DRAFT

Amendment 19

to the Atlantic Sea Scallop Fishery Management Plan

Including a
Draft Environmental Assessment (EA)

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 Amendment 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 amendment 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).

The primary need of this amendment is to improve the Scallop FMP regulations so that fishery specifications are better aligned with the start of the scallop fishing year. The primary purpose or objective of this action is to amend scallop regulations to: 1) reduce potential economic and biological consequences from late implementation of specifications, and 2) reduce overall administrative burden associated with late implementation. In addition to the No Action alternative, the Council considered several other alternatives to address the purpose and need of this action. A summary of the alternatives considered, and the rationale for the Council preferred alternatives are summarized in Table 1; **the preferred alternatives are in bold**.

Under the preferred alternative, a specific process for setting fishery specifications would be adopted (Alternative 2.2), and the start of the fishing year would shift from March 1 to April 1 (Alternative 2.3). These measures combined are expected to improve the overall timing of scallop fishery specifications so that final measures are available for the fishery at the start of the fishing year.

The environmental impacts of all of the alternatives considered are described in Section 5.0 and summaries of the most substantial impacts are provided here. A summary of the Council rationale for each measure is described in Table 1. The preferred alternatives are expected to have low positive impacts on the scallop resource and fishery. Shifting the start of the fishing year back one month is expected to have low positive impacts, but when combined with the specifications process would have the most positive impacts on the resource. By reducing delays, final fishery allocations are expected to be available earlier in the spring when scallop meat weights are higher. Therefore, participants have more flexibility to fish allocations when scallop meat weights are higher, potentially reducing overall mortality. The preferred alternatives would require some changes in business planning with potential risks, but those are expected to decline over time and would be outweighed by positive impacts on the resource, yield, and revenues over the long-term.

Impacts on EFH and non-target species are expected to be neutral to low positive, and impacts on protected resources are expected to be positive for the alternative that would adopt a specifications process, but potentially negative to low negative from shifting the fishing year back one month.

Overall, the cumulative effects of the preferred alternative on the scallop resource, EFH, protected resources, fishery businesses and communities, other fisheries and non-target species should result in non-significant neutral to low positive impacts.

Table 1 – Summary of Amendment 19 alternatives, summary of impacts, and Council rationale for preferred alternatives (alternatives in boldface)

A19 Alternatives	Potential Impacts of the Alternatives to the Fishery Management Plan				Summary of Council Rationale for preferred alternatives
	Atlantic Sea Scallop	Essential Fish Habitat and Non-target Species/Fisheries	Protected Resources	Fishery Related Businesses and Communities	
Alternative 2.1 No Action Specs by FW and March 1 start date	Low negative	Low negative to neutral	Negative	Low negative	
Alternative 2.2 Specification Process Specs can be implemented by spec action	Low negative to low positive	Neutral to Low positive	Positive	Low positive	Some positive impacts expected if flexibility is improved from fewer delays. Lower administrative burden and confusion, especially when combined with change in start date of fishing year.
Alternative 2.3 Change FY to April 1 Start of FY shifts from March 1 to April 1	Low positive	Neutral to Low positive	Low negative to Negative	Low positive	Some change in business planning would be needed which could increase risks, but expected to decline over time and be outweighed from positive impacts. When combined with specification process, most positive impacts.

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1.0 INTRODUCTION AND BACKGROUND

1.1 BACKGROUND

This document contains the measures considered by the New England Fishery Management Council for Amendment 19 to the Atlantic Sea Scallop Fishery Management Plan (FMP), consistent with the Magnuson-Stevens Fishery Conservation and Management Act (MSA). This document also contains information and supporting analyses required under other applicable law, including the National Environmental Policy Act (NEPA), Regulatory Flexibility Act (RFA), and Executive Order 12866.

This action is under development to address one specific issue that has existed in the sea scallop fishery for some time, late implementation of fishery specifications. For various reasons sea scallop fishery specifications are rarely in place on or before March 1, the start of the federal scallop fishing year. This can cause negative impacts on the scallop fishery and resource, as well as administrative challenges. This action is considering a range of alternatives to enable scallop specifications to be implemented closer, if not for the start of the fishing year.

The preferred alternative proposed in Amendment 19 is to implement a specifications setting process (Alternative 2.2) as well as shift the start of the fishing year from March 1 to April 1 (Alternative 2.3). These measures combined are expected to improve the overall timing of scallop fishery specifications so that final measures are available for the fishery at the start of the fishing year.

The proposed management action as well as other alternatives considered by the Council in Amendment 19 are described Section 2.0 of this document. This amendment document builds on the information and analyses provided in the last Environmental Impact Statement prepared for this FMP (Amendment 15) and most recent action approved by the Council in 2014 (Framework 26). Updates have been included in this action related to background information (Affected Environment, Section 4.0) and impact analyses (Section 5.0) wherever possible; the Amendment 15 FEIS and Framework 26 EA should be referenced for more comprehensive information.

1.2 PURPOSE AND NEED

The primary need of this amendment is to improve the Scallop FMP regulations so that fishery specifications are better aligned with the start of the scallop fishing year. The primary purpose or objective of this action is to amend scallop regulations to: 1) reduce potential economic and biological consequences from late implementation of specifications, and 2) reduce overall administrative burden associated with late implementation.

Late implementation of final measures can lead to complex in-season changes in fishery allocations, confusion and uncertainty for the fleet, as well as potentially negative impacts on the resource and fishery if effort shifts into areas or seasons that are less desirable as a result of delayed measures.

The measures developed and analyzed in this action are intended to meet the primary need and objectives summarized in Table 2.

Table 2 - Purpose and Need for Scallop Amendment 19

Need for Amendment 19	*Corresponding Purposes for Amendment 19*
To improve the Scallop FMP so that fishery specifications are better aligned with the start of the scallop fishing year	• Amend scallop regulations to reduce potential economic and biological consequences from late implementation of specifications • Amend scallop regulations to reduce overall administrative burden associated with late implementation

1.3 SUMMARY OF SCALLOP FISHERY MANAGEMENT PLAN

1.3.1 Summary of past actions

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, and some Amendments and Framework Adjustments in other plans have impacted the fishery. This section will briefly summarize the major actions that have been taken to shape the current scallop resource and fishery, but a complete list of the measures as well as the actions themselves are available on the NEFMC website (http://www.nefmc.org/scallops/index.html).

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. Qualifying vessels were assigned different day-at-sea (DAS) limits according to which permit category they qualified for: full-time, part-time or occasional. Some of the more notable measures included new gear regulations to improve size selection and reduce bycatch, a vessel monitoring system to track a vessel's fishing effort, and an open access general category scallop permit was created for vessels that did not qualify for a limited access permit. Also in 1994, Amendment 5 to the Northeast Multispecies FMP closed large areas on Georges Bank to scallop fishing over

concerns of finfish bycatch and disruption of spawning aggregations (Closed Area I, Closed Area II, and the Nantucket Lightship Area - 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.

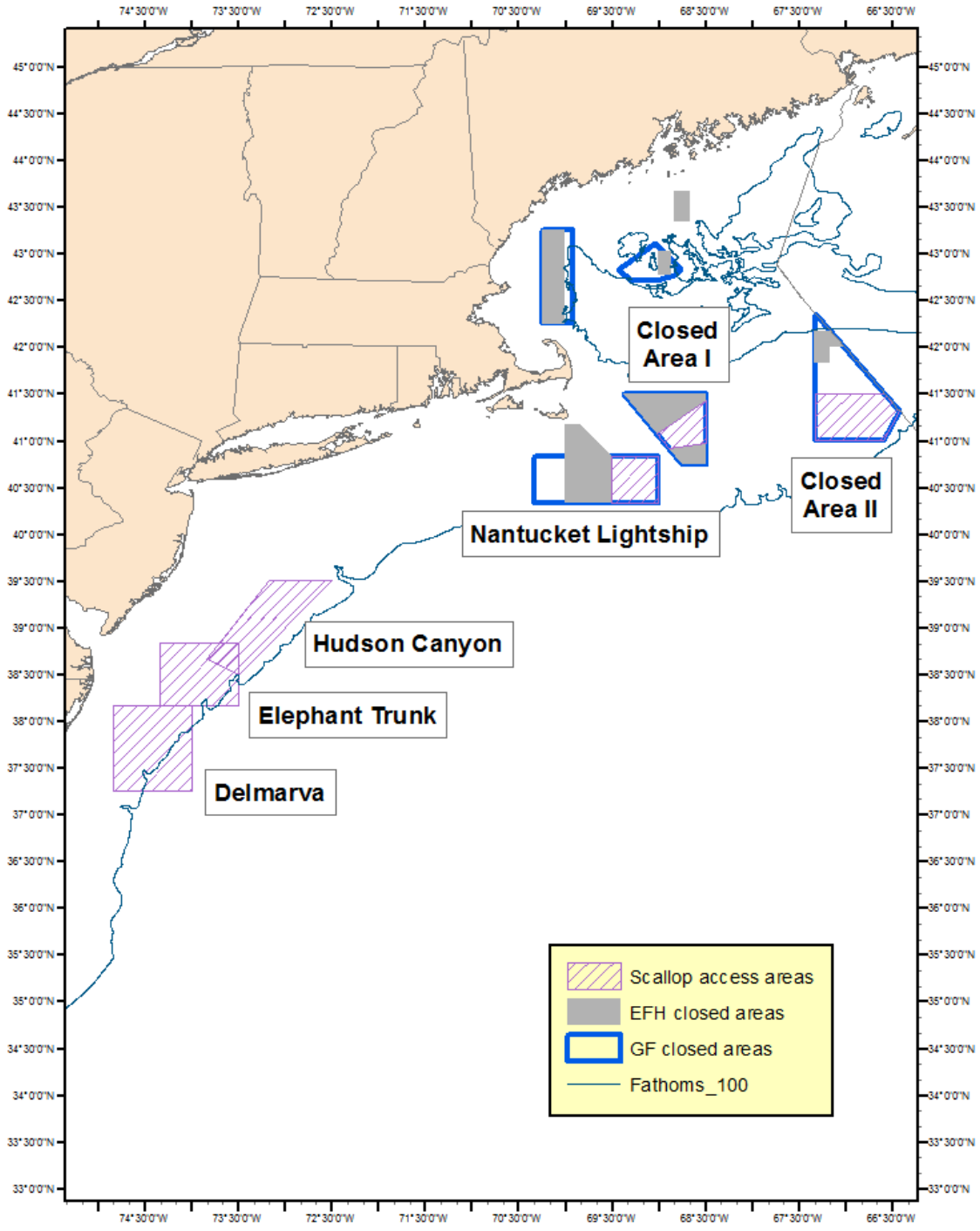
In 1999, Framework Adjustment 11 to the Scallop FMP allowed the first scallop fishing within portions of the Georges Bank groundfish closed areas since 1994 after resource surveys and experimental fishing activities had identified areas where scallop biomass was very high due to no fishing in the intervening years. This successful "experiment" with closing an area and reopening it for controlled scallop fishing further motivated the Council to shift overall scallop management to an area rotational system that would close areas and reopen them several years later to prevent overfishing and optimize yield.

In 2004, Amendment 10 to the Scallop FMP formally introduced rotational 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. 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.

As the scallop resource rebuilt under area rotation biomass increased inshore and fishing pressure increased by open access general category vessels starting in 2001. Landings went from an average of about 200,000 pounds from 1994-2000 to over one million pounds consistently from 2001-2003 and 3-7 million pounds each year from 2004-2006 (NEFMC, 2007). In June 2007 the Council approved Amendment 11 to the Scallop FMP and it was effective on June 1, 2008. The main objective of the action was to control capacity and mortality in the general category scallop fishery. Amendment 11 implemented a limited entry program for the general category fishery where each qualifying vessel received an individual allocation in pounds of scallop meat with a possession limit of 400 pounds. The fleet of qualifying vessels receives a total allocation of 5% of the total projected scallop catch each fishing year. This action also established separate limited entry programs for general category fishing in the Northern Gulf of Maine and an incidental catch permit category (up to 40 pounds of scallop meat per trip while fishing for other species).

More recently Amendment 15 to the Scallop FMP was implemented in 2011. This action brought the FMP in compliance with new requirements of the re-authorized MSA (namely ACLs and AMs) as well as a handful of other measures to improve the overall effectiveness of the FMP.

Figure 1 – Past and present scallop management areas (purple hatched areas) with other reference areas



1.3.2 Background on late implementation issue

The Scallop FMP is set up to review and adjust management measures at least every two years through the framework adjustment process. Framework measures typically include annual catch limits (ACLs), days-at-sea (DAS), access area trip allocations, individual fishing quota (IFQ) allocations, incidental quotas, and TACs for vessels with LAGC Northern Gulf of Maine (NGOM) permits. In most cases, if not all, the Council also includes a handful of additional measures intended to improve overall management of the scallop fishery or specific aspects of the Scallop FMP. These measures can be fairly minor and easily addressed, or major, complicated, and time consuming issues.

Ideally frameworks with fishery specifications should be in place by the March 1, the start of the scallop fishing year, but for nearly all years since 2000, the framework measures take effect in May, June or even later. It is important to understand the general timeline of the scallop specification process to appreciate the challenges that face this program. Typically the Council begins developing a biennial framework in June. During the late spring and summer scallop surveys are conducted by both the federal government as well as a handful of other organizations that are primarily funded through the Scallop Research Set-Aside (RSA) program to estimate scallop biomass in specific areas.

Depending on weather and availability of research vessels the Northeast Fisheries Science Center (NEFSC) completes the annual scallop survey before mid-July, and preliminary biomass estimates are not usually available until early fall. This has sped up to some degree in recent years to mid-August, but even that does not leave enough time to fully develop and analyze fishery specifications alternatives for the Council to take action on in September. In most years multiple survey estimates are combined and this does take time to put all the various survey results together. In order to incorporate the most recent available scallop survey information, the Council has been taking final action in November.

After the Council takes final action in November the framework document goes back and forth several times between Council staff and GARFO staff to complete the various regulatory requirements. GARFO has required about 5 to 6 months for reviewing the action and completing the rulemaking process once the Council submits the action for review and implementation. Although GARFO staff in recent years have worked hard to streamline the review and rulemaking process down to about three months, this expedited timeline is not always possible depending on the level of complexity of a management action. The earliest GARFO could implement an action submitted in early-December is about May 1 (e.g., Northeast (NE) Multispecies framework adjustments approved by the Council in November are implemented on May 1).

1.3.1.1 History of late implementation of scallop specifications

The March 1 start to the scallop fishing year (March 1 through February 28/29) was established through Framework Adjustment 1 in 1994. Framework 1 codified the Amendment 4 final rule effective date as the start of the fishing year so that allocations for 1994 spanned a 12-month period in order to ensure a reduction in fishing effort the first year of the new effort-control (i.e.,

days-at-sea (DAS)) based fishery. This fishing year has remained in place since that time, even though allocations have become increasingly more complicated with the emergence of the scallop access area rotation program in 2004 and individual fishing quota (IFQ) fishery in 2010.

Late implementation is not a new issue. The New England Fishery Management Council has developed frameworks to set allocations in the scallop fishery since 1999, the first year there was access into Closed Area 2 (i.e., when the access area rotation program was in its early stages of development, beginning with Framework Adjustment 11. In the last 16 years following Framework 11, there have been 12 actions that set annual scallop specifications (Table 3). Of those, four of those actions set specifications for two years, which ensured that the second year's specifications for each of those actions were implemented on March 1 for those fishing years. Aside from these instances, the specifications were implemented in March on only two occasions: Once in 2000 (Framework 12) and again in 2003 (Framework 15), and both involving special circumstances. NMFS was able to implement Framework 12 on March 1, 2000, because the Council, following the criteria outlined in the scallop regulations at §648.55 (i), requested that GARFO waive the proposed rule and provided the necessary rationale for NMFS to agree with that request consistent with the Administrative Procedure Act. The March 1, 2003, implementation date for Framework 15 was possible because the Council took final action in September rather than in late November or early December.

NMFS implemented the majority of framework allocations in May or June. The Council took final action on these frameworks in November. Those implemented in June generally involved extraordinary circumstances. For example, the scallop industry requested the Council reconsider its November decision in specifying Framework 21 allocations for the 2010 fishing year, resulting in the resubmission of Framework 21 in March. Although NMFS worked very hard to publish the proposed rule for Framework 21 in April, less than a month after the Council's resubmission, the rulemaking process did not have enough flexibility to have final measures in effect sooner than late June 2010. An additional reason for June implementation has been the Council's final submission of an action in March. GARFO's long-held policy has been to not publish a proposed rule until it has received a final version of the action from the Council. As a result, when a final action is not submitted until March, rulemaking is delayed and implementation is pushed back to June.

For those years when implementation occurred later than June, the reasons were due to actions being tied to more complicated amendments that had to be implemented at the same time (e.g., Framework 22/Amendment 15) or actions that the Council developed out of sequence with the usual timing of specifications (e.g., Framework 16).

