

# **Framework 19 to the Atlantic Sea Scallop FMP**

Including an Environmental Assessment, an Initial Regulatory Flexibility Analysis and Stock Assessment and Fishery Evaluation (SAFE) Report

Prepared by the New England Fishery Management Council, in consultation with the National Marine Fisheries Service and the Mid-Atlantic Fishery Management Council

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## EXECUTIVE SUMMARY

This framework and Environmental Assessment (EA) presents and evaluates management measures and alternatives to achieve specific goals and objectives for the Atlantic sea scallop fishery. This document was prepared by the New England Fishery Management Council and its Scallop Plan Development Team (PDT) in consultation with the National Marine Fisheries Service (NMFS, NOAA Fisheries) and the Mid-Atlantic Fishery Management Council (MAFMC). This framework was developed in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA, M-S Act) and the National Environmental Policy Act (NEPA), the former being the primary domestic legislation governing fisheries management in the U.S. Exclusive Economic Zone (EEZ). This document also addresses the requirements of other applicable laws (See Section 6.0).

In addition to the No Action alternative, the Council considered various other alternatives to address the purpose and need of this action. The purpose of this action is to achieve the objectives of the Atlantic Sea Scallop Fishery Management Plan (FMP), which is to prevent overfishing and improve yield-per-recruit from the fishery. The primary need for this action is to set specifications to adjust the day-at-sea (DAS) allocations and an area rotation schedule for the 2008 and 2009 fishing years. This framework adjustment also addresses other issues such as new requirements for the general category fishery as a result of Amendment 11 and other measures that have been raised during development of Framework 19.

The proposed action includes a new rotational area, the existing Hudson Canyon area, to protect small scallops. The Council approved a new overfishing definition based on results from the recent scallop stock assessment (SAW 45), including a new biomass target and threshold and a new fishing mortality threshold; the Council chose to maintain the fishing mortality target at  $F=0.20$ . The overall scenario selected by the Council to achieve the fishing mortality target in this action is the “Pref” Alternative. This is the recommended strategy selected for fishery allocations in FY2008 and FY2009 of the eight different scenarios considered. The “Pref” alternative includes closing the Hudson Canyon area for at least these two years to protect small scallops in this area, allocating one trip in Nantucket Lightship in 2008 for full-time limited access vessels, one trip in Closed Area II in 2009, 4 trips in Elephant Trunk in 2008, and three trips in Elephant Trunk in 2009. In addition, the Delmarva access area would open in 2009 for one trip. The proposed action would allocate 35 open area DAS in 2008 and 42 DAS in 2009 for full-time permits. When all of these allocations are combined together, as well as expected mortality from the general category fishery and other sources, the overall fishing mortality rate is expected to average  $F=0.20$  over the two year time period.

Other alternatives related to access area fishing that are part of the proposed action are the continuation of eliminating the crew size restriction on access area trips and prohibiting all scallop vessels from “deckloading.” The Council recommends that all scallop vessels be prohibited from leaving an access area with more than 50 bushels of in-shell scallop onboard.

In terms of the general category fishery, several alternatives that are part of the proposed action are related to recommendations related to Amendment 11. Specifically, this action includes the quarterly hard-TAC allocations for the transition period to an IFQ program for the general

category fishery. This action also includes the details of a cost recovery program that was approved in Amendment 11 for general category IFQ permit owners. In addition, Amendment 11 approved a hard-TAC for a Northern Gulf of Maine (NGOM) limited entry program. This action includes the specific hard-TAC for that program for the next two fishing years. General category vessels will be allocated 5% of the total catch in access areas in both FY2008 and 2009 under this framework. The last alternative related to Amendment 11 is an estimate of incidental catch mortality that will be removed from the total projected catch before allocations are made.

Other measures being proposed include alternatives to address specific issues with the observer set-aside program. In addition, the proposed action includes a provision for a vessel to power down their VMS unit for a minimum of 30 days. This action also includes a clarification about when a vessel can leave for an access area trip. Lastly, this action approves research priorities to be incorporated in the RSA program for FY2008 and FY2009.

### **Summary of alternatives considered and the Council's rationale for the proposed action**

- **Access Area Management Measures on Georges Bank (Section 2.3.1)**

The Council recommends Alternative 1, which will revise the order of access area openings on Georges Bank. Specifically, this action will only allocate one trip in one access area per year on Georges Bank (Nantucket Lightship in 2008 and Closed Area II in 2009). The Closed Area I access area will not open under this framework action. The rationale for this decision is that the biological projections indicate that only one access area trip should be allocated per year to meet overall mortality objectives and optimize yield. The exploitable biomass in Closed Area I is not expected to support an allocation of even one trip, especially since the boundaries have been reduced as a result of the Court order from the *Oceana v. Evans* lawsuit (08/02/05).

- **Hudson Canyon Access Area (Section 2.3.2)**

The Council recommends the No Action for this alternative; all un-used 2005 Hudson Canyon trips will expire February 29, 2008. The Council does not believe any un-used trips should be used past 2007. It was argued that Framework 18 already provided a two-year extension to vessels that did not use their Hudson Canyon trips allocated in 2005. One Council member pointed out that continuously allowing vessels to carry over trips in the future gives the industry a false impression that access area trips are guaranteed and do not have to be taken during a specific time period. The PDT has voiced concern that extending trips too far into the future can compromise the effectiveness of area rotation, since very specific levels of effort are expected for specific time periods and when that effort is shifted to later times or different areas it can potentially lead to overfishing.

- **Elephant Trunk Access Area (Section 2.3.3)**

The Council recommends that seven trips be allocated to this area over the next two years for full-time vessels – 4 trips in 2008 and 3 trips in 2009. The Council supports that the area should open on March 1 for both years and if the biomass in that area is lower than expected based on updated biological projections, then allocated effort in that area should be reduced in 2009. In addition, if an updated overall fishing mortality estimate is above the threshold, then the number of trips allocated in 2009 should be reduced by the equivalent of one full-time trip. This procedure would make use of a more rapid, event-triggered rulemaking to correct the ETA

allocations, ensuring that optimum yield is achievable even if there is insufficient time to develop a framework adjustment when new ETA biomass data becomes available. There is uncertainty in the projected scallop biomass in the ETA; despite all the various research being conducted, data is not always available. In addition, this area contains about one-third of the total scallop biomass; therefore, managing this access area with caution is necessary to preserve the long-term health of the scallop resource and fishery. Overharvest of the resource in this area could undermine the goals and objectives of area rotation, the cornerstone of the Scallop FMP.

The Council considered whether the current seasonal closure from September 1 through October 31 to potentially reduce interactions with sea turtles in ETA should remain in place. Ultimately the Council decided not to recommend the seasonal closure for this action. Turtles are distributed throughout the Mid-Atlantic region during the May-November period. While risks to sea turtles are greater during high use periods, congruent overlaps with scallop fishing effort are difficult to predict. Interactions could still occur outside of any closure given that both turtle distribution and fishing activities are highly variable. The Council discussed that the utility of moving effort from area to area therefore is questionable and such decisions are only compounded by the available analyses on the issue. Bycatch analyses to date have not yet identified specific times and areas where the greatest probability of turtle bycatch occurs in any given year and factors affecting estimated bycatch rates of loggerhead turtles, the species with the greatest number of interactions in scallop trawl and dredge gear in the Mid-Atlantic, vary from year to year. In addition, the Council discussed that since bycatch analyses to date have not yet identified specific times and areas where the greatest probability of turtles bycatch occurs, the impact of this seasonal closure that has the most certainty is to reduce non-harvest scallop mortality. Reducing fishing in this area when water and air temperatures are higher will have positive impacts on scallop mortality. Therefore, the Council did not want to call this seasonal closure one thing (a measure to potentially reduce interactions with sea turtles) when the impacts of it were more directly linked to reducing non-harvest mortality on scallops.

- **Delmarva Access Area (Section 2.3.4)**

Based on new survey data and new information about growth rates in the Mid-Atlantic, the Council supports an early re-opening of Delmarva in 2009 at a reduced level – the equivalent of one full-time trip allocation for the area. The Council supports this allocation in an effort to stabilize landings and allocate effort in areas with higher catch rates to reduce costs and impacts on the scallop resource, EFH, protected resources, and non-target species. The Council supports the alternative that would reduce effort in Delmarva in 2009 based on updated biological projections because there is uncertainty in the projected scallop biomass in the Delmarva area. The uncertainty results from the substantial majority being young scallops, whose true abundance is difficult to estimate with a high degree of precision. The Council decided not to recommend a seasonal closure to potentially reduce interactions with sea turtles for this area either for the same rationale described above for the ETA.

- **Other Restrictions for Access Areas (Section 2.3.5)**

Other alternatives related to access area fishing that are part of the proposed action are the continuation of eliminating the crew size restriction on access area trips and prohibiting all scallop vessels from “deckloading.” Limited access vessels would still be prohibited from having more than 7 crew members on open area trips, but there would be no crew limit for

access area trips, as approved under Framework 18. Allowing a vessel to carry more crew on an access area trip may reduce fishing costs by potentially reducing the time a vessel is at sea. No crew limit would give vessels the most flexibility, potentially reducing total fishing costs, increasing total benefits for crew and vessel owners, but also reducing income per crew member. Increasing crew limits could improve safety and provide more opportunity for training new crew members. The Council also recommends that all scallop vessels be prohibited from leaving an access area with more than 50 bushels of in-shell scallops onboard. The Council supports this alternative to reduce non-harvest mortality by restricting the amount of in-shell scallops a vessel is permitted to leave an access area with.

- **Open Area Allocations (Section 2.3.6)**

The Council supports the overall allocation scenario “PREF,” which includes an open area DAS allocation of 35 DAS in 2008 for full-time vessels and 42 DAS in 2009. When all of the access area allocations are combined together with these open area DAS, as well as expected mortality from the general category fishery and other sources, the overall fishing mortality rate is expected to average  $F=0.20$  over the two year time period. The Council supports this alternative because it is expected to achieve the fishing mortality target needed to achieve optimum yield on a continuing basis. This strategy includes more effort in access areas than in open areas, reducing DAS used, increasing catch per unit of effort, and reducing time that gear is in contact with the bottom (See Section 5.1.2). Projected landings, revenues, and net economic benefits of the preferred alternative are higher than the No Action alternative.

- **Measures for General Category Vessels (Section 2.4)**

This action includes the specifics of the quarterly hard-TAC recommended in Amendment 11. For the transition period to an IFQ program, the general category fishery will be allocated 10% of the total scallop catch in open and access areas combined. The fishery will be allocated a fleetwide number of trips in each access area equal to 5% of the total catch for each area. The remainder of their allocation will be from open areas. The fleet as a whole cannot exceed the quarterly hard-TAC recommended in this action, specifically: 35% in Quarter 1, 40% in Quarter 2, 15% in Quarter 3, and 10% in Quarter 4. The Council identified this breakdown based on historical averages of catch modified to account for access area openings in 2008. For example, since the Elephant Trunk Area is expected to open in March in 2008 with more trips than allocated in 2007, then a higher percent of the total TAC should be considered for Quarter 1. Second, less effort is going to be allocated in access areas on GB (June 15 opening) so less TAC may need to be available during Quarter 2. Higher TACs were recommended for Quarter 1 and Quarter 2 in general so that if the fishery does not harvest the quarterly TAC, any unused TAC can roll-over to future quarters. Lastly, some TAC was reserved for the last quarter to recognize traditional winter fisheries.

This action also includes the details of the cost recovery program for the IFQ program recommended in Amendment 11. The proposed action includes an alternative that would require IFQ owners to pay 3% of ex-vessel value of fish harvested to cover costs associated with implementing and monitoring the IFQ program. The Council recommends that the fee be based on an average value for scallops landed by the general category fishery. The Council developed this alternative since a cost recovery program is a requirement of IFQ programs under the Magnuson Act. The Council supports that vessels be responsible to directly pay based on an

average value because there were concerns about a trip based system and potential corruption with transactions and impacts on prices, etc.

The Council also approved a separate limited entry program for the Northern Gulf of Maine (NGOM) in Amendment 11 with a hard-TAC. Framework 19 considered what the actual hard-TAC should be if this provision is approved. The Council reviewed the NGOM alternative approved in Amendment 11 at the October Council meeting and it was discussed that the intent of the TAC was that it be for federal waters only and landings from limited access vessels should not count toward the TAC during the fishing year. All scallop vessels would be prohibited from fishing in that area once the TAC is reached. Therefore, the Council approved a hard-TAC for 2008 and 2009 that is equivalent to average landings from general category vessels from VTR reports in federal waters only – 70,000 pounds.

For clarity, the Council specified that general category vessels would also be subject to the YT bycatch TAC in access areas on Georges Bank (No Action), the Hudson Canyon closure to protect small scallops, and the same general provisions for Elephant Trunk and Delmarva, as well as a prohibition on deckloading.

- **Incidental Catch Mortality Measures (Section 2.5)**

The last alternative related to Amendment 11 is an estimate of incidental catch mortality that will be removed from the total projected catch before allocations are made. The Council approved an amount that will be removed from the total projected catch level – 50,000 pounds, whether this measure is approved under Amendment 11 or not. The Council supports this alternative to account for mortality from this component of the fishery to ensure that fishing mortality targets are not exceeded from this activity.

- **Overfishing Definition (Section 2.6)**

The Council approved a new overfishing definition based on results from the recent scallop stock assessment (SAW 45), including a new biomass target and threshold, as well as a new fishing mortality threshold. Since the Council approved new reference points and a modified overfishing definition to reflect the new parameters, the Council also considered whether the current fishing mortality target of  $F=0.20$  should be revisited. The Council chose to maintain the fishing mortality target at  $F=0.20$  to achieve optimum yield on a continuing basis. It was recognized that this target is conservative and may need to be revisited in the future, but currently there is concern for overfishing in open areas; this target will help maintain a stable fishery rather than maximizing individual catch on an annual basis. Setting the target fishing mortality rate at 0.20 is in recognition that fishing mortality is not uniformly distributed in the scallop fishery, but is prone to localized overfishing.

- **Observer Set-aside Program Improvements (Section 2.7)**

The Council recently approved an action to implement a mechanism to re-activate the industry-funded observer program for the scallop fishery (Amendment 13). During the process, several issues were identified with the observer set-aside program, but due to timing constraints the Council did not develop alternatives to address those issues. Instead, the Council approved an alternative that would allow adjustments to the observer set-aside program to be considered in a framework action. This is the first action since implementation of Amendment 13 that could

include consideration of these issues. The Council decided to consider two issues at this time (the program does not work well in areas with lower catch rates (i.e. Hudson Canyon and some open areas)) and small adjustments needed to improve overall administration of program. The Council supports changes to the program to make it more equitable and improve administration.

- **Area Closure to Protect Small Scallops (Section 2.8)**

Results from the 2007 survey suggest that small scallops have settled in the vicinity of the current Hudson Canyon Access Area, as well as portions of the Great South Channel (GSC). The Council considered several boundary alternatives and ultimately, supports inclusion of the existing Hudson Canyon area (HC) as a new rotational closed area. The Council selected this area for closure because it contains most of the 2007 survey tows with high numbers of scallops. The industry and enforcement agencies are familiar with this area and this closure is not expected to have impacts on vessels that fish in areas outside the HC area. The Council recommends that the rotational area considered in the Great South Channel not close in Framework 19. The scallop advisors and Committee were not supportive of this closure in this action because there are several outside constraints such as the new proposed HAPC area that overlaps with this area, as well as a potential YT TAC that could apply to the area. These issues could reduce the effectiveness of this rotational area in the future. Furthermore, it was discussed that closing the proposed area in the GSC would increase overall bottom time because that area includes some of the higher LPUE areas left in open areas.

- **Other Measures (Section 2.9)**

The Council supports an alternative that would allow a vessel to power down its VMS unit if it is not going to fish for an extended period of time. The rationale for this decision was in response to a request from industry to reduce costs and burdens associated with having to run a VMS unit when a scallop vessel is not fishing. In addition, the agency requested that the Council clarify the intent of a provision related to when a scallop vessel can leave on an access area trip. The Council supports No Action; currently a scallop vessel can leave for an access area trip before the area opens, but it cannot fish in that area until the area opens. The rationale is that because scallop vessels are not allowed to fish until they are in an access area and there is a possession limit, prohibiting a vessel from leaving port before the area opens would only disadvantage vessels that are homeported farther away from an access area.

**Table 1 is a summary of all the alternatives in Amendment 11; the proposed action is shaded.**

**Table 1 – Summary of alternatives considered in Framework 19 (Proposed Action shaded)**

<b>Section</b>	<b>Alternative Name</b>	<b>Description of Alternative</b>
<b>2.3</b>	<b>MEASURES FOR LIMITED ACCESS VESSELS</b>	Various scenarios are presented in Table 7 that included varied open and closed areas, trip allocations, and resulting DAS.
<b>2.3.1</b>	<b>Access area management measures on Georges Bank</b>	
2.3.1.1	Allocations	
2.3.1.1.1	Alternative 1 – Revise order of Georges Bank Access Area (GBA) openings	Because only one access area trip per year should be taken in the GBA areas, the PDT recommends taking 1 trip in Nantucket Lightship in FY2008 and 1 trip in Closed Area II (CAII) in FY2009.
2.3.1.2	Adjustments when yellowtail (YT) flounder catches reach 10% TAC limit (No Action)	Would allocate additional open area DAS for each trip not taken before the area closes because the 10% YT bycatch TAC is reached, but at a prorated value of DAS (7.7 Das for NL and 7.9 DAS for CAII).
<b>2.3.2</b>	<b>Hudson Canyon Access Area</b>	
2.3.2.1	No Action	After February 29, 2008, all unused 2005 Hudson Canyon trips expire and the area reverts back to an open area.
2.3.2.2	Extend the duration of the Hudson Canyon Area program until May 31, 2008	Vessels with unused 2005 Hudson Canyon trips can use them until May 31, 2008.
<b>2.3.3</b>	<b>Elephant Trunk Access Area</b>	
2.3.3.1	Re-opening date	The area will open on March 1
2.3.3.2	Seasonal Closure	Seasonal closure to reduce potential sea turtle interactions.
2.3.3.3	Procedure to reduce trips	Downward adjustment of ETA allocations to account for uncertainty and prevent overfishing.
<b>2.3.4</b>	<b>Delmarva Access Area</b>	
2.3.4.1	No Action	Delmarva area closed in 2007 will remain closed in FY2008-2009.
2.3.4.2	Early Delmarva Reopening	Would open the Delmarva area in FY2009 at a reduced level, 1 trip, based on new survey data and information about growth rates.
2.3.4.2.1	Re-opening Date	Open on March 1, 2009
2.3.4.2.2	Seasonal closure	This would close the Delmarva area from August 1 – October 31 to potentially reduce interactions with sea turtles.
2.3.4.2.3	Procedure to reduce trips	Downward adjustment of Delmarva allocations to account for uncertainty, based on survey results from 2008.
<b>2.3.5</b>	<b>Other restrictions for limited access vessels in access areas</b>	
<b>2.3.5.1</b>	<b>Crew Restriction</b>	
2.3.5.1.1	No Action	No maximum crew limit for access area trips.

2.3.5.1.2	Reduce maximum crew size on limited access vessels on access area trips	Instates a maximum crew size restriction of 8 or 9 crew in access areas (Options A and B, respectively) to reduce the risk of targeting smaller scallops.
2.3.5.2	<b>Deckloading prohibition</b>	
2.3.5.2.1	No Action	
2.3.5.2.2	Prohibit all vessels from leaving any access area with more than 50 bushels of in-shell scallops	Prohibit vessels from leaving any access area with more than 50 bushels of in-shell scallops with either Option A – no exception, or Option B – with 2 exceptions (either carrying an observer or broken trip due to safety issue).
2.3.5.3	<b>TAC set-aside for observers (1%) and research (2%)</b>	1% of estimated TAC for each access area would be set aside to help fund observers and 2% would be set aside to fund scallop-related research in access areas.
2.3.5.4	<b>Research priorities for 2008 and 2009</b>	List of priorities for research set-aside funds for both access and open area set-asides.
2.3.6	<b>Open area allocations</b>	
2.3.6.1	<b>Allocations</b>	Open area DAS will depend on what is decided about HC, how many trips in ETA, what happens with Delmarva in 2009, and how many GB trips are allocated. Eight scenarios considered based on the various closure options.
2.3.6.2	<b>DAS set-asides for observers (1%) or research (2%)</b>	This measure continues the set-aside program that deducts 1% of allocated DAS to help fund observers on limited access scallop vessels in open areas and 2% to fund scallop related research with compensation trips taken in open scallop fishing areas.
<b>2.4</b>	<b>MEASURES FOR GENERAL CATEGORY VESSELS</b>	
2.4.1	<b>No action</b>	
2.4.1.1	<b>Quarterly hard TAC for transition period to limited entry</b>	Quarterly hard TAC for general category vessels during transition period to limited entry. 2 options for quarters 1-4, respectively: Option A – 35%, 40%, 15%, 10%, or Option B – 40%, 45%, 10%, 5%.
2.4.1.1.1	<b>Measures to reduce derby fishing during the transition period to limited entry</b>	General category fishery would be allocated 2% of each access area instead of 5% in FY2008 to reduce derby fishing during transition to limited entry.
2.4.1.2	<b>IFQ program for general category fishery</b>	
2.4.1.2.1	Cost Recovery Program	Fee not exceeding 3% of ex-vessel value of fish harvested that goes towards covering the expenses of an IFQ program
2.4.1.2.1.1	No action	No fees collected for IFQ program.
2.4.1.2.1.2	IFQ shareholder directly pays	A limited access general category IFQ vessel would incur a cost recovery fee liability for every landing of scallops from that vessel and the permit holder would be responsible for self-collecting their own fee liability for all their landings. Option A would be based on actual landings and Option B would be an average value for the general category fleet.

2.4.1.2.1.3	IFQ shareholder pays via a federally permitted dealer	The federally permitted dealer collects the fee from the IFQ shareholder at the point of purchase for later submission to NMFS.
2.4.1.3	<b>Northern Gulf of Maine Hard TAC</b>	Limited entry program for NGOM with a hard TAC. A) Hard-TAC of 70,000 lbs for FY '08 and '09, or B) 126,000 lbs based on another method for estimating the TAC using limited access history and landings from state waters
2.4.2	<b>Georges Bank Access Area Management</b>	
2.4.2.1	<b>General category allocations in access areas post-transition period</b>	
2.4.2.1.1	Five-percent for all areas	Fleetwide allocation of trips equal to 5% of each area open in FY2008 and FY2009.
2.4.2.1.2	Five-percent for all access areas, but 0-percent for Closed Area II	Fleetwide allocation of trips equal to 5% of each area open, but zero allocation for Closed Area II. It only applies to FY2009 if a reduction to 2% in access areas to reduce derby fishing is accepted for FY2008.
2.4.2.1.3	Five-percent for all areas except Closed Area II would have a smaller allocation to account for SAP programs and some general category effort	Fleetwide allocation of trips equal to 5% of each area open, but small allocation for Closed Area II to account for some scallop landings on multispecies vessels participating in SAP programs.
2.4.2.2	<b>Yellowtail Flounder bycatch TAC</b>	If 10% YT bycatch TAC is reached, the Georges Bank access areas close and general category vessels are not permitted to fish in the area. There is no compensation for vessels on an individual basis if the area closes before the total number of general category trips has been taken.
2.4.3	<b>Hudson Canyon</b>	If this area closes for limited access vessels, it will close to general category vessels as well.
2.4.4	<b>Elephant Trunk</b>	Allocation of a fleetwide maximum number of trips for both 2008 and 2009. Total amount will be based on 2% or 5% (depends on outcome of Alternative 2.4.1.1.1). If approved, same seasonal closure to reduce interactions with sea turtles and procedure to adjust ETA allocations would apply to the general category fishery as well.
2.4.5	<b>Other restrictions for general category vessels in access areas</b>	
2.4.5.1	<b>Prohibition on deckloading</b>	See section 2.3.5.2 – same measures apply to general category fishery.
<b>2.5</b>	<b>INCIDENTAL CATCH MORTALITY</b>	Removal of incidental catch mortality from the projected total catch before allocations are made – 50,000 lbs.
<b>2.6</b>	<b>OVERFISHING DEFINITION</b>	
2.6.1	No Action	Overfishing definition would stay the same and units for biomass reference points would remain as kg/tow.
2.6.2	Biomass Reference Point	The biomass reference point units would change to mt from kg/tow.
2.6.3	Fishing mortality target	Council discussed maintaining the current target of $F=0.20$ .

<b>2.7</b>	<b>OBSERVER SET-ASIDE PROGRAM IMPROVEMENTS</b>	
2.7.1	<b>Assign a higher compensation rate for vessels fishing in open areas compared to access areas</b>	This would increase the compensation for vessels with an observer in open area trips and decrease compensation for access trips.
2.7.2	<b>Small adjustments to improve overall administration</b>	Potential adjustments that would improve administration of the observer set-aside program.
<b>2.8</b>	<b>AREA CLOSURE TO PROTECT YOUNG SCALLOPS</b>	
2.8.1	<b>New rotational area in Hudson Canyon vicinity</b>	
2.8.1.1	No Action	No new rotational area would close in this action.
2.8.1.2	Smaller Hudson Canyon area as new rotational area	4x4 10-minute square bounded by 38 50' and 39 30' N, and 73 00' and 73 40' W would close at least for FY2008 and 2009.
2.8.1.3	Larger Hudson Canyon area as new rotational area	5x5 10-minute square bounded by 38 50' and 39 40' N, and 72 50' and 73 40' W would close at least for FY2008 and 2009.
2.8.1.4	Current Hudson Canyon area as new rotational area (excluding ETA overlap)	Current HC boundaries would close for at least FY2008 and FY2009.
2.8.2	<b>New rotational area in Great South Channel</b>	
2.8.2.1	No Action	No new rotational area would close in this action.
2.8.2.2	New rotational area in the Channel north of Nantucket Lightship and west of Closed Area I	Proposed area would close to scallop fishing for at least FY2008 and 2009.
<b>2.9</b>	<b>OTHER MEASURES</b>	
2.9.1	<b>30-Day VMS power down</b>	Allows a vessel to power down their VMS unit for a minimum of 30 days, similar to multispecies permits, as long as the vessel does not engage in any fisheries.
2.9.2	<b>Clarification on when a vessel can leave for an access area trip (No action)</b>	Remedies confusion about when a vessel can leave port on an access area trip. Vessel can leave for an access area trip before the area opens.

## **Summary of Impact Analysis**

Analyses of the proposed action as well as all management alternatives considered during the development of this framework are provided in this document across a series of valued ecosystem components, or VECs. VECs represent the resources, areas, and human communities that may be affected by a proposed management action or alternative, and by other actions that have occurred or will occur outside the Proposed Action. VECs are the focus of an EA since they are the “place” where the impacts of management actions are exhibited. An analysis of impacts is performed on each VEC to assess whether the direct/indirect effects of an alternative adds to or subtracts from the effects that are already affecting the VEC from past, present and future actions outside the Proposed Action (i.e., cumulative effects). The VECs identified for Framework 19 include: Atlantic sea scallop resource, physical environment and EFH, protected species, and fishery-related businesses and communities. Please refer to Table 126 for a summary of cumulative impacts of the alternatives on each of the identified VECs.

The descriptive and analytic components of this document are constructed in a consistent manner. The Affected Environment section of this document traces the history of each VEC and consequently addresses the impacts of past actions. The Affected Environment section (Section 4.0) is designed to enhance the readers’ understanding of the historical, current, and near-future conditions (baselines and trends) in order to fully understand the anticipated environmental impacts of the management alternatives under consideration in this amendment.

### ***Impacts on Atlantic Sea Scallop Resource (Section 5.1)***

In general, most alternatives under consideration have neutral to positive indirect/direct impacts on the scallop resource when compared to the No Action. Projected exploitable biomass is similar overall when comparing the various scenarios, but does vary by area. Biomass in open areas is lowest under alternatives that close the Channel and the No Action alternative. Compared to the No Action alternative, the proposed action (PREF) has higher LPUE averages for both open and access areas for both years; thus, lower impacts for the higher yield. Access in Elephant Trunk and Delmarva under the preferred alternative is expected to have beneficial impacts on the resource by maximizing yield and reducing effort in areas with lower biomass (open areas). The prohibition on deckloading may have beneficial impacts on the scallop resource by reducing non-harvest mortality. In general the measures for general category vessels related to Amendment 11 are expected to have positive to neutral impacts on the scallop resource.

Revising the overfishing definition is expected to have positive impacts on the scallop resource. The new model is less biased, uses more sources of data, and is an improvement to the previous model. Maintaining the fishing mortality target of  $F=0.20$  is also expected to have positive impacts on the scallop resource by reducing the risk of overfishing and establishing measures to achieve optimum yield on a continuing basis. In addition, closing the Hudson Canyon area in this action will help the FMP achieve optimum yield by reducing mortality on small scallops.

The specific impacts on the scallop resource from each of the proposed measures are described within Section 5.1. Overall the cumulative effects on the scallop resource as a result of the proposed action are neutral to positive.

### ***Impacts on Physical Environment / Essential Fish Habitat (Section 5.2)***

Although scallop dredges have been shown to be associated with adverse impacts to some types of bottom habitat (NEFMC 2003), relative to the No Action Alternative this action does not propose to increase current levels of fishing activity in the U.S. EEZ. Several measures contained in this action reduce fishing effort overall and target that reduced effort on highly productive scallop bottom, reducing area swept and adverse impacts to designated EFH. No measure contained in this Framework is likely to increase adverse impacts to areas designated EFH relative to the No Action alternative, and the net impact is likely to be neutral to marginally positive. The specific impacts on EFH from each of the proposed measures are described within Section 5.2.

The overall habitat impacts of all the measures combined in this proposed action have minimal net effects. Relative to the baseline habitat protections established under Amendment 10 to the Atlantic Sea Scallop FMP, those impacts are negligible, and relative to the No Action alternative, those impacts are marginally positive. Therefore, measures to further mitigate or minimize adverse effects on EFH are not necessary.

The specific impacts on EFH from each of the proposed measures are described within Section 5.2. IN general, most alternatives under considerations have neutral direct/indirect impacts on EFH. Overall, the cumulative effects on EFH are neutral to positive with some negative cumulative impacts from non-fishing activities.

### ***Impacts on Protected Resources (Section 5.3)***

Most alternatives under consideration in Framework 19 have neutral or potentially positive impacts on threatened and endangered sea turtles when compared to No Action. The specifications for 2008 and 2009 considered less DAS than in 2007 so cumulative impacts for those measures are expected to be positive relative to the baseline. Access trips generally result in overall effort reductions and at best could be positive relative to turtle interactions because of reduced area swept. The impact of new rotational areas is generally positive, with the exception of the SCH area which could result in effort shifts to the Mid-Atlantic and greater areas swept scenarios.

Measures related to Amendment 11 for the transition period --- the cost recovery program, the NGOM hard TAC and incidental catch mortality --- have little or no impacts on protected sea turtles. Hard TACs for the general category fishery are most likely neutral because they are based on historical fishing patterns. Similarly crew restrictions, the deckloading prohibition, set-asides and the overfishing definition are not likely to have any measurable effects on sea turtles populations

The specific impacts on protected resources from each of the proposed measures are described within Section 5.3. Overall the cumulative effects on protected resource are neutral to potentially positive.

### ***Impacts on Fishery Related Businesses and Communities (Sections 5.4 and 5.5)***

Most alternatives under consideration in Framework 19 have neutral or potentially positive impacts on fishery related businesses and communities compared to No Action. The aggregate economic impacts of the proposed measures and other alternatives including revising the order of Georges Bank access area schedule, Elephant Trunk and Delmarva access area allocations, Hudson canyon area closure, open area DAS allocations and TAC for the general category fishery are analyzed in Section 5.4.2 relative no action. The combined impacts of the proposed area rotation measures are expected to be positive on fishery related businesses and communities. Overall fleet revenues are estimated to increase by 3.7% on the average compared to no action during 2008-2009 fishing years (Section 5.4.2.2). The impacts on the net revenue and vessel profits will be also positive with a 2.1% increase in 2008 and 6% increase in 2008. The long-term impacts of the proposed measures on scallop fleet revenues and profits are expected to be positive as well (section 5.4.2.3). The economic impacts of the proposed alternative will also be positive for the general category limited access fishery since the total general category TAC will be higher with the preferred alternative compared to the no action alternative. Other measures proposed by Framework 19, such as 5% allocation for general category vessels for access areas, improvements to the observer program, 30-day VMS power down provision, hard-TAC allocation for vessels with a limited entry NGOM permit and adjustments when yellowtail flounder catches reach 10% TAC limit are expected to provide additional positive impacts by providing vessels the opportunity to reduce fishing costs and increase revenues from scallop fishing. Therefore, direct and indirect impacts of the proposed measures and alternatives are expected to be positive on fishery related businesses and their communities compared to No Action.

The specific impacts on the fishery-related businesses and communities of the proposed measures are described within Sections 5.4 (Economic Impacts) and 5.5 (Social Impacts). Overall the cumulative effects on the fishery related businesses and communities are neutral to potentially positive.

### ***Cumulative Effects (Section 5.7)***

A summary of the cumulative effects of past, present, and reasonably foreseeable future actions on all the VECs in this document are assessed in Section 5.7. In addition, the direct and indirect effects on each VEC from the proposed action and other alternatives considered are summarized in Table 125. These impacts are combined with the impacts of non-fishing activities to illustrate the cumulative effects of the proposed action under Framework 19. Overall, the cumulative effects of the proposed action are neutral to low positive on all the VECs considered.

The Council had several public meetings related to this action, which was initiated in November 2006. The Scallop Committee met five times to develop and review alternatives for Framework 19, the Scallop advisors met three to provide input on this action, and the Scallop PDT met about a half dozen times to discuss Framework 19 alternatives and analyses. The Council reviewed and approved Framework 19 for final action on October 25, 2007.



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**APPENDICIES**

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**Appendix II - 45<sup>th</sup> Northeast Regional Stock Assessment Workshop (SAW 45) Summary Report**

**Appendix III - Description of Scallop Area Management Simulator (SAMS) used for biological projections**

**Appendix IV – Decision Document for final Council Action on Framework 19**

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## **LIST OF ACRONYMS**

A10 – Amendment 10 to the Atlantic Sea Scallop Fishery Management Plan  
A13 – Amendment 13 to the Northeast Multispecies Fishery Management Plan  
BMSY – Biomass Maximum Sustainable Yield  
BO – Biological opinion  
CEQ – Council on Environmental Quality  
CAI – Closed Area I  
CAII – Closed Area II  
CV – Coefficient of variation, a standard statistical measure of variation, expressed as a percentage of the mean. Lower CVs indicate more accuracy in the estimates and less variation in data.  
CWA – Cape Wind Associates  
DAS – Day-at-sea  
DMV – Delmarva  
DSEIS – Draft Supplemental Environmental Impact Statement  
EA – Environmental Assessment  
ESA – Endangered Species Act  
EFH – Essential Fish Habitat  
EFH designation life stages  
    A – Adult life stage  
    J – Juvenile life stage  
    E – Egg life stage  
FMP – Fishery Management Plan  
FR – Federal Register  
FSEIS – Final supplemental environmental impact statement  
FW18 – Framework Adjustment 18 to the Atlantic Sea Scallop Fishery Management Plan  
GB – Georges Bank  
GC – General Category  
GOM – Gulf of Maine  
HAPC – Habitat Area of Particular Concern  
HC(L)(S) – Hudson Canyon (Large) (Small)  
LPUE – Landings per unit effort, usually a DAS in this document  
IRFA – Initial Regulatory Flexibility Analysis  
IVR – Interactive Voice Reporting  
LA – Limited access  
LIPA – Long Island Power Authority  
LNG = Liquefied Natural Gas  
MA – Mid-Atlantic  
MAFMC – Mid-Atlantic Fishery Management Council  
M-S Act – Magnuson Stevens Act  
NEFMC – New England Fishery Management Council  
NEFSC – Northeast Fisheries Science Center  
NEPA – National Environmental Policy Act  
NLSA/NL/NLA – Nantucket Lightship Area  
NMFS – National Marine Fisheries Service

NOAA – National Oceanographic Atmospheric Administration  
RIR – Regulatory Impact Review  
SAP – Special access program  
SARC – Stock Assessment Review Committee  
SAW – Stock assessment workshop  
SBNMS – Stellwagen Bank Marine Sanctuary  
SBRM – Standardized bycatch reporting methodology  
SCH – Great South Channel  
SEIS – Supplemental Environmental Impact Statement  
SMASST – School of Marine Science and Technology, University of Massachusetts  
Dartmouth  
SNE – Southern New England  
TAC – Total Allowable Catch. This includes discards for finfish species, but not for scallops  
which have a much lower discard mortality rate.  
PDT – Scallop Plan Development Team  
U10 – A classification for large scallops, less than 10 meats per pound.  
USGS – United States Geological Survey  
VEC – Valued Ecosystem Component  
VIMS – Virginia Institute of Marine Science  
VMS – Vessel Monitoring System  
VTR – Vessel Trip Reports  
YTF/YT – Yellowtail flounder

## **1.0 BACKGROUND AND PURPOSE**

### **1.1 BACKGROUND**

In 2004, Amendment 10 introduced rotational area management and changed the way that the Scallop FMP allocates fishing effort for limited access scallop vessels. Instead of allocating an annual pool of DAS for limited access vessels to fish in any area, vessels now have to use a portion of their total DAS allocation in controlled access areas defined by the plan or exchange them with another vessel to fish in a different controlled access area. Vessels can fish their open area DAS in any area that is not designated a controlled access area. Amendment 10 set up this program with a biennial framework process, which means an action is required every two years to allocate fishing effort in both open and access areas. This framework action will set specifications for the next two fishing years, 2008 and 2009. The scallop fishing year begins on March 1. The Scallop Plan Development Team (PDT) reviews available scallop abundance data and recommends which areas and what level of fishing effort is appropriate to allocate to achieve optimum yield.

In addition, the Council recently approved Amendment 11 to the Scallop FMP, which recommends a limited entry program for the general category fishery as well as other measures. This is the first biennial action since that amendment; thus, it will also have to include specific measures to address new requirements of the FMP if Amendment 11 is approved by NMFS and the Secretary of Commerce. Specifically, this framework will consider a temporary hard-TAC by quarter for the general category fishery for the transition period to limited entry. For the second fishing year, this action will consider the specifics of the individual fishing quota program recommended by the Council in Amendment 11, including the specifics of a required cost recovery program. In addition, specific allocations for the general category fishery for the access areas will be considered as well. A separate hard-TAC and limited entry program for the Northern Gulf of Maine are also considered. Lastly, a consideration of mortality from incidental catch will be included, as recommended by Amendment 11.

There are also several other issues that have been included for consideration in this framework that are not directly related to fishery specifications for the next two fishing years or new requirements under the FMP pending approval of Amendment 11, but they are relatively small adjustments. For example, this framework is also considering a measure to improve the industry-funded observer set-aside program in terms of compensation for vessels carrying an observer as well as small administrative adjustments to the program. In addition, a measure is included for a 30-day VMS power down provision for scallop vessels to reduce cost and burden of running a VMS unit when a vessel is not scheduled to fish for an extended period of time.

In summary, this framework adjustment will address several primary management issues:

1. Fishery specifications for FY2008 and 2009
2. Area rotation adjustments (if necessary)
3. New requirements for the general category fishery as a result of Amendment 11
4. Other measures including adjustments to the observer set-aside program (compensation rates and administrative adjustments) and a 30-day VMS power down provision

## **1.2 PURPOSE AND NEED**

The purpose of this action is to achieve the objectives of the Atlantic Sea Scallop Fishery Management Plan (FMP) to prevent overfishing and improve yield-per-recruit from the fishery. The primary need for this action is to set specifications to adjust the day-at-sea (DAS) allocations and area rotation schedule for the 2008 and 2009 fishing years.

## **1.3 SCALLOP MANAGEMENT BACKGROUND**

The Atlantic Sea Scallop FMP management unit consists of the sea scallop *Placopecten magellanicus* (Gmelin) resource throughout its range in waters under the jurisdiction of the United States. This includes all populations of sea scallops from the shoreline to the outer boundary of the Exclusive Economic Zone (EEZ). While fishing for sea scallops within state waters is not subject to regulation under the FMP except for vessels that hold a federal permit when fishing in state waters, the scallops in state waters are included in the overall management unit. The principal resource areas are the Northeast Peak of Georges Bank, westward to the Great South Channel, and southward along the continental shelf of the Mid-Atlantic.

The Council established the Scallop FMP in 1982. A number of Amendments and Framework Adjustments have been implemented since that time to adjust the original plan. Amendment 4 was implemented in 1994 and introduced major changes in scallop management, including a limited access program to stop the influx of new vessels, a day-at-sea (DAS) reduction plan to reduce mortality and prevent recruitment overfishing, new gear regulations to improve size selection and reduce bycatch, a vessel monitoring system to track a vessel's fishing effort, and an annual framework adjustment process to allow certain measures to be modified in response to changes in the fishery including scallop abundance. Limited access vessels were assigned different DAS limits according to which permit category they qualified for: full-time, part-time or occasional. Amendment 4 established a planned reduction in the annual day-at-sea allocations for vessels with limited access scallop permits. Amendment 4 also created the general category scallop permit for vessels that did not qualify for a limited access permit. Although originally created for an incidental catch of scallops in other fisheries, and for small-scale directed fisheries, the general category fishery and fleet has evolved since its creation in 1994. The changes in the general category fishery are demonstrated in Section 4.4.

Also in 1994, Amendment 5 to the Northeast Multispecies FMP closed Closed Area I, Closed Area II, and the Nantucket Lightship Area to scallop fishing, because of concerns over finfish bycatch and disruption of spawning aggregations (See Figure 1).

In 1998, the Council developed Amendment 7 to the Scallop FMP, which was needed to change the overfishing definition, the day-at-sea schedule, and measures to meet new lower mortality targets to comply with new requirement under the Magnuson-Stevens Act. In addition, Amendment 7 established two new scallop closed areas (Hudson Canyon and VA/NC Areas) in the Mid-Atlantic to protect concentrations of small scallops until they reached a larger size. Amendment 7 further reduced the DAS allocations under a 10-year 'rebuilding' period. Framework Adjustments 12, 14 and 15 to the Scallop FMP later adjusted the DAS allocations upward to meet the Amendment 7 fishing mortality targets.

In 1999, Framework Adjustment 11 to the Scallop FMP allowed the first scallop fishing within portions of the Georges Bank groundfish closed areas since 1994. Scallop resource surveys and experimental fishing activities had identified areas where scallop biomass was very high due to no fishing in the intervening years. These surveys and experimental fisheries provided more precise estimates of total biomass as well as the distribution and amount of finfish bycatch and allowed the Council to open the southern part of Closed Area II.

In 2000, Framework Adjustment 13 to the Scallop FMP authorized full-time and part-time limited access vessels to take three trips in the southern part of Closed Area II during June 15 to August 14, 2000; one trip in the northeast corner of the Nantucket Lightship Area during August 15 to September 30, 2000; and two trips in the central part of Closed Area I from October 1, 2000 to January 31, 2001.

In 2001, Framework Adjustment 14 to the Scallop FMP implemented a new area access program to the Hudson Canyon and VA/NC Areas since scallop biomass had rapidly increased due to the enhanced survival of the strong 1997 and 1998 year classes, especially in the Hudson Canyon Area. Following the structure of the highly successful area access program for the Georges Bank closed areas in 2000; the framework adjustment allocated trips to limited access vessels and applied a scallop possession limit and a day-at-sea tradeoff. Unlike the Georges Bank closed area access program, however, Framework Adjustment 14 allowed vessels with general category scallop permits to land 100 pounds of scallop meats from the Hudson Canyon and VA/NC Areas.

Framework Adjustment 15 (2003) to the Scallop FMP continued the measures implemented in Framework Adjustment 14, but increased the Hudson Canyon and VA/NC Area scallop possession limit from 18,000 to 21,000 pounds per trip. This action was needed to achieve the objectives and fishing mortality target specified in Amendment 7, while the Council developed Amendment 10.

In 2004, Amendment 10 to the Scallop FMP introduced rotation area management and changed the way that the FMP allocates fishing effort for limited access scallop vessels. Instead of allocating an annual pool of DAS for limited vessels to fish in any area, vessels had to use a portion of their total DAS allocation in the controlled access areas defined by the plan, or exchange them with another vessel to fish in a different controlled access area. Vessels could fish their open area DAS in any area that was not designated a controlled access area. The amendment also adopted several alternatives to minimize impacts on EFH, including designating EFH closed areas, which included portions of the groundfish mortality closed areas. See Section 1.4 for a more detailed description of the rotational area management program implemented by Amendment 10.

Framework 16 to the Scallop FMP, implemented in November 2004, adjusted DAS allocations and defined the area rotation schedule for part of the 2004 fishing year and the 2005 fishing year. It also included: a) an access program for vessels with general category scallop permits with enhanced reporting requirements and a 2% TAC set-aside; b) yellowtail flounder TACs and provisions to minimize bycatch; c) changes in finfish possession limits to minimize bycatch and bycatch mortality; d) seasons when scallop fishing would be allowed to minimize bycatch and bycatch mortality; e) enhanced sea sampling to improve precision of bycatch estimates; f)

provisions to enhance enforcement monitoring and compliance; and g) a dredge-only restriction for fishing in the access areas to minimize bycatch and bycatch mortality.

Framework 16 also attempted to make the habitat closed area boundaries implemented under Amendment 10 consistent with the areas later implemented under Amendment 13 to the Northeast Multispecies FMP. However, in August 2005, the Court, in *Oceana v. Evans*, ruled that any revisions to the boundaries under the Scallop FMP must be implemented under a full rule making process via an FMP amendment rather than through the abbreviated rule-making process used in a framework adjustment, and reinstated the EFH closed areas implemented under Amendment 10 to the Scallop FMP. Thus, the habitat closed area boundaries implemented under Amendment 10 are currently in effect. As a result, the remaining areas accessible to scallop vessels under the rotational area management program are substantially smaller in Closed Area I and the Nantucket Lightship Closed Area than anticipated until the court ruling.

Framework 17 to the Scallop FMP was implemented in the fall of 2005. The purpose of the action was to provide more complete monitoring of the general category scallop fleet by requiring that vessels landing more than 40 pounds of scallop meats use monitoring systems (VMS). It revised the broken trip adjustment provision for limited access scallop vessels fishing in the Sea Scallop Area Access Program, by eliminating the broken trip “penalty,” which may have had a negative influence on vessel operator decisions and safety at sea.

Framework 18 was implemented on June 15, 2006, which set management measures for fishing years 2006 and 2007. Limited access vessels were allocated a specific number of open area DAS for each fishing year, as well as a maximum number of trips for different access areas depending on their permit category. Specifically, Closed Area II and Nantucket Lightship were open in 2006 under restricted access, and Nantucket Lightship and Closed Area I are open in 2007. General category vessels are also permitted to fish in these access areas with a 400 pound possession limit up to a total number of trips for that component of the fleet. Both areas are subject to a bycatch TAC of yellowtail flounder; when that bycatch TAC is projected to be caught, the area closes to all scallop fishing. The Elephant Trunk area also opens as a result of this action with specific allocation of trips, opening dates, and seasonal closures to reduce potential interactions with sea turtles. An area called Delmarva was closed under this action to protect small scallops found in that area; the area is projected to open in 2010. Other measures were included in the action such as measures related to unused 2005 Hudson Canyon trips, transfer of access area trips to open areas if access areas close early if the YT bycatch TAC is attained, elimination of crew size restrictions in access areas, access area trips exchange program changes, broken trip program changes, and allocations for set-aside programs (1% for observer program and 2% for research).

The Council recently approved Amendment 11 to the Scallop FMP (June 2007) and it is expected to be implemented in late 2007 or early 2008. The main objective of the action was to control capacity and mortality in the general category scallop fishery. Since 1999, there has been considerable growth in fishing effort and landings by vessels with general category permits, primarily as a result of resource recovery and higher scallop prices. This additional effort is likely a contributing factor to why the FMP has been exceeding the fishing mortality targets. Without additional controls on the general category fishery, there is a great deal of uncertainty

with respect to potential fishing mortality from this component of the scallop fishery; thus, the potential for overfishing is increased.

If approved by NMFS, the proposed action includes a limited entry program for the general category fishery. Each qualifying vessel would receive an individual allocation in pounds of scallop meat with a possession limit of 400 pounds. Qualifying vessels would receive a total allocation of 5% of the total projected scallop catch. The proposed action also includes a separate limited entry program for general category fishing in the Northern Gulf of Maine. In addition, Amendment 11 includes adjustments to limited access scallop fishing under general category rules. Another separate limited entry program for that activity is proposed with the same qualification criteria as the limited entry general category permit. Qualifying vessels will also receive an individual allocation in pounds, and the entire category will receive 0.5% of the total projected scallop catch. In addition, a separate limited entry incidental catch permit is proposed that will permit vessels to land and sell up to 40 pounds of scallop meat per trip while fishing for other species. Other measures are recommended as well.

The Council recently approved Amendment 12 to the Scallop FMP (June 2007). This action is an omnibus amendment to all FMPs in the region and focuses on defining a standardized bycatch reporting methodology (SBRM). Section 303(a) (11) of the Magnuson-Stevens Fishery Conservation and Management Act requires that all FMPs include “a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery.” The SBRM Omnibus Amendment will ensure that all FMPs fully comply with the act. Amendment 10 and Framework 16 to the Scallop FMP were submitted to NMFS several years ago, and in 2004 Oceana, an environmental organization, filed suit in the U.S. District Court challenging the SBRM elements of the FMP. The Court found the actions did not fully evaluate reporting methodologies, did not sufficiently address potentially important scientific evidence, and did not mandate a methodology for bycatch monitoring. Therefore, the Court remanded that the Secretary of Commerce take further action on the SBRM aspects of the Scallop FMP. SBRM is the combination of sampling design, data collection procedures, and analyses used to estimate bycatch and to determine the most appropriate allocation of observers across the relevant fishery modes. The Council has worked with NMFS in development of the SBRM Omnibus Amendment since 2005 and final measures were selected in June 2007. The proposed rule was published on August 21, 2007 (72 FR 46588), and public comments on the DSEIS were due on September 20, 2007. NMFS is expected to implement this action later this fall. See Section 4.5.1 for a summary of what the SBRM Amendment proposes.

Scallop Amendment 13 was also approved by both the Council and NMFS in 2007, which re-activated the industry-funded observer program. Since 1999, vessels required to carry an observer are authorized to land more than the possession limit from trips in access areas, and in open areas, vessels are charged a reduced amount to help compensate for the cost of an observer. Observers were deployed through a contractual arrangement between National Marine Fisheries Service (NMFS) and an observer provider until June 2004. This arrangement was not renewed because of unresolved legal issues concerning the use of a contract to administer the industry-funded observer program. For some time, NMFS funded observers while a solution to this issue was investigated. As funding became insufficient, an interim rule went into effect that approved a new mechanism to use the observer set-aside funds through a non-contracted vendor.

Amendment 13 was necessary to make this temporary mechanism part of the regulations. The Council selected final measures for that action at the February 2007 Council meeting and it was implemented on June 12, 2007. Amendment 13 also includes a provision to make changes to the observer set-aside program by framework action and the Council decided to address some issues raised with the current program in this framework action (See Section 2.7).

The Council initiated Phase 1 of the Essential Fish Habitat Omnibus Amendment in 2004. The primary purpose of Phase 1 is to review EFH designations, consider HAPC alternatives, describe prey species, and evaluate non-fishing impacts. This action is an amendment to all FMPs in this region, and is Amendment 14 to the Scallop FMP. The Council approved the DSEIS for Phase 1 at the February 2007 Council meeting, which then was submitted to NMFS in March 2007. The Council made final decisions on Phase 1 topics at their June 2007 meeting. Phase 2 of the EFH Amendment will begin in September 2007 and will consider the effects of fishing gear on EFH and move to minimize, mitigate or avoid those impacts that are more than minimal and temporary in nature. Phase 2 will also reconsider measures in place to protect EFH in the Northeast region. The entire Amendment (Phase 1 and Phase 2) will be completed, combined, and submitted in 2008 with implementation scheduled for some time in 2009.

Lastly, the Council approved Framework 20 to the Scallop FMP at the June 2007 Council meeting and NMFS is expected to implement that action in the near term. Framework 20 considered measures to reduce overfishing for FY2007 through measures that were implemented by interim action earlier this year. At the November 2006 Council meeting, the Scallop PDT informed the Council that overfishing was likely to occur in 2007 under status quo measures implemented under Framework 18. The PDT presented several alternatives to reduce fishing mortality. The Council ultimately recommended that NMFS reduce the allocated number of trips for all scallop permit categories in the Elephant Trunk Access Area (ETA), delay the opening of the ETA, and prohibit vessels from possessing more than 50 bushels of in-shell scallops when leaving any controlled access area. NMFS agreed with the Council that the ETA has an unprecedented high abundance of scallops, which needs to be husbanded with precaution to effectively preserve the long term health of the scallop resource and fishery, and so implemented these measures by interim action.<sup>1</sup> This interim action became effective on December 22, 2006, and will remain effective until June 20, 2007 (180 days). This interim action was extended for an additional 180 days, but it will expire on December 26, 2007. Therefore, for the last two months of the 2007 fishing year (January-February 2008), management would revert back to status quo measures under FW18. Specifically, higher trip allocations would be granted in the Elephant Trunk Area for both limited access and general category fisheries. Therefore, the Council approved Framework 20 to extend the reduced fishing effort measures implemented by interim action through the end of the 2007 fishing year. If approved, the action would expire on March 1, 2008, when Framework 19 is scheduled to be in place.

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<sup>1</sup> The interim rule published by NMFS on December 22, 2006 (**71 FR 76945**), included all measures recommended by the Council, except the prohibition on a vessel leaving an access area with more than 50 bu. of in-shell scallop was limited to the ETA only and not all access areas as recommended by the Council.

## 1.4 DETAILED BACKGROUND ON ROTATIONAL AREA MANAGEMENT

Amendment 10 introduced area rotation: areas that contain beds of small scallops are closed before the scallops experience fishing mortality, then the areas re-open when scallops are larger, producing more yield-per-recruit. The details of which areas should close, for how long and at what level they should be fished were described and analyzed in Amendment 10. Except for the access areas within the groundfish closed areas on Georges Bank, all other scallop rotational areas should have flexible boundaries. Amendment 10 included a detailed set of criteria or guidelines that would be applied for closing and re-opening areas. Framework adjustments would then be used to actually implement the closures and allocate access in re-opened areas. The general management structure for area rotation management is described in Table 2. An area would close when the expected increase in exploitable biomass in the absence of fishing mortality exceeds 30% per year, and re-open to fishing when the annual increase in the absence of fishing mortality is less than 15% per year. Area rotation allows for differences in fishing mortality targets to catch scallops at higher than normal rates by using a time averaged fishing mortality so the average for an area since the beginning of the last closure is equal to the resource-wide fishing mortality target (80% of  $F_{max}$ , estimated to be  $F=0.20$ ).

**Table 2- General management structure for area rotation management as implemented by Amendment 10**

<b>Area type</b>	<b>Criteria for rotation area management consideration</b>	<b>General management rules</b>	<b>Who may fish</b>
Closed rotation	Rate of biomass growth exceeds 30% per year if closed.	<ul style="list-style-type: none"> <li>• No scallop fishing allowed</li> <li>• Scallop limited access and general category vessels may transit closed rotation areas provided fishing gear is properly stowed.</li> <li>• Scallop bycatch must be returned intact to the water in the general location of capture.</li> </ul>	<ul style="list-style-type: none"> <li>• Any vessel may fish with gear other than a scallop dredge or scallop trawl</li> <li>• Zero scallop possession limit</li> </ul>
Re-opened controlled access	<p>A previously closed rotation area where the rate of biomass growth is less than 15% per year if closure continues.</p> <p>Status expires when time averaged mortality increases to average the resource-wide target, i.e. as defined by the Council by setting the annual mortality targets for a re-opened area.</p>	<ul style="list-style-type: none"> <li>• Fishing mortality target set by framework adjustment subject to guidelines determined by time averaging since the beginning of the most recent closure.</li> <li>• Maximum number of limited access trips will be determined from permit activity, scallop possession limits, and TACs associated with the time-average annual fishing mortality target.</li> <li>• Transfers of scallops at sea would be prohibited</li> </ul>	<ul style="list-style-type: none"> <li>• Limited access vessels may fish for scallops only on authorized trips.</li> <li>• Vessels with general category permits will be allowed to target scallops or retain scallop incidental catch, with a 400 lb. scallop possession limit in accordance with general category rules.</li> </ul>
Open	Scallop resource does not meet criteria to be classified as a closed rotation or re-opened controlled access area	<ul style="list-style-type: none"> <li>• Limited access vessels may target scallops on an open area day-at-sea</li> <li>• General category vessels may target sea scallops with dredges or trawls under existing rules.</li> <li>• Transfers of scallops at sea would be prohibited</li> </ul>	All vessels may fish for scallops and other species under applicable rules.

## 2.0 MANAGEMENT ALTERNATIVES UNDER CONSIDERATION

### 2.1 SUMMARY OF THE PROPOSED ACTION

The Council recommends the measures described in this section for Framework 19; these measures were approved at the October 2007 Council meeting. This action includes measures that set specifications for FY2008 and FY2009, measures related to Amendment 11 recommendations for the general category fishery, and several other measures related to issues that were raised during development of this action.

Table 7 describes the final measures included in the proposed action.

This action includes a new rotational area to protect small scallops. The Council recommends that the existing Hudson Canyon area be closed to all scallop fishing for at least FY2008 and FY2009 to allow the scallops in that area to grow for several years, then be re-opened when scallops are larger, producing more yield-per-recruit (Section 2.8). The Council approved a new overfishing definition based on results from the recent scallop stock assessment (SAW 45), including a new biomass target and threshold, as well as a new fishing mortality threshold (Section 2.6). Since the Council approved new reference points and a modified overfishing definition to reflect the new parameters, the Council also considered whether the current fishing mortality target of  $F=0.20$  should be revisited. The Council chose to maintain the fishing mortality target at  $F=0.20$ , so the overall strategy selected for specifications is expected to produce an average fishing mortality rate of  $F=0.20$  over the next two fishing years.

The overall scenario selected by the Council to achieve the fishing mortality target in this action is the “Pref” Alternative. This is the recommended strategy selected for fishery allocations in FY2008 and FY2009 of the eight different scenarios considered. The “Pref” alternative includes closing the Hudson Canyon area for at least these two years to protect small scallops in this area, allocating one trip in Nantucket Lightship (NL) in 2008 for full-time limited access vessels, one trip in Closed Area II in 2009, 4 trips in Elephant Trunk (ET) in 2008, and three trips in Elephant Trunk in 2009 (Table 3). In addition, the Delmarva access area would open in 2009 for one trip. The possession limits for each of the access area trips would be similar to the values presented in Table 4. Full-time vessels are only permitted to take the maximum number of allocated trips per area. However, for part-time permits, a vessel can decide if it wants to take 2 trips in ET in 2008, or one trip in ET and one in NL. Similarly, an occasional vessel can decide if it wants to take its one access area trip in ET or NL in 2008, or ET or CAII in 2009.

The proposed action would allocate 35 open area DAS in 2008 and 42 DAS in 2009 for full-time permits (Table 5) (Section 2.3.6). When all of these allocations are combined, as well as expected mortality from the general category fishery and other sources, the overall fishing mortality rate is expected to average  $F=0.20$  over the two year time period (closer to  $F=0.22$  in FY2008 and  $F=0.18$  in FY2009).

**Table 3 – Summary of scenarios considered in the biological projections for Framework 19**

		CL1	CL2	NLS	ET	Dmv	HC	Sch	IndvDAS*
<b>Preferred</b>	<b>2008</b>	Cl	Cl	1 trip	4 trips	Cl	Cl	Op	35
<b>Preferred</b>	<b>2009</b>	<b>Cl</b>	<b>1 trip</b>	<b>Cl</b>	<b>3 trips</b>	<b>1 trip</b>	<b>Cl</b>	<b>Op</b>	<b>42</b>

**Table 4 –Access area allocations and possession limits for proposed action**

	2008		2009		Overall allocation in access areas per year
	# of trips	Possession limit	# of trips	Possession limit	
<b>Full-time</b>	5	18,000	5	18,000	90,000 (100%)
<b>Part-time</b>	2	18,000	2	18,000	36,000 (40%)
<b>Occasional</b>	1	7,500	1	7,500	7,500 (8.33%)

*Note: Possession limits are based on a previous policy decision that a part-time permit receive an allocation equal to 40% of a full-time permit, and an occasional permit receive an allocation equal to 8.33% of a full-time permit.*

**Table 5 – Summary of open area DAS allocations under the proposed action (5% general category TAC in access areas during transition period and under IFQ program)**

	Full-time		Part-time		Occasional	
	2008	2009	2008	2009	2008	2009
<b>Pref</b>	<b>36</b>	<b>42</b>	<b>14</b>	<b>17</b>	<b>3</b>	<b>3</b>

*Note: Open area allocations by permit type are based on a previous policy decision that a part-time permit receive an allocation equal to 40% of a full-time permit, and an occasional permit receive an allocation equal to 8.33% of a full-time permit.*

Limited access vessels would still be allocated an open area DAS compensation for Georges Bank access area trips that were not taken due to the YT bycatch TAC being reached (2.3.1.2). Also, observer and research set-asides would still be removed from access areas and open area DAS as they currently are in the regulations (Section 2.3.5.3 and 2.3.6.2). For access areas, the set-aside percentages are removed before allocations are made to the fisheries, and in open areas, the set-asides are in the form of open area DAS, thus only apply to the limited access portion of open area DAS.

In terms of the Elephant Trunk Access area program the area would still open on March 1 and a procedure would still be in place that would reduce effort in that area if updated surveys indicate that biomass is lower than expected or overall F for the resource is above the overfishing threshold (Section 2.6). The Council does not recommend a seasonal closure in ETA to reduce potential interactions with sea turtles. Bycatch analyses to date have not yet identified specific times and areas where the greatest probability of turtle bycatch occurs in any given year and factors affecting estimated bycatch rates of loggerhead turtles, the species with the greatest number of interactions in scallop trawl and dredge gear in the Mid-Atlantic, vary from year to year. Therefore, the Council recommends that the seasonal closure be lifted for the time being. The Delmarva area will also open on March 1, 2009. This area will also have a procedure that would reduce effort in that area if updated surveys indicate that biomass in that area is lower than expected (Section 2.3.4.3.2). The Council does not recommend a seasonal closure in the Delmarva access area to reduce potential interactions with sea turtles.

Other alternatives related to access area fishing that are part of the proposed action are the continuation of eliminating the crew size restriction on access area trips and prohibiting all scallop vessels from “deckloading.” Limited access vessels would still be prohibited from

having more than 7 crew members on open area trips, but there would be no crew limit for access area trips, as approved under Framework 18 (Section 2.3.5.1). The Council recommends that all scallop vessels be prohibited from leaving an access area with more than 50 bushels of in-shell scallop onboard (Section 2.3.5.2).

In terms of the general category fishery, several alternatives that are part of the proposed action are related to recommendations related to Amendment 11. These measures apply to both general category qualifiers as well as limited access vessels that qualify for a general category permit under Amendment 11. Specifically, this action includes the quarterly hard-TAC allocations for the transition period to an IFQ program for the general category fishery (Section 2.4.1.1). The expected poundage available for each quarter is described in Table 6, as well as the number of trips for access areas. Total access area allocations for the general category fishery in 2008 are 2,668 trips in ETA and 667 trips in NL. For 2009, the general category fishery will be allocated 1,964 trips in ETA, 728 trips in Delmarva and zero trips in CAII (Table 29).

This action also includes the details of a cost recovery program that was approved in Amendment 11 for general category IFQ permit owners (Section 2.4.1.2.1). In addition, Amendment 11 approved a hard-TAC for a Northern Gulf of Maine (NGOM) limited entry program. This action includes the specific NGOM hard-TAC for that program for the next two fishing years – 70,000 pounds (Section 2.4.1.3). General category vessels will be allocated 5% of the total catch in access areas under this framework (Section 2.4.2). The last alternative related to Amendment 11 is an estimate of incidental catch mortality that will be removed from the total projected catch before allocations are made. The Council approved an amount that will be removed from the total projected catch level – 50,000 pounds (Section 2.5).

**Table 6 – Summary of general category catch and access area trips by quarter under the transition period to the IFQ program recommended under Amendment 11**

Option A*	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
	35%	40%	15%	10%	100%
<b>Estimated landings by area</b>					
<b>All areas (lb.)</b>	1,523,375	1,741,000	652,875	435,250	4,352,500
<b>Access area landings (lb.)</b>	1,067,000	266,750	-	-	1,333,750
% of annual TAC	25%	6%	0%	0%	31%
% of QTR landings	70%	15%	0%	0%	
<b>Open area landings (lb.)</b>	456,375	1,474,250	652,875	435,250	3,018,750
Open area as % of total	30%	85%	100%	100%	69%
<b>Access area trips</b>					
ETA	2,668		-	-	
NLS		667	-	-	

*Note: Access area allocations are not made by quarter. All trips for that area are allocated at the start of the quarter (i.e. 2,662 trips will be allocated on March 1 for ETA). If all trips in an area are not caught in one quarter, those trips will be available in following quarters.*

Overall the fishery will be allocated in a more direct way than in previous actions. Specifically, a total catch will be removed for incidental catch and general category fishing. Similar to years past, catch will be removed for observer and research set-aside programs. Figure 1 and Figure 2 summarize how catch will theoretically be allocated in 2008 and 2009 under the proposed action. For example in 2008, the total projected catch is estimated at 44.4 million pounds. Fifty-

thousand pounds will be removed from the top for incidental catch. Based on the projection model the TACs for NL and ETA are approximately 5.5 million pounds and 22 million pounds respectively. The actual catch may vary from this TAC because vessels are allocated a specific number of trips (in round integers for the limited access fishery). Therefore, the projected TAC may be over or under harvested since trips are rounded up or down depending on projection results. In addition, some limited access vessels for example have the ability to take their allocated trips in any area that is open (part-time and occasional), so total catch per area will vary. Additionally, some vessels will not land their full allocation on every trip, and some set-aside for research and observers may not be used. Likewise all general category access area trips may not harvest 400 pounds per trip, and all trips may not be taken. Since the general category fishery is going to be allocated 10% of the total catch under the transition period, and 5% will be allocated from access areas, the remaining amount for the general category fishery will come from open areas, about 3 million pounds or 18% of total open area projected catch in 2008. Again, these numbers are just estimates because the actual LPUE per open area DAS is uncertain and vary between vessels and areas; thus the open area catch may also be over or under compared to the TAC of 16.85 million lbs. for 2008.

These figures are illustrative in terms of how catch is expected to be allocated between the two fleets. For example in 2009, the general category fishery is going to be allocated 5% of total catch, compared to 10% in 2008 during the assumed time period for the transition period to IFQs. Limited access vessels that qualify for a general category permit will be allocated 0.5% of total catch. Under the proposed action, both general category and limited access vessels fishing under general category will be permitted to fish in access areas up to the maximum number of trips equal to 5% for that area. Figure 2 includes a maximum and minimum of open area catch for the general category and limited access vessels that qualify for general category because it is unknown how many vessels will choose to participate in the access areas in 2009. For example an extreme case would be that all limited access vessels that qualify for general category decide to catch their full IFQ allocations in access areas. If that is the case then general category vessels will have fewer trips available in access areas, but will still be permitted to catch their IFQ in open areas. On the other hand, if no limited access vessels decide to fish under general category in access areas then the full 5% allocation in access areas will be available to the general category qualifiers and limited access vessels could harvest their total general category IFQ allocation from open areas (225,950 pounds in this example).

The proposed action also recommends that the general category fishery not be allocated any catch in the Closed Area II access area. As a result, the general category fishery will be allocated more available catch in open areas, but that catch from Closed Area II will not be reallocated to the limited access fishery (since the landings corresponding to the general category trips will be allocated to the general category vessels in the open areas for them to be able to land 5% of the total TAC). For this example, 5% of available catch in CAII equals about 280,000 pounds (5% of 5.6 million). So the overall allocation to the general category fishery remains at 5%, that catch has been moved to open areas. This additional catch brings general category landings from open areas closer to 6.6%. In this example, the limited access vessels that qualify for general category are showing 1.25% of open area catch based on an assumption that they catch their entire IFQ in open areas (the maximum example in Figure 2).

Figures 1 and 2 include the TACs and trip allocations that are included in this proposed action. While these figures have been generated using total TACs estimated by area, they are not completely reflective of what the fishery will harvest because all access areas trips may not be taken and some may not reach the possession limit. In addition, the catch estimated from open area DAS is based on average catch per unit of effort data and may not be reflective of future fishing effort. As this document explains due to the way the scallop fishery is allocated access to the resource, a TAC for an area may be under or over harvested. For example, the model projects a 5.5 million TAC in 2008 in NL, but if all active limited access vessels landed 18,000 pounds per trip then 5.87 million pounds would be harvested.

In addition, these flowcharts are based on rounded values from the biological model used to estimate catch by area. For example, the total estimated catch (44.4 million pounds for 2008) has been rounded up to include a 35 DAS allocation for full-time vessels, rather than the raw estimate of total catch from the biological model (roughly 43.7 million pounds). Furthermore, TACs and the number of general category access area trips have been rounded to reflect how the fishery is allocated (i.e. access areas trips are rounded to the nearest integer). Some tables later in the document are based on “unadjusted” values directly taken from the biological model and do not match these rounded values exactly but these differences do not affect the results of the analyses. For allocation and implementation purposes, the TACs and allocations in these figures reflect the proposed action even if they are slightly different in some subsequent tables in this document.

Other measures being proposed include alternatives to address specific issues with the observer set-aside program (Section 2.7). In addition, the proposed action includes a provision for a vessel to power down their VMS unit for a minimum of 30 days (Section 2.9.1). This action also includes a clarification about when a vessel can leave for an access area trip (Section 2.9.2). Lastly, this action approves research priorities to be incorporated in the RSA program for FY2008 and FY2009 (Section 2.3.5.4).

Figure 1 – Summary of allocations for the scallop fishery under Framework 19 (2008)

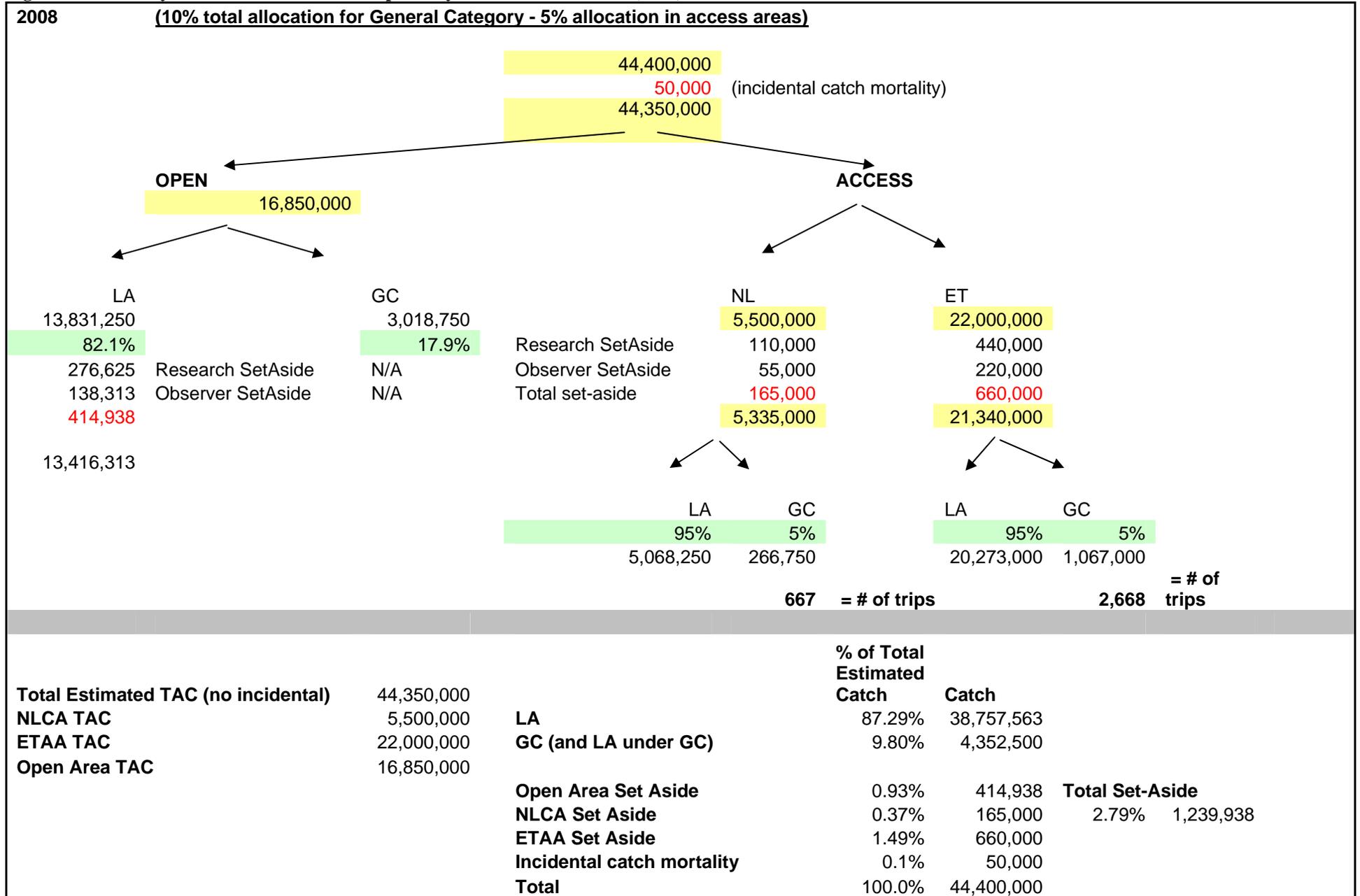
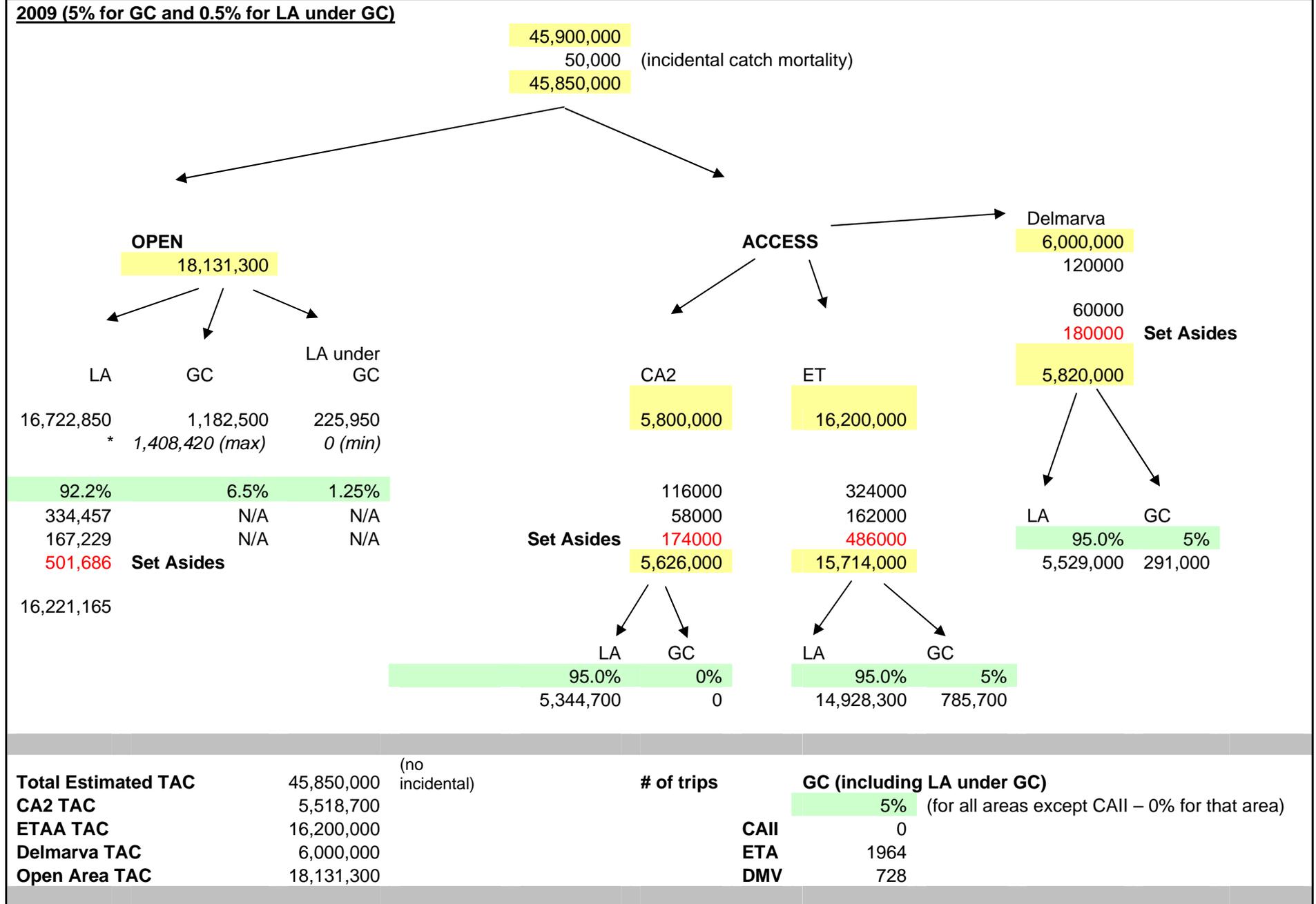


Figure 2 - Summary of allocations for the scallop fishery under Framework 19 (2009)



	<b>% of Total Estimated Catch</b>	<b>Catch</b>	
<b>LA</b>	91.55%	42,023,165	
<b>GC</b>	4.92%	2,259,200	
<b>LA under GC</b>	0.49%	225,950	<b>Total Set-Aside</b>
<b>Open Area Set Aside</b>	1.09%	501,686	2.92%
<b>CA2 Set Aside</b>	0.38%	174,000	1,341,686
<b>ETAA Set Aside</b>	1.06%	486,000	
<b>Delmarva Set Aside</b>	0.39%	180,000	
<b>Incidental catch mortality</b>	0.1%	50,000	
<b>Total</b>	100.0%	<b>45,900,000</b>	

**Table 7 – Summary of the Proposed Action**

<b>Section</b>	<b>Alternative Name</b>	<b>Description of Alternative</b>
<b>2.3</b>	<b>MEASURES FOR LIMITED ACCESS VESSELS</b>	Various scenarios are presented in Table 7 that included varied open and closed areas, trip allocations, and resulting DAS.
2.3.1	<b>Access area management measures on Georges Bank</b>	
2.3.1.1	Allocations	
2.3.1.1.1	Alternative 1 – Revise order of Georges Bank Access Area (GBA) openings	Because only one access area trip per year should be taken in the GBA areas, the PDT recommends taking 1 trip in Nantucket Lightship in FY2008 and 1 trip in Closed Area II (CAII) in FY2009.
2.3.1.2	Adjustments when yellowtail (YT) flounder catches reach 10% TAC limit (No Action)	Would allocate additional open area DAS for each trip not taken before the area closes because the 10% YT bycatch TAC is reached, but at a prorated value of DAS (7.7 Das for NL and 7.9 DAS for CAII).
2.3.2	<b>Hudson Canyon Access Area</b>	
2.3.2.1	No Action	After February 29, 2008, all unused 2005 Hudson Canyon trips expire and the area reverts back to an open area.
2.3.3	<b>Elephant Trunk Access Area</b>	
2.3.3.1	Re-opening date	The area will open on March 1
2.3.3.2.2	Remove seasonal closure	There will be no seasonal closure to reduce potential interactions with sea turtles
2.3.3.3	Procedure to reduce trips	Downward adjustment of ETA allocations in 2009 to account for uncertainty and prevent overfishing.
2.3.4	<b>Delmarva Access Area</b>	
2.3.4.2	Early Delmarva Reopening	Would open the Delmarva area in FY2009 at a reduced level, 1 trip, based on new survey data and information about growth rates.
2.3.4.2.1	Re-opening Date	Open on March 1, 2009
2.3.4.2.2.2	No seasonal closure	There will be no seasonal closure to reduce potential interactions with sea turtles
2.3.4.2.3	Procedure to reduce trips	Downward adjustment of Delmarva allocations to account for uncertainty, based on survey results from 2008.
2.3.5	<b>Other restrictions for limited access vessels in access areas</b>	
2.3.5.1	<b>Crew Restriction</b>	
2.3.5.1.1	No Action	No maximum crew limit for access area trips.
2.3.5.2	<b>Deckloading prohibition</b>	

2.3.5.2.2	Prohibit all vessels from leaving any access area with more than 50 bushels of in-shell scallops	Prohibit vessels from leaving any access area with more than 50 bushels of in-shell scallops with either Option A – no exception, or Option B – with 2 exceptions (either carrying an observer or broken trip due to safety issue).
2.3.5.3	<b>TAC set-aside for observers (1%) and research (2%)</b>	1% of estimated TAC for each access area would be set aside to help fund observers and 2% would be set aside to fund scallop-related research in access areas.
2.3.5.4	<b>Research priorities for 2008 and 2009</b>	List of priorities for research set-aside funds for both access and open area set-asides.
2.3.6	<b>Open area allocations</b>	
2.3.6.1	<b>Allocations</b>	Open area DAS will depend on what is decided about HC, how many trips in ETA, what happens with Delmarva in 2009, and how many GB trips are allocated. Eight scenarios considered based on the various closure options.
2.3.6.2	<b>DAS set-asides for observers (1%) or research (2%)</b>	This measure continues the set-aside program that deducts 1% of allocated DAS to help fund observers on limited access scallop vessels in open areas and 2% to fund scallop related research with compensation trips taken in open scallop fishing areas.
<b>2.4</b>	<b>MEASURES FOR GENERAL CATEGORY VESSELS</b>	
2.4.1	<b>No action</b>	
2.4.1.1	<b>Quarterly hard TAC for transition period to limited entry</b>	Quarterly hard TAC for general category vessels during transition period to limited entry. 2 options for quarters 1-4, respectively: Option A – 35%, 40%, 15%, 10%, or Option B – 40%, 45%, 10%, 5%.
2.4.1.2	<b>IFQ program for general category fishery</b>	
2.4.1.2.1	Cost Recovery Program	Fee not exceeding 3% of ex-vessel value of fish harvested that goes towards covering the expenses of an IFQ program
2.4.1.2.1.2	IFQ shareholder directly pays	A limited access general category IFQ vessel would incur a cost recovery fee liability for every landing of scallops from that vessel and the permit holder would be responsible for self-collecting their own fee liability for all their landings. Option A would be based on actual landings and Option B would be an average value for the general category fleet.
2.4.1.3	<b>Northern Gulf of Maine Hard TAC</b>	Limited entry program for NGOM with a hard TAC. A) Hard-TAC of 70,000 lbs for FY '08 and '09, or B) 126,000 lbs based on another method for estimating the TAC using limited access history and landings from state waters
2.4.2	<b>Georges Bank Access Area Management</b>	
2.4.2.1	<b>General category allocations in access areas post-transition period</b>	

2.4.2.1.2	Five-percent for all access areas, but 0-percent for Closed Area II	Fleetwide allocation of trips equal to 5% of each area open, but zero allocation for Closed Area II. It only applies to FY2009 if a reduction to 2% in access areas to reduce derby fishing is accepted for FY2008.
2.4.2.2	<b>Yellowtail Flounder bycatch TAC</b>	If 10% YT bycatch TAC is reached, the Georges Bank access areas close and general category vessels are not permitted to fish in the area. There is no compensation for vessels on an individual bases if the area closes before the total number of general category trips have been taken.
2.4.3	<b>Hudson Canyon</b>	If this area closes for limited access vessels, it will close to general category vessels as well.
2.4.4	<b>Elephant Trunk</b>	Allocation of a fleetwide maximum number of trips for both 2008 and 2009. Total amount will be based on 2% or 5% (depends on outcome of Alternative 2.4.1.1.1). If approved, same seasonal closure to reduce interactions with sea turtles and procedure to adjust ETA allocations would apply to the general category fishery as well.
2.4.5	<b>Other restrictions for general category vessels in access areas</b>	
2.4.5.1	<b>Prohibition on deckloading</b>	See section 2.3.5.2 – same measures apply to general category fishery.
<b>2.5</b>	<b>INCIDENTAL CATCH MORTALITY</b>	Removal of incidental catch mortality from the projected total catch before allocations are made – 50,000 lbs.
<b>2.6</b>	<b>OVERFISHING DEFINITION</b>	
2.6.2	Biomass Reference Point	The biomass reference point units would change to mt from kg/tow.
2.6.3	Fishing mortality target	Council discussed maintaining the current target of $F=0.20$ .
<b>2.7</b>	<b>OBSERVER SET-ASIDE PROGRAM IMPROVEMENTS</b>	
2.7.1	<b>Assign a higher compensation rate for vessels fishing in open areas compared to access areas</b>	This would increase the compensation for vessels with an observer in open area trips and decrease compensation for access trips.
2.7.2	<b>Small adjustments to improve overall administration</b>	Potential adjustments that would improve administration of the observer set-aside program.
<b>2.8</b>	<b>AREA CLOSURE TO PROTECT YOUNG SCALLOPS</b>	
2.8.1	<b>New rotational area in Hudson Canyon vicinity</b>	
2.8.1.4	Current Hudson Canyon area as new rotational area (excluding ETA overlap)	Current HC boundaries would close for at least FY2008 and FY2009.
<b>2.9</b>	<b>OTHER MEASURES</b>	
2.9.1	<b>30-Day VMS power down</b>	Allows a vessel to power down their VMS unit for a min of 30 days as long as the vessel does not engage in any fisheries.
2.9.2	<b>Clarification on when a vessel can leave for an access area trip (No action)</b>	Remedies confusion about when a vessel can leave port on an access area trip. Vessel can leave for an access area trip before the area opens.

## 2.2 NO ACTION

This section describes the No Action alternative as well as several other alternatives that are dependent on implementation of Amendment 11 and measures that would be in place if this action (Framework 19) were delayed.

### 2.2.1 No Action

In the alternatives for area rotation management and for open area DAS allocations, “No Action” is exactly what it implies: no additional action will be taken and so the measures and allocations that are specified in the present regulations (CFR §648, Sub-part D) are maintained. The scallop regulations state (paragraph 648.55(b)): “If the biennial framework action is not undertaken by the Council, or if a final rule resulting from a biennial framework is not published...with an effective date on or before March 1...the measures from the most recent fishing year shall continue, beginning March 1 of each year.” Thus, the “No Action” alternative is the same as “Status Quo.”

Under “No Action,” in open areas, full-time limited access scallop vessels would receive the same allocation as FY2007: an allocation of 51 open area DAS in both 2008 and 2009. Part-time and occasional vessels would receive a pro-rata share of 40% and 1/12<sup>th</sup>, respectively, which is equivalent to 20 and 4 open area DAS, respectively. The trip allocations for access areas would also roll over. Consistent with Framework 20 to the FMP as approved by the Council, full-time vessels would receive 3 Elephant Trunk Access Area (ETA) trips. Part-time vessels would receive 2 access area trips; occasional vessels would receive one access area trip. Part-time and occasional vessel owners could choose how to distribute their trips between the ETA and the Georges Bank access area that are scheduled to be open in 2008 and 2009. General category vessels would be allocated 865 trips in 2008 and 2009. The Georges Bank access area allocations are dependent on the schedule of areas that are to be opened. In 2008, the Closed Area I (CAI) and Closed Area II (CAII) access areas are scheduled to open. One trip would be allocated to CAI for full-time vessels, consistent with the 2007 scallop fishery regulations. General category vessels would be allocated 216 trips to CAI in the 2008 fishing year. There would be no allocated trips in CAII because the scallop regulations for 2007 do not include a trip allocation in 2007 for CAII. In 2009, the CAII and Nantucket Lightship access areas are scheduled to open. However, no trips would be allocated because the regulations do not specify any trip allocations for 2008 (i.e., the fishing year preceding the 2009 fishing year, consistent with the regulation cited above).

The TACs for all areas would remain as estimated in Amendment 10 and Framework 18. When Georges Bank access areas close due to yellowtail flounder catches, vessels would receive compensation for each access area trip not taken due to the closure consistent with the trip-to-DAS conversion rates included in the regulations for CAI.

Finally, under “No Action,” the Hudson Canyon Access Area would become part of the open areas on March 1, 2008, and the Delmarva area would remain closed through February 28, 2010, as specified in the scallop fishery regulations.

**Table 8 – Open area DAS allocations under No Action**

Full-Time		Part-Time		Occasional	
<u>2007</u>	<u>2008 &amp; 2009</u>	<u>2007</u>	<u>2008 &amp; 2009</u>	<u>2007</u>	<u>2008 &amp; 2009</u>
51	51	20	20	4	4

**Table 9 -Sea scallop access area allocation schedule under No Action**

	<b>2007</b>	<b>2008</b>	<b>2009</b>
CAII	Open	Open	Open
NLCA	Open	Closed	Open
CAI	Closed	Open	Closed
ETAA	Closed	Open	Open
HCAA	Open	No longer an access area	No longer an access area
Delmarva	Closed	Closed	Closed

**Table 10 – Access area trip allocations under No Action**

Area	<u>NLCA</u>			<u>CAI</u>			<u>CAII</u>			<u>ETAA</u>		
	<u>2007</u>	<u>2008</u>	<u>2009</u>									
<b>Fishing Year</b>	<u>2007</u>	<u>2008</u>	<u>2009</u>									
<b>Full-time</b>	1	Closed	0	1	1	Closed	Closed	0	0	3	3	3
<b>Part-time*</b>	Up to 1	Closed	0	Up to 1	Up to 1	Closed	Closed	0	0	Up to 2	Up to 2	Up to 2
<b>Occasional*</b>	Up to 1	Closed	0	Up to 1	Up to 1	Closed	Closed	0	0	Up to 1	Up to 1	Up to 1
<b>General Category</b>	394	Closed	0	216	216	Closed	Closed	0	0	865	865	865

\* Part-time and occasional scallop vessel owners could determine which areas to take their trips, up to the maximum number of trips specified in the table above

## **2.2.2 No Action for Amendment 11**

If Amendment 11 is not implemented, the general category scallop fishery will remain an open access fishery; any individual may obtain a permit for a vessel. Vessels would be limited to the 400 pound possession limit if they have a 1B permit; vessels with a 1A permit would be restricted to a 40 pound possession limit. Limited access vessels would be permitted to fish under general category rules when not on a DAS. General category vessels are permitted to fish in access areas up to a maximum number of trips that is assigned in biennial frameworks. General category vessels are subject to other gear, VMS requirements, and other measures under the No Action alternative. The total level of catch from this component of the fishery would not be restricted.

## **2.2.3 Measures that will be in effect March 1, 2008 until Framework 19 is implemented**

If Framework 19 is not implemented by March 1, 2008, several measures implemented by Amendment 10 and Framework 18 will carry-over. For example, open area DAS allocations for limited access vessels would be the same as in FY2007 (51 DAS for full-time, 20 for part-time, and 4 for occasional vessels) and the Elephant Trunk Area would be managed under the same regulations in place in 2007 (three trips for full-time vessels and a total of 865 general category trips). In addition, under No Action the Georges Bank access area allocations would rollover. The Hudson Canyon area would revert to an open area and the Delmarva area would remain closed. Because final decision on Framework 19 has been moved back to October, the action may not be implemented before the start of FY2008; therefore, this action will have to assess impacts of the potential delay and consider measures to compensate.

The specific measures that are included in this alternative if this action is not implemented by March 1, 2008, are:

1. Any limited access open area DAS used in 2008 above the ultimate value allocated for 2008 will be reduced the following fishing year (2009).
2. Any general category Elephant Trunk area trips taken in 2008 above the ultimate allocation for 2008 will be deducted from the following fishing year. And if the Council ultimately selects to allocate more than 2% of access in ET, then those additional trips could be allocated whenever FW19 is implemented (i.e. 5%)
3. If the general category quarterly hard TAC for Quarter 1 (March 1-May 31) is exceeded, then those pounds will be removed from Quarter 3 and/or 4. Catch cannot be removed from Quarter 2 because any overage would not be known until the Quarter 2 TAC was allocated.
4. Hudson Canyon would re-open as an open area.
5. Any landings from within the Northern Gulf of Maine (NGOM) area caught in fishing year 2008 above the ultimate TAC for 2008 will be reduced the following year.

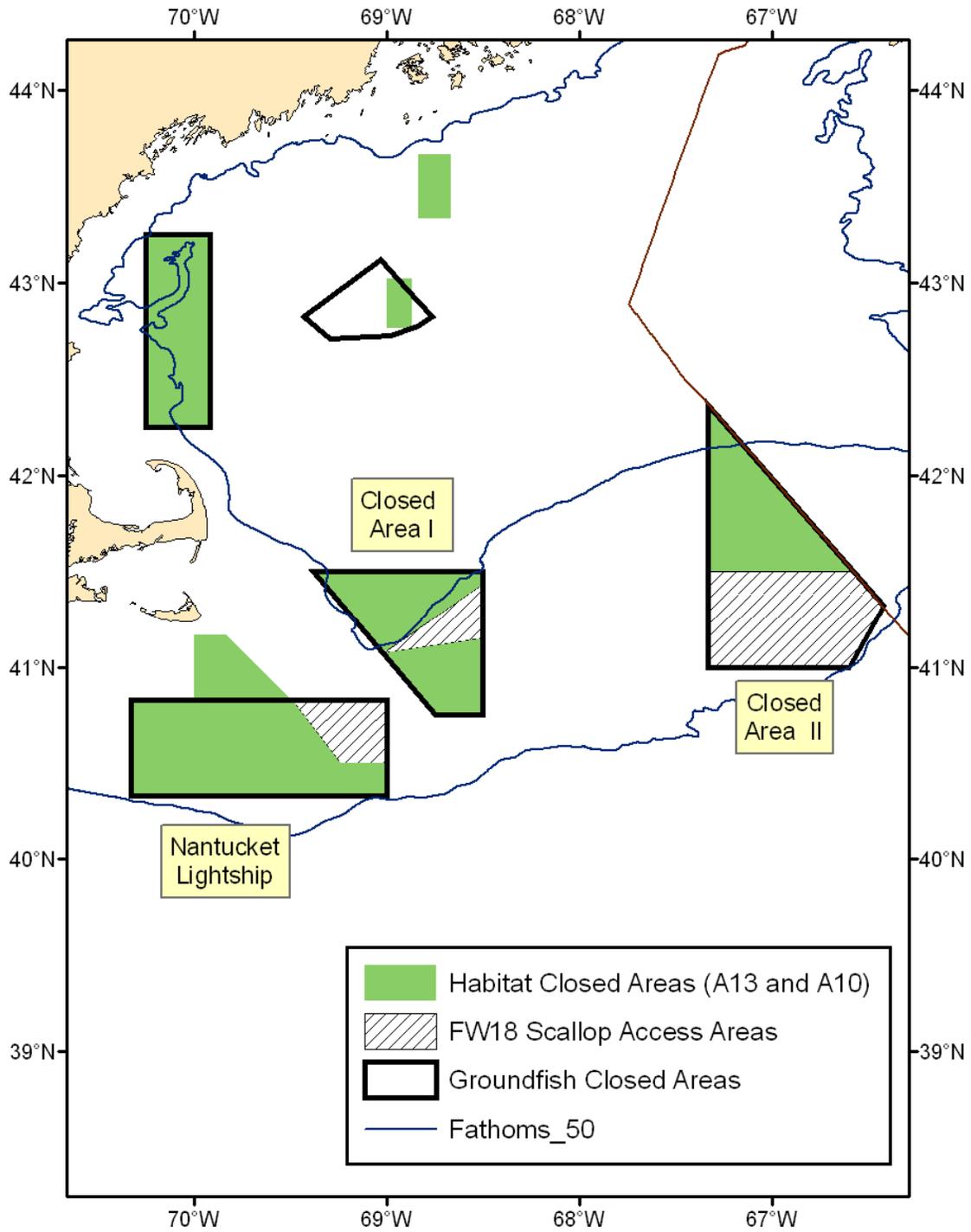
## **2.3 MEASURES FOR LIMITED ACCESS VESSELS**

Under current regulations (CFR §648.60), limited access vessels are authorized to take a certain amount of trips to each controlled access area during a fishing year. Each full-time vessel has been authorized to land 18,000 pounds of scallop meat per trip (40% of that for part-time vessels and 8.33% for occasional vessels). Fishing in controlled access areas may be subject to other

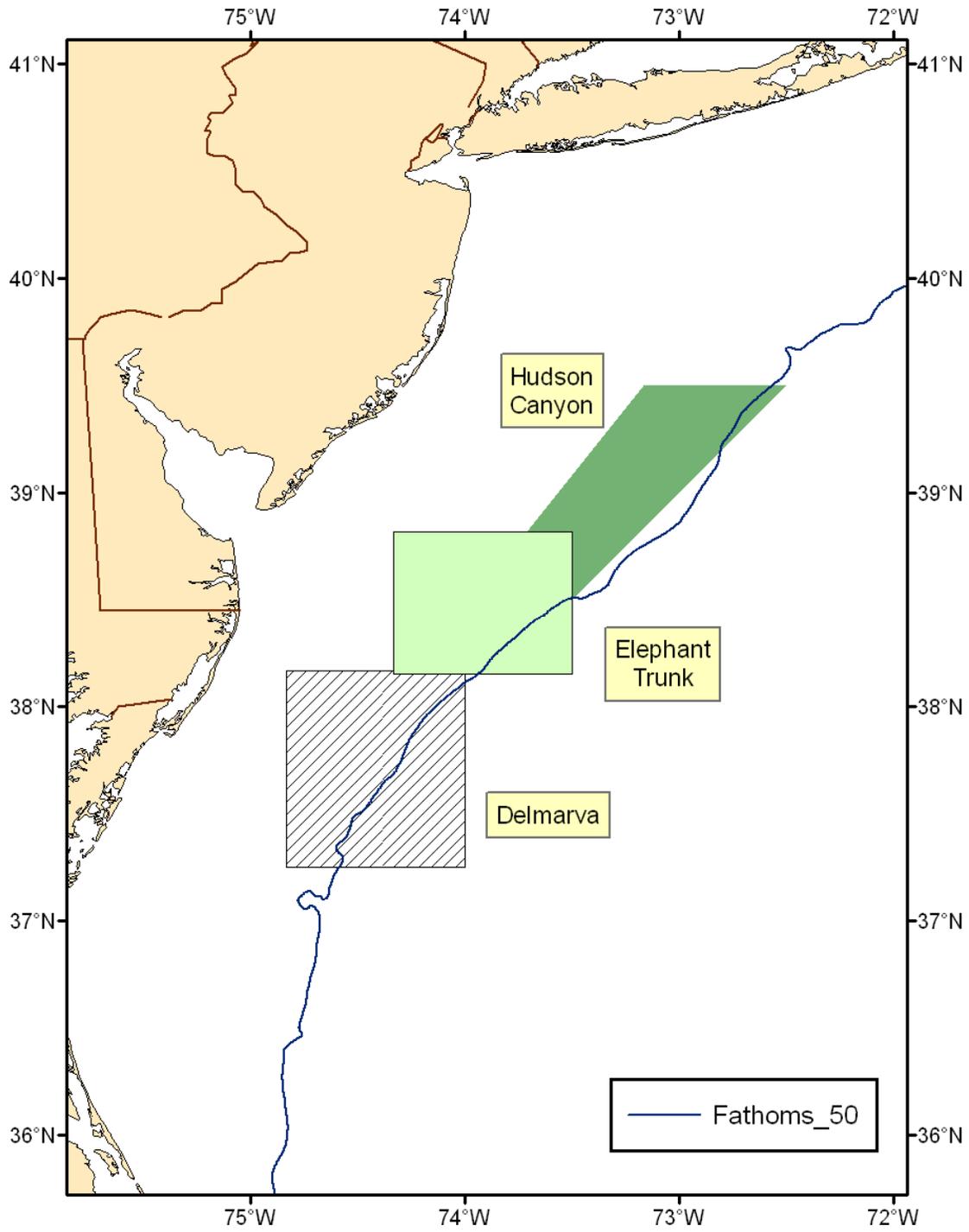
limits such as seasons or potential closures due to TACs for yellowtail flounder. The maximum number of trips per area will be considered in this action for FY2008 and FY2009 to prevent overfishing and optimize yield. Access areas include areas within the Multispecies closed areas (Closed Area I, Closed Area II, and Nantucket Lightship), as well as areas specifically closed as scallop rotational closed areas (Hudson Canyon, Elephant Trunk, and Delmarva) (See Figure 3 and Figure 4).

Limited access vessels are also allocated a specific number of open area DAS in biennial frameworks to achieve optimum yield at the target fishing mortality of  $F=0.2$  for the total scallop resource. The open area DAS allocations depend on what controlled access areas are available and the number of trips the Council recommends to allocate per area, as well as allocations made to the general category fishery. The open area allocations are also based on the assumption that a part-time vessel receives 40% of a full-time allocation, and an occasional vessel receives 8.33% of a full-time vessel.

Figure 3 – Boundaries of scallop access areas within Multispecies closed areas on Georges Bank



**Figure 4 – Boundaries of scallop access areas in the Mid-Atlantic**



**Summary of scenarios**

The alternatives described in this section are separated out by area (i.e. Georges Bank access areas, Elephant Trunk, Delmarva etc.), but due to the interrelated nature of area rotation and how the model projects impacts for the entire resource overall, it is difficult to pull out specific impacts by area. Therefore, the various alternatives under consideration have been combined into a number of scenarios. The **No Action** alternative assesses the impacts of essentially rolling over current specifications. There are two alternatives that consider revising the order of the Georges Bank access area schedule (**DMV3** and **DMV2**). The only difference between these two alternatives is that one keeps the Delmarva area closed for both 2008 and 2009, and one alternative considers access in 2009. The rest of the scenarios include various alternatives related to new rotational areas to protect small scallops: **HCL** would close a 5X5 ten-minute-square area near the current Hudson Canyon closed area, **HCS** would close a 4X4 ten-minute square area near the current Hudson Canyon area;, **SCH** would close an area in the South Channel northeast of Nantucket Lightship, and **SCHHC** would close both areas – the smaller HC area and the SCH area. See Table 11 for a summary of what each scenario has analyzed.

All four of these scenarios include the same assumptions for allocations as scenario “DMV2” (one trip in NL in 2008, one trip in CAII in 2009, one trip in Delmarva in 2009, and 4 trips in 2008 and 3 trips in 2009 in the ET). All scenarios then identify a certain level of open area DAS based on which areas are accessible to reach an overall fishing mortality target of F=0.20. **At the final Committee meeting, an additional alternative was added that is similar to HC-sm, but it proposes to close the existing HC area (not the 4X4 ten-minute square area) and it allocated more DAS in open areas in 2008 and fewer DAS in 2009 for an average F=0.20 for both years combined; this alternative is called “Pref,” for the preferred alternative. The Council recommends the Pref alternative for the proposed action.**

**Table 11 – Summary of scenarios considered in the biological projections for Framework 19**

<b>2008</b>		<b>CL1</b>	<b>CL2</b>	<b>NLS</b>	<b>ET</b>	<b>Dmv</b>	<b>HC</b>	<b>Sch</b>	<b>IndvDAS*</b>
No Action		1 trip	0 trip	Cl	3 trips	Cl	Op	Op	51
<b>Preferred</b>		<b>Cl</b>	<b>Cl</b>	<b>1 trip</b>	<b>4 trips</b>	<b>Cl</b>	<b>Cl</b>	<b>Op</b>	<b>35</b>
Dmv 3		Cl	Cl	1 trip	4 trips	Cl	Op	Op	32
Dmv 2		Cl	Cl	1 trip	4 trips	Cl	Op	Op	32
HC-sm		Cl	Cl	1 trip	4 trips	Cl	Cl	Op	30
HC-lar		Cl	Cl	1 trip	4 trips	Cl	Cl	Op	29
Sch		Cl	Cl	1 trip	4 trips	Cl	Op	Cl	50
Sch+HC		Cl	Cl	1 trip	4 trips	Cl	Cl	Cl	42
<b>2009</b>		<b>CL1</b>	<b>CL2</b>	<b>NLS</b>	<b>ET</b>	<b>Dmv</b>	<b>HC</b>	<b>Sch</b>	<b>IndvDAS*</b>
No Action		Cl	0 trip	0 trip	3 trips	Cl	Op	Op	51
<b>Preferred</b>		<b>Cl</b>	<b>1 trip</b>	<b>Cl</b>	<b>3 trips</b>	<b>1 trip</b>	<b>Cl</b>	<b>Op</b>	<b>42</b>
Dmv 3		Cl	1 trip	Cl	3 trips	Cl	Op	Op	60
Dmv 2		Cl	1 trip	Cl	3 trips	1 trip	Op	Op	48
HC-sm		Cl	1 trip	Cl	3 trips	1 trip	Cl	Op	47
HC-lar		Cl	1 trip	Cl	3 trips	1 trip	Cl	Op	47
Sch		Cl	1 trip	Cl	3 trips	1 trip	Op	Cl	69
Sch+HC		Cl	1 trip	Cl	3 trips	1 trip	Cl	Cl	54

\* The full-time individual DAS value is based on an estimate of 326 active full-time equivalent limited access vessels out of 350 limited access permits in 2007. These values have removed TAC for general category allocations and set-asides.

This framework is considering a range of DAS allocation alternatives. Open area DAS allocations are estimated after the access area TACs are established in order to achieve the annual target fishing mortality rate for the entire resource. If access area DAS increase, then open area DAS decrease, and vice versa. This framework considered a range of total open area DAS from 9,500 to 16,626 depending on which access areas are available (Table 12). The preferred alternative includes 11,410 allocated open area DAS when multiplied out for the entire fishery. The proposed action also includes five access area trips. However, individual DAS are not allocated for access areas; rather a vessel is permitted to take a specific number of trips in a certain area. For the purposes of comparing alternatives in terms of total DAS (in open areas and access areas) a “DAS equivalent” has been calculated for access areas. For example, for the 5 allocated trips under the proposed action, each trip is assumed to equal an equivalent of 12 open area DAS. Therefore, five trips multiplied by 12 DAS, and then multiplied by an equivalent of 326 full-time vessels equals 19,560 DAS for the preferred option.<sup>2</sup> Thus adding the total allocated open area DAS (11,410) plus the DAS equivalent for access areas (19,560) equals about 30,970 DAS for access areas and open areas for the proposed action in 2008.

**Table 12 – Summary of allocated open area DAS and DAS equivalent for access areas for Framework 19 scenarios**

2008	# of access area trips	Individual open area DAS	Total Allocated Open Area DAS*	DAS equivalent for access areas**	Total DAS equivalent allocated
No Action	4	51	16,626	15,648	32,274
<b>Preferred</b>	<b>5</b>	<b>35</b>	<b>11,410</b>	<b>19,560</b>	<b>30,970</b>
Dmv 3	5	32	10,432	19,560	29,992
Dmv 2	5	32	10,432	19,560	29,992
HC-sm	5	30	9,780	19,560	29,340
HC-lar	5	29	9,454	19,560	29,014
Sch	5	50	16,300	19,560	35,860
Sch+HC	5	42	13,692	19,560	33,252
<b>2009</b>					
No Action	3	51	16,626	11,736	28,362
<b>Preferred</b>	<b>5</b>	<b>42</b>	<b>13,692</b>	<b>19,560</b>	<b>33,252</b>
Dmv 3	4	60	19,560	15,648	35,208
Dmv 2	5	48	15,648	19,560	35,208
HC-sm	5	47	15,322	19,560	34,882
HC-lar	5	47	15,322	19,560	34,882
Sch	5	69	22,494	19,560	42,054
Sch+HC	5	54	17,604	19,560	37,164

\* Total allocated open area DAS are based on an assumption that 326 full-time equivalent allocations will be granted in 2008 and 2009. This estimate is based on distribution of permits by permit category and the number of active vessels in 2006 and 2007.

<sup>2</sup> For Framework 19 analyses an estimate of 326 has been used to represent 326 active full-time scallop vessels out of the 350 limited access scallop permit owners.

*\*\* Note: Vessels are not allocated DAS in access areas; they are allocated a specific number of trips. These values represent a calculation of open area DAS equivalent based on the number of access area trips allocated. One 18,000 pound trip is assumed to equal 12 open area DAS.*

### **2.3.1 Access area management measures on Georges Bank**

The following alternatives are related to management measures for the Georges Bank Access Areas. These access areas are within the boundaries of the Multispecies closed areas, which have been closed since 1994 to all fishing gear capable of catching groundfish. Under special circumstances, certain fisheries are authorized to operate in portions of the closed areas on species whose stocks are in relatively healthy conditions in ways that reduce or minimize impacts on other regulated species.

Access by the scallop fishery in portions of the Multispecies closed areas on Georges Bank has been approved for 1999, 2000, 2004, 2005, 2006, and 2007. The boundaries have been relatively the same since the first access area program in 1999. Since then the boundaries in Closed Area I have been adjusted to be consistent with habitat closed areas in both the Scallop and Multispecies FMPs. As a result of the court's decision in *Oceana v. Evans et al. (8/2/05)*, both habitat areas under the FMPs are closed to scallop gear only. Effort has been controlled in these access areas and overall the program has been successful with abundant scallop catches and relatively low impacts on regulated groundfish species. Furthermore, catch rates have been relatively high in access areas with reduced bottom contact time, which helps minimize overall impacts on the environment, including EFH and non-target species.

This framework includes alternatives for access area management measures on Georges Bank for fishing years 2008 and 2009. Based on the most recent data available, the alternatives under consideration are described in the section below (Section 2.3.1.1)

#### **2.3.1.1 Allocations**

Three scallop surveys are available for management to use for decision making. The federal scallop dredge survey conducted by the Northeast Fisheries Science Center (NEFSC) has been conducted in a consistent manner since 1979. An 8-foot modified scallop dredge is used with 2" rings and a 1.5" liner. Tows are 15 minutes in length at a speed of 3.8 knots and stations are identified using a random-stratified design. About 500 stations are completed each year on Georges Bank and the Mid-Atlantic. Currently, there is a Scallop Survey Advisory Panel (SSAP) reviewing the scallop survey and making recommendations about how future surveys should be conducted because the vessel platform currently used (R/V *Albatross IV*) is going out of service. The panel is considering all types of modifications to the scallop survey program and recommendations will be made through the Council in the near future.

There is also a dredge survey conducted by the Virginia Institute of Marine Science (VIMS) that has been funded through the Cooperative Research Program and the scallop research set-aside program. This survey has provided biomass estimates for several access areas in the past and results from the 2007 survey season have been incorporated into Framework 19 estimates. In addition, the University of Massachusetts (SMAST) has been conducting a video survey of the

scallop fishing grounds through direct industry funding, the Cooperative Research Program and the scallop research set-aside program. Results from the 2007 video survey have also been included in biomass estimates used for Framework 19.

All of these surveys are used by the Scallop Plan Development Team (PDT) to estimate exploitable scallop biomass. The PDT met on September 17 to review estimates and recommend final alternatives for consideration.

**2.3.1.1.1 Alternative 1 – Revise order of Georges Bank Access Area openings (proposed action)**

Preliminary results indicate that only one access area trip on Georges Bank should be allocated each year to meet overall mortality objectives and optimize yield. Compared to the No Action alternative that would allocate trips into at least two access areas per year, this alternative would only allocate trips into one access area per year. For example, one trip in Nantucket Lightship in FY2008 and one trip in Closed Area II in FY2009. The PDT does not recommend that access area trips be taken in Closed Area I for the time being. The exploitable biomass in that area is not expected to support an allocation of even one trip, especially since the boundaries have been reduced as a result of the Court order from the Oceana v. Evans lawsuit (08/02/05). All scenarios under consideration include a revision of GB access area openings (with the exception of the No Action alternative) such that the preferred alternative, DMV3, DMV2, HC-sm, HC-lar, Sch, and HC-Sch all include one trip in Nantucket Lightship in 2008 and one trip in Closed Area II in 2009.

**Table 13 – Comparison of estimated maximum number of trips in Georges Bank access areas for full-time limited access vessels under No Action and Alternative 1 (all other scenarios)**

	No Action		Alternative 1	
	2008	2009	2008	2009
Closed Area II	0	0	0	1
Closed Area I	1	0	0	0
Nantkt Lightship	0	0	1	0
<b>Total for GB</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1</b>

**2.3.1.2 Adjustments when yellowtail flounder catches reach 10% TAC limit**

Under current regulations, if the 10% yellowtail flounder (YT) bycatch TAC is reached and the Georges Bank access areas close, limited access vessels that have not taken trips are authorized to take up to two unused trips in open areas. This action is considering an alternative that would allocate additional open area DAS for each trip not taken before the area closes, but at a prorated value of DAS. The prorated amount is calculated to achieve an equal amount of scallop mortality per DAS. This calculation takes into account the expected average landings per DAS based on relative biomass and scallop size in the open areas, compared to the GB access areas.

In 2006, the YT TAC for the scallop fishery was 14.3 mt (31,544 lbs) for Nantucket Lightship and 202.9 mt (447,230 lbs) for CAII. In 2007, the YT TAC for Nantucket Lightship was 21.3 mt. (46,958 lbs) and 90 mt. (198,416 lbs) for CAI. Preliminary estimates for 2008 suggest that

the YT TAC will be higher in both areas; 31.2 mt. (68,784 lbs) in Nantucket Lightship, and 195 mt (429,827 lbs) on Georges Bank. The values for 2009 are:

**Table 14 – Preliminary estimates of YT TAC available for scallop access area program**

	2008	2009
<b>SNE/MA YT</b>	312 mt	272 mt **
10% for scallop access program	31.2 mt (68,784 lb.)	27.2 mt (59,966 lb.)
<b>GB YT</b>	1,950 mt*	1,950 mt**
10% for scallop access program	195 mt (429,901 lb.)	195 mt (429,901 lb.)

