, most notably, from the reductions in DAS, the increased DAS counting rates in the SNE Closure Area. Unless vessel owners spend additional money to lease DAS, the alternative will result in less DAS available for use for targeting groundfish (or other species such as monkfish or skates). There would be increased incentives to pursue non-groundfish fisheries or other non-fisheries sources of income. If vessel owners can lease in DAS in order to maintain or increase their activity in the groundfish fishery, the cost of leasing those DAS may represent a disruption in daily living. Vessels that currently fish for groundfish in SNE may be more acutely impacted by the SNE Closure Area, and experience disruption in daily living. Although mitigating measures may provide some relief, the number of vessels that have participated in the special management programs has been very limited, and the DAS Leasing and Transfer Programs offer only limited relief to disruptions due to the costs of these programs.

<u>Changes in Occupational Opportunities and Community Infrastructure</u>

Changes in occupational opportunities and community infrastructure is defined as the degree to which the occupational profile of the affected communities would be affected by the proposed action. This alternative could alter the composition of the existing groundfish fleet and the fleets of other fisheries by indirectly providing incentives for groundfish vessels to pursue other sources of fishing revenue. During FY 2009, the longest duration this alternative may be in place, landings of regulated groundfish are likely to decline, and could result in changes in the ability of shoreside infrastructure to maintain year-round operations. While there may be increased effort in other fisheries that may partially compensate for these changes, it is not known if the same business that serve the groundfish fishery also support other fisheries.

Based on the trend in total groundfish landings and revenue from 2005 to 2007 (Table 34), the recent trend in revenue has been fairly stable. However, there has been a decline in the number of active vessels (Table 36). Although the net amount of revenue and landings over time may not be contributing to a change in community infrastructure per sae, the fact that there are declining number of vessels participating in the fishery is likely to have an impact on both occupational opportunities, and community infrastructure. Although mitigating measures may provide some relief, the number of vessels that have participated in the special management programs has been very limited, and the DAS Leasing and Transfer Programs offer only limited relief to disruptions due to the costs of these programs.

<u>Formation of Attitudes</u>

Formation of attitudes refers to positions expressing support for, or opposition to a proposed management measure. The combination of a DAS cut and a differential DAS counting rate under this alternative may be perceived as being less burdensome than a large DAS reduction, even though both strategies curtail net DAS use. The relatively large closure area in SNE will likely cause strong opposition to this alternative. Vessel owners who fish in the offshore GOM are likely to oppose this alternative due to the extension of the differential DAS rate throughout the GOM. It is likely that changes in the understanding of the status of stocks and the changes to the biological reference points will frustrate or anger fishing industry members due to significant changes in the status of some stocks. Many vessels owners are frustrated that new sectors are not available as an opportunity for the 2009 fishing year. Many in the fishing industry were hoping to avoid additional restrictions under the current management system (principally DAS restrictions) by fishing in sectors. Although it is not clear whether sectors will eliminate some frustrations and create new frustrations, the perception for many is that sectors would provide some net benefits to the industry.

Impact on Skate Ports

The social and community impacts of this action are likely to be similar between the skate fishery and the multispecies fishery. Again this is due to the fact that skate fisheries are largely interrelated with groundfish fisheries. Relative to No Action, all alternatives are anticipated to have some level of negative social impacts on skate fishing communities, derived from the anticipated economic losses. According to data presented in the DEIS for Amendment 3 to the Skate FMP, the top ports in 2007 for skate bait landings included Point Judith, RI; Tiverton, RI; New Bedford, MA; Newport, RI; and Stonington, CT. The top ports for skate wing landings included New Bedford, MA; Chatham, MA; Point Judith, RI; Boston, MA; and Barnegat Light, NJ. Although some vessels and ports (e.g. Chatham, MA and Point Judith, RI) rely on skate revenue for a substantial part of their total fishing income, most New England ports derive the majority of their revenues from the landings of other species.

17.0 Analysis of Impacts - Alternative 4 – Preferred Alternative

17.1 Biological Impacts Preferred Alternative

17.1.1 Impacts on Groundfish – Commercial Measures

The Closed Area Model (CAM) is the principal analytical tool used to estimate the biological impacts of the management measures. Results for each alternative are calculated in relation to the status-quo management measures. Additional information on the CAM is in section 24.0, Comparison of Alternatives.

Because the CAM results are expressed as exploitation rates, the target fishing mortality reductions for each stock are also expressed in terms of equivalent reductions in exploitation. Changes in exploitation are calculated by taking the current estimated F and target F, converting both to an exploitation rate, and then calculating the percentage change necessary to move from the current exploitation rate to the target exploitation rate.

The changes in exploitation for Alternative 4 compared with the targeted reductions in exploitation is shown below in Table 125. The exploitation rate is the proportion of the stock caught during a time period (i.e., a year). The changes in fishing mortality rate for Alternative 4 compared with the targeted reductions is shown below in Table 126.

Table 125. Alternative 4 Changes in Exploitation (median value from CAM).

Species	Stock	Target	Target Reduction in Exploitation	Estimated Reduction in Exploitation Achieved
Cod	GB	Fmsy	- 35.2 %	-24.4 %
	GOM	Fmsy	-18.7 %	-15.5 %
Haddock	GB	Fmsy	na	-20.9 %
	GOM	Fmsy	na	-16.2 %
Yellowtail flounder	GB	F rebuild	-15.3 %	-15.1 %
	SNE/MA	F rebuild	-36.1 %	-38.0 %
	CC/GOM	F rebuild	-15.7 %	-39.0 %
American plaice		Fmsy	na	-14.8 %
Witch flounder		Fmsy	-29.3 %	-14.6 %
Winter flounder	GB	Fmsy	na	-12.1 %
	GOM	Fmsy	-9.3 %	-14.3 %
	SNE/MA	F rebuild	-100 %	-59.3 %
Redfish		Fmsy	na	-17.7 %
White hake		F rebuild	na	-16.9 %
Pollock		Fmsy	-35 %	-18.8 %

Windowpane	North	Fmsy	-74 %	-22.1 %
	South	Fmsy	-21 %	-32.3 %
Ocean pout		Fmsy	*	*
Atlantic halibut		F rebuild	*	*

* The CAM has not been utilized to analyze impacts for these stocks in the past or currently because very limited fishery for these stocks.

Table 126. Alternative 4 Changes in Fishing Mortality (F) (median value from CAM).

Species	Stock (shaded cells subject to overfishing (F 2007, GARM III)	Interim Action Target	Est. of 2008 F	Target F Value	Target Reduction in F	Est. of 2009 F Achieved	Est. of Percentage Reduction in F Achieved (shaded cells subject to overfishing)
Cod	GB	Fmsy	0.41	0.2466	- 40 %	0.295	-28 %
	GOM	Fmsy	0.3	0.237	-21 %	0.247	-18 %
Haddock	GB	Fmsy	0.083	0.350	322 %	0.062	-25 %
	GOM	Fmsy	0.25	0.430	72 %	0.205	-18 %
Yellowtail flounder	GB	F rebuild	0.13	0.109	- 16 %	0.109	-16 %
	SNE/MA	F rebuild	0.12	0.075	- 38 %	0.073	-39 %
	CC/GOM	F rebuild	0.289	0.238	- 18 %	0.167	-42 %
American plaice		Fmsy	0.099	0.190	92 %	0.084	-15 %
Witch flounder		Fmsy	0.296	0.200	- 32 %	0.247	-17 %
Winter flounder	GB	Fmsy	0.131	0.260	98 %	0.114	-13 %
	* * GOM	Fmsy	0.317	0.283	- 11 %	0.265	-16 %
	SNE/MA	F rebuild	0.265	0.000	- 100 %	0.100	-62 %
Redfish		Fmsy	0.008	0.038	375 %	0.007	-13 %
White hake		F rebuild	0.065	0.084	29 %	0.054	-17 %
Pollock		Fmsy	11.5	5.66	- 51 %	9.342	- 19 %
Windowpane	North	Fmsy	2.86	0.50	- 83 %	2.229	- 22 %
	South	Fmsy	2.055	1.47	- 29 %	1.392	- 32 %
Ocean pout		Fmsy		0.76	*		*
Atlantic halibut		F rebuild	0.06	0.044	-27 %		*

* The CAM has not been utilized to analyze impacts for these stocks.
** High uncertainty regarding stock status.

The model results indicate that the fishing mortality of all stocks managed by the FMP will be reduced, ranging from 13 percent (GB winter flounder and redfish), to 62 percent (SNE/MA winter flounder). The Preferred Alternative management measures reduce fishing exploitation on all stocks, including those stocks for which a reduction is being sought, as well as stocks that do not need any reduction in exploitation. The Preferred Alternative does not achieve the fishing mortality objectives for 5 stocks (GB cod, witch flounder, SNE/MA winter flounder, pollock, and windowpane north), 4 of which will still be subject to overfishing GB cod, witch flounder, pollock, and windowpane north). Although the closed area model results indicate that overfishing will be occurring on 4 stocks, the measures will make large proportional gains in the elimination of overfishing. Furthermore, of the 4 stocks subject to overfishing, 3 of the stocks are not yet under a rebuilding program (witch flounder, windowpane north, and pollock).

For the GOM stock of cod, although the numeric estimate of fishing mortality associated with the management measures is slightly more than the target F, given the precision of the analysis (approximately plus or minus 10 percent), the measures essentially eliminate overfishing. The GB cod stock has a prolonged rebuilding period (ending in 2026) which makes a reduction in F for 2009 less critical, provided Amendment 16 reduces fishing mortality to the level calculated to end overfishing and rebuild the stock. It should also be noted, that the risk associated with the fishing mortality rates that this final interim rule allows for some stocks could increase the difficulty of rebuilding of the overfished stocks due to the potential for high levels of exploitation to affect stock growth. Of note is GB cod, which has been subject to overfishing during the first five years of its rebuilding period. Not-withstanding the risk just described, GARM III indicated that the 2007 fishing mortality rate of GB cod stock is the lowest in the time series, and based on the CAM, the measures implemented by the Preferred Alternative will achieve 70 percent of the reduction in fishing mortality necessary to reduce F to Fmsy.

As described in the description of alternative 4, the target reductions for pollock and the two windowpane flounder stocks were revised from the proposed rule in order to be consistent with the other stocks. In the proposed rule, the target reductions for all stocks except these three were based upon an estimate of fishing mortality in 2008. The target reductions for these three stocks were based upon the fishing mortality in 2007. In contrast, this final rule utilizes a starting fishing mortality estimate in 2008. Because the estimate of fishing mortality in 2008 was greater than for 2007, the effect of this change is an increase in the percentage reduction necessary to reduce fishing mortality to Fmsy. For the calculation of F in 2008, for pollock, the PDT calculated an assumed catch in 2008 and for the windowpane flounder stocks catch in 2008 was assumed to be equal to the catch in 2007.

The rebuilding objectives of the interim rule are not achieved for SNE/MA winter flounder. With respect to the northern stock of windowpane flounder, which needs a 74 percent reduction in F to eliminate overfishing, in contrast to many other stocks in the complex, this stock is principally a bycatch species, with landings representing only 12 % of the catch in calendar year 2007 (Catch: 1,032 mt, Landings: 119 mt; GARM III). Because this stock is principally a bycatch species with relatively low catch already, additional reductions in fishing exploitation may be very difficult to achieve through reductions in fishing effort. Since 2000, most of the landings have occurred in statistical area 525, south-central Georges Bank, and the bycatch of this stock is likely higher during winter and spring when the species is distributed across a broader area of Georges Bank. Most of the discards are in the large-mesh bottom trawl fishery. The prohibition of retention of windowpane north will eliminate landings and eliminate any incentive to target this stock.

Similarly, the model results indicate that the reduction in exploitation of the SNE/MA stock of winter flounder would not be sufficient to fully bring the fishing mortality down to Frebuild (zero fishing mortality), the CAM indicates that exploitation will be reduced by 59 percent. In 2007 landings and discards of SNE/MA winter flounder were as follows in Table 127.

Table 127. SNE/MA Winter Flounder Landings and Discards in FY 2007, assuming zero survival of discards (GARM III).

Source	Mt	Percent of Total
Commercial landings	1,622 mt	83 %
Recreational landings	116	6 %
Discards	228	12 %
Total Catch	1,966	

If landings in 2009 are zero, due to the prohibition on retention of winter flounder, and discards either remain the same as in 2007 (228 mt), or double (456 mt), such reductions in total catch would represent an 88% and 77% reduction in catch.
Based upon a NMFS bycatch report (Wigley, et. al., 2008), in 2005, approximately 65 percent of trawl discards were from the small mesh fishery and 34 percent from the large mesh fishery. The amount of reduction in fishing mortality that will result from the prohibition on retention is difficult to predict. If vessels are currently targeting winter flounder, and a prohibition on retention alters fishing behavior, then fishing mortality will be effectively reduced. However, if current catch levels reflect that catch from vessels that are not currently targeting winter flounder, but are still encountering them then a prohibition on retention would be less effective. The proposed recreational prohibition on retention of SNE winter flounder and the elimination of the SNE Winter Flounder SAP and the State Waters Exemption (described below), may contribute some additional fishery mortality reductions that are not captured in the CAM. Fishing by NE multispecies vessels using hook gear in the SNE Closure Area is not expected to cause any meaningful impact on winter flounder, due to the very low catch rate of winter flounder by hook gear. An indication of the catch rate that could be expected is that of the Georges Bank Cod Hook Sector (Sector). The Sector's annual report for 2007 includes the following data: 2007 landings of winter flounder: 1,529 lb; 2006 landings of winter flounder: 1,435 lb. The Sector's total landings (all species) in 2007 were 478,843 lb.

The relative exploitation ratio for Ocean Pout indicated that the fishing mortality was well below the fishing mortality threshold (Fmsy proxy), and that landings from the SNE/MA area have dominated the catch (GARM III). The 2007 catch (178 mt) was the lowest since 1963. The DAS reduction, Differential DAS Area, and SNE Closure Area will likely result in some reduced catch of Ocean Pout.

Although the catch of Atlantic halibut increased in 2007 over recent levels, the future catch of Atlantic halibut will likely remain at similar levels or decline due to the DAS reduction and Differential DAS Area. A limit of one halibut per trip will continue to result in a reduction of catch to the lowest practicable level. A limit of one halibut per trip does not result in any incentive to target halibut, but minimizes wasteful discarding of halibut.

17.1.2 Impacts on Other Species/Bycatch

This interim action would implement restrictive measures to reduce fishing mortality on groundfish stocks in the NE. Some of the stocks managed by the FMP that are less frequently targeted and caught as bycatch by multispecies vessels include ocean pout, Atlantic halibut, windowpane flounder and GOM winter flounder. Although the goal of the interim measures is to reduce fishing mortality on certain stocks, the reduction in fishing effort that will be achieved will impact other stocks, including bycatch. The Interim SNE Differential DAS Area will reduce fishing effort by groundfish vessels fishing with trawl gear and gillnet gear, and reduce bycatch in that area from the groundfish fishery. The prohibition on retention of SNE winter flounder by other fisheries may increase discarding if vessels continue to encounter SNE winter flounder. The implementation of a trip limit for witch flounder may increase discards of these stocks, while the implementation of prohibitions on retention of ocean pount and northern windowpane flounder may increase discarding on those trips that encounter these species. However, due to the overall reduction in fishing effort likely, and the fact that there will be no legal incentive to target the stocks than cannot be retained, the net amount of bycatch of such species may decline. Additional trip limits for species that do not currently have limits were not considered in order to prevent discarding (e.g.,windowpane south, pollock). The reduction of minimum size for haddock will reduce discards in both the commercial and recreational fisheries. Although the DAS Leasing Program and DAS Transfer Program modifications will facilitate the use of DAS in some cases, the major constraint that limits DAS leasing for individual vessel owners (i.e., cost) will continue to limit the effort associated with DAS leasing and transfers.

The implementation of a trip limit for GB yellowtail flounder reduces the likelihood that the hard TAC for this stock in the U.S./Canada Management Area will be achieved prior to the end of the fishing year. Should the TAC be achieved before the end of the fishing year, possession of GB yellowtail flounder would be prohibited, but discarding would continue. The restriction on the use of low-profile gillnets in the Regular B DAS Program will reduce bycatch of flatfish. All catch of groundfish stocks of concern in the Regular B DAS Program count toward the incidental catch TACs, regardless of whether such catch is kept or discarded. The accounting of all fish caught serves as an incentive for fishers to reduce bycatch in order to decrease the rate at which the TAC is harvested, and enable more fishing opportunity to target healthy groundfish stocks under this program. The current gear restrictions for the U.S./Canada Area and Special Management Programs will continue to provide valuable reductions in the catch of stocks of concern.

Impacts on the Monkfish Fishery

The 18 percent DAS reduction may reduce monkfish fishing effort due to the requirement that limited access monkfish Category C and D vessels that also hold a NE multispecies DAS permit use a NE multispecies DAS in conjunction with a monkfish DAS (see 50 CFR 648.92(b)(1)(i)). However, the existing provision under § 648.92(b)(2) that allows limited access monkfish Category C and D vessels with fewer allocated NE multispecies DAS than allocate monkfish DAS to use the difference between these two allocations as monkfish-only DAS will help mitigate such impact on monkfish fishing effort.

The Interim SNE Differential DAS Area, could impact inshore monkfish gillnet vessels that fish in this region, reducing monkfish fishing effort overall in this area with a subsequent positive biological impact to the monkfish resource. The extent of this potential negative social and economic impact, and positive biological impact depends on the number of limited access monkfish Category C and D vessels actively fishing in the statistical areas encompassed by the closure, how much monkfish is landed from these areas, and whether or not these vessels could move their fishing operations into an open area in an effort to mitigate the impacts of the closure. This action will not affect limited access monkfish Category A and B vessels, since these vessels do not use NE multispecies DAS.

The impact on monkfish vessels however will be mitigated by the new measure that will allow vessels to use monkfish only DAS in proportion to the number of multispecies DAS a vessel uses in a differential DAS area.

Revisions to NE multispecies trip limits are not expected to have any impacts to the monkfish resource. The delayed opening of the Eastern US/Canada area may have some impact on total monkfish fishing effort in that area. However, monkfish fishing effort in that area is not substantial, thus the total impact to the monkfish resource is likely to be minimal. The allocation of zero trips to CA II Yellowtail Flounder SAP would eliminate any monkfish potential bycatch from this area, having a positive impact on the resource.

The recreational measures will not have any direct biological impact to monkfish stocks.

Revisions to the DAS Transfer Program, by increasing overall flexibility, could encourage consolidation of NE multispecies DAS permits, which may result in the elimination of some monkfish permits both vessels involved in the DAS transfer holding limited access monkfish permits. Conversely, consolidation of NE multispecies DAS on a single vessel could encourage vessels to use monkfish DAS that were previously not utilized since vessels would have additional NE multispecies DAS to use in conjunction with a monkfish DAS (as required in the regulations at § 648.92(b)(1)(i)). As a result of these opposing possible effects on monkfish fishing effort, and the inability to determine if one effect is more likely than the other, the proposed measure is expected to have a neutral effect on monkfish fishing effort. Therefore, no biological impacts to the monkfish resource are expected.

Similar to the modifications to the DAS transfer program, by increasing flexibility, the proposed modifications to the DAS leasing program would increase the ability of limited access monkfish Category C and D vessels to lease in NE multispecies

DAS; thereby potentially increasing their ability to utilize monkfish DAS that were previously not used in conjunction with the leased NE multispecies DAS. This activity could potentially increase monkfish fishing effort. Conversely, depending on the value of leasing out a NE multispecies DAS in relation to fishing a monkfish DAS, limited access Category C and D monkfish vessels may lease out more NE multispecies DAS under the proposed revisions to the DAS leasing program, forfeiting monkfish DAS as a result. This activity could potentially decrease monkfish fishing effort depending on whether or not the vessel was actively using the monkfish DAS being forfeited as a result of leasing out NE multispecies DAS. As a result of these opposing possible effects on monkfish fishing effort, and the inability to determine if one effect is more likely than the other, the proposed measure is expected to have a neutral effect on monkfish fishing effort. Therefore, no biological impacts to the monkfish resource are expected.

The continuation of the Eastern U.S./Canada Area Haddock SAP is not expected to result in increased bycatch of monkfish beyond that already occurring in this SAP, which is minimal due to the low program participation and the program restrictions on monkfish catch. Therefore, no additional biological impact to monkfish stocks are expected to result from this measure.

The prohibition on the use of low profile gillnets on Regular B DAS trips could help reduce monkfish bycatch in the Regular B DAS fishery, resulting in positive biological benefits to this resource.

Impacts on the Skate Fishery

The two primary skate fisheries, a wing fishery and a lobster bait fishery, are largely interwoven with the Multispecies fishery. The regulations require that vessels must be fishing on a Multispecies, Monkfish, or Scallop DAS, or fish in an exempted fishery in order to possess skates. Winter skate is the major component of the skate wing fishery, and little skate is the major component of the whole/bait fishery. Despite prohibitions on possession since 2003, thorny, barndoor, and smooth skates are still caught and discarded in the groundfish fishery. The vast majority of skate landings are landed on Multispecies Category A DAS (Table 129). Changes to DAS regulations, therefore, will directly impact skate catch.

Table 128. Total skate landings (lb live weight) by DAS program, 2000-2007.

Calender Year	MUL A	MUL B	MNK	MNK/MUL	SC
2000	16,673,711	NA	1,037,993	2,817,080	66,012
2001	15,320,262	NA	764,437	3,037,382	6,405
2002	17,538,086	NA	665,661	3,845,897	2,796
2003	22,205,726	NA	601,063	4,123,343	63
2004	19,760,823	547,717	1,271,352	1,991,829	0
2005	17,715,403	967,069	1,911,588	2,754,418	10,835
2006	19,083,200	64,956	1,358,881	5,652,650	4,629
2007	20,349,972	1,715,633	1,087,857	2,571,196	0

Source: NMFS, Fisheries Statistics Office

Of the seven skate species managed under the Northeast Skate Complex FMP (Skate FMP), thorny, winter, and smooth skates are currently overfished, and thorny skate is also subject to overfishing. Additionally, barndoor skate is in a rebuilding program, but is above the overfished biomass threshold specified in the Skate FMP. Little, clearnose, and rosette skates are not overfished or experiencing overfishing. Thorny and smooth skates are predominantly distributed in the Gulf of Maine, whereas winter, little, and barndoor skates are mainly distributed on Georges Bank and in Southern New England waters. Clearnose and rosette skates have a more Mid-Atlantic distribution. Due to the different ranges of these species, area-based management measures may differentially impact each species.

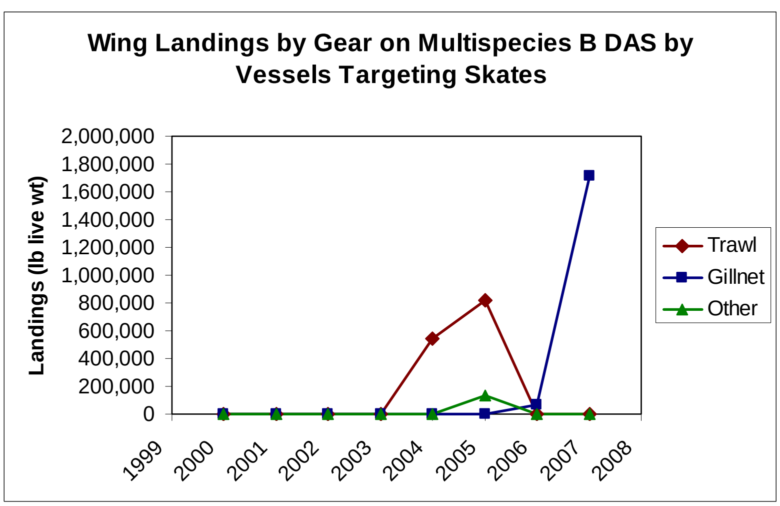
Relative to No Action, all four principal alternatives are anticipated to have positive biological impacts on skate stocks. Reductions in bottom fishing effort in the Gulf of Maine, Georges Bank, and Southern New England areas will likely reduce skate landings and discards. The proposed restrictions in Southern New England will benefit winter, little, and barndoor skates.

Alternative 1 may be more beneficial to thorny and smooth skate populations than the preferred alternative, due to the presence of a 2.25:1 differential DAS area in the western Gulf of Maine where high concentrations of these species are found. Alternative 1 would also reduce effort over a larger portion of Georges Bank (down to 41° N latitude), which would be more beneficial to barndoor, winter, and little skate populations in that area. Under the Preferred Alternative, fishing effort is likely to shift to some extent to the remaining 1:1 DAS counting areas (e.g., the U.S./Canada Area), which could cause localized depletions of barndoor, winter, and little skates in that area.

The Interim SNE differential DAS Area (or Closure Area, depending upon the alternative) may provide significant positive biological impacts to winter and little skates, and moderate positive impacts on barndoor, clearnose, thorny, and smooth skates. The Great South Channel, in particular, is a productive ground where all of the overfished skate species overlap in range.

The prohibition on the use of low-profile gillnets in the Regular B DAS program would also likely reduce skate bycatch in this fishery, resulting in positive biological benefits to skate stocks.

Figure 51. Skate wing landings in the Regular B DAS program by gear. *Source: Skate Amendment 3 DEIS*



Proposed changes to the US/Canada Area management measures, including delayed opening of the Eastern US/Canada Area, allowance of the Ruhle trawl, and allocation of zero trips to the CA II Yellowtail Flounder SAP, would all have positive biological impacts on skate resources in the US/Canada Area (primarily winter, little, and barndoor skates). These measures would reduce effort and potential skate bycatch.

Elimination of the SNE Winter Flounder SAP and Winter Flounder State Waters Exemption would likely result in positive biological impacts to skate resources by reducing the potential for skate bycatch in these programs.

All other measures included in this action are not anticipated to have any direct biological impacts on skate resources.

17.1.3 Habitat Impacts

This alternative would reduce the number of DAS for vessels in the fishery (by 18%) and apply a 2:1 differential DAS rate over a broad area in SNE. It would also require modified trip limits for a number of groundfish stocks harvested in the fishery. The 18% reduction in DAS would cause a decline in fishing effort in the areas that remain open to the fishery and have a similar effect on bottom trawling activity. The effect of implementing a 2:1 differential DAS rate in a broad of SNE would be to reduce the use of bottom trawls in the affected areas with some displacement of trawling effort from those areas into other fishing grounds where differential DAS do not apply. If groundfish are more available to capture in areas subject to the 2:1 DAS restriction than they are in 1:1 DAS areas (the most likely scenario), there could be an increase in bottom contact by trawls in the 1:1 DAS areas because more effort is required to catch less fish. However, since these areas are likely to be impacted to some extent already by bottom trawls and scallop dredges, and by natural disturbance, the habitat impact of any additional trawling activity is expected to be minimal. The net effect of all the management measures included in this alternative is expected to be positive for EFH, i.e., there would be no adverse impacts on essential habitats utilized by federally-managed fish species in the Northeast Region.

17.1.4 Impacts on Threatened, Endangered, and other Protected Resources

Background

Alternative Four for the Interim action is evaluated below with respect to its impacts on protected species. As described in the Affected Environment section, ESA-listed sea turtles and cetaceans as well as other marine mammals protected by the MMPA are likely to occur in the area affected by the Interim action measures.

Species protected under the ESA and/or MMPA are known to be captured or entangled in gear types that are used in the groundfish fishery (e.g., sink gillnet gear, bottom otter trawl gear). For example, large whale entanglements in sink gillnet gear have occurred (Johnson et al. 2005; Waring et al. 2007). Fixed gillnet gear and trawl gear pose a risk of entanglement and capture for sea turtles and small cetaceans (Waring et al. 2007; Murray 2008; Final 2009 List of Fisheries 73 FR 73032, December 1, 2008).

NMFS has considered the potential for other effects to protected species as a result of operation of the groundfish fishery but has not determined any other effects that are likely to occur. The operation of the groundfish fishery is not expected to effect the abundance and of protected species prey. Small prey such as copepods and krill will pass through multispecies fishing gear rather than being captured in it. The multispecies fishery does not target small schooling fish (*e.g.* herring, mackerel), squid or deep water organisms that are preyed upon by small cetaceans and some large cetaceans (humpback whales, fin whales, sperm whales) (Wynne and Schwartz 1999; Aguilar 2002; Baird 2002; Clapham 2002; Perrin 2002;Whitehead 2002). Likewise, typical prey items of leatherback sea turtles and green sea turtles (neritic juvenile and adult age classes) (Rebel 1974; Mortimer 1982; Bjorndal 1985; USFWS and NMFS 1992; Bjorndal 1997) are not targeted in the groundfish fishery and are not typically caught as bycatch. Benthic fish species as well as crabs, and other benthic organisms may be caught as either targeted catch or bycatch in the multispecies fishery. Neritic juveniles and adults of both loggerhead and Kemp's ridley sea turtles are known to feed on crab species and other benthic organisms (Keinath et al. 1987; Lutcavage and Musick 1985; Dodd 1988; Burke et al. 1993; Burke et al. 1994; Morreale and Standora 2005; Seney and Musick 2005) as are harbor porpoise, white-sided dolphins, and spotted dolphins (Bjørge and Tolley 2002; Cipriano 2002; Perrin 2002). Nevertheless, the removal of benthic fish species and benthic invertebrates from the water as bycatch or targeted catch in the groundfish fishery is not expected to affect the availability of prey for loggerhead or Kemp's ridley sea turtles or for these small cetaceans since each species has a diverse diet including prey items that are not caught in the groundfish fishery. In addition, food items caught as bycatch will be returned to the water where they could still be preyed upon, particularly by loggerheads which are known to eat a variety of live prey as well as scavenge dead organisms. Gear types used in the multispecies groundfish fishery are expected to have an impact on bottom habitat particularly mobile gear, such as bottom otter trawl gear, that is used in the groundfish fishery. A panel of experts have previously concluded that the effects of even light weight otter trawl gear would include: (a) the scraping or plowing of the doors on the bottom, sometimes creating furrows along their path, (b) sediment suspension resulting from the turbulence caused by the doors and the ground gear on the bottom, (c) the removal or damage benthic or demersal species, and (d) the removal or damage to structure forming biota (NREFHSC 2002). Fixed gear such as sink gillnet gear is expected to have less of an effect on bottom habitat than mobile gear given that it is not towed or dragged along the bottom. Portions of the area where the groundfish fishery occurs are closed to fishing permanently or seasonally in order to protect that bottom habitat that is most susceptible to damage affecting the organisms that occur there. Therefore, while (a) the disturbance of prey items during groundfish fishing operations in an area may attract foraging protected species to that area (potentially increasing the likelihood of a protected species capture of entanglement in the gear), and (b) the use of fishing gear does have some impact on bottom habitat, the operation of the groundfish fishery is not expected to effect the abundance of prey items for any protected species.

NMFS has also determined that the use of fishing vessels in the groundfish fishery is not expected to result in injury and mortality to the aforementioned protected species as a result of vessel strikes given that the fishing vessels operate at relatively slow speeds and the protected species have the speed and maneuverability to move away before being struck by the vessels hull. In addition, all of the species occur seasonally in the area where the multispecies fishery operates and, when they are present, spend part of their time at depths below the depth of the vessels hull, thus limiting their exposure to vessels used in the multispecies fishery. Finally, the groundfish fishery does not occur in low latitude waters where calving and nursing occurs for large cetaceans (Aguilar 2002; Clapham 2002; Horwood 2002; Kenney 2002; Sears 2002; Whitehead 2002). Therefore, the groundfish fishery is not expected to affect the oceanographic conditions that are conducive for calving and nursing of these large whales.

The overall effect of the Preferred Alternative measures is to reduce fishing mortality in the commercial fishery and is positive for protected species given the required reductions in effort. Compared to the No Action the Interim measures of the Preferred Alternative will have a beneficial impact on protected species.

17.2 Economic Impacts of Preferred Alternative

17.2.1 Aggregate Impacts

Average groundfish trip revenue for the vessels included in the analysis was $101 million during FY2005 to FY2007 and average total revenue was $158 million. Under the Preferred Alternative, estimated groundfish trip revenue would decline by 15% to $86 million and total fishing revenue would decline by 9% to $143 million (Table 129). This loss in total fishing revenue was based on 509 vessels included in the models used to estimate economic impacts. However, some vessels were not included in these models because of missing information. During fishing year 2007 just over 600 vessels reported groundfish revenues. The total value of all species reported by these 600 vessels was $193.3 million in constant 1999 dollars (see Table 39 in Affected Environment). Applying the 9% reduction in revenue to FY2007 totals landed by the 600 groundfish vessels, results in an estimated reduction of $17.4 million measured in constant 1999 dollars. The relative change in groundfish trip revenue varied by home port state, ranging from a small increase of 3% in New Jersey to a reduction of 18% in Connecticut (Table 129). As was the case for other alternatives the reconfigured Southern New England-Mid-Atlantic differential DAS area made it possible for some vessels to mitigate the effects of the Preferred Alternative. Reflecting the relatively larger share of groundfish trip income in total revenue, the expected reduction in total fishing revenue was estimated to be at least 12% in both Maine and Massachusetts. The estimated reduction in total revenue to New Hampshire port vessels (10%) was similar to that of Connecticut (9%).

Table 129. Change in Groundfish Trip and Total Trip Revenue by Home Port State

	2005-2007 Average Total Revenue	Estimated Total Revenue	Change in Total Revenue	2005-2007 Average Groundfish Trip Revenue	Estimated Groundfish Trip Revenue	Change in Groundfish Trip Revenue
CT	$471,853	$429,388	-9.0%	$234,954	$192,490	-18.1%
MA	$76,335,101	$66,807,323	-12.5%	$61,075,061	$51,547,284	-15.6%
ME	$18,692,050	$16,419,523	-12.2%	$16,887,629	$14,615,102	-13.5%
NH	$5,260,523	$4,762,353	-9.5%	$4,381,575	$3,883,405	-11.4%
NJ	$6,897,309	$6,961,577	0.9%	$1,874,151	$1,938,419	3.4%

NY	$14,307,651	$13,710,083	-4.2%	$4,035,033	$3,437,465	-14.8%
RI	$31,466,190	$29,654,228	-5.8%	$11,430,282	$9,618,320	-15.9%
Other	$4,121,225	$3,962,640	-3.8%	$1,292,992	$1,134,406	-12.3%
Total	$157,551,903	$142,707,114	-9.4%	$101,211,678	$86,366,890	-14.7%

17.2.2 Vessel-Level Impacts

There were a total of 11 vessels that had an estimated increase in fishing opportunities associated with the reconfigured differential DAS counting area in the Southern New England-Mid-Atlantic stock area. The increase in revenue for these vessels ranged from 0.2% at the 10th percentile to 6% at the 90th percentile. Almost all of these positively affected vessels were from Mid-Atlantic home ports, principally New Jersey. Since the number of positively affected vessels was so small the remainder of this discussion will focus only on the vessels that were not estimated to gain in total fishing revenue. For the remaining vessels the estimated reduction in total revenue ranged from 2% to 17% (Table 130). That is, on average, vessels at or below the 20th percentile would be expected to lose 2% of total fishing revenue, while vessels above the 80th percentile may be expected to lose 17% of total fishing revenue. At intermediate percentiles expected revenue losses would still average 7 to 12%.

Table 130. Estimated Impact and Number of Affected Vessels by Impact Category

	Number of Vessels	Average Adverse Impact
No Impact	11	0%
Up to 20th Percentile	95	2%
20th Percentile to Median	142	7%
Median to 80th Percentile	143	12%
Above 80th Percentile	94	17%

In relative terms, Alternative 4 would have somewhat similar impacts among vessels of different sizes (Table 131). The average adverse impact on total fishing revenue ranged from 1 to 2% for all vessel size classes up to the 20th percentile. Between the 20th percentile and the median the average reduction in total revenue was the same for small and large vessels (8%) but was two percentage points lower for medium sized vessels. However, between the median and the 80th percentile average impacts on small vessels and for medium sized vessels were consistently lower compared to impacts on large vessels.

Table 131. Estimated Adverse Impact and Affected Vessels by Vessel Length Class

	Less than 50 feet		50 to 70 feet		Over 70 feet	
	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact
Up to 20th Percentile	44	2%	27	1%	25	2%
20th Percentile to Median	64	8%	41	6%	37	8%
Median to 80th Percentile	65	11%	40	11%	37	14%
Above 80th Percentile	43	15%	27	15%	24	19%

Among primary gears the relative distribution of adverse impact on total revenue was similar for vessels using gillnet or trawl gear at intervals below the median (Table 132). However, at percentiles above the median, trawl gear impacts were higher than either gillnet or hook gear. Trawl gear adverse impacts on total fishing revenue averaged 12% among vessels between the median and the 80th percentile and averaged 17% above the 80th percentile. Adverse impacts on gillnet and hook gear respectively averaged 10% between the median and 80th percentile and ranged from 13% to 16% for vessels above the 80th percentile.

Table 132. Estimated Adverse Impact and Affected Vessels by Primary Gear

	Gillnet		Hook		Trawl	
	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact	Number of Vessels	Average Adverse Impact
Up to 20th Percentile	23	2%	4	1%	69	2%
20th Percentile to Median	34	8%	4	3%	103	7%
Median to 80th Percentile	35	10%	5	10%	104	12%
Above 80th Percentile	22	13%	3	16%	68	17%

The relative distribution of adverse impacts differed between states that border the Gulf of Maine (Maine, New Hampshire, and Massachusetts) and those that do not (Table 133). Among these states the estimated adverse impacts in Maine was higher for vessels up to the 20th percentile (5%) than in Massachusetts (2%) or New Hampshire (2%). However at all other percentile intervals the estimated reduction in fishing revenue among home port vessels in Maine, New Hampshire, and Massachusetts was similar. Estimated adverse impacts on vessels from other were lowest among New Jersey home port vessels. Adverse revenue impacts on home port vessels from New York, Connecticut, and Rhode Island were approximately half that of vessels from Maine, Massachusetts or New Hampshire at intervals below the 80th percentile. However, at the 80th percentile impacts on these Southern New England/Mid-Atlantic averaged 14%, a magnitude only slightly less than that of other New England states.

Table 133. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Home Port State

	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
MA	49	73	74	48
ME	13	19	20	12
NH	7	11	10	7
NJ – South	4	4	5	3
NY	9	13	13	8
RI & CT	15	21	22	14
	Average Adverse Affect on Total Revenue			
MA	2.0%	9.0%	13.0%	18.0%
ME	5.0%	9.0%	11.0%	15.0%
NH	2.0%	8.0%	11.0%	15.0%
NJ	0.0%	0.0%	3.0%	8.0%
NY	0.0%	2.0%	6.0%	14.0%
RI & CT	2.0%	5.0%	8.0%	14.0%

Vessels with high dependence on groundfish trip revenue may be expected to be more adversely affected by Alternative 4 than less dependent vessels. This effect is evident as the estimated average adverse impact of fishing revenue increases with dependence on groundfish trip revenue (Table 134). For example, the estimated impact on vessels that depend on groundfish trips for less than 20% of fishing revenue ranged from less than 0.1% up to the 20th percentile to 3% for vessels above the 80th percentile. By contrast, impacts on vessels that depend on groundfish for at least 80% of fishing revenue ranged from an average of 8% up to the 20th percentile and 18% above the 80th percentile.

Table 134. Estimated Impacts and Number of Affected Vessels by Dependence on Groundfish Trip Revenue

	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
0 to 19%	12	17	18	11
20 to 39%	15	21	21	14
40 to 59%	12	18	18	12
60 to 79%	13	20	19	13
80 to 100%	44	66	66	44
	Average Adverse Affect on Total Revenue			
0 to 19%	0.0%	0.0%	2.0%	3.0%

20 to 39%	2.0%	4.0%	5.0%	8.0%
40 to 59%	3.0%	6.0%	8.0%	11.0%
60 to 79%	6.0%	9.0%	11.0%	15.0%
80 to 100%	8.0%	12.0%	14.0%	18.0%

Unlike dependence on groundfish dependence the estimated average impact on total fishing revenue was similar across gross sales categories although the impacts on vessels with sales above $270 thousand tended to be higher compared to vessels with lower gross sales (Table 135).

Table 135. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Gross Sales Category

	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
Less than $90,000	18	26	27	17
$90,000 to $159,000	19	27	27	18
$160,000 to $269,000	20	30	30	19
$270,000 to $500,000	19	28	28	18
More then $500,000	21	31	31	20
	Average Adverse Affect on Total Revenue			
Less than $90,000	1.0%	6.0%	11.0%	16.0%
$90,000 to $159,000	1.0%	7.0%	11.0%	14.0%
$160,000 to $269,000	1.0%	7.0%	11.0%	14.0%
$270,000 to $500,000	3.0%	8.0%	13.0%	18.0%
More then $500,000	2.0%	7.0%	14.0%	18.0%

Among port groups the estimated revenue impacts follow a pattern similar to that of home port states. That is, impacts on port groups in Maine, New Hampshire, and Massachusetts that border the Gulf of Maine tended to be larger than the impacts on vessels from other port groups (Table 136). The exception was the New Bedford port group where the average impact on New Bedford vessels was highest among all other port groups at intervals above the median. At intervals above the median, reductions in fishing revenue exceeded 10% between the median and the 80th percentile in all port groups except for Long Island, New Jersey, Other Rhode Island, and Point Judith. Above the 80th percentile total fishing revenue reductions exceeded 20% in only the New Bedford port group and were less then 10% only in the New Jersey port group. In all other port groups the average reduction in total fishing revenue ranged between 13% and 16%.

Table 136. Estimated Adverse Revenue Impacts and Number of Affected Vessels by Port Groups

	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
Cape & Islands	6	9	9	6
Long Island	9	13	13	8
Gloucester	17	25	26	16
Mid-Coast Maine	6	9	9	6
North Shore, Massachusetts	5	8	7	5
New Bedford	16	23	23	15
New Jersey	4	4	5	3
Other Rhode Island	6	8	9	5
Point Judith	9	13	14	8
Portsmouth Area	7	11	10	7
Scituate - Boston	6	8	9	5
Portland - So. Maine	7	10	11	6
	Average Adverse Affect on Total Revenue			
Cape & Islands	1.0%	4.0%	10.0%	16.0%
Long Island	0.0%	2.0%	6.0%	14.0%
Gloucester	4.0%	10.0%	13.0%	15.0%
Mid-Coast Maine	5.0%	9.0%	11.0%	14.0%
North Shore, Massachusetts	2.0%	7.0%	11.0%	13.0%
New Bedford	3.0%	11.0%	16.0%	21.0%
New Jersey	0.0%	0.0%	3.0%	8.0%
Other Rhode Island	1.0%	4.0%	8.0%	16.0%
Point Judith	2.0%	6.0%	9.0%	13.0%
Portsmouth Area	2.0%	8.0%	11.0%	15.0%
Scituate - Boston	4.0%	11.0%	14.0%	16.0%
Portland - So. Maine	5.0%	9.0%	11.0%	16.0%

17.2.3 Break Even Analysis

Evaluation of vessel break-even DAS in the New England groundfish fishery was conducted using data from several sources. Note that throughout this analysis, break-even DAS are defined as the number of Category A DAS needed to cover annual fixed costs. Fixed-cost data were collected from a sample of permit holders surveyed during 2007 and 2008. In each survey year, cost data for the preceding fiscal year were collected, including vessel improvements, maintenance and repairs, mooring fees, insurance, communication, business travel, business taxes, professional fees, handling fees, association fees, office expenses, permit renewal fees, interest on business loans, non-crew labor, vehicles, and miscellaneous expenses. Data on fishing revenues and days absent were obtained from a combination of dealer and vessel trip reports.

Based on a review of the fixed-cost data received during 2007 and 2008, the cost burden varied widely with some vessels incurring higher costs than others. These costs also depended on the type of gear used and vessel size. These differences have implications for the minimum number of DAS that would be needed in order to break-even, i.e., to cover all fixed costs over and above operating costs. For this reason, break-even DAS were estimated for the three primary gears used in the groundfish fishery (otter trawl, gillnet, and bottom longline). Limited access groundfish permit holders using these gears were further categorized by vessel size and by high, medium, and low levels of fixed costs resulting in a total of 21 estimates of break-even DAS based on gear, size, and level of fixed costs. The fixed cost intervals were based on breaking the distribution of total fixed costs by vessel into thirds where the first third was assigned to the low fixed costs category, the second third to medium fixed costs and the last third to high fixed costs. Fixed costs in each interval were determined by the average of all vessels in each cost category.

The number of DAS needed to break-even was estimated by dividing total fixed costs by the contribution margin per DAS, where the contribution margin is the daily return to the vessel on a groundfish trip after deducting payments for trip costs and captain and crew. However, depending on the lay system used, these trip costs may be paid for out of crew and captain share. Given uncertainty about different lay systems, calculation of the contribution margin was simplified by assuming a 60/40 lay, where 60% of gross stock goes to hired captain and crew and 40% goes to the vessel. Trip costs are paid out of the former while the latter is the daily contribution share. Daily gross stock on groundfish trips was estimated as the average revenue from all species landed on trips, where groundfish comprised more than 50% of total trip revenue where average daily revenue was calculated for each gear/size combination.

Estimated break-even DAS where highest for otter trawl vessels more than 75 feet in length that also had high fixed costs (Table 137). Note that break-even DAS reported in Table 139 are most appropriate for vessels that fish exclusively for, or have high dependence on, groundfish for annual fishing income. For any given gear/size combination, break-even DAS go down for vessels with lower fixed costs. For example, large trawl vessels with high fixed costs were estimated to require 253 DAS to break-even, whereas large trawl vessels with low fixed costs would break-even at 55 DAS.

Table 137. Estimated Break-Even DAS Needed for Full-Time Groundfish Vessels by level of Fixed Cost and Gear/Size Combinations

Gear/Size Combination	Average Fixed Costs	Average Gross Revenue per Day	Contribution Margin	Break-Even DAS
		High Fixed Costs		
Gillnet < 45'	$133,890	$1,971	$788	170
Gillnet ≥ 45'	$151,596	$2,449	$980	155
Longline < 35'	$84,837	$2,629	$1,052	81
Longline ≥ 35'	$246,109	$3,234	$1,294	190
Trawl < 50'	$104,476	$2,827	$1,131	92
Trawl ≥ 50 and < 75'	$259,928	$3,964	$1,586	164

Trawl > 75'	$545,486	$5,400	$2,160	253
Medium Fixed Costs				
Gillnet < 45'	$57,449	$1,971	$788	73
Gillnet ≥ 45'	$70,523	$2,449	$980	72
Longline < 35'	$43,380	$2,629	$1,052	41
Longline ≥ 35'	$76,755	$3,234	$1,294	59
Trawl < 50'	$48,848	$2,827	$1,131	43
Trawl ≥ 50 and < 75'	$102,579	$3,964	$1,586	65
Trawl > 75'	$259,389	$5,400	$2,160	120
Low Fixed Costs				
Gillnet < 45'	$29,287	$1,971	$788	37
Gillnet ≥ 45'	$39,395	$2,449	$980	40
Longline < 35'	$18,732	$2,629	$1,052	18
Longline ≥ 35'	$28,949	$3,234	$1,294	22
Trawl < 50'	$24,478	$2,827	$1,131	22
Trawl ≥ 50 and < 75'	$43,161	$3,964	$1,586	27
Trawl > 75'	$119,762	$5,400	$2,160	55

Based on the estimates provided in Table 137, an estimate of total DAS needed for limited access vessels that participate in the groundfish fishery may be obtained by multiplying the break-even DAS by the number of vessels in each gear/size/fixed cost category. However, as noted above, the estimated break-even DAS are based on vessels that have high dependence on groundfish trips for total fishing revenue. To estimate total DAS needs, the break-even DAS were prorated to vessel gear/size categories based on the proportion of groundfish trip revenue to total fishing revenue for limited access permit holders that participated in the groundfish fishery during FY2007. During FY2007, there were a total of 649 vessels that participated in the groundfish fishery (Table 138). Of these vessels, 217 depended on groundfish trip revenues for 20% or less of total trip income, while 191 vessels relied on groundfish trip revenue for more than 80% of total fishing revenue. Note that for reporting purposes the number of vessels by dependence on groundfish trip revenue that used either, gillnet or longline gear had to be combined into a single category because of confidentiality concerns in some dependence categories. These gear/size categories were retained in the estimate of aggregate break-even DAS.

Table 138. Number of Limited Access Permits by Dependence on Groundfish Trip Revenue for Total Revenue by Gear/Size Combinations

	Groundfish Trip Dependence (no. of vessels)				
Gear/Size Combination	≤20%	< 20% to ≤40%	< 40% to ≤60%	< 60% to ≤80%	> 80% to 100%
Gillnet/Longline	88	13	10	17	92
Trawl < 50'	24	15	11	21	46
Trawl ≥50 and < 75'	71	37	23	45	35
Trawl > 75'	34	12	8	29	18

Totals	217	77	52	112	191

To simplify estimation procedures, proration of break-even DAS was based on the upper bound in each dependence interval shown in Table 138. For example, break-even DAS for vessels with 20% or less dependence on groundfish trips was estimated by multiplying the break-even DAS by 20%. Break-even DAS for vessels in the 20 to 40% dependence interval were estimated by multiplying break-even DAS by 40%, and so on. Using the same procedures used to estimate break-even DAS the number of vessels in each dependence category were further divided into thirds to reflect differences in break-even DAS among vessels with high, medium, and low levels of fixed costs.

Total DAS needed for all limited access permit holders that participated in the groundfish fishery to break-even were estimated to be 34,078 DAS. Almost half of these DAS (16,065) would be associated with vessels with high dependence on groundfish trip income (Table 139). Total allocated category A DAS during FY2008 were approximately 51,500 DAS. These allocated days include base allocations of 44,000 days plus carry over DAS of about 7,500. Thus, at least in aggregate, during FY2008 there are more than enough total allocated A DAS to meet the break-even DAS. However, median individual allocation including carry over was 45 DAS and ranged from a high of 155 DAS to fewer than 10. Thus, many vessels cannot break-even on their DAS allocations alone and rely on the DAS Leasing Program to acquire the additional DAS needed to remain profitable.

Table 139. Estimated Total Break-Even DAS for Limited Access Groundfish Vessels by Dependence on Groundfish and Gear/Size Combinations and Level of Fixed Costs

Gear/Size Combination	≤20%	< 20% to ≤40%	< 40% to ≤60%	< 60% to ≤80%	> 80% to 100%
			High Fixed Costs		
Gillnet/Longline	976	295	330	743	5,056
Trawl < 50'	148	185	203	517	1,415
Trawl ≥ 50 and < 75'	775	808	753	1,965	1,911
Trawl > 75'	572	404	404	1,951	1,514
Sub-Total	2,471	1,691	1,690	5,176	9,896
			Medium Fixed Costs		
Gillnet/Longline	418	124	145	317	2,055
Trawl < 50'	69	86	95	242	662
Trawl ≥ 50 and < 75'	306	319	297	776	754
Trawl > 75'	272	192	192	928	720
Sub-Total	1,065	721	729	2,263	4,191
			Low Fixed Costs		
Gillnet/Longline	215	63	76	161	997
Trawl < 50'	35	43	48	121	332
Trawl ≥ 50 and < 75'	129	134	125	326	317
Trawl > 75'	126	89	89	428	332
Sub-Total	504	329	337	1,037	1,979
Total Break-Even DAS	4,040	2,741	2,757	8,475	16,065

The Preferred Alternative interim action would reduce allocated days by 18% which would apply to base Category A allocations, but would not apply to carry-over days. In this manner, baseline allocations for FY2009 would be 36,000 DAS. Total allocations would depend on how many unused days from FY2008 are carried over into FY2009. If carry over to FY2009 is similar to that of 2008, then total Category A DAS allocations for FY2009 may be expected to be in the neighborhood of 43,000 DAS. However, this alternative includes a differential DAS area in SNE and retains the current GOM Differential DAS Area. In a worst case scenario, the initial allocation of 43,000 Category A DAS are effectively equivalent to as few as 21,500 DAS. Allocations at this level are about 2/3 that required based on the break-even analysis. While vessels with sufficient range may be expected to fish as much as possible in areas outside of where DAS would be counted at 1:1, many others will not be able to do so. Thus, it is likely that many vessels will find themselves with allocations that are below their break-even needs and the number of DAS available to lease will not likely be sufficient to meet demand. This will likely be further exacerbated by the limitations placed on DAS leasing that prohibits larger vessels from leasing days from smaller vessels even at an adjusted rate. The break-even analysis suggests that larger vessels have higher fixed costs than smaller vessels, and their ability to lease DAS may be the difference between continued viability and financial failure.