Recognizing the complications and timing constraints in meeting the March 1 goal for implementing allocations, the Council considered changing the fishing year to May 1 in three different actions, most recently in Amendment 15, but a change was never adopted due to scallop industry opposition.

Table 3 – Submission, Final Rule, and Effective Dates for annual (and biennial) adjustments since fishing year 2000

Specifications-Setting Action	Fishing Years*	Date of Council Submission	Date Final Rule Published in Federal Register	Effective Date
Framework 27 (EA)	2016	3/14/16	5/4/2016	5/4/2016
Framework 26 (EA)	2015	2/17/2015	4/21/2015	5/1/2015
Framework 25 (EA)	2014	3/13/2014	6/16/2014	6/16/2014
Frameworks 24/49 (EA)	2013	1/22/2013	5/9/2013	5/20/2013
Framework 22 (EA)	2011-2012	3/22/2011	7/21/2011	8/1/2011
Framework 21 (EA)	2010	3/19/2010	6/28/2010	6/28/2010
Framework 19 (EA)	2008-2009	12/19/2007	5/29/2008	6/1/2008
Framework 18 (EA)	2006-2007	12/16/2005	6/8/2006	6/15/2006
Framework 16 (EA)	2004 (mid-year adjustment) – 2005	7/2/2004	11/2/2004	11/2/2004
Framework 15 (EA)	2003	12/12/2002	2/28/2003	3/1/2003
Framework 14 (EIS)	2001-2002	2/28/2001	5/11/2001	6/15/2001
Framework 12 (EA)	2000	12/9/1999	3/3/2000	3/1/2000

* When a framework set allocations for two fishing years, the second year's allocations were always effective March 1 of that fishing year.

1.3.1.2 Summary of changes that could improve timing of scallop specifications but do not meet the purpose of this action to amend scallop regulations

There are a handful of changes that could be considered that would potentially improve the timing of scallop fishery specifications so that they are better aligned with the start of the scallop fishing year. These changes do not require a change in the scallop regulations, so were not considered in this action, which is limited to measures that would require a regulatory change. These ideas could be considered best practices or ideas to consider that may improve overall timing related to developing, evaluating and implementing scallop specifications before the start of the fishing year.

First, modify when and how the federal scallop survey is conducted. Timing and design of the federal scallop survey are responsibilities of the Northeast Fisheries Science Center (NEFSC) and are not regulated. Decisions about when and how the survey is conducted is outside of the Council process and is not regulated whatsoever under federal fishing regulations. Arguably, shifting the survey season earlier or using multiple vessels could allow for some time savings overall if surveys were done simultaneously. For example, if the dredge component of the federal scallop survey was conducted on industry vessels, the habcam component of the federal survey could be conducted on a different vessel (i.e. UNOLS vessel R/V Sharp). This approach could enable survey results from both methods to be available earlier if it is more efficient to conduct the surveys on different vessels. However, there are other constraints on the timing and design of the federal scallop survey that would need to be taken into consideration. In addition, there are other survey results the Council uses to inform fishery specifications (i.e. VIMS dredge, SMAST camera and Habcam group) and those surveys have timing constraints as well. While some of these ideas could be explored further to see if survey results could be available earlier in the year, changing federal and academic/industry survey design is outside the scope and jurisdiction of the New England Council.

Second, if the final Council action was moved several weeks earlier it may be possible to implement final measures earlier. The Council currently has five meetings per year, and this has been the case for many years. The meetings are typically scheduled in January, April, June, September, and November. There is some variation in the schedule from time to time, and additional meetings added in extreme cases, but for the most part this is the schedule that has evolved over time to accommodate the needs of all the plans combined. For the Scallop FMP, resource surveys are typically conducted in May – July and results are due to the Plan Development Team in August. Therefore having final action at the September meeting is too early; more than several weeks is needed to combine all the survey results, have the SSC review and approve an ABC, develop and analyze specification alternatives, and get input from the Council's Advisory Panel and Scallop Committee. Therefore, final action is typically done at the November Council meeting.

Arguably, final action in October would potentially allow final measures to be in place sooner. If specifications are relatively straight forward, scheduling final Council action earlier (i.e. late October) may enable some time savings overall. But it still may not be feasible to develop and analyze often complex fishery specifications in that amount of time either (under 3 months). In addition, there are other factors to consider when adding or shifting a Council meeting such as other Council decisions and budget constraints. For example, the Council also currently takes final action on groundfish specifications in November, which works better for timing of final fishery allocations for that FMP because the start of the groundfish fishing year is May 1, not March 1 as it is for the scallop fishing year.

Third, if frameworks with fishery specifications did not include other measures the overall time needed to develop, analyze, and review the framework would be reduced. Many times the Council includes a handful of other measures in fishery specification framework actions (i.e. gear modifications, bycatch measures, modifications to the observer set-aside program, etc).

These measures can be important for the overall FMP, but often take valuable time to develop, analyze and review. If the Council only included fishery specifications in a scallop framework action it is possible that specifications could be implemented sooner, but not March 1. Therefore, it would not require additional federal action for specifications to be in place earlier than they have been if the Council limited the action to fishery specifications only, but meeting March 1 would still not be possible because of the time needed to develop and approve specifications based on survey data collected that year. Even for a specifications only document, there is not sufficient time for final submission, review and approval of a framework action between the end of November when the Council typically takes final action and March 1 (about 3 months).

Fourth, if specifications are set for two years at a time final measures would definitely be in place for year 2 of the framework action. There may still be a similar delay for year 1, but all the measures for year 2 would be ready for March 1 implementation. This approach has risks if updated survey results suggest different allocations for year 2 (higher or lower), but this approach would reduce overall administrative burden and ensure measures are in place by March 1 every other year.

Lastly, GARFO recently suggested another idea for streamlining the Council submission of a specification action and the rulemaking process. In the past, GARFO and Council staffs have finalized the NEPA documentation prior to publishing the proposed rule (Figure 2). Instead, if the Council is working on a simple, non-controversial action with timing constraints such as an action limited to scallop specifications, the Council could submit an initial draft decision document following Council final action and GARFO could use the document to support the publication of a proposed rule (Figure 3).

This initial draft decision document must include the drafted NEPA documentation that the Council used to make its final decisions (i.e., list of alternatives, drafted affected environment, drafted impacts, etc.). In addition, the Council's preferred alternatives must be identified, with rationale for the selection. Finally, the document must include the necessary information for the drafting of the proposed rule's regulatory flexibility analysis (RFA). This draft decision document will be referenced in the proposed rule, which would be drafted concurrently with Council's completion of a final specifications package. These steps would enable the proposed rule to publish sooner than in the past, about 8 weeks earlier. NMFS could not approve the action or publish the final rule until the final NEPA documentation is completed and formally submitted, and if the document is an EA, the FONSI is cleared and signed. Once the decision draft is submitted, Council staff will continue to work with GARFO staff to complete and submit the final NEPA documentation. This new process could result in a time savings that would result in specifications being implemented as early as on March 1, with no delay in effectiveness.

In summary, all of these ideas could be considered in the future to help streamline the specification development and implementation process, and none of them would require Council action to change the scallop regulations. There may even be other options to further streamline the process that would not require Council action that are not mentioned here. This list was

included in this action as background information and to document other ways the process could be further streamlined outside the Council process.

Figure 2 - Example timeline under the past Council documentation submission process and subsequent rulemaking process.

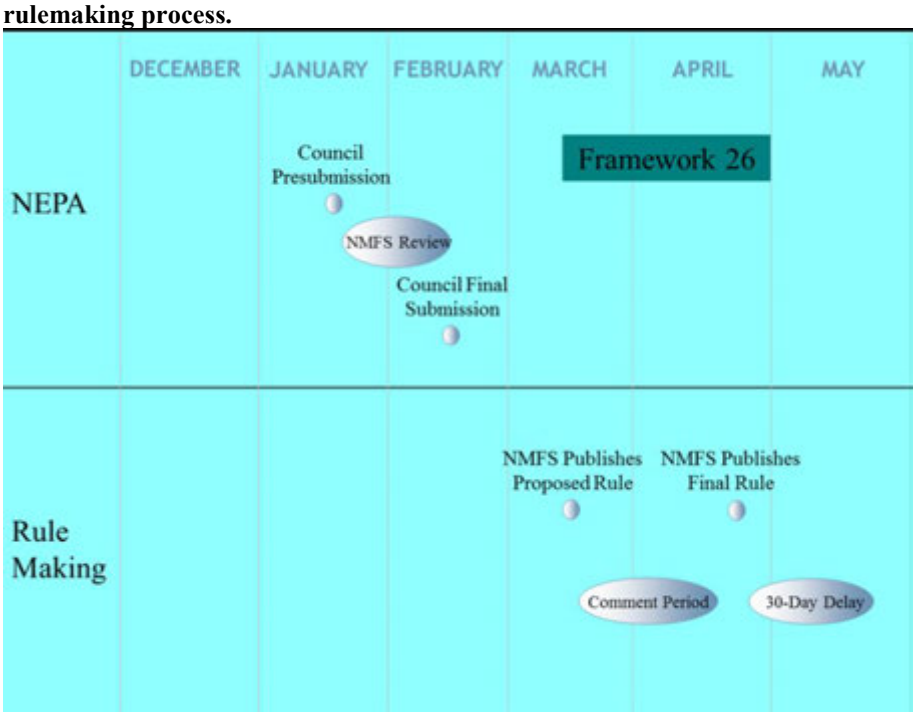
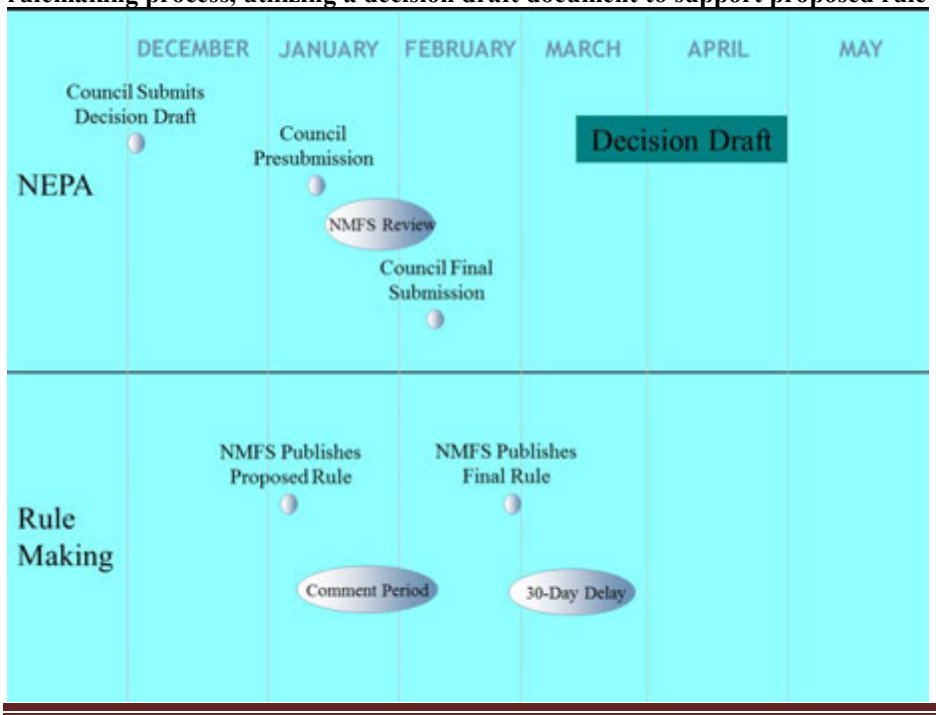


Figure 3 - Example timeline under the suggestion Council documentation submission process and subsequent rulemaking process, utilizing a decision draft document to support proposed rule



2.0 MANAGEMENT ALTERNATIVES UNDER CONSIDERATION

2.1 NO ACTION

The No Action for setting scallop fishery specifications is by framework action at least biennially, with default measures that are implemented at the start of the year and are later replaced by a subsequent action. Default measures are generally a sub-set of full fishing year allocations, i.e. default DAS are generally set at 75% of projected DAS. The Council sets default measures to be in place at the start of the year until final allocations are available, generally several months after the fishing year. Under No Action the start of the fishing year is March 1.

Additional Information:

The start date of the scallop fishing year was not set at March 1 for any specific reason. When the limited entry and DAS program was being developed (Amendment 4), the intent was that the program be based on a calendar year, and future DAS would be allocated each January. All the data was summarized by calendar year and the Council submitted Amendment 4 to coincide with a calendar year. However, there were multiple new programs that needed to be developed to implement the limited entry and DAS system. Therefore, additional time was needed to get new programs in place, provide time for an appeals process, and give vessels time to comply with new gear requirements. Thus the fishing year became March 1, the date Amendment 4 became effective.

Coincidently, March 1 is closer to the time of year that scallop fishing historically began to increase after the winter months when landings are generally lower. Having the fishing year start a little later enabled more vessels to be able to fish at the beginning of the fishing year, rather than wait several months for better weather. This was important for some of the smaller, less powerful vessels in the fishery.

In the past, the Council set some fishery specifications for two years with default measures for a third year. And in more recent years the Council has set fishery specifications for one year only, with default measures for the second year. Typically the default measures for limited access vessels have been set at 75% of the projected DAS with no access area trips and the default measures for LAGC vessels has been set at 100% of the projected catch for that component of the fishery. Default measures are flexible and vary year-to-year. For example, if access in a particular area is relatively certain for a default year, some access in that area may be included in the default measures.

As required under the Magnuson-Stevens Act, all framework actions require Council review at a minimum of two Council meetings. Typically the Council initiates a scallop fishery specification framework at the June Council meeting, and final action is taken at the November Council meeting. For example, when the Council set fishery specifications for fishing year 2015 the Council initiated Framework 26 in June 2014, final action was taken in November 2014, and final measures were implemented on May 1, 2015, two months after the start of the 2015 fishing year (March 1).

The scallop regulations related to setting fishery specifications are described below and a general timeline for developing and implementing fishery specifications under No Action is described in Table 4. The scallop fishing year begins on March 1 under No Action. This is the date when Amendment 4 measures were finalized and allocations were first available to the fishery, the action that first established limited entry and effort controls under DAS management.

The framework adjustment regulations include details about what information is required to be in the framework action; for example, how to specify OFL, ABC, ACL, ACTs, and accountability measures (AMs). There is a long list of measures that are considered frameworkable (*§648.55 (f)).*The Council can under No Action recommend that a framework be published as a final rule, but it must provide support and analysis justifying why a proposed rule should not be published (*§648.55 (i)).*

> *§648.55 Framework adjustments to management measures.*
>
> *(a) At least biennially, the Council shall assess the status of the scallop resource, determine the adequacy of the management measures to achieve scallop resource conservation objectives, and initiate a framework adjustment to establish scallop fishery management measures for the 2-year period beginning with the scallop fishing year immediately following the year in which the action is initiated. The PDT shall prepare a Stock Assessment and Fishery Evaluation (SAFE) Report that provides the information and analysis needed to evaluate potential management adjustments. The framework adjustment shall establish OFL, ABC, ACL, ACT, DAS allocations, rotational area management programs, percentage allocations for limited access general category vessels in Sea Scallop Access Areas, scallop possession limits, AMs, and other measures to achieve FMP objectives and limit fishing mortality. The Council's development of rotational area management adjustments shall take into account at least the following factors: General rotation policy; boundaries and distribution of rotational closures; number of closures; minimum closure size; maximum closure extent; enforceability of rotational closed and re-opened areas; monitoring through resource surveys; and re-opening criteria. Rotational closures should be considered where projected annual change in scallop biomass is greater than 30 percent. Areas should be considered for Sea Scallop Access Areas where the projected annual change in scallop biomass is less than 15 percent.*

Rationale:
This is how regulations currently permit setting of scallop allocations. Having the final action meeting in November enables the Council to use the most recent survey information to inform fishery allocations. Multiples surveys are typically conducted in many resource areas only several months earlier (May-July). Setting specifications through framework action enables the Council more flexibility to adjust other measures that are frameworkable, within the same action, rather than only limited to fishery specifications. This flexibility is beneficial because it allows relatively small adjustments to the plan to be made on a regular basis that can improve the

overall management program. However, there are costs as well. When other measures are included in a framework action beyond fishery specifications they can slow the overall process down because they typically take more time to develop, analyze, and review for implementation.

Additional rationale for the No Action process is that it has increased opportunities for public input. The framework process requires a minimum of two Council meetings before measures are final. There are also a handful of other meetings (i.e. PDT, AP and Committee) in between the Council meetings where the public can comment on the development and analysis of alternatives. Under the current process the proposed rule is not published until after the Council takes final action and the final EA is approved by NMFS. The proposed rule therefore includes the Council's preferred alternative and the complete final EA is available for the public to consider when making public comments. This approach may improve overall public awareness and ability to comment on proposed regulations because the Council's preferred alternative is included and more analyses are available.

Table 4 – Under No Action, the timeline for Framework 26 (specifications for FY2015) is used as an example for the best case scenario for an extremely streamlined scallop specifications framework process.