\* The Council recently approved 1,950 as the US share of the total 2,500 mt as recommended by the Transboundary Management Guidance Committee (TMGC). The US would be allocated an amount within this range, which is equal to 78% of the total TAC for US and Canada. The Council made this final recommendation at the September 2007 Council meeting.

\*\* The **GB YT** TAC is determined on an annual basis so there is no way to estimate the TAC for 2009 at this time. For the purposes of Framework 19, the same TAC from 2008 will be used as a placeholder for analysis. The YT TAC could be higher or lower than this value based on updated information that will be discussed in 2008. The **SNE/MA** TAC will also be re-estimated in 2008 so this value could be adjusted later as well.

In order to calculate the compensation that will be used for limited access trips that have not been taken if the YT bycatch TAC is reached, an estimate is made about the number of days in the open areas required to remove the same number of scallops that would have been taken in the closed areas. For example, in Nantucket Lightship, a full trip is 18,000 lbs, and according to the projections, the average meat count will be 10.6, implying that  $18,000 \times 10.6 = 190,800$  scallops will be removed per trip. In the open areas, the average meat count will be about 18.5 so that 190,800 scallops corresponds to  $190,800 / 18.5 = 10,314$  lbs. The LPUE in the open areas in 2008 will be about 1,336 lbs/day, so it will take  $10,314 / 1,336 = 7.7$  days to land the same number of scallops, resulting in compensation of 7.7 days. The proposed action includes an allocation of 7.7 open area DAS for a full-time vessel if the Nantucket Lightship Area closes in 2008 due to the YT TAC being reached.

For Closed Area II in 2009, the average meat count will also be 10.6, while average open area meat count will be 17.9, so that the target open area poundage will be  $190,800 / 17.9 = 10659$  lbs. With an average open area LPUE of 1,344, the compensation days will be  $10,659 / 1,344 = 7.9$  days. The proposed action includes an allocation of 7.9 open area DAS for a full-time vessel if Closed Area II closes in 2009 due to the YT TAC being reached.

**Table 15 – Open area DAS Compensations for unused GB access area trips**

GB Access Area	Open Area Compensation
Nantucket Lightship (2008)	7.7 DAS
Closed Area II (2009)	7.9 DAS

While there is a mechanism for compensation if an area has to close due to the YT TAC being reached, it is not expected to be needed for this framework. The YT TACs are higher in 2008 and 2009 than in previous years and there is only one access area trip proposed in this action compared to several trips in years past. If the bycatch rates from previous years in Nantucket Lightship and Closed Area II are used to estimate whether the YT TAC will be reached, the

analysis suggests that it will not be reached unless bycatch rates are very different than in 2006 and 2007.

Yellowtail bycatch in access areas is monitored using observer data. The observed scallop and YT bycatch is recorded from each observed trip and is then extrapolated for other trips taken in the area. Therefore, an estimated value of total YT caught is available compared to total scallop meat caught. This information is provided on the NMFS Sea Scallop Fishery Monitoring website (<http://www.nero.noaa.gov/ro/fso/scal.htm>). Based on the bycatch values for previous years, a bycatch rate of 0.006 was estimated for both years in Nantucket Lightship and 0.034 for Closed Area II in 2006. Using the same rates to estimate if the amount of allocated scallop catch is likely to reach the available YT TAC, it is probable that only 45-50% of the YT TAC will be caught for both areas.

**Table 16 – Summary of scallop to YT bycatch rates from previous access area programs in Nantucket Lightship and Closed Area II**

		Allocated		Caught		Ratio	Estimate of YT needed to catch full scallop TAC		YT TAC	Compared to what was allocated
		Scallop	YT	Scallop	YT					
		(a)	(b)	c	(d)	(e) =(d/c)	(f) =(e*a)			
2006	NL	11,540,000	31,544	8,990,170	55,458	0.006	71,187	Area closed July 20	31,544	<b>-39,643</b>
	CA2	17,300,000	447,230	13,545,605	462,312	0.034	590,450	Area closed Sept 6	447,230	<b>-143,220</b>
2007	NL	7,870,000	46,958	5,613,763	32,782	0.006	45,957		46,958	<b>1,001</b>
2008	NL	5,600,000	68,784			0.006	33,600		68,784	<b>35,184</b>
2009	CA2	5,600,000	429,901			0.034	190,400		429,901	<b>239,501</b>

Note - for 2006 NL scallop landings the LA fishery landed 8,744,570 and 614 GC trips taken - assumed to equal 245,600 pounds

Note - for 2007 NL scallop landings the LA fishery landed 5,456,163 and 394 GC trips taken - assumed to equal 157,600 pounds

Note - for 2006 CA2 - general category landings were not included since so few trips were made in that area

### 2.3.2 Hudson Canyon Access Area

The Hudson Canyon Area was first closed in 1998 to protect a strong year class of young scallops. The area re-opened as a controlled access area in 2001. Amendment 10 truncated the area because small scallops appeared in what is now known as the Elephant Trunk Area (Figure 4). Fishing effort was supposed to increase in Hudson Canyon each year until a point when scallop biomass was near the levels in surrounding open areas or unless substantial quantities of young scallops appeared in the area again. In 2006, the area was scheduled to re-open after several years of fishing effort as a controlled access area. However, survey data from 2005 used in Framework 18 indicated that the biomass was not as high as predicted by Amendment 10 and the TACs for 2004 and 2005 were too high. As a result, the scallop biomass was fished down faster than anticipated and many vessels took sub-optimal trips or chose to delay trips all together.

Framework 18 ultimately extended the duration of the Hudson Canyon access program implemented under Amendment 10 until February 29, 2008, to give vessels more time to take un-used trips when conditions improved. For 2006 and 2007, the area remained closed to all vessels except vessels with unused 2005 trips. Vessels with un-used trips (or broken trips) were permitted to use those trips until the end of the 2007 fishing year. The area has remained open to general category vessels with a 400 lb possession limit.

The Council is considering measures for this area because catch rates in Hudson Canyon are still sub-optimal, and some vessels have not used their 2005 trips. In addition, Section 2.8 is also considering alternatives to close this area or a similar area in 2008 to protect small scallops that have been observed in recent surveys.

The TAC in FY2005 was allocated as three trips for full-time vessels. About 6.7 million pounds were landed by the end of FY2005, about 0.85 million pounds in FY2006, and so far in FY2007 about 5.3 million pounds have been landed. To determine remaining TAC, each completed trip was counted as accounting for 18,000 pounds and any remaining poundage from broken trips was added to that figure. The total was subtracted from the TAC to obtain remaining TAC. Therefore, there are 2,097,064 pounds of the original TAC remaining (as of September 10, 2007); this is the equivalent of 117 trips. It is likely that more trips will be taken before the end of FY2007 (February 29, 2008).

**Table 17 – Scallop allocation and landings from Hudson Canyon Access Area**

Fishing Year	Remaining Scallop TAC (lbs)	Landed (lbs)
2005	14,951,936	6,733,936
2006	8,218,000	846,227
2007	7,371,773	5,274,709*

\*Landings in FY2007 through September 10, 2007

### **2.3.2.1 No Action (*Proposed Action*)**

Under No Action, after February 29, 2008, all unused 2005 Hudson Canyon trips would expire. The area would revert back to an open area and the boundaries would dissolve. Starting on March 1, 2008, limited access vessels would be permitted to fish in that area with open area DAS. General category vessels would still be permitted to fish in that area as they are now unless this area is closed under this action based on Section 2.8.

### **2.3.2.2 Extend the duration of the Hudson Canyon Area program until May 31, 2008**

This alternative would authorize vessels with unused 2005 Hudson Canyon trips to use those trips until May 31, 2008, which is a three month extension to the current extension of February 29, 2008. Extending the date could allow some vessels to take advantage of these trips later in the year when yields are higher in the area and weather is better.

### **2.3.3 Elephant Trunk Access Area (*Proposed Action*)**

The Elephant Trunk Access Area was closed in 2004 to protect two very strong year classes until they reach a size that will produce high yield per recruit and optimum yield. The area opened in 2007 under Framework 18 with an initial allocation of five trips for full-time limited access vessels. An interim action was implemented to reduce the number of trips in that area from five to three for full-time vessels to prevent overfishing of the scallop resource overall. This action will consider measures for this access area for both 2008 and 2009.

Based on the most recent projections available, the PDT recommends that 4 trips be allocated to full-time vessels in 2008 and 3 trips be allocated to full-time vessels in 2009.

#### **2.3.3.1 Re-opening date**

The PDT and advisors did not discuss this issue specifically. However, in light of the recent interim action to delay the re-opening date from January to March, it is probably not necessary to consider other opening dates at this time. Therefore, the area will open March 1 under this action.

#### **2.3.3.2 Seasonal closure to potentially reduce interactions with sea turtles in the ETA**

##### **2.3.3.2.1 No Action**

This alternative would maintain the same two month seasonal closure from September 1 through October 31 that was implemented under Framework 18 to potentially reduce interactions with sea turtles in the ETA area.

##### **2.3.3.2.2 Remove seasonal closure (*Proposed Action*)**

This alternative would remove the existing seasonal closure (September 1-October 31) in ETA. Vessels would not be restricted by a seasonal closures to fish allocated trips in ETA.

### 2.3.3.3 Procedures to reduce ETA allocations in 2009 based on updated biomass estimates (proposed action)

This alternative identifies actions to be taken by the Regional Administrator (RA), based on total exploitable biomass in the ETA estimated from surveys conducted during early to mid-2008. When changes in allocations are necessary, the downward adjustment would be published as a final rule before March 1, 2009, the start of the fishing year.

The Regional Administrator shall reduce the number of Elephant Trunk Access Area trips using the specifications described below provided that an updated biomass estimate is available with sufficient time to announce such an adjustment through publication of a final rule in the Federal Register, pursuant to the Administrative Procedure Act, on or about December 1, 2008. If information is not available in time for NMFS to publish a final rule on or about December 1, 2008, no adjustment may be made. The adjustment of the 2009 Elephant Trunk Access Area trip allocations shall be based on all available scientific surveys of scallops within the Elephant Trunk Access Area. Survey data must be available with sufficient time for review and incorporation in the biomass estimate. If NMFS determines that a survey is not scientifically sound and unbiased, those results shall not be used to estimate biomass. If no other surveys are available, the annual NOAA scallop resource survey shall be used alone to estimate exploitable scallop biomass for the Elephant Trunk Access Area.

If the biomass is higher than projected, no upward adjustments in trip allocations will be made. If ETA biomass is *somewhat* less than projected then the initial allocations would not need adjustment. However, if the ETA biomass is *considerably* less than projected or overfishing of the resource overall is expected to occur, then the regulatory action would reduce the ETA trip allocations based on the specifications below.

**Specification:** The table below shows the thresholds and adjustments to be made in 2009 with available survey data. These results are for the preferred alternative for which the initial ETA allocation is 3 trips per vessel in 2009, and the overall scenario for allocation is the preferred alternative. These factors are important considerations to determine whether a decrease in ETA biomass, to levels below those currently projected, would cause overfishing. The total exploitable biomass for 2008 is 40,000 mt.

These estimates are derived based on reducing estimated exploitable biomass in the ETA by 25% for each trip. The estimate is being done in 2008 but the biomass triggers are 2009 estimated biomass. For example, if the estimated biomass in ETA is estimated to be 21,000 mt in 2009 based on updated estimates conducted in 2008, then the fishery will be allocated 2 trips rather than 3 in 2009. The TAC is reduced by 3% to account for set-asides before allocations are made to the fishery. The adjusted TACs are calculated by reducing the 2009 TAC by 25%, same as the biomass trigger. For example, 25% of 15.71 equals 11.79 million pounds. The number of limited access and general category trips are reduced by the values in the table below when certain biomass triggers are met.

#### An additional trigger

In addition, if the updated estimate of overall fishing mortality is above 0.29 in 2008 then one less trip will be allocated in ETA to prevent overfishing, as well as fewer general category and

set-asides. If updated fishing mortality estimates in 2008 suggest that the overall fishing mortality rate is above 0.29 then allocations will be reduced the same as described in the table below for an adjusted ETA allocation of “2 trips”. Specifically, limited access vessels would be restricted to 2 trips, general category would be reduced to 1,473 trips, and set-asides would be reduced to 0.24 and 0.12 million pounds for research and observer set-asides respectively.

It should be noted that the TAC for this area is based on an allocation of whole integer trips that may be lower or greater than the actual TAC. For example, if the model projected the total ETA TAC to be 16.2 million pounds for 2009 when allocations are made in full trips the allocated catch may be higher (i.e. closer to 17.6 million pounds for the limited access fishery if 326 full-time equivalent vessels harvested their full allocation).

**Table 18. Estimated ETA exploitable biomass triggers associated with the initial TAC, trip and set-aside allocations in Framework 19 (in million pounds).**

ETA exploitable biomass triggers (mt)	Adjusted 2009 ETA TAC	Adjusted 2009 ETA TAC (after removing 3% for set-asides)	Adjusted 2009 ETA TAC for research set-aside (2%)	Adjusted 2009 ETA TAC for observer set-aside (1%)	Adjusted number of Elephant Trunk Area trips	Number of General Category Trips
30,000 or greater	16.20	15.71	0.32	0.16	3 trips - No upward adjustment	1,964
20,000 – 29,999	12.15	11.79	0.24	0.12	2	1,473
10,000 – 19,999	8.10	7.86	0.16	0.08	1	982
Less than 10,000	4.05	3.93	0.08	0.04	0	491

**Rationale:** This procedure would make use of a more rapid, event-triggered rulemaking to correct the ETA allocations, ensuring that optimum yield is achievable even if there is insufficient time to develop a framework adjustment when new ETA biomass data become available. There is uncertainty in the projected scallop biomass in the ETA; despite all the various research being conducted, the data are not always available for the updated projection. In addition, this area contains about one-third of total scallop biomass; therefore, managing this access area with caution is necessary to preserve the long-term health of the scallop resource and fishery. Overharvest of the resource in this area could undermine the goals and objectives of area rotation, which is the cornerstone of the Scallop FMP.

The procedure would rely on the analyses in this document to set specifications based on total exploitable scallop biomass in the ETA and would also rely on public comment on these measures during development of Framework Adjustment 19. Since these corrections have been analyzed in this Environmental Assessment, further analysis and public comment would be unnecessary when the adjustment is made.

A framework adjustment cannot be developed in time to implement the adjusted specifications at the start of the 2009 fishing year on March 1 if survey and biological data become available too

late to be of practical use. Many of the surveys are conducted during the late spring and summer, which are usually too late to prepare the necessary analyses in a framework adjustment that would be implemented before the start of the next fishing year. Therefore, this option sets up a rulemaking procedure that would authorize NMFS to adjust the ETA allocations if necessary based on available survey data.

#### **2.3.4 Delmarva Access Area**

This area was closed under Framework 18 on January 1, 2007, to protect a high number of young scallops from the strong 2003 year class. The area was expected to remain closed until 2010 under the area rotation schedule established under Amendment 10. However, based on new survey data and new information about growth rates in the Mid-Atlantic, the area could open in 2009 at a reduced level.

##### **2.3.4.1 No Action**

The Delmarva Access Area closed in 2007 and will remain closed for both fishing years under this framework. Framework 18 projected that the area would be scheduled to reopen in 2010.

##### **2.3.4.2 Early Delmarva Reopening (*Proposed action*)**

Based on new survey data and new information about growth rates in the Mid-Atlantic, this alternative would consider opening the Delmarva area in 2009 at a reduced level. The PDT recommends one trip be allocated in Delmarva in 2009 and the Council recommends this alternative for proposed action.

###### **2.3.4.2.1 Re-opening date**

The recommendation is to re-open the Delmarva area on March 1, 2009, based on the same reasons the Elephant Trunk Area opened on March 1 in 2007, which was primarily to increase yield per recruit compared to opening the area earlier in the year.

###### **2.3.4.2.2 Seasonal closure to potentially reduce interactions with sea turtles**

###### **2.3.4.2.2.1 August 1 through October 31 seasonal closure**

Similar to the ETA, the Council considered an alternative that would close the area from August 1-October 31 during FY2009 when the Delmarva area opens to potentially reduce interactions during a period when takes of loggerhead turtles were observed in recent years.

As with other areas in the Mid-Atlantic, the seasonal distribution of sea turtles overlaps with the scallop fishery in the Delmarva area. Although the Council is recommending a very limited level of effort in that area in 2009 (1 trip), this alternative would include a seasonal closure as a precautionary measure to potentially reduce interactions with sea turtles in the context of rotational area management. See Section 4.3 for a summary of the observed turtle takes in the Delmarva area in recent years.

#### 2.3.4.2.2 No seasonal closure (*proposed action*)

This alternative would not include a seasonal closure in the Delmarva access area in 2009. Vessels would not be restricted by a seasonal closures to fish allocated trips in this area.

#### 2.3.4.2.3 Procedures to reduce allocations in Delmarva in 2009 based on updated biomass estimates (*proposed action*)

This alternative identifies actions to be taken by the Regional Administrator (RA), based on total exploitable biomass in the Delmarva area from surveys conducted during early to mid-2008. When changes in allocations are necessary, the downward adjustment would be published as a final rule before March 1, 2009, the start of the fishing year. This procedure is modeled after the procedure used in Framework 18 for the Elephant Trunk Area

The Regional Administrator shall reduce the number of Delmarva Access Area trips using the specifications described below provided that an updated biomass estimate is available with sufficient time to announce such an adjustment through publication of a final rule in the Federal Register, pursuant to the Administrative Procedure Act, on or about December 1, 2008. If information is not available in time for NMFS to publish a final rule on or about December 1, 2008, no adjustment may be made. The adjustment of the 2009 Delmarva trip allocations shall be based on all available scientific surveys of scallops within the Delmarva area. Survey data must be available with sufficient time for review and incorporation in the biomass estimate. If NMFS determines that a survey is not scientifically sound and unbiased, those results shall not be used to estimate biomass. If no other surveys are available, the annual NOAA scallop resource survey shall be used alone to estimate exploitable scallop biomass for the Delmarva Access Area.

If the biomass is higher than projected, no upward adjustments in trip allocations will be made. If Delmarva biomass is *somewhat* less than projected then the initial allocations would not need adjustment. However, if Delmarva biomass is *considerably* less than projected then the regulatory action would reduce the Delmarva trip allocations based on the specifications below.

**Specification:** The table below shows the thresholds and adjustments to be made in 2009 with available survey data. These results are for the preferred alternative the initial Delmarva allocation is 1 trip per vessel in 2009, and the overall scenario for allocation is the preferred alternative. These factors are important considerations to determine whether a decrease in Delmarva biomass, to levels below those currently projected, would cause overfishing.

These estimates are derived based on reducing exploitable biomass in the Delmarva area by 25% for each trip. For example, if the biomass in Delmarva in 2008 is estimated to be 9,000 mt., then the fishery will be allocated zero trips rather than one in 2009. If biomass is lower than 10,000 mt. then no limited access, general category trips, or set-asides will be available for this area in 2009. The total exploitable biomass for 2008 is 15,000 mt.

**Table 19. Estimated 2008 Delmarva exploitable biomass triggers associated with the initial TAC, trip, and set-aside allocations in Framework 19**

Delmarva exploitable biomass triggers (mt)	Adjusted 2009 ETA TAC	Adjusted 2009 ETA TAC (after removing 3% for set-asides)	Adjusted 2009 ETA TAC for research set-aside (2%)	Adjusted 2009 ETA TAC for observer set-aside (1%)	Adjusted number of Elephant Trunk Area trips	Number of General Category Trips
10,000 or greater	6.0	5.82	0.12	0.06	1 trip No upward adjustment	726
Less than 10,000	0	0	0	0	0	0

**Rationale:** This procedure would make use of a more rapid, event-triggered rulemaking to correct the Delmarva allocations, ensuring that optimum yield is achievable even if there is insufficient time to develop a framework adjustment when new Delmarva biomass data becomes available. There is uncertainty in the projected scallop biomass in the Delmarva area, because a substantial majority of it is currently young scallops, whose true abundance is difficult to estimate with a high degree of precision. In addition, this area was originally not projected to open until 2010, but recent survey results from 2007 suggest that the biomass in that area should be able to support limited effort in 2009. If surveys in 2008 suggest that growth rates have slowed down and new recruitment has settled in the area, then this procedure would authorize the RA to reduce or prevent effort in that area in 2009.

The procedure would rely on the analyses in this document to set specifications based on total exploitable scallop biomass in the Delmarva area and would also rely on public comment on these measures during development of Framework Adjustment 19. Since these corrections have been analyzed in this Environmental Assessment, further analysis and public comment would be unnecessary when the adjustment is made.

A framework adjustment cannot be developed in time to implement the adjusted specifications at the start of the 2009 fishing year on March 1, if survey and biological data become available too late to be of practical use. Many of the surveys are conducted during the late spring and summer, which are usually too late to prepare the necessary analyses in a framework adjustment that would be implemented before the start of the next fishing year. Therefore, this option sets up a rulemaking procedure that would authorize NMFS to adjust the Delmarva allocations if necessary based on available survey data.

### **2.3.5 Other restrictions for limited access vessels in access areas**

This framework is considering several other measures that are intended to improve the effectiveness of the overall area rotation program.

### **2.3.5.1 Restriction on the number of crew on limited access vessels on access area trips**

#### **2.3.5.1.1 No Action (*Proposed Action*)**

Vessels with limited access permits may carry no more than 7 persons on a DAS trip in open areas. This measure was implemented to control fishing power of a vessel on a DAS. Under Framework 18, the Council recommended that the maximum crew restriction be lifted for access area trips since there is a possession limit. NMFS implemented Framework 18 with no maximum crew limit for access area trips. This alternative would not restrict the number of crew a vessel could take on an access area trip.

*Rationale:* Allowing a vessel to carry more crew on an access area trip may reduce fishing costs by potentially reducing the time a vessel is at sea. No crew limit would give vessels the most flexibility, potentially reducing total fishing costs and increasing total benefits for crew and vessel owners, but also reducing income per crew member. Increasing crew limits could improve safety and provide more opportunity for training new crew members.

#### **2.3.5.1.2 Reduce maximum crew size on limited access vessels on access area trips**

This alternative would include a maximum crew size restriction for limited access vessels in access areas to either: **Option A** with a maximum of eight crew members, or nine crew members under **Option B**. See Section 5.1.7.1 for a summary of the analysis related to eliminating the crew size restriction in access areas under FW18.

*Rationale:* Framework 18 acknowledges that as long as the size of scallops in the access areas remains constant, the number of crew will have no effects on the weight of scallops that are cut and landed. However, vessels with no crew limit could target smaller scallops in access areas as catches of larger scallops decline. Larger crews also have an effect on cull size, which may cause the number of shucked scallops to increase. This alternative would provide some opportunity for vessels to take additional crew for safety and training purposes, but it would have reduced risks of vessels targeting smaller scallops and increasing mortality.

### **2.3.5.2 Prohibition on deckloading**

A prohibition on deckloading in this case refers to a vessel being prohibited from leaving an access area with more than 50 bushels of in-shell scallops. The Council decided to consider this topic in Framework 19 in light of a recent interim action for the Elephant Trunk Access Area that included a prohibition on deckloading to reduce non-harvest scallop mortality. In November 2006, the Council recommended that interim action be taken to reduce the potential for overfishing in FY2007. Interim measures included a reduction of fishing effort in the Elephant Trunk Access Area, as well as a prohibition on deckloading from that area. At the time, the industry requested that NMFS prohibit deckloading in all access areas, but the interim action was limited to the ETA.

### 2.3.5.2.1 No Action

A vessel would not be restricted on the amount of in-shell scallop it has onboard when leaving an access area, except for the Elephant Trunk Area. That area is already restricted to a 50 bu. restriction of in-shell scallop on deck when leaving that area based on Framework 20.

*Rationale:* No Action would allow a vessel to leave an access area with a deckload of scallops (except for the Elephant Trunk Area). This would enable a vessel to shuck scallop meat on their return to port, potentially reducing fishing costs by reducing the time the vessel is at sea. If bad weather is a factor, a vessel can leave an access area with a full deckload of scallops and shuck the scallop meat on their return to port.

### 2.3.5.2.2 Prohibit all vessels from leaving any access area with more than 50 bushels of in-shell scallops (prohibition on deckloading) (*Proposed action*)

This alternative would prohibit a vessel from leaving any access area with more than 50 bushels of in-shell scallops. The Committee recommends two options for this alternative.

**Option A:** No exceptions, all vessels restricted to 50 bu. limit under all circumstances (*Proposed action*)

**Option B:** A vessel would be permitted to leave an access area with more than 50 bu. of in-shell scallop on deck if one of the two exceptions listed below applies:

1. A general category vessel is carrying an observer or
2. A vessel has to break a trip due to a safety concern that can be documented as in other regulations

*Rationale:* If a vessel leaves an access area and plans to shuck the remainder of their trip on the way home, the vessel may have an excess of scallops above the possession limit and will discard them in an area that may not be suitable for scallops or the scallops may be dead before they are discarded. This alternative is intended to reduce non-harvest mortality by restricting the amount of in-shell scallops with which a vessel is permitted to leave an access area (up to 50 bu.).

### 2.3.5.3 TAC set-asides for observers (1%) and research (2%)

One-percent of the estimated TAC for each access area would be set-aside to help fund observers. In addition, 2% of the estimated TAC for each access area would be set-aside to fund scallop-related research in the access areas. The percent of TAC for observers and research would be removed before allocations are set for limited access and general category fisheries.

In terms of the Georges Banks Access Areas, see Table 20 for a breakdown of the expected TAC that would be assigned for observers and research the proposed action for access areas on Georges Bank as well as scallop rotational areas in the Mid-Atlantic.

**Table 20 – Summary of research and observer set-asides in access areas for the proposed action (in million pounds)**

	2008	2009
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	<b>NL</b>	<b>ETA</b>	<b>CAII</b>	<b>ETA</b>	<b>Delmarva</b>
Total TAC	5.5	22.0	5.8	16.2	6.0
2% for research	0.11	0.44	0.116	0.324	0.12
1% for observers	0.055	0.22	0.058	0.162	0.06

#### **2.3.5.4 Research priorities for 2008 and 2009**

The PDT recommended the following list of priorities be included for research set-aside (RSA) funds for both access area set-asides and open area set-asides. The Scallop Committee and Council approved this list as well. The PDT also recommends that the notice for RSA be published as soon as possible so the process can begin. In addition, the application deadline should be relatively short because some research is time-critical; i.e. the Delmarva area assessment should happen before the summer in 2008 to see if the number of trips should be reduced for 2009 and some projects should occur before access areas open in June 2008.

#### **2008/2009 Scallop Research Set-Aside Program Needs and Priorities:**

**HIGHEST PRIORITY:** An intensive industry-based survey of each of the access areas (access areas in Georges Bank including Closed Area I, Closed Area II, and Nantucket Lightship, as well as Elephant Trunk and Delmarva areas). These surveys can then be used to estimate total allowable catches (TACs) under the rotational area management program if the data from these surveys are available by August 2008 for the 2008 RSA program, or August 2009 for the 2009 RSA program.

#### **OTHER PRIORITIES** (not listed in order of importance):

1. Other surveys, including areas not surveyed by the annual NMFS survey (i.e., federal waters in the Northern Gulf of Maine management area and Southern New England).
2. Scallop biology, including studies aimed at understanding recruitment processes (reproduction, larval and early post-settlement stages), growth, natural mortality (including predation and disease), incidental gear mortality, and discard mortality.
3. Identification and evaluation of methods to reduce groundfish bycatch (i.e., gear research).
4. Identification and evaluation of methods to reduce habitat impacts, including, but not limited to: broader investigation of variability in dredging efficiency across habitats, times, areas, and gear designs; and research on habitat effects from scallop fishing and development of practicable methods to minimize or mitigate those impacts.
5. Habitat characterization research including, but not limited to: video and/or photo transects of the bottom within scallop access areas and within closed scallop areas and in comparable fished areas that are both subject and not subject to scallop fishing before and after scallop commences; development of high resolution sediment mapping of scallop fishing areas using Canadian sea scallop industry mapping efforts as an example process; identification of nursery and over-wintering habitats of species that are vulnerable to habitat alteration by scallop fishing; and other research that relates to habitats affected by scallop fishing, including, but not limited to, long-term or chronic effects of scallop fishing on marine resource productivity, other ecosystem effects, habitat recovery potential, and fine scale fishing effort in related to fine scale habitat distribution. In particular, projects that directly support evaluation of present and candidate EFH

closures and HAPCs to assess whether these areas are accomplishing their stated purposes and to assist better definition of the complex ecosystem processes that occur in these areas.

6. Identification of sources of sea turtle interactions and/or identification of ways to minimize interactions with sea turtles. Two priority topics identified include evaluation and analysis of factors affecting bycatch rates of sea turtles and development of scallop dredge and trawl operations that would reduce or eliminate the threat or harm of sea turtle interactions. Other issues related to sea turtle research include, but are not limited to: gear modifications or fishing techniques that may be used to reduce or eliminate the threat of sea turtle interactions without unacceptable reduction in scallop retention, comparison and analysis of turtle capture rates of similar gear in other fisheries, and turtle behavior.
7. Improved information concerning scallop abundance and evaluation of the distribution, size composition, and density of scallops, including but not limited to: efforts to develop a cooperative industry-based resource survey, high resolution surveys that include distribution, biomass of exploitable size scallops, recruitment, mortality, and growth rate information, research that provides more detailed scallop life history information (especially on age and area specific natural mortality and growth) and to identify stock-recruitment relationships, intensive sampling on both sides of access boundaries for fishing year 2007 and in subsequent years to gauge the short-and long-terms effects of fishing on the resource.
8. Scallop and area management research, including but not limited to: evaluation of ways to control predation on scallops; research to actively manage spat collection and seeding of sea scallops; social and economic impacts and consequences of closing areas to enhance productivity and improve yield of sea scallops and other species; and estimation of factors affecting fishing power for each limited access vessel.
9. Research projects that would help calibrate the transition of the federal dredge survey, or projects that compare various survey techniques and methods that would assist with the current transition period of the federal scallop dredge survey.

### **Funded 2007 Research Set-Aside Projects**

Of the fourteen proposals that were received for the 2007 Research Set-aside Program, six were approved for funding.

**Table 21 – Summary of research proposals funded with 2007 RSA funds**

<b>Title</b>
Characterization of Benthic Habitat and Scallop Abundance Using Optical Imaging Technology: Phase II
Developing an Improved Dredge for Standardized Surveys of the Sea Scallop Resource
Field Testing of a New Dredge for the Sea Scallop Fishery
An assessment of Sea Scallop Abundance and Distribution in Selected Closed Areas: Georges Bank Area I and II, Nantucket Lightship and Elephant Trunk
Calibrating Industry Scallops Surveys with NOAA Vessel Platforms
High-Resolution Video Survey of the Habitat and Sea Scallop Resource in the Elephant Trunk and Nantucket Lightship Closed Areas

### **2.3.6 Open area allocations**

After controlled access area allocations are determined, as well as allocations for the general category fishery, the open area DAS are set at a level that equals a value such that the resource-wide average fishing mortality is expected to be at a rate of  $F=0.20$ , the fishing mortality target.

In special circumstances, overall F may be reduced to achieve optimum yield; for example, if a large fraction of the scallop biomass is in closed areas, it will take more DAS in open areas to achieve an overall F=0.20.

### 2.3.6.1 Allocations

Pursuant to CFR §648.55, the Scallop PDT has made the recommendation below concerning the number of open area DAS that should be allocated in 2008 and 2009 to achieve optimum yield.

(d) In order to assure that OY is achieved and overfishing is prevented on a continuing basis, the PDT shall recommend management measures necessary to achieve optimum yield-per-recruit from the exploitable components of the resource (e.g., those components available for harvest in the upcoming fishing years), taking into account at least the following factors:

- (1) Differential fishing mortality rates for the various spatial components of the resource;
- (2) Overall yields from the portions of the scallop resource available to the fishery;
- (3) Outlook for phasing in and out closed or controlled access areas under the Area Rotation Program; and
- (4) Potential adverse impacts on EFH.

Open Area DAS will depend on what is decided about HC, how many trips in ET, what happens with Delmarva in 2009, and how many GB trips are allocated. Based on the range of options under consideration, the range of open area DAS for 2008 is from 29 to 51 and for FY2009 is 42 to 69. Table 22 is a summary of the potential open area DAS allocations by limited access permit category. The proposed action is Pref – 35 DAS in 2008 and 42 DAS in 2009 for full-time vessels.

**Table 22 – Summary of open area DAS allocations for the various scenarios**

	Full-time		Part-time		Occasional	
	2008	2009	2008	2009	2008	2009
No Action	51	51	20	20	4	4
<b>Pref</b>	<b>35</b>	<b>42</b>	<b>14</b>	<b>17</b>	<b>3</b>	<b>3</b>
DMV 3	32	60	13	24	3	5
DMV2	32	48	13	19	3	4
HC-sm	30	47	12	19	2	4
HC-lar	29	47	12	19	2	4
Sch	50	69	20	28	4	6
Sch and HC	42	54	17	22	3	4

### 2.3.6.2 DAS set-asides for observers (1%) and research (2%)

This action continues the set-aside program that deducts one-percent of the allocated DAS to help fund observers on limited access scallop vessels in open areas and two-percent to fund scallop-related research with compensation trips taken in open scallop fishing areas. This allocation would be removed after the general category allocation is removed from open areas.

The total open area DAS allocated to the limited access fishery in 2008 is approximately 11,410 DAS (35 DAS for each of the 326 full-time equivalent vessels). That value is equal to approximately 97% of the “total” TAC available in open areas (after catch has been removed for the general category fishery). The remaining 3% is for observer and research set asides. When those amounts are added in, the total open area DAS is equal to 11,754 DAS for 2008. Table 23 illustrates the open area DAS that should be removed for the observer and research set-aside programs based on the proposed action.

It should be noted that the average LPUE in open areas for 2008 is estimated to be about 1,176 pounds per day. That is calculated by taking the total estimated catch by limited access vessels in open areas and dividing that catch by the total number of DAS allocated (about 13.4 million pounds divided by 11,410 DAS). For 2009, average LPUE in open areas is expected to be about the same (1,172) by taking about 16.1 million pounds divided by 13,692 DAS.

**Table 23 – Summary of open area DAS set-asides for research and observers for the proposed action**

	<b>2008</b>	<b>2009</b>
“Total” DAS for open areas	11,754	14,115
Allocated DAS to the limited access fishery	11,401	13,692
DAS set-aside for research (2%)	235 (2% of 11,754)	282 (2% of 14,115)
DAS set-aside for observers (1%)	118 (1% of 11,754)	141 (1% of 14,115)

## **2.4 MEASURES FOR GENERAL CATEGORY VESSELS**

### **2.4.1 No Action**

The No Action for this fishery would assume that Amendment 11 is approved as the Council recommended it. Specifically, a quarterly hard-TAC would be implemented for general category qualifiers (and vessels under appeal) while the fishery is in a transition to limited entry (12-18 months). Ten percent of the total projected scallop catch would be allocated to the general category fishery (open and access area fishing) and would be divided into quarters based on historical trends in landings. Limited access vessels that qualify for a general category permit will also be permitted to fish under this quarterly hard-TAC program.

Qualifying vessels would then be allocated an individual fishing quota after the transition period expires. This framework assumes that the transition period will expire at the end of the 2008 fishing year (February 28, 2009), but it is possible it may expire sooner or later. This action includes the details of a required cost recovery program for the IFQ program recommended under Amendment 11. Limited access vessels that qualify for a general category permit will also be subject to the IFQ cost recovery program and other measures approved for the IFQ fishery. For the details of the limited entry and individual fishing quota program recommended by the Council under Amendment 11, see Appendix I and the Executive Summary of Amendment 11 FSEIS.

Amendment 11 also includes a separate limited entry program for general category vessels to fish in the Northern Gulf of Maine (NGOM). If a vessel had a permit on the control date and does not qualify for the limited entry general category permit, it would be permitted to fish for scallops at a reduced level in the NGOM. Vessels would be permitted to land up to 200 pounds of scallops until an overall TAC is reached for the scallop resource in federal waters. If this measure is approved, Framework 19 could potentially include a hard-TAC for both 2008 and 2009.

**2.4.1.1 Quarterly hard-TAC for transition period to limited entry (FY2008)**

Overall general category landings are highest during the second quarter (about 44% landed from June-August). Based on landings data from the last few years, about 20% of landings were in Quarter 1 and another 20% in Quarter 3. The PDT recommends that the historical averages be modified to account for access area openings in 2008. For example, since the Elephant Trunk Area is expected to open in March 2008 with potentially 1,050 trips, then a higher percent of the total TAC should be considered for Quarter 1. Second, less effort is going to be allocated in access areas on GB (June 15 opening) so less TAC may need to be available during Quarter 2. In addition, the PDT recommends that higher TACs be considered in Quarter 1 and Quarter 2 in general, so that if the fishery does not harvest the quarterly TAC, any unused TAC can roll-over to future quarters. Amendment 11 specified that any unused TAC from Quarter 1 would roll-over to Quarter 3, and any unused TAC in Quarter 2 would roll-over to Quarter 4. Limited access vessels that qualify for a general category permit will be able to fish under this hard-TAC program when not fishing on a scallop DAS. The PDT recommends that the advisors and Committee consider two options for hard TAC percentages for 2008. The percentages per quarter are described in the table below (Table 24). Table 25 through Table 28 summarize historical landings from general category vessels.

**The Committee and Council support Option A as the proposed action.**

**Table 24 – Summary of quarterly TAC allocations for the general category fishery for the interim period to limited entry (FY2008)**

	Q1 (Mar-May)	Q2 (June-Aug)	Q3 (Sept-Nov)	Q4 (Dec-Feb)
<b>Option A*</b>	<b>35%</b>	<b>40%</b>	<b>15%</b>	<b>10%</b>
Option B	40%	45%	10%	5%

\* Proposed action

**Table 25. Percentage distribution of general category scallop landings by quarter by general category vessels that had a permit before the control date**

Quarter	FISHYEAR			
	2004	2005	2006	Average of 2004 - 2006
Q1: Mar-May	19%	19%	33%	24%
Q2:Jun-Aug	45%	45%	43%	44%
Q3:Sep-Nov	24%	24%	17%	22%
Q4:Dec-Feb	13%	11%	7%	10%
Grand Total	100%	100%	100%	100%

**Table 26. Percentage distribution of general category scallop landings by quarter by all general category vessels**

Quarter	FISHYEAR			
	2004	2005	2006	Average of 2004 - 2006
Q1: Mar-May	19%	17%	32%	23%
Q2:Jun-Aug	45%	44%	42%	44%
Q3:Sep-Nov	24%	26%	18%	22%
Q4:Dec-Feb	12%	12%	8%	11%
Grand Total	100%	100%	100%	100%

**Table 27. Scallop landings, revenue and ex-vessel price by quarter by all general category vessels**

Fishyear	Data	Q1: Mar-May	Q2:Jun-Aug	Q3:Sep-Nov	Q4:Dec-Feb	Grand Total
2004	Scallop landings (lb.)	542,912	1,264,395	670,236	353,487	2,831,030
	Scallop revenue (\$)	2,658,538	6,012,814	3,771,936	2,263,423	14,706,711
	Ex-vessel price (\$)	5.3	5.0	6.2	6.5	5.6
2005	Scallop landings (lb.)	1,232,749	3,147,830	1,868,298	865,029	7,113,906
	Scallop revenue (\$)	8,415,436	22,968,523	16,150,899	6,980,818	54,515,676
	Ex-vessel price (\$)	6.9	7.2	8.7	8.2	7.7
2006	Scallop landings (lb.)	2,090,113	2,764,452	1,139,716	512,255	6,506,536
	Scallop revenue (\$)	14,593,517	17,420,983	7,342,103	3,585,838	42,942,441
	Ex-vessel price (\$)	7.1	6.4	6.5	7.3	6.7
2007*	Scallop landings (lb.)	1,618,605	1,417,420			3,036,025
	Scallop revenue (\$)	9,653,737	8,218,362			17,872,099
	Ex-vessel price (\$)	6.2	5.9			6.0

\* Preliminary: March to July

**Table 28. The recent activity by general category vessels according to date of the permit**

Data	Permit after the control date	Permit before the control date	Grand Total
<b>2004 fish year</b>			
Number of vessels	28	404	432
Average scallop landings per vessel (lb.)	2,780	6,815	6,553
Total scallop landings (lb.)	77,832	2,753,198	2,831,030
Percentage of general category scallop landings	3%	97%	100%
Percentage of total scallop landings	0.1%	4.5%	4.6%
<b>2005 fish year</b>			
Number of vessels	103	516	619
Average scallop landings per vessel (lb.)	12,992	11,193	11,493
Total scallop landings (lb.)	1,338,151	5,775,755	7,113,906
Percentage of scallop landings	19%	81%	100%
Percentage of total scallop landings	2.5%	10.8%	13.3%
<b>2006 fish year</b>			
Number of vessels	153	490	643
Average scallop landings per vessel (lb.)	12,502	9,375	10,119
Total scallop landings (lb.)	1,912,731	4,593,805	6,506,536
Percentage of scallop landings	29%	71%	100%
Percentage of total scallop landings	3.4%	8.3%	11.6%
<b>2007 fish year (preliminary March-July)</b>			
Number of vessels	99	321	420
Average scallop landings per vessel (lb.)	10,286	6,286	7,229
Total scallop landings (lb.)	1,018,316	2,017,709	3,036,025
Percentage of scallop landings	34%	66%	100%
Percentage of total scallop landings	2.7%	5.2%	7.9%

#### **2.4.1.1.1 Measures to reduce derby fishing during the transition period to limited entry (FY2008)**

The Committee recommended that the general category fishery be allocated 2% of each access area, rather than the recommended 5%, for FY2009 to reduce derby fishing in those areas during the transition period to limited entry. More vessels are expected to fish during the interim period than will ultimately qualify for the limited entry general category program. If a lower allocation is given to areas with higher scallop catch, the derby effects are expected to be reduced compared to allocating 5% of the access areas to the general category fishery during the transition period. The remainder of the overall 10% TAC will be allocated to the general category fishery for open areas and the limited access fishery would be allocated more scallops from the access areas during this period. This measure was not selected as part of the proposed action, so general category vessels will be allocated a fleetwide total number of trips equal to 5% of the TAC for each access area during the transition period as well as after the transition period, excluding Closed Area II (0%) (See Section 2.4.2.1.2).

### **2.4.1.2 IFQ program for general category fishery**

If Amendment 11 is approved as recommended, an IFQ program will be implemented for general category vessels that qualify for a limited access permit. Vessels will be allocated an individual amount of scallop meat in pounds per fishing year. Their individual allocation will be based on their catch history from their best fishing year between March 1, 2000, and November 1, 2004. Their best year's landings would determine their "contribution factor." The sum of all qualifying vessels best year landings will be added together and each vessel will receive a contribution factor, or percent, of the total best year landings. That percentage will be multiplied by the total available catch for general category vessels (5% of the total catch). Therefore, a vessel's individual allocation will vary by year based on available catch, but their contribution factor will remain the same.

Vessels will be permitted to catch that quota from any area that is open each fishing year (open areas and specific access areas) until the fleetwide number of general category trips is harvested. Vessels would be permitted to trade and or buy/sell quotas on a limited basis. The full IFQ program is expected to be implemented for FY2009, or sooner if possible. One aspect of the IFQ program that was not specified in Amendment 11 is the required cost recovery program for an IFQ program. Therefore, Framework 19 includes an alternative for a cost recovery program with estimated costs for enforcement and management of an IFQ program. Limited access vessels that qualify for an IFQ general category permit will also be subject to this cost recovery requirement.

#### **2.4.1.2.1 Cost recovery program**

NMFS is required under the MSFCMA to collect fees to recover the costs directly related to management, data collection and analysis, and enforcement of IFQ programs. Under section 304(d)(2)(A) of the Act, the Secretary is authorized to collect a fee to recover these costs. The fee shall not exceed 3-percent of the ex-vessel value of fish harvested. Separate accounts would be created within the Limited Access System Administrative Fund (LASAF) to ensure that the funds from the IFQ cost recovery are used only to pay for the actual costs directly related to management, data collection and analysis, and enforcement costs of the NMFS Northeast Region Scallop IFQ Program. Since Amendment 11 proposes to include an allocation of individual quota (based on a percent of total general category catch), the Secretary is authorized and shall collect a fee to recover the actual costs directly related to the management and enforcement of any individual fishing quota program. The fee shall not exceed 3% of the ex-vessel value of fish harvested under such program. During development of Amendment 11, the Council learned that the preliminary estimate of the cost recovery program for the surf clam quota program, which is also subject to this requirement, was about \$50,000 to monitor and manage that quota program.

The amendment did not have to specify the details of the cost recovery program, but it was discussed that a future framework or other appropriate vehicle would specify how the Secretary will collect a cost recovery fee for this individual fishing quota program. This action will consider the specific cost recovery program that should be developed, and NMFS will provide the cost estimates.

#### **2.4.1.2.1.1 No Action (fees and cost recovery would not be collected if an IFQ program is implemented)**

Under the No Action alternative, fees and cost recovery would not be implemented if an IFQ program is put in place for the general category scallop fishery. This alternative would be contrary to the Congressional mandate to collect fees for IFQ programs as specified in the Magnuson-Stevens Act and therefore is not consistent with the MSA.

#### **2.4.1.2.1.2 IFQ shareholder directly pays (Proposed Action)**

A limited access general category IFQ vessel would incur a cost recovery fee liability for every landing of scallops from that vessel. The IFQ permit holder would be responsible for self-collecting his or her own fee liability for all his or her scallop landings. The IFQ permit holder would be responsible for submitting this payment to NMFS once per year, on or before the due date of January 1. The dollar amount of the fee due would be determined by multiplying the IFQ fee percentage (using a default rate of 3-percent) by the actual ex-vessel value of each IFQ landing by a vessel issued an IFQ scallop permit.

#### **Fee Determination and Responsibilities**

Three percent of the ex-vessel value of fish harvested under an IFQ program is the maximum fee amount allowed by section 304(d)(2)(B) of the Magnuson-Stevens Act. This alternative would allow the Regional Administrator to reduce the fee percentage if actual management, enforcement, and data collection costs could be recovered through a lesser percentage. In the first year of the IFQ program, NMFS will determine costs for the period March 1 through September 30. This will enable NMFS to prepare bills for scallop IFQ permit holders and mail those bills on October 31. The costs for the period October 1 through September 30 would be used for all years after the initial scallop fishing year under the IFQ program to account for 12 full months of costs. Based on the determination of actual costs each year, the Regional Administrator could reduce the fee percentage for that year, or the estimate for subsequent years, to reflect more closely the actual IFQ-related management and enforcement costs for the past year.

In order to budget, fishermen need to know at the time of sale the maximum fee percentage that could apply to their IFQ landings made from March 1 through September 30 in the initial year of the IFQ program and from October 1 through September 30 of each year thereafter. This alternative would set the applicable fee percentage at 3 percent at the start of each year but would allow the Regional Administrator to reduce the fee percentage if management and enforcement costs could be recovered for a lesser percentage. Because fees are not due until March 1 of the following fishing year, NMFS believes that for budget purposes it is preferable to establish a 3-percent fee that could be adjusted downward, based upon certain types of information to reflect the actual costs incurred during the previous fishing year. NMFS would encourage IFQ permit holders to set aside the amount of the fees throughout the fishing year in order to facilitate a lump sum payment by the payment due date. Early payments would be allowed but would not relieve a permit holder of associated reporting requirements.

### **Actual Ex-vessel Value**

Throughout this discussion, “value” refers to the worth, in U.S. dollars, of any amount of landed IFQ scallops as determined by the sale, or potential economic return for the sale, of those scallops. “Price” is the worth in U.S. dollars, for 1 lb (0.45 kg) of shucked scallops, or the landed unit of in-shell scallops (e.g., one U.S. bushel). Therefore, in this context, value and price only mean the same thing when describing the worth of IFQ scallops when sold. For purposes of calculating IFQ cost recovery fees, NMFS would utilize actual ex-vessel value. Actual ex-vessel value would be the amount of money an IFQ permit holder received as payment for his or her IFQ scallops sold as reported by a federally permitted dealer.

In determining value, NMFS would take into account any additional payments that are associated with landed scallops but that are paid at a later date for previously landed scallops. These “retro-payments” could include bonuses, delayed partial payments, or post-season payments that are made to the IFQ permit holder for previously landed scallops. Retro-payments would be part of the ex-vessel value and as such, have a fee liability. If retro-payments were received after the initial payment but during the same fishing year, the cost recovery fee for those retro-payments also would be due by the payment due date. If retro-payments were received by IFQ permit holders during the year following the fishing season when those scallops were landed, then cost recovery fees associated with those post-season retro-payments would be due the next payment due date.

### **Fees Based on Actual Ex-vessel Value**

Owners of IFQ vessels would be responsible for paying the fee liability for their IFQ vessel(s) by March 1 under two options described below.

**Option 1:** Under this option, the actual value of landed IFQ scallops would be determined when scallops are actually sold and would be reported by the scallop dealer. The IFQ permit holder would be responsible for calculating his or her fee liability for landed scallops based on the actual monetary value received and reported to NMFS by the dealer. The fee amount would be the product (in U.S. Dollars) of multiplying that actual ex-vessel value by the fee percentage (i.e., 0.03). The IFQ permit holder’s fee liability would be based only on the actual price paid by the dealer for either shucked or in-shell scallops. Unless specifically identified on dealer reports, landings of scallops are considered to be shucked scallop meats. No conversions of in-shell to shucked scallops would be applied to landings for the purpose of calculating the fee liability. The conversion from in-shell to shucked weight scallops by NMFS is only for the purposes of monitoring IFQ landings, not fees.

**Option 2 (Proposed Action):** The ex-vessel value of scallops would be determined as an average of the ex-vessel value of all general category scallops landed between March 1 and September 30 of the initial year of the IFQ program, and October 1 through September 30 of each year thereafter. The average ex-vessel value would be expressed in dollars per pound of scallops (e.g., \$5.00 per pound of scallop meats). The ex-vessel value would then be multiplied by the amount of scallops landed by the IFQ vessel between March 1 and September 30 of the initial year of the IFQ program, and October 1 through September 30 of each year thereafter to determine the fee liability for that IFQ vessel. NMFS would take into account the price paid for in-shell scallops and any landings of in-shell scallops identified by dealer records.

### **Fee Payment Procedure**

By January 1 of each year, NMFS will mail a bill for the IFQ fee from the previous fishing year to each IFQ permit holder. Owners of IFQ vessels are required to submit payments by January 1 of each year following implementation of the scallop IFQ program to ensure that appropriate and adequate action can be taken to ensure that all payments are received or that appropriate legal action is taken against vessel owners that fail to submit payments. Vessel permit renewals for scallop permits will be mailed to scallop permit holders in January of each year and vessel owners would need to complete and return renewal applications in February to begin fishing in March. By requiring the cost recovery payment by October 31, an IFQ scallop vessel's permit can be held (i.e., not issued) by NMFS as a first step until payment is received.

Bills may also be made available electronically via the internet. Payment of the IFQ fee must be made by the payment due date of January 1 of each year. Payments of the IFQ fee must be made electronically via the Federal web portal, [www.pay.gov](http://www.pay.gov), or other internet sites as designated by the Regional Administrator. The reason for the 100-percent electronic fee collection system is to minimize paper transactions and is also due to the fact that at the present time, the NMFS Northeast Regional Office is not equipped to process paper fee collections. Instructions for electronic payment will be made available on both the payment website and the paper bill. Payment options will include payment via a plastic card (e.g. Visa, MasterCard, Discover, etc.) or direct ACH (automated clearing house) withdrawal from a designated checking account. Payment by check may be authorized by the RA if the RA has determined that electronic payment is not possible (for example, if the geographical area or an individual(s) is affected by catastrophic conditions).

### **Payment Compliance**

An IFQ permit holder who has incurred a fee liability would be required to pay the fee to NMFS by January 1 of the fishing year following the fishing year in which the landing was made. If an IFQ permit holder has made a timely payment to NMFS of an amount less than the fee liability NMFS has determined, including non-payments, the IFQ permit holder has the burden of demonstrating that the fee amount submitted is correct. If, upon preliminary review of the accuracy and completeness of a fee payment, NMFS determines the IFQ permit holder has not paid a sufficient amount, NMFS would notify the IFQ permit holder by letter. NMFS would explain the discrepancy and the IFQ permit holder would have 30 days to either pay the amount that NMFS has determined should be paid or provide evidence that the amount paid is correct. If the IFQ permit holder submits evidence in support of his or her payment, NMFS will evaluate it and, if there is any remaining disagreement as to the appropriate IFQ fee, prepare a Final Administrative Determination (FAD). The FAD would set out the facts, discuss those facts within the context of the relevant agency policies and regulations, and make a determination as to the appropriate disposition of the matter. An FAD would become a final agency action. If the FAD has determined that the IFQ permit holder is out of compliance, NMFS will not renew the IFQ permit until the permit holder complies with the FAD. For vessels issued both a limited access scallop permit and an IFQ permit, only the IFQ permit would not be renewed. An IFQ permit holder could pay, under protest, the disputed fee difference in order to renew the IFQ permit.

If the final agency action determines that the IFQ permit holder owes additional fees and if the IFQ permit holder has not paid such fees, all IFQ permit(s) held by the IFQ permit holder will be invalid until the required payment is received by NMFS. If NMFS does not receive such payment within 30 days of the issuance of the final agency action, NMFS would refer the matter to the appropriate authorities within the U.S. Treasury for purposes of collection and the vessels permit would remain invalid. If NMFS does not receive such payment prior to the end of the fishing year (i.e., within 365 days from payment due date), the IFQ permit would be considered voluntarily abandoned and could not be issued again to that vessel except under new ownership as a replacement vessel for another IFQ vessel.

### **Annual IFQ Report**

An annual IFQ report for each IFQ shareholder would be generated by NMFS. The report would include quarterly and annual information regarding the amount and value of IFQ scallops landed during the fishing year, the associated cost recovery fees, and the status of those fees. This report would also detail the costs incurred by NMFS, including the calculation of the recoverable costs for the management, enforcement, and data collection, incurred by NMFS during the fishing year.

#### **2.4.1.2.1.3 IFQ shareholder pays via a federally permitted dealer**

Alternative 3 would implement an IFQ fee collection system based upon the Gulf Council Red Snapper IFQ program proposed in Amendment 26 to the Reef Fish FMP. Although the ultimate IFQ payment responsibility lies with the IFQ shareholder, this system would require the federally permitted dealer to collect the fee from the IFQ shareholder at the point of purchase for later submission to NMFS. Initially, the fee would be 3 percent of the actual ex-vessel value of scallops landed under the IFQ program, as documented in each landings report submitted by the federally permitted dealer. The RA would review the cost recovery fee annually to determine if adjustment is warranted. Factors considered in the review include the catch subject to the IFQ cost recovery, projected ex-vessel value of the catch, costs directly related to the management, enforcement, and data collection of the IFQ program, the projected IFQ balance in the LASAF, and expected nonpayment of fee liabilities. If the RA determines that a fee adjustment is warranted, the RA would publish a notification of the fee adjustment in the Federal Register.

### **Fee Determination and Responsibilities**

The IFQ allocation holder specified in the documented scallop dealer landing report is responsible for payment of the applicable cost recovery fees. A dealer who receives scallops subject to the IFQ program is responsible for collecting the applicable cost recovery fee for each IFQ landing from the IFQ allocation holder specified in the IFQ landing transaction report. Such dealer is responsible for submitting all applicable cost recovery fees to NMFS on a quarterly basis. The fees are due and must be submitted, using the Federal web portal, [www.pay.gov](http://www.pay.gov), or other internet sites as designated by the Regional Administrator, no later than 30 days after the end of each calendar-year quarter; however, fees may be submitted at any time before that deadline. Fees not received by the deadline are delinquent.

### **Calculating Ex-vessel Value**

The ex-vessel value of an IFQ landing would equal the sum of all payments of monetary worth made to fishermen for the sale of the scallops. This would include any retro-payments (e.g., bonuses, delayed partial payments, post-season payments) made to the IFQ permit holder for previously landed scallops. Retro-payments would be part of the ex-vessel value and as such have a fee liability. If they were received after the initial payment, but during the same fishing year, the cost recovery fee for those retro-payments also would be due in the quarter in which they were paid.

#### **Actual Ex-vessel Value**

Same as outlined in alternative above.

#### **Fees Based on Actual Ex-vessel Value**

Same as outlined in alternative above.

#### **Example of Actual Ex-vessel Value Determination**

Same as outlined in alternative above.

#### **Fee Payment Procedure**

For each IFQ dealer, NMFS would make available, an end-of-quarter statement of cost recovery fees that are due. The dealer is responsible for submitting the cost recovery fee payments using the Federal web portal, [www.pay.gov](http://www.pay.gov), or other internet sites as designated by the Regional Administrator. Authorized payments methods are credit card, debit card, or automated clearing house (ACH). Payment by check would be authorized only if the RA has determined that the geographical area or an individual(s) is affected by catastrophic conditions.

#### **Payment Compliance**

The following procedures would apply to an IFQ dealer whose cost recovery fees are delinquent.

(A) On or about the 31st day after the end of each calendar-year quarter, the RA will notify the dealer indicating the applicable fees are delinquent, the dealer's permit has been suspended pending payment of the applicable fees, and notice of intent to cancel the dealer's Federal permit.

(B) On or about the 61st day after the end of each calendar-year quarter, the RA will mail to a dealer, whose cost recovery fee payment remains delinquent, official notice documenting the dealer's Federal permit has been cancelled.

(C) On or about the 91st day after the end of each calendar-year quarter, the RA will refer any delinquent IFQ dealer cost recovery fees to the appropriate authorities for collection of payment.

#### **Annual IFQ Report**

An annual IFQ report for each IFQ shareholder and participating dealer would be generated by NMFS. The report would include quarterly and annual information regarding the amount and value of IFQ scallops received by the dealer, the associated cost recovery fees, and the status of those fees. This report would also detail the costs incurred by NMFS, including the calculation of the recoverable costs for the management, enforcement, and data collection, incurred by

NMFS during the fishing year. The dealer's acceptance of this report constitutes compliance with the annual dealer IFQ reporting requirement.

### **2.4.1.3 Northern Gulf of Maine (NGOM) Hard-TAC**

The Council approved a separate limited entry program for the NGOM with a hard-TAC. If this provision is approved by NMFS, Framework 19 will need to consider a separate hard TAC for this area for both 2008 and 2009. Individuals would qualify for a permit if their vessel had a general category permit when the control date was implemented (November 1, 2004). There is no landings qualification for this permit. Vessels would be restricted to fish in this area under a 200 pound possession limit until the overall hard-TAC was reached.

Amendment 11 specifies that the Scallop PDT will recommend a hard-TAC for the federal portion of the scallop resource in the NGOM. The amendment recommends that the hard-TAC be determined using historical landings until funding is secured to undertake a NGOM stock assessment. The PDT reviewed landings data from the VTR database and recommends that the hard-TAC for this area be 70,000 pounds for both FY2008 and FY2009 (Option A). The details of this method are described in more detail in Section 5.1.10.1.3.

The Scallop Committee requested that the PDT review another method for estimating the TAC (Option B). Option B also uses VTR data but includes landings from limited access vessels, as well as landings from within state waters from federally permitted vessels. This method proposes an initial NGOM TAC of 126,000 pounds (the annual average of all federally permitted vessels from 2000-2006 (158,069 pounds), minus a 20% (31,614 pounds) conservation reduction). The final proposal from Maine DMR is included in Appendix V.

The Council reviewed the NGOM alternative approved in Amendment 11 at the October Council meeting and it was discussed that the intent of the TAC was that it be for federal waters only and landings from limited access vessels should not count toward the TAC during the fishing year. All scallop vessels would be prohibited from fishing in that area once the TAC is reached. Therefore, the Council approved a hard-TAC for 2008 and 2009 that is equivalent to average landings from general category vessels from VTR reports in federal waters only – 70,000 pounds.

**The Council recommends that the value from Option A, 70,000 pounds, be the hard-TAC for FY2008 and 2009.**

## **2.4.2 Georges Bank access area management**

### **2.4.2.1 Allocations**

It is understood that whichever areas are deemed available for 2008 and 2009 based on decisions made in Section 2.3.1.1, the same areas would be available to the general category fishery. This section is considering the percent of each access area that should be allocated to the general category fishery. In the past, two-percent has been allocated to the general category in a

fleetwide allocation of trips. Once the maximum number of trips has been taken, the area closes to all general category vessels. The intent of Amendment 11 is that the general category fishery should be allocated 5% of the total catch, and limited access vessels that qualify for general category should be allocated 0.5%. The percent that these fisheries should get from access areas was left undecided, to be determined in a future framework. For this particular action the general category qualifiers and limited access vessels that qualify for general category will be under the same percentage allocation (pre- and post- transition period).

**2.4.2.1.1 Five-percent for all areas**

The general category fishery would be allocated a fleetwide allocation of trips equal to 5% of each area open in FY2008 and FY2009. This allocation would apply to both general category qualifiers as well as limited access vessels that qualify for a general category permit.

**2.4.2.1.2 Five-percent for all access areas but zero-percent for Closed Area II (Proposed action)**

The general category fishery would be allocated a fleetwide allocation of trips equal to 5% of the total TAC for each area open in FY2008 and FY2009, but zero allocation for Closed Area II. This allocation would apply to both general category qualifiers as well as limited access vessels that qualify for a general category permit.

**Table 29 – Summary of general category allocations for access areas in FY2008 and 2009 under the proposed action**

Fish Year	Allocation	Area	PREF
2008	5 % of Access areas	CL1Acc	Area closed
		ET	2,668
		NLSAcc	667
Total number of trips			3,335
2009	5% of Access areas	CL2	0
		DMV	728
		ET	1,964
	Total number of trips		

**2.4.2.1.3 Five-percent for all areas except Closed Area II would have a smaller allocation to account for SAP programs**

The general category fishery would be allocated a fleetwide allocation of trips equal to 5% of each area open in FY2008 and FY2009, but a smaller allocation would be given for Closed Area II to account for some scallop landings on multispecies vessels participating in SAP programs.

According to the multispecies regulations, a SAP is not even considered unless the GB YT TAC is at least 4,000 mt.; the guidance the Council provided NMFS is not to authorize a SAP unless the TAC is at least 5,000 mt. Based on the current status of GB YT, the stock is not expected to reach these biomass levels in the short term. The GB YT TAC for 2008 is 1,950 mt. According to the regulations the number of trips is calculated as (TAC-4,000)/10,000; the maximum number of trips that can be allocated to the area is 320. Regardless of the TAC, it is unlikely a

SAP will be authorized until the stock is rebuilt and the stock is not expected to be rebuilt until 2014.

This alternative could consider an allocation percentage for the general category fishery that would accommodate all 320 trips in the event that every potential SAP trip could also use a general category trip, but since it is very unlikely that there will be a SAP program in 2009, this portion of the scallop catch would most likely not be harvested. Therefore, a much smaller percentage could be considered just in case there is a SAP program, for example: enough allocation to accommodate 100 trips or 0.5 to 1% of the scallop catch for Closed Area I, but even that is not expected to be caught based on the assumption that there will not be a YT SAP program in the southern portion of Closed Area II in 2009. The Committee never identified an allocation value since they do not support this alternative.

#### **2.4.2.2 Yellowtail flounder bycatch TAC**

Under current regulations, if the 10% yellowtail flounder bycatch TAC is reached and the Georges Bank access areas close, general category vessels are not permitted to fish in the area. Furthermore, since it is a fleetwide allocation, there is no compensation for vessels on an individual basis if the area closes before the total number of general category trips have been taken. The yellowtail flounder bycatch TAC is shared between the two fisheries; therefore, once the TAC is reached the area closes for both fleets. See Section 2.3.1.2. This is currently in the regulations and will not change as a result of this action.

#### **2.4.3 Hudson Canyon**

The Council supports making the same measures in Framework 19 for the Hudson Canyon limited access fishery also applicable to the general category fishery. So if the area (or one with similar boundaries) is closed under this action, then it would close to general category vessels as well. (See Section 2.8). This alternative is part of the proposed action to clarify that any measures put in place in the Hudson Canyon area will also apply to the general category fishery.

#### **2.4.4 Elephant Trunk**

The general category fishery will be allocated a maximum fleetwide allocation of trips in this area for both 2008 and 2009. The total amount of access in the area will vary per year based on decisions in Section 2.4.1.1.1 (2% or 5% of the available TAC for the area). The same seasonal closure to reduce potential interactions with sea turtles would apply for this component of the fishery if that measure is adopted (Section **Error! Reference source not found.**), as well as the procedures to adjust ETA allocations if adopted (Section 2.3.3.3).

#### **2.4.5 Other restrictions for general category vessels in access areas**

##### **2.4.5.1 Prohibition on deckloading**

See Section 2.3.5.2; same measures would apply to the general category fishery.

## 2.5 ESTIMATE OF MORTALITY FROM INCIDENTAL CATCH

Amendment 11 includes a provision that the Scallop FMP should consider the level of mortality from incidental catch and remove that from the projected total catch before allocations are made. If approved, the amendment requires the PDT to develop an estimate of mortality from incidental catch and remove that from the total. This section includes a summary of the PDT estimate and the value that was removed from the total projected catch before allocations to the limited access and general category fisheries were made. If this provision is not approved in Amendment 11 then this amount of scallop would not be allocated back to the scallop fishery. It is a source of non-harvest mortality; therefore would be reduced before allocations are made to the fishery.

The PDT reviewed incidental landings from previous years (<40 pounds per trip) to estimate what level of projected catch should be removed in future years. According to the dealer database, approximately 10,000 to 27,000 pounds of scallops have been landed on trips with less than 40 pounds (Table 30). According to the VTR database, closer to 30,000 pounds have been caught in previous years in increments less than 40 pounds (Table 31). The PDT discussed that it is more appropriate to use the VTR data as a starting point for this estimate since incidental catch is not always sold to a dealer (i.e., it is consumed for personal use). The PDT also recommended that the average landings from the VTR database should be increased to some degree to account for an expected increase in scallop landings by incidental catch. Since many vessels are not going to qualify for a limited entry general category permit under Amendment 11, landing scallops under incidental catch may be the only other alternative for some vessels (assuming the vessels had a general category permit before the control date). **Therefore, the PDT recommends taking recent VTR landings as a starting point for an estimate of mortality from incidental catch and increasing that to 50,000 pounds to account for an expected increase due to measures implemented by Amendment 11. The Council recommends this value as part of the proposed action for incidental catch. This amount will be removed from the total projected catch whether Amendment 11 approves this measure or not.**

**Table 30. Dealer data: Scallop landings by permit category and trip landings**

Scallop landing per trip	Data	FISHING YEAR			
		2004	2005	2006	2007*
<b>Limited access vessels</b>					
<=40 lb.	Scallop landings (lb.)	720	1,095	587	170
	Number of trips	27	42	20	5
>40 lb.	Scallop landings (lb.)	58,915,586	46,412,858	49,383,847	35,495,337
	Number of trips	4,707	6,085	5,845	3,231
Total Scallop landings (lb.)		58,916,306	46,413,953	49,384,434	35,495,507
Total Number of trips		4,734	6,127	5,865	3,236
<b>General category vessels</b>					
<=40 lb.	Scallop landings (lb.)	9,937	26,443	16,675	9,361
	Number of trips	468	1,014	629	367
>40 lb.	Scallop landings (lb.)	2,634,769	6,718,615	6,830,797	3,299,451
	Number of trips	8,018	19,810	19,958	9,641
Total Scallop landings (lb.)		2,644,706	6,745,058	6,847,472	3,308,812
Total Number of trips		8,486	20,824	20,587	10,008
<b>All vessels</b>					
<=40 lb.	Scallop landings (lb.)	10,657	27,538	17,262	9,531
	Number of trips	495	1,056	649	372
	% of total scallop landings	0.02%	0.05%	0.03%	0.02%
>40 lb.	Scallop landings (lb.)	61,550,355	53,131,473	56,214,644	38,794,788
	Number of trips	12,725	25,895	25,803	12,872
Total Scallop landings (lb.)		61,561,012	53,159,011	56,231,906	38,804,319
Total Number of trips		13,220	26,951	26,452	13,244

Source: Dealer data

\* Incomplete fishing year

**Table 31. VTR data: Scallop landings by permit category and trip landings**

Trip landings category	Data	FISHING YEAR			
		2004	2005	2006	2007*
<=40 lb.	Scallop landings (lb.)	26,856	33,641	36,313	12,846
	Number of trips	1,252	1,644	1,564	574
	% of total scallop landings	0.04%	0.06%	0.06%	0.04%
>40 lb.	Scallop landings (lb.)	63,634,969	53,220,637	56,539,633	35,296,544
	Number of trips	15,714	26,658	24,501	11,817
Total Scallop landings (lb.)		63,661,825	53,254,278	56,575,946	35,309,390
Total Number of trips		16,966	28,302	26,065	12,391

\* Incomplete fishing year

## 2.6 OVERFISHING DEFINITION

SARC 45 reviewed and updated the stock assessment of the sea scallop resource. The assessment summary report is now available. During 2006, scallops were not overfished and

overfishing was not occurring. The assessment process used two assessment models; a size-structured forward projecting assessment model (CASA) and the rescaled F approach that has been used in previous assessments. Overall results from the two models were similar, but the analysis indicated that the CASA model results were generally more accurate; the review panel recommended that these results be used for assessing the scallop resource. In general, the results were more precise and less biased.

The CASA model incorporates more sources of data including the NEFSC dredge survey, the winter bottom trawl and SMAST small camera video surveys, commercial landings, shell height measurements for landed scallops from port and sea sampling, commercial landings per unit of effort, and growth increment data from growth rings on scallop shells. In addition, this assessment used new growth data for the first time, which indicate that Mid-Atlantic sea scallops do not grow as large but reach their maximum size faster than previously assumed. Lastly, new shell height/meat weight relationships for survey and commercial catches were used. The shell height-meat weight relationships for catches were adjusted to account for shucking practices, water absorption and transport, as well as seasonal patterns in meat weights during each year.

The CASA model produces biomass reference points in a different unit: metric tons of scallop meat compared to the current reference point that is a weight per tow value from the NEFSC dredge survey (5.6 kg/tow). The recent assessment evaluated results from both models, but if this framework is going to incorporate the results from the preferred CASA model, then this framework will have to consider adjusting the overfishing definition to incorporate different parameters. Table 32 summarizes the biomass and fishing mortality reference points for 2006 using both models (rescaled F and CASA results). Note that the results from these models cannot be compared because the CASA model is for fully-recruited scallops (>100 mm). The rescaled F model represents an average fishing mortality for scallops greater than 80-90 mm. Since fishing mortality is lower on 80-100 mm scallops, the rescaled F estimate would be somewhat less than the CASA estimate.

**Table 32 – Summary of biomass and fishing mortality reference points from recent scallop stock assessment using both rescaled F and CASA models (results not comparable)**

	<b>Target</b>	<b>Threshold</b>	<b>2005</b>	<b>2006</b>
<b>BIOMASS</b>				
<b>Survey Index</b> (kg/tow, adjusted) (No Action)	5.6	2.8	7.8	7.3
<b>CASA</b> (Proposed)	108,600 mt. (239 million lb.)	54,300 mt. (120 million lb.)	N/A	166,000 mt. (366 million lb.)
<b>FISHING MORTALITY</b>				
<b>Rescaled F</b> (No Action)	0.20	0.24	0.22	0.20
<b>CASA</b> (Proposed)	<i>Council must decide (See Alt. 2.6.3)</i>	0.29	N/A	0.23

### 2.6.1 No Action

The current overfishing definition would remain in effect and the units for the biomass reference points would remain as a relative index of biomass from the NEFSC survey in weight per tow. The biomass estimate for 2006 would be in kg/tow (e.g., 7.3 kg/tow); the estimate for the fishing mortality rate would be 0.20 for 2006, based on the rescaled F approach. Therefore, for 2006, the stock is not overfished and overfishing is not occurring because current estimates of biomass are above the current reference point and fishing mortality is below the threshold for overfishing (Table 32).

The status quo overfishing definition, as revised by Amendment 10, reads:

*“If stock biomass is equal or greater than  $B_{max}$  as measured by the resource survey weight per tow index (currently estimated at 5.60 kg/tow for scallops in the Georges Bank and Mid-Atlantic resource areas), overfishing occurs when fishing mortality exceeds  $F_{max}$ , currently estimated as 0.24. If the total stock biomass is below  $B_{max}$ , overfishing occurs when fishing mortality exceeds the level that has a 50 percent probability to rebuild stock biomass to  $B_{max}$  in 10 years. A scallop stock is in an overfished condition when stock biomass is below  $\frac{1}{2}B_{max}$  and in that case overfishing occurs when fishing mortality is above a level expected to rebuild in five years, or above zero when the stock is below  $\frac{1}{4}B_{max}$ ”*

### 2.6.2 Adjust the units used for the biomass reference point in the overfishing definition (proposed action)

The Council may adjust the values of the biomass and fishing mortality targets and thresholds by framework or amendment, based on updated analysis or upon recommendation of the Stock Assessment Workshop. Based on the final report from SAW 45, the Council agrees that both the biomass threshold and target, as well as the fishing mortality threshold, should be adjusted based on the results using the CASA model. These results are more accurate based on the reasons explained in Section 2.6. If this alternative is selected, then the biomass and fishing mortality reference points will adjust based on the recent stock assessment, and the value used for the biomass reference point will change from a weight per tow unit to an absolute value of scallop meats in metric tons. For 2006, the CASA model estimated that biomass was 166,000 mt. and the estimated fishing mortality rate was 0.23, so the stock is not overfished and overfishing is not occurring (Table 32).

The overfishing definition, would be revised to read:

*“If stock biomass is equal or greater than  $B_{max}$  as measured by **an absolute value of scallop meat (mt.)** (currently estimated at 108,600 mt. for scallops in the Georges Bank and Mid-Atlantic resource areas), overfishing occurs when fishing mortality exceeds  $F_{max}$ , currently estimated as **0.29**. If the total stock biomass is below  $B_{max}$ , overfishing occurs when fishing mortality exceeds the level that has a 50 percent probability to rebuild stock biomass to  $B_{max}$  in 10 years. A scallop stock is in an overfished condition when stock biomass is below  $\frac{1}{2}B_{max}$ ”*

*and in that case overfishing occurs when fishing mortality is above a level expected to rebuild in five years, or above zero when the stock is below  $\frac{1}{4}B_{max}$* "

### **2.6.3 Maintain the fishing mortality target of $F=0.20$ for overfishing (proposed action)**

The Council may adjust the values of the biomass and fishing mortality targets and thresholds by framework or amendment, based on updated analysis or upon recommendation of the Stock Assessment Workshop. Since SAW 45 recommended that the reference points be adjusted based on results from the CASA model (Alternative 2.6.2) the Council considered whether the fishing mortality target should be revised in light of the new fishing mortality threshold reference point.

A fishing mortality target is not a scientifically driven estimate, it is a policy decision. National Standard 1 requires the target to be below the threshold for precautionary purposes, but it does not specify how much below. The Committee briefly discussed adjusting the fishing mortality target for overfishing in light of the new assessment. In terms of a recommendation, the Committee decided to wait until the new stock assessment report could be summarized in more detail and the issues could be more fully described by the PDT. At the September 2007 Council meeting, the results from the recent stock assessment were presented (SAW 45 – See Appendix II for the summary report). The full assessment report is available through the NEFSC website at <http://www.nefsc.noaa.gov/nefsc/publications/crd/crd0711/>.

The proposed overfishing threshold of 0.29 is based on an assumption that fishing mortality is spatially uniform. In the scallop fishery, this assumption is not even close to being met due to unfished biomass in closed areas and variable fishing mortality rates in scallop access areas. In the case of highly non-uniform fishing effort, the fishing mortality that maximizes yield per recruit will be less than the spatially uniform target (0.29). For this reason, the PDT recommends keeping the target at 0.20, thus preventing the possibility of severe localized overfishing that can occur at higher targets applied to the entire resource and fishery. The Council considered this information at the September Council meeting and made a motion to include an alternative in Framework 19 that would maintain the current fishing mortality target for overfishing at  $F=0.20$ . It was recognized that this target is conservative and may need to be revisited in the future, but currently there is concern for overfishing in open areas and this target will help maintain a stable fishery rather than maximizing individual catch on an annual basis. The Council reaffirmed this position at the October 2007 Council meeting when final measures were selected. Setting the target 'F' at 0.20 is in recognition that fishing mortality is not uniformly distributed in the scallop fishery, but is prone to localized overfishing. Setting a slightly more conservative target fishing rate will help to mitigate localized depletion of the scallop resource in open areas.

Amendment 10 discussed the overfishing definition as follows:

#### **5.1.1 Overfishing Definition (Status quo)**

... Consistent with the status quo overfishing definition and applying risk adverse management principals in the National Standard 1 guidelines and managing the fishery as a unit, optimum yield is the annual amount of scallop biomass that may be landed to achieve the mortality target for the combined stocks. Total biomass and fishing mortality for the

entire resource area, including scallops in closed areas, will be used for status determination with respect to the overfishing definition reference points. The value for the annual fishing mortality target is 80% of  $F_{max}$ . Day-at-sea and other allocations will be set to achieve this constant annual mortality target, unless the stock is overfished and being managed according to a rebuilding program. Specific management areas, e.g. controlled access areas, may have TACs based on fishing mortality rates that are above  $F_{max}$ , however, provided that the resource wide average does not exceed  $F_{max}$ . The Council may however set other annual allocations below that which would cause overfishing to occur, in order to meet other plan objectives, stabilize yield or day-at-sea allocations, and/or maximize net benefits.

The Council may adjust the values of the biomass and fishing mortality targets and thresholds by framework or amendment, based on updated analysis or upon recommendation of the Stock Assessment Workshop. The status quo overfishing definition, as revised by Amendment 10 will read:

*“If stock biomass is equal or greater than  $B_{max}$  as measured by the resource survey weight per tow index (currently estimated at 5.60 kg/tow for scallops in the Georges Bank and Mid -Atlantic resource areas), overfishing occurs when fishing mortality exceeds  $F_{max}$ , currently estimated as 0.24. If the total stock biomass is below  $B_{max}$ , overfishing occurs when fishing mortality exceeds the level that has a 50 percent probability to rebuild stock biomass to  $B_{max}$  in 10 years. A scallop stock is in an overfished condition when stock biomass is below  $\frac{1}{2}B_{max}$  and in that case overfishing occurs when fishing mortality is above a level expected to rebuild in five years, or above zero when the stock is below  $\frac{1}{4}B_{max}$ ”*

Amendment 10 provides rationale, including the following:

“Target biomass and a target fishing mortality rate are also included to simultaneously achieve MSY and apply risk adverse management to avoid overfishing while achieving a yield that is very close to MSY. The Council believes that management targets set to achieve a fishing mortality rate of 80% of  $F_{max}$  will achieve this goal. Future yield, however, will depend on where, when, and how the management targets are set, and achieving optimum yield may require specification of annual management targets that deviate from  $F_{max}$  applied to the entire resource.”

Finally, the FSEIS for Amendment 10 and the scallop regulations at § 648.55 included a provision to allow the PDT to recommend more conservative management measures if the PDT determined that such measures would be necessary to achieve optimum yield. Amendment 10 included the following (**emphasis added**):

### **5.1.9 Framework Adjustment Process**

... In the SAFE Report, the Scallop PDT will review and evaluate the existing management measures to determine if the measures are achieving the FMP objectives and optimum yield from the scallop resource as a whole. **In doing so, the PDT will consider the effects of any closed areas, either temporary, indefinite, or permanent, on the ability of the FMP to achieve optimum yield and prevent overfishing on a continuing basis, as required by National Standard 1 of the Magnuson Stevens Act. If the existing management measures are deemed insufficient to achieve FMP objectives and/or are not expected to**

**achieve optimum yield and prevent overfishing on a continuing basis, the PDT shall recommend to the Council appropriate measures and alternatives that will meet FMP objectives, achieve optimum yield, and prevent overfishing on a continuing basis.**

When making the above status determination, the PDT will calculate the stock biomass and fishing mortality to compare with the minimum biomass and maximum fishing mortality thresholds, by combining all scallops in the stock area, including but not limited to scallops located in open fishing areas, controlled access areas, scallop closed areas, groundfish closed areas, and habitat closed areas. To the extent possible, all removals from the resource should be considered, including landings, discards, and non-catch mortality from directed scallop fishing by limited access vessels, directed scallop fishing by general category vessels, and vessels that catch scallops incidentally in other fisheries.

**In order to assure that optimum yield is achieved, on a continuing basis, the PDT will develop, and modify as appropriate, the suite of management measures required to achieve optimum yield-per recruit from the exploitable components of the resource (e.g. those components available for harvest in the upcoming fishing years), taking into account at least the following factors:**

- **Differential fishing mortality rates for the various spatial components of the resource**
- **Overall yields from the portions of the scallop resource available to the fishery**
- Outlook for phasing in and out closed and controlled access areas according to the area rotation strategy
- Potential adverse impacts on EFH.

The Council therefore determined that setting  $F_{\text{target}}$  at 80 percent of  $F_{\text{threshold}}$  is not a requirement of the overfishing definition. Maintaining the  $F_{\text{target}}$  at  $F=0.20$  is necessary to establish appropriate management measures to achieve optimum yield on a continuing basis.

## **2.7 IMPROVEMENTS TO THE OBSERVER SET-ASIDE PROGRAM**

The Council recently approved an action to implement a mechanism to re-activate the industry-funded observer program for the scallop fishery. During the process, several issues were identified with the observer set-aside program, but due to timing constraints the Council did not develop alternatives to address those issues. Instead, the Council approved an alternative that would allow adjustments to the observer set-aside program to be considered in a framework action. This is the first action since implementation of Amendment 13 that could include consideration of these issues.

Overall, five main problems were identified during development of Amendment 13: 1) vessels with lower fishing power are at a disadvantage in terms of the compensation given for carrying an observer (i.e. small dredge vessels); 2) the program does not work well in areas with lower catch rates (i.e. Hudson Canyon and some open areas); 3) small adjustments are needed to improve overall administration of program (e.g. standard operating procedures the Observer Program is currently using but for which no regulations are written: a vessel cannot call in more than ten days in advance, providers are required to get back to vessels in a timely way, data quality controls, the timeliness of Obscon reporting, etc.); 4) there is no mechanism for funding

open area trips on general category vessels; and 5) observer coverage is too expensive. The PDT, advisors, and Committee have discussed these issues and recommend the following alternatives be considered to address some of these issues at this time. Others may be addressed in a future action.

### **2.7.1 Assign a higher compensation rate for vessels fishing in open areas compared to access area trips (proposed action)**

Currently, a vessel that is required to carry an observer in an access area receives a 400 pound per day compensation and 0.15 additional DAS for a future trip per day carrying an observer. This alternative would still give a vessel a specific compensation rate based on whether the trip was in an access area or not, but the rate would be higher for open area trips than access area trips. NMFS would still ultimately assign the rates after consideration of available data, but this alternative would recommend that a higher rate be used for open area trips. For example, using the rates this year as an example, rather than 0.15 DAS per day with an observer, a vessel may receive 0.30 per day. In order to prevent the total observer set-aside from being used faster as a result, the compensation rate for access area trips should decline (i.e. 300 pounds per day). This adjustment would respond to public comment that the program does not work in areas with lower catch rates; a higher compensation rate for open area trips may address this problem to some degree. See Section 5.4.13.1 for more detailed examples of how this alternative could be implemented.

### **2.7.2 Consider small adjustments to the current program to improve overall administration (proposed action)**

The Scallop Committee reviewed a list of potential adjustments that could be considered in this action to improve the administration of the observer set-aside program for scallops. In general, the Committee believes most, if not all, are administrative changes; therefore, the Committee only addressed specific ones in Section 2.7.2.1. The other section includes adjustments that are more administrative. The Council approved these modifications as part of the proposed action.

#### **2.7.2.1 Issues addressed specifically by the Scallop Committee**

Under Observer deployment logistics, add that providers must respond to the fishermen's request for observers within 18 hours of their call to let them know if they have an observer available or not (page 32557).

Under Responsibilities of observer service providers, change "within 72 hours" to "within 18 hours" of receiving a request for an observer (page 32556).

Under Observer availability report, add two additional reports that are needed by NEFOP: 1) an updated list of contact information for all observers that includes the observer identification number, observer's name, mailing address, email address, phone numbers, homeports or fisheries/trip types assigned; and 2) a listing of whether or not the observer is "in service", indicating when the observer has requested for leave and/or is not currently working for the Industry-Funded program.

The following additional details call-in requirements:

- Currently fishermen are required to provide 72 hours notice when calling to procure an observer and 24 hours prior to that notice, they need to call NMFS with their trip information. This alternative includes a modification that would revise the requirement to: “fishermen shall provide NMFS with a minimum of 72 hours notice and then if selected, provide the observer provider with a minimum of 48 hours notice.”
- Add that trip notification calls can not be made more than 10 days in advance of the trip, and not more than 10 trips could be called in at a time.
- General Category vessels should call in with the same notice described above, but make them weekly calls rather than daily calls. For example, a general category vessel would call in on Thursday for all the trips they plan on doing from the following Sunday through Saturday. They either get a waiver for that week or get selected for observer coverage. Once selected, up to two of their trips during that week would be covered by an observer if one was available.

Observer provider contracts: Observer providers must submit to NMFS/NEFOP, if requested, a copy of each type of signed and valid contract (including all attachments, appendices, addendums, and exhibits incorporated into the contract) between the observer provider and those entities requiring observer services. Observer providers must submit to NMFS/NEFOP, if requested, a copy of each type of signed and valid contract (including all attachments, appendices, addendums, and exhibits incorporated into the contract) between the observer provider and specific observers. Not for each trip, but the basic “contract” example and any other information handed out to vessels. This also includes the contracts between observer and observer provider.

Other reports: Observer providers must submit to NMFS/NEFOP, if requested, copies of any information developed and used by the observer providers distributed to vessels, such as informational pamphlets, payment notification, description of observer duties, etc. “Day” should be defined so that the daily rate set by an observer provider could be more comparable to the “day” defined for observer compensation allowances. The regulations should define that the providers must charge in a way that is consistent with the compensation received by the vessel and with information available to the providers. It is suggested that it be clarified that a daily rate for trips receiving extra pounds of compensation would be defined as dock-to-dock from when an observer boards a vessel until they de-board, where “day” is defined as a 24-hour period, or any portion of a 24-hour period, regardless of the calendar day. For example, if a vessel with an observer departs on the 1<sup>st</sup> at 10:00 pm and lands on the 3<sup>rd</sup> at 1:00am, the time at sea equals 27 hours, which would equate to 2 “days” (24 hrs+3 hrs). For trips receiving compensation based on their days-at-sea, it is suggested that it be clarified that a daily rate be defined as dock to dock where “day” is defined as a 24-hour period, and portions of the other days would be pro-rated at an hourly charge (taking the daily rate divided by 24). For example, for the trip demonstrated above, the provider would charge 1 day and 3 hours.

#### **2.7.2.2 Issues considered by the Committee and determined to be appropriate changes to regulations and/or administration:**

Overall, observer-related issues that state “must report to ‘NMFS’” should be clarified to “must report to ‘NMFS/NEFOP.’”

Delete the statement “The NEFOP training has a minimum class size of eight individuals; which may be split among multiple vendors requesting training. Requests for training classes with fewer than eight individuals will not be processed until further requests make up the full training class size” (page 32556).

Under ‘Responsibilities of observer service providers’, delete “must maintain in its employ a minimum of eight NMFS/NEFOP certified observers in order to remain approved. Should a service provider’s employed NMFS/NEFOP certified observers drop below eight, the provider must supply the appropriate number of candidates to the next available training class. Failure to do so shall be cause for suspension of the provider’s approved status, until rectified” (page 32556).

Under Observer deployment limitations, change “A certified observer’s first deployment and the resulting data shall be immediately edited, and approved, by NMFS prior to any further deployments of that observer.” to “An observer’s first 3 deployments and the resulting data shall be immediately edited, and approved after each trip, by NMFS/NEFOP prior to any further deployments by that observer. If data quality is considered acceptable the observer would become certified” (page 32557).

Under Observer deployment limitations, the current rule states “an observer provider must not deploy any observer on the same vessel for two or more consecutive deployments, and not more than twice in any given month.” This should read “an observer provider must not deploy any observer on the same vessel for more than two consecutive multi-day deployments” (page 32557).

Under Observer training requirements, change “at least 30 days prior to the beginning of the proposed training class” to “at least 7 days prior to the beginning of the proposed training class”; delete “with a minimum of eight individuals” (page 32557).

Under Observer training requirements, change “prior to the beginning of a” to “prior to the end of a” (page 32557).

Under Observer training requirements, change “NMFS National Minimum Eligibility Standards” to “NMFS/NEFOP National Minimum Eligibility Standards” (page 32557). This will include a website link for NEFOP standards.

Under Reports, the current rule has “Observer Contract (OBCON) data...must be received within 12 hours of landing.” This should read “24 hours of landing” (page 32557).

Under Reports, the rule states that raw data collected by the observer must be to NMFS/NEFOP within 72 hours of the trip landing, which should be four business days of the trip landing (page 32557).

Under Observer certification, remove the last sentence referencing the “NMFS National Minimum Eligibility Standards are available at the National Observer Program web site...” In

the prior sentence, instead of “must meet NMFS National Minimum Eligibility Standards for observers,” it should state “must meet NEFOP Minimum Eligibility Standards for observers” (page 32558).

Additional details are needed for fishermen call-in requirements:

- Add that for each call made for a trip, a confirmation number will be issued that would be valid for 48 hours from the intended sail date.
- Add that if changes are made to the trip plans, NMFS must be notified of the change (i.e. trip cancellations, area fished changes).
- The vessel should be prohibited from sailing into an area with a confirmation number that does not match what was called in to NMFS.

## **2.8 AREA CLOSURE TO PROTECT YOUNG SCALLOPS**

Amendment 10 defines the criteria for closing an area to protect young scallops. Under adaptive area rotation, an area would close when the expected increase in exploitable biomass in the absence of fishing mortality exceeds 30% per year and re-open to fishing when the annual increase in the absence of fishing mortality is less than 15% per year. Identification of areas would be based on a combination of the NEFSC dredge survey and available industry-based surveys. The boundaries are to be based on the distribution and abundance of scallops at size; ten-minute squares are the basis for evaluating continuous blocks that may be closed. The guidelines are intended to keep the size of the areas large enough and regular in shape to be effective, while allow a degree of flexibility. The Council and NMFS are not bound to closing an area that meets the criteria and the Council and NMFS may deviate from the guidelines to achieve optimum yield.

If any areas qualify, the area would close to all scallop vessels and vessels would not be permitted in that area until a later date when biomass estimates project higher yields. The Council is not required to implement these rotational closed areas just because they meet the criteria recommended in Amendment 10 for new closures, but they should be considered.

Preliminary results from the 2007 survey suggest that small scallops have settled in parts of the Hudson Canyon Access Area, as well as areas to the north and east of the current access area. The advisors are supportive of managing the Hudson Canyon area as a special access area indefinitely since it has historically been an important area for the scallop resource in the Mid-Atlantic. In addition, scallop recruitment has shown up in parts of the Great South Channel, and recruitment has been poor on Georges Bank for several years.

### **2.8.1 New rotational area in Hudson Canyon vicinity**

The PDT recommended two areas for consideration in the Hudson Canyon (a 4x4 ten-minute square bounded between 38 50' and 39 30' N and 73 00' and 73 40' W and a 5x5 ten-minute square bounded between 38 50' and 39 40' N and 72 50' and 73 40' W) (See Figure 5). High numbers of small scallops (<70 mm) were caught on 2007 survey tows in this area. The advisors reviewed these potential areas and argued that the current Hudson Canyon boundaries should be considered.

**2.8.1.1 No Action**

No new rotational area would close in this action in the Hudson Canyon vicinity.

**2.8.1.2 Smaller Hudson Canyon area as new rotational area**

A 4x4 ten-minute square bounded between 38 50' and 39 30' N and 73 00' and 73 40' W would close to all scallop vessels for at least FY2008 and 2009 (See Figure 5).

**2.8.1.3 Larger Hudson Canyon area as new rotational area**

A 5x5 ten-minute square bounded between 38 50' and 39 40'N and 72 50' and 73 40' W would close to all scallop vessels for at least FY2008 and 2009 (See Figure 5).

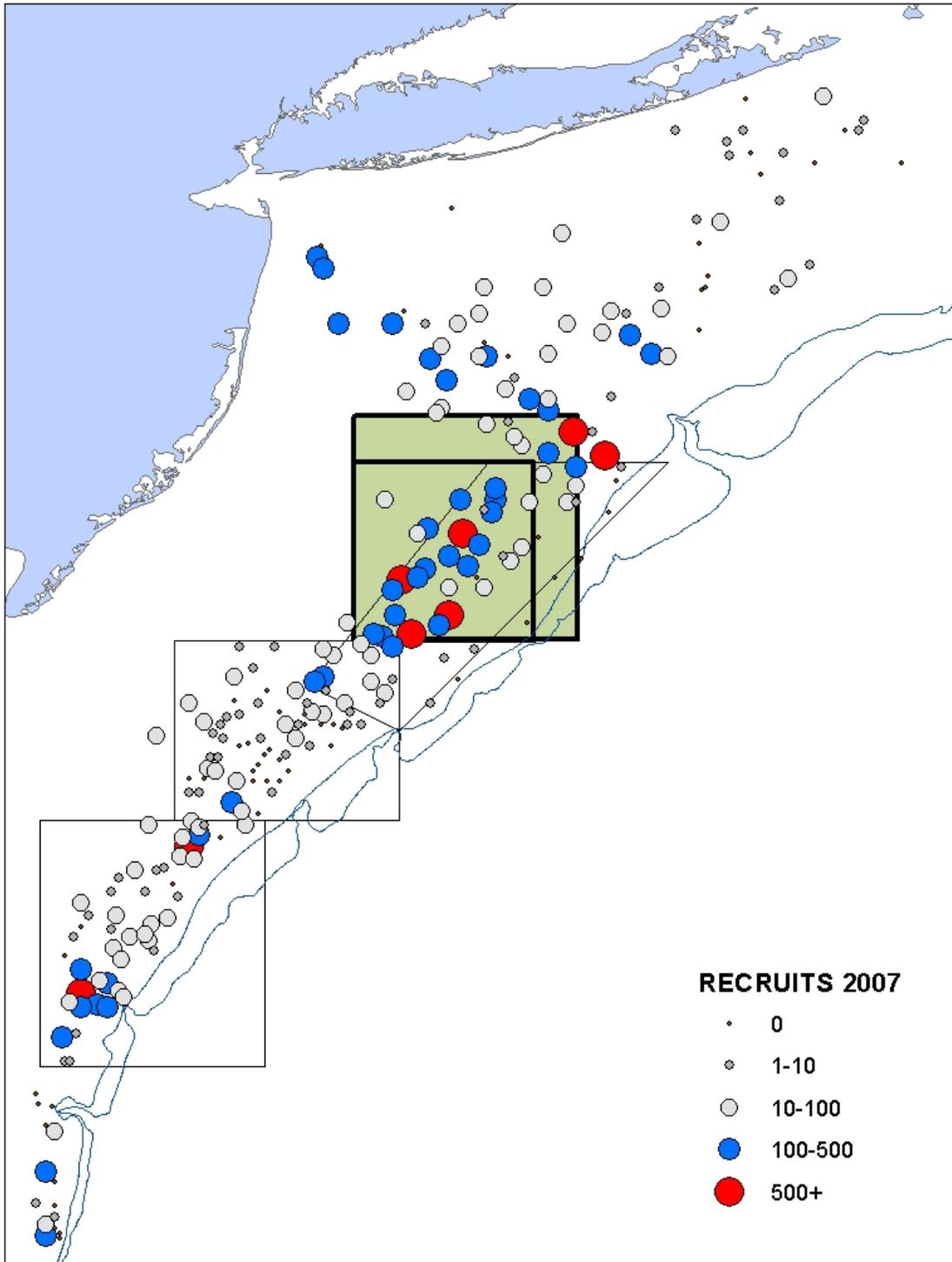
**2.8.1.4 Current Hudson Canyon boundaries as new rotational area (excluding area that overlaps with ETA) (Proposed action)**

The current boundaries of the Hudson Canyon would apply and all scallop vessels would be prohibited from that area for at least FY2008 and FY2009. (See Figure 5 – polygon beneath the two square areas under consideration). The coordinates are provided in the table below.

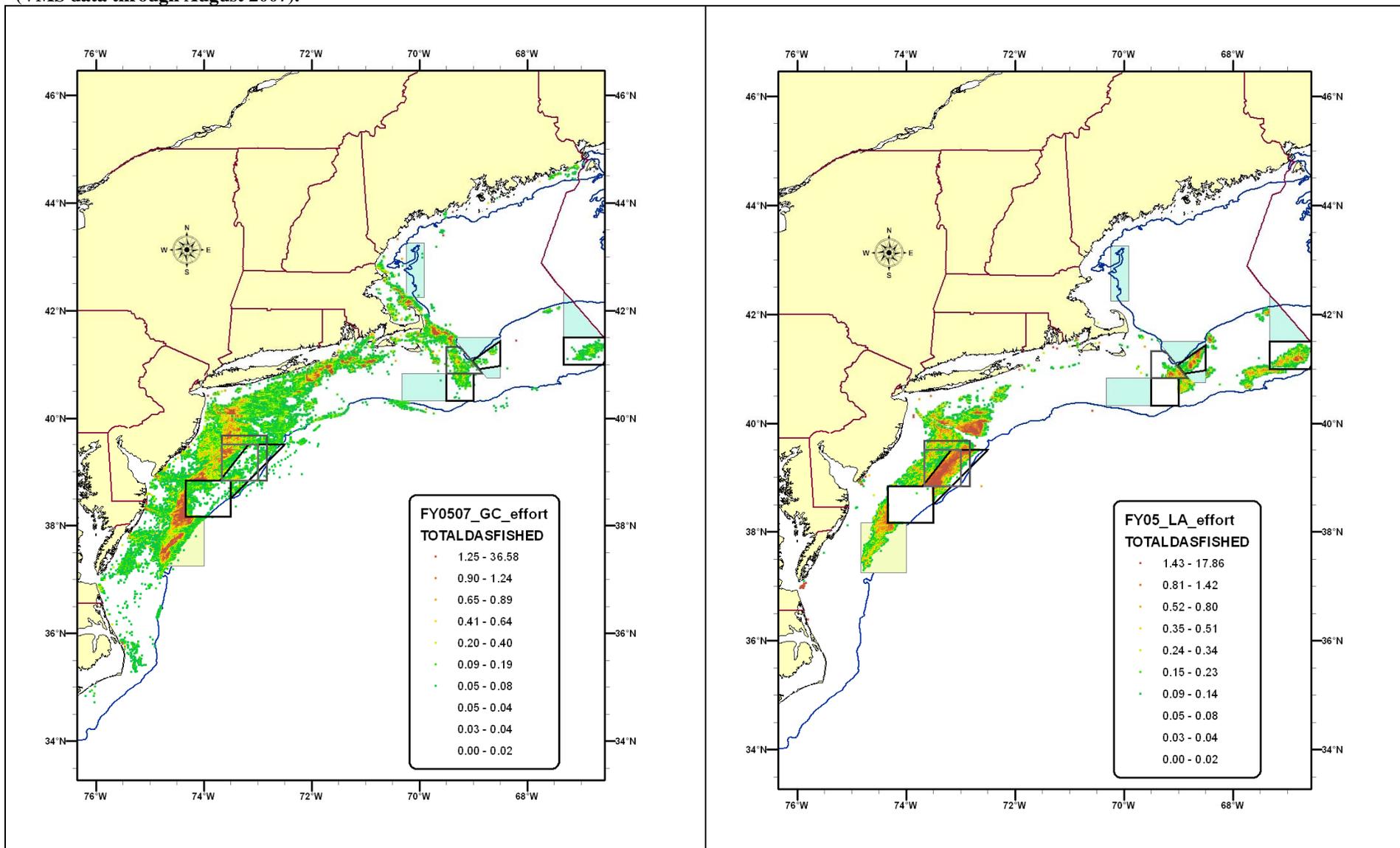
**Table 33 – Coordinates for Hudson Canyon rotational area (proposed action)**

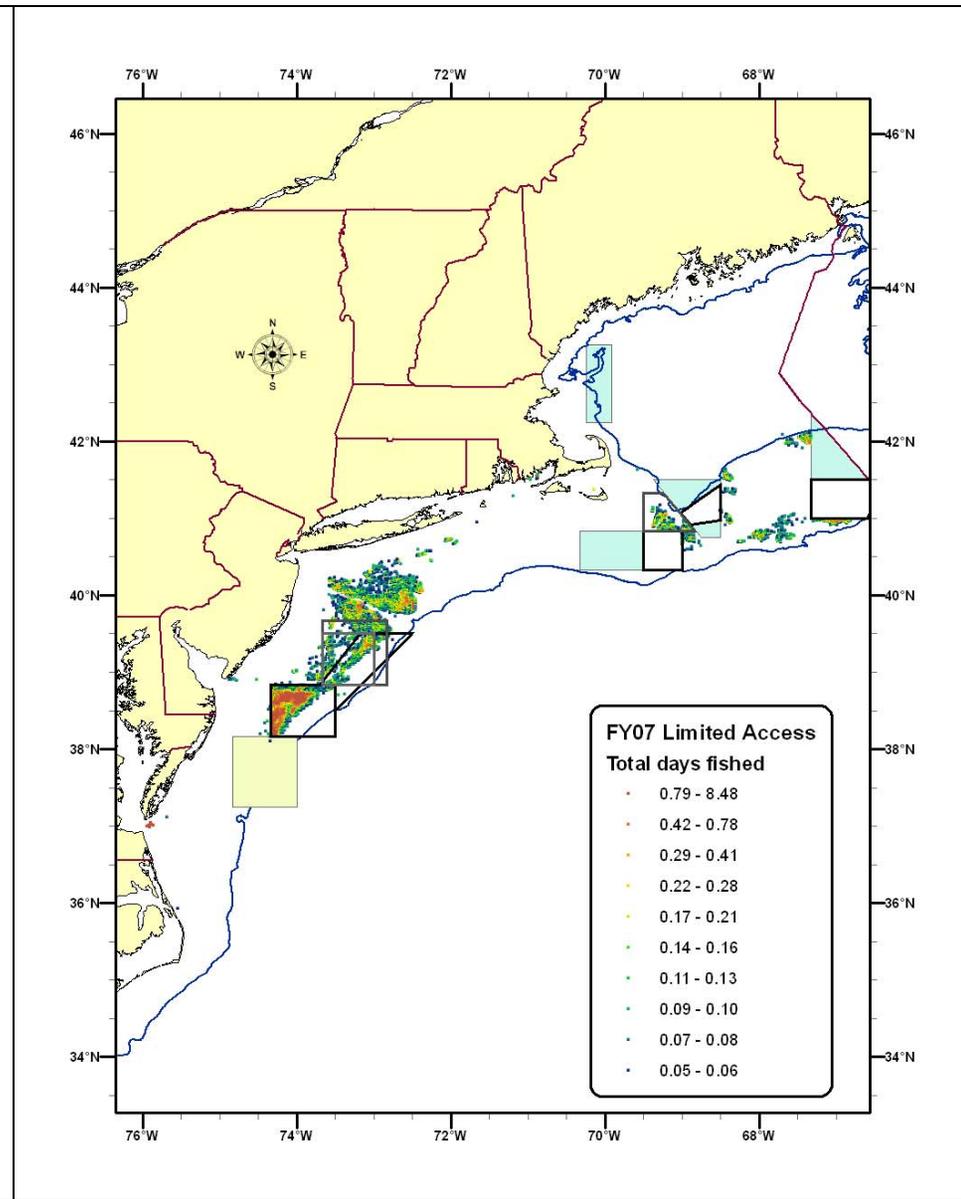
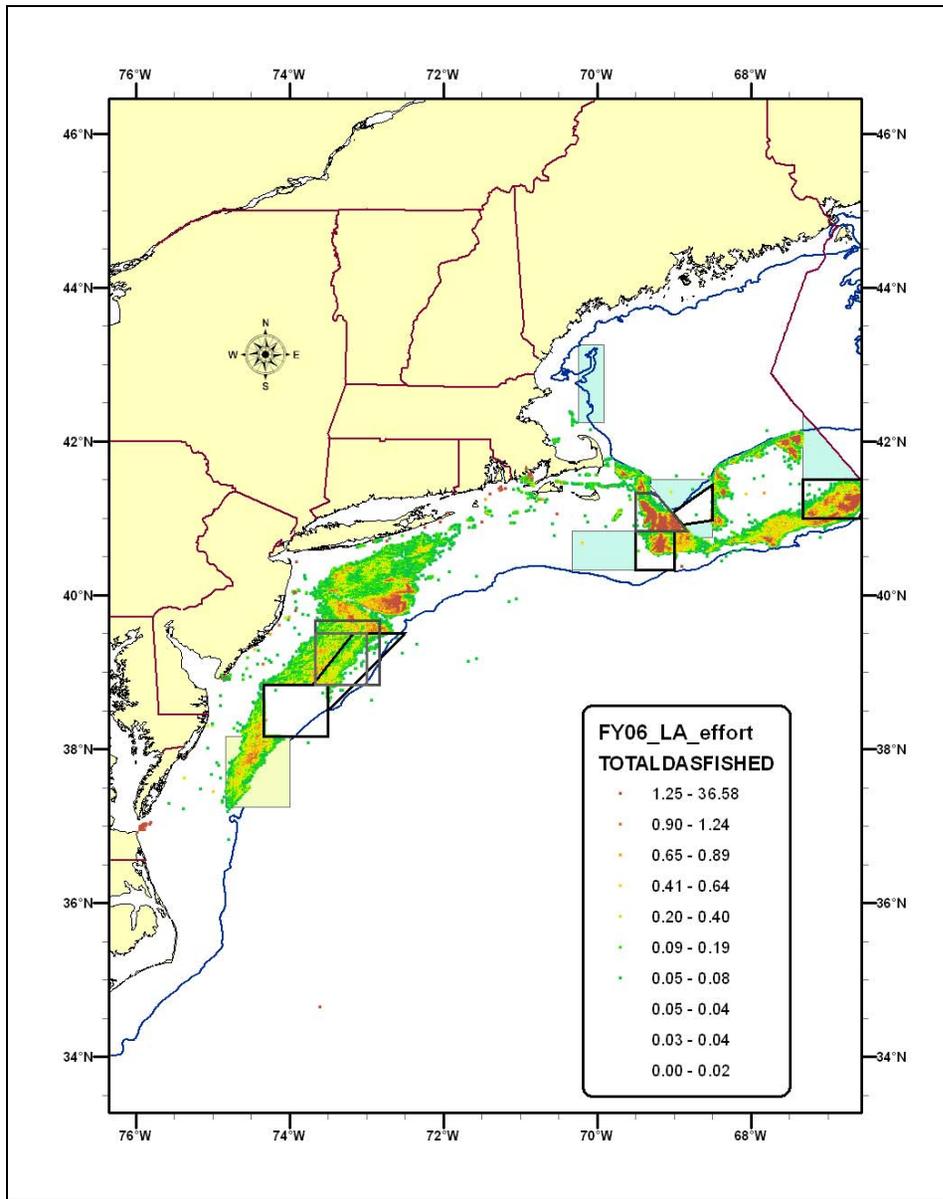
Point	N. Latitude	W. Longitude
H1	39 30	73 10
H2	39 30	72 30
H3	38 30	73 30
H4	38 50	73 30
H5	38 50	73 42

Figure 5 – 2007 Scallop recruitment (scallops less than 70mm) with potential boundaries for scallop rotational areas within the Hudson Canyon area



**Figure 6 – Cumulative days fished in each block for general category vessels (2005-2007 combined) and limited access vessels for 2005, 2006, and 2007 (VMS data through August 2007).**





## 2.8.2 New rotational area in the Great South Channel

The PDT recommended consideration of an area to the north of the Nantucket Lightship closed area and west of Closed Area I; the top left coordinate of the polygon is 41 20' N and 69 30' W and the bottom left coordinate is 40 50'N and 68 50'W (Figure 7). This is the first year with decent recruitment on Georges Bank since 2001. High numbers of small scallops (<70 mm) were caught on 2007 survey tows in this area.

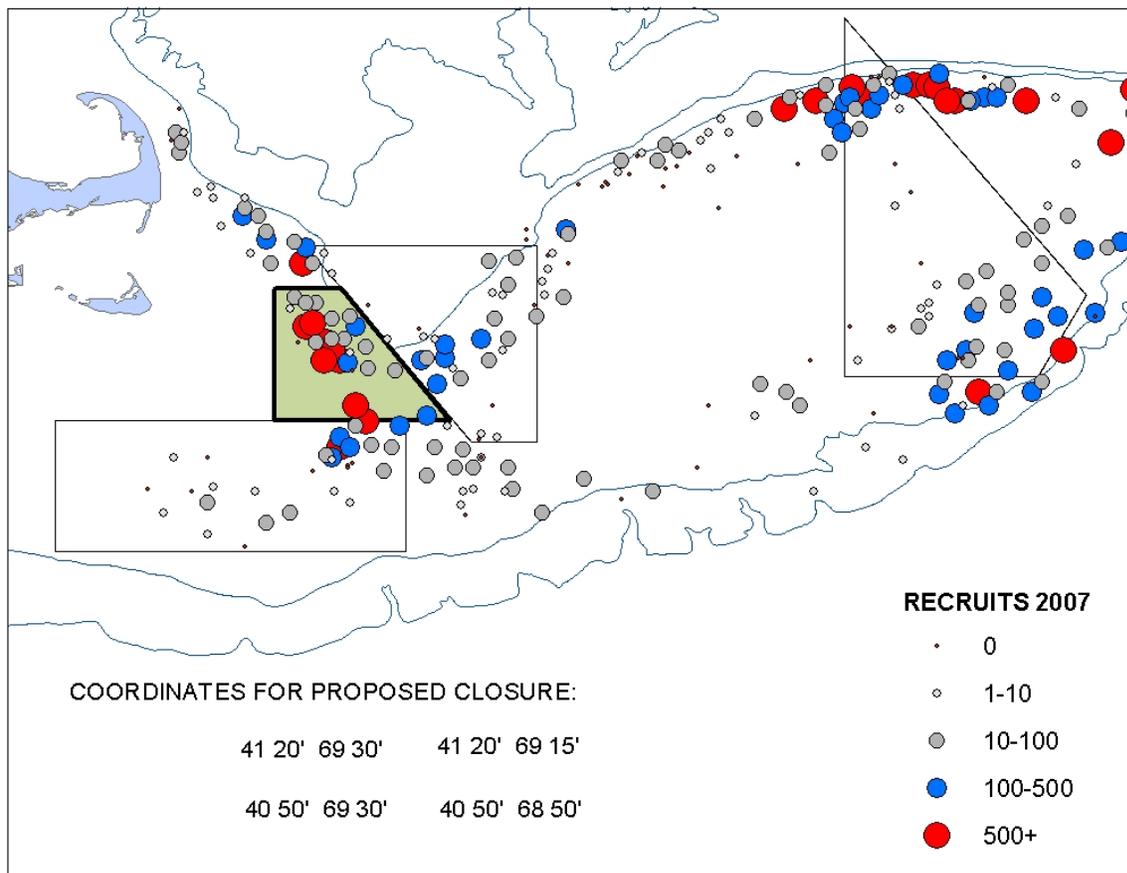
### 2.8.2.1 No Action (*Proposed Action*)

No new rotational area would close in this action in the Great South Channel vicinity.

### 2.8.2.2 New rotational area in the Channel north of Nantucket Lightship and west of Closed Area I

An area to the north of the Nantucket Lightship closed area and west of Closed Area I would close to scallop fishing for at least FY2008 and 2009; the top left coordinate of the polygon is 41 20' N and 69 30' W and the bottom left coordinate is 40 50'N and 68 50'W (Figure 7).

**Figure 7 - 2007 Scallop recruitment (scallops less than 70mm) with potential boundaries for a scallop rotational area within the Great South Channel**



## **2.9 OTHER MEASURES**

### **2.9.1 Allow a 30-day VMS power down provision (proposed action)**

This alternative would allow a vessel to power down their VMS unit for a minimum of 30 days similar to the provision for multispecies permits. CFR §648.9 VMS requirements include a provision for multispecies limited access vessels that allows a vessel to power down their VMS unit so long as the vessel does not engage in any fisheries until the unit is turned back on:

(C)(2)(i)(B) For vessels fishing with a valid NE multispecies limited access permit, the vessel owner signs out of the VMS program for a minimum period of 30 consecutive days by obtaining a valid letter of exemption pursuant to paragraph (c)(2)(ii) of this section, the vessel does not engage in any fisheries until the VMS unit is turned back on, and the vessel complies with all conditions and requirements of said letter.

### **2.9.2 Clarification on when a vessel can leave for an access area trip (No Action) (proposed action)**

This alternative would clarify when a vessel can leave for an access area trip. Currently there is confusion about when a vessel can leave port on an access area trip. A scallop vessel can leave for an access area trip before the area opens. The Committee supports that this ability should continue (No Action). Since scallop vessels are not allowed to fish until they are in an access area and there is a possession limit, prohibiting a vessel from leaving port before the area opens would only disadvantage vessels that are homeported farther away.

## **3.0 CONSIDERED AND REJECTED ALTERNATIVES**

### **3.1.1 Measures to reduce derby fishing in access areas for the general category fishery**

In recent years, the general category fishery has fished the maximum number of general category trips in access areas relatively quickly. All trips have been fished in a matter of weeks for the last few access area openings. While the number of potential participants may be lower in the future as a result of Amendment 11, if the overall allocation in access areas increases from 2% to 5% in this action, then the need to consider measures to reduce derby fishing may be more evident.

This alternative would restrict a general category vessel to take a maximum number of trips per month in an access area. This alternative is intended to slow fishing effort in access areas by general category vessels to reduce negative consequences of derby fishing. The area would still close to all general category vessels when the maximum number of trips allocated were expected to be taken.