17.2.4 Economic Impacts on Other Fisheries

There are currently 1,051vessels that have both Skate and NE Multispecies DAS permits. In 2007, total skate fishery revenues in the Northeast Region were an estimated $4.1 million. Approximately 80% of this revenue was derived from the skate wing fishery, while the rest was derived from the skate bait fishery. Skate landings on Multispecies A DAS valued approximately $2.7 million, Regular B DAS skate revenues were approximately $228,000, and skate revenues on combination Monkfish and A DAS trips were approximately $403,000. Since average total revenue from the multispecies fishery from 2005-2007 was approximately $157.5 million, skate revenues represent a relatively small component of total revenues in groundfish fisheries.

Compared to the No Action alternative, all of the alternatives are expected to have negative economic impacts on skate fishing vessels due to the DAS reduction and the Interim SNE Differential DAS Area. Each of the alternatives reduce fishing effort in some fashion, and therefore reduce opportunities to catch and land skates. Due to regional variations in skate fisheries and fishing effort, the alternatives may disproportionately impact the different sectors of the skate fishery, and some ports may be more severely impacted than others.

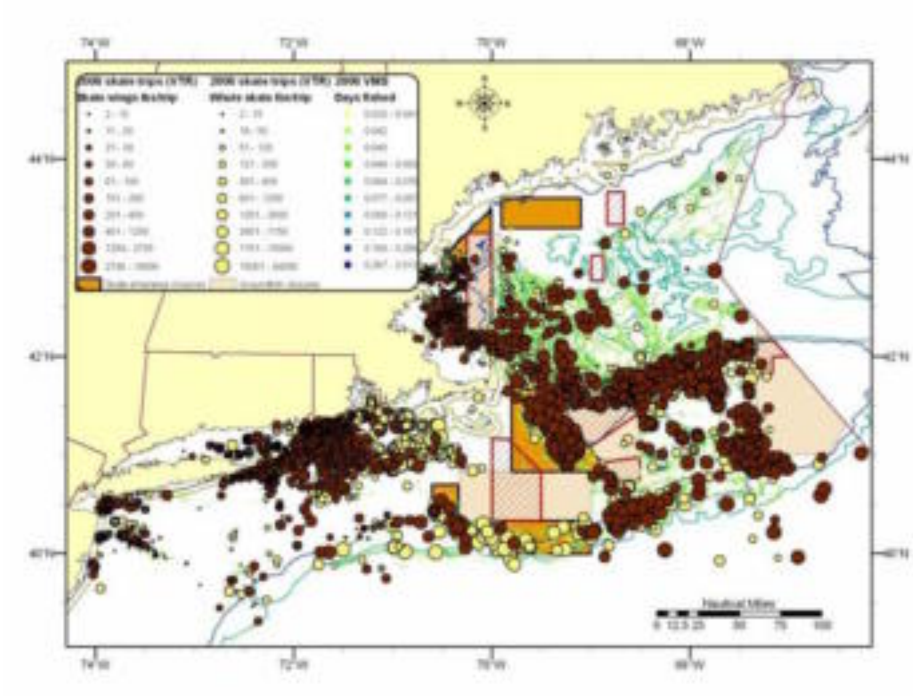
The Interim SNE Differential DAS Area is likely to negatively impact skate vessels that have traditionally fished in that area, including vessels from Long Island, NY; Point Judith and Tiverton, RI; and New Bedford and Chatham, MA. The distribution of fishing effort by trawl and gillnet vessels in the skate wing and bait fisheries in 2007 is plotted in Figure 70 below. The Interim SNE Differential DAS Area encompasses the bulk of the area fished in the skate bait fishery, which is primarily focused in nearshore and offshore waters between eastern Long Island and Martha's Vineyard. The majority of bait skate catch is landed in Point Judith, Tiverton, and Newport, RI; and New Bedford, MA. Therefore, the Interim SNE Differential DAS Area may have greater negative economic impacts on the skate bait fishery than on the skate wing fishery.

A large amount of skate wing catch has also historically occurred in the Interim SNE Differential DAS Area, particularly in the Great South Channel area (Figure 52). While trawl vessels that have landed skate wings have distributed their effort throughout Georges Bank and in the western Gulf of Maine, gillnet vessels that landed skate wings predominantly fish in SNE waters. Skate wing vessels that fish with gillnets, therefore, may be more impacted by the measures.

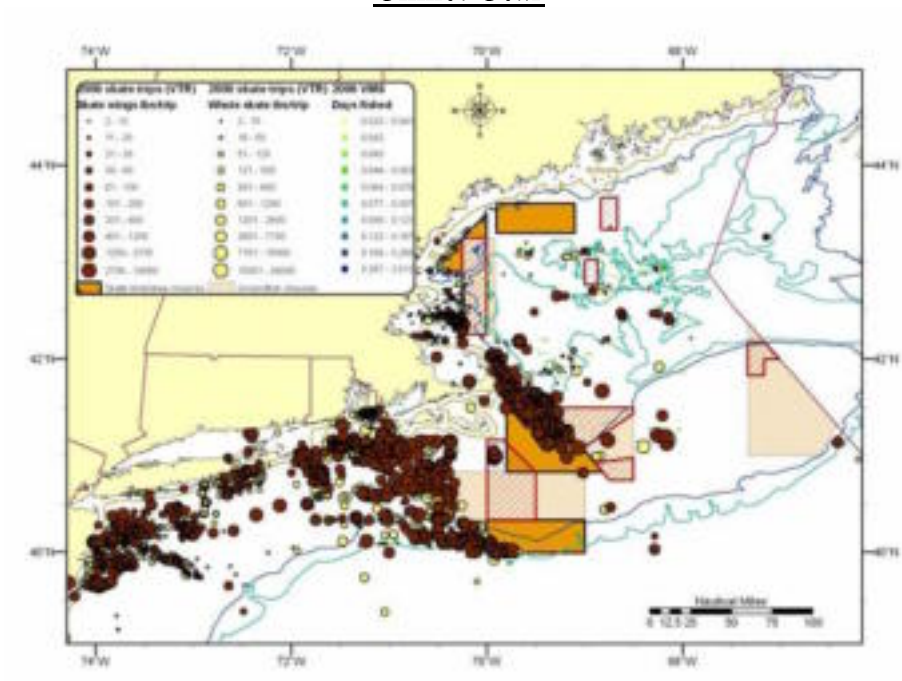
Figure 52. Distribution of fishing effort by gear type for trips landing skates in 2007

(as reported in VTRs. Brown symbols represent skate wing landings, and yellow symbols represent whole skate landings. The orange areas are skate time/area closures being proposed in Amendment 3 to the Skate FMP. *Source: Skate Amendment 3 DEIS*.)

Trawl Gear



Gillnet Gear



Skate vessels potentially impacted by the Interim SNE Differential DAS Area may be able to mitigate some of their revenue losses by fishing in exempted fisheries. The SNE Monkfish and Skate Gillnet Exemption Area and SNE Monkfish and Skate Trawl Exemption Area allow vessels to fish for monkfish and skates while not using a DAS (refer to 50 CFR 648.80(b)(5) and (6)). Vessels could also redistribute their effort to areas outside of the closure, or fish in other non-DAS fisheries to help make up for economic losses.

Alternatives 1 and 4, on the other hand, may promote the redistribution of effort as vessels try to avoid fishing in the differential DAS areas.

Changes to the US/Canada Area management measures, including delayed opening of the Eastern US/Canada Area, allowance of the Ruhle trawl, and allocation of zero trips to the CA II Yellowtail Flounder SAP, would all likely have negative economic impacts on skate vessels that have landed skates while fishing in those areas. These measures would reduce effort and potential skate bycatch, and therefore reduce opportunities to land skates. Historically, there has not been a great deal of revenue derived from skates in these programs.

All other measures included in this action are not anticipated to have any direct economic impacts on skate vessels.

Due to the inability to predict fishing vessel behavior in response to these new measures, it is not possible to accurately quantify the actual economic impacts of the proposed action on the skate fishery. Nevertheless, vessels that target skates while fishing on Multispecies DAS (e.g. vessels that solely fish for bait skates in SNE) may incur greater negative economic impacts than vessels that have traditionally landed skates incidental to other species. The skate bait fishery may be particularly at risk due to its proximity to the Interim SNE Differential DAS Area, and its reliance on directed skate trips. If the supply of bait skate is reduced by this action, there may also be impacts on the lobster fishery, which relies on whole skates for lobster bait. Assuming constant demand for bait, the lobster fishery may have to pay higher prices for skate bait, or switch to other bait sources such as herring.

Monkfish Fishery

The 18 percent DAS reduction may reduce monkfish fishing effort due to the requirement that limited access monkfish Category C and D vessels that also hold a NE multispecies DAS permit use a NE multispecies DAS in conjunction with a monkfish DAS (see 50 CFR 648.92(b)(1)(i)). However, the existing provision under § 648.92(b)(2) that allows limited access monkfish Category C and D vessels with fewer allocated NE multispecies DAS than allocate monkfish DAS to use the difference between these two allocations as monkfish-only DAS will help mitigate such impact on monkfish fishing effort.

The measure that will allow monkfish vessels fishing in a differential DAS area to use monkfish only DAS in proportion to the number of groundfish DAS used in a differential DAS area will mitigate the potential impacts of the differential DAS areas. Specifically, the measure would provide economic relief to groundfish vessels that also possess either a Category C or D monkfish permit by allowing these vessels to accrue a monkfish only DAS while fishing for groundfish in a 2:1 differential DAS counting area.

For example, a vessel with 40 groundfish DAS and 31 monkfish DAS that fished under a monkfish DAS exclusively in a 2:1 differential DAS counting area for 20 days would use all of its 40 DAS groundfish allocation and concurrently 20 days of its monkfish allocation (because monkfish DAS are counted on a 1:1 basis in the differential DAS area). In other words, the vessel would have used a total of 20 of the 31 allocated monkfish DAS, and have a remaining balance of 11 monkfish DAS, and zero groundfish DAS. Without a regulatory change that allows a vessel to accrue a monkfish only DAS while fishing for groundfish in a 2:1 differential DAS area, once the vessel used up its groundfish DAS, the vessel would be unable to fish monkfish only DAS, and in this example 11 remaining monkfish DAS would have to be forgone. In this example, the proposed action would restore the ability for the vessel to use the remaining 11 monkfish DAS because the vessel would be eligible to receive up to a total of 20 monkfish only DAS while fishing in the 2:1 groundfish differential DAS area. However, since the vessel would only have 11 monkfish DAS left the monkfish only DAS would be capped at 11.

The number of monkfish only DAS that could be accrued in this manner would be capped by the difference between the monkfish DAS allocation and the sum of used monkfish DAS and allocated monkfish only DAS for vessels that are eligible to receive them. This means that any vessel with 62 groundfish category A DAS or more would not be able to accrue any monkfish only DAS because even if these vessels fished exclusively in a 2:1 differential DAS area the entire monkfish DAS allocation will have been used. However, in the absence of action any vessel whose groundfish allocation was less than 62 DAS may lose a portion of the opportunity to fish under a concurrent monkfish and groundfish DAS

During FY2008 there were 510 groundfish permit holders with a Category A DAS for groundfish that also held a Category C or D monkfish permit. The measure would not change how initial allocations of monkfish only DAS would be allocated in cases where the base A DAS allocation was less than the allocated base monkfish DAS. Accounting for the 18% reduction in Category A DAS, there would be 76 vessels that would receive a total of 1,061 monkfish only DAS during FY2009. To provide an upper bound estimate of the number of monkfish only DAS that may be accrued under the proposed action all category A DAS were assumed to be fished in a 2:1 differential DAS area. Including carryover, final allocations of Category A DAS for the 510 vessels were estimated to be 23,479 DAS meaning that up to 11,740 monkfish only DAS may be accrued. However, after accounting for monkfish DAS used, and initial allocations of monkfish only DAS the upper bound estimate of accrued monkfish only DAS would be 5,113 DAS. This upper bound estimate still assures that if all monkfish DAS and monkfish only DAS including accrued monkfish only DAS were used during FY2009 the total allocated monkfish DAS would not be exceeded.

An estimated total of 455 of the 510 Category C or D vessels would receive an average of 11 accrued monkfish only DAS. Thus the measure would provide an economic opportunity to restore monkfish fishing opportunities to the majority of vessels affected by differential DAS counting that would otherwise be unable to fish their entire allocation of monkfish days. However, whether any given vessel is able to take advantage of this opportunity depends on several factors. First, any vessel using a monkfish only DAS must fish under the same rules as that of a Category A or B vessel. Among other things these vessels must use large mesh and must fish only in exempted gear areas.

Groundfish vessels that do not normally receive monkfish only DAS may not have the necessary gear to fish under the Category A and B rules. Further, in the Northern Fishery Management Area there is an exempted fishery for large mesh gillnets but there is no exempted fishery for large mesh trawls. This means that trawl vessels that fish predominantly in the NFMA would have to fish in the SFMA. Lastly, the number of monkfish DAS that may be fished in the SFMA is limited to 24 DAS which may limit the number of monkfish only DAS that some vessels may find themselves able to use.

For vessels that may be able to take advantage of the restored monkfish fishing opportunity the average revenue per day on trips using large mesh was approximately $3,000 in the NFMA and almost $4,000 in the SFMA during calendar year 2007. These estimates of average revenue were based on trips using 10" mesh gillnet gear or greater where monkfish accounted for at least 75% of total trip revenue. The realized economic impact on individual vessels is uncertain. The relatively small number of vessels that currently receive an allocation of monkfish only DAS may be expected to benefit most since these vessels may already possess the appropriate gear and necessary experience to use their accrued monkfish only DAS. The potential economic benefit to vessels that will only accrue monkfish only DAS is uncertain although vessels that now fish with gillnet gear may be better positioned to take advantage than trawl vessels.

17.3 Social Impacts

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 wasteful of valuable resources and distasteful. Modifications to daily routines can make long term planning difficult. New gear purchases must be ordered in advance and result in a change to daily routine when equipment cannot be used in a timely or cost effective manner. Changes in management measures that limit access to fishing may alter economic incentives that change the likelihood of risky fishing practices. Increased risk can result when fishermen spend longer periods at sea, or travel excessive distances, operate with fewer crew, or fish under 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 alternative of these factors will be discussed below. The primary port groups that are most affected by changes in groundfish management are identified in section 9.6 (Amendment 13).

<u>Regulatory Discarding</u>

Because the current regulatory structure and this alternative rely heavily on the combined effects of DAS, closed areas, and trip limits, to reduce fishing mortality, regulatory discarding will continue to frustrate fisherman and cause waste. Modifications to trip limits under this alternative will alleviate discarding for some stocks, but may cause increased discarding for other stocks. Although the new trip limit for witch flounder is not likely to cause discarding, new very restrictive limits (zero retention allowed) would be implemented for SNE winter flounder, windowpane north, and ocean pout, which could cause discarding and frustrate vessel owners.

Safety

There is little empirical data with which to evaluate the types of management measures that improve or threaten the safety of fishing vessel operators. One study attempted to identify factors that contributed to serious vessel accidents in the Northeast Region. Di Jin and Thunberg (2005) examined fishing vessel accidents in the Northeast United States from 1981 through 2000, updating an earlier report. The modeled fishing vessel accident probability using U.S. Coast Guard data and NMFS data. The data were for all fisheries and the results are not specific to the groundfish fishery. In all cases, the model showed that increasing wind speed and decreasing distance from shore result in an increase in accident rates.

Framework Adjustment 42 stated that the inshore and offshore differential DAS counting areas may affect vessel safety because of the possibility that some vessel may attempt to fish farther offshore to avoid the 2:1 differential DAS area. Under current regulations, the closest area that is not subject to a differential DAS counting rate is approximately 40 miles from the ports of Gloucester, Provincetown, and Portsmouth.

This alternative may cause a new safety issue if vessels have a strong incentive to travel further to reach areas outside of the Interim SNE Differential DAS Area.

Disruption in Daily Living

Amendment 13 defines the disruption in daily living as "changes in the routine living and work activities of affected fishery participants, including the potential for alternate in their regular social and work patterns to adapt to new management measures" (NEFMC 2003). This alternative would cause disruptions in daily living, most notably, from the reductions in DAS, the increased DAS counting rates in the Interim SNE Differential DAS Area. Unless vessel owners spend additional money to lease DAS, the alternative will result in less DAS available for use for targeting groundfish (or other species such as monkfish or skates). There would be increased incentives to pursue non-groundfish fisheries or other non-fisheries sources of income. If vessel owners can lease in DAS in order to maintain or increase their activity in the groundfish fishery, the cost of leasing those DAS may represent a disruption in daily living. Vessels that currently fish for groundfish in SNE may be more acutely impacted by the Interim SNE Differential DAS Area, and experience disruption in daily living. Although mitigating measures may provide some relief, the number of vessels that have participated in the special management programs has been very limited, and the DAS Leasing and Transfer Programs offer only limited relief to disruptions due to the costs of these programs.

Changes in Occupational Opportunities and Community Infrastructure

Changes in occupational opportunities and community infrastructure is defined as the degree to which the occupational profile of the affected communities would be affected by the proposed action. This alternative could alter the composition of the existing groundfish fleet and the fleets of other fisheries by indirectly providing incentives for groundfish vessels to pursue other sources of fishing revenue. During FY 2009, the longest duration this alternative may be in place, landings of regulated groundfish are likely to decline, and could result in changes in the ability of shoreside infrastructure to maintain year-round operations. While there may be increased effort in other fisheries that may partially compensate for these changes, it is not known if the same business that serve the groundfish fishery also support other fisheries.

Based on the trend in total groundfish landings and revenue from 2005 to 2007 (Table 35), the recent trend in revenue has been fairly stable. However, there has been a decline in the number of active vessels (Table 37). Although the net amount of revenue and landings over time may not be contributing to a change in community infrastructure per sae, the fact that there are declining number of vessels participating in the fishery is likely to have an impact on both occupational opportunities, and community infrastructure. Although mitigating measures may provide some relief, the number of vessels that have participated in the special management programs has been very limited, and the DAS Leasing and Transfer Programs offer only limited relief to disruptions due to the costs of these programs. Additional vessel may not be able to remain profitable, causing severe disruption to individual business and families.

Formation of Attitudes

Formation of attitudes refers to positions expressing support for, or opposition to a proposed management measure. The combination of a DAS cut and a differential DAS counting rate under this alternative may be perceived as being less burdensome than a large DAS reduction, even though both strategies curtail net DAS use. The relatively large differential DAS area in SNE will likely cause opposition to this alternative. It is likely that changes in the understanding of the status of stocks and the changes to the biological reference points will frustrate or anger fishing industry members due to significant changes in the status of some stocks. Many vessels owners are frustrated that new sectors are not available as an opportunity for the 2009 fishing year. Many in the fishing industry were hoping to avoid additional restrictions under the current management system (principally DAS restrictions) by fishing in sectors. Although it is not clear whether sectors will eliminate some frustrations and create new frustrations, the perception for many is that sectors would provide some net benefits to the industry.

Impact on Skate Ports

The social and community impacts of this action are likely to be similar between the skate fishery and the multispecies fishery. Again this is due to the fact that skate fisheries are largely interrelated with groundfish fisheries. Relative to No Action, all alternatives are anticipated to have some level of negative social impacts on skate fishing communities, derived from the anticipated economic losses. According to data presented in the DEIS for Amendment 3 to the Skate FMP, the top ports in 2007 for skate bait landings included Point Judith, RI; Tiverton, RI; New Bedford, MA; Newport, RI; and Stonington, CT. The top ports for skate wing landings included New Bedford, MA; Chatham, MA; Point Judith, RI; Boston, MA; and Barnegat Light, NJ. Although some vessels and ports (e.g. Chatham, MA and Point Judith, RI) rely on skate revenue for a substantial part of their total fishing income, most New England ports derive the majority of their revenues from the landings of other species

18.0 Analysis of Impacts – Revisions to Target TACs and Incidental Catch TACs

18.1 Biological and Economic Impacts

The biological impacts of the revisions to the target TACs is expected to be minimal, with the exception of the GB cod TAC. The primary function of the target TACs is to serve as an indicator of the effectiveness of the management measures of the FMP during the fishing year, or prior to a stock assessment update. As such the TACs have no biological impacts. The exception is GB cod, because the target TAC is the basis of the allocation to the two existing sectors, the GB Cod Hook Sector and the GB Cod Fixed Gear Sector. Because their allocation is based upon a percentage of the overall GB cod TAC, an increase or decrease in the size of the TAC will have a direct influence on the size of the sector's allocation. The FY 2009 TAC for GB cod is 5,501 mt, which is a 46 %decrease from the FY 2008 TAC of 10,222 mt. Because this TAC was based upon the projected catch associated with the management measures of the Preferred Alternative, and not the fishing mortality target, as for Alternatives 1 through 3, the TAC is larger, and may allow slightly more fishing mortality by the Sectors. However, the amount of the potential increase is very small in relation to the overall catch, and the GB Cod Hook Sector historically has caught only a small fraction of their total allocated GB cod TAC. If the size of the GB cod TAC limits the operation of the GB Cod Fixed Gear Sector, the catch of other species such as cod, white hake, or pollock may be reduced.

The incidental catch TACs have little impact on theoverall catch of stocks of concern due to their relatively small size, and the fact that the Special Management Programs are not heavily used, and the TACs are not limiting factors. Only a small percentage of the incidental catch TACs have been caught, and they do not result in closures of the pertinent programs.

These alternatives will have no effect on protected species. Specifying target TACs does not, in itself, change fishing effort or where fishing effort occurs. Specifying the incidental catch TACs likewise does not change fishing effort or where fishing occurs. The action is necessary given the results of GARM III and the change in status of stocks. The alternative that would modify the allocation of incidental catch TACs will not affect protected species given that the TACs apply to species incidentally caught rather than species targeted. Thus, effort is not expected to change as a result of changes in the Incidental Catch TAC allocations. Providing the Regional Administrator the authority to modify the allocations is administrative in nature and will have no effect on protected species.

The potential revenue for the GB Cod Fixed Gear Sector may be reduced as a result of the lower GB cod TAC.

19.0 Analysis of Impacts - Elimination of the SNE Winter Flounder SAP and the State Waters Winter Flounder Exemption.

Elimination of SNE/MA Winter Flounder SAP

Existing regulations allow limited access vessels fishing for summer flounder west of 72^{o} 30' W latitude to retain up to 200 pounds of winter flounder while not on a DAS. The impact of this measure is uncertain because matching DAS records with landings or vessel trip reports cannot be done with certainty. To obtain a rough estimate of affected vessels permit holders with both a limited access permit and a summer flounder permit were matched with VTR records to identify trips taken during FY2007 that met criteria consistent with the SAP requirements. Specifically, all trips occurred West of 42^{o} 30' W, reported keeping both summer flounder and winter flounder but did not report keeping any other groundfish species, and reported winter flounder kept was less than or equal to 200 pounds. A total of 589 vessels possessed both a limit access multispecies and limited access fluke permit. Of these vessels a total of 67 took one or more trips that met all the criteria for a SNE/MA winter flounder SAP trip. Based on the defined criteria a total of 870 potential SAP trips may have been taken during FY2007. Total winter flounder landed on these trips was 82 thousand pounds averaging 94 pounds per trip. The total value of winter flounder was $172 thousand which was approximately 11% of the total value of all species landed on qualifying trips. Note that summer flounder landings on these trips were over 300 thousand pounds valued at over $700 thousand. Based on these data, elimination of the SNE/MA winter flounder SAP would reduce trip revenues by almost $200 and would reduce total sales by affected fishing entities by an average of about $2,500 per year.

Because the SAP may enable limited targeting of winter flounder, the elimination of the Southern New England/Mid-Atlantic winter flounder SAP and elimination of the state waters winter flounder exemption could be somewhat positive for protected species if it reduces effort that would otherwise occur as a result of vessels targeting winter flounder.

Elimination of the State Waters Winter Flounder Exemption

The existing program allows multispecies permit holders to fish in state waters for winter flounder using smaller mesh than would otherwise be required. The economic impact of removing this exemption is not known. At least some of the trips identified above may have taken place under the state waters exemption program rather than the SNE/MA winter flounder SAP. Unfortunately the location information reported in the VTR is not adequate to determine which trips may have taken place strictly in states waters and which trips may have taken place in the EEZ or in both EEZ and state waters. Removal of this program would reduce fishing opportunities to vessels that may be participating in this fishery. The magnitude of impact may be similar to the impact of removing the SNE/MA winter flounder SAP, but in the absence of reliable data this conclusion must be regarded as speculative.

Because the state waters winter flounder exemption may enable limited targeting of winter flounder, the elimination of the Southern New England/Mid-Atlantic winter flounder SAP and elimination of the state waters winter flounder exemption could be somewhat positive for protected species if it reduces effort that would otherwise occur as a result of vessels targeting winter flounder.

20.0 Analysis of Impacts - Eastern GB cod, Eastern GB haddock and GB yellowtail flounder TACs and Management Measures for the U.S./Canada Management Area for FY 2009

20.1 No Action -

20.1.1 Biological Impacts

Impacts on Groundfish

If no hard TACs are specified for the U.S./Canada Management Area, the potential harvest of cod, haddock, and yellowtail flounder could exceed the level of harvest that has been recommended for these resources, based on the shared harvest strategy, and could result in increased risk that the fishing mortality objectives are compromised. Whether or not the fishing mortality rate strategy was exceeded would also depend on the level of Canadian harvest. Without the specification of any hard TACs for the U.S./Canada Management Area, the principal management tool in effect that would limit fishing effort on Georges Bank is DAS. Based on the fishing patterns from 2004 through the present, when effort has not been constrained by the hard TACs, it is not likely that the DAS allocations are sufficient to limit fishing effort to the level that would result in harvest of the appropriate amount of GB cod and yellowtail flounder. The fact that vessels may fish using a Category B DAS, or lease additional A DAS provides increased opportunities to fish for many vessels. Hard TACs are required to limit fishing effort to the appropriate amount in the U.S/Canada Area. Because the potential for an increased risk that the fishing mortality objectives would be compromised, the biological impacts of this alternative would be negative.

If no hard TACs are implemented it is possible that additional fishing effort could occur in the U.S./Canada Management Area, and increase the amount of bycatch from vessels fishing in the area. The overall level of effort in the groundfish fishery would still be set by the DAS allocations, which would be the same under the No Action alternative as under the Preferred Alternative. The groundfish species likely to be caught as bycatch would be GB yellowtail flounder, GB cod, and GB haddock, and well as winter flounder, witch flounder, American Plaice, and white hake.

Impacts on Other Species/Bycatch

If no hard TACs are implemented it is possible that additional fishing effort could occur in the U.S./Canada Management Area, and increase the amount of bycatch from vessels fishing in the area. The overall level of effort in the groundfish fishery would still be set by the DAS allocations, which would be the same under the No Action alternative as under the Preferred Alternative. Non-groundfish species affected would be monkfish, skates, lobster, and dogfish.

Habitat Impacts

If no hard TACs are implemented it is possible that additional fishing effort could occur in the U.S./Canada Management Area, and result in increased revenue from the GB fishery. The overall level of effort in the groundfish fishery would still be set by the DAS allocations, which would be the same under the No Action alternative as under the Preferred Alternative. As explained in Section 10.2.2, the economic impacts of the U.S./Canada Area fishery depend upon multiple factors, and are difficult to predict. Further, the precise regulatory scenario that would result from either no TACs or status quo TACs is uncertain. In any case, the No Action Alternative would likely result in a less restrictive regulatory regime for GB, and therefore result in increased catch and revenue compared with the Preferred Alternative.

Impacts on Threatened, Endangered, and other Protected Species

The impacts on endangered and other protected species under the No Action Alternative (no hard TACs) would be similar to the impacts on such species under the Preferred Alternative TACs. Although some increase in fishing effort in the U.S./Canada Management Area could occur without hard TACs, the maximum amount of potential fishing effort in the fishery would be less than that analyzed under Amendment 13. Furthermore, Framework 42 reduced total fishing effort in the groundfish fishery in order to meet the rebuilding fishing mortality goals. The No Action Alternative would not impact the allocation of DAS in the fishery. DAS allocations cap the maximum amount of fishing effort allowable in the fishery, and differential DAS provide further effort control. Under the No Action alternative, a shift in fishing effort into the U.S./Canada Management Area could occur, but it would be constrained by the overall DAS allocation. Sea turtles are not likely to be impacted by effort shifts onto GB because sea turtle distribution in the Northeast Region is focused along the Mid-Atlantic and Southern New England shelf region. Most of the effort on GB is by trawl vessels, which are not likely to affect seals, dolphins, and small whales.

20.1.2 Economic Impacts

If no TACs are specified in the U.S./Canada Area, it is likely that revenue may increase as a result of increased fishing effort that would otherwise have been prevent when either the cod or yellowtail flounder is caught. The overall level of fishing effort and revenue would be constrained by the DAS allocations.

20.2.0 Preferred Alternative – Implementation of U.S./Canada Measures

20.2.1 Biological Impacts

The proposed TACs were set at levels that correspond to the fishing mortality rates consistent with the management strategy agreed to 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 2009 TACs for cod, haddock, and yellowtail flounder were based upon the most recent stock assessments (TRAC 2008a, 2008b, 2008c) and the fishing mortality strategy shared by both the United States and Canada. The guidance for FY 2009 for each stock is described in Sec. 7.0 of this document. The TMGC recommendations were based on the rationale as follows.

For eastern GB cod, there was a shared desire to rebuild the biomass, and exercise caution regarding TAC increases. It was noted that the current fishery is dependant upon the 2004 year class, and that this year class should be protected to get future recruitment. The shared TAC agreed to with the Canadians represents an amount that balances the needs of the fishing industry to catch cod with the need to rebuild the stock. Although a lower cod TAC than proposed (or TAC of zero) may be associated with a lower the risk of stock decline, the specification of this TAC must be considered in the context of the U.S./Canada Resource Sharing Understanding. The risk of not coordinating management with the Canadians and agreeing to a shared TAC is another risk considered. Future recruitment of GB cod will be critical for stock growth in the future.

For haddock, the recommended TAC is consistent with a level of fishing mortality that will maintain Bmsy. For GB yellowtail flounder, the level of shared TAC was set at a level that was estimated to result in stock rebuilding by 2014. Stock growth is expected to continue.

Based upon fishing years 2004 through 2007, 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 one minor exception. 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. In order to prevent such an overharvest from recurring, the monitoring methodology will be modified. A downward adjustment was made in the size of the 2008 TAC.

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 2008 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 Section 20.2.2, 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 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, haddock, and yellowtail flounder stocks. Because the TACs will contribute toward the growth of the stocks, the biological impacts will be positive.

In contrast, as described in Section 20.1.1, 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, which would not be possible under the current DAS system in place in the NE multispecies fishery at-large.

A delay in the opening of the Eastern U.S./Canada Area to trawl vessels until August 1, 2009 will likely result in a reduced chance that the 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.

Authorization of the Ruhle trawl for use in the Eastern U.S./Canada Area will provide vessel operators with an additional choice of gear. A comparison of the conclusions of pertinent information on the effectiveness of the Haddock Separator Trawl (Engas et. al. 1998; DFO, 1992) and the Rhule Trawl (Beutel et. al. 2006) indicate that the Rhule Trawl may be more effective a reducing bycatch of many stocks of concern.

Implementation of a 5,000 lb trip limit of GB yellowtail flounder, instead of the default trip limit of 10,000 lb per trip will have little biological impact other than slowing the rate of yellowtail catch. It is difficult to predict what impact a 5,000 lb trip limit will have on the discard rate. During the 2007 fishing year the percent of total catch of yellowtail estimated to be discards was 39 %. During the 2007 fishing year, the trip limit varied from 3,000 lb to 7,500 lb to 1,500 lb per trip. From May through September 4, 2008, under a 5,000 lb trip limit, the percent of total catch of yellowtail estimated to be discards was 18 %.

The measures for the U.S./Canada Management Area will be neutral to somewhat positive for protected species. A reduction in TACs for the shared stocks of cod and yellowtail flounder would be expected to result in some reduction in fishing effort. AN increase in the TAC for haddock is not expected to result in an increase in effort. TACs for this stock were increased given the status of the stock. Given the increased abundance of haddock, the increase in TAC will not necessarily result in an increase in fishing effort since it will take less effort to catch the haddock.

A zero allocation of trips in the Closed Area II SAP would be expected to result in a reduction in fishing effort in that area and possibly a reduction, overall, if the effort that would have been used in the SAP is not used elsewhere. Although any reduction in effort would potentially benefit protected species, this alternative would have very 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, 2009 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.

Allowing the use of the Rhule trawl may have a positive effect on protected species if the reduction in bycatch enables fishers to acquire their catch more efficiently thus reducing the amount of time that gear is in the water.

20.2.2 Economic Impacts of the Eastern GB cod, Eastern GB haddock and GB yellowtail flounder TACs and Management Measures for the U.S./Canada Management Area for FY 2009

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 Section 11.7.3.2, 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 (and possible other effects), 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.

Both the yellowtail flounder TAC and the cod TAC represent reductions to the size of the TACs compared to those specified for FY 2008 (14% and 21% reductions, respectively). However, the proposed cod TAC for 2009 is 67% greater than the amount of catch during the 2007 fishing year, and larger than the cod TACs specified for fishing years 2004 through 2007. The delayed opening of the Eastern U.S./Canada Area for trawl vessels during the 2008 fishing year has resulted in a reduced rate of cod catch compared with previous fishing years. Based on this information, it is not likely that cod will cause a closure of the Eastern U.S./Canada Area in FY 2009. In contrast, the catch rate of GB yellowtail flounder during FY 2008 appears to be on a trajectory to catch the entire TAC. Based on the 2008 fishing year and previous fishing years, the GB yellowtail TAC may trigger a closure of the Eastern U.S./Canada Area in FY 2009.

If access to the Eastern U.S./Canada Area is limited by the catch of yellowtail flounder, it is likely that only a portion of the allocated haddock and cod TACs will be harvested. Furthermore, even if the Eastern U.S./Canada Area is open, the number of trips to the Area is also influenced by the availability of fish closer to port, and other economic and practical factors. There has been a declining trend in the number of vessels fishing in the U.S./Canada Management Area and a decline in the number of trips.

Providing a range of possible catch levels and the associated revenue may be the most useful way of estimating economic impacts, given the uncertainty of projecting a particular level of catch. Table 140 provides a range of catch of the shared TACs and the revenue associated with those species, based upon the range of historical catches, 2007 discard to catch ratios, and 2007 prices. Average price estimates are based on 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 by Caless and Wang (2004).

Table 140. Revenue Estimates from Landings of Shared Stocks from U.S./Canada Management Area.

Estimate A for FY 2009			
Stock	Catch (mt)	* Landings (mt)	Revenue
Cod	300	99	$ 344, 837
Yellowtail	1,200	732	$ 2,356,057
Haddock	300	162	$ 578,564
Total			$ 3,279,459
Estimate B for TY 2009			
Stock	Catch (mt)	* Landings (mt)	Revenue
Cod	527	174	$ 605,764
Yellowtail	1,617	986	$ 3,174,787
Haddock	600	324	$ 1,157,129
Total			$ 4,937,681

* Landings derived using 2007 discard ratios (Table 67)
Prices per pound: cod: $ 1.58; haddock: $ 1.62; yellowtail: $ 1.46

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 eastern area is prolonged, there would also be increased landings of other groundfish and non-groundfish species, resulting in additional revenue. Although landings and revenue from yellowtail flounder may increase in FY 2009 relative to FY 2007 (due to the larger TAC), the revenue from trips to the U.S./Canada Area during 2009 will likely be less than during the 2007 fishing year due to a decrease in DAS allocations in FY 2009, and the likelihood that the trend of declining number of trips into the U.S./Canada Area 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. The long term 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.

21.0 Impacts Analysis - Haddock TAC for the Closed Area I Hook Gear Haddock SAP

21.1 No Action

21.1.1 Biological Impacts

Impacts on Groundfish

The No Action Alternative would have little or no impact on groundfish because the haddock TAC is not likely to be a limiting factor for fishing effort in this SAP, and the stock is rebuilt. If the haddock TAC for the SAP is not revised, either no TAC would be specified, or the TAC would remain the same (i.e., that specified for FY 2008). Under either of these scenarios the TAC would exceed the level that should be specified for FY 2009, based upon GARM III. The 2008 TAC for the SAP was 6,275 mt, whereas the TAC specified by this interim action is 3,605 mt. According to GARM III, the total catch of GB haddock in 2007 was 4,864 mt. Even though the TAC would exceed the level that would be in compliance with the FMP formula, based on stock size, it is very unlikely that a large TAC (and a higher fishing mortality on GB haddock) would have any negative biological impact. The stock is rebuilt and the catch of GB haddock is relatively low.

Impacts on Other Species/Bycatch

The No Action Alternative would have little or no impact on other species or bycatch because the haddock TAC is not likely to be a limiting factor for fishing effort in this SAP.

Habitat Impacts

The No Action Alternative would have little or no impact on habitat, because the haddock TAC is not likely to be a limiting factor for fishing effort in this SAP

Impacts on Threatened, Endangered, and other Protected Resources

The No Action Alternative would have little or no impact on threatened, endangered, and other protected resources, because the haddock TAC is not likely to be a limiting factor for fishing effort in this SAP

21.1.2 Economic Impact

It is not likely that a different TAC set for the SAP would result in any economic impact because the haddock TAC is not a limiting factor for the SAP. For example, during the 2007 fishing year, the two Sectors caught only 7% of the haddock TAC allocated to Sectors. It is more likely that other factors will control the level of participation in the SAP and the amount of haddock caught. For example, the incidental cod TAC specified for the TAC will be more important. The FY 2008 incidental cod TAC set for this SAP is 32.7 mt, whereas this interim rule will implement a lower incidental cod TAC of 17.6 mt.

21.2 Preferred Alternative

21.2.1 Biological Impacts

Revision of the TAC may reduce fishing mortality on GB haddock, if the TAC limits the catch of haddock. If the lower TAC results in reduced fishing effort, then the bycatch of cod may also be reduced.

21.2.2 Economic Impacts

It is not likely that a lower TAC set for the SAP will result in any economic impact because the haddock TAC is not a limiting factor for the SAP. For example, during the 2007 fishing year, the two Sectors caught only 7% of the haddock TAC allocated to Sectors. It is more likely that other factors will control the level of participation in the SAP and the amount of haddock caught. For example, the incidental cod TAC specified for the TAC will be more important. The FY 2008 incidental cod TAC set for this SAP is 32.7 mt, whereas this interim rule will implement a lower incidental cod TAC of 17.6 mt.

22.0 Analysis of Impacts – Recreational Measures

22.1 No Action

22.1.1 Biological Impacts

Impacts on Groundfish

The No Action Alternative would provide less fishing mortality reduction for several stocks that need fishing mortality reductions. Specifically, the estimated fishing mortality reductions for SNE/MA winter flounder, GB cod, and GOM cod that result from the recreational measures would not occur.

Impacts on Other Species/Bycatch

The No Action Alternative would result in a similar level of bycatch of other species as the Preferred Alternative.

Habitat Impacts

The No Action Alternative will have little impact on habitat.

Impacts on Threatened, Endangered, and other Protected Resources

The No Action Alternative will have little impact or no impact on threatened, endangered or other protected species.

22.1.2 Economic Impacts

The No Action Alternative would result in greater revenue for party/charter vessels and greater fishing opportunity for private recreational vessels. Approximately one third of the 92 federally permitted charter/party vessels that reported keeping cod, haddock, or winter flounder, would be less impacted under the No Action Alternative. Party/charter receipts may be expected to be approximately 6 percent greater under the No Action Alternative than under the Preferred Alternative.

22.2 Preferred Alternative

22.2.1 Biological Impacts

The proposed action would add two weeks to the existing closed season for GOM cod to April 15, would impose a 10 fish bag limit on cod for all modes and all areas, would prohibit possession of winter flounder in SNE/MA stock area for all recreational modes, and would reduce the size limit for haddock to 18" everywhere.

Biological Impact on SNE/MA Winter Flounder

The Preferred Alternative will prohibit possession of SNE/MA winter flounder in Federal waters by all recreational anglers and would prohibit the possession of winter flounder within the SNE/MA stock area by Federally permitted operators of party/charter vessels. Data collected through the Marine Recreation Information Program (MRIP formerly know as the MRFSS), indicate that during 2001 to 2007 less than 2% of winter flounder were caught in EEZ waters. More recently, the EEZ catch of winter flounder was less than 1% of total recreational catch. Thus, the general prohibition on possession of SNE/MA winter flounder may result in a conservation benefit of about 1% of total catch. Some additional benefit may be expected from the prohibition on possession of SNE/MA winter flounder by party/charter operators. However, this additional benefit is likely to be small since harvest of SNE/MA winter flounder by party/charter anglers accounted for less than 2% of the total harvest. Note that the potential benefit from the EEZ prohibition on possession and the benefit from prohibition on possession by Federal party/charter operators is not likely to be additive since at least some portion of the party/charter catch was obtained in EEZ waters.

Biological Impact on Gulf of Maine Haddock

The biological impact of lowering the size limit from 19-inches to 18-inches may be expected to increase mortality on Gulf of Maine haddock. The magnitude of this increase depends on release mortality of haddock that will be less than 18-inches and angler response to the size limit change. In the absence of an angler response and assuming full compliance with the 19-inch size limit, lowering the size limit would convert haddock that would otherwise have been released into harvested catch. On party boat trips the percentage of released catch that measured 18-inches averaged 12% of total released haddock during 2005 to 2007. Assuming 100% survival of released haddock and that the size distribution of released catch on other recreational fishing modes is similar to that of party boat anglers, one estimate of increased mortality would be equal to 12% of total released Gulf of Maine haddock. During 2005 to 2007 the total number of Gulf of Maine released haddock (type B2, released alive) averaged 129 thousand fish. Thus under these assumptions, the reduced size limit would result in an increase of 15.5 thousand harvested haddock. This estimate was based on several assumptions one of which was full compliance with the current size limit.

Available data indicate that approximately 10% of harvested Gulf of Maine haddock in the party/charter mode was 18-inches; one inch below the minimum legal size. Note that retention of haddock less than 18-inches was also observed, but fish less than 18-inches accounted for less than 1% of harvested haddock. This suggests that some level of non-compliance with the 18-inch size limit may be expected and that this non-compliance would most likely be associated with 17-inch haddock. During 2005 to 2007 released haddock that measured 17-inches accounted for an average of 43% of total released Gulf of Maine haddock in the party mode. If the observed noncompliance rate is similar to that of the current limit then an 18-inch size limit may result in additional harvest of 10% of 17-inch fish that would otherwise have been released. Accounting for the haddock harvested at 18-inches harvest of non-compliant 17-inch haddock would increase harvest by 5.5 thousand Gulf of Maine haddock.

Given the caveats and assumptions noted, based on 2005 to 2007 averages the 18-inch size limit may result in an overall increase of 21 thousand fish representing an increase of approximately 6% in harvested Gulf of Maine haddock. Whether the change in haddock size limit would affect angler demand for haddock trips is uncertain. Lowering the size limit would enhance retention opportunities which may be an important motivation for angler demand in a meat fishery like haddock or cod. If angler effort were to increase, then the increase in harvested haddock may be expected to be higher than 6%.

Biological Impact on Georges Bank Cod

Existing recreational measures includes a 10-fish bag limit for private boat and shore-based anglers in the Georges Bank cod stock area, but does not impose a bag limit on party/charter trips. The proposed action would impose the same 10-fish bag limit on all recreational anglers harvesting Georges Bank cod. This change would affect the number of cod that could be retained by party/charter anglers. Available data indicate that a substantial amount of Georges Bank cod harvested by party/charter anglers was caught on trips that landed more than 10 cod. However, available data also indicate substantial inter-annual variation in the proportion of harvested cod above 10 fish (see Figure 36 in Affected Environment section). Further, this variability was greater during 2004 to 2006 (2007 was omitted due to lack of data) than it was during 2001 to 2003. These two time periods also correspond to years in which the MRIP procedures used to estimate party/charter effort and catch rates differed where the former (2004 to 2006) reflects current MRIP procedures. Although exhibiting more variability, the distribution of harvested Georges Bank cod by numbers kept per angler trip reflect lower keep rates as compared to 2001 to 2003. For example, kept cod above 10 fish accounted for an average of two-thirds of party/charter harvest during 2001 to 2003, but averaged 27% of harvested Georges Bank cod during 2004 to 2006. Whether this difference is associated with a change in survey method or real changes in catch rates associated with resource conditions is uncertain. Nevertheless, for purposes of analysis the distribution of kept Georges Bank cod during 2004 to 2006 will be used to estimate biological impacts since these data reflect currently accepted survey methods for the party/charter mode, and represent more recent fishing and resource conditions.

The biological impact of the 10-cod bag limit for party/charter anglers fishing in the Georges Bank cod stock area depend on release mortality and angler response to a bag limit. Assuming angler trips remain constant then each occasion in which more than 10 cod were harvested would be limited by the bag limit. Using 2004-2006 averages the 10-cod bag limit would result in a reduction of 11% in harvested Georges Bank cod by party/charter anglers. Taking private boat harvest which would not change into account the bag limit change would result in an estimated 9.5% reduction in total recreational harvest of Georges Bank cod. Note that this estimate was based on an assumed zero discard mortality and no change in angler demand for party/charter trips. Holding passenger demand constant the biological benefit of the 10-cod bag limit would be proportionally diminished as discard mortality increases.

At least some portion of party/charter angler demand for Georges Bank trips may be expected to decline with a 10-cod bag limit compared to taking no action. The magnitude of this decline is uncertain. In terms of angler trips, the overwhelming majority of party/charter anglers (an average of 89%) did not keep more than 10 Georges Bank cod during 2004 to 2006. However, party/charter operators argue that in spite of the fact that most realized trips do not harvest large amounts of fish, it is the perception or possibility of having a big trip that captures the imagination of anglers and creates the demand for taking a party/charter trip. Whether a bag limit changes these expectations in a way that causes potential clients from foregoing a party/charter trip is not known. Whether these perceptions differ for passengers that charter a boat to go fishing or pay a per-person fee on a party boat is unknown. The extent to which passenger demand for party/charter trips on Georges Bank may be reduced would reduce recreational fishing effort on Georges Bank cod and would result in greater biological benefit the magnitude of which is uncertain.

Biological Impact on Gulf of Maine Cod

Fishing mortality of Gulf of Maine cod needs to be reduced by 21%. In terms of exploitation (i.e. relative reduction in harvest) achieving this target requires an 18% reduction in harvest for both commercial and recreational user groups. To accomplish this objective for the recreational sector the proposed action would extend the existing seasonal closure from November 1 to April 15. This action was selected by using methods previously applied estimate the biological impacts of the FW 42 measures. Specifically, MRIP data were used to construct the seasonal, size, and keep class distributions using 2005 data (see Figures 40, 42, and 43, and Table 82 in Affected Env.). Calendar year 2005 data were selected because it was the most recent calendar year not subject to the size limit or season closure that were implemented in May, 2006. These data indicate that closure of the entire month of April (weekly distributions could not be estimated) would result in an estimated 39% reduction in harvested Gulf of Maine cod. Assuming that the catch rates are reasonably constant throughout the month, a two-week extension of the existing closure would result in an approximate 19.5% reduction in Gulf of Maine harvest. Note that this estimated biological impact may be overestimated somewhat as the 2005 harvest of Gulf of Maine cod by private boat anglers was higher than in other years.

It may have been possible to achieve the reduction by changing size limit or the Gulf of Maine cod bag limit. However, given the size distribution of harvested cod a minimum size of 25 or 26-inches would have been required depending on the assumed discard mortality. The bag limit would have needed to be 8 or fewer cod. Further, available data indicate that non-compliance with both bag and minimum size limits persist which reduces the effectiveness of these methods in achieving conservation objectives. Additionally, while bag and minimum size limits reduce the number of cod that may be kept they do not necessarily reduce the number of cod that are caught which means that discards will increase. In addition to issues with compliance, any discard mortality further reduces the effectiveness of bag and size limits. These effects increase uncertainty with respect to whether conservation objectives are likely to be met whereas a seasonal closure that reduces not only harvest but total catch as well provides greater assurance that fishing mortality changes will be achieved.

Biological Impact on Protected Species

The alternatives for reducing fishing mortality in the recreational fishery will have no effect on protected species. All of the measures pertain to retention and possession of multispecies (cod, haddock, and winter flounder). While such measures may influence whether someone chooses to fish, the alternatives do not directly limit the amount of recreational fishing that can occur. In addition, although there are anecdotal reports of some protected species biting at fish bait or targeted fish caught on recreational hook and line gear, the risk of capture or entanglement for cetaceans, pinnipeds, or sea turtles in recreational fisheries is unknown.

22.2.2 Economic Impacts

Changes in recreational measures may be expected to affect both recreational anglers and would affect operators of party/charter services. Impacts on anglers are measured by the loss in economic surplus associated with being unable to engage in their preferred recreational fishing activity. Economic surplus is measured by the difference between what anglers would be willing and able to pay to engage in a recreational fishing activity and what they actually pay for that activity. Since recreational fishing is not a market-based good the economic surplus is not revealed through market transactions and must be inferred using non-market valuation techniques which require specialized studies including primary data collection. Such studies are not available for groundfish so it is not possible to provide a quantitative estimate of the potential economic loss to recreational anglers.

SNE/MA Winter Flounder

While some loss in economic surplus would be expected the magnitude of this loss will depend on the availability of substitute recreational fishing opportunities and the number of affected anglers. In the SNE/MA stock area summer flounder may be presumed to be a close substitute for winter flounder, but while there is some overlap between the two species winter flounder are primarily caught during March and April, the summer flounder season peaks during July and August. The total number of anglers affected by the EEZ prohibition is likely to be relatively small since less than 1% of winter flounder were caught in EEZ waters in both calendar years 2006 and 2007. Extending the prohibition to Federally permitted party/charter vessels would affect party/charter anglers that would not otherwise be affected by the EEZ prohibition. This would still be expected to be a small number of anglers since the party/charter mode accounts for less than 2% of harvested winter flounder in the SNE/MA stock area. Further, only the portion of party/charter anglers that are on-board Federally permitted vessels would be affected since the prohibition would not extend to non-Federally permitted boats. The mix of anglers taking party/charter trips on Federal and Non-Federal boats is unknown.

Georges Bank Cod

While a 10-fish bag limit would affect about 27% of Georges Bank cod harvest by party/charter anglers, the proportion of angler trips above 10-fish per angler averaged only 11% of total trips during 2005 to 2007. Thus, the impact on the number of anglers may be expected to be proportionally less than the impact on number of harvested fish. The majority of Georges Bank cod are harvested by party/charter anglers. However, during 2001 to 2007 the total number of angler trip harvesting GB cod was a maximum of 20 thousand anglers during calendar year 2005. Thus the GB cod bag limit would have affected 2.2 thousand anglers in that year and the recreational angler impact may be expected to be relatively low. However, the extent to which the possibility to keep more than 10 fish is an important motivation for taking a recreational fishing trip imposing a bag limit will diminish the desirability; hence the economic surplus of any trip regardless of how many fish are actually caught. While the magnitude of the lost economic value associated with the 10-cod bag limit for Georges Bank party/charter anglers is uncertain, it is still likely to be comparatively small given observed low levels of recreational participation in the fishery.