PROJECT PHASE	STARTING	ENDING
COUNCIL INITIATES FRAMEWORK	6.17.2014	6.19.2014
DEVELOPMENT	5.1.2014	11.1.2014
PDT MEETINGS (4)	5.1.2014	11.1.2014
ADVISORY PANEL/COMMITTEE MEETINGS (4, 2 EACH)	5.15.2014	11.14.2014
COUNCIL TAKES FINAL ACTION	11.18.2014	11.20.2014
COUNCIL STAFF FINALIZES EA[1]	11.24.2014	1.22.2015
EA PRE-SUBMITTED TO NMFS	1.22.2015	1.22.2015
EA REVIEWED BY NMFS	1.26.2015	2.16.2015
EA COMMENTS INCORPORATED BY COUNCIL STAFF	2.16.2015	2.23.2015

PROJECT PHASE	STARTING	ENDING
FORMAL EA SUBMISSION	2.18.2015	2.18.2015
PROPOSED RULE SUBMITTED TO HQ AND PUBLISHED[2]	2.20.2015	3.17.2015
PROPOSED RULE COMMENT PERIOD (15 DAYS)	3.17.2015	4.1.2015
FINAL RULE PREPARED (INCL. ADDRESSING PUBLIC COMMENTS)	3.17.2015	4.8.2015
FINAL RULE SUBMITTED TO HQ AND PUBLISHED	4.9.2015	4.21.2015
RANGE OF DATES FOR EFFECTIVENESS[3]	5.1.2015	5.21.2015

TOTAL WEEKS: ~46-49 weeks

[1] If a framework only has specs alternatives and is easier to analyze, there could be a time savings.
[2] Proposed rule will be developed and reviewed during time between Council final action and EA submission, so it can be submitted immediately after NMFS receives EA from Council.
[3] Effective date includes a range, depending on whether or not APA waiver for 30-day delay in effectiveness was cleared or not.

2.2 DEVELOP A SPECIFICATION SETTING PROCESS IN THE SCALLOP FMP *(PREFERRED ALTERNATIVE)*

This alternative would change the process for setting specifications in the scallop fishery. Currently a framework action is required to modify scallop specifications up to two fishing years at a time. This alternative would include a new specifications setting process that would enable the Council to set fishery allocations under a specification process, and not require development of a formal framework action to set fishery allocations. The Magnuson-Stevens Act requires that any framework action be reviewed by a full Council at a minimum of two meetings. The intent of this process is that it be more streamlined so the measures would be limited to fishery allocations only. Other adjustments such as allocations for the observer and research set-aside programs can have policy implications that could slow down the development and review of an action; therefore, would be outside the scope of a specifications process. Other changes such as modifying set-aside allocations would remain frameworkable items. The specific list of measures that could be adjusted through the specification process include:

- OFLs, ABCs, ACLs, and ACTs, including sub-ACLs for the LA and IFQ fleets
- DAS open area allocations
- Possession limits
- Modifications to access area rotational management (i.e. schedule for openings/closures, seasonal restrictions, modifications to boundaries, etc.)
- Access area poundage and fleet-wide trip allocations
- Incidental TTAC
- NGOM TAC

This measure could be selected with other alternatives (i.e. change the start of the fishing year to April 1).

Additional Information:

Under this specifications process the PDT would review updated survey information and identify a range of potential fishery specifications. Similar to the current Atlantic herring specifications process, the Scallop Oversight Committee would consider PDT recommendations, along with any public comment received, and recommend the appropriate specifications to the Council for a certain period. The Council would then review these recommendations, including any additional public comment, and would recommend specifications to NMFS.

The intent of this alternative is that the specification process should maintain the same flexibility as the current framework process in terms of the length of time fishery specifications would be in place. Specifically, the Council could set specifications for up to two fishing years with a third year as default. The Council could always set specifications more frequently, but not longer than two fishing years at a time, including third year specifications being default measures intended to be replaced by a subsequent action.

In the event the Agency does not approve the specifications proposed by the Council, the intent of this alternative is that the Agency should have the same review authority as the current

framework process. Specifically, the specifications could be approved, disapproved, or partially approved. The Agency would *not* have the flexibility to implement different specifications. For comparison, this process would be less flexible than other specification setting processes used in the region which enable the Agency to implement different specifications so long as the reason for any difference is explained in the proposed regulations (i.e. herring and whiting).

For NEPA, specifications would require the development of either an EA or a Supplemental Information Report (SIR), which is a method to document NEPA compliance that can be used when the recommended specifications fall within the range of previously analyzed specifications. GARFO prepared a guidance document on the potential use of SIRs, which has been included as Appendix 1. What level of NEPA analysis is appropriate is dependent on the specifics of the individual action, the magnitude of the impacts (either positive or negative) from that action, and if the specific impacts and their magnitude have been previously considered in a prior action. The use of a SIR can reduce the time needed to implement an action, but it is only applicable in limited situations. For example, any shift in the baseline (for any of the VECs) could change the impacts from what was previously considered. Creating the opportunity to use a SIR does require upfront work to analyze the potential impacts of likely specification alternatives. Regardless of which is used (i.e., a SIR or EA), simplified actions such as specifications should result in simplified NEPA documents, which would result in a time savings.

This specifications process is similar to the framework adjustment process in that specifications still require rulemaking, generally speaking, a proposed and final rule in accordance with APA requirements. NMFS and the Council must still adhere to all applicable laws when developing a specifications package (e.g., RIR, RFA, APA, ESA, etc.).

Rationale:
This measure is expected to provide overall time savings to the specification setting process. Specifications do not carry the Magnuson-Stevens requirement for the Council to review measures over the course of two Council meetings like the framework process. While the Council may discuss specifications at more than one meeting, it is not required. Furthermore, by minimizing these actions to just specifications (i.e. not developing a framework that includes other non-allocations alternatives), it is more likely that development, review, and implementation of allocations would be quicker.

Although adding the ability to adjust allocations through a specification setting process would not guarantee allocations in place by March 1, it would save time compared to the current framework process and could potentially get allocations in place much closer to the start of the fishing year. An Amendment to the Scallop FMP is required to consider this change because having a separate specifications process is currently not specified in the Scallop FMP. This measure is not expected to be controversial or have negative impacts on the resource or fishery, but because the FMP does not currently allow for such a process an Amendment is required to consider this change in how fishery specifications are set (currently by framework action up to two years at a time).

Table 5 – Schematic of timeline for setting scallop specifications under a new specifications process.
Note: this timeline would be expedited when using new streamlining process for document submission and proposed rule publication outlined in Section 1.3.1.2 (Figure 3).

PROJECT PHASE	STARTING	ENDING
SPECIFICATIONS INITIATED	6.17.2014	6.19.2014
DEVELOPMENT	5.1.2014	11.1.2014
PDT MEETINGS (4)	5.1.2014	11.1.2014
ADVISORY PANEL/COMMITTEE MEETINGS (4, 2 EACH)	5.15.2014	11.14.2014
COUNCIL TAKES FINAL ACTION[4]	11.18.2014	11.20.2014
COUNCIL STAFF FINALIZES EA[5]	11.20.2014	12.4.2014
EA PRE-SUBMITTED TO NMFS	12.4.2014	12.4.2014
EA REVIEWED BY NMFS (2-3 WEEKS)[6]	12.4.2014	12.28.2014
EA COMMENTS INCORPORATED BY COUNCIL STAFF (~1 WEEK)	12.28.2014	1.4.2015

PROJECT PHASE	STARTING	ENDING
FORMAL EA SUBMISSION	1.6.2015	1.6.2015
PROPOSED RULE SUBMITTED TO HQ AND PUBLISHED[7] (3 WEEKS)	1.9.2015	1.30.2015
PROPOSED RULE COMMENT PERIOD (15 DAYS)[8]	1.30.2015	2.15.2015
FINAL RULE PREPARED (INCL. ADDRESSING PUBLIC COMMENTS)	1.31.2015	2.22.2015
FINAL RULE SUBMITTED TO HQ AND PUBLISHED (3 WEEKS)	2.22.2015	3.15.2015
RANGE OF DATES FOR EFFECTIVENESS[9]	3.16.2015	4.15.2015

Total Weeks: ~39-43 weeks

[4] The specifications process does not require two Council meetings to review alternatives, so it may be possible to take final action at the September Council meeting in some years. This could save us potentially up to 2 months. Not sure how this would work with sub-ACLs for groundfish.
[5] EA would be submitted sooner than under current No Action Framework because measures would be limited to allocations and it is assumed that the analysis would therefore be simpler (estimated savings of 6 weeks, which is entirely dependent upon staff's ability to front load work in light of other work responsibilities). A SIR may potentially be used instead of an EA, which could save some time on submission, but it is unclear on how much savings would result. The discussion of the appropriate NEPA document will be a topic amongst Council and GARFO staff for each specifications action.
[6] We anticipate that a simpler EA could result in a shorter NMFS review period.
[7] Proposed rule will be developed and reviewed during time between Council final action and EA submission, so it can be submitted immediately after NMFS receives EA from Council.
[8] This is the shortest that the comment period would be. There may be instances that would justify a longer comment period (~30 days), which would push back the effective date by 2 weeks.
[9] Effective date includes a range, depending on whether or not APA waiver for 30 day delay in effectiveness was cleared or not.

2.3 CHANGE THE START OF THE FISHING YEAR TO APRIL 1 *(PREFERRED ALTERNATIVE)*

The start of the scallop fishing year would change from March 1 to April 1. The fishing year would continue to be a 12-month period, ending on March 31, rather than February 28/29. New fishery allocations would not be available to the scallop fishery until April 1, or when the framework is implemented, or specification package is implemented (if Alternative 2.2 is selected in this action). This alternative would also adjust the start of the scallop *permit* year from March 1 to April 1. Vessel owners would need to renew permits by April 1 each year, a month later than the current permit year start date. If this alternative is selected, the first fishing year/permit year that would begin on April 1 is expected to be 2018. The 2017 fishing year and permit year would be extended to 13 months (from March 1, 2017, through March 31, 2018). Fishery allocations and limits for year 1 (assumed to be 2017) would be prorated slightly to account for this shift in the start of the year one month later. This measure could be selected with other alternatives (i.e. Alternative 2.2 – a specifications process).

Additional Information:

The overall timeline is the same for this alternative as No Action (Table 4). However, GARFO and Council staff intend to use the new streamlining process for document submission and proposed rule publication outlined in Section 1.3.1.2, which is strongly anticipated to result in allocations being implemented in time for April 1 (Figure 3), removing the need to implement start-of-year default measures. In addition, it is possible to implement measures earlier than the timeline indicates if the framework is limited to specifications only and the final Council meeting decision is moved earlier (i.e. in October).

Rationale:

This measure is expected to provide overall time savings to the specification setting process and reduce administrative burdens associated with late implementation of final measures. This change enables the Council to use the most recent survey information to inform fishery allocations. Multiple surveys are typically conducted in many portions of the resource area between May and July. Preliminary results are available in August, but there is not sufficient time to develop and analyze alternatives for the Council to take final action at the September Council meeting. Therefore, final action is typically the November meeting, so having final measures in place for March 1 is not possible. If a framework was limited in scope and only included specifications, or a specifications process is approved (Section 2.2), it may be more possible to implement final measures by April 1. That would eliminate the need to public temporary default measures in March, only to replace with final measures soon after. This causes confusion for the fishery and administrative burdens. This alternative alone still would require a framework to be developed, thus maintaining the requirement to have a minimum of two Council meetings, which can increase opportunities for public input.

3.0 CONSIDERED AND REJECTED ALTERNATIVES

3.1 EVALUATE RANGE OF POSSIBLE ALLOCATIONS UPFRONT AND COUNCIL SELECTS FROM WITHIN THAT RANGE

The Council would identify a set of measures that would be analyzed upfront in this action. In future years the Council would be able to select measures from the pre-defined measures. For example, the initial document could analyze a specific range of DAS and access area trips that the Council would be able to choose from each year, a "menu- approach" to selecting specifications. Other decisions would need to be specified for required measures to comply with ESA, bycatch, NGOM, etc.

Rationale for rejection:
Staff expects that a fair amount of work would be needed upfront to establish the range of DAS and access areas that would sufficiently match a possible range of OFLs, ABCs, etc. The Council would not be able to consider alternatives outside the range considered in the original action, and that greatly reduces flexibility in setting specifications. As the PDT discussed this option it became clearer that it would take a lot of work to analyze this alternative, and it would be difficult to predict a full range of specification scenarios since areas and fishing levels can change from year to year.

4.0 AFFECTED ENVIRONMENT

4.1 ATLANTIC SEA SCALLOP RESOURCE

The Atlantic sea scallop (*Placopetcen magellanicus*) is a bivalve mollusk that is distributed along the continental shelf, typically on sand and gravel bottoms from the Gulf of St. Lawrence to North Carolina (Hart and Chute, 2004). The species generally inhabit waters less than 20° C and depths that range from 30-110 m on Georges Bank, 20-80 m in the Mid-Atlantic, and less than 40 m in the near-shore waters of the Gulf of Maine. Although all sea scallops in the US EEZ are managed as a single stock per Amendment 10, 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.

The scallop assessment is a very data rich assessment. The overall biomass and recruitment information are based on results from several surveys including: the NEFSC federal survey; SMAST video survey; VIMS paired tow dredge survey; and towed camera survey conducted by Arnie's Fishery. These data sources are combined in the assessment of the resource and in models used by the Scallop PDT to set fishery allocations.

4.1.1 Benchmark Assessment

The sea scallop resource just had a benchmark assessment in 2014 (SARC59, 2014). Therefore, all of the data and models used to assess the stock were reviewed. The final results from that

assessment have been incorporated into the overall FMP including the updated reference points for status determination (See Section 4.1.1 of Framework 26 for details). The full benchmark assessment and summary report can be found at: http://www.nefsc.noaa.gov/publications/crd/crd1409/ .

Overfishing is occurring if F is above Fsmy, and the stock is considered overfished if biomass is less than ½ Bmsy. The previous estimate of Fmsy was 0.38 and Bmsy was 125K mt (1/2 Bmsy = 62K mt). SARC59 revised these reference points and increased Fmsy to 0.48 and reduced Bmsy to 96,480 mt (½ Bmsy = 48,240 mt). A comparison of the reference points are described in Table 6.

Table 6 – Summary of old and new reference points

	SARC 50 (2010)	SARC 59 (2014)
OFL	F = 0.38	F = 0.48
ABC/ACL (25% chance of exceeding OFL)	F = 0.32	F = 0.38
ACT for LA fishery (25% chance of exceeding ABC)	F = 0.28	F = 0.34
Bmsy (1/2 Bmsy)	125,358 (62,679)	96,480 (48,240)

SARC 59 included a formal stock status update through FY2013, and the reference points were updated in this benchmark assessment. **The updated estimates for 2013 are: F=0.32 and B=132K, so the stock is not overfished and overfishing is not occurring, under both the old and new reference points** (Figure 5 and Table 7). The main driver for the increase in Fmsy is due to increases in natural mortality and weakening of MA stock recruit relationships. In general Fmsy is uncertain because the Fmsy curve for MA is very flat, it is uncertain where Fmax is for that region.