***Rationale for rejection:*** The Committee decided to move this alternative to the considered but rejected section because it is expected to have negative impacts on the most dependent general

category vessels. These negative impacts are expected to outweigh the benefits of slowing a derby fishery in access areas. Furthermore, there are many different fishing practices among general category vessels in terms of access areas and this restriction would reduce flexibility. In addition, derby effects are expected to be reduced under a limited entry program compared to recent years with open access.

### **3.1.2 Adjust the observer set-aside program by assigning a higher compensation rate for vessels with lower fishing power**

This alternative would determine a vessels fishing power and the compensation rate for carrying an observer would be determined by that vessel's fishing power. Vessels with lower fishing power would receive a higher compensation to cover the cost of carrying an observer.

*Rationale for rejection:* The PDT recommended this alternative be rejected because it is very time consuming and complex to calculate individual fishing power. The Committee agreed.

### **3.1.3 Eliminate the single dredge restriction in access areas for vessels that were part-time and upgraded to full-time single dredge permits**

The Committee added this issue to the list of items to consider in Framework 19 as a result of a request from the public to promote efficiency on access area trips that are managed by an output control (possession limit). This alternative would eliminate the single dredge restriction in access areas for vessels that were part-time and upgraded to a full-time single dredge permit. Currently these vessels are restricted to use a single dredge in access areas to catch their possession limit.

Amendment 4 to the Scallop FMP implemented a limited access program for the scallop fishery in 1994 (NEFMC 2003). The limited access vessels consist of full-time, part-time and occasional vessels with subcategories within each permit group. Depending on the type of limited access permit for which the vessel qualified, a scallop limited access vessel may have the option of fishing with any gear type (permit categories 2, 3 and 4), with a small dredge (categories 5 and 6), or with trawl nets (categories 7, 8 and 9).

Days-at-Sea and trip allocations for special access areas are similarly varied by permit category. Owners of limited access vessels assigned to either the part-time or occasional categories (permit categories 3 and 4, respectively) may opt to be placed one category higher (permit categories 5 and 6, respectively), provided they agree to comply with the small dredge program restrictions. Vessels in the small dredge program must: (1) fish exclusively with one dredge no more than 10.5 ft in width; (2) not have more than one dredge on board or in use; and (3) have no more than five people, including the operator, on board (NEFMC 2003).

The number of limited access vessels has increased from 291 in 1999 to 359 in 2005 (Table 34). The number of part-time vessels has declined over time, while the number of full-time small dredge vessels has increased. In addition, the number of occasional permits has declined, while the number of part-time small dredge permits has increased.

**Table 34 - Scallop Permits by Application Year**

PERMIT CATEGORY	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006*
Full-time	229	227	217	204	203	213	220	224	234	238	242	247	249
Full-time small dredge	6	4	5	3	2	1	3	13	25	39	48	56	55
Full-time net boat	30	32	28	27	23	16	17	16	16	16	15	18	14
<b>Total full-time</b>	265	263	250	234	228	230	240	253	275	293	305	321	318
Part-time	27	22	19	16	11	12	16	14	14	10	4	3	2
Part-time small dredge	11	7	8	9	7	3	4	6	8	19	26	29	30
Part-time trawl	31	30	27	30	27	22	20	18	10	8	3		
<b>Total part-time</b>	69	59	54	55	45	37	40	38	32	37	33	32	32
Occasional	6	3	3	2	3	4	4	5	4	3	3	1	1
Occasional trawl	28	26	25	24	19	20	16	19	15	8	5	5	
<b>Total occasional</b>	34	29	28	26	22	24	20	24	19	11	8	6	1
<b>Total Limited access</b>	368	351	332	315	295	291	300	315	326	342	346	359	351

Updated in Oct.2006.

**Rationale for rejection:** The Scallop PDT is not supportive of including this alternative in Framework 19. They argue that the ability for a part-time vessel to upgrade to a full-time single dredge status was intended to be a tradeoff. These vessels were given the ability to land more scallops under a full-time permit, but were restricted to one dredge. Eliminating this restriction would not be conservation neutral. The advisors discussed this topic as well; some felt it was appropriate to consider in Framework 19, while some did not. In addition, there are many more permits in this category than in the past (Table 34). One advisor commented that the elimination of the single dredge restriction would only be necessary in access areas like Hudson Canyon that are sub-optimal. He argued that it would not be a problem for these permits to fish in an access area with a single dredge if the access area was managed correctly and catch rates were high enough for a vessel to fish with a single dredge. Another argued that while some of the regulations are inefficient, the combination of rules in place helps the fishery stay in balance with the resource; it would not be appropriate to change the playing field now. Based on this input, the Committee recommended that the alternative be moved to the considered but rejected section of Framework 19 based on input from the PDT and advisors.

### 3.1.4 Unused 2005 Hudson Canyon trips could be used at a reduced level in another area

After February 29, 2008, any unused 2005 Hudson Canyon trips could be used at a reduced level in another area. Two options are being considered: the open areas (Option A) or the Elephant Trunk Area (Option B). The PDT will determine a conversion rate for unused trips in either area. Vessels would be permitted to fish their unused Hudson Canyon trips in a different area at a reduced level.

**Rationale for rejection:** The Council rejected this alternative at the September Council meeting. After discussing this alternative at the Council level, there was support for eliminating the option to further carry unused trips past 2007. It was argued that Framework 18 already provided a two-year extension to vessels that did not use their Hudson Canyon trips allocated in 2005. One Council member pointed out that continuously allowing vessels to carry over trips in the future gives the industry a false impression that access area trips are guaranteed and do not have to be taken during a specific time period. The PDT has voiced concern that extending trips too far into

the future can compromise the effectiveness of area rotation, since very specific levels of effort are expected for specific time periods and when that effort is shifted to later times or different areas, it can potentially lead to overfishing.

### 3.1.5 Allocate an individual poundage per area to individual general category vessels equal to their individual contribution factor

This alternative would allocate an individual poundage amount to each general category vessel per area equal to their individual contribution factor. For example, if a general category vessel qualified for 1% of the general category allocation, that vessel would be allocated 1% of general category pounds available from open areas and 1% from each access area open that year. That vessel would be permitted to potentially trade, buy, or lease that area-specific allocation with another general category vessel.

Table 35 and Table 36 are examples of potential allocations for qualifying vessels if the total projected scallop catch is 50 million pounds. The average general category qualifier can expect an allocation of about 6,550 pounds under this scenario with a minimum allocation of 500 pounds and a maximum closer to 32,500 pounds. If these allocations are then broken down by area, amounts similar to the values in the following tables can be expected. These will change based on final biomass estimates for the various areas and the final number of qualifiers will not be known until sometime in 2008. If this alternative applies to the limited access vessels that qualify for a limited entry general category permit, expected allocations for this component of the fishery are described in Table 36.

**Table 35 – Example of potential allocations for general category limited access qualifiers in 2009 under a total scallop catch of 50 million pounds**

GENERAL CATEGORY EXAMPLES			(general category limited access permits only)		
	Allocation	% Share	Open Area	NL	ET
MAX.	32500	1.34%	16,758	5,126	10,616
MIN.	500	0.02%	258	79	163
AVG.	6550	0.27%	3,377	1,033	2,140
MEDIAN	3197	0.13%	1,648	504	1,044

**Table 36 – Example of potential allocations for limited access vessels that will also qualify for a limited access general category permit in 2009 under a total scallop catch of 50 million pounds**

LIMITED ACCESS with general category permits					
	Allocation	% Share	Open Area	NL	ET
MAX	20,000	8.26%	10,313	3,154	6,533
MIN	500	0.21%	258	79	163

**Rationale for rejection:** The Council rejected this alternative at the September Council meeting. It was discussed that this approach may have merit to explore in the future, but many details of this program were still undeveloped and there was not enough time to clarify the outstanding issues before final action in October. In addition, one member voiced that this framework is only going to include one fishing year under the IFQ program since the first year (2008) would be under a quarterly hard-TAC for the interim period. Therefore, taking time to further develop this alternative in this action is not justified. Some of the specific unresolved issues identified were: 1) Amendment 11 specifies that a vessel is restricted to buy/sell their allocation as a unit (not in

parts), so it would have to be determined if this can be revised in a framework; 2) it is not clear if the quota would be limited to an annual lease or purchase; 3) if there are any new monitoring issues with this alternative; and 4) should the framework include compensation for vessels if an area on Georges Bank closes early due to the YT bycatch TAC being reached. Furthermore, this approach would add a burden for general category vessels that do not participate in access areas to find another vessel to buy or lease their area-specific quota.

## **4.0 DESCRIPTION OF AFFECTED ENVIRONMENT – SAFE REPORT**

The environment affected by the sea scallop fishery as a whole is described in Section 4 of Amendment 11 to the Sea Scallop FMP (NEFMC, 2007). That description is incorporated herein by reference. This section serves as the 2007 SAFE Report, which updates the data and analysis of the fishery through the 2006 fishing year, including an updated assessment of the scallop resource, new analyses of limited access and general category scallop effort distribution, and new estimates of finfish bycatch in both the controlled access and open areas. The 2007 SAFE Report also includes several relevant appendices (*Appendix I: Summary of updated scallop stock assessment (SARC 45)* and *Appendix II: Methods Used for Sea Scallop Biological Projections*).

### **4.1 THE ATLANTIC SEA SCALLOP RESOURCE**

The Atlantic sea scallop, *Placopecten magellanicus* (Gmelin), is a bivalve mollusk ranging from North Carolina to the Gulf of St. Lawrence (Hart and Chute, 2004). Although all sea scallops in the US EEZ are managed as a single stock per Amendment 10, 4 regional components and 6 resource areas are recognized. Major aggregations occur in the Mid-Atlantic from Virginia to Long Island (Mid-Atlantic component), Georges Bank, the Great South Channel (South Channel component), and the Gulf of Maine (Hart and Rago, 2006; NEFSC, 2007). These 4 regional components are further divided into 6 resource areas: Delmarva (Mid-Atlantic), New York Bight (Mid-Atlantic), South Channel, southeast part of Georges Bank, northeast peak and northern part of Georges Bank, and the Gulf of Maine (NEFMC, 2007). Assessments focus on two main parts of the stock and fishery that contain the largest concentrations of sea scallops: Georges Bank and the Mid-Atlantic, which are combined to evaluate the status of the whole stock (NEFMC, 2007).

Sea scallops are generally found in waters less than 20°C and depths that range from 30-110m on Georges Bank, 20-80m in the Mid-Atlantic, and less than 40m in the near-shore waters of the Gulf of Maine. They feed by filtering zoo- and phytoplankton and detritus particles. Sea scallops have separate sexes, reach sexual maturity at age 2, and use external fertilization. Scallops greater than 40mm are considered mature individuals. Spawning generally occurs in late summer and early autumn, although there is evidence of spring spawning as well in the Mid-Atlantic Bight (DuPaul et al., 1989) and limited winter-early spring spawning on Georges Bank (Almeida et al., 1994; Dibacco et al., 1995). Annual fecundity increases rapidly with shell height; individuals younger than 4 years may contribute little to total egg production (MacDonald and Thompson, 1985; NEFMC, 1993; NEFSC, 2007). The pelagic larval stage lasts 4-7 weeks with settlement usually on firm sand, gravel, shells, etc. (Hart and Chute, 2004; NEFMC, 2007; NEFSC, 2007). Recruitment to the NEFSC survey occurs at 40mm shell height (SH) and to the commercial fishery at 90-105mm SH, which corresponds to an age of 4-5 years old (NEFSC, 2007; NEFMC, 2007).

Meat weight can quadruple between the ages of 3 to 5 (NEFSC, 2004; NEFMC, 2007). Meat weight is dependent on shell size, which increases with age, and depth. Meat weight decreases with depth, possibly due to a reduced food supply (NEFSC, 2007). Both the Mid-Atlantic and Georges Bank showed a drop in meat weights between August and October, coinciding with the September-October spawning period (Haynes, 1966; Serchuk and Smolowitz, 1989; NEFSC, 2007). Meat weight of landed scallops may differ from those predicted based on research survey

data because: 1) the shell height/meat weight relationship varies seasonally in part because of the reproductive cycle, causing meats collected during the NEFSC survey in July to differ from the rest of the year; 2) commercial fishers concentrate on speed while shucking, leaving some meat on the shell (Naidu, 1987; Kirkley and DuPaul, 1989); and 3) fishers may target areas with relatively large meat weight at shell height, thus increasing commercial weights compared to those on the research vessel (NEFSC, 2007).

#### 4.1.1 Assessment

The primary source of data used in the biological component of the scallop assessment currently comes from the federal scallop survey. The scallop dredge survey has been conducted in a consistent manner since 1979. An 8-foot modified scallop dredge is used with 2" rings and a 1.5" liner. Tows are 15 minutes in length at a speed of 3.8 knots, and stations are identified using a random-stratified design. About 500 stations are completed each year on Georges Bank and the Mid-Atlantic. A Scallop Survey Advisory Panel (SSAP) is reviewing the scallop survey and making recommendations about how future surveys should be conducted because the vessel platform currently being used (R/V Albatross IV) is going out of service. The panel is considering all types of modifications to the scallop survey program and recommendations will be made through the Council in the near future (NEFMC, 2007).

Other primary components of the assessment include defining parameters for scallop growth, maturity and fecundity, shell height/meat weight relationships, recruitment, and estimates of natural mortality, which are all combined with fishery data (landing and discards) to estimate fishing mortality rates and biological reference points. The per-recruit reference points  $F_{max}$  and  $B_{max}$  are used by managers as proxies for  $F_{msy}$  and  $B_{msy}$  because the stock-recruitment relationship is not well defined. The Catch-At-Size-Analysis (CASA) model, which was recently developed, utilizes additional information including commercial catch, LPUE, commercial shell height compositions, data from the NMFS sea scallop and winter trawl surveys, data from the University of Massachusetts Dartmouth School of Marine Science and Technology (SMAST) small camera video surveys, data from dredge surveys conducted by VIMS, growth increment data from scallop shells, and shell height/meat weight data adjusted to take commercial practices and seasonality into account (NEFSC, 2007).

Biological reference points were set for the entire US sea scallop stock. The threshold fishing mortality rate for fully-recruited scallops that generates the maximum yield-per-recruit,  $F_{max}$ , was estimated at 0.24. The biomass per recruit at  $F = F_{max}$  and the median number of recruits,  $B_{max}$ , was estimated at 5.6 kg/tow.

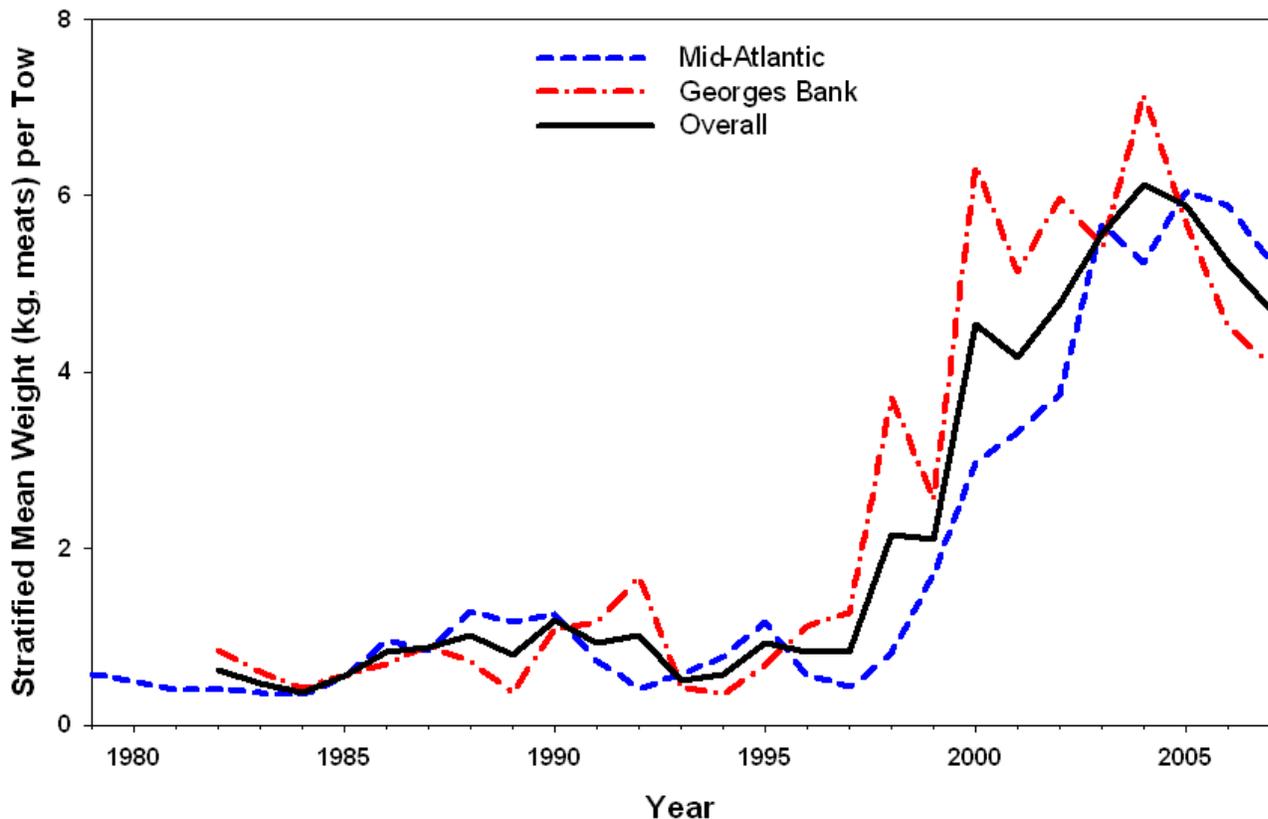
Future estimates, however, may be adjusted based on the proceedings at SAW45 for a few reasons. First, there is increasing evidence that growth in the Mid-Atlantic in general and in the Elephant Trunk Area (ETA) specifically, is slower than what is assumed in the projection model. Second, the data used for the shell height/meat weight relationship are from scallops caught in July when scallops have a better yield in terms of meat weight at a given shell size, thus producing a more robust estimate of biomass. Lastly, the model assumed a 20% discard mortality rate, which may be reasonable overall; however, in areas like the ETA, a higher mortality rate may be justified, especially during periods of higher air and water temperatures

(NEFMC, 2007). Section 2.6 of this action is considering a revision of the current overfishing definition to incorporate results from the recent assessment.

The CASA model was developed to replace the current model to allow the incorporation of information listed above, including a shift toward larger scallops in landings. With this model, the proposed fishing mortality threshold would shift from 0.24 to 0.29. These fishing mortality values are not directly comparable because the CASA model that produced 0.29 is for fully recruited scallops (>100 mm). The rescaled F model represents an average fishing mortality for scallops greater than 80-90 mm. Since fishing mortality is lower on 80-100 mm scallops, the rescaled F estimate would be somewhat less than the CASA estimate. The biomass threshold and target measurement units will change from kg/tow to thousand mt. meats. The current biomass threshold is 2.8 kg/tow with a biomass target of 5.6 kg/tow. The proposed biomass threshold is 54.3 thousand mt. meats with a biomass target of 108.6 thousand mt. meats.

In general, scallop biomass has increased dramatically in recent years. Figure 8 shows this increase in terms of estimated Mid-Atlantic, Georges Bank and total scallop biomass based on the scallop survey. These values are unadjusted; therefore cannot be directly compared to biomass thresholds, but the general increasing trend in biomass in both areas is evident.

**Figure 8 - Trend in R/V Albatross stratified mean weight per tow from mid 1980s through 2006 by region.**



#### 4.1.2 Stock Status

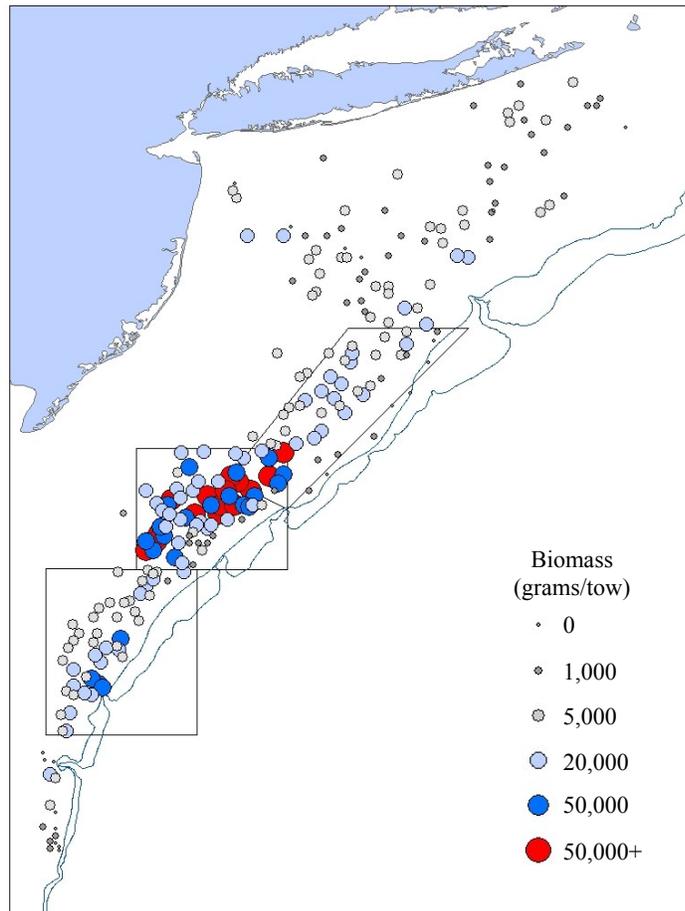
The current status of the stock for 2006 based on the rescaled F approach has an estimate for fishing mortality of 0.20 and biomass of 7.3 kg/tow, thus overfishing is not occurring and the stock is not overfished. Stock status has been fluctuating in recent years. Overall biomass increased almost without interruption since 1997, peaking at 8.2 kg/tow in 2004. Although it has declined to 7.3 kg/tow in 2006, it is not overfished because it is well above the target of 5.6 kg/tow and threshold of 2.8 kg/tow. Fishing mortality was above the threshold of 0.24 and target of 0.20 for both 2003 and 2004 with both years at or above 0.30. For 2005 and 2006, though, fishing mortality was reduced to 0.22 and 0.20, respectively, coming in below the threshold value. Thus, overfishing is no longer occurring. Using the proposed reference points of the CASA model, the 2006  $F_{\max}$  is 0.23 and stock biomass is 166 thousand mt. meats (See Section 2.6).

##### 4.1.2.1 Biomass

Despite a decline in biomass in the past few years, the overall trend shows a considerable increase since 1994, especially in the Georges Bank closed areas and the ETA (part of the Mid-Atlantic component)(NEFSC, 2007). Scallop biomass on Georges Bank has increased by a factor of 18 and in the Mid-Atlantic Bight by a factor of 8 (Hart and Rago, 2006), which is likely due to very strong recruitment in the Mid-Atlantic and improved management in both the Mid-Atlantic and Georges Bank (NEFMC, 2007). The resource remains in relatively good condition even though mortality was above target for 2003-2004, with a greater share of the landings coming from older and larger scallops. Whole-stock estimates indicate that annual abundance, annual egg production, and biomass were relatively high during 2006, although recruitment was relatively low (NEFSC, 2007).

Biomass increased rapidly in the Mid-Atlantic Bight from 1998-2003 due to area closures, reduced fishing mortality, changes in fishery selectivity, and strong recruitment. While the Hudson Canyon area was closed from 1998-2001, biomass increased; likewise, biomass has increased steadily in the ETA since its closure in 2004. Biomass has been relatively stable from 2003-2006. Two very strong year classes have been protected by the ETA closure, which contains over one-quarter of the total scallop biomass (Figure 9). Realization of the benefits from the ETA closure is forecasted to result in a higher sustainable yield (NEFMC, 2007). However, short term yields are expected to be lower in the Mid-Atlantic because growth rates are likely to be less than estimated.

**Figure 9. Biomass chart for the Mid-Atlantic from the 2007 NMFS sea scallop survey**



The scallop abundance and biomass on Georges Bank increased from 1995-2000 after implementation of closures and effort reduction measures. However, biomass and abundance have been declining in recent years because of poor recruitment and the reopening of portions of groundfish closed areas. The highest concentrations of biomass on Georges Bank are currently on the northern edge of Georges Bank, within Closed Area I, and within Nantucket Lightship closed areas (Figure 10) (NEFMC, 2007).

**Figure 10. Biomass chart for Georges Bank from the 2007 NMFS sea scallop survey**

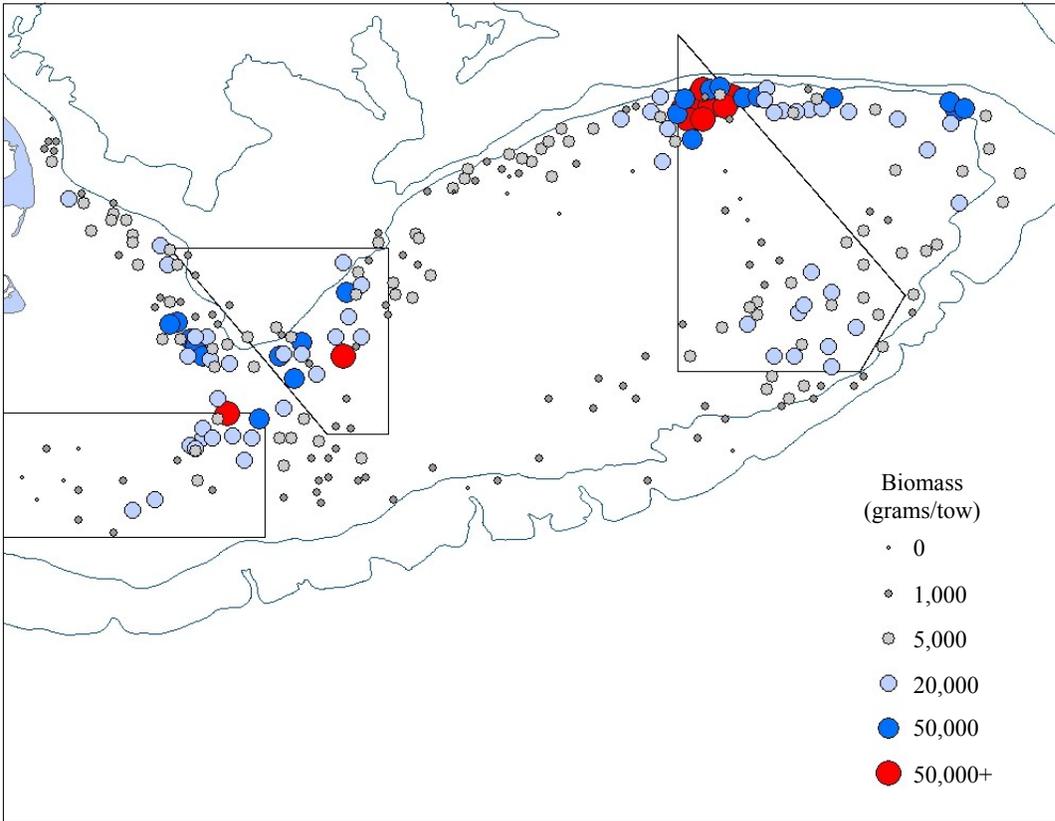


Figure 11 displays the distribution of scallop biomass by area based on 2007 survey data. The ETA contains 32% of the overall biomass and the GB EFH closures contain 21%. However, only 17% of the scallop biomass is in the Mid-Atlantic and GB open areas combined.

Recruitment is the highest it has been since 2001 on GB (Figure 12). From 2002-2006, recruitment was relatively low. The increased recruitment is being seen in the Channel and the northern edge of GB. Recruitment in the Mid-Atlantic is decent as well (Figure 13), mostly in the Hudson Canyon vicinity.

**Figure 11. Distribution of scallop biomass by area**

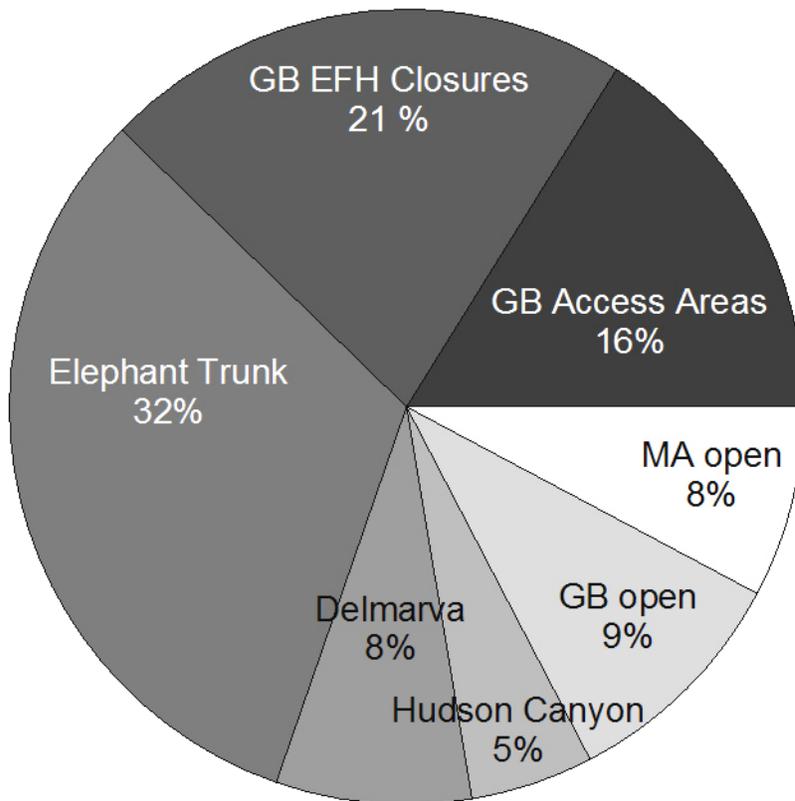


Figure 12. Recruitment on Georges Bank from 2007 NMFS sea scallop survey

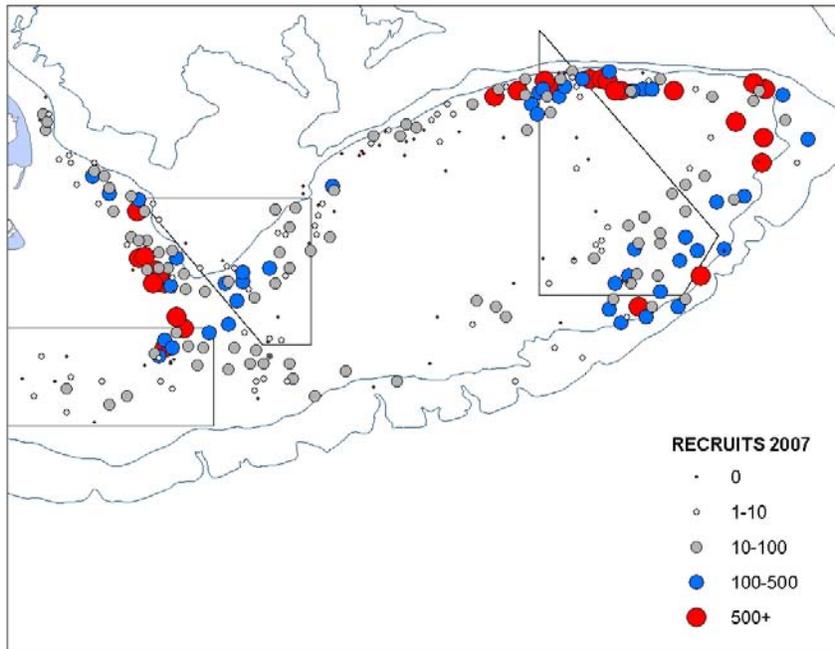
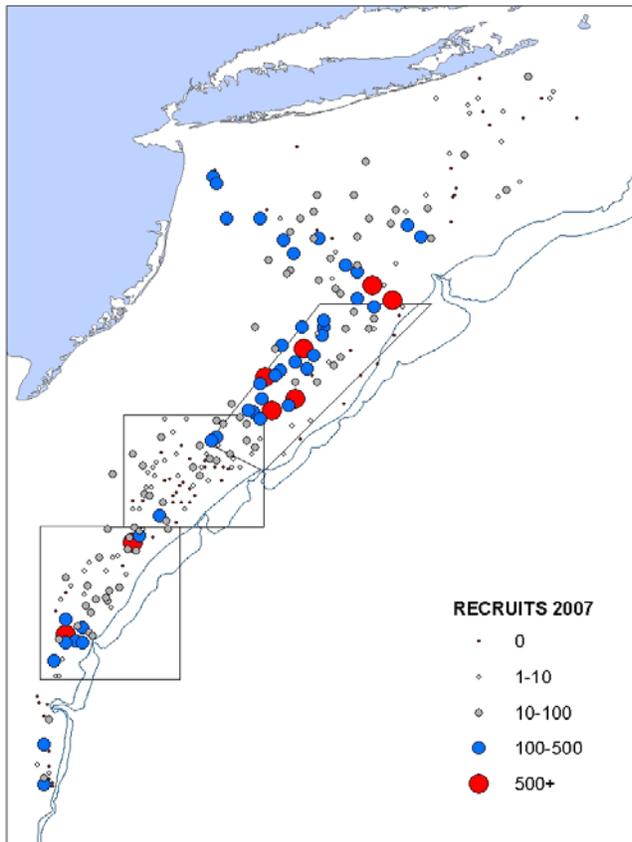


Figure 13. Recruitment in the Mid-Atlantic from the 2007 NMFS sea scallop survey



#### 4.1.2.2 Fishing mortality

Four types of mortality are accounted for in the assessment: natural, discard, incidental, and fishing. The natural mortality rate was assumed to be  $M=0.1y^{-1}$  for scallops with shell heights greater than 40mm based on estimates of  $M$  based on ratios of clappers (still-intact shells from dead scallops) versus live scallops (Merrill and Posgay, 1964). Natural mortality may increase at larger shell heights (MacDonald and Thompson, 1986; NEFSC, 2007).

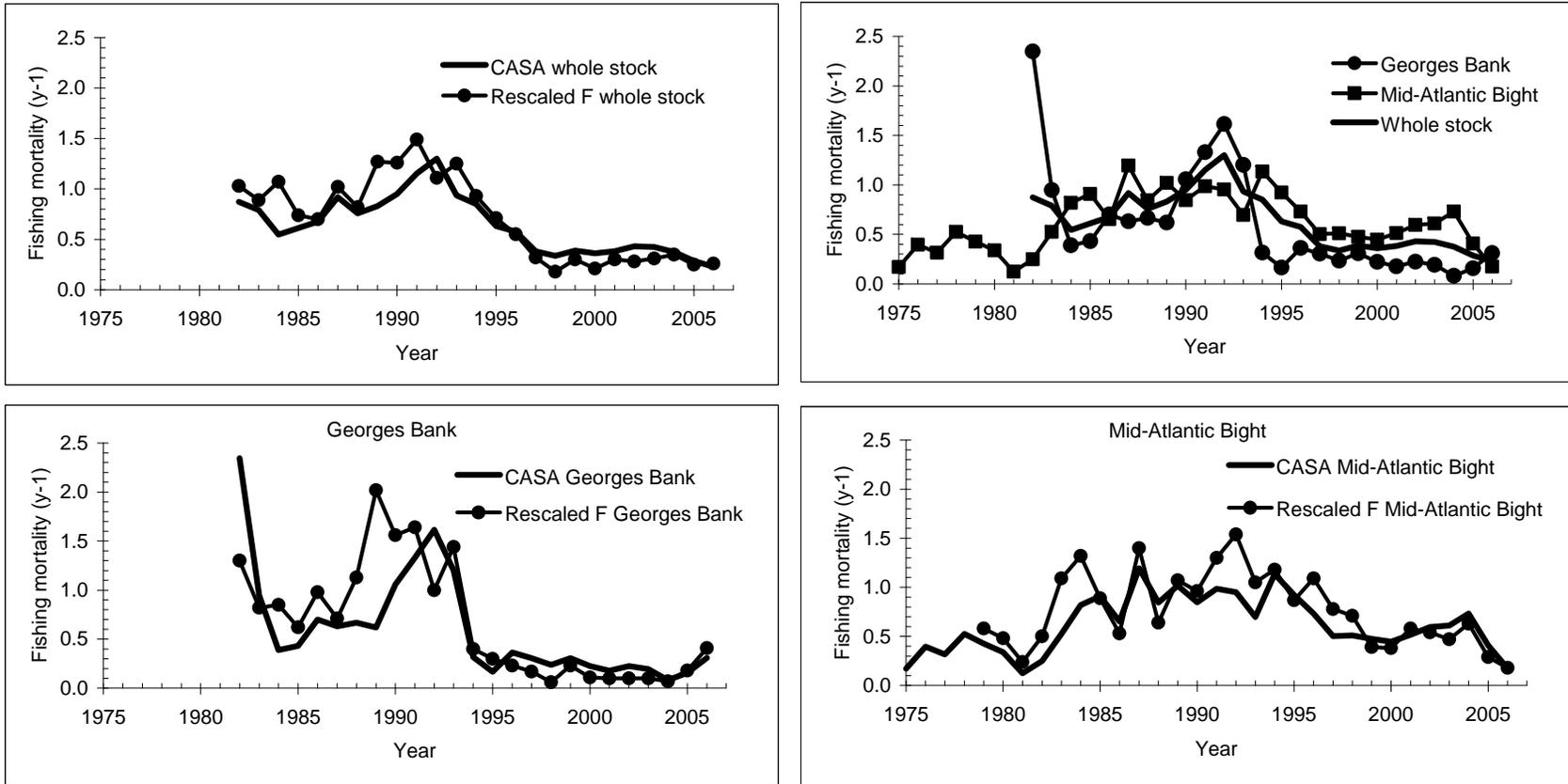
Discard mortality occurs when scallops are discarded on directed scallop trips because they are too small to be economically profitable to shuck or due to high-grading during access area trips to previously-closed areas. Discard ratios were low during the 2005-2006 season, probably because of new gear regulations (4" rings). Scallops can also be caught as bycatch and either landed or discarded in other fisheries. Trawl fisheries with the largest scallop bycatch for 1994-2006 were longfin squid, summer flounder, yellowtail, haddock, cod, and monkfish. From 1994-2006, an estimated mean of 94 mt. meats of scallops were landed and 68 mt. meats were discarded per year as bycatch in other fisheries. Total discard mortality is estimated at 20% (NEFSC, 2007).

Incidental mortality is non-landed mortality associated with scallop dredges that likely kill and injure some scallops that are contacted but not caught by crushing their shells. Caddy (1973) estimated 15-20% of the scallops remaining in the dredge track were killed, while Murawski and Serchuk (1989) estimated that <5% were killed. The difference is possibly due to differences in substrate; the first study was done in a hard bottom area, while the subsequent study was in an area with a sandy bottom. Incidental mortality for this assessment was assumed to be  $0.15 F_L$  in Georges Bank and  $0.04 F_L$  in the Mid-Atlantic (NEFSC, 2007).

Fishing mortality, the mortality associated with scallop landings on directed scallop trips, was calculated separately for Georges Bank and the Mid-Atlantic because of differences in growth rates. However, for comparison to biological reference points used to identify overfishing and overfished stock conditions, a whole-stock estimate of fishing mortality is necessary. Survey-based and rescaled  $F$  estimates show increasing mortality until the early 1990s and reductions from 1994-2006 (NEFSC, 2007). The current  $F_{max}$  estimate for 2006 is 0.20; the CASA  $F_{max}$  estimate is 0.23, both of which are below the current and proposed thresholds (0.24 and 0.29, respectively).

Fishing mortality peaked in the early 1990s, but has decreased substantially since then and, in general, has remained stable since 1999 (Figure 14). IN recent years, fishing mortality has been higher for the Mid-Atlantic than for Georges Bank. Georges Bank saw a significant decrease in fishing mortality from 1993-1995 and has remained very stable since 1995. However, the Mid-Atlantic fishing mortality, although in decline, is not as stable as GB. Results from the two models, the current model (rescaled  $F$ ) and the proposed model (CASA), are generally similar. CASA, though, is more precise and less biased according to the SAW review panel.

**Figure 14. Fishing mortality estimates ( $y^{-1}$ ) from the CASA model for sea scallops on Georges Bank, in the Mid-Atlantic Bight and for the whole stock during 1975-2006.**



## **4.2 PHYSICAL ENVIRONMENT AND ESSENTIAL FISH HABITAT**

The description of the affected environment is presented to provide sufficient background information on the various resources and entities likely to be affected by the actions proposed or under consideration. Several recent reports have been published which add to our understanding of the physical and biological environment of this region, including Amendment 11 (NEFMC, 2007). This section deals with the *affected* environment and does not present the effects of the proposed management program.

### **4.2.1 Description of the Physical Environment**

This section contains a brief description of the physical and biological environments of the Atlantic sea scallop fishery, including physical habitat conditions in the terrestrial/inshore areas and continental shelf and slope of the Gulf of Maine – Georges Bank and Mid-Atlantic regions. Further detailed descriptions of the physical environment can be found in section 4.2 of Amendment 11.

The Northeast shelf ecosystem (Figure 9) extends from the Gulf of Maine south to the state of North Carolina, and encompasses the area from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream (Sherman et al., 1996). The continental slope of this region includes the area east of the shelf, out to a depth of 2000m. A number of distinct sub-systems comprise the region: the Gulf of Maine (GOM), Georges Bank, the Mid-Atlantic Bight, the continental slope, and some New England Seamounts. Occasionally Southern New England, an additional subsystem, is described; however, we incorporated the distinctive features of this region into the descriptions of Georges Bank 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. Georges Bank 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 aspects of the physical characteristics of each of these systems are described in sections that follow.

From a biological perspective, habitats provide living things with the basic life requirements of nourishment and shelter. Habitats may also provide a broader range of benefits to the ecosystem. The spatial and temporal variation of prey abundance influences the survivorship, recruitment, development, and spatial distribution of organisms at every trophic level. For example, phytoplankton abundance and distribution are a great influence on ichthyoplankton community structure and distribution.

The availability of food for planktivores is highly influenced by oceanographic properties. Changes in primary production from upwelling and other oceanographic processes affect the

amount of organic matter available for other organisms higher up the food chain, and thus influence their abundance and distribution. Organic matter produced in the photic zone sinks to the bottom and provides food for sessile benthic organisms. In shallower water, benthic macro- and microalgae also contribute to primary production. Recent research on benthic primary productivity indicates that benthic microalgae may contribute more to primary production than has been originally estimated (Cahoon, 1999).

Benthic organisms, such as bottom-dwelling sand lance, provide an important food source for many managed piscivorous species. Benthic invertebrates are the main source of nutrition for many demersal fishes. Temporal and spatial variations in benthic community structure affect the distribution and abundance of bottom-feeding fish. Likewise, the abundance and species composition of benthic communities are affected by a number of environmental factors including temperature, sediment type, and the amount of organic matter.

In addition to providing food sources, another important functional value of benthic habitat is the shelter and refuge from predators provided by structure. Three-dimensional structure is provided by physical features such as boulders, cobbles and pebbles, sand waves and ripples, and mounds, burrows and depressions created by organisms. Structure is also provided by attached and emergent epifauna. The importance of benthic habitat complexity was discussed by Auster (1998) and Auster and Langton (1999) in the context of providing a conceptual model to visualize patterns in fishing gear impacts across a gradient of habitat types. Based on this model, habitat value increases with increased structural complexity, from the lowest value in flat sand and mud to the highest value in piled boulders. The importance of habitat complexity to federally managed species is a key issue in the Northeast Region.

This review is based on several summary reviews (Backus 1987; Schmitz et al. 1987; Tucholke 1987; Wiebe et al. 1987; Cook 1988; Stumpf and Biggs 1988; Abernathy 1989; Dorsey 1998; Townsend 1992; Mountain et al. 1994; Conkling 1995; Beardsley et al. 1996; Brooks 1996; Sherman et al. 1996; Kelley 1998; NEFMC 1998; EPA 2003; Packer 2003; StormCenter Communications, Inc. 2004). Literature citations are not included for generally accepted concepts; however, new research and specific results of research findings are cited.

#### **4.2.1.1 Inshore**

The GOM includes more than 59,570 km<sup>2</sup> (23,000 mi<sup>2</sup>) of estuarine drainage areas, with the majority in Maine, including Saco Bay, Casco Bay, Merymeeting Bay, Sheepscot Bay, Muscongus Bay, Penobscot Bay, Blue Hill Bay, Frenchman Bay, Narraguagus Bay, Englishman Bay, Machias Bay, Cobscook Bay, and Passamaquoddy Bay. In southwestern GOM, major estuaries are Massachusetts Bay and Great Bay in New Hampshire. Estuaries are important for nutrient recycling and primary production, and function as important breeding and feeding grounds for many fish and shellfish populations, shorebirds, migratory waterfowl, and mammals. Estuarine features such as salt marshes, mud flats, and submerged aquatic vegetation are critical to inshore and offshore fishery resources of the GOM. Coastal rocky intertidal zones and sand beaches are important habitats for fishery resources and are also important for nutrient recycling and primary production.

Human activities in the surrounding watersheds impact the chemical loading of nutrients (especially nitrogen and phosphorus) and contaminants (heavy metals and organic) that enter

estuarine systems, as do various biophysical processes such as hydrology, sediment type, metabolism of imported non-living dissolved organic carbon (DOC) and particulate organic carbon (POC), burial of DOC and POC, geochemical processes, biological processes that convert POC to DOC, and export of living and non-living total organic matter to the coastal ocean. These physical, chemical, geological and biological processes provide the context for the water column and benthic sedimentary habitat characteristics and biophysical structure.

Seasonal and interannual changes in temperature and salinity, influenced by the North Atlantic Oscillation (NAO), are another important set of estuarine characteristics. The NAO is based on atmospheric pressure differences between the North Atlantic Ocean and Mid-Atlantic regions that influence the strength of the westerly winds. A positive NAO index can be associated with warmer water temperatures, higher salinity values, a decline of winter-spring diatom bloom and higher early spring zooplankton abundance, decrease in demersal fish biomass (including winter flounder, windowpane flounder, red hake), increase in demersal decapods (crabs and lobsters), and immigration of smaller, southern pelagic fish species (anchovy, butterfish, long finned squid) (Oviatt, 2004). A negative NAO index is associated with colder, less saline water masses with lower nutrient values and a well developed winter-spring diatom bloom and strong recruitment of benthic fauna (polychaetes). Thus, large scale meteorological events affect the interannual temperature and salinity seasonal patterns in East Coast estuaries.

#### **4.2.1.2 Gulf of Maine**

The Gulf of Maine is actually an enclosed coastal sea of 90,700 km<sup>2</sup>, bounded by Browns Bank, the Nova Scotian (Scotian) Shelf, New England states, and Cape Cod and Georges Bank (GB). 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 which result in a rich biological community.

The GOM is topographically unlike any other part of the continental border along the east coast of the U.S. It contains 21 distinct basins separated by ridges, banks, and swells with depths exceeding 250 m. The Northeast Channel between Georges Bank 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.

High points within the Gulf include irregular ridges and lower flat-topped banks and gentle swells. Some of these rises are remnants of the sedimentary shelf not removed by glaciers. Others are glacial moraines or outcroppings of bedrock. Substrate types include thick mud deposits that form topographically smooth terrains (primarily in coastal valleys and basins), bedrock (to depths of 60m), sand in some high areas, and gravel, sometimes with boulders, in other areas (depths 20-40m).

An intense seasonal cycle of winter cooling and turnover, springtime freshwater runoff, and summer warming influences oceanographic and biologic processes in the GOM. The Gulf has a general counterclockwise surface current that flows around its coastal margin that is primarily driven by fresh, cold Scotian Shelf water and freshwater river runoff, but is also influenced by dense, relatively warm and saline slope water entering through the northeast Channel. Water exits the GOM primarily through the 75 m deep Great South Channel and over the eastern portion of Georges Bank.

Stratification of GOM surface waters during spring and summer creates the “Maine intermediate water” (MIW), which is sandwiched between more saline Maine bottom water and warmer, stratified Maine surface water. The stratified surface layer is most pronounced in the deep portions of the western GOM. Tidal mixing of shallow areas prevents thermal stratification and results in thermal fronts between the stratified areas and cooler mixed areas. Typically, mixed areas include Georges Bank, the southwest Scotian Shelf, eastern Maine coastal waters, and the narrow coastal band surrounding the remainder of the Gulf. These circulation and water properties can vary significantly from year to year.

As described by Tyrrell (2005), the Gulf of Maine rocky intertidal zone is often inhabited by an abundance of brown seaweeds, which form an underwater canopy at high tide. When the tide is low, the algae lie on the rocks, protecting snails, mussels, barnacles, and crabs from exposure to sun, wind, rain, and bird predators. The abundance and primary productivity of brown seaweeds contributes to the high productivity of the rocky intertidal shores (Harvey et al., 1995). On rocky shores, invertebrates and algae live in horizontal zones between the high and low tide marks. The zones reflect the varying abilities of species to tolerate the environmental conditions, predation, and competitive pressures at different tidal heights.

Boulders in the Gulf of Maine intertidal zone serve as substrate for similar species as rocky outcrops, including algae, mollusks, and other sessile organisms, because they are not frequently overturned by waves due to their large size (Tyrrell, 2005). Boulders provide shelter from wind, sun, rain, and predators for small organisms that take shelter underneath and beside them. Fish forage less efficiently in boulder fields than on flat, rocky outcrops because the boulders offer hiding places for prey (Tyrrell, 2005).

#### **4.2.1.3 Georges Bank**

Georges Bank is a shallow (3-150 m depth), elongate (161 km wide by 322 km long) extension of the continental shelf 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 of the bank and separates it from Nantucket Shoals and the mainland. Natural processes continue to erode and rework the sediments on Georges Bank such that overall coarsening of the bottom sediments is anticipated (Valentine et al., 1993).

Georges Bank bottom topography 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. Sediments range from sand to mixtures of sand and gravel, patches of gravel pavement, and very small exposures of clay.

The central region of the bank is shallow with strong currents (average tidal currents >4 km/hr). Shoals and troughs characterize the bottom, with superimposed sand dunes. Dunes migrate at variable rates; the ridges may also move. Currents 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.

The Great South Channel separates the main part of Georges Bank from Nantucket Shoals. Sediments in the Great South Channel include gravel pavement and mounds, some scattered boulders, sand with storm generated ripples, scattered shell and mussel beds. Tidal and storm currents may range from moderate to strong, depending upon location and storm activity (Valentine, pers. comm).

In the Georges Bank region, strong oceanographic frontal systems occur between the water masses of the Gulf of Maine, Georges Bank, and the Atlantic Ocean, which differ in temperature, salinity, nutrient concentration, and planktonic communities that influence productivity and may influence fish abundance and distribution. Georges Bank waters are vertically well-mixed. There is a persistent clockwise gyre around the Bank, a strong semidiurnal tidal flow predominantly northwest and southeast, and very strong, intermittent, storm-induced currents, all of which can all occur simultaneously. The clockwise gyre is instrumental in distribution of the planktonic community, including larval fish.

The interaction of several environmental factors including availability and type of sediment, current speed and direction, and bottom topography have been found to combine to form seven sedimentary provinces on eastern Georges Bank (Valentine et al. 1993), which are outlined in Table 13. Theroux and Grosslein (1987) identified four (4) macrobenthic invertebrate assemblages. Their assemblages are associated with those identified by Valentine et al. (1993) in Table 13. Sea scallops occur in the Northeast Peak assemblage, which varies in depth and current strength and includes coarse sediments, such as gravel and coarse sand with interspersed boulders, cobbles, and pebbles.

Along with high levels of primary productivity, Georges Bank has been historically characterized by high levels of fish production. Depth and salinity were identified as major physical influences explaining assemblage structure. A few recent studies (Garrison 2000, 2001; Garrison and Link 2000) demonstrate the persistence of spatio-temporal overlap among numerically dominant, commercially valuable and /or ecologically important species. Trends in spatial overlap over time generally reflect changes in species abundance, such that as a species' abundance increases, their range expands as does their spatial overlap with other species. The opposite is also true – as their abundance decreases, so does their spatial overlap with other species.

Seasonal trends in spatial overlap are also apparent. Spiny dogfish, for example, have a far stronger association and a far broader range of species' associations in the winter than they do in the summer. Similarly, winter skate is a more prevalent co-correspondent in winter than other times of the year.

#### **4.2.1.4 Mid-Atlantic Bight**

The Mid-Atlantic Bight includes the shelf and slope waters from Georges Bank south to Cape Hatteras, and east to the Gulf Stream. Sediments are generally finer-grained sand than those found on Georges Bank. The Mid-Atlantic Bight was shaped largely by sea level fluctuations caused by past ice ages.

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. Storm events

can cause much more energetic variations in flow. Tidal currents on the inner shelf have a higher flow rate than that of the general southwestward flow.

Slope water tends to be warmer and more saline than shelf water. The abrupt gradient where these two water masses meet is the shelf-slope front, which is usually located at the edge of the shelf and touches bottom at about 75-100 m depth of water. The position of the front is highly variable and can be influenced by many physical factors.

A permanent thermocline exists in slope waters from 200-600 m. A warm, mixed layer approximately 40 m thick resides above the permanent thermocline. In shallower near-shore waters, stratification is usually established by early June; the waters are homogenous by October (in most years) due to fall mixing.

The “cold pool” is an annual phenomenon particularly important to the Mid-Atlantic Bight. It stretches from the Gulf of Maine along the outer edge of Georges Bank and then southwest to Cape Hatteras. It becomes identifiable with the onset of thermal stratification in the spring and lasts into early fall until normal seasonal mixing occurs. It usually exists along the bottom between the 40 m and 100 m isobaths and extends up into the water column for about 35 m, to the bottom of the seasonal thermocline. The cold pool usually represents about 30% of the volume of shelf water. Minimum temperatures for the cold pool occur in early spring and summer, and range from 1.1°C to 4.7°C.

The shelf angles 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. Numerous canyons incise the slope. Primary morphological features include shallow shelf valleys and channels, shoal massifs, scarps, and low sand ridges and swales (Figure 11). For a more detailed description of these morphological features, refer to Amendment 11, section 4.2.1.2.

The sediment type covering most of the shelf in the Mid-Atlantic Bight is sand, with some relatively small, localized areas of gravel and gravelly sand (Figure 10). On the slope, muddy sand and mud predominate. Sand and gravel cover most of the shelf. Sediment transport is episodic, storm-related, and in the same southwesterly direction as the current. Mud is rare over most of the shelf, but is common in the Hudson Shelf Valley.

The northern portion of the Mid-Atlantic Bight is sometimes referred to as the southern New England Shelf. A formation of this region that deserves note is the “mud patch,” located on the outer shelf just southwest of Nantucket Shoals and southeast of Long Island (Figure 12). Tidal currents in this area slow significantly, which allows silts and clays to settle out. The mud is mixed with sand and occasionally re-suspended by large storms. This habitat is an anomaly of the outer continental shelf.

Three broad faunal zones related to water depth and sediment type were identified for the Mid-Atlantic by Pratt (1973): sand fauna, silty sand fauna, and silt-clay fauna. Building on Pratt’s (1973) work, the Mid-Atlantic shelf was further divided by Boesch (1979) into seven bathymetric/morphologic subdivisions based on faunal assemblages (Table 14, Figure 17): inner shelf, central shelf, central and inner shelf swales, outer shelf, outer shelf swales, shelf break, and

continental slope. Sediments in the region studied (Hudson Shelf Valley south to Chesapeake Bay) were dominated by sand with little finer material. Sea scallops appear to be distributed primarily in the central and outer shelf subdivisions.

#### **4.2.2 Essential Fish Habitat**

Essential Fish Habitat is defined for four life stages of all managed species in the NEFMCs Omnibus Habitat Amendment (Amendment 9 to the Atlantic Sea Scallop FMP). Adverse impacts from the management action are possible for any species with EFH overlapping the footprint of the Atlantic sea scallop fishery. Detailed information on the development of, and trends in, the fishery may be found in Section 4.4 of this document.

##### **4.2.2.1 Geographic and temporal extent of the fishery**

The Atlantic sea scallop fishery takes place in concentrated areas in and around George's Bank and off the Mid-Atlantic coast, in waters extending from the near-coast out to the continental shelf (Figure 15). Figure 2 shows the geographic range of both the General Category and Limited Access permit components (the two primary permits available) of this fishery for the years 2005-2007. Contrasting these fishery effort plots with similar plots from the FSEIS for Amendment 10 to the Atlantic sea scallop FMP (Figure 17) shows that the limited access permit scallop fishery has contracted markedly in its range from the late 1990's through the most recent three years. This concentration of fishing effort is likely to be to the benefit of benthic communities extant in areas where fishing pressures have abated, while the maps show that areas of high intensity fishing were also fished at relatively high levels in the past and, consequently, it may be inferred that fishing pressure here is not likely to degrade habitats beyond their baselines.

For the purposes of this management action, the baseline time period from which to project impacts on habitat will be the most recent three-year period (2005-2007) as shown in Figure 17.

Figure 15 – Geographic extent of the Atlantic sea scallop fishery

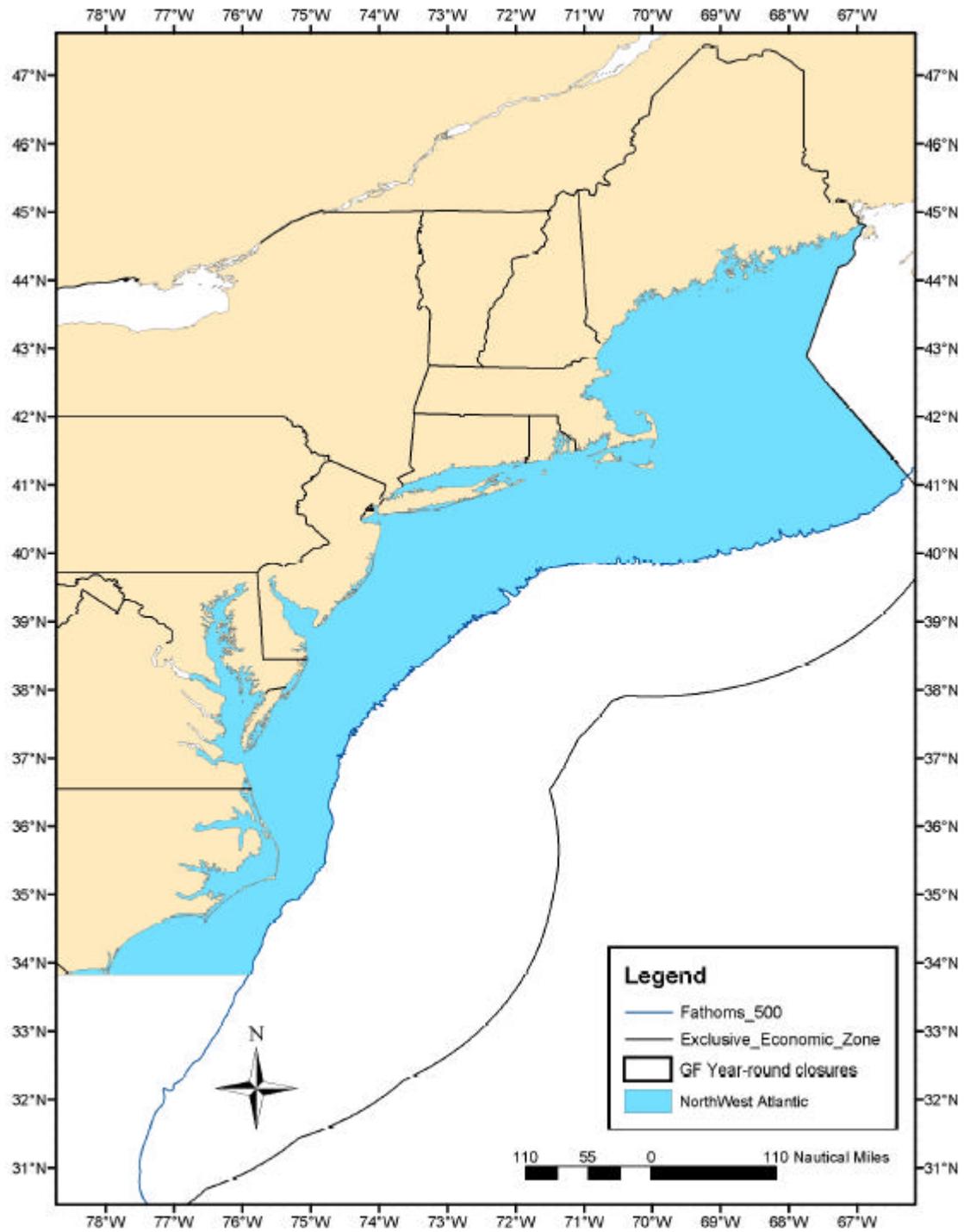
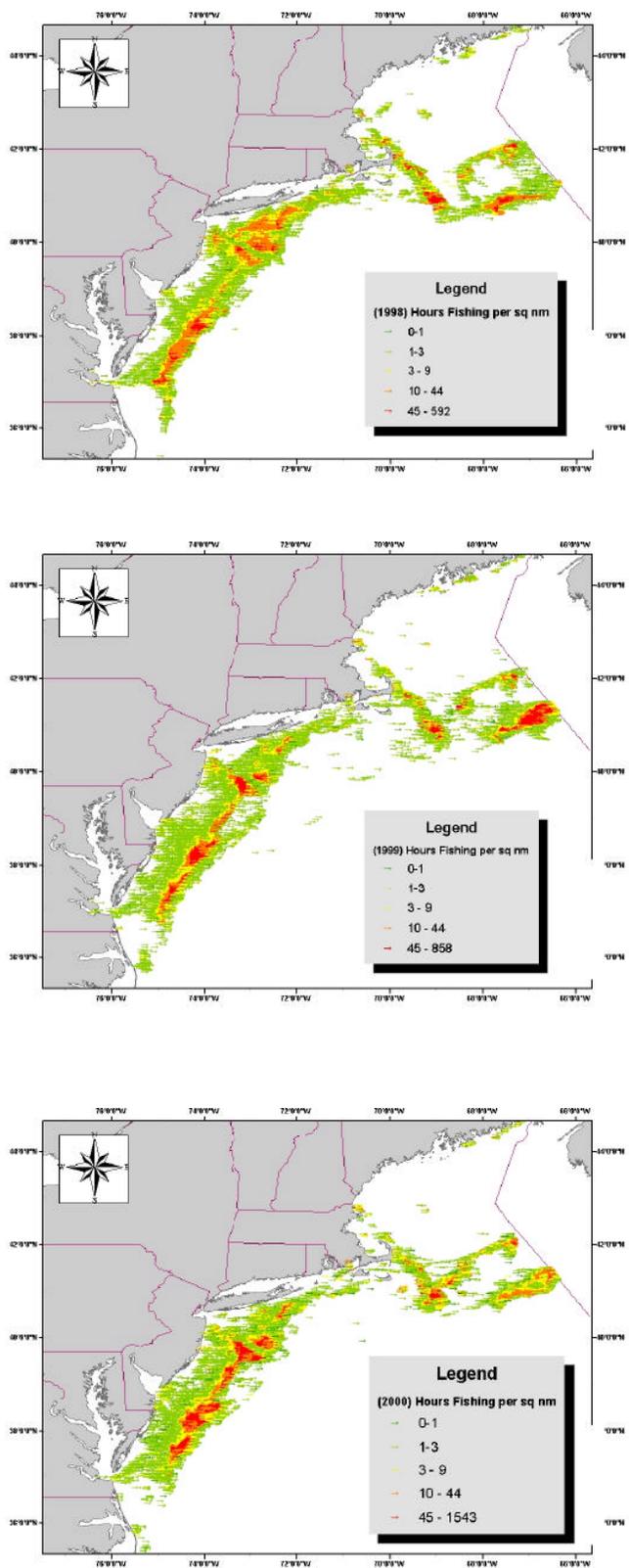
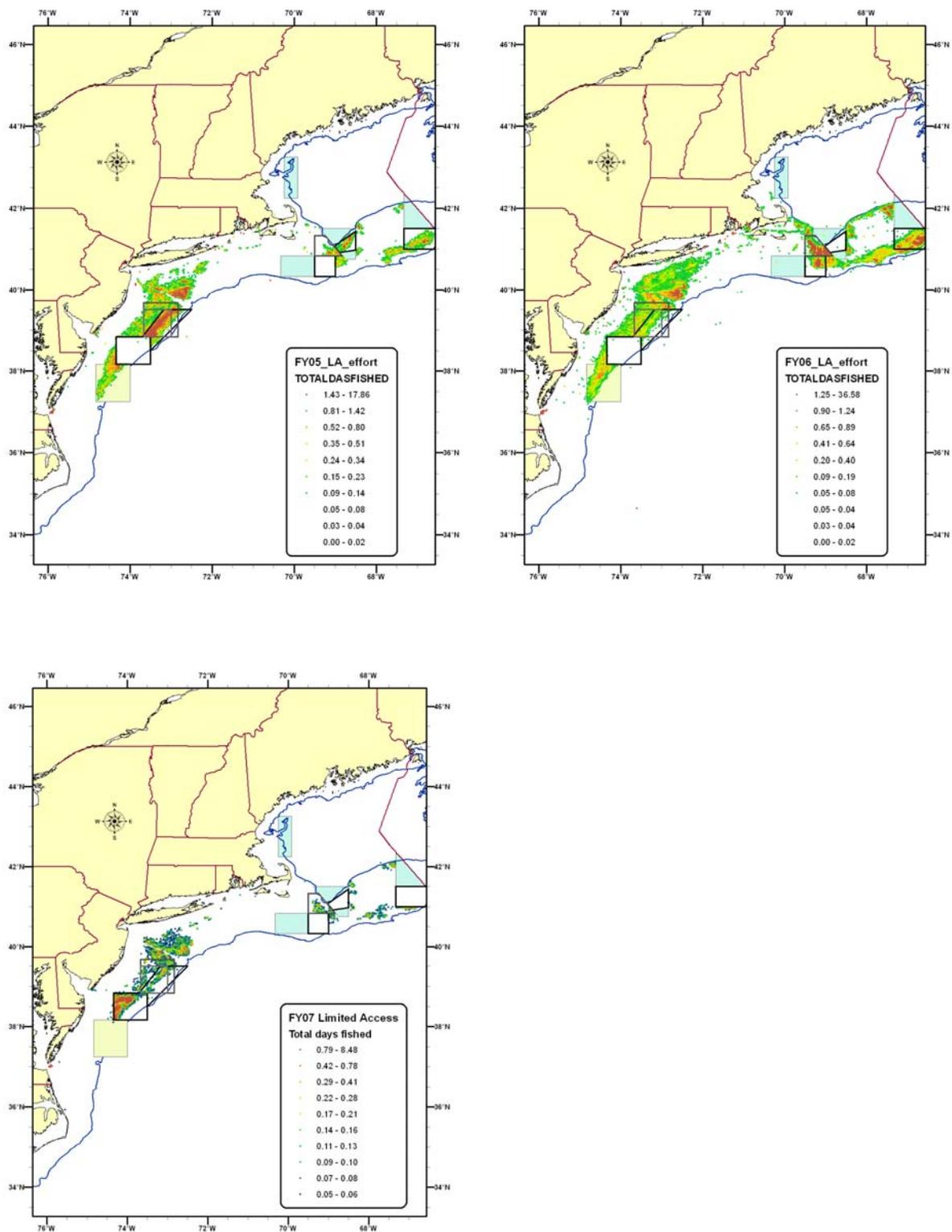


Figure 16 - 1998, 1999 and 2000 Limited Access scallop vessel VMS effort (source: FSEIS Scallop Am10)



**Figure 17 – 2005, 2006 and 2007 (through Aug 7) Limited Access scallop VMS effort (reproduced from Fig 4, this document)**



#### **4.2.2.2 Designated Essential Fish Habitat**

EFH descriptions and maps for Northeast region species can be accessed at <http://www.nero.nmfs.gov/ro/doc/hcd/>. The following description and map of EFH for Atlantic sea scallops (*Placopecten magellanicus*) is excerpted from the Omnibus EFH Amendment. Essential fish habitat for Atlantic sea scallops is described as those areas of the coastal and offshore waters (out to the offshore U.S. boundary of the exclusive economic zone) that are designated on Map 32 in Amendment 10 to the Atlantic sea scallop FMP and meet the following conditions:

**Eggs:** *Bottom habitats in the Gulf of Maine, Georges Bank, southern New England and the middle Atlantic south to the Virginia -North Carolina border as depicted in Map 32. Eggs are heavier than seawater and remain on the seafloor until they develop into the first free-swimming larval stage. Generally, sea scallop eggs are thought to occur where water temperatures are below 17°C. Spawning occurs from May through October, with peaks in May and June in the middle Atlantic area and in September and October on Georges Bank and in the Gulf of Maine.*

**Larvae:** *Pelagic waters and bottom habitats with a substrate of gravelly sand, shell fragments, and pebbles, or on various red algae, hydroids, amphipod tubes and bryozoans in the Gulf of Maine, Georges Bank, southern New England and the middle Atlantic south to the Virginia - North Carolina border as depicted in Map 32. Generally, the following conditions exist where sea scallop larvae are found: sea surface temperatures below 18°C and salinities between 16.9‰ and 30‰.*

**Juveniles:** *Bottom habitats with a substrate of cobble, shells and silt in the Gulf of Maine, Georges Bank, southern New England and the middle Atlantic south to the Virginia –North Carolina border that support the highest densities of sea scallops as depicted in Map 32. Generally, the following conditions exist where most sea scallop juveniles are found: water temperatures below 15°C, and water depths from 18 - 110 meters.*

**Adults:** *Bottom habitats with a substrate of cobble, shells, coarse/gravelly sand, and sand in the Gulf of Maine, Georges Bank, southern New England and the middle Atlantic south to the Virginia –North Carolina border that support the highest densities of sea scallops as depicted in Map 32. Generally, the following conditions exist where most sea scallop adults are found: water temperatures below 21°C, water depths from 18 - 110 meters, and salinities above 16.5‰.*

**Spawning Adults:** *Bottom habitats with a substrate of cobble, shells, coarse/gravelly sand, and sand in the Gulf of Maine, Georges Bank, southern New England and the middle Atlantic south to the Virginia -North Carolina border that support the highest densities of sea scallops as depicted in Map 32. Generally, the following conditions exist where spawning sea scallop adults are found: water temperatures below 16°C, depths from 18 - 110 meters, and salinities above 16.5‰. Spawning occurs from May through October, with peaks in May and June in the middle Atlantic area and in September and October on Georges Bank and in the Gulf of Maine.*

#### **4.2.2.3 Adverse impacts of fishing on EFH**

Section 7.2.6 of the FSEIS to Amendment 10 evaluated the potential adverse effects of gears used in the scallop fishery on EFH for scallop and other federally-managed species and the effects of fishing activities regulated under other federal FMPs on scallop EFH. The evaluation considered the effects

of each activity on each type of habitat found within EFH. The two gears used in the directed scallop fishery are bottom trawls and scallop dredges. Scallop EFH has been determined to only be minimally vulnerable to bottom-tending mobile gear (bottom trawls and dredges) and bottom gillnets. Therefore, the effects of the scallop fishery and other fisheries on scallop EFH do not require any management action. However, the scallop dredge and trawl fisheries do have more than a minimal and temporary impact on EFH for a number of other demersal species in the region.

The following conclusions were reached in Amendment 10 to the Atlantic sea scallop FMP:

- Potentially adverse habitat impacts from bottom trawling occur throughout most of the NE region on a variety of substrates;
- High levels of fishing activity with scallop dredges occur primarily in the Mid-Atlantic region and secondarily on Georges Bank, according to the vessel trip report data from 1995 – 2001. Intense dredge activity from the same data show that the highest intensity of scallop fishing is in the Great South Channel and portions of the Mid-Atlantic region from Long Island to VA. The VMS data from 1998 confirms this assessment and also shows high scallop fishing intensity in the southern part of Closed Area II because the period included the area access program during the 1999 and 2000 fishing years which was intended to have high levels of effort to reduce impacts in open areas where smaller scallops existed.
- Potentially adverse habitat impacts from scallop dredging may occur in areas where scallop effort overlaps with areas where EFH has been designated for species with vulnerable EFH. According to the analysis within this document, scallop fishing effort is distributed in the same proportion as juvenile and adult EFH designations, but areas with more intense scallop fishing effort tend to be over areas with less EFH designations for species with vulnerable EFH.

Adverse impacts that were more than minimal and less than temporary in nature were identified for the following species and life stages, based on an evaluation of species life history and habitat requirements and the spatial distributions and impacts of bottom otter trawls in the region (Stevenson *et al.*, in press):

### **Otter Trawls**

The use of Otter Trawls may have an adverse effect on the following species (and life stages) EFH as designated in Amendment 11 to the Northeast Multispecies FMP (1998):

*American plaice (Juvenile (J), Adult (A)), Atlantic cod (J, A), Atlantic halibut (J, A), haddock (J, A), ocean pout (E, L, J, A), red hake (J, A), redfish (J, A), white hake (J), silver hake (J), winter flounder (A), witch flounder (J, A), yellowtail flounder (J, A), red crab (J, A), black sea bass (J, A), scup (J), tilefish (J, A), barndoor skate (J, A), clearnose skate (J, A), little skate (J, A), rosette skate (J, A), smooth skate (J, A), thorny skate (J, A), and winter skate (J, A).*

### **Scallop Dredge (New Bedford style)**

The use of New Bedford style Scallop Dredges may have an adverse effect on the following species (and life stages) EFH as designated in Amendment 11 to the Northeast Multispecies FMP (1998):

*American plaice (J, A), Atlantic cod (J, A), Atlantic halibut (J, A), haddock (J, A), ocean pout (E, L, J, A), red hake (J, A), redfish (J, A), white hake (J), silver hake (J), winter flounder (J, A), yellowtail flounder (J, A), black sea bass, (J, A), scup (J), barndoor skate (J, A), clearnose skate (J, A), little skate (J, A), rosette skate\* (J, A), smooth skate (J, A), thorny skate (J, A), and winter skate (J, A).*

Gear types other than otter trawls and scallop dredges, in the context of the Atlantic Sea Scallop fishery, were not found to have adverse effects the Essential Fish Habitat as currently designated in this region. See Table 9 for a description of the species and life stages that were determined to be adversely impacted in a manner that is more than minimal and less than temporary in nature in Amendment 10.

**Table 37 - Summary species and life stage's EFH adversely impacted by otter trawling and scallop dredging (gears that adversely impact EFH used in the Scallop fishery).**

Species	Life Stage	Vulnerability to Otter Trawling	Vulnerability to Scallop Dredging	Depth in meters (EFH Designation)	Substrate (EFH Designation)
American Plaice	A	High	High	45-150	sand or gravel
American Plaice	J	Mod	Mod	45-175	sand or gravel
Atlantic Cod	A	Mod	Mod	25-75	cobble or gravel
Atlantic Cod	J	High	High	10-150	rocks, pebble, gravel
Atlantic Halibut	A	Mod	Mod	20-60	sand, gravel, clay
Atlantic Halibut	J	Mod	Mod	100-700	sand, gravel, clay
Barndoor Skate	A	Mod	Mod	0-750, mostly <150	mud, gravel, and sand
Barndoor Skate	J	Mod	Mod	0-750, mostly <150	mud, gravel, and sand
Black Sea Bass	A	High	High	20-50	structures, sand and shell
Black Sea Bass	J	High	High	1-38	rough bottom, shell and eelgrass beds, structures and offshore clam beds in winter
Clearnose Skate	A	Mod	Mod	0-500, mostly <111	soft bottom along shelf and rocky or gravelly bottom
Clearnose Skate	J	Mod	Mod	0-500, mostly <111	soft bottom along shelf and rocky or gravelly bottom
Haddock	A	High	High	35-100	pebble gravel
Haddock	J	High	High	40-150	broken ground, pebbles, smooth hard sand, smooth areas between rocky patches

Species	Life Stage	Vulnerability to Otter Trawling	Vulnerability to Scallop Dredging	Depth in meters (EFH Designation)	Substrate (EFH Designation)
Little Skate	A	Mod	Mod	0-137, mostly 73-91	sand or gravel or mud
Little Skate	J	Mod	Mod	0-137, mostly 73-91	sand or gravel or mud
Ocean Pout	A	High	High	<110	soft sediments
Ocean Pout	J	High	High	<80	smooth bottom near rocks or algae
Ocean Pout	L	High	High	<50	close to hard bottom nesting areas
Ocean Pout	E	High	High	<50	hard bottom, sheltered holes
Pollock	A	Mod	Mod	15-365	hard bottom, artificial reefs
Red Hake	A	Mod	Mod	10-130	sand and mud
Red Hake	J	High	High	<100	shell and live scallops
Redfish	A	Mod	Mod	50-350	silt, mud, or hard bottom
Redfish	J	High	High	25-400	silt, mud, or hard bottom
Rosette Skate	A	Mod	Mod	33-530, mostly 74-274	soft substrates including sand/mud and mud
Rosette Skate	J	Mod	Mod	33-530, mostly 74-274	soft substrates including sand/mud and mud
Scup	J	Mod	Mod	0-38	inshore sand, mud, mussel and eelgrass beds
Silver Hake	J	Mod	Mod	20-270	all substrate types
Smooth Skate	A	High	High	31-874, mostly 110-457	soft mud, sand, broken shells, gravel and pebbles
Smooth Skate	J	Mod	Mod	31-874, mostly 110-457	soft mud, sand, broken shells, gravel and pebbles
Thorny Skate	A	Mod	Mod	18-2000, mostly 111-366	sand gravel, broken shell, pebble, and soft mud

Species	Life Stage	Vulnerability to Otter Trawling	Vulnerability to Scallop Dredging	Depth in meters (EFH Designation)	Substrate (EFH Designation)
Thorny Skate	J	Mod	Mod	18-2000, mostly 111-366	sand gravel, broken shell, pebble, and soft mud
Tilefish	A	High	Low	76-365	rough, sheltered bottom
Tilefish	J	High	Low	76-365	rough, sheltered bottom
White Hake	J	Mod	Mod	5-225	pelagic during pelagic stage and mud or fine sand during demersal stage
Winter Flounder	A	Mod	Mod	1-100	estuaries with mud, gravel, or sand
Winter Skate	A	Mod	Mod	0-371, mostly <111	sand, gravel, or mud
Winter Skate	J	Mod	Mod	0-371, mostly <111	sand, gravel, or mud
Witch Flounder	A	Mod	Low	25-300	fine-grained sediment
Witch Flounder	J	Mod	Low	50-450	fine-grained sediment
Yellowtail Flounder	A	Mod	Mod	20-50	sand and mud
Yellowtail Flounder	J	Mod	Mod	20-50	sand and mud

For the purposes of this management action, potential for adverse impacts is highest for scallop fishing with New Bedford-style dredges, and it is this component that will form the crux of the impacts analysis. Of the species and life stages listed in Table 37, all may be assumed to overlap with some portion of the geographic extent of the scallop fishery and therefore all are potentially vulnerable to changes in fishing behavior resulting from this management action.

Area swept, an estimate of the amount of bottom that is contacted with fishing gear, will be used to establish the likelihood for, and potential severity of, adverse impacts of scallop fishing on EFH. Although the use of area swept is a crude way to determine habitat impacts because it does not account for the fact that certain habitat impacts (e.g., damage or removal of attached epifauna) are most pronounced during the first pass of the dredge, and decline in severity with each subsequent pass, nor does it account for spatial shifts in fishing effort, it is a useful tool to understand the potential short- and long-term overall change in the extent of bottom contact by a gear that has been shown to adversely affect EFH in a manner that is more than minimal and less than temporary in nature (see

Amendment 10 to the Atlantic Sea Scallop FMP and Amendment 13 to the Northeast Multispecies FMP).

Trends in area swept are shown below. While trends in area swept have not been documented in the early part of this century, based on analysis conducted in Framework 18 to the scallop FMP (Table 39) it is plain to see that the amount of gear in contact with benthic habitats has declined sharply over the past decade. Furthermore, as evidenced by the contraction of fishing areas in the limited access permit scallop fishery, the area swept estimates provided for the baseline years are more likely to represent highly compressed fishing effort and, to a greater degree than in years passed, multiple passes of the same substrate.

**Table 38 – Hours Fished and Area Swept, 1990-1999** (source: FSEIS Scallop Amendment 10)

Year	Days-at-Sea	Hours Fished (total based on 17.2 hour fishing day)	Area Swept (sqnm)
1990	41,191	708,485	16,266
1991	42,122	724,498	16,634
1992	42,670	733,924	16,850
1993	34,469	592,867	13,612
1994	28,223	485,436	11,145
1995	28,446	489,271	11,233
1996	29,730	511,356	11,740
1997	29,532	507,950	11,662
1998	25,441	437,585	10,047
1999	24,720	425,184	9,762

**Table 39 – Baseline Area Swept estimates** (source: EA for Framework 18 to the scallop FMP)

Source of projection	Projected Area Swept
2006-2007 Status Quo	3,739
FW18 proposed action as implemented	4,880

### 4.3 PROTECTED RESOURCES

The following protected species are found in the environment in which the sea scallop fishery is prosecuted. 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). Two right whale critical habitat designations also are located within the action area. An update and summary is provided here to facilitate consideration of the species most likely to interact with the scallop fishery relative to the proposed action.

A more complete description of protected resources inhabiting the action area is provided in Amendment 10 to the Sea Scallop FMP (See Amendment 10 to the Atlantic Sea Scallop Fishery Management Plan, Section 7.2.7, Protected Species, for a complete list. An electronic version of the document is available at <http://www.nefmc.org/scallops/index.html>).

#### **Cetaceans**

	<b>Status</b>
Northern right whale ( <i>Eubalaena glacialis</i> )	Endangered
Humpback whale ( <i>Megaptera novaeangliae</i> )	Endangered
Fin whale ( <i>Balaenoptera physalus</i> )	Endangered
Blue whale ( <i>Balaenoptera musculus</i> )	Endangered
Sei whale ( <i>Balaenoptera borealis</i> )	Endangered
Sperm whale ( <i>Physeter macrocephalus</i> )	Endangered
Minke whale ( <i>Balaenoptera acutorostrata</i> )	Protected
Pilot whale ( <i>Globicephala</i> spp.)	Protected
Spotted dolphin ( <i>Stenella frontalis</i> )	Protected
Risso's dolphin ( <i>Grampus griseus</i> )	Protected
White-sided dolphin ( <i>Lagenorhynchus acutus</i> )	Protected
Common dolphin ( <i>Delphinus delphis</i> )	Protected
Bottlenose dolphin: coastal stocks ( <i>Tursiops truncatus</i> )	Protected
Harbor porpoise ( <i>Phocoena phocoena</i> )	Protected

#### **Seals**

Harbor seal ( <i>Phoca vitulina</i> )	Protected
Gray seal ( <i>Halichoerus grypus</i> )	Protected
Harp seal ( <i>Phoca groenlandica</i> )	Protected
Hooded seal ( <i>Cystophora cristata</i> )	Protected

#### **Sea Turtles**

Leatherback sea turtle ( <i>Dermochelys coriacea</i> )	Endangered
Kemp's ridley sea turtle ( <i>Lepidochelys kempii</i> )	Endangered
Green sea turtle ( <i>Chelonia mydas</i> )	Endangered*
Loggerhead sea turtle ( <i>Caretta caretta</i> )	Threatened

#### **Fish**

Shortnose sturgeon ( <i>Acipenser brevirostrum</i> )	Endangered
Atlantic salmon ( <i>Salmo salar</i> )	Endangered

### ***Critical Habitat Designations***

Right whale Cape Cod Bay  
Great South Channel

*\*Green turtles in U.S. waters are listed as threatened except for the Florida breeding population which is listed as endangered.*

### **Threatened and Endangered Species Not Likely to be Affected by the Alternatives Under Consideration**

According to the most recent Biological Opinion (Opinion) provided by NMFS and dated 9/18/06, the agency has previously determined that species not likely to be affected by the Scallop Fishery Management Plan or by the operation of the fishery include the shortnose sturgeon, the Gulf of Maine distinct population segment of Atlantic salmon and hawksbill sea turtles, as well as North Atlantic right, humpback fin, sei and sperm whales, all of which are listed as endangered species under the ESA. NMFS also concluded that neither the Sea Scallop FMP nor the fishery has had any adverse effects on habitat features in right whale critical habitat areas.

### **Threatened and Endangered Species Potentially Affected Adversely by the Alternatives Under Consideration**

The recent Opinion identified species that may be adversely affected by the Scallop FMP and the fishery --- loggerhead, leatherback, Kemp's ridley and green sea turtles --- while concluding that the fishery would not likely jeopardize the continued existence of threatened and endangered sea turtles. Further discussions in this action will therefore focus on these species. Summary information is provided here that broadly describes the general distribution of sea turtles within the scallop action area, as well as the known interactions with sea scallop gear.

Additional background information on the relevant sea turtle species can be found 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), and recovery plans for Endangered Species Act-listed sea turtles (NMFS 1991; NMFS and USFWS 1991a; NMFS and USFWS 1991b; NMFS and USFWS 1992; NMFS 1998; USFWS and NMFS 1992; NMFS 2005; and NMFS and USFWS 2007).

The recently published Loggerhead Sea Turtle Five-Year Status Review (NMFS and USFWS 2007) noted that while incidental capture in commercial and artisanal fisheries is one of the most significant factors affecting the conservation and recovery of loggerhead sea turtles, the report's recommendations single out trawl and longline and not dredge fisheries as areas in which additional information and data are particularly needed. However, a synthesis of the available information concerning population trends in the report shows declines in loggerhead nesting among the five different nesting subpopulations in the Northwest Atlantic.

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).

Sea turtles are known to be captured in scallop dredge and trawl gear, gear types that are used in the fisheries affected by this action. Interactions with scallop gear are likely where sea turtle distribution overlaps with the operation of the fishery. All four species overlap, in part, with the distribution of scallop dredge and trawl gear operations. To date, with one exception, known interactions with scallop trawl and dredge gear have occurred in the Mid-Atlantic during the months of June through October, although interactions also could occur during May and November given the variability of sea turtle seasonal movements and the range of the scallop fishery. Turtle interactions in fish trawl gear have occurred throughout most of the year (Murray 2006). The one exception is a ridley taken on southern Georges Bank in August 2005 that occurred south of 41 09' N.

The most recent Biological Opinion issued by NMFS (September 18, 2006), summarizes most of the information available to date concerning sea turtle interactions with scallop gear, including research on factors affecting estimated bycatch rates in the dredge fishery. The Opinion states that 64 sea turtles have been observed captured in scallop gear during the period 1996-2005. All have been identified as hard-shelled sea turtles (loggerheads, Kemp's ridleys, or greens); however, 18 have not been specifically identified to species.

Four were fresh dead upon retrieval or died on the vessel, 1 was alive but required resuscitation, 26 were alive but injured, 20 were alive and uninjured and 13 were listed as alive but condition unknown. Since the Opinion was published, these numbers have been adjusted and if only on-watch takes and non-decomposed takes were considered, the total number from 1996-2005 would be 61. Of the 61 on watch takes of non-decomposed turtles, 44 were identified to species (one green and 43 loggerheads) and 17 were not identified to species. In terms of condition for those 61, approximately 20 alive/not injured, 25 alive/injured, 11 alive/condition unknown, 1 alive/resuscitated, and 4 dead/fresh (either fresh dead upon retrieval or died on the vessel).

The 2006 Biological Opinion also discusses observed takes of sea turtles in scallop trawl gear. In October 2004, three loggerheads were observed taken in separate tows on a single trip by a vessel operating off of the Delmarva Peninsula. All three were uninjured and released. Five sea turtles, all identified as loggerheads, were observed captured in scallop trawl gear during the 2005 scallop fishing year. Four of the five were described as alive/uninjured, with the fifth requiring resuscitation.

Subsequent to the issuance of the 2006 Opinion, Murray (2007) calculated the average annual bycatch of loggerhead sea turtles in Mid-Atlantic scallop trawl gear during 2004-2005. Using three methods to generate six different estimates, Murray reported point estimates ranging from 81-191 turtles. (Separate confidence intervals for each estimate ranged from a minimum of 20 turtles to a maximum of 320 turtles).

During 2005 two loggerhead turtles and 1 Kemp's ridley turtle were caught in scallop dredge gear when an observer was off-watch (Murray 2007). When an observer is off-watch, only a limited amount of information is recorded for the haul by the vessel captain, so information from off-watch hauls are not normally used to calculate bycatch rates in the fishery (see Murray 2007 for more information). No turtle bycatch were observed during 2005 when an observer was on-watch. Therefore, based on traditional sampling protocols, no turtle bycatch occurred in scallop dredge gear during 2005 so the observed bycatch rate was zero. Total estimated bycatch in scallop dredge gear in 2005 was zero.

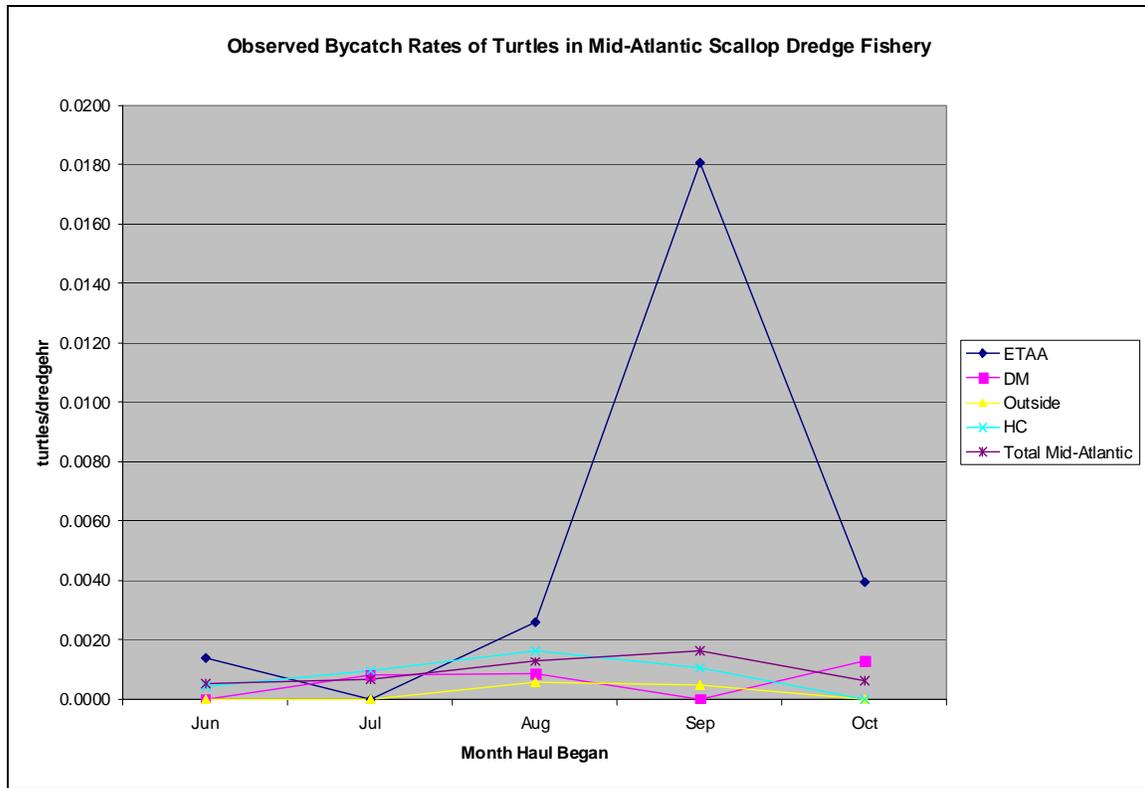
“Chain mats” may affect sea turtle bycatch now that the gear modification has been approved by NOAA Fisheries. The rule (71 FR 50361, August 23, 2006) requires all scallop vessels with a federal scallop permit (limited access and general category) using scallop dredge gear, regardless of dredge size, to install ‘chain mats’ on dredges fished in Mid-Atlantic waters south of 41 9.0' N from the shoreline to the outer boundary of the EEZ during the period May 1 through November 30 each year. The intent of the dredge gear modification is to reduce the severity of some turtle interactions that might occur by preventing turtles from entering the dredge bag.

Factors affecting estimated bycatch rates of loggerhead turtles, the species with the greatest number of interactions in scallop trawl and dredge gear in the Mid-Atlantic, vary from year to year (Murray 2004, 2005, 2007). Bycatch analyses to date have not identified specific times and areas where the greatest probability of turtle bycatch occurs in any given year.

Regression models describing turtle bycatch in relation to environmental factors, such as sea surface temperature or depth, have been used to predict bycatch rates of turtles in scallop dredge gear in the Mid-Atlantic (Murray 2004, 2005, 2007). These previous analyses did not stratify bycatch rates by month or area. As a result, additional information was provided by the Council's PDT for this action on bycatch rates (defined as the number of observed turtles/observed dredge hours in the fishery) in the dredge fishery, stratified by month of haul from June through October 2003-2005 (Figure 18 and Table 40). Four areas are included --- the Hudson Canyon Access Area, the Elephant Trunk Access Area, the Delmarva area, and “Outside” of these areas west of 71°W and south of 42°N.

Information about observed turtle interactions in the Delmarva Area alone from both the dredge and trawl fisheries for 2002-2006 is also provided below (Figure 19 and Table 41). From 2002-2006, Delmarva turtle interactions occurred in June (14.3%), July (21.5%), August (7.1%), September (7.1%), and October (50.0%) in scallop dredge and trawl gear (Table 41). It should be noted here that bycatch rates have not been analyzed in 2006 in either dredge or scallop trawl gear.

Figure 18 - Observed bycatch rates of turtles in the Mid-Atlantic scallop dredge fishery only, 2003-2005 (Scallop PDT)



**Table 40 - Observed bycatch rates in scallop dredge gear in Mid-Atlantic areas (Scallop PDT)**

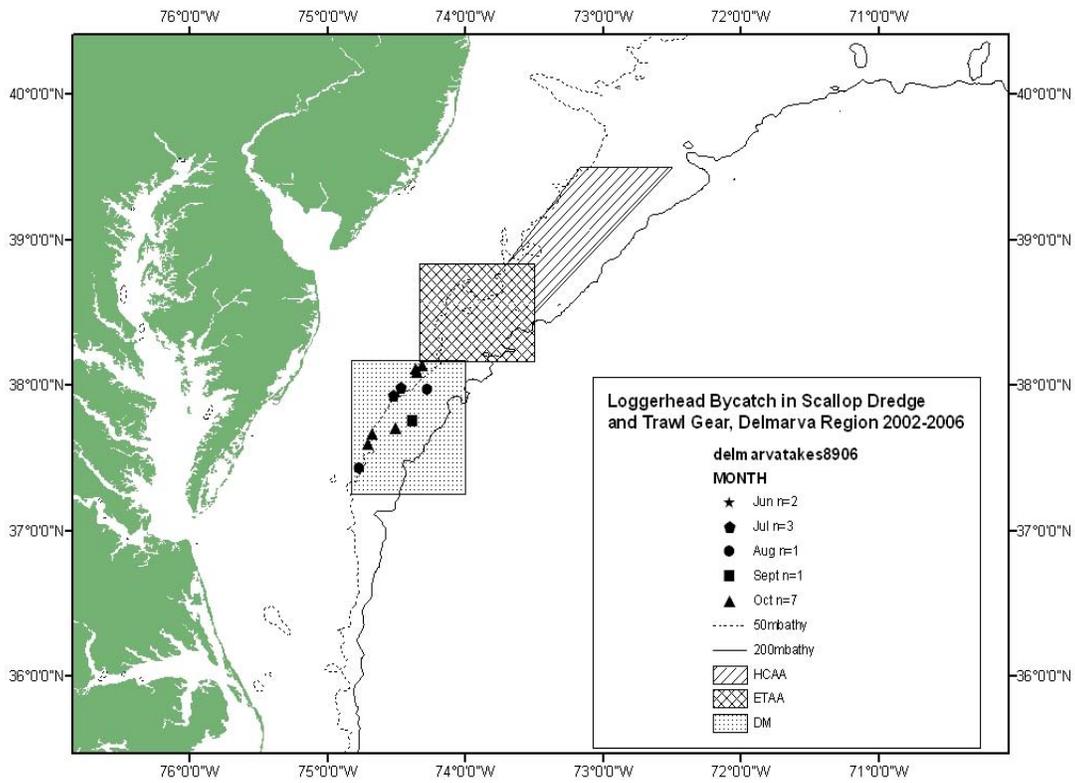
2003-2005 Observed Bycatch Rates in Scallop Dredge Gear in Mid-Atlantic (west of 71, south of 42)															
Month haul began	Location														
	Hudson Canyon Access Area			Elephant Trunk*			Delmarva			Outside Access Areas in Mid-Atlantic			Total Mid-Atlantic		
	turtles	observed dredgehrs	turtles/dredgehr	turtles	observed dredgehrs	turtles/dredgehr	turtles	observed dredgehrs	turtles/dredgehr	turtles	observed dredgehrs	turtles/dredgehr	turtles	observed dredgehrs	turtles/dredgehr
Jun	1	2392.0	0.0004	2	1441.5	0.0014	0	425.8	0.0000	0	1506.9	0.0000	3	5766.2	0.0005
Jul	3	3144.0	0.0010	0	560.8	0.0000	1	1241.4	0.0008	0	1045.9	0.0000	4	5992.1	0.0007
Aug	5	3054.8	0.0016	1	386.4	0.0026	1	1159.9	0.0009	1	1658.9	0.0006	8	6260.0	0.0013
Sep	3	2860.6	0.0010	6	332.2	0.0181	0	941.6	0.0000	1	2008.0	0.0005	10	6142.4	0.0016
Oct	0	2836.8	0.0000	2	507.8	0.0039	3	2296.3	0.0013	0	2083.9	0.0000	5	7724.8	0.0006
<b>Total</b>	12	14288.2		11	3228.7		5	6065.0		2	8303.6		30	31885.5	0.0009

\*area closed July 23 2004 - Mar 2007

**Table 41 - Loggerhead turtle bycatch in scallop dredge and scallop trawl gear in the Delmarva Closure Area, 2002-2006 (NEFSC Observer Program)**

Trip Letter	Year	Month of haul	Day of haul	Gear type	Animal Condition
A	2005	June	16	Trawl	Alive
A	2005	June	16	Trawl	Alive
B	2005	July	7	Trawl	Alive
C	2005	July	8	Trawl	Alive
D	2003	August	10	Dredge	Alive
E	2004	July	28	Dredge	Alive
F	2006	September	22	Trawl	Severely decomposed
G	2004	October	3	Trawl	Alive
H	2002	October	5	Dredge	Alive
I	2004	October	7	Dredge	Alive
G	2004	October	8	Trawl	Alive
I	2004	October	8	Dredge	Alive
G	2004	October	9	Trawl	Alive
J (off-watch haul)	2003	October	14	Dredge	Alive

**Figure 19 - Loggerhead sea turtle bycatch in scallop dredge and scallop trawl gear in the Delmarva Closure Area, 2002-2006 (NEFSC Observer Program)**

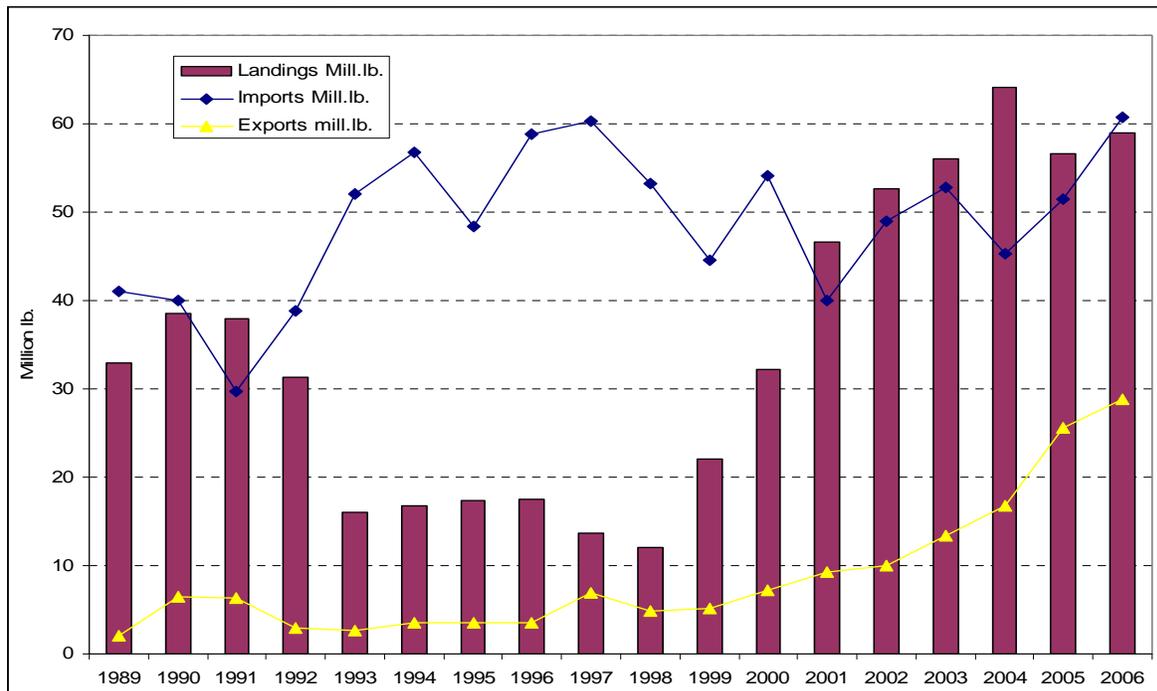


## 4.4 FISHERY-RELATED BUSINESSES AND COMMUNITIES

### 4.4.1 The trends in scallop landings, revenue, and prices

The scallop fishery is one of the most valuable U.S. fisheries (NMFS 2003) and generates a significant economic benefit for the nation. The landings from the northeast sea scallop fishery increased dramatically to over 50 million since 2002, surpassing the levels observed historically (Figure 20). Additionally, the scallop landings were above 55 million pounds during 2005 and 2006. As a result, revenue from scallops has increased, exceeding \$230 million in 2003, \$300 million in 2004, and \$400 million in 2005. In 2006, scallop revenue reached \$384 million pounds despite a decline in scallop prices from \$7.70 in 2005 to about \$6.50 in 2006 (Figure 21).

Figure 20. Scallop landings, exports and imports



**Figure 21. Scallop prices and revenue**

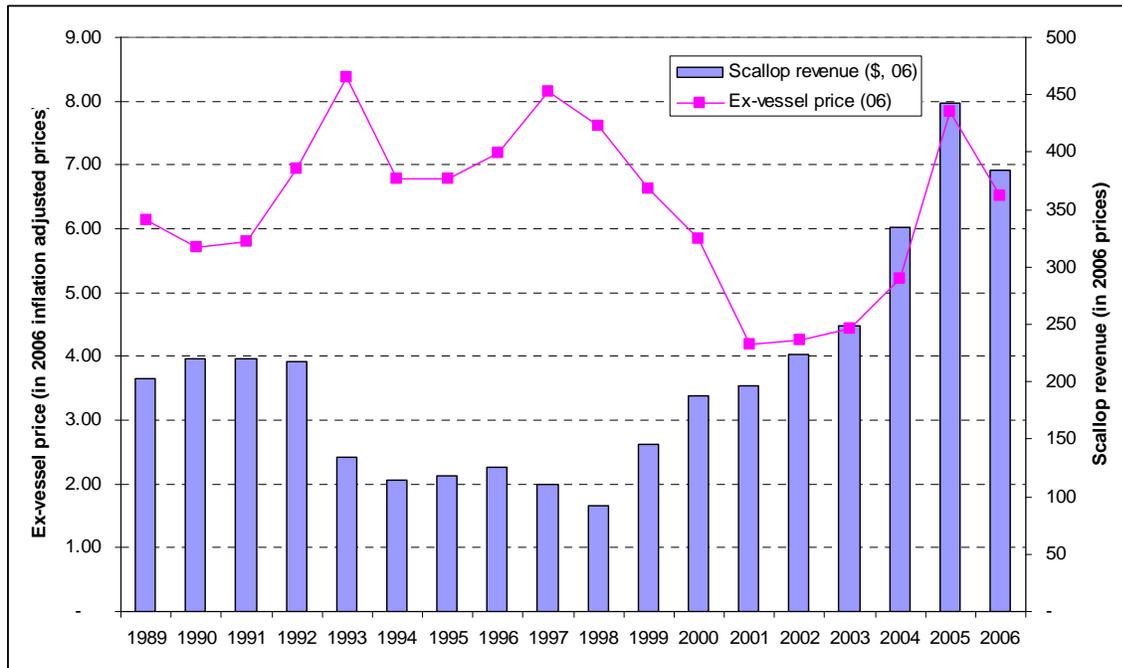


Table 42 compares historical trends in the sea scallop fishery for three time periods. The first period, from 1989 to 1992, summarizes the scallop fishery during a period when landings averaged above 30 million. During the period from 1993 to 1998, overfishing in the previous years combined with the effort reduction measures and closure of the Georges Bank groundfish areas to scallop fishing resulted in a dramatic decline in scallop landings, to an average of 15.6 million pounds per year. Finally, the period from 1999 to 2006 corresponds to the rebuilding of the sea scallop biomass and the consequent increase in scallop landings, revenues, and exports far above the historical levels. The average revenue per year for this period, over \$270 million, was more than double the average revenue of \$116 per year for the previous period from 1993-1998.

**Table 42- Summary of economic trends in the scallop fishery and in foreign trade for scallops (All dollar values are adjusted for inflation and expressed in 2006 prices)**

Data - Annual averages	Period		
	1989-1992	1993-1998	1999-2006
Scallop Landings (million lb.)	35.2	15.6	48.6
Ex-vessel Price of scallops (\$ per lb.)	4.2	5.8	5.2
Scallop Revenue (\$ mill)	215.0	115.9	270.6
Average meat count	37.7	36.5	21.7
LPUE (lb. per DAS-used)	NA	433	1577
DAS used	NA	35,797	30,818
	818,114	498,183	\$888,696
Scallop imports (mill. lb.)	37.4	54.9	49.8
Scallop Exports (mill. lb.)	4.4	4.2	14.6
1. Average Export Price (\$ per lb.)	3.5	3.9	4.3
2. Average Import Price (\$ per lb.)	3.6	3.9	3.7
Value of Imports (\$ mill.)	199.6	274.0	200.2
Value of Exports (\$ mill.)	21.9	20.7	71.0
Trade deficit: Imports - Exports (\$ mill.)	177.8	253.3	129.2

Higher overall revenues for the fishery translated into larger scallop revenue per vessel despite the increase in the number of participants throughout the years. Annual scallop revenue averaged \$498,183 per full-time dredge vessel during 1994-1998, but increased by 78% to \$888,696 per vessel during 1999-2004. Scallop industry also benefited from lower fishing costs made possible by the increase in landings per DAS (LPUE) from an average of 433 pounds per day in 1994-1998 to 1,577 pounds per day in 1999-2004. During the same periods, total fishing effort declined from an average of 35,797 DAS-used to 30,818 DAS-used despite the increase in the number of vessels participated in recent years. An increase in scallop landings led to a dramatic increase in U.S. exports of scallops from 5 million pounds in 1998 to almost 30 million pounds in 2006; revenue from exports increased from \$21 million in 1998 to about \$160 million in 2006. The level of exports alone surpassed the total domestic supply of scallops in 1998, when landings had declined to their lowest historical level of 12 million pounds (Figure 20).

Scallop ex-vessel prices peaked to over \$8.15 per pound in 1997 and \$7.60 per pound in 1998, corresponding to the two years with the lowest historical levels of scallop landings (Figure 20, Figure 21)<sup>3</sup>. During 1993-1998, the average ex-vessel price was \$5.80 per pound. These relatively high prices, however, were insufficient to offset the reduction in landings during those years. As a result, average scallop revenue per year declined to \$116 million from an average of \$215 million during 1989-1992 (Table 42).

The increase in landings and competition from scallop imports led to a decline in scallop ex-vessel prices during the 1999-2006 period, averaging \$5.20 per pound. Even at these lower prices, average annual scallop revenue per year was \$270 million, more than double the average revenue during the 1993-1998 period. As Table 42 shows, however, both landings and the ex-vessel price of scallops increased after 2001. One factor behind this trend was the change in the composition of landings towards larger scallops that command a higher price. In addition,

<sup>3</sup> The prices are inflation adjusted and expressed in terms of 2006 prices.

availability of a larger supply of domestic scallops at relatively low prices compared with the historical standards encouraged many restaurants to include scallops on their menu, eventually helping to increase demand. Another factor was the increase in the imported prices of scallops from Canada and Japan due to the lowered landings in the Canadian fishery and the outbreak of an infectious disease in Japanese aquaculture. The cutbacks in scallop landings in these countries also reduced competition for the domestic scallops that are almost identical in quality to imported scallops from Canada and similar to those imported from Japan. The increase in ex-vessel price combined with higher landings led to record levels of revenue from the scallop fishery, amounting to \$443 million in 2005 and \$384 million in 2006.

#### 4.4.2 Trends in the meat count and size composition of scallops

Average scallop meat count has declined continuously since 1998 as a result of effort-reduction measures, area closures, and an increase in ring sizes implemented by the Sea Scallop FMP. Average meat count during the 1989-1992 period, when the meat count standard was still in effect, was 37.7 meats per pound. Overall, estimated meat count for scallops declined to 21.7 meats per pound during the 1999-2006 period from 36.5 meats per pound during the 1993-1998 period (Table 42). The share of larger scallops has continuously increased since 1999, and the share of 11-20 count scallops increased from 11.7% in 1999 to 51.7% in 2006 (Table 43). On the other hand, the share of 30 count or more scallops declined from 20% in 1999 to 1% in 2006. Larger scallops priced higher than the smaller scallops contributed to the increase in average scallop prices in recent years despite larger landings (Table 44).

Table 43. Composition of scallop landings by market category

YEAR	U10	11-20	21-30	30 over	Unclassified
1998	1.7%	18.1%	22.2%	33.3%	24.7%
1999	16.6%	11.7%	25.2%	34.7%	11.8%
2000	7.3%	18.4%	43.7%	20.1%	10.5%
2001	3.2%	23.7%	49.1%	11.3%	12.7%
2002	4.8%	14.7%	65.1%	4.5%	10.9%
2003	6.4%	21.3%	56.2%	2.8%	13.3%
2004	7.3%	41.3%	41.8%	1.5%	8.1%
2005	12.8%	57.3%	20.6%	2.1%	7.3%
2006	22.7%	51.7%	18.4%	0.9%	6.3%

Table 44. Ex-vessel prices by market category (in 2006 inflation adjusted prices)

YEAR	U10	11-20	21-30	Over 30 count
1998	8.63	8.10	7.73	6.56
1999	7.88	7.49	6.94	6.10
2000	8.00	6.41	5.86	5.71
2001	7.22	5.05	4.27	4.30
2002	7.87	4.67	4.23	4.35
2003	7.31	4.84	4.49	4.74
2004	6.64	5.52	5.33	5.48
2005	8.12	7.88	7.73	7.87
2006	7.33	6.94	6.91	6.81

#### 4.4.3 Trends in scallop imports and exports

Figure 20 shows that scallop imports reached their highest levels during the 1993-1998 period, averaging about 55 million pounds per year, to compensate for the decline in domestic landings. The scallop imports declined to an average of 50 million pounds per year during 1999-2006, however, as supply of domestic scallops more than doubled compared to the previous period (Table 42).

The composition of imports by country of origin is shown in Figure 22. Imports from Canada declined from 17 million pounds in 2002 to less than 10 million pounds in 2005 and 2006. Imports from Japan fluctuated between 5 million and 10 million pounds per year but declined to below 4 million pounds in 2004 due to problems with scallop aquaculture. Imports from countries other than Canada and Japan exceeded 35 million pounds in 2000, declined below 30 million from 2001-2004, then increased to over 30 million since 2005. Being different in quality and size (including bay scallops as well), the imports from countries other than Canada are imperfect substitutes for the domestic product. The imported scallops from these countries tend to be smaller in size and lower in price as compared to imported scallops from Japan and Canada (Figure 23). Nevertheless, the increase in imports from these countries (including the imports of bay scallops) has an impact on domestic prices of sea scallops and could partially explain the decline in ex-vessel sea scallop prices in 2006.

One of most significant changes in the trend for foreign trade for scallops after 1999 was the striking increase in scallop exports. The increase in landings, especially of larger scallops, led to a tripling of U.S. exports of scallops from about 4.2 million pounds during 1993-98 to an average of 14.6 million pounds per year from 1999-2006. In 2005, exports surpassed 25.5 million pounds per year and in 2006, exports increased to 28.8 million pounds (Figure 20). Although exports include exports of bay, calico or weathervane scallops, they mainly consist of sea scallops. France and other European countries were the main importers of US scallops (Figure 24).