Gulf of Maine Cod

The impact of a extending the closed season for recreational caught GOM cod through April 15th is uncertain. Available data during 2001 to 2007 indicate that the proportion of Gulf of Maine cod harvested during the entire month of April has varied from as little as 0.3% to as much as 40% in the private boat mode and ranged from 0.8% to 28% in the party/charter mode. Whether most trips tend to be take place during early April or later in the month is uncertain and is likely to be weather dependent and coincide with when cod aggregate closer to shore making the fish readily accessible to recreational anglers. The proposed action closure would reduce the economic surplus associated with anglers that fish for GOM cod during the month of April. The magnitude of this loss is indeterminate.

Haddock

Reducing the size limit for haddock would increase the number of opportunities to keep haddock on all groundfish fishing trips in the Gulf of Maine and the Georges Bank haddock stock area. To the extent that anglers are motivated by keeping fish to eat this action would result in an increase in economic surplus to recreational anglers. The magnitude of this increase in economic value is uncertain although recreational harvest of haddock has increased considerably in the Gulf of Maine. This increase has coincided with more stringent fishing regulations imposed on Gulf of Maine cod suggesting some species substitution has emerged among recreational anglers in the Gulf of Maine.

Impacts on Party/Charter Operators

Party/charter operators offer a variety of different types of trips some of which may be affected by one or more of the proposed recreational measures. For this reason the party/charter logbooks were used to identify the number of operators that reported keeping cod, haddock, or winter flounder on any trip during fishing year 2007. The potential impact on each identified vessel was estimated by evaluating each trip to ascertain which ones would be affected by the proposed action. Additionally, all other trips taken by each vessel was also retained to estimate the economic impact on the party/charter business as a whole.

During FY 2007 there were 92 Federally permitted party/charter vessels that reported keeping cod, haddock, or winter flounder on at least one trip. Of these vessels 26 took the majority of trips out of Massachusetts while 11 vessels operated out of Maine and 13 operated out of New Hampshire. Due to small numbers of operators in Connecticut (1) and Rhode Island (5) data for party/charter vessels from these states were combined with New York (15). Similarly, data for operators in Maryland (3) and Virginia (1) were combined with New Jersey (17).

The 92 identified party/charter vessels reported a total of 8,323 trips of which 2,990 landed at least one of ten groundfish species (cod, haddock, pollock, white hake, redfish, and flounder species of winter, witch, windowpane, yellowtail, and plaice)(Table 141). Party/charter operators in Maine, New Hampshire, and Massachusetts accounted for 80% of trips that retained groundfish. Vessels from these three states took a total of 3,127 trips of which 95% occurred in the Gulf of Maine. By contrast, the combined states of RI through VA took 5,196 party/charter trips nearly all of which occurred in Southern New England or Mid-Atlantic.

Table 141. FY2007 Number of Potentially Affected Party/Charter Operators and Trip Characteristics by Primary State

Primary State	Number of Operators	Total Reported Party/Charter Trips	Total Party/Charter Trips Reporting Groundfish	Number of Trips in SNE/MA Stock Area (excludes 521)	Number of Trips to Georges Bank (excludes 521)	Number of Trips in Statistical Area 521	Number of Gulf of Maine Trips
MA	26	1226	947	129	9	3	1085
ME	11	589	528	0	0	0	589
NH	13	1312	957	3	0	0	1309
NJ, VA, MD	21	2694	235	2692	0	0	2
NY, CT, RI	21	2502	323	2482	12	6	2
Totals	92	8323	2990	5306	21	9	2987

Relative to FY2007 conditions, this alternative would have an adverse impact on trips taken in the Gulf of Maine that kept cod during April 1 to April 15, would affect trips taken in the Georges Bank cod stock area where more than 10 cod were kept, and would affect any trips in that kept winter flounder in the Southern New England/Mid-Atlantic stock area. Trips affected by these measures were identified in the following manner.

Gulf of Maine cod trips that took place during April 1, 2008 and April 15, 2008 were assumed to be lost. That is, it is more difficult to replace forgone party/charter trips than commercial trips due to a seasonal closure since party/charter trips rely on passenger demand. That is, lost bookings may not be simply replaced or shifted to a later date since arrangements with other customers may have already been made or changing a date may not fit with the customer's schedule.

Affected trips that landed Georges Bank cod were identified by dividing total cod kept by the number of reported passengers on-board for all trips taken in the Georges Bank cod stock area. Note that this includes not only Georges Bank but much of the SNE/MA area as well. This process only identifies the trips where the realized impact would be to reduce the total number of cod kept on observed trips. The impact of the cod bag limit on passenger demand is uncertain and may be larger than retrospective analysis might suggest. That is, some of the observed trips may not be taken at all or numbers of passengers may be lower on a per-trip basis. There may also be differences in response between anglers that pay for a charter as compared to party boat anglers.

Trips taken by party/charter operators where passengers retained winter flounder in the Southern New England/Mid-Atlantic stock area were assumed to be forgone due to the prohibition on retaining SNE/MA winter flounder by Federal permitted party/charter vessels. These trips were assumed to be lost because a substantial portion of trips where winter flounder was landed did not land any other species, or winter flounder was a substantial portion of the total number of fish kept of all species. Further, under ASMFC rules winter flounder is limited to a 60 day season and historically much of the harvest occurred during the spring when there are fewer substitute species. Thus, forgone angler demand for winter flounder trips may be difficult to replace.

The proposed action would have a positive impact on trips where haddock were kept. These trips were identified and trips taking place in the Gulf of Maine were separated from those that took place on Georges Bank or Southern New England. The impact that an increase in the number of haddock that may be kept will have on party/charter fishing demand is uncertain. Given the distribution of party/charter fishing trips this change may be expected to have a larger beneficial effect on party/charter operators in Maine, New Hampshire, and Massachusetts taking passengers to the Gulf of Maine.

During FY2007, an estimated 209 party/charter trips would be foregone due to the extension of the Gulf of Maine cod closure (38 trips) and to the prohibition on retention of SNE/MA winter flounder (171 trips) (Table 142). A total of 14 trips retained more than 10 Georges Bank cod per angler, of which, 11 happened when more than six passengers were on-board and 3 when six or less passengers were on-board. During FY2007 1,908 trips occurred where haddock was kept. All but two of these trips occurred in the Gulf of Maine and so landed Gulf of Maine haddock. Note that Gulf of Maine trips that reported retaining haddock accounted to 78% of all Gulf of Maine party/charter trips where groundfish were kept.

Table 142. Number of Party/Charter Trips Affected by Proposed Action Recreational Measures

Primary State	Number of GOM Trips that Kept Cod April 1 to April 15	Number of GB Cod Trips Where Cod/Angler was More than 10	Number of Trips Where SNE/MA Winter Flounder was Kept	Number of Trips that Kept GB Haddock	Number of Trips that Kept GOM Haddock
MA	16	6	0	2	729
ME	9	0	0	0	361
NH	13	0	0	3	816
NJ, VA, MD	0	0	65	0	0
NY, CT, RI	0	8	106	2	2
Totals	38	14	171	7	1908

Overall, there were a total of 61 of the 92 identified were not affected in an adverse way by any of the proposed action measures. That is, these 61 vessels did not land any SNE/MA winter flounder, did not exceed the GB cod bag limit, and did not operate in the Gulf of Maine between April 1 and April 15 of FY2007. There were 18 party/charter operators that were only affected by the prohibition on possession of SNE/MA winter flounder, 7 vessels were affected by the extended GOM cod closure, and two vessels were affected by the GB cod bag limit. A total of four vessels were affected by more than one measure. Three of these vessels were affected by both the GB cod bag limit and the prohibition on possession of SNE/MA winter flounder. Only one vessel was affected by the GB cod bag limit and the GOM cod extended closure. During 2007 no vessel would have been affected by all three recreational measures.

Of the 92 Federal permitted party/charter operators a total of 31 were found to be affected by one or of the proposed action measures. These 31 vessels carried a total of 89,749 passengers during fishing year 2007 (Table 143). Due to low numbers of affected vessels in Maine and New Hampshire, reported results for party/charter operators from these states were combined with Massachusetts. The impact on total passengers carried was estimated to be 5,465 of which the majority (93%) were associated with trips that were assumed to be forgone. These affected trips represent 6.1% of total passengers carried. The impact on trips was highest (-11.3%) for New Jersey vessels and lowest (-4.2%) for combined Maine, New Hampshire, and Massachusetts party/charter operators.

Table 143. Number of Affected Permits and Estimated Loss in Passengers

	Number of Permits	Number of Anglers	GOM Cod Lost Anglers	SNE/MA Winter Flounder Lost Anglers	Affected GB Cod Anglers	Total Affected Passengers
ME, NH, MA	9	30,944	1,124	0	170	1,294
NJ	8	14,290	0	1,620	0	1,620
NY	14	44,515	0	2,299	252	2,551

Totals	31	89,749	1,124	3,919	422	5,465

To estimate potential losses in passenger fees the mean party/charter fee paid by residents and nonresidents based on a 2006 survey of angler expenditures (Gentner and Steinback, forthcoming) was multiplied by total affected anglers (Table 144). These fees ranged from a high $64.25 in Massachusetts to a low of $50.64 in New Hampshire.

Table 144. Mean Party/Charter Fees by State for 2006

	Resident Fee	Non-Resident Fee	Average Fee
CT	$50.96	$53.88	$52.42
DE	$47.87	$68.70	$58.29
ME	$61.15	$66.14	$63.65
MD	$64.42	$53.40	$58.91
MA	$63.09	$65.41	$64.25
NH	$57.51	$43.77	$50.64
NJ	$54.19	$58.01	$56.10
NY	$56.09	$61.97	$59.03
RI	$56.76	$56.39	$56.58
VA	$41.55	$73.59	$57.57

Total passengers fees received by the 31 affected party/charter vessels during FY2007 were estimated to be $4.9 million (Table 145). Note that since the fees correspond with the party/operator's state the revenue changes in the same proportion as numbers of passengers. That is, party/charter receipts may be expected to be reduced by 6.1%. The change in revenue per affected vessel ranged from $8,384 among operators in Maine, New Hampshire, and Massachusetts to $11, 701 among New Jersey operators. Thus the average impact did not differ markedly among all affected party/charter operators.

Table 145. Estimated Impact on Passenger Fees Received by Affected Party Charter Operators

State	Total Passenger Fees (FY2007)	GOM Cod Lost Fees	SNE/MA Winter Flounder Lost Fees	GB Cod Affected Fees	Total Affected Fees	Average Impact
ME, NH, MA	$1,786,366	$64,537	$0	$10,923	$75,460	$8,384
NJ	$815,949	$0	$93,608	$0	$93,608	$11,701
NY	$2,356,132	$0	$119,571	$12,771	$132,342	$9,453
Totals	$4,958,447	$64,537	$213,178	$23,694	$301,409	$9,723

23.0 Analysis of Impacts- Mitigation Measures

No Action

The no action alternative for the mitigation measures would result in reduced fishing mortality on target and bycatch stocks, including stocks of concern, and reduced catch and revenue. The biological and and economic impacts of the mitigation measures are similar for all the mitigation measures, but vary in the relative amounts of impacts. In general mitigation measures provide for increased fishing opportunity and revenue. The associated biological impacts are increased fishing mortality on target stocks and some increased fishing mortality on stocks on concern.

23.1 Biological Impacts of Mitigation Measures

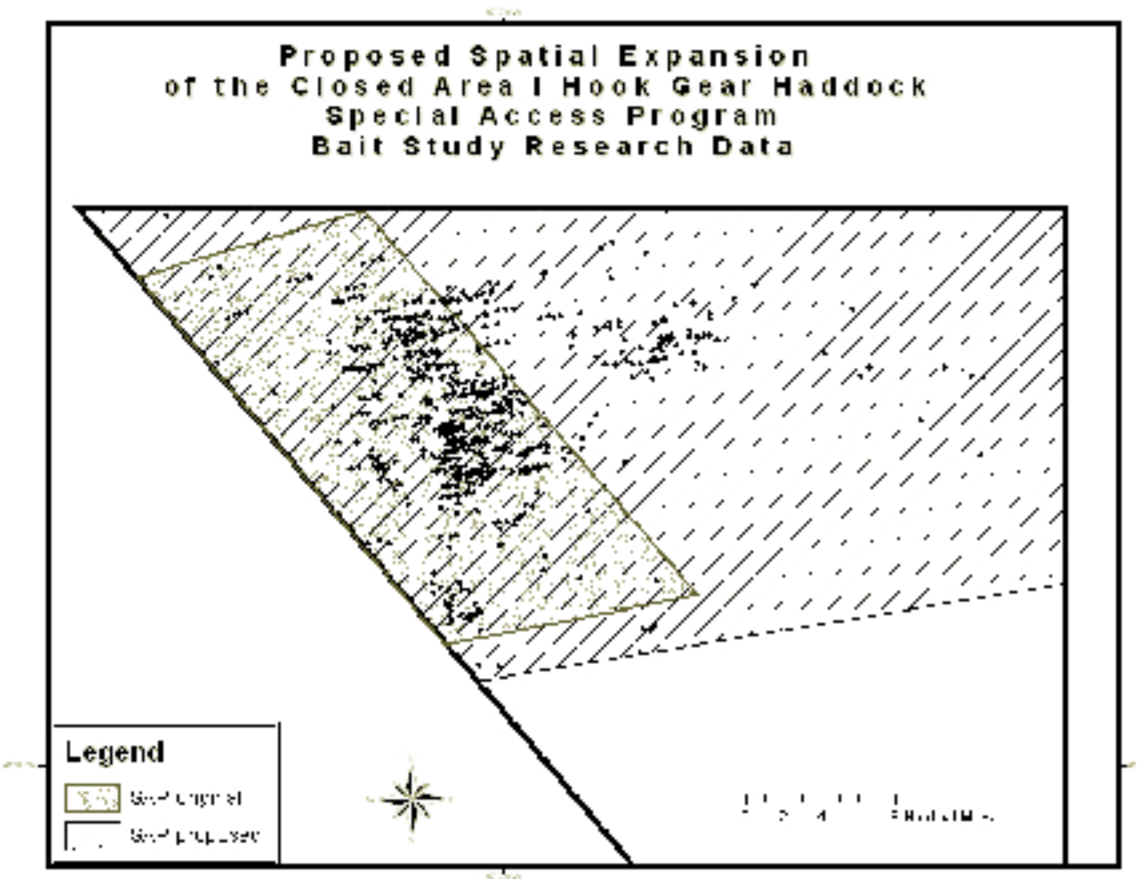
23.1.1 Modification to CA I Hook Gear Haddock SAP

The following analysis is based in part, upon the Council's draft Amendment 16 analysis (Draft Environmental Impact Statement, January 28, 2009). The proposed expansion of the season and area for the SAP in the Preferred Alternative are designed to increase fishing opportunity for haddock by vessels using hook gear in order to approach optimum yield and mitigate negative economic impacts of the FMP. As a result of the expansion in season and area, overall fishing mortality of GB haddock is expected to increase. Because the total catches of haddock is limited by a TAC specified for the SAP that is based on the available exploitable biomass, this SAP is not expected to result in overfishing of GB haddock. Longline gear also catches other species. Two stocks of interest in this area are GB cod and white hake, both subject to formal rebuilding plans. The catches of both of these species by non-sector vessels in the SAP are limited by incidental catch TACs, while any catches of cod by sector vessels will count against sector ACE. For these reasons expansion of the SAP is not expected to result in overfishing for these two stocks.

Further evidence that the expansion of the SAP will not be harmful to GB cod or white hake can be determined by a review of longline experiments that tested selectively targeting haddock through using specific baits from 2003 - 2005. One study in particular was reviewed in a manner consistent with the Council's RSC policy for incorporation of research results into the Council's management process. Specifically, the Council's RSC, in its report of May 30, 2007, supported the conclusions of two research reports titled "Using Hook and Line to Minimize Cod Bycatch in a Directed Haddock Fishery on Georges Bank and in the Gulf of Maine," and "Production and Testing of an Alternative Bait Selecting for Haddock." The investigators concluded that in their study using Norbaits (artificial extrude baits composed of fishery products) and longline gear, the catch rate of haddock was significantly higher than the catch rate of cod. Although the objective of the studies was not to investigate the expansion of the SAP, the data that resulted from these two studies were used by NMFS in deciding whether to approve the CA I SAP expansion (Figure 53). Due to limitations regarding the scope of the data, the RSC stated that the Council and its Plan Development Team should use caution in making broad assumptions about applying these results in space and time outside the areas tested. The DMF reviewed the data from one of the above studies (Correia, S.

2008; unpublished) with the underlying question of the implications of the expansion of the SAP. The DMF paper indicated that catch rates of species in the proposed expanded area are not higher than in the current SAP, but noted that the data do not include complete special coverage of the entire area proposed, there was limited or no sampling during some of the months proposed, and there was an imbalance in the number of hauls within months between the current and proposed SAP. Although this caveat exists, the prohibition on the use of squid as bait in this SAP further limits the likelihood the catch rates of cod would be excessive. A recent paper concluded that, in Closed Area I, statistically significant differences in cod-to-haddock ratios were found between baits, with squid catching the highest amount of cod, fabricated baits catching the lowest amount, and herring an intermediate amount (Ford, et. al. 2008).

Figure 53. Location of hauls used in the bait selectivity study (Figure provided by Cape Cod Commercial Hook Fisherman's Association). This represents haul locations in the full dataset. From Correia (2008).



In fishing year 2007, the GB Cod Fixed Gear Sector took 24 trips into the SAP and the GB Cod Hook Sector took 89 trips into the SAP. The haddock to cod ratios for those sector in FY 2007 was 382:1 and 183:1, respectively. The total amounts of cod landed and discarded was 202 lb and 2,722 lb, respectively.

The closed areas on Georges Bank - including CA I - have been recognized as important to groundfish spawning, particularly for cod, haddock, and yellowtail flounder. The two areas were first established as seasonal spawning closures under ICNAF. They continued to be used as spawning closures – primarily to protect cod and haddock - under the groundfish plan until they became year round closed areas in 1994. Prior to their establishment as year round closed areas, however, scallop dredge fishing was allowed in the seasonal spawning closures. Closed area access programs since 1997 limited scallop dredge access to periods outside of peak spawning periods, and a similar restriction was recently submitted by the Council in Scallop Framework Adjustment 16.

Observed spawning periods are described in the Essential Fish Habitat source documents for each species. For many species, there is a wide range of possible spawning months, but there is also a distinct peak when most spawning activity occurs. The general pattern is for spawning to occur in the southern part of the range for a species earlier in the year, and then move north. For most groundfish species, spawning takes place during the first half of the calendar year. Peak spawning for witch flounder and yellowtail flounder is in the middle of the year. Peak spawning for ocean pout occurs in the fall, while for Atlantic halibut it occurs in November and December. Spawning periods for groundfish stocks were summarized in FW 40B (NEFMC 2005). GB cod spawning occurs from October through June, with peak spawning activity in February and March. GB haddock spawning occurs from January through June, with peak periods in March and April. The expanded season for this SAP includes spawning months for both of these stocks but avoids the peak spawning months that have been identified. This is less of a concern for GB cod given the low catch rates expected.

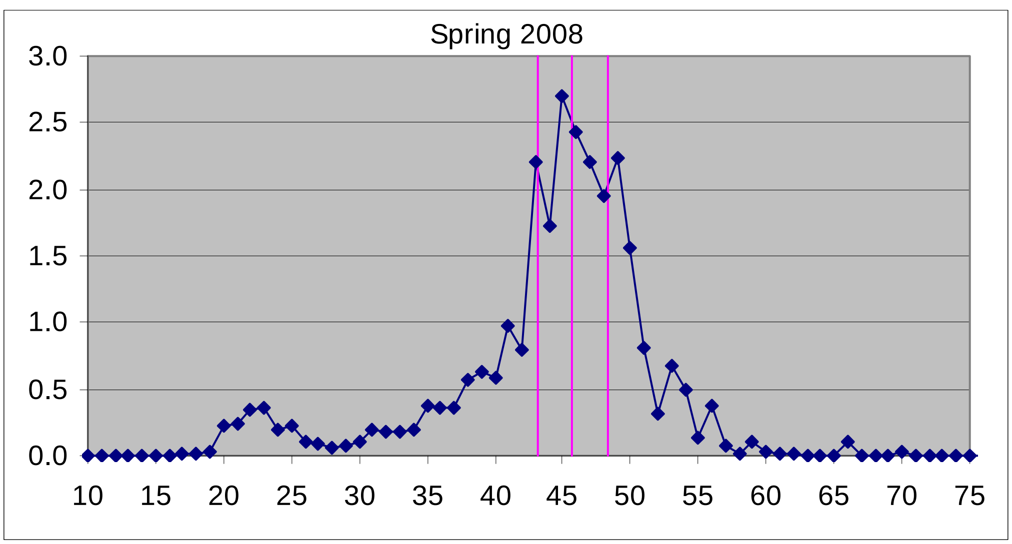
Biological Impact on Threatened, Endangered, and other Protected Species

As described in the Affected Environment section, ESA-listed sea turtles and cetaceans as well as other marine mammals protected by the MMPA are likely to occur in the area affected by the Interim action measures, including Closed Area I. Some of these species may be captured by or entangled in hook gear, resulting in the injury or death. Hook and line fishing has minimal interaction with marine mammals, such as harbor seals and grey seals, and is listed as a Class III fishery under the Atlantic Large Whale Take Reduction Plan, and is not know to seriously impact the health of large whales (e.g., right whales, humpbacks, or fin whales). The exact relationship between fishing effort and the likelihood of interactions between protected species and fishing gear is unknown. However, in general, an increase in fishing effort at times and in areas where protected species occur would be expected to increase the likelihood of interactions between fishing gear used and the protected species present. As described in the Affected Environment section, all of the protected species considered here occur seasonally in areas where the groundfish fishery operates. The change in the season could influence the probability of interactions with sea turtles, due to the seasonality of their distribution. For example, in general, turtles move up the coast from southern wintering areas as water temperatures warm in the spring, and move down the coast in the fall as temperatures cool. NOAA Fisheries Service conducted an informal Section 7 consultation dated November 24, 2008, and concluded that the measures of the proposed interim action were not likely to adversely affect ESA-listed cetaceans, sea turtles, fish, or right whale habitat. Given the overall reduction in fishing effort of the interim action as analyzed in this Final EA, the conclusions of the November 24, 2008 Section 7 consultation are still valid.

23.1.2 Biological Impacts of Reduction in Haddock Minimum Size to 18 Inches

Reduction of the haddock minimum size to 18 inches is not likely to impact fishing mortality because there would be no concurrent change to the gear selectivity in the fishery. If fishing behavior changes substantially, there could be some selectivity changes and a slight change in fishing mortality. The large 2003 year class of haddock still represents a substantial portion of the fishery, a portion of which is still less than 19 inches. Reducing the minimum size for haddock from 19 to 18 inches will convert some of the discarded catch into landings, while having no negative impact on the sustainability or size structure of the rebuild GB stock or nearly rebuilt GOM stock. Figure 54 below provides data on haddock size from the spring 2008 trawl survey conducted by the Northeast Fisheries Science Center. The three vertical bars represent 17, 18 and 19 inches, the X axis is centimeters, and the Y axis is numbers of fish.

Figure 54. Haddock Length Frequency Distribution from the Spring 2008 NEFSC Trawl Survey.



23.1.3 Biological Impacts of Extension of the Eastern U.S./Canada Haddock SAP

The biological impacts of extending this special access program are likely to be small, and result in minimal additional catch of stocks of concern due to the extremely low participation level that is expected. Historical participation in the Eastern U.S./Canada Haddock SAP has been very low. There were 58 trips into the SAP in FY 2005, 2 trips in FY 2006, and no trips in 2004 and 2007. Although participation in FY 2009 could increase, the high price of fuel and the proposed reductions in fishing effort make it unlikely that participation would increase substantially. The revised incidental catch TACs and intensive monitoring would limit the fishing mortality on stocks of concern. The monitoring methods utilized by NMFS to monitor the special management programs (including a high rate of observer deployment) have been successful.

23.1.4 Biological Impacts of the Regular B DAS Program Modifications

The Regular B DAS Program was designed to provide opportunities to target healthy stocks without threatening stocks for which a mortality reduction is required. The program allows the use of Regular B DAS provided the Program requirements designed to minimize impacts of stocks of concern are met. Under this alternative several revisions would be made to the Regular B DAS Program in order to address the current status of stocks and necessary reductions to fishing mortality, as well as maintain the usefulness of the Regular B DAS program. The removal of the incidental TAC for American plaice, and new incidental catch TACs for winter flounder and pollock, as well as the modification in the relative size of the incidental catch TACs will maintain the utility of the program, but continue to set strict limits on catch of stocks of concern.

The number of total incidental catch TACs would increase from the current number (8) to 10. Due to the severe fishing mortality reduction necessary for the SNE/MA stock of winter flounder, no retention of this stock is allowed under this alternative, and there is no incidental catch TAC specified. NMFS will closely monitor the level of discarding of SNE/MA winter flounder in the Program.

In order to prevent the quarterly incidental catch TACs from limiting the usefulness of the program, any quarterly incidental catch TAC that remains uncaught from quarters one, two and three will roll over into the subsequent quarter. Although this flexibility could represent an increased likelihood that the TACs will be harvested, the overall use of this program has been low in the past, and during the history of the program only one incidental catch TAC was harvested in one quarter (cod).

The prohibition of the use of low profile (tie-down) gillnets will further reduce the likelikhood that flatfish stocks of concern will be caught.

Under current regulations, the Regional Administrator has the authority to close the Regular B DAS Program if it is projected that continuation of the Regular B DAS Program would undermine the achievement of the objectives of the FMP.

The Interim action alternative to modify the regular B DAS program will have potentially positive effects on protected species. Many of the modifications will have no effect on protected species – specifically those modifications that address changes in the TACs based on the status of the stocks. These modifications are necessary to ensure that the Regular B DAS Program continues to help focus fishing effort on healthy stocks. Focusing on healthy fish stocks should make the fishery more efficient in terms of maximizing catch while minimizing the time that gear is in the water.

The modification to the Regular B DAS Program that would prohibit the use of low profile (tie-down) gillnets on Regular B DAS trips would be positive for sea turtles when the gear is set in areas where and at times when sea turtles also occur. Because sea turtles, particularly loggerhead, Kemp's ridleys and greens, occur both on or near the bottom as well as in the water column within the multispecies management area, tie-downs on gillnets are suspected of increasing the likelihood of sea turtle entanglements with the gear. Conversely, tie-downs are expected to reduce entanglements of harbor porpoise in gillnet gear. In observed gillnets during 1999 through 2007 that were in the Gulf of Maine and Georges Bank areas, the bycatch rate of harbor porpoises in nets with tie-downs was higher than the average bycatch rate of that time/area (Palka et al. in press). Thus, the prohibition on the use of tie-downs in the Regular B DAS Program is not expected to negatively affect harbor porpoise given that fishers will still have to comply with the measures of the HPTRP, including measures for the use of pingers on gillnet gear fished in New England waters, and for the use of tie-downs on gillnet gear fished in Mid-Atlantic waters at certain times of the year. Similarly, the prohibition on the use of tie-downs in the Regular B DAS Program will not affect ESA-listed cetaceans or minke whales given that the fishers will still have to comply with the ALWTRP measures for the use of fixed gillnet gear in waters of the Atlantic.

23.1.5 Biological Impacts of the DAS Leasing Program Modifications

The proposed action would eliminate the cap on the number of DAS that any one vessel may be allowed to lease and would remove the restriction from leasing DAS between sector and non-sector vessels. During FY 2007, a total of 271 vessels acquired additional A DAS through a leasing arrangement of which 17 were limited by the current cap. An additional 28 vessels leased DAS up to 90% of their 2001 allocation while 12 and 16 vessels leased DAS up to 80% and 70%, respectively, of their 2001 DAS allocation. Thus, more than one-quarter of limited access DAS vessels that participated in the leasing program leased up to at least 70% of their 2001 allocation. Available data indicate that participation in the leasing program has increased and may be expected to increase under the proposed action as the number of vessels subject to differential DAS counting may be expected to be considerably larger under the proposed action. In the absence of any change in either DAS allocations or differential DAS counting the changes in the DAS leasing program may result in increased effort since vessels that have been constrained by existing regulation may be expected to demand more leased DAS. However, under the proposed action DAS reductions would reduce the supply of available DAS that may be leased and the expanded use of differential DAS may be expected to use available DAS at a much faster rate. Depending on how many vessels may be able to avoid differential DAS it is possible that the proposed action would result in a shortage of DAS and removing the restrictions on DAS leasing would not result in an adverse biological impact.

During FY 2007, a total of 49,710 A DAS were allocated of which approximately 7,000 were carry-over DAS. The proposed action reduction in DAS would result in initial base allocations of about 35,000 DAS. Assuming carryover DAS remain constant then there would be 42,000 DAS available during FY 2009 to be used by their owner or for lease. Further, assume that vessels would use the same number of DAS used during FY 2007 (32,804), but that due to differential counting, the rate at which DAS are used would increase. If the rate at which DAS are used increases by one-third then used DAS would exceed allocated DAS by 1,600 DAS. If the rate were to increase by only 25% used DAS will be nearly equal to available allocations but this would leave relatively few DAS that would be available to vessels that wanted to lease more DAS than current regulations permit. Thus the biological impact of the Preferred Alternative changes in the DAS leasing program may be expected to be limited. Further, it is likely that a major constraint that limits DAS leasing for individual vessel owners (i.e., cost) will continue to limit the effort associated with DAS leasing.

23.1.6 Biological Impacts of the DAS Transfer Program Modifications

The proposed action would modify the DAS transfer program by removing the conservation tax on DAS. The DAS transfer program was originally implemented in Amendment 13 to promote consolidation in the groundfish fishery and to remove the potential redirection of effort into other fisheries. The conservation tax was imposed to obtain some additional conservation and removal of excess DAS. Since its inception the transfer program has undergone two changes which lowered the conservation tax from 40 to 20 percent in 2005 and in 2006 allowed purchasing vessels to acquire non-duplicate permits from the seller. To date, participation in the DAS Transfer Program has been limited but increased between FY 2006 and FY 2007. There were only 23 transactions during 2006 and 2007, making it difficult to draw any inferences regarding trends or impacts. Nevertheless, the increase in transfers occurred after the program was modified in 2006 to allow acquisition of permits from the seller, while there was little or no response to the reduction in the transfer tax in 2005. If the ability to acquire additional permits was the key factor making DAS transfers financially attractive, then removing the transfer tax may not result in any notable increase in transfer activity. However, elimination of the transfer tax may increase participation in the program if the tax was a disincentive. Eliminating the transfer tax could effectively increase the current DAS allocations and increase the number of DAS that the vessel may lease. It is difficult to predict participation in this voluntary program. To date, nearly all DAS transferred under the program have been among vessels in the states of Maine, New Hampshire, and Massachusetts. Therefore, groundfish species within the GOM will likely be most affected by the proposed action.

In general, removal of the conservation tax would make the biological impact of DAS transfer on groundfish no different than if the DAS were acquired through a lease. As noted for the DAS leasing program changes, the proposed action would include a reduction in DAS and significantly expanded use of differential DAS counting. The combined effect of these changes may result in a shortage of DAS which means that the biological impacts of expanded use of the DAS transfer program may be expected to be limited. The scale of impacts to fishing mortality is dependent upon the number of transfers that result from this proposed action as well as where participating vessels fish. Further, it is likely that a major constraint that limits DAS transfers for individual vessel owners (i.e., cost) will continue to limit the effort associated with DAS transfers. The extent to which reducing the conservation tax increases participation in the program may result in positive biological impacts on other fisheries since at least some limited access permits would be eliminated.

The alternatives included in the Interim action to mitigate impacts of the FMP and increase yield would have neutral to slightly negative impacts on protected species. Revisions to the DAS transfer program would remove the conservation tax. However, given the limited duration of the tax free period the amount of any effect the change may have on increasing the overall DAS rate would be limited thus limiting any negative effect to protected species as a result of the removal of the conservation tax.

23.2.0 Economic Impacts of Mitigation Measures

23.2.1 Modification to CA I Hook Gear Haddock SAP

The modifications to the SAP will greatly expand fishing opportunities due to the increase is season and geographic area of the SAP. Furthermore, the removal of the restriction that limited sector vessels to one period and common pool vessels to another will provide increased flexibility for vessels to fish in the SAP when it is optimal for them to do so. It is unknown how much SAP participation may change due to the new aspects of the SAP, but it is likely that there will be increased participation and revenue. Based on the two current sectors' participation in the SAP, the increased opportunity will be important. In FY 2007, trips into the SAP accounted for 92 percent of the GB Cod Fixed Gear Sector's yearly haddock landings, and 51 percent of the GB Cod Hook Sector's yearly landings of all species. According to the 2007 GB Cod Hook Sector's Annual Report, the participation of GB Cod Hook Sector member's in the SAP was critical to the economic survival of several members.

23.2.2 Reduction in Haddock Minimum Size to 18 Inches

Lowering the haddock size limit would provide commercial fishing entities to increase trip income by enabling vessels to retain haddock that would otherwise have to be discarded. The economic impact of this action is uncertain, but would have broadly distributed positive impacts since any vessel capable of catching haddock on either an A DAS or a B DAS would benefit

23.2.3 Extension of the Eastern U.S./Canada Haddock SAP

This action would change the economic opportunities associated with the SAP from existing regulation. However, in the absence of taking action to extend the SAP indefinitely the SAP would lapse. Thus, taking action would preserve the economic opportunity available to vessels that have participated in the SAP in the past and to any vessels that may participate in the future

23.2.4 Regular B DAS Program Modifications

Although some elements of the revised restrictions for this SAP may not mitigate negative economic impacts (e.g. new incidental catch TACs and prohibition on ti-down nets), the provision that will allow unused TAC from one trimester to be "rolled over" into the subsequent trimester will decrease the likelihood that TACs will limit the potential for vessels to fish in the program.

23.2.5 DAS Leasing Program Modifications

The Preferred Alternative, would remove two restrictions on the DAS leasing that would provide regulatory relief to commercial fishing entities. These changes include removal of the cap on leasing category A DAS and removing the prohibition on leasing

DAS between sector and non-sector vessels. During FY 2007 a total of 271 vessels acquired additional A DAS through a leasing arrangement of which 17 were limited by the current cap. An additional 28 vessels leased DAS up to 90% of their 2001 allocation while 12 and 16 vessels leased DAS up to 80% and 70% respectively of their 2001 DAS allocation. Thus, more than one-quarter of limited access DAS vessels that participated in the leasing program leased up to at least 70% of their 2001 allocation. Available data indicate that participation in the leasing program has increased and may be expected to increase under the proposed action as the number of vessels subject to differential DAS counting may be expected to increase under the proposed action. If the cap is not removed a vessel with a 2001 allocation of 88 DAS would be still be able to lease up to 88 days, but effective use of those days would be halved if the vessel is unable to avoid differential DAS counting. Removing the cap would allow vessels to lease as many DAS as needed to meet the economic needs of the fishing business. The magnitude of relief that removing the cap on leasing would have is known. The leasing provisions limiting transactions by vessel size would still be in effect which could limit the economic relief to larger vessels in particular since they have fewer potential trading partners. The proposed action DAS reduction would also reduce the number of A DAS available for leasing and the larger differential counting would cause DAS to be used at a faster rate. These effects may reduce the supply of available A DAS and may result in higher leasing prices as available days become scarce.

The leasing program would also be modified to allow sector participants to lease DAS from non-sector vessels. This modification would increase the availability of potential trading partners available to both sector and non-sector vessels. The economic impact on commercial fishing entities is uncertain, but is expected to be positive as it would provide vessels with greater flexibility to meet operational and business needs.

23.2.6 DAS Transfer Program Modifications

This alternative would remove the conservation tax imposed on DAS transfers. This action represents the third time the transfer program has been modified to promote increased use of the program. When the program was implemented with Amendment 13 a conservation tax of 40% of the transferred A DAS was applied and the transferor was required to surrender all Federal and state permits. These conditions made it very difficult for the seller to receive full value for a vessel since the buyer would only receive 60% of the DAS and none of the permits could be transferred. The conservation tax was lowered to 20% in 2005 but transfer of permits was not permitted. It was not until 2006 when transfer of non-duplicate permits was allowed that interest in participation in the transfer program began to increase. During FY 2006 to 2007 a total of 14 transfers were approved; still a relatively low level of participation. This alternative would remove the conservation tax entirely which would increase the value of a potential transfer to both buyers and sellers. Whether this change will be sufficient to entice greater participation in the program is uncertain. At least part of the benefit of engaging in a transfer was to increase the number of DAS that could be leased resulting from the cap on leased DAS. That is, since the transfer would effectively increase the 2001 DAS allocation the vessels would be able to lease more DAS and still stay under the cap. Removing the cap, as proposed, would eliminate this particular advantage offered by the DAS transfer program. Nevertheless, the proposed action would enhance vessel owners' flexibility in making business decisions.

The economic impact of these changes is difficult to quantify since it is not known how many vessels may take advantage of the revised program. Since participation in the program would be voluntary it would be up to the individuals involved to determine whether participating in the program is more profitable than either continuing to lease DAS or by acquiring a vessel in an outright sale than leasing the DAS to him/herself. However, with the removal of the conservation tax, there would be minimal differences between leasing and transferring DAS. For those that own multiple vessels that lease to themselves, it is likely that the DAS Transfer Program would reduce costs, as vessel owners will not have to register and maintain skiffs, renew permits, or submit VTRs on a weekly basis. In addition, fewer active vessels and permits will reduce administrative costs for NMFS. Finally, as highlighted in previous analysis of the DAS Transfer Program in Framework Adjustment 42, participation in the program may have some beneficial impact on crew since the cost of the acquired DAS may be viewed as a vessel instead of a trip expense, as if the case for leasing.

24.0 Analysis of Impacts - Comparison of Alternatives

Methods: The Closed Area Model (CAM)

As with Amendment 13 and Framework 42, one of the primary analytic tools used to analyze both the biological and economic impacts of alternatives under the Interim Action, is the CAM. The CAM projects changes in mortality and profit on a vessel-by-vessel basis brought about by area closures, revised trip limits, and changes in days at sea (DAS) through a non-linear programming model using the General Algebraic Modeling System (GAMS). The CAM was designed so that the impact of all three types of management measures can be analyzed simultaneously. There are no other models currently available which can analyze the combined impact of reductions in DAS, closed areas, and trip limits simultaneously. Management measures, such as mesh size changes, special management programs, or the use of Category "B" DAS cannot be analyzed within the CAM. However, they can be analyzed outside the CAM, and the results incorporated in the analysis. Additionally, the CAM is a one-year model, meaning that it only estimates changes for a one-year period, and it looks at changes in the harvest sector only, not the processing sector, or shoreside infrastructure. The main utility in using the CAM is to evaluate management alternatives when mortality needs to be reduced to meet rebuilding targets.

The CAM allocates effort to specific area block, month combinations for each vessel holding a valid year 2007 multispecies permit, and landing groundfish in 2007. The model maximizes profit for each vessel by allocating their effort to the highest profit blocks. Because the revenue functions embedded in the model are downward-sloping, effort stops flowing to a block when marginal profit hits zero. The model can incorporate changes in allowable DAS, trip limits, differential DAS, and changes in catch per unit effort (or CPUE) by species and stock area.

In order to assess the impact of a suite of management measures, an initial model run is made to calibrate model parameters to approximate the distribution of effort based on observed effort levels. Once this process is complete, another model run is made with the management measures from the status quo management regime included as constraints. Subsequent runs are then made for each proposed alternative, where an alternative is a complete set of management measures. The estimated catch from each option is compared to the status quo catch, and the percentage change in landings is calculated. These numbers are interpreted as the percent change in exploitation brought about by the proposed management action. The percent change in exploitation is then converted to a percent change in fishing mortality, and that number is compared to the needed change in fishing mortality, based on the stock status. For example, if the stock assessment concluded that a stock needed a 50% reduction in fishing mortality, and the CAM results indicated that the management measures would yield a 51% reduction, then that particular option would be considered adequate to meet the mortality reductions. Along with changes in mortality, output from the CAM can be used to estimate changes in vessel profitability, and DAS use. These changes can then be used in external models to estimate how many vessels will be operating below break-even levels, and to estimate changes in the larger regional economy.

The CAM has been extensively peer reviewed and has been able to predict fairly well the change in direction and magnitude of mortality changes brought about by management measures. The first peer review of the CAM took place in July 2001, with the New England Fishery Management Council Social Science Advisory Committee. A second peer review took place in January 2004 with a panel of external reviewers from the University of Miami Center for Independent Experts http://www.nefsc.noaa.gov/groundfish). A third review took place in July 2008 with the New England Fishery Management Council's Scientific and Statistical Committee. Additionally, the Multispecies (groundfish) Plan Development Team (PDT) has reviewed the results from the CAM, and suggested modification to the CAM throughout the course of Amendment 16 development. The same model used for Amendment 16 was used for the proposed interim action. Finally, a recent Court Order of January 26, 2009 (Commonwealth of Massachusetts vs. Gutierrez), upheld the use of the CAM by NMFS. Specifically, the court ruled that the Department of Commerce administrative record had an analysis of the CAM, and therefore had a scientific basis for Framework 42, and that the states failed to present any alternative model. Throughout the time that the lawsuit was making its way through the court system, the plaintiffs failed to propose any alternative model that could be used to evaluate management alternatives. Additionally, no other party has stepped forward to present an alternative model even though the CAM had been presented at national scientific gatherings (e.g. American Fisheries Society in 2007), and opinions have been sought on other modeling approaches.

The CAM does not by itself make any projections regarding shoreside impacts. Outputs from the model, such as projected changes in revenues, profits and DAS usage can be used in other models to estimate changes in the regional economy brought about by the management action.

Biological Comparison of Alternatives

Tables 146 through 148, below contain pertinent summary information comparing the principal alternatives. A discussion of the different impacts of the primary fishing effort reduction measures is also below. The impacts of the other management measures that are common to alternatives 1, through 4 are very similar regardless of the principal fishing effort measures, and are therefore not discussed below.

Table 146. Comparison of Reduction in Exploitation Among Alternatives.

Species	Stock	Target Reduction	No Action Estimated Reduction Achieved	Alternative 1 Estimated Reduction Achieved	Alternative 2 Estimated Reduction Achieved	Proposed Rule Estimated Reduction Achieved	Preferred Alternative Estimated Reduction Achieved
Cod	GB	- 35.2 %	-17.1 %	-37.8 %	-37.2 %	-44.4 %	-24.1 %
	GOM	-18.7 %	-16.3 %	-29.5 %	-35.0 %	-29.1 %	-15.5 %
Haddock	GB	na	-18.7 %	-33.6 %	-33.1 %	-37.5 %	-20.9 %
	GOM	na	-17.5 %	-32.3 %	-36.6 %	-33.7 %	-16.2 %
Yellowtail flounder	GB	-15.3 %	-20.0 %	-20.8 %	-26.5 %	-15.0 %	-15.1 %
	SNE/MA	-36.1 %	-18.3 %	-85.1 %	-88.7 %	-84.8 %	-38.0 %
	CC/GOM	-15.7 %	-18.4 %	-45.4 %	-56.2 %	-36.6 %	-39.0 %

American plaice		na	-16.3 %	-34.2 %	-31.5 %	-42.7 %	-14.8 %
Witch flounder		-29.3 %	-16.3%	-32 %	-31.2 %	-40.0 %	-14.6 %
Winter flounder	GB	na	-18.6 %	-19.9 %	-21.3 %	-16.9 %	-12.1 %
	GOM	-9.3 %	-15.0 %	-19.6 %	-33.5 %	-8.4 %	-14.3 %
	SNE/MA	-100 %	-20.3 %	-78 %	-81.5 %	-78.5 %	-59.3 %
Redfish		na	-17.7 %	-40.2 %	-36.2 %	-51.9 %	-17.7 %
White hake		na	-17.2 %	-38.6 %	-35.5 %	-49.2 %	-16.9 %
Pollock		-51 %	-17.3 %	-36.2 %	-35.4 %	-43.3 %	-18.8 %
Windowpane	North	-83 %	-18.6 %	-24.4 %	-33.1 %	-22.6 %	-22.1 %
	South	-29 %	-20.8 %	-55.4 %	-67.1 %	-55.3 %	-32.3 %
Ocean pout		*	*	*	*	*	*
Atlantic halibut		*	*	*	*	*	*

* The CAM has not been utilized to analyze impacts for these stocks in the past or currently because very limited fishery for these stocks.

Economic Comparison of Alternatives

Table 147. Change in Total Trip Revenue by Home Port State Among Alternatives.

State	No Action	Alternative 1	Alternative 2	Alternative 3	Preferred Alternative
CT	-6.1 %	-17 %	-22 %	-17 %	-9.0 %
MA	-9.7 %	-24 %	-27 %	-27 %	-12.5 %
ME	-10.6 %	-28 %	-27 %	-34 %	-12.2 %
NH	-9.6 %	-17 %	-23 %	-16 %	-9.5 %
NJ	-3.3 %	0 %	-4 %	0 %	0.9 %
NY	-3.6 %	-6 %	-9 %	-6 %	-4.2 %
RI	-4.5 %	-8 %	-13 %	-8 %	-5.8 %
Other	-3.2 %	-9 %	-10 %	-10 %	-3.8 %
Total	-7.7 %	-18 %	-21 %	-20 %	-9.4 %

Table 148. Change in Groundfish Trip Revenue by Home Port State Among Alternatives.

State	No Action	Alternative 1	Alternative 2	Alternative 3	Preferred Alt.
CT	-12.3 %	-34 %	-45 %	-33 %	-18.1 %
MA	-12.1 %	-31 %	-34 %	-33 %	-15.6 %
ME	-11.8 %	-31 %	-30 %	- 38 %	-13.5 %
NH	-11.5 %	-21 %	-27 %	-19 %	-11.4 %
NJ	-12.2 %	1 %	-16 %	1 %	3.4 %
NY	-12.8 %	-21 %	-33 %	-22 %	-14.8 %
RI	-12.4 %	-23 %	-35 %	-22 %	-15.9 %
Other	-10.3 %	-29 %	-31 %	-31 %	-12.3 %
Total	-12.1 %	-28 %	-33 %	-31 %	-14.7 %

Discussion

With respect to achieving the biological goals the alternatives 1 through 4 are similar for most stocks, with the exception of GB cod, and witch flounder. In other words, all the alternatives achieve, or do not achieve the biological objectives for a particular stock, with the exception of the two stocks indicated above. None of the alternatives achieve the objectives for SNE/MA winter flounder, pollock, or windowpane north. Alternatives 1 through 4 all achieve the objectives for GOM cod, GB yellowtail flounder, SNE/MA yellowtail flounder, CC/COM yellowtail flounder, GOM winter flounder, and windowpane south.

The most notable differences in biological impacts are as follows: In contrast to alternatives 1 through 3, the Preferred Alternative does not achieve the fishing mortality goals for GB cod and witch flounder. Secondly, the preferred alternative achieves less of a reduction in exploitation for the other stocks for which it does not achieve the fishing mortality objectives (SNE/MA winter flounder, pollock, witch flounder, and windowpane north). With respect to evaluation of the Council's alternative, the CAM analyses of similar alternatives (i.e., the no action alternative), indicated that fishing mortality reductions were not sufficient to meet the stated fishing mortality goals for 7 stocks (Table 146).

The Preferred Alternative of this EA would be insufficient for 5 stocks, however, the Council's proposed alternative would not have achieved the rebuilding fishing mortality for SNE/MA yellowtail flounder and winter flounder, two stocks of particular concern, and would have achieved slightly less fishing mortality reduction for 4 of the other stocks where the target mortality reductions are not achieved (i.e., GB cod, pollock, and northern and southern windowpane flounder).

With respect to economic impacts of the alternatives, the analysis indicates that the preferred alternative would result in substantially less reduction in both grounfish revenue and total revenue than Alternatives 1 through 3. The Preferred Alternative would result in more lost revenue than the No Action Alternative. The gains in yield from the Preferred Alternative result from the the greater landings associated with most stocks when compared with Alternatives 1 through 3.

The No Action Alternative would result in the least amount of revenue reduction, but would achieve the least amount of the targeted reduction in fishing exploitation for many stocks. The anticipated reduction in groundfish revenue under the No Action Alternative would be very similar among the affected states.

Although the scope of this analysis and the interim measures is short term, the selection of an alternative result in both short term and long term affects. With respect to the long term biological effects, the potential impact of continued overfishing on stocks may make it more difficult to rebuild some stocks due to an impact on recruitment, but this risk has not been quantified. As a result the potential for long term economic impacts exists as well.

The development of another alternative after the proposed rule, and subsequent selection of this new alternative as the Preferred Alternative was based upon the objective of reducing the economic impacts of interim measure, while retaining substantial reductions in fishing mortality.

The No Action Alternative may result in slight differences in the impacts on protected species when compared with Alternatives 1, 2, and 3, but overall the impacts are likely to be similar. A decrease in fishing effort would be expected to result in a decrease in the likelihood of interactions between protected species and gear used in the fishery (provided the measures did not result in a shift in effort to times and areas where protected species were more likely to occur). A shift in effort away from areas and times when protected species are present would help to reduce the likelihood of interactions, while a shift in effort to areas and at times when protected species are present would be expected to increase the likelihood of interactions.

The No Action management measures would slightly reduce the amount of bottom trawling effort in the fishery. The net effect of all alternatives on benthic habitats in the region would be positive due to the reduction in bottom trawling effort in the fishery, with differences between the measures depending upon the level of fishing effort and the location of fishing effort. Alternatives 1, 2, and 3 would reduce fishing effort more than the No Action Alternative, and also provide a reduction in bottom trawling effort in the SNE Closure Area.

All alternatives may impact the skate fishery due to the large amount of overlap that exists between the groundfish and skate fisheries. Each of the alternatives would reduce fishing effort, and therefore reduce opportunities to catch and land skates. Alternative 1 may have greater negative economic impacts on skate vessels than the other alternatives due to the 2.25:1 differential DAS area in the western Gulf of Maine, where a great deal of skate fishing occurs. Alternative 1 would reduce effort over a larger portion of Georges Bank than the other alternatives, and would negatively impact vessels that have historically landed skates in the 1.5:1 differential DAS area (mainly trawl vessels). Alternatives 1, 2, and 3 are likely to impact the skate fishery more than the No Action Alternative.

All alternatives may impact the monkfish fishery due to the large amount of overlap that exists between the groundfish and monkfish fisheries. The differential DAS rules of the Preferred Alternative may impact the monkfish fishery indirectly if it results in the greater use of multispecies DAS. The existing provision under § 648.92(b)(2) that allows limited access monkfish Category C and D vessels with fewer allocated NE multispecies DAS than allocate monkfish DAS to use the difference between these two allocations as monkfish-only DAS will help mitigate such impact on monkfish fishing effort. The measure developed after the proposed rule, which will allow monkfish Category C and D vessels to use monkfish only DAS in proportion to the use of groundfish DAS used in a differential area will also mitigate impacts.

Although comparison of the alternatives is complex due to the fact that the impacts of each alternative are multifaceted, there are consistent patterns of impacts across alternatives that result from the specific management measures that common among the alternatives. However, as indicated by the analyses in this EA, the impacts of each of the alternatives is likely to be unique as a result of the unique combination of management measures that comprise each alternative.