Figure 4 - Whole stock estimate of fishing mortality through 2013 (SARC59) Fishing mortality (red line) and biomass estimates (y^{-1}, gray bars) from the CASA model

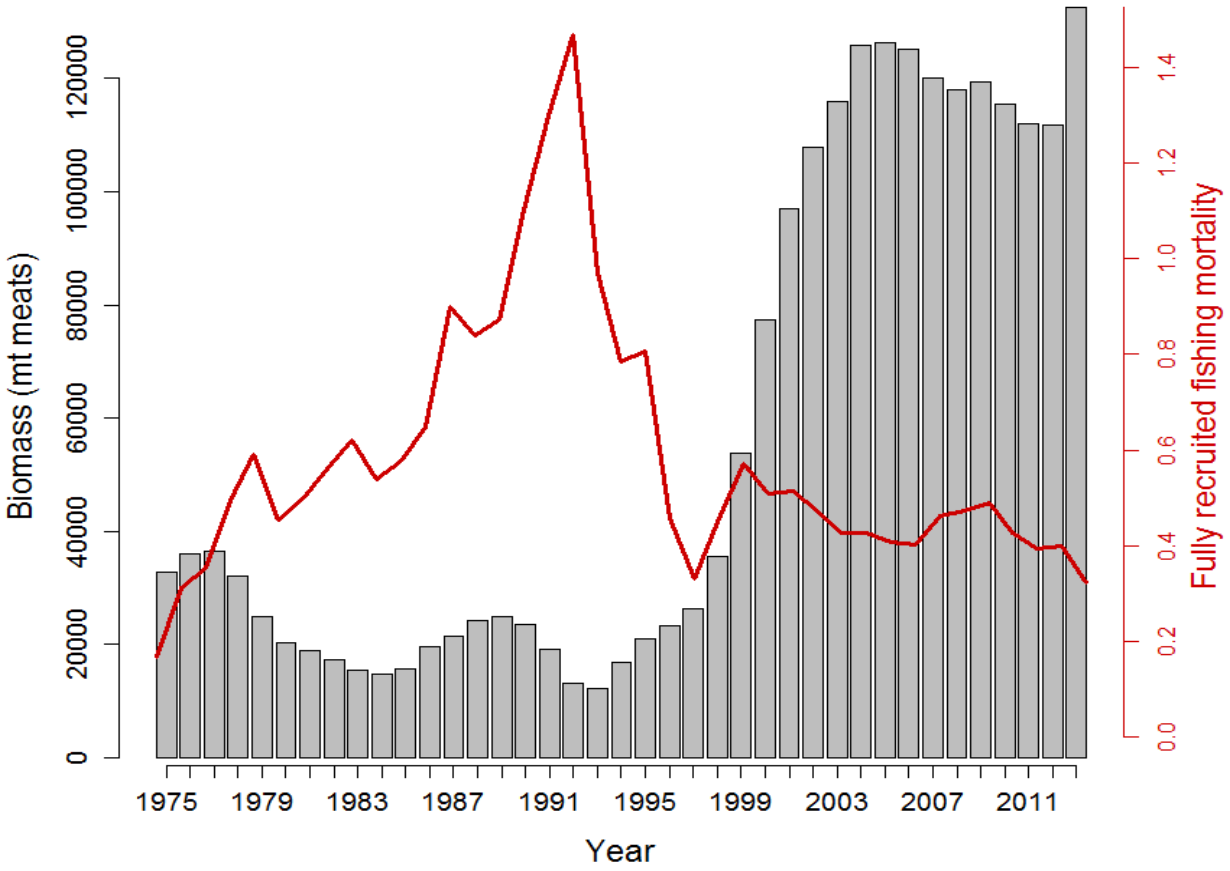


Figure 5 – Fully recruited annual fishing mortality rate for scallops from 1975-2013
Note that trends are different for partially recruited scallops because of changes in commercial size selectivity. SARC59 Fmsy is shown with green dashed line for the most recent period; Fmsy would have been smaller in past years when selectivity was different.

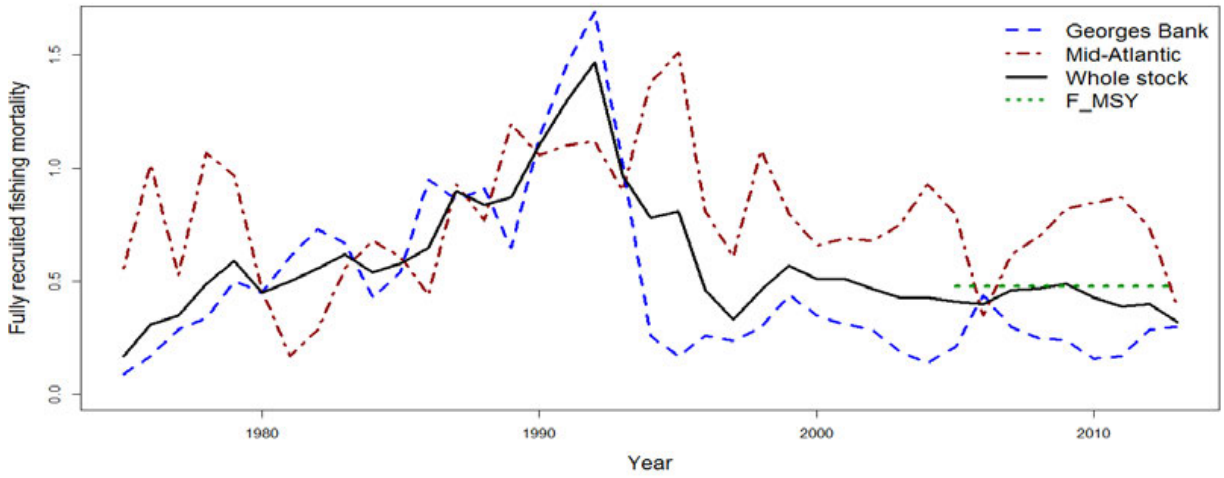
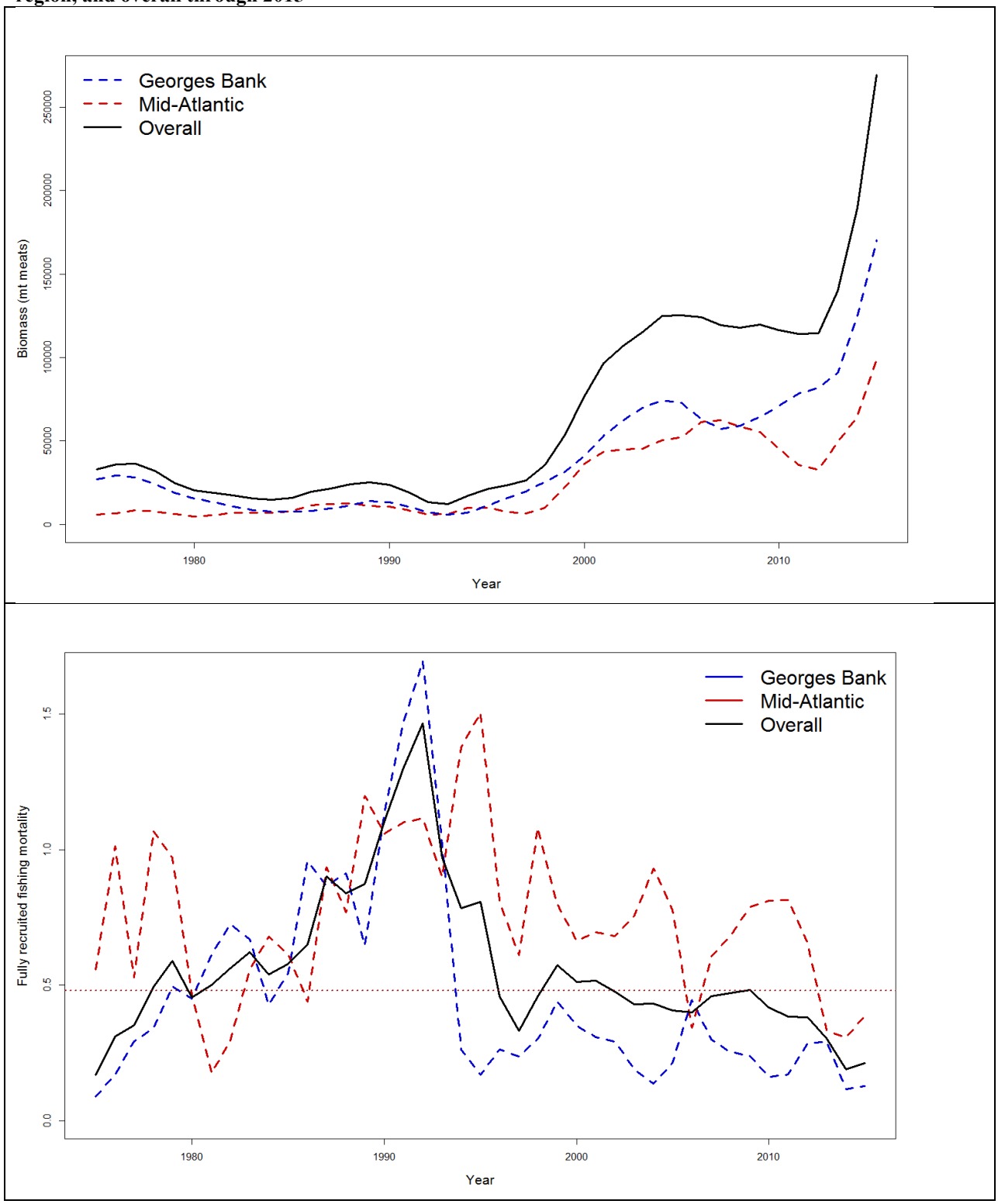


Table 7 – 2013 sea scallop stock status – overfishing is not occurring and the resource is not overfished

	Total 2013 Estimate	Stock Status Reference Points
Biomass (in 1000 mt)	133	½ Bmsy = 48,240
F	0.32	OFL = 0.48

The PDT updated the estimate of fishing mortality and biomass for this action adding survey and fishery data for 2014 and 2015. Since the 2015 fishing year is not over yet an estimate of total landings was used (38 million pounds). The total biomass in 2015 estimated from survey data is 196,728 mt, which is above the target, and fishing mortality is estimated at 0.43, which is below the target, but an increase from 2013. **Therefore, the stock is not overfished and overfishing is not occurring.**

Figure 6 – CASA model estimates of biomass (top) and fishing mortality (bottom) for GB, Mid-Atlantic region, and overall through 2015



4.1.2 Summary of 2015 surveys

The Scallop FMP is fortunate to have access to several different survey methods. First, the NEFSC has had a dedicated dredge survey since 1977 that has sampled the resource using a stratified random design. More recently, the NEFSC scallop survey has evolved into a combined dredge and optical survey (Habcam Version 4), and is conducted on the R/V Sharp. Ideally, both dredge tows and habcam data are collected in each stratum, and there are three separate legs of the combined federal scallop survey. In 2015, the federal dredge portion of the survey was on GB only (Figure 7) and the Habcam portion of the survey was completed in both MA and GB (Figure 8).

In addition, SMAST has conducted video surveys of various parts of the resource area. In most years since 2003, including 2015, SMAST completed a broadscale video survey of most of the resource area. In 2015 SMAST was awarded two RSA awards to conduct a broadscale survey of the resource on Georges Bank, in both open and access areas, as well as an intensive survey of the access area in CA2 south. In addition, SMAST conducted a broadscale survey of the Mid-Atlantic region that was funded by industry donations and reserve funds (Figure 9).

Third, VIMS conducts a dredge survey with two dredges, one commercial dredge and one survey dredge. The survey areas vary by year, and in 2015 VIMS was awarded and RSA grant to survey the Mid-Atlantic region in both access and open areas (Figure 10). The 2015 VIMS survey were completed on three separate legs in May and June, including about 600 stations. This year the VIMS dredge survey changed the sampling design from a traditional grid to a stratified random design. It covered the NMFS shellfish strata as well as some additional areas (specifically deeper waters in ETA and Delmarva and both south and west of the shellfish strata in Delmarva). Several new vessels were used in addition to more veteran vessels to this survey, so the survey included some calibration work for the new vessels. Sampling intensity of SH: MW was extended to monitor presence of nematode observed by fishing vessels earlier in the year (about 5,000 samples from all stations with scallops – about 10-15 per station). Currently, the PDT suspects this parasitic nematode is *Sulcascaris sulcate*. That species has a life cycle with two host, sea turtles and mollusks. The prevalence was higher in areas farther south (Figure 11), as well as the intensity of parasites per affected animal.

There is not much known about this parasite in this region, and the PDT plans to continue to monitor the prevalence of this parasite and more research is scheduled. Based on information provided by individuals at meetings a parasite with similar characteristics showed up in scallop meats in 2003 and quickly disappeared after that. The fishery did seem to avoid the area with observed parasites in Delmarva during the 2015 fishing year (**Figure 11**), so fishing behavior was somewhat affected. However, there is no evidence at this time that this parasite will persist or change the range of the impacts in this action. To acknowledge that this parasite may still persist in 2016, the PDT used a relative low fishing mortality threshold for Delmarva to set fishery allocations. Therefore, if the fishery continues to avoid that area, the realized fishing mortality will not be much lower than projections.

Finally, Arnie's Fisheries has completed very intensive optical surveys of discrete areas using Habcam Version 2. The areas vary from year to year, and in 2015 the group was awarded RSA funding to survey the NL and southern flank of GB as well as a late season survey of the Elephant Trunk access area. The Elephant Trunk survey is scheduled for September to evaluate biomass in the area later in the year after fishing has occurred. The final results from that fall survey will not be integrated into the biomass estimates for the area, but general maps are expected to confirm areas of higher biomass before the fishery begins in 2016. The survey of the southern flank of GB was completed in May (Figure 12).

Figure 7 – 2015 NEFSC dredge survey of GB

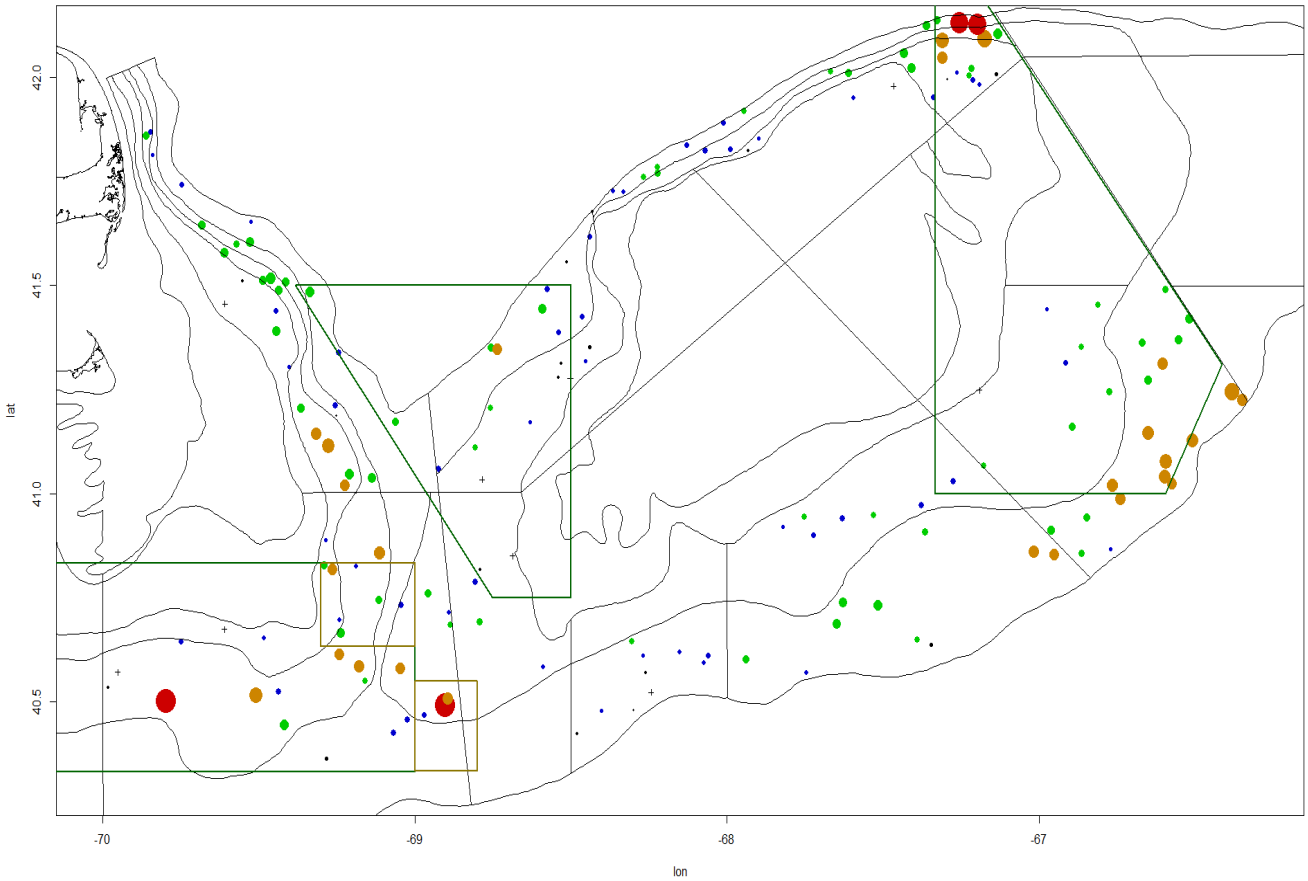


Figure 8 – 2015 Habcam survey (Federal v4 and Arnie's Fishery v2 combined)