Figure 22. Composition of imports by country

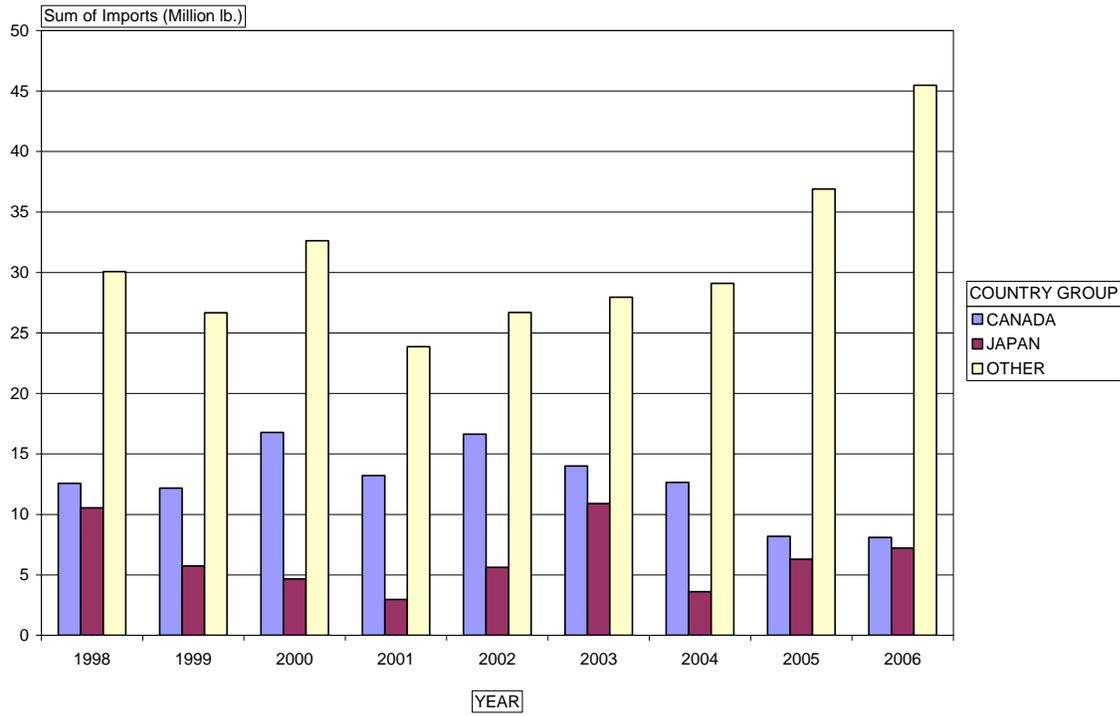


Figure 23. Import price by country of origin

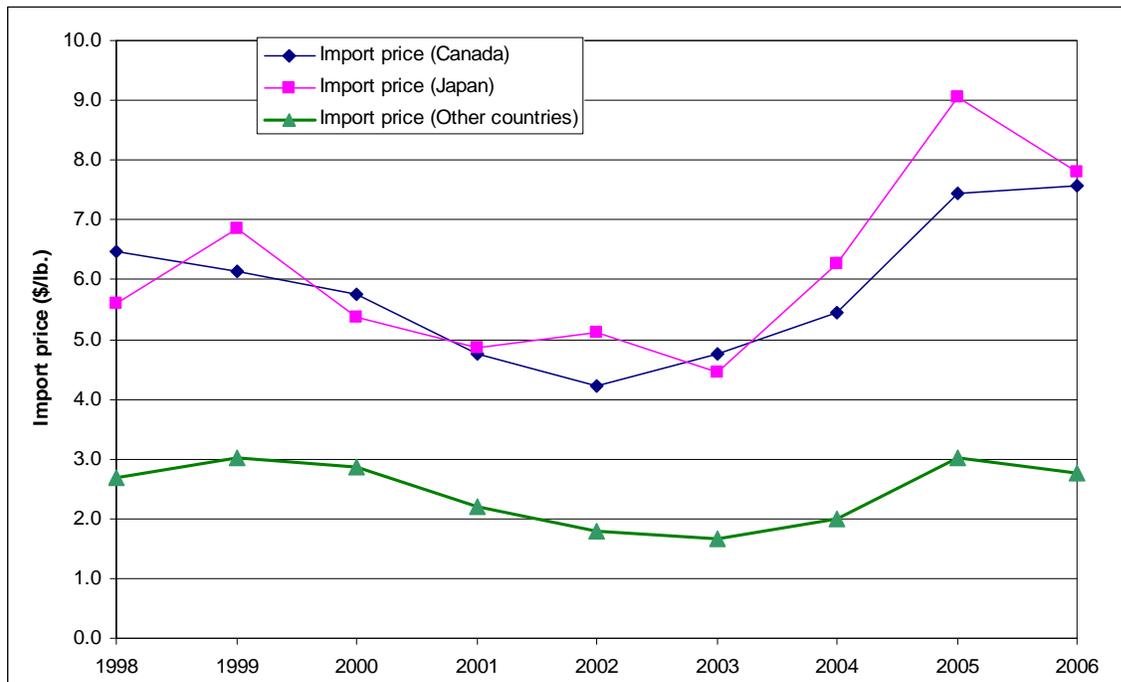
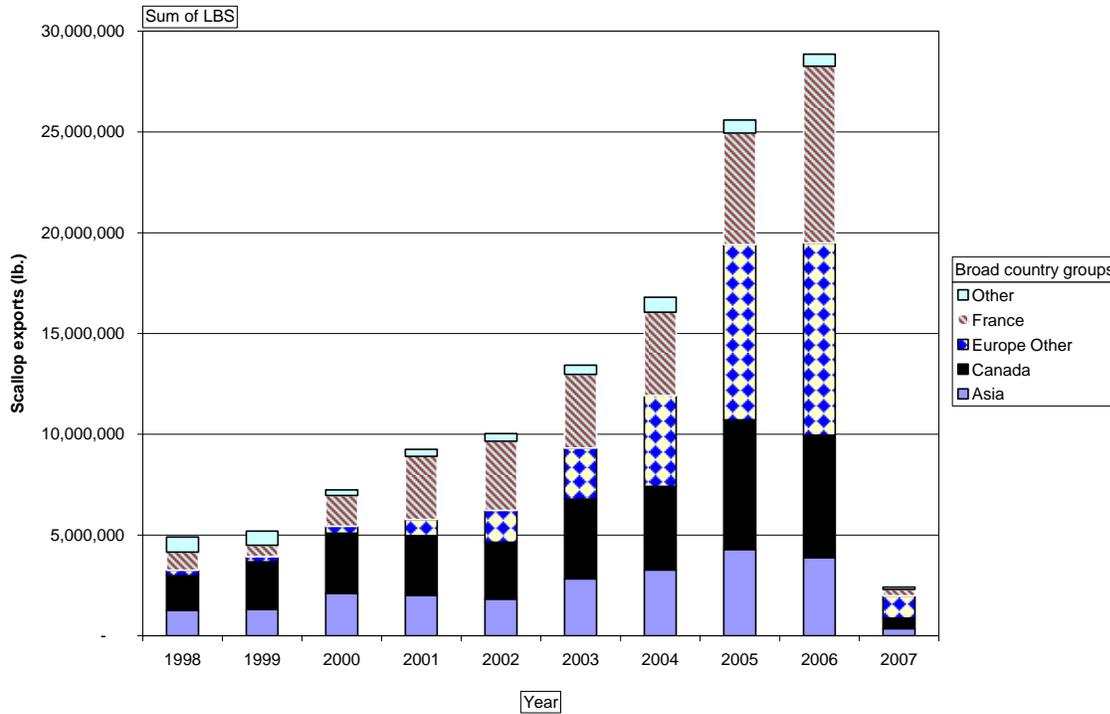


Figure 24. Scallop exports by country of destination



The trends in the ex-vessel price of scallops are compared with trends in import and export prices in Figure 25. Ex-vessel prices have almost mirrored the changes in the average price of imports from all countries. Export prices moved closely with import prices until 2000, but since 2001 they have tracked domestic prices and have exceeded the average of the import price. This is most likely due to the change in the composition of landings toward larger scallops with a higher price per pound than their smaller counterparts. Especially in recent years, the share of under-10 count and 11- 20 count scallops increased dramatically compared to the previous periods (Table 43). These changes could explain the rise in export prices if a higher proportion of larger scallops were exported in recent years<sup>4</sup>. Because exports include other species of scallops that have lower prices as well, average export price of scallops is lower than the ex-vessel scallop prices. The increase in exports after 1999 took place in the mostly higher priced scallop category, however (Figure 26 and Table 45).

<sup>4</sup> The size composition of scallop exports and imports were not available.

Figure 25. Ex-vessel, average import and export prices (adjusted for inflation, expressed in 2006 prices)

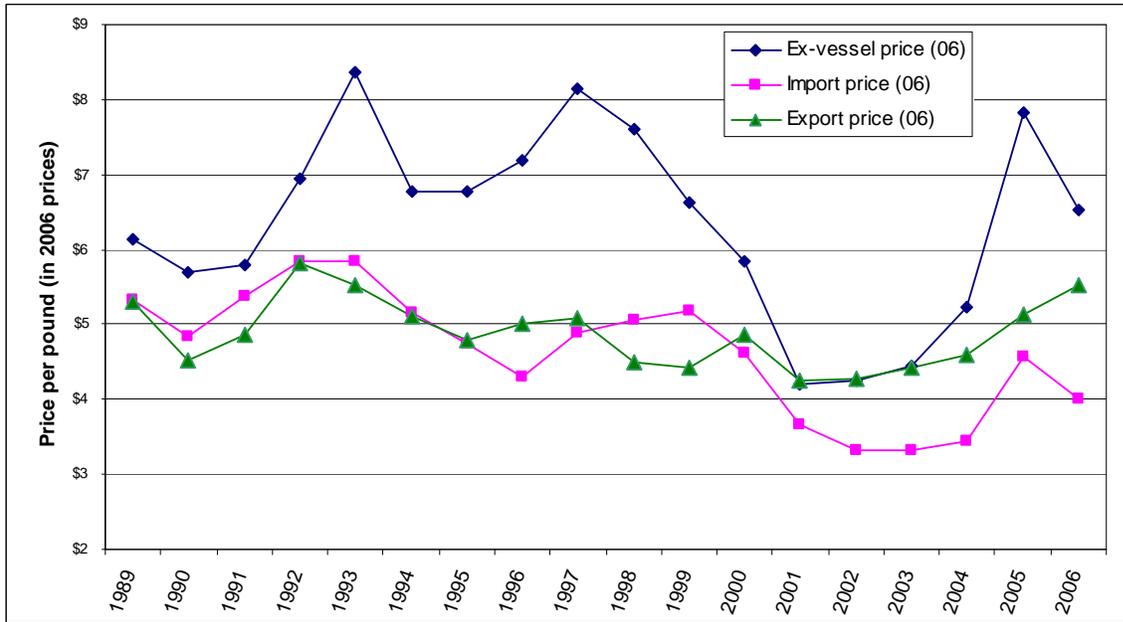


Figure 26. Scallop exports by price category

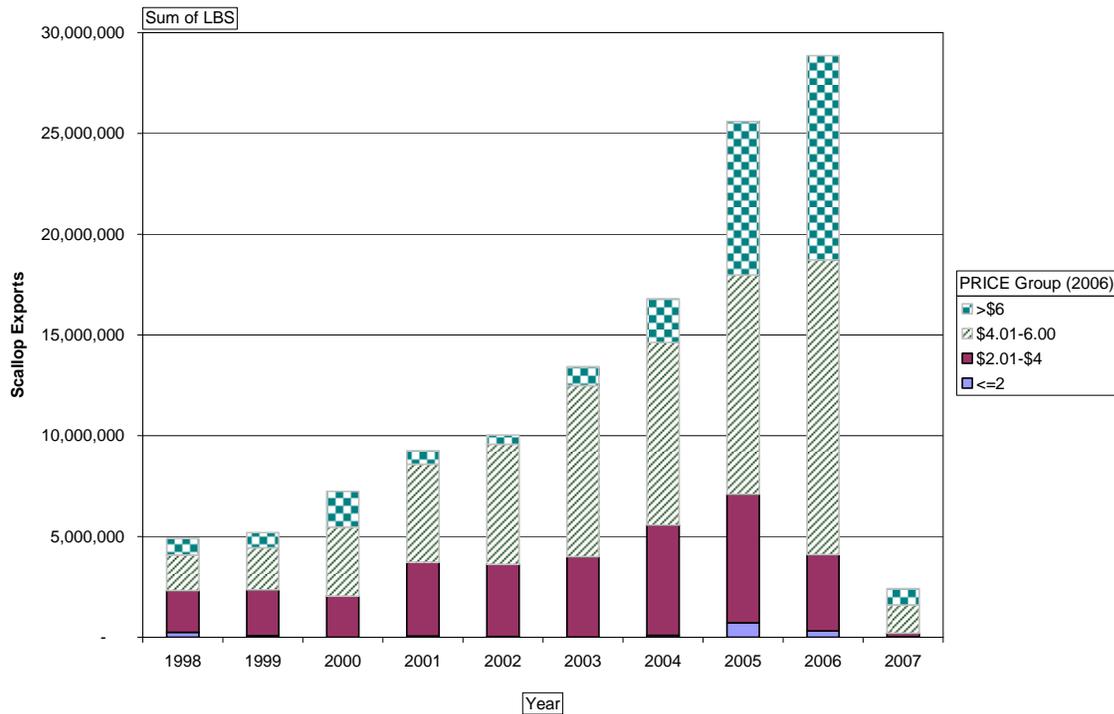
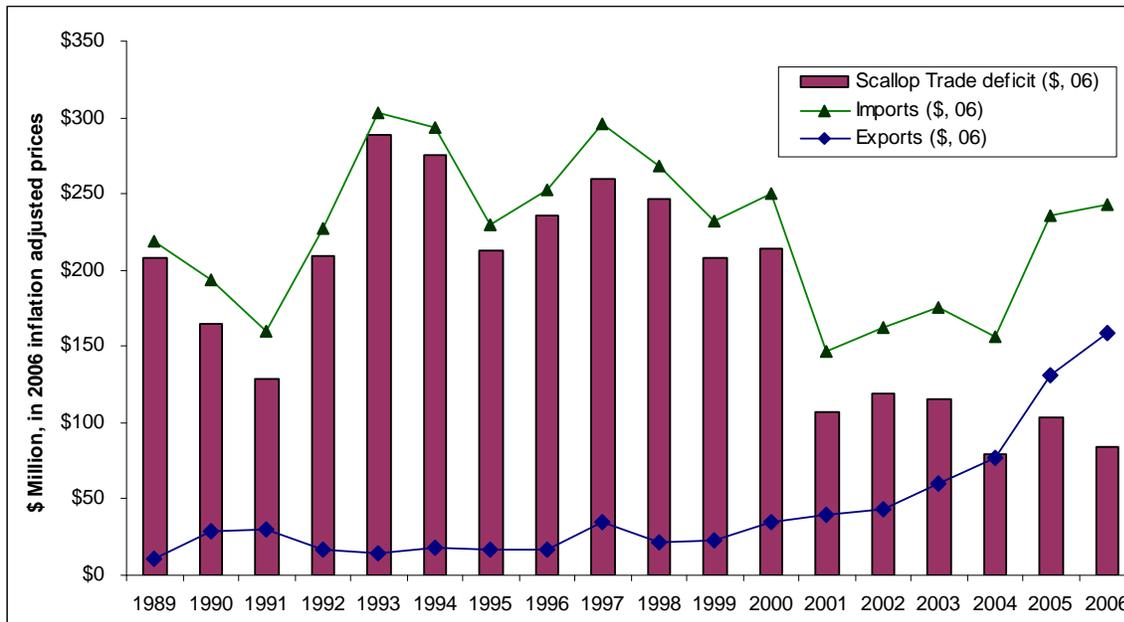


Table 45. Composition of scallop exports (lbs) by price category

Year	Export price of scallops (\$ per lb.)				Grand Total
	<=2	\$2.01-\$4	\$4.01-6.00	>\$6	
1998	5.13%	42.08%	36.08%	16.71%	100.00%
1999	1.53%	43.88%	40.12%	14.46%	100.00%
2000	0.04%	28.10%	47.47%	24.40%	100.00%
2001	0.76%	39.48%	52.69%	7.07%	100.00%
2002	0.37%	35.71%	59.30%	4.62%	100.00%
2003	0.06%	29.73%	63.19%	7.02%	100.00%
2004	0.62%	32.52%	53.91%	12.95%	100.00%
2005	2.82%	24.89%	42.51%	29.78%	100.00%
2006	1.09%	13.11%	50.68%	35.12%	100.00%
2007	0.70%	7.46%	58.19%	33.66%	100.00%

A higher unit price for exports and an increase in the quantity of exports more than tripled the export revenue to an average of \$71 million per year during the 1998-2006 period from about \$21 million per year during the previous periods (Table 42). Scallop exports increased at an even faster rate during after 2004, with an increase in export revenues to \$159 million. As Figure 27 shows, an increase in scallop exports combined with a decline in imports lowered the trade deficit for scallops to \$84 million in 2006, which is less than half of what it was (about \$250 million) in 1997 and 1998.

Figure 27. Scallop exports and imports



#### 4.4.4 Trends in Fishing Costs

This section provides information on the variable and fixed costs of fishing for both general category and limited access vessels. Fishery management measures not only affect the level of landings and prices of fish, but also have an impact on the trip and operating costs of fishing. Restrictions on the number of days-at-sea that vessels can fish in a given year, the number of trips they can take to certain areas, and/or the number of crew they can employ are examples of measures that can reduce or increase those expenses. Since costs constitute a fundamental part of the producer surplus, crew shares, and profits, the evaluation of net national benefits and the analysis of economic impacts on vessels require an estimation of these costs.

##### Variable Costs

Variable and fixed costs for the general category and limited access scallop vessels were updated using the observer cost data for the 2002-2007 period. The variable costs for a scallop vessel are defined as those expenses that increase or decrease with the level of fishing activity. The trip costs include food, ice, water, and fuel and are usually paid by crew in the scallop fishery out of their shares from the gross stock. Other variable costs include trip costs and expenses on gear and supplies. All the costs were adjusted for inflation and expressed in 2006 prices.

There were a total of 458 observations included in the data for 197 unique vessels with a general category permit. Most of the data were collected in 2005 (247 observations) as shown in Table 46. It is difficult to reach a conclusion regarding the trends in trip costs over time since a different number of vessels with varying gross tonnage and horsepower were included in the cost data for each year. For example, observer data for 2002 included only 4 small general category vessels with an average 15 gross tons, considerably smaller than the 87 general category vessels

included in 2005 sample that averaged 94 gross tons. However, there has been an increasing trend in the fuel costs and total trip costs per DAS following the increase in fuel prices. For example, average trip costs increased from \$268 per day-at-sea in 2004 to \$487 per day-at-sea in 2006 as fuel prices increased from \$1.50 per gallon in 2004 to \$2.30 per gallon in 2006.

**Table 46 -Trip characteristics per general category vessel during 2002-2007 (in 2006 inflation adjusted prices)**

Data	Year					
	2002	2003	2004	2005	2006	2007
Number of observed trips	5	6	96	247	96	8
Number of unique vessels	4	4	42	87	54	6
GRT	15	59	59	94	75	78
Horsepower	310	431	424	483	424	525
Crew	3.0	2.5	3.0	3.4	3.0	2.7
DAS per trip	1.3	1.4	1.5	1.7	2.0	2.0
Scallop lb. per trip	317	358	424	376	369	370
Scallop lb. per DA	283	274	247	240	206	209
Average fuel costs per DAS (\$)	58	171	227	317	374	323
Fuel costs as a % of total trip costs	64%	79%	86%	84%	77%	94%
Average of food costs per DAS (\$)	22	31	20	27	31	14
Other trip costs (Ice, water, supply, oil)	13	15	21	33	83	7
Average trip costs per DAS (\$)	93	217	268	376	487	343
Average fuel price (nominal)	1.0	1.0	1.5	2.1	2.3	2.1

Using annual PPI for the fish year for all finished goods (used seasonally adjusted monthly numbers to derive PPI for the fish year).

Table 47 summarizes fishing costs for limited access vessels during 2002-07. It is difficult to reach a conclusion regarding the trends in trip costs over time since a different number of vessels with varying gross tonnage and horsepower were included in the cost data for each year. Again, there has been an increasing trend in the fuel costs and total trip costs per DAS for limited access vessels as well following the increase in fuel prices. For example, average trip costs increased from \$846 per day-at-sea in 2002 to \$1,350 per day-at-sea in 2006 as fuel prices more than doubled from \$1.00 per gallon in 2002 to \$2.30 per gallon in 2006.

Fishing costs also vary with the vessel gross tonnage, horsepower, and crew size, as shown in Table 48. It seems that there are slight differences in average trip costs for groups of vessels that are in the less than 50 GRT and 50 to 99 GRT groups. The trips costs are significantly higher, however, for limited access vessels that have a 100 GRT or more compared to smaller vessels, mainly because these vessels have almost double the horse power of the smaller vessels. On the other hand, there is only a slight increase for the trips costs of general category vessels with gross tonnage of 100 or more because the average horsepower for these vessels is only slightly higher than the horsepower of smaller vessels.

Table 47. Trip costs per limited access vessels during 2002-2007 (in 2006 inflation adjusted prices)

Data	Year					
	2002	2003	2004	2005	2006	2007
Number of observed trips	37	74	151	101	106	9
Number of unique vessels	26	49	103	82	86	7
GRT	156	161	151	143	139	151
HP	815	827	792	775	748	798
Crew	7	7	7	6	6	6
DAS per trip	9	12	9	8	7	9
Scallop lb. per trip	12,097	17,239	17,521	15,007	7,714	14,399
Scallop lb. per DA	1,150	1,473	1,925	1,396	819	1,223
Average fuel costs per DAS (\$)	496	601	632	828	922	895
Fuel costs as a % of total trip costs	59%	64%	63%	72%	68%	84%
Average of food costs per DAS (\$)	197	172	177	172	161	86
Other trip costs (Ice, water, supply, oil)	153	165	199	153	267	82
Average total trip costs per DAS (\$)	846	939	1,008	1154	1350	1064
Average fuel price (nominal)	1.0	1.1	1.4	2.1	2.3	2.1

**Table 48. Landings and trip costs by gross tonnage during 2005-07 (in 2006 inflation adjusted prices)**

Permit category	Data	<50 GRT	50-99 GRT	>=100 GRT	All vessels (2005-07 average)
General category	Number of trips*	28	16	43	87
	Average DA per trip	1.7	1.9	1.9	1.8
	Average gross tonnage	28	74	122	83
	Average horse power	393	442	477	444
	Average crew	2.6	3.4	3.5	3.2
	Average scallop lbs per trip	352	391	378	372
	Average scallop lbs per DA	239	242	234	237
	Average fuel costs per DA	236	331	353	311
	Average total trip costs per DA	435	449	453	446
Limited access	Number of trips*	5	18	79	102
	Average DA per trip	4	6	10	9
	Average gross tonnage	36	80	161	140
	Average horse power	381	446	874	775
	Average crew	5	5	6	6
	Average scallop lbs per trip	2,121	5,178	16,056	13,704
	Average scallop lbs per DA	494	589	1,428	1,254
	Average fuel costs per DA	594	542	1,099	976
	Average total trip costs per DA	894	877	1,553	1,402

\* Includes only those trips for which cost data was available. Note that the number of trips will be less than provided in Table 46 and Table 47.

#### 4.4.4.1.1 Fixed Costs

The fixed costs include those expenses that are not usually related to the level of fishing activity or output. These are insurance, maintenance, license, repairs, office expenses, professional fees, dues, utilities, interest, and dock expenses. The expenses on insurance, maintenance, repairs and replacement of engine, electrical, and processing equipment, gear, and other equipment have been collected by observer data since 2001 and provided by Economic Analysis Division of Northeast Fisheries Science Center, Woods Hole. The data for these vessels are shown in Table 49 to Table 53.

Average fixed costs were about \$87,864 for general category vessels and \$177,216 for limited access vessels (both in 2006 prices). It must be cautioned that these costs do not include interest payments on mortgages and a variety of other expenses such as office expenses, accounting, and bank fees. Therefore, actual fixed costs of vessels could be higher than these numbers shown in the following Tables. Because of the different sample size and different size of vessels included each year in the cost data, it is not possible to reach a conclusion regarding the trend in these costs based on the averages provided in these Tables. Table 50, Table 52, and Table 53 indicate, however, that the fixed costs are larger for vessels that have a 100 gross tonnage or more compared to smaller vessels.

Table 49. Annual fixed costs for general category scallop vessels by year (In 2006 inflation-adjusted prices)

Data	2002	2003	2004	2005	2002-05 Average
Number of vessels	26	40	90	143	299
GRT	65	81	81	84	81
HP	384	433	444	461	445
Insurance (\$)	18,195	22,704	23,908	25,739	24,512
Maintenance (\$)	32,321	27,204	33,311	30,343	31,377
Repairs and replacement (\$)	36,691	33,573	34,951	28,209	31,975
Total fixed cost (\$)	87,206	83,481	92,170	84,293	87,864

Note: only those observations for which data on all items, i.e. insur, maint. and repairs was available included in these Tables. A few outliers are eliminated.

Table 50. Annual fixed costs of active general category vessels by ton class (in 2006 inflation-adjusted prices)

Data	<=50 GRT	51-100 GRT	101-150 GRT	>150	Grand Total
Number of vessels	114	68	89	28	299
GRT	24	77	129	166	81
HP	338	383	553	690	445
Maintenance (\$)	9,442	24,811	38,946	42,042	24,512
Repairs (\$)	15,773	35,542	47,703	38,573	31,377
Insurance (\$)	24,840	25,946	47,528	33,724	31,975
Total fixed cost (\$)	50,055	86,297	134,178	114,339	87,864

Table 51. Annual fixed costs for limited access scallop vessels by year (in 2006 inflation-adjusted prices)

Data	2002	2003	2004	2005	2002-05 Average
Number of vessels	11	24	35	27	97
GRT	153	154	145	158	152
HP	753	792	756	821	783
Insurance (\$)	35,006	53,684	55,577	56,290	52,978
Maintenance (\$)	62,776	74,665	43,116	62,031	58,092
Repairs and replacement (\$)	72,916	96,815	65,435	40,306	66,146
Total fixed cost (\$)	170,699	225,162	164,129	158,627	177,216

Table 52. Annual fixed costs of limited access scallop vessels by ton class (2002-05 average, in 2006 inflation-adjusted prices)

Data	51-100 GRT	101-150 GRT	>150	Grand Total
Number of vessels	7	37	53	97
GRT	89	130	175	152
HP	406	689	897	783
Maintenance (\$)	25,691	48,140	59,960	52,978
Repairs (\$)	30,817	57,307	62,242	58,092
Insurance (\$)	115,453	55,726	66,909	66,146
Total fixed cost (\$)	171,960	161,174	189,110	177,216

Table 53. Annual fixed costs of full-time limited access scallop vessels by ton class (2002-05 average, 2006 inflation adjusted prices)

Data	101-150 GRT	>150	Grand Total
Number of vessels	28	50	78
GRT	130	175	159
HP	715	889	827
Maintenance (\$)	52,962	59,988	57,466
Repairs (\$)	56,855	58,855	58,136
Insurance (\$)	64,907	60,301	61,955
Total fixed cost (\$)	174,723	179,144	177,557

#### 4.4.5 The trends in the scallop permits, landings and revenue by permit category

The scallop fishery consists of vessels with limited access scallop permits that are regulated with area-specific DAS and trip allocations and vessels with general category scallop permits that are regulated with a 400 pound possession limit. The limited access fishery was established since Amendment 4 to the Scallop FMP was developed and implemented in 1994 (NEFMC 2003). The limited access vessels consist of full-time, part-time and occasional vessels with subcategories within each permit group. Depending on the type of limited access permit for which the vessel qualified, a scallop limited access vessel may have the option of fishing with any gear type (permit categories 2, 3 and 4), with a small dredge (categories 5 and 6), or with trawl nets (categories 7, 8 and 9). Fishing effort for vessels that possess limited access permits is managed through the use of crew size restrictions, gear restrictions, and DAS allocations.

Days-at-Sea and trip allocations for special access areas are similarly varied by permit category. Owners of limited access vessels assigned to either the part-time or occasional categories (permit categories 3 and 4, respectively) may opt to be placed one category higher (permit categories 5 and 6, respectively), provided they agree to comply with the small dredge program restrictions. Vessels in the small dredge program must: (1) fish exclusively with one dredge no more than 10.5 ft in width; (2) not have more than one dredge on board or in use; and (3) have no more than five people, including the operator, on board (NEFMC 2003).

The number of limited access vessels increased from 317 in 1997 to 375 in 2006 (Table 17); the number of general category vessels increased from 2002 in 1997 to 2711 in 2006.

Table 54. Scallop Permits by Application Year

Permit category	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007*
Full-time	204	203	213	220	224	234	238	242	248	258	252
Full-time small dredge	3	2	1	3	13	25	39	48	57	61	57
Full-time net boat	27	23	16	17	16	16	16	15	19	15	12
<b>Total full-time</b>	<b>234</b>	<b>228</b>	<b>230</b>	<b>240</b>	<b>253</b>	<b>275</b>	<b>293</b>	<b>305</b>	<b>324</b>	<b>334</b>	<b>321</b>
Part-time	16	11	12	16	14	14	10	4	3	3	2
Part-time small dredge	9	7	3	4	6	8	19	26	30	37	32
Part-time trawl	30	27	22	20	18	10	8	3	-	-	-
<b>Total part-time</b>	<b>55</b>	<b>45</b>	<b>37</b>	<b>40</b>	<b>38</b>	<b>32</b>	<b>37</b>	<b>33</b>	<b>33</b>	<b>40</b>	<b>34</b>
Occasional	2	3	4	4	5	4	3	3	1	1	1
Occasional trawl	24	19	20	16	19	15	8	5	5	-	-
<b>Total occasional</b>	<b>26</b>	<b>22</b>	<b>24</b>	<b>20</b>	<b>24</b>	<b>19</b>	<b>11</b>	<b>8</b>	<b>6</b>	<b>1</b>	<b>1</b>
<b>Total Limited access</b>	<b>315</b>	<b>295</b>	<b>291</b>	<b>300</b>	<b>315</b>	<b>326</b>	<b>342</b>	<b>346</b>	<b>363</b>	<b>375</b>	<b>356</b>
<b>General category</b>	<b>2002</b>	<b>1939</b>	<b>2096</b>	<b>2263</b>	<b>2378</b>	<b>2512</b>	<b>2574</b>	<b>2827</b>	<b>2950</b>	<b>2711</b>	<b>2336</b>

\* Updated as of Aug. 2007

Table 55. Other Fishery Management Plan permits held FY 2006, by scallop fishing category

Scallop Permit Category	Bluefish	Black Sea Bass	Dogfish	Summer Flounder	Herring	Lobster	Multi-species	Monk-fish
General Category: VMS	80.1	25.3	80.5	34.9	69.1	48.8	75.8	85.5
Fulltime Dredge	88.5	31.2	94.9	84.2	73.1	65.2	94.5	98.8
Parttime or Occasional Dredge	66.7	66.7	66.7	66.7	33.3	100.0	100.0	66.7
Fulltime Small Dredge	96.3	57.4	96.3	85.2	87.0	57.4	100.0	98.1
Parttime Small Dredge	90.6	68.8	100.0	90.6	75.0	46.9	75.0	100.0
Fulltime Net	100.0	83.3	100.0	100.0	83.3	50.0	91.7	100.0
Scallop Permit Category	Ocean Quahog	Scup	Surf Clam	Red Crab	Skates	Tilefish	Squid-Mackerel-Butterfish	
General Category: VMS	57.5	28.6	59.2	54.3	78.1	67.1	78.7	
Fulltime Dredge	79.8	27.7	82.2	68.0	86.2	83.4	90.9	
Parttime or Occasional Dredge	33.3	66.7	33.3	33.3	100.0	33.3	66.7	
Fulltime Small Dredge	75.9	64.8	75.9	79.6	87.0	90.7	96.3	
Parttime Small Dredge	75.0	68.8	75.0	78.1	78.1	84.4	96.9	
Fulltime Net	58.3	75.0	58.3	83.3	83.3	91.7	100.0	

Table 56 summarize the vessel size distribution for vessels with limited access permits and Table 57 for vessels with general category permits over time (length and gross tonnage).

Table 56. Vessel size distribution for limited access vessels.

LENGTH	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Large	287	287	266	251	244	244	249	256	262	273	283	294	305
Medium	64	55	56	52	43	40	43	48	49	51	47	52	51
Small	17	10	10	9	8	7	8	11	15	17	16	17	19
GRT	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Less than or equal to 50	28	18	17	15	12	9	11	13	18	20	18	21	26
Between 50-100	49	48	50	48	41	38	35	42	41	44	44	47	49
Between 100-150	125	123	111	106	98	100	108	110	116	123	125	136	141
Between 150-175	75	74	69	62	64	64	63	66	65	69	74	73	75
Greater than 175	91	89	85	81	80	80	83	84	86	85	85	86	84

Source: vessel permit information.

Table 57. Vessel size distribution for general category vessels.

LENGTH	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Large	317	308	295	300	258	261	273	288	298	310	354	401	391
Medium	401	396	383	385	363	379	388	392	392	400	425	441	411
Small	1274	1370	1325	1317	1318	1456	1602	1698	1822	1864	2048	2031	1908
GRT	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Less than or equal to 50	1421	1515	1468	1465	1454	1597	1750	1845	1968	2013	2214	2205	2065
Between 50-100	245	238	229	226	218	223	233	241	240	249	268	270	267
Between 100-150	213	209	203	197	169	172	172	180	188	196	222	267	251
Between 150-175	65	68	62	68	57	61	61	60	59	58	61	65	59
Greater than 175	48	44	41	46	41	40	43	48	55	56	59	64	67

There were 2,711 general category permits (compared to 375 limited access permits) issued in fishing year 2006. While the limited access fleet consists mainly of large, full-time dredge vessels (on average 78 feet long and 138 GRT), the vessels with general category permits are predominantly small ones under 50 ft in length (Table 57).

Table 58 shows scallop landings and revenue by permit category for 2004 to 2007 fishing years. Although a major proportion of scallops are landed by limited access vessels, the share of general category fleet in total scallop landings increased from 4.6% in 2004 to 11.6% in the 2006 fishing year. This is both because of the increase in the number of general category vessels from 423 vessels in 2004 to 643 in 2006 and the increase in average scallop landings per vessel from over 6,500 pounds in 2004 to over 10,000 pounds in 2006.

About 361 active limited access vessels have landed scallops under limited access in 2006 as compared to 345 in 2005 and 330 in 2004 (Table 20). That number includes all three permit categories (full-time, part-time and occasional). The number of individual trips was over 4,700 in 2004 and rose to over 5,865 in the 2006 fishing year. Average revenue per vessel was about 1.0 million dollars in 2005, but declined to \$881,990 in 2006 due to the decline in ex-vessel scallop prices from about \$7.70 in 2005 to about \$6.50 in 2006.

Table 58– Scallop landings and revenues by fishing year and permit category

Permit Plan	Data	2004	2005	2006	2007*
General Category	Number of vessels	432	619	643	420
	Total number of trips	9,011	22,032	19,586	8,956
	Scallop pounds per vessel	6,553	11,493	10,119	7,229
	Average scallop revenue per vessel	35,688	90,149	66,785	43,959
	Percentage of total scallop landings	4.6%	13.3%	11.6%	7.9%
	Total scallop landings	2,831,030	7,113,906	6,506,536	3,036,025
	Total scallop revenue (in 2006 prices)	14,706,711	54,515,676	42,942,441	17,872,099
	Ex-vessel price (\$)	5.6	7.7	6.7	6.0
Limited Access**	Number of vessels	330	345	361	344
	Total number of trips	4,734	6,127	5,865	3,236
	Scallop pounds per vessel	178,534	134,533	136,799	103,185
	Average scallop revenue per vessel	954,937	1,067,809	881,990	643,295
	Percentage of total scallop landings	95.4%	86.7%	88.4%	92.1%
	Total scallop landings	58,916,306	46,413,953	49,384,434	35,495,507
	Total scallop revenue (in 2006 prices)	300,599,614	359,901,435	318,398,389	221,320,197
	Ex-vessel price (\$)	5.1	7.8	6.4	6.2
All Vessels	Total scallop landings	61,747,336	53,527,859	55,890,970	38,531,532
	Total scallop revenue	315,306,325	414,417,111	361,340,830	239,192,296
	Total Scallop revenue (in 2006 prices)	330,546,695	424,196,225	361,340,830	230,820,566
	Ex-vessel price (\$)	5.1	7.7	6.5	6.2
	Ex-vessel price (in 2006 prices)	5.4	7.9	6.5	6.0

\*Preliminary estimates from March to July 2007.

\*\* Includes general category trips by limited access vessels.

Table 59. The number of limited access vessels by permit and gross tonnage category

Fish Year	Permit category	<=50 GRT	51-100	101-150	>150	Grand Total
2004	Full-time dredge	4	12	76	146	238
	Full-time small dredge	4	17	23	6	50
	Full-time trawl		3	9		12
	Part-time dredge			2		2
	Part-time small dredge	4	12	10		26
	Occasional dredge	1				1
	Occasional trawl			1		1
2004 Total		13	44	121	152	330
2005	Full-time dredge	2	13	81	145	241
	Full-time small dredge	6	19	26	5	56
	Full-time trawl		3	12		15
	Part-time dredge			2		2
	Part-time small dredge	6	13	12		31
2005 Total		14	48	133	150	345
2006	Full-time dredge	3	13	84	147	247
	Full-time small dredge	6	22	26	5	59
	Full-time trawl		3	12	1	16
	Part-time dredge			3		3
	Part-time small dredge	6	14	15	1	36
2006 Total		15	52	140	154	361
2007	Full-time dredge	3	12	80	144	239
	Full-time small dredge	6	20	24	5	55
	Full-time trawl		3	11	1	15
	Part-time dredge			2		2
	Part-time small dredge	5	13	13	1	32
	Occasional trawl			1		1
2007 Total		14	48	131	151	344

Table 60. Scallop landings per vessel (lb) by permit and gross tonnage category

Fish Year	Permit category	<=50 GRT	51-100	101-150	>150	Grand Total
2004	Full-time dredge	103,887	143,772	211,036	212,181	206,547
	Full-time small dredge	110,317	113,280	143,805	110,020	126,693
	Full-time trawl		145,497	182,779		173,459
	Part-time dredge			NA		NA
	Part-time small dredge	14,919	57,373	38,904		43,738
2005	Full-time dredge	91,523	127,287	151,889	165,915	158,500
	Full-time small dredge	59,660	86,836	95,817	97,960	89,087
	Full-time trawl		121,600	92,823		98,578
	Part-time dredge			NA		NA
	Part-time small dredge	35,597	50,137	54,125		48,867
2006	Full-time dredge	60,123	143,069	161,591	170,547	164,714
	Full-time small dredge	90,192	67,814	111,973	127,962	94,646
	Full-time trawl		126,041	82,279	NA	NA
	Part-time dredge			NA		NA
	Part-time small dredge	43,514	42,533	36,989	39,996	40,316
2007	Full-time dredge	100,386	112,291	115,971	119,236	117,558
	Full-time small dredge	80,468	91,079	88,790	83,522	88,236
	Full-time trawl		98,430	74,859	NA	NA
	Part-time dredge			NA		NA
	Part-time small dredge	28,909	39,317	35,838	37,679	36,226

NA: The information is not shown to protect confidentiality of data.

Data for occasional vessels are not shown for the same reason.

Table 61. Composition of scallop landings (lb) by permit and gross tonnage category

Fish Year	Permit category	<=50 GRT	51-100	101-150	>150	Grand Total
2004	Full-time dredge	1%	3%	27%	53%	83%
	Full-time small dredge	1%	3%	6%	1%	11%
	Full-time trawl	NA	NA	3%	NA	4%
	Part-time small dredge	0%	1%	1%	0%	2%
2005	Full-time dredge	0%	4%	27%	52%	82%
	Full-time small dredge	1%	4%	5%	1%	11%
	Full-time trawl	NA	NA	2%	NA	3%
	Part-time small dredge	0%	1%	1%	0%	3%
2006	Full-time dredge	0%	4%	27%	51%	82%
	Full-time small dredge	1%	3%	6%	1%	11%
	Full-time trawl	NA	NA	2%	NA	3%
	Part-time small dredge	1%	1%	1%	0%	3%
2007	Full-time dredge	1%	4%	26%	48%	79%
	Full-time small dredge	1%	5%	6%	1%	14%
	Full-time trawl	NA	NA	2%	NA	3%
	Part-time small dredge	0%	1%	1%	0%	3%

NA: The information is not shown to protect confidentiality of data.

Data for occasional and part-time dredge vessels are not shown for the same reason.

Table 62. The number of limited access vessels by permit category and by primary area of landings

Fish Year	Permit category	Mid-Atlantic	New England	Grand Total
2004	Full-time dredge	109	129	238
	Full-time small dredge	30	20	50
	Full-time trawl	12		12
	Part-time dredge	2		2
	Part-time small dredge	21	5	26
	Occasional dredge		1	1
	Occasional trawl	1		1
2004 Total		175	155	330
2005	Full-time dredge	111	130	241
	Full-time small dredge	32	24	56
	Full-time trawl	15		15
	Part-time dredge	2		2
	Part-time small dredge	25	6	31
2005 Total		185	160	345
2006	Full-time dredge	117	130	247
	Full-time small dredge	32	27	59
	Full-time trawl	16		16
	Part-time dredge	3		3
	Part-time small dredge	28	8	36
2006 Total		196	165	361
2007	Full-time dredge	115	124	239
	Full-time small dredge	29	26	55
	Full-time trawl	15		15
	Part-time dredge	2		2
	Part-time small dredge	25	7	32
	Occasional trawl	1		1
2007 Total		187	157	344

Table 63. The scallop landings by permit category and by primary area of landings

Fish Year	Permit category	Mid-Atlantic	New England	Grand Total
2004	Full-time dredge	22,972,334	26,185,738	49,158,072
	Full-time small dredge	4,030,217	2,304,440	6,334,657
	Full-time trawl	2,081,502		2,081,502
	Part-time and Occasional	1,076,936	265,139	1,342,075
2004 Total		30,160,989	28,755,317	58,916,306
2005	Full-time dredge	16,756,538	21,441,948	38,198,486
	Full-time small dredge	2,985,517	2,003,365	4,988,882
	Full-time trawl	1,478,676		1,478,676
	Part-time and Occasional	1,505,979	241,930	1,747,909
2005 Total		22,726,710	23,687,243	46,413,953
2006	Full-time dredge	18,356,300	22,328,060	40,684,360
	Full-time small dredge	3,024,868	2,559,275	5,584,143
	Full-time trawl	1,491,190		1,491,190
	Part-time and Occasional	1,365,391	259,350	1,624,741
2006 Total		24,237,749	25,146,685	49,384,434
2007	Full-time dredge	13,322,454	14,773,883	28,096,337
	Full-time small dredge	2,610,523	2,242,430	4,852,953
	Full-time trawl	1,217,170		1,217,170
	Part-time and Occasional	1,091,004	238,043	1,329,047
2007 Total		18,241,151	17,254,356	35,495,507

Table 64. Average scallop revenue and vessels characteristics by permit category

Fish Year	Permit category	Number of vessels	Average GRT	Average HP	Average Scallop revenue per vessel (2006 prices)
2004	Full-time dredge	238	157	842	1,113,145
	Full-time small dredge	50	109	506	664,941
	Full-time trawl	12	116	488	855,815
	Part-time and Occasional	30	88	425	222,791
2004 Total		330	142	740	954,937
2005	Full-time dredge	241	157	837	1,256,798
	Full-time small dredge	56	104	576	717,229
	Full-time trawl	15	122	486	765,286
	Part-time and Occasional	33	90	428	420,051
2005 Total		345	140	741	1,067,809
2006	Full-time dredge	247	156	840	1,071,127
	Full-time small dredge	59	103	573	585,910
	Full-time trawl	16	122	482	584,742
	Part-time and Occasional	39	95	497	253,986
2006 Total		361	139	744	881,990
2007	Full-time dredge	239	157	845	735,363
	Full-time small dredge	55	103	584	552,082
	Full-time trawl	15	121	478	462,665
	Part-time and Occasional	35	96	507	223,001
2007 Total		344	140	753	643,295

Table 65. General category scallop landings and vessel characteristics by primary region of landings

Fish Year	Data	Mid-Atlantic	New England	Grand Total
2004	Number of vessels	209	223	432
	Average number of trips per vessel	27	15	21
	Average annual scallop landings per vessel (lb.)	9,159	4,112	6,553
	Average annual scallop revenue per vessel (lb.)	49,271	22,959	35,689
	Average gross tonnage	77	73	75
	Average horse power	485	424	454
	Average number of crew	3.6	3.8	4
	Total scallop landings (lb.)	1,914,150	916,880	2,831,030
2005	Number of vessels	331	288	619
	Average number of trips per vessel	48	21	36
	Average annual scallop landings per vessel (lb.)	16,016	6,294	11,493
	Average annual scallop revenue per vessel (lb.)	123,868	51,395	90,149
	Average gross tonnage	71	61	67
	Average horse power	480	398	442
	Average number of crew	3.5	3.7	4
	Total scallop landings (lb.)	5,301,365	1,812,541	7,113,906
2006	Number of vessels	337	306	643
	Average number of trips per vessel	40	20	30
	Average annual scallop landings per vessel (lb.)	13,438	6,464	10,119
	Average annual scallop revenue per vessel (lb.)	87,665	43,789	66,785
	Average gross tonnage	75	63	69
	Average horse power	495	411	455
	Average number of crew	3.6	3.7	4
	Total scallop landings (lb.)	4,528,579	1,977,957	6,506,536
2007	Number of vessels	202	218	420
	Average number of trips per vessel	29	14	21
	Average annual scallop landings per vessel (lb.)	10,057	4,608	7,229
	Average annual scallop revenue per vessel (lb.)	54,461	28,649	41,063
	Average gross tonnage	75	67	71
	Average horse power	496	423	458
	Average number of crew	3.7	3.7	4
	Total scallop landings (lb.)	2,031,532	1,004,493	3,036,025

Table 66. General category scallop landings and vessels characteristics by gross tonnage

Fish year	Data	<-50 GRT	51-100 GRT	101-150 GRT	>150 GRT	Grand Total
2004	Number of vessels	194	86	109	43	432
	Average number of trips per vessel	26	20	17	12	21
	Average annual scallop landings per vessel (lb.)	7,814	6,445	5,770	3,066	6,553
	Average annual scallop revenue per vessel (lb.)	43,112	34,690	31,036	15,990	35,689
	Average gross tonnage	25	77	125	172	75
	Average horse power	341	429	528	821	454
	Average number of crew	3	4	4	5	4
	Total scallop landings (lb.)	1,515,980	554,237	628,964	131,849	2,831,030
2005	Number of vessels	324	108	142	45	619
	Average number of trips per vessel	35	37	38	31	36
	Average annual scallop landings per vessel (lb.)	11,151	11,850	12,898	8,659	11,493
	Average annual scallop revenue per vessel (lb.)	87,367	93,193	101,473	67,137	90,149
	Average gross tonnage	23	76	124	173	67
	Average horse power	361	418	518	837	442
	Average number of crew	3	4	4	5	4
	Total scallop landings (lb.)	3,612,900	1,279,786	1,831,545	389,675	7,113,906
2006	Number of vessels	322	113	161	47	643
	Average number of trips per vessel	30	32	33	21	30
	Average annual scallop landings per vessel (lb.)	9,591	11,291	11,444	6,376	10,119
	Average annual scallop revenue per vessel (lb.)	63,540	74,478	75,245	41,530	66,785
	Average gross tonnage	24	78	124	171	69
	Average horse power	374	436	521	832	455
	Average number of crew	3	4	4	5	4
	Total scallop landings (lb.)	3,088,419	1,275,889	1,842,544	299,684	6,506,536
2007	Number of vessels	211	66	111	32	420
	Average number of trips per vessel	22	25	21	14	21
	Average annual scallop landings per vessel (lb.)	6,901	9,089	7,764	3,697	7,229
	Average annual scallop revenue per vessel (lb.)	38,565	49,648	46,092	22,386	41,063
	Average gross tonnage	24	78	126	172	71
	Average horse power	372	451	517	843	458
	Average number of crew	3	4	4	5	4
	Total scallop landings (lb.)	1,456,058	599,856	861,794	118,317	3,036,025

The composition of landings by annual pounds landed is shown in Figure 28 for general category vessels and in Figure 29 for limited access vessels. Figure 28 indicates the number of general category vessels landing scallops and those landing 10,000 pounds or more increased significantly after 2000. The majority of general category vessels landed less than 10,000 pounds per year, however, during 1994-2006. In contrast, the majority of the limited access vessels landed more than 100,000 pounds after 2000 (Figure 29).

Figure 28. General category vessel annual landings of scallops by vessel, 1994-2007.

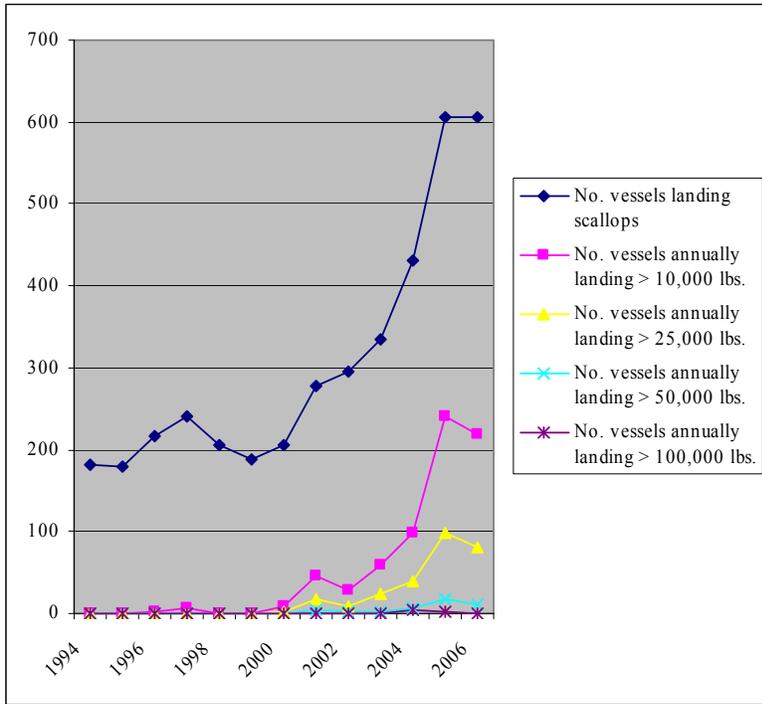
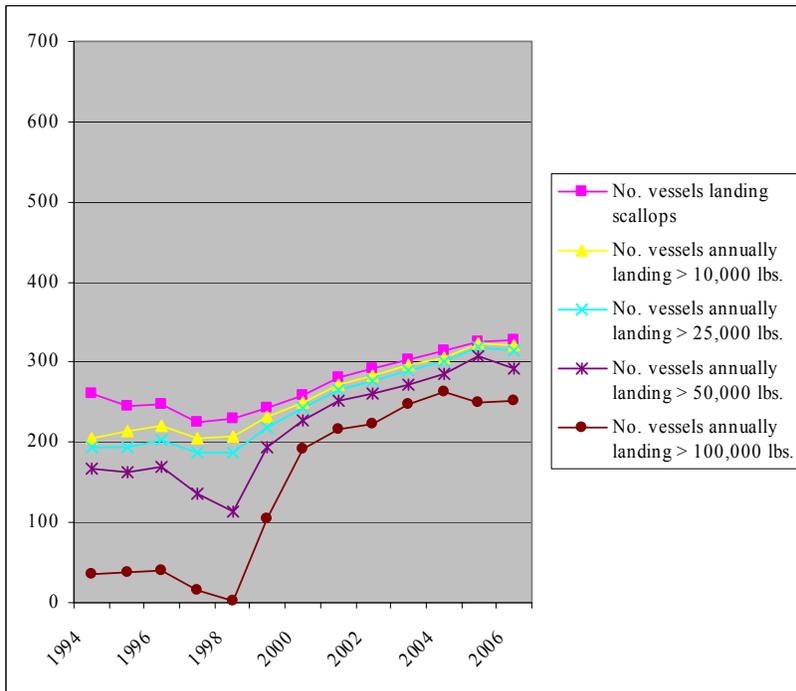


Figure 29. Limited access vessel annual landings of scallops by vessel, 1994-2007.



#### 4.4.6 The Trends in fishing by gear type

Table 67 through Table 69 describe general category landings by gear type. These tables are generated by VTR data and since all VTR records do not include gear information, the number of vessels in these tables will differ from other tables that summarize general category vessels and landings from dealer data. Primary gear is defined as the gear used to land more than 50% of scallop pounds. Most general category effort is and has been from vessels using scallop dredge and other trawl gear (Table 67). The number of vessels using scallop trawl gear has increased in recent years as well. In terms of landings, most scallop landings under general category are with dredge gear (Table 68). Scallop landings with other trawl gear were relatively high in 2000 and 2001 and again in 2003 and 2004, but landings with scallop trawl gear have increased in both 2003 and 2004. Table 69 shows the percent of general category landings by primary gear per year.

**Table 67. Number of general category vessels by primary gear and fishing year**

Fishing year	Scallop Dredge	Other dredge	Scallop trawl	Other trawl	Misc. gear	Grand Total
1994	24	NA	NA	47	6	80
1995	33	3		61	4	101
1996	67	NA	NA	62	6	137
1997	88	NA	NA	73	4	166
1998	71	NA	NA	64	NA	141
1999	50	NA	NA	82	NA	138
2000	45	NA	NA	94	3	147
2001	103	3	4	94	NA	205
2002	116	NA	9	102	NA	229
2003	110	NA	14	113	NA	240
2004	141	3	25	141	5	315
2005	313	34	66	213	1	627
2006	377	31	66	168	14	656

**Table 68. General category scallop landings by primary gear (lb.)**

Fishing year	Scallop Dredge	Other dredge	Scallop trawl	Other trawl	Misc. gear	Grand Total
1994	22,303	995	796	7,696	1,259	33,049
1995	44,325	146	-	13,952	452	58,875
1996	152,541	14	52	8,878	4,060	165,544
1997	187,055	286		14,826	2,159	204,326
1998	117,331	656	5,573	16,273	470	140,303
1999	62,666	6,884	11,520	19,987	45	101,102
2000	119,496	14,929	10,460	185,892	337	331,114
2001	857,648	12,500	20,475	203,775	7	1,094,405
2002	748,152	28,647	52,878	47,735	-	877,412
2003	1,006,763	35,761	238,421	174,624	41	1,455,610
2004	1,579,190	34,852	352,308	384,802	7,970	2,359,123
2005	4,537,769	199,673	769,739	768,531	863	6,276,575
2006	5,617,638	206,799	599,779	421,529	9,499	6,855,244

**Table 69. Percentage of general category scallop landings by primary gear**

Fishing year	Scallop Dredge	Other dredge	Scallop trawl	Other trawl	Misc. gear	Grand Total
1994	67.48%	3.01%	2.41%	23.29%	3.81%	100.00%
1995	75.29%	0.25%	0.00%	23.70%	0.77%	100.00%
1996	92.15%	0.01%	0.03%	5.36%	2.45%	100.00%
1997	91.55%	0.14%	0.00%	7.26%	1.06%	100.00%
1998	83.63%	0.47%	3.97%	11.60%	0.34%	100.00%
1999	61.98%	6.81%	11.39%	19.77%	0.04%	100.00%
2000	36.09%	4.51%	3.16%	56.14%	0.10%	100.00%
2001	78.37%	1.14%	1.87%	18.62%	0.00%	100.00%
2002	85.27%	3.26%	6.03%	5.44%	0.00%	100.00%
2003	69.16%	2.46%	16.38%	12.00%	0.00%	100.00%
2004	66.94%	1.48%	14.93%	16.31%	0.34%	100.00%
2005	72.30%	3.20%	12.30%	12.20%	0.00%	100.00%
2006	81.90%	3.00%	8.70%	6.10%	0.10%	100.00%

#### 4.4.7 Trends in scallop landings by port

The landed value of scallops by port landing fluctuated from 1994 through 1998 for many ports. During this time, four ports brought in the most landed value: New Bedford, MA; Cape May, NJ; Newport News, VA; and Hampton, VA (Table 70). In addition to bringing in the most landed value, in 1994 scallop landings represented more than 30% of the total landed value for New Bedford, MA and Cape May, NJ, and more than 65% of the total landed value for Newport News and Hampton, VA (Table 71). This has increased in 2006 to 79% and 64% for New Bedford, MA and Cape May, NJ, respectively, and 96% and 82% for Newport News and Hampton, VA, respectively.

Landed value increased steadily throughout the next period from 1999-2005; however, some ports show a decline in 2006, but the data was pulled in February 2007, so all of the data may not have been entered for 2006 (Table 68). Of these, though, only 34% saw a decrease in the percentage of landed scallop value to total landed value (Table 69).

Between 2003 and 2005, 10 ports increased their landed value for scallops, potentially from an increase in general category landings. The average landed value has increased from \$2 million in 1994 to a peak of \$12 million in 2005. In 2006, the average landed value decreased to \$10 million.

**Table 70. Landed value of scallops (in thousands of dollars) by port of landing, FY 1994-2006**

Port	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
New Bedford MA (Bristol county)	30981	36553	48436	45514	34687	70554	88491	80357	96011	104664	150121	206947	202511
Newport News VA (Newport News City)	9289	11917	13457	11173	11275	15207	23092	25535	30494	37361	48424	39468	22277
Cape May NJ (Cape May county)	9360	8874	8656	6945	5588	9765	14158	18626	20237	28530	46532	51432	20487
Barnegat Light/Long Beach NJ (Ocean county)	2653	2727	3007	3105	2693	3946	6733	6753	8071	10021	15641	21070	16863
Newport RI (Newport county)	23	229	101	784	534	447	700	0	3	X*	1382	8412	13022
Seaford VA (York county)	0	0	0	5553	4543	6540	11168	10465	11841	13043	18572	16364	11601
Fairhaven MA (Bristol county)	0	0	0	0	0	0	0	0	0	0	0	5280	10103
Hampton VA (Hampton City)	12425	7863	6346	3258	4557	5084	8289	9195	13803	19012	19981	14172	9064
Point Judith RI (Washington county)	1	58	4	7	X*	242	734	596	83	274	622	4645	7374
Chincoteague VA (Accomack county)	2	0	0	0	X*	7	210	803	1115	1957	4058	11884	7272
Point Pleasant NJ (Ocean county)	315	532	1401	2207	1590	1854	3784	3197	3530	3973	3523	8584	6966
Ocean City MD (Worcester county)	11	24	43	5	X*	25	118	79	99	212	527	4871	5433
Stonington CT (New London county)	0	0	232	2573	2717	3302	3459	4944	5669	7463	10363	7402	4561
Chatham MA (Barnstable county)	0	0	X*	0	0	0	X*	588	117	409	1925	2997	3083
Wildwood NJ (Cape May county)	7	X*	X*	0	X*	0	120	1246	2056	2194	3557	3943	2088
Montauk NY (Suffolk county)	X*	X*	X*	X*	0	7	6	8	0	1	435	1367	1828
Atlantic City NJ (Atlantic county)	15	1	0	0	1	0	0	X*	0	0	382	2308	1718
Avalon NJ (Cape May county)	0	0	0	0	0	0	0	0	0	0	0	X	1457
New London CT (New London county)	0	0	0	0	0	843	817	943	886	1026	1203	1736	1425
Provincetown MA (Barnstable county)	45	24	92	97	114	57	120	2130	540	648	637	1688	993
Hampton Bays NY (Suffolk county)	X*	5	5	22	6	53	426	454	94	157	535	1588	835
Gloucester MA (Essex county)	X*	X*	232	357	104	161	1014	1543	783	557	682	1217	812
Jonesport ME (Washington county)	770	247	230	184	114	113	299	392	294	29	0	0	576
Barnstable MA (Barnstable county)	0	0	0	0	0	0	0	0	0	0	31	184	565
Hyannisport MA (Barnstable county)	0	0	0	0	0	0	0	0	0	0	30	648	415
Islip NY (Suffolk county)	0	0	0	0	0	0	0	0	0	0	0	286	326
Sandwich MA (Barnstable county)	23	37	284	128	243	213	157	218	249	266	136	243	325
Engelhard NC (Hyde county)	0	0	0	0	0	X*	X*	X*	0	140	22	124	311
Oriental NC (Pamlico county)	0	0	0	0	16	5	4	87	6	29	359	306	222
Shinnecock NY (Suffolk county)	0	0	0	0	0	0	0	0	0	0	X*	317	210
Nantucket MA (Nantucket county)	5	0	8	X*	1	0	X	0	X*	2	58	282	183
Beaufort NC (Carteret county)	0	0	0	106	212	X*	51	4	217	282	302	111	167
Wanchese NC (Dare county)	0	0	0	X*	0	31	64	1350	1023	262	382	75	124
Harwich Port MA (Barnstable county)	0	0	0	0	0	0	0	592	110	318	245	770	115
Indian River DE (Sussex county)	0	0	0	0	0	0	0	0	0	0	0	X*	114
Hampton NH (Rockingham county)	0	0	0	0	0	0	0	0	0	17	0	0	X

\* Includes only ports of landings with landed value of scallops in excess of \$100,000 during FY2006. X = confidential data, with landings that are greater than 100,000 but less than 1.25 million, X\* = less than 70,000. Data run August 2, 2007, based on dealer weighout data YTD.

**Table 71. Percentage of landed value of scallops to total landed value by port of landing, FY 1994-2006**

<b>Homeport</b>	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
New Bedford MA (Bristol county)	39	41	45	44	36	53	57	53	58	58	70	75	79
Newport News VA (Newport News City)	67	71	76	73	73	79	86	84	89	92	92	94	96
Cape May NJ (Cape May county)	33	33	35	29	23	44	59	68	69	76	75	76	64
Barnegat Light/Long Beach NJ (Ocean county)	28	29	32	30	26	30	47	47	57	60	73	78	75
Newport RI (Newport county)	0	2	1	10	7	5	8	0	0	0	16	59	67
Seaford VA (York county)	0	0	0	95	94	98	99	100	100	100	100	100	100
Fairhaven MA (Bristol county)	0	0	0	0	0	0	0	0	0	0	0	65	90
Hampton VA (Hampton City)	71	66	63	47	55	61	73	75	82	83	76	74	82
Point Judith RI (Washington county)	0	0	0	0	0	0	2	2	0	1	2	12	18
Chincoteague VA (Accomack county)	0	0	0	0	0	0	10	33	39	47	54	74	75
Point Pleasant NJ (Ocean county)	2	5	10	13	10	10	21	17	18	18	19	39	36
Ocean City MD (Worcester county)	0	0	1	0	0	0	2	1	1	3	1	42	48
Stonington CT (New London county)	0	0	24	39	38	35	36	52	67	77	82	71	70
Chatham MA (Barnstable county)	0	0	0	0	0	0	1	5	1	4	17	19	19
Wildwood NJ (Cape May county)	0	0	0	0	0	0	3	21	32	32	51	82	75
Montauk NY (Suffolk county)	0	0	0	0	0	0	0	0	0	0	3	9	13
Atlantic City NJ (Atlantic county)	0	0	0	0	0	0	0	0	0	0	2	12	8
Avalon NJ (Cape May county)	0	0	0	0	0	0	0	0	0	0	0	99	99
New London CT (New London county)	0	0	0	0	0	21	32	24	21	22	21	29	36
Provincetown MA (Barnstable county)	2	1	4	4	4	2	3	38	13	19	18	35	29
Hampton Bays NY (Suffolk county)	0	0	0	0	0	1	4	5	1	2	8	23	13
Gloucester MA (Essex county)	0	0	1	1	0	1	2	4	2	1	2	2	2
Jonesport ME (Washington county)	39	16	4	3	2	2	3	3	2	0	0	0	3
Barnstable MA (Barnstable county)	0	0	0	0	0	0	0	0	0	0	2	11	29
Hyannisport MA (Barnstable county)	0	0	0	0	0	0	0	0	0	0	9	19	20
Islip NY (Suffolk county)	0	.	0	0	0	0	0	0	0	0	0	44	33
Sandwich MA (Barnstable county)	1	1	8	3	9	6	3	4	4	4	2	4	8
Engelhard NC (Hyde county)	0	0	0	0	0	0	0	2	0	5	1	5	10
Oriental NC (Pamlico county)	0	0	0	0	1	0	0	5	0	2	16	21	10
Shinnecock NY (Suffolk county)	0	0	0	0	0	0	0	0	0	0	4	45	34
Nantucket MA (Nantucket county)	8	1	3	1	1	0	15	0	0	0	9	19	12
Beaufort NC (Carteret county)	0	0	0	3	6	1	1	0	6	9	8	4	7
Wanchese NC (Dare county)	0	0	0	1	0	0	0	13	11	3	3	1	1
Harwich Port MA (Barnstable county)	0	0	0	0	0	0	0	9	2	14	11	25	6
Indian River DE (Sussex county)	0	0	0	0	0	0	0	0	0	0	0	11	23
Hampton NH (Rockingham county)	0	0	0	0	0	0	0	0	0	14	0	0	40

\* Includes only ports of landings with landed value of scallops in excess of \$100,000 during FY2006. X = confidential data, with landings that are greater than 100,000 but less than 1.25 million, X\* = less than 70,000. Data run August 2, 2007, based on dealer weighout data YTD.

**Table 72. Landed Value of scallops, linked to Vessel Homeport, ranked by fishing year 2006.**

Homeport	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
New Bedford MA (Bristol county)	28300	32429	39317	31568	25804	44363	59779	65543	78765	88962	126100	158056	138351
Cape May NJ (Cape May county)	6979	7453	7528	7957	5876	10546	16725	17891	23178	30267	46348	63403	56850
Newport News VA (Newport News City)	1840	2250	2547	3263	3495	9017	12438	14089	16328	16788	22516	24329	20483
Barnegat Light NJ (Ocean county)	3041	3370	3297	2821	2335	4409	6676	6978	7811	9853	15276	19068	16060
Norfolk VA (Norfolk (City) county)	14803	15818	16234	14093	10970	14765	18015	14287	16563	17464	20099	13890	11031
New Bern NC (Craven county)	X	X	X	X	837	2322	2650	3292	4235	6431	7885	7751	8084
Fairhaven MA (Bristol county)	2708	3245	4453	4318	3720	6776	11669	6628	7133	7214	9021	10669	7925
Point Pleasant NJ (Ocean county)	953	977	1179	1504	1016	1386	2232	2374	2588	2938	3900	6841	6185
Hampton VA (Hampton City)	4113	4413	4001	3014	2602	3704	4998	4103	4318	3742	6815	3573	5320
Wanchese NC (Dare county)	46	14	3	1	485	1	816	2769	3378	4401	5708	6652	5054
Oriental NC (Pamlico county)	X	X	174	X	890	1627	1776	1260	2059	3688	4399	7190	4582
Lowland NC (Pamlico county)	6	120	445	0	X	963	1466	1786	2176	2897	3834	6106	4379
New London CT (New London county)	0	0	0	0	0	0	X	0	0	X	X	2296	4131
Point Judith RI (Washington county)	4	2	X	9	3	182	2099	530	78	263	335	2951	3867
Atlantic City NJ (Atlantic county)	X	X	X	X	X	0	X	X	0	2	101	3634	3135
Atlantic NC (Carteret county)	0	X	X	930	971	1357	1731	2075	2008	2285	3071	4026	2921
Seaford VA (York county)	X	X	X	0	0	0	0	X	2399	3452	3874	4551	2672
Cape Canaveral FL (Brevard county)	X	X	X	X	X	X	X	X	XX	1673	2380	3648	2552
Barnstable MA (Barnstable county)	2227	1968	1368	650	396	384	891	939	970	798	1152	2009	2509
Aurora NC (Beaufort county)	X	X	X	X	X	X	X	X	X	XX	XX	XX	XX
Carrollton VA (Isle Of Wight county)	X	X	X	X	X	XX	XX	XX	XX	XX	XX	XX	XX
Ocean City MD (Worcester county)	X	11	1	X	0	X	7	23	27	14	726	1814	1702
Wildwood NJ (Cape May county)	4	5	149	X	X	X	805	1001	843	792	1855	2464	1529
Chatham MA (Barnstable county)	0	0	0	0	0	X	0	296	42	273	233	1285	1493
Bedford MA (Middlesex county)	X	X	X	X	X	X	X	XX	X	XX	XX	XX	XX
Bayboro NC (Pamlico county)	X	X	X	X	X	X	X	671	998	1512	2141	808	1235
Southwest Harbor ME (Hancock county)	168	405	520	482	282	763	1086	590	529	674	X	XX	XX
Gloucester MA (Essex county)	171	11	317	372	251	986	636	597	757	846	1681	2261	1209
Engelhard NC (Hyde county)	0	0	0	0	0	0	0	X	X	X	541	1588	1117
Manahawkin NJ (Ocean county)	0	0	0	0	0	0	0	0	0	0	0	XX	XX
Bass Harbor ME (Hancock county)	X	X	X	338	226	X	X	X	554	787	1051	XX	XX
Jacksonville FL (Duval county)	X	0	0	X	X	X	X	X	X	0	X	1414	XX
Swan Quarter NC (Hyde county)	0	0	X	X	X	X	827	X	X	749	1509	2772	944
Provincetown MA (Barnstable county)	15	27	72	86	36	72	96	2168	676	351	391	1492	883

county)													
Beaufort NC (Carteret county)	42	X	X	X	0	X	X	244	256	67	289	1954	881
Poquoson VA (Poquoson City)	0	0	0	0	0	X	X	X	X	XX	XX	XX	X
Tilghman MD (Talbot county)	0	0	0	0	0	0	0	0	0	0	0	590	850
Newport NC (Carteret county)	X	X	X	X	X	X	X	X	X	X	X	X	840
Boston MA (Suffolk county)	265	334	454	454	162	449	512	706	880	1021	639	XX	831
Plymouth MA (Plymouth county)	X	X	X	66	12	X	X	X	126	X	253	1568	818
Belhaven NC (Beaufort county)	X	0	X	0	0	0	X	229	320	551	457	1781	717
Sneads Ferry NC (Onslow county)	0	0	0	0	0	0	0	0	0	0	0	1102	679
Harwich MA (Barnstable county)	0	0	0	0	0	0	X	115	0	0	0	X	661
Point Pleasant Beach NJ (Ocean county)	X	0	0	0	0	X	X	X	X	X	456	1147	582
Brunswick GA (Glynn county)	0	0	0	0	0	0	0	0	X	X	139	476	578
Westport MA (Bristol county)	0	0	0	0	0	0	0	0	0	0	30	422	483
Owls Head ME (Knox county)	X	235	87	X	X	X	X	516	395	371	347	682	470
Waretown NJ (Ocean county)	0	0	0	0	0	0	0	0	0	0	0	X	X
Hampton Bays NY (Suffolk county)	0	1	0	0	0	0	42	87	0	2	80	208	408
Shinnecock NY (Suffolk county)	X	3	19	7	4	7	277	219	41	78	318	1025	351
Egg Harbor Township NJ (Atlantic county)	0	0	0	0	0	0	0	0	0	0	0	XX	X
Scranton NC (Hyde county)	0	0	0	0	0	0	0	0	0	X	X	X	X
Crisfield MD (Somerset county)	0	0	0	0	0	0	0	0	0	0	0	X	X
Lubec ME (Washington county)	0	0	0	X	15	0	X	54	X	149	375	647	293
Kittery ME (York county)	0	0	0	X	X	7	0	0	0	0	0	414	284
Nanticoke MD (Wicomico county)	0	0	0	0	0	0	0	0	0	0	0	X	X
Sandwich MA (Barnstable county)	20	21	137	71	83	114	128	349	177	323	135	287	252

Table only includes ports with either more than 1M in 2006 landed value, or more than 250K in landed value with at least 10% port total scallops. X = confidential, less than 1M; XX = confidential, more than 1M. Data run, August 9, 2007.

The largest numbers of permitted limited access scallop vessels currently are in the ports of New Bedford, MA and Cape May, NJ, which represent 37% and 19% of the total, respectively (Table 73). Of the 360 permitted limited access vessels in 2007, 199 originate from New Bedford, MA and Cape May, NJ. Although the number of permitted limited access vessels has only increased from 308 in 1994 to a peak of 380 in 2005 and New Bedford has always had the largest number of permitted limited access vessels, the port with the next greatest number of contributors has shifted from Norfolk, VA (18% in 1994 to 3% in 2007) to Cape May, NJ (9% in 1994 to 19% in 2007).

In addition to having the greatest number of permitted limited access scallop vessels, New Bedford, MA also has the greatest number of general category scallop vessels. Gloucester, MA also has a high number of general category scallop vessels. Generally, ports that had a higher number of general category scallop vessels from 1994-2004, such as New Bedford, Gloucester, and Chatham, have seen a significant decrease in these vessels. Ports that originally had no to very few permitted general category scallop vessels, such as Belhaven and Engelhard, NC, have now seen an increase of up to about 10 vessels in 2007 (Table 74). A number of ports have seen large increases in the number of general category permits since the permits began in 1994 and the number peaked between 1996 and 2001. Although the largest increases have been from many ports in NC, they have increased from 1 or no permitted general category scallop vessels to only about 6 or 7, which results in a 600-700% increase. Regardless of this increase, these ports only had a landed value for scallops of \$311,000 or less. Other ports that saw an increase of 300% in general category vessels, such as Chincoteague, VA and Barnegat Light, NJ, had a landed value of \$7.3 million and \$16.9 million, respectively (Table 70). Although some ports, such as New Bedford and Gloucester have experienced a decline in the number of general category scallop vessels, the simultaneous increase in permitted limited access boats has aided to increase the landed value of scallops in those ports to \$202.5 million and \$812,000, respectively. As Table 75 shows, however, the general category fleet is not homogeneous, but varies over space and time, with some ports showing general category fleet that mirrors limited access vessels in size (for example Atlantic City NJ), and others showing the more traditionally smaller-scale vessels (such as Fairhaven MA). Thus impacts to the general category fishery as a whole can be experienced differently in different ports.

**Table 73. Permitted limited access scallop vessels, by homeport, 1994-2007**

Homeport	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
New Bedford, MA (Bristol county)	94	91	79	75	73	78	81	96	105	110	115	130	136	132
Cape May, NJ (Cape May county)	33	31	31	33	33	34	38	39	45	53	58	72	71	67
Newport News, VA (Newport News City)	8	9	10	10	12	17	19	21	21	21	22	23	19	18
New Bern, NC (Craven county)	1	2	2	4	4	6	6	8	8	8	8	13	13	14
Oriental, NC (Pamlico county)	2	2	3	2	4	5	4	5	5	7	9	9	14	12
Barnegat Light, NJ (Ocean county)	9	9	9	9	8	8	10	10	9	11	13	12	11	11
Norfolk, VA (Norfolk City)	65	67	63	58	51	42	35	27	27	27	22	13	12	11
Fairhaven, MA (Bristol county)	12	13	10	10	13	12	15	11	9	9	8	9	8	8
Wanchese, NC (Dare county)	4	3	2	2	2	1	4	8	7	7	6	6	8	8
Hampton, VA (Hampton City)	15	15	11	11	8	7	6	6	6	6	7	5	7	7
Lowland, NC (Pamlico county)	6	6	7	6	6	8	7	7	7	8	9	8	8	7
County Total, VA (York county)	1	1	1	0	0	0	0	2	3	4	4	5	6	5
New London, CT (New London county)	0	0	0	0	0	1	1	1	1	1	1	3	5	5
Seaford, VA (York county)	1	1	1	0	0	0	0	2	3	4	4	5	6	5
Point Judith, RI (Washington county)	1	1	3	3	3	4	4	3	3	3	2	3	4	4

Point Pleasant, NJ (Ocean county)	6	6	5	5	4	4	4	4	4	4	4	4	4
Stonington, CT (New London county)	3	3	5	6	6	4	5	7	7	8	8	4	4
Atlantic, NC (Carteret county)	3	3	3	3	3	3	3	3	3	3	3	3	3
Aurora, NC (Beaufort county)	2	2	2	2	2	1	1	2	2	3	2	2	2
Barnstable, MA (Barnstable county)	11	9	9	4	2	1	1	1	1	1	2	2	2
Bayboro, NC (Pamlico county)	1	1	1	3	1	2	2	2	4	3	3	2	3
Cape Canaveral, FL (Brevard county)	3	4	4	3	3	1	2	3	2	2	2	2	2
Carrollton, VA (Isle Of Wight county)	2	3	2	1	2	2	3	2	2	2	2	2	2
Plymouth, MA (Plymouth county)	2	0	0	0	0	0	0	0	0	0	1	2	3
Poquoson, VA (Poquoson City)	0	0	0	0	0	2	2	1	1	2	2	2	2
Wildwood, NJ (Cape May county)	5	5	4	3	3	2	2	2	2	2	2	4	2
Atlantic City, NJ (Atlantic county)	0	0	0	0	0	0	0	0	0	0	0	1	2
Bass Harbor, ME (Hancock county)	1	1	1	1	1	1	1	1	2	1	1	1	1
Bedford, MA (Middlesex county)	1	1	1	1	1	1	1	1	1	1	1	1	1
Boston, MA (Suffolk county)	1	1	2	3	3	2	2	2	2	2	1	1	1
Chatham, MA (Barnstable county)	0	0	0	0	0	0	0	0	0	0	1	1	1
Engelhard, NC (Hyde county)	1	1	1	0	0	0	0	1	1	1	1	1	1
Essex, CT (Middlesex county)	0	0	0	0	0	0	0	0	0	0	0	1	1
Gloucester, MA (Essex county)	3	3	3	4	2	2	1	1	3	1	1	1	1
Jacksonville, FL (Duval county)	1	0	0	1	1	1	1	1	1	0	1	1	1
Key West, FL (Monroe county)	0	0	1	1	0	0	0	0	1	1	1	1	1
Manahawkin, NJ (Ocean county)	0	0	0	0	0	0	0	0	0	0	0	1	1
Newport, NC (Carteret county)	1	1	1	1	1	1	1	1	1	1	1	1	1
Owls Head, ME (Knox county)	2	3	2	2	2	2	3	3	3	2	2	2	1
Point Pleasant Beach, NJ (Ocean county)	0	0	0	0	0	1	1	1	1	1	1	1	1
Scranton, NC (Hyde county)	0	0	0	2	1	1	1	1	1	1	1	1	1
Southwest Harbor, ME (Hancock county)	6	3	4	3	2	2	2	2	2	2	1	1	1
Suffolk, VA (Suffolk (City) county)	0	0	0	0	0	0	0	0	0	0	0	0	1
Swan Quarter, NC (Hyde county)	1	1	1	1	1	2	2	2	3	3	3	3	1
Westport, MA (Bristol county)	0	1	1	1	1	1	1	1	1	1	1	1	1

**Table 74. Permitted general category scallop vessels, by homeport, 1994-2007**

Homeport	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
New Bedford, MA (Bristol county)	160	156	146	146	118	113	117	123	123	124	128	86	88	81
Gloucester, MA (Essex county)	149	152	141	155	149	159	157	172	195	190	193	37	49	51
Cape May, NJ (Cape May county)	30	28	28	29	26	36	42	43	42	48	63	30	48	45
Point Judith, RI (Washington county)	71	76	72	82	78	81	76	79	80	84	87	30	39	42
Barneгат Light, NJ (Ocean county)	9	14	10	12	11	27	35	48	51	59	63	29	30	29
Point Pleasant, NJ (Ocean county)	24	20	20	21	25	27	29	33	34	31	35	17	22	25
Chatham, MA (Barnstable county)	67	64	67	70	65	66	71	77	89	93	86	23	27	25
Montauk, NY (Suffolk county)	34	34	35	36	37	44	45	42	44	50	59	17	17	21
Portland, ME (Cumberland county)	77	76	72	67	57	70	72	67	65	75	74	24	22	20
Atlantic City, NJ (Atlantic county)	5	6	5	7	9	12	11	18	23	22	26	20	22	17
Shinnecock, NY (Suffolk county)	30	29	27	26	22	28	30	30	28	29	34	10	15	15
Provincetown, MA (Barnstable county)	27	33	30	26	25	28	25	30	29	31	36	14	16	14
Ocean City, MD (Worcester county)	3	3	5	6	7	5	7	10	8	12	17	11	16	14
Beaufort, NC (Carteret county)	3	1	4	4	5	6	12	12	13	15	17	14	14	14
Harwich, MA (Barnstable county)	15	16	22	21	19	22	22	26	27	23	25	11	14	13
Portsmouth, NH (Rockingham county)	19	19	25	29	30	33	39	38	40	38	52	12	12	12
Boston, MA (Suffolk county)	37	36	33	37	30	24	20	23	28	25	32	13	11	12
Plymouth, MA (Plymouth county)	24	28	31	30	33	30	29	33	32	36	42	8	9	11
Wanchese, NC (Dare county)	10	11	9	12	10	14	14	15	18	22	26	14	13	10
Newport, RI (Newport county)	18	21	19	18	18	17	21	26	27	26	29	10	10	9
Cundys Harbor, ME (Cumberland county)	18	17	15	17	10	12	12	14	15	14	12	4	9	9
Tilghman, MD (Talbot county)	0	0	0	0	0	0	0	0	0	0	7	7	10	8
Stonington, ME (Hancock county)	20	18	29	18	17	19	22	19	21	20	26	9	11	8

Seabrook, NH (Rockingham county)	19	17	17	22	19	17	21	24	26	20	20	2	4	8
Scituate, MA (Plymouth county)	28	34	39	39	36	41	45	37	41	41	42	8	7	8
Sandwich, MA (Barnstable county)	20	20	12	12	16	20	20	19	22	22	25	9	10	8
Rye, NH (Rockingham county)	11	12	13	13	14	12	10	12	14	15	20	3	6	8
Belhaven, NC (Beaufort county)	3	3	3	4	4	3	4	4	6	7	11	12	9	8
Belford, NJ (Monmouth county)	26	28	25	28	24	27	26	26	26	26	30	4	6	8
Westport, MA (Bristol county)	17	21	16	15	20	17	23	21	20	19	20	7	7	7
Swan Quarter, NC (Hyde county)	1	1	1	1	1	1	2	3	5	5	7	5	9	7
Stonington, CT (New London county)	10	8	8	8	8	9	9	10	11	10	12	7	8	7
South Bristol, ME (Lincoln county)	12	11	9	12	14	12	12	12	9	8	12	6	8	7
Port Norris, NJ (Cumberland county)	0	0	0	0	0	0	0	2	3	8	15	7	7	7
Oriental, NC (Pamlico county)	0	0	0	0	2	3	3	2	4	4	10	5	13	7
Harpwell, ME (Cumberland county)	7	8	10	15	12	17	18	18	16	21	28	4	5	7
Engelhard, NC (Hyde county)	0	0	0	1	2	3	4	5	4	6	10	7	8	7
Barnstable, MA (Barnstable county)	21	25	23	21	23	23	24	30	30	24	23	9	9	7
Wilmington, DE (New Castle county)	5	5	5	4	4	4	3	3	5	5	5	6	6	6
Sneads Ferry, NC (Onslow county)	0	0	0	0	1	0	0	1	1	4	6	7	10	6
Winter Harbor, ME (Hancock county)	6	10	8	6	7	7	11	11	14	13	19	3	5	5
Wildwood, NJ (Cape May county)	10	9	8	9	9	8	10	12	11	10	10	5	5	5
Port Clyde, ME (Knox county)	10	11	13	12	15	15	16	17	15	16	18	1	1	5
Owls Head, ME (Knox county)	3	3	5	2	3	3	5	9	9	13	11	3	6	5
Norfolk, VA (Norfolk (City) county)	41	35	26	30	21	20	14	18	20	18	17	7	7	5
Newburyport, MA (Essex county)	19	16	18	17	18	17	21	20	25	26	24	6	7	5
New London, CT (New London county)	3	3	5	7	9	9	8	11	10	8	11	6	8	5
Lowland, NC (Pamlico county)	7	2	2	2	2	2	2	2	2	5	5	5	5	5
Kittery, ME (York county)	7	8	5	10	11	14	14	13	12	13	12	5	6	5
Hampton Bays, NY (Suffolk county)	16	18	17	15	16	17	17	15	12	11	8	3	6	5
Cape Canaveral, FL (Brevard county)	1	0	0	0	0	0	0	0	0	2	8	7	6	5
Bucks Harbor, ME (Washington county)	13	16	13	11	11	11	11	12	14	15	16	4	4	5
Woods Hole, MA (Barnstable county)	6	8	6	6	4	3	7	8	8	9	9	3	4	4
Wellfleet, MA (Barnstable county)	13	13	11	12	10	9	6	10	11	9	13	5	4	4
Sea Isle City, NJ (Cape May county)	1	2	2	2	4	8	8	8	9	10	12	2	5	4
Rockport, MA (Essex county)	13	13	15	17	18	20	21	23	30	28	25	3	4	4
Newport News, VA (Newport News City)	0	0	1	1	4	1	1	0	1	2	2	6	5	4
New York, NY (New York county)	19	17	18	17	14	12	14	13	15	11	12	2	3	4
New Bern, NC (Craven county)	1	0	1	0	1	0	0	1	0	0	1	5	6	4
Narragansett, RI (Washington county)	8	12	11	8	10	12	15	15	15	15	14	8	5	4
Millville, NJ (Cumberland county)	0	0	0	1	0	0	0	0	0	2	1	1	3	4
Hampton, VA (Hampton City)	1	0	0	1	1	1	3	4	3	1	0	3	4	4
Green Harbor, MA (Plymouth county)	16	16	15	14	19	19	19	19	16	17	18	0	2	4
Fairhaven, MA (Bristol county)	22	19	21	27	28	22	22	23	26	30	27	6	6	4
Cutler, ME (Washington county)	9	7	4	3	2	3	3	8	7	5	6	2	3	4
Chincoteague, VA (Accomack county)	1	1	0	1	0	1	6	6	9	12	10	4	4	4
Brunswick, GA (Glynn county)	0	0	0	0	0	0	2	2	3	6	7	4	5	4
Bayboro, NC (Pamlico county)	0	0	0	0	0	0	0	3	3	3	2	4	3	4
Wakefield, RI (Washington county)	7	9	7	8	9	9	9	11	10	9	8	3	3	3
Rockland, ME (Knox county)	15	14	16	13	7	5	8	11	11	10	11	4	7	3
Marshfield, MA (Plymouth county)	9	9	6	15	16	18	22	19	17	20	20	2	3	3
Lubec, ME (Washington county)	5	5	4	5	8	6	9	7	8	12	11	9	7	3
Lewes, DE (Sussex county)	2	2	1	1	1	1	1	1	2	3	5	3	3	3
Islip, NY (Suffolk county)	3	3	2	2	2	2	2	3	3	4	7	3	3	3
Hampton, NH (Rockingham county)	18	19	16	16	15	17	16	20	21	19	23	4	3	3
Friendship, ME (Knox county)	5	5	5	4	6	4	4	7	9	9	11	2	3	3

\*Years 2005-2007 only show general category vessels with a VMS license. Table only shows ports with 3 or more permitted vessels.

**Table 75. Average GRT (gross registered tons), average length, and number of permitted scallop vessels by top 20 homeports, 1994-2006.**

			1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Atlantic, NC	Limited access	Avg. Length	78	81	81	81	81	81	81	81	81	81	81	81	81
		Avg. GRT	168	168	168	168	168	168	168	168	168	168	168	168	168
		No. permits	3	3	3	3	3	3	3	3	3	3	3	3	3
Atlantic City, NJ	General Category	Avg. Length	73	70	70	68	68	68	63	63	63	63	63	54	63
		Avg. GRT	108	108	108	100	100	100	75	75	75	75	75	48	75
		No. permits	3	3	3	4	4	4	1	1	1	1	1	2	1
Aurora, NC	Limited access	Avg. Length	.	.	.	.	.	.	.	.	.	.	.	75	75
		Avg. GRT	.	.	.	.	.	.	.	.	.	.	.	125	121
		No. permits	.	.	.	.	.	.	.	.	.	.	.	1	2
Barnegat Light, NJ	General Category	Avg. Length	59	56	54	64	62	60	61	78	83	81	77	81	83
		Avg. GRT	73	62	62	99	90	84	90	124	145	139	121	119	128
		No. permits	5	6	5	7	9	12	11	18	23	22	26	35	37
Barnstable, MA	Limited access	Avg. Length	75	75	75	75	75	83	68	73	73	56	73	73	73
		Avg. GRT	116	116	116	116	116	133	114	125	125	85	125	125	125
		No. permits	2	2	2	2	2	1	1	2	2	3	2	2	2
Cape Canaveral, FL	General Category	Avg. Length	.	.	.	.	.	.	.	.	.	.	.	.	.
		Avg. GRT	.	.	.	.	.	.	.	.	.	.	.	.	.
		No. permits	.	.	.	.	.	.	.	.	.	.	.	.	.
Cape May, NJ	Limited access	Avg. Length	69	69	69	69	69	69	65	65	69	68	68	67	67
		Avg. GRT	117	117	117	117	110	110	97	97	108	107	107	102	101
		No. permits	9	9	9	9	8	8	10	10	9	11	13	12	11
Fairhaven, MA	General Category	Avg. Length	63	59	50	58	60	52	51	52	52	53	52	49	50
		Avg. GRT	91	79	44	63	73	53	48	56	54	54	50	38	40
		No. permits	9	14	10	12	11	27	35	48	51	59	63	63	62
Hampton, VA	Limited access	Avg. Length	79	82	81	68	70	70	78	78	78	78	70	70	70
		Avg. GRT	128	141	133	80	96	90	89	89	89	89	76	76	76
		No. permits	11	9	9	4	2	1	1	1	1	1	2	2	2
Lowland, NC	General Category	Avg. Length	45	42	41	39	40	43	40	40	41	42	42	39	40
		Avg. GRT	42	36	33	29	27	31	26	25	25	26	27	21	23
		No. permits	21	25	23	20	22	22	23	29	29	23	22	19	16
New Bedford	Limited access	Avg. Length	73	72	72	73	73	81	83	79	76	76	76	76	76
		Avg. GRT	136	132	132	136	136	175	160	142	140	140	140	140	140
		No. permits	3	4	4	3	3	1	2	3	2	2	2	2	2
Cape May, NJ	General Category	Avg. Length	81	.	.	.	.	.	.	.	.	74	67	69	65
		Avg. GRT	175	.	.	.	.	.	.	.	.	108	93	98	92
		No. permits	1	.	.	.	.	.	.	.	.	2	8	10	9
Fairhaven, MA	Limited access	Avg. Length	82	82	83	82	81	80	80	80	78	74	74	74	75
		Avg. GRT	151	152	155	149	148	146	145	146	143	132	130	128	131
		No. permits	33	31	31	33	33	34	38	39	45	53	58	72	71
Hampton, VA	General Category	Avg. Length	77	78	78	67	72	67	63	60	61	54	56	52	55
		Avg. GRT	126	130	137	109	122	104	92	88	81	65	63	56	62
		No. permits	30	28	28	29	26	36	42	43	42	48	63	73	82
Lowland, NC	Limited access	Avg. Length	86	87	88	89	89	91	89	89	87	87	90	89	89
		Avg. GRT	158	158	160	166	164	171	172	166	158	158	168	162	161
		No. permits	12	13	10	10	13	12	15	11	9	9	8	9	8
Hampton, VA	General Category	Avg. Length	43	42	45	43	42	43	46	45	45	46	46	46	45
		Avg. GRT	31	29	36	31	29	31	38	42	40	41	39	34	32
		No. permits	22	19	21	27	28	22	22	23	26	30	27	26	27
Hampton, VA	Limited access	Avg. Length	78	78	77	77	77	76	77	77	77	76	76	75	75
		Avg. GRT	152	152	152	152	154	152	162	162	162	160	158	140	124
		No. permits	15	15	11	11	8	7	6	6	6	6	7	5	7
Lowland, NC	General Category	Avg. Length	67	.	.	42	62	62	39	46	39	62	.	73	73
		Avg. GRT	97	.	.	17	61	61	25	44	25	61	.	114	116
		No. permits	1	.	.	1	1	1	3	4	3	1	.	3	4
New Bedford	Limited access	Avg. Length	73	73	73	73	73	74	73	73	73	72	75	77	78
		Avg. GRT	92	92	97	92	92	107	106	106	106	102	103	112	114
		No. permits	6	6	7	6	6	8	7	7	7	8	9	8	8
New Bedford	General Category	Avg. Length	68	66	66	66	66	66	66	66	66	62	73	70	69
		Avg. GRT	75	73	73	73	73	73	73	73	73	73	103	99	92
		No. permits	7	2	2	2	2	2	2	2	2	2	5	7	7
New Bedford	Limited access	Avg. Length	87	88	87	87	87	87	86	85	84	84	85	82	82
		Avg. GRT	172	173	174	174	176	175	173	169	164	163	164	153	154
		No. permits	94	91	79	75	73	78	81	96	105	110	115	130	136

New Bern, NC	General Category	Avg. Length	66	66	67	69	68	68	66	66	66	65	64	61	61
		Avg. GRT	101	102	103	110	109	107	103	101	103	102	98	94	96
		No. permits	160	156	146	146	118	113	117	123	123	124	128	130	128
	Limited access	Avg. Length	84	73	71	73	73	75	77	75	77	79	79	83	76
		Avg. GRT	198	89	89	94	94	103	115	106	114	113	113	122	114
		No. permits	1	2	2	4	4	6	6	8	8	8	8	13	13
	General Category	Avg. Length	75	.	75	.	67	.	.	67	.	.	43	69	60
		Avg. GRT	81	.	81	.	79	.	.	97	.	.	18	98	80
		No. permits	1	.	1	.	1	.	.	1	.	.	1	5	6
Limited access	Avg. Length	.	.	.	.	.	86	86	86	86	86	86	83	81	
	Avg. GRT	.	.	.	.	.	147	147	147	147	147	147	188	168	
	No. permits	.	.	.	.	.	1	1	1	1	1	1	3	5	
New London, CT	General Category	Avg. Length	73	73	61	53	49	50	51	54	52	56	53	54	54
		Avg. GRT	125	125	85	65	55	55	59	63	52	57	49	52	52
		No. permits	3	3	5	7	9	9	8	11	10	8	11	10	10
Limited access	Avg. Length	76	78	79	79	79	79	79	78	78	78	79	79	77	
	Avg. GRT	131	138	143	148	149	149	148	146	146	145	142	143	140	
	No. permits	8	9	10	10	12	17	19	21	21	21	22	23	19	
Newport News, VA	General Category	Avg. Length	.	.	52	50	69	64	64	.	63	63	52	56	67
		Avg. GRT	.	.	42	42	92	88	88	.	86	86	52	74	101
		No. permits	.	.	1	1	4	1	1	.	1	1	2	8	5
Limited access	Avg. Length	77	79	79	78	79	79	78	79	80	80	81	79	80	
	Avg. GRT	137	138	138	138	136	133	132	133	135	137	140	139	139	
	No. permits	65	67	63	58	51	42	35	27	27	27	22	13	12	
General Category	Avg. Length	66	63	66	69	70	63	59	60	60	57	55	52	51	
	Avg. GRT	85	75	84	92	92	77	76	74	72	62	57	48	46	
	No. permits	41	35	26	30	21	20	14	18	20	18	17	16	14	
Limited access	Avg. Length	71	71	70	73	76	75	76	75	66	68	80	67		
	Avg. GRT	101	101	108	121	127	126	127	123	100	99	115	118	94	
	No. permits	2	2	3	2	4	5	4	5	5	7	9	9	14	
General Category	Avg. Length	.	.	.	.	70	69	69	70	65	65	68	68	59	
	Avg. GRT	.	.	.	.	109	105	105	109	88	88	92	88	74	
	No. permits	.	.	.	.	2	3	3	2	4	4	10	9	15	
Limited access	Avg. Length	85	85	76	76	76	80	80	76	76	76	82	81	79	
	Avg. GRT	175	175	149	149	149	161	161	149	149	149	166	164	157	
	No. permits	1	1	3	3	3	4	4	3	3	3	2	3	4	
General Category	Avg. Length	59	58	60	58	59	57	57	56	57	56	56	56	55	
	Avg. GRT	73	74	78	73	74	71	70	67	70	70	67	68	67	
	No. permits	71	76	72	82	78	81	76	79	80	84	87	90	93	
Limited access	Avg. Length	75	75	79	79	83	83	83	82	82	82	82	82	82	
	Avg. GRT	108	108	120	120	131	131	131	122	122	122	122	122	122	
	No. permits	6	6	5	5	4	4	4	4	4	4	4	4	4	
General Category	Avg. Length	49	52	52	55	53	50	48	49	48	51	53	56	56	
	Avg. GRT	48	53	53	60	59	47	43	45	44	48	51	56	56	
	No. permits	24	20	20	21	25	27	29	33	34	31	35	37	41	
Limited access	Avg. Length	86	86	82	.	.	.	.	83	87	84	84	86	87	
	Avg. GRT	125	125	181	.	.	.	.	141	154	147	147	143	142	
	No. permits	1	1	1	.	.	.	.	2	3	4	4	5	6	
General Category	Avg. Length	42	42	.	.	.	.	.	88	.	.	.	50	50	
	Avg. GRT	6	6	.	.	.	.	.	135	.	.	.	48	48	
	No. permits	1	1	.	.	.	.	.	1	.	.	.	1	1	
Limited access	Avg. Length	102	108	123	123	85	80	78	79	78	80	81	81	81	
	Avg. GRT	150	148	143	143	164	129	136	143	145	151	152	152	151	
	No. permits	4	3	2	2	2	1	4	8	7	7	6	6	8	
General Category	Avg. Length	76	76	75	70	74	68	65	63	59	57	54	54	54	
	Avg. GRT	122	122	129	107	122	99	91	87	75	67	63	63	63	
	No. permits	10	11	9	12	10	14	14	15	18	22	26	32	30	

#### 4.5 NON-TARGET SPECIES

Non-target species, or bycatch include species caught by scallop gear that are not landed, including small scallops. The impacts of the scallop fishery on bycatch have been minimized to the extent practicable. Amendment 10 analyzed the impacts of new management measures (ring size, larger twine top, open area DAS, etc.) on bycatch, relying mainly on recent gear surveys and the general relationship between total area swept and bycatch. In general, the larger twine top mesh allowed greater escapement of many but not all finfish species with minor losses of sea scallops (particularly in areas having larger scallops). The effects of the increase to a 4” minimum ring size were assessed for various species observed in field trials, but the major effect came from a greater efficiency in catching scallops over 110-120 mm. Efficiency was forecast to increase by about 10-15%, reducing area swept by the same amount. Since most species were caught incidentally less frequently in dredges with larger rings and efficiency improved in most areas, Amendment 10 estimated that bycatch would decline, particularly in areas having most scallops larger than 110-120 mm. The increase to a minimum 4” ring in all areas did not occur until December 2004, however. Amendment 10 also estimated that the reductions in open area DAS would also reduce total area swept and increase scallop LPUE, particularly of larger scallops in the long-term. Appendix IX of Amendment 10 details scallop and finfish bycatch estimates in the scallop fishery (<http://www.nefmc.org/scallops/index.html>).

Framework 16/39 estimated the total bycatch of many finfish species from observed trips taken in controlled access areas. It also estimated the amount of sampling needed in each area to estimate the total bycatch of a given species with various levels of precision. In general, rotational area management is designed to improve and maintain high scallop yield, while minimize impacts on groundfish mortality and other finfish catches. Access programs may even reduce fishing mortality for some finfish species, because the total amount of fishing time in the access areas is very low compared with fishing time in open areas. See Sections 6.1.1.2 and 6.1.1.3 of Framework 16/39 for more information about the expected impacts on bycatch from that action. Catches of regulated species in the access areas were expected to be less than 10% of the overall TAC in the Multispecies FMP. This amount is less than a level that the Groundfish PDT identified as having a possible repercussion for meeting the groundfish mortality targets and having an effect on rebuilding overfished groundfish stocks. Many of the impacts are expected to be similar for Framework 19 since that action implemented similar specifications for rotational area management in similar areas for fishing years 2006 and 2007. If anything impacts on non-target species may be reduced compared to the baseline because this action proposes fewer open area DAS and less effort in Georges Bank.

#### Groundfish Mortality Closed Areas

The groundfish closed areas were originally established to reduce the effects of fishing on spawning cod and haddock, in particular Closed Areas I and II. Peak spawning activity occurs in February to April, coinciding with the original seasonal closures. After spawning, these fish often disperse to other areas during their annual migration. Yellowtail flounder is another species that was intended to be protected by the groundfish closed areas. The Georges Bank stock is predominately found on the southeastern and northwestern portions of Georges Bank, overlapping the proposed access areas in Closed Areas I and II. Unlike spawning cod and haddock, however, yellowtail flounder tend to remain in these locations year around. The

Southern New England stock of yellowtail flounder was one of the primary intended beneficiaries of the Nantucket Lightship Area. Most of this stock occurs in the portions of the Nantucket Lightship Area that will remain closed to scallop fishing, or in other areas of Southern New England and the Mid-Atlantic region where scallop fishing occurs in open areas. More details about the biological characteristics of groundfish species in the closed areas is provided in the FSEIS for Amendment 13 to the Multispecies FMP.

The biological characteristics of other species found in the groundfish closed areas and the proposed access areas can be found in the Skate FMP and Monkfish FMP EIS documents. In general, several skate species are often found in the proposed access areas. The Skate FMP identified the conservation associated with the groundfish closed areas to be an important component of limiting mortality on skates. Although monkfish inhabit and are caught in the groundfish closed areas, the center of the monkfish distribution is in the Gulf of Maine to the north, and in deeper waters off Southern New England to the west.

Appendix V of Framework 18 summarizes the spatial and temporal distribution of observed hauls and also summarizes the mean catch rates (lbs/hr) of commonly observed species in scallop dredge incidental catches. Recently, NMFS has increased sea sampling on trips made by scallop vessels using dredges. Since 1999, sea sampling in access areas had been enhanced by an industry-funded TAC set-aside program. During this time, 584 scallop trips and 31,230 tows had been observed. NMFS also increased sampling on open area trips, particularly in the Mid-Atlantic, in response to new observations of interactions with sea turtles in the Hudson Canyon Area (on access area trips using observers funded by the TAC set-aside). Sampling increased from 26 trips and 1,348 tows in 2002 to 77 trips and 4,896 tows in 2003, enabling NMFS to estimate the total incidental captures of sea turtles during 2003. Sampling again increased to 173 trips and 8,100 tows in 2004, almost an eight-fold increase from the sampling level during 1992 to 2002. The set-aside program for observer coverage is also included in this action, Table 77 describes the level of observer coverage in recent years.

#### **4.5.1 Summary of Standardized Bycatch Reporting Methodology Amendment**

The Council recently approved Amendment 12 to the Scallop FMP (June 2007). This action is an omnibus amendment to all FMPs in the region and focuses on defining a standardized bycatch reporting methodology (SBRM Amendment). Section 303(a) (11) of the Magnuson-Stevens Fishery Conservation and Management Act requires that all FMPs include “a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery.” SBRM is the combination of sampling design, data collection procedures, and analyses used to estimate bycatch and to determine the most appropriate allocation of observers across the relevant fishery modes. The Council has worked with NMFS in development of the SBRM Omnibus Amendment since 2005 and final measures were selected in June 2007. NMFS is expected to implement the action in Fall 2007.

The proposed measures include: 1) bycatch reporting and monitoring mechanisms; 2) analytical techniques and allocation of at-sea fisheries observers; 3) an SBRM performance standard; 4) a review and reporting process; 5) framework adjustment and annual specifications provisions; 6) a prioritization process; and 7) provisions for industry-funded observers and observer set-aside programs. In terms of the first element, the status quo would remain for the methods by which

data and information on discards would be collected and obtained. The Northeast Fisheries Observer Program would remain the primary mechanism to obtain data on discards in the Northeast Region and vessels would continue to be required to carry an at-sea observer upon request. In the case of the scallop fishery, data would also be collected by approved observer service providers through the industry-funded observer set-aside program. Currently, one-percent of the total projected scallop catch is set-aside to compensate vessels that are requested to carry an observer.

The second element of the SBRM Amendment is the analytical techniques and allocation of at-sea fisheries observers. The proposed action is an expanded version of the status quo, which would fully incorporate all managed species and relevant gear types. At-sea observers would be allocated and assigned to vessels based on various fishing modes and filters. For example, for the scallop fishery, the SBRM Amendment includes ten fishing modes (out of a total of 39). The modes are defined by area (Georges Bank or Mid-Atlantic), gear type (dredge or trawl), permit type (limited access or general category), and whether a vessel is fishing in a controlled access area or an open area. For each of the ten modes, importance filters are applied to remove events that are very unlikely, and for the scallop dredge fishery, interactions with sea turtles are removed since implementation of turtle chain gear, which prevents sea turtles from being caught as bycatch. Table 76 summarizes the at-sea observer days needed for the scallop fishery for each mode after applying the proposed importance filters using 2004 observer data. These values are likely to change based on incorporation of new observer data.

**Table 76 – Summary of at-sea observer days needed in the scallop fishery after applying the proposed importance filters (based on observer data from 2004)**

<b>Fishing mode</b>	<b># observer sea days (95% of discards and 98% of mortality)</b>
NE scallop dredge – LA – open	320
MA scallop dredge – LA – open	114
NE scallop dredge – LA – access area	145
MA scallop dredge – LA – access area	108
NE scallop dredge – GC – open	92
MA scallop dredge – GC – open	17
NE scallop dredge – GC – access area	24
MA scallop dredge – GC – access area	21
MA scallop trawl – LA – open	95
MA scallop trawl – GC – open	51
<b>TOTAL</b>	<b>987</b>

The third element of the SBRM Amendment is a performance standard to ensure that the data collected are sufficient to produce a coefficient of variation (CV) of the discard estimate of no more than 30 percent. CV is a measure of variation in data; if the variance is large, the precision is reduced. The 30% value is a generally accepted value worldwide for these types of programs and analyses. There is ample literature to support the use of a 30% CV for a sampling program of this nature. The estimated number of sea days needed per mode for the scallop fishery is based on the highest projected number of sea days needed to achieve a 30% CV for each species after the application of the importance filter. If approved, NMFS will allocate at-sea observer coverage levels on an annual basis for each fishing mode after consultation with the Council.

Table 44 in the SBRM Amendment includes the CVs for each fishing mode for all species based on 2004 observer data. Approximately 280 scallop trips were observed in 2004 (2,226 sea days). Even with this relatively high coverage level, a 30% CV was not attained for every species for the scallop fishery. For background, Table 77 below summarizes the observer coverage level by fishing mode from data provided in the SBRM for 2004, and it has been updated by the Northeast Fisheries Observer Program to include the last several fishing years as well (2005 through 2007 to date).

**Table 77 – Summary of observed trips and number of at-sea observer days in the scallop fishery by mode and year**

<b>Fishing mode</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007 (to date)*</b>
NE scallop dredge – LA – open	26	29 trips	45 trips	45 trips
	(344 days)	(325 days)	(427 days)	(468 days)
MA scallop dredge – LA – open	69	46 trips	33 trips	47 trips
	(591 days)	(407 days)	(272 days)	(352 days)
NE scallop dredge – LA – access area	9	55 trips	70 trips	56 trips
	(11 days)	(454 days)	(585 days)	(394 days)
MA scallop dredge – LA – access area	22	53 trips	6 trips	69 trips
	(33 days)	(608 days)	(54 days)	(553 days)
NE scallop dredge – GC – open	86	18 trips	11 trips	8 trips
	(805 days)	(27 days)	(23 days)	(16 days)
MA scallop dredge – GC – open	35	118 trips	53 trips	26 trips
	(373 days)	(168 days)	(96 days)	(47 days)
NE scallop dredge – GC – access area	0	12 trips	11 trips	69 trips
	(0 days)	(24 days)	(21 days)	(109 days)
MA scallop dredge – GC – access area	1	0 trips	0 trips	2 trips
	(2 days)	(0 days)	(0 days)	(4 days)
MA scallop trawl – LA – open	1	0 trips	0 trips	1 trip
	(11 days)	(0 days)	(0 days)	(7 days)
MA scallop trawl – GC – open	31	136 trips	32 trips	30 trips
	(56 days)	(264 days)	(68 days)	(52 days)
MA scallop trawl Access Area		1 trip	0 trips	1 trip
		(3 days)	(0 days)	(9 days)
<b>TOTAL</b>	<b>280 trips</b>	<b>468 trips</b>	<b>261 trips</b>	<b>354 trips</b>
	<b>(2,226 days)</b>	<b>(2,280 days)</b>	<b>(1,546 days)</b>	<b>(2,011 days)</b>

\*Landing Dates between 01 January 2007 and 31 May 2007 - data from OBDBS master tables

\*Landing Dates between 01 June 2007 and 31 October 2007 - data from preliminary OBSCON tables.

The fourth element of the SBRM Amendment is a review and reporting process. The amendment proposes to require an annual report on discards, as well as a report every three years that evaluates the effectiveness of the Northeast SBRM. The fifth element is to enable the Councils to make changes to certain elements of the SBRM through framework adjustments

and/or annual specification packages. The sixth element is a process to provide Councils and the public with an opportunity to provide input on the prioritization of at-sea observer coverage allocations. NMFS will provide the at-sea observer coverage levels required to attain the SBRM performance standard (30% CV) in each fishery, the coverage levels that would be available if there is a budget/resource shortfall, the coverage levels that incorporate the recommended prioritization, and the rationale for the recommended prioritization. If the SBRM Amendment is approved, the Council expects NMFS to provide the first annual prioritization report at an upcoming Council meeting, which will include the prioritized observer coverage levels for 2008. Lastly, the seventh element is to allow any FMP in this region to consider industry-funded observers and/or an observer set-aside program in a framework action rather than an amendment.

The scallop fishery is the only fishery in the Northeast that already has an industry-funded observer program in place. Since 1999, the majority of observer coverage in the scallop fishery has been funded through the scallop set-aside program. A percentage of the total allowable catch (TAC) in access areas has been deducted before allocations are made to generate funding for vessels required to carry an observer. Amendment 10 extended that requirement to open areas as well, so a percent of potential allocated effort in DAS from open areas is set-aside to help fund the program as well. Observer coverage is necessary in the scallop fishery to monitor bycatch of finfish and to monitor interactions with endangered and threatened species. Vessels required to carry an observer are authorized to land more than the possession limit from trips in access areas, and in open areas vessels are charged a reduced amount to help compensate for the cost of an observer.

This framework includes the 1% set-aside for observer coverage: if the total projected catch for 2008 is 55 million pounds, approximately 550,000 pounds (1%) would be set-aside to defray the cost of carrying an observer. Based on an estimated value of \$6.00 a pound, this set-aside is expected to generate approximately 3.3 million dollars. At that rate, approximately 4,230 sea-days could be covered under the current set-aside program, assuming a \$780 per day cost to carry an observer. This value far exceeds the number of sea days needed to achieve a 30% CV based on 2004 data for the scallop fishery (980 sea days). Therefore, if the needed observer coverage levels for 2008 and 2009 are similar to the values generated with the 2004 data, the 1% set-aside is expected to provide adequate funding to attain a 30% CV for each fishing mode. If additional days are needed beyond the 1% set-aside, they would have to be funded directly by the industry from vessels that are required to carry an observer after the set-aside has been exhausted or funded by the federal government under the regular observer program budget.

## 5.0 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

### 5.1 IMPACTS ON THE SCALLOP RESOURCE

#### 5.1.1 No Action

In 2008, the No Action alternative would allocate one trip in Closed Area I, 3 in Elephant Trunk, and approximately 20,000 open area DAS (or 51 DAS for a full-time vessel). In 2009, two areas on Georges Bank would technically be open under the area rotation schedule, but no allocation would be made for those areas. The limited access fishery would be allocated the same number of open area DAS as in 2008. Under No Action, the fishing mortality rate in Closed Area I is high ( $F=1.15$ ), causing overall effort levels in the access areas to be higher than the other alternatives. Similarly,  $F$  is higher in open areas compared to the other alternatives since open area DAS are higher. In addition, the No Action has higher total bottom swept area projections than the other alternatives, with the exception of the “SCH” and “SCH+HC” alternatives that would close the area in the Channel. Overall  $F$  from the No Action is higher because it allocates more effort in open areas where there is not sufficient biomass to support that level of effort in the long term. See Figure 30 through Figure 32 to compare the long term projections of biomass, catch, and bottom area of the No Action alternative compared to the other scenarios evaluated in this action. It is important to note that the No Action alternative only allocates those rollover measures for 2 years. After that time, the model assumes that more reasonable measures are adopted (i.e. different access areas open in the future etc.). As a result, the long-term impact of this option is more in line with the other alternatives.

#### *No Action for Amendment 11*

This alternative assumes that Amendment 11 is not approved and the general category fishery would remain an open access fishery. Expected impacts of this alternative would be similar to the No Action alternative in terms of overall impacts by area. However, because the general category fishery would not be constrained overall in terms of total effort, there is greater risk that overfishing could occur. If general category vessels that have recently started fishing in this fishery maintain on the trend from recent years, total landings from this component of the fishery could increase above levels set in Amendment 11 (10% in 2008 and 5% in 2009). If the general category fishery fishes harder than projected in these analyses, then there is risk of overfishing, and that could have negative impacts on the scallop resource overall.

#### *Measures that will be in effect March 1, 2008 until FW19 is implemented*

This alternative considers several measures as backstops if FW19 is not implemented before the start of the 2008 fishing year. Specifications from Amendment 10 and Framework 18 would carry-over until FW19 is implemented. Since the measures included in this alternative will serve as a backstop, even if effort levels are higher than projected in 2008, subsequent measures will be taken to account for any overages; therefore, over the two-year period, the impacts of this alternative on the scallop resource should be neutral. For example, if a full-time limited access vessel uses more DAS in FY2008 before FW19 is implemented (up to 51 as allocated under

FW18) and this action only allocated 35, then any additional DAS used in 2008 will be reduced for that vessel's 2009 allocation.

### **5.1.2 Summary of biological projections for management scenarios considered in this action**

The biological impacts for this action are based on results from an updated version of the SAMS (Scallop Area Management Simulator) model. This model has been used to project abundances and landings to aid management decisions since 1999. SAMS is a size-structured model that forecasts scallop populations in a number of areas. In this version of the model, Georges Bank was divided into the three access portions of the groundfish closures, the three no access portions of these areas, a proposed closure area in the South Channel, the remainder of the South Channel, the Northern Edge and Peak, and the Southeast Part of Georges Bank. The Mid-Atlantic was subdivided into six areas: Virginia Beach, Delmarva, the Elephant Trunk Access Area, the proposed new version of the Hudson Canyon South Access Area, New York Bight South, and Long Island. See Appendix III for a detailed description of the methods used in the Scallop Area Management Simulator model.

It is important to note that this model is based on fishing mortality by area and the inputs are not fishery-based in terms of DAS, etc. The simulation does not model individual vessels or trips; it models the fleet as a whole. The output of the model is then used to eventually compute individual DAS allocations after set-asides are removed, general category landings, etc. Therefore, when the Scallop Committee made a recommendation to include an alternative that uses specific DAS allocations as an input (preferred alternative), the model run used to estimate impacts of that allocation worked backwards to identify a fishing mortality rate that would represent those allocations, but the run is not exact since the model is not designed that way. Specifically, rather than 35 DAS in 2008, the model run is based on closer to 33 DAS. The economic analyses have been modified to reflect expected impacts of the actual allocated effort (35 DAS for preferred alternative compared to 33), but the biological model results were run with 33.