25.0 Cumulative Effects Analysis

25.1 Introduction

A cumulative effects assessment (CEA) is a required according to the Council on Environmental Quality (CEQ) (40 CFR part 1508.7). 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 preferred alternative 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)

The CEA is focused on the assessment of five valued ecosystem components (VECs). The analysis focuses on these areas because traditionally the greatest impacts from groundfish actions have fallen within these categories:

1. Regulated groundfish stocks (target and non-target including bycatch);
2. Non-groundfish species (incidental catch and bycatch);
3. Endangered and other protected species;
4. Habitat , including EFH and 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 human communities 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 action (May 1, 2009) through the anticipated rebuilding of the fishery in 2014. 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 Human Environment section of the document (section 9.0). 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 9.0).

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 9.0) 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.

A brief summary of past, present and reasonably foreseeable future actions is presented immediately below in Table 149 and greater detail is available in the Appendix. A summary of the baseline conditions is also presented below and full description can be found in section 11.0 of the Affected Environment. Finally, a summary of the impacts from the preferred alternative is briefly described and then followed by the an analysis of the cumulative effects of the preferred alternative.

25.2 Past, Present and Reasonably Foreseeable Future Actions

As noted, Table 149 summarizes the combined effects of past, present and reasonably foreseeable future actions that affect the VECs, i.e., actions other than the preferred alternative under development in this document (based on actions listed in Appendix C) .

Note that most of the actions effecting this amendment and considered in Table 149 come from fishery-related activities (e.g., Federal fishery management actions). As expected, these activities have fairly straight-forward effects on environmental conditions, and were, are, or will be taken, in large part, to improve those conditions. The reason for this is the statutory basis for Federal fisheries management - the reauthorized Magnuson-Stevens Act. That legislation was enacted to promote long-term positive impacts on the environment in the context of fisheries activities. More specifically, the Act stipulates that management comply with a set of National Standards that collectively serve to optimize the conditions of the human environment. Under this regulatory regime, the cumulative impacts of past, present, and future Federal fishery management actions on the VECs should be expected to result in positive long-term outcomes. Nevertheless, these actions are often associated with offsetting impacts. For example, constraining fishing effort frequently results in negative short-term socio-economic impacts for fishery participants. However, these impacts are usually necessary to bring about long-term sustainability of a given resource and as such, should, in the long-term, promote positive effects on human communities, especially those that are economically dependent upon the managed resource.

Non-fishing activities were also considered when determining the combined effects from past, present and reasonably foreseeable future actions. Activities that have meaningful effects on the VECs include the introduction of chemical pollutants, sewage, changes in water temperature, salinity, dissolved oxygen, and suspended sediment into the marine environment. These activities pose a risk to the all of the identified VECs in the long term. Human induced non-fishing activities that affect the VECs under consideration in this document are those that tend to be concentrated in near shore areas. Examples of these activities include, but are not limited to agriculture, port maintenance, beach nourishment, coastal development, marine transportation, marine mining, dredging and the disposal of dredged material. Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and, as such, may indirectly constrain the sustainability of the managed resources, non-target species, and protected resources. Decreased habitat suitability would tend to reduce the tolerance of these VECs to the impacts of fishing effort. Mitigation of this outcome through regulations that would reduce fishing effort could then negatively impact human communities.

Table 149. Summary effects of past, present and reasonably foreseeable future actions on the VECs identified for Amendment 16 (based on actions listed in the Appendix).

VEC	Past Actions	Present Actions	Reasonably Foreseeable Future Actions	Combined Effects of Past, Present, Future Actions
Regulated Groundfish Stocks	**Mixed** Combined effects of past actions have decreased effort and improved habitat protection however, some stocks remain overfished	**Positive** Current regulations continue to manage for sustainable stocks	**Positive** Future actions are anticipated to continue rebuilding and strive to maintain sustainable stocks	**Positive** Stocks are being managed to attain rebuilt status
Non-groundfish Species/Bycatch	**Positive** Combined effects of past actions have decreased effort and improved habitat protection	**Positive** Current regulations continue to manage for sustainable stocks, thus controlling effort on direct and discard/bycatch species	**Positive** Future actions are anticipated to continue rebuilding and thus limit the take of discards/bycatch	**Positive** Continued management of directed stocks will also control discards/bycatch
Endangered and Other Protected Species	**Positive** Combined effects of past fishery actions have reduced effort and thus interactions with protected resources	**Positive** Current regulations continue to control effort, thus reducing opportunities for interactions	**Mixed** Future regulations will likely control effort and thus protected species interactions, but as stocks improve, effort will likely increase, possibly increasing interactions	**Positive** Continued effort controls along with past regulations will likely help stabilize protected species interactions
Habitat	**Mixed** Combined effects of effort reductions and better control of non-fishing activities have been positive but fishing activities and non-fishing activities continue to reduce habitat quality	**Mixed** Effort reductions and better control of non-fishing activities have been positive but fishing activities and non-fishing activities continue to reduce habitat quality	**Mixed** Future regulations will likely control effort and thus habitat impacts but as stocks improve, effort will likely increase along with additional non-fishing activities	**Mixed** Continued fisheries management will likely control effort and thus fishery related habitat impacts but fishery and non-fishery related activities will continue to reduce habitat quality
Human Communities	**Mixed** Fishery resources have supported profitable industries and communities but increasing effort controls have curtailed fishing opportunities	**Mixed** Fishery resources continue to support communities but increasing effort controls combined with non-fishing impacts such as rising fuel costs have had a negative economic impact	**Short-term Negative** As effort controls are maintained or strengthened, economic impacts will be negative **Long-term Positive** As stocks improve, effort will likely increase which would have a positive impact	**Short-term Negative** Lower revenues would likely continue until stocks are fully rebuilt **Long-term Positive** Sustainable resources should support viable communities and economies

Impact Definitions:
-Regulated Groundfish Stocks, Non-groundfish species, Endangered and Other Protected Species: positive=actions that increase stock size and negative=actions that decrease stock size
-Habitat: positive=actions that improve or reduce disturbance of habitat and negative=actions that degrade or increase disturbance of habitat
-Human Communities: positive=actions that increase revenue and well being of fishermen and/or associated businesses negative=actions that decrease revenue and well being of fishermen and/or associated businesses

25.3 Baseline Conditions for Resources and the Human Environment

The primary focus of this action is on resources and human communities found throughout the Northeast and mid-Atlantic region of the U.S. This area comprises the Northeast U.S. shelf ecosystem, which has been described as including the area from the Gulf of Maine south to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the gulf stream. The species managed by the NE Multispecies FMP were recently assess in GARM III and the results showed that a total of 12 of 19 stocks are overfished (B less than ½ B_{MSY}). A total of 12 stocks are experiencing overfishing (F greater than F_{MSY}). Ten 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 experience overfishing. This results in mixed baseline conditions for groundfish species where the short-term status for some species is negative while rebuilding is ongoing and positive in the long-term once rebuilding is attained. For other stocks that are not overfished or where overfishing is not occurring, the short and long-term baseline condition is positive.

Regarding baseline conditions for non-groundfish species, endangered and other protected species and habitat, conditions are generally mixed. Management of the groundfish fishery has led to reductions in bycatch but some species, such as skates, continue to be taken at unsustainable levels. Further, interactions with protected species and habitat have been reduced over time as management measures in the groundfish and other regulated fisheries have constrained effort. However, overall negative impacts resulting from gear interactions remains a concern and improvements to these two VECs has been slow to materialize. In the long-term, the regulatory atmosphere of fisheries will likely continue to restrict access to resources however, as stock status improves, greater effort is likely and may lead to higher protected resource and habitat interactions.

The condition of human communities is more variable and has grown increasingly negative as effort controls have been strengthened. While the current status has become increasingly negative due to fewer opportunities to fish and other non-fishing impacts such as rising fuel and food costs, the long-term outlook is more positive as groundfish and other fisheries under rebuilding programs improve and become sustainable.

25.4 Effects of the Preferred Alternative

The focus of the measures contained in the preferred alternative can be divided into the following broad categories: (1) changes to incorporate new scientific information from the results of GARM III, such as revised status determination criteria, new mortality targets and mortality reductions; (2) measures to reduce effort on groundfish by the commercial fishery such as DAS reductions, differential DAS counting and a year-round closure in southern New England; (3) measures to reduce recreational effort on groundfish such as extending the closure on GOM cod into mid-April and reducing the bag limit for GB cod down to 10 cod per person; (4) measures for the shared U.S./Canada stocks which include hard TACs for Eastern GB cod and haddock and GB yellowtail flounder; and (5) mitigation measures such as modification of the CA I SAP, extension of the Eastern U.S./Canada Haddock SAP and changes to the Regular B DAS Program and the DAS leasing and transfer programs.

Actions taken under number one above revise the status of groundfish stocks and modify rebuilding targets which in turn impact the level of effort control measures needed to meet the mortality objectives of the FMP. As a whole, the proposed effort control measures are designed to reduce mortality and contribute to stock rebuilding on an interm basis. Similarly, the U.S./Canada hard TACs to control effort of shared stocks between the U.S. and Canada are also designed to promote sustainable harvests and maintain rebuilding efforts for GB cod and yellowtail (GB haddock is rebuilt). These effort reductions would have a positive impact on fishery resources, habitat and protected resources. This is because effort reductions would not only curtail fishing on directed species, but also mean fewer discards, less contact with bottom habitat/EFH and fewer opportunities to interact with protected species. The only measures that may have a small negative impact to resources would be the mitigation measures mentioned above. These measures would likely result in increased effort on regulated groundfish stocks by revising or creating additional opportunities for vessels to fish. However, these impacts are thought to be relatively minor and are not expected to detract from the proposed rebuilding schedule or effort controls.

As with other past effort reductions, the human community would likely incur short-term negative impacts as a result of lost fishing revenue. Although the mitigation measures would provide some added flexibility for fishing operations, it would be minor and only for commercial operations. In the long-term, impacts to human communities would likely be positive as stocks reach sustainable levels and effort controls are relaxed. However, fewer controls may lead to an increased bycatch of non-target species and possibly greater impacts to habitat and protected species as gear interactions with the ocean bottom and protected species increase.

25.5 Cumulative Effects Summary

The following analysis summarizes the cumulative effects of past, present, and reasonably foreseeable future actions in combination with the baseline conditions of the identified VECs and the proposed action.

25.5.1 Cumulative Effects on Regulated Groundfish Stocks

The preferred Alternative would have a positive cumulative effect on regulated groundfish stocks. In general, early multispecies actions such as Amendments 5 and 7 initiated rebuilding of the multispecies stocks (see Appendix). While the pace of rebuilding did not meet the legal requirements of the 1996 amendment to the MSA, these two actions and subsequent frameworks reversed a decades long decline in groundfish stock biomass. Amendment 13 and Framework 42 further implemented measures to increase the pace of rebuilding in order to achieve compliance with the MSA.

Opportunities were also created for vessels to target healthy groundfish stocks, such as haddock, without jeopardizing the rebuilding programs of overfished species.

The interim action would incorporate effort reductions in addition to those previously implemented, particularly through Amendment 13 and Framework 42. These new measures, in combination with past reductions are intended enable rebuilding for most overfished stocks by 2014 (exceptions include GB cod 2026, CC/GOM yellowtail flounder 2023 and redfish 2051). The Council will be required to implement new rebuilding programs in Amendment 16 for several stocks, and will likely have to reduce fishing mortality for some stocks to a greater extent than it would under one the Proposed Rule Alternative.

While rebuilding is expected to take place based on past effort controls in combination with the Preferred Alternative, there are future actions that may influence rebuilding. For example, the proposed alternative is an interim action and by law cannot be in effect for more than one year. Therefore, to maintain rebuilding goals it is imperative that a future, long-term action designed to continue rebuilding efforts be implemented. There are also non-fishing impacts that can threaten rebuilding, such as habitat degradation, pollution and climate change. Conversely, upcoming actions that may further protect skates and EFH could provide additional positive benefits to groundfish.

Because this action would continue to support the goals of the NE Multispecies FMP and not substantially jeopardize rebuilding objectives through increased effort controls, groundfish stock status should continue to improve and rebuild, despite the negative impacts that may result from future actions. Therefore, the proposed action, when combined with other past, present and reasonably foreseeable actions described in this assessment, would not result in significant cumulative impacts.

25.5.2 Cumulative Effects on Non-groundfish Species

This action would have positive impacts on non-groundfish species. The overall reduction in groundfish fishing effort begun by Amendment 5, accelerated in Amendment 7, and further controlled by Amendment 13 and Framework 42 to the NE Multispecies FMP, benefited other stocks by reducing fishing effort and thus, limiting the interaction between vessels targeting groundfish and other stocks. As noted in the above discussion on regulated groundfish stocks, the proposed action would incorporate even greater effort reductions in addition to those previously implemented. These new effort reductions, in particular those aimed at the commercial fishery, would continue to decrease landings of regulated groundfish and thus will reduce opportunities for encountering non-groundfish species while on directed groundfish trip.

Future fisheries actions described in the Appendix are not expected to appreciably increase the bycatch of non-groundfish species and it fact, may further reduce bycatch (e.g., possible future changes to the Skate FMP). However, as with the directed groundfish fishery, non-fishing impacts that can threaten stocks such as habitat degradation, pollution and climate change, will likely have a negative impact. Further, to continue fewer interactions between groundfish and non-groundfish species, it is critical that a replacement for this action be developed and implemented in a timely manner.

Because past and future groundfish actions have limited the interaction between vessels fishing for groundfish and non-groundfish stocks and future actions are not expected to increase bycatch and may actually result in a reduction, the proposed action, when combined with other past, present and reasonably foreseeable actions described in this assessment, would not result in significant cumulative impacts.

25.5.3 Cumulative Effects on Endangered and Other Protected Species

The preferred alternative contained in this action is expected to have positive impact on protect species. As described in section 9.0 of the Affected Environment, ESA-listed turtles and cetaceans as well as other marine mammals protected under the MMPA are likely to occur in the area where the groundfish fishery is prosecuted. This overlap has existed for decades and previous actions taken to reduce effort have also afforded some reductions in protected species interactions. The proposed measures, when combined with past management actions will continue this trend. Further, protections afforded via actions taken under the ALWTRP, ATGTRS, HPTRP, Ship-strike Reduction Rule and the Turtle Chain-mat Rule (see Appendix) also play a critical role in providing adequate protection and reducing species gear interactions. The effort reductions taken through the NE Multispecies FMP and other fisheries, when combined with actions taken outside of the groundfish FMP such as with the take reduction plans mentioned above, have had a positive impact. For these reasons, the proposed action, when combined with other past, present and reasonably foreseeable actions described in this assessment, would not result in significant cumulative impacts to endangered or other protected species.

25.5.4 Cumulative Effects on Habitat

The cumulative effect of this action on habitat is expected to be positive. Amendment 13 adopted a suite of measures that minimized, to the extent practicable, the adverse effects of fishing on EFH. These measures included areas restricted to all bottom-tending mobile gear and benefits that accrue from the effort reductions and other provisions of the amendment. Framework 42 to the FMP provided additional effort reductions and the preferred action would substantially reduce the amount of bottom trawling in the fishery and provide an opportunity for benthic habitats in southern New England to partially recover from the adverse effects of bottom trawling. Further, an Omnibus EFH Amendment is under development that could revise EFH designations and possibly provide further protection to critical habitat.

Other known threats to habitat or EFH, independent of fishing gear effects, are the result of non-fishing impacts (see Appendix). In general, impacts from non-fishing activities are localized, such as in the disposal of dredged material or the possible construction of LNG facilities and wind farms. Another concern is climate change and corresponding water temperature increases that likely contribute to increased algal blooms such the recent, more frequent red tide events.

Due to the heavily regulated commercial fisheries environment and the likelihood that serious effort reductions will remain in place for some time, the preferred alternative, even when considered with the negative non-fishing impacts described above, should result in an overall positive impact to habitat and EFH. Therefore, the impacts of this action when combined with other past, present and reasonably foreseeable actions described in this assessment, would not result in significant cumulative impacts to habitat or EFH.

25.6 Cumulative Effects on Human Communities

Previous multispecies management actions have had a negative effect on communities. Starting with Amendment 5 and continuing through the implementation of Amendment 13 and Framework 42, communities, particularly in Maine, Massachusetts, New Hampshire, Rhode Island and Connecticut, have suffered substantial economic loses as a result of effort reductions. Although some of the anticipated impacts on fishing revenue due to the interim measures may be lessened by the potential for increased revenue from other fisheries and/or due to the mitigation measures proposed in this action, impacts from the proposed action (particularly due to DAS reductions, and the differential DAS counting in southern New England) would further compound the negative impacts introduced through previous actions. Substantial losses in fishing revenue are predicted to range from the highest in Maine and Massachusetts at 12 percent, to 10 percent in New Hampshire and 9 percent in Connecticut. The short-term impacts to fishermen, their communities and other businesses that rely on commercial and recreational fishing would be highly negative. Some small business will not be able to remain profitable, although the number of business failures is not possible to predict. Further, there are several reasonably foreseeable future actions that would likely compound these impacts such as Amendment 16 to the NE Multispecies FMP and possibly the Omnibus EFH Amendment and the HPTRP. Therefore, the impacts of this action when combined with other past, present and reasonably foreseeable actions described in this assessment, are expected to have a significant short-term negative cumulative effect on human communities. However, in the long-term as stocks rebuild and become sustainable, the outlook is more positive and it is anticipated that effort and thus revenues will increase.

Summary of Cumulative Effects

The regulatory atmosphere within which Federal fishery management operates requires that management actions be taken in a manner that will optimize the conditions of resources, habitat, and human communities. Consistent with NEPA, the SFA requires that management actions be taken only after consideration of impacts to the biological, physical, economic, and social dimensions of the human environment. Given this regulatory environment, and because fishery management actions must strive to create and maintain sustainable resources, impacts on all five VECs from past, present and reasonably foreseeable future actions, when combined with baseline conditions, have generally been positive and are expected to continue in that manner for the foreseeable future. This is not to say that some aspects of the various VECs, particularly human communities, are not experiencing negative impacts, but rather that when taken as a whole and compared to the level of unsustainable effort that existed prior to and just after the fishery came under management control, the overall long-term trend is positive.

26.0 Applicable Law

26.1 Magnuson-Stevens Fishery Conservation and Management Act

26.1.1 Consistency with National Standards

Section 301 of the MSA requires that the regulations implementing any fishery management plan be consistent with the ten national standards. Below is a list of the national standards and descriptions of how the preferred alternative complies with each standard.

- **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.**

Although substantial reductions in fishing mortality will be achieved by this rule, overfishing on 4 stocks (GB cod, witch flounder, pollock, and windowpane flounder north),will not be ended during the duration of this interim action. The rebuilding fishing mortality for one stock currently under a rebuilding plan will not be achieved (SNE/MA winter flounder). The decision to modify the Preferred Alternative from the Proposed Rule means that even though substantial reductions in fishing mortality will be achieved by these measures, overfishing will continue on certain stocks--notably GB cod, witch flounder, pollock, and northern windowpane flounder during the duration of the interim action. Under the proposed rule alternative only the stock of northern windowpane flounder would be subject to overfishing. Under section 305(c) of the Magnuson-Stevens Act, NMFS may implement an interim rule that reduces overfishing on overfished stocks, without necessarily ending overfishing. In this instance, the purpose of the interim rule is to reduce or end overfishing and help ensure that stocks rebuild consistent with Amendment 13 objectives for fishing year 2009, and, to reduce overfishing on the three other stocks, which were recently identified as being overfished. The measures implemented through the interim rule will satisfy these objectives, while at the same time mitigating, to the extent practicable, the impacts on the fishing community. As indicated by this environmental assessment and the comments received on the proposed rule ending overfishing on all mulispecies stocks in this interim rule would result in extreme negative consequences to the fishing industry. The Council is developing mitigating measures in Amendment 16, primarily through sector proposals, that should help to offset these negative consequences. The full range of possible mitigation measures cannot be implemented in this interim rule because they have not been fully developed and analyzed. While there is some decrease in the likelihood that some stocks will rebuild within the time prescribed by the Amendment 13 rebuilding plan, NMFS believes the action does not significantly jeopardize the likelihood that Amendment 13’s rebuilding objectives are met, particularly given the short-term nature of the interim rule and the fact that additional measures can be implemented through Amendment 16. Therefore, in exercising the flexibility provided by section 305(c), NMFS has determined that the Preferred Alternative is justifiable because it is necessary to mitigate impacts on fishermen to the extent practicable, without significantly jeopardizing the likelihood that overfished multispecies stocks will achieve their rebuilding objectives through Amendment 16 measures.

The preferred alternative will expand the Closed Area I Hook Gear Haddock SAP, reimplement the Eastern U.S./Canada Haddock SAP, and modify the DAS Leasing and DAS Transfer Programs in order to facilitate the targeting of some healthy groundfish stocks without compromising stocks of concern. These programs, as well as the reduction in haddock size and the U.S./Canada management measures increase the possibility of achieving OY from such stocks. For example, the delayed opening of the Eastern U.S./Canada Area and the trip limit for GB yellowtail flounder slows the harvest rates for cod and yellowtail flounder (respectively), enabling the Eastern U.S./Canada Management Area to remain open longer and increasing the likelihood of achieving OY from the 2009 U.S./Canada Area hard TACs for GB cod, GB haddock, and GB yellowtail flounder.

Although the primary purpose of the interim measures is the reduction of overfishing and achievement of optimum yield, this action proposes the mitigation measures in compliance with the other national standards. Further, mitigation measures are intended to provide flexibility for vessels and therefore facilitate compliance with regulations.

This action would continue the progress the FMP has made toward rebuilding stocks and eliminating overfishing. The No Action Alternative would make the Council’s action, Amendment 16 less likely to succeed.

- **Conservation and management measures shall be based on the best scientific information available.**

The interim measures are based upon the most recent stock assessments for all stocks. GARM III was a regional scientific peer review process that provided benchmark assessment for the 19 groundfish stocks management under the FMP. GARM III included in-depth reviews of the data, models, biological reference points, and assessments of each of the 19 groundfish stocks. A total of 18 reviewers over four panels were involved in the four GARM III meetings, which represents an exceptional level of peer review. Scientists from many different organizations and regions of the world were involved. The TRAC 2008 stock assessments were the result of the joint work of Canadian and American scientists for the shared GB groundfish stocks. GARM III resulted in the estimation of pertinent biological reference points as well as fishing mortality and biomass information for 2007. The TRAC resulted in information that enabled managers to set shared TACs for the U.S./Canada shared GB stocks.

Secondly, catch projections were developed by the Council’s Plan Development Team enabled the estimation of fishing mortality rates for 2008, in order to more appropriately characterize the starting conditions at the time the proposed measures would be implemented (2009). Use of the GARM III estimates of fishing mortality would have meant that the fishing mortality rates in 2007 would have been used to characterize the starting conditions for the proposed action instead of a 2008 estimate of fishing mortality.

Lastly, the results of the stock assessments were evaluated from an ecological perspective in order to determine if the Northeast Shelf Large Marine Ecosystem can support the sum of the biomasses estimated by the stock assessments (as well as other demersal fish resources).

- **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.**

This FMP is based on measures, such as effort controls, gear restrictions, and area closures, that apply across the range of species in the NE multispecies complex. Many management measures apply to whole stock areas or all stock areas, such as DAS. In cases where additional measures are needed to achieve FMP objectives for individual stocks, such as SNE/MA winter flounder, those measures may be applied to a portion of that specific stock's range to optimize effectiveness. Although the interim measures are intended to focus reductions on 11 stocks, the measures would reduce fishing mortality on all other groundfish stocks as well. In most areas where the fishery operates, several stocks of groundfish exist together, along with other non-groundfish species, such as skates, spiny dogfish, and monkfish. For example, Differential DAS counting to reduce fishing effort on specific SNE stocks also reduce effort on other stocks, including windowpane flounder, witch flounder and cod. This approach is consistent with the FMP and with the MSA, given the interrelated nature of the NE multispecies complex.

- **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.**

The proposed measures do not discriminate between residents of different states. The Interim SNE Differential DAS Area applies equally to all groundfish vessels fishing with gear that may have a substantial impact on winter flounder. While the measures do not discriminate between permit holders, they may have different impacts on different participants due to differences in the distribution of fish, the different F reductions necessary to maintain the rebuilding program established under Amendment 13, and the fact that the proposed measures may affect fishing behavior in a complex and uncertain manner. To the extent possible, measures have been designed to spread the burden of new restrictions across geographical areas, gear types, vessel sizes, and user groups. The interim measures were selected to be more fair and equitable in the short-term while longer-term measures are developed through Amendment 16. These measures were chosen to achieve the necessary fishing mortality reductions for specific stocks without causing effort to shift to other areas, thereby jeopardizing rebuilding efforts of additional stocks.

- **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.**

Within the context of the conservation goals of the FMP, this interim action contains measures to promote efficiency in the utilization of the fishery resource. This action relies upon DAS restrictions as well as other measures to further reduce fishing mortality on specific stocks for fishing year 2009. Management measures were designed in an iterative fashion in order to both achieve the the objectives while also minimizing unnecessary reductions in fishing exploitation. The use of several management tools in concert with DAS Reductions/restrictions may result in some loss of efficiency, in order to minimize DAS reductions. For example measures that tend to reduce economic efficiency of vessels are area restrictions, gear requirements, trip limits, etc.

The preferred alternative also includes many measures that are designed to improve economic efficiency. The U.S./Canada Area measures, the modifications to the Special Management Programs, and the reduction in haddock minimum size are examples. None of these measures have economic allocation as their sole purpose and would offer other biological and social benefits to the fishery.

- **Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.**

This action allows for the use of different gear, vessel size, and fishing practices throughout the areas managed by the FMP. While the interim measures for the Regular B DAS Program include a prohibition on the use of low-profile gillnet gear, the Interim SNE Differential DAS Area takes into consideration the selectivity of hook gear, and therefore exempts such gear from the DAS restrictions of the area. Interm measures for the recreational and commercial fishing sectors were chosen to achieve a similar reduction in F on specific groundfish stocks for each sector separately to provide similar conservation benefits while preserving the variations in fishing methods and catches.

- **Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.**

The interim measures do not duplicate other existing fishery regulations. However, the interim measures do mirror many of the measures currently being considered by the Council in Amendment 16. The interim measures in this action would be superseded by those in Amendment 16, once implemented.

Because the management measures are similar to those currently in use in the FMP, the costs of implementing novel measures (for both the industry and NMFS) have been avoided.

These interim measures are necessary to immediately reduce fishing mortality for specific groundfish stocks until more long-term measures can be implemented by Amendment 16. NMFS considered the costs and benefits of a range of alternatives that would achieve the objectives of this action and the conservation goals of the FMP. It considered costs to the industry, as well as enforcement and administrative costs, in selecting the preferred alternative. Other alternatives considered would have either imposed unnecessary costs on all sectors of the industry. A hard TAC alternative was considered but rejected due to the cost to industry in lost yield that was likely and the cost to NMFS to implement such a program for only one year. A Regular B DAS Program for the entire fishery was considered but rejected in part due to the cost that would have been incurred by trawl vessels from the requirement to utilize specialized gear. A more complex differential DAS alternative was considered but rejected, in part due to the additional complexity and the associated burden on the industry and NMFS. The Proposed Rule Alternative was rejected due to the estimated negative economic and social impacts.

- **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.**

The analysis of the potential impacts of the preferred alternative identifies the primary ports that would be affected by measures proposed by this action. The costs to the fishing industry (revenue losses, potential infrastructure, social costs, etc.) of further reductions in fishing effort in order to fully achieve fishing mortality objectives were considered. Based on the analysis of the 4 alternatives and the no action alternative contained in this EA (as well as analyses that led to the development of these alternatives, before and after the publication of the proposed rule in the Federal Register), additional fishing effort restrictions through more extensive DAS restrictions would have provided additional reductions in fishing mortality for the targeted stocks, but also would have resulted in substantial additional loss of yield for most or all other stocks in the FMP. The Preferred Alternative intends to achieve an appropriate balance of short-term costs and benefits, that would strictly maintain adherence to rebuilding plans for most stocks (except GB cod and SNE/MA winter flounder), and reduce fishing mortality to Fmsy or below for all stocks except Northern windowpane flounder, GB cod, pollock, and witch flounder.

The continuation of the Eastern U.S./Canada Haddock SAP and modifications to the Special Management Programs would facilitate continued participation in the NE groundfish fishery by continuing opportunities to obtain additional DAS and target healthy NE groundfish stocks.

- **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.**

This interim action would implement restrictive measures to reduce fishing mortality on groundfish stocks in the NE. Although the goal of the interim measures is to reduce fishing mortality on 11 stocks, the reduction in fishing effort that will be achieved will impact other stocks, including bycatch. The implementation of a trip limit on witch flounder and prohibitions on retention of several other stocks may increase discarding on those trips that encounter these species. However, due to the overall reduction in fishing effort likely, and the fact that there will be no legal incentive to ever target the stocks than cannot be retained, the net amount of bycatch of such species may decline.

The implementation of a trip limit for GB yellowtail flounder reduces the likelihood that the hard TAC for this stock in the U.S./Canada Management Area will be achieved prior to the end of the fishing year. Should the TAC be achieved before the end of the fishing year, possession of GB yellowtail flounder would be prohibited, but discarding would continue. The restriction on the use of low-profile gillnets in the Regular B DAS Program will reduce bycatch of flatfish. All catch of groundfish stocks of concern in the Regular B DAS Program count toward the incidental catch TACs, regardless of whether such catch is kept or discarded. The accounting of all fish caught serves as an incentive for fishers to reduce bycatch in order to decrease the rate at which the TAC is harvested, and enable more fishing opportunity to target healthy groundfish stocks under this program. The current gear restrictions for the U.S./Canada Area and Special Management Programs will continue to provide valuable reductions in the catch of stocks of concern.

- **Conservation and management measures shall, to the extent practicable, promote safety of human life at sea.**

The conservation and management measures proposed in this action, to the extent practicable, promote the safety of human life at sea. The Preferred Alternative includes a differential DAS area in SNE, in contrast to the Proposed Rule Alternative that contained a closure in SNE. The Proposed Rule Alternative does not allow for vessels fishing with trawl or gillnet gear to fish in the Interim SNE Cloure Area, which may provide a greater incentive for vessels to steam to remote locations than the Preferred Alternative. As such, the Preferred Alternative may allieviate some safety concerns that some vessel operators expressed. The situation of a more costly fishing area (in terms of DAS use) inshore, and a relatively less expensive fishing area offshore may provide an incentive for vessels to fish in areas outside of the SNE Differential DAS Area. Fishing outside of the SNE Differential may represent an increased safety risk for some vessels. In addition, the preferred alternative would implement a variety of mitigation measures that may help vessels to harvest stocks that do not need a reduction in fishing mortality and therefore provide additional sources of revenue for vessels to maintain their vessels.

26.1.2 Other MSA Requirements

Section 303(a) of MSA 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 MSA requirements are met by information in the NE 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;

Optimum yield from this fishery is harvested entirely by U.S. vessels. There is no opportunity and there are no provisions for foreign fishing in this FMP. The measures implemented by this action for American vessels comply with the national standards and other provisions of the MSA, as described in this section.

(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;

A detailed description of the fishery is included in the Affected Human Environment section of Amendment 13. An update of the fishery is included in the Affected Environment section of this document, (Sections 9.6, 9.7, and 9.8).

(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;

GARM III provided estimates of MSY for each groundfish stock based on updated information (Table 5). Optimum yield continues to be defined as in Amendment 9 and is achieved when the fishery is fishing at the target F for a given stock size. The status of stocks is summarized in Section 11.4.1, while information on landings and revenues from the fishery is described in Section 11.7.3. It is estimated that if the target fishing mortality rates for 2010 listed in Table 147 are achieved, stocks will rebuild by the end of their rebuilding periods, or continue at sustainable levels, as further described in Section 7.3.

(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;

Fishing vessels of the U.S. will harvest an amount of fish that approaches the OY from the fishery, given the FMP definition of OY, the need to fish below Fmsy for many stocks, the lost yield due the the multispecies nature of the fishery, and the limitations of management measures to precisely control fishing effort. No harvest will be available to foreign fishing. All catch will be sold in the U.S. The Preferred Alternative provides for more yield than Alternatives 1 through 3.

(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;

Reporting requirements for the NE multispecies fishery are defined in Section 3.4.14 of Amendment 13. They are supplemented by requirements for the specific measures adopted by subsequent framework actions as reflected in the current regulations under Part 648. There are no additional reporting requirements associated with the proposed measures for this interim action.

(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;

The preferred alternative does not alter a provision of the NE multispecies FMP that allows the carry-over of a small number of DAS from one fishing year to the next. If a fisherman is unable to fish because of weather or other ocean conditions, this measure allows his available fishing time to be used in the next fishing year. This practice does not require a 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 (EFH) for the species harvested in the multispecies fishery was described and identified in an earlier action (Amendment 11). This action does not change those designations. A brief description of the habitats associated with this fishery is provided in Sections 9.1 and 9.2. The preferred alternative would result in an overall reduction in fishing effort in the NE multispecies fishery, thus reducing adverse impacts of the fishery on EFH for species harvested by the fishery and on EFH for other species that are affected by this fishery, and obviating the need to minimize adverse effects beyond the degree of mitigation that was provided in Amendment 13 to the Multispecies FMP. For the same reason, no habitat conservation or enhancement recommendations are required.

(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;

Additional research needs are specified in Sections 6.0 and 9.3.4 of Amendment 13.

(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;

Section 17.0 of the EA describes the impacts of the Preferred Alternative on the NE multispecies fishery and other fisheries. The social impacts are also described in this EA.

(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;

The status determination criteria developed by GARM III are utilized by this interim action. Table 5 in this EA includes the proposed revised status determination criteria for the stocks managed by this FMP. New rebuilding plans for those stocks not previous under a rebuilding plan, but which need a rebuilding plan based on the most recent science (northern windowpane flounder, GB winter flounder, witch flounder, and pollock) are not implement because this action focuses on reducing overfishing and the currently rebuilding plans. Implementation of new rebuilding plans after May 2009 through Amendment 16 would comply with the timing requirements of the MSA. For these 4 stocks (and GOM winter flounder, which may be overfished), the fishing mortality target of the interim action is Fmsy.

The Executive Summary, and Sections 17.0 and 24.0 in this document describe in detail how the management measures of the Preferred Alternative would eliminate overfishing and rebuild the fishery.

(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;

The Omnibus Standardized Bycatch Reporting Methodology (SBRM) Amendment developed by both the Mid-Atlantic and New England Fishery Management Councils was approved by NMFS on behalf of the Secretary of Commerce on October 22, 2007. A final rule implementing management measures outlined by the SBRM amendment published on January 28, 2008 (73 FR 4736). The purpose of this amendment was to explain the methods and processes by which bycatch is currently monitored and assessed for Northeast Region fisheries; determine whether these methods and processes need to be modified and/or supplemented; establish standards of precision for bycatch estimation for all Northeast Region fisheries; and, thereby, document the SBRM established for all fisheries managed through the FMPs of the Northeast Region. In addition, the SBRM establishes, maintains, and utilizes biological sampling programs designed to minimize bias to the extent practicable, thus promoting accuracy while maintaining sufficiently high levels of precision.

(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;

A description about the type and amount of fish caught and released alive when recreationally fishing for groundfish is contained in Section 9.8, including an estimate of the mortality of such fish.

(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; and

Descriptions of the commercial, recreational, and charter fishing sectors which participate in the fishery, including trends in landings by these sectors, are in Section 9.0 of this EA.

(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.

Amendment 13 to the FMP established rebuilding plans and conservation measures for groundfish stocks. These programs, and measures adopted to achieve the rebuilding programs, are likely to reduce overall harvest. Proposed management measures restrict harvest levels for all sectors of the fishery to achieve a similar level of F reduction from each sector (as appropriate, given the different characteristics of various sectors). Recovery benefits have been allocated equitably.

(15) The EFH Provisions of the SFA (50 CFR Part 600.815) require the inclusion of the following components of FMPs. The Council has fully met these obligations as detailed below each mandatory component.

(A) Identification and description of EFH

(B) Identification of fishing activities managed by authority of the Magnuson-Stevens Act that adversely affect EFH

(i) Evaluation of potential adverse effects of fishing on EFH

(ii) Minimization of the adverse effects of federally-managed fishing activities to the extent practicable

(C) Identification of non-Magnuson-Stevens Act fishing activities not managed by authority of the Magnuson-Stevens Act that may adversely affect EFH

(D) Identification of non-fishing related activities that may adversely affect EFH.

(E) Cumulative impacts analysis
(F) Identification of conservation and enhancement actions.
(G) List the major prey species and discuss the location of the prey species' habitat
(H) Identification of habitat areas of particular concern
(I) Recommendations for EFH-related research and information needs
(J) Review and revision of EFH components of FMPs.

(A) Identification and description of EFH

EFH for the management unit of the NE Multispecies FMP has been identified and described in Amendment 11. The Council plans to update these EFH designations through an omnibus amendment to the NE Multispecies FMP.

(B) MSA Fishing activities that adversely affect EFH

(i) Evaluation of potential adverse effects

Section 9.3.1 of Amendment 13 evaluates the potential adverse effects of fishing activities and gear commonly used in the Northeast region of the U.S. It also evaluates the effects of bottom trawls and dredges on benthic marine habitats in the region. The information in this section serves as the basis for evaluating which gear types, if any, are most likely to have an adverse impact on EFH for federally-managed species in the NE region. Section 9.3.1.8 of Amendment 13 summarizes the results and findings of this section, identifying the potential adverse impacts of the three principal mobile, bottom-tending gears on three principal bottom types in the region. These results serve as the basis for analyzing proposed alternatives to minimize the adverse impacts of these gears on EFH. Section 9.3 of this EA includes a summary of the habitat impacts of gear used to target groundfish.

(ii) Minimization of adverse effects

In order to minimize and mitigate the adverse effects of the fishery on EFH to the extent practicable, the Council implemented effort reductions, gear restrictions and habitat closed areas for bottom tending mobile gear in Amendment 13 to the FMP. The Council has determined that the combination of these measures minimizes, to the extent practicable, the adverse effects of fishing on EFH. This includes the adverse effects of the groundfish fishery on all federally-designated EFH as well as the adverse effects of other federally-managed fisheries on groundfish EFH. This action does not alter those measures designed to minimize effects to habitat implemented by Amendment 13. This action may result in additional reductions in effort, as this action would continue the Amendment 13 default Category A DAS reduction, apply differential DAS counting throughout the GOM, and implement a closure area in SNE. This would indirectly reduce impacts on EFH beyond that assessed by Amendment 13 by further reducing the amount of DAS available to fish for FY 2009.

(C) Identification of non-MSA fishing activities that may adversely affect EFH

Section 9.3.1.9 of Amendment 13 addresses the requirement of this component. This section will be thoroughly updated in the upcoming omnibus habitat amendment to the NE Multispecies FMP. This action does not include any additional information on this subject beyond that offered by Amendment 13.

(D) Identification of non-fishing related activities that may adversely affect EFH

Section 9.3.1.10 of Amendment 13 addresses the requirements of this component. This section will be thoroughly updated in the upcoming omnibus habitat amendment (to be Amendment 14 to the NE Multispecies FMP). This action does not include any additional information for this requirement beyond that offered by Amendment 13.

(E) Cumulative impacts analysis

Section 25.0 of this document addresses the requirement of this component.

(F) Identification of conservation and enhancement actions

Section 9.3.2 of Amendment 13 addresses this requirement. This section will be thoroughly updated in the upcoming omnibus habitat amendment to the NE Multispecies FMP. This action does not include any additional information for this requirement beyond that offered by Amendment 13.

(G) List the major prey species and discuss the location of the prey species' habitat

Section 9.3.3 of Amendment 13 addresses this requirement. This section will be thoroughly updated in the upcoming omnibus habitat amendment to the NE Multispecies FMP. This action does not include any additional information for this requirement beyond that offered by Amendment 13.

(H) Identification of habitat areas of particular concern

Section 9.3.5 of Amendment 13 addresses this requirement. This section will be thoroughly updated in the upcoming omnibus habitat amendment to the NE Multispecies FMP. Only one HAPC has been identified for the NE multispecies fishery. This HAPC has been identified for GB cod and lies within the confines of Closed Area II. This action does not include any additional information relating to this requirement beyond that offered by Amendment 13. Additional HAPC designations being considered by the NEFMC and the MAFMC will be implemented in omnibus habitat amendment to the NE Multispecies FMP, which will be implemented in 2008.

(I) Recommendations for EFH-related research and information needs

Section 9.3.4 of Amendment 13 addresses this requirement. This section will be thoroughly updated in the upcoming omnibus habitat amendment to the NE Multispecies FMP. This action does not include any additional information on this subject beyond that offered by Amendment 13.

(J) Review and revision of EFH components of FMPs.

Section 9.3.6 of Amendment 13 addresses this requirement. EFH for all the species that are managed as part of the NE multispecies complex will be thoroughly updated in the upcoming omnibus habitat amendment to the NE Multispecies FMP.

26.2 National Environmental Policy Act (NEPA)

NEPA provides a mechanism for identifying and evaluating 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 Magnuson-Stevens Act and NEPA.

Environmental Assessment

The required elements of an Environmental Assessment (EA) are specified in 40 CRS 1508.9(b), and are included in this document as indicated below:

-Need for this action: Section 3.0
-Alternatives considered: Sections 5.0, 6.0, 7.0, 8.0, 9.0
-Alternatives Compared: Section 24.0
-Environmental impacts of preferred alternative: Sections 12.0 through 24.0
-The agencies and persons consulted on this action: Section 27.0

In addition, Section 11.0 of this document includes a discussion of the affected environment for this action as a basis to evaluate the impacts of the alternatives specified for this action.

Finding of No Significant Impact (FONSI)

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

1. Can the preferred alternative reasonably be expected to jeopardize the sustainability of any target species that may be affected by the action?

The proposed measures are not reasonably expected to jeopardize the sustainability of any target species that may be affected (Section 17.1.1) . The purpose of these measures is to immediately reduce F for the start of the 2009 fishing year until long-term management measures can be implemented by Amendment 16. The principal measures in the preferred alternative include maintaining the default DAS reduction and implementing a differential DAS area in Southern New England, which would reduce F on groundfish stocks. This action would also implement a prohibition on the retention of ocean pout, SNE winter flounder, or the northern stock of windowpane flounder. These measures are necessary to reduce overfishing and maintain the rebuilding program for groundfish stocks as practicable, and ensure the long-term sustainability of the resource.

2. Can the preferred alternative reasonably be expected to jeopardize the sustainability of any non-target species?

The Preferred Alternative is not reasonably expected to jeopardize the sustainability of any non-target species because the Preferred Alternative would implement measures to reduce fishing effort over a wide geographic area. This action would indirectly reduce fishing pressure on non-target species by maintaining the default DAS reduction, and implementing a differential DAS area in Southern New England. This action would also implement a prohibition on the retention of ocean pout, SNE winter flounder, or the northern stock of windowpane flounder. Windowpane flounder, and ocean pout, which are not targeted, will be subject to less fishing effort, and the prohibition on possession will eliminate any incentive to target these stocks that may have previously existed. The impacts of the proposed measures on target and non-target species is in Section 17. The SAPs, which allow targeting stocks for which no fishing mortality reduction is necessary, contain strict controls that minimize and monitor any impact on non-target species in the groundfish fishery.

3. Can the preferred alternative reasonably be expected to allow substantial damage to the ocean and coastal habitats and/or EFH as defined under the Magnuson-Stevens Act and identified in FMPs?

No, the Preferred Alternative cannot be reasonably expected to allow substantial damage to the ocean and coastal habitats and/or EFH as defined under the MSA and identified in FMPs. This principal measures of the Preferred Alternative would result in the reduction of fishing effort throughout the fishery, and provide benefits to habitat in SNE by reducing trawl and gillnet gear effort in the Interim SNE Differential DAS Area. Further, this action would temporarily benefit EFH on eastern GB by delaying the start date of the Eastern U.S./Canada fishery (Section 17.1.3). The net result of this action would be a positive impact on habitat.

4. Can the preferred alternative reasonably be expected to have a substantial adverse impact on public health or safety?

No, the action is not expected to have a substantial impact on public health or safety. Altough there may be a greater incentive for vessels fishing in SNE to fish offshore due to the Interim SNE Differential DAS Area, in the context of the fishery as a whole this incentive is one of many incentives facing a vessel operators. Other measures will have neutral impact on safety and public health.

5. Can the preferred alternative be reasonably expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?

The Preferred Alternative is not reasonably expected to have an adverse impact on endangered or threatened species, marine mammals, or critical habitat. A number of endangered or threatened species and marine mammals are found within the geographic range of the NE multispecies fishery. The impacts of the Preferred Alternative on these species are described in Section 17.1. of the EA. The proposed measures will likely have a positive, impact on endangered or threatened species because they will result in decreased fishing effort throughout the area managed by the FMP.

6. Can the preferred alternative reasonably 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.)?

This interim action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. The measures proposed by this action suggest a potential reduction in the adverse effects to any EFH associated with the fishing activities as a result of reduced fishing effort (Section 17.1.3). Catches of target and incidental regulated groundfish stocks in the Regular B DAS Program will be tightly controlled through the use of hard TACs and limits on the use of DAS. Catches of target and incidental catch species under this program will be consistent with the mortality targets of FMP and thus will not have a substantial impact on predator-prey relationships or biodiversity. NMFS concludes that particular measures within this action will have no more than minimal adverse impacts to EFH and that the overall impact to EFH will be positive. It is therefore reasonable to expect no substantial impact on biodiversity or ecosystem function.

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

The environmental assessment documents that no significant natural or physical effects will result from the implementation of the proposed action. The proposed action is designed to continue the groundfish rebuilding programs that were implemented as a result of Amendment 13 to the Northeast Multispecies FMP (NEFMC 2003). As described in Section 17.1, the action is expected to achieve most of the fishing mortality rates required to rebuild stocks within the time frames adopted in the FMP. The action cannot be reasonably expected to have a substantial impact on habitat or protected species, as the impacts are expected reduce impacts and fall within the range of those resulting from Amendment 13. The action's potential social and economic impacts are also addressed in the environmental assessment (see Sections 17.2 and 17.3) and more specifically in the Regulatory Flexibility Act analysis (Section 26.8) and the Executive Order 12866 review (section 26.9). The projected economic impacts are summarized as follows: The Commercial Fishing Measures in Section 5.5 are expected to result in a short-term reduction in total fishing revenue of approximately $17.4 million, the result of a reduction in groundfish revenues. These impacts will not be evenly distributed, with larger impacts expected to fall on vessels highly dependant upon groundfish revenue and vessel that fish in the Gulf of Maine. Vessels that fish in the area covered by the Interim SNE Differential DAS Area may also experience larger impacts. The reduction in the haddock minimum size and other measures to mitigate the negative impacts of the FMP will mitigate to some extent the expected revenue decline. The mitigation measures, however, are likely to provide only a limited benefit to the vessels most affected by the Commercial Fishing Measures.

Analyses concluded that the proposed action would have an adverse impact on fishing vessels, purchasers of seafood products, ports, recreational anglers, and operators of party/charter businesses. Approximately one third of operators of party/charter businesses would be impacted. Party/charter receipts may be expected to be reduced by approximately 6 percent. Including declines in sales by party/charter and commercial fishing vessels the economic impact of the proposed action was estimated to be $20.6 million during FY 2009. This impact is likely to be offset either by adaptations to the Proposed Action and/or by the impacts of the mitigating management measures. Further, economic impacts are expected to be lessened over time with increasing TACs as groundfish stocks rebuild. The Final Regulatory Flexibility Analysis concluded that the proposed action would not have a significant impact on a substantial number of small commercial fishing vessels (Section 26.8).

As a result of these economic impacts, the proposed action will likely have an adverse effect on the social factors important to the identified port groups. While these impacts may vary among ports, in general it is probable the action will have a negative impact on the attitudes of fishermen to the regulations, daily routines, and opportunities in the fishery (Section 17.3).

NMFS has determined that despite the potential socio-economic impacts resulting from this action, there is no need to prepare an EIS. The purpose of NEPA is to protect the environment by requiring Federal agencies to consider the impacts of their proposed action on the human environment, defined as "the natural and physical environment and the relationship of the people with that environment." The EA for this Interim Action describes and analyzes the proposed measures and alternatives and concludes there will be no significant impacts to the natural and physical environment. While some fishermen, shore-side businesses and others may experience impacts to their livelihood, these impacts, in and of themselves do not require the preparation of an EIS, as supported by NEPA's implementing regulations at 40 C.F.R. 1508.14. Consequently, because the EA demonstrates that the action's potential natural and physical impacts are not significant, the execution of a FONSI remains appropriate under criteria 7.

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

The effects of the Preferred Alternative on the quality of human environment are not expected to be highly controversial. The underlying science was developed through a rigorous, peer-reviewed process, and the methods utilized in the evaluation of the impacts of the proposed action have been subject to extensive review.

9. Can the preferred alternative 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?

No, the Preferred Alternative cannot be reasonably expected to result in substantial impacts to unique areas or ecological critical areas. The only designated HAPC in the areas affected by this action is protected by an existing closed area that would not be affected by this action. In addition, vessel operations around the unique historical and cultural resources encompassed by the Stellwagen Bank National Marine Sanctuary would not likely be altered by this action. As a result, no substantial impacts are expected from this action.

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

The Preferred Alternative is not expected to result in highly uncertain effects on human environment or involve unique or unknown risks. Although it is unclear just how individual participants in the fishery will react to the proposed measures, the interim measures will result in the impacts to human communities as described in Section 17.0 with a relative amount of certainty.

11. Is the preferred alternative related to other actions with individually insignificant, but cumulatively significant impacts?

The Preferred Alternative is related to other recent management actions beginning with Amendment 13 because these actions have implemented the bulk of the management measures of the FMP currently in effect. While the Amendment 13 measures resulted in significant impacts to human communities, many of the actions following Amendment 13 (FW 40A, FW 40B, and FW 41) did not contain any significant impacts. FW 42 was found to have significant economic and social impacts (Section 15.5). These additional actions were taken to refine measures implemented under Amendment 13, and reduce fishing mortality as necessary to maintain the rebuilding programs. The impacts of the default DAS reduction were previously considered under Amendment 13 and do not contribute to further separate impacts. Further, the action would be in place for a relatively short duration (one year), would utilize currently existing management tools, and leave the majority of management measures in the FMP in place. For several stocks, the biological impacts of the No Action Alternative are similar to the Preferred Alternative.

In contrast, Amendment 16, which will likely be implemented on May 1, 2010, would implement measures that are more fundamental and wider in scope.

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

The Preferred Alternative is not likely to affect objects listed in the National Register of Historic Places or cause significant impact to scientific, cultural, or historical resources. The only object listed in the National Register of Historic Places is the wreck of the steamship *Portland* within the Stellwagen Bank National Marine Sanctuary. The current regulations allow fishing within the Stellwagen Bank National Marine Sanctuary. The Preferred Alternative would not alter the scope of the regulations as they relate to current fishing practices within the sanctuary. However, vessels typically avoid fishing near the wreck to avoid tangling gear on the wreck. Therefore, this action would not result in any adverse affects to the wreck of the *Portland*.

13. Can the preferred alternative reasonably be expected to result in the introduction or spread of a nonindigenous species?

This action would not result in the introduction or spread of any nonindigenous species, as it would not result in any vessel activity outside of the Northeast region.

14. Is the preferred alternative likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

No, the Preferred Alternative is not likely to establish precedent for future actions with significant effects. The Preferred Alternative is a temporary interim action intended to implement immediate reductions in F for the groundfish fishery until such time as more permanent measures can be implemented by Amendment 16. The Preferred Alternative would be superseded by management measures contained in Amendment 16 and would have only temporary effects. Further, precedent for the use of such interim actions is well established and codified in Section 305(c) of MSA. The future use of interim actions will be contingent upon the need to ensure that the FMP maintains consistency with MSA.