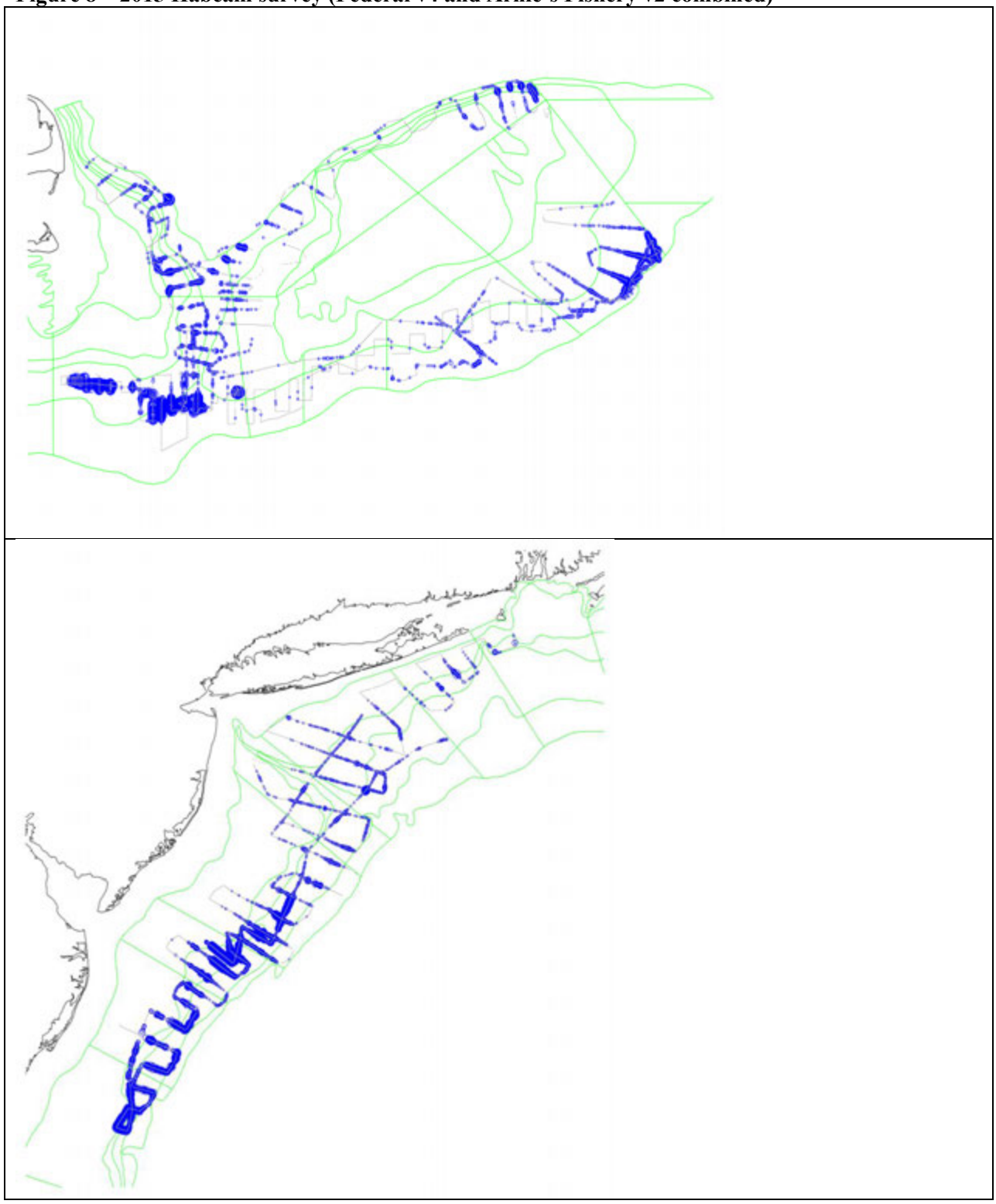


Figure 9 – 2015 survey stations for SMAST camera survey

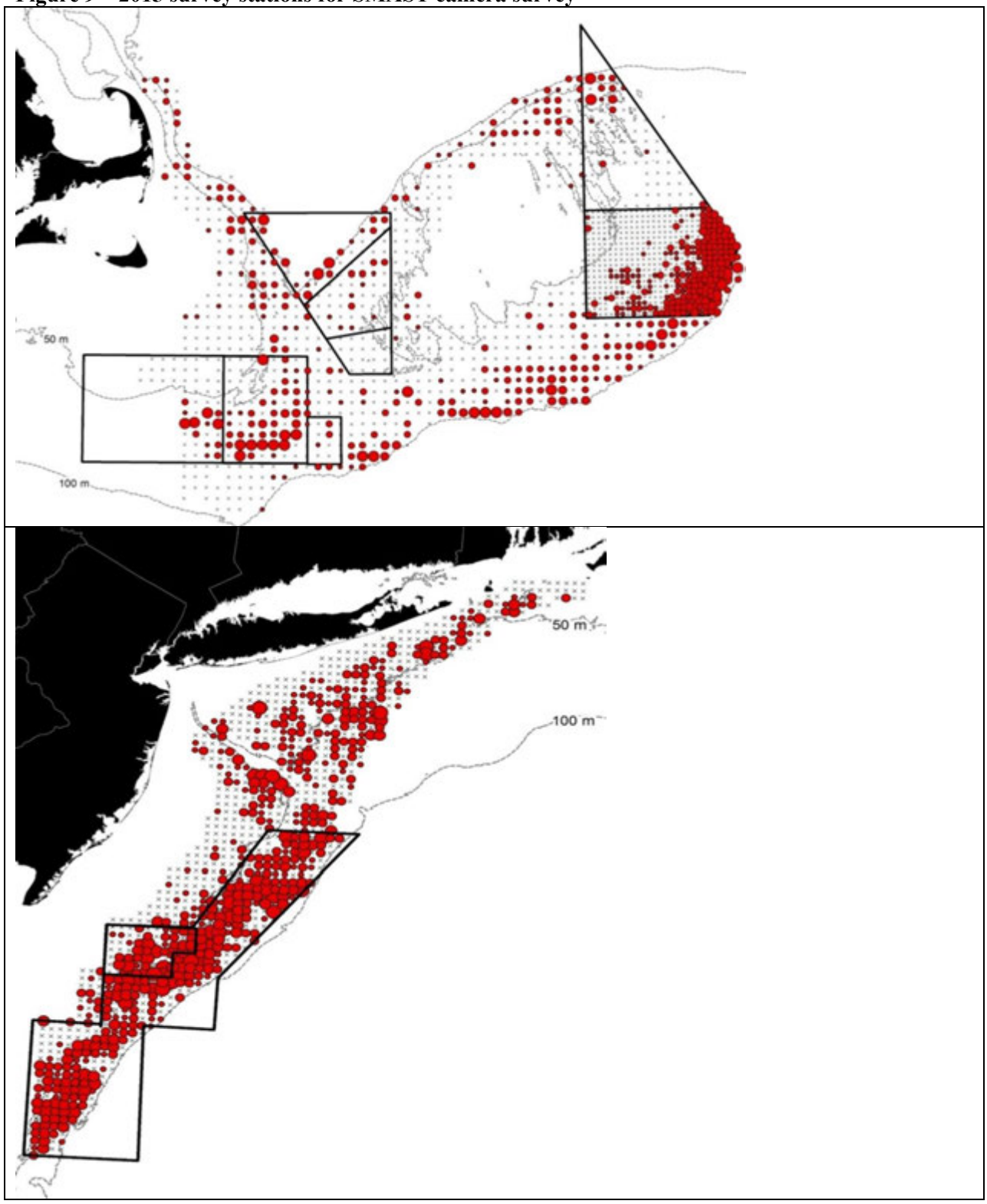


Figure 10 – 2015 VIMS dredge survey of MA (numbers per tow)

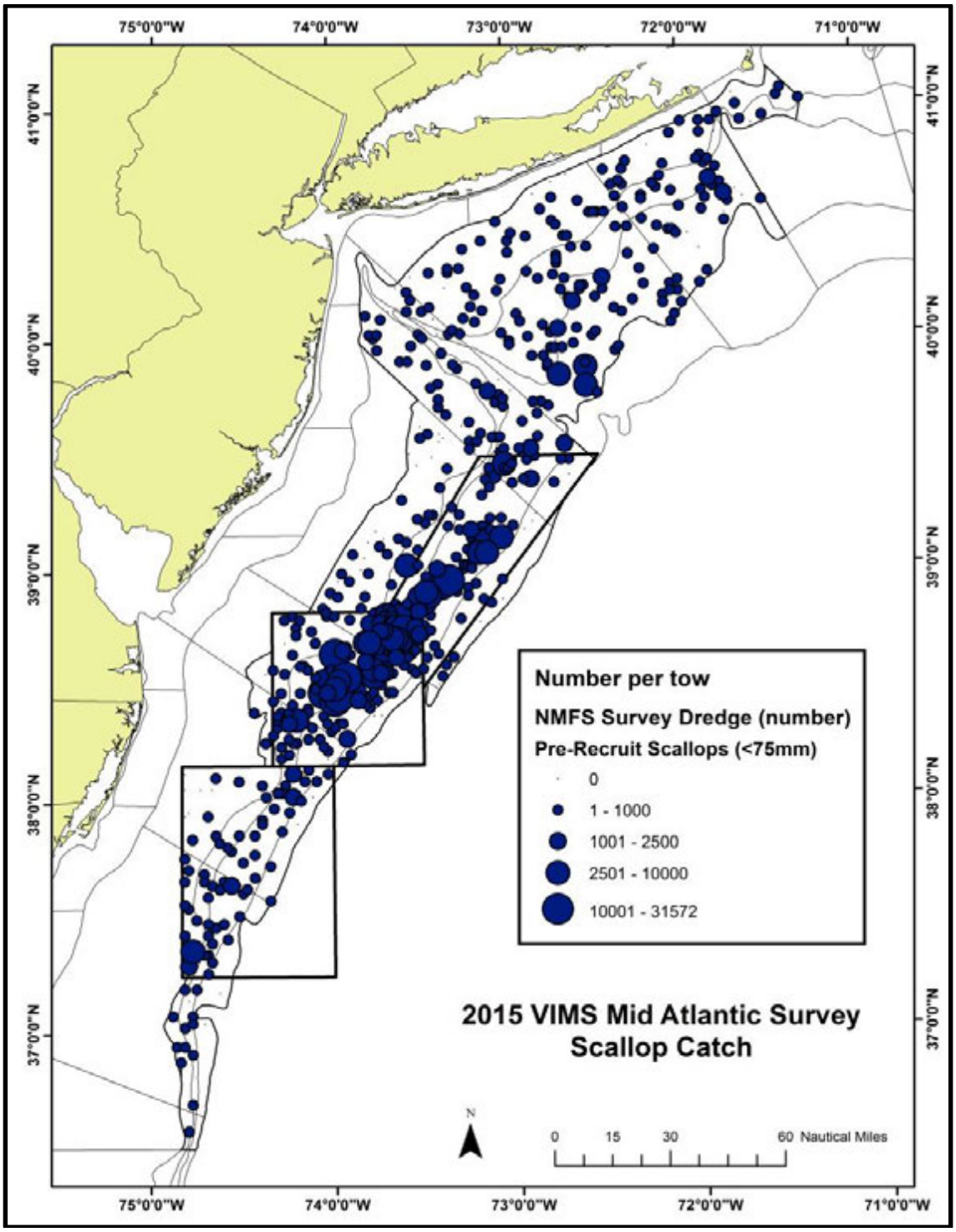


Figure 11 – Prevalence of suspected nematode parasite in 2015 VIMS dredge survey of MA (percent of animals sampled with parasite per station)

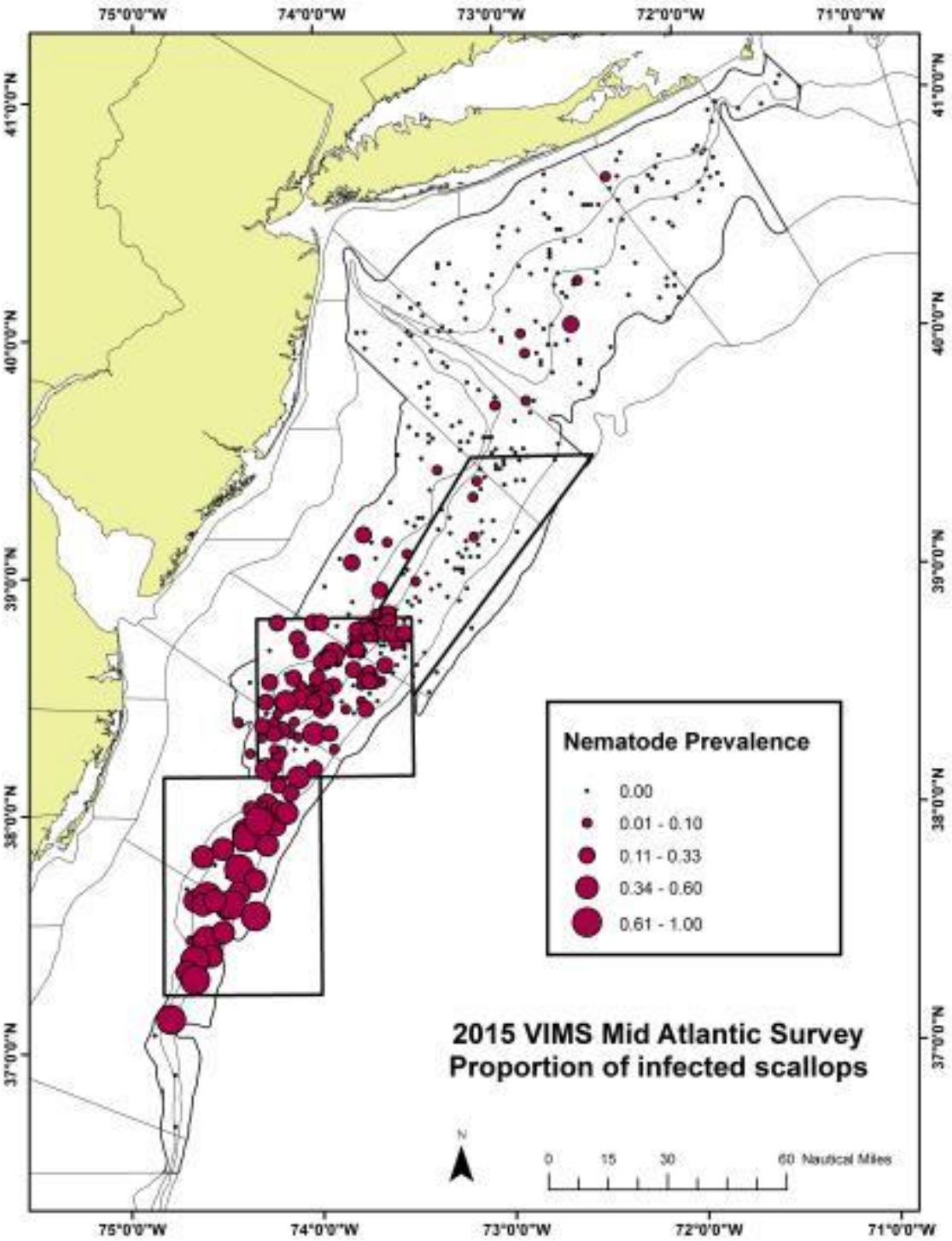
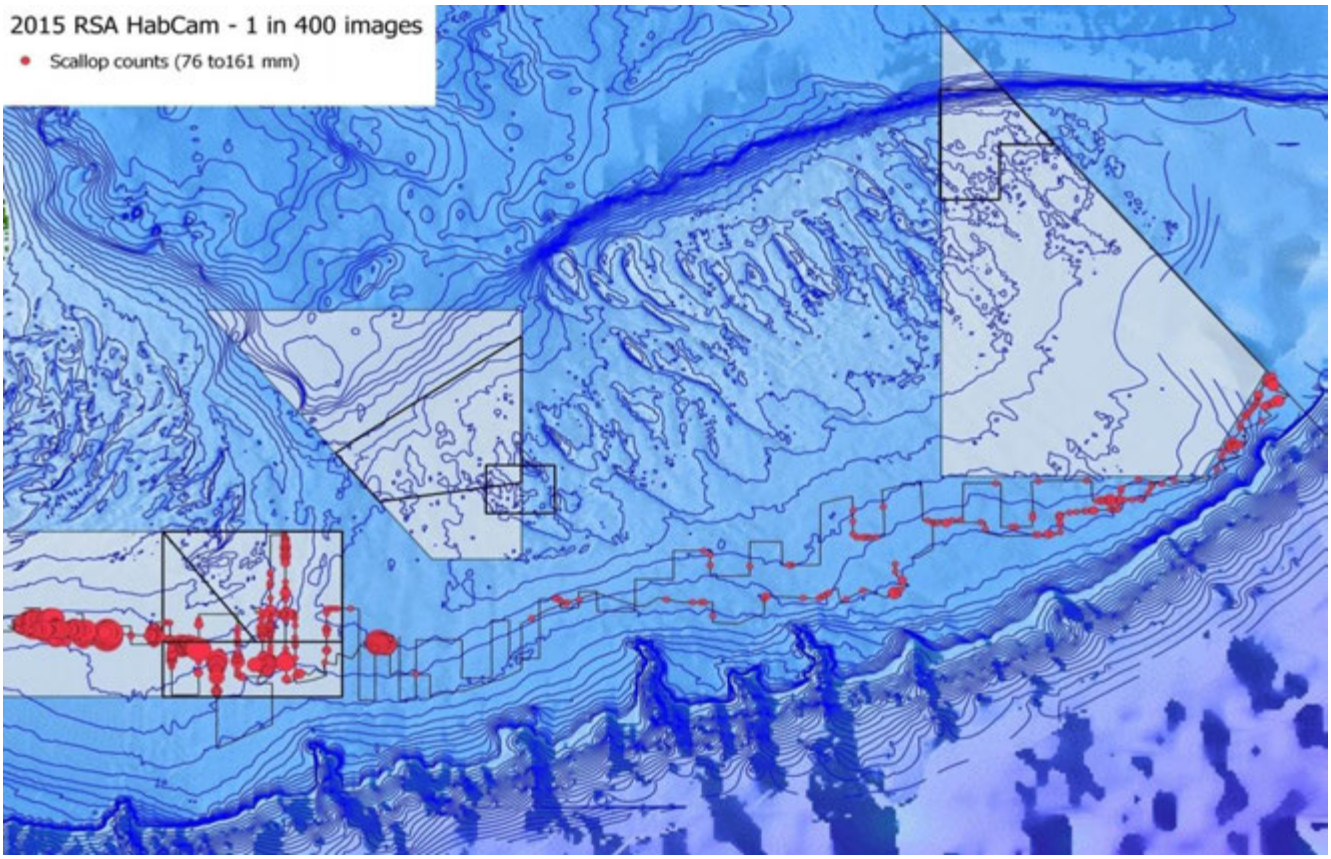