Caution should be used when making direct comparisons between the preferred alternatives and the others because the model was reconfigured to do this run based on the DAS input the Committee recommended. Furthermore, the preferred alternative has different post stratifications than the other scenarios because this alternative uses different areas to stratify the data (i.e. the current Hudson Canyon boundary). The other scenarios considered all used the same boundaries for stratification as well as assumptions about recruitment. The preferred alternative is expected to get different stratified averages compared to the other scenarios for this reason. These differences in stratification may change projected landings, biomass, etc. by a few percent, but nothing in the model is accurate to that level; thus comparing small differences may be an artifact. Therefore, for all the biological projections as well as the economic analyses it is important not to draw conclusions from small differences in the results, particularly when comparing the preferred alternative since this alternative used slightly different stratifications.

The alternatives described in Section 3.0 are separated out by area (i.e. Georges Bank access areas, Elephant Trunk, Delmarva etc.), but due to the interrelated nature of area rotation and how the model projects impacts for the entire resource overall, it is difficult to pull out specific

impacts by area. Therefore, this section will summarize the multitude of parameters included in the biological projections for several scenarios. The aspects considered are projected exploitable biomass, scallop landings, fishing mortality by area, DAS-used, LPUE, bottom area, and average meat count by area. The **No Action** alternative assesses the impacts of essentially rolling over current specifications. There are two alternatives that consider revising the order of the Georges Bank access area schedule (**DMV3** and **DMV2**). The only difference between these two alternatives is that one keeps the Delmarva area closed for both 2008 and 2009, and one alternative considers access in 2009. The rest of the scenarios include various alternatives related to new rotational areas to protect small scallops: **HCL** would close a 5x5 ten-minute-square area near the current Hudson Canyon closed area; **HCS** would close a 4x4 ten-minute square area near the current Hudson Canyon area; **SCH** would close an area in the South Channel northeast of Nantucket Lightship; and **SCHHC** would close both areas – the smaller HC area and the SCH area. See for a summary of what each scenario has analyzed.

All four of these scenarios include the same assumptions for allocations as scenario “DMV2” (one trip in NL in 2008, one trip in CAII in 2009, one trip in Delmarva in 2009, and 4 trips in ET in 2008 and 3 trips in ET in 2009). All scenarios then identify a certain level of open area DAS based on which areas are accessible to reach an overall fishing mortality target of  $F=0.20$ . **After the Committee meeting, an additional alternative was added that is similar to HC-sm, but it proposes to close the existing HC area (not the 4x4 ten-minute square area) and it allocated more DAS in open areas in 2008 and fewer DAS in 2009 for an average  $F=0.20$  for both years combined; this alternative is called “Pref,” for the preferred alternative.**

**Table 78 – Summary of scenarios considered in the biological projections for Framework 19**

<b>2008</b>		<b>CL1</b>	<b>CL2</b>	<b>NLS</b>	<b>ET</b>	<b>Dmv</b>	<b>HC</b>	<b>Sch</b>	<b>IndvDAS*</b>
No Action		1 trip	0 trip	Cl	3 trips	Cl	Op	Op	51
<b>Preferred</b>		<b>Cl</b>	<b>Cl</b>	<b>1 trip</b>	<b>4 trips</b>	<b>Cl</b>	<b>Cl</b>	<b>Op</b>	<b>35</b>
Dmv 3		Cl	Cl	1 trip	4 trips	Cl	Op	Op	32
Dmv 2		Cl	Cl	1 trip	4 trips	Cl	Op	Op	32
HC-sm		Cl	Cl	1 trip	4 trips	Cl	Cl	Op	30
HC-lar		Cl	Cl	1 trip	4 trips	Cl	Cl	Op	29
Sch		Cl	Cl	1 trip	4 trips	Cl	Op	Cl	50
Sch+HC		Cl	Cl	1 trip	4 trips	Cl	Cl	Cl	42
<b>2009</b>		<b>CL1</b>	<b>CL2</b>	<b>NLS</b>	<b>ET</b>	<b>Dmv</b>	<b>HC</b>	<b>Sch</b>	<b>IndvDAS</b>
No Action		Cl	0 trip	0 trip	3 trips	Cl	Op	Op	51
<b>Preferred</b>		<b>Cl</b>	<b>1 trip</b>	<b>Cl</b>	<b>3 trips</b>	<b>1 trip</b>	<b>Cl</b>	<b>Op</b>	<b>42</b>
Dmv 3		Cl	1 trip	Cl	3 trips	Cl	Op	Op	60
Dmv 2		Cl	1 trip	Cl	3 trips	1 trip	Op	Op	48
HC-sm		Cl	1 trip	Cl	3 trips	1 trip	Cl	Op	47
HC-lar		Cl	1 trip	Cl	3 trips	1 trip	Cl	Op	47
Sch		Cl	1 trip	Cl	3 trips	1 trip	Op	Cl	69
Sch+HC		Cl	1 trip	Cl	3 trips	1 trip	Cl	Cl	54

\* The full-time individual DAS value is based on an estimate of 326 active full-time equivalent limited access vessels out of 350 limited access permits in 2007. These values have removed TAC for general category allocations and set-asides.

### 5.1.2.1 Projected exploitable biomass by area

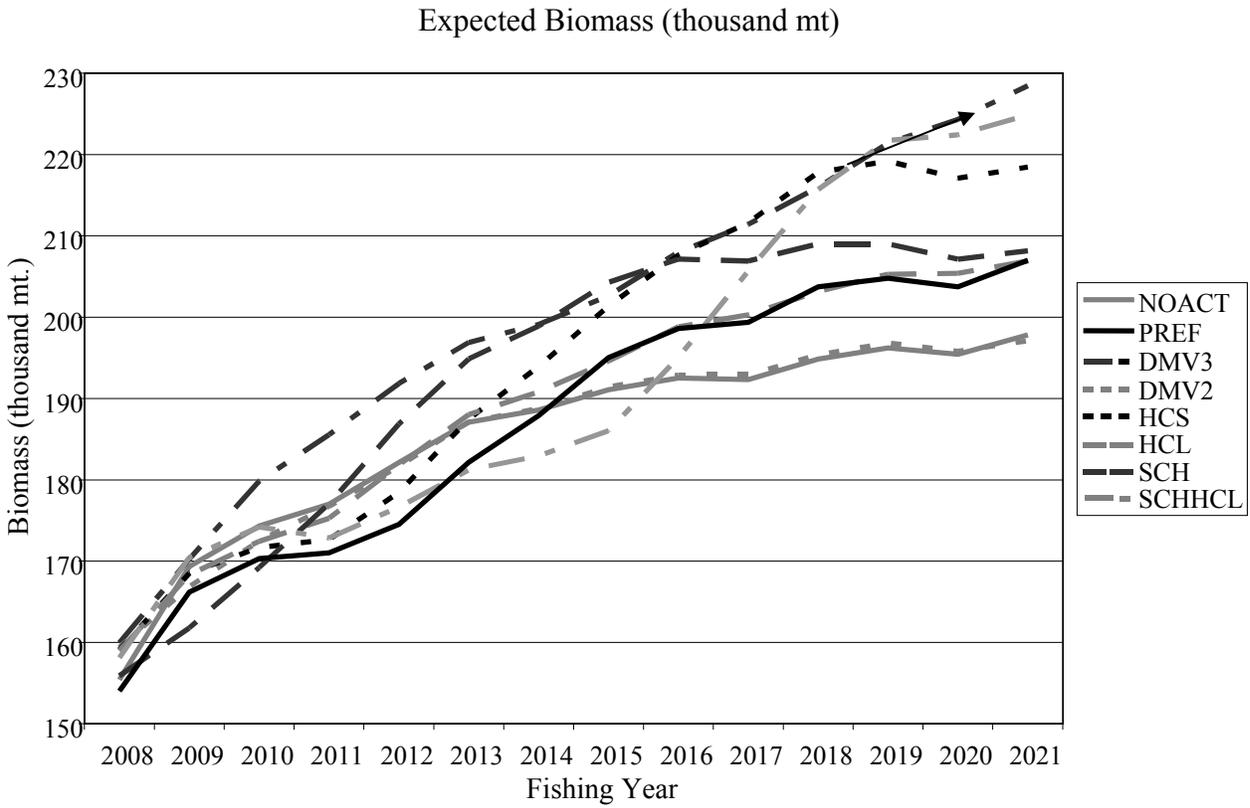
In general the projected exploitable biomass is similar overall when comparing the various scenarios, but does vary by area. For example, since CAI opens under No Action, the biomass in that area is depleted as a result of access in 2008. The trip in NL in 2008 still leaves a decent level of biomass in that area. Biomass in open areas is lowest under alternatives that closed the area in the Channel and the No Action. In 2009, one trip in Delmarva does not impact biomass in that area very much (45 compared to 51 if closed). The same is true for Closed Area II, and 7 trips in ETA over 2 years compared to 6 trips under No Action does not greatly impact biomass in that area either.

**Table 79 - Projected exploitable biomass (million lb.) by area**

FISH YEAR	AREA TYPE	AREA	SCENARIOS								
			NOACT	PREF	DMV3	DMV2	HCL	HCS	SCH	SCHHC	
2008	ACCESS	CL1Acc	3.8	<b>10.1</b>	10.1	10.1	10.1	10.1	10.1	10.1	10.1
		CL2S	40.4	<b>40.4</b>	40.4	40.4	40.4	40.4	40.4	40.4	40.4
		Dmv	41.6	<b>41.6</b>	41.6	41.6	41.6	41.6	41.6	41.6	41.7
		ET	86.8	<b>78.1</b>	78.6	78.6	78.1	78.6	78.6	78.6	78.1
		NLSAcc	24.5	<b>14.8</b>	14.9	14.6	14.7	14.7	15.0	14.9	
	ACCESS Total		197.0	<b>185.0</b>	185.6	185.3	184.9	185.4	185.6	185.2	
	OPEN	HCS	19.4	<b>27.0</b>	26.5	26.5	29.0	28.2	20.3	29.1	
		LI	16.9	<b>17.1</b>	18.7	18.7	17.9	18.0	17.0	15.6	
		NEP	10.8	<b>11.0</b>	12.3	12.3	11.8	11.8	10.7	9.6	
		NYBS	11.5	<b>11.2</b>	14.4	14.3	15.1	15.3	11.4	11.6	
		SchCl	7.6	<b>7.3</b>	11.7	11.7	9.7	10.0			
		SchOp	6.3	<b>8.0</b>	9.3	9.3	8.8	8.8	7.7	6.6	
		SEP	6.2	<b>6.2</b>	6.3	6.3	6.2	6.3	6.1	6.0	
		VB	0.7	<b>0.7</b>	0.8	0.8	0.7	0.8	0.7	0.7	
	OPEN Total		79.4	<b>88.4</b>	100.0	99.9	99.3	99.1	73.9	79.3	
2008 Total		276.4	<b>273.4</b>	285.6	285.2	284.2	284.5	259.6	264.5		
2009	ACCESS	CL1Acc	4.7	<b>11.1</b>	11.1	11.1	11.1	11.1	11.1	11.1	11.1
		CL2S	42.6	<b>34.8</b>	34.9	34.7	35.1	35.1	34.9	34.9	
		Dmv	51.1	<b>45.1</b>	51.5	45.1	44.7	44.8	44.9	45.4	
		ET	72.9	<b>65.2</b>	66.9	66.7	65.4	67.0	66.8	65.5	
		NLSAcc	30.0	<b>20.1</b>	21.3	19.2	19.7	19.7	22.2	21.7	
	ACCESS Total		201.4	<b>176.2</b>	185.7	176.8	176.0	177.7	179.9	178.5	
	OPEN	HCS	24.0	<b>41.4</b>	24.0	26.9	42.3	39.7	15.8	42.6	
		LI	20.9	<b>20.8</b>	24.8	25.5	21.2	21.8	21.7	17.7	
		NEP	13.1	<b>12.7</b>	14.3	15.2	13.4	13.7	11.1	9.9	
		NYBS	13.6	<b>14.8</b>	15.5	16.9	15.9	16.6	11.3	11.7	
		SchCl	8.9	<b>7.2</b>	8.6	10.4	7.5	7.9			
		SchOp	8.8	<b>10.6</b>	11.8	12.6	11.1	11.3	9.3	8.4	
		SEP	9.0	<b>8.8</b>	9.4	9.4	8.9	9.1	8.6	8.3	
		VB	1.3	<b>1.3</b>	1.4	1.4	1.3	1.3	1.1	1.2	
	OPEN Total		99.5	<b>117.6</b>	109.7	118.3	121.6	121.4	78.8	99.7	
2009 Total		300.9	<b>293.8</b>	295.4	295.0	297.6	299.1	258.7	278.2		

Grand Total	577.3	<b>567.2</b>	581.0	580.2	581.7	583.7	518.3	542.7
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**Figure 30 - Comparison of expected exploitable biomass (mt.) projections for the scenarios under consideration (2008-2021)**



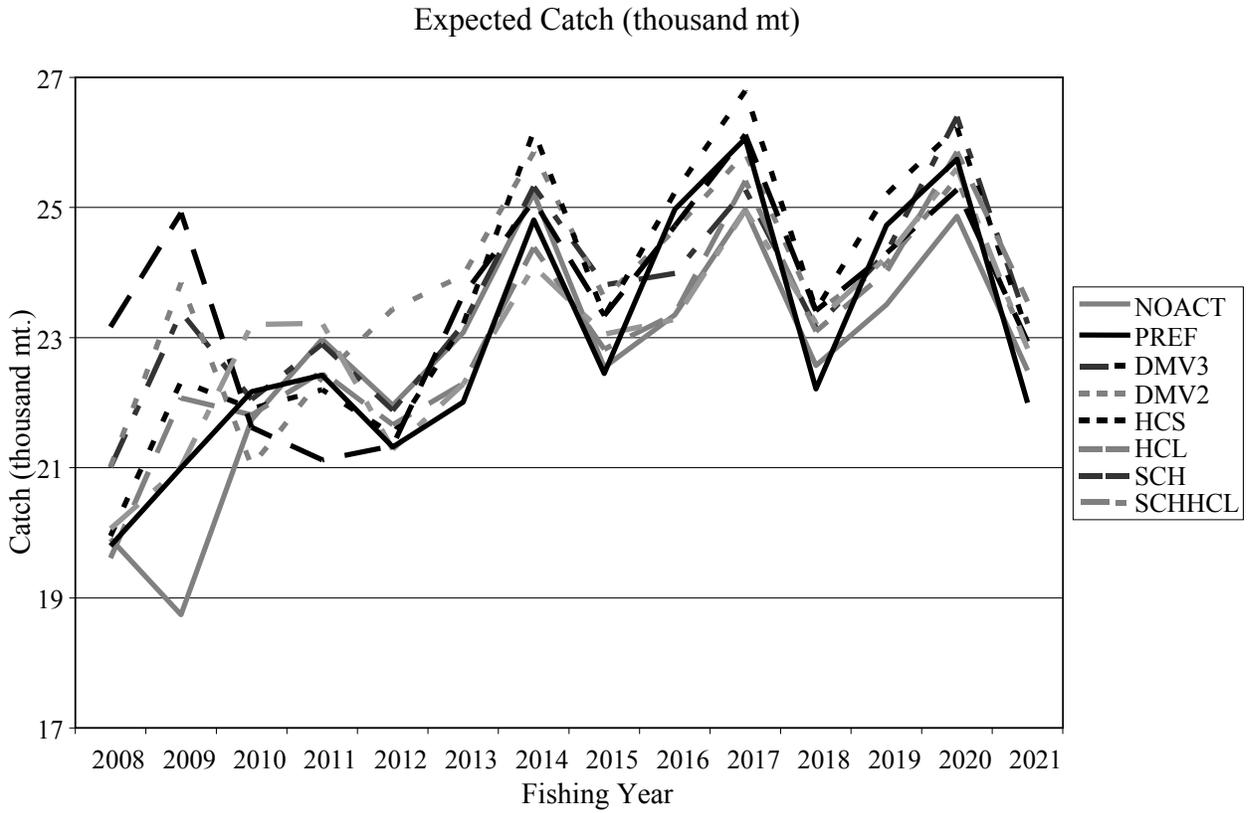
### 5.1.2.2 Projected scallop landings by area

In 2008, total landings for No Action and preferred are similar, but the majority of landings under the preferred alternative are from access areas compared to the No Action alternative. All scenarios project higher landings than the No Action alternative for 2008. In 2009, the preferred alternative is expected to generate higher landings, about 5.0 million pounds more than the No Action alternative because no access areas are open in 2009 under No Action except for ETA. Some of the other scenarios are expected to produce higher landings in the short term. In the long term, it is more difficult to see trends in catch between the various scenarios because in the out years the scenarios have similar allocations set at F=0.20. Based on catch alone, the preferred alternative does not project the highest landings compared to other scenarios. However, in terms of biological impacts it is positive because overall DAS used is lower and LPUE is higher than the No Action alternative; therefore, impacts on the scallop resource are expected to be positive.

**Table 80. Projected scallop landings (million lb.) by area**

FISH YEAR	AREA TYPE	AREA	SCENARIOS							
			NOACT	PREF	DMV3	DMV2	HCL	HCS	SCH	SCHHC
2008	ACCESS	CL1Acc	2.2	-	-	-	-	-	-	-
		CL2S	-	-	-	-	-	-	-	-
		Dmv	-	-	-	-	-	-	-	-
		ET	17.0	<b>22.0</b>	21.7	21.7	22.0	21.7	21.7	22.0
		NLSAcc	-	<b>5.5</b>	5.5	5.5	5.5	5.5	5.5	5.5
	ACCESS Total	19.2	<b>27.5</b>	27.2	27.2	27.5	27.2	27.2	27.5	
	OPEN Total	24.4	<b>16.9</b>	19.1	19.1	15.8	16.8	23.8	16.8	
2008 Total		43.6	<b>44.4</b>	46.3	46.3	43.2	44.0	51.1	44.2	
2009	ACCESS	CL1Acc	-	-	-	-	-	-	-	-
		CL2S	-	<b>5.8</b>	5.8	5.8	5.8	5.9	5.8	5.8
		Dmv	-	<b>6.0</b>	-	6.0	5.9	6.0	6.0	6.0
		ET	17.3	<b>16.2</b>	15.5	15.5	16.3	15.5	15.5	16.3
		NLSAcc	-	-	-	-	-	-	-	-
	ACCESS Total	17.3	<b>28.0</b>	21.3	27.3	28.1	27.3	27.3	28.2	
OPEN Total	24.0	<b>17.9</b>	30.2	25.3	20.6	21.9	27.7	18.2		
2009 Total		41.3	<b>45.9</b>	51.6	52.6	48.7	49.2	54.9	46.3	
Grand Total		85.2	<b>89.9</b>	97.9	98.9	91.9	93.2	106.0	90.5	

Figure 31 - Comparison of expected catch projections for the scenarios under consideration (2008-2021)



### 5.1.2.3 Projected fishing mortality by area

Table 81 is useful for assessing expected fishing mortality rates by area. Under the preferred alternative, F is expected to be 0.22 in 2008, with a higher F rate in ETA, NL and the Channel. In 2009, F is more evenly distributed across access areas and is highest in the Channel. Any alternative that includes a closure in HC is expected to shift open area effort to the Channel and vice versa. Over the 2 year period, the fishing mortality rate for both the No Action and preferred alternative averages out to F=0.20. For the preferred alternative, the average is a result of open area DAS from 2009 shifting to 2008. Overall F is reduced for No Action because the only access area open in 2009 is ETA.

**Table 81. Projected Fishing mortality by area**

FISH YEAR	AREA TYPE	AREA	SCENARIOS								
			NOACT	PREF	DMV3	DMV2	HCL	HCS	SCH	SCHHC	
2008	ACCESS	CL1Acc	1.15	-	-	-	-	-	-	-	-
		CL2S	-	-	-	-	-	-	-	-	-
		Dmv	-	-	-	-	-	-	-	-	-
		ET	0.23	<b>0.35</b>	0.34	0.34	0.35	0.34	0.34	0.34	0.35
		NLSAcc	-	<b>0.60</b>	0.60	0.60	0.60	0.60	0.60	0.60	0.60
	OPEN	HCS	0.48	-	0.27	0.27	-	0.05	0.68	-	-
		LI	0.19	<b>0.18</b>	0.08	0.08	0.12	0.11	0.20	0.30	-
		NEP	0.33	<b>0.30</b>	0.13	0.13	0.20	0.19	0.35	0.53	-
		NYBS	0.46	<b>0.30</b>	0.19	0.19	0.28	0.26	0.49	0.65	-
		SchCl	1.38	<b>1.45</b>	0.65	0.65	0.96	0.91			
		SchOp	0.37	<b>0.41</b>	0.18	0.18	0.27	0.26	0.48	0.71	-
		SEP	0.06	<b>0.06</b>	0.03	0.03	0.04	0.04	0.07	0.10	-
		VB	0.11	<b>0.10</b>	0.04	0.04	0.07	0.06	0.12	0.18	-
2008 Overall			0.24	<b>0.22</b>	0.20	0.20	0.20	0.20	0.20	0.20	
2009	ACCESS	CL1Acc	-	-	-	-	-	-	-	-	-
		CL2S	-	<b>0.22</b>	0.22	0.22	0.22	0.22	0.22	0.22	0.22
		Dmv	-	<b>0.15</b>	-	0.15	0.15	0.15	0.15	0.15	0.15
		ET	0.29	<b>0.31</b>	0.28	0.28	0.31	0.28	0.28	0.31	-
		NLSAcc	-	-	-	-	-	-	-	-	-
	OPEN	HCS	0.40	-	0.50	0.35	-	0.05	0.78	-	-
		LI	0.14	<b>0.17</b>	0.15	0.11	0.17	0.16	0.27	0.30	-
		NEP	0.25	<b>0.31</b>	0.27	0.19	0.31	0.28	0.48	0.51	-
		NYBS	0.32	<b>0.35</b>	0.37	0.26	0.40	0.37	0.60	0.61	-
		SchCl	0.70	<b>0.80</b>	1.01	0.71	1.00	0.93			
		SchOp	0.25	<b>0.38</b>	0.35	0.25	0.39	0.36	0.58	0.60	-
		SEP	0.06	<b>0.08</b>	0.06	0.04	0.07	0.07	0.12	0.14	-
		VB	0.19	<b>0.23</b>	0.18	0.13	0.22	0.20	0.36	0.43	-
2009 Overall			0.16	<b>0.18</b>	0.20	0.20	0.20	0.20	0.20	0.20	

### 5.1.2.4 Projected DAS-used by area

In 2008, the No Action has the lowest DAS used estimate for access areas, but the highest for open areas. Therefore, the total DAS used for this alternative is among the highest, except for the SCH alternatives. In 2009, the same is true by area, but No Action has a lower total DAS used because there are fewer access area trips and total catch drops for the alternative compared to the other alternatives (Figure 31).

**Table 82. Projected DAS-used by area**

FISH YEAR	AREA TYPE	AREA	SCENARIOS							
			NOACT	PREF	DMV3	DMV2	HCL	HCS	SCH	SCHHC
2008	ACCESS	CL1Acc	1,472	-	-	-	-	-	-	-
		CL2S	-	-	-	-	-	-	-	-
		Dmv	-	-	-	-	-	-	-	-
		ET	8,291	<b>10,806</b>	10,679	10,676	10,807	10,679	10,678	10,808
		NLSAcc	-	<b>2,461</b>	2,459	2,458	2,459	2,459	2,461	2,460
	ACCESS Total		9,763	<b>13,267</b>	13,138	13,134	13,266	13,138	13,139	13,268
	OPEN	HCS	4,693	-	3,843	3,845	-	797	6,589	-
		LI	3,655	<b>3,415</b>	1,610	1,613	2,357	2,244	3,803	5,294
		NEP	2,522	<b>2,372</b>	1,184	1,184	1,681	1,606	2,642	3,514
		NYBS	3,190	<b>2,101</b>	1,830	1,831	2,694	2,599	3,264	4,348
		SchCl	2,967	<b>3,158</b>	2,791	2,791	3,122	3,094		
		SchOp	1,637	<b>1,868</b>	987	988	1,367	1,312	2,039	2,589
		SEP	1,076	<b>997</b>	448	447	667	630	1,152	1,692
	VB	75	<b>70</b>	32	32	47	45	81	115	
OPEN Total		19,815	<b>13,980</b>	12,723	12,731	11,933	12,326	19,568	17,551	
2008 Total		29,578	<b>27,247</b>	25,861	25,865	25,200	25,464	32,707	30,819	
2009	ACCESS	CL1Acc	-	-	-	-	-	-	-	-
		CL2S	-	<b>2,545</b>	2,548	2,541	2,561	2,567	2,550	2,551
		Dmv	-	<b>2,816</b>	-	2,813	2,791	2,795	2,800	2,839
		ET	8,284	<b>7,865</b>	7,494	7,461	7,903	7,512	7,470	7,912
		NLSAcc	-	-	-	-	-	-	-	-
	ACCESS Total		8,284	<b>13,226</b>	10,042	12,815	13,255	12,874	12,819	13,303
	OPEN	HCS	4,896	-	5,834	4,759	-	1,027	6,477	-
		LI	2,966	<b>3,525</b>	3,153	2,303	3,546	3,260	5,206	5,536
		NEP	2,274	<b>2,678</b>	2,493	1,873	2,752	2,567	3,652	3,748
		NYBS	2,524	<b>2,963</b>	3,118	2,482	3,571	3,403	3,691	4,146
		SchCl	2,457	<b>2,200</b>	2,885	2,667	2,617	2,610		
		SchOp	1,309	<b>2,094</b>	2,040	1,558	2,197	2,064	2,723	2,653
		SEP	1,165	<b>1,387</b>	1,125	801	1,337	1,214	2,156	2,506
	VB	166	<b>197</b>	165	115	182	171	262	324	
OPEN Total		17,756	<b>15,044</b>	20,813	16,560	16,202	16,316	24,166	18,914	
2009 Total		26,040	<b>28,270</b>	30,854	29,375	29,456	29,190	36,985	32,217	
Grand Total		55,618	<b>55,517</b>	56,715	55,240	54,656	54,654	69,692	63,036	

### 5.1.2.5 Projected LPUE by area

Average LPUE is highest for the DMV and HC alternatives followed by the preferred alternative. Compared to the No Action alternative, the preferred option has higher LPUE averages for both open and access areas for both years. Note that this table does not weigh LPUE by area fished; the reported "average" LPUE is a straight numerical mean of the LPUE in each area. This is not an accurate average for this variable since some areas are fished much harder than others, and should be weighted higher in the average. This average was only included for very general comparison purposes and is not an accurate estimate of average LPUE in access or open areas.

**Table 83. Projected LPUE by area**

FISH YEAR	AREA TYPE	SCENARIOS								
		AREA	NOACT	PREF	DMV3	DMV2	HCL	HCS	SCH	SCHHC
2008	ACCESS	CL1Acc	1,479	<b>2,202</b>	2,203	2,202	2,202	2,203	2,203	2,202
		CL2S	2,340	<b>2,339</b>	2,339	2,339	2,339	2,339	2,339	2,339
		Dmv	2,012	<b>2,012</b>	2,012	2,012	2,012	2,012	2,012	2,011
		ET	2,026	<b>2,013</b>	2,013	2,014	2,012	2,013	2,014	2,012
		NLSAcc	2,516	<b>2,220</b>	2,221	2,222	2,221	2,222	2,220	2,220
	ACCESS Average		2,075	<b>2,157</b>	2,158	2,158	2,157	2,158	2,157	2,157
	OPEN	HCS	1,487	<b>1,658</b>	1,651	1,651	1,706	1,693	1,514	1,706
		LI	758	<b>766</b>	823	821	792	795	766	713
		NEP	1,038	<b>1,050</b>	1,128	1,128	1,097	1,102	1,027	953
		NYBS	1,288	<b>1,259</b>	1,389	1,388	1,355	1,361	1,279	1,214
		SchCl	1,649	<b>1,644</b>	1,819	1,819	1,758	1,768		
		SchOp	997	<b>1,186</b>	1,300	1,299	1,255	1,261	1,154	1,047
		SEP	303	<b>303</b>	311	311	306	308	302	296
		VB	959	<b>959</b>	975	973	967	970	952	943
	OPEN Average		1,060	<b>1,103</b>	1,174	1,174	1,155	1,157	999	982
2008 Total		18,851	<b>19,610</b>	20,184	20,181	20,024	20,048	17,781	17,657	
2009	ACCESS	CL1Acc	1,656	<b>2,251</b>	2,252	2,250	2,252	2,254	2,254	2,252
		CL2S	2,360	<b>2,265</b>	2,264	2,265	2,262	2,262	2,262	2,264
		Dmv	2,140	<b>2,113</b>	2,137	2,114	2,116	2,116	2,115	2,111
		ET	2,062	<b>2,039</b>	2,045	2,048	2,038	2,045	2,046	2,037
		NLSAcc	2,524	<b>2,296</b>	2,296	2,298	2,297	2,297	2,297	2,300
	ACCESS Average		2,148	<b>2,193</b>	2,199	2,195	2,193	2,195	2,195	2,193
	OPEN	HCS	1,624	<b>1,878</b>	1,652	1,717	1,908	1,886	1,369	1,908
		LI	896	<b>893</b>	1,017	1,033	903	921	922	786
		NEP	1,171	<b>1,150</b>	1,234	1,279	1,186	1,206	1,046	972
		NYBS	1,449	<b>1,470</b>	1,522	1,566	1,467	1,490	1,330	1,267
		SchCl	1,724	<b>1,639</b>	1,739	1,826	1,673	1,706		
		SchOp	1,220	<b>1,358</b>	1,448	1,496	1,399	1,414	1,255	1,183
		SEP	429	<b>424</b>	444	448	426	437	415	402
		VB	1,337	<b>1,317</b>	1,347	1,363	1,324	1,332	1,249	1,232
	OPEN Average		1,231	<b>1,266</b>	1,300	1,341	1,286	1,299	1,084	1,107
2009 Total		20,591	<b>21,093</b>	21,398	21,704	21,252	21,365	18,560	18,713	
Grand Total		39,442	<b>40,703</b>	41,582	41,885	41,276	41,413	36,340	36,370	

### 5.1.2.6 Projected bottom area swept by area

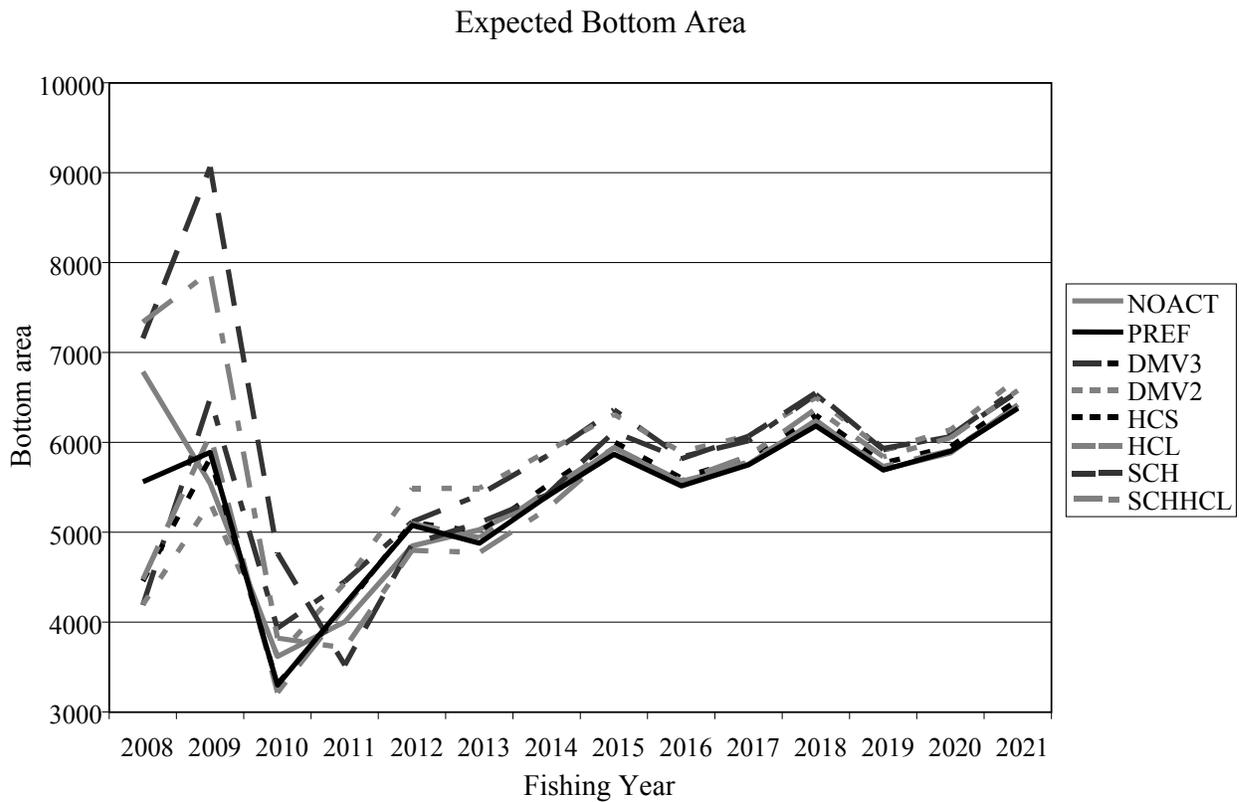
Table 84 is useful for comparing potential impacts on non-target species and EFH because it relates to the estimated area swept under each alternative. The average bottom area swept is higher for the preferred alternative and other scenarios compared to No Action, but these alternatives allocate 4 trips in ETA compared to 3. In terms of open areas, the No Action and SCH alternatives are higher due to lower catch rates in open areas and higher open area allocations for these alternatives. In 2009, the average bottom area swept calculations are similar for all scenarios, except SCH which is significantly higher. Again, there is very little bottom contact in access areas under No Action since the only area open is ETA; most time is spent in open areas under No Action.

**Table 84. Projected bottom area (sq. nautical miles)**

FISH YEAR	AREA TYPE	SCENARIOS								
		AREA	NOACT	PREF	DMV3	DMV2	HCL	HCS	SCH	SCHHC
2008	ACCESS	CL1Acc	380	-	-	-	-	-	-	-
		CL2S	-	-	-	-	-	-	-	-
		Dmv	-	-	-	-	-	-	-	-
		ET	529	<b>762</b>	749	749	762	749	1,406	762
		NLSAcc	-	<b>397</b>	394	398	397	396	743	397
	ACCESS Average		182	<b>232</b>	229	229	232	229	430	232
	OPEN	HCS	1,162	-	761	762	-	144	3,019	-
		LI	1,350	<b>1,257</b>	579	580	856	814	2,648	2,000
		NEP	897	<b>838</b>	401	401	579	552	1,778	1,304
		NYBS	827	<b>591</b>	398	399	626	598	1,612	1,229
		SchCl	603	<b>671</b>	407	407	533	516		
		SchOp	563	<b>604</b>	299	300	426	407	1,265	900
		SEP	446	<b>413</b>	185	185	276	261	897	704
	VB	26	<b>24</b>	11	11	16	15	53	40	
	OPEN Average		734	<b>550</b>	380	381	414	414	1,610	882
2008 Total			6,783	<b>5,558</b>	4,185	4,192	4,472	4,454	13,420	7,335
2009	ACCESS	CL1Acc	-	-	-	-	-	-	-	
		CL2S	-	<b>359</b>	358	359	358	358	671	359
		Dmv	-	<b>253</b>	-	253	254	254	475	253
		ET	643	<b>676</b>	629	629	676	629	1,180	676
		NLSAcc	-	-	-	-	-	-	-	-
	ACCESS Average		129	<b>258</b>	197	248	258	248	465	258
	OPEN	HCS	1,087	-	1,314	988	-	146	3,486	-
		LI	1,048	<b>1,248</b>	1,066	769	1,244	1,137	3,458	2,047
		NEP	756	<b>899</b>	799	586	907	837	2,419	1,368
		NYBS	641	<b>765</b>	718	536	886	822	1,966	1,237
SchCl		448	<b>477</b>	556	442	555	532			
SchOp	402	<b>595</b>	551	407	612	569	1,547	843		
SEP	470	<b>561</b>	452	322	539	489	1,642	1,021		
VB	45	<b>53</b>	43	31	51	46	148	91		
OPEN Average		612	<b>575</b>	688	510	599	572	2,095	944	
2009 Total			5,539	<b>5,886</b>	6,487	5,321	6,082	5,820	16,992	7,896

Total								
Grand Total	12,322	<b>11,444</b>	10,672	9,513	10,554	10,273	30,412	15,230

Figure 32 – Comparison of expected bottom area projections for the scenarios under consideration (2008-2021)



### 5.1.2.7 Projected meat count by area

Overall, projected meat count by area is similar for all scenarios for both years.

**Table 85. Projected average meat count by area**

FISH YEAR	AREA TYPE	AREA	SCENARIOS							
			NOACT	PREF	DMV3	DMV2	HCL	HCS	SCH	SCHHC
2008	ACCESS	CL1Acc	12.1	<b>10.9</b>	10.9	10.9	10.9	10.9	10.9	10.9
		CL2S	10.4	<b>10.4</b>	10.4	10.4	10.4	10.4	10.4	10.4
		Dmv	15.9	<b>15.9</b>	15.9	15.9	15.9	15.9	15.9	15.9
		ET	16.1	<b>16.2</b>	16.2	16.2	16.2	16.2	16.2	16.2
		NLSAcc	9.4	<b>10.1</b>	10.2	10.1	10.1	10.1	10.1	10.1
	ACCESS Average		12.8	<b>12.7</b>	12.7	12.7	12.7	12.7	12.7	12.7
	OPEN	HCS	18.7	<b>18.8</b>	17.5	17.5	18.3	18.3	17.9	18.3
		LI	17.7	<b>17.7</b>	17.7	17.7	17.5	17.5	17.9	17.8
		NEP	19.0	<b>19.0</b>	18.7	18.7	18.8	18.8	19.0	19.3
		NYBS	18.6	<b>18.8</b>	18.3	18.3	18.4	18.4	18.7	18.9
		SchCl	19.7	<b>19.2</b>	18.3	18.3	18.7	18.6		
		SchOp	16.4	<b>17.0</b>	16.6	16.6	16.8	16.7	17.1	17.5
		SEP	18.7	<b>18.7</b>	18.7	18.7	18.7	18.7	18.8	18.8
		VB	21.2	<b>21.2</b>	21.2	21.1	21.2	21.2	21.2	21.3
	OPEN Average		18.8	<b>18.8</b>	18.4	18.4	18.5	18.5	18.7	18.8
2008 Total			214.0	<b>213.9</b>	210.5	210.4	211.7	211.7	194.1	195.4
2009	ACCESS	CL1Acc	12.4	<b>10.9</b>	10.9	10.9	10.9	10.9	10.9	10.9
		CL2S	10.5	<b>10.6</b>	10.6	10.6	10.6	10.6	10.6	10.6
		Dmv	14.3	<b>14.4</b>	14.3	14.4	14.3	14.3	14.4	14.4
		ET	15.3	<b>15.5</b>	15.4	15.4	15.5	15.5	15.4	15.5
		NLSAcc	9.8	<b>10.7</b>	10.8	10.7	10.7	10.8	10.7	10.6
	ACCESS Average		12.5	<b>12.4</b>	12.4	12.4	12.4	12.4	12.4	12.4
	OPEN	HCS	17.5	<b>16.7</b>	15.9	15.7	16.2	16.3	16.5	16.2
		LI	17.0	<b>17.1</b>	17.6	17.5	16.9	16.9	18.1	17.4
		NEP	18.3	<b>18.3</b>	18.0	17.9	18.1	18.1	18.6	18.8
		NYBS	17.2	<b>17.9</b>	17.1	16.9	17.0	17.0	17.7	17.8
		SchCl	18.8	<b>18.2</b>	17.5	17.2	17.8	17.7		
		SchOp	16.9	<b>17.4</b>	17.0	16.8	17.2	17.1	17.8	18.2
		SEP	18.2	<b>18.2</b>	18.2	18.2	18.2	18.2	18.3	18.4
		VB	18.7	<b>18.7</b>	18.6	18.5	18.6	18.6	18.8	19.0
	OPEN Average		17.8	<b>17.8</b>	17.5	17.4	17.5	17.5	18.0	18.0
2009 Total			204.8	<b>204.6</b>	201.9	200.8	202.1	202.0	187.8	187.9
Grand Total			418.8	<b>418.4</b>	412.4	411.2	413.8	413.7	381.9	383.4

### **5.1.3 Georges Bank Access Areas**

This framework is considering two different options for access areas on Georges Bank: the No Action alternative and Alternative 1- revision of GB openings. The main difference between these alternatives is that only one access area would open annually under Alternative 1: Nantucket Lightship in 2008 and Closed Area II in 2009. All scenarios under consideration include a revision of the GB access areas (Alternative 1) except the No Action alternative. The scenario that considers just revising the order of access on GB is DMV3 – Delmarva would not reopen in 2009 and no new areas would close to protect small scallops. Compared to the No Action alternative, this alternative has lower projected fishing mortality in most areas in 2008. In 2009, open area DAS are higher under DMV3 and SCH than the No Action alternative. Overall LPUE averaged for both years for this alternative is higher than the No Action Alternative except for the two scenarios that include a closure in the Channel. In general, the biological impacts of the proffered alternative are expected to be positive because access is allocated in areas with more biomass (ET and NL) compared to areas with lower biomass, such as open areas and Closed Area I.

If the YT flounder bycatch TAC is reached, limited access vessels are permitted to use access area trips at a compensation rate in open areas. Analyses suggest that the compensation for Nantucket Lightship in 2008 would be 7.7 DAS, and 7.9 DAS for Closed Area II trips in 2009. Since the compensation rates are determined by estimating an equivalent level of mortality, the overall impacts of this alternative on the scallop resource are expected to be neutral. For example, the number of scallops harvested in 7.7 DAS in open areas in 2008 is expected to be equal to the number of scallops harvested on one 18,000 pound access area trip in Nantucket Lightship.

### **5.1.4 Hudson Canyon Access Area**

No Action for this alternative would mean that all un-used 2005 limited access trips would expire on February 29, 2008. There is one alternative that would extend the duration of the program for three additional months until May 31, 2008. In general, if un-used 2005 trips are not taken, the impacts on the scallop resource would be positive: more scallops on the bottom that could potentially add to recruitment. However, if vessels that have not used their trips decide to use their trips between now and the end of the 2007 fishing year rather than lose that opportunity, then mortality could be high on scallops in that area as a result. The alternative that allows an extension until May 1, 2008 may reduce mortality in the short term compared to No Action if vessels decide to wait until after scallops have grown in the spring (i.e. April and May).

If vessels are permitted to use unused 2005 trips until May 31, 2008, the mortality in that area will be slightly higher than current 2008 estimates. For example, if 1.0 million pounds are left for that area based on the number of trips not used by February 29, 2007, then overall catch for 2008 will increase by 1.0 million, or about 2%. Overall fishing mortality would increase by the same amount; so for the preferred alternative overall  $F$  is equal to  $F=0.22$ , so  $F$  would increase by 0.005. Therefore, overall  $F$  in 2008 would be higher than estimates because some effort expected to occur in 2007 would be shifted to 2008. This is not a huge amount that will impact

the scallop resource in the short term. However, over the long term, if 1.0 million pounds are removed now compared to several years from now, those scallops would grow 30-40%, so there would be resource lost from the growth potential of those scallops compared to No Action.

The impact of this additional F in 2008 is not expected to cause overfishing. However, if this extension were permitted and the Council still wanted the overall F to equal  $F=0.22$  for 2008 under the preferred alternative compared to  $F=0.225$ , then open area DAS would have to be reduced to compensate. For example, if the LPUE for open areas is about 1,360 pounds per day and 1.0 million pounds were harvested at that rate, it would be about 735 DAS. When 735 DAS is applied over the 326 full-time limited access equivalent vessels, then each vessel could expect a reduction of approximately 2 open area DAS to bring overall F back to  $F=0.22$  for FY2008.

### **5.1.5 Elephant Trunk Access Area**

Updated estimates recommend four trips in ETAA in 2008 and three trips in 2009. The area will open on March 1. A procedure has been included to reduce the number of trips in this area if updated biomass estimates suggest it is necessary to do so. The resource in the ETA is greater than any other area. Even with four trips (DMV3) compared to three trips under the No Action alternative, the exploitable biomass is still very high (78.6 compared to 86.8). The change in fishing mortality for this area is 0.34 compared to 0.23 under No Action for 2008, and 0.28 and 0.29 respectively for 2009. Area rotation allows for fishing mortalities somewhat above the overall target in recently reopened access areas. Allocating 4 trips in 2008 and 3 trips in 2009 is not expected to have negative impacts on the scallop resource.

The seasonal closure under consideration but not selected (September 1-October 31) is expected to have positive impacts on the scallop resource by reducing effort in that area when scallop shell height-to-meat weight ratios are lower. In the Mid-Atlantic, the southern range of the scallop resource, there is a seasonal cycle in meat yield that increases from March to July and then declines until October-November (Schmitzer, 1988). Therefore, reducing effort in that area during September and October will reduce mortality. Framework 18 assessed the seasonal differences in meat count for this time period in the Mid-Atlantic (See Section 5.1.1.2.7 of Framework 18; NEFMC, 2005). In addition, the procedure to reduce effort in ETA if updated surveys recommend it is expected to have positive impacts on the scallop resource by providing a mechanism that can reduce effort in that area if updated information suggests the allocated level of effort is too high. This measure will help prevent overfishing and has positive impacts on the scallop resource.

### **5.1.6 Delmarva Access Area**

Updated estimates recommend that the Delmarva area may support one access area trip in 2009. The area will open on March 1. A procedure has been included to reduce the number of trips in this area if updated biomass estimates suggest it is necessary to do so. The impacts of this alternative can be considered comparing DMV3 (Delmarva does not open) and DVM2 (Delmarva opens in 2009). By allocating some effort from the Delmarva area in 2009, the open area DAS for that year are reduced by 12 DAS for a full-time vessel. Therefore, DAS used are lower overall if the area opens, LPUE is slightly higher if the area opens, and bottom contact

time is lower overall since catch rates are expected to be much higher in the Delmarva area compared to open areas.

The seasonal closure under consideration but not selected (August 1-October 31) is expected to have positive impacts on the scallop resource by reducing effort in that area when scallop shell height-to-meat weight ratios are lower. In the Mid-Atlantic, the southern range of the scallop resource, there is a seasonal cycle in meat yield that increases from March to July and then declines until October-November (Schmitzer, 1988). Therefore, reducing effort in that area during August and October will reduce mortality. Framework 18 assessed the seasonal differences in meat count for this time period in the Mid-Atlantic (See Section 5.1.1.2.7 of Framework 18; NEFMC, 2005). In addition, the procedure to reduce effort in Delmarva if updated surveys recommend it is expected to have positive impacts on the scallop resource by providing a mechanism that can reduce effort in that area if updated information suggests the allocated level of effort is too high. This measure will help prevent overfishing and has positive impacts on the scallop resource.

### **5.1.7 Other restrictions related to access areas**

#### **5.1.7.1 Restriction on the number of crew on limited access scallop vessels**

This action is considering a restriction on crew size of 8 or 9 persons. Since FW18 eliminated the crew size restriction on access area trips, observed trips do not seem to be impacting the size of scallops harvested. The average size of scallops kept on observed trips were analyzed compared to the number of crew on an access area trips. The results from these data do not suggest that crew size is impacting average size of scallop kept. However, the potential exists that mortality could increase if vessels carry larger crews to shuck more scallops per day if the mean size of scallops in a future access area are lower than expected. This measure, in conjunction with possession limits and gear restrictions, help reduce scallop mortality and control effort, thus has positive impacts on the scallop resource overall.

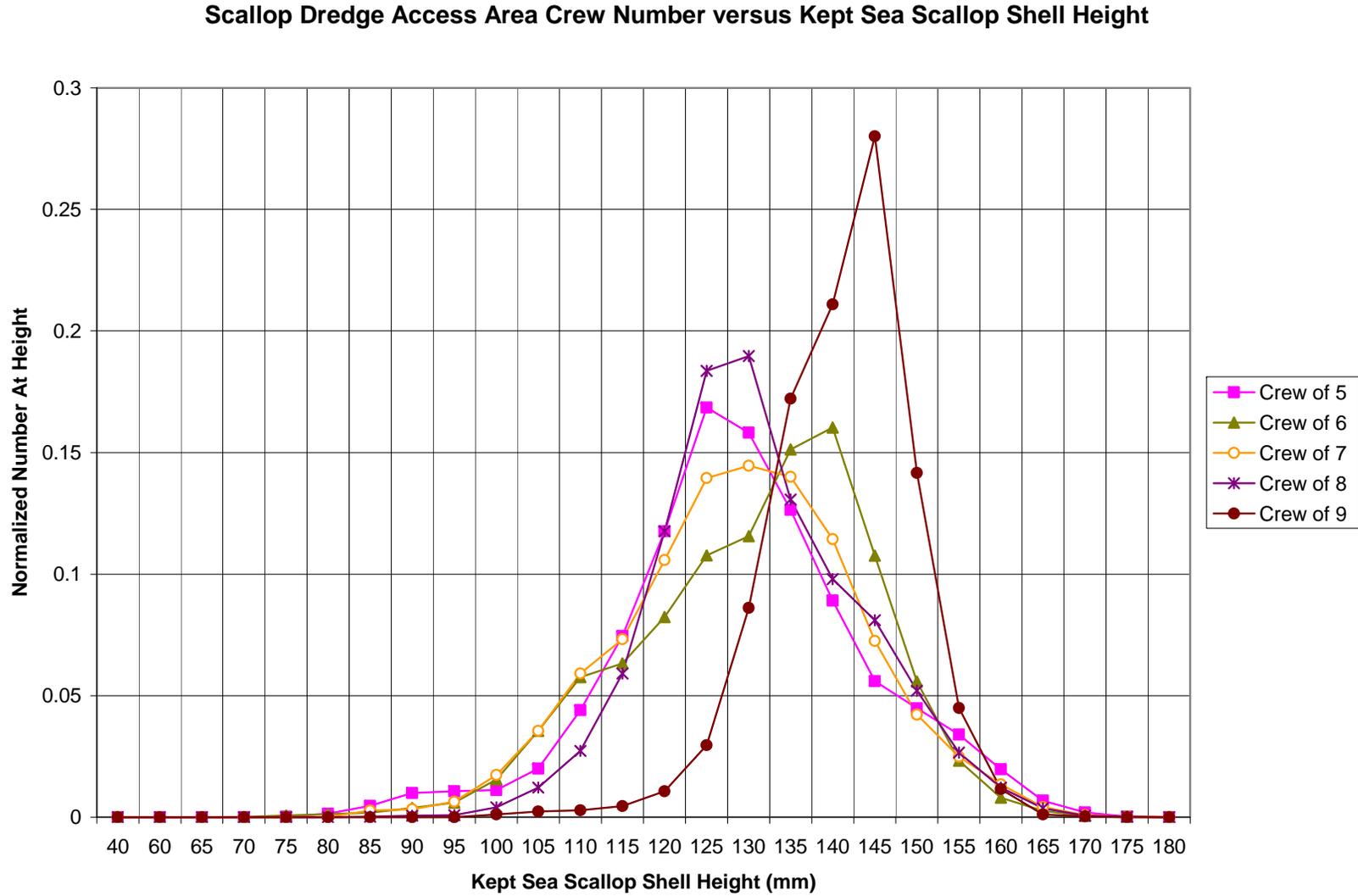
#### ***Background analysis of eliminating the crew size restriction in access areas under FW18***

The PDT examined observer data in access areas since FW18 was implemented and eliminated the crew size restriction for those trips. Overall, only 14 out of 85 trips had more than seven crew members (16%). A breakdown of the observed trips is summarized in Table 86. Figure 33 depicts the number of crew size on an access area trip compared to the size of scallops kept on that trip. These data have been normalized, or expressed as a fraction, so that data for various crew sizes can be compared. Based on the information available, it does not appear that trips with more crew members are targeting smaller scallops. The following should be noted: (1) the number of crew includes the captain; (2) the shell heights are for kept scallops only; (3) data is from observed Limited Access Scallop Dredge trips into the Access Areas that landed after the implementation of Framework 18 (effective June 15, 2006) through April 30, 2007 (date when data loaded to master observer tables); and (4) 14 out of 85 trips carried a crew greater than 7.

**Table 86 – Summary of crew size on observed trips in scallop access areas from June 15, 2006 through April 30, 2007**

	<b>Nantucket Lightship</b>	<b>Closed Area II</b>	<b>Closed Area I</b>	<b>Elephant Trunk</b>
5 person crew	5	3	2	0
6 person crew	3	3	3	2
7 person crew	13	25	2	12
8 person crew	5	8	0	0
9 person crew	0	1	0	0
Total # of trips observed	24	40	7	14

Figure 33 – Summary of normalized number at height by area for trips with various number of crew size



### **5.1.7.2 Prohibition on deckloading when leaving an access area (>50 bu.)**

This action is considering an alternative that would prohibit any scallop vessel from leaving an access area with more than 50 bu. of in-shell scallops on deck. This measure is expected to reduce non-harvest scallop mortality, thus having positive impacts on the scallop resource.

### **5.1.8 TAC set-asides for observers and research**

This action maintains the current policy of setting aside 2% of available TAC in access areas for research and 1% to provide funding for observers. This alternative is expected to have indirect beneficial impacts on the scallop resource from research and observer program results that can be used in the scallop management process.

### **5.1.9 Open Area allocations for limited access vessels**

After the Council decides which access areas will be available for the next two fishing years, the open area DAS are estimated to reach an overall target F rate of 0.20. The range of open area DAS under consideration is about 12,000-20,000 total DAS for 2008, or about 29-51 individual open area DAS for full-time vessels. The total (16-24,000) and individual open area DAS are higher for 2009 (42-69 for full-time vessels). In general, alternatives with higher open area DAS have higher estimates for DAS used and bottom contact time. In addition, LPUE in open areas is lower for these alternatives compared to the scenarios that allocate fewer DAS. Overall F is estimated to be the same for all scenarios over time, but since there is currently not much biomass in open areas, higher F rates in these areas are not beneficial for the scallop resource in open areas.

#### **5.1.9.1 DAS set-asides for observers and research**

This action maintains the current policy of setting aside 2% of available limited access DAS in open areas for research, and 1% to provide funding for observers. This alternative is expected to have indirect beneficial impacts on the scallop resource from research and observer program results that can be used in the scallop management process.

### **5.1.10 Measures for general category vessels**

#### **5.1.10.1 No Action**

##### **5.1.10.1.1 Quarterly hard-TAC for transition period to limited entry (FY2008)**

If Amendment 11 is approved, there will be a quarterly hard-TAC implemented for the transition period to limited entry (most likely for all of FY2008). The total general category allocation (open and access areas) will be divided into four quarters. Since there is an overall TAC, this alternative is not expected to have impacts on the scallop resource. The proposed allocations are higher during the spring and summer (Quarters 1 and 2) when meat weights are larger.

### ***Alternative to reduce derby fishing in access areas***

This action is considering allocating 2% of the total catch to general category vessels in access areas in 2008 only to reduce derby fishing in those areas while vessels are under appeal for the IFQ program. There are no discernable differences between the impacts on the scallop resource between the 2% and 5% access area allocation alternative because the remaining amount will be allocated to the limited access fishery; the difference will still be harvested in open areas – either by a general category vessel or a limited access vessel.

#### **5.1.10.1.2 IFQ program for general category fishery (FY2009)**

If Amendment 11 is approved, then general category qualifiers will receive an individual fishing quota based on their contribution to historical landings. IFQs will not be area-specific; a vessel can choose to participate in an access area program and landings will be removed from their individual allocation. Vessels will be permitted to catch that quota in any area available (open areas or access areas) until the fleetwide allocation is harvested. In general, this alternative is not expected to have impacts on the scallop resource. The impacts of the overall IFQ program were assessed in Amendment 11, and in general this alternative is expected to have positive impacts on the scallop resource compared to the No Action alternative for Amendment 11 (no limited entry program).

### ***Cost Recovery Program***

This action includes an alternative for a cost recovery program for the general category IFQ vessels. It includes a program that could collect up to 3% of ex-vessel value of scallop product landed. This program is administrative in nature and is not expected to have direct impacts on the scallop resource.

#### **5.1.10.1.3 Northern Gulf of Maine (NGOM) hard-TAC**

If this program is approved under Amendment 11, this framework includes the hard-TAC allocation for vessels with a limited entry NGOM permit. The PDT recommendation is 70,000 pounds for both years. Once the TAC is reached, no scallop vessels are permitted to fish in the NGOM area. Because all scallop fishing is prohibited once the TAC is reached, this alternative is not expected to have negative impacts on the scallop resource, provided the TAC is set at the appropriate level and is effectively monitored. In the long run, when an assessment of this area is available, the hard TAC should help prevent overfishing of the scallop resource in this area.

### ***Background on the recommended NGOM hard-TAC***

The Council reviewed the NGOM alternative approved in Amendment 11 at the October Council meeting and it was discussed that the intent of the TAC was that it be for federal waters only and landings from limited access vessels should not count toward the TAC during the fishing year. All scallop vessels would be prohibited from fishing in that area once the TAC is reached. Therefore, the Council approved a hard-TAC for 2008 and 2009, 70,000 pounds, which is equivalent to average landings from general category vessels from VTR reports in federal waters only.

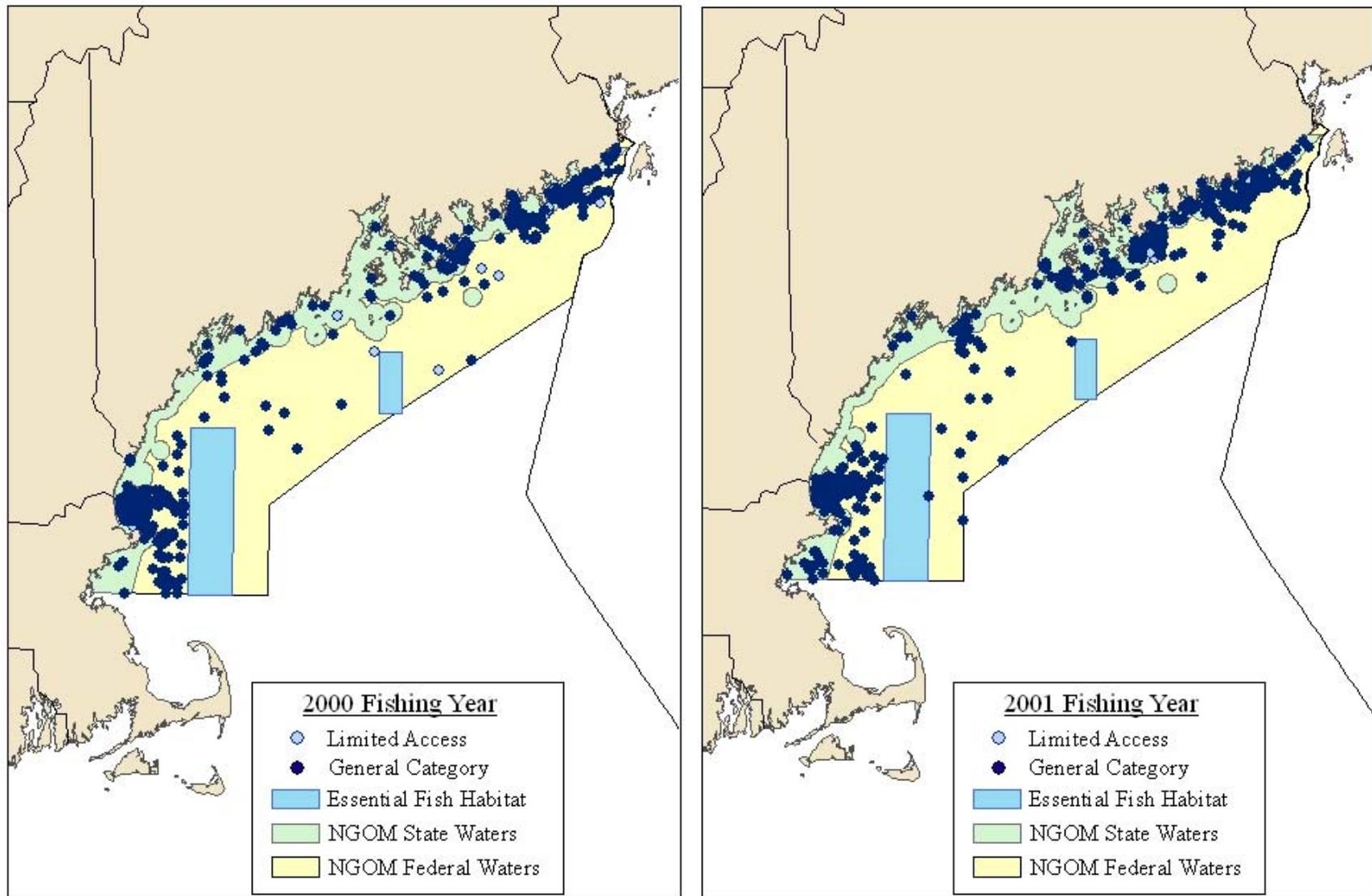
The proposed area is the GOM exemption area north of 42 20 N. The Council directed the PDT to develop an estimate for the hard-TAC based on the federal portion of the resource within this area. VTR landings information is not very reliable for specific location information, but can provide a general idea of fishing location over a longer period of time and for a large number of vessels. Below is a table with the total general category landings in the NGOM from VTR data for calendar year 2000-2006. Landings from state waters were removed, as well as landings from any EFH or Multispecies closed areas in the region, since those areas will not be available in the near future. In addition, all trips over 1,200 pounds per trip were eliminated from the database. General category vessels are restricted to 400 pounds per trip, but 1,200 pounds was used as a cut off for analysis in Amendment 11 to be more inclusive because issues were raised about the data (i.e. multiple trips reported together). Most trips were below 1,200 pounds, but a number of trips in 2001 and 2002 were above that amount. The average landings from within the NGOM for this time period were about 129,000 pounds. After landings from state waters and areas now closed to fishing are removed, the average landings are reduced to over 69,000 pounds (Table 87). This information is also displayed in Figure 34 by calendar year.

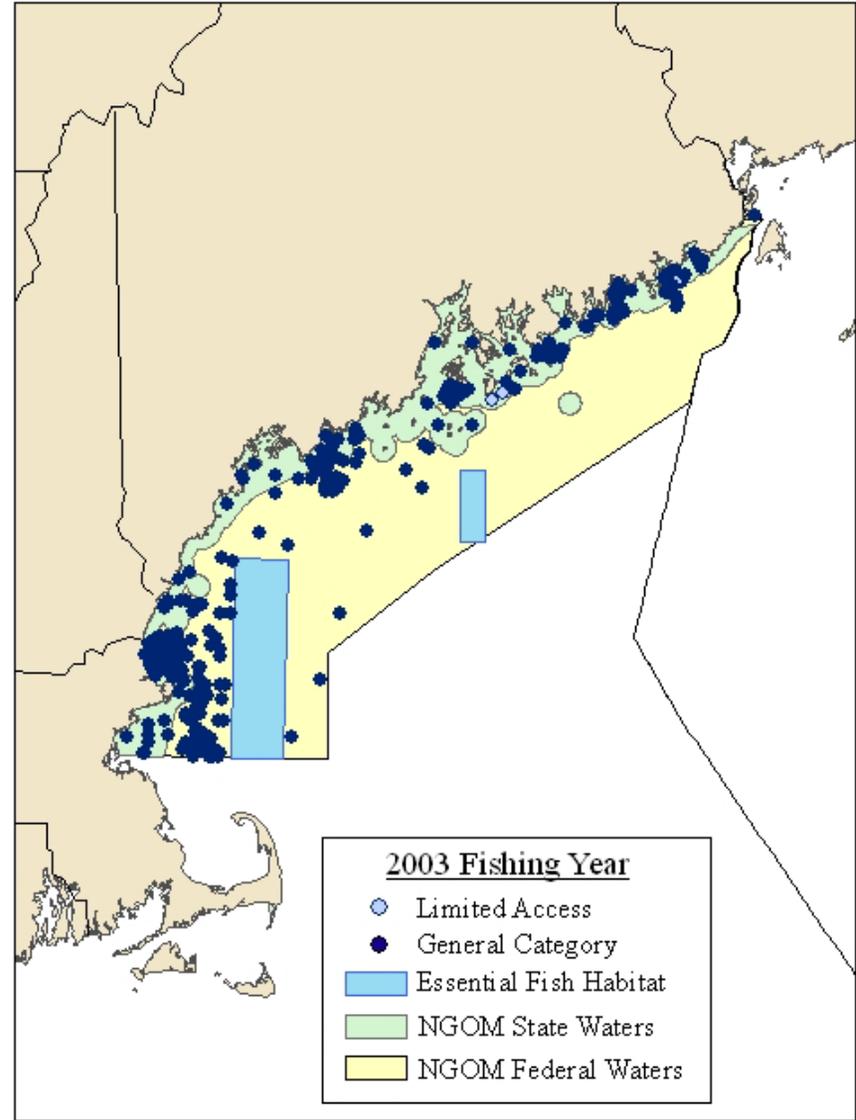
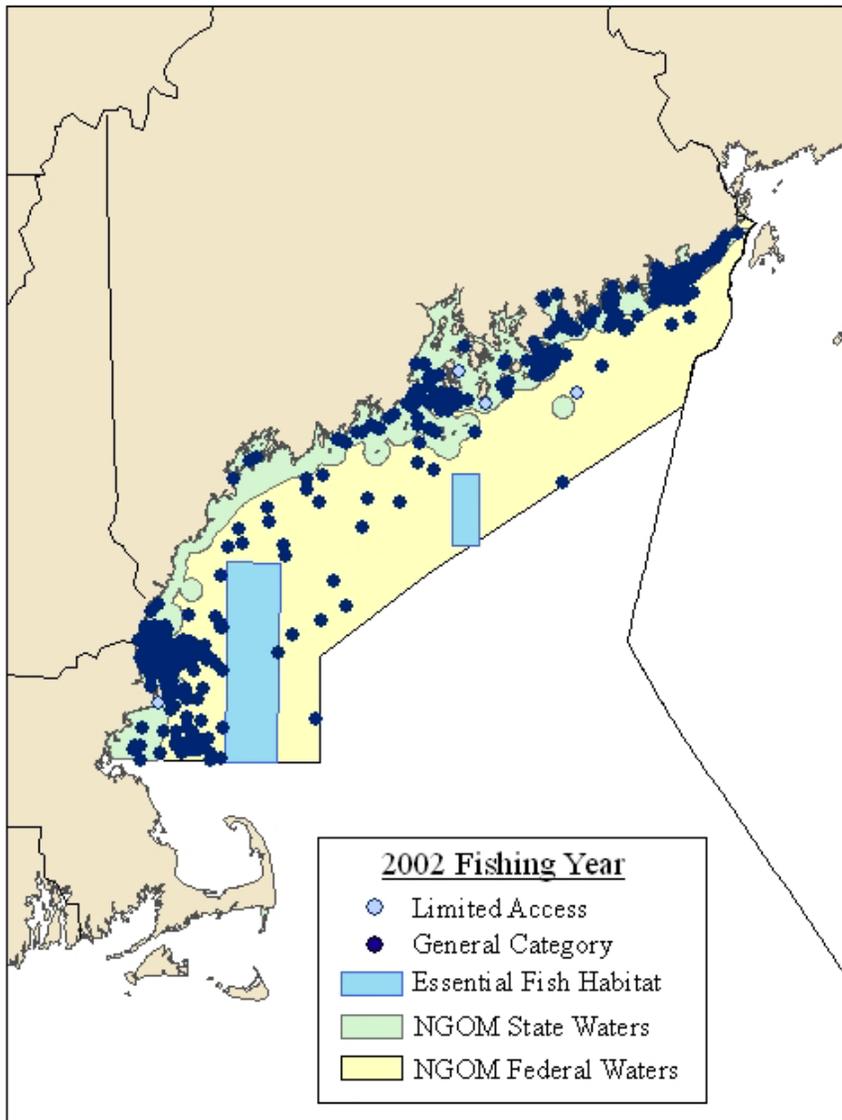
**Table 87 – Summary of landings from within the NGOM area (VTR data from 2000-2006)**

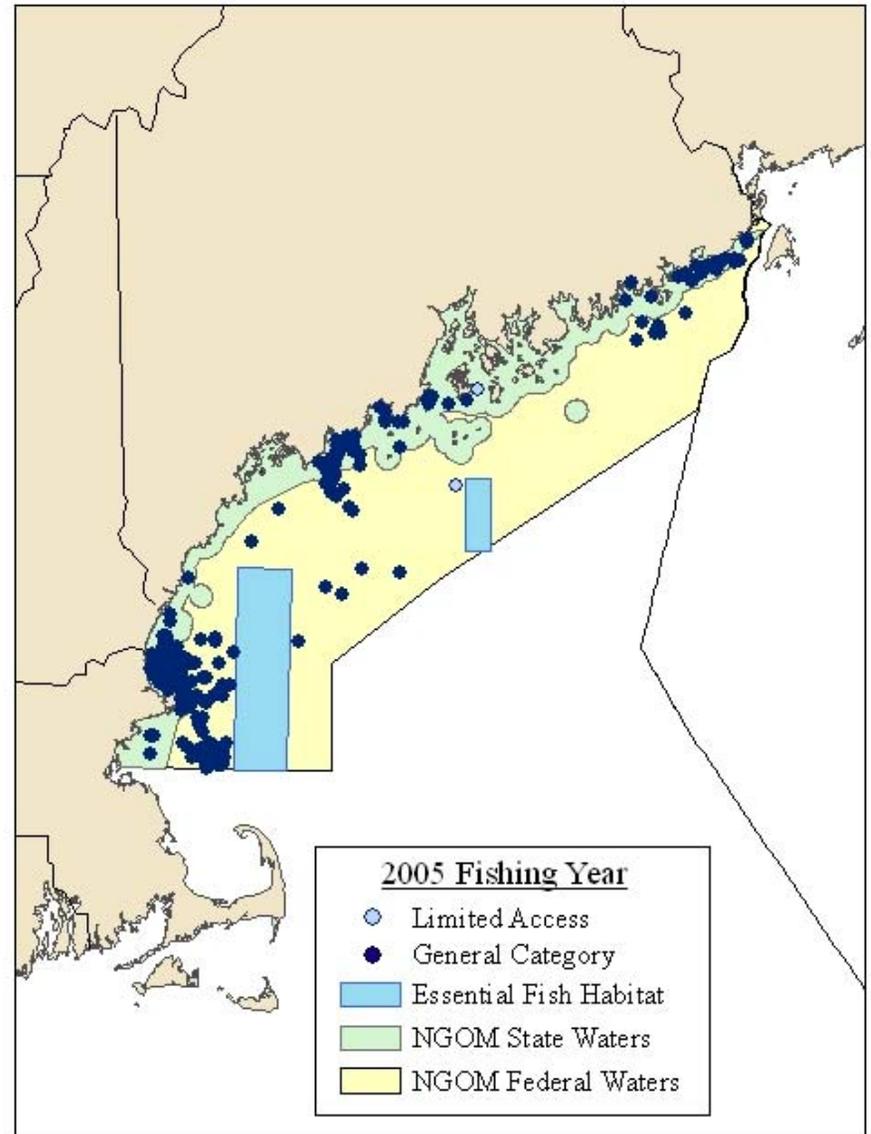
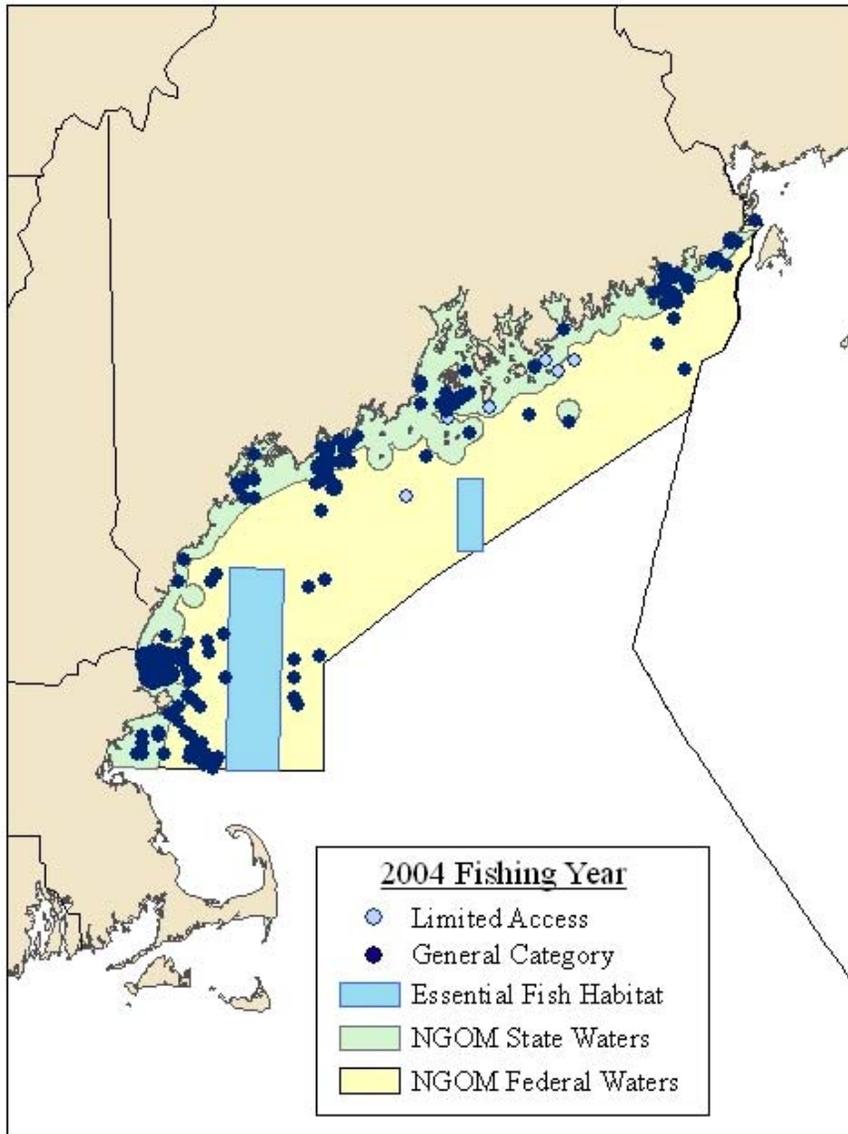
Calendar Year	VTR landings from within the NGOM area	VTR landings from within state waters in the NGOM	VTR landings from within federal waters only in the NGOM area
2000	70,006	39,878	<b>30,127</b>
2001	144,224	84,842	<b>59,382</b>
2002	273,790	133,613	<b>140,177</b>
2003	174,370	89,882	<b>84,488</b>
2004	47,403	22,832	<b>24,571</b>
2005	76,934	17,568	<b>59,366</b>
2006	116,995	29,788	<b>87,207</b>
<b>AVG</b>	<b>129,103</b>	<b>59,772</b>	<b>69,331</b>

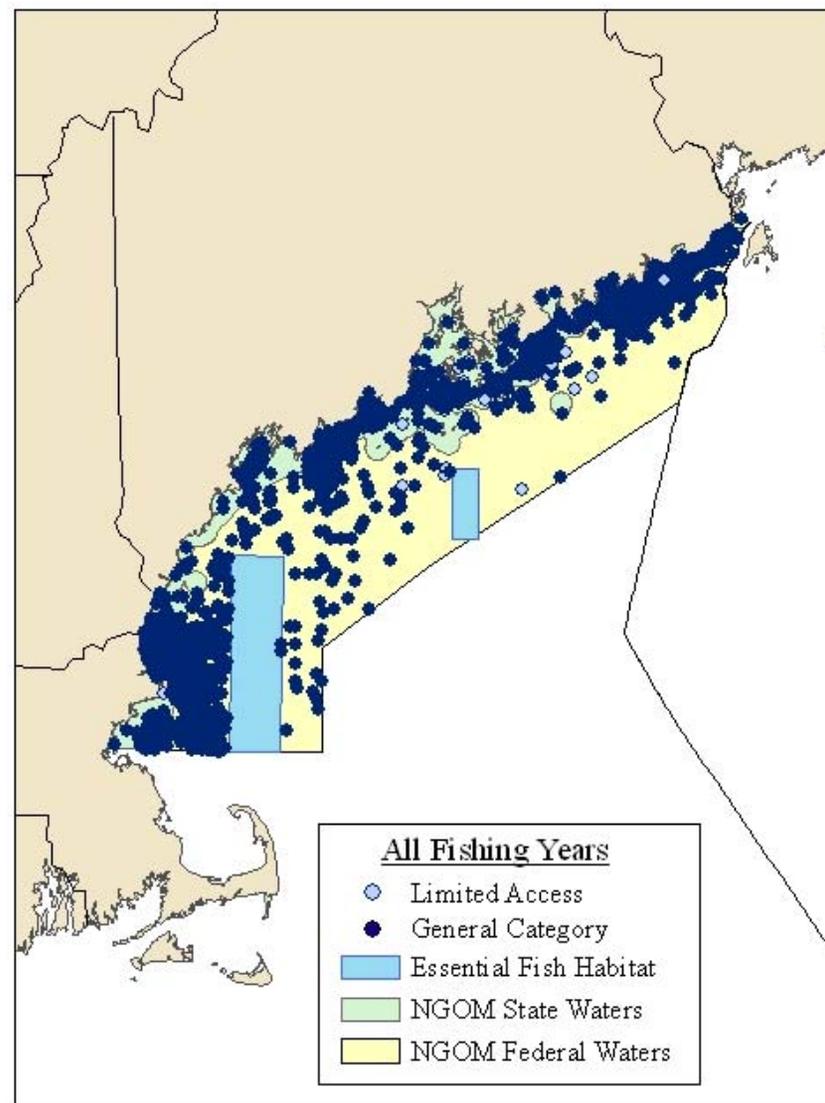
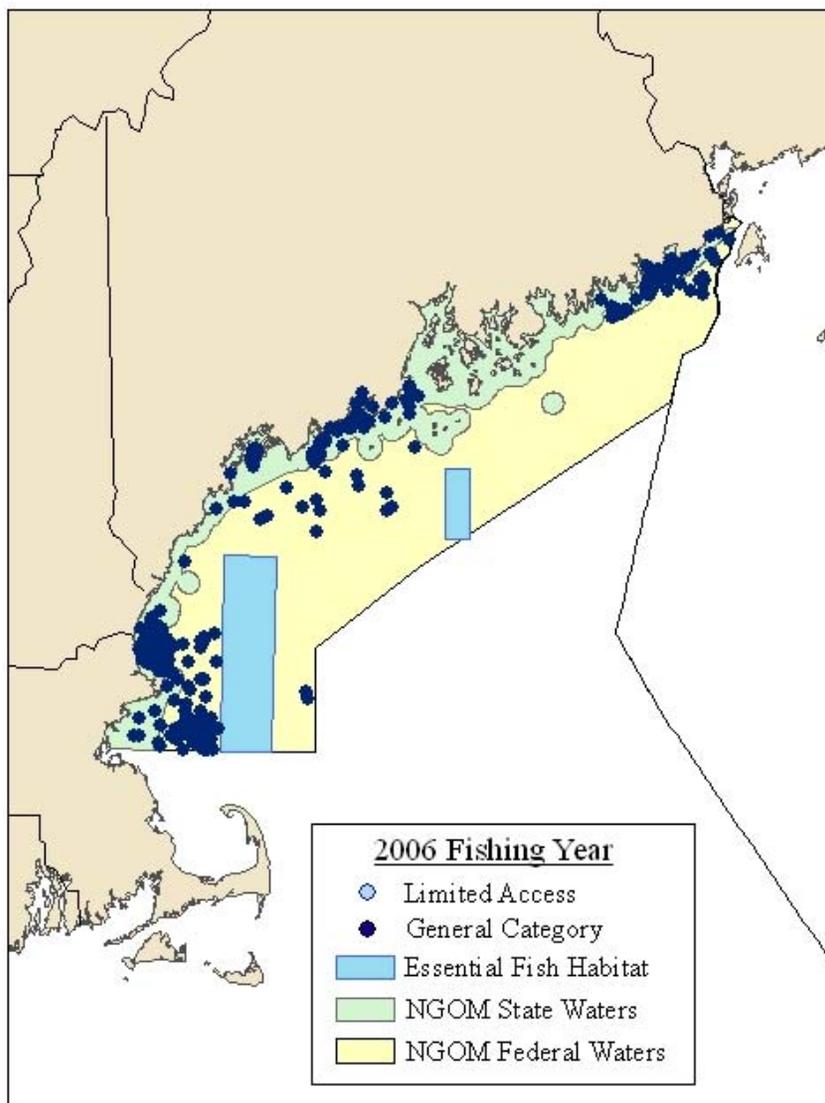
The PDT reviewed this information and recommends that the hard-TAC for the next two fishing years be 70,000 pounds per year. First, there is uncertainty about the resource in the GOM in general, and there is uncertainty about how much of past landings have been and will be from state waters in the future. In order to account for this uncertainty, the PDT discussed taking 80% of the average landings from federal waters if it is assumed that average landings are close to long-term MSY. However, since the PDT acknowledges that some of future landings from vessels that qualify to fish under this TAC will come from state waters, the PDT recommends that the average landing value not be reduced since some level of future landings is expected to come from state waters.

Figure 34 – General category effort by calendar year within the Gulf of Maine (VTR data from 2000-October 2006)









### **5.1.10.2 General category access area management**

General category allocations in access areas will remain a fleetwide number of trips per area. This action is considering a variety of alternatives for total allocation into access areas for the general category fishery: 2% per area, 5% per area, 0% for Closed Area II, and a small percentage for Closed Area II. The prohibition on deckloading from access areas also applies to general category vessels.

Overall, allocating 5% or 2% to the general category fishery will not have impacts on the scallop resource overall since the same overall amount of scallops will be harvested. There are no major differences in mortality from limited access gear compared to general category gear. Total effort levels are different between the fisheries in terms of dredge size, tow length and trip length, but since there is an overall allocation in pounds made to either fishery, overall impacts on mortality should be the same.

### **5.1.11 Estimate of mortality from incidental catch**

If approved by Amendment 11, an estimate of mortality from incidental catch will be reduced from the total TAC on an annual basis. The PDT estimates that 50,000 pounds should be considered for this source of mortality. Considering mortality from incidental catch in a more direct way could have indirect benefits on the scallop resource by taking this source of mortality into account before allocations are made to the fishery. The PDT will review this estimate and revise it if expected mortality from incidental catch changes in the future.

### **5.1.12 Revision of overfishing definition**

This action is considering revising the overfishing definition based on results from the recent scallop stock assessment, SAW 45. Specifically, the  $B_{MAX}$  value in survey weight per tow would be revised to an absolute value of scallop meat and  $F_{MAX}$  would be changed to 0.29 (from 0.24). However, there is an alternative to maintain the same fishing mortality target of 0.20, even though the fishing mortality threshold has increased.

Accepting the new overfishing definition recommended by the SARC is expected to have benefits on the scallop resource because the model used to generate these results is considered less biased. The updated model uses more information and is an improvement from the previous methods used. In addition, maintaining the fishing mortality target at  $F=0.20$  is precautionary and reduces the risk of overfishing, having long term beneficial impacts on the scallop resource overall.

### **5.1.13 Minor adjustments to the observer set-aside program**

This action includes an alternative that would consider applying a higher compensation rate for vessels carrying an observer in open areas compared to access area trips. In addition, there are a number of administrative adjustments that are being considered to improve the program overall.

This alternative is not expected to have impacts on the scallop resource.

#### **5.1.14 Area closures to protect young scallops**

This action is considering several new areas as scallop rotational areas. Small scallops have shown up in the 2007 survey in the Hudson Canyon area as well as the Great South Channel.

##### **5.1.14.1 Hudson Canyon area**

In order to get a sense of expected impacts from this closure, it is useful to compare the projected exploitable biomass and LPUE estimates for the HCS and HCL alternatives compared to DMV2 because these alternatives are the same, except for the HC closure. Obviously, exploitable biomass in the HC area is expected to be higher in the short term under the two HC alternatives, as well as the preferred alternative that closes the existing HC area. Overall biomass is similar for the alternatives a few years in the future, but in the long term, the DMV2 alternative is projected to have lower biomass than the preferred and HC alternatives. In 2009, the LPUE for HC is closer to 1,700 pounds per day for the HC alternatives and about 1,900 for both the preferred and HC alternatives that propose closing an area in HC for several years to protect small scallops in that area. As with any rotational closure, it is more beneficial to harvest scallops after they have reached their growth potential to maximize yield. Therefore, since there are small scallops in that area, if they are given several years to grow, then fewer scallops will be harvested in the future, thus reducing mortality with positive benefits on the resource. In addition, closing the Hudson Canyon area may increase spawning downstream as it may have done in 2001 when high recruitment in HC was followed by high recruitment in the Elephant Trunk Area, the area just south of HC.

##### **5.1.14.2 Great South Channel area**

In order to get a sense of expected impacts from this closure, it is useful to compare the projected exploitable biomass and LPUE estimates for the SCH alternative compared to DMV2 because these alternatives are the same, except for the SCH closure. Obviously, exploitable biomass in the SCH closure is expected to be higher in the short term under the SCH alternative compared to DMV2. However, exploitable biomass in open areas in the Channel is hit relatively hard if the SCH area is closed, since few open areas on GB have high scallop abundance. In the long-term, this alternative is expected to have higher exploitable biomass than the DMV2 alternative, but closing the proposed area in the GSC would increase overall bottom area swept since that area includes some of the higher LPUE areas left in open areas. In addition, this closure is expected to have some displacement effects since there are limited areas left that the fishery can use open area DAS. Therefore, this alternative is expected to increase F in other areas compared to the DMV2 alternative (Table 81). As with any rotational closure, it is more beneficial to harvest scallops after they have reached their growth potential to maximize yield. Therefore, since there are small scallops in that area, if they are given several years to grow, then fewer scallops will be harvested in the future, thus reducing mortality with positive benefits on the resource. In addition, this area includes a concentration of small scallops that have not shown up on Georges Bank in recent years and could produce an access area akin to the NL in the near future if managed like an access area.

## **5.1.15 Other measures**

### **5.1.15.1 30-day VMS power-down provision**

An alternative is being considered that would permit a vessel to power down their VMS unit for a minimum of 30 days if the vessel is not going to fish during that time.

This alternative is not expected to have impacts on the scallop resource.

### **5.1.15.2 Clarification on when a vessel can leave on an access area trip**

This alternative would clarify when a vessel can leave on an access area trip. Specifically, the No Action would remain in effect; a vessel can leave on an access area trip before the area opens, but it may not enter the access area until the area has opened.

This alternative is not expected to have impacts on the scallop resource.

## **5.2 IMPACTS ON PHYSICAL ENVIRONMENT AND EFH**

The purpose of this action is to achieve the objectives of the Atlantic Sea Scallop Fishery Management Plan (FMP) to prevent overfishing and improve yield-per-recruit from the fishery. The primary need for this action is to set specifications to adjust the day-at-sea (DAS) allocations and area rotation schedule for the 2008 and 2009 fishing years.

### **5.2.1 Impacts of the Proposed Action**

Relative to the baseline period, the proposed action has slightly higher projected bottom contact (area swept) in most areas in 2008. However, relative to the No Action alternative, bottom contact time and consequent impacts on designated Essential Fish Habitat are actually reduced. Overall LPUE averaged for both years for the proposed action is higher than the No Action Alternative. The impacts on habitat from the proposed action are expected to be positive relative to baseline conditions because access is allocated in areas with more biomass (NLCA in FY2008 and CAII in FY2009) compared to areas with lower biomass such as open areas and Closed Area I, resulting in more concentrated, less diffuse fishing pressure.

#### **5.2.1.1 Measures for limited access vessels**

##### **5.2.1.1.1 Georges Bank Access Area**

###### *Description of the measures*

The proposed action allows taking one trip per year in the NLCA in FY2008 and one trip per year in CAII in FY2009.

###### *Impacts on designated EFH*

Allocating trips to areas with high scallop abundance results in a spatially dense fishing effort which will increase yield from the fishery with a reduced impact on the bottom contact time for scallop fishing overall. This measure will have a positive impact on designated essential fish habitat.

##### **5.2.1.1.2 Hudson Canyon Access Area**

###### *Description of the measures*

After February 29, 2008, all unused 2005 Hudson Canyon trips expire and the area reverts back to an open area.

###### *Impacts on designated EFH*

In general, if un-used 2005 trips are not taken the impacts on the designated EFH would be positive relative to the baseline period. However, if vessels that have not used their trips decide to use their trips between now and the end of the 2007 fishing year rather than lose that opportunity, then fishing pressure could be high on scallops in that area as a result. However, because fishing pressure is relatively concentrated in this area, the additional effort would be unlikely to increase adverse impacts above baseline periods.

#### **5.2.1.1.3 Elephant Trunk Access Area**

##### *Description of the measures*

The area will open on March 1, 2008 and a procedure will be in place to reduce effort in the area if updated surveys indicate that biomass is lower than expected, or if the overall fishing mortality rate for the resource is above the overfishing threshold. The Council does not recommend a seasonal closure in ETA to reduce potential interactions with sea turtles.

##### *Impacts on designated EFH*

The resource in the ETA is greater than any other area. Consequently, allocating trips to areas with high scallop abundance results in a spatially dense fishing effort which will increase yield from the fishery with a reduced impact on the bottom contact time for scallop fishing overall. This measure will have a positive impact on designated essential fish habitat.

#### **5.2.1.1.4 Delmarva Access Area**

##### *Description of the measures*

The area will open on March 1, 2008 and a procedure will be in place to reduce effort in the area if updated surveys indicate that biomass is lower than expected, or if the overall fishing mortality rate for the resource is above the overfishing threshold. The Council does not recommend a seasonal closure in the Delmarva Area to reduce potential interactions with sea turtles.

##### *Impacts on designated EFH*

Similar to the ETA area (above), allocating trips to areas with high scallop abundance results in a spatially dense fishing effort which will increase yield from the fishery with a reduced impact on the bottom contact time for scallop fishing overall. This measure will have a positive impact on designated essential fish habitat.

#### **5.2.1.1.5 Other restrictions related to access areas**

##### *Description of the measures*

Other alternatives related to access area fishing that are part of the proposed action are the continuation of eliminating the crew size restriction on access area trips and prohibiting all scallop vessels from “deckloading”. Limited access vessels would still be prohibited from having more than 7 crew members on open area trips, but there would be no crew limit for access area trips, as approved under Framework 18. The Council recommends that all scallop vessels be prohibited from leaving an access area with more than 50 bushels of in-shell scallop onboard.

##### *Impacts on designated EFH*

Maintaining the lack of crew size limitations for trips in access areas is unlikely to appreciably change overall bottom contact time and will most likely have a neutral impact on designated EFH relative to the baseline period. If vessels engage in high-grading practices due to the additional manpower available, then bottom contact time could increase relative to that predicted in the projections. The likelihood of this change in fishing behavior is uncertain, but likely minimal. Prohibiting deck-loading in the scallop fishery is unlikely to appreciably change

overall bottom contact time and will have a neutral impact on designated EFH relative to the baseline period.

#### **5.2.1.1.6 Open area allocations**

##### **5.2.1.1.6.1 Allocations**

###### *Description of the measures*

The proposed action allocates 35 open area DAS in 2008 and 42 DAS in 2009 for full-time permits.

###### *Impacts on designated EFH*

The proposed action reduces the number of open area DAS available to the fishery relative to the baseline period, which will reduce impacts on habitat. The magnitude of this reduction is, however, not directly proportional to the DAS decreases due to the patchy nature of scallop fishing. If low open-area biomass encourages fisherman to seek areas of previously-lower scallop fishing pressure, then the magnitude of this reduced impact would be less. If, however, fisherman seek to maximize their DAS allocations by concentrating in areas of known (and hence well-fished) biomass, then the impacts of reductions in open area DAS will likely be positive for designated EFH.

##### **5.2.1.1.6.2 DAS set-asides for observers or research**

###### *Description of the measures*

This measure continues the set-aside program that deducts 1% of allocated DAS to help fund observers on limited access scallop vessels in open areas and 2% to fund scallop related research with compensation trips taken in open scallop fishing areas.

###### *Impacts on designated EFH*

This measure will have no direct impact on designated EFH. However, dedicated research into the bottom types in the affected area and impacts of fishing on these substrates will help fisherman and fishery managers better understand, document, and minimize the potential adverse impacts of fishing on EFH.

#### **5.2.1.2 Measures for General Category vessels**

##### **5.2.1.2.1 No Action**

###### **5.2.1.2.1.1 Quarterly hard TAC for transition period to limited entry**

###### *Description of the measures*

The proposed action includes quarterly hard-TAC allocations for the transition period to an IFQ program for the general category fishery

###### *Impacts on designated EFH*

With an overall TAC, and because the fishery is prosecuted in 400-pound ‘units’, this alternative is not expected to have any impact on designated EFH relative to the baseline period.

###### **5.2.1.2.1.2 IFQ program for general category fishery**

#### *Description of the measures*

General category qualifiers will receive an individual fishing quota based on their contribution to historical landings. IFQs will not be area specific; a vessel can choose to participate in an access area program and landings will be removed from their individual allocation. Vessels will be permitted to catch that quota in any area available (open areas or access areas until the fleetwide allocation is harvested). This action includes an alternative for a cost recovery program for the general category IFQ vessels approved under Amendment 11. It includes a program that could collect up to 3% of ex-vessel value of scallop product landed.

#### *Impacts on designated EFH*

The cost recovery program is administrative in nature and is not expected to have any impact on habitats designated EFH.

### **5.2.1.2.1.3 Northern Gulf of Maine Hard TAC**

#### *Description of the measures*

The proposed action includes a limited entry program for NGOM with a hard TAC. A) Hard-TAC of 70,000 lbs for FY '08 and '09, or B) 126,000 lbs based on another method for estimating the TAC using limited access history and landings from state waters

#### *Impacts on designated EFH*

The TAC is relatively small. If it is effectively monitored these measures should have no impacts beyond those documented in the baseline period.

### **5.2.1.2.2 Georges Bank Access Area Management**

#### **5.2.1.2.2.1 General Category allocations in access area post-transition period**

#### *Description of the measures*

Fleetwide allocation of trips will equal 5% of each area open, but there will be zero allocation for Closed Area II. These measures only apply to FY2009 if a reduction to 2% in access areas to reduce derby fishing is accepted for FY2008.

#### *Impacts on designated EFH*

Overall, allocating 5% to the general category fishery in the area openings will not have impacts on habitat beyond the baseline. These measures do not change overall fishing pressure and they are not likely to influence the distribution of that fishing pressure and thus are expected to have a neutral impact on designated EFH.

### **5.2.1.2.3 Hudson Canyon**

#### *Description of the measures*

If this area closes for limited access vessels under Section 2.8, it will close to general category vessels as well.

#### *Impacts on designated EFH*

If the area is closed to all scallop fishing then impacts on EFH in that area will be positive; however, effort will shift in areas outside the Hudson Canyon area. For the general category

fishery specifically, this closure is expected to have negligible impacts on EFH because there has not been high levels of scallop fishing by these vessels in this area in recent years, particularly compared to areas inshore of this access area (Figure 6).

#### **5.2.1.2.4 Elephant Trunk**

##### *Description of the measures*

This measure allocates a fleetwide maximum number of trips consistent with the 5% area opening allocation for both 2008 and 2009.

##### *Impacts on designated EFH*

These measures do not change overall fishing pressure and they are not likely to influence the distribution of that fishing pressure and thus are expected to have a neutral impact on designated EFH.

#### **5.2.1.2.5 Other restrictions for general category vessels in access areas**

##### *Description of the measures*

The Council recommends that all scallop vessels be prohibited from leaving an access area with more than 50 bushels of in-shell scallop onboard.

##### *Impacts on designated EFH*

Prohibiting deck-loading in the scallop fishery is unlikely to appreciably change overall bottom contact time and will have a neutral impact on designated EFH relative to the baseline period.

#### **5.2.1.3 Incidental catch mortality**

##### *Description of the measures*

This measure accounts for incidental catch mortality in the projected total catch before allocations are made by assuming a mortality of 50,000 lbs.

##### *Impacts on designated EFH*

The consequence of this measure is to effectively reduce landings by scallop vessels by an amount proportional to their incidental catch mortality, which may reduce bottom contact time relative to baseline periods. However, this reduction is likely to be small enough to not have any appreciable impact on designated EFH.

#### **5.2.1.4 Overfishing definition**

##### *Description of the measures*

The biomass reference point units would change to mt. from kg/tow. The current target fishing mortality level of  $F=0.20$  will be maintained.

##### *Impacts on designated EFH*

These measures are related to identifying the status of the scallop resource and setting sustainable management measures; therefore are not expected to have any impact on habitats designated EFH.

#### **5.2.1.5 Observer set-aside program improvements**

##### *Description of the measures*

This would increase the compensation for vessels with an observer in open area trips and decrease compensation for access trips, and make other program improvements.

*Impacts on designated EFH*

These measures are administrative in nature and is not expected to have any impact on habitats designated EFH.

**5.2.1.6 Area closure to protect young scallops**

*Description of the measures*

Areas inside the current Hudson Canyon Area boundaries would close for FY2008 and FY2009.

*Impacts on designated EFH*

The HCA is being closed to protect young scallops, which typically require more bottom contact time for a given amount of harvest than required for harvesting larger scallops. Therefore, this closure will effectively target fishing effort on areas that yield higher landings with less bottom contact time and the effect will be positive for areas designated EFH.

**5.2.1.7 Other measures**

*Description of the measures*

Other measures allow a vessel to power down their VMS unit for a minimum of 30 days, similar to multispecies permits, as long as the vessel does not engage in any fisheries, and remedies confusion about when a vessel can leave port on an access area trip by specifying that vessels may leave for an access area trip before the area opens.

*Impacts on designated EFH*

These measures are administrative in nature and is not expected to have any impact on habitats designated EFH.

**5.2.2 Impacts of the alternative measures**

Six rotational fishing areas are included in this Framework: Closed Area II (CAII), Closed Area I (CAI), the Nantucket Lightship Closed Area (NLCA), the Hudson Canyon Area (HCA), the Elephant Trunk Area (ETA) and the Delmarva Area. Measures included in this Framework primarily serve to set 2008 and 2009 access levels to these areas, and to change fishing effort levels in the areas outside of these six rotational areas. The impacts of actions proposed in this Framework will derive from changes in fishing pressure within the footprint of the scallop fishery (see Section 4 of this document for detailed descriptions of the geographic range of this fishery and its overlap with designated EFH).

For each of the six rotational fishing areas included, eight scenarios encompass different combinations of openings and closures for 2008 and 2009, each designed to meet the biological, social and economic objectives of the FMP and framework action. Overall, there are sixteen categories of measures, some with sub-options, covering fishery management strategies such as further restrictions considered for crew limits and deck loading of scallops when fishing in rotational areas. Measures are proposed for open area DAS allocations, the general category scallop fishery, bycatch reporting, changes to the overfishing definition, and new area closures are considered to protect young scallops.

Of these, changes to the limited access fishery stemming from combinations of rotational fishing areas have the potential to adversely affect habitats in areas where EFH is designated, particularly if fishing effort patterns change from the baseline conditions. Changes to the general category scallop fishery may also adversely affect such habitats. Additional area closures to protect juvenile scallops may move effort off sensitive habitats (specifically the area in the Great South Channel), and DAS reductions in the open areas will further reduce fishing effort and consequent impacts on habitat relative to baseline conditions. Other proposed measures are not likely to have discernable impacts on habitats where EFH is designated.

#### **5.2.2.1 No Action**

##### *Description of the measure*

In 2008, the No Action alternative would allocate one trip in Closed Area I, 3 in Elephant Trunk and approximately 20,000 open area DAS (or 51 DAS for a full-time vessel). In 2009, two areas on Georges Bank would technically be open under the area rotation schedule, but no allocation would be made for those areas. The limited access fishery would be allocated the same number of open area DAS as in 2008. ETA would be allocated 3 trips in 2009 as well. HC would revert to an open area and Delmarva would remain closed for both years.

##### *Impacts on designated EFH*

The No Action alternative has higher total bottom swept area projections than the other alternatives, with the exception of the “SCH” and “SCH+HC” alternative - the alternatives that would close the area in the Channel. However, because this measure extends the conditions in place after Framework 18, there is little if any potential for adverse affects beyond established baseline conditions.

#### ***No Action for Amendment 11***

##### *Description of the measure*

This alternative assumes that Amendment 11 is not approved, and the general category fishery would remain an open access fishery.

##### *Impacts on designated EFH*

Because the general category fishery would not be constrained overall in terms of total effort there is the potential for increased fishing pressure using New Bedford-style dredges. If the general category fishery fishes with higher intensity than projected, there is a risk that the impacts of this fishery on EFH could exceed baseline levels, though the magnitude of this risk is very difficult to quantify. Furthermore, the general category component of the fishery is relatively small (approximately 10% of total landings) relative to the limited access fishery. They use dredges with lower relative impact due to their smaller size, and their daily poundage limit places a natural economic limit on profitable levels of fishing by putting a premium on efficient use of gear.

#### ***Measures that will be in effect March 1, 2008 until FW19 is implemented***

##### *Description of the measures*

This alternative considers several measures as backstops if FW19 is not implemented before the start of the 2008 fishing year. Specifications from Amendment 10 and Framework 18 would carry-over until FW19 is implemented.

#### *Impacts on designated EFH*

Since the measures included in this alternative will serve as a backstop, even if effort levels are higher than projected in 2008, subsequent measures will be taken to account for any overages; therefore, over the two-year period, the impacts of this alternative on habitats designated EFH should be neutral. For example, if a full-time limited access vessel uses more DAS in FY2008 before FW19 is implemented (up to 51 as allocated under FW18) and this action only allocated 35 then any additional DAS used in 2008 will be reduced for that vessel's 2009 allocation. Baseline levels of effort and adverse habitat impacts would be maintained unless unforeseen shifts in fishing practices redirected fishing effort, but there are no indications that such events are likely.

#### **5.2.2.2 Management scenarios**

##### *Description of the measures*

The alternatives described in Section 3.0 of this document are separated out by area, (i.e. Georges Bank access areas, Elephant Trunk, Delmarva etc.) but due to the interrelated nature of area rotation and how the model projects impacts for the entire resource overall, it is difficult to pull out specific impacts by area. Table 11 describes the various scenarios considered. The **No Action** alternative assesses the impacts of essentially rolling over current specifications. There are two alternatives that consider revising the order of the Georges Bank access area schedule (**DMV3** and **DMV2**). The only difference between these two alternatives is that one keeps the Delmarva area closed for both 2008 and 2009, and one alternative considers access in 2009. The rest of the scenarios include various alternatives related to new rotational areas to protect small scallops: **HCL** would close a 5X5 ten-minute-square area near the current Hudson Canyon closed area; **HCS** would close a 4X4 ten-minute square area near the current Hudson Canyon area; **SCH** would close an area in the South Channel northeast of Nantucket Lightship; and **SCHHC** would close both areas – the smaller HC area and the SCH area.

All four of these scenarios include the same assumptions for allocations as scenario “DMV2” (one trip in NL in 2008, one trip in CAII in 2009, one trip in Delmarva in 2009, and 4 trips in ET in 2008 and 3 trips in ET in 2009). All scenarios then identify a certain level of open area DAS based on which areas are accessible to reach an overall fishing mortality target of  $F=0.20$ . An additional scenario is similar to HC-sm, but it proposes to close the existing HC area (not the 4X4 ten-minute square area) and it allocates more DAS in open areas in 2008 and fewer DAS in 2009 for an average  $F=0.20$  for both years combined; this alternative is called “Pref”, for the preferred alternative. The EFH analyses are mostly based on the projections of area swept for the scallop fishery under the various alternatives (Table 89 and Figure 35).

*Impacts on designated EFH*

As previously stated, the impacts on habitats designated EFH are based primarily on the amount of time scallop dredges are expected to contact the bottom. The footprint of the scallop fisheries overlaps with designated EFH for nearly all managed species and life stages, and because the scallop fishery is generally limited to sand and sandy gravel bottom habitats, and occurs primarily in high-energy environments, it is not possible to disaggregate the significance of impact across habitat types (NEFMC Atlantic Sea Scallop Am10). Current data does not support differentiating the impacts of scallop fishing on EFH covering these two bottom types, and therefore the overall level of impact across all habitats is the preferred metric.

Impacts projections are based on results from an updated version of the SAMS (Scallop Area Management Simulator) model. This model has been used to project abundances and landings to aid management decisions since 1999. This model is a size-structured model that forecasts scallop populations in a number of areas. In this version of the model, Georges Bank was divided into the three access portions of the groundfish closures, the three no access portions of these areas, a proposed closure area in the South Channel, the remainder of the South Channel, the Northern Edge and Peak, and the Southeast Part of Georges Bank. The Mid-Atlantic was subdivided into six areas: Virginia Beach, Delmarva, the Elephant Trunk Access Area, the proposed new version of the Hudson Canyon South Access Area, New York Bight South, and Long Island.

**Table 88 – Summary of scenarios considered in the biological projections for Framework 19**

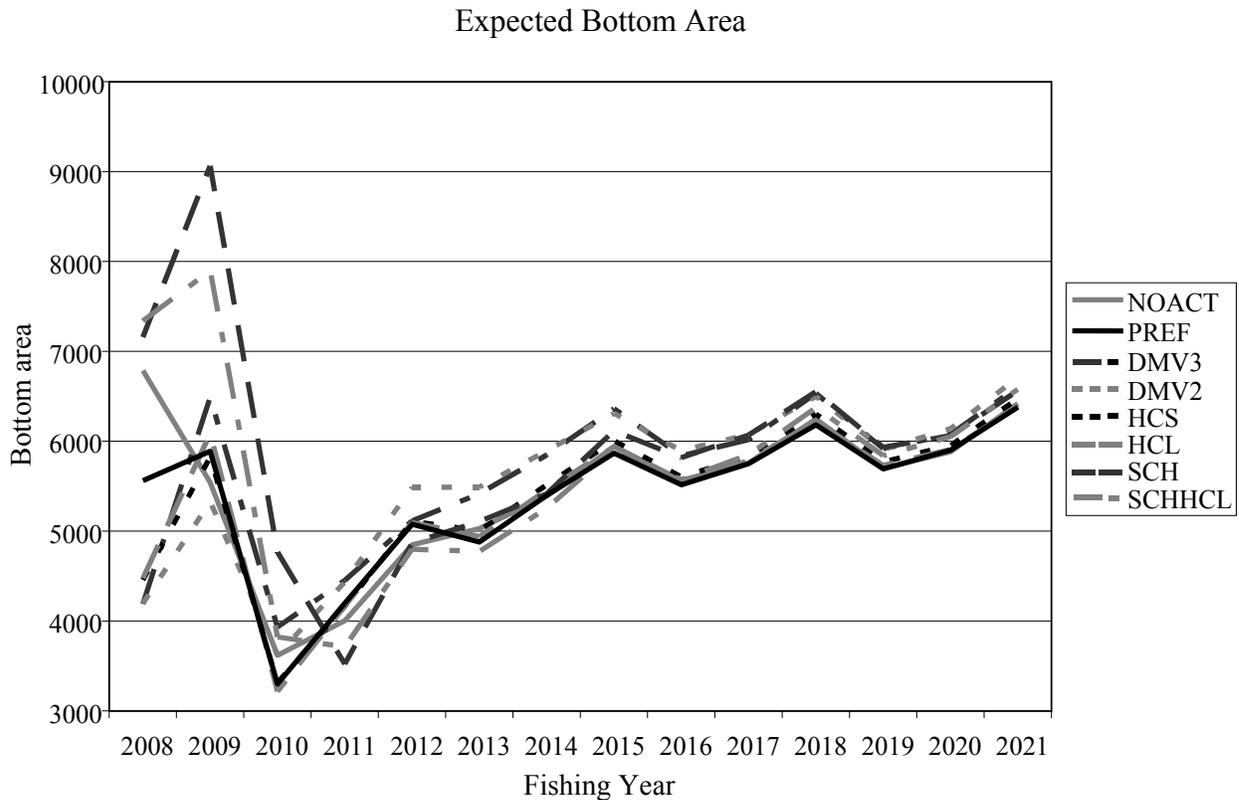
<b>2008</b>		<b>CL1</b>	<b>CL2</b>	<b>NLS</b>	<b>ET</b>	<b>Dmv</b>	<b>HC</b>	<b>Sch</b>	<b>IndvDAS*</b>
No Action		1 trip	0 trip	Cl	3 trips	Cl	Op	Op	51
<b>Preferred</b>		<b>Cl</b>	<b>Cl</b>	<b>1 trip</b>	<b>4 trips</b>	<b>Cl</b>	<b>Cl</b>	<b>Op</b>	<b>35</b>
Dmv 3		Cl	Cl	1 trip	4 trips	Cl	Op	Op	32
Dmv 2		Cl	Cl	1 trip	4 trips	Cl	Op	Op	32
HC-sm		Cl	Cl	1 trip	4 trips	Cl	Cl	Op	30
HC-lar		Cl	Cl	1 trip	4 trips	Cl	Cl	Op	29
Sch		Cl	Cl	1 trip	4 trips	Cl	Op	Cl	50
Sch+HC		Cl	Cl	1 trip	4 trips	Cl	Cl	Cl	42
<b>2009</b>		<b>CL1</b>	<b>CL2</b>	<b>NLS</b>	<b>ET</b>	<b>Dmv</b>	<b>HC</b>	<b>Sch</b>	<b>IndvDAS</b>
No Action		Cl	0 trip	0 trip	3 trips	Cl	Op	Op	51
<b>Preferred</b>		<b>Cl</b>	<b>1 trip</b>	<b>Cl</b>	<b>3 trips</b>	<b>1 trip</b>	<b>Cl</b>	<b>Op</b>	<b>42</b>
Dmv 3		Cl	1 trip	Cl	3 trips	Cl	Op	Op	60
Dmv 2		Cl	1 trip	Cl	3 trips	1 trip	Op	Op	48
HC-sm		Cl	1 trip	Cl	3 trips	1 trip	Cl	Op	47
HC-lar		Cl	1 trip	Cl	3 trips	1 trip	Cl	Op	47
Sch		Cl	1 trip	Cl	3 trips	1 trip	Op	Cl	69
Sch+HC		Cl	1 trip	Cl	3 trips	1 trip	Cl	Cl	54

\* The full-time individual DAS value is based on an estimate of 326 active full-time equivalent limited access vessels out of 350 limited access permits in 2007. These values have removed TAC for general category allocations and set-asides.

**Table 89. Projected bottom area for limited access permit holders**

FISH YEAR	AREA TYPE	SCENARIOS								
		AREA	NOACT	PREF	DMV3	DMV2	HCL	HCS	SCH	SCHHC
2008	ACCESS	CL1Acc	380	-	-	-	-	-	-	-
		CL2S	-	-	-	-	-	-	-	-
		Dmv	-	-	-	-	-	-	-	-
		ET	529	<b>762</b>	749	749	762	749	1,406	762
		NLSAcc	-	<b>397</b>	394	398	397	396	743	397
	ACCESS Average		182	<b>232</b>	229	229	232	229	430	232
	OPEN	HCS	1,162	-	761	762	-	144	3,019	-
		LI	1,350	<b>1,257</b>	579	580	856	814	2,648	2,000
		NEP	897	<b>838</b>	401	401	579	552	1,778	1,304
		NYBS	827	<b>591</b>	398	399	626	598	1,612	1,229
		SchCl	603	<b>671</b>	407	407	533	516		
		SchOp	563	<b>604</b>	299	300	426	407	1,265	900
		SEP	446	<b>413</b>	185	185	276	261	897	704
	VB	26	<b>24</b>	11	11	16	15	53	40	
OPEN Average		734	<b>550</b>	380	381	414	414	1,610	882	
2008 Total		6,783	<b>5,558</b>	4,185	4,192	4,472	4,454	13,420	7,335	
2009	ACCESS	CL1Acc	-	-	-	-	-	-	-	
		CL2S	-	<b>359</b>	358	359	358	358	671	359
		Dmv	-	<b>253</b>	-	253	254	254	475	253
		ET	643	<b>676</b>	629	629	676	629	1,180	676
		NLSAcc	-	-	-	-	-	-	-	-
	ACCESS Average		129	<b>258</b>	197	248	258	248	465	258
	OPEN	HCS	1,087	-	1,314	988	-	146	3,486	-
		LI	1,048	<b>1,248</b>	1,066	769	1,244	1,137	3,458	2,047
		NEP	756	<b>899</b>	799	586	907	837	2,419	1,368
		NYBS	641	<b>765</b>	718	536	886	822	1,966	1,237
		SchCl	448	<b>477</b>	556	442	555	532		
SchOp		402	<b>595</b>	551	407	612	569	1,547	843	
SEP		470	<b>561</b>	452	322	539	489	1,642	1,021	
VB	45	<b>53</b>	43	31	51	46	148	91		
OPEN Average		612	<b>575</b>	688	510	599	572	2,095	944	
2009 Total		5,539	<b>5,886</b>	6,487	5,321	6,082	5,820	16,992	7,896	
Grand Total		12,322	<b>11,444</b>	10,672	9,513	10,554	10,273	30,412	15,230	

**Figure 35 – Comparison of expected bottom area projections for limited access permit holders under the scenarios under consideration (2008-2021)**



### 5.2.2.3 Georges Bank Access Areas

#### *Description of the measures*

This framework is considering two different options for access areas on Georges Bank: the No Action alternative and Alternative 1- revision of GB openings. The main difference between these alternatives is that only one access area would open annually under Alternative 1– Nantucket Lightship in 2008 and Closed Area II in 2009. All scenarios under consideration include a revision of the GB access areas (Alternative 1) except the No Action alternative. The scenario that considers just revising the order of access on GB is DMV3 – Delmarva would not reopen in 2009 and no new areas would close to protect small scallops.