15. Can the preferred alternative reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

The Preferred Alternative is intended to implement measures that would offer further protection of marine resources and would not threaten a violation of Federal, state, or local law or requirements to protect the environment. In fact, this action was determined to be consistent with the Coastal Zone Management Act (CZMA) requirements of individual states.

16. Can the preferred alternative reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

As specified in the responses to the first two criteria of this section, the Preferred Alternative is not expected to result in cumulative adverse effects that would have a substantial effect on target or non-target species. This action would reduce F for all groundfish stocks, with indirect reduction in F for non-target and non-groundfish stocks, as described in Sections 17.1.1 and 17.1.2 above (Sections 25.5 and 25.6).

FONSI STATEMENT: In view of the information presented in this Environmental Assessment, which analyzed the beneficial and adverse impacts, the interim action will not significantly impact the quality of human communities as described above, with specific reference to the criteria contained in NOAA Administrative Order 216-6 implementing the National Environmental Policy Act. Accordingly, preparation of an EIS for this action is not necessary.

______________________________________ ______________

NMFS Regional Administrator, Northeast Region **Date**

26.3 Endangered Species Act (ESA)

NOAA Fisheries Service conducted an informal Section 7 consultation dated November 24, 2008, and concluded that the measures of the proposed interim action were not likely to adversely affect ESA-listed cetaceans, sea turtles, fish, or right whale habitat. Given the overall reduction in fishing effort of the interim action as analyzed in this Final EA, the conclusions of the November 24, 2008 Section 7 consultation are still valid.

26.4 Marine Mammal Protection Act (MMPA)

In Section 5.2.9 of the Amendment 13 FSEIS, the mortality and serious injury of protected species were assessed relative to the Potential Biological Removal (PBR) allowed under the Marine Mammal Protection Act (MMPA) for each species and were found to be below those levels. Amendment 13 concluded that the measures of the FMP would not compromise the ability of the species protected by the MMPA to achieve their optimum sustainable population levels. The iterim measures, analyzed in Section 17.1.4, do not alter that conclusion. The overall effect of the proposed measures to reduce fishing mortality in the commercial fishery is positive for marine mammals given the reductions in effort that would be achieved, and assuming that effort is not shifted into other areas that would increase likelihood of interactions with small cetaceans.

26.5 Coastal Zone Management Act (CZMA)

NOAA Fisheries Service has determined that this action is consistent to the maximum extent practicable with the enforceable policies of the approved coastal management programs of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryand, Virginia, and North Carolina. This determination was sent to the responsible state agencies on January 16, 2009, for review under section 307 of the Coastal Zone Management Act. New Hampshire, Rhode Island, Connecticut, New Jersey, Virginia, North Carolina, and Pennsylvania have concurred with this determination. For the remaining states that have not responded, consistency has been inferred pursuant to the consistency letter.

26.6 Administrative Procedure Act (APA)

The proposed measures would be implemented in accordance with the requirements of the Administrative Procedure Act.

26.7 Data Quality Act

In accordance with the Data Quality Act (Public Law 106-554), the Office of Management and Budget directed each Federal agency to issue guidelines that ensure the quality, objectivity, utility, and integrity of information disseminated by federal agencies. The NOAA Section 515 Information Quality Guidelines require a series of actions for each new information product subject to the Data Quality Act. Information must meet standards of utility, integrity, and objectivity. This section provides information that demonstrates compliance with these standards.

Utility of Information Product

A. Is the information helpful, beneficial or serviceable to the intended user?

This action implements measures necessary to reduce fishing mortality on specific groundfish stocks. The environmental assessment (EA) and the Federal Register document prepared for this action include a description of the measures, the reasons why such measures are necessary, and the biological impacts of the measures. The information in the EA is useful to understand the rationale for the action along with the anticipated impacts associated with the interim measures. The Federal Register notice provides a summary of the information contained in the EA to inform interested public of the scope and purpose of the Preferred Alternative. The Preferred Alternative is consistent with the NE Multispecies Fishery Management Plan and the conservation and management goals of the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

B. Is the data or information product an improvement over previously available information? Is it more current or detailed? Is it more useful or accessible to the public? Has it been improved based on comments from or interactions with customers?

The Preferred Alternative is based upon recently completed groundfish stock assessments (GARM III, August 2008), which represent the best available, peer reviewed science. The stock assessments incorporate improvements over previous stock assessments. Thus, the EA contains updated information on the status of groundfish stocks along with the impacts of the proposed measures, based upon the most recent GARM III information. The management measures were revised after the public comment period (January 16 through February 17, 2009) and reflect additional analyses conduction as well as consideration of public comments. The management measures (e.g., differential days-at-sea in the Southern New England) reflect management tools already in use in the FMP, and maintain default DAS reductions for 2009 that were implemented by Amendment 13. The EA will be made available to the public for comment. The Federal Register notice will also be made available to the public to review and comment on the proposed measures.

C. What media are used in the dissemination of the information? Printed publications? CD-ROM? Internet? Is the product made available in a standard data format? Does it use consistent attribute naming and unit conventions to ensure that the information is accessible to a broad range of users with a variety of operating systems and data needs?

A proposed rule published in the Federal Register on January 16, 2009 and informed the public of the proposed measures and solicited public comments. A final rule will be published in the Federal Register prior to implementation of measures in order to announces the final measures. An EA that analyzes the potential impact of such measures, will be made available in printed publication and on the Internet website for the Northeast Regional Office. A letter will be sent to pertinent small business informing the fishing industry and explaining the final measures.

Integrity of Information Product

The information product meets the following standards for integrity:

- If information is confidential, it is safeguarded pursuant to the Privacy Act and Titles 13, 15, and 22 of the U.S. Code (confidentiality of census, business and financial information).

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

Objectivity of Information

(1) Indicate which of the following categories of information products apply for this product:

□ **Original Data**
□ **Synthesized Products**
□ **Interpreted Products**
□ **Hydrometeorological, Hazardous Chemical Spill, and Space Weather Warnings, Forecasts, and Advisories**
□ **Experimental Products**
■ **Natural Resource Plans**
□ **Corporate and General Information**

(2) Describe how this information product meets the applicable objectivity standards. (See the DQA Documentation and Pre-Dissemination Review

Guidelines for assistance and attach the appropriate completed documentation to this form.)

What published standard(s) governs the creation of the Natural Resource Plan? Does the Plan adhere to the published standards? (See the NOAA Sec. 515 Information Quality Guidelines, Section II(F) for links to the published standards for the Plans disseminated by NOAA.)

Any management action under this FMP must comply with the requirements of the MSA; the National Environmental Policy Act; the Regulatory Flexibility Act; the Administrative Procedures Act; the Paperwork Reduction Act; the Coastal Zone Management Act; the Endangered Species Act; the Marine Mammal Protection Act; and Executive Orders 12612 (Federalism), 12630 (Property Rights), 12866 (Regulatory Planning), and 13158 (Marine Protected Areas). In addition, the measures attempt to maintain consistency with the measures currently under development by the New England Fishery Management Council for implementation in Amendment 16. NMFS has determined that interim final rule is consistent with the National Standards of the MSA and all other applicable laws.

Was the Plan developed using the best information available? Please explain.

Amendment 13 to the NE Multispecies Fishery Management Plan (FMP) established a process whereby the NE multispecies complex is routinely evaluated and necessary changes to management measures are made through biennial adjustments. The FMP also mandated a major evaluation in 2008, including benchmark stock assessments, followed by adjustments to the management measures for the 2009 fishing year (beginning May 1, 2009), which would enable stocks to rebuild in accordance with the Amendment 13 rebuilding schedules. The benchmark stock assessments, referred to as the GARM III, were completed in August 2008. GARM III revised the status determination criteria and estimated fishing mortality rates and stock biomass for calendar year 2007 for all 19 groundfish stocks of the FMP. Based on the information from GARM III, and estimates of the 2008 calendar year fishing mortality, additional management measures are necessary to reduce fishing mortality on twelve groundfish stocks in order to eliminate overfishing and meet the objectives of the current Amendment 13 rebuilding programs.

The New England Fishery Management Council (Council) is currently developing management measures through Amendment 16 to respond to the most recent scientific information; however, due to the agreement to incorporate 2007 information into the GARM, development of Amendment 16 has been delayed by the Council and, therefore, the Amendment will not be implemented until May 2010, a 1-year delay from the Amendment 13 schedule. Due to this delay in the development of Amendment 16 and the need to reduce fishing mortality on 12 stocks by the start of the 2009 fishing year, interim action is warranted, as provided for in section 305(c) of the MSA.

In addition, analyses for the measures incorporate the most complete data set from recent fishing years to assess the impacts of the proposed measures. These data represent the best information available. National Standard 2 requires that the FMP's conservation and management measures shall be based upon the best scientific information available. These measures have been determined to be in compliance with National Standard 2 are based upon the best scientific information available. Since the proposed rule, input data was revised and corrected as warranted, and additional analyses of potential impacts were conducted. Consequently, management measures have been revised in the interim final rule.

Have clear distinctions been drawn between policy choices and the supporting science upon which they are based? Have all supporting materials, information, data and analyses used within the Plan been properly referenced to ensure transparency?

The policy choices (i.e., management measures) are supported by the available scientific information to a large extent. Specific measures included in this action such as the DAS restrictions and the trip limits are designed to adress the conservation goals and objectives of the FMP, while others are intended to provide for increased flexibility in vessel operations in order to mitigate the economic and social impacts of effort reductions that are fully supported by the best available scientific information. The specific objective of the interim action is to reduce fishing mortality for the 2009 fishing year, while the New England Fishery Management Council develops Amendment 16, a more comprehensive and long-term modification to the FMP that would be implemented on May 1, 2010. The supporting materials and analyses used to develop these measures are contained in readily available documents that are properly referenced in the EA.

Describe the review process of the Plan by technically qualified individuals to ensure that the Plan is valid, complete, unbiased, objective and relevant. For example, internal review by staff who were not involved in the development of the Plan to formal, independent, external peer review. The level of review should be commensurate with the importance of the Plan and the constraints imposed by legally enforceable deadlines.

The development of a Secretarial interim action involves the Northeast Fisheries Science Center (Center), the Northeast Regional Office, and NMFS Headquarters. The Center's technical review is conducted by senior level scientists with specialties in population dynamics, stock assessment methods, demersal resources, population biology, and the social sciences. Review by staff at the Regional Office is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. Final approval of the emergency Secretarial action and clearance of the rule is conducted by staff at NMFS Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

26.8 Regulatory Flexibility Act (RFA)

Final Regulatory Flexibility Analysis

Economic Impacts on Regulated Small Entities

The proposed action would affect regulated entities engaged in commercial fishing for groundfish and entities that provide recreational fishing services to anglers. These entities include any vessel that has been issued either an open access or a limited access Federal permit under the Northeast Multispecies Fishery Management Plan (FMP). The size standard for commercial fishing (NAICS code 114111) is $4 million in sales while the size standard for party/charter operators (part of NAICS code 487210) is $7 million. Available data indicate that based on 2005-2007 average conditions median gross sales by commercial fishing vessels were just over $200,000 and no single fishing entity earned more than $2 million. Note that available data are not adequate to identify affiliated vessels so each operating unit is considered a small entity for purposes of the RFA. For regulated party/charter operators the median value of gross receipts from passengers was just over $9,000 and did not exceed $500 thousand dollars in any year during 2001 to 2007. Therefore, all regulated commercial fishing and all regulated party/charter operators are determined to be small entities under the RFA. The remaining discussion describes the number of regulated entities, the number of participating regulated entities, and the potential economic impacts on participating regulated entities for party/charter operators and for commercial fishing vessels.

Party/Charter Operator Small Entity Impacts

Party/charter permits are issued as an open access category I permit under the Northeast Multispecies FMP. During Fishing Year 2007 (FY2007) 762 party/charter permits were issued. Additionally, limited access permit holders (1,525 during FY2007) may take passengers for hire, but do not possess a party/charter permit since the Multispecies FMP prohibits issuing both an open access and a limited access permit to the same vessel. During FY2007 there were 128 of the 762 open access party/charter permit holders that reported taking at least one for-hire trip, of which, 74 reported keeping groundfish on one or more trips. An additional 29 limited access permit holders reported taking passengers for hire, of which, 18 reported keeping groundfish on one or more for-hire trips. Thus a total of 92 party charter operators participated in the party/charter recreational groundfish fishery during FY2007.

The economic impacts on participating party/charter operators were described in detail in Section 22.0. Available data indicate that about two-thirds of participating party/charter operators would not be adversely affected by the proposed action. These vessels either did not take any trips in the Gulf of Maine during April 1 to April 15 that retained cod, did not report keeping any winter flounder in the SNE/MA stock area, or did not retain more than 10 Georges Bank cod on any for-hire trip. The remaining 31 participating vessels were estimated to lose an average of $9,723 in sales due to potential lost passengers. All but four of these affected vessels were adversely affected by only one of the proposed action recreational measures.

The realized impact on party/charter vessels is uncertain since impacts depend on angler response to any one of the proposed measures. These responses may be expected to have different impacts depending on where party/charter operators are located. The majority of party/charter operators from Maine, New Hampshire, and Massachusetts take trips exclusively in the Gulf of Maine. Passenger demand in these three states would only be adversely affected by the two-week extension of the closed season on Gulf of Maine cod. While party/charter operators may be expected to try to shift trips that would otherwise have taken place during early April to later in the month or into May the ability to do so may be limited. At least some of the impacts of the extended closure may be offset by the reduction in the haddock size limit as this action would increase the number of opportunities for party/charter passengers to keep more haddock. Since the majority of occasions where haddock were kept occurred in the Gulf of Maine, to the extent that party/charter demand is influenced by the chance to keep more fish, passenger demand may be expected to increase for Gulf of Maine party/charter operators.

Unlike the party/charter passengers in the Gulf of Maine, anglers taking party/charter trips on Georges Bank may be affected by the bag limit on Georges Bank cod and/or the prohibition on keeping winter flounder. Compared to angler response to the Gulf of Maine cod closure, adverse angler response to these measures may be larger because they would affect all trips not just trips during a particular season. The prohibition on retaining winter flounder may be particularly sensitive since the winter flounder season is short and occurs during early spring when the availability of substitute species is limited. Angler response to a bag limit on Georges Bank cod is uncertain. Realized trips indicate that the majority of angler trips harvest fewer than 10 cod per angler. However, angler trip demand is believed to be driven by expectations and the extent to which those expectations may be constrained by regulation may be anticipated to influence demand. Note that these two measures (prohibition on SNE/MA winter flounder and GB cod bag limit) are likely to have a larger impact on party/charter operators from Rhode Island to New Jersey. Since the number of trips that also landed haddock is likely to be comparatively small, reduced passenger demand for trips in the SNE/MA area may not be expected to be offset by the reduction in the haddock size limit.

Commercial Fishing Small Entity Impacts

The interim action contains several different measures that may affect regulated vessels with either an open access or limited access multispecies permit. During FY2007 there were a total of 1,292 commercial open access permits (Handgear B) and a total of 1,530 limited access permits issued. Of these permits, 664 limited access permit holders and 123 open access permit holders participated in the groundfish fishery during FY2007. The principal proposed management measures include a reduction in DAS, a revised 2:1 differential counting area in the SNE/MA stock area, and zero possession of SNE/MA winter flounder, Northern windowpane flounder, and ocean pout. All other measures currently in place would remain unchanged. The economic impacts of these primary measures are discussed in detail in Section 17.2. Region-wide the impact on revenue received on trips where groundfish was landed was estimated to fall by 15% while sales of all species was estimated to be reduced by 9%. Among individual vessels, a small number of regulated entities primarily from New Jersey may be able to increase sales due to a reduction in the southern extent of the SNE 2:1 area relative to taking no action. That is, fishing opportunities in the area that would now be opened to these vessels would more than offset the changes in trip limits and DAS reduction. For the overwhelming majority of regulated small entities the economic impacts would be negative.

The estimated adverse impact ranged from an average of a 2% reduction to a 17% reduction in total fishing revenue for vessels below the 20th percentile to above the 80th percentile respectively. The distribution of impacts on fishing business revenue was not significantly different based on vessel size, or gear. Impacts on homeport vessels from Maine, New Hampshire, and Massachusetts were more widely distributed compared to vessels from other states. However, the relative impact on vessels from New York, Rhode Island, and Connecticut at the 80th percentile was similar to that of vessels from Maine, New Hampshire, and Massachusetts.

Although all operating units were determined to be small based on sales less than $4 million participating vessels were sub-divided into quintiles based on gross fishing revenue to determine impacts based on entity size. The distribution of impacts was nearly identical for the bottom three quintiles ranging from a 1% reduction in gross sales up to the 20th percentile to 16-14% above the 80th percentile. Average impacts on vessels with gross sales above $269,000 were generally higher particularly above the median. For example, impacts between the median and the 80th percentile averaged 13-14% compared to 11% for vessels with gross sales below $270,000. Above the 80th percentile adverse impacts on gross fishing revenue averaged 18% for vessels with gross sales of $270,000 and above compared to 16-14% for vessels with lower gross sale.

Table 150. Proposed Action Estimated Adverse Revenue Impacts and Numbers of Affected Vessels by Gross Sales Category

	Up to 20th Percentile	20th Percentile to Median	Median to 80th Percentile	Above 80th Percentile
	Number of Vessels			
Less than $90,000	18	26	27	17
$90,000 to $159,000	19	27	27	18
$160,000 to $269,000	20	30	30	19
$270,000 to $500,000	19	28	28	18
More then $500,000	21	31	31	20
	Average Adverse Affect on Total Revenue			
Less than $90,000	1.0%	6.0%	11.0%	16.0%
$90,000 to $159,000	1.0%	7.0%	11.0%	14.0%
$160,000 to $269,000	1.0%	7.0%	11.0%	14.0%
$270,000 to $500,000	3.0%	8.0%	13.0%	18.0%
More then $500,000	2.0%	7.0%	14.0%	18.0%

Taking no action would leave all existing regulations unchanged including the default 18% reduction in DAS. Compared to no action the proposed action would change the configuration and enlarge the SNE 2:1 differential counting area and would implement zero possession limits for SNE/MA winter flounder, Northern windowpane flounder, and ocean pout. However, the interim action would also increase the trip limit for both white hake and witch flounder. This, means that depending on where vessels may have fished and what species they may have been fishing for, the proposed action could result an increase, no change, a larger adverse impact, or a lesser adverse impact on fishing revenue compared to no action.

The proposed action would eliminate the portion of the no action SNE 2:1 differential DAS area that lies along the coast of New Jersey. This means that vessels would now be able to fish in the affected area at 1:1 instead of 2:1. This is most likely to have been the case for the 23 vessels, all but two of which were from either a New York or New Jersey home port, which may be expected to increase total fishing revenue under the proposed action. That is, the ability to fish on groundfish trips at a rate of 1:1 more than offset the 18% reduction in allocated Category A DAS.

Table 151. Summary of Potential Outcomes of Proposed Action (PA) Compared to No Action by Home Port State

Home Port State	Adverse Impact of PA > No Action (no.)	Adverse Impact of PA = No Action (no.)	Adverse Impact of PA < No Action (no.)	PA Revenue > No Action (no.)
CT	6	0	0	0
MA	204	26	20	1
ME	42	20	8	0
NH	18	10	7	0
NJ	2	0	5	17
NY	33	0	10	4
RI	60	1	5	1
Other	7	1	1	0
Total	372	58	56	23

For a total of 58 vessels the estimated impact of no action and the proposed action was identical. These vessels would have fished outside the SNE 2:1 differential DAS area under both alternatives, did not land fish during times and areas where Northern windowpane, ocean pout or SNE/MA winter flounder were landed, and fished in areas or times of year when CPUE for white hake and witch flounder was below the trip limit for those two species. Note that this does not mean that these vessels would not be adversely affected since they would be affected by an 18% reduction in DAS. It only means that the impact would be no different whether the proposed action is taken or not.

A total of 56 vessels were estimated to be adversely affected by the proposed action but the adverse impact on fishing revenue was estimated to be less than the adverse impact of taking no action. These vessels may have benefited from either the change in the configuration of the SNE 2:1 differential DAS area, from the higher trip limits for white hake or witch flounder or some combination of the two. Vessels from Maine, New Hampshire and Massachusetts home ports may have been most likely to have benefitted from the higher trip limits whereas vessels from Southern New England ports (New York and New Jersey in particular) may have benefitted from the reconfigured SNE differential DAS counting area.

Last, 372 vessels were estimated to incur larger losses in fishing revenue under the proposed action than they would if existing regulations were left in place. Vessels from Southern New England ports of Connecticut and Rhode Island or Mid-Atlantic ports of New York and New Jersey would be most adversely affected by the larger SNE differential DAS counting area and the zero possession of winter flounder. Vessels from these states may find it particularly difficult to adapt to the SNE differential DAS counting area because the eastern boundary would be extended to the western edge of the US/CA resource sharing area. This extension also includes a substantial portion of the Great South Channel which is an important fishing area for groundfish vessels from many different states. Additionally, vessels fishing in the Great South Channel as well as any part of statistical area 521 would be subject to zero possession of winter flounder. The combination of these two measures is most likely to be the reason why 264 vessels from Massachusetts, New Hampshire, and Maine home ports were estimated to be more adversely affected under the proposed than under no action. Note that none of the 372 vessels that would incur larger losses under proposed action used hook gear as a primary gear because the proposed action would exempt hook gear from 2:1 differential DAS counting.

The realized impact that the interim action will have on profitability and continued engagement in fishing is uncertain. Evaluation of prior analysis of Amendment 13 impacts indicated that the impacts tended to be overestimated as realized average fishing revenues during 2004 tended to go up rather than down. Similarly, the economic analysis of Framework 42 predicted an overall decline in gross sales during 2006 relative to 2004, yet gross sales by groundfish vessels was 2% higher in 2006 compared to 2004[1]. In part, these differences between predicted impacts were due to factors that were not included in the analytical models used. The factors include changes in prices, adjustments in non-groundfish activities, and programmatic opportunities such as leasing, SAP's, regular B DAS. Nevertheless, at least part of the difference in predicted and average performance is due to a declining trend in participation in the groundfish fishery.

During 2001 a total of 1,031 limited access permit holders participated in the groundfish fishery. Since 2001 the number of participating vessels has declined at an average annual rate of nearly 9% to 601 participating limited access vessels during 2007. Note that this does not necessarily mean that these vessels ceased operating altogether, just that they did not participate in the groundfish fishery. Even though vessel participation declined by an average of 9% per year during 2001 to 2007, both the dollar value of groundfish landed and the dollar value of all species landed by groundfish vessels declined at a lower rate. That is, groundfish revenue declined by an average annual rate of about 7% while the total value of all species landed declined by an average of 2%. These data suggest that, to date, attrition in the groundfish fishery has tended to be associated with less productive or less profitable vessels than those that remained and that remaining vessels have been able to offset reductions in groundfish revenue with increased revenue from non-groundfish species. The result of these changes is that

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1 See Section 7.2.4.1 of Framework 42 Environmental Assessment and Table 6 of Amendment 16 Interim Action EA.

during 2001 to 2007 groundfish revenue per vessel increased by an average of 2%per year and average total revenue per vessel from all species increased by an average of 7%.

Given the anticipated impacts of the proposed action additional attrition in the number of participating groundfish vessels may be expected. Whether attrition will be similar to what has been experienced since 2001, or may be larger, is not known. The DAS reductions associated with the proposed action will make it more difficult for vessels to cover fixed costs on available groundfish trips and will place greater pressure on vessels to earn additional income from non-groundfish fishing opportunities. Amendment 13 included a default 18% reduction in Category A DAS for FY2009 which would also be implemented under the proposed action. Based on the number of vessels that participated in the groundfish fishery during FY2007 and accounting for full-time/part-time status the number of DAS required to break-even for these vessels was estimated to be approximately 35,000 DAS (for a detailed treatment see Section 17.2.3). Depending on carry-over from FY2008 the number of allocated A DAS during FY2009 may be on the order of 43,000 DAS. Thus, in aggregate, the number of allocated DAS would exceed the number needed to break-even for the FY2007 groundfish fleet. However, individual allocations of DAS are not sufficient for many vessels to break-even. These vessels rely heavily on the DAS leasing program to acquire the additional DAS they need to break-even and/or remain profitable. Based on available fixed cost data, larger vessels tend to have higher break-even DAS requirements yet the DAS leasing program places restrictions on leasing within specified vessel baseline characteristics. This means that larger vessels will be more likely to be susceptible to reductions in allocated DAS and/or reductions in the potential pool of leasable DAS because they have fewer potential trading partners. The 18% reduction in A DAS alone would increase the number of DAS that would need to be leased while simultaneously reducing the supply of leasable DAS to larger vessels. Additionally, the increased size of the SNE 2:1 counting area would have several possible effects. First, among affected vessels that would not be able to fish elsewhere, particularly in Southern New England ports, the number of DAS needed to break-even would effectively be doubled. Second, DAS would be consumed at a faster rate among vessels that did fish in 2:1 areas which would also more rapidly reduce the supply of DAS available to the leasing market. Last, vessels subject to the expanded SNE 2:1 area may find it more profitable to lease DAS to other vessels rather than fish them in the 2:1 area. Rather than a reduced supply of leasable DAS, this eventuality would release DAS to the leasing market.

The realized impact on the leasing market is difficult to assess. Nevertheless, the proposed action will make acquiring the needed DAS to break-even more difficult. This may be expected to lead to some unknown level of increased attrition in the number of participating groundfish vessels. Based on the potential effects noted above, larger vessels, vessels with high fixed costs regardless of size, and vessels from Southern New England home ports are likely to be most susceptible.

Impacts of Non-Quantified Measures on Commercial Fishing Entities

The proposed action would implement several measures the economic impacts of which could not be quantified using available analytical models. In most instances these measures would modify existing programs to improve economic opportunities available to commercial fishing entities while a few would curtail existing programs.

Non-Quantified Measures that Would Reduce Economic Opportunities

Specification of 2009 US/CA TAC - Both the yellowtail flounder TAC and the cod TAC represent reductions to the size of the TACs compared to those specified for FY 2008 (14% and 21% reductions, respectively). However, the proposed cod TAC for 2009 is 67% greater than the amount of catch during the 2007 fishing year, and larger than the cod TACs specified for fishing years 2004 through 2007. The delayed opening of the Eastern U.S./Canada Area for trawl vessels during the 2008 fishing year has resulted in a reduced rate of cod catch compared with previous fishing years. Based on this information, it is not likely that cod will cause a closure of the Eastern U.S./Canada Area in FY 2009. In contrast, the catch rate of GB yellowtail flounder during FY 2008 appears to be on a trajectory to catch the entire TAC. Based on the 2008 fishing year and previous fishing years, the GB yellowtail TAC may trigger a closure of the Eastern U.S./Canada Area in FY 2009.

Based on analysis of the proposed action using the CAM the estimated 2009 fishing mortality rate for GB yellowtail would be consistent with rebuilding objectives. This means that the estimated catch may be expected to be within the available 2009 TAC which would not trigger a closure of the Eastern US/CA area and would not trigger a prohibition on retention in the western area. However, estimated catch in the CAM is based on monthly average CPUE by gear month and area. Realized catch rates may differ if gears used and the distribution of effort in time and space differs markedly from what was predicted. For this reason, realized catches of GB yellowtail during FY2009 are uncertain. If a closure of the Eastern US/CA area is triggered, the economic impacts on small entities would be larger than predicted. The magnitude of this difference would depend entirely on how long the Eastern US/CA area would remain open.

Counting Differential DAS on Entire Trip – The proposed action would count DAS at 2:1 for the entire trip if a vessel fishes inside a differential DAS area for any part of the trip. This measure would not apply to vessels using hook gear since hook gear would be exempt from 2:1 differential DAS counting which may provide some incentive for vessels to convert to hook gear. The economic impact of this measure is indirectly accounted for in the CAM because DAS are assumed to be used in discrete areas that are either wholly inside or outside a 2:1 area. However, the CAM models allocation of DAS by month and area but does not model the manner in which a single trip covering multiple DAS may fish in different areas. The economic impact of this measure is uncertain. Vessels may be expected to weigh the expected profitability of a trip or portion of a trip taken inside a 2:1 differential area against that of fishing entirely outside the area. For a given trip cost, expected daily revenue from inside a 2:1 differential DAS area would have to be twice that of the daily expected revenue from fishing outside the area in order for the trip taken inside the 2:1 area to be a superior choice. These are choices that vessels have been confronting since FY2006 when FW42 was implemented and differential DAS were first implemented. However, the SNE 2:1 differential DAS area would be much larger under the proposed action, would affect more vessels, and would be more difficult, particularly for vessels in Southern New England, to adapt to by fishing elsewhere. These vessels may find it more profitable to lease their DAS to other vessels than it would be to use the DAS themselves.

Elimination of SNE/MA Winter Flounder SAP – Existing regulations allow limited access vessels fishing for summer flounder west of 72° 30' W latitude to retain up to 200 pounds of winter flounder while not on a DAS. The impact of this measure is uncertain since matching DAS records with landings or vessel trip reports cannot be done with certainty. To obtain a rough estimate of affected vessels permit holders with both a limited access permit and a summer flounder permit were matched with VTR records to identify trips taken during FY2007 that met criteria consistent with the SAP requirements. Specifically, all trips occurred West of 42° 30' W, reported keeping both summer flounder and winter flounder but did not report keeping any other groundfish species, and reported winter flounder kept was less than or equal to 200 pounds. A total of 589 vessels possessed both a limit access multispecies and limited access fluke permit. Of these vessels a total of 67 took one or more trips that met all the criteria for a SNE/MA winter flounder SAP trip. Based on the defined criteria a total of 870 potential SAP trips may have been taken during FY2007. Total winter flounder landed on these trips was 82 thousand pounds averaging 94 pounds per trip. The total value of winter flounder was $172 thousand which was approximately 11% of the total value of all species landed on qualifying trips. Note that summer flounder landings on these trips were over 300 thousand pounds valued at over $700 thousand. Based on these data, elimination of the SNE/MA winter flounder SAP would reduce trip revenues by almost $200 and would reduce total sales by affected fishing entities by an average of about $2,500 per year.

Elimination of the State Waters Winter Flounder Exemption – The existing program allows multispecies permit holders to fish in state waters for winter flounder using smaller mesh than would otherwise be required. The economic impact of removing this exemption is not known. At least some of the trips identified above may have taken place under the state waters exemption program rather than the SNE/MA winter flounder SAP. Unfortunately the location information reported in the VTR is not adequate to determine which trips may have taken place strictly in states waters and which trips may have taken place in the EEZ or in both EEZ and state waters. Removal of this program would reduce fishing opportunities to vessels that may be participating in this fishery. The magnitude of impact may be similar to the impact of removing the SNE/MA winter flounder SAP, but in the absence of reliable data this conclusion must be regarded as speculative.

Modifications to the Regular B DAS Program – The proposed action would modify TAC's based on stock status. These changes would remove the TAC for American plaice but would add TAC's for witch flounder and for pollock. Of these change the TAC for pollock may have the largest potential economic impact since pollock was a species that was landed on (62) 29% of regular B DAS trips taken during 2007 and accounted for 50% (900 thousand) of total landed pounds (1.8 million) and 45% ($482 thousand) of total value landed ($1 million) on all regular B DAS trips. On average, revenue received from pollock on a regular B DAS trip was nearly $8,000. The proposed action would set a TAC for the regular B DAS program equal to 5% of the overall pollock target. Once the TAC has been reached, retention of pollock on a regular B DAS would be prohibited. However, since pollock is a unit stock reaching the pollock TAC would not shut down the Regular B DAS program entirely.

In addition to the proposed action change for pollock the use of tie-down gillnets on a regular B DAS would be prohibited. While these two modifications would reduce fishing opportunities outside of limitations imposed by the proposed reduction in category A DAS and differential DAS, the magnitude of impact is uncertain. In general, only a limited number of vessels have actually taken advantage of the regular B DAS program. Although the allowance of rollover of uncaught TAC from one trimester to the next may increase opportunity in the program the TACs have not been the limiting factor in the use of this program. Nevertheless, the proposed action modifications to the regular B DAS program may be expected to further reduce the economic opportunities available to commercial fishing entities to mitigate the economic effects of the reductions in the A DAS fishery.

Non-Quantified Measures that Would Mitigate Economic Impacts

The proposed action would implement several measures that would provide fishing vessels with opportunities to offset the economic impacts of the effort reduction measures. These mitigating measures include changes to the haddock size limit, exemptions for hook gear in the SNE closure area, extension of the Closed Area II haddock SAP, and changes to the DAS leasing and DAS transfer programs. A qualitative discussion of the economic impacts of these measures follows.

Reduction in the Haddock Size Limit – Lowering the haddock size limit would provide commercial fishing entities to increase trip income by enabling vessels to retain haddock that would otherwise have to be discarded. The economic impact of this action is uncertain, but would have broadly distributed positive impacts since any vessel capable of catching haddock on either an A DAS or a B DAS would benefit.

Extension of the Eastern US/Canada Haddock SAP – This action would change the economic opportunities associated with the SAP from existing regulation. However, in the absence of taking action to extend the SAP indefinitely the SAP would lapse. Thus, taking action would preserve the economic opportunity available to vessels that have participated in the SAP in the past and to any vessels that may participate in the future.

Exemption for Hook Gear in the Interim SNE Differential DAS Area – The proposed action would implement a differential DAS area in SNE to protect SNE/MA winter flounder and yellowtail floudner. This resriction would not affect existing exempted fisheries and would also exempt the use of hook gear in the area. The prohibition on possession of winter flounder would still apply to hook gear. The economic impact of this exemption is uncertain. Opportunities to target groundfish using hook gear in much of the western portion of the Interim SNE Differential DAS Area are limited. The Eastern third of the area, however, overlaps with the Southern flank of Georges Bank and the Great South Channel. Hook gear would primarily be used in these areas to target cod.

DAS Leasing Program Modifications – The proposed action would remove two restrictions on the DAS leasing that would provide regulatory relief to commercial fishing entities. These changes include removal of the cap on leasing category A DAS and removing the prohibition on leasing DAS between sector and non-sector vessels. During FY2007 a total of 271 vessels acquired additional A DAS through a leasing arrangement of which 17 were limited by the current cap. An additional 28 vessels leased DAS up to 90% of their 2001 allocation while 12 and 16 vessels leased DAS up to 80% and 70% respectively of their 2001 DAS allocation. Thus, more than one-quarter of limited access DAS vessels that participated in the leasing program leased up to at least 70% of their 2001 allocation. Available data indicate that participation in the leasing program has increased and may be expected to increase under the proposed action as the number of vessels subject to differential DAS counting may be expected to increase under the proposed action. Further, the number of vessels subject to differential DAS counting may be expected to increase. If the cap is not removed a vessel with a 2001 allocation of 88 DAS would be still be able to lease up to 88 days, but effective use of those days would be halved if the vessel is unable to avoid differential DAS counting. Removing the cap would allow vessels to lease as many DAS as needed to meet the economic needs of the fishing business. Neither the number of vessels nor the magnitude of relief that removing the cap on leasing would have is known. The leasing provisions limiting transactions by vessel size would still be in effect which could limit the economic relief to larger vessels in particular since they have fewer potential trading partners. The proposed action DAS reduction would also reduce the number of A DAS available for leasing and the larger differential counting would cause DAS to be used at a faster rate. These effects may reduce the supply of available A DAS and may result in higher leasing prices as available days become scarce.

The leasing program would also be modified to allow sector participants to lease DAS from non-sector vessels. This modification would increase the availability of potential trading partners available to both sector and non-sector vessels. The economic impact on commercial fishing entities is uncertain, but is expected to be positive as it would provide vessels with greater flexibility to meet operational and business needs.

DAS Transfer Program Modifications – The proposed action would remove the conservation tax imposed on DAS transfers. This action represents the third time the transfer program has been modified to promote increased use of the program. When the program was implemented with Amendment 13 a conservation tax of 40% of the transferred A DAS was applied and the transferor was required to surrender all Federal and state permits. These conditions made it very difficult for the seller to receive full value for a vessel since the buyer would only receive 60% of the DAS and none of the permits could be transferred. The conservation tax was lowered to 20% in 2005 but transfer of permits was not permitted. It was not until 2006 when transfer of non-duplicate permits was allowed that interest in participation in the transfer program began to increase. During FY2006 to 2007 a total of 14 transfers were approved; still a relatively low level of participation. The proposed action would remove the conservation tax entirely which would increase the value of a potential transfer to both buyers and sellers. Whether this change will be sufficient to entice greater participation in the program is uncertain. At least part of the benefit of engaging in a transfer was to increase the number of DAS that could be leased resulting from the cap on leased DAS. That is, since the transfer would effectively increase the 2001 DAS allocation the vessels would be able to lease more DAS and still stay under the cap. Removing the cap, as proposed, would eliminate this particular advantage offered by the DAS transfer program. Nevertheless, the proposed action would enhance vessel owners' flexibility in making business decisions.

Closed Area I SAP Modifications - The modifications to the Closed Area I Hook Gear Haddock SAP (CA I SAP) are intended to increase opportunity to access to GB haddock and provide additional flexibility to vessels. The time period for the SAP would be modified from October through December to May through January, and the area within CA I where vessels may fish would be expanded to encompass a substantial portion of CA I. The division of the SAP into two time periods, as well as the allocation of the haddock TAC to the two time periods would also be eliminated. Further, any limited access NE multispecies DAS vessel fishing with hook gear would be able to fish in the SAP, regardless of whether the vessel is enrolled in a sector or not. The preferred alternative would also implement a provision that would eliminate the requirement that vessels intending to participate in the SAP provide a one-time notification to the observer program in advance of the SAP season. However, the requirement to notify the observer program in advance of each trip would be unchanged. Lastly, with the expansion of this SAP will be a new prohibition on the use of squid as bait when fishing in this SAP, in order to decrease the likelihood of catching cod.

Change in Monkfish-Only DAS – The proposed action would provide economic relief to groundfish vessels that also possess either a Category C or D monkfish permit by allowing these vessels to accrue a monkfish only DAS while fishing for groundfish in a 2:1 differential DAS counting area. The number of monkfish only DAS that could be accrued in this manner would be capped by the difference between the monkfish DAS allocation and the sum of used monkfish DAS and allocated monkfish only DAS for vessels that are eligible to receive them. This means that any vessel with 62 groundfish category A DAS or more would not be able to accrue any monkfish only DAS because even if these vessels fished exclusively in a 2:1 differential DAS area the entire monkfish DAS allocation will have been used. However, in the absence of action any vessel whose groundfish allocation was less than 62 DAS may lose a portion of the opportunity to fish under a concurrent monkfish and groundfish DAS For example, given an allocation of 31 monkfish DAS, a vessel with 40 groundfish DAS that fished exclusively in a 2:1 differential DAS counting area would have used a total of 20 of the 31 allocated monkfish DAS since monkfish DAS are counted on a 1:1 real-time basis. Without a regulatory change that would convert the unused monkfish DAS to a monkfish only DAS, the 11 monkfish DAS would have to be forgone.

During FY2008 there were 510 groundfish permit holders with a Category A DAS for groundfish that also held a Category C or D monkfish permit. The proposed action would not change how initial allocations of monkfish only DAS would be allocated in cases where the base A DAS allocation was less than the allocated base monkfish DAS. Accounting for the 18% reduction in Category A DAS, there would be 76 vessels that would receive a total of 1,061 monkfish only DAS during FY2009. To provide an upper bound estimate of the number of monkfish only DAS that may be accrued under the proposed action all category A DAS were assumed to be fished in a 2:1 differential DAS area. Including carryover, final allocations of Category A DAS for the 510 vessels were estimated to be 23,479 DAS meaning that up to 11,740 monkfish only DAS may be accrued. However, after accounting for monkfish DAS used, and initial allocations of monkfish only DAS the upper bound estimate of accrued monkfish only DAS would be 5,113 DAS. This upper bound estimate still assures that if all monkfish DAS and monkfish only DAS including accrued monkfish only DAS were used during FY2009 the total allocated monkfish DAS would not be exceeded.

The realized number of accrued monkfish only DAS is likely to be much lower than the upper bound estimate because the number of affected vessels will likely be concentrated in Southern New England and Mid-Atlantic ports. On average, these vessels tend to have lower DAS allocations and have historically been more likely to lease their DAS to other vessels. Nevertheless, at least some portion of groundfish vessels will accrue some monkfish only DAS. Whether any given vessel is able to take advantage of this opportunity depends on several factors. First, any vessel using a monkfish only DAS must fish under the same rules as that of a Category A or B vessel. Among other things, these vessels must use large mesh and must fish only in exempted gear areas. Vessels which do not normally receive monkfish only DAS, may not have the necessary gear to fish under these rules. Further, in the Northern Fishery Management Area there is an exempted fishery for large mesh gillnets but there is no exempted fishery for large mesh trawls. This means that trawl vessels that fish predominantly in the NFMA would have to fish in the SFMA. Last, the number of monkfish DAS that may be fished in the SFMA is limited to 24 DAS which may limit the number of monkfish only DAS that some vessels may find themselves able to use.

For vessels that may be able to take advantage of the restored monkfish fishing opportunity the average revenue per day on trips using large mesh was approximately $3,000 in the NFMA and almost $4,000 in the SFMA during calendar year 2007. These estimates of average revenue were based on trips using 10" mesh gillnet gear or greater where monkfish accounted for at least 75% of total trip revenue. The realized economic impact on individual vessels is uncertain. The relatively small number of vessels that currently receive an allocation of monkfish only DAS may be expected to benefit most since these vessels may already possess the appropriate gear and necessary experience to use their accrued monkfish only DAS. The potential economic benefit to vessels that will only accrue monkfish only DAS is uncertain although vessels that now fish with gillnet gear may be better positioned to take advantage than trawl vessels.

Economic Impacts of Non-Selected Alternatives

Several alternatives to the proposed action were considered but rejected. These alternatives included taking no action, implementing an interim action recommended by the Council, implementation of the preferred alternative identified in the Proposed Rule, and several potential modifications to the latter. The discussion below provides a qualitative assessment of how the economic impacts on small entities may differ from that of the selected alternative.

No Action – Taking no action would implement the Amendment 13 default DAS reduction but would leave all other regulations implemented under FW42 in place. For about 75% of groundfish vessels, taking no action would result in less adverse impacts than the proposed action (see prior discussion of small entity impacts). For the remaining vessels the proposed action would result in lower adverse impact than the no action alternative.

Council Interim Action – The interim action recommended by the Council would be similar, and indeed was found to be biologically equivalent, to the no action alternative. Even though the Council recommended action would change trip limits for witch flounder and SNE/MA winter flounder these limits were found to have little impact on catches of either one of these stocks. Thus the economic impacts of the Council proposed action would not substantially differ from that of the no action. However, the Council alternative would have lower impacts on small entities particularly since the SNE 2:1 area would be smaller than the proposed action area. The difference between the Council alternative and the proposed action would be particularly notable for vessels from home port states of Rhode Island, Connecticut, and New York. The Council alternative would also have lower small entity impacts on vessels that fish for groundfish using gear other than hooks in the Great South Channel.

Proposed Rule Interim Action – The proposed rule for interim action was estimated to result in a 21% reduction in groundfish trip revenue across all affected participating groundfish vessels. Among these vessels, the average adverse impact on gross sales by groundfish vessels was estimated to range from an average of 2% up to the 20th percentile to 43% above the 80th percentile. Modifications to the proposed rule were also considered that would provide some economic relief. One such alternative would have retained all of the proposed action measures but would have converted the SNE closure as it was proposed to a 2:1 differential counting area. The estimated impacts of this modification suggest that aggregate losses in total sales would be 17% and impacts on small groundfish fishing entities would range from an average of 2% to 38%. Another alternative modification would also have converted the proposed rule SNE closure to 2:1 differential DAS and would convert the entire US/CA area to a 1:1 DAS counting area. This alternative was estimated to result in a 14% reduction in total sales among all participating groundfish vessels and would result in vessel-level impacts ranging from 2% to 32%.

26.9 Executive Order 12866

Determination of Economic Significance for E.O. 12866

E.O. 12866 requires a review of proposed regulations to determine whether or not the expected effects would be significant, where a significant action is any regulatory action that may

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

- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

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

The economic impacts of the Preferred Alternative were discussed in detail in Section 17.2. The following summarizes those findings. The proposed action was estimated to result in a 9% reduction in total revenues from all species for limited access permit holders. This loss was based on 509 vessels included in the models used to estimate economic impacts. However, some vessels were not included in these models because of missing information. During fishing year 2007 just over 600 vessels reported groundfish revenues. The total value of all species reported by these 600 vessels was $193.3 million in constant 1999 dollars. Applying the 9% reduction in revenue to FY2007 totals landed by the 600 groundfish vessels, results in an estimated reduction of $17.4 million measured in constant 1999 dollars. Thus the added impact of taking interim action would not exceed $100 million. However, the proposed action represents one of a series of actions taken over time that have resulted in a continued decline in total revenues from all species when measured in constant dollars.

During 2001, revenues to groundfish vessels from all species were valued at $252.7 million in 1999 constant dollars. Compared to 2001 revenues, during 2007 revenues were nearly $60 million lower and if the predicted revenue change in revenue associated with the proposed action is accurate then the cumulative impact of groundfish regulatory action taken since 2001 would be $77.4 million. Note, however, that several caveats need to be taken into consideration.

First, FY2001 revenues were produced by 1,031 vessels whereas FY2007 revenues were produced by 601 vessels. On the one hand this means that the number of participating groundfish vessels have fallen by 42%, while on the other, total revenues declined by only 23%. This means that overall efficiency of the remaining vessels was likely higher than the vessels that have left. Note that revenue per operating unit has increased from an average of $261 thousand during 2001 to 2004, to $323 thousand during 2005 to 2007.

Second, revenues produced by groundfish vessels during 2001may not have been sustainable as overfishing was occurring on many groundfish stocks. Thus using 2001 as a benchmark to estimate cumulative regulatory impacts may not be appropriate.

Last, the cumulative adverse economic impacts of regulatory action in the groundfish fishery are not now, nor were they in the past, expected to be perpetuated into the future. Amendment 13 established waypoints (during 2005 and most recently in 2008) to assess progress toward meeting conservation objectives and to make adjustments to planned default measures if necessary. In 2005 fishing mortality for several stocks were found to be above their target levels which meant that the planned default measures would not be sufficient to rebuild within the timeframe established under Amendment 13. Similarly, the 2008 assessments found fishing mortality rates were still too high on some stocks and that several stocks were now overfished. Thus, the management process has been on a cyclical pattern where regulatory actions have been unable to control effort to achieve planned objectives resulting in increasingly restrictive measures and a persistent downward trend in adverse economic impacts.

In relative terms, the proposed action would have the largest adverse impact on Massachusetts with an estimated reduction of 12.5% in total revenue received by groundfish vessels with a Massachusetts home port. Note that this is not necessarily equivalent to a reduction in revenue entering Massachusetts ports since vessels from outside the state also land in Massachusetts, or for that matter, not all trips taken by Massachusetts home port vessels are landed in Massachusetts. Adverse revenue impacts on Maine home port vessels was estimated to be 12.2% while impacts on New Hampshire and Connecticut home port vessels was estimated to be 9.5% and 9.0% respectively. Among these home port vessels and others throughout the Northeast region the estimated impacts were largely dependent on where the vessel fished and the level of dependence on revenue from taking groundfish trips for total fishing revenue. Impacts among the most affected vessels averaged a 17% reduction in total fishing revenue. In general, the distribution of impacts did not depend very much on vessel size, gear, or level of gross sales.

In addition to commercial fishing vessel impacts the proposed action would also make changes to recreational fishing regulations for cod, winter flounder, and haddock. Potential economic impacts of these measured are discussed in detail in Section 22.2.1. The economic impact on recreation anglers is uncertain. The proposed action would reduce fishing opportunities in the Southern New England Mid-Atlantic winter flounder stock area as well as for cod stocks on Georges Bank cod and in the Gulf of Maine, but would increase fishing opportunities for haddock. The impact on recreational anglers may not be expected to be large since overwhelming majority of winter flounder are caught in state waters which would be unaffected by Federal action. Further, only about 11% of anglers would be affected by the bag limit for cod caught by party/charter anglers on Georges Bank and the closed season for Gulf of Maine would be extended by only two weeks. Reductions in the value of these trips may be offset by the expanded opportunities to harvest haddock due to the reduced size limit.

Changes in fishing regulations may affect passenger demand for trips taken on party/charter vessels which would affect gross receipts to operators of party/charter businesses. About two-thirds of party/charter operators that reported landing cod, haddock, or winter flounder may not be affected by the proposed action recreational measures since they did not report taking trips where paying customers would have been limited by any of the proposed measures. Receipts by the remaining operators were estimated to decline by a total of $4.9 million or almost $10,000 per vessel.

Summary

Including declines in sales by party/charter and commercial fishing vessels the economic impact of the interim action was estimated to be $21.4 million during FY2009. The cumulative impact of groundfish regulations including the interim action was estimated to be $77.4 million. However, the primary objective of the proposed action and others that have preceded it is to end overfishing and rebuild fishery resources to higher levels. Achieving these objectives should result in increased landings; hence higher economic yields in the near term and in the future. Thus the adverse economic impacts would not be expected to persist and would not be expected to have a $100 million annual impact on the economy. Based on the four criteria, the interim action is economically significant under E.O. 12866.

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Agencies Consulted

The following agencies were consulted in the preparation of this document:

National Marine Fisheries Service, NOAA, Department of Commerce

Opportunity for Public Comment

The New England Fishery Management Council discussed and made recommendations for this Interim Action at its September, 2008 meeting. A proposed rule was published in the Federal Register on January 16, 2009, soliciting public comment on the proposed management measures through February 17, 2009. 88 comments on the proposed rule were received.