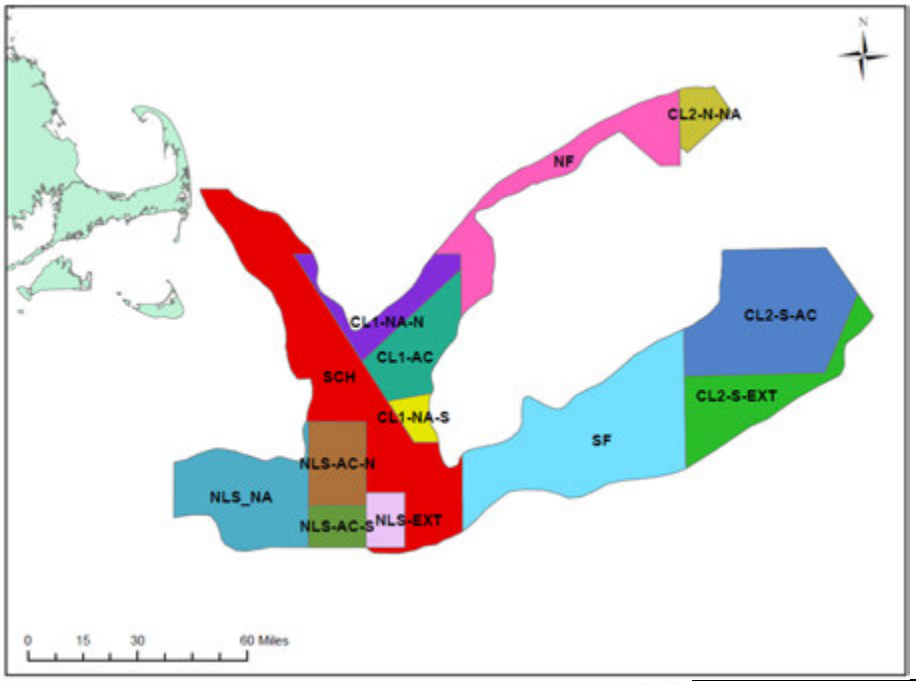
Figure 12 – 2015 Habcam Group survey of NL and southern flank of GB

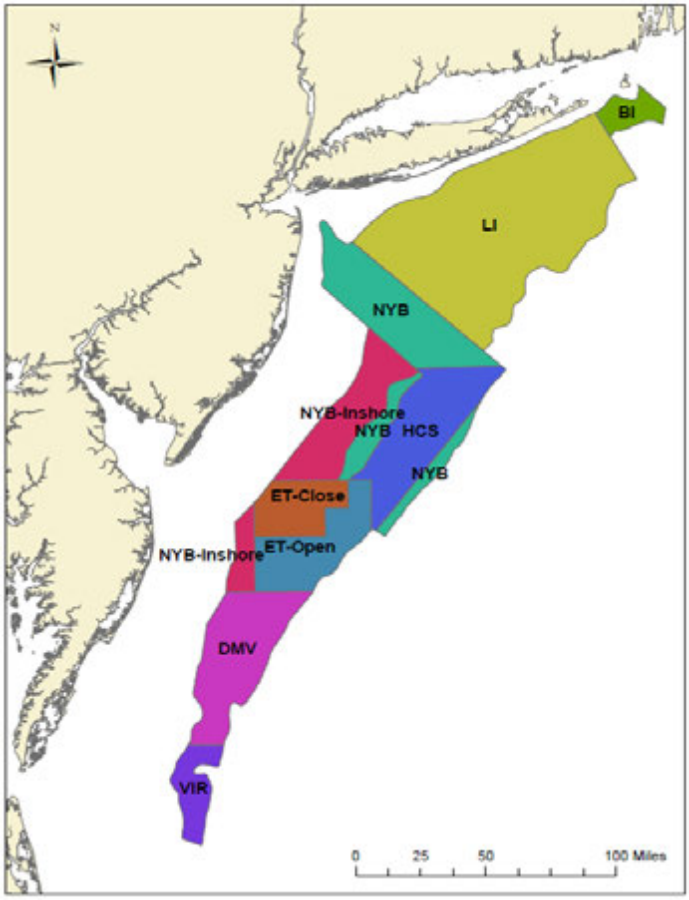


4.1.3 Updated estimates of scallop biomass and recruitment

The Scallop PDT combines the results from all available surveys to estimate sea scallop biomass and recruitment on an annual basis. The PDT met on August 25, 2015 and reviewed results from all the surveys described above. Survey results were broken down into smaller areas used for management (SAMS areas). Ultimately all survey results are combined per area, Table 8. Note that some corrections were made to the SMAST biomass estimates for several sub-areas. These corrections did not affect the specifications developed for FW27 because they were for areas that are not proposed to open to the fishery in 2016 (NL no access and NL Access South).

Figure 13 – Final SAMS areas for FW27





4.1.3.1 Georges Bank

The scallop abundance and biomass on Georges Bank increased from 1995-2000 after implementing closures and effort reduction measures. Biomass and abundance then declined from 2006-2008 because of poor recruitment and the reopening of portions of groundfish closed areas. Biomass increased on Georges Bank in both 2009 and 2010, mainly due to increased growth rates and strong recruitment in the Great South Channel, along with continuing concentrations on the Northern Edge and in the central portion of Closed Area I, especially just south of the "sliver" access area.

4.1.3.2 Mid-Atlantic

In general, Mid-Atlantic biomass was declining since 2009, and has been steadily increasing as smaller scallops grow. The decline in exploitable biomass from 2006-2014 was primarily from depletion of the large biomass in Elephant Trunk and several years of poor recruitment in that area (2009-2011). However, stronger recruitment has been observed in 2012 and 2013. Once these scallops grow larger biomass in the Mid-Atlantic is expected to increase. The large number of small scallops observed in 2012 in all three MA access areas seems to have survived, and some of these animals will be ready for harvest in FY2015. Note that another set of smaller scallops was observed in several surveys in more shallow areas within the MA access areas. Overall MA scallop biomass is increasing as smaller scallops continue to grow in this area

Table 8 – Summary of biomass estimates from 2015 surveys

Georges Bank	Dredge				SMAST Large			SMAST Small*		HabCam (v2 and v4)				Simple Mean		IVWMean	
	BMS (mt)	SE	SEdref	#Sta	BMS (mt)	SE	#Sta	corrected	SE	BMS (mt)	SE	SEmod	Photos	BMS (mt)	SE	BMS (mt)	SE
CL1ACC	229	75	75	9	546	230	40	1,915	920	2,083	120	208	3,509	952	106	449	67
CL1NA	2,063	798	799	9	5,270	3,144	25	4,577	3,584	8,739	1,337	1,337	2,256	5,357	1,170	3,885	670
CL-2(N)	5,923	2,087	2,091	14	3,787	1,571	13	5,309	1,720	4,706	235	471	1,629	4,805	886	4,688	441
CL-2(S)	9,805	3,092	3,099	19	6,320	676	432	9,916	1,123	6,542	183	654	8,162	7,556	1,079	6,511	465
CL-2Ext	12,202	7,763	7,767	11	3,033	627	51	3,518	868	5,180	114	518	3,427	6,805	2,603	4,330	399
NLSAccN	2,065	821	822	14	2,819	847	30	3,633	1,411	4,202	155	420	3,160	3,029	418	3,606	342
NLSAccS	NS				18,111	8,053	15	33,799	15,279	23,849	1,029	2,385	732	20,980	4,199	23,387	2,287
NLSNA	8,174	7,698	7,699	5	38,041	15,735	51	58,801	23,046	66,706	8,051	8,051	1,367	37,640	6,426	36,344	5,246
NLS-Ext	7,093	8,486	8,487	2	143	82	15			2,194	9	219	649	3,143	2,830	395	77
South Channel	11,940	7,803	7,811	39	4,528	1,200	47	8,091	1,709	10,524	1,684	1,684	12,224	8,997	2,693	6,631	970
North Flank	1,020	253	254	25	6,074	401	143	6,628	1,936	2,016	644	644	3,462	3,037	267	2,421	203
South Flank	2,757	798	800	23	5,745	1,578	139	4,467	1,485	7,805	299	781	6,654	5,436	645	5,388	527
GB Open	**27,918**	**11,039**	**11,053**	**87**	**19,380**	**2,118**	**380**	**22,704**	**3,103**	**25,525**	**1,831**	**1,964**	**22,340**	**24,274**	**3,810**	**18,769**	**1,191**
GB Total	**63,269**	**16,381**	**16,430**	**170**	**94,417**	**18,180**	**1,001**	**140,654**	**28,180**	**144,547**	**8,435**	**8,795**	**47,231**	**107,738**	**9,218**	**98,032**	**5,929**
*Not used in estimation																	
Mid-Atlantic	**Dredge (VIMS)**				**SMAST Large**					**HabCam (v4)**				**Simple Mean**		**IVWMean**	
Subarea	**Bms**	**SE**	**SEdref**	**#Sta**	**Bms**	**SE**	**#Sta**			**Bms**	**SE**	**SEmod**	**Photos**	**Mean**	**SE**	**IVWM**	**SE**
Block Island	1,074	128	130	9	1,181	504	23			333	0	33	1,132	863	174	378	32
Long Island	19,805	959	1,038	161	12,512	2,439	313			26,231	2,067	2,623	14,234	19,516	1,243	20,674	901
New York Bight	8,557	499	527	73	8,445	2,105	124			10,093	466	1,009	9,653	9,032	798	8,886	447
NYB inshore	1,499	132	136	40	2,678	672	108			906	4	91	3,524	1,694	231	1,089	75
Hud. Can. S	16,187	1,024	1,074	81	15,698	1,961	122			14,666	1,495	1,495	8,794	15,517	897	15,669	845
ET Access	19,255	833	918	67	25,525	7,641	79			30,257	1,999	3,026	11,057	25,013	2,756	20,183	803
ET Closed	10,928	729	761	67	24,204	10,975	58			19,985	872	1,998	8,018	18,372	3,727	12,075	685
Delmarva	10,210	752	779	71	11,884	1,581	113			26,271	1,051	2,627	5,938	16,122	1,055	11,508	723
Virgina	128	14	14	15	NS					NS				128	14	128	14
MA Open	**31,063**	**1,096**	**1,260**	**298**	**24,816**	**3,329**	**568**			**37,562**	**2,119**	**2,812**	**28,543**	**31,232**	**1,505**	**31,155**	**1,009**
MA Access (not including ETA Closed)	**45,652**	**1,520**	**1,773**	**219**	**53,107**	**8,045**	**314**			**71,194**	**2,709**	**4,277**	**25,789**	**56,651**	**3,084**	**47,360**	**1,372**
MA Total	**87,643**	**2,011**	**2,138**	**584**	**102,127**	**14,009**	**940**			**128,742**	**3,548**	**5,495**	**62,350**	**106,256**	**5,067**	**90,590**	**1,835**

4.1.4 Performance of ACL management

In the first year under ACL management, fishery allocations essentially kept landings right below ACL (landings 97% of ACL). In 2012 and 2013 landings were closer to 90% of the ACL. This is not surprising since fishery allocations are actually set at ACT, a substantially lower level to account for management uncertainty. For example, in 2014 the ACT for the LA fishery was 15,567mt and the LA ACL was 18,885, about a 3,000mt buffer. Total landings in 2014 were about 14,500 mt (32 million pounds) including all landings from LA and LAGC vessels. Realized catch was much lower than ACL for this fishing year, about 70%, of the total projected catch of 17,327 mt (about 38 million pounds). Catch being lower than projections is potentially driven by a handful of reasons: LPUE may be lower in open areas than projected, in the past projections of catch per day were underestimated by the model used by the PDT and the model may be getting closer to realized catch levels, or biomass and or meat weights were not as high as estimated, etc.

Overall, the scallop fishery has stayed below catch limits set by the FMP since adoption of ACL management in Amendment 15 (2011). In 2014, the most recent year with final data available the fishery came in about six million pounds under the annual catch limit. While that is not much lower compared to other fisheries, six million pounds is potentially worth about $70 million dollars under current prices. Furthermore, this trend may be the case for FY2015 as well; current estimates of total catch are likely to be lower than annual catch limits.

Table 9 – Summary of allocations compared to actual landings (2011-2014)

		Allocated		% of Total Allocated	Actual		% Difference (allocated vs actual)	% of Total Actual
		mt	lb		mt	lb		
2011	OFL	32,387	71,401,113					81.88%
	ABC/ACL	27,269	60,117,854					97.24%
	Total Projected Landings	23,723	52,300,000		26,518	58,461,465	112%	
	incidental	23	50,000	0.10%	18	38,700	77%	0.07%
	RSA	567	1,250,000	2.39%	553	1,218,781	98%	2.08%
	OBS	273	601,170	1.15%	104	228,370	38%	0.39%
	IFQ	1,452	3,201,880	6.12%	1,382	3,046,245	95%	5.21%
	LA ACT	21,431	47,247,267	90.34%	24,462	53,929,369	114%	92.25%
	LA ACL				24,462	53,929,369		
2012	OFL	34,382	75,799,335					75.33%
	ABC/ACL	28,961	63,848,076					89.43%
	Total Projected Landings	25,945	57,200,000		25,900	57,098,684	100%	
	incidental	23	50,000	0.09%	28	61,869	124%	0.11%
	RSA	567	1,250,000	2.19%	529	1,167,316	93%	2.04%
	OBS	290	638,470	1.12%	120	263,700	41%	0.46%
	IFQ	1,544	3,405,000	5.95%	1,511	3,331,284	98%	5.83%
	LA ACT	23,546	51,910,044	90.75%	23,711	52,274,515	101%	91.55%
	LA ACL	26,537	58,503,960					
2013	OFL	31,555	69,566,867					57.22%
	ABC/ACL	21,004	46,305,894					85.97%
	Total Projected Landings	17,335	38,216,741		18,056	39,807,589	104%	
	incidental	23	50,000	0.13%	21	47,337	95%	0.12%
	RSA	567	1,250,000	3.27%	553	1,218,204	97%	3.06%
	OBS	210	463,059	1.21%	174	384,545	83%	0.97%
	IFQ	1,111	2,449,856	6.41%	1,095	2,414,256	99%	6.06%
	LA ACT	15,324	33,783,637	88.40%	16,213	35,743,247	106%	89.79%
	LA ACL	19,093	42,092,979		16,213	35,743,247		
2014	OFL	30,419	67,062,415		0			47.75%
	ABC/ACL	20,782	45,816,467		0			69.89%
	Total Projected Landings	17,327	38,463,656		14,524	32,020,980	83%	
	incidental	23	50,000	0.13%	19	42,107	84%	0.13%
	RSA	567	1,250,000	3.27%	433	954,011	76%	2.98%
	OBS	237	458,562	1.37%	177	390,579	85%	1.22%
	IFQ	1,099	2,423,145	6.34%	948	2,089,589	86%	6.53%
	LA ACT	15,567	34,319,360	89.84%	12,948	28,544,694	83%	89.14%
	LA ACL	18,885	41,634,305		12,948	28,544,694		

Source: Year-end reports provided by National Marine Fisheries Service

4.1.5 Northern Gulf of Maine

The scallop resource in the GOM varies widely with sporadic booms and busts. The qualification period adopted under Amendment 11 for the general category IFQ fishery did not overlap with a period of high scallop abundance in the GOM (FY2000-2004). Therefore, a separate limited entry program was adopted in Amendment 11 with a longer qualification period and no landings history requirement, but more conservative fishing measures including lower possession limits and more restrictive gear requirements. The LAGC Northern Gulf of Maine (NGOM) permit was established and about 125 permits were issued in 2010.

Only a fraction of these permits are active, under 15 vessels, and until more recently total NGOM catches were below 10,000 pounds most years, or 10-15% of the total TAC of 70,000 pounds (Table 48). In FY2013 catch increased in both federal and state waters within the NGOM. In terms of federal waters, total catch has increased primarily from increased fishing on Platt's Bank (Figure 37).