#### *Impacts on designated EFH*

Compared to the No Action alternative, the preferred alternative has lower projected bottom contact (area swept) in most areas in 2008. In 2009, open area DAS are higher under DMV3 and SCH than the No Action alternative. Overall LPUE averaged for both years for the preferred alternative is higher than the No Action Alternative except for the two scenarios that include a closure in the Channel. In general the habitat impacts of all scenarios are expected to be positive relative to baseline conditions because access is allocated in areas with more biomass (ET and NL) compared to areas with lower biomass such as open areas and Closed Area I, resulting in more concentrated, less diffuse fishing pressure.

#### **5.2.2.4 Hudson Canyon Access Area**

##### *Description of the measures*

No Action for this alternative would mean that all un-used 2005 limited access trips would expire on February 29, 2008. There is one scenario that would extend the duration of the program for three additional months until May 31, 2008.

##### *Impacts on designated EFH*

In general, if un-used 2005 trips are not taken the impacts on the designated EFH would be positive relative to the baseline period. However, if vessels that have not used their trips decide to use their trips between now and the end of the 2007 fishing year rather than lose that opportunity, then fishing pressure could be high on scallops in that area as a result. However, because fishing pressure is relatively concentrated in this area, the additional effort would be unlikely to increase adverse impacts above baseline periods. Additionally, the alternative that allows an extension until May 1, 2008 may spread effort out over time, allowing for a higher likelihood of multiple passes over the same bottom rather than a more diffuse, but temporally concentrated, fishing strategy.

#### **5.2.2.5 Elephant Trunk Access Area**

##### *Description of the measures*

Four trips in ETAA would be authorized in 2008 and three trips in 2009. The area will open on March 1. A procedure has been included to reduce the number of trips in this area if updated biomass estimates suggest it is necessary to do so.

##### *Impacts on designated EFH*

The resource in the ETA is greater than any other area. Even with four trips (DMV3) compared to three trips under the No Action alternative, the exploitable biomass is still very high (78.6 compared to 86.8). Under area rotation, effort should be allocated to areas with the greatest exploitable biomass. Allocating 4 trips in 2008 and 3 trips in 2009 is not expected to have adverse impacts on designated EFH beyond those felt in the baseline period for this reason. The seasonal closure alternative is expected to have no impact on EFH whether it is maintained or removed.

#### **5.2.2.6 Delmarva Access Area**

##### *Description of the measures*

Updated estimates recommend that the Delmarva area may support one access area trip in 2009. The area will open on March 1, and there is an alternative to consider a seasonal closure from August 1-October 31 to reduce potential interactions with sea turtles. A procedure has been included to reduce the number of trips in this area if updated biomass estimates suggest it is necessary to do so.

##### *Impacts on designated EFH*

The impacts of this alternative can be considered comparing DMV3 (Delmarva does not open) and DVM2 (Delmarva opens in 2009). By allocating some effort from the Delmarva area in 2009 the open area DAS for that year are reduced by 12 DAS for an full-time vessel. Therefore, DAS used, and anticipated bottom contact time for scallop gear, are lower overall if the area opens since catch rates are expected to be much higher in the Delmarva area compared to open

areas. This measure would have a positive impact on habitats designated as EFH. In addition, substrate in Delmarva is sandy bottom, less vulnerable to impacts from fishing gear.

#### **5.2.2.7 Other restrictions related to access areas**

##### **Restriction on the number of crew on limited access scallop vessels**

###### *Description of the measures*

This action is considering a restriction on crew size of 8 or 9 persons. Since FW18 eliminated the crew size restriction on access area trips, observed trips do not seem to be impacting the size of scallops harvested.

###### *Impacts on designated EFH*

This measure is unlikely to appreciably change overall bottom contact time and will most likely have a neutral impact on designated EFH relative to the baseline period. If vessels engage in high-grading practices due to the additional manpower available, then bottom contact time could increase relative to that predicted in the projections. The likelihood of this change in fishing behavior is uncertain, but likely minimal.

##### **Prohibition on deckloading when leaving an access area (>50 bu.)**

###### *Description of the measure*

This action is considering an alternative that would prohibit any scallop vessel from leaving an access area with more than 50 bu. of in-shell scallop on deck.

###### *Impacts on designated EFH*

This measure is unlikely to appreciably change overall bottom contact time and will most likely have a neutral impact on designated EFH relative to the baseline period. The possibility exists, however, that vessels spending time cutting scallops with a dredge deployed (and contacting the bottom) as a quasi-anchor will be more likely to do so if they must cut out all scallops prior to departing an access area. In this case, such a measure could be construed as having an adverse impact on habitats, though it is impossible to quantify such an impact without data on the frequency and location of this practice.

#### **5.2.2.8 TAC set-asides for observers and research**

###### *Description of the measure*

This action maintains the current policy of setting aside 2% of available TAC in access areas for research, and 1% to provide funding for observers.

###### *Impacts on designated EFH*

This measure will have no direct impact on designated EFH. However, dedicated research into the bottom types in the affected area and impacts of fishing on these substrates will help fisherman and fishery managers better understand, document, and minimize the potential adverse impacts of fishing on EFH.

#### **5.2.2.9 Open Area allocations for limited access vessels**

###### *Description of the measures*

After the Council decides which access areas will be available for the next two fishing years, the open area DAS are estimated to reach an overall target F rate of 0.20. The range of open area DAS under consideration is about 29 to 51 individual open area DAS for full-time vessels.

#### *Impacts on designated EFH*

The total (16-24,000) and individual open area DAS are higher for 2009 (42-69 for full-time vessels). In general, alternatives with higher open area DAS have higher estimates for DAS used and, consequently, higher bottom contact time. In addition, LPUE in open areas is lower for these alternatives compared to the scenarios that allocate fewer DAS, resulting in more time contacting the bottom for a given catch of scallops. Therefore, additional open area DAS increases will have an adverse impact on designated EFH. The magnitude of this impacts is, however, not directly proportional to the DAS increases beyond baseline levels due to the patchy nature of scallop fishing. If low open-area biomass encourages fisherman to seek areas of previously-lower scallop fishing pressure, than the magnitude of this adverse impact may be significant. If, however, fisherman seek to maximize their DAS allocations by concentrating in areas of known (and hence well-fished) biomass, then the impacts of additional open area DAS will likely be insignificant.

#### **5.2.2.10 DAS set-asides for observers and research**

##### *Description of the measures*

This action maintains the current policy of setting aside 2% of available limited access DAS in open areas for research, and 1% to provide funding for observers.

##### *Impacts on designated EFH*

This measure will have no impact on designated EFH. However, dedicated research into the bottom types in the affected area and impacts of fishing on these substrates will help fisherman and fishery managers better understand, document, and minimize the potential adverse impacts of fishing on EFH.

#### **5.2.2.11 Measures for general category vessels**

##### **5.2.2.11.1 No Action**

#### **Quarterly hard-TAC for transition period to limited entry**

##### *Description of the measures*

If Amendment 11 is approved, there will be a quarterly hard-TAC implemented for the transition period to limited entry (most likely for all of FY2008). The total general category allocation (open and access areas) will be divided into four quarters.

##### *Impacts on designated EFH*

Since there is an overall TAC, and because the fishery is prosecuted in 400-pound 'units', this alternative is not expected to have any impact on designated EFH relative to the baseline period.

#### ***Alternative to reduce derby fishing in access areas***

##### *Description of the measures*

This action is considering allocating 2% of the total catch to general category vessels in access areas in 2008 only to reduce derby fishing in those areas while vessels are under appeal for the IFQ program.

#### *Impacts on designated EFH*

The primary affect of this measure is to transfer a portion of the open access catch from the general category fishery to the limited access fishery. Because there is no clear difference in adverse impact to designated EFH for a given amount of scallop yield between the two fisheries, there is not expected to be any adverse impact on designated EFH relative to the baseline period.

### **IFQ program for general category fishery**

#### *Description of the measures*

If Amendment 11 is approved then general category qualifiers will receive an individual fishing quota based on their contribution to historical landings. IFQs will not be area specific; a vessel can choose to participate in an access area program and landings will be removed from their individual allocation. Vessels will be permitted to catch that quota in any area available (open areas or access areas until the fleetwide allocation is harvested). This action includes an alternative for a cost recovery program for the general category IFQ vessels approved under Amendment 11. It includes a program that could collect up to 3% of ex-vessel value of scallop product landed.

#### *Impacts on designated EFH*

The cost recovery program is administrative in nature and is not expected to have any impact on habitats designated EFH.

### **Northern Gulf of Maine (NGOM) hard-TAC**

#### *Description of the measures*

If this program is approved under Amendment 11, this framework includes the hard-TAC allocation for vessels with a limited entry NGOM permit. The PDT recommendation is 70,000 pounds for both years. Once the TAC is reached, no scallop vessels are permitted to fish in the NGOM area.

#### *Impacts on designated EFH*

Because all scallop fishing is prohibited once the TAC is reached, provided the TAC is set at the appropriate level and is effectively monitored these measures should have no impact beyond that documented in the baseline period.

### **General category access area management**

#### *Description of the measures*

General category allocations in access areas will remain a fleetwide number of trips per area. This action is considering a variety of alternatives for total allocation into access areas for the general category fishery: 2% per area, 5% per area, 0% for Closed Area II and a small percentage for Closed Area II. The prohibition on deckloading from access areas also applies to general category vessels.

#### *Impacts on designated EFH*

Overall, allocating 5% or 2% to the general category fishery will not have impacts on the scallop resource overall since the same overall amount of scallops will be harvested. There are no major differences in mortality from limited access gear compared to general category gear. These measures do not change overall fishing pressure and they are not likely to influence the distribution of that fishing pressure and thus are expected to have a neutral impact on designated EFH.

#### **5.2.2.12 Estimate of mortality from incidental catch**

##### *Description of the measure*

If approved by Amendment 11, an estimate of mortality from incidental catch will be reduced from the total TAC on an annual basis.

#### *Impacts on designated EFH*

The consequence of this measure is to effectively reduce landings by scallop vessels by an amount proportional to their incidental catch mortality, which may reduce bottom contact time relative to baseline periods. However, this reduction is likely to be small enough to not have any appreciable impact on designated EFH.

#### **5.2.2.13 Revision of overfishing definition**

##### *Description of the measure*

This action is considering revising the overfishing definition based on results from the recent scallop stock assessment, SAW 45.

#### *Impacts on designated EFH*

These alternatives are related to identifying the status of the scallop resource and setting sustainable management measures; therefore are not expected to have any impact on habitats designated EFH.

#### **5.2.2.14 Minor adjustments to the observer set-aside program**

##### *Description of the measure*

This action includes an alternative that would consider applying a higher compensation rate for vessels carrying an observer in open areas, compared to access area trips. In addition, there are a number of administrative adjustments that are being considered to improve the program overall.

#### *Impacts on designated EFH*

These alternatives are administrative in nature and is not expected to have any impact on habitats designated EFH.

#### **5.2.2.15 Area closures to protect young scallops**

This action is considering several new areas as scallop rotational areas. Small scallops have shown up in the 2007 survey in the Hudson Canyon area as well as the Great South Channel.

#### **Hudson Canyon area**

##### *Impacts on designated EFH*

Additional rotational areas will minimize the effects of fishing on designated EFH if those areas prove to be of proportionally high abundance, allowing for decreased bottom contact time and spatially focused fishing practices relative to baseline periods. While this affect is likely under these measures, not enough is known currently about the implementation strategy to make conclusive determinations on the magnitude of reductions in adverse impacts to designated EFH, thus likely positive impacts overall from this measures but magnitude uncertain.

### **Great South Channel area**

#### *Impacts on designated EFH*

Additional rotational will minimize the effects of fishing on designated EFH if those areas prove to be of proportionally high abundance, allowing for decreased bottom contact time and spatially focused fishing practices relative to baseline periods. While this affect is likely under these measures, not enough is known currently about the implementation strategy to make conclusive determinations on the magnitude of reductions in adverse impacts to designated EFH, thus likely positive impacts overall from this measure but magnitude uncertain.

### **5.2.2.16 Other measures**

#### **30-day VMS power-down provision**

##### *Description of the measures*

An alternative is being considered that would permit a vessel to power down their VMS unit for a minimum of 30 days if the vessel is not going to fish during that time.

##### *Impacts on designated EFH*

This alternative is administrative in nature and is not expected to have any impact on habitats designated EFH.

#### **Clarification on when a vessel can leave on an access area trip**

##### *Description of the measures*

This alternative would clarify when a vessel can leave on an access area trip. Specifically, the No Action would remain in effect; a vessel can leave on an access area trip before the area opens, but it may not enter the access area until the area has opened.

##### *Impacts on designated EFH*

This alternative is administrative in nature and is not expected to have any impact on habitats designated EFH.

## **5.3 IMPACTS ON PROTECTED RESOURCES**

### **5.3.1 Background**

The Framework Adjustment 19 alternatives are evaluated below for their impacts on protected resources with a focus on threatened and endangered sea turtles, as noted in the Affected Environment Section. As with the analyses provided in the last scallop management action, the species considered here are loggerhead, leatherback, Kemp's ridley and green sea turtles.

Both scallop dredge and scallop trawl gear will be addressed in this section, generally collectively, given they are the most commonly used gears by general category and limited access vessels in this fishery. To evaluate impacts it may be helpful to note that the majority of fishing effort is attributed to the dredge fishery. Most of the approximately 325 active limited access vessels use dredge gear. There are about 400 general category vessels that are expected to be allowed to land 10 percent of the total projected scallop landings during the transition period described earlier and 5 percent of the total once the transition measures are phased out. The majority of scallop trawl vessels fish in the general category (66 boats in 2006, Table 67) in the Mid-Atlantic and account for about 9 percent of the general category fleet landings (Table 69).

To briefly summarize the sea scallop fishery management program, it employs a limited access permit system and controls DAS use in scallop open areas. Limited numbers of trips with trip limits also are allowed in designated rotational access areas. Major harvest areas include Georges Bank with less activity in the Gulf of Maine. Both are regions in which turtles are far less likely to be found relative to Mid-Atlantic waters, where effort and scallop catch levels have increased in recent years. In addition, directed general category scallop fishing effort has increased overall since 1994, including new effort in the Mid-Atlantic, but this trend is being addressed by measures proposed in Amendment 11 to the Atlantic Sea Scallop Fishery Management Plan and this action, if approved.

Although scallop fishing is a year-round activity, takes of sea turtles potentially may occur from May through November given the overlap of the sea turtle distribution (Shoop and Kenney 1992; Braun-McNeill and Epperly 2002) and fishery effort (NEFMC 2003, 2005).

With respect to sea turtle interactions with the fishery overall, it is noteworthy that there were very low levels of observer coverage throughout the fishery up to 2003. Since that time, bycatch rates, with a focus on the Mid-Atlantic, have been analyzed in a number of publications that are discussed in the Affected Environment section.

Beginning in September 2006, federally permitted scallop dredge gear must be modified by adding an arrangement of horizontal and vertical chains, referred to as "chain mats", between the sweep and the cutting bar when fishing in an area that extends south of 41° 9.0 N from the shoreline to the outer boundary of the EEZ during the period May 1 through November 30 each year (71 FR 50361). The requirement is expected to reduce the severity of some turtle interactions with scallop dredge gear.

With respect to Framework Adjustment y 19, six rotational fishing areas are considered: Closed Area II (CAII), Closed Area I (CAI), the Nantucket Lightship Closed Area (NLCA), the Hudson Canyon Area (HCA), the Elephant Trunk Area (ETA) and the Delmarva Area (DMV). Measures primarily serve to set 2008 and 2009 access levels to these areas and change levels of fishing effort in the areas outside of these six rotational areas. Additional measures address restrictions on crew limits and deck loading of scallops when fishing in rotational areas. Measures also are proposed for the general category scallop fishery, bycatch reporting, changes to the overfishing definition, and new area closures to protect young scallops.

Discussions regarding sea turtle interactions with the fishery are largely qualitative and based on factors such as projected DAS use-by-area and projected bottom area swept. It is important to recognize that neither factor directly relates to the frequency of turtle bycatch in the fishery, but provide some measure of how much effort is projected to occur and which areas might be subject to more or less activity based on catch rates. Although it is not repeated in each alternative, the general assumption is made that turtles interactions occur when and where scallop fishing effort overlaps with the presence of sea turtles. Risks may be greater during turtle high use periods, but interactions could still occur in the margins of that period given that both turtle distribution and fishing activities are highly variable.

Turtle bycatch numbers are generally low across years, and bycatch rates tend to be similar in many areas with some exceptions (Figure 18). Turtle bycatch analyses to date have not identified specific times and areas where the greatest probability of bycatch is likely to occur in any given year (Murray 2004, 2005, 2007).

### **5.3.2 No Action**

#### *Description of the measure*

In 2008, the No Action alternative would allocate one trip in Closed Area I, three in the ETA and approximately 20,000 open area DAS. Three trips would also be allowed in the ETA in 2009, while there would be zero trips in the Georges Bank access areas in that year. CAII and NLS would technically be open under the area rotation schedule, but no allocations would be made for those areas as discussed earlier in this document, while Closed Area I would be closed. The limited access fishery would be allocated 17,700 DAS in 2009. ETA would be allocated 3 trips in 2009 as well. HC would revert to an open area and Delmarva would remain closed for both years.

In both years, pending any further action, the ETA would be closed seasonally to scallop fishing from September 1 - October 31, 2007, effective through 2012. This two-month closure is intended to reduce the risk of interactions between threatened and endangered sea turtles and the scallop fishery in the area and to reduce small scallop and finfish discard mortality. Similarly, the Delmarva Area would remain closed to protect small scallops in that area with an opening date of 2010.

Consideration of levels of projected DAS use, discussed below, becomes important when viewed in the context of Figure 11. The Elephant Trunk Area contains about 32 percent of the scallop biomass, while the open areas of the Mid-Atlantic account for eight percent. When considered in

terms of bottom area swept (Table 84), a decrease in open area DAS and higher DAS in access areas where catch rates are projected to be higher may produce potentially positive benefits given that overall effort may be reduced under such a scenario.

#### *Impacts on protected species*

Compared to most of the other alternatives, the No Action scenario could in very general terms represent greater risks to sea turtles when compared to the other alternatives, including the Preferred, at least based on projected DAS use. In 2008, No Action has the highest open area DAS (nearly 20,000) as well as total DAS except for the SCH and SCHHC alternatives which are both higher yet (Table 82). Overall, No Action has the lowest DAS used estimate for access areas, but the highest for open areas. In 2009, the No Action DAS-used projection shows a lower total DAS because of fewer access area trips, i.e. virtually none on Georges Bank and three in the ETA where catch rates should be higher, and a drop in total catch.

In further considering potential consequences for No Action, the high level of bottom area swept for the open areas (again the SCH and SCH+HC are the only alternatives that are higher yet) is problematic. In 2009, the total bottom area swept calculation is similar for all scenarios except SCH which is significantly higher. While the average bottom area swept is higher for the preferred alternative and other scenarios compared to No Action, these alternatives allocate 4 trips in ETA compared to 3. In terms of open areas, the No Action and SCH alternatives are higher due to lower catch rates in open areas and higher open area allocations for these alternatives. In 2009, the average bottom area swept calculations are similar for all scenarios, except SCH which is significantly higher. Again, there is very little bottom contact in access areas under No Action since the only area open is ETA; and most time is spent in open areas.

The September-October seasonal closure to reduce potential interactions with sea turtles during the period when bycatch rates have historically been highest could result in positive impacts for turtles within the ETA under a No Action scenario, if aggregations of turtles overlap with scallop fishing activities. Examination of published analyses (Murray 2004, 2005, 2007), on the other hand, indicate that specific times and areas with the greatest probability of bycatch as well as factors affecting bycatch estimates vary from year to year. Conversely, turtles outside of the ETA, in open areas in the Mid-Atlantic for example, might be subject to greater impacts when vessels take advantage of the scallop biomass in those areas, keeping in mind that the Hudson Canyon area would be closed both years under the proposed action and Delmarva would be closed in 2009.

### **No Action for Amendment 11**

#### *Description of the measure*

This alternative assumes that Amendment 11 is not approved, and the general category fishery would remain an open access fishery.

#### *Impacts on protected species*

As a tool to control effort, limited entry is generally viewed as a potential benefit to protected species in New England fisheries management. Under No Action, Amendment 11 would not be implemented and an unlimited number of general category participants could harvest sea scallops

with open access permits and without meaningful controls on effort and fishing mortality or any associated bycatch, possibly increasing the risk of potential interactions with sea turtles.

### **Measures in Effect March 1, 2008 until Framework 19 Implementation**

#### *Description of the measures*

This alternative considers several measures as backstops if Framework 19 is not implemented before the start of the 2008 fishing year. Specifications from Amendment 10 and Framework 18 would carry-over until FW19 is implemented.

#### *Impacts on protected species*

There is little likelihood that the measures included as a backstop will have any measurable effects on sea turtles given the specifications that would carry over have been in place since 2004 and June 2006, respectively.

### **5.3.3 Management Scenarios**

#### *Description of the measures*

The alternatives described in the Framework 19 document are separated out by area, (i.e. Georges Bank access areas, Elephant Trunk, Delmarva etc.), but due to the interrelated nature of area rotation and how the model projects impacts for the entire resource overall, it is difficult to pull out specific impacts by area. The No Action alternative assesses the impacts of essentially rolling over current specifications. There are two alternatives that consider revising the order of the Georges Bank access area schedule (DMV3 and DMV2). The only difference between these two alternatives is that one keeps the Delmarva area closed for both 2008 and 2009, and one alternative considers access in 2009. The rest of the scenarios include various alternatives related to new rotational areas to protect small scallops: HCL would close a 5x5 ten-minute-square area near the current Hudson Canyon closed area; HCS would close a 4x4 ten-minute square area near the current Hudson Canyon area; SCH would close an area in the South Channel northeast of Nantucket Lightship; and SCHHC would close both areas – the smaller HC area and the SCH area.

All four of these scenarios include the same assumptions for allocations as scenario “DMV2” (one trip in NL in 2008, one trip in CAII in 2009, one trip in Delmarva in 2009, and 4 trips in ET in 2008 and 3 trips in ET in 2009). All scenarios identify a certain level of open area DAS based on which areas are accessible to reach an overall fishing mortality target of  $F=0.20$ . An additional scenario is similar to HC-sm, but it proposes to close the existing HC area (not the 4x4 ten-minute square area) and it allocates more DAS in open areas in 2008 and fewer DAS in 2009 for an average  $F=0.20$  for both years combined; this is the preferred alternative referred to as “Pref.”

#### **5.3.3.1 Georges Bank Access Areas**

##### *Description of the measures*

This framework is considering two different options for access areas on Georges Bank: the No Action alternative and Alternative 1- revision of GB openings. The main difference between these alternatives is that only one access area would open annually under Alternative 1 – Nantucket Lightship in 2008 and Closed Area II in 2009. All scenarios under consideration

include a revision of the GB access areas (Alternative 1) except the No Action alternative. The scenario that considers just revising the order of access on GB is DMV3 – Delmarva would not reopen in 2009 and no new areas would close to protect small scallops.

#### *Impacts on protected species*

While benefits are expected to accrue to the scallop resource with the revised alternative, the revised order for Closed Area I, Closed Area II and the Nantucket Lightship access areas will likely produce few discernable impacts to sea turtles in Georges Bank region, as compared to No Action, because of the location of the access areas. While sea turtle interactions are now documented in the scallop fishery on Georges Bank, takes have thus far been rare events as a result of turtle distribution as well as their habitat preferences, especially during the colder months of the year.

#### **5.3.3.1.1 Adjustments when YT flounder bycatch TAC is reached**

##### *Description of the measures*

If the YT flounder bycatch TAC is reached, limited access vessels are permitted to use access area trips at a compensation rate in open areas. Analyses suggest that the compensation for Nantucket Lightship in 2008 would be 7.7 DAS, and 7.9 DAS for Closed Area II trips in 2009.

##### *Impacts on protected species*

Given the alternative under consideration would increase open area DAS, there is a potential for increased scallop fishery interactions with turtles if the additional DAS were used in times and places where there is an overlap. If Hudson Canyon is closed, for example, as proposed in the preferred alternative, effort may shift to the Channel area where few negative impacts might be expected. Other alternatives such as the SCH alternative could result in greater negative effects if the additional effort moves to the open Hudson Canyon area and the effort overlaps with the occurrence of sea turtles.

#### **5.3.3.2 Hudson Canyon Access Area**

##### *Description of the measures*

No Action for this alternative would mean that all un-used 2005 limited access trips would expire on February 29, 2008. There is one scenario that would extend the duration of the program for three additional months until May 31, 2008.

##### *Impacts on protected species*

In general, if un-used 2005 trips are not taken, the impacts on sea turtles could be positive. If vessels that have not used their trips decide to use them between now and the end of the 2007 fishing year rather than lose that opportunity, impacts may still be positive or at least neutral because the trips would be made prior to the May-November turtle high use period. The alternative that allows an extension until May 1, 2008 may reduce scallop mortality in the short term compared to No Action, if vessels decide to wait until after scallops have grown in the spring (i.e. April and May), but could increase impacts to sea turtles, again if an overlap occurs.

#### **5.3.3.3 Elephant Trunk Access Area**

##### *Description of the measures*

Four trips in ETA would be authorized in 2008 and three trips in 2009. The area will open on March 1. A procedure has been included to reduce the number of trips in this area if updated biomass estimates suggest it is necessary to do so. The Council also has recommended eliminating the seasonal closure to scallop fishing from September 1-October 31, 2007 under this action.

#### *Impacts on protected species*

Relative to No Action (three trips), the additional trip in the ETA in 2008 contained in most of the alternatives, could have a neutral or possibly negative impact on turtles in the area if all allocated trips are taken, a result of the very high density of scallops available to the fishery. This effect may be offset by the possible positive impacts of the proposed procedure to reduce trips in ETA if updated biomass estimates indicate such action is necessary.

While sea turtles bycatch rates have been higher in the ETA in recent years, the above statement is tempered by the finding that bycatch analyses to date have not yet identified specific times and areas where the greatest probability of turtle bycatch occurs in any given year and that factors affecting estimated bycatch rates of loggerhead turtles, the species with the greatest number of interactions in scallop trawl and dredge gear in the Mid-Atlantic, vary from year to year (Murray 2004, 2005, 2007).

More generally, because turtle distribution throughout the Mid-Atlantic is dependent on a number of unpredictable factors such as availability of forage and water temperature, area closures may or may not be effective in reducing interactions between turtles and the scallop fishery; therefore, overall neutral impacts are expected if the seasonal closure is considered compared to not implementing a seasonal closure.

#### **5.3.3.4 Delmarva Access Area**

##### *Description of the measures*

Updated estimates indicate the Delmarva area may support one access area trip in 2009. The area would open on March 1. A procedure has been included to reduce the number of trips in this area if updated biomass estimates suggest it is necessary to do so.

##### *Impacts on protected species*

The impacts of this alternative can be considered comparing DMV3 (Delmarva does not open) and DVM2 (Delmarva opens in 2009). By allocating some effort from the Delmarva area in 2009, the open area DAS for that year are reduced by 12 DAS for a full-time vessel. Therefore, DAS used and anticipated bottom contact time for scallop gear are lower overall if the area opens since catch rates are expected to be much higher in the Delmarva area compared to open areas. From this perspective, this measure could have an overall positive impact on sea turtles in the Mid-Atlantic relative to No Action.

In considering a seasonal closure, the most recent data suggest that bycatch rates in the Delmarva Area have historically been higher in August than September (albeit the sample size is very low). Over the entire Mid-Atlantic area rates have been higher in August than October. A seasonal closure in October in the Delmarva region appears likely to potentially benefit turtles based on

rates for the dredge fishery. However, closing the area for September as well could potentially increase the risk to turtles if trips that would have been made during that time period are made in August instead.

It must be emphasized that because of the low numbers of turtle bycatch in the Mid-Atlantic overall and the similarity among rates across all months in many of the areas of the Mid-Atlantic, with the exception of the ETA for the 2003-2005 period, there are likely few benefits to any seasonal closure (Figure 18).

An August-October closure would capture the period of highest bycatch, but ignores the issue of a zero rate in September. It is precautionary relative to potentially reducing sea turtle interactions in that the measure would close the area during the late summer and early fall months when takes have been observed; however, the closure does not ensure an overall reduction in turtle interactions if effort is displaced into the margins outside of the closure area, where rates are similar; thus overall neutral impacts are expected if the seasonal closure is considered compared to not implementing a seasonal closure.

### **5.3.4 OTHER RESTRICTIONS RELATED TO ACCESS AREAS**

#### **5.3.4.1 Restriction on the number of crew on limited access scallop vessels**

##### *Description of the measures*

This action is considering a restriction on crew size of 8 or 9 persons. Since Framework 18 eliminated the crew size restriction on access area trips, observed trips do not seem to be impacting the size of scallops harvested.

##### *Impacts on protected resources*

This measure is unlikely to result in any discernable effects to sea turtles unless vessels that might spend time cutting scallops with their dredges deployed are less likely to do so if they are able to carry more crew and hence cut scallops faster without the need to cease fishing and reduce deck-loading. In this case, such a measure could possibly have a positive impact on reducing the risks of sea turtle interactions, though it is impossible to quantify such an impact without further information.

#### **5.3.4.2 Prohibition on deckloading when leaving an access area (>50 bu.)**

##### *Description of the measure*

This action is considering an alternative that would prohibit any scallop vessel from leaving an access area with more than 50 bu. of in-shell scallops on deck.

##### *Impacts on designated protected resources*

This measure is unlikely to affect sea turtle resources in any direct or measureable way. As with the previous measure, the possibility exists that vessels spending time cutting scallops with a dredge deployed may be more likely to do so if they had cut out all scallops prior to departing an access area. In this case, such a measure could have a potentially negative impact on sea turtles, though it is impossible to make meaningful comments in the absence of relevant data.

#### **5.3.4.3 TAC set-asides for observers and research**

##### *Description of the measure*

This action maintains the current policy of setting aside 2% of available TAC in access areas for research, and 1% to provide funding for observers.

##### *Impacts on protected resources*

This alternative is expected to have indirect beneficial impacts on the sea turtle populations if a larger body of information collected through both research and observer program efforts contributes to the scallop management process and enhances information on protected species interactions.

#### **5.3.4.4 Open area allocations for limited access vessels**

##### *Description of the measures*

After the Council determines which access areas will be available for the next two fishing years, the open area DAS are estimated to reach an overall target F rate of 0.20. The range of open area DAS under consideration is about 12,000-20,000 total DAS for 2008, or about 29 to 51 individual open area DAS for full-time vessels. The total (16-24,000) and individual open area DAS are higher for 2009 (42-69 for full-time vessels).

##### *Impacts on protected resources*

In general, alternatives with higher open area DAS have higher estimates for DAS used and consequently higher bottom contact time. In addition, LPUE in open areas is lower for these alternatives compared to the scenarios that allocate fewer DAS, resulting in more gear contacting the bottom for a given catch of scallops. The analysis (Table 83) is somewhat useful in comparing alternatives relative to each other and their relative impacts on sea turtles. The alternatives with the greatest potential to result in increased risks to sea turtles are SCH and SCHHC, while HC –lar and HC-sm would most likely result in the least negative outcome.

#### **5.3.4.5 DAS set-asides for observers and research**

##### *Description of the measures*

This action continues the set-aside program that deducts one-percent of the allocated DAS to help fund observers on limited access scallop vessels in open areas and two-percent to fund scallop related research with compensation trips taken in open scallop fishing areas. This allocation would be removed after the general category allocation is removed from open areas.

##### *Impacts on protected resources*

Few if any measureable impacts are likely to be associated with this management measure. It does help to facilitate research activities and observer coverage, both of which may have indirect beneficial impacts on sea turtle resources given that better information may enhance the development of solutions to protected species interactions.

### **5.3.5 MEASURES FOR GENERAL CATEGORY VESSELS**

#### **5.3.5.1 Quarterly hard-TAC for transition period to limited entry (FY2008)**

##### *Description of the measures*

If Amendment 11 is approved, there will be a quarterly hard-TAC implemented for the transition period to limited entry (most likely for all of FY2008). The total general category allocation (open and access areas) will be divided into four quarters.

*Impacts on protected species*

The quarterly TACs proposed are not equally divided across the fishing year but represent percentages that generally reflect seasonal effort as it has historically been fished by the general category fleet: 35 percent during the March –May period, 40 percent from June-August, 15 percent from September-November and 10 percent for December-February. Because this alternative does not represent a redirection of effort during the four periods, the quarterly hard-TAC is not likely to have measurable impacts except that it could potentially mitigate the possibility of concentrated effort over protracted periods of time.

**Alternative to reduce derby fishing in access areas**

*Description of the measures*

This action is considering allocating 2% of the total catch to general category vessels in access areas in 2008 only to reduce derby fishing in those areas while vessels are under appeal for the IFQ program.

*Impacts on protected resources*

There are no discernable differences between the impacts on sea turtles between the 2% and 5% access area allocation alternatives. Efforts to reduce derby fishing of whatever magnitude generally benefit protected resources by spreading effort out over time and areas.

**5.3.5.2 IFQ program for general category fishery (FY2009)**

*Description of the measures*

If Amendment 11 is approved general category qualifiers will receive an individual fishing quota based on their contribution to historical landings. IFQs will not be area specific; a vessel can choose to participate in an access area program and landings will be removed from their individual allocation. Vessels will be permitted to catch that quota in any area available (open areas or access areas until the fleetwide allocation is harvested).

*Impacts on protected species*

These measures do not change overall fishing effort, nor are they likely to influence the distribution of that fishing effort. As such, they are expected to have a neutral impact on sea turtles inhabiting the sea scallop management unit.

**Cost Recovery Program**

*Description of the measures*

This action includes an alternative for a cost recovery program for the general category IFQ vessels. It includes a program that could collect up to 3% of ex-vessel value of scallop product landed.

*Impacts on protected resources*

This program is administrative in nature and is not expected to have any impact on sea turtles or any other protected resources inhabiting the scallop management unit.

### **5.3.5.3 Northern Gulf of Maine (NGOM) hard-TAC**

#### *Description of the measures*

If this program is approved under Amendment 11, this action will include a hard-TAC allocation for vessels with a limited entry NGOM permit. The PDT recommendation is 64,000 pounds for both years. Once the TAC is reached, no scallop vessels are permitted to fish in the NGOM area.

#### *Impacts on protected species*

The TAC recommendations under consideration with respect to the NGOM scallop management area are not likely to affect sea turtles in any way that is discernable from No Action. Given that scallop gear/turtle interactions are rare events in the Gulf of Maine under most circumstances, and that the operation of a fishery is opportunistic depending on the resource availability, the presence or absence of a management system that is separate from the overall program developed for general category vessels should result in few if any measurable impacts on sea turtles.

### **5.3.5.4 General category access area management**

#### *Description of the measures*

General category allocations in access areas will maintain a fleetwide number of trips per area. A range of alternatives is being considered for total allocation into access areas for the general category fishery: 2% per area, 5% per area, 0% for Closed Area II and a small percentage for Closed Area II. The prohibition on deckloading from access areas also applies to general category vessels.

#### *Impacts on protected resources*

Overall, allocating 5% or 2% to the general category fishery will not have impacts on sea turtles relative to interactions with the scallop fishery. Given the same overall amount of scallops will be harvested, the measures are not expected to change overall fishing effort and are unlikely to influence the distribution effort --- resulting in neutral impacts to protected resources.

### **5.3.6 Estimate of mortality from incidental catch, revisions to the overfishing definition, minor adjustments to the observer set-aside program, a 30-day VMS power-down provision and clarification on when a vessel can leave on an access area trip**

#### *Description of measures*

See Sections 2.5, 2.6, 2.7, and 2.9.

#### *Impacts on protected resources*

The above measures primarily affect the effectiveness of the scallop management program and will not result in any impacts, either positive or negative, to any protected species.

### **5.3.7 Area closures to protect young scallops**

Several new areas are being considered as scallop rotational areas. Small scallops have shown up in the 2007 survey in the Hudson Canyon area as well as the Great South Channel.

### **5.3.7.1 New rotational area in Hudson Canyon vicinity**

#### *Description of the measures*

The Scallop PDT recommended two areas for consideration in the Hudson Canyon (a 4x4 ten-minute square bounded between 38 50' and 39 30' N and 73 00' and 73 40' W and a 5x5 ten-minute square bounded between 38 50' and 39 40' N and 72 50' and 73 40' W). High numbers of small scallops (<70 mm) were caught on 2007 survey tows in this area.

#### *Impacts on protected species*

Additional rotational areas could reduce the potential negative impacts of scallop gear interactions with threatened and endangered sea turtles if they allow for decreased effort and bottom contact time relative to No Action in areas and at times when fishery interactions are most likely to occur. HCL and HCS have similar outcomes in 2008 with respect to total bottom area swept and somewhat less than the Preferred Alternative. The same is true for DAS used. No action results in higher total values in both bottom area swept and DAS used.

### **5.3.7.2 Great South Channel area**

#### *Description of the measures*

The PDT recommended consideration of an area to the north of the Nantucket Lightship closed area and west of Closed Area I; the top left coordinate of the polygon is 41 20' N and 69 30' W and the bottom left coordinate is 40 50' N and 68 50' W (Figure 7). This is the first year with decent recruitment on Georges Bank since 2001. High numbers of small scallops (<70 mm) were caught on 2007 survey tows in this area.

#### *Impacts on protected species*

Additional rotational areas could reduce the potential negative impacts of scallop gear interactions with threatened and endangered sea turtles if they allow for decreased effort and bottom contact time relative to No Action in areas and at times when fishery encounters are most likely to occur. In this case, however, bottom area swept is dramatically greater under SCH than either the Preferred Alternative or No Action in 2008 as well as 2009 and the same pattern is true of DAS used. Because of these increases, correspondingly greater risks to turtles may result if effort overlaps with the presence of sea turtles. Further, closing the Great South Channel area is not likely to confer benefits to turtles because of their general scarcity in the area and because effort could potentially shift to the Mid-Atlantic where sea turtles have a higher risk of entanglement. Leaving the Channel area open under any of the scenarios is less risky relative to sea turtles.

## 5.4 ECONOMIC IMPACTS

### 5.4.1 No Action

No action refers to continuation of all the measures and allocations that are specified in the present regulations. Specifically, under “No Action,” in open areas, limited access scallop vessels would receive the same allocation as FY2007, full time vessels would receive an allocation of 51 open area DAS in both 2008 and 2009. The trip allocations for access areas would also roll over. Consistent with Framework 20 to the FMP as approved by the Council, full-time vessels would receive 3 Elephant Trunk Access Area trips. The Georges Bank access area allocations are dependent on the schedule of areas that are to be opened. In 2008, the Closed Area I (CAI) and Closed Area II (CAII) access areas are scheduled to open. One trip would be allocated to CAI for full-time vessels, consistent with the 2007 scallop fishery regulations. General category vessels would be allocated 216 trips to CAI in the 2008 fishing year. There would be no allocated trips in CAII because the scallop regulations for 2007 do not include a trip allocation in 2007 for CAII. In 2009, the CAII and Nantucket Lightship access areas are scheduled to open. However, no trips would be allocated because the regulations do not specify any trip allocations for 2008 (i.e., the fishing year preceding the 2009 fishing year, consistent with the regulation cited above). The Hudson Canyon Access Area would become part of the open areas on March 1, 2008, and the Delmarva area would remain closed through February 28, 2010, as specified in the scallop fishery regulations.

The impacts of the no action were discussed below in 5.4.2 relative to the impacts of the alternatives described in Section 2.0. These impacts could be summarized as follows:

- Under the no action alternative, the landings will be less than the levels estimated for the preferred alternative and other options both in the short- and the long-term. This is because no action would allocate fewer trips to the access areas compared to the other alternatives. Although open area DAS allocations (51 in 2008 and 2009 per full-time vessel) would be higher compared to the proposed action, the increase in landings from the open areas would not be large enough to compensate for lower landings from access areas due to lower LPUE in the open areas relative to the LPUE in the access areas.
- As a result, total net benefits under no action will be about 4% to 15% less than the other alternatives in the short-term (Table 98) and 1% to 3% less than the benefits for other alternatives in the long-term (Table 102). No action will result in \$42 million less economic benefits in the short-term (2008-09, Table 98) and in \$44 million less benefits compared to the preferred option over the long-term (2008-2021, Table 102). The difference between the short-term and long-term benefits are small since all scenarios project landings assuming that fishing mortality does not exceed target fishing mortality.

The impacts of no action in regard to the general category measures are discussed in Section 5.4.10.1.

#### ***No Action for Amendment 11***

This alternative assumes that if Amendment 11 is not approved, and the general category fishery would remain an open access fishery. The economic impacts of the no action were analyzed in

Amendment 11, Section 5.4.2. The scallops landings and DAS allocations for limited access vessels were projected by assuming that general category landings will remain at 10% of total scallop landings in 2008 and 5% of scallop yield in 2009. If general category fishery continued to be open access, however, there would be always a risk for either more vessels entering the fishery, or for the general category landings to increase above 10%. This would result in the overfishing of the scallop resource with a consequent reduction in scallop yield and revenues. The decline in LPUE due overfishing would also increase fishing costs per pound of scallops. This, combined with a reduction in revenues would lead dissipation of the profits for all participants, including those of the limited access vessels and of general category vessels that are active in the scallop fishery. Under the “no action” scenario, impacts on the consumer benefits may also be negative due to reduced scallop landings in the future, coupled with possibly higher scallop prices. Similarly, producer benefits would decline over the long-term due to lower landings and revenues and higher fishing costs caused by the decline in the productivity of the scallop resource, measured by LPUE (landings per unit effort).

***Measures that will be in effect March 1, 2008 until FW19 is implemented***

This alternative considers several measures as backstops if FW19 is not implemented before the start of the 2008 fishing year. Specifications from Amendment 10 and Framework 18 would carry-over until FW19 is implemented. Since the measures included in this alternative will serve as a backstop, even if effort levels are higher than projected in 2008, subsequent measures will be taken to account for any overages; For example, if a full-time limited access vessel uses more DAS in FY2008 before FW19 is implemented (up to 51 as allocated under FW18) and this action only allocated 35 then any additional DAS used in 2008 will be reduced from that vessel’s 2009 allocation. The economic impacts of this measure on vessels that used more days than would be allocated in 2008 by Framework 19 (for example, 35 days-at-sea with the preferred option) will be positive in 2008, but negative in 2009 fishing year since their DAS allocation will be reduced by the overage, resulting in lower revenue and profits in 2009. The positive impacts in 2008 would likely to offset the negative impacts on revenues in 2009 since the prices would be lower in 2008 and higher in 2009 than estimated if many vessels uses higher day-at-sea allocations in 2008 versus in 2009 (with other factors affecting the price staying at the same levels).

Similarly, any general category Elephant Trunk area trips taken in 2008 above the ultimate allocation for 2008 will be deducted from the following fishing year. And if the Council ultimately selects to allocate more than 2% of access in ET – then those additional trips could be allocated whenever FW19 is implemented (i.e. 5%). If the general category quarterly hard TAC for Quarter 1 (March 1-May 31) is exceeded, then those pounds will be removed from Quarter 3 and/or 4. Any landings from within the Northern Gulf of Maine (NGOM) area caught in fishing year 2008 above the ultimate TAC for 2008 will be reduced the following year. Again, the economic impacts of these measures would be negative in 2009 fishing year since the allocations will be reduced by the overage, resulting in lower revenue and profits in 2009. The positive impacts in 2008 would likely to offset the negative impacts on revenues in 2009 since the prices would be lower in 2008 and higher in 2009 than estimated if many landings in 2008 exceed the allocations (with other factors affecting the price staying at the same levels).

## **5.4.2 Aggregate economic impacts of the rotation area alternatives**

The section provides a cost/benefit analysis of the area rotation alternatives, including the no action alternative, proposed by the Council through Framework Action 19 to the Sea Scallop FMP. The regulatory guidelines require that the economic impacts of the proposed options be compared relative to the impacts likely to occur if ‘no action’ is taken. No action here refers to continuation of all the measures and allocations that are specified in the present regulations as described in Section 5.4.1 above. Specifically, in 2008, the No Action alternative would allocate one trip in Closed Area I, 3 in Elephant Trunk and approximately 20,000 open area DAS (or 51 DAS for a full-time vessel). In 2009, two areas on Georges Bank would technically be open under the area rotation schedule, but no allocation would be made for those areas. The limited access fishery would be allocated the same number of open area DAS as in 2008.

### **5.4.2.1 Summary of overall economic impacts of the alternatives**

- The projected scallop landings for the preferred option and other alternatives are higher compared to no action scenario in 2008 and 2009, with the exception of the large Hudson canyon alternative (HCL) in 2008.
- The preferred option and the other alternatives are expected to increase scallop revenues both in year 2008 and 2009 compared to the no action scenario. Under the preferred option, the average scallop revenue per year is expected to be 3.7% higher than the revenue under no action during 2008-2009 fishing years (Table 90).
- The preferred option and the other alternatives are expected to have positive impacts on total economic benefits during 2008-2009. The cumulative value of total benefits for alternative options is expected to exceed the no action benefits approximately by 4.5% to 15.5 %. Preferred option will increase total economic benefits by about 5.5% in the short-term, i.e., during 2008-2009 fishing years.
- Over the long-term, all alternatives are expected to increase scallop revenues by 0.5% to 1.5% and total net benefits by 1% to 3% depending on the alternative (Table 91). The preferred alternative will increase total economic benefits slightly by 1% over the long-term compared to no action (Table 102). This is because, the long-term landings under all alternatives were projected assuming that the target fishing mortality will not exceed  $F=0.20$ . The preferred alternative is estimated to increase net economic benefits by \$42 million in the short-term (2008-2009), and by \$44 million in the long-term (2008-2021) compared to the no action alternative. The difference between the short-term and long-term benefits compared to no action are small for the same reason; because all scenarios, including no action, project landings assuming that fishing mortality does not exceed target fishing mortality resulting in similar levels of scallop yield.

**Table 90. Short-term economic impacts of the proposed action and alternatives (in 2006 prices)**

	Alternatives	Average landings per year (Mill. lb.)	Percentage Change in Revenue (per year)	Total benefits net of no action (mill. \$)	% Change in Total Benefits
2008-2009 average	No Action	42.5			
	Preferred option	45.2	3.7%	42	5.6%
	DMV closed (Similar to SQ, DMV3)	48.9	6.7%	85	11.5%
	DMV closed in 2008, open in 2009 (DMV2)	49.4	7.1%	93	12.5%
	HC closure, large (HCL)	46.0	4.2%	51	6.9%
	HC closure, small (HCS)	46.6	4.8%	60	8.1%
	South Channel closed, HC open (SCH)	53.0	9.6%	114	15.4%
South Channel and HC closed (SCH+HC)	45.3	3.7%	33	4.4%	

**Table 91. Long-term economic impacts of the proposed action and alternatives (in 2006 prices)**

	Alternatives	Average landings per year (Mill. lb.)	Percentage Change in Revenue (per year)	Total benefits net of no action (mill. \$)	% Change in Total Benefits
2008-2021 average	No Action	50.0	0.5%		
	Preferred option	50.7	1.3%	44	1.0%
	DMV closed (Similar to SQ, DMV3)	52.0	1.5%	113	2.8%
	DMV closed in 2008, open in 2009 (DMV2)	52.2	0.6%	129	3.1%
	HC closure, large (HCL)	50.8	1.4%	49	1.2%
	HC closure, small (HCS)	52.1	1.6%	111	2.7%
	South Channel closed, HC open (SCH)	52.1	0.7%	128	3.1%
	South Channel and HC closed (SCH+HC)	50.8	0.5%	45	1.1%

#### 5.4.2.2 Short-term Economic Impacts

The results of the cost/benefit analysis could be summarized as follows:

- The economic impacts presented in the following sections are analyzed using an updated estimate of prices, revenues and total net benefits. The long-term economic analyses are based on the biological model simulations for landings, DAS and LPUE. It is important to note that this model is based on fishing mortality by area and the inputs are not fishery-based in terms of DAS, etc. Therefore, when the Scallop Committee made a recommendation to include an alternative that uses specific DAS allocations as an input (preferred alternative), the model run used to estimate impacts of that allocation worked backwards to identify a fishing mortality rate that would represent those allocations, but the run is not exact since the model is not designed that way. Specifically, rather than 35 DAS in 2008, the model run is based on closer to 33 DAS. The economic analyses have been modified (as explained in Section 5.4.16) to reflect expected impacts of the actual allocated effort (35 DAS for preferred alternative compared to 33).
- The prices are estimated using the ex-vessel price model described in Amendment 11 (Section 5.4.23.1), which takes into account the impacts of changes in meat count, domestic landings, exports, import prices, income of consumers, and composition of landings by market category (i.e., size of scallops) including a price premium on under

count 10 scallops. Given that the future values of the external variables, such as exports, price of imports, income of consumers are uncertain, the prices and revenues are estimated here by using a range of estimates in order to evaluate sensitivity of results to these uncertainties: The higher price estimates correspond to the price model outputs, the lower price estimates are obtained by reducing forecasted prices from the price model by 10% to more closely approximate the recent prices.

- The scallop landings and revenue is expected to larger for all alternatives considered by Framework 19 compared to the no action alternative. The alternatives that would close Hudson Canyon area with modified boundaries (HCS, HCL and SCH+HC) result in lower landings and revenues compared to other alternatives with the exception of the ‘no action’ in 2008 fishing year. Over the two-year period from 2008 to 2009, the options that would keep Hudson Canyon area open, but either Delmarva or the South Channel area closed (SCH), result in largest landings, and average revenue, over \$390 million per year, compared to the other options. Although the absolute value of total scallop revenue would be higher (lower) higher (lower) prices, the percentage change in revenue compared to no action is about the same for each scenario corresponding to either lower or higher prices (Table 92 and Table 93). The preferred alternative would result in an increase in scallop fleet revenue by 1.3% in 2008 and by 6.2% in 2009.
- The results are similar for consumer and producer benefits as well as for the total benefits. All alternatives, except the Hudson Canyon closure with large boundaries (HCL) will increase producer and consumer benefits compared to the no action alternative in 2008-2009. The preferred alternative is expected to increase producer benefits by 2.1% in 2008 and 6.0% in 2009. Total benefits are expected to increase by \$42 million during 2008-2009 under the preferred option in 2006 prices and by \$32 in 1996 prices.
- Because all the alternatives provides more trip allocations in access areas where stock abundance is higher, such as ETA and NLS in 2008 and ETA, Closed Area 2 and Delmarva in 2009, overall landings, revenues and economic benefits will be higher with these alternatives compared to the no action scenario. Caution should be used when making direct comparisons between the preferred alternatives and the others, however, because the model was reconfigured to do this run based on the DAS input the Committee recommended. Furthermore, the preferred alternative has different post stratifications then the other scenarios because this alternative uses different areas to stratify the data (i.e. the current Hudson Canyon boundary). These differences in stratification may change projected landings, biomass, etc. by a few percent, but nothing in the model is accurate to that level; thus comparing small differences may be an artifact. Therefore, for all the biological projections as well as the economic analyses it is important not to draw conclusions from small differences in the results, particularly when comparing the preferred alternative since this alternative used slightly different stratifications. Since the starting exploitable biomass level for 2007 the preferred option was in fact 3% lower compared to the other options, however, the benefits for the preferred option could have been underestimated compared to the other alternatives.
- The economic impacts of the proposed alternative (PREF) and the other alternatives will also be positive for the general category limited access fishery since the total general category TAC will be higher with the preferred and other alternatives compared to the no

action alternative. Since the general category TAC will be 10% of the total yield in 2008 and 5% of the total scallop harvest starting with 2009, the increase in revenues will be proportional to the increase in total revenues shown in Table 93. Although higher prices will result in higher revenues in absolute value for the general category fishery as well, the percentage increase in revenue compared to no action would be about the same whether the lower or higher prices are applied to estimate the revenues. The impacts on the net revenues for these vessels will also be positive as the producer surplus (total revenue minus trip costs) for the preferred alternative versus no action will be higher with the preferred option and other alternatives compared to the no action.

- The level of general category TAC will be lower, however, than the level of general category scallop landings in the recent years resulting in negative economic impacts on many of these vessels in the short-term compared to their recent activity. Compared to continuation of open access, however, the limited access with hard TAC is expected to have positive economic impacts over the long-term on general category vessels that qualify for limited access (Sections 5.4.3, 5.4.8.5, 5.4.8.6 and 5.4.13 of Amendment 11) by preventing a decline in scallop yield and revenue due to an expansion in the general category effort. Hard TAC will also prevent a decrease in limited access allocations to compensate for an increase in general category effort. Since management of the general category fishery by a hard TAC and limited access is the proposed action by Amendment 11 and constitutes no action under Framework 19, the economic impacts of general category TAC are discussed under no action in Section 5.4.1 and Section 5.4.10.1.

**Table 92. Short-term impacts of alternatives on landings, LPUE and DAS**

Fishing year	Alternatives	Landings (lb.)	LPUE	DAS-used (fleet total)	% Change in landings from No action
2008	No Action	43.6	1475	29,256	
	Preferred option	44.4	1593	27,903	1.8%
	DMV closed (Similar to SQ, DMV3)	46.3	1780	25,870	6.2%
	DMV closed in 2008, open in 2009 (DMV2)	46.3	1780	25,865	6.3%
	HC closure, large (HCL)	43.2	1706	25,204	-0.8%
	HC closure, small (HCS)	44.0	1718	25,468	0.9%
	South Channel closed, HC open (SCH)	51.1	1555	32,711	17.1%
	South Channel and HC closed (SCH+HC)	44.2	1427	30,823	1.5%
2009	No Action	41.3	1578	26,044	
	Preferred option	45.9	1632	27,949	11.1%
	DMV closed (Similar to SQ, DMV3)	52.6	1785	29,380	24.8%
	DMV closed in 2008, open in 2009 (DMV2)	51.6	1665	30,859	27.2%
	HC closure, large (HCL)	48.7	1647	29,461	17.8%
	HC closure, small (HCS)	49.2	1682	29,195	19.1%
	South Channel closed, HC open (SCH)	54.9	1482	36,990	32.9%
	South Channel and HC closed (SCH+HC)	46.3	1434	32,221	12.1%
2008-2009	No Action	42.5	1527	27650	
average	Preferred option	45.2	1612	27926	6.3%
	DMV closed (Similar to SQ, DMV3)	48.9	1723	28362	15.3%
	DMV closed in 2008, open in 2009 (DMV2)	49.4	1783	27625	16.4%
	HC closure, large (HCL)	46.0	1676	27332	8.2%
	HC closure, small (HCS)	46.6	1700	27332	9.8%
	South Channel closed, HC open (SCH)	53.0	1519	34850	24.8%
	South Channel and HC closed (SCH+HC)	45.3	1430	31522	6.6%

The impacts on employment measured by total crew days (Crew\*DAS) would be negative in 2008 but positive in 2009 since all alternatives allocate less DAS in 2008, but more in 2009 compared to no action. However, the impacts on employment will be uncertain with no crew limit in the access areas. On the one hand, the increase in the number of crew would lead to higher employment; on the other hand, with more crew the vessels would spend less DAS fishing in the controlled access areas, which could have a negative impact on employment measured by crew days. The Social and economic impacts of this alternative is analyzed further in Section 5.4.7.1 and Section 5.5.

**Table 93. Short-term economic impacts on landings, prices and revenues (in 2006 inflation adjusted prices)**

Fishing year	Alternatives	Ex-vessel Price (Lower)	Ex-vessel Price (Higher)	Total Revenue, (Lower prices, mill. \$)	Total Revenue, (Higher prices, mill. \$)	% Change in Revenue from No action
2008	No Action	7.70	8.47	336	369	
	Preferred option	7.66	8.43	340	374	1.3%
	DMV closed (Similar to SQ, DMV3)	7.46	8.24	345	382	2.9%
	DMV closed in 2008, open in 2009 (DMV2)	7.46	8.24	345	382	2.9%
	HC closure, large (HCL)	7.77	8.59	336	371	0.1%
	HC closure, small (HCS)	7.69	8.50	338	374	0.8%
	South Channel closed, HC open (SCH)	7.00	7.74	358	395	6.5%
	South Channel and HC closed (SCH+HC)	7.67	8.47	339	375	1.0%
2009	No Action	7.90	8.73	326	361	
	Preferred option	7.55	8.30	347	381	6.2%
	DMV closed (Similar to SQ, DMV3)	7.00	7.74	361	399	10.6%
	DMV closed in 2008, open in 2009 (DMV2)	6.91	7.64	363	402	11.3%
	HC closure, large (HCL)	7.28	8.05	354	392	8.5%
	HC closure, small (HCS)	7.23	7.99	356	393	9.0%
	South Channel closed, HC open (SCH)	6.69	7.40	368	406	12.7%
	South Channel and HC closed (SCH+HC)	7.51	8.30	348	384	6.5%
2008-2009 average	No Action	7.80	8.60	331	365	
	Preferred option	7.61	8.37	343	378	3.7%
	DMV closed (Similar to SQ, DMV3)	7.23	7.99	353	390	6.7%
	DMV closed in 2008, open in 2009 (DMV2)	7.19	7.94	354	392	7.1%
	HC closure, large (HCL)	7.52	8.32	345	381	4.2%
	HC closure, small (HCS)	7.46	8.24	347	384	4.8%
	South Channel closed, HC open (SCH)	6.85	7.57	363	401	9.6%
	South Channel and HC closed (SCH+HC)	7.59	8.38	343	380	3.7%

**Table 94. Short-term economic impacts of alternatives on producer, consumer and total benefits (in 2006 inflation adjusted prices, in million \$, lower ex-vessel prices)**

Fishing year	Alternatives	Trip Costs* (\$ million)	Producer Surplus (\$ million)	Consumer Surplus (\$ million)	Total Benefits (\$ million)
2008	No Action	41	295	95	389
	Preferred option	39	301	98	399
	DMV closed (Similar to SQ, DMV3)	36	309	104	413
	DMV closed in 2008, open in 2009 (DMV2)	36	309	104	413
	HC closure, large (HCL)	35	301	94	394
	HC closure, small (HCS)	36	303	96	399
	South Channel closed, HC open (SCH)	46	312	121	433
	South Channel and HC closed (SCH+HC)	43	296	97	393
2009	No Action	36	290	87	377
	Preferred option	39	307	103	411
	DMV closed (Similar to SQ, DMV3)	43	318	124	442
	DMV closed in 2008, open in 2009 (DMV2)	41	322	127	450
	HC closure, large (HCL)	41	313	113	426
	HC closure, small (HCS)	41	315	115	430
	South Channel closed, HC open (SCH)	52	316	136	452
	South Channel and HC closed (SCH+HC)	45	303	105	408

\* Includes trip costs such as food, fuel, ice, water, oil and repair costs for gear and estimated to be \$1400 for the average of 2005-2007 fishing years.

**Table 95. Short-term economic impacts of alternatives on producer, consumer and total benefits (in 2006 inflation adjusted prices, in million \$, lower ex-vessel prices)**

Fishing year	Alternatives	Producer Surplus % change	Consumer Surplus % change	Total benefits % change
2008	No Action			
	Preferred option	2.1%	3.3%	2.4%
	DMV closed (Similar to SQ, DMV3)	4.9%	10.2%	6.2%
	DMV closed in 2008, open in 2009 (DMV2)	4.9%	10.3%	6.2%
	HC closure, large (HCL)	2.0%	-0.9%	1.3%
	HC closure, small (HCS)	2.7%	1.8%	2.5%
	South Channel closed, HC open (SCH)	5.8%	28.1%	11.2%
	South Channel and HC closed (SCH+HC)	0.4%	2.6%	0.9%
2009	No Action			
	Preferred option	6.0%	19.6%	9.1%
	DMV closed (Similar to SQ, DMV3)	9.6%	43.0%	17.3%
	DMV closed in 2008, open in 2009 (DMV2)	11.1%	47.3%	19.4%
	HC closure, large (HCL)	7.9%	30.8%	13.2%
	HC closure, small (HCS)	8.6%	33.2%	14.2%
	South Channel closed, HC open (SCH)	9.0%	57.5%	20.1%
	South Channel and HC closed (SCH+HC)	4.4%	21.2%	8.2%

**Table 96. Short-term economic impacts of alternatives on producer, consumer and total benefits (in 2006 inflation adjusted prices, in million \$, higher ex-vessel prices)**

Fishing year	Alternatives	Trip Costs* (\$ million)	Producer Surplus (\$ million)	Consumer Surplus (\$ million)	Total Benefits (\$ million)
2008	No Action	41	328	85	414
	Preferred option	39	335	88	423
	DMV closed (Similar to SQ, DMV3)	36	346	94	440
	DMV closed in 2008, open in 2009 (DMV2)	36	346	94	440
	HC closure, large (HCL)	35	336	84	420
	HC closure, small (HCS)	36	338	86	425
	South Channel closed, HC open (SCH)	46	349	111	460
	South Channel and HC closed (SCH+HC)	43	332	87	419
2009	No Action	36	324	77	401
	Preferred option	39	342	94	436
	DMV closed (Similar to SQ, DMV3)	43	356	113	469
	DMV closed in 2008, open in 2009 (DMV2)	41	360	117	477
	HC closure, large (HCL)	41	350	103	453
	HC closure, small (HCS)	41	352	105	457
	South Channel closed, HC open (SCH)	52	355	126	480
	South Channel and HC closed (SCH+HC)	45	339	95	434

\* Includes trip costs such as food, fuel, ice, water, oil and repair costs for gear and estimated to be \$1400 for the average of 2005-2007 fishing years.

**Table 97. Short-term economic impacts of alternatives on producer, consumer and total benefits (in 2006 inflation adjusted prices, in million \$, higher ex-vessel prices)**

Fishing year	Alternatives	Producer Surplus % change	Consumer Surplus % change	Total benefits % change
2008	No Action			
	Preferred option	2.1%	3.5%	2.4%
	DMV closed (Similar to SQ, DMV3)	5.3%	10.5%	6.3%
	DMV closed in 2008, open in 2009 (DMV2)	5.3%	10.5%	6.3%
	HC closure, large (HCL)	2.3%	-1.6%	1.5%
	HC closure, small (HCS)	3.0%	1.3%	2.7%
	South Channel closed, HC open (SCH)	6.4%	29.9%	11.3%
	South Channel and HC closed (SCH+HC)	1.0%	2.2%	1.2%
2009	No Action			
	Preferred option	5.4%	21.9%	8.6%
	DMV closed (Similar to SQ, DMV3)	9.8%	46.9%	16.9%
	DMV closed in 2008, open in 2009 (DMV2)	11.1%	51.7%	18.9%
	HC closure, large (HCL)	8.0%	33.6%	12.9%
	HC closure, small (HCS)	8.6%	36.2%	13.9%
	South Channel closed, HC open (SCH)	9.4%	62.9%	19.7%
	South Channel and HC closed (SCH+HC)	4.6%	23.0%	8.1%

**Table 98. Short-term cumulative benefits compared to no action (in 2006 inflation adjusted prices, lower ex-vessel prices)**

Fishing year	Alternatives	Present value of Consumer Surplus (mill. \$)	Present value of Producer Surplus (mill. \$)	Present value of Total Benefits** (mill. \$)	Total benefits net of no action (mill. \$)	% Change in Total Benefits
2008-2009 (lower prices)	No Action	175	566	741		
	Preferred option	194	588	783	42	5.6%
	DMV closed (Similar to SQ, DMV3)	220	606	826	85	11.5%
	DMV closed in 2008, open in 2009 (DMV2)	223	610	834	93	12.5%
	HC closure, large (HCL)	199	593	793	51	6.9%
	HC closure, small (HCS)	204	597	801	60	8.1%
	South Channel closed, HC open (SCH)	248	607	856	114	15.4%
	South Channel and HC closed (SCH+HC)	195	579	774	33	4.4%
2008-2009 (higher prices)	No Action	157	631	789		
	Preferred option	176	655	831	42	5.3%
	DMV closed (Similar to SQ, DMV3)	200	678	878	90	11.4%
	DMV closed in 2008, open in 2009 (DMV2)	203	683	886	97	12.3%
	HC closure, large (HCL)	180	663	843	55	6.9%
	HC closure, small (HCS)	184	668	852	63	8.0%
	South Channel closed, HC open (SCH)	228	681	909	120	15.3%
	South Channel and HC closed (SCH+HC)	176	649	824	36	4.5%

The net economic benefits are also shown in terms of 1996 dollars in Table 99 in order to comply with the guidelines issued by the Office of Management and Budget (OMB) to standardize the measures of benefits and costs of Federal regulations. They are slightly lower, and range from \$25 million to \$91 million in 1996 dollars due the inflation during the period 1996-2006.

**Table 99. Short-term cumulative benefits compared to no action (in 1996 inflation adjusted prices, lower ex-vessel prices)**

Fishing year	Alternatives	Present value of Consumer Surplus (mill. \$)	Present value of Producer Surplus (mill. \$)	Present value of Total Benefits** (mill. \$)	Total benefits net of no action (mill. \$)	% Change in Total Benefits
2008-2009 (lower prices)	No Action	133	429	562		
	Preferred option	147	446	594	32	5.7%
	DMV closed (Similar to SQ, DMV3)	167	459	626	64	11.5%
	DMV closed in 2008, open in 2009 (DMV2)	169	462	632	70	12.6%
	HC closure, large (HCL)	151	450	601	39	6.9%
	HC closure, small (HCS)	155	453	607	45	8.1%
	South Channel closed, HC open (SCH)	188	460	649	86	15.4%
	South Channel and HC closed (SCH+HC)	148	439	587	25	4.5%
2008-2009 (higher prices)	No Action	119	478	598		
	Preferred option	133	497	630	32	5.3%
	DMV closed (Similar to SQ, DMV3)	152	514	666	68	11.4%
	DMV closed in 2008, open in 2009 (DMV2)	154	518	672	74	12.3%
	HC closure, large (HCL)	136	503	639	42	7.0%
	HC closure, small (HCS)	139	506	646	48	8.0%
	South Channel closed, HC open (SCH)	173	516	689	91	15.2%
	South Channel and HC closed (SCH+HC)	133	492	625	27	4.6%

### 5.4.2.3 Long-term Economic Impacts

The long-term impacts of the preferred alternative and other options are estimated to be positive on revenues and on total economic benefits for all alternatives (Table 100 to Table 104). The long-term (2008-2021) economic effects of the proposed measures are estimated to be slightly positive on revenues (an average 0.5% increase per year, Table 101) and on the producer surplus (0.7% increase per year, Table 103). Cumulative value of long-term benefits for 2008-2021 (total of 13 years) net of no action is estimated to range from \$44 million (preferred alternative) to \$135 million for (DMV2: DMV closed in 2008 and open in 2009 with higher prices) in 2006 inflation adjusted prices (Table 102). Net economic benefits would range from \$33 million to \$102 million if they are expressed in terms of 1996 dollars (Table 104). The difference between the short-term and long-term benefits are small since all scenarios project landings assuming that fishing mortality does not exceed target fishing mortality, thus after 2009 and over long-term the yield, revenues and economic benefits converge to the similar levels.

The numerical results of the economic cost/benefit analysis should be interpreted with caution, however, when comparing preferred option with the other alternatives for the reasons explained in Section 5.4.16. The model was reconfigured to do this run based on the DAS input the Committee recommended. These differences in stratification may change projected landings, biomass, etc. by a few percent, but nothing in the model is accurate to that level; thus comparing small differences may be an artifact. Therefore, for all the biological projections as well as the economic analyses it is important not to draw conclusions from small differences in the results, particularly when comparing the preferred alternative since this alternative used slightly different stratifications. Since the starting exploitable biomass level for 2007 the preferred option was in fact 3% lower compared to the other options, however, the benefits for the preferred option could have been underestimated compared to the other alternatives.

The economic impacts of the proposed alternative (PREF) and the other alternatives will also be positive for the general category limited access fishery since the total general category TAC will be higher with the preferred and other alternatives compared to the no action alternative. Since the general category TAC will be 10% of the total yield in 2008 and 5% of the total scallop harvest starting with 2009, the increase in revenues will be proportional to the increase in total revenues shown in Table 101. Although higher prices will result in higher revenues in absolute value for the general category fishery as well, the percentage increase in revenue compared to no action would be about the same whether the lower or higher prices are applied to estimate the revenues. The impacts on the net revenues for these vessels will also be positive as the producer surplus (total revenue minus trip costs) for the preferred alternative versus no action.

The level of general category TAC will be lower, however, than the level of general category scallop landings in the recent years resulting in negative economic impacts on many of these vessels in the short-term compared to their recent activity. These impacts were analyzed in IRFA for Amendment 11 for a general category TAC of 2.5 million pounds for 2009 and after. The preferred option proposed by Framework 19 will result in about 2.5 million pounds over the long-term. Therefore, the economic impacts of general category TACs over the long-term will be within the range of impacts analyzed in Amendment 11. Compared to continuation of open

access, however, the limited access with hard TAC is expected to have positive economic impacts over the long-term on general category vessels that qualify for limited access (Sections 5.4.3, 5.4.8.5, 5.4.8.6 and 5.4.13 of Amendment 11) by preventing a decline in scallop yield and revenue due to an expansion in the general category effort. Hard TAC will also prevent a decrease in limited access allocations to compensate for an increase in general category effort. Since management of the general category fishery by a hard TAC and limited access is the proposed action by Amendment 11 and constitutes no action under Framework 19, the economic impacts of general category TAC are discussed under no action in Section 5.4.1 and Section 5.4.10.1.

The long-term impacts of the proposed alternatives on employment as measured by total crew days (Crew\*DAS) will be positive for all alternatives compared to the no action because overall DAS is estimated to be higher for those alternatives. As with the short-term impacts, the long-term impacts on employment of no crew limit in the access areas is uncertain. On the one hand, the increase in the number of crew would lead to higher employment; on the other hand, with more crew the vessels would spend less DAS fishing in the controlled access areas, which could have a negative impact on employment measured by crew days. The Social and economic impacts of this alternative is analyzed further in Section 5.4.7.1 and Section 5.5.

**Table 100. Long-term landings and effort compared to no action**

Fishing year	Alternatives	Landings (lb.)	LPUE	Average Total DAS-used
2008-2021	No Action	50.0	1721	28,672
	Preferred option	50.7	1729	28,805
	DMV closed (Similar to SQ, DMV3)	52.0	1735	29,603
	DMV closed in 2008, open in 2009 (DMV2)	52.2	1744	29,565
	HC closure, large (HCL)	50.8	1747	28,756
	HC closure, small (HCS)	52.1	1748	29,269
	South Channel closed, HC open (SCH)	52.1	1703	30,211
	South Channel and HC closed (SCH+HC)	50.8	1708	29,420

**Table 101. Long-term revenues compared to no action (in 2006 inflation adjusted prices)**

Fishing year	Alternatives	Ex-vessel Price (Lower)	Ex-vessel Price (Higher)	Total Revenue, (Lower prices, mill. \$)	Total Revenue, (Higher prices, mill. \$)	% Change in Revenue from No action
2008-2021 average	No Action	7.2	7.9	358	395	
	Preferred option	7.1	7.9	360	397	0.5%
	DMV closed (Similar to SQ, DMV3)	7.0	7.7	362	401	1.3%
	DMV closed in 2008, open in 2009 (DMV2)	7.0	7.7	363	401	1.5%
	HC closure, large (HCL)	7.1	7.9	360	398	0.6%
	HC closure, small (HCS)	7.0	7.7	363	401	1.4%
	South Channel closed, HC open (SCH)	7.0	7.7	363	402	1.6%
	South Channel and HC closed (SCH+HC)	7.1	7.9	360	398	0.7%

**Table 102. Long-term cumulative benefits compared to no action (in 2006 inflation adjusted prices, million \$, lower ex-vessel prices)**

Fishing year	Alternatives	Cum. present value of Consumer Surplus (\$ million)	Cum. present value of Producer Surplus (\$ million)	Cum. present value of Total Benefits (\$ million)	Cum. present value of Net Benefits (\$ million)
2008-2021 (lower prices)	No Action	1,086	2,952	4,038	
	Preferred option	1,109	2,973	4,082	44
	DMV closed (Similar to SQ, DMV3)	1,156	2,995	4,151	113
	DMV closed in 2008, open in 2009 (DMV2)	1,166	3,001	4,167	129
	HC closure, large (HCL)	1,110	2,977	4,088	49
	HC closure, small (HCS)	1,153	2,996	4,149	111
	South Channel closed, HC open (SCH)	1,171	2,995	4,166	128
	South Channel and HC closed (SCH+HC)	1,114	2,969	4,083	45
2008-2021 (higher prices)	No Action	990	3300	4290	
	Preferred option	1013	3321	4335	44
	DMV closed (Similar to SQ, DMV3)	1058	3350	4408	118
	DMV closed in 2008, open in 2009 (DMV2)	1068	3356	4425	135
	HC closure, large (HCL)	1013	3329	4343	53
	HC closure, small (HCS)	1055	3351	4406	116
	South Channel closed, HC open (SCH)	1073	3351	4424	134
	South Channel and HC closed (SCH+HC)	1017	3322	4339	48

**Table 103. Long-term economic impacts of alternatives on producer, consumer and total benefits (% change from no action values)**

Fishing year	Alternatives	Consumer Surplus % change	Producer Surplus % change	Total benefits % change
2008-2021 Lower prices	No Action			
	Preferred option	2.1%	0.7%	1.1%
	DMV closed (Similar to SQ, DMV3)	6.5%	1.4%	2.8%
	DMV closed in 2008, open in 2009 (DMV2)	7.4%	1.6%	3.2%
	HC closure, large (HCL)	2.3%	0.8%	1.2%
	HC closure, small (HCS)	6.2%	1.5%	2.7%
	South Channel closed, HC open (SCH)	7.9%	1.4%	3.2%
	South Channel and HC closed (SCH+HC)	2.6%	0.6%	1.1%
2008-2021 Higher prices	No Action			
	Preferred option	2.3%	0.6%	1.0%
	DMV closed (Similar to SQ, DMV3)	6.9%	1.5%	2.8%
	DMV closed in 2008, open in 2009 (DMV2)	7.9%	1.7%	3.1%
	HC closure, large (HCL)	2.4%	0.9%	1.2%
	HC closure, small (HCS)	6.6%	1.5%	2.7%
	South Channel closed, HC open (SCH)	8.4%	1.5%	3.1%
	South Channel and HC closed (SCH+HC)	2.7%	0.7%	1.1%

The net economic benefits are also shown in terms of 1996 dollars in Table 104 in order to comply with the guidelines issued by the Office of Management and Budget (OMB) to standardize the measures of benefits and costs of Federal regulations. They are slightly lower, and range from \$33 million to \$102 million in 1996 dollars due the inflation during the period 1996-2006.

**Table 104. Long-term cumulative benefits compared to no action (in 1996 inflation adjusted prices, million \$)**

Fishing year	Alternatives	Cum. present value of Consumer Surplus (\$ million)	Cum. present value of Producer Surplus (\$ million)	Cum. present value of Total Benefits (\$ million)	Cum. present value of Net Benefits (\$ million)
2008-2021 (lower prices)	No Action	823	2238	3061	
	Preferred option	841	2254	3094	33
	DMV closed (Similar to SQ, DMV3)	876	2270	3147	86
	DMV closed in 2008, open in 2009 (DMV2)	884	2275	3159	98
	HC closure, large (HCL)	841	2257	3099	37
	HC closure, small (HCS)	874	2271	3145	84
	South Channel closed, HC open (SCH)	888	2270	3158	97
	South Channel and HC closed (SCH+HC)	844	2251	3095	34
2008-2021 (higher prices)	No Action	750	2502	3252	
	Preferred option	768	2517	3286	33
	DMV closed (Similar to SQ, DMV3)	802	2539	3341	89
	DMV closed in 2008, open in 2009 (DMV2)	810	2544	3354	102
	HC closure, large (HCL)	768	2524	3292	40
	HC closure, small (HCS)	800	2540	3340	88
	South Channel closed, HC open (SCH)	813	2540	3354	102
	South Channel and HC closed (SCH+HC)	771	2518	3289	36

### 5.4.3 Georges Bank Access Areas

#### 5.4.3.1 Revision of Georges Bank Openings

This framework is considering two different options for access areas on Georges Bank: the No Action alternative and Alternative 1- revision of GB openings. The main difference between these alternatives is that only one access area would open annually under Alternative 1– Nantucket Lightship in 2008 and Closed Area II in 2009, and no trips to Closed Area 1, whereas the No Action alternative would allocate one trip to Closed Area 1. The economic impacts of the no action alternative and Alternative 1 (revision of Georges Bank opening) are analyzed in Section 5.4.2 in combination with other open and access area measures. By itself, the revision of Georges Bank openings will have positive economic impacts because access is allocated in areas with more biomass (ET and NLS in 2008) compared to areas with lower biomass such as open areas and Closed Area I. This will help increase yield, landings and revenues from the fishery both in the short-and the long-term, benefiting both limited access and general category vessels that participate in the scallop fishery. Increase in landings and lower prices will have positive impacts on consumers and lower fishing costs per pound of scallops due to fishing in more

productive areas combined with higher revenues will increase producer benefits. As a result, total economic benefits are expected to be positive compared to the no action alternative (See Section 5.4.2 above).

#### **5.4.3.2 Adjustments when yellowtail flounder catches reach 10% TAC limit**

If the YT flounder bycatch TAC is reached, limited access vessels with unused Georges Bank access area trips would have their open area DAS allocations increased by a prorated amount that is calculated to achieve an equal amount of scallop mortality per DAS. Analyses suggest that the compensation for Nantucket Lightship in 2008 would be 7.7 DAS and 7.9 DAS for Closed Area II trips in 2009. Since the compensation rates are determined by estimating an equivalent level of mortality, the overall impacts of this alternative on the scallop resource are expected to be neutral. For example, the number of scallops harvested in 7.7 DAS in open areas in 2008 is expected to be equal to the number of scallops harvested on one 18,000 pound access area trip in Nantucket Lightship.

This alternative will have a positive impact on vessels although the scallop pounds per trip could be lower than the allocated pounds for the Georges Bank access area trips due to the proration. In other words, this alternative will help to minimize loss in pounds and revenue due to the closure of access areas before a vessel takes its trip, without entirely compensating for the loss. Although the loss in landings and revenue due to the closure and proration of the open area trips cannot be predicted accurately at this time, in some cases the loss could be significant depending on the open area meat counts. For example if the open area LPUE average 1100 pound per day-at-sea as estimated by the biological model, catches from the additional open area trips could be 8,470 pounds (applying a DAS compensation rate of 7.7) for 2008, and could be 8,690 pounds (at 7.9 days) for 2009) compared to the 18,000 lbs. of trips lost due to closure of the access areas. Evaluated at a scallop price of \$7.66 per pound for the estimated price under the preferred alternative, for example, the reduction in revenue compared to the access area revenue could exceed \$73,000 in the first case and \$70,000 in the second case. The catch rates in the open areas vary, however, from one area to another and also according to the vessel size. Therefore, the revenue loss due to a yellowtail TAC closure will vary from one vessel to another depending on the open area fished. In general, the higher the meat count in the open areas, higher will be catches from these trips, and smaller will be the loss.

#### **5.4.4 Hudson Canyon Access Area**

##### **5.4.4.1 No Action**

No Action for this alternative would mean that all un-used 2005 limited access trips would expire on February 29, 2008. There are 2,097,064 pounds of the original TAC remaining (as of September 10, 2007); this is the equivalent of 117 trips. Assuming that scallop price will be around of \$6.5 per pound (average price for 2006 fishing year), total remaining scallop pounds from Hudson Canyon would generate about \$13.6 million in scallop revenues. Conversely, if Hudson Canyon trips expire before any pounds landed, this would result in a loss \$13.6 million for the scallop fishery as a whole. It is likely that more trips will be taken before the end of FY2007, however (February 28, 2008), since some trips could still be economical for the vessels

depending on the landings per day-at-sea (LPUE) from this area at the time of the trip (Table 105).

Straightforwardly, not taking a Hudson Canyon trip would result in a potential revenue loss of \$117,000 from the 18,000 lb. trip landing evaluated at a price of \$6.5 per pound of scallops. This could amount to about 10% of revenue loss or more for some vessels, given that average revenue for a full-time scallop dredge was over \$1 million in 2006 and less for other scallop vessels (see SAFE 2007, Table 13). According to the biological projections, the LPUE could improve in 2007, averaging about 1,400 pound per day-sea. At this level of LPUE, it would take about 13 days to land 18,000 pounds from a trip resulting in \$99,000 in net revenues (i.e., gross revenue minus trip expenses). If LPUE is lower, however, it would require a longer trip to land the allocated 18,000 pounds of scallop from a trip. For example, it would take 18 days to land 18,000 pounds if LPUE is about 1000 pounds per DAS, and it would take 26 days to land 18,000 pounds if LPUE is about 700 pounds per DAS, obviously too long for many vessels to take. A small vessel that could only land 700 pounds, for example, could choose to spend only 12 days in this area, for example, landing 8,400 pounds instead of the 18,000 pounds. This trip would still generate some revenue for the vessel-owner and the crew, but would fall short of the revenue that could be obtained from a trip landing of 18,000 pounds of scallops. Therefore, although some vessels will still take their Hudson Canyon trips if they are going to expire at the end of 2007 fishing year, the total landings could still fall short of the allocated TAC, thus, there could be some revenue loss for the vessels and the scallop fishery under no action. The amount of scallop revenue loss will probably be less than \$13.6 million but greater than zero depending on the LPUE in the Hudson Canyon area.

**Table 105. LPUE, trip duration and economic impacts (Price=6.5 per pound, trip costs=\$1400 per Day-at-sea).**

LPUE	Trip landings	Trip length	Gross trip revenue	Trip costs per DAS	Total trip costs	Net trip revenue	Crew income	Vessel share
700	18,000	26	117,000	1400	36000	81,000	28,350	52,650
700	8,400	12	54,600	1400	16800	37,800	13,230	24,570
1000	18,000	18	117,000	1400	25200	91,800	39,150	52,650
1000	12,000	12	78,000	1400	16800	61,200	26,100	35,100
1400	16,800	12	109,200	1400	16800	92,400	43,260	49,140
1400	18,000	13	117,000	1400	18000	99,000	46,350	52,650

The short-term economic impacts of this alternative could differ from the long-term impacts, however. If vessels that have not used their trips decide to use their trips between now and the end of the 2007 fishing year rather than lose that opportunity, then fishing mortality on scallops will increase in that area as a result, with negative impacts on the scallop resource, thus lowering future landings and revenues.

#### **5.4.4.2 Extend the duration of the Hudson Canyon Area program until May 31, 2008**

This alternative would authorize vessels with unused 2005 Hudson Canyon trips to use those trips until May 31, 2008, three month extension to the current extension of February 28, 2008. Extending the date could allow some vessels to take advantage of these trips later in the year when yields are higher in the area and weather is better. Therefore, this alternative is expected to

have larger economic benefits for the vessels that have not used their HC compared to the no action alternative. This alternative may also reduce mortality in the short term and help increase the biomass in the area compared to No Action, if vessels decide to wait until after scallops have grown in the spring (i.e. April and May), thus could generate larger economic benefits in the long-term.

On the other hand, extending the duration of Hudson Canyon until May 31, 2008 will slightly increase fishing mortality in 2008 fishing year. The impact of the additional F in 2008 is not expected to cause overfishing, but if this extension were permitted and the Council still wanted the overall F to equal  $F=0.22$  for 2008 under the preferred alternative compared to  $F=0.225$ , then open area DAS would have to be reduced to compensate. For example, if the LPUE for open areas is about 1,360 pounds per day and if the 1.0 million pounds were harvested at that rate that would come out to about 735 DAS. When that value is applied over the 326 full-time limited access equivalent vessels, then each vessel could expect a reduction of approximately 2 open area DAS to bring overall F back to  $F=0.22$  for FY2008. Given that the open area LPUE is estimated to be about 1000 pounds in the open areas, this action could reduce the scallop revenues by \$13,000 at a price of \$6.5, and \$15,000 at a price of \$7.5. This would undoubtedly have negative impacts on limited access vessels, especially on those that have already taken their Hudson Canyon trips in the previous fishing years.

#### **5.4.5 Elephant Trunk Access Area**

Updated estimates recommend four trips in ETAA in 2008 and three trips in 2009. The economic impacts of this alternative compared to the no action alternative which allocate three trips to this area are analyzed in Section 5.4.2 in combination with other open and access area measures. By itself, allocating four trips to ETAA will have positive economic impacts because this area has more biomass compared to areas with lower biomass such as open areas and Closed Area I. The increase in landings from this area will have positive impacts on consumers compared to no action. Lower fishing costs per pound of scallops due to fishing in this more productive area combined with higher revenues will increase producer benefits. As a result, total economic benefits are expected to be positive compared to the no action alternative (See Section 5.4.2 above).

The procedure to reduce trips is expected to have positive impacts on the scallop resource by providing a mechanism that can reduce effort in that area if updated information suggests the allocated level of effort is too high. Although reducing the number of trips in this area (if deemed necessary by the updated biological information) would lower scallop revenues and have negative impacts on the economic benefits in the short-term, the impacts of this action on economic benefits are expected to be positive. This is because this measure would help prevent overfishing, and ensure that optimum yield is achievable even if there is insufficient time to develop a framework adjustment. As a result, this procedure would have positive economic impacts by adjusting allocations in order to achieve optimal level of landings and revenues from the scallop resource.

The proposed action would remove the seasonal closure of ETAA from September 1 to October 31, whereas under the no action the area would close during these two months.

This proposed removal of the two-month closure will have positive economic impacts on scallop vessels compared to no action since seasonal access restrictions reduce the flexibility of fishermen in choosing when to fish, thus increase costs of fishing. On the other hand, the seasonal closure is expected to have indirect positive impacts on the scallop resource by reducing effort in that area when scallop shell height-to-meat weight ratios are lower, with positive economic impacts over the long-term. Therefore, by removing the seasonal closure, the proposed action could increase economic benefits by increasing flexibility for vessels. However, increased non-harvest scallop mortality from fishing during these two months could reduce those positive impacts on economic benefits.

#### **5.4.6 Delmarva Access Area**

According to the preferred option and other alternatives (except for no action and DMV 3) the Delmarva area will be open for in 2009 with one trip allocated to full-time limited access vessels. The economic impacts of this alternative compared to the no action alternative which would keep this area closed are analyzed in Section 5.4.2 in combination with other open and access area measures. By itself, providing access to Delmarva will have positive economic impacts because this area has more biomass compared to areas open areas and Closed Area I. Increase in landings due to access in this area will have positive impacts on consumers under the preferred alternative compared to no action. Lower fishing costs per pound of scallops due to fishing in this more productive area combined with higher revenues will increase producer benefits. As a result, total economic benefits are expected to be positive compared to the no action alternative (See 5.4.2 above).

The proposed action includes no seasonal closure in this area. This measure could increase economic benefits compared to a seasonal closure by increasing flexibility for vessels. However, increased non-harvest scallop mortality from fishing during these two months could reduce those positive impacts on economic benefits. There is also a procedure that allows trip allocations to this area to be adjusted based on the updated survey. Similar to the procedure for the Elephant Trunk Area, this procedure is expected to have positive impacts on the scallop resource by providing a mechanism that can reduce effort in that area if updated information suggests the allocated level of effort is too high. Although reducing the number of trips (if deemed necessary by the updated biological information) would lower scallop revenues and have negative impacts on the economic benefits in the short-term, the impacts of this action on economic benefits are expected to be positive. This is because this measure would help prevent overfishing, and thus have positive impacts on the scallop resource, landings and revenues over the long-term.

#### **5.4.7 Other restrictions related to access areas**

##### **5.4.7.1 Restriction on the number of crew on limited access scallop vessels**

The no action would continue to allow a vessel to carry any number of crew it wishes on an access area trip. No crew limit would give vessels the most flexibility, potentially reducing total fishing costs, increasing total benefits for crew and vessel owners, but reducing income per crew member. Increasing crew limits could improve safety and provide more opportunity for training new crew members. Since more crew could shuck a larger number of scallops, the catch per day is expected to increase, shortening the trip time to land the possession limit. As a result some trip

costs such as fuel and oil is expected to decline, and the meat quality of and price of scallops to increase. Since according to the lay system crew members pay the trip expenses, reduction in this item would increase total income to the crew. The vessel owners could benefit as well if shorter and less frequent trips results in a decline in maintenance, repairs and other trip costs that are not taken from the crew shares. On the other hand, division of the total crew share among more crew members is expected to reduce income per crew.

The alternative action is considering, however, a restriction on crew size of 8 or 9 persons. This measure in conjunction with possession limits and gear restrictions would help reduce scallop mortality and control effort, and thus could have potential positive impacts on the scallop resource, landings, and revenues over the long-term. Although, based on the information available it does not appear that trips with more crew members are targeting smaller scallops or impacting the size of scallops harvested, there is a potential risk of overfishing if vessels carry larger crews to shuck larger numbers of smaller scallops per day. On the other hand, limiting crew size would reduce vessel's flexibility and increase the trip costs. Since more crew could shuck a larger number of scallops, the catch per day is expected to increase, shortening the trip time to land the possession limit. Given that only 14 out of 85 trips had more than seven crew members (16%), and only one had 9 crew, however, this action is expected to affect only a few vessels (Table 86). Overall, both the economic benefits and costs of this action are expected to be small.

#### **5.4.7.2 Prohibition on deckloading when leaving an access area (>50 bu.)**

The prohibition on deckloading is expected to have positive economic impacts on scallop fishery. Deckloading will prevent a vessel having more scallops on board than are necessary to achieve the possession limit and will reduce discard mortality especially for small scallops, which are more likely to be discarded with deckloading compared to larger scallops. Therefore, prohibiting deckloading on access area trips will help prevent additional scallop mortality associated with discarding, thus will result in higher yield, revenues and economic benefits from the scallop resource.

#### **5.4.8 TAC set-asides for observers and research**

This action maintains the current policy of setting aside 2% of available TAC in access areas for research, and 1% to provide funding for observers. This alternative is expected to have indirect economic benefits on the sea scallop fishery by improving scallop management through better data and information made possible by research and the observer program.

#### **5.4.9 Open Area allocations for limited access vessels**

The economic impacts of open area DAS allocations for the limited access vessels are analyzed in Section 5.4.2 in combination with other open and access area measures (See Table 92 to Table 104 above). The proposed action will prevent overfishing in open areas and a decline in future yield, thus, it will have positive impacts on revenue and profits of scallop vessels. Allocating more open area day-at-sea does not necessarily increase landings, revenues and economic benefits if this results in smaller access area trip allocations to keep the overall fishing mortality exceeding the sustainable levels. For example, although more open area DAS would be allocated

under no action (51 days) as opposed to the preferred action (35 days) in 2008, total landings, revenues and economic benefits would be lower with no action. This is because one less trip will be allocated to ET area and another trip would be allocated to relatively less productive Closed Area 1.

#### **5.4.10 Measures for general category vessels**

##### **5.4.10.1 No Action and the impacts of Hard TAC during transition**

The No Action for this fishery would assume that Amendment 11 is approved as the Council recommended it. Specifically, a quarterly hard-TAC would be implemented for general category qualifiers (and vessels under appeal) while the fishery is in a transition to limited entry (12-18 months). Ten percent of the total projected scallop catch would be allocated to the general category fishery (open and access area fishing) and would be divided into quarters based on historical trends in landings. Qualifying vessels would then be allocated an individual fishing quota after the transition period expires. This framework assumes that the transition period will expire at the end of the 2008 fishing year (February 28, 2009), but it is possible it may expire sooner. In which case, vessels could receive an individual allocation of fishing quota for part of the 2008 fishing year and all of FY2009.

Since the economic impacts of 10% TAC for the transition period were analyzed in Amendment 11, these analyses will not be repeated here. The following provides a summary of these impacts and the discusses to what extent the level of general category TAC that will be set in Framework 19 would have different effects, if any, than the impacts analyzed in Amendment 11.

Amendment 11 analyzed the economic impacts by assuming that the general category TAC will be 5 million in 2008 and 2.5 million in 2009, and the economic impacts of the level of general category TAC as determined in this action are within the range of these impacts (Sections 5.4.8.5, 5.4.8.6 and 5.4.13 of Amendment 11).

Under the preferred area rotation alternative, total TAC for the general category fishery would be about 4.3 million pounds in 2008 (net of incidental catch and TAC set asides in the access areas) and will vary between 4.1 million pounds (HCL) to 4.9 million pounds (SCH) under the other alternatives (Table 106). This amount is very close to the scallop landings in 2006 by 490 general category vessels that had a permit before the control date, and which are expected to continue fishing in 2008 fishing year. Table 28 shows that these vessels landed about 5.5 million in 2005 but much less, about 4.6 million pounds in 2006. Therefore, total general category TAC corresponding to the preferred alternative (4.3 million lb.) will be about 8.0% less than the general category landings in 2006. If the general category landings stayed under the same level as in 2006 without a hard TAC, this would mean a reduction in scallop revenues of the general category vessels assuming that only those vessels that had a permit before the control date will qualify to fish during the transition period. The percentage reduction in general category scallop revenue will probably be less than the reduction in landings. Since overall scallop landings for 2008 are estimated to be lower (44.4 million lb.) than the levels in recent years (about 56 million in 2006) prices are expected to be higher, ranging from \$7.66 to \$8.43 in 2008, compared to \$6.7 in 2006 for the general category fishery (Table 107). If prices go up as expected, there would be no decline in the total revenue for the general category fishery, since the total revenue would be about \$32.4 million for a TAC of 4.22 million pounds under the preferred option assuming a

price of \$7.66 and would be more if prices increased to \$8.43, which are slightly higher than the scallop revenue (\$30.5 million, Table 108) for these 490 vessels that had a permit before the control date. The 10 % TAC will also include the general category landings by limited access vessels, thus some of the 4.22 million pound TAC will be landed by these vessels, reducing the TAC for the general category limited access vessels. Although it is uncertain what proportion of the 10% hard TAC will be caught by limited access vessels, assuming that general category landings by these vessels will equal to their level in 2006, that is 0.4 million lb. (Table 41, Amendment 11), the TAC for the general category vessels will decline to 3.82 million (from 4.22 million lb.) and the revenues for would decline to \$29.3 million (assuming a price of \$7.66), which would be about 4% lower than the \$30.5 million revenue earned in 2006 (Table 105).

As examined in Amendment 11, however, limited access and TAC management will have negative economic impacts on general category vessels that did not have permit before the control date since they will not have access to the general category fishery once Amendment 11 is implemented. There were 153 such vessels that participated in the general category fishery in 2006 earning about \$12.4 million in revenue during the 2006 fishing year.

Over the long-term, the limited access with hard TAC is expected to have positive economic impacts on general category vessels that qualify for limited access compared to continuation of open access (see Section 5.4.3 of Amendment 11) by preventing a decline in scallop yield and revenue due to an expansion in the general category effort. Hard TAC will also prevent a decrease in limited access allocations to compensate for an increase in general category effort. The interim 10% TAC will benefit the participants of the general category fishery also by providing some adjustment time for the general category vessels until the transition period is over and 5% TAC for the general category fishery takes affect. Although management of general category fishery by a hard TAC during would create some derby style fishing, the division of the total TAC into quarterly TACs will reduce race to fish to some extent and lessen the negative economic impacts associated with derby fishing as analyzed in the next section and discussed in Sections 5.4.8.5, 5.4.8.6 and 5.4.13 of Amendment 11.

**Table 106. General category landings and TAC by access area for the 2008 fishing year for 5% general category allocation to the access areas**

Area	Data	NOACT	PREF	DMV3	DMV2	HCL	HCS	SCH	SCHHC
Access	Scallop lb.	929,396	1,330,576	1,318,582	1,318,582	1,330,561	1,318,506	1,318,714	1,330,595
Open	Landings (lb.)	3,292,928	2,967,800	3,168,360	3,169,156	2,857,910	2,942,856	3,629,344	2,954,333
All areas	Total landings (TAC)	4,222,324	4,298,376	4,486,942	4,487,738	4,188,471	4,261,362	4,948,058	4,284,928
	Open area landings as % of open area total	14%	18%	17%	17%	19%	18%	16%	18%

**Table 107. The recent activity by general category vessels according to date of the permit**

Data	Permit after the control date	Permit before the control date	Grand Total
<b>2004 fish year</b>			
Number of vessels	28	404	432
Average scallop landings per vessel (lb.)	2,780	6,815	6,553
Total scallop landings (lb.)	77,832	2,753,198	2,831,030
Percentage of general category scallop landings	3%	97%	100%
Percentage of total scallop landings	0.1%	4.5%	4.6%
<b>2005 fish year</b>			
Number of vessels	103	516	619
Average scallop landings per vessel (lb.)	12,992	11,193	11,493
Total scallop landings (lb.)	1,338,151	5,775,755	7,113,906
Percentage of scallop landings	19%	81%	100%
Percentage of total scallop landings	2.5%	10.8%	13.3%
<b>2006 fish year</b>			
Number of vessels	153	490	643
Average scallop landings per vessel (lb.)	12,502	9,375	10,119
Total scallop landings (lb.)	1,912,731	4,593,805	6,506,536
Percentage of scallop landings	29%	71%	100%
Percentage of total scallop landings	3.4%	8.3%	11.6%
<b>2007 fish year (preliminary March-July)</b>			
Number of vessels	99	321	420
Average scallop landings per vessel (lb.)	10,286	6,286	7,229
Total scallop landings (lb.)	1,018,316	2,017,709	3,036,025
Percentage of scallop landings	34%	66%	100%
Percentage of total scallop landings	2.7%	5.2%	7.9%

**Table 108. General category scallop landings, revenue and ex-vessel price by permit date**

Fishyear	Data	Permit after the control date	Permit before the control date	Grand Total
2004	Scallop landings (lb.)	77,832	2,753,198	2,831,030
	Scallop revenue (\$)	401,759	14,304,952	14,706,711
	Ex-vessel price (\$)	5.2	5.6	5.6
2005	Scallop landings (lb.)	1,338,151	5,775,755	7,113,906
	Scallop revenue (\$)	10,332,157	44,183,519	54,515,676
	Ex-vessel price (\$)	7.6	7.7	7.7
2006	Scallop landings (lb.)	1,912,731	4,593,805	6,506,536
	Scallop revenue (\$)	12,401,181	30,541,260	42,942,441
	Ex-vessel price (\$)	6.5	6.8	6.7
2007	Scallop landings (lb.)	1,018,316	2,017,709	3,036,025
	Scallop revenue (\$)	6,381,188	11,490,911	17,872,099
	Ex-vessel price (\$)	6.4	5.9	6.0

#### 5.4.10.1.1 Quarterly hard-TAC for transition period to limited entry (FY2008)

Consistent with the Amendment 11 proposed action, Framework 19 would divide general category allocation (10% of total scallop TAC) into four quarters with higher proposed allocations during the spring and summer (Quarters 1 and 2) when meat weights are larger. Overall general category landings were historically highest during the second quarter (about 44% landed from June-August). Based on landings data from the last few years about 20% of landings were in Quarter 1 and another 20% in Quarter 3 (Table 110 and Table 111). Table 111 indicates that the scallop landings in the first quarter (March to May) as a percentage of overall scallop landings increased to 33% in 2006 fish year from about 19% in 2005. Again, the highest proportion of landings occurred in the second quarter as expected when the NLS area opened to fishing in June 15, 2006 (42%).

**Table 109. Scallop landings (lb.) by general category fleet by quarter**

Quarter	FISHYEAR			
	2004	2005	2006	2007*
Q1: Mar-May	542,912	1,232,749	2,090,113	1,618,605
Q2: Jun-Aug	1,264,395	3,147,830	2,764,452	1,417,420
Q3: Sep-Nov	670,236	1,868,298	1,139,716	
Q4: Dec-Feb	353,487	865,029	512,255	
Grand Total	2,831,030	7,113,906	6,506,536	3,036,025

\* Preliminary: March to July

**Table 110. Percentage distribution of general category scallop landings by quarter (all general category vessels)**

Quarter	FISHYEAR			
	2004	2005	2006	Average of 2004 - 2006
Q1: Mar-May	19%	17%	32%	23%
Q2: Jun-Aug	45%	44%	42%	44%
Q3: Sep-Nov	24%	26%	18%	22%
Q4: Dec-Feb	12%	12%	8%	11%
Grand Total	100%	100%	100%	100%

**Table 111. Percentage distribution of general category scallop landings by quarter by general category vessels that had a permit before the control date**

Quarter	FISHYEAR			
	2004	2005	2006	Average of 2004 - 2006
Q1: Mar-May	19%	19%	33%	24%
Q2: Jun-Aug	45%	45%	43%	44%
Q3: Sep-Nov	24%	24%	17%	22%
Q4: Dec-Feb	13%	11%	7%	10%
Grand Total	100%	100%	100%	100%

Both option A and B would allocate a larger percentage of landings in Quarter 1 (35% for option A and 40% for option B) compared to the historical average during the recent years. This is larger than the historical average (24% for 2004-06) to account for the opening of the ET area in March 2008. For the preferred 5% allocation to the access areas, the landings from the Elephant Trunk trips (2662) alone would constitute 25% of the total general category TAC, therefore, assigning either a 35% or a 40% TAC to the first quarter is expected to provide opportunity to the general category vessels to take their Elephant Trunk area trips and still fish in the opening areas during March to May 2008 (Table 112). For example, preliminary data for 2007 shows that 1.6 million pounds of scallops were landed in the first quarter by the general category fishery during when ETA was open to fishing (Table 113). Option A would allocate about 1.5 million pounds to the first quarter whereas option would allocate about 1.7 million pounds. Given that not most of those vessels that obtained their general category permit after the control date will not be able to land scallops in 2008, the amount of scallop that will be landed in 2008 will be probably less than what is observed in 2007 fishing year. Since Option B would allocate more TAC in the first quarter, a larger amount of scallops could be landed from the open areas under this option compared to Option A. Assigning a higher TAC in the first quarter than the historical average will also prevent some unrealistic TAC set for the first quarter in case there is a delay in the implementation of Framework 19.

Option A, in general, would distribute quarterly TAC more similarly to what has been observed in 2006. As a result, Option A may have lower impacts on general category vessels in terms of timing of their fishing activities compared to the most recent fishing year for which complete data is available. Option B would allocate a larger percentage to the first and second quarters (85% of the total), however, leaving less TAC for the third and the fourth quarters. Specifically, Option B would allocate the historical average (45%) to the second quarter but Option A would allocate slightly less (40%) compared to historical average. This is because fewer trips will be allocated to the Georges Bank access areas in 2008 fishing year compared to the 2006 and 2007 fishing years (Table 116 in Section 5.4.10.1.3). As a result, option A will provide more TAC for the third (15%) and to the fourth (10%) quarters compared to Option B, which would allocate only 10% to the third and 5% to the fourth quarters. Since allocations for Quarter 3 and 4 under Option B are below the historical averages (22% for Quarter 3, and 10% for Quarter 4), the potential for derby fishing would be higher in those quarters compared to Option 1, if the TAC's set for the first and the second quarters are landed (Table 112).

Since unused TAC from Quarter 1 would roll over to Quarter 3, and unused TAC from Quarter 2 would roll over to the fourth quarter, there will be less incentive for the general category vessels to land scallops until all the TAC allocated to Quarter 1 and Quarter 2 is reached if catching them later make more economic sense. As a result, these measures are expected to reduce derby fishing and negative economic impacts associated with it. Although, higher TACs allocated for Quarter 1 and Quarter 2 under Option B will reduce the derby fishing relatively more compared to Option A in those quarters, the opposite could happen in Quarter 3 and 4 if all the TAC allocated to first two quarters are landed.

**Table 112. Quarterly TAC allocations for the general category fishery for the interim period to limited entry (FY2008) and estimated landings by area assuming a 5% TAC for access areas under the proposed rotation alternative (PREF)**

<b>Options/Data</b>	<b>Q1 (Mar-May)</b>	<b>Q2 (June-Aug)</b>	<b>Q3 (Sept-Nov)</b>	<b>Q4 (Dec-Feb)</b>	<b>Total</b>
<b>Option A*</b>	<b>35%</b>	<b>40%</b>	<b>15%</b>	<b>10%</b>	<b>100%</b>
Estimated landings by area					
All areas	1,523,375	1,741,000	652,875	435,250	4,352,500
Access	1,067,000	266,750	-	-	1,333,750
% of annual TAC	25%	6%	0%	0%	31%
% of QTR landings	70%	15%	0%	0%	
Open	456,375	1,474,250	652,875	435,250	3,018,750
<b>Option B</b>	<b>40%</b>	<b>45%</b>	<b>10%</b>	<b>5%</b>	<b>100%</b>
Estimated landings by area					
All areas	1,741,000	1,958,625	435,250	217,625	4,352,500
Access	1,067,000	266,750	0	0	1,333,750
% of annual TAC	25%	6%	0%	0%	31%
% of QTR landings	61%	14%	0%	0%	
Open	674,000	1,691,875	435,250	217,625	3,018,750

\* Preferred alternative

The distribution of general category revenue among the quarters would be similar to distribution of landings if the average scallop price is the same for each quarter. Table 113 shows that the ex-vessel price varies from quarter to quarter, sometimes higher in the first quarter as it were in 2004 and in 2006, but sometimes lower in first quarter compared to the other quarters (2005). Many factors, including import prices, volume of exports and export prices, the composition of landings in terms of size of scallops, scallop pounds landed affect the prices in any day, month and season. In general and assuming other factors that affect price stay the same, higher relative landings in any period or in any quarter would lower price. Both options A and B will reduce these negative impacts on prices by distributing general category landings over 4 quarters. From this perspective, Option A could have slightly more positive impacts on revenues because the general category landings will be less concentrated in the first 2 quarters (75% of the total) with this option, whereas under option B, 85% of the annual general category TAC could be landed in the first 2 quarters. Given that general category landings are expected to be 10% of the total scallop landings in 2008, the differences in the quarterly distribution of landings is not expected to have significant impact on the scallop ex-vessel prices and the distribution of revenues. Even though, scallop prices could be slightly lower in Quarters 1 and 2 under option B, it is possible for other factors, such as increase in demand for exports, to counteract this impact and to increase price. In addition, actual landings in these quarters could differ than the allocated amounts given that shortfalls from the quota would roll-over to quarter 3 and quarter 4.

**Table 113. Scallop landings, revenue and ex-vessel price by quarter by all general category vessels**

<b>Fishyear</b>	<b>Data</b>	<b>Q1: Mar-May</b>	<b>Q2:Jun-Aug</b>	<b>Q3:Sep-Nov</b>	<b>Q4:Dec-Feb</b>	<b>Grand Total</b>
2004	Scallop landings (lb.)	542,912	1,264,395	670,236	353,487	2,831,030
	Scallop revenue (\$)	2,658,538	6,012,814	3,771,936	2,263,423	14,706,711
	Ex-vessel price (\$)	5.3	5.0	6.2	6.5	5.6
2005	Scallop landings (lb.)	1,232,749	3,147,830	1,868,298	865,029	7,113,906
	Scallop revenue (\$)	8,415,436	22,968,523	16,150,899	6,980,818	54,515,676
	Ex-vessel price (\$)	6.9	7.2	8.7	8.2	7.7
2006	Scallop landings (lb.)	2,090,113	2,764,452	1,139,716	512,255	6,506,536
	Scallop revenue (\$)	14,593,517	17,420,983	7,342,103	3,585,838	42,942,441
	Ex-vessel price (\$)	7.1	6.4	6.5	7.3	6.7
2007	Scallop landings (lb.)	1,618,605	1,417,420			3,036,025
	Scallop revenue (\$)	9,653,737	8,218,362			17,872,099
	Ex-vessel price (\$)	6.2	5.9			6.0

**5.4.10.1.2 IFQ program for general category fishery (FY2009)**

If Amendment 11 is approved as recommended, an IFQ program will be implemented for general category vessels that qualify for a limited access permit. Many vessels that were active in 2006 fishing year and that had a permit before the control date (490 vessels will not qualify for limited access general category fishery because they do not meet the poundage criteria (Table 28 and Table 108 above). Those vessels that qualified for limited access landed 3.8 million pounds in their best year and about 3.3 million lb. in 2005 fishing year, and 2.4 million in 2006 fishing year (Table 114 and Table 115). The qualifying vessels will be allocated an individual amount of scallop meat in pounds per fishing year. Their individual allocation will be based on their catch history from their best fishing year between March 1, 2000 and November 1, 2004. Their best year's landings would determine their "contribution factor". The sum of all qualifying vessels best year landings will be added together and each vessel will receive a contribution factor – or percent of the total best year landings. That percentage will be multiplied by the total available catch for general category vessels (5% of the total catch). Therefore, a vessel's individual allocation will vary by year based on available catch, but their contribution factor will remain the same. Vessels will be permitted to catch that quota from any area that is open each fishing year (open areas and specific access areas until the fleetwide number of general category trips is harvested). Vessels would be permitted to trade and or buy/sell quota on a limited basis. The full IFQ program is expected to be implemented for FY2009, or sooner if possible. As analyzed in Amendment 11 the IFQ program are expected to be positive for the scallop fishery and for the participants of the general category limited access.

Because a 5% TAC will be allocated to general category fishery, total general category landings will decline to about 2.2 million lb. under the preferred option (after removing the 0.5% percent TAC for the limited access vessels that qualify for general category limited access). This amount is still higher compared to the no action because the overall landings would be 11.1% higher under the preferred option than the level of landings under no action scenario as examined in Section 5.4.2 (Aggregate Impacts). Therefore, preferred option will have positive economic impacts on the vessels that qualify for limited access general category fishery.

The short-term impacts of the limited access and TAC management combined with the IFQs were examined in Amendment 11 compared to the recent activity of the general category vessels in 2005 fishing year, thus they will not be repeated here (in Section 5.4.3 and Section 7.9.6 of Amendment 11). The following provide a summary of these impacts and discusses to what extent these impacts could differ for the level of general category TAC that will determined in Framework 19. In general, the economic impacts of the TAC proposed by Framework 19 action are within the range of impacts analyzed in Amendment 11. Amendment 11 analyses were conducted by assuming a general category TAC of about 2.5 million lb. corresponding to a 50 million lb. total scallop TAC (see Section 7.9.6 and Section 5.4). The Framework 19 TAC for the general category fishery for 2009 fishing year is expected to be about 2.2 million pounds, slightly lower than the level analyzed in Amendment 11. The distributional impacts of the general category TAC on vessels that qualify for limited access were analyzed in Amendment 11 by comparing this level with the recent level of general category landings in 2005 fishing year, which was about 3.3 million pounds for vessels that qualify for limited access general category fishery. Therefore, a 2.5 million TAC was predicted to have negative economic impacts on most of these vessels. The 2006 fishing year data shows, however, that total landings by the general category vessels that qualify for limited access declined to 2.4 million pounds. Thus, the difference between the TAC under the preferred option in 2009 (2.2 million) and the recent landings in 2006 fishing year (2.4 million pounds) would be less than the difference in TAC and in recent landings analyzed in Amendment 11, lowering the negative economic impacts on general category vessels than estimated in Amendment 11 (see Section 7.9.6 and Section 5.4 of Amendment 11). In addition, the price of scallops are expected to be higher in 2009 (ranging from \$7.55 to \$8.30 as compared to \$6.70 for the general category fishery), thus, the decline in scallop revenue for the vessels that participated in the general category fishery in 2006 may be insignificant if not zero. The IFQ management of the general category fishery will have negative distributional impacts on some vessels, however, as the total general category TAC will be divided among 369 qualifying vessels some of which were not active in the general category fishery during the recent years. These distributional impacts were analyzed in Amendment 11 (in Section 5.4.3 and Section 7.9.6 of Amendment 11) and the distributional impacts from the proposed general category TAC (about 2.2 million lb. in 2009) are expected to be within the range of impacts analyzed in Amendment 11. In the long-term, economic impacts will be positive for vessels that qualify for the general category limited access fishery, including those estimated 57 limited access vessels that qualify for general category fishery that would receiving a 0.05% TAC from the total scallop harvest. (Section 5.4.3 and Section 7.9.6 of the Amendment 11 and summarized above in Section 5.4.1).

**Table 114. Recent activity of general category vessels that qualify and do not qualify for limited access**

Qualification	Qualification Period Activity		2005 fish year: March 2005 to February 2006			2006 fish year: March 2006 to January 2006		
	Number of active vessels	Total best year scallop landings (lb)	Number of active vessels	Scallop Landings (lb.)	Scallop Revenue (\$)	Number of active vessels	Scallop Landings (lb.)	Scallop Revenue (\$)
<b>General category vessels that had a permit before the control date</b>								
Qualify for limited access	NO	308 93,091	292	2,456,724	18,600,922	256	2,129,964	13,355,626
	YES	369 3,883,173	223	3,351,971	25,395,098	199	2,322,817	14,379,099
<b>General category vessels that had a permit only after the control date</b>								
Qualify for limited access	NO	- -	81	1,442,777	11,264,313	88	1,064,389	6,740,284
<b>General category fleet totals for 2005-06 fishing years</b>			597	7,251,472	55,260,333	543	5,517,170	34,475,009

**Table 115. Scallop landings, revenue and dependence on scallop revenue (2006 fishing year)**

Permit date	Qualify for limited access	Data	Scallop revenue as a % of total revenue					Grand Total
			<5%	5%-29%	30%-49%	GTE 50%	unknown	
After the control date	NO	Number of vessels	10	14	3	97	29	153
		Total scallop revenue	59,044	537,035	104,175	9,267,889	2,433,038	12,401,181
		Total scallop landings	9,312	77,596	14,970	1,441,155	369,698	1,912,731
		Scallop revenue as a % of total	1%	13%	38%	96%	NA	NA
Before the control date	NO	Number of vessels	110	43	15	109	3	280
		Total scallop revenue	575,784	1,625,560	1,143,099	10,987,299	201,182	14,532,924
		Total scallop landings	91,235	249,958	173,521	1,624,599	30,658	2,169,971
	Scallop revenue as a % of total	1%	15%	41%	91%	NA	NA	
	YES	Number of vessels	46	24	30	110		210
		Total scallop revenue	394,002	1,091,152	2,695,665	11,827,517		16,008,336
Total scallop landings		61,743	166,294	427,619	1,768,178		2,423,834	
All general category vessels		Number of vessels	166	81	48	316	32	643
		Total scallop revenue	1,028,830	3,253,747	3,942,939	32,082,705	2,634,220	42,942,441
		Total scallop landings	162,290	493,848	616,110	4,833,932	400,356	6,506,536

**Cost Recovery Program**

One aspect of the IFQ program that was not specified in Amendment 11 is the required cost recovery program for an IFQ program. Therefore, Framework 19 includes an alternative for a cost recovery program for the general category IFQ vessels. It includes a program that could collect up to 3% of ex-vessel value of scallop product landed. No action in regards to this measure would be contrary to the Congressional mandate to collect fees for IFQ programs as specified in the Magnuson-Stevens Act and therefore is not consistent with the MSA.