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APPENDIX

<u>Hard TAC Alternative Information</u> (Considered but Rejected)

Stock	Preliminary Landings Jan - Jun 2004	2005	2006	2007	2008	Discards as Percent of Landings	Jan-Jun Prelim Percent of Total Estimated Catch Jan-Jun CY 2007
GB Cod	2,458	1,892	1,311	1,829	1,878	0.282	0.48
GB Haddock	4,274	4,423	1,753	1,373	2,986	0.660	0.46
GB Yellowtail(1)	3,106	1,417	882	804	483	0.474	0.70
SNE/MA Yellowtail	78	75	72	61	122	0.895	0.44
CC/GOM Yellowtail	491	369	273	215	300	0.298	0.48
GOM Cod	1,360	1,474	1,137	1,468	2,356	0.129	0.38
Witch Flounder	1,388	1,443	1,197	599	581	0.090	0.56
Plaice	705	654	545	419	426	0.241	0.42
GOM Winter Flounder	266	176	91	109	132	0.119	0.46
SNE/MA Winter Flounder	631	334	475	546	312	0.070	0.36
GB Winter Flounder	1,261	1,028	441	384	261	0.245	0.45
White Hake	1,760	1,397	879	673	469	0.371	0.44
Pollock	2,348	2,835	2,562	3,539	3,765		0.42
Redfish	177	304	295	438	617	0.474	0.56
GOM Haddock					217	0.06585014	0.74

Stock	Jan-Jun Prelim Percent of Total Average 2005-2007	Estimated Commercial Catch Catch, Based on 2007	 2005-2007	Maximum Comm catch 2008 Estimate	Rec Harvest Based on 2007
GB Cod	0.55	5,016	4,378	5,016	8
GB Haddock	0.59	10,776	8,401	10,776	
GB Yellowtail(1)	0.60	1,017	1,187	1,187	
SNE/MA Yellowtail	0.49	525	472	525	
CC/GOM Yellowtail	0.52	811	749	811	
GOM Cod	0.39	7,002	6,822	7,002	1,026
Witch Flounder	0.58	1,131	1,092	1,131	
Plaice	0.47	1,258	1,124	1,258	
GOM Winter Flounder	0.48	321	308	321	28
SNE/MA Winter Flounder	0.32	928	1,044	1,044	121
GB Winter Flounder	0.46	722	707	722	
White Hake	0.50	1,461	1,286	1,461	
Pollock	0.42	8,964	8,964	8,964	383
Redfish	0.56	1,624	1,624	1,624	
GOM Haddock	0.70	313	330	330	504

Stock	Canadian Based on quota except for pollock	Total Estimated 2008 Catch	GARM Assumed
GB Cod	1,633	**6,657**	5,957
GB Haddock	14,950	**25,726**	21,929
GB Yellowtail(1)	550	1,737	2,500
SNE/MA Yellowtail		**525**	396
CC/GOM Yellowtail		**811**	627
GOM Cod		**8,028**	5,628
Witch Flounder		1,131	1,172
Plaice		**1,258**	1,126
GOM Winter Flounder		**349**	305
SNE/MA Winter Flounder		1,165	1,857
GB Winter Flounder		722	980
White Hake		1,461	2,200
Pollock	650	**9,997**	7,756
Redfish		**1,624**	1,160
GOM Haddock		834	1,368

Stock	Year	Rec Catch	Landings	Discards	Total Catch (with comm)	Landings percent
GB cod	1997	1378.9	832		8388	0.10
	1998	1633.1	761.5		7609	0.10
	1999	793.4	429.2		8839	0.05
	2000	1409.3	699.2		8125	0.09
	2001	376.5	221.7		11325	0.02
	2002	442.4	281.1		10018	0.03
	2003	711.6	412.9		7394	0.06
	2004	470.2	249.5		4029	0.06
	2005	1237.5	343.3		3538	0.10
	2006	316.9	158.2		3159	0.05
	2007	83.1	13		4725	0.00
	Average	804.809	400.15		7013.5	**0.06**

Stock	Year	Rec Catch	Rec Landings	Comm catch	landings Percent
GOM	1997	192	32	660	0.05
Winter	1998	109	27	689	0.04
	1999	109	34	399	0.09
	2000	146	31	587	0.05
	2001	173	37	756	0.05
	2002	101	35	740	0.05
	2003	86	29	801	0.04
	2004	61	29	687	0.04
	2005	79	24	387	0.06
	2006	94	35	247	0.14
	2007	74	26	303	0.09
	Average	111.3	30.8	568.7	**0.05**

Stock	Year	Rec Landings	Total Catch (with comm)	Landings Percent
GOM cod	1997	336.7	5731.3	0.06
	1998	533.5	4514.7	0.12
	1999	803.2	4769.2	0.17
	2000	1559.5	5939	0.26
	2001	2656.5	8400.2	0.32
	2002	1697.6	7285.6	0.23
	2003	2527.1	7537.3	0.34
	2004	1824.5	5817	0.31
	2005	1960.3	5635.9	0.35

2006	953.6	4536.1	0.21
2007	1026.5	5627.8	0.18
average	1443.5	5981.28182	**0.23**

Stock	Year	Rec Landings	Comm Landings	Catch Percent
Pollock	1997	196.3	4252	0.05
	1998	128.4	5583	0.02
	1999	89.1	4595	0.02
	2000	396.4	4043	0.10
	2001	645.8	4111	0.16
	2002	381.7	2580	0.15
	2003	93.5	4794	0.02
	2004	257.6	5070	0.05
	2005	329.2	6510	0.05
	2006	347.1	6067	0.06
	2007	383.2	8370	0.05
	average	295.3	5088.6	**0.07**

Stock	Year	Rec Landings	Total Landings	Catch Percent	
GOM	1997	31.6	588.6	0.05	
Hadd	1998	44.5	885.2	0.05	
	1999	19.2	542.5	0.04	
	2000	127.6	737.9	0.17	
	2001	190.3	929.2	0.20	
	2002	165.9	976.7	0.17	
	2003	191.8	1023	0.19	
	2004	429.6	946	0.45	
	2005	717.1	961.5	0.75	
	2006	503.9	618.2	0.82	
	2007	627.9	696.4	0.90	
	average		277.2182	809.564	**0.34**

Cumulative Impacts Information

The actions summarized in the table below are presented in chronological order, and codes indicate whether an action relates to the past (P), present (Pr), or reasonably foreseeable future (RFF). When any of these abbreviations occur together, it indicates that some past actions are still relevant to the present and/or future. A brief explanation of the rationale for concluding what effect each action has (or will have) had on each of the VECs is provided in the table and is not repeated here.

Impacts of Past, Present and Reasonably Foreseeable Future Actions on the five VECs. These actions do not include those which were considered to have little impact on the fishery or actions under consideration in this action.

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS						
P Prosecution of the groundfish fisheries by foreign fleets in the area that would become the U.S. EEZ (prior to implementation of the MSA)	Foreign fishing pressure peaked in the 1960s and slowly declined until passage of the MSA in 1974 and implementation of the Multispecies FMP	**Direct High Negative** Foreign fishing depleted many groundfish stocks	**Potentially Direct High Negative** Limited information on discarding, but fishing effort was very high and there were no gear requirements to reduce bycatch	**Potentially Direct High Negative** Limited information on protected resources encounters, but fishing effort was very high	**Potentially Direct High Negative** Limited information on habitat, but fishing effort was very high	**Potentially Indirect Negative** Revenue from fishing was split between foreign and domestic communities, rather than just domestic communities
P Original FMP implemented in 1977	Established management of cod, haddock and yellowtail via catch quotas, quota allocations by vessel class and catch limits	**Direct Positive** Provided slight effort reductions and regulatory tools available to rebuild and manage stocks	**Indirect Positive** Reduced directed fishing effort on cod, haddock and yellowtail which resulted in discard/bycatch reductions	**Indirect Positive** Reduced fishing effort, thus reduced interactions with protected species	**Indirect Positive** Reduced fishing effort, thus reduced gear interactions with habitat	**Indirect Positive** Increased probability of long term sustainability

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
[P] Interim Plan (1982)	Implemented GB seasonal closed areas, minimum fish size requirements in GB and GOM and permit requirements	**Direct Positive** Reduced directed fishing effort	**Indirect Positive** Reduced directed fishing effort which resulted in discard/bycatch reductions	**Indirect Positive** Reduced fishing effort, thus reduced interactions with protected species	**Indirect Positive** Reduced fishing effort, thus reduced gear interactions with habitat	**Indirect Positive** Increased probability of long term sustainability
[P] Multispecies Plan (1986)	Revised FMP to include pollock, redfish, winter flounder, American plaice, witch flounder, windowpaine flounder and white hake. Allowed additional minimum fish size restrictions, extended GB spawning area closures and a SNE closure to protect yellowtail flounder	**Direct Positive** Reduced directed fishing effort and provided the opportunity to manage additional groundfish species	**Indirect Positive** Reduced directed fishing effort which resulted in discard/bycatch reductions	**Indirect Positive** Reduced fishing effort, thus reduced interactions with protected species	**Indirect Positive** Reduced fishing effort, thus reduced gear interactions with habitat	**Indirect Positive** Increased probability of long term sustainability

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
P Amendments 1-4 to the Multispecies FMP (1987-1991)	Implemented closure in SNE/MA to protect yellowtail, extended GB RMA, added minimum mesh size requirements to SNE, excluded scallop dredge vessels from SNE closure, incorporated silver hake, red hake and ocean pout into the FMP	**Direct Positive** Reduced directed fishing effort and provided the opportunity to manage additional groundfish species	**Indirect Positive** Reduced directed fishing effort which resulted in discard/bycatch reductions	**Indirect Positive** Reduced fishing effort, thus reduced interactions with protected species	**Indirect Positive** Reduced fishing effort, thus reduced gear interactions with habitat	**Indirect Positive** Increased probability of long term sustainability
P Multispecies Emergency Action (1994)	Implemented 500-lb haddock trip limit, expanded CA II closure time and area, prohibited scallop dredge vessels from possessing haddock from Jan-Jun and prohibited pair-trawling for multispecies	**Direct Positive** Reduced directed fishing effort	**Indirect Positive** Reduced directed fishing effort which resulted in discard/bycatch reductions	**Indirect Positive** Reduced fishing effort, thus reduced interactions with protected species	**Indirect Positive** Reduced fishing effort, thus reduced gear interactions with habitat	**Indirect Positive** Increased probability of long term sustainability

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
[P, Pr] Amendment 5 to the FMP (1994)	Made the above Emergency Action measures permanent, enacted a moratorium on new participants in the fishery, reduced DAS for most vessels by 50% over a 5-7 year period, implemented mandatory reporting and observer requirements, etc.	**Direct High Positive** Reduced directed fishing effort and capped the number of participants allowed to direct on the fishery	**Indirect Positive** Reduced directed fishing effort which resulted in discard/bycatch reductions	**Indirect Positive** Reduced fishing effort, thus reduced interactions with protected species	**Indirect Positive** Reduced fishing effort, thus reduced gear interactions with habitat	**Mixed** Increased probability of long term sustainability by limiting the number of participants in the directed fishery. However, there was a negative impact for fishermen and communities where participation was reduced
[P, Pr] Emergency Action (1994)	Implemented additional closed areas, prohibited scallop vessels from fishing in the closed areas, disallowed any fishery using mesh smaller than minimum mesh requirements, prohibited retaining regulated species with small mesh, etc.	**Direct High Positive** Reduced directed fishing effort	**Indirect Positive** Reduced directed fishing effort which resulted in discard/bycatch reductions	**Indirect Positive** Reduced fishing effort, thus reduced interactions with protected species	**Indirect Positive** Reduced fishing effort, thus reduced gear interactions with habitat	**Mixed** Increased probability of long term sustainability but effort reductions result in short term lost revenues for fishermen and communities

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
P, Pr Framework 9 (1985)	Made the above Emergency Action measures permanent	**Direct High Positive** Reduced directed fishing effort	**Indirect Positive** Reduced directed fishing effort which resulted in discard/bycatch reductions	**Indirect Positive** Reduced fishing effort, thus reduced interactions with protected species	**Indirect Positive** Reduced fishing effort, thus reduced gear interactions with habitat	**Mixed** Increased probability of long term sustainability but effort reductions result in short term lost revenues for fishermen and communities
P, Pr Amendment 7 to the Multispecies FMP (1996)	Accelerated Amendment 5 DAS reduction schedule, implemented seasonal GOM closures, implemented 1,000 lb haddock trip limit, expanded the 5% bycatch rule, etc.	**Direct High Positive** Reduced directed fishing effort	**Indirect Positive** Reduced directed fishing effort which resulted in discard/bycatch reductions	**Indirect Positive** Reduced fishing effort, thus reduced interactions with protected species	**Indirect Positive** Reduced fishing effort, thus reduced gear interactions with habitat	**Mixed** Increased probability of long term sustainability but effort reductions result in short term lost revenues for fishermen and communities

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
P, Pr Framework 20 (1997)	Implemented GOM cod daily trip limit of 1,000 lb, increased the haddock daily trip limit to 1,000 lb and added gillnet effort-reduction measures such as net limits	**Mixed** Reduced directed fishing effort but allowed for an increase in haddock landings	**Mixed** Gillnet restrictions and reduced effort on cod helped reduce discards/bycatch but this may have been offset by increased effort on haddock	**Indirect Positive** Although the haddock daily trip limit increased, gillnet restrictions provide an overall positive impact	**Mixed** Reduced cod daily trip limit would be offset by increase haddock daily landing limit	**Mixed** Reduced revenues from a smaller cod daily trip limit could be offset by the increased haddock daily landing limit but gillnet effort reductions also have negative eco/soc impacts
P, Pr Framework 24 (1998)	Implemented an adjustment to GOM cod daily trip limit by requiring vessels to remain in port and run their DAS clock for a cod overage and implemented the DAS carryover provisions	**Direct Low Positive** Implemented minor effort reductions	**Indirect Low Positive** Implemented minor effort reductions which resulted in minor discard/bycatch reductions	**Indirect Low Positive** Slightly reduced fishing effort, thus reduced interactions with protected species	**Indirect Low Positive** Reduced fishing effort, thus reduced gear interactions with habitat	**Mixed** Vessels must remain in port with their clock running for a cod overage which has a negative impact but vessels may carryover DAS from one fishing year into the next.
P, Pr Framework 25 (1998)	Implemented GOM inshore closure areas, the year-round WGOM closure, the CLCA and reduced the GOM cod daily trip limit to 700 lb	**Direct Low Positive** Implemented effort reductions via reduced cod trip limit and closure areas	**Indirect Low Positive** Reduced directed fishing effort which resulted in discard/bycatch reductions	**Indirect Positive** Effort controls result in reduced interactions with protected species	**Indirect High Positive** Closure areas and effort controls reduce gear interactions with habitat	**Mixed** Increased probability of long term sustainability but short term negative eco/soc impacts

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
P, Pr Framework 26 (1999)	Expansion of April GOM inshore closure area and, additional seasonal inshore GOM and GB area closures	**Direct Low Positive** Implemented effort reductions via closure areas	**Indirect Low Positive** Reduced directed fishing effort which resulted in discard bycatch reductions	**Indirect Positive** Effort controls result in reduced interactions with protected species	**Indirect High Positive** Closure areas and effort controls reduce gear interactions with habitat	**Mixed** Increased probability of long term sustainability but short term negative eco/soc impacts
P, Pr, RFF Amendment 11 (1998)	Designated EFH for all species in the multispecies FMP and required Federal agencies to consult with NMFS on actions that may adversely effect EFH	**Indirect Low Positive** A consultation with NFMS that leads to the protection of multispecies EFH is beneficial to multispecies stocks	**Indirect Low Positive** A consultation with NFMS that leads to the protection of multispecies EFH is beneficial to other stocks that share the same EFH as multispecies stocks	**Indirect Low Positive** Consultation with NFMS that leads to the protection of multispecies EFH is beneficial to protected resources that share a need for the same habitat that multispecies stocks require	**Direct High Positive** Consultation with NMFS on activities that may adversely effect habitat provides NMFS the opportunity to mitigate or even prevent EFH impacts	**Indirect Low Positive** For instances where NMFS consults on projects impacting multispecies EFH, the overall health of the stocks should improve which would lead to long term sustainability

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
P, Pr Framework 27 (1999)	Established large GOM rolling closures, modified CLCA, decreased GOM daily trip limit to 200 lb with subsequent reduction to 30 lb, increased haddock trip limit to 2,000 lb and increased minimum mesh size	**Mixed** Reduced directed fishing effort while also allowing the haddock trip limit to increase	**Mixed** A reduction in directed effort helped minimize bycatch and discards but increased haddock trip limit was somewhat offsetting	**Mixed** Reduced directed effort helps minimize protected species encounters but this was somewhat offset by the increased haddock trip limit	**Indirect Positive** Reduced directed effort and closed areas help improve habitat, this may be slightly offset by the increased haddock trip limit	**Mixed** Short term negative from closed areas and the reduced cod trip limit which were not offset by the increased haddock trip limit. Long term positive because of increased probability of sustainable stocks
P Interim Rule (1999)	Revised GOM cod trip limit to 100 lb/day up to 500 lb max and revised the DAS running clock to allow a 1-day overage only	**Direct Positive** Reduced directed fishing effort	**Indirect Positive** Reduced directed fishing effort which resulted in discard/bycatch reductions	**Indirect Low Positive** Effort controls result in reduced interactions with protected species	**Indirect Low Positive** Effort controls result in reduced habitat interactions	**Mixed** Increased probability of long term sustainability but short term negative eco/soc impacts
P, Pr, RFF Amendment 9 (1999)	Prohibited used of brush sweep trawl gear, added halibut to the FMP with a 1-fish per trip possession limit	**Direct Positive** Reduced directed fishing effort	**Indirect Positive** Reduced directed fishing effort which resulted in discard/bycatch reductions	**Indirect Low Positive** Effort controls result in reduced interactions with protected species	**Indirect High Positive** Effort controls result in reduced habitat interactions	**Mixed** Increased probability of long term sustainability but short term negative eco/soc impacts

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
[P, Pr] Framework 31 (2000)	Increased GOM Daily limit to 400 lb/day up to 4,000/lb per trip, added Feb GOM inshore closure and extended 1999 Interim Rule running clock measure	**Mixed** Increased cod directed fishing effort while also reducing effort via closure area and cod running clock measure	**Mixed** Increased effort on cod could lead to greater discards/bycatch which would be somewhat offset by effort reductions via closure area and cod running clock measure	**Mixed** Increased cod effort could increase interactions but somewhat offset by effort reductions via closure area and cod running clock measure	**Indirect Low Positive** Minor positive impacts from inshore closure area	**Mixed** Short term positive from increased cod trip limit but long-term sustainability of the cod resource was effected
[P, Pr] Framework 33 (2000)	Added GB seasonal closure area, added conditional GOM closure areas and increase haddock trip limit to 3,000 lb	**Mixed** Increased haddock directed fishing effort while also reducing effort via closure areas	**Mixed** Increased effort on haddock could lead to greater discards/bycatch which would be somewhat offset by effort reductions via closure areas	**Mixed** Increased haddock effort could increase interactions but somewhat offset by effort reductions via closure areas	**Indirect Low Positive** Minor positive impacts from closure areas	**Mixed** Short term positive from increased haddock trip limit but negative impacts resulting from closure areas

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
P, Pr, RFF Interim Action (Settlement Agreement; 2002)	Restricted DAS use, modified DAS clock for trip vessels, added year-round closure of CLCA, expanded rolling closures, prohibited front-loading DAS clock, increased GOM trawl and gillnet mesh size, added new limitations on Day gillnets and further restricted charter/party vessels	**Direct High Positive** Implemented substantial directed fishing reductions	**Indirect High Positive** Implemented substantial directed fishing reductions which also reduced discards/bycatch	**Indirect Positive** Fishing reductions and expanded closure areas reduce protected species interactions	**Indirect High Positive** Fishing reductions and expanded closure areas reduce negative impacts to habitat	**Mixed** Short term impacts due to restrictions were highly negative but positive regarding the long term sustainability of the fishery

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
P, Pr, RFF Interim Action (Settlement Agreement Continued; 2002)	Continued above interim measures, further reduced DAS allocations, prohibited issuance of additional handgear permits, eliminated GOM Jan and Feb closures, increased SNE trawl and GB/SNE gillnet mesh sizes, further limited day and trip gillnets, added longline gear restrictions, added possession limit and restrictions on yellowtail catch and increased GOM cod daily trip limit to 500/4,000 lb max	**Direct High Positive** Implemented substantial directed fishing reductions	**Indirect High Positive** Implemented substantial directed fishing reductions which also reduced discards/bycatch	**Indirect Positive** Fishing reductions reduce protected species interactions	**Indirect Positive** Fishing reductions reduce negative impacts to habitat	**Mixed** Short term impacts due to restrictions were highly negative but improving the long term sustainability of the fishery was positive

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
P, Pr, RFF Amendment 13 (2004)	Adopted new rebuilding periods and a new rebuilding program that included periodic adjustments and default DAS reductions to reduce effort over time, allowed DAS to be leased or transferred, created sector allocation and special access programs to allow access to stocks that can support an increase in catch	**Direct High Positive** Implemented substantial directed fishing reductions	**Mixed** Implemented substantial directed fishing reductions which also reduced discards/bycatch. However, the mores stringent restrictions created pressure to direct on other stocks (e.g., monkfish)	**Indirect Positive** Fishing reductions reduce protected species interactions	**Indirect Positive** Fishing reductions reduce negative impacts to habitat	**Mixed** Short term impacts due to restrictions were highly negative but improving the long term sustainability of the fishery was positive
P, Pr, RFF Framework 40A (2004)	Created additional SAPs to target healthy stocks	**Direct Positive** Directing effort toward healthy stocks relieved pressure on stocks of concern	**Indirect Negative** Increased bycatch of monkfish and skates	**Negligible** Although effort increased slightly, no effort shifts impacting protected species are known to have occurred	**Negligible** Although effort increased slightly, no effort shifts impacting habitat are known to have occurred	**Indirect Positive** Provided vessels the opportunity for greater revenue while relieving pressure on stocks of concern

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
P, Pr, RFF Framework 40B (2005)	Relaxed DAS leasing and transfer requirements, created new yellowtail flounder SAP, provided greater opportunity for vessels to participate in the GB Cod Hook Sector, removed the net trip limit for gillnets, etc.	**Negligible** Mix of alternatives, some of which slightly increased effort and others that slightly decreased effort. Overall, changes did not threaten rebuilding targets established by Amendment 13	**Indirect Low Negative** Mix of alternatives that primarily had little impact on discards/bycatch with the exception of removing the net trip limit for gillnets which increased monkfish effort	**Negligible** Slight effort changes did not have measurable impacts to protected species	**Negligible** Slight effort changes did not have measurable impacts to habitat	**Indirect Low Positive** Slight changes to the leasing and transfer programs along with greater opportunities to participate in SAPs provides an opportunity for greater revenue
P, Pr, RFF Framework 41 (2005)	Allowed for participation in the Hook Gear Haddock SAP by non-Sector vessels	**Direct Low Positive** Encouraged effort on haddock, a healthy stock, and thus away from other stocks of concern	**Indirect Low Negative** Although directed effort shifted to a healthier stock, there was an overall effort increase resulting in a greater opportunity for bycatch/discards	**Negligible** Slight effort changes did not have measurable impacts to protected species	**Negligible** Slight effort changes did not have measurable impacts to habitat	**Indirect Low Positive** Greater opportunity to fish for a healthy stock provides increased revenue
P Emergency Action (2006)	Implemented differential A DAS of 1.4:1, restricted the B Regular DAS program and US/CA Haddock SAP and reduced trip limits on cod, yellowtail, etc.	**Direct High Positive** Implemented effort reductions that anticipated achieving mortality reductions needed to keep stocks on track to rebuild	**Mixed** Effort reductions lead to reduced discards/bycatch but the B Regular DAS program increased monkfish and skate bycatch	**Negligible** Effort changes did not have measurable impacts to protected species	**Negligible** Effort changes did not have more than minimal impacts to habitat	**Mix** Short term effort reductions have a negative impact on revenues but increase long term sustainability of stocks

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
P, Pr, RFF Framework 42 (2006)	Reduced the number of A DAS available, modified differential DAS counting to 2:1 in the GOM and SNE, reduced trip limits for several stocks, increased recreations minimum fish sizes, required use of VMS by all vessels, modified the SAPs, limited the bycatch of monkfish and skates for vessels using a haddock separator trawl, etc.	**Direct High Positive** Implemented effort reductions that anticipated achieving mortality reductions needed to keep stocks on track to rebuild	**Indirect Positive** Effort reductions lead to reduced discards/bycatch and measures were implemented to control monkfish and skate bycatch	**Indirect Low Positive** Overall effort reductions have a positive impact, particularly to protected species in high use areas such as the GOM and SNE where strict differential counting rules are in effect	**Indirect Low Positive** Overall effort reductions have a positive impact	**Mixed** Effort reductions have a significant negative impact to vessel owners and communities, primarily due to loss of revenues. Over the long term however, stocks should remain sustainable

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
MULTISPECIES FISHERY-RELATED ACTIONS CONTINUED						
P, Pr, RFF Framework 43 (2006)	Established a haddock incidental bycatch limit in the herring fishery on GB	**Mixed** While the incidental haddock allowance allows some legal catch of haddock which has a negative impact, the area is closed after the bycatch cap is reached which prohibits further harvest (positive impact)	**Negligible** The herring fishery is fairly clean and the increased haddock bycatch problem arose from strong 2003 and 2004 year classes. Allowing legal retention of haddock bycatch should not alter fishing practices in a manner that would impact species taken as bycatch	**Negligible** Although attaining the bycatch cap could reduce effort on GB, the extent of this reduction was not expected to have an overall impact on protected species	**Negligible** Gear used to target herring have been found not to have an impact on habitat	**Mixed** Allowing herring vessels to continue fishing practices on GB has a positive impact on those vessels and communities. However, the loss of the potential haddock catch has a negative impact on fishermen targeting groundfish
OTHER FISHERY-RELATED ACTIONS						
P, Pr, RFF Atlantic Sea Scallop FMP – a series of amendment and framework actions from the mid-1990s through the present	Implementation of the Atlantic Sea Scallop FMP and continued management of the fishery, primarily through effort controls	**Direct Positive** Effort reductions taken over time have resulted in a sustainable scallop fishery	**Indirect Positive** Effort reductions taken over time also reduced bycatch, including gear modifications that improved bycatch escapement	**Mixed** Effort reductions taken over time reduced interactions with protected species however, turtle interactions remain problematic	**Indirect Positive** Effort reductions reduced gear contact with habitat and the current rotational access program focuses fishing effort on sandy substrates which are less susceptible to habitat impacts	**Indirect Positive** Initial negative impacts due to effort reductions have been supplanted by a sustainable, profitable fishery

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
OTHER FISHERY-RELATED ACTIONS CONTINUED						
[P, Pr, RFF] Monkfish FMP – a series of amendment and framework actions from implementation of the FMP in 1999 through the present	Implementation of the monkfish FMP and continued management of the fishery, primarily through effort controls	**Direct Positive** Effort reductions have resulted in a fishery that is no longer overfished, nor is overfishing occurring	**Indirect Positive** Effort reductions taken over time also reduced bycatch	**Indirect Positive** Reducing effort reduced opportunities for interactions with protected species	**Indirect Positive** Reducing effort reduced opportunities for habitat interactions	**Indirect Positive** Reducing effort has created a sustainable fishery
[Pr, RFF] Large Whale Take Reduction Plan Amendment (2008)	Removed the DAM program (which has been be temporarily reinstated), implemented sinking ground lines for lobster gear, included more trap/pot and gillnet fisheries under the protection plan and requires additional markings on gear to improve information regarding where and how entanglements occur	**Negligible** Changes implemented through the amendment are not expected to have substantial changes on groundfish	**Negligible** Changes implemented through the amendment are not expected to have substantial changes on non-groundfish species	**Direct Positive** New regulations implemented to protect large whales are expected to have a positive impact on large whales by reducing incidental takes	**Negligible** Changes implemented through the amendment are not expected to have substantial changes to habitat	**Indirect Negative** Changes implemented through the amendment require some gear changes for gillnet fisheries which have minor negative economic impacts

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
OTHER FISHERY-RELATED ACTIONS CONTINUED						
P, Pr, RFFA NOAA's Ship Strike Reduction Strategy (2008)	NOAA's Ship Strike Reduction strategy aims to reduce the threat of ship strikes to whales. A new rule published in October 2008 requires large ships to slow their speed during times and areas where right whales are expected to be present	**Unknown**	**Unknown**	**Direct Positive** Efforts to reduce ship strikes with large whales should reduce mortality to cetaceans.	**Unknown**	**Unknown**
Pr, RFF Harbor Porpoise Take Reduction Plan (HPTRP) Amendment (~2008/2009)	Current requirements for gillnet gear to use pingers could be expanded upon to through options currently under development to reduce takes of harbor porpoise toward the long-term zero mortality rate goal	**Unknown** If current measures such as closure areas and the use of pingers are expanded upon or modified, it could impact groundfish	**Unknown** If current measures such as closure areas and the use of pingers are expanded upon or modified, it could impact non-groundfish species	**Direct Positive** Changes to protect harbor porpoise have a positive impact on harbor porpoise	**Unknown** If current measures such as closure areas and the use of pingers are expanded upon or modified, it could impact habitat	**Unknown** If current measures such as closure areas and the use of pingers are expanded upon or modified, it could impact human communities

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
OTHER FISHERY-RELATED ACTIONS CONTINUED						
Pr, RFFA Turtle Chain Mat Rule (2006)	Reduces serious injury/mortality to sea turtles interacting with sea scallop dredge gear.	**Negligible**	**Negligible**	**Direct Positive** Reduces injury and mortality to sea turtles	**Minor Negative** Gear modifications result in additional contact with the ocean floor but this contact occurs within the footprint of current dredge activity	**Negative** Cost of gear modifications to install the chain mat and may result in some minor loss of scallops
RFF Essential Fish Habitat Omnibus Amendment (~2009/2010)	This amendment would revised EFH designations for all New England fisheries, possibly establish new HAPCs and consider measures to further protect critical habitat	**Unknown** If new measures are implemented to protect habitat, they would likely have a positive impact on groundfish	**Unknown** If new measures are implemented to protect habitat, they could have a positive impact non-groundfish species	**Unknown** If new measures are implemented to protect habitat, they could potentially impact protected species	**Direct Positive** New measures implemented to protect habitat would have a positive impact on habitat	**Unknown** If new measures are implemented to protect habitat, they would likely impact human communities
RFF Amendment 3 to the Skate FMP (2009)	This amendment proposes to address the overfished status of winter, smooth and thorny skates, implement ACLs and AMs and possibly modify the baseline review process	**Mixed** If actions are taken to reduce skate mortality, it could also reduce effort on groundfish resources. However, effort reductions for skates could result in a redirection of effort onto groundfish	**Mixed** If actions are taken to reduce skate mortality, it could also reduce effort on non-groundfish species. However, effort reductions for skates could result in a redirection of effort onto groundfish leading to higher bycatch	**Mixed** If actions are taken to reduce skate mortality, it could result in less gillnet effort. However, effort could also be redirected	**Mixed** If actions are taken to reduce skate mortality, it could result in effort reductions that lead to less trawling. However, effort could also be redirected	**Negative** If actions are taken to reduce skate mortality, it will likely result in lost revenues, even if effort is redirected elsewhere. This is because other fisheries, such as groundfish, are also heavily regulated

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
NON FISHERY-RELATED ACTIONS						
P, Pr, RFFA Climate Change	Reports have indicated that global and regional oceanic conditions are predicted to occur as the result of a trend in warming air and sea temperatures	**Unknown** Possible short and long-term ecosystem changes such as shifts in species distribution and assemblages may occur	**Unknown** Possible short and long-term ecosystem changes such as shifts in species distribution and assemblages may occur	**Unknown** Possible short and long-term ecosystem changes such as shifts in species distribution and assemblages may occur	**Unknown** Possible increased rates of coastal erosion and pollutant inputs, changes in primary productivity and ocean circulation patterns	**Unknown** If ecosystem changes lead to reductions or shifts in stock size, lower landings and revenue could result
P, Pr, RFFA Agriculture runoff	Nutrients applied to agriculture land are introduced into aquatic systems	**Indirect Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Reduced habitat quality in the immediate project area	**Direct Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Reduced habitat quality negatively affects resource viability and can lead to reduced income from fishery resources
P, Pr, RFFA Port maintenance	Dredging of wetlands, coastal, port and harbor areas for port maintenance	**Indirect Negative** Localized decreases in habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Direct Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Indirect Negative** Reduced habitat quality negatively affects resource viability in the immediate project area
P, Pr, RFFA Offshore disposal of dredged materials	Disposal of dredged materials	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Direct Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Indirect Negative** Reduced habitat quality negatively affects resource viability in the immediate project area

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
NON FISHERY-RELATED ACTIONS CONTINUED						
P, Pr, RFFA Beach nourishment	Offshore mining of sand for beaches	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Direct Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Mixed** Positive for mining companies, possibly negative for fisheries
	Placement of sand to nourish beach shorelines	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Direct Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Positive** Improves beaches and can help protect homes along the shore line
P, Pr, RFFA Marine transportation	Expansion of port facilities, vessel operations and recreational marinas	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Direct Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Mixed** Positive for some interests, potential displacement for others
P, Pr, RFFA Installation of pipelines, utility lines and cables	Transportation of oil, gas and energy through pipelines, utility lines and cables	**Indirect Negative** Initially localized decreases in habitat quality in the immediate project area	**Indirect Negative** Initially localized decreases in habitat quality in the immediate project area	**Indirect Negative** Initially localized decreases in habitat quality in the immediate project area	**Potentially Direct Negative** Initially reduced habitat quality in the immediate project area	**Mixed** End users benefit from improved pipelines, cables, etc., but reduced habitat quality may impact fisheries and revenues

Action	Description	Impacts on Regulated Groundfish Stocks	Impacts on Non-groundfish species	Impacts on Endangered and Other Protected Species	Impacts on Habitat – Including Non-fishing Effects	Impacts on Human Communities
NON FISHERY-RELATED ACTIONS CONTINUED						
Pr, RFFA Liquefied Natural Gas (LNG) terminals (w/in 5 years)	Transportation of natural gas via tanker to terminals located offshore and onshore (Several LNG terminals are proposed, including ME, MA, NY, NJ and MD)	**Indirect Negative** Initially localized decreases in habitat quality in the immediate project area	**Indirect Negative** Initially localized decreases in habitat quality in the immediate project area	**Indirect Negative** Initially localized decreases in habitat quality in the immediate project area	**Potentially Direct Negative** Localized decreases in habitat quality possible in the immediate project area	**Mixed** End users benefit from a steady supply of natural gas but reduced habitat quality may impact fisheries and revenues
RFFA Offshore Wind Energy Facilities (w/in 5 years)	Construction of wind turbines to harness electrical power (Several facilities proposed from ME through NC, including off the coast of MA)	**Indirect Negative** Initially localized decreases in habitat quality in the immediate project area	**Indirect Negative** Initially localized decreases in habitat quality in the immediate project area	**Potentially Direct Negative** Localized decreases in habitat quality possible in the immediate project area	**Potentially Direct Negative** Localized decreases in habitat quality possible in the immediate project area	**Mixed** End users benefit from a clean energy production but reduced habitat quality may impact fisheries and revenues

Fishing Communities

Fishing Activity by Permit Category

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

A. Individual
B. Fleet
C. Small vessel exemption
D. Hook gear
E. Combination vessel
F. Large mesh individual DAS
G. Large mesh fleet DAS

The open access categories were:

H. Handgear permit
I. Scallop multispecies possession limit permit
J. Non-regulated multispecies permit
K. Charter/party (vessels cannot sell their catch and this is not considered a commercial permit)

For a complete discussion of how DAS were allocated to vessels in each category, refer to Amendment 7. Amendment 13 modified groundfish permit categories by eliminating the Fleet DAS category, creating a limited access Handgear A category, and changing the designation of open-access Handgear permits to a Handgear B permit category. The current limited access permit categories are:

A. Individual
B. Small vessel exemption
C. Hook Gear
D. Combination Vessel
E. Large Mesh Individual DAS
F. Handgear A

The open access categories are:

G. Handgear B
H. Scallop multispecies possession limit permit
I. Non-regulated multispecies permit
J. Charter/party (vessels cannot sell their catch and this is not considered a commercial permit)

Unlike previous reports, this section does not combine handgear permits with other permit categories so that the trends in groundfish landings by this category can be identified. In addition, both large mesh permit categories (fleet and individual DAS) are combined so that comparisons can be made before and after implementation of Amendment 13. Totals do not include data that cannot be reported due to confidentiality concerns.

Limited Access Permit Categories

(A) Individual DAS:

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

(B) Fleet DAS:

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

(C) Small Vessel Exemption:

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

(D) Hook Gear:

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

(E) Combination Vessel:

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

(F) Large Mesh Individual DAS:

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

(G) Large Mesh Fleet DAS:

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

Open Access Permit Categories

(H) Handgear:

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

(I) Charter/Party:

Any charter/party permit category vessel is subject to restrictions on gear, recreational minimum fish sizes, possession limits, and specified prohibitions on sale.

(J) Scallop Multispecies Possession Limit:

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

(K) Non-Regulated Multispecies:

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

Data Caveats

Number of vessels, landings and revenues are reported by permit category for the years 2001 to 2007. The Charter/Party permit category is discussed in the Recreational Harvesting Sector section of the document. NE Multispecies permit holders may either possess only one limited access NE multispecies permit and *no* open access NE multispecies permits **OR** one or more open access NE multispecies permits.

Table 152. Average regulated groundfish revenues per permit by permit type, 2004-2007

Permit Category	2004	2005	2006	2007
Individual DAS	94,973	106,943	101,909	117,907
Fleet DAS				
Small Vessel Exemption	Conf.	Conf.	Conf.	747
Hook Gear	24,241	25,635	16,942	18,737
Combination Vessel	109,510	74,688	53,551	45,597
Large Mesh	49,308	34,421	34,523	20,141
Handgear Open Access				
Handgear – A	4,039	1,438	4,526	4,724
Handgear – B	1,200	1,215	1,133	2,814
Other Open Access	1,620	1,464	4,601	2,589
Total	**73,328**	**82,676**	**78,821**	**86,934**

DAS Use by NE Multispecies Permit Category

From 2001 through 2003, Fleet vessels received and used the greatest number of DAS of all the permit categories. From 2003 through 2007, Individual DAS vessels received and used the most by a large margin. In 2007, 94.1% of all DAS were used by Individual DAS vessels. Individual permit vessels also used the greatest percentage of their allocated days, with the exception of Combination vessels which used up to 92.9% of the allocated and net leased days in some years. The overall percentage of DAS used in the largest categories generally increased each year.

Table 153. NE Multispecies Limited Access A DAS Used by NE Multispecies Permit Category

Categories		Total Number of Permitted Vessels	Total DAS 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
2001	Individual	137	17,819	132	17,356		16,347
	Fleet	1,169	111,737	789	76,277		40,690
	Combination	47	2,348	23	1,681		1,102
	Hook Gear	174	16,646	95	9,104		2,356
	Large Mesh	62	7,682	58	7,171		4,853
	Total	**1,589**	**156,233**	**1,097**	**111,589**		**65,347**
2002	Individual	138	13,888	131	13,629		12,400
	Fleet	1,041	48,063	734	40,882		24,878
	Combination	47	1,637	16	962		705
	Hook Gear	120	3,649	61	2,432		875
	Large Mesh	56	4,033	50	3,858		2,849
	Total	**1,402**	**71,270**	**992**	**61,763**		**41,707**
2003	Individual	139	14,247	132	13,908		12,994
	Fleet	1,047	48,468	683	39,192		25,492

	Combination	47	1,651	15	928		727
	Hook Gear	115	3,466	54	2,127		760
	Large Mesh	56	3,511	47	3,178		2,374
	Total	**1,404**	**71,344**	**931**	**59,334**		**42,347**
2004	Individual	1,188	40,111	692	36,982		27,924
	Combination	37	1,509	25	1,450		1,090
	Hook Gear	115	1,374	38	1,085		455
	Large Mesh	57	987	17	766		617
	Small Vessel Exemption	7	20	0	0		0
	N/A	80	492	1	33		10
	Total	**1,484**	**44,492**	**773**	**40,317**		**30,096**
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	**1320**	**50,018**	**685**	**37,247**	**44,152**	**31,773**
2006	Individual	1107	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	**1284**	**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**

Fishing Activity by Vessel Length Class

Data on fishing activity were compiled by length classes. Based on the recommendations of the NEFMC Groundfish Oversight Committee for Amendment 13, four distinct ranges were identified as separate vessel length classes.

Length Class 1: Vessels less than 30 feet in length
Length Class 2: Vessels 30 feet to less than 50 feet in length
Length Class 3: Vessels 50 feet to less than 75 feet in length
Length Class 4: Vessels greater than or equal to 75 feet in length

Data Caveats

The vessel length data were gathered from the vessels' permit applications for each fishing year and compiled on a trip-by-trip basis. The total number of vessels by length class was generated from the NMFS permit database and includes all active and inactive permitted multispecies vessels with reported lengths. Data are reported since 2001.

Sector Participation

In 2004, the Council adopted a process for the development and approval of sectors. A sector is a group of like-minded vessel owners who develop a set of fishing rules under which to operate that may differ from the rules that apply to the fishery as a whole. In the context of the NE Multispecies FMP, a sector is allocated fishing privileges in the form of hard TACs or DAS based upon the collective fishing histories of participating vessels and must fish according to the provisions of a yearly sector operations plan approved by the Regional Administrator. The Council approved the formation of one sector under Amendment 13 (the GB Cod Hook Sector) in 2004 and another under Framework Adjustment 42 (the GB Cod Fixed Gear Sector) in 2006. In 2005, Framework Adjustment 40B allowed vessels interested in participating in the GB Cod Hook Sector to use all fishing history regardless of gear fished towards the sector allocation.

Both of the currently approved sectors rely upon DAS in conjunction with a hard TAC for GB cod as the primary effort controls. Yearly allocations of GB cod are based upon the fishing histories of participating vessels during fishing years 1996-2001. Participation in the GB Cod Hook Sector has steadily dropped from 59 vessels in 2004 to 19 vessels in 2008, while GB Cod Fixed Gear Sector has increased from 2 vessels in 2006 to 29 vessels in 2008. Table 150 shows the TAC allocations and percent of allocation caught for each sector since its inception.

Table 154. Sector Allocations of Georges Bank Cod (in mt and Percent of Overall Yearly Target TAC) and the Percentage of Allocation Caught for Fishing Years 2004-2008.

Sector	TAC Allocated/Landed	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
GB Cod Hook Sector	TAC Allocated	371 mt (12.59%)	455 mt (11.12%)	455 mt (11.12%)	675 mt (8.02%)	658 mt (6.44%)
	TAC Landed	35%	27%	20%	13%	-
GB Cod Fixed Gear Sector	TAC Allocated	NA	NA	Confidential	771 mt (9.16%)	1,430 mt (13.99%)
	TAC Landed	NA	NA	Confidential	54.3%	-

The current regulations prohibit sector vessels from leasing DAS to and from vessels outside of their particular sector. In addition, until 2006, all sector vessels were limited by the size restrictions of the DAS Leasing Program (i.e. a vessel could not lease DAS to another vessel if the DAS leasing baseline of the lessee vessel was more than 10 percent larger than the baseline length or 20 percent larger than the baseline horsepower of the lessor vessel). Since 2006, NMFS has exempted vessels participating in the GB Cod Hook Sector from the size restrictions of the DAS Leasing Program as part of the approval of that sector's yearly operations plan. However, participation in the DAS Leasing Program by sector vessels has been small, with only five leases approved for GB Cod Hook Sector participants and eight leases approved for the GB Cod Fixed Gear Sector since 2004. These leases represent between 0.6 – 1 percent of leasing activity and between 0.4 – 0.6 percent of DAS leased in the years in which they occurred (see below for further description of the DAS Leasing Program). Such leases resulted in the exchange of 224 DAS among GB Cod Hook Sector vessels and 87 DAS among GB Cod Fixed Gear Sector vessels since 2004 and 2006, respectively. It should be noted that two of these leases (one from each sector) occurred between a sector vessel and a non-sector vessel, while the rest were among participants of the same sector. Finally, one sector participant acquired additional groundfish DAS and other fishery permits from another non-sector vessel as part of the DAS Transfer Program.

Landings and Revenues by Vessel Length Class

Vessels greater than 75 feet in length demonstrated the greatest total decrease in landings between the years 2001 and 2007. However, total revenues for those vessels stayed roughly constant. Revenues for other length classes were also relatively constant, with most classes peaking in revenue in 2005 (vessels less than 30 feet in length peaked in 2004). Revenues in 2007 were similar to those in 2001 for all length classes except 50 to 75 feet, which had a 2007 level at 73.9% of that in 2001.

Groundfish landings generally decreased across all length classes each year between 2001 and 2006, and increased in 2007). However, vessels 75 feet and greater had the highest total landings each year by a large margin. However, vessels 50-75 feet were responsible for the highest groundfish landings in every year except 2005 and 2007, when vessels greater than 75 feet had the most landings. After those two groups, vessels 30-50 feet had the most groundfish landings, followed by vessels under 30 feet, which had substantially fewer. Groundfish landings of vessels 75 feet and greater decreased by 38.2%, those by vessels 50-75 feet decreased by 54.8%, 30-50 feet decreased by 28.1%, and the smallest vessels saw landings decline by 91.6% between 2001 and 2007.

Groundfish revenues decreased each year in each length class, with the exceptions of 2005, which saw slightly higher revenues than 2004 for vessels of 30-50 feet and 2007, which saw slightly higher revenues for vessel 30-50 feet and 75+ feet.

Vessels less than 30 feet saw the biggest decrease in revenue each year, with an 88.8% change between 2001 and 2007. The 30-50 foot vessels saw the smallest decreases each year between 2005 and 2007, while vessels over 75 feet had the least decreasing revenues from 2001 through 2004.

Table 155. Total Landings (in lbs.) by NE Multispecies Vessels by Length Class, 2001-2007

Length Group	2001	2002	2003	2004	2005	2006	2007
Less than 30	1,495,389	1,014,569	803,224	1,762,725	1,583,527	1,209,049	839,026
30 to less than 50	52,543,920	45,049,181	48,202,346	47,152,085	47,212,707	47,103,674	53,155,303
50 to less than 75	151,531,804	136,713,383	129,204,193	172,834,208	113,620,241	107,944,193	112,217,122
75 and over	400,687,205	257,309,891	335,571,309	329,131,596	335,943,482	280,935,636	276,777,485
Grand Total	**606,258,318**	**440,087,024**	**513,781,072**	**550,880,614**	**498,359,957**	**437,192,552**	**442,988,936**

Table 156. Constant Total Revenues by NE Multispecies Vessels by Length Class, 2001-2007

Length Group	2001	2002	2003	2004	2005	2006	2007
Less than 30	1,426,091	1,120,241	1,173,094	1,969,399	1,494,803	1,677,300	1,600,751
30 to less than 50	57,010,963	52,429,810	50,153,461	50,536,025	77,855,390	70,126,484	69,293,709
50 to less than 75	122,110,693	126,424,416	127,033,443	134,992,516	156,895,340	144,967,040	131,991,842
75 and over	212,478,201	223,871,947	243,899,903	299,988,103	348,882,156	314,645,068	306,900,219
Grand Total	**393,025,947**	**403,846,414**	**422,259,902**	**487,486,042**	**585,127,690**	**531,415,891**	**509,786,521**

Table 157. Groundfish Landings (in lbs.) by NE Multispecies Vessels by Length Class, 2001-2007

Length Group	2001	2002	2003	2004	2005	2006	2007
Less than 30	839,251	396,167	354,991	482,878	145,521	111,514	70,572
30 to less than 50	23,905,156	17,927,058	18,436,523	15,305,823	15,187,939	13,507,713	17,196,345
50 to less than 75	43,518,214	34,342,719	32,791,598	30,707,862	23,931,730	18,228,960	19,685,786
75 and over	35,155,672	30,811,275	29,440,367	29,467,357	24,034,939	16,120,399	21,691,469
Grand Total	**103,418,293**	**83,477,219**	**81,023,479**	**75,963,920**	**63,300,129**	**47,968,586**	**58,644,172**

Table 158. Constant Groundfish Revenues by NE Multispecies Vessels by Length Class, 2001-2007

Length Group	2001	2002	2003	2004	2005	2006	2007
Less than 30	942,778	570,899	461,981	521,190	198,993	133,510	105,316
30 to less than 50	23,409,792	21,922,821	19,423,441	16,633,176	18,179,777	16,469,091	18,479,430
50 to less than 75	40,340,343	37,897,022	32,001,358	26,182,897	26,170,241	23,571,617	22,036,277
75 and over	33,944,381	34,870,693	28,928,019	26,692,254	26,553,928	21,858,434	23,623,046
Grand Total	**98,637,293**	**95,261,434**	**80,814,800**	**70,029,516**	**71,102,940**	**62,032,652**	**64,244,069**

DAS Use by Length Class

Table 159. DAS Usage by Vessel Length Class, 2001-2006

Categories		Total Number of Permitted Vessels	Total DAS 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
2001	1- 29 feet	122	11,293	66	6,404		1474
	30-49 feet	890	87,062	588	58,365		30,365
	50-74	407	40,666	321	33,250		23,144

	feet						
	75+ feet	170	17,212	122	13,571		10,364
	Total	**1,589**	**156,233**	**1,097**	**111,589**		**65,347**
2002	1- 29 feet	93	2,546	43	1,497		527
	30-49 feet	751	33,815	525	28,562		16,895
	50-74 feet	393	24,008	303	21,839		16,035
	75+ feet	165	10,901	121	9,864		8,250
	Total	**1,402**	**71,270**	**992**	**61,763**		**41,707**
2003	1- 29 feet	102	3,115	41	1,419		500
	30-49 feet	762	33,928	492	27,424		17,176
	50-74 feet	382	23,442	288	20,742		16,267
	75+ feet	158	10,859	110	9,750		8,403
	Total	**1,404**	**71,344**	**931**	**59,334**		**42,347**
2004	1- 29 feet	162	1,264	24	563		231
	30-49 feet	743	19,650	405	17,534		11,841
	50-74 feet	361	15,546	248	14,757		11,571
	75+ feet	159	7,757	96	7,463		6,454
	Unknown	59	275				0
	Total	**1,484**	**44,492**	**749**	**40,317**		**30,096**
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	**1320**	**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**

Landings and Revenues by Gear Used

Between 2001 and 2007, bottom trawls accounted for an average of 34% of the total landings in each year. Following bottom trawls, the next top contributor to total landings were midwater trawls. In 2003, midwater trawls accounted for the greatest percentage of total landings by gear type. On average, the midwater trawl accounted for 30% of the total landings each year. Bottom trawl also accounted for most groundfish landings, while the sink gillnet was the second highest contributor to groundfish landings in 2001-2007. From 2001 to 2007, groundfish landings by all gear types generally decreased, with the exception of gillnet landings, which were roughly even, and the "other" category, which was highly variable. Bottom trawl groundfish landings in 2007 were only 46.3% of the 2001 level. Total revenues trends mirrored changes in total landings. Total revenues increased substantially for bottom trawls and bottom longline, as did landings for those gear types.