4.2 PHYSICAL ENVIRONMENT AND ESSENTIAL FISH HABITAT

The Northeast U.S. Shelf Ecosystem includes the area from the Gulf of Maine south to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream to a depth of 2,000 m (Figure 14, Sherman et al. 1996). Four distinct sub-regions are identified: the Gulf of Maine, Georges Bank, the Mid-Atlantic Bight, and the continental slope. The physical oceanography and biota of these regions were described in the Scallop Amendment 11. Much of this information was extracted from Stevenson et al. (2004), and the reader is referred to this document and sources referenced therein for additional information. Primarily relevant to the scallop fishery are Georges Bank and the Mid-Atlantic Bight, although some fishing also occurs in the Gulf of Maine. The link with more information about the EFH description for Atlantic sea scallop can be found at: http://www.nero.noaa.gov/hcd/scallops.pdf.

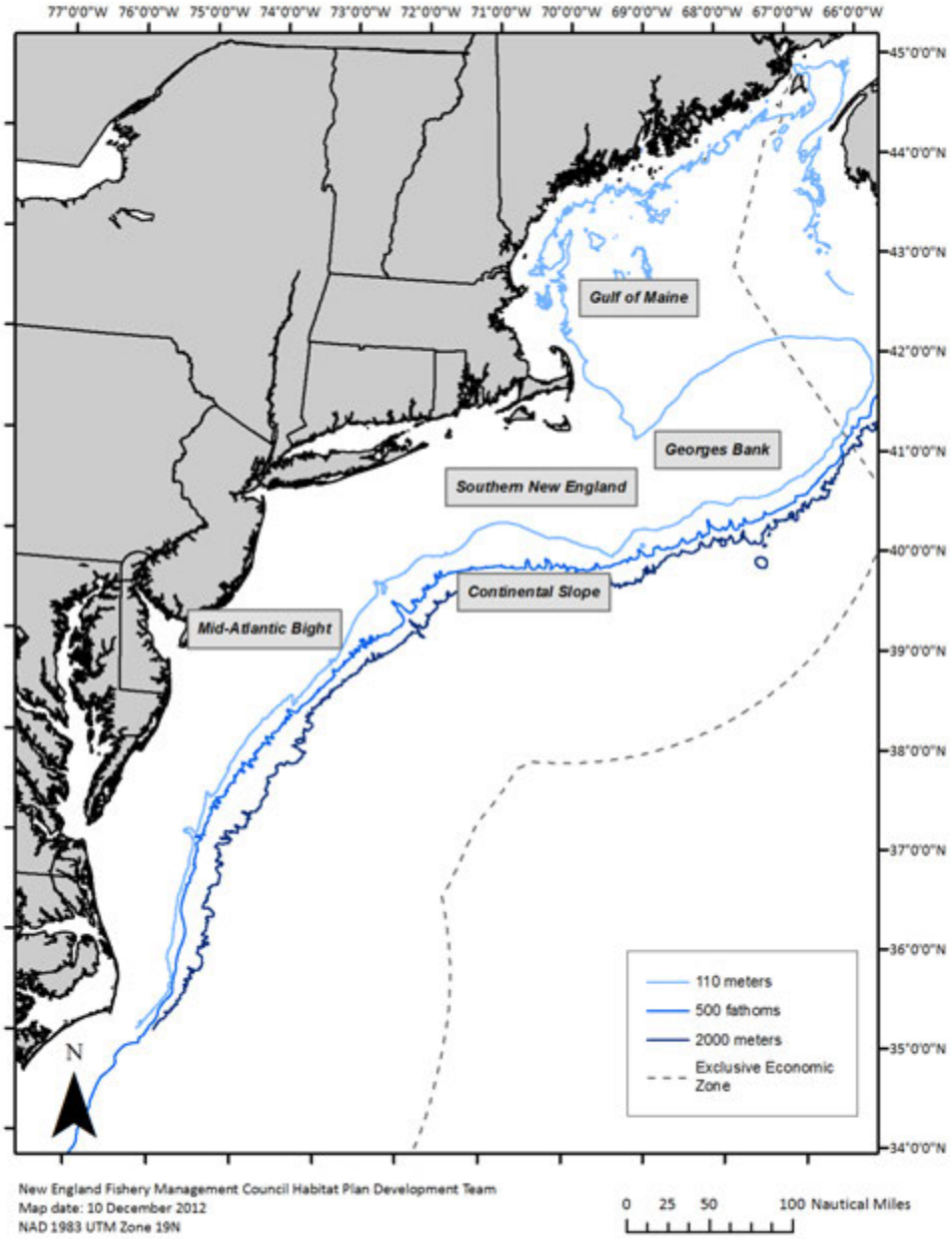
The Atlantic sea scallop fishery is prosecuted in concentrated areas in and around Georges Bank and off the Mid-Atlantic coast, in waters extending from the near-coast out to the edge of the continental shelf. Atlantic sea scallops occur primarily in depths less than 110 meters on sand, gravel, shells, and cobble substrates (Hart et al. 2004). This area, which could potentially be affected by the preferred alternative, has been identified as EFH for various species. These species include American plaice, Atlantic cod, Atlantic halibut, Atlantic herring, Atlantic sea scallop, Atlantic surfclam, Atlantic wolfish, barndoor skate, black sea bass, clearnose skate, haddock, little skate, longfin squid, monkfish, ocean pout, ocean quahog, pollock, red hake, redfish, rosette skate, scup, silver hake, smooth skate, summer flounder, thorny skate, tilefish, white hake, windowpane flounder, winter flounder, witch flounder and yellowtail flounder. For more information on the geographic area, depth, and EFH description for each applicable life stage of these species, the reader is referred to Table 45 of the scallop Amendment 15 EIS.

Most of the current EFH designations were developed in NEFMC Essential Fish Habitat Omnibus Amendment 1 (1998). Most recently, Amendment 16 to the Northeast Multispecies FMP adds Atlantic wolfish to the management unit and includes an EFH designation for the species. For additional information, the reader is referred to the Omnibus Amendment and the other FMP documents listed in Table 28 of the scallop Amendment 15 EIS. In addition, summaries of EFH descriptions and maps for Northeast region species can be accessed at http://www.nero.noaa.gov/hcd/list.htm.

Designations for all species are being reviewed and updated in NEFMC Omnibus Essential Fish Habitat Amendment 2 (OA2). Another purpose of OA2 is to evaluate existing habitat management areas and develop new habitat management areas. To assist with this effort, the Habitat PDT developed an analytical approach to characterize and map habitats and to assess the extent to which different habitat types are vulnerable to different types of fishing activities. This body of work, termed the Swept Area Seabed Impact approach, includes a quantitative, spatially-referenced model that overlays fishing activities on habitat through time to estimate both potential and realized adverse effects to EFH. The approach is detailed in this document, available on the Council webpage:

http://www.nefmc.org/habitat/planamen/efh_amend_2/appendices%20-%20dec2013/Appendix%20D%20-%20Swept%20Srea%20Seabed%20Impact%20approach.pdf.

Figure 14 – Northeast U.S Shelf Ecosystem and geographic extent of the US sea scallop fishery



The Council identified final recommendations for modifications to habitat management areas over two Council meetings, April 2015 and June 2015. That action is currently under review and is expected to be implemented in 2016. A summary of the Council's preferred recommendations can be found at www.nefmc.org, and Figure 15 and Figure 16 are included below with the final

recommendations for habitat management areas and seasonal spawning areas. **Note that these measures have not been approved; a proposed rule is expected in early 2016.**

Figure 15 – Preferred alternative year-round spatial management areas. Seasonal areas not shown.

-- Gear exemption areas hatched. In western Gulf of Maine, shrimp trawls exempt. In Great South Channel and Georges Shoal, clam dredges exempt for one year. On Northern Edge (red area), scallop access fishing exempt, bottom trawling for groundfish exempt west of 67° 20′ W.
-- Dedicated Habitat Research Areas are cross-hatched. Stellwagen DHRA (north), Georges Bank DHRA (south)
-- Mortality closures shown with heavy black outline. Current gear restrictions.
-- Largest shaded area is the roller gear restricted area.
-- Other shaded/colored areas are mobile bottom-tending gear closures, with gear exemptions as noted above.
-- Cox Ledge closed to clam dredges, and trawls cannot use ground cables.
-- Ammen Rock closed to all gears except lobster traps.

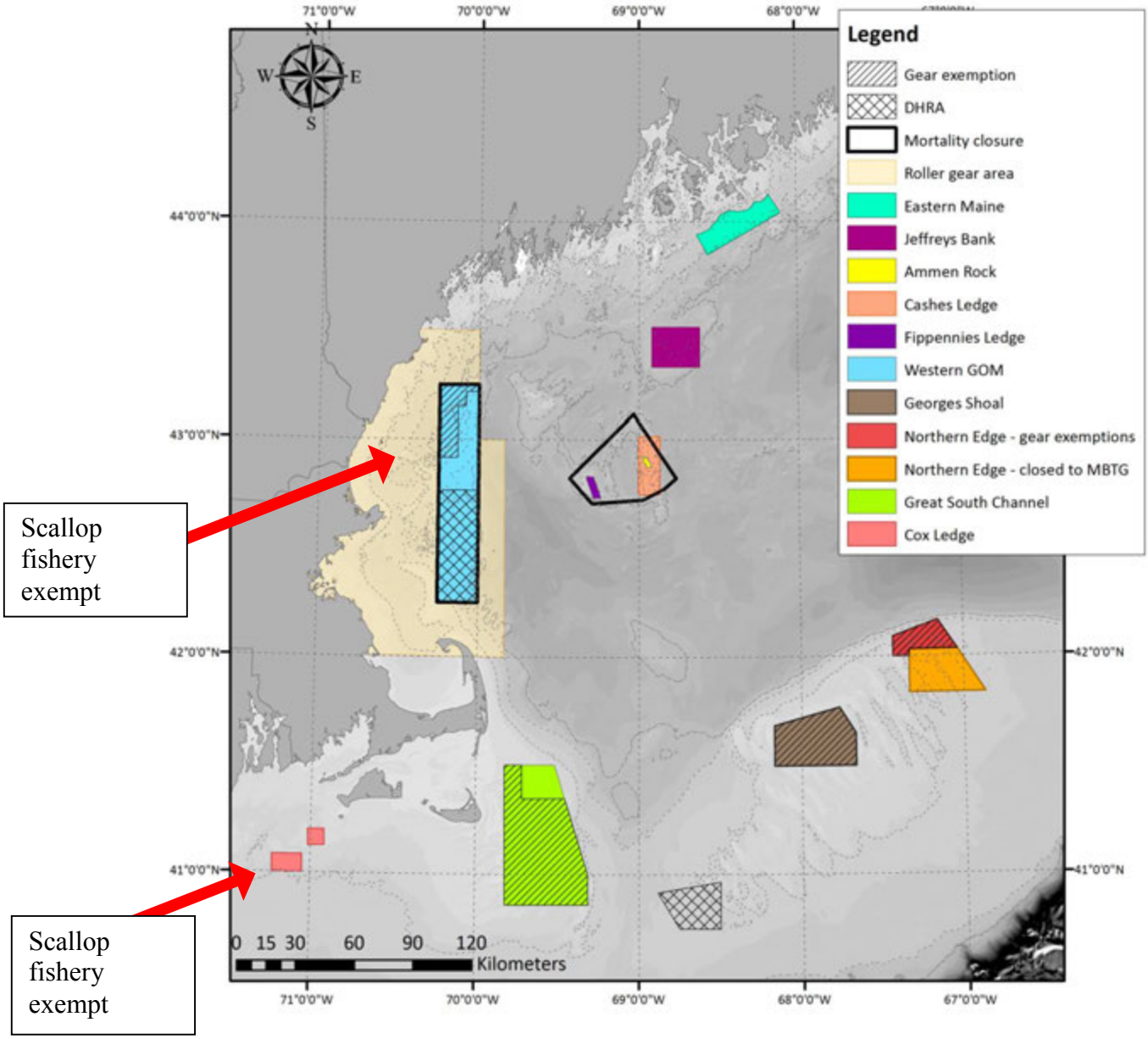
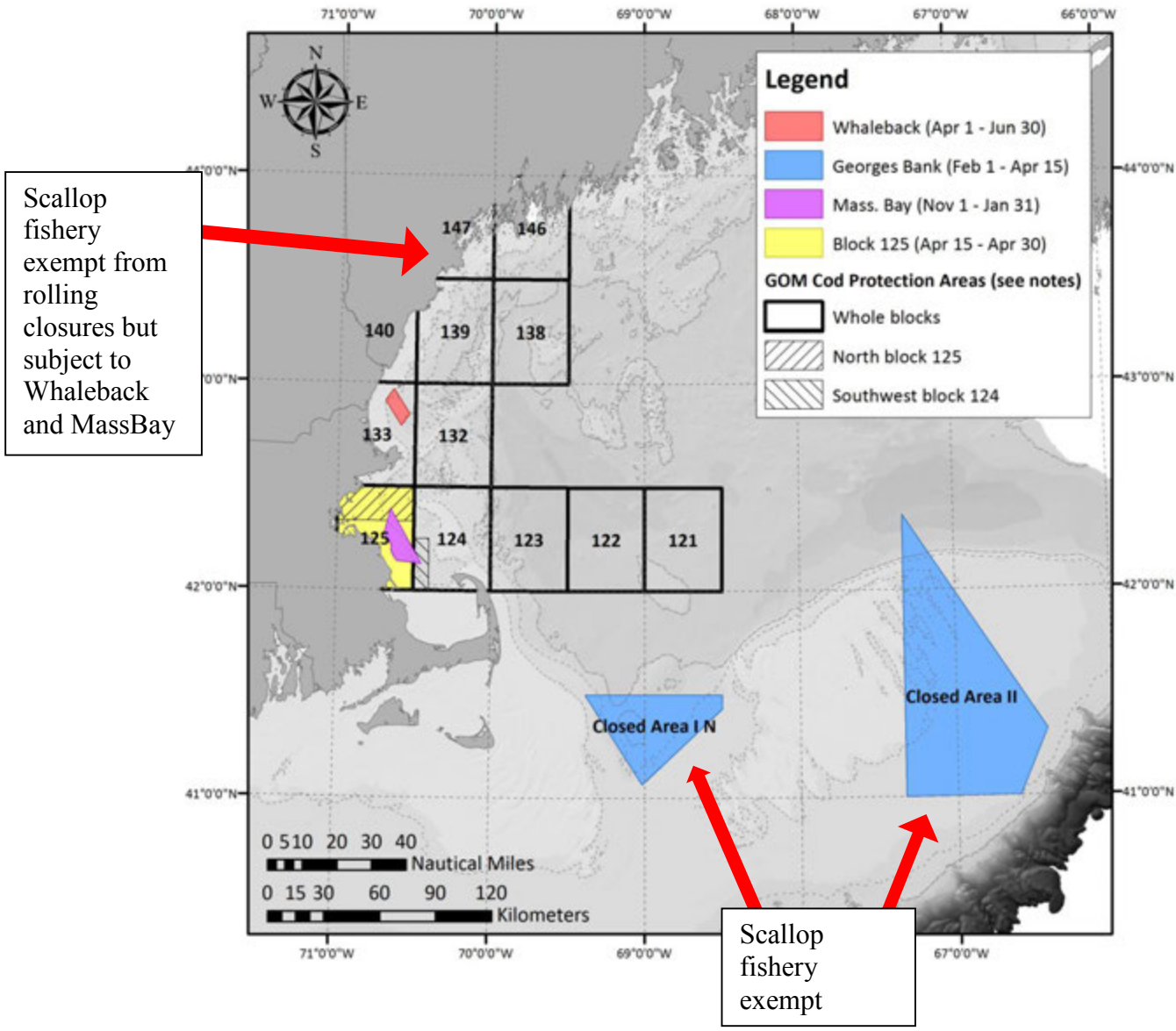


Figure 16 – Preferred alternative seasonal spatial management areas. Year-round areas not shown.

GOM COD PROTECTION CLOSURES	SPAWNING AREAS
Closed to commercial gears with various exemptions Nov-Jan: 125 and 124 (southwest corner of 124 only) Feb: None Mar: 121, 122, and 123 (all areas common pool only) April: None** May: 125 (northern part only), 132, 133, 138, 139, 140 June: 125 (northern part only), 132, 139, 140, 146, 147 July-September: None October: 124 and 125 (both areas common pool only)	-- Whaleback and Massachusetts Bay Cod Spawning Protection Areas have the same gear restrictions, i.e. closed to commercial and recreational gears with various exemptions -- Georges Bank areas closed to various commerical and recreational gears capable of catching groundfish, with various exemptions, including scallop dredges ** Block 125 in April is not part of Cod Protection Closures, but was added by Council in June as a spawning area from April 15 - April 30



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). An update and summary is provided in Table 10 to facilitate consideration of the species most likely to interact with the scallop fishery relative to the preferred alternative.