Total ex-vessel value for the general category fishery will vary according to the alternative that will be selected. Under the preferred alternative, total scallop landings is estimated to be 45.9 million lb. and ex-vessel prices are estimated to range from \$7.55 to \$8.30 depending on the assumptions made about factors that influence prices. At a 5% TAC and estimated revenue of about \$17.3 million to \$19.1 million for the general category fishery, 3% cost recovery could range from about \$519,818 to \$571,455 in 2009. The fee for the limited access vessels that qualify for the limited access general category fishery will be about \$51,982 to 57,145 since they receive 0.5% of the total harvest. Obviously, if there is no change in ex-vessel prices because of the cost recovery payment, this payment will reduce vessels revenues by 3% and will have negative economic impacts on the general category vessels. Given that limited access general category fishery would constitute about %5.05 (including the limited access general category qualifiers) of the total landings, it could be difficult for these vessels to pass part of the cost of recovery to the consumers. On the other hand, the cost recovery program is instituted to pay for the administrative costs of IFQ programs which are expected to have positive impacts on the vessels that qualify for limited access general category fishery. These positive economic impacts are discussed in Section 5.4 and several subsections of 5.4 of Amendment 11. Specifically, the economic impacts of limited access were analyzed in Section 5.4.3, the general category TAC in section 5.4.5 and IFQs were in Section 5.4.8.

The positive economic impacts of the IFQs are expected to exceed the costs of the cost recovery program. In addition, used appropriately, cost recovery can improve economic efficiency. Cost recovery may also have equity effects. It may improve equity by ensuring that those who use regulated products bear the costs. For regulatory agencies these broad principles suggest that the price of regulated products should incorporate all of the costs of bringing them to market, including the administrative costs of regulation. In terms of selecting the alternative where the user pays versus the dealer pays alternative, the Council supports that vessels be responsible to directly pay based on an average value because there were concerns about a trip based system and potential corruption with transactions and impacts on prices, etc. For these reasons, the vessel pays alternative (Alternative 2.4.1.2.1.2) may be more beneficial for vessels if the dealer pays alternative increases incentive for corruption with transactions and prices for IFQ scallop product sold.

#### **5.4.10.1.3 Impacts of General category access area management**

General category allocations in access areas will remain a fleetwide number of trips per area. This action includes a variety of alternatives for total allocation into access areas for the general category fishery: 2% per area, 5% per area, 0% for Closed Area II and a small percentage for Closed Area II. The number of trips and landings by area are shown in Table 116 and Table 117 below for these options. The number of trips and landings in these tables are based on the unadjusted numbers from the biological model and are slightly different from the numbers shown in Table 6 and Figures 1 and 2 of Section 2.1 of this document, which are based on rounded numbers of landings by area for allocation purposes. These differences are negligible and do not affect the analytical results.

The access area trip allocations will include the allocations for the limited access vessels that qualify for general category limited access fishery both in 2008 and 2009. In other words, the combined access area allocations for the general category and limited access vessels that qualify for limited access will be 5% of the access area TACs in 2008-2009. Therefore, access area trips and landings estimated in Table 116 and Table 117 include the trips and landings for both general category and limited access vessels qualifying for limited access general category fishery. In general, access area allocations will have positive economic impacts on both groups of vessels given that LPUE is expected to be higher and fishing costs are expected to be lower, increasing profits per pounds of scallop landed in these areas.

The proposed action (Section 2.4.1.1.1) would allocate 5% of the total catch to general category vessels in access areas in 2008 and 2009 in order to reduce the effort in the open areas where stock abundance is lower. The alternative option would allocate 2% of the total catch to general category vessels in access areas in 2008 only while vessels are under appeal for the IFQ program. Because more of open area TAC is allocated to the general category fishery when 2% is allocated for access areas, it will take longer for the overall TAC in the open areas to be reached. For example, if 2% is allocated to the access areas, general category landings from open areas will be close to 3.7 million pounds whereas with 5% allocation to access areas it will be around 2.9 million pounds for the preferred rotation alternative (Table 117). This will allow general category vessels to take an additional 1996 trips in open areas (0.8 million lb. divided by 400 lb.) reducing the derby fishing in those areas. On the other hand, the impacts of the proposed 5% versus 2% alternative allocation to access areas on derby fishing are uncertain. A larger number of trips, 3,326 trips with 5% access area allocation, could reduce race to fish somewhat compared to 1331 trips that would be allocated under 2% allocation alternative. But the length of derby fishing would be shorter when there is less number of access trips (1331 trips) to be taken with the 2% allocation alternative. In addition, a smaller allocation to access areas may reduce incentives for some vessels to fish in those areas especially if they have to travel a long way and if they expect that the area could be closed before they land their allocation. However, the proposed 5% allocation will increase landings from access areas within a short period of time and will have relatively more dampening affect on prices compared to a 2% allocation.

General category total landings are not expected to change whether 2% or 5% is allocated for the access areas, since total allocation will be 10% of the total scallop harvest in either case. Because access areas are more productive and have higher LPUE than the open areas, however, it will take less fishing time to catch the 400 pound possession limit in those areas. The LPUE in open areas are estimated to be about 1,000 pounds, whereas in the open areas it is about 2,150 pounds (Table 92). As a result, fishing costs will be lower and profits will be higher for trips taken in the access areas compared to open areas. Therefore, with the proposed 5% allocation for access areas, the profits for the general category fishery will be higher as compared to 2% allocation for these areas. The extent of these impacts will depend on the fishing costs and the time it takes to travel to the access areas. For example, providing a higher TAC for the access areas may not have much impact on those vessels that are located closer to and fish routinely in open areas, but could have larger positive economic impacts on those vessels that fish in close proximity to the access areas, such as the Elephant Trunk Area.

The general category landings for the open areas for fishing year 2009 are estimated assuming that these vessels will indeed land the 5% TAC allocated to them in the access areas. Part of this TAC could be landed by the limited access vessels that qualify for general category limited access fishery, however, since no separate TAC was specified for these vessels in the access areas. In that case, the open area landings by general category vessels will be higher than shown in Table 117 since the total landings by these vessels have to add up to 5% of the total scallop harvest. If, on the other hand, limited access vessels (57 vessels) that qualify for the limited access general category fishery do not land any scallops from the access areas, then their landing from the open areas will increase (not shown in the Tables) since they will be allocated 0.5% of the total TAC from all areas. Further discussion on the estimation of open area landings by general category and limited access vessels participating in the limited access fishery is provided in Section 2.1 (Summary of the proposed action).

The alternative zero percent allocation to CAI for the 2009 fishing year will result in higher landings for the open areas for the general category TAC. In other words, those 704 trips that would be allocated to this area will be shifted to the open area and thus will increase open area general category landings by 281,600 lb. (704\*400 lb.) under the preferred option (Table 117). This alternative is expected to have positive economic impacts since most general category vessels do not fish in CAII. For example, if 200,000 lb. of scallop pounds allocated to this area were uncaught, then there would be a 1.4 million dollar revenue loss (at a price of \$7 per pound) for the general category and scallop fishery in general. Some multispecies vessels participating in SAP programs land scallops and the alternative that would allocate a small TAC for the CAII area could accommodate these vessels. Assuming that there will not be an YT SAP program in the southern portion of Closed Area II in 2009, even a small TAC allocated to this area may remain uncaught and lower the economic benefits for the general category fishery.

**Table 116. Number of general category trips to access areas**

Fish Year	Allocation	Area	NOACT	PREF	DMV3	DMV2	HCL	HCS	SCH	SCHHC
2008	2 % of access areas	CL1Acc	108	-	-	-	-	-	-	-
		ET	822	1,065	1,053	1,053	1,065	1,053	1,053	1,065
		NLSAcc	-	266	266	266	266	266	266	266
	Total number of trips		929	1,331	1,319	1,319	1,331	1,319	1,319	1,331
2008	5 % of Access areas	CL1Acc	270	-	-	-	-	-	-	-
		ET	2,054	2,662	2,632	2,632	2,662	2,632	2,632	2,662
		NLSAcc	-	665	665	665	665	665	665	665
	Total number of trips		2,323	3,326	3,296	3,296	3,326	3,296	3,297	3,326
2009	5% of Access areas	CL2	-	704	705	703	708	709	705	705
		DMV	-	726	-	725	720	721	722	730
		ET	2,092	1,967	1,879	1,873	1,973	1,882	1,875	1,974
	Total number of trips		2,092	3,397	2,584	3,301	3,401	3,312	3,302	3,410

**Table 117. General category landings by access area**

Fish year	Area	Data	NOACT	PREF	DMV3	DMV2	HCL	HCS	SCH	SCHHC
2008 10% of total, 2% of access	Access	Scallop landings (lb.)	371,759	532,230	527,433	527,433	532,224	527,402	527,486	532,238
	Open	Scallop landings (lb.)*	3,850,565	3,766,146	3,959,509	3,960,305	3,656,247	3,733,960	4,420,573	3,752,690
		Total landings	4,222,324	4,298,376	4,486,942	4,487,738	4,188,471	4,261,362	4,948,058	4,284,928
	All	Open area landings as % of open area total	16%	24%	21%	21%	24%	23%	19%	23%
2008 10% of total, 5% of access	Access	Scallop lb.	929,396	1,330,576	1,318,582	1,318,582	1,330,561	1,318,506	1,318,714	1,330,595
	Open	Landings (lb.)*	3,292,928	2,967,800	3,168,360	3,169,156	2,857,910	2,942,856	3,629,344	2,954,333
		Total landings	4,222,324	4,298,376	4,486,942	4,487,738	4,188,471	4,261,362	4,948,058	4,284,928
	All	Open area landings as % of open area total	14%	18%	17%	17%	19%	18%	16%	18%
2009 5% of total, 5% of all access	Access	Scallop lb.	836,725	1,358,667	1,033,627	1,320,435	1,360,273	1,324,969	1,320,861	1,364,084
	Open	Landings (lb.)*	1,164,554	868,677	1,464,155	1,226,013	997,011	1,059,921	1,340,655	880,034
		Total landings	2,001,279	2,227,344	2,497,782	2,546,448	2,357,284	2,384,890	2,661,515	2,244,118
	All	Open area landings as % of open area total	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%

\*Assuming that general category vessel will be able to land 5% TAC from the access areas. Landing from the open areas will be higher for the general category vessels if part of the 5% TAC for the access areas is landed by limited access vessels qualifying for general category fishery.

**5.4.10.1.4 Northern Gulf of Maine (NGOM) hard-TAC**

If this program is approved under Amendment 11, this framework includes the hard-TAC allocation for vessels with a limited entry NGOM permit. The proposed action would allocate a 70,000 pounds hard-TAC for the next two fishing years per year. As analyzed in Amendment 11, this measure is expected to have positive economic impacts on a larger number of vessels that are not qualified for limited access but qualifies for an NGOM permit since these vessels will have an opportunity to land scallops in this area when the resource conditions are favorable. At 70,000 pounds, and at an estimated price of about \$7.66 in 2008 and \$7.55 in 2009 under the preferred option, this allocation is expected to generate more than half of million scallop revenue for the vessels qualify for NGOM area access.

**5.4.11 Incidental catch**

If approved by Amendment 11, an estimate of mortality from incidental catch will be reduced from the total TAC on an annual basis. The PDT estimates that 50,000 pounds should be

considered for this source of mortality. Removal of incidental catch from total landings before the trip and open area DAS allocations are determined will ensure that the fishing mortality targets are not exceeded. As a result, this measure will have positive impacts on the resource, scallop yield, revenues and total economic benefits.

#### **5.4.12 Revision of overfishing definition**

This action is considering revising the overfishing definition based on results from the recent scallop stock assessment, SAW 45. Specifically, the Bmax value in survey weight per tow would be revised to an absolute value of scallop meat and Fmax would be changed to 0.29 (from 0.24). However, there is an alternative to maintain the same fishing mortality target of 0.20, even though the fishing mortality threshold has increased.

Accepting the new overfishing definition recommended by the SARC is expected to have benefits on the scallop resource because the model used to generate these results is considered to have less bias. In addition, maintaining the fishing mortality target at  $F=0.20$  is precautionary and reduces the risk of overfishing, having long term beneficial impacts on the scallop resource, scallop landings, revenues and total economic benefits.

#### **5.4.13 Minor adjustments to the observer set-aside program**

This action includes an alternative that would consider applying a higher compensation rate for vessels carrying an observer in open areas, compared to access area trips. In addition, there are a number of administrative adjustments that are being considered to improve the program overall.

##### **5.4.13.1 Impacts of compensation rate for vessels fishing in open areas compared to access area trips**

Currently a vessel that is required to carry an observer in an access area receives a 400 pound per day compensation and a reduced DAS accrual rate of 0.15 per day for an open area trip carrying an observer. This alternative would still give a vessel a specific compensation rate based on whether the trip was in an access area or not, but the rate would be higher for open area trips than the access area trips in order for vessels better able to cover the observer costs. NMFS would still ultimately assign the rates after consideration of available data, but this alternative would recommend that a higher rate be used for open area trips.

The economic impacts of the observer coverage on the vessel owners and the crew will depend to what extent the allowance provided by NMFS will be able to cover cost of observer coverage. Landing extra pounds either through increased possession limit or reduced DAS accrual will also extend the trip and increase the trip costs and hours worked by the crew. Therefore the fishing costs should also be taken into account in assessing potential impacts of observer coverage. Finally, economic impacts will depend on the scallop prices, which will impact the amount of revenue from the compensation pounds provided by NMFS through the TAC set-aside. The analyses below provide scenarios assuming an ex-vessel price of \$6.50 per pound (average scallop ex-vessel price in 2006). Obviously, if prices increase above this level, the compensation pounds or DAS accrual rates will be sufficient to cover the observer costs and the trip expenses.

Table 118 and Table 119 provide an analysis of various levels of compensation pounds for access areas and reduced day-at-sea accrual rates for open areas. The increase in the trip length necessary to land the compensation pounds will vary with average trip length of a vessel and with scallop pounds per day-at-sea (LPUE) a vessel lands. The recent biological projections show that LPUE could range from 1000 pounds in the open areas to 2,150 in the access areas. The LPUE in any specific fishing area and time will be lower or higher from these averages, however, depending on the resource conditions in that area. Landings per day-at-sea will also change with the vessel characteristics including gross tonnage and horse power as well as with the number of crew on board. Clearly, the lower the fishing power a vessel has, the higher will be the increase in trip length to land the compensation pounds. For these reasons, the analyses shown in below include scenarios with LPUE ranging from 650 lb. to 2150 lb. per day-at-sea. Obviously, if vessels could land more scallop pounds than these amounts, the costs of observer coverage net of trip expenses will be less than estimated in Table 118 and Table 119.

For example, assuming an LPUE of 2,150 lb. in the access areas, a compensation amount of even 200 pounds would cover the observer and the trip costs of a trip with observer on board (Scenario 2). For a vessel with a smaller fishing power (with an LPUE of 700 pounds per day-at-sea) however, a higher compensation rate would be necessary (250 pounds, Scenario 3). The compensation amounts provided to the vessels was much higher, 400 pounds, than these amounts in 2006 (Scenario 1), which is one of the reasons why this alternative does not recommend a higher rate for the access areas.

The scenarios 4, 5 and 6 in Table 118 and Table 119 show the impacts of different DAS accrual rates for the observer coverage in the open areas. Using the rate applied in 2006 fishing year, i.e., 0.15 DAS accrual reduction (with an observer) would not be large enough to cover observer costs and the increase in trip costs. As a result, the total crew income would decrease by \$1,438 due to the costs of observer coverage (Scenario 4). This is because, LPUE is much lower in the open areas, at a LPUE of 1000 per day, and accrual rate of 0.15 provides only 150 pounds ( $1000 \times 0.15 = 150$  lb.) per day as a compensation for observe coverage, much less than the 400 pounds provided for access areas. Instead, a DAS accrual rate of about 0.30 would provide a compensation of 300 pounds per day-at-sea, covering the vessel and crew expenses due to carrying an observer onboard (Scenario 4). If the estimates for landings, exports, and other factors affecting demand materialize and scallop prices increase to \$7.70 per pound in 2008, a lower DAS accrual rate of 0.2 (Table 119, Scenario 5) would provide sufficient compensation for the observer coverage. This rate may not be large enough, however, for a small vessel landing only 650 pounds per day-at-sea or in a part of open-area where the catch rates are low. Rather, a rate of 0.45 DAS (0.35 DAS) if the prices are 6.50 per pound (\$7.70 per pound) may be necessary to prevent impacting crew income negatively (Scenario 6 in Table 118 and Table 119). These adjustments would respond to public comment that the program does not work in areas with lower catch rates and a higher compensation rate for open area trips may reduce the financial burden of observer coverage for many vessels to some degree. In order to prevent the total observer set-aside from being used faster as a result, the compensation rate for access area trips should decline, however (for example \$300 pounds per day).

**Table 118. Impacts of observer coverage on crew and vessel income (Assumptions: Cost of observers=\$800 per day-at-sea)**

Observer allowance	Access areas			Open areas		
	Scenario-1	Scenario-2	Scenario-3	Scenario-4	Scenario-5	Scenario-6
LPUE (Scallop lb. /day-at-sea)	2,150	2,150	750	1,000	1,000	650
Scallop price	6.50	6.50	6.50	6.50	6.50	6.50
Reduced DAS accrual rate for open areas				0.15	0.3	0.45
Compensation lb. per day	400	200	250	150	300	293
<b>Trip with no observer coverage</b>						
Trip length (without observer)	8.4	8.4	10.0	8	8	8
Scallop pounds landed without observer	18,000	18,000	7,500	8,000	8,000	5,200
Scallop revenue	117,000	117,000	48,750	52,000	52,000	33,800
Trip cost per DAS	1,400	1,400	900	1,400	1,400	900
Total trip costs	11,721	11,721	9,000	11,200	11,200	7,200
Crew income (net of trip costs)	52,629	52,629	17,813	17,400	17,400	11,390
Crew income per day-at-sea	6,286	6,286	1,781	2,175	2,175	1,424
Vessel share	52,650	52,650	21,938	23,400	23,400	15,210
Vessel share per day-at-sea	6,289	6,289	2,194	2,925	2,925	1,901
<b>Trip with observer coverage</b>						
Increase in trip length with observer	1.6	0.8	3.3	1.2	2.4	3.6
Trip length with observer coverage	9.9	9.2	13.3	9.2	10.4	11.6
Total scallop pounds from trip	21,349	19,674	10,000	9,200	10,400	7,540
Scallop Revenue	138,767	127,884	65,000	59,800	67,600	49,010
Observer costs	7,944	7,321	10,667	7,360	8,320	9,280
Scallop revenue net of observer costs	130,824	120,563	54,333	52,440	59,280	39,730
Trip costs	13,902	12,811	12,000	12,880	14,560	10,440
Crew income (net of trip costs)	58,051	53,498	17,883	15,962	18,044	11,412
Crew income per day-at-sea	5,846	5,846	1,341	1,735	1,735	984
Change in crew income per day-at-sea	-440	-440	-440	-440	-440	-440
Total costs of observer coverage for crew	5,422	869	71	-1,438	644	22
Vessel share	58,871	54,253	24,450	23,598	26,676	17,879
Vessel share per day-at-sea	5,929	5,929	1,834	2,565	2,565	1,541
Change in vessel share per day-at-sea	-360	-360	-360	-360	-360	-360
Total costs of observer coverage for vessel-owner	6,221	1,603	2,513	198	3,276	2,669
Total cost to crew and vessel-owner	11,643	2,473	2,583	-1,240	3,920	2,690

**Table 119. Impacts of observer coverage on crew and vessel income (Assumptions: Cost of observers=\$800 per day-at-sea)**

Observer allowance	Access areas			Open areas		
	Scenario-1	Scenario-2	Scenario-3	Scenario-4	Scenario-5	Scenario-6
LPUE (Scallop lb. /day-at-sea)	2,150	2,150	750	1,000	1,000	650
Scallop price	7.70	7.70	7.70	7.70	7.70	7.70
Reduced DAS accrual rate for open areas				0.15	0.2	0.35
Compensation lb. per day	400	200	250	150	200	228
<b>Trip with no observer coverage</b>						
Trip length (without observer)	8.4	8.4	10.0	8	8	8
Scallop pounds landed without observer	18,000	18,000	7,500	8,000	8,000	5,200
Scallop revenue	138,600	138,600	57,750	61,600	61,600	40,040
Trip cost per DAS	1,400	1,400	900	1,400	1,400	900
Total trip costs	11,721	11,721	9,000	11,200	11,200	7,200
Crew income (net of trip costs)	64,509	64,509	22,763	22,680	22,680	14,822
Crew income per day-at-sea	7,705	7,705	2,276	2,835	2,835	1,853
Vessel share	62,370	62,370	25,988	27,720	27,720	18,018
Vessel share per day-at-sea	7,450	7,450	2,599	3,465	3,465	2,252
<b>Trip with observer coverage</b>						
Increase in trip length with observer	1.6	0.8	3.3	1.2	1.6	2.8
Trip length with observer coverage	9.9	9.2	13.3	9.2	9.6	10.8
Total scallop pounds from trip	21,349	19,674	10,000	9,200	9,600	7,020
Scallop Revenue	164,386	151,493	77,000	70,840	73,920	54,054
Observer costs	7,944	7,321	10,667	7,360	7,680	8,640
Scallop revenue net of observer costs	156,442	144,172	66,333	63,480	66,240	45,414
Trip costs	13,902	12,811	12,000	12,880	13,440	9,720
Crew income (net of trip costs)	72,142	66,484	24,483	22,034	22,992	15,258
Crew income per day-at-sea	7,265	7,265	1,836	2,395	2,395	1,413
Change in crew income per day-at-sea	-440	-440	-440	-440	-440	-440
Total costs of observer coverage for crew	7,633	1,974	1,721	-646	312	436
Vessel share	70,399	64,878	29,850	28,566	29,808	20,436
Vessel share per day-at-sea	7,090	7,090	2,239	3,105	3,105	1,892
Change in vessel share per day-at-sea	-360	-360	-360	-360	-360	-360
Total costs of observer coverage for vessel-owner	8,029	2,508	3,863	846	2,088	2,418
Total cost to crew and vessel-owner	15,662	4,482	5,583	200	2,400	2,854

#### **5.4.13.2 Consider small adjustments to the current program to improve overall administration**

The Scallop Committee reviewed a list of potential adjustments that could be considered in this action to improve the administration of the observer set-aside program for scallops. In general, these improvements are expected to have positive indirect economic impacts on the scallop fishery by improving the monitoring and management of the fishery.

#### **5.4.14 Area closures to protect young scallops**

This action is considering several new areas as scallop rotational areas. Small scallops have shown up in the 2007 survey in the Hudson Canyon area as well as the Great South Channel.

##### **5.4.14.1 Hudson Canyon area**

The impacts of various closure alternatives is analyzed Section 5.4.2 in combination with other access area and open DAS allocations. By itself, closure of Hudson Canyon area is expected to have positive economic impacts by reducing mortality and increasing yield from this area (See Table 92 to Table 104 above).

##### **5.4.14.2 Great South Channel area**

The impacts of the SCH closure alternative is analyzed Section 5.4.2 in combination with other access area and open DAS allocations. By itself, closure of SCH area is expected to have positive economic impacts by reducing mortality and increasing yield from this area, but compared to the other alternatives, closure of SCH with Hudson Canyon open will allocate landings in relatively less productive areas. Although, in the short-term, this alternative will have larger economic benefits compared to the preferred action, in the long-term economic benefits of this option will be lower than the preferred alternative (See Table 92 to See Table 92 to Table 104 above).

#### **5.4.15 Other measures**

##### **5.4.15.1 30-day VMS power-down provision**

An alternative is being considered that would permit a vessel to power down their VMS unit for a minimum of 30 days if the vessel is not going to fish during that time. Although, the cost of VMS service will almost stay the same with this alternative, there will be some minor savings from using the generator less. In addition, this action will reduce the burden on the vessel-owner to keep the vessel running for long-periods of time when it is not fishing. Therefore, this alternative is expected to have some positive economic impacts on the scallop vessels.

##### **5.4.15.2 Clarification on when a vessel can leave on an access area trip**

This alternative would clarify when a vessel can leave on an access area trip. Specifically, the No Action would remain in effect; a vessel can leave on an access area trip before the area opens, but it may not enter the access area until the area has opened. This alternative is expected to have indirect positive economic impacts on scallop vessels by preventing a vessel owner making a wrong decision about when to leave on an access area trip with possible economic consequences.

#### **5.4.16 Estimation of landings, prices, costs, uncertainties and risks**

The economic impacts presented in the following sections are analyzed using an updated estimate of prices, revenues and total net benefits. The long-term economic analyses are based on the biological model simulations for landings, DAS and LPUE. For the short-term, the biological model projections approximated the landings under the no action scenario and under

other alternatives to the degree it is possible using a very sophisticated biological model. According to the original model simulations, however, the open day-at-sea is estimated to be 52 days in 2008 (rather than 51 days) for the no action alternative and 33 days (rather than 35 days) in 2008 and 43 days in 2009 (rather than 42 days) for the preferred alternative assuming that 326 full-time equivalent vessels will participate in the scallop fishery in 2008-2009 and general category will be allocated 2% of access area TAC in 2008 and 5% of the access area TAC in 2009. In order to provide an economic analysis consistent with the 51 DAS under no action in 2008 and 35 DAS in 2008 and 42 DAS in 2009 for the preferred option, the following adjustments are made to the landings and DAS projections.

- For no action scenario, the landings in 2008 were reduced by 0.3 million pounds and total DAS is lowered by 326 days from the levels estimated by the biological model since the day-at-sea allocations would be 51 days under no action, not 52 days as projected by the model.
- For the preferred option, allocating 35 instead of 33 increases landings by 0.7 million lb. in 2008 (given the open area LPUE=1103, the increase in landings would be  $1103*2*326=719,156$  lb.). In 2009, however, the biological model resulted in 43 DAS allocation per full-time vessel. Since the actual allocation will be 42 DAS, the landings under the preferred option was lowered by 0.4 million lb. (i.e., given open area LPUE=1266, the reduction in landings would be  $1266*1*326=412716$  lb.) compared to model simulations in 2009. Similarly, adjustments were made to the total DAS, increasing them by 652 for 2008 and reducing them by 326 days for 2009 for the preferred option.

In the October 25, 2007 meeting, the Council selected as the preferred alternative allocating general category 5 percent of the access area TAC instead of 2 percent that was considered by the Scallop Committee. Since a higher allocation of 5% in the access areas reduces the general category landings in the open areas by the same amount given that total general category TAC stays at 10%, the overall adjusted landings for the no action scenario and preferred alternative would not change from what is shown in Table 92 to Table 104 below. Shifting part of the general category trips from the open areas to the access areas will increase DAS-used in access areas while lowering them in the open areas. Because LPUE is higher in access areas, however, this shift of general category landings from open to the access areas could lower overall DAS-used could result in slightly higher benefits in the short-term than estimated in Table 92 to Table 104.

No adjustments are made to long-term biological simulations for landings and DAS because the short-term changes in landings for the no-action and preferred options are small and are not expected to change the long-term results in any significant way. For example, for the two year period (2008-2009), the increase in landings will be 0.3 million lb. for the preferred option, and the decrease in landings is 0.3 million lb. for the no action alternative.

The prices are estimated using the ex-vessel price model described in Amendment 11 (Section 5.4.23.1), which takes into account the impacts of changes in meat count, domestic landings, exports, price of imports, income of consumers, and composition of landings by market category (i.e., size of scallops) including a price premium on under count 10 scallops. The important

changes in external factors, i.e., in exports, imports, value of dollar, export and import prices had some unpredictable impacts on scallop prices in recent years, first resulting an increase to \$7.7 per pound in 2005, then a consequent decline to \$6.5 per pound in 2006 even though there was not a significant increase in scallop landings in 2006 (about 56 million lb.) compared to 2005 (about 54 million lb.). Given that the future values of these external variables are uncertain, the prices and revenues are estimated here by using a range of estimates in order to evaluate sensitivity of results to these uncertainties: The higher price estimates correspond to the price model outputs, the lower price estimates are obtained by reducing forecasted prices from the price model by 10% to more closely approximate the recent prices. For example, scenario "SCH" (Table 90 and Table 92) resulted in an estimate of 54.9 million pounds of scallop landings in 2009, a level close to what has been observed in 2005-2006 fishing years. According to the price model, ex-vessel price of scallops would be \$7.40 per pound at this level of landings, which is slightly less than what has been observed in 2005, but higher than the price in 2006. If the lower price estimates were used, however, the scallop price would be \$6.70 per pound, which is closer to the value of prices in 2006 fishing year.

The cost benefit analysis also included updated cost estimates for 2005-7 fishing years obtained from the observer database (Section 4.4.4 of SAFE report). These costs are used in calculating producer surplus for the proposed alternatives, which shows total revenue net of variable costs. The variable costs are defined as those expenses that increase or decrease with the level of fishing activity excluding the cost of crew which is determined by a lay system. The trip costs include food, ice, water and fuel, and are usually paid by crew in the scallop fishery out of their shares from the gross stock. Other variable costs include expenses on gear and supplies. Over 68 % of the trip costs consisted of fuel expenses for the full-time dredge vessels in 2006 (Section 4.4.4). Average trip costs per day-at-sea, including food, fuel, oil, ice, water, and fishing supplies, amounted to about \$1400 per full-time vessel as an average during 2007-07 fishing years evaluated in 2006 prices.

The dealer data for the 2005-2007 fishing years for the vessels with general category permits has the same problems that encountered in dealer data for the period before the control date, that is, it includes trips with scallop landings exceeding 400 lb. possession limit. Although, the data before the control date was reviewed by NMFS and several imperfect entries are corrected before the Amendment 11 analyses are done. There will not be sufficient time to conduct, however, a similar database review and correction process to the 2005-2007 dealer data before Framework 19 is developed. Instead, 2005-2007 dealer data for general category vessels is examined for inaccuracies and those entries that seem to contradict with rules of general category fishing are eliminated from the analyses based on the following criteria:

- a) The permit data was checked if some general category vessels had also limited access permit. The data for those vessels that had both a limited access permit and general category permit and landed significantly in excess of 1200 lb. of scallops are excluded from the analyses. It is assumed these vessels are actually limited access permits and there was a mistake in permit number in the dealer's records and/or that the permit category was incorrectly entered as general category in permit database. These were proved to be major sources of inaccuracy for the dealer date for the period 1994-2004 as well.

- b) A few vessels with general category permits only but with scallop landings in significantly in excess of 10,000 lb. per trip are excluded from the analysis. The records for the same vessels corresponded to two different limited access vessels with the same vessel name but a different permit number and were eliminated from the 1994-2004 data for Amendment 11 analyses for the same reasons.
- c) The data used in the analyses includes all other entries in the dealer database for vessels with general category permits. There are still many trip entries in the data in excess of 400 lb. possession limit. These were kept assuming that some of these corresponded to multiple trip entries (especially those that has taken place over the weekend) or to those trips with observer on board. On the other hand, the reason for some of these entries exceeding 400 lb. could be because they were reported in live weight rather than in meat weight.

The numerical results of the economic cost/benefit analysis should be interpreted with caution, when comparing preferred option with the other alternatives. The landings, DAS and LPUE were obtained from the biological model, which is based on fishing mortality by area and the inputs are not fishery-based in terms of DAS, etc. The simulation does not model individual vessels or trips; it models the fleet as a whole. The output of the model is then used to eventually compute individual DAS allocations after set-asides are removed, general category landings, etc. Therefore, when the Scallop Committee made a recommendation to include an alternative that uses specific DAS allocations as an input (preferred alternative), the model run used to estimate impacts of that allocation worked backwards to identify a fishing mortality rate that would represent those allocations, but the run is not exact since the model is not designed that way. Specifically, rather than 35 DAS in 2008, the model run is based on closer to 33 DAS. The economic analyses have been modified to reflect expected impacts of the actual allocated effort (35 DAS for preferred alternative compared to 33), but the biological model results were run with 33.

Caution should be used when making direct comparisons between the preferred alternatives and the others because the model was reconfigured to do this run based on the DAS input the Committee recommended. Furthermore, the preferred alternative has different post stratifications than the other scenarios because this alternative uses different areas to stratify the data (i.e. the current Hudson Canyon boundary). The other scenarios considered all used the same boundaries for stratification as well as assumptions about recruitment. The preferred alternative is expected to get different stratified averages compared to the other scenarios for this reason. These differences in stratification may change projected landings, biomass, etc. by a few percent, but nothing in the model is accurate to that level; thus comparing small differences may be an artifact. Therefore, for all the biological projections as well as the economic analyses it is important not to draw conclusions from small differences in the results, particularly when comparing the preferred alternative since this alternative used slightly different stratifications.

## **5.5 SOCIAL IMPACTS**

### **5.5.1 No Action**

In 2008, the No Action alternative would allocate one trip in Closed Area I, one in Nantucket Lightship, 3 in Elephant Trunk and approximately 20,000 open area DAS (or 51 DAS for a full-time vessel). In 2009, the same access area allocations would apply and total open area DAS would be closer to 19,000.

#### ***No Action for Amendment 11***

This alternative assumes that Amendment 11 is not approved, and the general category fishery would remain an open access fishery.

#### ***Measures that will be in effect March 1, 2008 until FW19 is implemented***

This alternative considers several measures as backstops if FW19 is not implemented before the start of the 2008 fishing year. Specifications from Amendment 10 and Framework 18 would carry-over until FW19 is implemented.

### **5.5.2 Georges Bank Access Areas**

This framework is considering two different options for access areas on Georges Bank: the No Action alternative and Alternative 1- revision of GB openings. The main difference between these alternatives is that only one access area would open annually – Nantucket Lightship in 2008 and Closed Area II in 2009.

Overall access on GB is similar under No Action and Alternative 1, but in different areas, and under No Action fewer trips are allocated in 2009. When less access is allocated, the short-term social impacts include less flexibility for businesses stemming from short-term decreases in revenue (see Economic Impact section), which would affect more those businesses with smaller cash flows or fewer economic and social resources. This would be offset by slighter higher revenues in the long-term. As discussed in Amendment 10, the general impacts from area management are likely to be more negative on fishermen on smaller vessels or on fishermen who have particular knowledge of particular locales, both of whom are less likely to practice mobile fishing strategies. Closing areas, if they are traditional fishing grounds, would create fewer options and less flexible fishing conditions for those fishermen. The expected future increases in biomass from rotating closed areas would have more positive impacts on those more mobile fishermen who can switch areas more easily, and who have access to economic and social resources that enable them to more easily withstand fishing ups and downs.

#### **5.5.2.1 Adjustments when YT flounder bycatch TAC is reached**

If the YT flounder bycatch TAC is reached limited access vessels are permitted to use access area trips at a compensation rate in open areas. Analyses suggest that the compensation for Nantucket Lightship in 2008 would be 7.7 DAS, and 7.9 DAS for Closed Area II trips in 2009.

Given that compensation is provided, it is not expected that this measure would have any negative impacts and may have positive ones if it discourages derby fishing that might develop if TAC shut-down were imminent.

### **5.5.3 Hudson Canyon Access Area**

No Action for this alternative would mean that all un-used 2005 limited access trips would expire on February 29, 2008. There is one alternative that would extend the duration of the program for three additional months until May 1, 2008.

No Action, which would entail the expiration of unused trips in the Hudson Canyon, would have negative impacts on those vessels that have, for various reasons, not used their 2005 allocation of special access trips. Since allocations are not guaranteed, that can have impacts on vessels by somewhat promoting them to take trips even when conditions are suboptimal.

### **5.5.4 Elephant Trunk Access Area**

Framework 19 proposes additional trips to the Elephant Trunk Access area, compared to No Action, which would provide positive social impacts from the increased revenue for participants and the shorter trip costs and shorter tow-times for crew (though offset by increased steaming time for some participants). These positive impacts would be more accessible to those more mobile fishermen who can switch areas more easily and more fully utilize access areas.

The procedure to reduce trips in ETA in 2009 would allow the rotational management system to work with greater efficiency and with a better ability to respond to changing resource conditions. As noted in Amendment 10, effective rotational management has both negative and positive social impacts: closing areas, if they are traditional fishing grounds, would create fewer options and less flexible fishing conditions for smaller-scale or less mobile fishermen, and could change day-to-day social and family interactions if a change in fishing practices to a more mobile strategy becomes the norm. The expected future increases in biomass from rotating closed areas would have more positive impacts on those more mobile fishermen who can switch areas more easily, and who have access to economic and social resources that enable them to more easily withstand fishing ups and downs.

### **5.5.5 Delmarva Access Area**

Framework 19 proposes additional trips to the Delmarva Access area, compared to No Action, which would provide positive social impacts from the increased revenue for participants and the shorter trip costs and shorter tow-times for crew (though offset by increased steaming time for some participants). These positive impacts would be more accessible to those more mobile fishermen who can switch areas more easily and more fully utilize access areas.

The procedure to reduce trips in 2009 would allow the rotational management system to work with greater efficiency and with a better ability to respond to changing resource conditions. As noted in Amendment 10, effective rotational management has both negative and positive social impacts: closing areas, if they are traditional fishing grounds, would create fewer options and less flexible fishing conditions for smaller-scale or less mobile fishermen, and could change day-to-day social and family interactions if a change in fishing practices to a more mobile strategy becomes the norm. The expected future increases in biomass from rotating closed areas would have more positive impacts on those more mobile fishermen who can switch areas more easily, and who have access to economic and social resources that enable them to more easily withstand fishing ups and downs.

## **5.5.6 Other restrictions related to access areas**

### **5.5.6.1 Restriction on the number of crew on limited access scallop vessels**

This action is considering a restriction on crew size of 8 or 9 persons.

Numerous fishermen and other stakeholders have noted the negative social impacts from crew limits, including safety issues, problems in getting sites on a vessel and the related issue of training a new generation of fishermen. If a higher number of crew does, though, contribute to targeting smaller scallops, there will be positive long-term impacts for the industry as a whole if such targeting can be discouraged with a restriction on crew size. Moreover, a smaller crew would have additional positive impacts since in most cases this would result in a higher share per person.

### **5.5.6.2 Prohibition on deckloading when leaving an access area (>50 bu.)**

This action is considering an alternative that would prohibit any scallop vessel from leaving an access area with more than 50 bu. of in-shell scallop on deck.

Given that this measure has industry support and applies only to access areas, it is not expected to have negative social impacts overall and may have positive ones in the long-term if it contributes to the sustainability of the resource base.

## **5.5.7 TAC set-asides for observers and research**

This action maintains the current policy of setting aside 2% of available TAC in access areas for research, and 1% to provide funding for observers.

In general, though setting aside a fraction of the resource has slightly negative impacts on the industry if revenues correspondingly decrease, both research and observers on board contribute positive impacts in the long-term to the extent that they help document and study resource conditions to enable better fisheries management.

## **5.5.8 Open Area allocations for limited access vessels**

After the Council decides which access areas will be available for the next two fishing years, the open area DAS are estimated to reach an overall target F rate of 0.20. The range of open area DAS under consideration is about 12,000-20,000 total DAS for 2008, or about 28 to 51 individual open area DAS for full-time vessels. The total (16-24,000) and individual open area DAS are higher for 2009 (43-66 for full-time vessels).

While the preferred measures in Framework 19 propose fewer DAS in the open areas, the full social impacts of this must be seen together with biomass conditions and the DAS allocated in special access areas. Given that biomass conditions are relatively poorer in open areas, the decrease in allocated open-area DAS does not correspond to an equivalent decrease in revenue in the short-term, and reducing bottom time may result in better biomass conditions and hence revenues in the longer-term. Moreover, the decrease in open-area revenue can be counteracted by revenue from access areas, though the shift in fishing from open to special access areas can have

negative social impacts on fishermen and fishing communities, such as when increased steaming time results in decreased time with family and community.

#### **5.5.8.1 TAC set-asides for observers and research**

This action maintains the current policy of setting aside 2% of available DAS in open areas for research, and 1% to provide funding for observers.

In general, though setting aside a fraction of the resource has slightly negative impacts on the industry if revenues correspondingly decrease, both research and observers on board contribute positive impacts in the long-term to the extent that they help document and study resource conditions to enable better fisheries management.

#### **5.5.9 Measures for general category vessels**

##### **5.5.9.1 No Action**

##### **5.5.9.1.1 Quarterly hard-TAC for transition period to limited entry (FY2008)**

If Amendment 11 is approved, there will be a quarterly hard-TAC implemented for the transition period to limited entry (most likely for all of FY2008). The total general category allocation (open and access areas) will be divided into four quarters.

##### ***Alternative to reduce derby fishing in access areas***

This action is considering allocating 2% of the total catch to general category vessels in access areas in 2008 only to reduce derby fishing in those areas while vessels are under appeal for the IFQ program.

If the reduction in allocation to access areas from 5 to 2% is successful in discouraging derby fishing, then this measure would have positive social impacts by promoting safer fishing conditions and avoiding the negative impacts of product-supply gluts.

##### **5.5.9.1.2 IFQ program for general category fishery (FY2009)**

If Amendment 11 is approved then general category qualifiers will receive an individual fishing quota based on their contribution to historical landings. IFQs will not be area specific; a vessel can choose to participate in an access area program and landings will be removed from Vessels will be permitted to catch that quota in any area available

##### ***Cost Recovery Program***

This action includes an alternative for a cost recovery program for the general category IFQ vessels. It includes a program that could collect up to 3% of ex-vessel value of scallop product landed. It will be a cost for vessels to pay for this program, but those costs are expected to outweigh any impacts if general category vessels were allocated 400 pound trips versus pounds.

### **5.5.9.1.3 Northern Gulf of Maine (NGOM) hard-TAC**

If this program is approved under Amendment 11, this framework includes the hard-TAC allocation for NGOM vessels. The PDT recommendation is 64,000 pounds. Once the TAC is reached, no scallop vessels are permitted to fish in the NGOM area.

Section 5.5.3 of Amendment 11 assessed the social impacts of the proposed NGOM hard-TAC in more detail. In general, a hard-TAC could potentially lead to derby fishing.

### **5.5.9.2 General category access area management**

General category allocations in access areas will remain a fleetwide number of trips per area. This action is considering a variety of alternatives for total allocation into access areas for the general category fishery: 2% per area, 5% per area, 0% for Closed Area II and a small percentage for Closed Area II. The prohibition on deckloading from access areas also applies to general category vessels.

Keeping access area allocations at the status quo of 2%—less than their overall 5% allocation—for general category vessels (measure 2.4.2.1.1) would mean general category fishermen would be expected to fish correspondingly more in open areas. They thus in essence would pay the costs of rotational management (not being able to fish in areas of their choosing) without gaining the benefits (increased biomass in special access areas). Increasing the allocation to 5% to be in line with Amendment 11 (measure 2.4.2.1.2.1) would be a positive benefit for those fishermen able to fish in the access areas. Changing this so that general category fishermen would have zero (measure 2.4.2.1.2.2) or a reduced allocation (measure 2.4.2.1.2.3) to Closed Area II would be expected to negatively impact only a small number because general category fishermen tend to have smaller vessels and might be less likely to fish further offshore in CLII.

### **5.5.10 Estimate of mortality from incidental catch**

If approved by Amendment 11, an estimate of mortality from incidental catch will be reduced from the total TAC on an annual basis. The PDT estimates that 50,000 pounds should be considered for this source of mortality. The consequence of this measure is to effectively reduce landings by scallop vessels by an amount proportional to their incidental catch mortality, which may reduce overall effort levels; however, this reduction is likely to be small enough to not have any appreciable social impact on scallop vessels.

### **5.5.11 Revision of overfishing definition**

This action is considering revising the overfishing definition based on results from the recent scallop stock assessment, SAW 45. Specifically, the Bmax value in survey weight per tow would be revised to an absolute value of scallop meat and Fmax would be changed to 0.29 (from 0.24). However, there is an alternative to maintain the same fishing mortality target of 0.20, even though the fishing mortality threshold has increased.

Any measure that increases the validity of the science supporting fisheries management should have positive impacts in the long-term by better contributing to the sustainability of the resource.

### **5.5.12 Minor adjustments to the observer set-aside program**

This action includes an alternative that would consider applying a higher compensation rate for vessels carrying an observer in open areas, compared to access area trips. In addition, there are a number of administrative adjustments that are being considered to improve the program overall.

This measure would have positive social impacts in that it attempts to redress criticisms that open area trips with observers shoulder a higher cost burden than other trips, even though the benefits of observer coverage are for the industry and society as a whole.

### **5.5.13 Area closures to protect young scallops**

This action is considering several new areas as scallop rotational areas. Small scallops have shown up in the 2007 survey in the Hudson Canyon area as well as the Great South Channel.

#### **5.5.13.1 Hudson Canyon area**

The short-term social impacts from area closures include less flexibility for businesses stemming from possible short-term decreases in revenue, which would affect more those businesses with smaller cash flows or fewer economic and social resources. This would be offset by slightly higher revenues in the long-term, since rotational area closures are designed to increase resource biomass and sustainability. As discussed in Amendment 10, the general impacts from area management are likely to be more negative on fishermen on smaller vessels or on fishermen who have particular knowledge of particular locales, both of whom are less likely to practice mobile fishing strategies. Closing areas, if they are traditional fishing grounds, would create fewer options and less flexible fishing conditions for those fishermen. The expected future increases in biomass from rotating closed areas would have more positive impacts on those more mobile fishermen who can switch areas more easily, and who have access to economic and social resources that enable them to more easily withstand fishing ups and downs.

#### **5.5.13.2 Great South Channel area**

The short-term social impacts from area closures include less flexibility for businesses stemming from possible short-term decreases in revenue, which would affect more those businesses with smaller cash flows or fewer economic and social resources. Closing the Great South Channel would in particular negatively impact those fishermen who fish predominantly on Georges Bank, since there are already a variety of restrictions on fishing in the area, and it would more negatively impact fishermen from surrounding areas, such as Cape Cod. This would be offset by slightly higher revenues in the long-term, since rotational area closures are designed to increase resource biomass and sustainability. As discussed in Amendment 10, the general impacts from area management are likely to be more negative on fishermen on smaller vessels or on fishermen who have particular knowledge of particular locales, both of whom are less likely to practice mobile fishing strategies. Closing areas, if they are traditional fishing grounds, would create fewer options and less flexible fishing conditions for those fishermen. The expected future increases in biomass from rotating closed areas would have more positive impacts on those more mobile fishermen who can switch areas more easily, and who have access to economic and social resources that enable them to more easily withstand fishing ups and downs.

## **5.5.14 Other measures**

### **5.5.14.1 30-day VMS power-down provision**

An alternative is being considered that would permit a vessel to power down their VMS unit for a minimum of 30 days if the vessel is not going to fish during that time.

This measure would have positive impacts on fishermen, particularly small-scale fishermen or those with small DAS allocations, by allowing them to reduce costs by powering down VMS when not fishing for extended periods.

### **5.5.14.2 Clarification on when a vessel can leave on an access area trip**

This alternative would clarify when a vessel can leave on an access area trip. Specifically, the No Action would remain in effect; a vessel can leave on an access area trip before the area opens, but it may not enter the access area until the area has opened.

This action, by clarifying the legality of current practices, would have positive impacts by continuing to allow vessels to leave port at more flexible times.

## **5.6 IMPACTS ON NON-TARGET SPECIES**

The scallop fishery operates throughout the range of the scallop resource from Maine to North Carolina and results in the incidental catch of several other species. While some species are retained, other species are discarded due to restrictions in other fisheries or if the catch is not of value. Measures to minimize bycatch to the extent practicable in the scallop fishery pertain to all scallop vessels. The primary measures are the 10-inch minimum twine top restriction, and the bycatch TAC for yellowtail flounder in access areas. The 4-inch minimum ring size may also reduce finfish bycatch and reduces the bycatch of small scallops. The Northeast (NE) Multispecies and Monkfish FMPs also include measures to limit bycatch of species under the management of the specific FMP. The following measures in the FMPs apply:

The Northeast Multispecies FMP prohibits fishing in the Gulf of Maine/Georges Bank (GOM/GB) and Southern New England Exemption Areas unless a vessel is using exempted gear, is fishing under NE multispecies or scallop DAS, or is fishing under an exempted fishery. The prohibition prevents fisheries from occurring that might result in bycatch that could jeopardize the goals of the NE Multispecies FMP. Exempted fishery procedures in the NE Multispecies FMP allow a proven “clean” fishery to be implemented and allowed under the NE Multispecies FMP. Currently, the general category fishery can operate in two areas of the GOM/GB Exemption Area and in a portion of the SNE Exemption Area. In all three areas, vessels are restricted to 10 ½ ft dredges and may not possess any species other than scallops. In addition, in the Great South Channel Sea Scallop Exemption Area within the GOM/GB Exemption Area, general category scallop vessels may not fish for scallops from April through June for one sub-area (the month of June for the other sub-area). This period has been identified as the peak spawning for yellowtail flounder and protects high concentrations of yellowtail flounder from a portion of the scallop fleet.

The Monkfish FMP allows vessels fishing for other species to harvest monkfish depending on the monkfish permit category, the declared fishing activity (i.e., multispecies DAS, scallop DAS, and/or monkfish DAS), the area fished, and the gear used. Unless otherwise restricted under another FMP, a vessel fishing outside of monkfish DAS, and while fishing for scallops under general category rules, is permitted to catch and retain up to 50 lb of monkfish tails per day, up to 150 lb total for the trip. This limitation prevents a scallop vessel using dredge gear from targeting monkfish and limits bycatch during scallop trips.

Other FMPs include overall quotas, state-by-state quotas, possession limits, and gear restrictions that may also reduce bycatch. The Skate and Summer Flounder/Scup/Black Sea Bass FMPs offer examples. The Skate FMP restricts possession of some species of skates and requires a permit to catch and land skate. Vessels fishing for scallops under general category rules would be restricted to the Skate FMP possession limits, limiting the impacts on skates as bycatch. Management measures for the summer flounder fishery include a state-by-state quota. When the quota is closed in a particular state, vessels can no longer land summer flounder in that state. When the quota is closed, scallop vessels from that state, fishing under general category rules, may have less incentive to fish in areas where summer flounder catch might be high since it could not be landed in the closed state.

These measures under other FMPs would continue to limit the impacts on bycatch species that are caught in the general category scallop fishery under all of the alternatives considered in Framework 19.

This action is not considering any measures that would trigger a skate baseline review based on the process approved in the Skate FMP. For more information see Section 6.1.3.

A detailed summary of the Standardized Bycatch Reporting Methodology Amendment that is proposed is included in Section 4.5.1.

### **5.6.1 Summary of Framework 19 impacts on non-target species**

None of the measures included in the proposed action are expected to have significant impacts on non-target species. This action has considered the potential impacts of the proposed action on non-target species (small scallops as well as finfish and other bycatch species) and in general, all the measures included in the proposed action have positive or neutral impacts on non-target species. Many of the measures considered in this action concentrate fishing effort in areas with high scallop catch per-unit-of-effort, which reduces fishing time having positive impacts on bycatch rates. Revising the area rotation schedule on Georges Bank is expected to keep high scallop biomass levels in the access areas in the foreseeable future, thus the areas will continue as a source to achieve optimum yield while minimizing effects on bycatch. This action maintains the YT bycatch TAC in access areas in GB and SNE. Overall, this action provides more flexibility to the fleet allowing the industry to better adapt to changing resource conditions. When the fleet is able to fish more efficiently, there may be a reduction in the amount of fishing time, with the potential to reduce bycatch. Limiting open area DAS keeps scallop biomass at target levels and maintains relatively high scallop LPUE. This keeps vessels from fishing long durations in marginal areas, where bycatch can be higher than normal.

See Section 5.1.2.6 for a description of the projected bottom contact time for the various scenarios considered. In general, the preferred alternative has higher bottom contact time than some of the alternatives but it also includes more effort in access areas than open areas (Table 84). Since LPUE is higher in access areas impacts on non-target species are expected to be lower (Table 83).

## **5.7 CUMULATIVE EFFECTS**

### **5.7.1 Introduction**

The term “cumulative effects” is defined in the Council of Environmental Quality’s (CEQ) regulations in 40 CFR Part 1508.7 as:

“The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.”

In 1997, the CEQ published a handbook titled, *Considering Cumulative Effects Under the National Environmental Policy Act*. The CEQ identified the following eight principles of cumulative effects analysis, which should be considered in the discussion of the cumulative effects of the proposed action:

1. Cumulative effects are caused by the aggregate of past, present, and reasonably foreseeable future actions.
2. Cumulative effects are the total effect, including both direct and indirect effects, on a given resource, ecosystem, and human community of all actions taken, no matter who (federal, non-federal, or private) has taken the actions.
3. Cumulative effects need to be analyzed in terms of the specific resource, ecosystem, and human community being affected.
4. It is not practical to analyze the cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.
5. Cumulative effects on a given resource, ecosystem, and human community are rarely aligned with political or administrative boundaries.
6. Cumulative effects may result from the accumulation of similar effects or the synergistic interaction of different effects.
7. Cumulative effects may last for many years beyond the life of the action that caused the effects.
8. Each affected resource, ecosystem, and human community must be analyzed in terms of its capacity to accumulate additional effects, based on its own time and space parameters.

The following analysis will identify and characterize the impact on the environment by the Proposed Action and alternatives considered in Framework 19 when analyzed in the context of

other past, present, and reasonably foreseeable future actions. Summary tables can be found following each of the text sections describing impacts. These tables contain brief text summaries intended to distill the more detailed text descriptions found in this section, and in Section 4.0 (Affected Environment), and Section 5.0 (Environmental Impacts). To enhance clarity and maintain consistency, the following terms are used to summarize impacts:

**Table 120 - Terms used in cumulative effects tables to summarize cumulative impacts**

<b>Impacts Are Known</b>	<b>Impacts Are Somewhat Uncertain</b>
High Negative/Positive	Potentially High Negative/Positive
Negative/Positive	Potentially Negative/Positive
Low Negative/Positive	Potentially Low Negative/Positive
Neutral	Potentially Neutral
No Impact	

*\*In some cases, terms like “more” and “most” are used for the purposes of comparing management alternatives to each other.*

### **5.7.2 Valued Ecosystem Components**

This document was structured such that the cumulative effects can be readily identified by analyzing the impacts on valued ecosystem components (VECs). The affected environment is described in this document based on VECs that were identified specifically for Framework 19. The VECs identified for consideration in Framework 19 include: **Atlantic sea scallop resource; physical environment and essential fish habitat (EFH); protected resources; and fishery-related businesses and communities**. While these components of the environment have been identified as the main VECs for this action, there are other objectives required under the Magnuson Act such as net national benefits that are met under this action as well. For example, non-target species are described in Section 4.5 and impacts on this action are summarized in Section 5.6, but this topic is not included as a primary VEC for this particular action because this action does not propose any modifications to the current area rotation program that will have different impacts on non-target species that have not already been assessed in previous actions.

VECs represent the resources, areas, and human communities that may be affected by a proposed action or alternatives and by other actions that have occurred or will occur outside the proposed action. VECs are the focus of an EIS since they are the “place” where the impacts of management actions are exhibited. An analysis of impacts is performed on each VEC to assess whether the direct/indirect effects of an alternative adds to or subtracts from the effects that are already affecting the VEC from past, present and future actions outside the proposed action (i.e., cumulative effects). While the document includes a description of other potentially affected parts of the ecosystem such as bycatch and enforcement of scallop measures, these components are not included as a specific VEC for the cumulative effects. They have been described and discussed in terms of impacts, but they were not identified as primary valued ecosystem components.

Changes to the Scallop FMP have the potential to directly affect the sea scallop resource. Similarly, management actions that would alter the distribution and magnitude of fishing effort for scallops could directly or indirectly affect other species and their corresponding fisheries. The physical environment and EFH VEC focuses on habitat types vulnerable to activities related to general category scallop fishing. The protected resources VEC focuses on those protected species with a history of encounters with the general category scallop fishery. The fishery-related businesses and communities VEC could be affected directly or indirectly through a variety of complex economic and social relationships associated with either the general category scallop fishery or any of the other VECs.

The descriptive and analytic components of this document are constructed in a consistent manner. The Affected Environment (Section 4.0) traces the history of each VEC and consequently addresses the impacts of past actions. The Affected Environment section is designed to enhance the readers' understanding of the historical, current, and near-future conditions (baselines and trends) to fully understand the anticipated environmental impacts of the management action proposed in this amendment. The direct/indirect and cumulative impacts of the Proposed Action and other alternatives are then assessed in Section 5.7.6 of this document using a very similar structure to that found in the Affected Environment section. This EIS, therefore, is intended to follow each VEC through each management alternative.

### **5.7.3 Spatial and temporal boundaries**

The geographic area that encompasses the biological, physical, and human community impacts to be considered in the following cumulative effects analysis is described in detail in Section 4.0 of this document. The physical range of the Atlantic sea scallop resource in the northeast region of the US is from Maine to North Carolina. The physical environment, including habitat and EFH, is bounded by the range of the Atlantic sea scallop fishery in the northeast region from Maine to North Carolina and includes adjacent upland areas (from which non-fishing impacts may originate). For Protected Species, the geographic range is the total range of the Atlantic sea scallop fishery. The geographic range for human communities is defined to be those fishing communities bordering the range of the scallop fishery.

Overall, the temporal scope of past and present actions for scallops, the physical environment and EFH, protected species, fishery-related businesses and communities, and other fisheries is focused principally on actions that have occurred since 1996, when the Magnuson-Stevens Fishery Conservation and Management Act was enacted and implemented new fisheries management and EFH requirements. In 1996, the Magnuson-Stevens Act identified sustained participation of fishing communities as a new National Standard (#8), so consideration of fishery-related businesses and communities is consistent within this temporal scope. The temporal scope for marine mammals begins in the mid-1990s, when NMFS was required to generate stock assessments for marine mammals that inhabit waters of the U.S. EEZ creating the baseline against which current stock assessments are evaluated. For turtle species, the temporal scope begins in the 1970s, when populations were noticed to be in decline.

The temporal scope for scallops is focused more on the time since the Council first submitted the Scallop FMP in 1982, and particularly since 1994 when Amendment 4 to the FMP implemented

the general category scallop permit. The Scallop FMP was developed with comprehensive analysis as part of a complete EIS, which this document serves to supplement and update. The FMP has been adjusted a number of times since 1982, and many elements of the management plan that are not specifically addressed in this amendment will continue to influence the status of the sea scallop resource.

The Atlantic sea scallop fishery has a long history dating back to the late 1800s. Section 1.3 summarizes the major changes in the scallop fishery and management program since the FMP was approved in 1982. Landings information for the scallop fishery date back to the early 1900s (Serchuck et al, 1979), but the temporal scope for fishery-related businesses and communities extends back to 1994 to consider impacts from the date the general category permit was first issued.

The temporal scope of future actions for all four VECs extends several years into the future. This period was chosen because of the dynamic nature of resource management and lack of specific information on projects that may occur in the future, which make it difficult to predict impacts beyond this time frame with any certainty. In addition, most measures proposed in this action are only in place for two years.

#### **5.7.4 Past, present and reasonably foreseeable future actions**

Section 4.0 of this document summarizes the current state of the scallop resource and the limited access and general category scallop fisheries, and it provides additional information about habitat and protected resources that may be affected by the Proposed Action.

##### **5.7.4.1 Past and Present actions**

The impacts of past and present actions have been considered relative to the VECs in this amendment and are described below and presented in Table 122.

##### **Scallop Resource**

The Council established the Scallop FMP in 1982 and later implemented several Amendments and Framework Adjustments to modify the original plan. See Section 1.3 for a detailed description of past and present actions. One major action in the past (1994) includes Amendment 4, which implemented limited access for the directed scallop fishery that is primarily managed by DAS and other controls such as crew limits and gear restrictions. During that same year, large areas on Georges Bank were closed to scallop fishing because of concerns over finfish bycatch and disruption of spawning aggregations.

In 1999 Framework Adjustment 11 to the Scallop FMP allowed the first scallop fishing within portions of the Georges Bank groundfish closed areas since 1994. Since then, several other framework actions have provided controlled access in these areas. In 2004 Amendment 10 to the Scallop FMP introduced rotation area management and changed the way that the FMP allocates fishing effort for limited access scallop vessels. Instead of allocating an annual pool of DAS for limited vessels to fish in any area, vessels had to use a portion of their total DAS allocation in the controlled access areas defined by the plan, or exchange them with another vessel to fish in a different controlled access area. Vessels could fish their open area DAS in any area that was not

designated a controlled access area. The amendment also adopted several alternatives to minimize impacts on EFH, including designating EFH closed areas, which included portions of the groundfish mortality closed areas. The most recent action that provided controlled access in the access areas was Framework 18 for FY2006 and FY2007.

Several other actions have recently been implemented: Amendment 13, Framework 20 and the SBRM Amendment (Amendment 12 to the Scallop FMP). The Council recently approved Amendment 12 to the Scallop FMP (June 2007). This action is an omnibus amendment to all FMPs in the region and focuses on defining a standardized bycatch reporting methodology (SBRM). Section 303(a) (11) of the Magnuson-Stevens Fishery Conservation and Management Act requires that all FMPs include “a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery.” The SBRM Omnibus Amendment will ensure that all FMPs fully comply with the act. SBRM is the combination of sampling design, data collection procedures, and analyses used to estimate bycatch and to determine the most appropriate allocation of observers across the relevant fishery modes. See Section **Error! Reference source not found.** for a summary of what the SBRM Amendment proposes.

Scallop Amendment 13 was also approved by both the Council and NMFS in 2007, which re-activated the industry-funded observer program. Since 1999, vessels required to carry an observer are authorized to land more than the possession limit from trips in access areas, and in open areas, vessels are charged a reduced amount to help compensate for the cost of an observer. Observers were deployed through a contractual arrangement between National Marine Fisheries Service (NMFS) and an observer provider until June 2004. This arrangement was not renewed because of unresolved legal issues concerning the use of a contract to administer the industry-funded observer program. For some time, NMFS funded observers while a solution to this issue was investigated. As funding became insufficient, an interim rule went into effect that approved a new mechanism to use the observer set-aside funds through a non-contracted vendor. Amendment 13 was necessary to make this temporary mechanism part of the regulations. The Council selected final measures for that action at the February 2007 Council meeting and it was implemented on June 12, 2007. Amendment 13 also includes a provision to make changes to the observer set-aside program by framework action and the Council decided to address some issues raised with the current program in this framework action (See Section 2.7).

Lastly, the Council approved Framework 20 to the Scallop FMP at the June 2007 Council meeting and NMFS is expected to implement that action in the near term. Framework 20 considered measures to reduce overfishing for FY2007 through measures that were implemented by interim action earlier this year. At the November 2006 Council meeting, the Scallop PDT informed the Council that overfishing was likely to occur in 2007 under status quo measures implemented under Framework 18. The PDT presented several alternatives to reduce fishing mortality. The Council ultimately recommended that NMFS reduce the allocated number of trips for all scallop permit categories in the Elephant Trunk Access Area (ETA), delay the opening of the ETA, and prohibit vessels from possessing more than 50 bushels of in-shell scallops when leaving any controlled access area. NMFS agreed with the Council that the ETA has an unprecedented high abundance of scallops, which needs to be husbanded with precaution to effectively preserve the long term health of the scallop resource and fishery, and so implemented

these measures by interim action.<sup>5</sup> This interim action became effective on December 22, 2006, and will remain effective until June 20, 2007 (180 days). This interim action was extended for an additional 180 days, but it will expire on December 26, 2007. Therefore, for the last two months of the 2007 fishing year (January-February 2008), management would revert back to status quo measures under FW18. Specifically, higher trip allocations would be granted in the Elephant Trunk Area for both limited access and general category fisheries. Therefore, the Council approved Framework 20 to extend the reduced fishing effort measures implemented by interim action through the end of the 2007 fishing year. If approved, the action would expire on March 1, 2008, when Framework 19 is scheduled to be in place.

The cumulative impacts of past and present management actions have resulted in substantial effort reductions in the scallop fishery. Sea scallop biomass has increased steadily since 1999. It is estimated that area rotation management will end overfishing and provide a healthy resource for scallop fishermen to harvest for the long-term. Overall, the realized reductions in effort have been positive for the scallop resource.

### **Physical Environment and EFH**

The effects of mobile bottom-tending gear (trawls and dredges) on fish habitat have been recently reviewed by the National Research Council (NRC 2002). This study determined that repeated use of trawls/dredges reduce the bottom habitat complexity by the loss of erect and sessile epifauna and smoothing sedimentary bedforms and bottom roughness. This activity, when repeated over a long term also results in discernable changes in benthic communities, which involve a shift from larger bodied long-lived benthic organisms for smaller shorter-lived ones. This shift also can result in loss of benthic productivity and thus biomass available for fish predators. Therefore, such changes in bottom structure and loss of productivity can reduce the value of the bottom habitat for demersal fish, such as haddock and cod. These effects varied with sediment type with lower level of impact to sandy communities, where there is a high natural dynamic nature to these bedforms, to a high degree of impact to hard-bottom areas such as bedrock, cobble and coarse gravel, where the substrate and attached epifauna are more stable. Use of trawls and dredges are common in inshore and offshore areas and somewhat less common in riverine areas. The primary gear used in the scallop fishery is dredge gear; however, there is some otter trawl gear used in the scallop fishery. It is assumed for this analysis that the effects of bottom tending mobile gear, particularly dredge gear, are generally moderate to high, depending upon the type of bottom and the frequency of fishing activities to demersal species affected by this action.

These activities, which cause impacts to essential fish habitat for a number of federally managed species in a manner that is more than minimal and less than temporary in nature, have been mitigated by the measures in Amendment 10. Amendment 10 implemented a series of year-round closed areas to scallop gear to protect EFH in those areas. Furthermore, a gear modification (4-inch ring size) was implemented to reduce contact with the bottom. And total DAS allocated under Amendment 10 were reduced, which had additive benefits for EFH by

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<sup>5</sup> The interim rule published by NMFS on December 22, 2006 (**71 FR 76945**), included all measures recommended by the Council, except the prohibition on a vessel leaving an access area with more than 50 bu. of in-shell scallop was limited to the ETA only and not all access areas as recommended by the Council.

reducing overall scallop fishing effort. It should be noted that sea scallop EFH is not considered adversely affected by dredge or otter trawl fishing effort.

Table 121 includes a description of measures implemented by the Council in last major FMP amendments to minimize, mitigate or avoid adverse impacts on EFH.

In Amendment 13 to the Multispecies FMP and Framework 16 to the Scallop FMP, the New England Council implemented a range of measures to minimize the impacts of bottom trawling in the Gulf of Maine, Georges Bank and Southern New England. In addition to the significant reductions in days-at-sea and some gear modifications, the Council closed 2,811 square nautical miles to bottom-tending mobile fishing gear (known as Habitat Closed Areas). See Table 121 for a description of the actions implemented in recent Council actions that act to minimize, mitigate or avoid impacts on EFH that are more than minimal and less than temporary in nature.

Although on August 2, 2005, the portions of Framework 16 that modify the habitat closures established by Amendment were vacated by a court order, measures to minimize adverse effects of gear used in the scallop fishery that adversely affect EFH above the threshold allowed by law remain in effect due to the regulations promulgated as a result of Amendment 13 to the Northeast Multispecies FMP. It should be noted that the Amendment 13 and the Framework 16 habitat closure boundaries are exactly the same and are both Level 3 closures.

Because Framework 19 does not propose any changes to the current measures to minimize the adverse impacts of scallop fishing on EFH that were previously established, no additional measures are needed at this time. Additionally, most measures proposed in this action are expected to have neutral to positive impacts on EFH.

**Table 121. Description of measures implemented by Council in last major FMP amendments to minimize, mitigate or avoid adverse impacts on EFH.**

Measure	Source FMP (implemented by)	Description	Description of Habitat Impacts	Overall Habitat Impact
<b>CLOSED AREA MEASURES</b>				
<b>Mortality Closure</b>	Multispecies	Retention of existing groundfish closed areas in the Gulf of Maine, George's Bank and Southern New England. Addition of Cashes as a year round closure	Year-round closures provide habitat benefits to the areas within the closures. The addition of Cashes Ledge as a year-round closure will benefit EFH. Rare kelp beds are found in that area.	+
<b>Habitat Closed Areas (MPAs)</b>	Multispecies and Scallop	2811 square nautical miles closed to bottom-tending mobile gear indefinitely in five separate closed areas in GOM, GB and SNE.	Significant benefits to EFH by minimizing adverse effects of bottom trawling, scallop dredging and hydraulic clam dredging by prohibiting use.	+
Rotational Area Management (RAM)	Scallop	Amendment 10 implemented a rotational area management strategy which introduced a systematic structure that determines where vessels can fish and for how long. Framework adjustments will consider closure and re-opening criteria.	Expected to have positive effects on habitat because effort on gravelly sand sediment types is expected to decline. In general, swept area is expected to decline in most of the projected scenarios (especially in the Mid-Atlantic region), which could have positive impacts on EFH.	+
Habitat Closed Areas (MPAs)	Monkfish	Amendment 2 closed Oceanographer and Lydonia Canyons to trawls and gillnets on a monkfish DAS.	Precautionary action taken to ensure that any expansion of the monkfish fishery as a result of the other measures in Amendment 2 will not affect sensitive deep-sea canyon habitats for which EFH is designated.	+
<b>EFFORT REDUCTION MEASURES</b>				
<b>Monkfish DAS usage by limited access permit holders in scallops and multispecies fisheries</b>	Monkfish	Retain current requirement for vessels to use both monkfish DAS and scallop or multispecies DAS simultaneously	This alternative relies on the scallop and multispecies management plans to set DAS levels (with the exception of when DAS fall below 40 DAS). As DAS have been reduced by management actions over the past two years, consequent impacts on habitat by the directed monkfish fishery have been reduced proportionally. Further reductions are possible depending on management actions in these two plans.	+
<b>Capacity</b>	Multispecies	DAS can be transferred with restrictions	Any measure that is intended to reduce the amount of time fishing	+

Measure	Source FMP (implemented by)	Description	Description of Habitat Impacts	Overall Habitat Impact
<b>Control</b>		and new measures for “reserve days”	by mobile gear will likely have benefits to EFH. These measures reduce amount of latent effort as well.	
<b>DAS Reductions</b>	Multispecies	Mix of adaptive and phased effort reduction strategies. A days (60% of effective effort) B days (40% of effective effort) C days (FY01 allocation). Provides opportunity to fish on stocks that do not need rebuilding.	Reducing DAS will likely benefit EFH by reducing the amount of time vessels can fish.	+
<b>DAS Limits</b>	Scallops	Amendment 10 implemented a new program that allocates specific number of DAS for open areas and controlled access areas.	The total DAS allocation in open areas is significantly less than the Status quo DAS allocation. Less DAS translates into less fishing effort, so positive for EFH. Furthermore, CPUE in controlled access areas is expected to be greater, thus the gear is expected to spend less time on the bottom.	+
<b>Possession Limits</b>	Scallops	Reduced possession limit for limited access vessels fishing outside of scallop DAS	Vessels with limited access permits are currently allowed to possess and land up to 400 lbs per trip of shucked scallop meats when not required to use allocated DAS; this measure will reduce possession limit to 40 lbs/trip) and reduce fishing effort by vessels that have been targeting scallops under the higher general category possession limit. Scallops harvested under this provision cannot be sold.	+
<b>GEAR MODIFICATION MEASURES</b>				
<b>Minimum mesh size on directed MF DAS</b>	Monkfish	Mobile gear vessels are required to use either 10-inch square or 12-inch diamond mesh in the codend. Gillnets must be at least 10 inches	The mesh size regulations do not have a direct effect on habitat, but may indirectly minimize adverse effects of the fishery on complex bottom types by reducing the ability to catch groundfish, and therefore the incentive to target those fish in hard bottom areas.	+
<b>Roller gear restriction</b>	Monkfish	Establishes maximum roller gear diameter size for vessels fishing on a monkfish DAS.	Positive but not significant – sets maximum roller gear diameter equivalent to size currently in use in the area; prevents expansion of trawl effort into complex bottom areas and canyons.	+
<b>Four inch rings</b>	Scallop	Increase ring size on scallop dredge rig to 4” everywhere.	Four inch rings will slightly increase dredge efficiency for larger scallops, thus reducing bottom contact time in recently-opened areas where large scallops are abundant, but will reduce catch rates and increase bottom time in areas where medium-small sized scallops are prevalent.	+

Measure	Source FMP (implemented by)	Description	Description of Habitat Impacts	Overall Habitat Impact
<b>OTHER MEASURES</b>				
<b>Observer Coverage</b>	Multispecies	10% requested by 2006 for each gear type	If observers are able to collect data of interest to EFH management, increased coverage could indirectly benefit habitat.	<b>+</b>
<b>TAC Set-Aside for research</b>	Scallop	2% set-aside from TAC and/or DAS allocations to fund scallop and habitat research and surveys	Could indirectly benefit habitat when habitat research is funded and provides better information for future management decisions.	<b>+</b>

### **Protected Species**

Before 2001, there were only three known interactions between sea turtles and scallop dredge gear (NMFS, 2007). By 2001, scallop fishing intensity in the Mid-Atlantic region increased following a general decline of scallop biomass in the Georges Bank region and closure of the groundfish Closed Areas in December 1994. Since turtle interactions in the high use areas and seasons are in part related to fishing effort, sea turtles may have benefited from reductions of fishing effort allocations in Amendments 4 and 7 to the Scallop FMP. During this time, DAS use declined from more than 40,000 DAS in 1993 to about 23,000 DAS in 1999, before increasing to about 31,000 DAS, in 2003 (NEFMC, 2005). The amendments and intervening framework adjustments also made other management changes, including new gear restrictions, although the effect of these changes on sea turtle interactions is unknown.

The extent of interactions between fishing with scallop dredges and sea turtles is still under investigation. Following the opening of the Hudson Canyon Access Area and increased observer coverage in the area, additional interactions between sea turtles and scallop dredge gear became known. New research is continuing to identify additional gear modifications and changes in fishing that could reduce interactions in the fishery.

The main goal of Amendment 10 to the Scallop FMP was to focus scallop fishing effort in areas where biomass is greatest with the rationale that actual fishing time is likely to be reduced as the overall catch per tow increases. Scallop management areas have been monitored through annual scallop surveys for scallop biomass and growth rates. When biomass in a closed area is high and the growth rates decline (i.e. the scallop resources are at maximum levels in the area) areas open to fishing at a controlled level. Conversely, closings occur when the reverse situation occurs (low biomass and high growth rate indicating a depleted scallop resource in the area). While Scallop Amendment 11 continued this management program, its purpose was to control capacity and mortality in the general category scallop fishery.

Certain general statements can be made regarding areas in the scallop management unit. Shifts in scallop effort from the Mid-Atlantic region to areas of Georges Bank may have had the effect of reducing potential risks to sea turtles. As the Georges Bank scallop resource is reduced and the Mid-Atlantic areas rebound a reverse shift in effort from an area of low use for turtles, to a high use areas in the Mid-Atlantic may potentially increase the risk of interactions from current levels. Accordingly, impacts to protected species could shift back and forth over the years under the management scheme implemented under Amendment 10. Since modifications to NEFMC management actions will occur through framework adjustments and plan amendments, they will undergo additional review to assess impacts to protected species.

The most recent Biological Opinion for the sea scallop fishery, dated 9/18/2006, summarized the overall impacts to threatened and endangered species. It concluded that the fishing operations being carried out under the Scallop FMP and as modified by Framework 18 were likely to adversely affect, but not jeopardize the continued existence of loggerhead, leatherback, Kemp's ridley and green sea turtles.

The alternatives under consideration in this action do not appear to have any adverse cumulative effects on protected species that would alter the prognosis for impacts of fishing under Amendment 10 and Framework Adjustment 18, although there are other sources of human-induced mortality and/or harassment of turtles in the action area. These include incidental takes in state-regulated fishing activities, vessel collisions, ingestion of plastic debris, and pollution. While the combination of these activities may affect populations of endangered and threatened sea turtles, preventing or slowing a species' recovery, the magnitude of these effects is currently unknown.

*State Water Fisheries* - Fishing activities are considered one of the most significant causes of death and serious injury for sea turtles. A 1990 National Research Council report estimated that 550 to 5,500 sea turtles (juvenile and adult loggerheads and Kemp's ridleys) die each year from all other fishing activities besides shrimp fishing. Fishing gear in state waters, including bottom trawls, gillnets, trap/pot gear, and pound nets, take sea turtles each year. However, information on the takes is limited. Given that state managed commercial and recreational fisheries along the Atlantic coast are expected to continue within the action area in the foreseeable future, additional takes of sea turtles in these fisheries is anticipated.

*Vessel Interactions* – NOAA Fisheries STSSN data indicate that interactions with small recreational vessels are responsible for a large number of sea turtles stranded each year within the action area. Collision with boats can stun or easily kill sea turtles, and many stranded turtles have obvious propeller or collision marks.

*Pollution and Contaminants* - Marine debris (*e.g.*, discarded fishing line or lines from boats) can entangle turtles in the water and drown them. Turtles commonly ingest plastic or mistake debris for food. Chemical contaminants may also have an effect on sea turtle reproduction and survival. While the effects of contaminants on turtles is relatively unclear, pollution may be linked to the fibropapilloma virus that kills many turtles each year (NOAA Fisheries 1997). If pollution is not the causal agent, it may make sea turtles more susceptible to disease by weakening their immune systems. Excessive turbidity due to coastal development and/or construction sites could influence sea turtle foraging ability. As mentioned previously, turtles are not very easily affected by changes in water quality or increased suspended sediments, but if these alterations make habitat less suitable for turtles and hinder their capability to forage, eventually they would tend to leave or avoid these less desirable areas (Ruben and Morreale 1999).

*Low and Mid-frequency Sonar* – See Section 5.7.5.

The factors discussed above, and other factors, potentially have had cumulative adverse effects on most protected species to varying degrees. Because of a lack of cause-effect data, little is known about the magnitude and scope of these factors and how they have contributed to the species' listing.

A number of activities are in progress that may ameliorate some of the negative impacts on marine resources, sea turtles in particular, posed by the activities summarized above. Education and outreach are considered one of the primary tools to reduce the risk of collision represented by the operation of federal, private, and commercial vessels.

NMFS' regulations require fishermen to handle sea turtles in such a manner as to prevent injury. Any sea turtle taken incidentally during fishing or scientific research activities must be handled with due care to prevent injury to live specimens, observed for activity, and returned to the water according to a series of procedures (50 CFR 223.206(d)(1)). NMFS has been active in public outreach efforts to educate fishermen regarding sea turtle handling and resuscitation techniques. NMFS has also developed a recreational fishing brochure that outlines what to do should a sea turtle be hooked and includes recommended sea turtle conservation measures. These outreach efforts will continue in an attempt to increase the survival of protected species through education on proper release guidelines.

There is an extensive network of STSSN participants along the Atlantic and Gulf of Mexico coasts. This network not only collects data on dead sea turtles but also rescues and rehabilitates live stranded turtles. Data collected are used to monitor stranding levels and identify areas where unusual or elevated mortality is occurring. The data are also used to monitor incidence of disease, study toxicology and contaminants, and conduct genetic studies to determine population structure. All states that participate in the STSSN are collecting tissue for genetic studies to better understand the population dynamics of the northern subpopulation of nesting loggerheads. These states also tag live turtles when encountered through the stranding network or in-water studies. Tagging studies help provide an understanding of sea turtle movements, longevity, and reproductive patterns, all of which contribute to our ability to reach recovery goals for the species.

There is no organized formal program for at-sea disentanglement of sea turtles. However, recommendations for such programs are being considered by NMFS pursuant to conservation recommendations issued with several recent Section 7 consultations. Entangled sea turtles found at sea in recent years have been disentangled by STSSN members, the whale disentanglement team, the USCG, and fishermen. NMFS has developed a wheelhouse card to educate fishermen and recreational boaters on the sea turtle disentanglement network and disentanglement guidelines.

Actions taken to protect sea turtles include a Strategy for Sea Turtle Conservation and Recovery in Relation to Atlantic Ocean and Gulf of Mexico Fisheries (Sea Turtle Strategy), released by NMFS in June 2001, to address the incidental capture of sea turtle species in state and federal fisheries in the Atlantic and Gulf of Mexico. The major elements to the strategic plan include: continuing and improving stock assessments; improving and refining estimation techniques for the takes of sea turtles to ensure that ESA criteria for recovery are being met; continuing and improving the estimation or categorization of sea turtle bycatch by gear type and fishery; evaluating the significance of incidental takes by gear type; convening specialist groups to prepare take reduction plans for gear types with significant takes; and promulgating ESA and MSFCMA regulations implementing plans developed for take reduction by gear type. Actions taken under the Sea Turtle Strategy are expected to provide a net benefit to sea turtles.

In February 2003, NMFS issued a final rule to amend regulations protecting sea turtles to enhance their effectiveness in reducing sea turtle mortality resulting from shrimp trawling in the Atlantic and Gulf areas of the southeastern U.S. TEDs have proven to be effective at excluding

sea turtles from shrimp trawls; however, NMFS has determined that modifications to the design of TEDS needed to be made to exclude leatherbacks and large and mature loggerhead and green sea turtles. In addition, several approved TED designs did not function properly under normal fishing conditions. NMFS disallowed these TEDs. Finally, the rule requires modification to the trawl net and bait shrimp exemptions to the TED requirements to decrease mortality of sea turtles (68 FR 8456, 21 Feb 2003).

Significant measures have been taken to reduce sea turtle takes in summer flounder trawls and trawls that meet the definition of summer flounder trawls, which would include fisheries for species like scup and black sea bass, by requiring TEDs in trawl nets fished in the area of greatest turtle bycatch off the North Carolina and part of the Virginia coast from the North Carolina/South Carolina border to Cape Charles, VA. These measures are attributed to significantly reducing turtle deaths in the area (NMFS, 2007). In addition, NMFS issued a final rule (67 FR 56931), effective September 3, 2002, that closes the waters of Pamlico Sound, NC to fishing with gillnets with a mesh size larger than 4 1/4 inch (10.8 cm) stretched mesh ("large-mesh gillnet"), on a seasonal basis from September 1 through December 15 each year, to protect migrating sea turtles. The closed area includes all inshore waters of Pamlico Sound south of 35° 46.3' N. lat., north of 35° 00' N. lat., and east of 76° 30' W. long.

In December 2003, NMFS issued new regulations for the use of gillnets with larger than 8 inch stretched mesh in federal waters off of North Carolina and Virginia (67 FR 71895, 3 Dec. 2002). Gillnets with larger than 8 inch stretched mesh are not allowed in federal waters (3-200 nautical miles) north of the North Carolina/South Carolina border at the coast to Oregon Inlet at all times; north of Oregon Inlet to Currituck Beach Light, NC from March 16 through January 14; north of Currituck Beach Light, NC to Wachapreague Inlet, VA from April 1 through January 14; and, north of Wachapreague Inlet, VA to Chincoteague, VA from April 16 through January 14. Federal waters north of Chincoteague, VA are not affected by these new restrictions although NMFS is looking at additional information to determine whether expansion of the restrictions are necessary to protect sea turtles as they move into northern mid-Atlantic and New England waters. These measures are in addition to Harbor Porpoise Take Reduction Plan measures that prohibit the use of large-mesh gillnets in southern mid-Atlantic waters (territorial and federal waters from Delaware through North Carolina out to 72° 30' W longitude) from February 15-March 15, annually.

In May 2004, the agency issued regulations prohibiting the use of all pound net leaders, set with the inland end of the leader greater than 10 horizontal ft (3 m) from the mean low water line, from May 6 to July 15 each year in the Virginia waters of the mainstem Chesapeake Bay, south of 37° 19.0' N. lat. and west of 76° 13.0' W. long., and all waters south of 37° 13.0' N. lat. to the Chesapeake Bay Bridge Tunnel at the mouth of the Chesapeake Bay, and the James and York Rivers downstream of the first bridge in each tributary. Outside this area, the prohibition of leaders with greater than or equal to 12 inches (30.5 cm) stretched mesh and leaders with stringers, as established by the June 17, 2002 interim final rule, will apply from May 6 to July 15 each year. The action, taken under the ESA, is necessary to conserve sea turtles listed as threatened or endangered. NMFS also provides an exception to the prohibition on incidental take of threatened sea turtles for those who comply with the rule (69 FR 24997, 5 May 2004).

In July 2004, NMFS issued sea turtle bycatch and bycatch mortality mitigation measures for all Atlantic vessels that have pelagic longline gear onboard and that have been issued, or are required to have, Federal HMS limited access permits, consistent with the requirements of the ESA, the MSFCMA, and other domestic laws. These measures include mandatory circle hook and bait requirements, and mandatory possession and use of sea turtle release equipment to reduce bycatch mortality. This final rule also allows vessels with pelagic longline gear onboard that have been issued, or are required to have, Federal HMS limited access permits to fish in the Northeast Distant Closed Area, if they possess and/or use certain circle hooks and baits, sea turtle release equipment, and comply with specified sea turtle handling and release protocols (69 FR 40733, 6 Jul 2004).

More recently, NMFS has published a final rule (70 FR 42508, July 25, 2005) that allows any agent or employee of NMFS, the FWS, the U.S. Coast Guard, or any other Federal land or water management agency, or any agent or employee of a state agency responsible for fish and wildlife, when acting in the course of his or her official duties, to take endangered sea turtles encountered in the marine environment if such taking is necessary to aid a sick, injured, or entangled endangered sea turtle, or dispose of a dead endangered sea turtle, or salvage a dead endangered sea turtle that may be useful for scientific or educational purposes. NMFS already affords the same protection to sea turtles listed as threatened under the ESA (50 CFR 223.206(b)).

In 2006, NMFS finalized a rule (71 FR 50361, August 23, 2006) that requires modification of scallop dredge gear by use of a chain mat when the gear is fished in Mid-Atlantic waters south of 49 9.0'N from the shoreline to the outer boundary of the EEZ during the period May 1 through November 30 each year. The intent of the dredge gear modification is to reduce the severity of some turtle interactions that might occur by preventing turtles from entering the dredge bag.

On February 15, 2007 the agency also issued an advance notice of proposed rulemaking to announce it is considering amendments to the regulatory requirements for turtle excluder devices (TEDs). Among other issues, specific changes include increasing the size of the TED escape opening currently required for sea scallop trawl gear and moving the current northern boundary of the Summer Flounder Fishery-Sea Turtle Protection Area off Cape Charles, Virginia to a point farther north. The objective of the proposed measures is to effectively protect all life stages and species of sea turtle in Atlantic trawl fisheries where they are vulnerable to incidental capture and mortality.

### **Fishery-related Businesses and Communities**

All actions taken under the Scallop FMP have had effects on fishery-related businesses and communities. None have specifically been developed to primarily address elements of fishing related businesses and communities. In general, actions that prevent overfishing have long-term benefits on businesses and communities that depend on those resources. Some actions that limit participation, such as the limited entry program that was adopted under Amendment 4 had distributional impacts on individuals and ports that participated in the scallop fishery at that time. While short-term negative impacts may follow an action that reduces effort, past and present actions had positive cumulative impacts on vessels owners, crew and their families in the scallop

fishery by increasing their fishing revenues, incomes and standard of living. These impacts of these past and present actions were also positive for the related sectors including dealers, processors, primary suppliers to the vessels that sell them gear, engines, boats, etc. The increases in gross profits for scallop vessels and in crew incomes have had positive economic benefits on these sectors indirectly through the multiplier impacts. Total landings have increased, catch per unit of effort has increased, and price has steadily increased as well.

The Passamaquoddy Native American Tribe has been awarded licenses in the State of Maine to harvest scallops in state waters since 1998. Since this is a state fishery, the state of Maine monitors these landings. However, the impact of this fishery on the overall scallop resource is minimal because the size of the fleet is small relative to the scallop fleet managed under this FMP.

**Table 122 – Summary of effects from past and present actions**

Action	Description	Impacts on Scallops	Impacts on Physical Env. and EFH	Impacts on Protected Species	Impacts on Fishery and Communities
<b>SCALLOP ACTIONS</b>					
Scallop FMP	Restore adult scallop stock and reduce fluctuation in stock abundance	Positive	Positive	Positive	Positive
Amendment 4	Changed the primary management mechanism from the meat-count standard to an effort control program for all resource areas	Positive	Positive	Positive	Positive
Amendment 10	Implement area rotation program and other measures to prevent overfishing and minimize impacts on EFH	Positive	Positive	Positive	Positive
Framework 18	Set management measures for FY2006 and FY2007	Positive	Neutral	Neutral	Positive
Amendment 13	Implement the industry funded observer program	Positive	Neutral	Positive	Neutral
Framework 20	Implement measure to reducing effort in January and February of 2007	Positive	Neutral	Neutral	Positive
SBRM Amendment	Implement a bycatch reporting methodology	Potentially Neutral	No Impact	Potentially Positive	Potentially Neutral
<b>SUMMARY OF IMPACTS FROM SCALLOP ACTIONS-</b>		<b>Positive</b>	<b>Positive</b>	<b>Positive</b>	<b>Positive</b>
<b>PHYSICAL ENVIRONMENT AND EFH ACTIONS</b>					
EFH Omnibus Amendment (1998)	Comply with 1996 SFA to describe and identify EFH and minimize impacts of fishing on EFH	Positive	Positive	Neutral	Neutral
A13/A10 (Table 121 for details)	Gear effects evaluation, minimize adverse impacts	Positive	Positive	Neutral	Negative
<b>SUMMARY OF IMPACTS FROM PHYSICAL ENV/EFH ACTIONS –</b>		<b>Positive</b>	<b>Positive</b>	<b>Neutral</b>	<b>Neutral/Negative</b>
<b>PROTECTED RESOURCES ACTIONS</b>					
Chain mat rule	Gear modification to address turtle bycatch in the Mid-Atlantic	Neutral	Neutral	Positive	Low Negative
<b>FISHERY AND COMMUNITY ACTIONS</b>					
No Specific Actions	N/A	N/A	N/A	N/A	N/A
<b>SUMMARY OF IMPACTS OF ALL PAST AND PRESENT ACTIONS ON EACH VEC</b>		<b>Positive</b>	<b>Positive</b>	<b>Positive/Neutral</b>	<b>Positive/Neutral</b>

*P = Past action/impact*

*Pr = Presently occurring action/impact*

#### **5.7.4.2 Reasonably Foreseeable Future Actions**

The impacts of reasonably foreseeable future actions have been considered relative to the VECs in this amendment and are described below and presented in Table 123. Overall, the impacts associated with reasonably foreseeable future actions to the VECs considered in this assessment are neutral and/or considered to be insignificant, as most impacts cannot be predicted at this time.

##### ***Scallop Resource***

Several reasonably foreseeable future federal fishery management actions may affect the scallop resource. In general, the actions in the foreseeable future are expected to have positive impacts on the scallop resource overall.

- Amendment 11 to the Scallop FMP

The Council recently approved Amendment 11 to the Scallop FMP (June 2007) and it is expected to be implemented in late 2007 or early 2008. The main objective of the action was to control capacity and mortality in the general category scallop fishery. Since 1999, there has been considerable growth in fishing effort and landings by vessels with general category permits, primarily as a result of resource recovery and higher scallop prices. This additional effort is likely a contributing factor to why the FMP has been exceeding the fishing mortality targets. Without additional controls on the general category fishery, there is a great deal of uncertainty with respect to potential fishing mortality from this component of the scallop fishery; thus, the potential for overfishing is increased.

If approved by NMFS, the proposed action includes a limited entry program for the general category fishery. Each qualifying vessel would receive an individual allocation in pounds of scallop meat with a possession limit of 400 pounds. Qualifying vessels would receive a total allocation of 5% of the total projected scallop catch. The proposed action also includes a separate limited entry program for general category fishing in the Northern Gulf of Maine. In addition, Amendment 11 includes adjustments to limited access scallop fishing under general category rules. Another separate limited entry program for that activity is proposed with the same qualification criteria as the limited entry general category permit. Qualifying vessels will also receive an individual allocation in pounds, and the entire category will receive 0.5% of the total projected scallop catch. In addition, a separate limited entry incidental catch permit is proposed that will permit vessels to land and sell up to 40 pounds of scallop meat per trip while fishing for other species. Other measures are recommended as well.

##### ***Physical Environment and EFH***

In the spring of 2003, the New England Council initiated a Habitat Omnibus Amendment that will be considered Amendment 14 to the Atlantic Scallop FMP. It will also amend the Northeast Multispecies (Amendment 14), Monkfish (Amendment 4), Herring (Amendment 3) Skate (Amendment 2), Red Crab (Amendment 3) and Atlantic Salmon (Amendment 3) FMPs. This omnibus amendment will fulfill the five year EFH review and revision requirement specified in 50 CFR Section 600.815(a)(10). Although it is not known at this time how the recommendations might change fisheries or fisheries management, the intention is to provide additional habitat and species protection where it is needed. Phase 1 of the EFH Omnibus has been substantially

completed by the Council and includes new EFH designations for all species and life stages under management by the NEFMC, designation (but no management restrictions) of several habitat areas of particular concern (HAPC), an evaluation of the major prey species for species in the NEFMC fishery management units (FMU) and an evaluation of the potential impacts of non-fishing activities on EFH. Although the Council has completed Phase 1, the document and corresponding actions will not be submitted for implementation (and, therefore, no Record of Decision will be filed) until the completion of Phase 2 sometime in 2008. The potential exists for changes to the current suite of management measures to minimize adverse impacts on EFH (see Table 121) and/or additional measures to be implemented. The public will have the opportunity to comment on a combined Phase 1/Phase 2 document before final decisions are made by the Council.

### ***Protected Species***

NMFS recognizes that the specific nature of the interaction between sea turtles and scallop dredge gear remains unknown. The scallop dredge may strike sea turtles as it is fished, and this interaction would remain undocumented. Sea turtles could be taken when the dredge is being fished on the bottom or during haulback. NMFS does not know how the modified gear interacts with sea turtles on the bottom and in the water column. In order to understand the interaction, research is currently being conducted and is expected to continue. This work may provide more information on the interaction between sea turtles and scallop dredge gear in the water.

### ***Fishery-related Businesses and Communities***

There are no reasonably foreseeable future federal fishery management actions in addition to the ones listed under the scallop resource section above that are expected to have cumulative effects on fishery-related businesses and communities.

**Table 123 – Summary of effects from reasonably foreseeable future actions**

Action	Description	Impacts on Scallops	Impacts on Physical Env. and EFH	Impacts on Protected Species	Impacts on Fishery and Communities
<b>Scallop Actions</b>					
Amendment 11	Control capacity in the general category fishery through a limited entry program and other measures	Neutral to positive	Neutral to positive	Neutral to potentially positive	Neutral/ potentially positive
<b>SUMMARY OF IMPACTS FROM SCALLOP ACTIONS-</b>		<b>Neutral to Positive</b>	<b>Neutral to positive</b>	<b>Neutral to potentially positive</b>	<b>Neutral/ potentially positive</b>
<b>Physical Environment and EFH Actions</b>					
Phase I EFH Omnibus	Review EFH designations, consider HAPC alternatives, describe prey species, evaluate non-fishing impacts	Positive	Positive	Neutral	Neutral
Phase II EFH Omnibus	Review gear effects and minimize adverse impacts	Potentially positive	Positive	Neutral	Potentially positive or negative
<b>SUMMARY OF IMPACTS FROM PHYSICAL ENV/EFH ACTIONS –</b>		<b>Positive</b>	<b>Positive</b>	<b>Neutral</b>	<b>Neutral</b>
<b>Protected Resources Actions</b>					
Sea turtle strategy	NMFS program to address incidental capture of turtles in state and federal fisheries	No Impact	No Impact	Positive	Low Negative
Atlantic take reduction team	Requirements to reduce interaction with marine mammals	No Impact	No Impact	Positive	Low Negative
<b>SUMMARY OF IMPACTS FROM PROTECTED RESOURCES ACTIONS</b>		<b>No Impact</b>	<b>No Impact</b>	<b>Positive</b>	<b>Low Negative</b>
<b>Fishery Community Actions</b>					
No Specific Actions	N/A	N/A	N/A	N/A	N/A
<b>SUMMARY OF IMPACTS OF ALL PAST AND PRESENT ACTIONS ON EACH VEC</b>		<b>Potentially Positive</b>	<b>Neutral/ Potentially Positive</b>	<b>Neutral/ Potentially Positive</b>	<b>Neutral</b>

### 5.7.5 Non-fishing impacts

The impacts of the following non-fishing activities are discussed in relation to scallop EFH in Section 4.2 of this document. Although they are presented in relation to the physical environment and EFH, the non-fishing impacts relate to all VECs identified in this amendment and are considered in this analysis (Table 124). Other non-fishing impacts that are important for consideration are also discussed below. The non-fishing impacts discussed in this section include:

- Vessel operations and marine transportation;
- Dredge and fill activities;
- Pollution/water quality;
- Agricultural and silvicultural/timber harvest runoff;
- Pesticide application;
- Water intake structures/discharge plumes;
- Loss of coastal wetland;

- Road building and maintenance;
- Flood control/shoreline stabilization;
- Utility lines/cables/pipeline installation;
- Oil and gas exploration/development/production;
- Introduction of exotic species;
- Aquaculture operations;
- Marine mining; and
- Other potential sources.

**Low and mid-frequency sonar** may pose an additional threat to protected species. According to the June 2006 National Marine Fisheries Service's Biological Opinion (BO), issued under Section 7(a)(2) of the Endangered Species Act, regarding the effects of the U.S. Navy's proposed 2006 Rim of the Pacific Naval Exercise and the Permits, Education and Conservation Division's proposal to issue an incidental harassment authorization (IHA) for exercises associated with endangered and threatened species, acoustic systems are becoming increasingly implicated in marine mammal strandings. Citing the Joint Interim Report on the Bahamas Marine Mammal Stranding Event of 15–16 March 2000, DOC and the Department of the Navy (DON), 2001, the document discusses that mass strandings in particular have been linked to mid-frequency sonar.

Summarizing various theories associated with the impacts of low and mid-frequency sonar, the BO states that marine mammals become disoriented or that the sound forces them to surface too quickly, which may cause symptoms similar to decompression sickness, or that they are physically injured by the sound pressure. The biological mechanisms for effects that lead to strandings must be determined through scientific research, according to the NMFS document, which also provides an extensive overview of the issue. The Biological Opinion, the IHA permit issued on July 2006 and other related documents are available through NMFS at <http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>.

More recent information on the impacts of low and mid-frequency sonar is provided in a request from the U.S. Navy for an authorization under the Marine Mammal Protection Act (MMPA) to take marine mammals by harassment, incidental to conducting operations of Surveillance Towed Array Sensor System (SURTASS) Low Frequency Active (LFA) sonar over a five-year period (72 FR 37404, July 9, 2007).

Federal legislation being debated in Congress could override a lawsuit settlement agreement and exempt the military from the “harassment” provisions of the MMPA, easing the restrictions that now limit the deployment of low frequency sonar by the U.S. Navy.

The **National Offshore Aquaculture Act** is proposed to provide the necessary authority to the Secretary of Commerce to establish and implement a regulatory system for aquaculture in Federal waters. The bill would: authorize the Secretary to issue offshore aquaculture permits and establish environmental requirements where existing requirements under current law are inadequate; exempt permitted offshore aquaculture from legal definitions of fishing that restrict size, season, and harvest methods; authorize the establishment of a research and development

program in support of offshore aquaculture; require the Secretary to work with other Federal agencies to develop and implement a streamlined and coordinated permitting process for aquaculture in the EEZ; authorize to be appropriated “such sums as may be necessary” to carry out this Act; and provide enforcement for the Act.

In addition, one way the United States plans to meet its present and future energy demands is through the importation of **Liquefied Natural Gas (LNG)**. Currently, the United States has four onshore LNG import terminals in coastal port areas: Everett, Massachusetts, Cove Point, Maryland, Elba Island, Georgia, and Lake Charles, Louisiana. These four existing import terminals have been around since the 1970s. There is an additional onshore import facility located in Penuelas, Puerto Rico. This facility began importing liquefied natural gas in August 2000.

Due to potential hazards associated with onshore LNG terminals, many state and local governments have opposed the construction of any new onshore LNG terminals. For example, there have been numerous proposals for onshore LNG terminals along the coast of Maine. Most of these proposals (Harpwell, Hope Island, Cousins Island, Sears Island, and Pleasant Point) have either been rejected by local voters or withdrawn. Most opponents to onshore LNG terminals maintain that LNG is unsafe, harms the environment, and disrupts commercial fishing. Companies, like ChevronTexaco and Shell, are now moving towards developing LNG terminals offshore on the outer continental shelf.

In April 2005, Gulf Gateway Energy Bridge (formerly known as El Paso Energy Bridge) became the world’s first offshore LNG terminal to begin operation. Gulf Gateway is located 116 miles offshore of the Louisiana coastline. To date, including Gulf Gateway, there are three offshore LNG projects that have been approved. These three LNG terminals are all located in the Gulf of Mexico. Port Pelican’s (ChevronTexaco) proposed site is located thirty-six miles off the Louisiana coastline, while Gulf Landing’s (Shell) is located thirty-eight miles offshore of Louisiana.

Nationally, seven proposed offshore LNG terminals are currently under review, including a potential terminal to be built offshore of Gloucester, Massachusetts. The other projects under review include: Cabrillo Port (fourteen miles offshore of Ventura County, California), Clearwater Port (fourteen miles offshore of southern California), Main Pass Energy Hub (offshore of Alabama, Louisiana, and Mississippi), Compass Port (offshore of Alabama and Mississippi), Pearl Crossing (forty-one miles offshore of Louisiana), and Beacon Port (offshore of Louisiana). The application for the proposed offshore LNG terminal off the coast of Gloucester (Gateway and Neptune projects) have been approved.

The two primary effects on the commercial and recreational fishing industries from offshore LNG terminals are the indirect impacts of displaced fishing effort and the potential for adverse impacts on fish stocks resulting from adverse impacts on EFH due to the vaporization process, where LNG is converted from a liquid to gaseous state. The degree to which the scallop fishery in particular may be impacted can not be fully understood until an LNG terminal has completed the siting process. However, a recent EIS filed by the U.S. Coast Guard and the Maritime Administration on the Main Pass Energy Hub plan indicates that the “open-loop” vaporization

process, which pushes seawater through a radiator-type structure that warms and vaporizes the super-cooled LNG and discharges that water back into the sea, would affect fish eggs and larvae as well as other zooplankton and phytoplankton. The resulting impacts are limited to the water discharge plumes, and while no firm data on the size of such plumes have been provided, the report states that the effects will not be serious or long lasting. The report concludes that none of the potential impacts on EFH would be expected to result in population-level impacts or a reduction in biomass for any stocks.

According to preliminary documents filed with the U.S. Coast Guard and the Federal Energy Regulatory Commission, displacement of fishing effort would be limited to a less than one nautical mile radius circle that would be closed to all fishing and recreational activities during the offloading of LNG. Additionally, a security zone of less than one quarter of a nautical mile would be maintained around the LNG tankers as they transit to and from the offload facility. While these closures may displace a limited amount of fishing effort, the total amount of fishable bottom impacted is expected to be minimal, and the effort displaced would not likely have an adverse impact on neighboring, or any other, fishing areas.

Onshore LNG facilities are currently being proposed or planned for construction in Pleasant Point, ME; Somerset, MA; Providence, RI; Long Island Sound, NY; Logan Township, NJ; Philadelphia, PA; and an expansion of an existing facility in Cove Point, MD.

Depending on the specific location and type of LNG facility, a range of impacts to fisheries and/or fisheries habitat may result from both construction and operation of terminals. Due to the large size of LNG tankers, dredging may need to occur to access onshore terminals. Dredging can result in direct loss of fish and/or shellfish habitat and can elevate levels of suspended sediment within the water column. As with other dredging, suspended sediments can impact various life stages of fish and shellfish. Further, the construction of pipelines and fill associated with site construction can have adverse impacts on inter-tidal habitats and salt marshes in the area.

Although only two **offshore wind energy projects** have formally been proposed in the northeast region, at least 20 other separate projects may be proposed in the near future. Cape Wind Associates (CWA) proposes to construct a wind farm on Horseshoe Shoal, located between Cape Cod and Nantucket in Nantucket Sound, Massachusetts. A second project is proposed by the Long Island Power Authority (LIPA) off of Long Island, New York. The CWA project would have 130 wind turbines located as close as 4.1 miles offshore of Cape Cod in an area of approximately 24 square miles, with the turbines being placed at a minimum of 1/3 mile apart. The turbines will be interconnected by cables, which will relay the energy to shore to the power grid. If approved, vessels from southern New England may experience an increase in costs associated with having to steam around the wind farms on their way to and from fishing grounds on Georges Bank.

The Army Corps of Engineers has developed a DEIS and has completed a scoping process for the proposed Cape Wind Associates (CWA) project on Horseshoe Shoal. If constructed, the turbines would preempt other bottom uses in an area similar to oil and natural gas leases. The potential impacts associated with the CWA offshore wind energy project include the

construction, operation and removal of turbine platforms and transmission cables; thermal and vibration impacts; and changes to species assemblages within the area from the introduction of vertical structures. A thorough analysis of the effects of these impacts on fishing has not yet been conducted, but data indicate that there would not be a substantial impact on the scallop fishery as there is little scallop fishing activity in this area. While EFH may be adversely impacted in the vicinity of the wind turbines, the extent of this proposal is not sufficient to have any population-level impacts on resource biomass or health.

Non-fishing activities pose a risk to EFH for all species as well as to each scallop life stage's EFH. Many of the non-fishing impacts are unquantifiable, but are likely negative. In general, the greatest potential for adverse impacts to scallops and scallop EFH occurs in close proximity to the coast where human-induced disturbances, like pollution and dredging activities, are occurring. Because inshore and coastal areas support essential egg, larval and juvenile scallop habitats, it is likely that the potential threats to inshore and coastal habitats are of greater importance to the species than threats to offshore habitats. It is also likely that these inshore activities will continue to grow in importance in the future. Activities of concern include: chemical threats; sewage; changes in water temperature, salinity and dissolved oxygen; suspended sediment and activities that involve dredging and the disposal of dredged material.

Impacts of non-fishing activities on all the VECs that were considered in this EIS were evaluated to be low to moderately negative.

**Table 124 – Summary of effects from non-fishing activities**

Action	Description	Impacts on Scallops	Impacts on Physical Env and EFH	Impacts on Protected Species	Impacts on Fishery and Communities
P, Pr, RFFA Vessel operations, marine transportation	Expansion of port facilities, vessel operations and recreational marinas	<b>No Impact at Site</b>	<b>Potentially Negative Inshore</b> – may lead to destruction of habitat	<b>Negative at Site</b> – inshore species impacted by reduced water quality and haul out activity	<b>Potentially Negative</b> if loss of fishing opportunities occur
P, Pr, RFFA Beach nourishment, dredge and fill activities	Offshore mining of sand for beaches Placement of sand to nourish beach shorelines	<b>Negative at Site</b> – entrainment, sedimentation and turbidity impacts to fish in area in and around borrow site  <b>Negative at Site</b> – may displace fish, remove benthic prey and increase mortality of early life stages	<b>Negative at Site</b> – may lead to destruction of habitat in and around borrow site  <b>Negative at Site</b> – may result in burial of structures that serve as foraging or shelter sites	<b>Negative at Site</b> – mining activity increases noise and reduces water quality  <b>Negative at Site</b> – turtles susceptible to impacts from beach nourishment	<b>Negative at Site</b> – potential loss of fishing opportunities  <b>Positive at Site</b> – restoration of an eroding shore may protect or restore recreational beaches
P, Pr, RFFA Pollution/water quality	Land runoff, precipitation, atmospheric deposition, seepage, or hydrologic modification Point-source discharges	<b>Negative at Site</b> – impacts primarily inshore	<b>Negative at Site</b> – impacts primarily inshore, leads to destruction of habitat and EFH	<b>Negative at Site</b> – inshore species impacted by impaired biological food chain and poor water quality due to nutrient loading	<b>Negative at Site</b> – potential loss of fishing opportunities, human health issues
P, Pr, RFFA Agriculture and timber harvest runoff	Nutrients applied to agriculture land are introduced into aquatic systems	<b>Negative at Site</b> – impacts primarily inshore	<b>Negative at Site</b> – impacts primarily inshore, leads to destruction of habitat	<b>Negative at Site</b> – inshore species impacted by impaired biological food chain and poor water quality due to nutrient loading	<b>Negative at Site</b> – potential loss of fishing opportunities
P, Pr, RFFA Pesticide application	Substances that are designed to repel, kill, or regulate the growth of undesirable biological organisms	<b>Negative at Site</b> – impacts primarily inshore	<b>Negative at Site</b> – impacts primarily inshore, leads to destruction of habitat and EFH	<b>Negative at Site</b> – inshore species impacted by impaired biological food chain and poor water quality due to nutrient loading	<b>Negative at Site</b> – potential loss of fishing opportunities, human health issues
P, Pr, RFFA Water intake structures/ discharge plumes	Withdrawal of estuarine and marine waters by water intake structures	<b>No Impact</b>	<b>Potentially Low Negative at Site</b> - discharge plumes may affect local oceanographic conditions	<b>Negative at Site</b> – intake structures can entrap protected species	<b>No Impact</b>

Action	Description	Impacts on Scallops	Impacts on Physical Env and EFH	Impacts on Protected Species	Impacts on Fishery and Communities
P, Pr, RFFA Loss of coastal wetland	Urban growth and development Development activities within watersheds and in coastal marine areas	<b>Potentially Low Negative at Site</b> – may result in habitat degradation	<b>Potentially Low Negative at Site</b> – may result in habitat degradation	<b>Negative at Site</b> – results in habitat loss for fish species that represent prey items and may result on habitat degradation potentially affecting nesting sites	<b>Potentially Low Negative at Site</b> – may result in biomass declines if spawning, health, or mortality are affected
P, Pr, RFFA Road building and maintenance	Paved and dirt roads Poorly surfaced roads can substantially increase surface erosion	<b>Potentially negative</b> – no data	<b>Potentially negative</b> – no data	<b>Potentially negative</b> – no data	<b>Potentially negative</b> – no data
P, Pr, RFFA Flood control/shoreline stabilization	Protection of riverine and estuarine communities from flooding events Dikes, levees, ditches, or other water controls	<b>Potentially negative</b> – no data	<b>Potentially negative</b> – no data	<b>Potentially negative</b> – no data	<b>Potentially negative</b> – no data
P, Pr, RFFA Utility lines/cables/ pipeline installation	Dredging of wetlands, coastal, port and harbor areas for port maintenance	<b>Negative at Site</b> – impacts primarily inshore	<b>Negative at Site</b> – impacts primarily inshore, leads to destruction of habitat	<b>Negative at Site</b> – dredging activity increases noise and may lead to mortality or injury of protected species	<b>Negative</b> – potential loss of fishing opportunities
P, Pr, RFFA Oil and gas exploration/development	General exploration and development, as well as hydrocarbon spills associated with the transportation, loading and offloading of oil and gas products	<b>Potentially negative</b> – no data	<b>Potentially negative</b> – no data	<b>Potentially negative</b> – no data	<b>Potentially negative</b> – no data
P, Pr, RFFA Exotic Species	Introduction of non-indigenous and reared species	<b>Potentially Negative</b> - while no direct evidence exists, it is likely that invasive species may affect overall ecosystem health and the biomass of marketable species	<b>Potentially Negative</b> - exotic species (ex., tunicates) found to adversely impact EFH and displace marketable and forage species	<b>Potentially Negative</b> - ecosystem effects of non-native species	<b>Potentially Negative</b> - while no direct evidence exists, it is likely that invasive species may affect overall ecosystem health and the biomass of marketable species
P, Pr, RFFA Marine Mining	Offshore mining as well the mining of gravel from beaches	<b>Potentially negative</b> – no data	<b>Potentially negative</b> – no data	<b>Potentially negative</b> – no data	<b>Potentially negative</b> – no data
P, Pr, RFFA Low and mid-Frequency Sonar	Used in military exercises; considered a potential source of serious injury and mortality	<b>Potentially negative</b> – may negatively impact species in immediate vicinity of exercises using sonar	<b>No impact</b>	<b>Potentially Negative</b> - literature documents cetacean mortalities in vicinity of exercises using sonar	<b>Potentially negative</b> – potential loss of fishing opportunities, but exercises related to national security
RFFA National Offshore	Legislation would grant	<b>Potentially negative</b> - may	<b>Potentially negative</b> -	<b>Potentially negative</b> -	<b>Potentially neutral</b> -may be

Aquaculture Act of 2005 (currently proposed)	DOC authority to issue permits for offshore aquaculture in federal waters	negatively impact species by reducing water quality near aquaculture sites	may negatively impact habitat by reducing water quality near aquaculture sites	may be negative if activities result in interactions with protected species	positive for communities near sites; negative if prices of commercially harvested fish are impacted
<sup>RFFA</sup> Liquefied Natural Gas (LNG) terminals - several LNG terminals are proposed, including RI, NY, NJ and DE (w/in 5 years)	Transportation of natural gas via tanker to terminals located offshore and onshore	<b>Potentially Negative</b> — short-term disruption of habitat during construction could negatively impact organisms	<b>Negative</b> - habitat negatively impacted during construction phase and when vessels anchor to offload gas	<b>Negative</b> – may disrupt protected species during construction through increased noise and poor water quality	<b>Negative</b> - security zones around LNG facilities restrict access to fishing areas Positive – location of LNG facilities offshore may protect or improve communities
<sup>RFFA</sup> Offshore Wind Energy Facilities - several facilities proposed from ME through NC, including off the coast of NY/NJ and VA (w/in 5 years)	Construction of wind turbines to harness electrical power	<b>Potentially Negative</b> — short-term disruption of habitat during construction could negatively impact organisms	<b>Negative</b> – habitat negatively impacted during construction phase	<b>Potentially Negative</b> — may disrupt protected species during construction through increased noise and poor water quality	<b>Negative</b> – if fishing activity is precluded in area where turbines are located Negative – aesthetic impacts <b>Positive</b> – renewable clean energy resource
<b>SUMMARY OF IMPACTS OF NON-FISHING ACTIVITIES – Overall, impacts are variable but greatest on the physical environment and EFH, but found to be low to moderately adverse; lack of data precludes more in-depth analysis of impacts on other VECs</b>		<b>Potentially Negative</b>	<b>Potentially Negative</b>	<b>Potentially negative</b>	<b>Potentially Negative</b>

### 5.7.6 Cumulative Effects Analysis

Below is a description of the expected cumulative effects of the measures under consideration for Framework 19. First is a summary paragraph related to the direct and indirect impacts on each VEC. This description is based on the information provided in Table 125, a summary of the direct and indirect impacts of the measures under consideration on each VEC (scallop resource, EFH, protected resource, fishery related businesses and communities and other fisheries). The proposed action is highlighted in that table in grey.