Table 160. Total Landings by NE Multispecies Vessels by Gear Used, 2001-2007

Gear Type	2001	2002	2003	2004	2005	2006	2007
Bottom Trawl	195,992,377	179,789,028	176,247,913	208,338,991	160,900,699	142,688,719	123,799,904
Bottom Longline	7,278,587	4,734,742	4,249,204	10,753,969	7,199,368	2,381,495	2,875,352
Handline	2,029,456	1,162,090	1,384,449	23,201,144	12,821,990	4,154,438	5,985,994
Sink Gillnet	33,552,326	28,087,121	36,058,742	23,574,454	28,933,039	25,186,771	29,308,595
Midwater Trawl (incl. Pair)	250,058,561	124,735,845	186,731,452	110,915,255	157,938,719	114,912,196	106,555,960
Shrimp Trawl	1,369,085	3,104,192	2,634,737	356,845	661,406	1,834,648	2,818,288
Scallop Dredge	43,247,915	45,266,061	52,766,019	9,848,621	14,396,264	14,683,209	14,125,605
Lobster Trap	4,845,280	4,467,043	4,274,235	467,676	2,356,615	2,511,930	3,447,414
All Other	67,884,731	48,740,902	49,434,321	163,423,659	113,151,857	128,839,146	154,071,824
Grand Total	**606,258,318**	**440,087,024**	**513,781,072**	**550,880,614**	**498,359,957**	**437,192,552**	**442,988,936**

Table 161. Total Revenues by NE Multispecies Vessels by Gear Used, 2001-2007

Gear Type	2001	2002	2003	2004	2005	2006	2007
Bottom Trawl	159,707,220	159,907,512	148,349,751	131,291,504	120,112,958	112,153,218	95,337,271
Bottom Longline	6,902,400	4,857,510	3,975,729	10,780,452	11,770,691	5,578,215	6,270,107
Handline	2,464,483	1,710,137	3,325,285	12,173,621	8,877,416	4,673,652	4,665,844
Sink Gillnet	32,598,537	28,585,146	27,652,098	20,716,466	32,083,345	24,265,770	25,772,266
Midwater Trawl (incl. Pair)	15,140,883	8,287,353	12,794,603	10,104,041	16,401,457	10,463,464	8,744,783
Shrimp Trawl	2,945,162	4,205,916	1,689,778	906,078	186,459	1,186,078	3,286,048
Scallop Dredge	145,774,673	171,670,973	198,494,372	52,225,265	91,194,920	78,817,853	73,713,026
Lobster Trap	12,015,343	11,042,575	10,757,238	1,125,364	11,408,839	10,405,449	13,654,031
All Other	15,477,244	13,579,292	15,221,048	248,163,252	293,091,605	283,872,191	278,343,145
Grand Total	**393,025,947**	**403,846,414**	**422,259,902**	**487,486,042**	**585,127,690**	**531,415,891**	**509,786,521**

Table 162. Groundfish Landings by NE Multispecies Vessels by Gear Used, 2001-2007

Gear Type	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Bottom Trawl	84,308,388	71,063,869	67,531,780	53,405,649	42,809,308	32,340,596	39,031,897
Bottom Longline	2,755,125	1,017,788	1,128,411	2,042,216	1,583,607	135,470	303,335
Handline	1,646,085	758,320	567,999	1,695,734	1,960,885	852,496	868,345
Sink Gillnet	13,460,168	10,390,033	11,656,348	8,844,219	10,448,082	9,275,963	12,815,233
Midwater Trawl (incl. Pair)	0	0	0	770,843	40,625	13,663	11,198
Shrimp Trawl	2,015	1,243	4,001			84	Conf.
Scallop Dredge	341,310	146,469	11,645	55,148	448,987	14,915	48,190
Lobster Trap	11,478	18,279	7,261	19,843	796	50,244	Conf.
All Other	893,724	81,218	116,034	9,130,268	6,007,839	5,285,155	5,565,863
Grand Total	**103,418,293**	**83,477,219**	**81,023,479**	**75,963,920**	**63,300,129**	**47,968,586**	**58,644,061**

Table 163. Groundfish Revenues by NE Multispecies Vessels by Gear Used, 2001-2007

NEGEAR	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Bottom Trawl	80,407,068	80,426,445	67,609,349	47,842,264	48,311,017	43,339,021	42,713,114
Bottom Longline	3,213,920	1,511,030	1,370,218	2,553,701	1,638,912	229,876	448,629
Handline	1,893,450	1,091,279	807,151	2,122,008	2,738,158	1,402,637	1,334,871
Sink Gillnet	11,980,657	11,952,152	10,887,616	8,037,747	10,607,098	9,633,514	11,996,375
Midwater Trawl (incl. Pair)	0	0	0	837,476	34,894	22,529	14,679
Shrimp Trawl	3,022	1,062	6,616			140	Conf.
Scallop Dredge	292,846	140,308	11,840	68,002	345,663	20,301	78,255
Lobster Trap	10,076	18,289	8,778	26,497	1,365	34,148	Conf.
All Other	836,254	120,870	113,232	8,541,822	7,425,834	7,350,486	7,658,021
Grand Total	**98,637,293**	**95,261,434**	**80,814,800**	**70,029,516**	**71,102,940**	**62,032,652**	**64,243,943**

DAS Use by Gear Type

Bottom Trawl:

In 2001 there were 650 active vessels in the bottom trawl sector, 77% of the total number of permitted bottom trawl vessels. The percentage of active vessels decreased over the next six years, reaching 49% in 2007. DAS use by bottom trawl vessels generally increased from 2001 to 2007. 66% of the DAS allocated to active permitted bottom trawl vessels were used by these vessels in 2001 and 80% of allocated and net leased DAS were used by active bottom trawl vessels in 2007.

Bottom Longline:

In 2001 there were 115 active vessels in the bottom longline sector, 52% of the total number of permitted bottom longline vessels. The percentage of active vessels decreased over the next six years, reaching 27% in 2007. DAS use by bottom longline vessels generally increased from 2001 to 2007. 38% of the DAS allocated to active permitted bottom longline vessels were used by these vessels in 2001 and 41% of allocated and net leased DAS were used by active bottom longline vessels in 2007.

Hook and Line:

In 2001 there were 84 active vessels in the hook and line sector, 49% of the total number of permitted hook and line vessels. The percentage of active vessels decreased over the next six years, reaching 14% in 2007. DAS use by hook and line vessels generally increased from 2001 to 2007. 24% of the DAS allocated to active permitted hook and line vessels were used by these vessels in 2001 and 51% of allocated and net leased DAS were used by active hook and line vessels in 2007.

Sink Gillnet:

In 2001 there were 228 active vessels in the sink gillnet sector, 71% of the total number of permitted sink gillnet vessels. The percentage of active vessels decreased over the next six years, reaching 59% in 2007. DAS use by sink gillnet vessels increased steadily throughout the 2001-2007 time period. 59% of the DAS allocated to active permitted sink gillnet vessels were used by these vessels in 2001 and 74% of allocated and net leased DAS were used by active sink gillnet vessels in 2007.

Table 164. NE Multispecies limited access A Days-At-Sea used by primary gear type, 2001-2007

Categories		Total Number of Permitted Vessels	Total DAS 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
2001	Bottom Trawl	841	82,442	650	66,458		44,011
	Midwater Trawl	3	294	2	196		130
	Other Trawl	12	1,215	8	823		558
	Longline	222	21,368	115	11,064		4,217
	Hand Line	170	16,363	84	8,145		1,960

	Gillnet	321	32,593	228	23,925		14,044
	Pots and Traps	12	1,176	5	490		72
	Other	8	782	5	488		356
	Total	**1,589**	**156,233**	**1,097**	**111,589**		**65,347**
2002	Bottom Trawl	787	45,473	620	41,454		29,183
	Midwater Trawl	4	182	3	164		69
	Other Trawl	11	549	8	495		336
	Longline	170	5,746	87	4,061		1,801
	Hand Line	124	3,494	56	2,156		866
	Gillnet	287	15,069	207	12,819		9,115
	Pots and Traps	13	372	5	228		78
	Other	6	385	6	385		260
	Total	**1,402**	**71,270**	**992**	**61,763**		**41,707**
2003	Bottom Trawl	793	45,954	574	39,904		29,909
	Midwater Trawl	5	254	3	179		118
	Other Trawl	10	524	7	449		322
	Longline	170	5,759	75	3,647		1,553
	Hand Line	124	3,484	57	2,047		769
	Gillnet	285	14,692	207	12,621		9,400
	Pots and Traps	12	354	3	163		71
	Other	5	324	5	324		206
	Total	**1,404**	**71,344**	**931**	**59,334**		**42,347**
2004	Bottom Trawl	794	30,463	502	28,338		21,739
	Midwater Trawl	6	131	2	109		30
	Other Trawl	10	279	6	278		230
	Longline	163	2,621	59	2,065		1,014
	Hand Line	133	1,332	35	964		481
	Gillnet	282	8,817	160	8,174		6,337
	Pots and Traps	11	85	2	85		50
	Other	85	764	7	303		215
	Total	**1,484**	**44,492**	**773**	**40,317**		**30,096**
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	11	395	6	269	291	191
	Total	**1,318**	**49,934**	**683**	**37,143**	**44,068**	**31,735**
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	17	525	7	394	394	210
	Total	**1,282**	**50,722**	**624**	**34,050**	**43,360**	**31,739**
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**

Landings and Revenues by Home Port State

Total landings and groundfish landings were highest for Massachusetts vessels in all years from 2001 to 2007. Massachusetts landings declined from 2001 to 2002, reached a small peak in 2004, and decreased through 2006, and rose slightly in 2007. Total Massachusetts landings decreased 26% from 2001 to 2006. Rhode Island, New Jersey, and Maine contributed the next highest total landings during this period. For vessels with home ports in Rhode Island, landings decreased 49.5% from 2001 to 2002, then increased 12.5% in 2003 and stayed roughly constant through 2006 before dropping again in 2007. Total landings by New Jersey vessels decreased 20.2% from 2001 to 2002, increased 9.4% in 2003, and then decreased steadily through 2006 and rose slightly in 2007. In Maine, landings decreased steadily from 2001 to 2006, with a 36% decrease in landings in those years, and increased slightly in 2007.

Table 165. Total landings of NE multispecies vessels by home port state, 2001-2007

Home Port State	2001	2002	2003	2004	2005	2006	2007
ME	78,724,996	59,323,936	57,293,476	54,335,286	53,307,720	50,063,714	54,070,207
NH	13,367,647	5,642,063	12,581,323	40,061,562	27,599,192	14,189,368	21,726,043
MA	283,227,205	198,514,601	255,231,528	266,992,307	240,251,664	208,220,796	210,129,498
RI	75,348,434	38,070,333	43,504,270	45,785,822	46,260,462	47,737,012	43,897,683
CT	363,090	439,728	1,436,588	1,828,590	2,483,749	1,598,696	2,487,205
NY	30,724,670	27,716,785	26,217,127	22,378,153	18,671,348	18,133,476	19,148,734
NJ	88,004,781	70,218,101	77,464,613	74,989,884	73,607,227	63,994,508	64,853,141
DE	1,263,676	885,613	973,135	1,221,721	1,381,627	1,291,219	786,599
MD	1,124,305	1,109,931	911,642	1,090,051	1,091,078	1,085,870	1,122,030
VA	11,467,791	11,450,314	11,345,162	11,748,455	7,476,507	8,569,082	7,721,828
NC	19,079,500	23,031,633	22,944,851	26,319,436	22,513,372	19,574,812	15,158,525
FL	507,722	531,941	569,839	699,280	531,931	613,777	606,366
Other	3,054,501	3,152,045	3,307,518	3,430,067	3,184,080	2,120,222	1,281,077
Grand Total	**606,258,318**	**440,087,024**	**513,781,072**	**550,880,614**	**498,359,957**	**437,192,552**	**442,988,936**

Massachusetts groundfish landings decreased steadily from 2001 to 2007, with 2006 levels at 45% of 2001 levels. Groundfish landings in Maine decreased 24% between 2001 and 2002, and then remained relatively constant through 2005 before decreasing again in 2006 to 56% of 2001 levels. Rhode Island made up the third highest percentage of the total groundfish landings in 2001-2006, with New Hampshire having slightly more landings in 2007. New Hampshire groundfish landings remained relatively constant after decreasing between 2001 and 2002, while Rhode Island landings stayed constant from 2001 until 2003 and then declined steadily each year thereafter. In 2006, New Hampshire and Rhode Island landed 57% and 50% of their 2001 groundfish catch, respectively. Groundfish landings in all other states generally decreased except Connecticut, which fluctuated, and New Jersey, which dropped 41% from 2001 to 2002 and stayed more constant than most states thereafter. Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut all saw increases in groundfish landings between 2006 and 2007.

Table 166. Groundfish landings by NE multispecies vessels by home port state, 2001-2007

Home Port State	2001	2002	2003	2004	2005	2006	2007
ME	15,319,317	11,649,857	12,854,761	12,015,318	11,531,491	8,544,873	11,206,799
NH	4,712,053	3,313,107	3,445,717	3,262,416	3,065,318	2,679,237	3,915,885
MA	67,392,307	54,942,388	50,527,509	49,674,945	39,614,736	30,536,323	37,530,105
RI	7,239,855	7,225,382	7,596,776	6,101,959	5,294,117	3,622,723	3,564,536
CT	115,152	206,295	205,084	164,476	96,101	159,799	189,617
NY	4,199,723	3,589,125	3,373,185	1,722,828	1,315,533	1,000,326	959,129
NJ	854,198	502,831	658,452	681,537	599,701	556,646	518,097
DE	795,924	510,232	520,868	738,535	669,252	456,846	383,076
MD	2,115	2,437	423	459	39	439	Conf.
VA	847,588	149,890	271,458	166	343		16,938
NC	1,254,276	866,766	1,010,968	1,356,422	1,113,498	411,144	359,947
FL		Conf.	Conf.				
Other	2,057,355	1,554,819	1,674,084	734,577	0	Conf.	0
Grand Total	**104,789,863**	**84,513,129**	**82,139,285**	**76,453,638**	**63,300,129**	**47,968,356**	**58,644,129**

For the most part, changes in total revenues did not closely reflect landings trends and have fluctuated, increased, or stayed roughly constant in all states. Groundfish revenues, however, decreased from 2001-2006 in nearly every state except Connecticut, which fluctuated greatly. Groundfish revenue in Maine, New Hampshire, Massachusetts and Connecticut increased in 2007 from 2006 levels. Massachusetts, Rhode Island, New Jersey and Maine generated the greatest *total* revenues from 2001 to 2007 while Massachusetts, Maine, New Hampshire and Rhode Island generated greatest *groundfish* revenues in those years. Permitted multispecies vessels with home ports in some southern New England and mid-Atlantic states, though contributing a high percentage of landings to the total, are less active than Maine and New Hampshire vessels in the groundfish fishery. Those states may be more dependent on non-groundfish fisheries such as scup, squid, mackerel and butterfish. Maine and Massachusetts, however, clearly are the largest stakeholders in the New England groundfish fishery with highest groundfish landings and revenues in 2001 through 2007.

In examining groundfish revenues as a percentage of total revenues, however, Maine fisheries are most heavily dependent on groundfish, with groundfish revenues making up 35% of total revenues in 2006. The dependence of multispecies vessels from New Hampshire on groundfish as a percent of total fishery revenues was second to that of Maine vessels, with 19% of the revenues coming from groundfish. Massachusetts and Rhode Island each had 16% of revenues being created by the groundfish fishery. It is important to note that although the home ports of these vessels are associated with certain states, these are not necessarily the states in which the vessels are landing their catches. Instead, examining fishing activity by home port state is a means of predicting where the revenue streams are moving geographically.

Table 167. Total revenues by NE multispecies vessels by home port state, 2001-2007

Home Port State	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
ME	26,626,551	24,710,117	23,252,319	24,778,275	29,174,304	26,237,018	28,500,653
NH	8,428,811	7,087,426	6,097,642	9,159,192	18,301,880	13,349,220	14,907,755
MA	195,349,374	204,157,832	203,395,819	225,750,058	276,523,602	253,381,480	241,560,702
RI	30,777,543	28,525,346	31,448,563	30,242,667	33,294,134	34,836,424	28,625,153
CT	611,048	730,789	2,994,566	5,065,869	7,016,385	4,821,562	5,862,407
NY	26,398,229	25,128,722	23,437,366	20,882,126	23,132,279	21,249,142	17,476,226
NJ	44,292,729	47,745,282	57,987,717	77,069,709	98,205,867	91,877,333	96,093,461
DE							947,335
MD	980,287	898,948	861,623	1,066,747	2,816,776	2,404,277	1,731,485
VA	30,649,471	32,985,010	35,855,793	44,616,140	42,132,583	34,936,780	28,942,471
NC	20,069,579	24,660,941	28,587,578	36,901,254	43,366,772	37,128,899	36,891,040
FL	1,576,335	1,933,314	2,103,079	3,281,641	3,525,639	3,171,669	3,069,369
Other	5,989,691	4,245,209	5,066,585	7,204,746	5,709,251	6,426,242	5,178,464
Grand Total	**391,749,648**	**402,808,936**	**421,088,649**	**486,018,426**	**583,199,472**	**529,820,046**	**509,786,521**

Table 168. Groundfish revenues by NE multispecies vessels by home port state, 2001-2007

Home Port State	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
ME	14,080,005	12,309,933	11,464,247	10,620,918	12,035,740	9,302,543	10,171,625
NH	4,343,507	3,715,925	3,318,173	3,205,983	3,086,101	2,542,924	3,508,104
MA	65,020,184	64,152,683	52,129,610	47,096,109	46,217,349	40,920,743	42,524,732
RI	6,971,015	8,150,757	7,457,243	4,790,717	5,586,243	5,455,708	4,841,772
CT	99,883	214,561	229,002	161,469	89,676	266,773	281,002
NY	4,066,979	4,120,634	3,352,344	1,594,984	1,632,795	1,490,096	1,282,824
NJ	708,091	511,135	719,633	686,845	634,854	872,590	807,000
DE	792,687	550,411	531,387	732,081	797,839	563,008	328,244
MD	2,415	2,864	160	443	15	1,029	Conf.
VA	833,612	209,756	246,452	116	203	0	31,984
NC	1,108,424	851,153	888,326	914,520	1,022,124	616,975	466,700
FL		Conf.	Conf.	0	0	0	0
Other	610,491	470,625	478,117	225,332	0	Conf.	0
Grand Total	96,084,767	93,728,902	79,201,798	71,442,075	71,102,939	62,032,389	64,243,987

DAS Use by Home Port State

These data illustrate the relative changes in the distribution of fishing activity on a regional basis.

Active vessels in Maine and New Hampshire have generally used a higher percentage of allocated DAS than vessels in other states since 2001, but Massachusetts has been using an equivalent percentage in recent years. All states except Connecticut, New York, and New Jersey used greater than 70% of their allocated DAS in 2007. Active vessels in New York and New Jersey have generally used a lower percentage of allocated DAS than vessels in other states since 2001. In 2007, active vessels in New York and New Jersey used 61% and 59% of their allocated and net leased DAS, respectively. Those numbers are substantially higher than the percentage of DAS used in 2001.

Table 169. NE Multispecies limited access A Days-At-Sea used by home port state, 2001-2007

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
2001	Maine	213	21,141	130	13,517		9,397
	New Hampshire	77	7,791	62	6,331		4,647
	Massachusetts	847	83,956	629	64,591		39,617
	Rhode Island	127	12,452	86	8,510		4,701
	Connecticut	17	1,606	13	1,214		647
	New York	155	14,932	94	9,138		3,248
	New Jersey	89	8,367	50	4,990		1,428
	Other	64	5,988	33	3,299		1,664
	Total	**1,589**	**156,233**	**1,097**	**111,589**		**65,347**
2002	Maine	180	9,615	118	8,136		5,957
	New Hampshire	73	4,266	56	3,816		2,615
	Massachusetts	752	40,589	567	36,275		24,725
	Rhode Island	107	5,848	83	5,187		3,761
	Connecticut	17	871	12	732		370
	New York	136	5,084	91	4,139		2,112
	New Jersey	79	2,866	41	2,013		1,108
	Other	58	2,131	24	1,465		1,059
	Total	**1,402**	**71,270**	**992**	**61,763**		**41,707**
2003	Maine	187	10,394	119	8,680		6,898
	New Hampshire	68	4,220	53	3,714		2,733
	Massachusetts	752	40,347	522	34,465		24,226
	Rhode Island	115	5,975	84	5,264		4,044
	Connecticut	17	848	13	716		400
	New York	129	4,713	76	3,406		1,928
	New Jersey	85	2,965	46	1,949		1,213
	Other	51	1,882	18	1,141		905
	Total	**1,404**	**71,344**	**931**	**59,334**		**42,347**

2004	Maine	209	7,053	98	6,521		5,477
	New Hampshire	75	2,836	47	2,577		2,101
	Massachusetts	744	26,765	451	24,835		18,388
	Rhode Island	116	3,146	67	2,899		1,997
	Connecticut	19	436	12	393		250
	New York	128	1,934	56	1,506		792
	New Jersey	83	1,129	33	901		499
	Other	110	1,194	9	686		592
	Total	**1,484**	**44,492**	**110**	**40,317**		**30,096**
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**

Fishing Activity by Port Group

Amendment 13 identified port groups that participated in the groundfish fishery and described changes in landings and revenues over time for those port groups. This section updates that information for the period FY 2001 – FY 2007. Amendment 13 was adopted in FY 2004, and FW 42 in the middle of FY 2007. These data reflect landings in a port group by vessels with a NE multispecies permit, regardless of the homeport state of the vessel that landed the catch. It does not include landings of groundfish by vessels that did not have a groundfish permit (primarily state registered and permitted vessels fishing in state waters).

New Bedford/Fairhaven is the port group with the largest total landings and total revenues, driven by the scallop fishery. In FY 2001, New Bedford/Fairhaven led all port groups in groundfish landings and revenues, followed by Lower Midcoast Maine (which includes Portland, ME), and Gloucester and the North Shore of Massachusetts. By FY 2004, Gloucester and the North Shore had surpassed Lower Midcoast Maine, but New Bedford/Fairhaven remained the top groundfish port. This changed in FY 2006, when Gloucester and the North Shore and New Bedford/Fairhaven were essentially equal. In FY 2007, Gloucester and the North Shore replaced New Bedford/Fairhaven as the leading groundfish port and Boston edged Lower Midcoast Maine as the third larges port. All four of these ports showed an increase in groundfish revenues (in constant 1999 dollars) from FY 2006 to FY 2007. Groundfish revenues for Gloucester and the North Shore (+26%) and Boston MA (+52%) increased in FY 2004 compared to FY 2007, while those in New Bedford/Fairhaven (-23%) and Lower Midcoast Maine (-45%) declined. Of the four leading ports, Gloucester and the North Shore and Boston saw an increase in groundfish revenues in FY 2007 compared to FY 2001.

For smaller groundfish ports the changes are mixed. FY 2007 revenues were lower than FY 2004 revenues in Southern Maine (-65%), Upper Midcoast Maine (-67%), Coastal New Hampshire (-33%) and the Cape and Islands (-21%). They were higher for Downeast Maine, Coastal Rhode Island (+70%), Long Island (+94%), and Northern Coastal New Jersey (+36%).

Overall, 78% of groundfish revenues were landed in Massachusetts port groups in FY 2007, compared to 72% in FY 2004 and FY 2001. Twenty-nine percent were landed in Gloucester and the North Shore, compared to 19% in FY 2001. The changes since FY 2001 reflect a shift in groundfish landings to the Gloucester and North Shore area, and away from New Bedford/Fairhaven and Lower Midcoast Maine. The declines in the latter two ports may be due to a combination of reduced opportunities to target offshore stocks as regulations restricted landings of GB yellowtail flounder, GB cod, GB winter flounder, and SNE/MA yellowtail flounder, as well as increased costs for fishing in certain areas. These increased costs are both monetary (e.g., fuel) and regulatory, as some areas became subject to differential DAS beginning in FY 2006.

Table 170. Total landings by NE multispecies vessels by landing state, 2001-2007

Landing State	**Port Group**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
ME	Downeast ME	607,957	512,139	1,370,037	1,274,174	999,460	834,302	1,858,545
	Lower Midcoast ME	86,291,510	48,763,435	57,138,362	45,978,105	38,458,095	39,418,323	27,954,654
	Southern ME	409,035	424,372	374,822	931,542	695,755	1,231,166	1,177,854
	Upper Midcoast ME	45,475,509	20,846,839	21,739,636	33,528,959	21,042,891	36,338,043	35,614,097
ME Total		132,784,011	70,546,785	80,622,857	81,712,780	61,196,201	77,870,961	68,638,751
NH	Coastal NH	13,944,028	18,220,967	23,343,645	19,849,330	18,297,245	9,088,603	7,940,577
MA	Boston & South Shore	10,456,302	9,540,137	8,317,949	6,839,322	7,855,272	7,740,693	10,286,150
	Cape & Islands	18,744,749	14,965,246	12,666,623	40,818,905	12,819,653	11,029,049	11,433,592
	Gloucester & North Shore	114,314,736	55,069,635	98,413,636	74,246,256	115,774,868	90,244,680	84,519,555
	New Bedford Coast	81,867,937	82,353,878	101,154,939	128,434,197	110,614,144	90,501,567	107,137,964
MA Total		225,495,383	161,946,593	220,635,534	250,340,211	247,063,937	199,524,840	213,377,261
RI	Coastal RI	79,009,995	49,433,268	50,983,080	46,635,969	51,379,551	52,422,454	42,639,491
RI Total		79,009,995	49,547,268	51,633,902	46,921,181	51,725,779	52,473,648	42,737,257
CT	Coastal CT		147,133	1,327,493	1,902,366	3,397,472	1,392,442	1,271,979
CT Total			147,133	1,327,493	1,902,366	3,397,472	1,392,442	1,271,979
NY	Long Island	22,558,582	20,447,040	18,375,148	16,475,538	13,402,603	14,972,980	15,148,057
NY Total		22,575,236	20,451,462	18,380,795	17,246,399	13,977,386	15,074,856	15,576,195
NJ	Northern Coastal NJ	24,017,723	22,609,450	19,766,855	19,487,126	19,236,557	20,574,777	19,021,190
	Southern Coastal NJ	49,755,926	55,551,760	61,286,494	76,677,688	56,524,469	36,338,991	51,890,087
NJ Total		75,069,695	78,387,448	81,065,938	96,171,896	75,761,026	56,916,429	70,936,472
All Other		40,634,389	23,733,957	16,716,456	15,122,632	14,091,326	12,151,416	22,510,444
Total		**606,258,318**	**440,087,024**	**513,781,072**	**550,880,614**	**498,359,957**	**437,192,552**	**442,988,936**

Table 171. Groundfish landings by NE multispecies vessels by landing state, 2001-2007

Landing State	**Port Group**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
ME	Downeast ME	Conf.	Conf.	0	0	2,815	1,780	3,191
	Lower Midcoast ME	18,548,510	14,065,240	13,844,756	13,757,184	11,345,929	6,878,560	7,247,383
	Southern ME	360,248	261,089	299,639	554,850	456,484	271,646	223,246
	Upper Midcoast ME	1,776,235	1,495,340	1,453,711	645,998	607,614	50,527	148,784
ME Total		20,713,901	15,821,959	15,598,106	14,958,032	12,412,842	7,204,272	7,622,604
NH	Coastal NH	3,881,879	2,625,237	2,926,183	3,441,705	3,234,133	3,166,754	2,805,957
NH Total		3,881,879	2,625,237	2,926,183	3,441,705	3,234,133	3,166,754	2,824,558
MA	Boston & South Shore	5,974,231	5,907,806	5,650,258	4,969,629	4,968,219	4,331,004	7,930,363
	Cape & Islands	8,140,487	4,992,069	4,346,465	3,736,423	3,434,335	1,959,291	2,602,267
	Gloucester & North Shore	18,390,780	15,808,691	16,777,975	14,049,048	14,803,716	13,979,388	19,043,016
	New Bedford Coast	40,733,040	34,236,222	31,697,104	31,340,361	21,873,408	13,953,838	15,150,462
MA Total		73,333,041	60,953,767	58,471,802	54,095,461	45,079,678	34,223,521	44,726,108
RI	Coastal RI	3,582,482	3,224,566	2,859,158	2,546,180	1,873,226	2,295,496	2,512,394
RI Total		3,582,482	3,224,566	2,859,158	2,546,180	1,873,226	2,295,782	2,512,394
CT	Coastal CT			6,003	127,971	74,860	69,453	34,238
CT Total				6,003	127,971	74,860	69,453	34,238
NY	Long Island NY	1,319,273	584,058	658,362	347,996	321,838	552,296	496,455
NY Total		1,319,373	585,804	658,362	349,106	324,928	552,296	496,455
NJ	Northern Coastal NJ	578,599	262,028	498,746	432,743	296,348	450,506	423,069
	Southern Coastal NJ	5,217	2,238	1,278	2,691	1,437	4,406	3,669
NJ Total		584,016	264,266	500,024	435,434	297,785	454,912	426,738
All Other		3,601	1,620	3,841	10,031	2,677	1,596	3,046,756
Grand Total		**103,418,293**	**83,477,219**	**81,023,479**	**75,963,920**	**63,300,129**	**47,968,586**	**58,644,172**

Table 172. Total revenue by NE multispecies vessels by landing state, 2001-2007

Landing State	Port Group	2001	2002	2003	2004	2005	2006	2007
ME	Downeast ME	1,841,756	1,861,686	1,565,858	1,099,357	1,790,079	1,641,812	2,602,007
	Lower Midcoast ME	26,960,777	24,214,776	21,468,003	20,573,299	18,494,977	14,121,435	11,371,640
	Southern ME	363,648	463,259	356,085	883,076	802,925	1,520,904	1,150,217
	Upper Midcoast ME	5,531,333	3,988,340	3,648,877	3,510,311	4,087,171	5,144,139	6,097,392
ME Total		34,697,513	30,528,060	27,038,823	26,066,043	25,175,153	22,443,685	21,728,031
NH	Coastal NH	7,947,105	7,030,472	5,722,055	7,367,827	16,241,046	12,660,016	12,172,296
NH Total		7,947,105	7,030,472	5,722,055	7,367,827	16,241,046	12,660,016	12,191,413
MA	Boston & South Shore	8,784,135	10,806,196	9,205,128	8,085,309	11,386,626	12,473,823	13,801,858
	Cape & Islands	19,566,974	16,027,211	15,035,559	12,703,283	22,963,765	17,506,442	15,175,811
	Gloucester & North Shore	31,318,638	27,533,121	30,353,512	24,917,816	38,421,389	34,745,884	35,213,714
	New Bedford Coast	137,369,392	153,726,636	155,861,625	189,719,996	243,432,295	236,939,514	219,970,264
MA Total		197,174,488	208,147,476	210,513,640	235,436,029	316,204,075	301,703,155	284,161,648
RI	Coastal RI	33,069,263	29,055,085	30,485,588	31,455,781	43,545,682	48,685,053	32,197,558
RI Total		33,069,263	29,065,109	30,523,314	31,487,802	43,590,727	48,776,388	32,417,630
CT	Coastal CT		14,839	1,817,751	4,340,438	6,300,880	3,328,720	3,168,412
CT Total			14,839	1,817,751	4,340,438	6,300,880	3,328,720	3,168,412
NY	Long Island	18,951,602	17,191,381	15,872,243	15,161,391	17,015,234	17,660,874	15,477,766
NY Total		18,963,405	17,196,949	15,877,382	15,646,073	17,384,383	17,719,525	15,724,025
NJ	Northern Coastal NJ	23,185,875	24,435,522	26,241,720	30,143,180	39,263,607	34,010,437	34,029,971
	Southern Coastal NJ	26,453,501	28,914,474	37,040,064	56,660,451	52,831,196	37,081,284	52,103,173
NJ Total		50,531,813	53,566,294	63,299,858	86,808,275	92,094,803	71,105,798	86,266,281
All Other		50,642,359	58,297,215	67,467,079	80,333,554	68,136,624	53,678,604	54,129,082
Grand Total		**393,025,947**	**403,846,414**	**422,259,902**	**487,486,042**	**585,127,690**	**531,415,891**	**509,786,521**

Table 173. Groundfish revenues by NE multispecies vessels by landing state, 2001-2007

Landing State	Port Group	2001	2002	2003	2004	2005	2006	2007
ME	Downeast ME	Conf.	Conf.			11,443	7,640	13,113
	Lower Midcoast ME	17,072,559	14,930,932	12,514,645	12,248,116	11,724,020	7,714,260	6,730,880
	Southern ME	316,120	291,448	259,009	580,519	452,935	310,299	205,649
	Upper Midcoast ME	1,534,707	1,544,064	1,315,051	545,995	677,830	66,618	181,213
ME Total		18,947,094	16,766,731	14,088,704	13,374,630	12,866,229	8,102,478	7,130,854
NH	Coastal NH	3,673,222	3,131,381	2,826,691	3,373,548	3,134,910	2,662,336	2,268,581
NH Total		3,673,222	3,131,381	2,826,691	3,373,548	3,134,910	2,662,336	2,280,575
MA	Boston & South Shore	5,892,094	7,126,012	6,326,092	5,236,242	5,950,222	5,939,630	7,945,214
	Cape & Islands	8,333,913	6,434,570	4,919,719	4,554,852	4,692,072	2,971,938	3,604,305
	Gloucester & North Shore	18,324,684	18,678,838	18,002,399	14,678,112	17,186,493	16,474,988	18,424,213
	New Bedford Coast	38,358,940	38,389,226	30,448,335	25,722,575	24,001,568	20,526,038	19,828,780
MA Total		71,013,353	70,644,631	59,696,545	50,191,781	51,830,356	45,912,593	49,802,512
RI	Coastal RI	3,299,551	3,703,841	2,871,007	2,087,821	2,338,379	3,698,120	3,550,362
RI Total		3,299,551	3,703,841	2,871,007	2,087,821	2,338,379	3,698,460	3,550,362
CT	Coastal CT			5,029	105,846	77,576	112,854	58,504
CT Total				5,029	105,846	77,576	112,854	58,504
NY	Long Island	1,214,417	696,270	739,255	373,996	439,623	810,574	726,750
NY Total		1,214,608	697,880	739,255	374,742	440,875	810,574	726,750
NJ	Northern Coastal NJ	485,725	313,869	584,559	507,672	411,796	725,035	690,755
	Southern Coastal NJ	2,172	1,971	1,270	3,243	1,314	6,804	3,215
NJ Total		487,989	315,840	585,828	510,915	413,110	731,839	693,970
All Other		1,474	1,131	1,740	10,235	1,504	1,517	541
Grand Total		**98,637,293**	**95,261,434**	**80,814,800**	**70,029,516**	**71,102,940**	**62,032,652**	**64,244,069**

Table 174. Number of DAS Leased for Partial FY 2008 Compared to the Same Period FY 2007

Month	2007 Leased DAS	2008 Leased DAS
May	1,312.09	1,361.97
June	1,049.99	1,818.85
July	1,504.14	1,219.77
August	1,473.07	1,491.01
September*	570.29	741.94
Total	5,909.58	6,633.54

*Includes DAS Lease requests processed through September 12 of both years.

Figure 55. Average Price and DAS Leased by Month During Fishing Year 2005

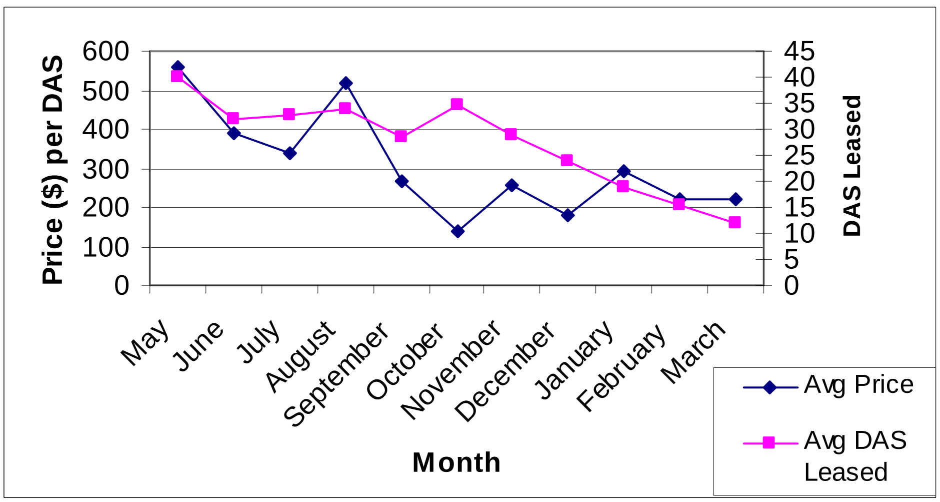


Figure 56. Average Price and DAS Leased by Month During Fishing Year 2006

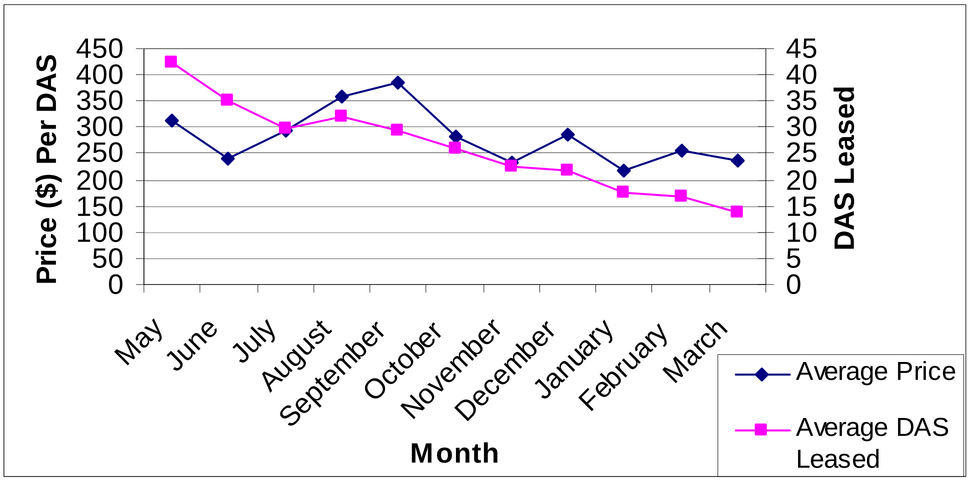
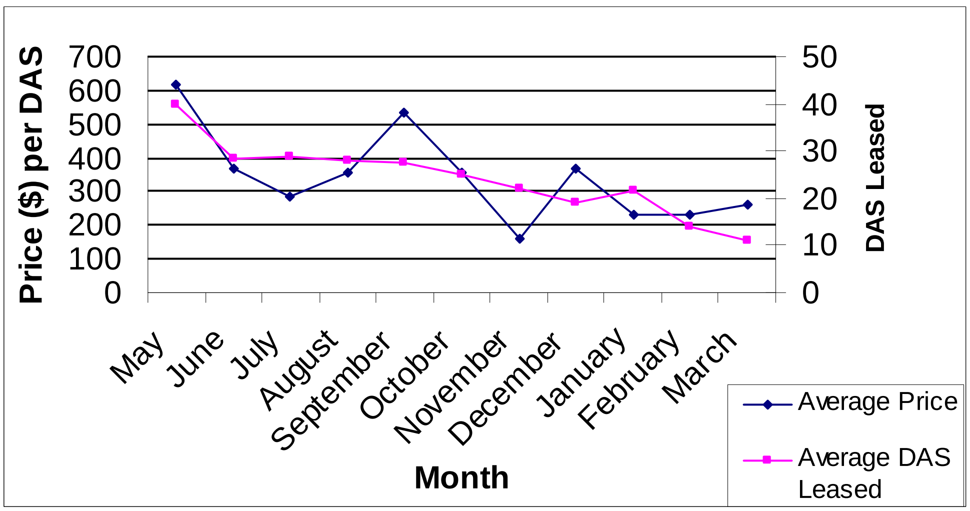


Figure 57. Average Price and DAS Leased by Month During Fishing Year 2007



Out of the primary groundfish ports, vessels based out of New Bedford have paid the highest average price per DAS leased since the development of the DAS Leasing Program, with an average price of just over $780 per DAS in FY 2007 (Figure 57). With the exception of Boston, the three other major ports show an increasing trend in average prices since FY 2005, although prices in Gloucester have remained relatively stable, increasing only $33 since FY 2005. However, for all ports, these recent prices are far below those offered during the first year of the program in FY 2004. Data presented in Framework 42 indicated average price per DAS in FY 2004 were just under $900 per DAS for New Bedford vessels, while Portland and Gloucester vessels paid just over $500 and $300, respectively.

Figure 58. Average Price per DAS Leased by the Major Ports During Fishing Years 2005-2007

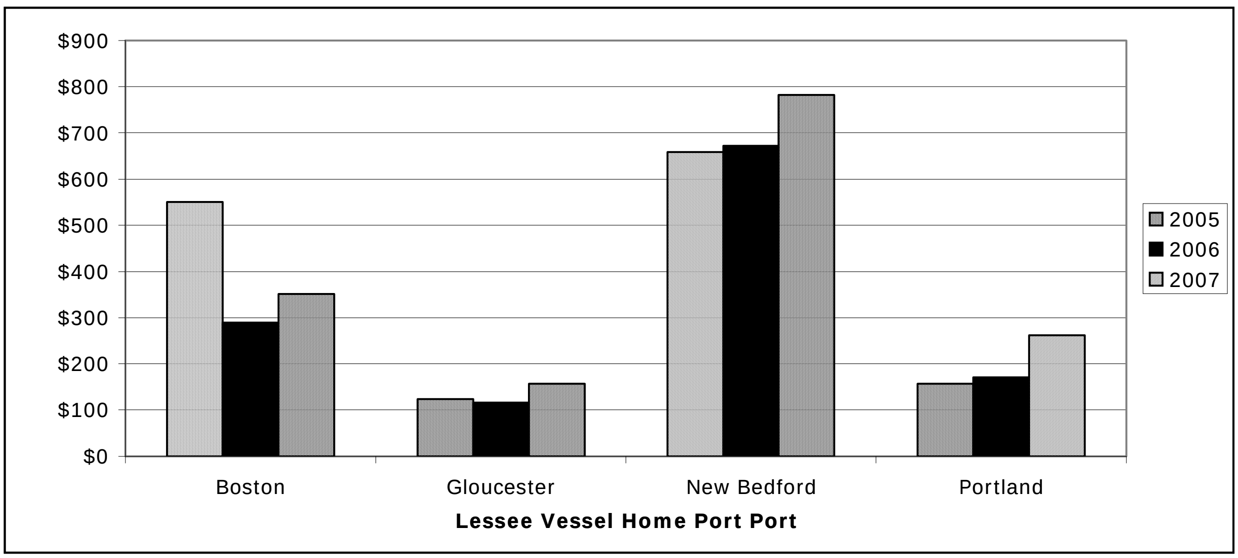


Table 175. Average Revenue Per Trip and Per B DAS for FY 2006 Regular B DAS Unflipped Trips by Species. Sorted by Revenue per Trip

Species	Average Revenue Per Trip	Average Revenue Per DAS
Pollock	$ 9,012	$ 2,710
Skates	$ 6,606	$ 2,038
Lobster	$ 704	$ 664
Redfish	$ 630	$ 169
Haddock	$ 626	$ 241
Winter skate	$ 527	$ 422
Monkfish	$ 517	$ 155
White hake	$ 473	$ 124
Cod	$ 447	$ 147
Cusk	$ 162	$ 58

Witch flounder	$ 129	$ 37
American plaice	$ 104	$ 30
Winter flounder	$ 31	$ 12
Yellowtail flounder	$ 27	$ 7
Spiny dogfish	$ 23	$ 23
wolffish	$ 19	$ 8

Table 176. Average Revenue Per Trip and Per B DAS for FY 2007 Regular B DAS Unflipped Trips by Species. Sorted by Revenue per Trip.

Species	Average Revenue Per Trip	Average Revenue Per DAS
Pollock	$ 7,177	$ 1,814
Skates	$ 2,904	$ 1,382
Haddock	$ 1,982	$ 446
Redfish	$ 1,137	$ 239
Winter skate	$ 731	$ 649
Monkfish	$ 501	$ 200
Cod	$ 462	$ 132
Lobster	$ 444	$ 199
Witch flounder	$ 396	$ 91
Halibut	$ 343	$ 99
White hake	$ 335	$ 72
American plaice	$ 167	$ 37
Winter flounder	$ 74	$ 34
Cusk	$ 53	$ 11
Yellowtail flounder	$ 48	$ 18
Wolfish	$ 36	$ 8
Bluefish	$ 32	$ 32
Dogfish	$ 29	$ 29
Summer flounder	$ 27	$ 4

Table 177. Average DAS Charged Per Trip for FY 2006 and 2007 Regular B DAS Unflipped Trips by Species.

Fishing Year	Quarter	Average A DAS Charged per Trip
2006	Qtr 3	3.2
	Qtr 4	2.8
Average for Fishing Year 2006		3
2007	Qtr 1	1.2
	Qtr 2	2.5
	Qtr 3	3.1
	Qtr 4	4.4
Average for Fishing Year 2007		2.8

Table 178. Average Total Revenue Per Trip and Per A DAS for FY 2006 and 2007 Regular B DAS Unflipped Trips by Quarter.

Fishing Year	Quarter	Revenue Per Trip	Revenue Per DAS
2006	Qtr 3	$ 7,248	$ 2,295
	Qtr 4	$ 7,927	$ 2,845
Average for Fishing Year 2006		$ 7,587	$ 2,570
2007	Qtr 1	$ 2,707	$ 2,245
	Qtr 2	$ 5,209	$ 2,113
	Qtr 3	$ 8,834	$ 2,888
	Qtr 4	$ 10,739	$ 2,471
Average for Fishing Year 2007		$ 6,872	$ 2,429

Trips Ending on a Category A DAS

The following tables contain summary information from flipped trips from 2006 and 2007. The information is a subset of the total number of trips (only those trips where the dealer database was matched with the DAS database, 89 % of all flipped trips);

Table 179. Number of Regular B DAS Trips Landing Various Species. FY 2006. Trips ending on a Category A DAS (flipped trips).

Species	Number of Trips that Caught Species	Percent of Trips that Caught Species
Monkfish	45	90
Winter flounder	36	72
Cod	35	70
Skates	35	70
Haddock	33	66
Witch flounder	30	60
Yellowtail flounder	30	60
Pollock	27	54
American plaice	26	52
Summer flounder	23	46
Windowpane	22	44
White hake	18	36
Lobster	16	32
Cusk	15	30
Redfish	15	30
Wolfish	11	22
Scup	8	16
Loligo squid	7	14
Atlantic halibut	6	12

Table 180. Number of Regular B DAS trips Landing Various Species. FY 2007. Trips Ending on a Category A DAS (flipped trips).

Species	Number of Trips that Caught Species	Percent of Trips that Caught Species
Monkfish	48	94
Cod	41	80
Witch flounder	34	67
American plaice	33	65
Haddock	32	63
Winter flounder	30	59
Skates	30	59
Yellowtail flounder	23	45
Pollock	22	43
White hake	19	37
Lobster	15	29
Wolfish	15	29
Summer flounder	14	27
Redfish	14	27
Cusk	11	22
Atlantic halibut	5	10

Table 181. Average Revenue Per Trip and Per DAS for FY 2006 Regular B DAS Flipped Trips by Species. Sorted by Revenue Per Trip.

Species	Average Revenue Per Trip	Average Revenue Per DAS
Cod	$ 5,373	$ 967
Yellowtail flounder	$ 4,476	$ 917
Lobster	$ 3,767	$ 743
Haddock	$ 3,061	$ 38
Skates	$ 2,469	$ 573
Winter flounder	$ 2,388	$ 561
Sea scallop	$ 1,976	$ 270
Pollock	$ 1,892	$ 316
Monkfish	$ 1,852	$ 396
American plaice	$ 1,410	$ 246
Witch flounder	$ 1,139	$ 213
White hake	$ 645	$ 109
Black sea bass	$ 553	$ 719
Summer flounder	$ 468	$ 138
Redfish	$ 315	$ 56
scup	$ 250	$ 329

Table 182. Average Revenue Per Trip and Per DAS for FY 2007 Regular B DAS Flipped Trips by Species. Sorted by Revenue Per Trip.

Species	Average Revenue Per Trip	Average Revenue Per DAS
Haddock	$ 5,455	$ 899
Pollock	$ 4,857	$ 774
Cod	$ 4,380	$ 861
Winter flounder	$ 1,967	$ 452
Witch flounder	$ 1,733	$ 311
Lobster	$ 1,619	$ 281
Summer flounder	$ 1,433	$ 308
Monkfish	$ 1,410	$ 313
Yellowtail flounder	$ 1,334	$ 258
White hake	$ 1,330	$ 209
American plaice	$ 1,061	$ 179
Scup	$ 865	$ 487
Redfish	$ 702	$ 101
Skates	$ 691	$ 145
Sea scallops	$ 619	$ 92

Table 183. Average Total Revenue Per Trip, Revenue Per DAS Charged, and Average DAS Charged Per Trip. Flipped Trips. 2006 and 2007.

Year	Average Revenue Per Trip	Revenue Per DAS Charged	Average DAS Charged Per Trip
2006	$ 18,163	$ 4,214	4.3
2007	$ 16,083	$ 3,757	4.3

Table 184. Species Landed by Gillnet Gear on Regular B DAS Trips in FY 2006 and 2007 (combined). Flipped Trips Only.

Species	Pounds Landed	Number of Trips that Caught Species	Percent of Trips that Caught Species
Pollock	69,816	6	55%
Skates	17,548	6	55%
Cod	6,995	9	82%
White hake	3,335	5	45%
Spiny dogfish	1,200	2	18%
Monkfish	517	9	82%
Redfish	194	2	18%
Lobster	116	3	27%
Bluefish	115	2	18%
Cusk	90	3	27%

Winter flounder	67	3	27%
American plaice	7	2	18%
Haddock	4	1	9%
Witch flounder	2	2	18%
Total Trips		11	

Table 185. Species Landed by Bottom Trawl Gear on Regular B DAS Trips in FY 2006 and 2007 (combined). Flipped Trips Only.

Species	Pounds Landed	Number of Trips that Caught Species	Percent of Trips that Caught Species
Pollock	258,275	36	62%
Cod	151,143	53	91%
Skates	147,571	47	81%
Haddock	113,653	51	88%
Yellowtail flounder	67,000	39	67%
Winter flounder	50,034	43	74%
American plaice	38,866	44	76%
Monkfish	36,598	60	88%
Redfish	33,182	25	43%
Witch flounder	31,056	45	78%
White hake	19,351	29	50%
Lobster	14,467	25	43%
Windowpane	8,160	17	29%
Total Trips		68	

Table 186. Eastern U.S./Canada Haddock SAP. Number of Trips Landing Various Species; FY 2005.

Species	Number of Trips Caught	Percent of Trips
Monkfish	49	100
Haddock	46	94
Cod	45	92
Winter flounder	38	78
Yellowtail flounder	38	78
American plaice	37	76
Witch flounder	37	76
Skates	31	63
Pollock	30	61
White hake	26	53
Lobster	22	45
Cusk	18	37
Summer flounder	15	31
Redfish	13	27
Wolffish	11	22

Halibut	9	18
Windowpane	7	14
Scallop	4	8
Bluefish	2	4
Red hake	1	2
Sliver hake	1	2
Tilefish	1	2
Total number of trips	49	

Table 187. Eastern U.S./Canada Haddock SAP. Average Revenue Per Trip and Average Revenue Per DAS; FY 2005.