For each VEC, there is also a summary paragraph describing the cumulative effects of the measures under consideration in terms of how the past, present and reasonably foreseeable future actions impact each VEC, as well as non-fishing activities and direct/indirect impacts of Framework 19. This discussion for each VEC is based on information summarized in previous sections and tables on the past, present, and reasonably foreseeable future actions, non-fishing impacts, and direct and indirect impacts of Framework 19. Lastly, Section 5.7.6.1 is a summary of the cumulative effects of the proposed action only, in terms of the magnitude and extent of cumulative impacts on a VEC-by-VEC basis in combination with other actions (past, present, and reasonably foreseeable future actions) as well as the effects from non-fishing actions.

#### *Scallop Resource*

##### Summary of direct and indirect impacts on the scallop resource

In general, most alternatives under consideration have neutral to positive indirect/direct impacts on the scallop resource when compared to the No Action. Projected exploitable biomass is similar overall when comparing the various scenarios, but does vary by area. Biomass in open areas is lowest under alternatives that close the Channel and the No Action alternative. Compared to the No Action alternative, the proposed action (PREF) has higher LPUE averages for both open and access areas for both years; thus, lower impacts for the higher yield. Access in Elephant Trunk and Delmarva under the preferred alternative is expected to have beneficial impacts on the resource by maximizing yield and reducing effort in areas with lower biomass (open areas). The prohibition on deckloading may have beneficial impacts on the scallop resource by reducing non-harvest mortality. In general the measures for general category vessels related to Framework 19 are expected to have positive to neutral impacts on the scallop resource.

Revising the overfishing definition is expected to have positive impacts on the scallop resource. The new model is less biased, uses more sources of data, and is an improvement to the previous model. Maintaining the fishing mortality target of  $F=0.20$  is also expected to have positive impacts on the scallop resource by reducing the risk of overfishing and establishing measures to achieve optimum yield on a continuing basis. In addition, closing the Hudson Canyon area in this action will help the FMP achieve optimum yield by reducing mortality on small scallops. The specific impacts on the scallop resource resources from each of the proposed measures are described within Section 5.1.

##### Summary of cumulative effects on the scallop resource

**Overall, the cumulative effects on the scallop resource are neutral to positive.** In terms of past and present actions such as the Scallop FMP, Amendment 4, and Amendment 10, there have

been positive effects on the scallop resource. Other past EFH actions and actions in other FMPs have had neutral or positive effects as well (Table 122). In terms of reasonably foreseeable future actions, Amendment 11 is expected to have positive impacts on the scallop resource. There are also several EFH, protected resources and other fishery-related actions that are expected to have either no impact or potentially positive impacts. Therefore, the overall effects of reasonably foreseeable future actions on the scallop resource are potentially positive (Table 123). In addition, the effects of non-fishing activities on the scallop resource are mostly potentially negative (See Table 124). Lastly, the direct and indirect effects of the measures under consideration in Framework 19 are expected to have positive to neutral impacts on the scallop resource (Table 125). Thus, when the direct and indirect effects of the alternatives are considered in combination with all other actions (*i.e.*, past, present, and reasonably foreseeable future actions), the cumulative effects on the scallop resource are likely to be neutral to positive.

### ***Physical Environment / EFH***

#### **Summary of direct and indirect impacts on EFH**

In general, most alternatives under consideration have neutral indirect/direct impacts on EFH when compared to the No Action. Although scallop dredges have been shown to be associated with adverse impacts to some types of bottom habitat (NEFMC 2003), relative to the No Action Alternative this action does not propose to increase current levels of fishing activity in the U.S. EEZ. Several measures contained in this action reduce fishing effort overall and target that reduced effort on highly productive scallop bottom, reducing area swept and adverse impacts to designated EFH. No measure contained in this Framework is likely to increase adverse impacts to areas designated EFH relative to the No Action alternative, and the net impact is likely to be neutral to marginally positive. The specific impacts on EFH from each of the proposed measures are described within Section 5.2.

The overall habitat impacts of all the measures combined in this proposed action have minimal net effects. Relative to the baseline habitat protections established under Amendment 10 to the Atlantic Sea Scallop FMP, those impacts are negligible, and relative to the No Action alternative, those impacts are marginally positive. Therefore, measures to further mitigate or minimize adverse effects on EFH are not necessary.

#### **Summary of cumulative effects on EFH**

**Overall, the cumulative effects on the physical environment/EFH are neutral to positive.** In terms of past and present actions such as the Scallop FMP, Amendment 4, and Amendment 10, there have been positive effects on EFH. Other past EFH actions and actions in other FMPs have had mostly positive effects as well (Table 122). In terms of reasonably foreseeable future actions, there are several EFH actions that may have potentially positive effects on EFH. In addition, there are several reasonably foreseeable future scallop and other fishery-related actions that are expected to have no impact on EFH. Therefore, the overall effects of reasonably foreseeable future actions on EFH are neutral to potentially positive (Table 123). In addition, the effects of non-fishing activities on EFH are negative (See Table 124). Lastly, the direct and indirect effects of the measures under consideration in Framework 19 are expected to have mostly neutral impacts on EFH (Table 203). Thus, when the direct and indirect effects of the alternatives are considered in combination with all other actions (*i.e.*, past, present, and

reasonably foreseeable future actions), the cumulative effects on the physical environment/EFH are likely to be neutral to positive.

### ***Protected Resources***

#### Summary of direct and indirect impacts on protected resources

Most alternatives under consideration in Framework 19 have neutral or potentially positive indirect/direct impacts on threatened and endangered sea turtles when compared to No Action. The specifications for 2008 and 2009 considered less DAS than in 2007 so cumulative impacts for those measures are expected to be positive relative to the baseline. Access trips generally result in overall effort reductions and at best could be positive relative to turtle interactions because of reduced area swept. The impact of new rotational areas is generally positive, with the exception of the SCH area which could result in effort shifts to the Mid-Atlantic and greater areas swept scenarios.

Measures related to Amendment 11 for the transition period --- the cost recovery program, the NGOM hard TAC and incidental catch mortality --- have little or no impacts on protected sea turtles. Hard TACs for the general category fishery are most likely neutral because they are based on historical fishing patterns. Similarly crew restrictions, the deckloading prohibition, set-asides and the overfishing definition are not likely to have any measurable effects on sea turtles populations.

The specific impacts on protected resources from each of the proposed measures are described within Section 5.3.

#### Summary of cumulative effects on protected resources

Sea turtles, have been, are, and will continue to be, negatively impacted by a variety of past, present, and reasonably foreseeable future activities which may be affecting the recovery of the species. The extent to which this may be happening cannot be quantified at this time but is potentially negative. As noted above, however, the measures presented in this action are unlikely to alter the impacts that occur as a result of both fishing and non-fishing activities but may positively impact some currently negative effects by instituting a limited access management program. **Overall, the cumulative effects on protected resources are neutral to potentially positive.**

In terms of past and present actions, there have been positive to neutral effects on protected resources (Table 122). In terms of reasonably foreseeable future actions, there are several protected resource related actions that may have positive effects on protected resources. In addition, there are several reasonably foreseeable future scallop and other fishery-related actions that are expected to have potentially positive impacts on protected resources. The activities that are negatively impacting sea turtles will continue to be addressed through fishery management plans as well as by the agency to ensure sea turtles are protected. One of the goals of NMFS's Sea Turtle Strategy is to develop and implement plans to reduce takes of sea turtles in Atlantic Ocean and Gulf of Mexico fisheries. Implementation of these plans will have a net beneficial impact on sea turtle species. NMFS also intends to continue outreach efforts to educate fishermen regarding sea turtles. Future anticipated research will likely enhance knowledge

concerning the nature of the interactions between sea turtles and sea scallop dredge gear, potentially leading to the implementation of alternative management measures that may confer benefits to animals in areas where overlap with the fishery occurs. Therefore, the overall effects of reasonably foreseeable future actions on protected resources are neutral to potentially positive (Table 123). In addition, the effects of non-fishing activities on protected resources are potentially negative (See Table 124). Lastly, the direct and indirect effects of the measures under consideration in Framework 19 are expected to have mostly neutral impacts on protected resources (Table 125). Thus, when the direct and indirect effects of the alternatives are considered in combination with other actions (*i.e.*, past, present, and reasonably foreseeable future actions), the cumulative effects on protected resource are likely to be neutral to potentially positive.

### ***Fishery-Related Businesses and Communities***

Most alternatives under consideration in Framework 19 have neutral or potentially positive impacts on fishery related businesses and communities compared to No Action. The aggregate economic impacts of the proposed measures and other alternatives including revising the order of Georges Bank access area schedule, Elephant Trunk and Delmarva access area allocations, Hudson canyon area closure, open area DAS allocations and TAC for the general category fishery are analyzed in Section 5.4.2 relative no action. The combined impacts of the proposed area rotation measures are expected to be positive on fishery related businesses and communities. Overall fleet revenues are estimated to increase by 3.7% on the average compared to no action during 2008-2009 fishing years (Section 5.4.2.2). The impacts on the net revenue and vessel profits will be also positive with a 2.1% increase in 2008 and 6% increase in 2008. The long-term impacts of the proposed measures on scallop fleet revenues are profits are expected to be positive as well (section 5.4.2.3) The economic impacts of the proposed alternative will also be positive for the general category limited access fishery since the total general category TAC will be higher with the preferred alternative compared to the no action alternative. Other measures proposed by Framework 19, such as 5% allocation for general category vessels for access areas, improvements to the observer program, 30-day VMS power down provision, hard-TAC allocation for vessels with a limited entry NGOM permit and adjustments when yellowtail flounder catches reach 10% TAC limit are expected to provide additional positive impacts by providing vessels the opportunity to reduce fishing costs and increase revenues from scallop fishing. Therefore, direct and indirect impacts of the proposed measures and alternatives are expected to be positive on fishery related businesses and their communities compared to No Action.

#### Summary of cumulative effects on fishery-related businesses and communities

**Overall, the cumulative effects on the fishery-related businesses and communities are neutral to potentially positive.** In terms of past and present actions such as the Scallop FMP, Amendment 4, and Amendment 10, there have been positive effects on the scallop fishing community. Other past EFH actions and actions in other FMPs have had neutral or low negative effects (Table 122). In terms of reasonably foreseeable future actions, there are several scallop related actions that are expected to have positive impacts overall. There are also several EFH, protected resources and other fishery-related actions that are expected to have potentially positive or low negative impacts on fishery-related businesses and communities. Therefore, the

overall effects of reasonably foreseeable future actions on the fishery-related businesses and communities are neutral (Table 123). In addition, the effects of non-fishing activities on the fishery-related businesses and communities are mostly potentially negative (See Table 124). Lastly, the direct and indirect effects of the measures under consideration in Framework 19 are expected to have neutral to potentially positive impacts on the fishery-related businesses and communities overall (Table 203). Thus, when the direct and indirect effects of the alternatives are considered in combination with other actions (*i.e.*, past, present, and reasonably foreseeable future actions), the cumulative effects on fishery-related businesses and communities are likely to be neutral to potentially positive.

**Table 125 – Cumulative effects of alternatives under consideration on the four Framework 19 VECs (proposed action is shaded)**

<b>Section</b>	<b>Alternative Name</b>	<b>Scallop Resource</b>	<b>Phys. Env / EFH</b>	<b>Protected Resources</b>	<b>Fishery related businesses and communities</b>
<b>2.3</b>	<b>MEASURES FOR LIMITED ACCESS VESSELS</b>				
<b>2.3.1</b>	<b>Access area management measures on Georges Bank</b>				
2.3.1.1	Allocations				
2.3.1.1.1	Alternative 1 – Revise order of Georges Bank Access Area (GBA) openings	Positive	Low positive	Neutral	Positive
2.3.1.2	Adjustments when yellowtail (YT) flounder catches reach 10% TAC limit (No Action)	Neutral	Neutral depending on where effort shifts	Neutral to potentially low negative	Low positive
<b>2.3.2</b>	<b>Hudson Canyon Access Area</b>				
2.3.2.1	No Action	Low positive	Neutral	Neutral	Neutral to potentially low negative
2.3.2.2	Extend the duration of the Hudson Canyon Area program until May 31, 2008	Low negative	Neutral	Potentially negative	Potentially low positive in the short-term, low negative over the long-term.
<b>2.3.3</b>	<b>Elephant Trunk Access Area</b>				
2.3.3.2.1	Seasonal Closure (No Action)	Low positive	No impact	Neutral	Low positive to Low negative
2.3.3.2.2	Remove seasonal closure	Low negative	No impact	Neutral	Low positive to Low negative
2.3.3.3	Procedure to reduce trips in FY2009	Positive	Potentially positive	Potentially positive	Potentially positive over the long-term
<b>2.3.4</b>	<b>Delmarva Access Area</b>				
2.3.4.1	No Action	Potentially low negative	Potentially low negative	Neutral	Potentially low negative
2.3.4.2	Early Delmarva Reopening	Low positive	Low positive	Potentially positive	Positive

2.3.4.2.2.1	Seasonal closure	Low positive	No impact	Neutral	Low positive to Low negative
2.3.4.2.2.2	No seasonal closure	Low negative	No impact	Neutral	Low positive to Low negative
2.3.4.2.3	Procedure to reduce trips in FY2009	Positive	Potentially positive	Potentially positive	Potentially positive over the long-term
2.3.5	<b>Other Access Area Measures</b>				
2.3.5.1	<b>Crew Restriction</b>				
2.3.5.1.1	No Action	Neutral to potentially negative	Neutral	No impact	Potentially positive
2.3.5.1.2	Reduce maximum crew size on limited access vessels on access area trips	Neutral to potentially positive	Neutral	No impact	Low negative
2.3.5.2	<b>Deckloading prohibition</b>				
2.3.5.2.1	No Action	Potentially negative	Neutral	No impact	Low positive
2.3.5.2.2	Prohibit all vessels from leaving any access area with more than 50 bushels of in-shell scallops	Low positive	Neutral	No impact	Low positive over the long-term
2.3.5.3	<b>TAC set-aside for observers (1%) and research (2%)</b>	Low positive	Low positive	Low positive	Low positive
2.3.6	<b>Open area allocations</b>				
2.3.6.1	<b>Allocations</b>	All scenarios considered less DAS than in FY2007, so positive compared to baseline	Positive compared to baseline	All scenarios considered less DAS than in FY2007, so positive compared to baseline	Positive combined with access area management and area closures when compared to no action
2.3.6.2	<b>DAS set-asides for observers (1%) or research (2%)</b>	Low positive	Low positive	Low positive	Low positive
2.4	<b>MEASURES FOR GENERAL CATEGORY VESSELS</b>				
2.4.1	<b>No action</b>				

2.4.1.1	<b>Quarterly hard TAC for transition period to limited entry</b>	Neutral	No impact	Neutral compared to baseline	Low positive
2.4.1.1.1	<b>Measures to reduce derby fishing during the transition period to limited entry</b>	Neutral	Neutral	Neutral to low positive	Low positive
2.4.1.2	<b>IFQ program for general category fishery</b>				
2.4.1.2.1	Cost Recovery Program	No impact	No impact	No impact	Low positive
2.4.1.2.1.1	No action	No impact	No impact	No impact	No impacts
2.4.1.2.1.2	IFQ shareholder directly pays	No impact	No impact	No impact	Low positive
2.4.1.2.1.3	IFQ shareholder pays via a federally permitted dealer	No impact	No impact	No impact	Low positive
2.4.1.3	<b>Northern Gulf of Maine Hard TAC</b>	Neutral	Neutral	No impact	Low positive
2.4.2	<b>Georges Bank Access Area Management</b>				
2.4.2.1	<b>General category allocations in access areas post-transition period</b>				
2.4.2.1.1	Five-percent for all areas	Neutral	Neutral	Neutral	Neutral
2.4.2.1.2	Five-percent for all access areas, but 0-percent for Closed Area II	Neutral	Neutral	Neutral	Low positive
2.4.2.1.3	Five-percent for all areas except Closed Area II would have a smaller allocation to account for SAP programs and some general category effort	Neutral	Neutral	Neutral	Low positive
<b>2.5</b>	<b>INCIDENTAL CATCH MORTALITY</b>	Low positive	No Impact	No impact	Low positive long-term
<b>2.6</b>	<b>OVERFISHING DEFINITION</b>				
2.6.1	No Action	Potentially low negative	No Impact	No impact	Potentially low negative
2.6.2	Biomass Reference Point	Positive	No Impact	No impact	Low Positive
2.6.3	Fishing mortality target	Positive	No Impact	No impact	Low Positive
<b>2.7</b>	<b>OBSERVER SET-ASIDE PROGRAM ADJUSTMENTS</b>				
2.7.1	<b>Assign a higher compensation rate for vessels fishing in open areas compared to access areas</b>	No impact	No Impact	No impact	Low positive
2.7.2	<b>Small adjustments to improve overall administration</b>	No impact	No Impact	No impact	Low positive
<b>2.8</b>	<b>NEW ROTATIONAL CLOSURES TO PROTECT SMALL SCALLOPS</b>				
2.8.1	<b>New rotational area in Hudson Canyon vicinity</b>				

2.8.1.1	No Action	Negative	Neutral	Potentially low negative if a closure would have reduced bottom time when fishery interactions are most likely to occur	Potentially low negative
2.8.1.2	Smaller Hudson Canyon area as new rotational area	Positive	Positive	Potentially low positive if bottom time is reduced when fishery interactions are most likely to occur	Potentially low positive
2.8.1.3	Larger Hudson Canyon area as new rotational area	Positive	Positive	Potentially low positive if bottom time is reduced when fishery interactions are most likely to occur	Potentially low negative short-term, low positive long-term
2.8.1.4	Current Hudson Canyon area as new rotational area (excluding ETA overlap)	Positive	Positive	Potentially low positive if bottom time is reduced when fishery interactions are most likely to occur	Potentially low positive when combined with other access area measures
2.8.2	<b>New rotational area in Great South Channel</b>				

2.8.2.1	No Action	Potentially positive <b>and</b> potentially negative	Neutral	Neutral	Neutral
2.8.2.2	New rotational area in the Channel north of Nantucket Lightship and west of Closed Area I	Positive	Low Positive	Potentially low negative	Potentially low positive
<b>2.9</b>	<b>OTHER MEASURES</b>				
2.9.1	<b>30-Day VMS power down</b>	No impact	No impact	No impact	Low positive
2.9.2	<b>Clarification on when a vessel can leave for an access area trip (No action)</b>	No impact	No impact	No impact	Low positive

### 5.7.6.1 Summary of Cumulative Effects of the proposed action

To determine the magnitude and extent of cumulative impacts of the proposed action, the incremental impacts of the direct and indirect impacts should be considered, on a VEC-by-VEC basis, in addition to the effects of all actions (those effects identified and discussed relative to the past, present, and reasonably foreseeable future actions of both fishing and non-fishing actions). In general, while the management measures proposed result in cumulative impacts in some cases, none of the impacts discussed indicate a potentially significant impact. Section 5.7.6 above summarizes the expected cumulative effects of the measures that were considered in this amendment; this section focuses on the proposed action.

**Overall, the cumulative effects of the proposed action are neutral to low positive.** Table 126 summarizes the cumulative effects of the proposed action relative to the past, present, and reasonably foreseeable future fishing and non-fishing actions for each of the VECs considered. In general, the impacts of the past, present, and reasonably foreseeable future actions on all of the VECs identified in this action are positive to neutral. There are several future actions that may have potential low negative or positive impacts, but overall the expected impacts are neutral. Furthermore, there are potentially negative impacts of non-fishing activities in this region on the various VECs identified. As for the direct and indirect impacts of the proposed action on each VEC, the overall impacts are expected to be positive to neutral.

**Table 126 – Summary of cumulative effects of the proposed action**

	<b>Scallop Resource</b>	<b>Physical Habitat/ EFH</b>	<b>Protected Resources</b>	<b>Fishery-Related Businesses and Communities</b>	<b>Summary of all VECs</b>
<b>Direct/Indirect Impacts of Proposed Action</b>	Neutral to positive	Neutral	Neutral or potentially positive	Neutral or Positive	Neutral to positive
<b>Past and Present Fishing Actions Impacts</b>	Neutral to positive	Positive	Neutral to positive	Low negative to positive	Neutral to positive
<b>Reasonably Foreseeable Future Fishing Actions Impacts</b>	Neutral to potentially positive	Neutral to potentially positive	Neutral - potentially positive	Low negative to positive	Low negative to potentially positive
<b>Non-Fishing Actions Impacts</b>	Potentially negative	Potentially negative	Potentially negative	Potentially negative	Potentially negative
<b>Cumulative Effects</b>	<b><i>Neutral to positive</i></b>	<b><i>Neutral to positive</i></b>	<b><i>Neutral to potentially positive</i></b>	<b><i>Neutral (some low negative and some positive)</i></b>	<b><i>Neutral to low positive</i></b>

## **6.0 COMPLIANCE WITH APPLICABLE LAW**

### **6.1 MAGNUSON-STEVENSON FISHERY CONSERVATIONS AND MANAGEMENT ACT**

#### **6.1.1 National standards**

Section 301 of the Magnuson-Stevens Fishery Conservation and Management Act requires that fishery management plans (FMPs) contain conservation and management measures that are consistent with the ten National Standards:

*(1) 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.*

This action revises the overfishing definition with new parameters based on results from the most recent stock assessment workshop (SAW 45, 2007). The assessment process used two assessment models: a size-structured forward-projecting assessment model (CASA) and the rescaled F approach that has been used in previous assessments. Overall results from the two models were similar, but the analysis indicated that the CASA model results were generally more accurate; the review panel recommended that these results be used for assessing the scallop resource. In general, the results were more precise and less biased. The Council adopted these new parameters and the overfishing definition is now based on outputs from the most accurate method available. See Section 2.6 for more details and Section 5.1.12 for a discussion of the impacts of this action on the scallop resource.

Since the Council approved new reference points and a modified overfishing definition to reflect the new parameters, the Council also considered whether the current fishing mortality target of  $F=0.20$  should be revisited. The Council chose to maintain the fishing mortality target at  $F=0.20$  to achieve optimum yield on a continuing basis. It was recognized that this target is conservative and may need to be revisited in the future, but currently there is concern for overfishing in open areas; this target will help maintain a stable fishery rather than maximizing individual catch on an annual basis. Setting the target fishing mortality rate at 0.20 is in recognition that fishing mortality is not uniformly distributed in the scallop fishery, but is prone to localized overfishing.

*(2) Conservation and management measures shall be based upon the best scientific information available.*

This document uses information of known quality from sources acceptable to the relevant scientific and technical communities. Several sources of data were used in the development of this document. These data sources include, but are not limited to: permit data, landings data from vessel trip reports, data from the dealer weighout purchase reports, scallop survey data, and data from at-sea observers. Although there are some limitations to the data used in the analysis, these data are considered to be the best available. In addition, the biological projections are based on the recently approved CASA model that is expected to generate more accurate results using a wide variety of data sources.

*(3) 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.*

Under the Atlantic Sea Scallop FMP, the target fishing mortality rate and stock biomass are applied to the scallop resource from NC to the US/Canada boundary. This encompasses the entire range of scallop stocks under Federal jurisdiction. See Section 4.1 for a description of the scallop resource.

*(4) 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 manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.*

The management measures proposed in this amendment do not discriminate between residents of different States. This action includes allocation measures, but they do not discriminate between vessels from various states. Limited access vessels are relatively mobile and are expected to fish in various access areas. Limited access vessels are permitted to trade access area trips with other vessels; therefore, if an area is far from their homeport and they do not want to fish in that area, they can trade for a trip closer to their homeport. In both 2008 and 2009, there are access areas in the Mid-Atlantic and Georges Bank. General category vessels are not allocated individual access into access areas; it is a fleetwide allocation of trips for that fishery. Thus, general category vessels can decide to participate in an access area program or not. Therefore, if a vessel is relatively small and cannot fish far offshore or travel great distances to fish in an access area, that vessel can fish in open areas.

*(5) 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.*

The Proposed Action should promote efficiency in the utilization of fishery resources by allocating effort in areas with higher catch rates. For example, catch per unit of effort is expected to be higher in access areas; therefore, since more effort is allocated in these areas than open areas under the proposed action, then vessels will spend less time, money and fuel on access area trips. In general, area rotation intends to maximize yield and reduce fishing impacts by allocating effort in areas with higher concentrations of scallops.

*(6) Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.*

The Proposed Action takes into account variations among and contingencies in fisheries, fishery resources, and catches. This action enhances the ability of the FMP to adapt to changing resource conditions. The access program is expected to allow the FMP to reduce fishing effort in open areas, increasing the scallop biomass in open areas, and potentially allowing the FMP greater flexibility to achieve optimum yield through rotational area management in the future. Additionally, the Council has included a procedure to reduce effort in Elephant Trunk and Delmarva access areas in 2009 if updated biomass estimates suggest that the resource in that area is lower than currently projected. Also, if updated estimated suggest that overall fishing

mortality estimates are above the overfishing threshold of 0.29, then less effort will be allocated in Elephant Trunk in 2009 to prevent overfishing and account for variations in the resource. See Sections 2.3.3.3 and 2.3.4.2.3 for details.

*(7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.*

The Council considered the costs and benefits associated with the Proposed Action when developing this amendment. The proposed action does not introduce any new measures that duplicate measures already in place. Area rotation and DAS controls were implemented in 1994; the full area rotation program was implemented in June 2004. Both these types of measures are necessary components of the FMP to achieve the annual mortality targets and prevent the stock from becoming overfished. The increase in the average size of scallops landed, a primary objective of both the FMP and the proposed actions, continues to be a major factor that minimizes harvesting costs. The management measures proposed in this amendment are not duplicative and were developed in close coordination with NMFS and the Mid-Atlantic Fishery Management Council.

*(8) 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 by utilizing economic and social data that meet the requirements of paragraph (2), in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.*

IN the Amendment 10 FSEIS, the characteristics and participation of fishing communities involved in the scallop fishery were discussed in Section 7.1.1.3, and the impacts of rotation area management were discussed in Section 8.8. This document includes an update of fishery and community information in Section 4.4. The economic and social impacts, which affect fishing communities, are analyzed and discussed in Sections 5.4 and 5.5. The proposed action will not change these impacts anticipated under Amendment 10, except that fishing communities near the proposed access areas will benefit from higher landings and economic activity, while fishing communities distant from these areas are likely to experience some adverse social impacts. The proposed action, however, is not expected to jeopardize the sustained participation of fishing communities that have depended on the scallop resource. The area rotation and DAS adjustments are expected to continue to ensure a healthy resource that will be able to support historical levels of participation by fishing communities.

*(9) 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.*

Bycatch in the scallop fishery has been greatly reduced and minimized by the success of the FMP to increase scallop biomass and reduce the amount of time fished on a DAS. The FMP has also implemented several gear restrictions that have successfully reduced bycatch. These effects are discussed in detail in Section 6.1.9 of the Amendment 10 FSEIS, and in related sections of that document.

Because the proposed action includes access to areas that are otherwise closed to achieve groundfish conservation, the proposed action in this framework adjustment includes several measures to minimize bycatch and to ensure groundfish mortality does not increase to a point that it would threaten the rebuilding prognosis for overfished groundfish. These measures include a precautionary TAC for yellowtail flounder (a species vulnerable to capture by scallop dredges), seasons for access (to avoid peak groundfish spawning months), and enhanced sea sampling made possible from the industry-funded observer program (to monitor and assess bycatch). In addition, the proposed action will continue the regulations to use a minimum 4-inch ring in scallop dredges and a 10-inch minimum twine top. The Amendment 10 analysis showed that both these measures would reduce finfish bycatch by reducing fishing time and allowing greater escapement of small finfish. Lastly, an amendment to the Scallop FMP is expected to be implemented this year that will bring the FMP in compliance with SBRM requirements. Section 4.5.1 of this document describes the SBRM amendment and what measures it is expected to implement.

A summary of the impacts of these measures are analyzed and described in Section 5.6. Skate bycatch is also analyzed and discussed in the skate baseline review (Section 6.1.3). Bycatch of protected species is analyzed in Section 5.3.

(10) *Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.*

Section 6.1.10 in the Amendment 10 FSEIS discusses the effect of current scallop management and of rotation area management on safety. This action does not propose any new measures that would change the findings in Amendment 10.

### **6.1.2 Other Required Provisions of the M-S Act**

Section 303 of the Magnuson-Stevens Fishery Conservation and Management Act contains 14 additional required provisions for FMPs, which are discussed below. Any FMP 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;*

Since the domestic scallop fishery is capable of catching and processing the allowable biological catch (ABC), there is no total allowable level of foreign fishing (TALFF) and foreign fishing on sea scallops is not permissible at this time.

(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;*

The fishery and fishery participants are described in detail in Section 7.1 of Amendment 10 to the Scallop FMP. Section 4.4 in this document describes the scallop permits by category as well as the active scallop vessels by permit type that could be affected by this action. The number of trips and average scallops landed per category are also included in that section as well.

- (3) *assess and specify the present and probable future condition of, and the maximum sustainable yield and optimum yield from, the fishery, and include a summary of the information utilized in making such specification;*

The present and probable future condition of the resource and estimates of MSY and OY are given in Section 8.2.2.2 of Amendment 10 to the Scallop FMP. Current domestic landings and processing capabilities are around 50 million lbs., while OY is around 45 million lbs. Total landings have been above that level in 2004-2006. Landings under this action are expected to be closer to 45-50 million lbs. in 2008 and 2009.

- (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;*

The US fishery is expected to harvest 100% of OY and domestic processors are expected to be able to process 100% of OY.

- (5) *specify the pertinent data which shall be submitted to the Secretary with respect to commercial, recreational, charter fishing, and fish processing 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, economic information necessary to meet the requirement and the estimated processing capacity of, and the actual processing capacity utilized by, United States fish processors;*

The FMP and existing regulations specify the type of reports and information that scallop vessel owners and scallop dealers must submit to NMFS. These data include, but are not limited to, the weight of target species and incidental catch which is landed, characteristics about the vessel and gear in use, the number of crew aboard the vessel, when and where the vessel fished, and other pertinent information about a scallop fishing trip. Dealers must report the weight of species landed by the vessel, the date of landing, and the ex-vessel price for each species and/or size grade. Important information about vessel characteristics, ownership, and location of operation is also required on scallop permit applications. Dealers are also surveyed for information about their processing capabilities.

All limited access scallop vessels and 1B general category scallop vessels are required to operate vessel monitoring system (VMS) equipment to record the location of the vessel for monitoring compliance with DAS regulations. An at-sea observer is also placed on scallop vessels at random to record more detailed information about the catch, including size frequency data, the quantity of discards by species, detailed gear data, and interactions with protected species.

- (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 action proposed in this amendment does not alter any adjustments made in the Scallop FMP that address opportunities for vessels that would otherwise be prevented from harvesting because of weather or other ocean conditions affecting the safe conduct of the fisheries. No consultation with the Coast Guard is required relative to this issue.

- (7) *describe and identify essential fish habitat for the fishery based on the guidelines established by the Secretary under section 305(b)(1)(A), minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat;*

Essential fish habitat was defined in earlier scallop actions. This amendment does not further address or modify those EFH definitions. There are no additional impacts to the physical environment or EFH expected from the action proposed in this amendment.

- (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;*

Data and research needs relative to the Atlantic sea scallop and its associated fisheries are described in Section 5.1.8 of Amendment 10. Other data, already collected include fishery dependent data described in Section 6.2.4 of Amendment 10 and fishery-independent resource surveys that provide an index of scallop abundance and biomass.

- (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; (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; and (C) the safety of human life at sea, including weather and to what extent such measures may affect the safety of participants in the fishery;*

The impacts of the scallop management program in general have been analyzed in previous scallop actions (Amendment 10, Framework 16 and Framework 18). Any additional impacts from measures proposed in this action on fishery participants are summarized in Sections 5.4 and 5.5. Safety in the scallop fishery was described in Section 8.1.5.6 of Amendment 10 and nothing proposed in this action will affect safety of human life at sea.

- (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;*

Overfishing reference points describing targets and thresholds for biomass and fishing mortality are presented and explained in Section 5.1.1 of Amendment 10. These reference points have been modified in this action based on the recent scallop stock assessment – See Section 2.6 for details. This action is designed to meet the fishing mortality target of 0.20, which is expected to prevent overfishing.

- (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;*

This action does not include changes to the current SBRM. Section 4.5.1 summarizes the current SBRM as well as new provisions of the recently approved SBRM Amendment. This methodology is expected to assess the amount and type of bycatch in the scallop fishery and help identify ways the fishery can minimize bycatch and mortality of bycatch which cannot be avoided. The scallop fishery also has an industry funded observer set-aside program that provides additional funding (portion of total scallop catch set-aside) to put observers on scallop vessels.

- (12) *assess the type and amount of fish caught and released alive during recreational fishing under catch and release fishery management programs and the mortality of such fish, and include conservation and management measures that, to the extent practicable, minimize mortality and ensure the extended survival of such fish;*

This Proposed Action does not address recreational fishing regulations.

- (13) *include a description of the commercial, recreational, and charter fishing sectors which participate in the fishery, including its economic impact, and, to the extent practicable, quantify trends in landings of the managed fishery resource by the commercial, recreational, and charter fishing sectors;*

A detailed description of the scallop fishery is included in Section 7.1 of Amendment 10 and Section 4.4 of this action. These sections provide information relative to scallop vessels, processors, and dealers.

(14) *to the extent that rebuilding plans or other conservation and management measures which reduce the overall harvest in a fishery are necessary, allocate, taking into consideration the economic impact of the harvest restrictions or recovery benefits on the fishery participants in each sector, any harvest restrictions or recovery benefits fairly and equitably among the commercial, recreational, and charter fishing sectors in the fishery and;*

This action does propose a reduction in total catch in the scallop fishery compared to recent years. However, over the long term the projected catch of 45-50 million pounds is above the average. The measures included in this action are expected to have long-term benefits for participating vessels, and the economic impacts on various sectors of the fishery have been considered. Section 5.5 is a detailed examination of the expected economic impacts of this action. Harvest from the Atlantic sea scallop fishery will continue to be reviewed, established, and analyzed through the biennial framework process. Recreational fishing for sea scallops is rare and does not affect the success of the FMP.

(15) *establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability.*

The proposed action includes catch limits for certain sectors of the scallop fishery, as well as effort controls for the rest of the fishery that is not under a direct TAC or quota. This action covers the next two fishing years and will be followed by another action that will set specifications for the next two fishing years. Measures have been set at the fishing mortality target of  $F=0.20$ , so overfishing is not expected to occur. Based on new Magnuson-Stevens Act requirements for annual catch limits etc., the Council plans to initiate a scallop amendment to implement annual catch limits by 2011, as required by the Act.

### **6.1.3 Skate Baseline Review**

The Skate FMP identified and characterized a baseline of management measures in other fisheries that provide additional conservation benefits to skate species. The FMP requires that if the Council initiates an action in another FMP that changes one or more of the baseline measures such that the change is likely to have an effect on the overall mortality for a species of skate in a formal rebuilding program, then a baseline review is required. It is important to point out that the skate baseline review is only required for skate species that are currently in a formal rebuilding program. Of the seven skate species managed under the Northeast Skate Complex FMP, only two species are in a formal rebuilding program: thorny and barndoor. Therefore, this baseline review will only evaluate the impacts of this framework action on the mortality rates of these two species.

A baseline review must be initiated if one of seven categories of management measures are changed which have been identified as beneficial for skates. The seven categories of management measures identified in the Skate FMP are: (i) NE Multispecies year-round closed areas; (ii) NE Multispecies DAS restrictions; (iii) Gillnet gear restrictions; (iv) Lobster restricted gear areas; (v) Gear restrictions for small mesh fisheries; (vi) Monkfish DAS restrictions for

monkfish-only permit holders; and (vii) Scallop DAS restrictions (See Section 4.1.6 of the Skate FMP for more details).

The purpose of Framework Adjustment 19 is to set specifications and allocations for the 2008 and 2009 fishing years, while making other management adjustments as necessary to achieve optimum yield. Framework 19 considered a host of measures, but only two technically trigger a skate baseline review. One measure includes the rotational access program on Georges Bank for fishing years 2008-2009. Since this program would allow limited access into portions of NE multispecies closed areas, a skate baseline review would normally be required. However, since this access program has already been approved under a previous scallop action (Framework 16/39 and Framework 18), the skate baseline review has already been conducted; therefore, no review is necessary based on this trigger. This action includes fewer trips on Georges Bank and does not include any modifications that would require further consideration for the skate baseline review.

This framework is considering a range of DAS allocation alternatives. Open area DAS allocations are estimated after the access area TACs are established in order to achieve the annual target mortality rate for the entire resource. If access area DAS increase, then open area DAS decrease, and vice versa. This framework considered a range of total open area DAS from 9,500 to 16,626 for 2008 and 15,300 to 22,500 for 2009 depending on which access areas are available (Table 127). The proposed alternative includes 11,410 open area DAS. The proposed action also includes five access area trips. However, DAS are not allocated for access areas, rather, a vessel is permitted to take a specific number of trips in a certain area. While DAS are not allocated in access areas, for the purposes of comparing total DAS for the skate baseline review a “DAS equivalent” has been calculated for access areas. For example, for the 5 allocated trips under the proposed action, each trip is assumed to equal an equivalent allocation of 12 open area DAS. Therefore, five trips multiplied by 12 DAS, and then multiplied by an equivalent of 326 full-time vessels equals 19,560 DAS for the preferred option.<sup>6</sup> Thus, adding the total allocated open area DAS (11,410) plus the DAS equivalent for access areas (19,560) equals about 30,970 DAS for access areas and open areas for the proposed action in 2008.

The framework projects that about 27,250 DAS will be used in 2008 and about 28,270 DAS in 2009. Since the proposed total allocated DAS for both FY2008 and FY2009 is below the baseline amount assessed in the Skate FMP of 34,000 DAS, the Skate PDT is not required to assess the potential impacts of Framework 19 in terms of the skate baseline review. There are other measures being implemented in this framework, but the impact of these measures on skate mortality is either non-existent or uncertain, and none of these measures fall within the list of seven categories of management measures that trigger a skate baseline review.

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<sup>6</sup> For Framework 19 analyses, an estimate of 326 has been used to represent 326 active full-time scallop vessels out of the 350 limited access scallop permit owners.

**Table 127 – Summary of allocated open area DAS and DAS equivalent for access areas for Framework 19 scenarios**

<b>2008</b>	<b># of access area trips</b>	<b>Individual open area DAS</b>	<b>Total Allocated Open Area DAS</b>	<b>DAS equivalent for access areas*</b>	<b>Total DAS equivalent allocated</b>
No Action	4	51	16,626	15,648	32,274
<b>Preferred</b>	<b>5</b>	<b>35</b>	<b>11,410</b>	<b>19,560</b>	<b>30,970</b>
Dmv 3	5	32	10,432	19,560	29,992
Dmv 2	5	32	10,432	19,560	29,992
HC-sm	5	30	9,780	19,560	29,340
HC-lar	5	29	9,454	19,560	29,014
Sch	5	50	16,300	19,560	35,860
Sch+HC	5	42	13,692	19,560	33,252
<b>2009</b>					
No Action	3	51	16,626	11,736	28,362
<b>Preferred</b>	<b>5</b>	<b>42</b>	<b>13,692</b>	<b>19,560</b>	<b>33,252</b>
Dmv 3	4	60	19,560	15,648	35,208
Dmv 2	5	48	15,648	19,560	35,208
HC-sm	5	47	15,322	19,560	34,882
HC-lar	5	47	15,322	19,560	34,882
Sch	5	69	22,494	19,560	42,054
Sch+HC	5	54	17,604	19,560	37,164

\* Note: Vessels are not allocated DAS in access areas; they are allocated a specific number of trips. These values represent a calculation of open area DAS equivalent based on the number of access area trips allocated. One 18,000 pound trip is assumed to equal 12 open area DAS.

## 6.1.4 EFH Assessment

This essential fish habitat (EFH) assessment is provided pursuant to 50 CFR 600.920(e) of the EFH Final Rule to initiate EFH consultation with the National Marine Fisheries Service.

### 6.1.4.1 Description of Action

In general, the activity described by this proposed action, fishing for sea scallops, occurs throughout the U.S. EEZ, from about the NC/VA border to the coastal portions of the Gulf of Maine in the north. The concentrations of sea scallops, and thus the majority of scallop fishing activity, however, occur within a narrow depth band in the Mid-Atlantic from about the 40-meter isobath out to the 100-meter isobath, throughout the Hudson Canyon area, and around the perimeter of Georges Bank, including the Great South Channel. Thus, the range of this activity occurs across the designated EFH of all Council-managed species (see Amendment 9 to the Atlantic Sea Scallop FMP for a list of species for which EFH was designated, the maps of the distribution of EFH, and descriptions of the characteristics that comprise the EFH). This activity also occurs across EFH designated by the Mid-Atlantic Council for species such as black sea bass, ocean quahog, scup, spiny dogfish, summer flounder, and tilefish (see the Dogfish, Surf clam and Ocean Quahog, Summer Flounder,

Scup and Black Sea Bass, and Tilefish FMPs for relevant information on the characteristics and distribution of EFH designated for these species). EFH designated for species managed under the Secretarial Highly Migratory Species FMPs are not affected by this action, nor is any EFH designated for species managed by the South Atlantic Council as all of the relevant species are pelagic and not directly affected by benthic habitat impacts.

Framework 19 recommends implementation of measures that set specifications for FY2008 and FY2009, measures related to Amendment 11 recommendations for the general category fishery, and several other measures related to issues that were raised during development of this action. The proposed action includes a new rotational area to protect small scallops. The Council recommends that the existing Hudson Canyon area be closed to all scallop fishing for at least FY2008 and FY2009 to allow the scallops in that area to grow for several years; the area will open when scallops are larger, producing more yield-per-recruit. The Council approved a new overfishing definition based on results from the recent scallop stock assessment (SAW 45) including a new biomass target and threshold, as well as a new fishing mortality threshold. The Council chose to maintain the fishing mortality target at  $F=0.20$ , so the overall strategy selected for specifications is expected to produce an average fishing mortality rate of  $F=0.20$  over the next two fishing years.

The proposed action includes closing the Hudson Canyon area for at least these two years to protect small scallops in this area, allocating one trip in Nantucket Lightship in 2008 for full-time limited access vessels, one trip in Closed Area II in 2009, 4 trips in Elephant Trunk in 2008, and three trips in Elephant Trunk in 2009. In addition, the Delmarva access area would open in 2009 for one trip. Full-time vessels are only permitted to take the maximum number of allocated trips per area. However, for part-time permits, a vessel may take 2 trips in ET in 2008, or one trip in ET and one in NL. Similarly, an occasional vessel may take either one access area trip in ET or NL in 2008, or in ET or CAII in 2009.

The proposed action allocates 35 open area DAS in 2008 and 42 DAS in 2009 for full-time permits. When all of these allocations are combined with the expected mortality from the general category fishery and other sources, the overall fishing mortality rate is expected to average  $F=0.20$  over the two year time period (with estimated rates of  $F=0.22$  in FY2008 and  $F=0.18$  in FY2009).

Table 128 lists the actions selected by the Council for implementation under Framework 19 to the Atlantic Sea Scallop FMP and their expected impacts on the physical environment and EFH.

**Table 128 - Summary of Impacts to Physical Environment and EFH of Proposed Action**

Measures	Physical Environment and EFH Impacts	Discussion
<b>Measures for limited access vessels</b>		
Georges Bank Access Area	0/+	Focuses fishing effort on spatially restricted area, minimizing bottom contact time and adverse impacts to designated EFH.
Hudson Canyon Access Area	0	Unused trips result in reductions in adverse impacts, but incentive to take trips rather than lose them will have opposite affect. Additional fishing pressure in this highly fished area is

Measures	Physical Environment and EFH Impacts	Discussion
		not, however, likely to have an adverse impact on designated EFH.
Elephant Trunk Access Area	0/+	Focuses fishing effort on spatially restricted area, minimizing bottom contact time and adverse impacts to designated EFH.
Delmarva Access Area	0/+	Focuses fishing effort on spatially restricted area, minimizing bottom contact time and adverse impacts to designated EFH.
Other restrictions related to access areas	0	Transfer of effort between trawls and dredges will be conservation neutral on the physical environment and EFH. As such, there would be no adverse impacts.
Open Area Allocations	0	Unlimited crew size may result in high grading with consequent increases in bottom contact time, but the incentives to participate in high grading are unclear. Prohibiting deck loading is not likely to impact bottom contact or designated EFH.
<b>Measures for General Category vessels</b>		
No Action	0	The quarterly hard TAC until ITQ program implemented, IFQ cost recovery program and northern GOM hard TAC will all be administrative in nature.
Georges Bank Access Area	0	This measure does not change fishing effort or spatial distribution appreciably and will have no impact on designated EFH.
Hudson Canyon	0/+	Closing this area will reduce overall bottom contact time with a marginal increase in benefits to designated EFH.
Elephant Trunk	0	This measure does not change fishing effort or special distribution appreciably and will have no impact on designated EFH.
Other restrictions for general category vessels in access areas	0	Prohibiting deck-loading is not likely to change fishing effort or bottom contact time appreciably.
<b>Incidental catch mortality</b>	0	The impacts of reduced TACs will be positive but extremely small.
<b>Overfishing definition</b>	0	Administrative.
<b>Observer set-aside improvements</b>	0	Administrative.
<b>Area closures to protect young scallops</b>	0	This measure may target fishing pressure on areas of higher abundance of larger scallops and therefore may result in reductions in bottom contact time; marginally reducing adverse impacts to areas designated EFH. The magnitude of this impact will likely be very small.
<b>Other measures</b>	0	Administrative.

#### 6.1.4.2 Potential adverse impacts on the action on EFH

Although scallop dredges have been shown to be associated with adverse impacts to some types of bottom habitat (NEFMC 2003), relative to the No Action Alternative this action does not propose to increase current levels of fishing activity in the U.S. EEZ. Several measures contained in this action reduce fishing effort overall and target that reduced effort on highly productive scallop bottom, reducing area swept and adverse impacts to designated EFH. No measure contained in this Framework is likely to increase adverse impacts to areas designated EFH relative to the No Action alternative, and the net impact is likely to be marginally positive.

#### **6.1.4.3 Proposed measures to avoid, minimize, or mitigate adverse impacts of this action**

The overall habitat impacts of all the measures combined in this action have minimal net effects. Relative to the baseline habitat protections established under Amendment 10 to the Atlantic Sea Scallop FMP, those impacts are negligible; relative to the No Action alternative, those impacts are marginally positive. Therefore, measures to further mitigate or minimize adverse effects on EFH are not necessary.

#### **6.1.4.4 Conclusions**

Section 5.7 (Cumulative Effects Analysis) demonstrates that the overall habitat impacts of all the measures combined in this action have marginally positive impacts on habitat relative to the No Action alternative. The action proposed under this amendment will have no more than a minimal adverse effect on EFH of federally managed species. Because there are no additional adverse impacts associated with this action, an abbreviated consultation may be the only required action.

## **6.2 NEPA**

NEPA provides a mechanism for identifying and evaluating the full spectrum of environmental issues associated with federal actions, and for considering a reasonable range of alternatives to avoid or minimize adverse environmental impacts. This document is designed to meet the requirements of both the M-S Act and NEPA. The Council on Environmental Quality (CEQ) has issued regulations specifying the requirements for NEPA documents (40 CFR 1500 – 1508). All of those requirements are addressed in this document, as referenced below.

### **6.2.1 Environmental Assessment**

The required elements of an Environmental Assessment (EA) are specified in 40 CFR 1508.9(b). They are included in this document as follows:

- The need for this action is described in Section 1.2;
- The alternatives that were considered are described in Section 3.0 (alternatives including the proposed action);
- The environmental impacts of the proposed action are described in section 5.0; and,
- The agencies and persons consulted on this action are listed in Section 6.2.3.

While not required for the preparation of an EA, this document includes the following additional sections that are based on requirements for an Environmental Impact Statement (EIS).

- An Executive Summary can be found on page iii;
- A table of contents can be found on page xviii;
- Background and purpose are described in Section 1.0;
- A summary of the document can be found in the Executive Summary;
- A brief description of the affected environment is in Section 4.0;
- Cumulative impacts of the proposed action are described in Section 5.7;
- A determination of significance is in Section 6.2.2; and,
- A list of preparers is in Section 6.3.2.

## 6.2.2 Finding of No Significant Impact

National Oceanic and Atmospheric Administration (NOAA) Administrative Order 216-6 (NAO 216-6) (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. On July 22, 2005, NOAA published a Policy Directive with guidelines for the preparation of a Finding of No Significant Impact (FONSI). In addition, the Council on Environmental Quality (CEQ) regulations at 40 CFR 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 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, the recent Policy Directive from NOAA, and CEQ’s context and intensity criteria. These include:

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

**Response:** No, the proposed action is not reasonably expected to jeopardize the sustainability of the sea scallop resource. This action sets specifications for fishing years 2008 and 2009 by modifying the rotational area management program implemented by Amendment 10. None of the modifications are expected to cause increases in fishing mortality that would jeopardize the sustainability of the scallop resource. The action is designed to be consistent with the mortality targets adopted in Amendment 10.

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

**Response:** No, the proposed action is not reasonably expected to jeopardize the sustainability of any non-target species. A general description of the non-target species is summarized in Section 4.5, and a complete bycatch analysis of the scallop fishery was completed in Amendment 10. Section 5.6 summarizes the overall impacts of this action on non-target species. In general, this action does not increase overall fishing effort above levels assessed in Amendment 10, thus there is no indication that impacts on non-target species will be different. Due to the distribution and behavior of yellowtail flounder, bycatch in the scallop fishery has been documented and is expected to continue under this action. Therefore, specific measures are in place to close access areas on Georges Bank when 10% of the yellowtail flounder TAC is reached. In addition, since closed areas are considered beneficial to the recovery of thorny and barndoor skate, this document analyzes the impacts of controlled access into portions of the mortality closed areas on skate rebuilding (Section 6.1.3). No additional impacts are expected.

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

**Response:** No, the proposed action is not reasonably expected to cause substantial damage to the ocean and coastal habitats and/or EFH. The conclusion in the EFH Assessment (Section 6.1.4) is that overall habitat impacts of all the measures combined in this action have minimal net effects. Relative to the baseline habitat protections established under Amendment 10 to the Atlantic Sea Scallop FMP, those impacts are negligible, and relative to the No Action alternative, those impacts are marginally positive. Specifically, this action does not allow access into the Habitat Closed Areas, and it maintains the requirement for scallop vessels to use 4-inch rings, which are

believed to reduce impacts on benthic environments. Therefore, measures to further mitigate or minimize adverse effects on EFH are not necessary.

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

**Response:** No, the proposed action is not reasonably expected to have substantial adverse impacts on public health or safety. In fact, this action proposes several measures designed to improve flexibility of the management program and safety at sea. Specifically, the measure that maintains the elimination of a crew limit in access areas is expected to have positive impacts on safety by allowing vessels to carry as many crewmembers as they deem appropriate. This measure may reduce fatigue and allow crew to work more reasonable shifts.

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

**Response:** No, the proposed action is not reasonably expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species. Section 4.3 describes the endangered or threatened species that are found in the affected area. Section 5.3 summarizes the impacts of the proposed action on endangered and threatened species; overall, none of the proposed measures are expected to have a significant impact on these species. There is no information at this time to suggest that interactions between sea turtles and scallop fishing gear will increase as a result of the measures proposed in this action.

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

**Response:** The proposed action is not expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area. Section 4.2 describes the physical environment of the affected area including the benthic environment and biological parameters of the scallop resource. In general, this action proposes to maintain fishing mortality at levels established under Amendment 10; therefore, no additional impacts on biodiversity and ecosystem function are expected as a result of this action.

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

**Response:** No, this action does not propose any significant social or economic impacts interrelated with significant natural or physical environmental effects. Because the proposed action improves flexibility and performance of the rotational area management program, which has not had significant social or economic impacts interrelated with significant natural or physical environmental effects in the past, none are expected to result from the proposed action.

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

**Response:** No, the effects on the quality of the human environment are not likely to be highly controversial. The proposed action will modify the rotational area management program and reduce short term landings, but positive impacts in the long-term are expected from this program; thus positive impacts on the human environment. Sections 5.1 through 5.5 assess the expected

impacts of the proposed action on the human environment, and Section 5.7 describes the potential cumulative effects of this action on the human environment. Overall, the proposed action is expected to have positive impacts on landings and revenues in the long term, thus beneficial for the human environment and is not likely to be highly controversial.

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

**Response:** No, unique areas, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas are not located within the affected area; therefore, there are no impacts on these components of the environment from the proposed action.

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

**Response:** No, the effects on the human environment are not likely to be highly uncertain or involve unique or unknown risks. This action primarily proposes modifications to the existing rotational area management program. The risks and impacts of area rotation on the human environment have been discussed and analyzed in previous actions. Scallop vessels have been awarded access into portions of the Georges Bank closed areas since 1999; therefore, the likely effects on the human environment are well understood.

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

**Response:** No, the proposed action is not related to other actions with individually insignificant but cumulatively significant impacts. Section 5.7 describes fishing and non-fishing past, present and reasonably foreseeable future actions that occurred or are expected to occur in the affected area. Some measures within the proposed action do result in cumulative impacts in some cases, but none of the impacts discussed exceed the threshold that would indicate a significant impact. In summary, the sea scallop resource, EFH, protected species, and the human environment have been impacted by past and present actions in the area and are likely to continue to be impacted by these actions in the future. In general, the proposed action will modify the rotational area management program, which will have positive impacts on the long-term success of the program at preventing overfishing and achieving optimum yield on a continuing basis.

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

**Response:** No districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places are located in the affected area; therefore, there are no impacts on these resources from the proposed action.

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

**Response:** No, the proposed action is not reasonably expected to result in the introduction or spread of a nonindigenous species.

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

**Response:** No, the proposed action is not likely to establish a precedent for future action with significant effects, and it does not represent a decision in principle about future consideration. This action modifies an existing rotational area management program that is designed to be reviewed and adjusted every two years. Area rotation was established under Amendment 10, which was an EIS that assessed the long-term impacts of area rotation.

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

**Response:** No, the proposed action is not reasonably expected to threaten a violation of Federal, State or local law or requirements imposed for the protection of the environment. This action does not propose any changes that would provide incentive for environmental laws to be broken.

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

**Response:** No, the proposed action is not reasonably expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species. Both target and non-target species have been identified and assessed in this document (Section 5.1, 5.6, and 5.7). In general, this action will modify the rotational area management program, which will have positive impacts on both target and non-target species.

**FONSI DETERMINATION:**

In view of the information presented in this document and the analysis contained in the supporting Environmental Assessment prepared for Framework 19, and in the SEIS for Amendment 10 to the Sea Scallop Fishery Management Plan, it is hereby determined that Framework 19 will not significantly impact the quality of the human environment as described above and in the supporting Environmental Assessment. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an EIS for this action is not necessary.

\_\_\_\_\_  
Regional Administrator, Northeast Region, NMFS

\_\_\_\_\_  
Date

### 6.2.3 List of Preparers; Point of Contact

Questions concerning this document may be addressed to:

Mr. Paul Howard, Executive Director  
New England Fishery Management Council  
50 Water Street, Mill 2  
Newburyport, MA 10950  
(978) 465-0492

Framework Adjustment 18 was prepared and evaluated in consultation with the National Marine Fisheries Service and the Mid-Atlantic Fishery Management Council. Members of the Scallop PDT prepared and reviewed portions of analyses and provided technical advice during the development of the Environmental Assessment. The list of Scallop PDT members includes:

**Figure 36 – List of Scallop PDT members**

<b>Scallop Plan Development Team (PDT)</b>
Deirdre Boelke, PDT Chair, NEFMC
Bill DuPaul, VIMS
Demet Haksever, NEFMC
Dvora Hart, NEFSC
EJ Marohn, USCG
Erin Kupcha, NMFS Observer Program
Julie Olson, NEFSC
Kevin Kelly, ME DMR
Kimberly Murray, NEFSC
Lynn Lankshear, NMFS PR
Peter Christopher, NMFS SF
Sarah Thompson, NMFS NEPA
Stan Wang (Kurt Wilhelm), NMFS FSO

In addition, other individuals contributed data and technical analyses for the document, Dr. Kevin Stokesbury (SMAST, New Bedford, MA; video survey scallop density estimates stratified by management area and statistical analysis of video survey data to estimate scallop biomass in the access areas); Amy Van-Atten (NMFS Northeast Observer Program); Antonie Chute (NEFSC); Patricia Fiorelli (NEFMC staff - impacts on protected resources); Chad Demarest (NEFMC staff – impacts on essential fish habitat); Andrew Applegate (VMS data for limited access and general category scallop fisheries); Sarah Pautzke (NEFMC Staff – description of affected biological and fishery environments and general review of miscellaneous sections); and Woneta Cloutier (NEFMC staff – administrative assistant for Scallop FMP).

### 6.2.4 Agencies Consulted

The following agencies were consulted in the preparation of this document:

New England Fishery Management Council

Mid-Atlantic Fishery Management Council  
 National Marine Fisheries Service, NOAA, Department of Commerce  
 United States Coast Guard, Department of Homeland Security

### 6.2.5 Opportunity for Public Comment

The proposed action was developed during the period December 2006 through October 2007 and was discussed at the following meetings. Opportunities for public comment were provided at each of these meetings. The public is also permitted to attend Scallop PDT meetings, and about half a dozen PDT meetings were held during this time period as well.

**Table 129 – Summary of meetings with opportunity for public comment for Framework 19**

Meeting	Location	Date
Council Meeting to Initiate FW 19	Gloucester, MA	November 15, 2007
Joint Scallop Advisory Panels	Radisson Airport Hotel, Warwick, RI	March 19, 2007
Scallop Committee Meeting	Radisson Airport Hotel, Warwick, RI	March 20, 2007
Joint Scallop PDT and Advisory Panels	Providence Biltmore, Providence, RI	July 26, 2007
Scallop Committee Meeting	Holiday Inn, Mansfield, MA	August 16, 2007
Joint Scallop Advisory Panels	Holiday Inn, Peabody, MA	October 10, 2007
Scallop Committee Meeting	Holiday Inn, Peabody, MA	October 11, 2007
Scallop Committee Meeting	Courtyard by Marriott, Providence, RI	January 19, 2007
Scallop Committee Meeting	Radisson Hotel, Plymouth, MA	June 6, 2007
Council Meeting to select final measures	Sheraton Colonial, Wakefield, MA	October 25, 2007

### 6.3 MARINE MAMMAL PROTECTION ACT (MMPA)

Section 4.3 of this action contains a description of marine mammals potentially affected by the Scallop Fishery and Section 5.3 above provides a summary of the impacts of the proposed action as analyzed in Framework 19. A final determination of consistency with the MMPA will be made by the agency when Framework 19 is implemented.

### 6.4 ENDANGERED SPECIES ACT (ESA)

Section 4.3 of this action contains a description of marine mammals potentially affected by the Scallop Fishery and Section 5.3 above provides a summary of the impacts of the proposed action as analyzed in Framework 19. A final determination of consistency with the ESA will be made by the agency when Framework 19 is implemented.

### 6.5 ADMINISTRATIVE PROCEDURE ACT (APA)

The Council has held ten meetings open to the public on Framework 19. The Council initiated this action at the November 2006 Council meeting and approved final measures at the October 2007 meeting. After submission to NMFS, a proposed rule and notice of availability for Framework 19 under the M-S Act will be published to provide opportunity for public comment.

### 6.6 PAPERWORK REDUCTION ACT (PRA)

Framework 19 does not have any new collection of information requirements subject to the PRA.

## **6.7 COASTAL ZONE MANAGEMENT ACT (CZMA)**

Once the Council has adopted final measures and submitted Framework 19 to NMFS, NMFS will request consistency reviews by CZM state agencies.

## **6.8 DATA QUALITY ACT**

### ***Utility of Information Product***

The proposed document includes: A description of the management issues, a description of the alternatives considered, and the reasons for selecting the preferred management measures, to the extent that this has been done. These actions propose modifications to the existing FMP. These proposed modifications implement the FMP's conservation and management goals consistent with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) as well as all other existing applicable laws.

This proposed framework is being developed as part of a multi-stage process that involves review of the document by affected members of the public. The public has had the opportunity to review and comment on management measures during several meetings. In addition, the public will have further opportunity to comment on this framework through the 45-day public hearing process, and again after the NMFS publishes a request for comments notice in the Federal Register.

The Federal Register notice that announces the proposed rule and the implementing regulations will be made available in printed publication and on the website for the Northeast Regional Office. The notice provides metric conversions for all measurements.

### ***Integrity of Information Product***

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

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

### ***Objectivity of Information Product***

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

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

This framework is being developed to comply with all applicable National Standards, including National Standard 2. National Standard 2 states that the FMP's conservation and management measures shall be based upon the best scientific information available. Despite current data

limitations, the conservation and management measures proposed to be implemented under this framework are based upon the best scientific information available. This information includes complete NMFS dealer weighout data through 2005, and includes incomplete dealer weighout data for 2006. Dealer data is used to characterize the economic impacts of the management proposals. The specialists who worked with these data are familiar with the most recent analytical techniques and with the available data and information relevant to the scallop fishery.

The policy choices (i.e., management measures) proposed to be implemented by this document are supported by the available information. The management measures contained in the framework document are designed to meet the conservation goals and objectives of the FMP.

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

The review process for this framework involves the New England Fishery Management Council, the Northeast Fisheries Science Center, the Northeast Regional Office, and NOAA Fisheries headquarters. The document was prepared by staff of the Council and Center with expertise in scallop resource issues, habitat issues, economics, and social sciences. The Council review process involves public meetings at which affected stakeholders have opportunity to provide comments on the specifications document. Review by staff at the Regional Office is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. Final approval of the specifications document and clearance of the rule is conducted by staff at NOAA Fisheries Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

## **6.9 E.O. 13132 (FEDERALISM)**

This framework does not contain policies with federalism implications warranting preparation of a federalism assessment under EO 13132.

## **6.10 E.O. 12898 (ENVIRONMENTAL JUSTICE)**

The alternatives in this framework are not expected to cause disproportionately high and adverse human health, environmental or economic effects on minority populations, low-income populations, or Native American peoples.

## **6.11 EXECUTIVE ORDER 12866 (REGULATORY IMPACT REVIEW)**

### **6.11.1 Introduction**

The Regulatory Impact Review (RIR) provides an assessment of the costs and benefits of proposed actions and other alternatives in accordance with the guidelines established by Executive Order 12866. The regulatory philosophy of Executive Order 12866 stresses that in deciding whether and how to regulate, agencies should assess all costs and benefits of all regulatory alternatives and choose those approaches that maximize the net benefits to the society.

The RIR also serves as a basis for determining whether any proposed regulations are a “significant regulatory action” under the criteria provided in Executive Order 12866 and whether the proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act of 1980 (RFA).

This RIR summarizes the effects of the proposed observer program and other alternatives considered in this Framework 19. The Framework 19 document contains all the elements of the RIR/RFA, and the relevant sections are identified by reference to the document.

The purpose of and the need for action are described in Section 1.2. The description of the each selected alternative including the no action alternative is provided in Section 2.0.

### **6.11.2 Economic Impacts**

Section 5.4 evaluated economic impacts of Framework 19 proposed measures and alternatives considered by the Council. Sources of uncertainty are identified in Section 5.4.16. The aggregate economic impacts of the proposed rotation alternatives are analyzed in Section 5.4.2. The numerical results are presented in the tables included in those sections. The individual measures considered by Framework 19 are discussed in Sections 5.4.3 through 5.2.15 and the relevant subsections shown below:

- Economic impacts of no action: Section 5.4.1
- Aggregate Economic Impacts: Section 5.4.2, Short-term impacts: 5.4.2.2, Long-term impacts: 5.4.2.3
- Economic impacts of Georges Bank access area management: Section 5.4.3
- Impacts of adjustments when yellowtail flounder catches reach 10% TAC limit: section 5.4.3.2
- Economic impacts of Hudson Canyon access area management: Section 5.4.4
- Economic impacts of Elephant Trunk access area management: Section 5.4.5
- Economic impacts of Delmarva area management: Section 5.4.6
- Restriction on the number of crew in access areas: Section 5.4.7.1
- Economic impacts of deckloading: Section 5.4.7.2
- TAC set-asides for observers and research: Section 5.4.8.
- Economic Impacts of open area allocations for limited access vessels: Section 5.4.9
- Quarterly Hard TAC for General Category Vessels: Section 5.4.10 , Section 5.4.10.1.1
- General category access area allocations: Section 5.4.10.2
- General category IFQ and cost recovery program: Section 5.4.10.1.2
- Northern Gulf of Maine Hard TAC: Section 5.4.10.1.3
- Incidental Catch Mortality: Section 5.4.11
- Overfishing Definition: Section 5.4.12.
- Observer Set-Aside Program Improvements: Section 5.4.13
- Area closures to protect young scallops: Section 5.4.14
- 30-Day VMS Power Down: Section 5.4.15.
- Clarification- When Vessel Can Leave for Access Area Trip: Section 5.4.15.2.
- Uncertainties and risks: Section 5.4.16

### **6.11.2.1 Summary of Regulatory Impacts**

The combined impacts of the proposed regulations on scallop fishery, on consumers and total economic benefits to the nation are analyzed in Section 5.4.2 and the economic impacts of the individual measures are discussed in subsections of 5.4 as indicated above. No action here refers to continuation of all the measures and allocations that are specified in the present regulations, including trip allocations for access areas and open area allocation of 51 days per limited access vessel.

#### **Summary of the impacts the individual measures**

- The revision of Georges Bank openings will have positive economic impacts because access is allocated in areas with more biomass (ET and NLS in 2008) compared to areas with lower biomass such as open areas and Closed Area I. Allocating four trips to ETAA in 2008 and three trips in 2009 will have positive economic impacts because this area has more biomass compared to areas with lower biomass such as open areas and Closed Area I. Providing access to Delmarva will have positive economic impacts on scallop vessels because this area has more biomass compared to open areas or other access areas. Closure of the Hudson canyon area will protect small scallops in this area and will increase future yield, revenues and economic benefits from this area. The prohibition of deckloading on access area trips will help prevent additional scallop mortality associated with discarding, thus will result in higher yield, revenues and economic benefits for the scallop vessels.
- Open area DAS allocations are expected to prevent overfishing in the open areas and to have positive economic impacts on scallop vessels when combined with controlled access area (Georges Bank, Hudson Canyon, and ETA) allocations and area closures (Delmarva).
- Management of general category fishery by a quarterly hard TAC during the transition period will reduce race to fish and lessen the negative economic impacts associated with derby fishing. The proposed 5% allocation to the access areas in 2008-2009 fishing years is expected to have positive economic impacts on the general category vessels compared to a lower allocation, or 2% allocation under status quo. Because access areas are more productive and have higher LPUE than the open areas, fishing costs will be lower and profits will be higher for trips taken in the access areas compared to open areas. Since most general category vessels do not fish in Closed Area II, zero percent allocation for this area will increase open area landings and overall revenues of the general category fishery.
- The proposed action will have positive economic impacts by improving the administration and reducing the cost burden of the observer program on scallop vessels. Since LPUE is lower in open areas in general, assigning higher compensation for these trips increases ability of vessels to pay for observer costs and trip expenses. 30 day VMS power-down alternative would reduce the burden on vessel-owners to run vessel for long periods when it is not fishing, thus would have some positive economic impacts on scallop vessels. Clarification of when a vessel can leave for access area trip will have indirect positive economic impacts on scallop vessels by preventing a vessel owner from making a wrong decision (with possible negative economic consequences) about when to leave on an access area trip. Setting aside 2% of available TAC in access areas for research, and 1% to provide funding for observers is expected to have indirect economic

benefits on the sea scallop fishery by improving scallop management through better data and information made possible by research and the observer program.

- Many measures that are discussed in Framework 19 are measures that were implemented with earlier actions, such as Framework 18, or measures that will be implemented when Amendment 11 is approved. In other words, for Framework 19 these actions constitute no action, and their impacts were analyzed in those documents. The following provides a summary of the impacts of these actions:
  - The proposed action (no action) would continue to allow a vessel to carry any number of crew it wishes on an access area trip. No crew limit would give vessels the most flexibility, potentially reducing total fishing costs, thus would have positive economic impacts on scallop vessels.
  - Adjustments when yellowtail flounder catches reach 10% TAC limit will help to minimize loss in pounds and revenue due to the closure of access areas due to yellowtail quota before a vessel takes its trip.
  - According to the proposed action is the no action alternative, all un-used 2005 limited access trips would expire on February 29, 2008. This action could have economic negative impacts on those vessels that could not take an economically viable trip to HCA due to the poor resource conditions in this area. These negative impacts would be lower if the resource conditions in HCA improve as the recent biological projections indicate.
  - As analyzed in Amendment 11, IFQ's will have positive economic impacts on general category vessels that qualify for limited access. Framework 19 includes a program, however, that could collect up to 3% of ex-vessel value of scallop product landed to recover the costs directly related to management, data collection and analysis, and enforcement of the general category IFQ program as mandated by the Magnuson Stevens Fishery Management Act (MSA). The positive economic impacts of IFQs for the general category limited access qualifiers are expected to exceed the costs of this cost recovery program.
  - 70,000 pounds of hard TAC for the Northern Gulf of Maine (NGOM) general category fishery is expected to have positive economic impacts on vessels that do not qualify for limited access but do for an NGOM permit because it allows them to land scallops in this area during favorable resource conditions.
  - Removal of incidental catch (50,000 lb.) before making allocations will ensure fishing mortality targets are not exceeded, thus will have positive impacts on the resource, scallop yield, on the revenues and profits of the scallop vessels.
  - Maintaining the fishing mortality target at the precautionary level of  $F=0.2$ , will reduce the risk of overfishing with positive economic impacts on the sea scallop fishery.

#### **Summary of the aggregate impacts of the proposed measures**

- The aggregate economic impacts of the proposed measures and other alternatives including revising the order of Georges Bank access area schedule, Elephant Trunk and Delmarva access area allocations, Hudson canyon area closure, open area DAS allocations and TAC for the general category fishery are expected to be positive compared to the no action alternative. The projected scallop landings for the preferred option and other alternatives are higher compared to no action scenario in 2008 and 2009,

with the exception of the large Hudson canyon alternative (HCL) in 2008. The preferred option and the other alternatives are expected to increase scallop revenues of limited access and general category vessels both in year 2008 and 2009 compared to the no action scenario. Under the preferred option, the average scallop revenue per year is estimated to be 3.7% higher than the revenue under no action during 2008-2009 fishing years (Table 90).

- The preferred option and the other alternatives are expected to have positive impacts on consumer, producer and total economic benefits during 2008-2009. The preferred alternative is expected to increase producer benefits by 2.1% in 2008 and 6.0% in 2009, and consumer benefits by 3.3% in 2008 and 19% in 2009. Total benefits are expected to increase by \$42 million during 2008-2009 under the preferred option in 2006 prices and by \$32 in 1996 prices compared to no action levels.
- Over the long-term, all alternatives are expected to increase scallop revenues by 0.5% to 1.5% and total net benefits by 1% to 3% depending on the alternative (Table 91). The preferred alternative will increase total economic benefits slightly by 1% over the long-term compared to no action (Table 102). The preferred alternative is estimated to increase net economic benefits by \$42 million in the short-term (2008-2009), and by \$44 million in the long-term (2008-2021) compared to the no action alternative.
- The economic impacts of the proposed alternative (PREF) and the other alternatives will also be positive for the general category limited access fishery because of higher landings under the proposed alternatives compared to the no action. Total general category TAC will be 1.3% higher in 2008 and 11% higher in 2009 with the proposed action compared to no action.
- The impacts on employment measured by total crew days (Crew\*DAS) would be negative in 2008 but positive starting with 2009 fishing year since all alternatives would allocate less DAS in 2008, but more after 2008 fishing year compared to no action.
- The cumulative impacts of the measures from Framework 19 proposed measures, and the past actions including Amendment 10, Frameworks 18 and Amendment 11 to the scallop FMP, are estimated to be positive. Adjustment of the open area DAS allocations, implementation of trip limits and allocations for the access areas and rotation area management had positive impacts on the scallop industry by increasing the revenues, producer and consumer surpluses and net benefits in the past. The actions proposed by Framework 19 will be expected to increase fleet revenues, profits and total economic benefits compared to no action. As a result, cumulative economic benefits, which measure the sum of benefits from previous and proposed actions, are expected to be positive.

#### **6.11.2.2 Enforcement costs**

The enforcement costs and benefits of the proposed options for Framework 19 are within the range of impacts addressed in Section 8.9 of Amendment 10 FSEIS and Section 5.4.22 and Section 5.6.3 of Amendment 11. The qualitative analysis included a discussion of the pros and cons of the proposed alternatives from an enforcement perspective. The proposed measures by Framework 19 are very similar to the existing measures in terms of the enforcement requirements, since they include the continuation of the area specific trip allocations, area closures, open area DAS allocations, measures for reducing bycatch, and the continuation of

observer coverage program. The enforcement costs and benefits of the quarterly hard TAC and IFQ management of the general category fishery were discussed in Section 5.4.22 of Amendment 11. The costs of implementing and enforcing the proposed action are not expected to compromise the effectiveness of implementation and enforcement of this action. Furthermore, there are several mechanisms and systems, such as VMS monitoring and data processing, already in place that will aid in monitoring and enforcement of this action. Therefore, the overall enforcement costs are not expected to change significantly from the levels necessary to enforce measures under the no action regulations.

### **6.11.2.3 Determination of Significant Regulatory Action**

Executive order 12866 defines a “significant regulatory action” as one that is likely to result in: a) an annual effect on the economy of \$100 million or more, or one which adversely affects 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; b) a serious inconsistency or interference with an action taken or planned by another agency; c) a budgetary impact on entitlements, grants, user fees, or loan programs, or the rights and obligations of recipients thereof; d) novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in this executive order.

The preceding analysis shows that Framework 19 would not constitute a “significant regulatory action” since it will not raise novel legal and policy issues, other than those that were already addressed and analyzed in Amendment 10 and Amendment 11. Overall impacts on net benefits are expected to be positive, an increase of \$33 (\$44) million in terms of 1996 (2006) prices. Therefore, the proposed regulations may not have an annual impact on the economy of \$100 million or more. The proposed alternatives will not adversely affect in a material way the economy, productivity, competition, public health or safety, jobs or state, local, or tribal governments or communities in the long run. The proposed action also does not interfere with an action planned by another agency, since no other agency regulates the level of scallop harvest. It does not materially alter the budgetary impact of entitlements, grants, user fees, or loan programs, or the rights and obligations of recipients.

## **6.12 INITIAL REGULATORY FLEXIBILITY ANALYSIS**

The purpose of the Regulatory Flexibility Analysis (RFA) is to reduce the impacts of burdensome regulations and record-keeping requirements on small businesses. To achieve this goal, the RFA requires government agencies to describe and analyze the effects of regulations and possible alternatives on small business entities. Based on this information, the Regulatory Flexibility Analysis determines whether the proposed action would have a “significant economic impact on a substantial number of small entities.”

### **6.12.1 Problem Statement and Objectives**

The purpose of the action and need for management is described in Section 1.2 and goal and objectives in Section 2.0 of the Framework 19 document.

## **6.12.2 Management Alternatives and Rationale**

The proposed action and no action alternative are described in Section 3.0.

## **6.12.3 Determination of Significant Economic Impact on a Substantial Number of Small Entities**

### **6.12.3.1 Description of the small business entities**

The RFA recognizes three kinds of small entities: small businesses, small organizations, and small governmental jurisdictions. It defines a small business in any fish-harvesting or hatchery business as a firm that is independently owned and operated and not dominant in its field of operation, with receipts of up to \$4 million annually. The vessels in the Atlantic sea scallop fishery could be considered small business entities because all of them grossed less than \$3 million according to the dealer's data for 2004 to 2006 (up to the end of January 2007) fishing years (Table 131). According to this information, annual total revenue averaged over a million in 2005 fishing year, and about \$881,990 in 2006 fishing year per limited access vessel. Total revenues per vessel, including revenues from species other than scallops, exceeded these amounts, but were less than \$3 million per vessel. Average scallop revenue per general category vessel was \$88,702 in 2005 and \$66,785 in 2006 fishing years. Average total revenue per general category vessel was higher, exceeding \$250,000 in 2005 and 2006 fishing years. Average revenues per vessel were lower in 2006 fishing year for all permit categories because of lower scallop prices.

The proposed regulations of Framework 19 would affect vessels with limited access scallop and general category permits. Section 4.4 (Fishery-related businesses and communities) of Amendment 11 document and Section 4.4 of Framework 19 provide extensive information on the number, the port, the state, and the size of vessels and small businesses that will be affected by the proposed regulations. The current information on the number of scallop permits for the years 1997 to 2007 are provided in Table 130. According to the recent permit data, there were 334 vessels that obtained full-time limited access permits in 2006, including 61 small-dredge and 15 scallop trawl permits. In the same year, there were also 40 part-time and 1 occasional limited access permit in the sea scallop fishery. In addition, 2,711 permits were issued to vessels in the open access General Category and over 600 of these vessels landed scallops during the last two years (Table 131). Therefore, the proposed alternatives of Framework 19 are expected to have impacts on a substantial number of small entities.

**Table 130. Scallop Permits by category by application year**

Permit category	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007*
Full-time	204	203	213	220	224	234	238	242	248	258	252
Full-time small dredge	3	2	1	3	13	25	39	48	57	61	57
Full-time net boat	27	23	16	17	16	16	16	15	19	15	12
<b>Total full-time</b>	<b>234</b>	<b>228</b>	<b>230</b>	<b>240</b>	<b>253</b>	<b>275</b>	<b>293</b>	<b>305</b>	<b>324</b>	<b>334</b>	<b>321</b>
Part-time	16	11	12	16	14	14	10	4	3	3	2
Part-time small dredge	9	7	3	4	6	8	19	26	30	37	32
Part-time trawl	30	27	22	20	18	10	8	3	-	-	-
<b>Total part-time</b>	<b>55</b>	<b>45</b>	<b>37</b>	<b>40</b>	<b>38</b>	<b>32</b>	<b>37</b>	<b>33</b>	<b>33</b>	<b>40</b>	<b>34</b>
Occasional	2	3	4	4	5	4	3	3	1	1	1
Occasional trawl	24	19	20	16	19	15	8	5	5	-	-
<b>Total occasional</b>	<b>26</b>	<b>22</b>	<b>24</b>	<b>20</b>	<b>24</b>	<b>19</b>	<b>11</b>	<b>8</b>	<b>6</b>	<b>1</b>	<b>1</b>
<b>Total Limited access</b>	<b>315</b>	<b>295</b>	<b>291</b>	<b>300</b>	<b>315</b>	<b>326</b>	<b>342</b>	<b>346</b>	<b>363</b>	<b>375</b>	<b>356</b>
<b>General category</b>	<b>2002</b>	<b>1939</b>	<b>2096</b>	<b>2263</b>	<b>2378</b>	<b>2512</b>	<b>2574</b>	<b>2827</b>	<b>2950</b>	<b>2711</b>	<b>2336</b>

\* Updated as of Aug. 2007

**Table 131. Active scallop vessels by permit category by fish year (Dealer data)**

Permit Plan	Data	2004	2005	2006
General Category	Number of vessels	432	619	643
	Total number of trips	9,011	22,032	19,586
	Scallop pounds per vessel	6,553	11,493	10,119
	Average scallop revenue per vessel	34,043	88,071	66,785
	Average total revenue per vessel (?)	249,167	260,942	250,752
	Total scallop landings	2,831,030	7,113,906	6,506,536
	Total scallop revenue	14,706,711	54,515,676	42,942,441
	Ex-vessel price (\$)	5.6	7.7	6.7
Limited Access**	Number of vessels	330	345	361
	Total number of trips	4,734	6,127	5,865
	Scallop pounds per vessel	178,534	134,533	136,799
	Average scallop revenue per vessel	910,908	1,043,193	881,990
	Average total revenue per vessel	940,065	1,038,976	918,816
	Total scallop landings	58,916,306	46,413,953	49,384,434
	Total scallop revenue	300,599,614	359,901,435	318,398,389
	Ex-vessel price (\$)	5.1	7.8	6.4

\*\* Includes general category trips by limited access vessels.

### 6.12.3.2 Determination of significant effects

The Office of Advocacy at the SBA suggests two criteria to consider in determining the significance of regulatory impacts, namely, disproportional and profitability.

The disproportionality criterion compares the effects of the regulatory action on small versus large entities (using the SBA-approved size definition of "small entity"), not the difference between segments of small entities. Framework 19 is not expected to have significant regulatory impacts on the basis of the disproportionality criterion for the following reasons:

1. The majority of the permit holders in the sea scallop fishery are considered small business entities.
2. The proposed measures will affect all the vessels participating in the sea scallop fishery. Although these measures could affect some vessels within the scallop fleet differently than others as discussed in Section 5.4 (economic impacts section), these differential impacts are not relevant for disproportionality criterion. The changes in profits, costs, and net revenues due to Framework 19 are not expected to be disproportional for small versus large entities since all entities, that is, all vessels participating in the scallop fishery are considered small.
3. The proposed action is not expected to place a substantial number of small entities at a significant competitive disadvantage relative to large entities.

The profitability criterion will apply if the regulation significantly reduces profit for a substantial number of small entities. The proposed action is not expected to reduce significantly profit for a substantial number of small entities. The scallop revenues and net revenues (as a proxy for profits) are expected to increase with the proposed alternative both in the short-and the long-term compared to no action. The following section provides a summary of the economic impacts from the proposed action, and discusses the mitigating factors. The relevant section of Framework 19, which discusses the rationale and impacts of these measures are also identified.

### **6.12.3.3 Economic impacts of proposed measures and alternatives**

#### **6.12.3.3.1 Summary of the aggregate economic impacts**

The aggregate economic impacts of the proposed measures (i.e. preferred alternative in the Tables) and other alternatives including revising the order of Georges Bank access area schedule, Elephant Trunk and Delmarva access area allocations, Hudson canyon area closure, open area DAS allocations and TAC for the general category fishery are analyzed in Section 5.4.2 relative no action. The **No Action** alternative assesses the impacts of essentially rolling over current specifications with open area allocation of 51 days per limited access vessel. The impacts on vessel revenues and profits are expected to be similar to the impacts of the proposed measures on total fleet revenue and producer surplus (as a proxy for net revenues and profits) estimated in Section 5.4.2.

- The aggregate impacts of the proposed area rotation measures are expected to be positive on the majority of small business entities in scallop fishing industry during 2008-2009. Overall fleet revenue and therefore, annual scallop revenue for an average limited access vessel is estimated to increase by 1.3% in 2008 and by 6.2% in 2009 fishing year compared to no action. Because fishing costs are estimated to decline due to less DAS-used in the access and the open areas, the impacts on the net revenue (revenue minus variable costs, or producer surplus) and vessel profits will be positive as well, with a 2.1% increase in 2008 and 6% increase in 2009 fishing year (Table 92 in Section 5.4.2.2).
- The long-term overall economic effects of the proposed measures are estimated to be slightly positive on revenues, an average of about 0.5% increase per year during 2008-2021 (Table 98 Section 5.4.2.3) and on the producer surplus (slightly over 0.6% increase per year (Table 100, Section 5.4.2.3).

- The economic impacts of the proposed alternative will also be positive for the general category fishery since the total general category TAC will be higher with the preferred alternative compared to the no action alternative. As a result, average scallop revenues and profits for the general category vessels are expected to be higher for the preferred alternative compared to the no action.
- The level of general category TAC will be lower, however, than the level of general category scallop landings in the recent years resulting in negative economic impacts on these vessels in the short-term. These short-term impacts are due to the impacts of the measures proposed in Amendment 11, that is, due to proposed management of the general category fishery by a limited access program, individual fishing quota (IFQ) allocations and a separate TAC. Since this action does not propose any changes to the Amendment 11 measures, the impacts of these measures are not analyzed here. Section 7.9 of Amendment 11 provides a comprehensive analysis of the economic impacts on small business entities. These analyses indicated that despite the negative impacts in the short-term, the medium to long-term economic impacts of the limited entry program and TAC management are expected to be positive for the sea scallop fishery as a whole.
- Framework 19 proposed measures include, however, the level of TAC that will be allocated to the general category and quarterly division of hard TAC in 2008 based on the specific percentage allocation and interim measures proposed in Amendment 11. The overall economic impacts of the TAC management and limited access program are not expected to be significantly different from the impacts analyzed in Amendment 11 when combined with the area rotation, access and open area allocations proposed by Framework 19. The economic impacts of these measures on the general category vessels are discussed in Section 5.4.10 and could be summarized as follows:
  - Amendment 11 analyzed the economic impacts by assuming that the general category TAC will be 5 million in 2008 and 2.5 million in 2009. The preferred option in Framework 19 will result in lower TAC, about 4.3 million TAC in 2008 and 2.2 million TAC in 2009 and about the same, i.e., 2.5 million lb. TAC over the long-term for the general category fishery.
  - Although, these amounts exceed the potential TAC levels under no action, they are slightly less than the landings by the general category vessels in recent years (Section 5.4.10.1 and Section 5.4.10.1.2). The landings by vessels that had a general category permit before the control date, thus, are likely to continue fishing in the interim period (2008) were 4.6 million pounds in 2006. The vessels that are expected to qualify for limited access, thus fish in 2009, landed about 2.4 million pounds.
  - Therefore, short-term economic impacts of the general category TAC will be negative on the general category vessels to the extent that overall TAC prevent these vessels landing the amount of scallops they would catch without such a constraint. These impacts will also depend on the reliance of vessels on scallop revenue as a source of income. Again, those distributional impacts were analyzed in Amendment 11 (Sections 5.4.8.5, 5.4.8.6 and 5.4.13 of Amendment 11).
  - The management of the limited access general category fishery by a separate TAC will have positive economic impacts, however, over the medium to long-term on the vessels that qualify for general category limited access fishery and for the limited access vessels by preventing overfishing of the scallop resource and

dissipation of profits by uncontrolled entry and effort into the general category fishery

- Other measures proposed by Framework 19, such as quarterly distribution of hard TAC for the general category fisher, 5% allocation for general category vessels for access areas, improvements to the observer program, 30-day VMS power down provision, hard-TAC allocation for vessels with a limited entry NGOM permit and adjustments when yellowtail flounder catches reach 10% TAC limit are expected to provide additional positive impacts by providing vessels the opportunity to reduce fishing costs and increase revenues from scallop fishing.
- Many measures that are discussed in Framework 19 are measures that were implemented with earlier actions, such as Framework 18, or measures that will be implemented when Amendment 11 is approved. In other words, for Framework 19 these actions constitute no action. The economic impacts of these actions are either summarized or relevant document that provided such analyses are specified below.
- The aggregate impacts of the proposed measures could differ from the economic impacts of the individual measures as discussed in the relevant subsections of Section 5.4 and summarized in the following section.

#### **6.12.3.3.2 Economic impacts of the individual measures**

##### ***Revision of Georges Bank Openings***

- Rationale is provided in Section 2.3.1
- Economic impacts are analyzed in Section 5.4.3.
- **Summary of the impacts of the proposed option and mitigating factors:** The revision of Georges Bank openings are expected to have positive economic impacts by providing access to areas with more biomass (NLS in 2008, CL2 in 2009) instead of areas with lower biomass such as Closed Area I. This will help increase yield, landings and revenues from the fishery both in the short-and the long-term, benefiting both limited access and general category vessels that participate in the scallop fishery.
- **Comparison of the impacts with the alternative options:** There are no alternatives that would generate higher benefits for the scallop vessels. The only alternative is the no action option, which provides access to Closed Area in 2008 and no access to NLS and to Closed Area 2 resulting in lower economic benefits both in the short and long-term compared to the proposed alternative.

##### ***Adjustments when yellowtail flounder catches reach 10% TAC limit***

- Rationale is provided in Section 2.3.1.2
- Economic impacts are analyzed in Section 5.4.3.2
- **Summary of the impacts of the proposed option and mitigating factors:** This alternative will continue the measures under no action. It will help to minimize loss in pounds and revenue due to the closure of access areas due to yellowtail quota before a vessel takes its trip. As a result, this measure will have positive economic impacts on scallop vessels although the scallop pounds per trip could be lower than the allocated pounds for the Georges Bank access area trips due to the proration.
- **Comparison of the impacts with the alternative options:** There are no alternatives that would generate higher economic benefits for the participants of the scallop fishery.

### *Hudson Canyon Access Area trips*

- Rationale is provided in Section 2.3.2
- Economic impacts are analyzed in Section 5.4.4
- **Summary of the impacts of the proposed option and mitigating factors:** The proposed option is the no action alternative under which all un-used 2005 limited access trips would expire on February 29, 2008. This action could have economic negative impacts on those vessels that could not take an economically viable trip to HCA due to the poor resource conditions in this area. LPUE in HC could improve in 2007 according to biological projects, however, to average 1400 lbs/day-at-sea, and could provide some vessels incentive to take their trips rather than let them expire, minimizing these negative impacts.
- **Comparison of the impacts with the alternative options:** The proposed alternative could reduce the negative impacts compared to no action by allowing vessels to take trips later in year (until the end of May 2008) when yields are higher. On the other hand, extending the duration of Hudson Canyon trips until May 31, 2008 could have negative impacts on the yield in the future years by reducing the growth potential of scallops with negative long-term economic impacts.

### *Elephant Trunk Access Area*

- Rationale is provided in Section 2.3.3
- Economic impacts are analyzed in Section 5.4.5
- **Summary of the impacts of the proposed option and mitigating factors:** Providing access to ETAA in 2008 and in 2009 will have positive economic impacts on both limited access and general category vessels because this area has more biomass compared to areas with lower biomass such as open areas and Closed Area I. The procedure to reduce trips in 2009 is expected to have positive economic impacts by adjusting allocations in order to achieve optimal level of landings and revenues from the scallop resource. Removal of the seasonal closure is expected to have positive economic impacts on vessels by increasing flexibility and lowering fishing costs, but increased non-harvest mortality from fishing during these months could reduce those positive economic impacts.
- **Comparison of the impacts with the alternative options:** There are no alternatives that would generate higher benefits for the scallop vessels. The only alternative is the no action which allocates less number of trips to this area.

### *Delmarva Access Area*

- Rationale is provided in Section 2.3.4.
- Economic impacts are analyzed in Section 5.4.6
- **Summary of the impacts of the proposed option and mitigating factors:** Providing access to Delmarva will have positive economic impacts on scallop vessels because this area has more biomass compared to open areas or other access areas. The procedure to reduce trips in 2009 would help prevent overfishing, and thus have positive impacts on the scallop resource, and on the landings and revenues of the vessels that participate in the scallop fishery.

- **Comparison of the impacts with the alternative options:** There are no alternatives that would generate higher benefits for the scallop vessels. The only alternative is the no action which would keep this area closed with lower economic benefits.

#### ***Crew Size Restriction***

- Rationale is provided in Section 2.3.5.1.
- Economic impacts are analyzed in Section 5.4.7.1
- **Summary of the impacts of the proposed option and mitigating factors:** The proposed action (no action) would continue to allow a vessel to carry any number of crew it wishes on an access area trip. No crew limit would give vessels the most flexibility, potentially reducing total fishing costs, thus would have positive economic impacts on scallop vessels.
- **Comparison of the impacts with the alternative options:** The alternative option would restrict the crew size of 8 or 9 persons. This would potentially help reduce scallop mortality and control effort, with positive impacts on the scallop resource, landings, and revenues over the long-term. On the other hand, limiting crew size would reduce vessel's flexibility and increase the trip costs. Therefore, the economic benefits of this alternative are expected to be small compared to the proposed option.

#### ***Deckloading Prohibition***

- Rationale is provided in Section 2.3.5.2.
- Economic impacts are analyzed in Section 5.4.7.2
- **Summary of the impacts of the proposed option and mitigating factors:** The prohibition of deckloading on access area trips will help prevent additional scallop mortality associated with discarding, thus will result in higher yield, revenues and economic benefits for the scallop vessels.
- **Comparison of the impacts with the alternative options:** There are no alternatives that would generate higher benefits for the scallop vessels. The only alternative is the no action which would continue to allow deckloading and result in lower economic benefits compared to the proposed action.

#### ***TAC set-asides for observers and research***

- Rationale is provided in Section 2.3.5.2.
- Economic impacts are analyzed in Section 5.4.8.
- **Summary of the impacts of the proposed option and mitigating factors:** the Setting aside 2% of available TAC in access areas for research, and 1% to provide funding for observers is expected to have indirect economic benefits on the sea scallop fishery by improving scallop management through better data and information made possible by research and the observer program.
- **Comparison of the impacts with the alternative options:** There are no alternatives that would generate higher benefits for the scallop vessels.

#### ***Open Area allocations for limited access vessels***

- Rationale is provided in Section 2.3.6.
- Economic impacts are analyzed in Section 5.4.9.

- **Summary of the impacts of the proposed option and mitigating factors:** Open area DAS allocations are expected to prevent overfishing in the open areas and to have positive economic impacts on scallop vessels when combined with controlled access area (Georges Bank, Hudson Canyon, and ETA) allocations and area closures (Delmarva). The proposed action will allocate less open area DAS compared to the no action in both 2008 and 2009 fishing years, but it will allocate more trips to the access areas. As a result, the proposed action will have positive impacts on revenue and profits of small business entities compared to the no action. The aggregate economic impacts of the proposed action are summarized in Section 6.12.3.3.1? above.
- **Comparison of the impacts with the alternative options:** The no action alternative and the alternatives that include new rotational closures in the Great South Channel (SCH, SCH+HC) allocate more open area DAS in fishing year 2008 and all alternatives allocate more open area DAS in 2009 compared to the preferred option. Except for the no action alternatives, other alternatives result in slightly higher revenues and profits compared to preferred action during 2008-2009.

#### ***Quarterly Hard TAC for General Category Vessels***

- Rationale is provided in *Section 2.4.1.1*.
- Economic impacts are analyzed in Sections 5.4.10.1.1 and 5.4.10.1.1
- **Summary of the impacts of the proposed option and mitigating factors:** Under no action and with the implementation of Amendment 11, 10% of the total scallop TAC will be allocated on a quarterly basis to the general category fishery during the interim period to prevent overfishing of the scallop resource due to the expansion of the general category effort. As a result, this measure will have positive economic impacts over the long-term on the vessels that qualify for general category limited access fishery (Sections 5.4.8.5, 5.4.8.6 and 5.4.13 of Amendment 11 and Section 5.4.10.1.1 and 5.4.10.1.1 of Framework 19). Although management of general category fishery by a hard TAC during the transition period would create some derby style fishing, the division of the total hard TAC into quarterly TACs will reduce race to fish to some extent and lessen the negative economic impacts associated with derby fishing (discussed in Sections 5.4.8.5, 5.4.8.6 and 5.4.13). Proposed alternative (Option A) would allocate 30% of the hard TAC in the first quarter and 40 percent in the second quarter by taking into account access area trips to be allocated to the general category fishery in those quarters in 2008 and leaving 25% of the annual quota to the third and fourth quarters. Since unused TAC from Quarter 1 would roll over to Quarter 3, and unused TAC from Quarter 2 would roll over to the fourth quarter, there will be less incentive for the general category vessels to land scallops until all the TAC allocated to Quarter 1 and Quarter 2 is reached if catching them later make more economic sense.
- **Comparison of the impacts with the alternative options:** There is no other alternative to the no action alternative of 10% hard quarterly TAC for the general category fishery in the interim period. There is another option, however, Option B, that would distribute a greater percentage of the quarterly 10% hard TAC to the first and second quarters (85%) and less (15%) to the last two quarters, reducing the derby fishing in the first two quarters but increasing it increasing in the last quarters. This option is not expected to have larger positive economic impacts on the general category fishery compared to the proposed action (Option A).

### ***General category access area allocations***

- Rationale is provided in *Section 2.4.1*.
- Economic impacts are analyzed in Section 5.4.10.2.
- **Summary of the impacts of the proposed option and mitigating factors:** The proposed 5% allocation to the access areas in 2008-2009 fishing years is expected to have positive economic impacts on the general category vessels compared to a lower allocation, or 2% allocation under status quo. Because access areas are more productive and have higher LPUE than the open areas, it will take less fishing time to catch the 400 pound possession limit in those areas. As a result, fishing costs will be lower and profits will be higher for trips taken in the access areas compared to open areas. Since most general category vessels do not fish in Closed Area II, zero percent allocation for this area will increase open area landings and overall revenues of the general category fishery.
- **Comparison of the impacts with the alternative options:** The alternative 2% allocation for 2008 fishing year and 5% (or a small) allocation for the Closed Area II in 2009 is expected to have less economic benefits for the general category vessels.

### ***General category IFQ and cost recovery program***

- Rationale is provided in *Section 2.4.1*
- Economic impacts are analyzed in Section 5.4.10.1.2
- **Summary of the impacts of the proposed option and mitigating factors:** Under Amendment 11 (no action for Framework 19) general category vessels that qualify for a limited access permit will be allocated an individual amount of scallop meat in pounds per fishing year, or an individual fishing quota (IFQ). As analyzed in Amendment 11, IFQ's will have positive economic impacts on general category vessels that qualify for limited access (Section 5.4.8 and 7.9 in Amendment 11). Framework 19 includes a program that could collect up to 3% of ex-vessel value of scallop product landed to recover the costs directly related to management, data collection and analysis, and enforcement of the general category IFQ program as mandated by the Magnuson Stevens Fishery Management Act (MSA). With the preferred alternative total scallop landings estimated at 45.9 million lbs. in 2009 and ex-vessel prices estimated from \$7.55 - \$8.30, so at a 5% TAC and estimated revenue of about \$17.3 million to \$19.1 million for general category fishery, 3% cost recovery could range from about \$519,818 to \$571,455 in 2009. The fee for the limited access vessels that qualify for the limited access general category fishery will be about \$51,982 to 57,145 since they receive 0.5% of the total harvest. The positive economic impacts of IFQs for the general category limited access qualifiers are expected to exceed the costs of this cost recovery program.
- **Comparison of the impacts with the alternative options:** There are no other alternative options to the proposed cost recovery program and the no action alternative would be inconsistent with MSA.

### ***Northern Gulf of Maine Hard TAC***

- Rationale is provided in Section 2.4.1.3
- Economic impacts are analyzed in Section 5.4.10.1.3
- **Summary of the impacts of the proposed option and mitigating factors:** GOM Hard TAC is expected to have positive economic impacts on a larger number of vessels that do

not qualify for limited access but do for an NGOM permit because it allows them to land scallops in this area during favorable resource conditions. The proposed hard TAC of 70,000 lbs expected to generate more than half million scallop revenue for NGOM area access vessels in 2008-09.

- **Comparison of the impacts with the alternative options:** There are no alternative options.

#### *Incidental Catch Mortality*

- Rationale is provided in *Section 2.5*
- Economic impacts are analyzed in Section 5.4.11.
- **Summary of the impacts of the proposed option and mitigating factors:** Removal of incidental catch before making allocations will ensure fishing mortality targets are not exceeded, thus will have positive impacts on the resource, scallop yield, on the revenues and profits of the scallop vessels.
- **Comparison of the impacts with the alternative options:** There are no other alternative options.

#### *Overfishing Definition*

- Rationale is provided in *Section 2.6*
- Economic impacts are analyzed in Section 5.4.12.
- **Summary of the impacts of the proposed option and mitigating factors:** The proposed action will have positive impacts on the scallop resource, scallop landings, the revenues and profits of the scallop vessels over the long-term by maintaining the fishing mortality target at the precautionary level of  $F=0.2$ , reducing the risk of overfishing.
- **Comparison of the impacts with the alternative options:** The alternative that would revise the fishing mortality is less precautionary and although it would increase landings and economic benefits over the short-term, it could resulting overfishing and lower economic benefits over long-term.

#### *Observer Set-Aside Program Improvements*

- Rationale is provided in Section 2.7
- Economic impacts are analyzed in Section 5.4.13.
- **Summary of the impacts of the proposed option and mitigating factors:** The proposed action will have positive economic impacts by improving the administration and reducing the cost burden of the observer program on scallop vessels. Since LPUE is lower in open areas in general, assigning higher compensation for these trips increases ability of vessels to pay for observer costs and trip expenses.
- **Comparison of the impacts with the alternative options:** There are no other alternatives that would result in larger economic benefits.

#### *Area closures to protect young scallops*

- Rationale is provided in Section 2.8
- Economic impacts are analyzed in Section 5.4.2 and 5.4.14.
- **Summary of the impacts of the proposed option and mitigating factors:** There are no new areas proposed by this Framework to protect young scallops. The preferred

alternative include, however, closure of the traditional Hudson Canyon area to fishing in 2008 and 2009 fishing years. This is expected to have positive economic impacts by reducing mortality and increasing yield from this area. The impacts of this measure were analyzed in Section 5.4.2 in combination with other access area measures and open area DAS allocations.

- **Comparison of the impacts with the alternative options:** Two different boundary alternatives for Hudson Canyon access area (HCA) were considered but not selected by the Council. These alternative closures would slightly increase the revenues and economic benefits for the scallop vessels compared to the closure of the current HCA, but would allocate less open-area DAS in 2008 fishing year.

### ***30-Day VMS Power Down***

- Rationale is provided in *Section 2.9.1*
- Economic impacts are analyzed in Section 5.4.15.1.
- **Summary of the impacts of the proposed option and mitigating factors:** This action would reduce the burden on vessel-owners to run vessel for long periods when it is not fishing, thus would have some positive economic impacts on scallop vessels.
- **Comparison of the impacts with the alternative options:** There are no other alternatives other than no action which does not allow vessels to power down the VMS unit.

### ***Clarification- When Vessel Can Leave for Access Area Trip***

- Rationale is provided in *Section 2.9.2*.
- Economic impacts are analyzed in Section 5.4.15.2.
- **Summary of the impacts of the proposed option and mitigating factors:** This action is expected to have indirect positive economic impacts on scallop vessels by preventing a vessel owner from making a wrong decision (with possible negative economic consequences) about when to leave on an access area trip.
- **Comparison of the impacts with the alternative options:** There are no other alternatives.

### **6.12.3.4 Indirectly affected industries**

Indirect impacts include the impacts on the sales, income, employment and value-added of industries that supply commercial harvesters, such as the impacts on marine service stations that sell gasoline and oil to scallop vessels. The induced impacts represent the sales, income and employment resulting from expenditures by crew and employees of the indirect sectors. Proposed action is expected to have positive indirect impacts compared to no action by increasing landings and revenues from the scallop fishery. But given that overall impacts of the proposed measures on the fleet revenues and costs will be positive and small over the long-term; their indirect and induced impacts are not expected to be significant.

### **6.12.3.5 Identification on Overlapping Regulations**

The proposed regulations do not create overlapping regulations with any state regulations or other federal laws.



## 7.0 GLOSSARY

**Annual fishing mortality target** – a rate of removals that when applied over a fishing year is consistent with the objectives of the FMP.

**Annual potential increase** – the percent increase in total or relative biomass that would occur during a one-year interval if no fishing occurs (i.e. zero fishing mortality). Projection models take into account the size frequency distribution of the population, the expected growth of individuals at each size class, and natural mortality.

**Area based management** – in contrast to resource wide allocations of TAC or days, vessels would receive authorization to fish in specific areas, consistent with that area's status, productivity, and environmental characteristics. Area based management does not have to rotate closures to be effective.

**Area rotation** – a management system that selectively closes areas to fishing for short to medium durations to protect small scallops from capture by commercial fishing until the scallops reach a more optimum size. Closed areas would later re-open under special management rules until the resource in that area is similar to other open fishing areas. Area rotation is a special subset of area based management that relies on an area closure strategy to achieve the desired results when there are sufficient differences in the status of the management areas.

**B<sub>max</sub>** – a theoretical value when the scallop stock with median recruitment is fished at F<sub>max</sub>. For a stock without a stock-recruitment relationship, like sea scallops, this stock biomass produces MSY when fished at F<sub>max</sub>.

**Biological Opinion** – an ESA document prepared by either the NMFS or USFWS describing the impacts of a specific Federal action, including an FMP, on endangered or threatened species. The Biological Opinion concludes whether or not the NMFS/USFWS believe that the actions are likely to jeopardize the continued existence of any of the protected species, and provides recommendations for avoiding those adverse impacts.

**Closed rotation area** – an area that is temporarily closed to postpone mortality on abundant, small scallops.

**Consumer surplus** - The net benefit consumers gain from consuming fish based on the price they would be willing to pay for them. Consumer surplus will increase when fish prices decline and/or landings go up.

**Contagious recruitment** – similar amounts of scallop settlement in related areas. When scallop settlement is above average in one area, it tends to be above average in neighboring areas.

**Controlled access** – a program that allows fishing in a specified area under rules that differ from the normal fishery management rules that apply to normal, open fishing areas. Often controlled access areas have a scallop TAC, a scallop possession limit, and area-specific trip

and DAS allocations. Other regulations may apply to achieve certain conservation objectives.

**Critical habitat** – an area that has been specifically designated under the ESA as an area within the overall geographical region occupied by an endangered or threatened species on which are found the physical or biological features essential to conservation of the species.

**Day-at-sea (DAS)** – is each 24-hour period that a vessel is on a scallop trip (i.e. not declared out of the day-at-sea program) while seaward of the Colregs line.

**Day-at-sea tradeoff** – the number of days automatically charged for fishing for scallops in designated areas, regardless of the time actually fished.

**Day-at-sea use** – the amount of time that a vessel spends seaward of the Colregs line on a scallop trip.

**Days-at-sea accumulated** – days charged against a vessel's annual day-at-sea allocations, including day-at-sea tradeoffs. Trips in controlled access areas are often charged a pre-established amount of DAS, regardless of the actual duration of the trip.

**Endangered species** – a species that is in danger of extinction throughout all or a significant portion of its range.

**ESA** - Endangered Species Act of 1973 as amended.

**Exploitable biomass** - the total meat weight of scallops that are selected by fishing, accounting for gear and cull size, at the beginning of the fishing year<sup>7</sup>.

**F<sub>max</sub>** – a fishing mortality rate that under equilibrium conditions produces maximum yield-per-recruit. This parameter serves as a proxy for F<sub>msy</sub> for stocks that do not exhibit a stock-recruitment relationship, i.e. recruitment levels are driven mostly by environmental conditions.

**Fixed costs** - These costs include expenses that are generally independent of the level of fishing activity, i.e., DAS-used, such as insurance, license, half of repairs, office expenses, professional fees, dues, utility, interest, dock expenses, bank, rent, store, auto, travel, and employee benefits.

**Fixed duration closure** – a rotational closure that would be closed for a pre-determined length of time.

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<sup>7</sup> The **average exploitable biomass** is different and is defined as the total meat weight of scallops that are selected by fishing averaged over the fishing year, accounting growth, natural mortality, fishing mortality, and gear and cull size.

**Fixed rotational management area boundaries** – pre-defined specifications of areas to be used to manage area rotation.

**FMP** – Fishery Management Plan.

**Heterogeneity** – spatial differences in the scallop resource, life history, or the marine environment.

**Incidental Take Statement** – a section of a Biological Opinion that allows the take of a specific number of endangered species without threat of prosecution under the ESA. For the Scallop FMP, an incidental take statement has been issued for a limited number of sea turtles to be taken by permitted scallop vessels.

**IWC** – International Whaling Commission; an international group that sets international quotas and/or establishes moratoria on harvesting of whales.

**Localized overfishing** – a pattern of fishing that locally exceeds the optimum rate, considering the age structure of the population, recruitment, growth, and natural mortality. This effect may cause mortality that is higher than appropriate on small scallops while under-fishing other areas with large scallops (assuming that the overall amount of effort achieves the mortality target for the entire stock). The combined effect is to reduce the yield from the fishery through the loss of fast-growing small scallops and the loss of biomass from natural mortality on very large scallops.

**Long-term closure area** – an area closed to scallop fishing for reasons other than achieving area rotation objectives. These areas may be closed to minimize habitat impacts, avoid bycatch, or for other reasons.

**LPUE** – Similar to catch per unit effort (CPUE), commonly used terminology in fisheries, LPUE in the Scallop FMP refers to the amount of landings per DAS a vessel achieves. This value is dependent on the scallop abundance and catch rate, but also depends on the shucking capacity of the crew and vessel, since most of the scallop catch must be shucked at sea. Since discard mortality for sea scallops is low, discards are not included as a measure of catch in the calculation of LPUE.

**Magnuson Act** – Magnuson Stevens Act of 1976 as amended.

**Meat yield** – the weight of a scallop meat in proportion to the total weight or size of a scallop. Scallops of similar size often have different meat yields due to energy going into spawning activity or due to the availability of food.

**MMPA** - Marine Mammal Protection Act of 1972 as amended.

**NAAA** - The Northwest Atlantic Analysis Area was a geographic area used in the habitat metric analysis. It's boundary to the North is the Hague line, the NC/SC border to the South, the coastline to the West, and the 500 fathom depth contour to the East.

**NEPA** – National Environmental Policy Act of 1972 as amended.

**Net economic benefits** - Total economic benefits measure the benefits both to the consumers and producers and are estimated by summing consumer and producer surpluses. Net economic benefits show, however, the change in total economic benefits net of no action.

**NMFS** – National Marine Fisheries Service.

**Nominal versus real economic values** - The nominal value of fishing revenues, prices, costs and economic benefits are simply their current monetary values unadjusted for inflation. Real values are obtained, however, by correcting the current values for the inflation.

**Open area** – a scallop fishing area that is open to regular scallop fishing rules. The target fishing mortality rate is the resource-wide target.

**Operating expenses or variable costs** - The operating costs measures the expenses that vary with the level of the fishing activity including food, ice, water, fuel, gear, supplies and half of the annual repairs.

**Opportunity cost** - The cost of forgoing the next best opportunity. For example, if a fisher's next best income alternative is to work in construction, the wage he would receive from construction work is his opportunity cost.

**PDT** – Scallop plan Development Team; a committee of experts that contributed to and developed the technical analysis and evaluation of alternatives.

**Potential biomass increase** - the annual change in the total biomass of scallop meats if no fishing occurs.

**Producer surplus** -Producer surplus for a particular fishery shows the net benefits to harvesters, including vessel owners and the crew, and is measured by the difference between total revenue and operating costs.

**Recently re-opened area** – an area that has recently re-opened to scallop fishing following a period of closure that postponed mortality on small scallops. The annual TAC and target fishing mortality rate is defined by time-averaged fishing mortality that allows the area-specific target to deviate from the norm. Special rules (i.e. day-at-sea allocations or trips with possession limits and day-at-sea tradeoffs may apply.

**Recruitment** – a new year class of scallops measured by the resource survey. Scallop larvae are pelagic and settle to the bottom after 30-45 days after spawning. The resource survey, using a lined dredge, is able to capture scallops between 20 – 40 mm, but more reliably at between 40 and 60 mm. Recruitment in this document refers to a new year class that is observable in the survey, at around two years after the eggs had been fertilized and spawned.

**Recruitment overfishing** – a high level of fishing mortality that causes spawning stock biomass to decline to levels that significantly depresses recruitment. Because sea scallops are very productive, this mortality rate is substantially higher than  $F_{max}$  and the biomass where recruitment is threatened is much lower than the present biomass target.

**SAFE Report** – A Stock Assessment and Fishery Evaluation Report, required by the Sustainable Fisheries Act. This report describes the present condition of the resource and managed fisheries, and in New England it is prepared by the Council through its Plan Development Teams (PDT) or Monitoring Committees (MC). The Scallop PDT is the MC for the Atlantic Sea Scallop FMP and prepares this report.

**SMAST** – School for Marine Science and Technology, University of Massachusetts Dartmouth

**Scallop productivity** – the maximum average amount of biomass that can be taken from a defined area.

**Shucking** – a manual process of cutting scallop meats from the shell and viscera.

**Size selection** – in the scallop fishery, size selection occurs at two points: when the fishing gear captures the scallop and when the crew culls the catch before shucking. At the first point, size selection depends on escapement through the dredge rings, twine top, or trawl meshes. At the second point, size selection depends on the size of the catch and marketability. Small scallops are less valuable and more time consuming to shuck a pound of meats. These factors influence whether the crew retains scallops at a smaller or larger size. Size selection by the fishery is the combined effect of mortality from landed scallops, from discard mortality, and from non-catch mortality from the fishing gear. Except under certain rare conditions, most of the mortality has been associated with the landed portion of the catch.

**TAC** – Total allowable catch is an estimate of the weight of scallops that may be captured by fishing at a target fishing mortality rate. The TAC could apply to specific areas under area based management rules.

**Take** – a term under the MMPA and ESA that means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct with respect to either a marine mammal or endangered species.

**Ten-minute square** – an approximate rectangle with the dimensions of 10-minutes of longitude and 10-minutes of latitude.

**Threatened species** – any species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

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