Species	Average Revenue Per Trip	Average Revenue Per DAS
Haddock	$ 14,238	$ 2,7691
Winter flounder	$ 8,218	$ 1,603
Yellowtail flounder	$ 8,201	$ 1,646
Monkfish	$ 3,194	$ 636
Pollock	$ 2,846	$ 529
Witch flounder	$ 2,651	$ 498
Lobster	$ 2,418	$ 491
American plaice	$ 2,391	$ 442
Cod	$ 1,635	$ 310
Skates	$ 892	$ 178
Scallop	$ 621	$ 126
White hake	$ 442	$ 85
Halibut	$ 194	$ 33
Cusk	$ 192	$ 32
Summer flounder	$ 184	$ 37
Redfish	$ 154	$ 27
Windowpane	$ 45	$ 9
Wolfish	$ 32	$ 6
Bluefish	$ 25	$ 5
Red hake	$ 20	$ 8
Tilefish	$ 9	$ 2
Silver hake	$ 8	$ 1

Seafood Dealers

Table 188. Number of Federally Permitted Groundfish Dealers

State	2001	2002	2003	2004	2005	2006	2007
CT	6	7	6	6	4	4	5
DE	2	2	2	1	2	2	2
MA	134	131	125	117	111	118	112

MD	4	3	6	5	4	7	8
ME	56	56	54	51	35	30	33
NC	24	22	23	24	21	22	22
NH	9	9	8	8	7	8	7
NJ	42	41	36	31	35	43	52
NY	77	75	77	77	74	68	73
RI	39	38	43	41	39	40	38
VA	17	20	23	23	23	22	18
Other	10	7	8	6	5	3	2
Total	420	411	411	390	360	367	372

Table 189. Number of Federally Permitted Groundfish Dealers Reporting Buying Groundfish

State	2001	2002	2003	2004	2005	2006	2007
CT	2	0	2	1	0	1	1
DE	0	0	0	0	1	1	1
MA	68	64	63	55	54	53	48
MD	1	1	1	1	2	2	1
ME	10	9	8	7	8	6	9
NC	2	7	5	7	8	6	7
NH	2	3	2	1	2	1	2
NJ	10	10	8	9	8	9	9
NY	37	36	46	43	39	38	34
RI	33	21	26	21	21	20	19
VA	5	3	4	8	4	0	2
Other	0	0	0	0	0	0	0
Total	170	154	165	153	147	137	133

Table 190. Share of Groundfish Purchased by Federally Permitted Dealers Including Auctions

State	2001	2002	2003	2004	2005	2006	2007
CT	0%		0%	0%		0%	0%
DE					0%	0%	0%
MA	71%	73%	74%	76%	76%	75%	77%
MD	0%	0%	0%	0%	0%	0%	0%
ME	20%	18%	17%	18%	18%	16%	13%
NC	0%	0%	0%	0%	0%	0%	0%
NH	4%	4%	3%	2%	2%	2%	3%
NJ	1%	0%	1%	1%	1%	1%	1%
NY	2%	1%	1%	1%	1%	1%	1%
RI	3%	4%	3%	3%	3%	5%	5%
VA	0%	0%	0%	0%	0%		0%

Auctions	57%	57%	57%	56%	55%	50%	46%
MA	38%	39%	40%	39%	38%	35%	34%
ME	20%	18%	17%	17%	17%	15%	11%

Table 191. Share of Groundfish Purchased by Federally Permitted Dealers Excluding Auctions

State	2001	2002	2003	2004	2005	2006	2007
CT	0%		0%	0%		0%	0%
DE					0%	0%	0%
MA	78%	80%	80%	84%	85%	79%	78%
MD	0%	0%	0%	0%	0%	0%	0%
ME	0%	0%	0%	1%	2%	2%	3%
NC	0%	0%	0%	0%	0%	0%	0%
NH	8%	9%	7%	5%	5%	5%	5%
NJ	2%	1%	2%	2%	1%	2%	2%
NY	4%	2%	2%	2%	1%	2%	2%
RI	8%	9%	8%	7%	6%	10%	10%
VA	0%	0%	0%	0%	0%		0%

Table 192. Relative Dependence on Groundfish

	2001	2002	2003	2004	2005	2006	2007
				Massachusetts Dealers			
20th Percentile	0.2%	0.2%	0.7%	0.3%	0.0%	0.2%	0.2%
Median	19.2%	19.3%	16.3%	11.4%	4.0%	2.4%	3.2%
80th Percentile	79.1%	77.6%	82.0%	73.0%	50.0%	51.6%	64.4%
				New Jersey Dealers			
20th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Median	0.0%	0.0%	0.3%	0.0%	0.7%	0.8%	0.3%
80th Percentile	3.3%	2.6%	7.9%	8.3%	4.7%	8.5%	9.3%
				New York Dealers			
20th Percentile	1.7%	0.7%	0.5%	0.4%	0.2%	0.2%	0.5%
Median	10.0%	2.7%	4.4%	1.9%	1.5%	3.5%	3.1%
80th Percentile	48.2%	27.0%	21.5%	9.9%	6.6%	15.1%	10.9%
				Rhode Island Dealers			
20th Percentile	0.2%	0.1%	0.1%	0.0%	0.0%	0.1%	0.0%
Median	0.9%	5.4%	1.2%	4.0%	0.3%	5.6%	5.2%
80th Percentile	15.9%	19.1%	8.7%	13.0%	8.4%	13.3%	17.3%

Recreational Affected Human Environment

Table 193. Winter Flounder catch (A+B1+B2) by distance from shore (1,000's of fish)

Calendar Year	<= 3 mi.	> 3 Mi.	Inland	Total Catch	EEZ Proportion
2001	241	27	1326	1593	1.7%
2002	98	15	695	809	1.9%
2003	157	15	675	847	1.8%
2004	119	9	374	502	1.8%
2005	71	1	481	553	0.3%
2006	148	6	508	662	0.9%
2007	74	4	286	364	1.0%

Table 194. Winter flounder catch disposition by stock (1,000's of fish)

	GOM			SNE/MA Stock		
Calendar Year	Catch (A+B1+B2)	Harvested (A+B1)	Released Alive (B2)	Catch (A+B1+B2)	Harvested (A+B1)	Released Alive (B2)
2001	173	72	102	1421	892	528
2002	101	61	40	707	408	299
2003	86	52	34	761	572	189
2004	61	41	20	442	344	98
2005	79	40	39	484	215	269
2006	94	53	41	591	273	318
2007	74	48	26	289	215	74

Table 195. Winter flounder harvest by stock area and mode (numbers of fish)

	Gulf of Maine Stock			SNE/MA Stock		
Year	Party/ Charter	Private Boat	Shore	Party/ Charter	Private Boat	Shore
2001	1387	58504	9269	34574	638583	156550
2002	441	48502	10273	28772	268754	98786
2003	1721	39926	11212	51146	448776	42264
2004	312	25951	12568	47526	221769	75718
2005	6150	21264	17729	6502	147270	43744
2006	0	46931	5102	2214	191811	51009
2007	5283	36789	7157	1089	200292	6151

Figure 59. Cumulative Percent of GOM Winter flounder harvest by number of fish per angler (all modes combined)

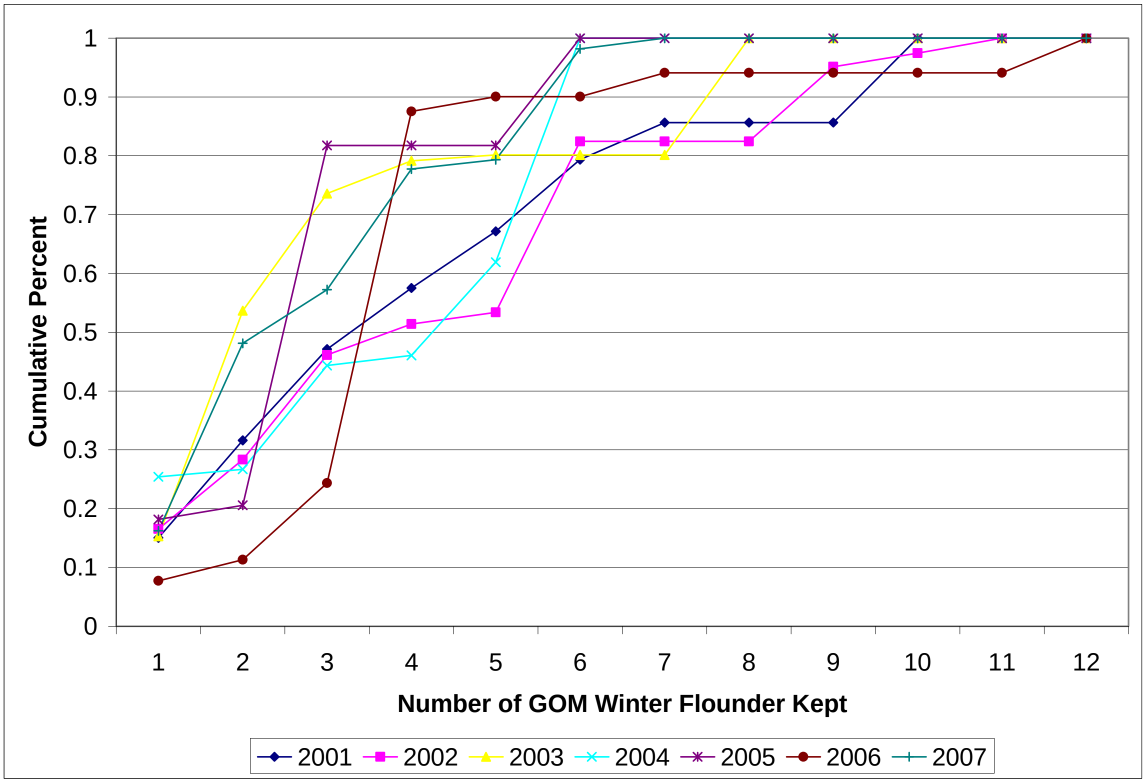


Figure 60. Cumulative Percent of Trips Keeping GOM Winter Flounder (all modes combined)

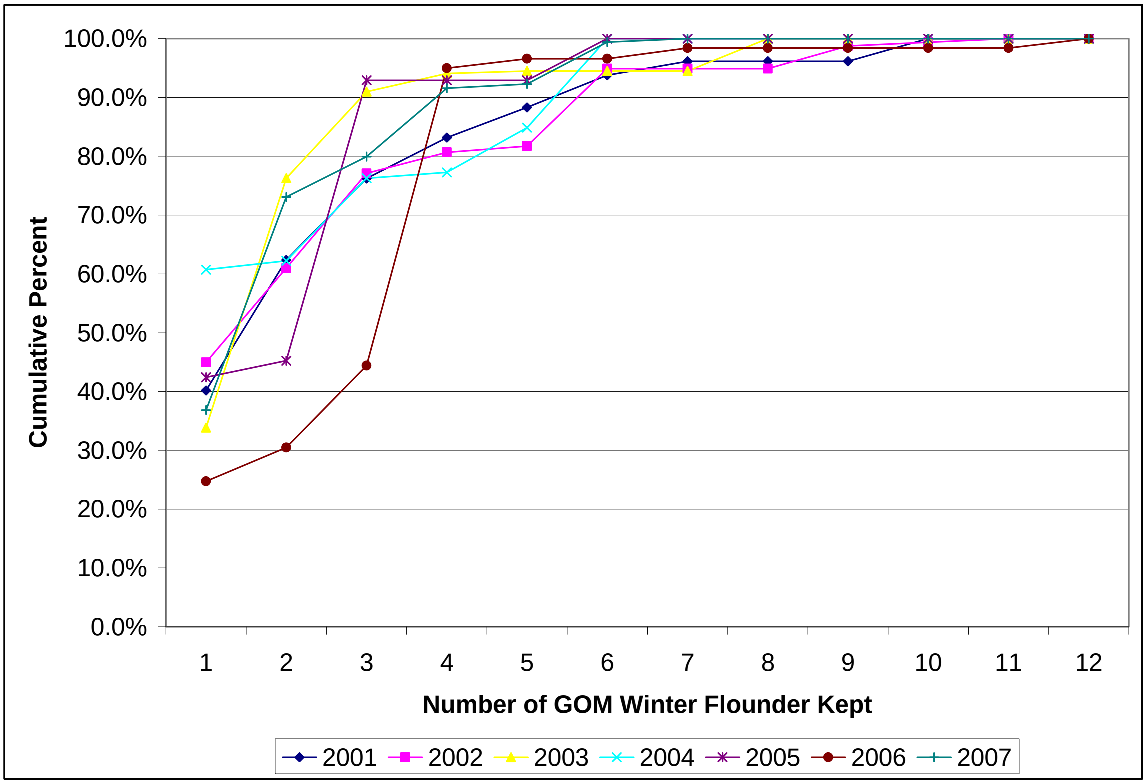


Table 196. Number of Measured Winter Flounder by Year

Year	Number of Measured Fish
2001	522
2002	293
2003	275
2004	316
2005	152
2006	136
2007	94

Figure 61. Size Distribution of Winter Flounder Harvest

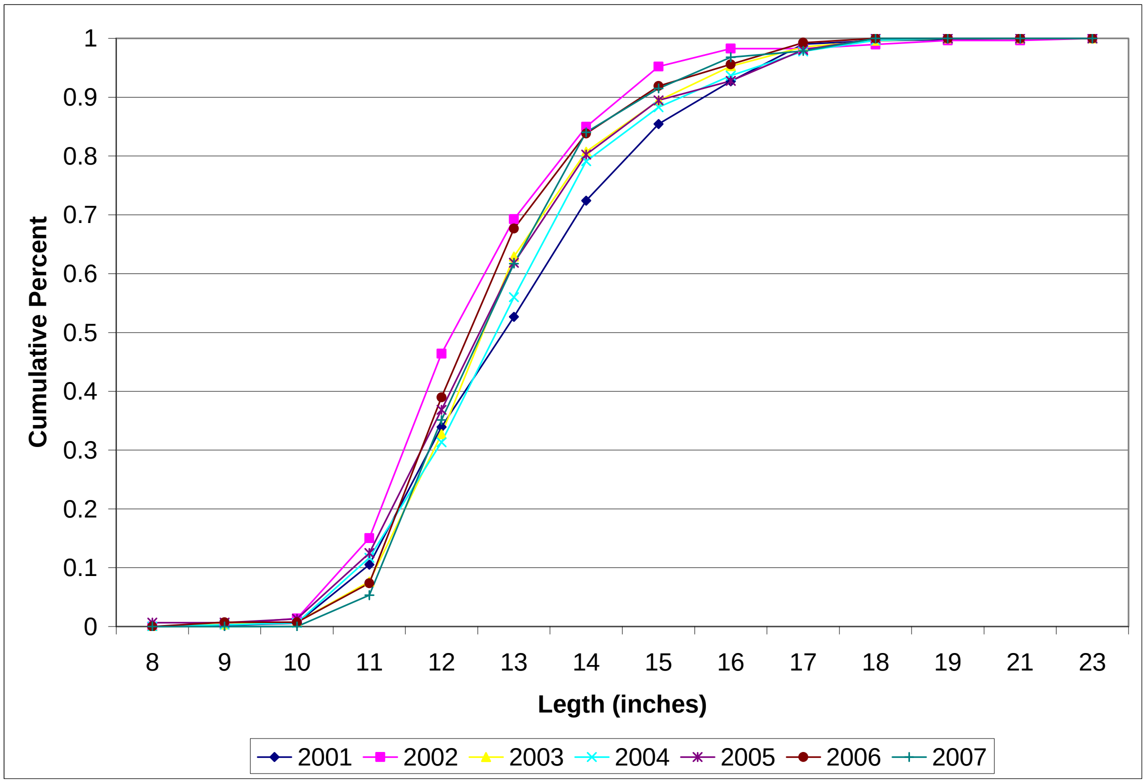


Table 197. Proportion of SNE/MA Winter Flounder Harvested by Wave

	2001	2002	2003	2004	2005	2006	2007
Wave				Party/Charter Mode			
2	98.7%	97.6%	82.7%	85.1%	99.7%	43.2%	100.0%
3	1.3%	2.4%	17.3%	14.2%	0.0%	54.7%	0.0%
4	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
5	0.0%	0.0%	0.0%	0.6%	0.2%	0.0%	0.0%
6	0.0%	0.0%	0.0%	0.1%	0.2%	2.0%	0.0%
				Private Boat/Shore Mode			
2	60.9%	23.0%	54.8%	42.2%	47.3%	43.4%	92.3%
3	28.1%	7.0%	28.1%	33.8%	35.3%	56.4%	7.7%
4	0.3%	0.2%	0.3%	1.1%	0.0%	0.0%	0.0%
5	2.2%	12.1%	7.2%	14.3%	0.0%	0.2%	0.0%
6	8.5%	57.7%	9.6%	8.6%	17.5%	0.0%	0.0%
2	60.9%	23.0%	54.8%	42.2%	47.3%	43.4%	92.3%

Table 198. Proportion of GOM Winter Flounder Harvested by Wave

Wave	2001	2002	2003	2004	2005	2006	2007
			Party/Charter Mode				
2	89.5%	94.7%	73.4%	79.4%	0.0%	0.0%	0.0%
3	6.3%	2.3%	18.7%	19.2%	26.0%	0.0%	0.0%
4	3.4%	0.0%	8.0%	0.0%	74.0%	0.0%	100.0%
5	0.0%	2.6%	0.0%	0.8%	0.0%	0.0%	0.0%
6	0.7%	0.4%	0.0%	0.6%	0.0%	0.0%	0.0%
			Private Boat/Shore Mode				
2	50.0%	18.7%	22.4%	30.5%	0.0%	0.0%	0.0%
3	33.6%	25.5%	40.1%	35.2%	33.2%	34.6%	7.4%
4	5.1%	8.3%	7.4%	23.7%	66.8%	48.4%	82.5%
5	2.4%	7.2%	13.6%	4.2%	0.0%	17.1%	10.1%
6	9.0%	40.3%	16.5%	6.5%	0.0%	0.0%	0.0%
2	50.0%	18.7%	22.4%	30.5%	0.0%	0.0%	0.0%

Haddock

Table 199. Total Haddock Catch by Distance from Shore (in thousands of fish)

Year	<= 3 mi.	> 3 Mi.	Total	EEZ Proportion
2001	4.6	228.2	232.8	98.0%
2002	8.4	247.2	255.6	96.7%
2003	6.9	373.7	380.6	98.2%
2004	1.5	400.4	402.0	99.6%
2005	9.1	565.0	574.1	98.4%
2006	12.5	445.7	458.2	97.3%
2007	103.2	404.6	507.8	79.7%

Table 200. GOM Haddock Catch Disposition in Numbers (1,000’s) (GARM III) (in thousands of fish)

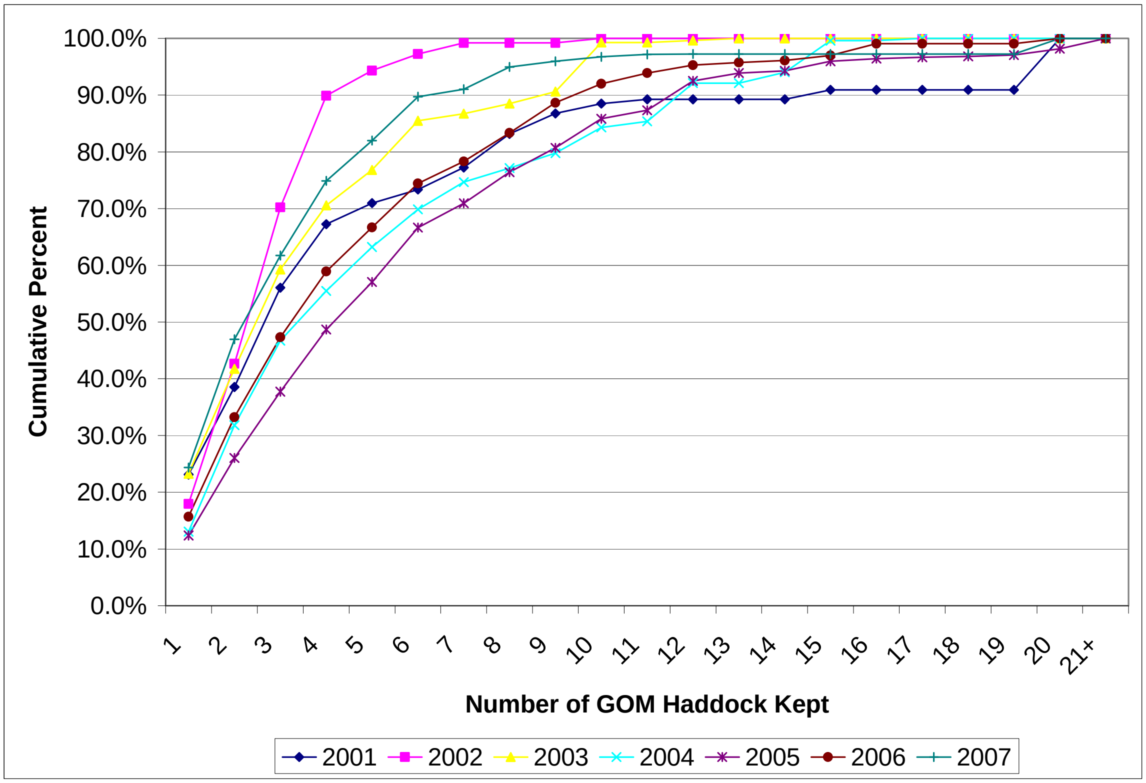
Year	Catch (A+B1+B2)	Harvested (A+B1)	Released Alive (B2)
2001	232.7	120.4	112.3
2002	255.3	83.3	172
2003	380.7	119.8	260.9
2004	420.9	278.5	142.4
2005	560.9	444.7	116.2
2006	442.1	277.9	164.2
2007	503.6	398.2	105.4

Table 201. Gulf of Maine Haddock Harvested by Mode (numbers of fish)

Year	Party/Charter	Private Boat
2001	60,773	56,536
2002	31,249	47,832
2003	53,938	65,586
2004	118,368	147,133
2005	225,843	211,363
2006	177,921	87,683
2007	104,946	235,806

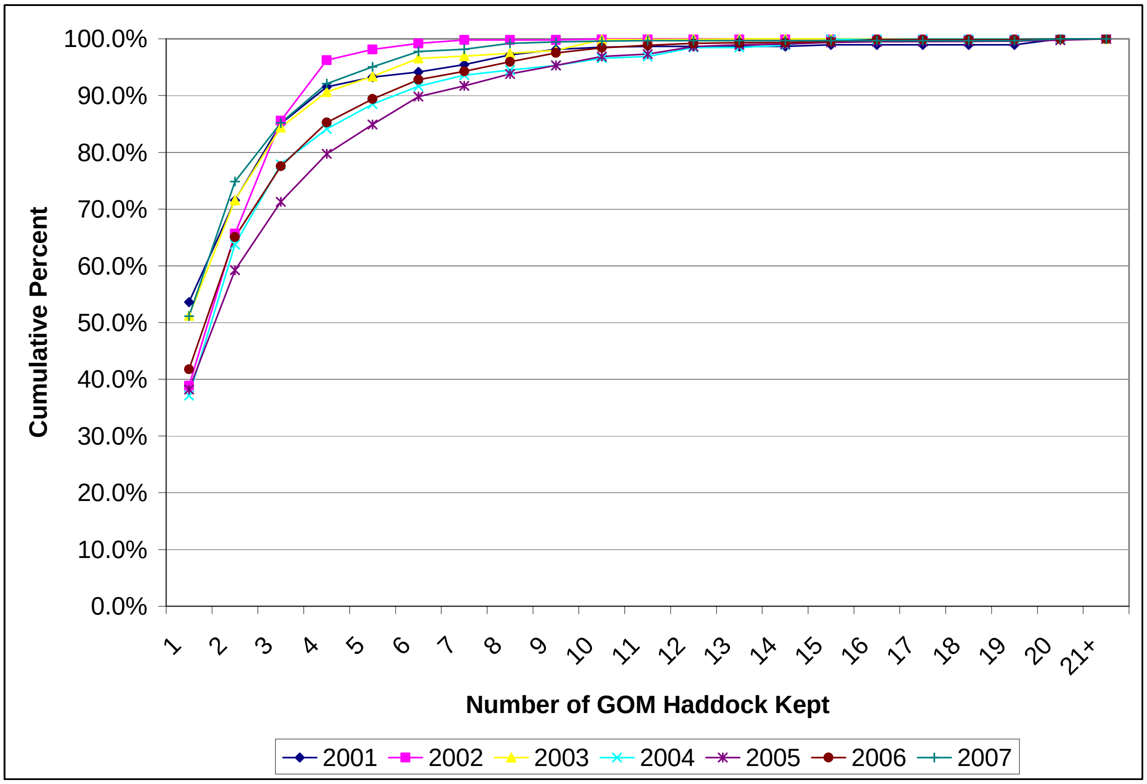
On average, 54% of GOM haddock harvested by party/charter anglers occurred on trips where 3 or fewer haddock were kept, while 92% of harvest occurred on trips that caught 10 or fewer fish were kept. The distribution of harvest by keep class during 2004 to 2006 is suggestive of a trend toward higher numbers of haddock kept by angler trip. That is, the cumulative distribution of harvest by keep class lies rightward of the cumulative distributions for prior years. For example, trips where 5 or fewer fish were kept accounted for 62% of harvested GOM haddock during 2004 to 2006 compared to 81% of total harvest during 2001 to 2003. Note that the distribution of harvest by keep class during 2007 was similar to that of the distributions estimated for 2001 to 2003.

Figure 62. Distribution of Kept Fish per Angler Trip for GOM Haddock Party/Charter Mode



In the party/charter mode, 45% of trips that landed GOM haddock kept only one fish (Figure 43). Trips where 3 or fewer GOM haddock were retained accounted for an average of 81% of occasions where GOM haddock were kept during 2001 to 2007. That is, trips on which 3 or fewer fish were kept accounted for 27% more of party/charter angler trips as compared to the number of haddock retained. However, as the number of kept haddock increases the difference between the cumulative distribution of retained fish and trips converges. For example, during 2001 to 2007 the cumulative percent of retained haddock and number of trips averaged 92% and 97% respectively when 10 or fewer fish were kept. In terms of management implications this means that at high potential bag limits for GOM haddock in the party/charter mode the biological impact on haddock and affected angler trips will be roughly proportional to one another. However, at lower potential bag limits the proportional impact on haddock will be larger than the proportional impact on affected trips and that this divergence between haddock and angler trips gets larger as the number of kept haddock gets lower.

Figure 63. Cumulative Percent of Party/Charter Angler Trips that Retained GOM Haddock



Compared to party/charter mode anglers the distribution of harvest by keep class by private boat anglers displays more inter-annual variability. However, the general shift toward higher numbers of fish kept on fishing trips evident in the party/charter mode is also evident in the private boat mode including calendar year 2007. During 2001 to 2004 private boat anglers did not harvest more than 10 fish per trip. However, during 2006 to 2007, 88% of harvested GOM haddock occurred on trips that kept 10 or fewer fish meaning that 12% of total harvest occurred on trips that landed more than 10 haddock.

Figure 64. Distribution of Numbers of GOM Haddock Kept per Angler for Private Boat Mode

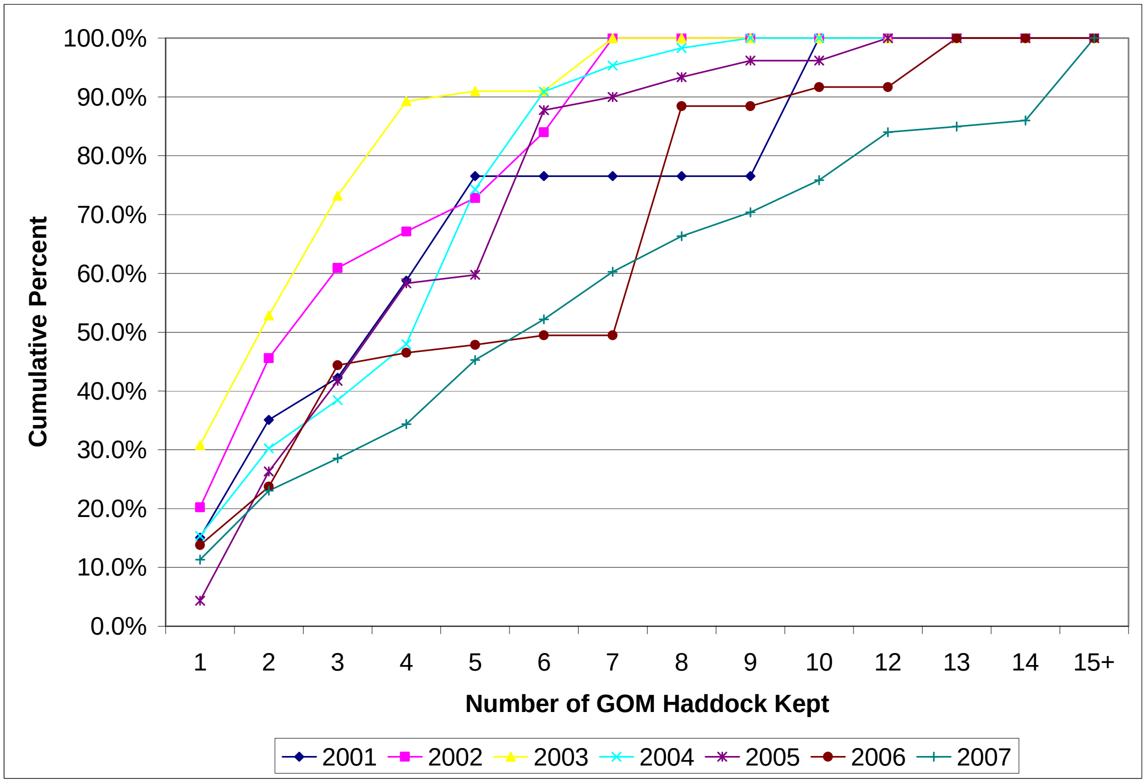


Figure 65. Cumulative Percent of Private Boat Mode Trips that Kept GOM Haddock by Keep Class

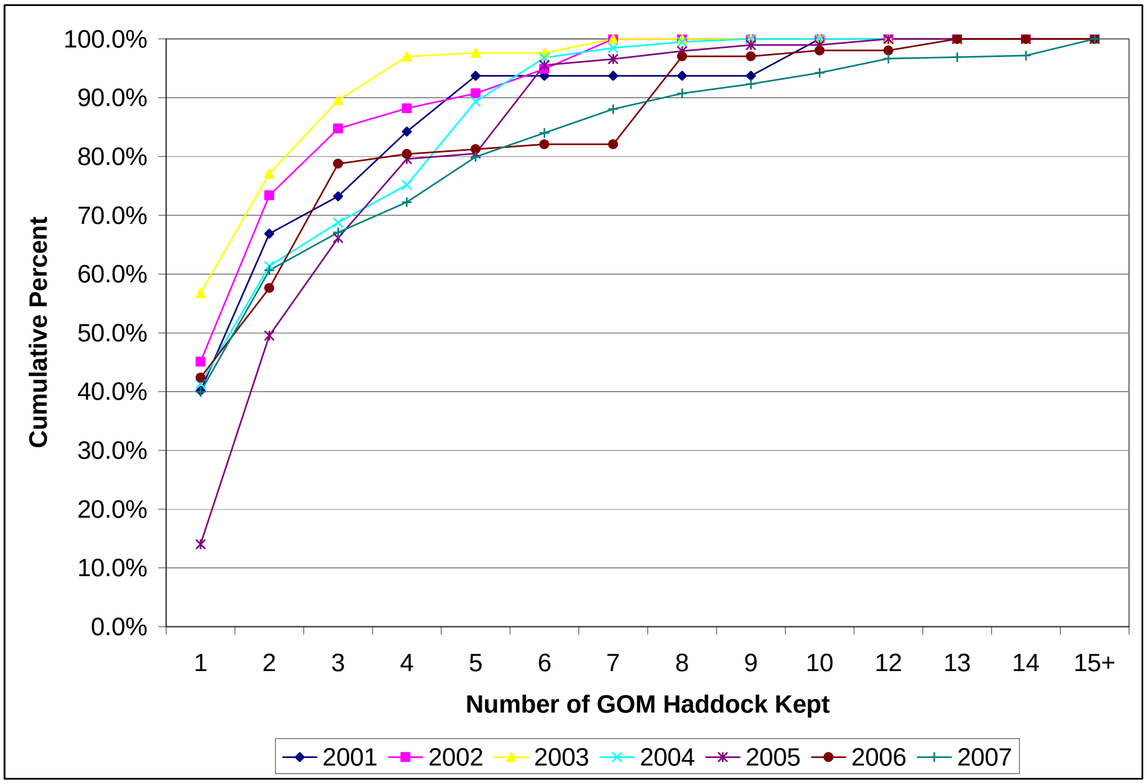


Table 202. Monthly Proportion of GOM Haddock Retained by Mode

Month	2001	2002	2003	2004	2005	2006	2007
Party Charter Mode							
Mar	0.0%	0.0%	0.0%	1.6%	8.1%	4.4%	0.0%
Apr	2.8%	10.8%	10.8%	5.7%	18.0%	16.7%	3.5%
May	25.1%	21.9%	19.7%	13.7%	20.1%	18.7%	9.4%
Jun	4.5%	43.5%	8.9%	3.1%	14.7%	16.9%	18.5%
Jul	36.7%	4.7%	5.9%	10.0%	14.5%	11.1%	29.2%
Aug	9.5%	5.9%	9.8%	43.3%	12.9%	10.6%	9.2%
Sep	8.7%	5.7%	29.7%	11.6%	5.9%	16.6%	28.0%
Oct	12.3%	7.1%	12.0%	9.1%	5.2%	3.8%	2.2%
Nov	0.4%	0.0%	3.1%	0.0%	0.0%	1.1%	0.0%
Dec	0.0%	0.4%	0.0%	1.8%	0.6%	0.0%	0.0%
Private Boat							
Mar	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Apr	0.8%	44.2%	5.7%	0.1%	43.7%	0.0%	13.3%
May	40.5%	11.5%	22.8%	37.2%	18.4%	19.5%	9.5%
Jun	18.5%	1.7%	4.7%	2.2%	6.7%	5.6%	10.7%
Jul	14.3%	7.6%	26.0%	5.8%	3.5%	40.7%	10.1%
Aug	10.9%	33.3%	10.5%	12.1%	21.6%	31.1%	26.0%
Sep	0.0%	1.8%	29.6%	38.0%	5.1%	1.3%	30.4%
Oct	14.9%	0.0%	0.7%	0.4%	0.9%	1.9%	0.0%
Nov	0.0%	0.0%	0.0%	2.9%	0.2%	0.0%	0.0%
Dec	0.0%	0.0%	0.0%	1.2%	0.0%	0.0%	0.0%

Pollock

Table 203. Pollock Catch in Numbers by Distance from Shore (1,000's)

Calendar Year	<= 3 mi.	> 3 Mi.	Inland	Total Catch	EEZ Proportion
2001	367.1	528.6	162.3	1,058.0	50.0%
2002	179.0	190.3	126.9	496.3	38.3%
2003	59.2	189.5	106.9	356.1	53.2%
2004	170.8	107.3	29.3	307.6	34.9%
2005	39.4	178.3	36.3	254.1	70.2%
2006	67.7	120.6	89.4	278.2	43.4%
2007	76.3	126.9	29.7	239.0	53.1%

Table 204. Pollock Catch by Disposition in Numbers (1,000's)

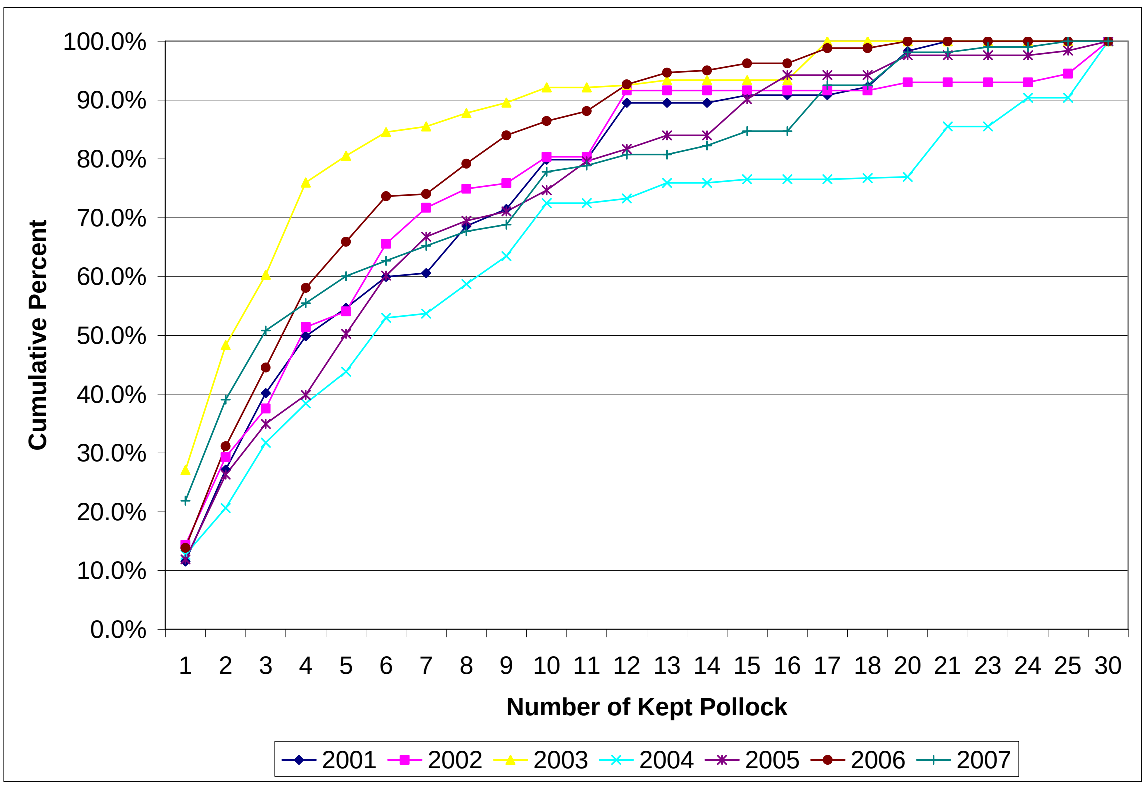
Year	Catch (A+B1+B2)	Harvested (A+B1)	Released Alive (B2)
2001	1058.0	355.7	702.3
2002	496.3	239.2	257.1
2003	356.1	158.5	197.6

2004	307.6	223.7	83.9
2005	254.1	156.8	97.3
2006	278.2	175.1	103.1
2007	239.0	161.2	77.8

Table 205. Number of Harvested Pollock by Mode

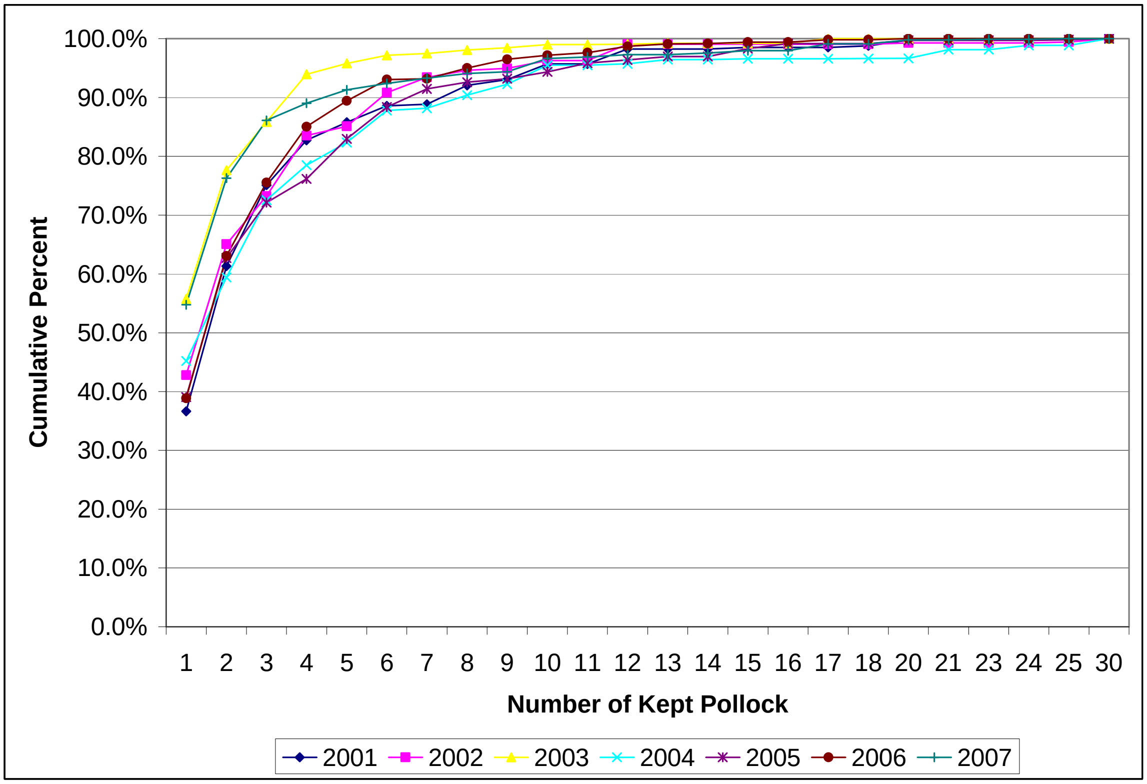
Year	Party/Charter	Private Boat	Shore
2001	87,345	242,015	13,762
2002	22,846	183,603	33,988
2003	22,586	134,875	7,117
2004	71,638	144,873	8,703
2005	60,762	92,764	3,931
2006	56,993	121,686	0
2007	47,030	83,935	18,840

Figure 66. Distribution of kept pollock by number of fish per angler in the party/charter mode



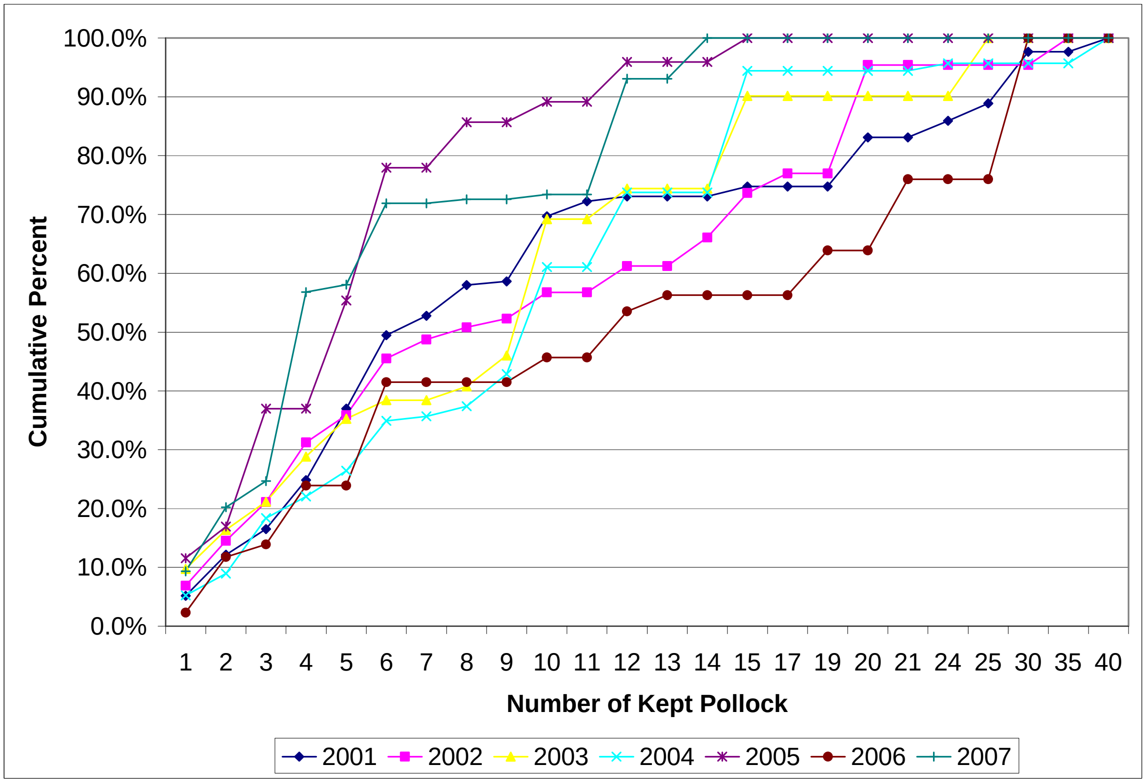
Trips that kept four or fewer pollock averaged 84% of total angler trips that retained pollock during 2001 to 2007. Compared to the cumulative distribution of retained pollock, the cumulative distribution of trips is more steeply sloped asymptotically approaching 100% at lower keep levels. For example, the distribution of trips that kept pollock reaches 90% at trips that retained six or fewer pollock. This level of kept pollock accounted for an average of 66% of total pollock during 2001 to 2007. That is, the remaining 10% of party/charter trips that retained more than six pollock accounted for 34% of total retained fish.

Figure 67. Cumulative Percent of Party/Charter Mode Trips Keeping Pollock by Number Kept per Angler Trip



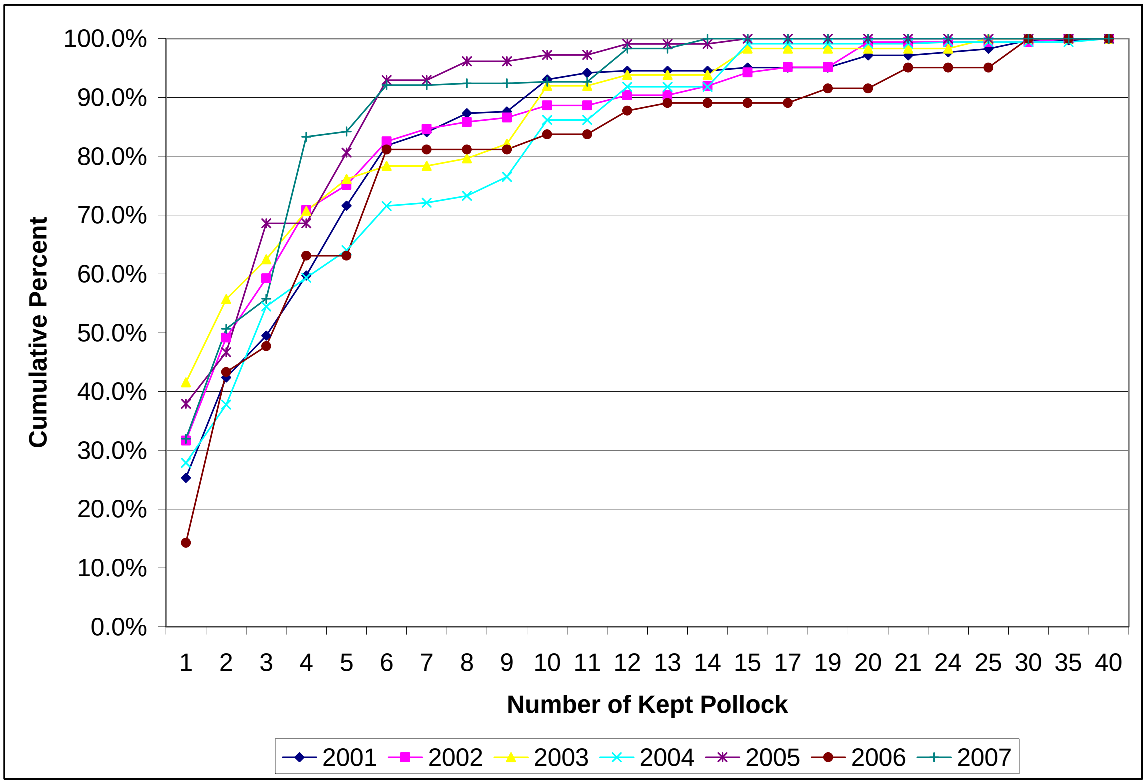
Compared to party/charter anglers, the distribution of numbers of pollock kept by angler trip in the private boat/shore mode displayed considerably more variability. The number of pollock kept per angler that accounted for at least 50% of total kept catch ranged from 4 or fewer fish to as many as 12 or fewer pollock per trip.

Figure 68. Cumulative Percent of kept pollock by numbers of pollock per angler trip in the private boat/shore mode.



As was the case for the party/charter mode, the cumulative percent of trips approaches 100% more rapidly than the cumulative percent of retained pollock. That is, on average, two-thirds of private boat angler trips kept four or fewer pollock while these trips accounted for approximately one-third of all retained pollock. Similarly, 90% of trips keeping at least ten pollock accounted for only two-thirds of all retained pollock. Note that like the party/charter mode, this means that 10% of angler trips that landed more than 10 fish accounted for an average of one-third of recreational pollock kept. The management implication for pollock is that relatively high bag limits would have proportionally larger impacts on pollock as compared to its impact on the number of trips that keep pollock.

Figure 69. Cumulative Percent of Private Boat Mode Trips Keeping Pollock by Number Kept per Angler Trip



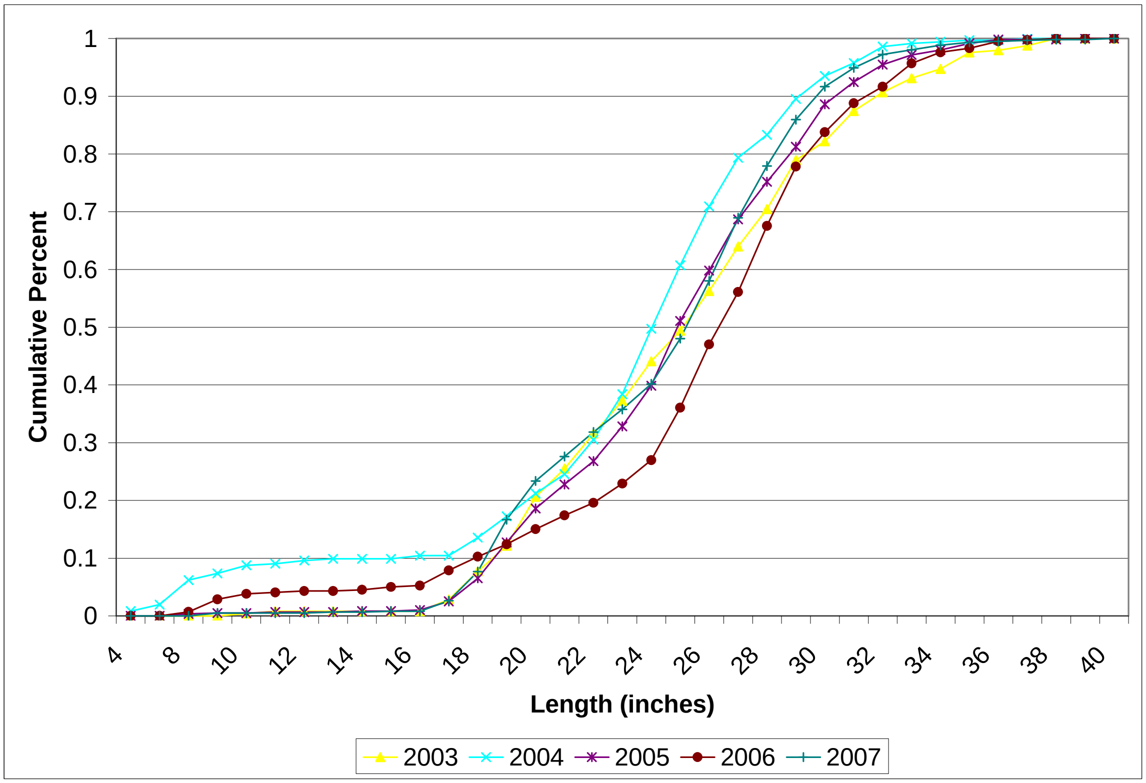
The number of pollock measured by MRIP interviewers ranged from more than 600 pollock during 2007 to less than 70 fish during both 2001 and 2002. Due to small sample size a size distribution for calendar years 2001 and 2002 were not estimated. Further, sample sizes by fishing mode were not sufficient to estimate a length distribution by fishing mode so the size distribution of harvested pollock was estimated by pooling all data across modes.

Table 206. Total number of measured pollock in all fishing modes

Year	Measured Pollock
2001	66
2002	37
2003	247
2004	354
2005	597
2006	419
2007	612

Measured pollock during 2003 to 2007 ranged from as small as 4-inches to 40-inches. Note that this range represents the limit of observed pollock harvested during 2001 to 2007. At the lower end of the size distribution pollock under 19-inches accounted for about 10% of total recreational harvest while at the upper end of the size distribution pollock measuring 30-inches or more accounted for another 10% of the recreational harvest. This means that 80% of the recreational harvest of pollock was between 19 and 30-inches in length.

Figure 70. Size distribution of harvested pollock pooled across all modes



Pollock harvest occurs somewhat earlier in the year in the private boat/shore mode compared to the party/charter mode (Table 132). In most years, nearly 90% of pollock in the private boat/shore mode was harvested during waves 3 and 4 (March – June). By contrast, about 80% of the party/charter harvest of pollock occurred during waves 4 and 5 (May – August). Thus, wave 4 is an important season for all fishing modes whereas, wave 3 was more important for private boat and shore mode anglers and wave 5 tended to be more important for party/charter anglers.

Table 207. Proportion of Pollock Harvested by Wave and Mode

Wave	2001	2002	2003	2004	2005	2006	2007
Party/Charter Mode							
2	0.0%	0.4%	6.2%	0.4%	0.0%	0.6%	0.4%
3	10.8%	16.2%	5.6%	11.2%	8.0%	20.8%	21.1%
4	44.2%	45.0%	57.0%	40.7%	42.4%	44.6%	48.5%
5	44.1%	36.8%	29.2%	44.4%	37.7%	23.4%	29.7%
6	0.8%	1.6%	2.1%	3.2%	11.9%	10.5%	0.3%
Private Boat/Shore Mode							
2	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%
3	28.2%	50.2%	21.6%	17.4%	19.4%	71.1%	39.5%
4	47.3%	44.1%	64.3%	71.0%	71.5%	28.9%	43.9%
5	23.8%	4.0%	9.6%	11.3%	9.1%	0.0%	16.7%
6	0.6%	0.5%	4.5%	0.3%	0.0%	0.0%	0.0%

- END -