Table 10 – Protected species that may occur in the affected environment of the sea scallop fishery

Species	Status	Potentially affected by this action?
Cetaceans		
North Atlantic right whale (*Eubalaena glacialis*)	Endangered	No
Humpback whale (*Megaptera novaeangliae*)[1]	Endangered	No
Fin whale (*Balaenoptera physalus*)	Endangered	No
Sei whale (*Balaenoptera borealis*)	Endangered	No
Blue whale (*Balaenoptera musculus*)	Endangered	No
Sperm whale (*Physeter macrocephalus*	Endangered	No
Minke whale (*Balaenoptera acutorostrata*)	Protected	No
Pilot whale (*Globicephala spp.*)[2]	Protected	No
Risso's dolphin (*Grampus griseus*)	Protected	No
Atlantic white-sided dolphin (*Lagenorhynchus acutus*)	Protected	No
Short Beaked Common dolphin (*Delphinus delphis*)[3]	Protected	No
Spotted dolphin (*Stenella frontalis*)	Protected	No
Striped dolphin (*Stenella coeruleoalba*)	Protected	No
Beaked whales (*Ziphius and Mesoplodon spp*)[4]	Protected	No
Bottlenose dolphin (*Tursiops truncatus*)[5]	Protected	No
Harbor porpoise (*Phocoena phocoena*)	Protected	No
Sea Turtles		
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered	Yes
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered	Yes

Green sea turtle, North Atlantic DPS (Chelonia mydas)	Endangered 6	Yes
Loggerhead sea turtle (Caretta caretta), Northwest Atlantic DPS	Threatened	Yes
Hawksbill sea turtle (Eretmochelys imbricate)	Endangered	No
Fish		
Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered	No
Atlantic salmon (*Salmo salar*)	Endangered	No
Atlantic sturgeon *(Acipenser oxyrinchus)*		
Gulf of Maine DPS	Threatened	Yes
New York Bight DPS, Chesapeake Bay DPS, Carolina DPS & South Atlantic DPS	Endangered	Yes
Porbeagle shark *(Lamna masus)*	Candidate	Yes
Thorny skate *(Amblyraja radiata)*	Candidate	Yes
Cusk (*Brosme brosme*)	Candidate	Yes
Pinnipeds Harbor seal (*Phoca vitulina*)	Protected	No
Gray seal (*Halichoerus grypus*)	Protected	No
Harp seal (*Phoca groenlandicus*)	Protected	No
Hooded seal (Cystophora cristata)	Protected	No
Critical Habitat		
North Atlantic Right Whale [7]		No
Northwest Atlantic DPS of Loggerhead Sea Turtle		No

Notes:
[1] On April 21, 2015, a proposed rule was issued to change the ESA listing status of humpback whales (80 FR 22303). After an extensive scientific status review, 14 DPSs were identified: 2 proposed as threatened, 2 as endangered, and 10 as not warranted for listing. The DPS found in U.S. Atlantic waters, the West Indies DPS, is proposed to be delisted.
[2]There are 2 species of pilot whales: short finned (*G. melas melas*) and long finned (*G. macrorhynchus*). Due to the difficulties in identifying the species at sea, they are often just referred to as *Globicephala spp*.
[3] Prior to 2008, this species was called "common dolphin."
[4] There are multiple species of beaked whales in the Northwest Atlantic. They include the cuvier's (*Ziphius cavirostris*), blainville's (*Mesoplodon densirostris*), gervais' (*Mesoplodon europaeus*), sowerbys' (*Mesoplodon bidens*), and trues' (*Mesoplodon mirus*) beaked whales. Species of *Mesoplodon*; however, are difficult to identify at sea, and therefore, much of the available characterization for beaked whales is to the genus level only.
[5] This includes the Western North Atlantic Offshore, Northern Migratory Coastal, and Southern Migratory Coastal Stocks of Bottlenose Dolphins.
[6] On April 6, 2016, a final rule was issued removing the current range-wide listing of green sea turtles and, in its place, listing eight green sea turtle DPSs as threatened and three DPSs as endangered (81 FR 20058). The green sea turtle DPS located in the Northwest Atlantic is the North Atlantic DPS of green sea turtles; this DPS is considered threatened under the ESA.
[7] Originally designated June 3, 1994 (59 FR 28805); Expanded on January 27, 2016 (81 FR 4837).

In Table 10, please note that cusk, thorny skate, and porbeagle shark, NMFS "candidate species" under the ESA, occur in the affected environment of the scallop fishery. Candidate species are those petitioned species that NMFS is actively considering for listing as endangered or threatened under the ESA and also include those species for which NMFS has initiated an ESA status review through an announcement in the Federal Register. Once a species is proposed for listing the conference provisions of the ESA apply (see 50 CFR 402.10); however, candidate species receive no substantive or procedural protection under the ESA. As a result, these species will not be discussed further in this section. However, for additional information on these species and proactive conservation efforts being initiated for the species, please visit http://www.nmfs.noaa.gov/pr/species/esa/candidate.htm .

4.3.1 Species and Critical Habitat Not Likely to be Affected by the Alternatives Under Consideration

Based on available information, it has been determined that this action is not likely to affect any ESA listed or non-listed species of marine mammals (cetaceans or pinnipeds), shortnose sturgeon, or Atlantic salmon. Further, this action is not likely to adversely affect the Northwest Atlantic DPS of loggerhead or North Atlantic right whale critical habitats. This determination has been made because either the occurrence of the species is not known to overlap with the scallop fishery and/or there have never been documented interactions between the species and the scallop fishery (NMFS 2012; NMFS NEFSC FSB 2015). In the case of critical habitat, this determination has been made because the scallop fishery will not affect the primary constituent elements of the critical habitat, and therefore, will not result in the destruction or adverse modification of critical habitat (NMFS 2012; NMFS 2014; NMFS 2015). For additional details on the rationale behind these conclusions, please see Section

4.3.1 of Framework 26 to the Scallop FMP (http://s3.amazonaws.com/nefmc.org/Final-FW26_submission_150217.pdf).

Species Potentially Affected by the Alternatives Under Consideration

As noted in Table 10, ESA listed species of sea turtles and Atlantic sturgeon occur in the affected environment of the scallop fishery and have the potential to be affected by this fishery and the proposed Alternatives. To understand the potential risks these Alternatives pose to these listed species, it is necessary to consider (1) species occurrence in the affected environment of the fishery and how the fishery will overlap in time and space with this occurrence; and (2) records of protected species interaction with particular fishing gear types. In the sections below, information on sea turtle and Atlantic sturgeon occurrence in the affected environment of the scallop fishery, in addition to species interactions with scallop fishery gear, will be provided.

4.3.1.1 Sea Turtles

4.3.1.1.1 Occurrence and Distribution

During the development of Framework 26 to the Scallop fishery, the PDT used various sources of information to describe the occurrence and distribution of sea turtles in the affected environment of the scallop fishery. Below, the PDT provides a summary of the information provided in FW 26, with any updates since the issuance of the framework provided. For additional details on the sources of information used to develop this section, please refer to section 4.3.2.1 of Framework 26. Further, additional background information on the range-wide status of affected sea turtles species, as well as a description and life history of each of these species, can be found in a number of published documents, including sea turtle status reviews and biological reports (NMFS and USFWS 1995; Hirth 1997; Turtle Expert Working Group [TEWG] 1998, 2000, 2007, 2009; NMFS and USFWS 2007a, 2007b; Conant *et al*. 2009; NMFS and USFWS 2013), and recovery plans for the loggerhead sea turtle (Northwest Atlantic DPS; NMFS and USFWS 2008), leatherback sea turtle (NMFS and USFWS 1992, 1998a), Kemp's ridley sea turtle (NMFS *et al*. 2011), and green sea turtle (NMFS and USFWS 1991, 1998b).

- **Hard-shelled sea turtles**

Distribution. In U.S. Northwest Atlantic waters, hard-shelled turtles commonly occur throughout the continental shelf from Florida to Cape Cod, MA, although their presence varies with the seasons due to changes in water temperature (Braun-McNeill *et al*. 2008; Braun & Epperly 1996; Epperly *et al*. 1995; Mitchell *et al*. 2003; Shoop & Kenney 1992; TEWG 2009). While hard-shelled turtles are most common south of Cape Cod, MA, loggerhead sea turtles are known to occur in the Gulf of Maine, feeding as far north as southern Canada. Loggerheads have been observed in waters with surface temperatures of 7°C to 30°C, but water temperatures ≥11°C are most favorable (Epperly *et al*. 1995; Shoop & Kenney 1992). Sea turtle presence in U.S. Atlantic waters is also influenced by water depth. While hard-shelled turtles occur in waters from the beach to beyond the continental shelf, they are most commonly found in neritic waters of the inner continental shelf (Blumenthal *et al*. 2006; Braun-McNeill & Epperly 2004; Griffin *et al*. 2013; Hawkes *et al*. 2006; Hawkes *et al.* 2011; Mansfield *et al*. 2009; McClellan & Read 2007; Mitchell *et al*. 2003; Morreale & Standora 2005).

Seasonality. Hard-shelled sea turtles occur year-round in waters south of Cape Hatteras, North Carolina. As coastal water temperatures warm in the spring, loggerheads begin to migrate to inshore waters of the southeast United States and also move up the Atlantic Coast (Braun-McNeill & Epperly 2004; Epperly *et al*. 1995; Epperly, Braun & Veishlow 1995; Griffin *et al*. 2013; Morreale & Standora 2005), occurring in Virginia foraging areas as early as late April and on the most northern foraging grounds in the GOM in June (Shoop & Kenney 1992). The trend is reversed in the fall as water temperatures cool. The large majority leave the GOM by September, but some remain in Mid-Atlantic and Northeast areas until late fall (i.e., November). By December, sea turtles have migrated south to waters offshore of North Carolina, particularly south of Cape Hatteras, and further (Epperly *et al.* 1995; Griffin *et al*. 2013; Hawkes *et al*. 2011; Shoop & Kenney 1992). Based on this information, as well as other sources of information reviewed and compiled during the development of Framework 26, hard-shelled sea turtles are most likely to be present in areas that overlap with the scallop fishery in the Mid-Atlantic between May and October and to a lesser extent, November (see Section 4.3.2.1 of Framework 26 for complete summary of information).

- **Leatherback sea turtles**

Leatherback sea turtles also engage in routine migrations between northern temperate and tropical waters (Dodge *et al*. 2014; James *et al*. 2005; James *et al*. 2006; NMFS & USFWS 1992). Leatherbacks, a pelagic species, are also known to use coastal waters of the U.S. continental shelf (Dodge *et al*. 2014; Eckert *et al*. 2006; James *et al*. 2005; Murphy *et al*. 2006). Leatherbacks have a greater tolerance for colder water in comparison to hard-shelled sea turtles. They are also found in more northern waters later in the year, with most leaving the Northwest Atlantic shelves by mid-November (Dodge *et al.* 2014; James *et al*. 2005; James *et al*. 2006).

4.3.1.1.2 Gear Interactions

As described in section 1.1.2.1.1, sea turtles are widely distributed in the waters of the Northwest Atlantic, although their presence varies with the seasons due to changes in water temperature (Shoop and Kenney 1992; Epperly *et al.* 1995a, 1995b; Braun and Epperly 1996; Mitchell *et al.* 2003; Braun-McNeill *et al.* 2008; TEWG 2009; Braun-McNeill and Epperly 2004; Morreale and Standora 2005; Griffin *et al.* 2013; NMFS and USFWS 1992; James *et al.* 2005, 2006; Dodge *et al.* 2014). As a result, sea turtles often occupy many of the same ocean areas utilized for commercial fishing and therefore, interactions with fishing gear is possible. In the sea scallop fishery, dredge and trawl gear are used to target scallops and are known to pose a risk to sea turtles (Henwood and Stuntz 1987; Lutcavage and Lutz 1997; Epperly *et al*. 2002; Sasso and Epperly 2006; Haas *et al*. 2008; Murray 2011; Warden 2011a,b; NMFS 2012).

Although sea turtle interactions with scallop trawl and dredge gear have been observed in the Gulf of Maine, Georges Bank, and the Mid-Atlantic, most of the observed interactions have occurred in the Mid-Atlantic.[10] There is insufficient data available to conduct a robust model-based analysis to estimate sea turtle interactions with scallop trawl or dredge gear outside the

[10] To date, there has been one loggerhead observed in trawl gear (top landed species was sea scallop), and two Kemp's ridleys observed in dredge gear; these observed interactions occurred on Georges Bank.

Mid-Atlantic. As a result, the bycatch estimates and most of the discussion below are based on observed sea turtle interactions in scallop trawl and dredge gear in the Mid-Atlantic.

- **Sea Scallop Dredge Gear**

Kemp's ridley, green, loggerhead, and unknown sea turtle species have been documented interacting with sea scallop dredge gear; loggerhead sea turtles are the most commonly taken species.[11] Two regulations have been implemented to reduce serious injury and mortalities to sea turtles resulting from interactions with sea scallop dredges:

- (1) **Chain mat modified dredge** (71 FR 50361, August 25, 2006; 71 FR 66466, November 15, 2006; 73 FR18984, April 8, 2008; 74 FR 20667, May 5, 2009; 76 FR 22119, April 21, 2015): Requires federally permitted scallop vessels fishing with dredge gear to modify their gear by adding an arrangement of horizontal and vertical chains (referred to as a "chain mat"). The purpose of the chain mat is to prevent captures in the dredge bag and injury and mortality that results from such capture. It should be noted; however, that although the chain may is expected to reduce the impact of sea turtle takes in dredge gear, it does not eliminate the take of sea turtles; and
- (2) **Turtle Deflector Dredge** (77 FR 20728, April 6, 2012; 76 FR 22119, April 21, 2015)**:** All limited access scallop vessels, as well as Limited Access General Category vessels with a dredge width of 10.5 feet or greater, must use a Turtle Deflector Dredge (TDD) to deflect sea turtles over the dredge frame and bag rather than under the cutting bar, so as to reduce sea turtle injuries due to contact with the dredge frame on the ocean bottom (including being crushed under the dredge frame). As of May 2015, both gear modifications are now required in waters west of 71°W from May 1 through November 30 each year (76 FR 22119, April 21, 2015).

Based on Northeast Fisheries Observer Program data, Murray (2011) assessed loggerhead and hard-shell turtle interactions in the Mid-Atlantic sea scallop fishery from 2001-2008 (Figure 1). After the implementation of the chain-mat requirements, Murray (2011) estimated an average of 125 (observable and unobservable but quantifiable) hard-shelled sea turtles (95% CI: 88-163; 22 adult equivalents[12]) interacted with scallop dredge gear annually (Table 2). Most recently, Murray (2015a) estimated loggerhead interactions in the Mid-Atlantic scallop dredge fishery from 2009-2014. The average annual estimate of observable turtle interactions in scallop dredge gear was 11 loggerhead sea turtles per year (95% CI: 3-22; Murray 2015a). When the observable interaction rate from dredges without chain mats, was applied to trips that used chain mats and TDDs, the estimated number of loggerhead interactions (observable and unobservable but quantifiable) was 22 loggerheads per year (95% CI: 4-67; Murray 2015a). These 22 loggerheads equate to 2 adult equivalents per year, and 1-2 adult equivalent mortalities (Murray 2015a).

[11] One unconfirmed take of a leatherback sea turtle was reported during the experimental fishery to test the chain-mat modified gear (DuPaul *et al.*2004).

[12] Adult equivalence considers the reproductive value of the animal (Warden 2011; Murray 2013), providing a "common currency" of expected reproductive output from the affected animals (Wallace *et al*. 2008), and is an important metric for understanding population level impacts (Haas 2010).

Table 11 - Average annual estimated interactions of hard-shelled (unidentified and loggerhead species pooled) and loggerhead turtles in the Mid-Atlantic scallop dredge fishery before and after chain mats were required on dredges (CV and 95% Confidence Interval).
AE = adult equivalent estimated interactions. **A**= estimated interactions from dredges without chain mats; B = estimated observed interactions from dredges with or without chain mats; **C** = estimated observed and unobserved, quantifiable interactions from dredges without chain mats, to estimate the mat's maximum conservation value (*Source*: Murray 2011).

	Interactions		**Interactions**	
Time Period	Hard-shelled	AE	Loggerhead	AE
(A) 2001-25 Sept 2006	288 (0.14, 209-363)	49	218 (0.16, 149-282)	37
(B) 26 Sept 2006-2008	20 (0.48, 3-42)	3	19 (0.52, 2-41)	3
(C) 26 Sept 2006-2008	125 (0.15, 88-163)	22	95 (0.18, 63-130)	16

- **Sea Scallop Trawl Gear**

Warden (2011a) estimated that from 2005-2008, the average annual loggerhead interactions in bottom trawl gear in the Mid-Atlantic (i.e., south of Cape Cod, Massachusetts, to approximately the North Carolina/South Carolina border) was 292 (CV=0.13, 95% CI=221-369), with an additional 61 loggerheads (CV=0.17, 95% CI=41-83) interacting with trawls, but being released through a Turtle Excluder Device.13 Of the 292 average annual observable loggerhead interactions, approximately 44 of those were adult equivalents (Warden 2011a). Most recently, Murray (2015b) estimated that from 2009-2013, the total average annual loggerhead interactions in bottom trawl gear in the Mid-Atlantic (i.e., defined by the boundaries of the Mid-Atlantic Ecological Production; roughly waters west of 71oW to the North Carolina/South Carolina border) was 231 (CV=0.13, 95% CI=182-298). Of the 231 total average annual loggerhead interactions, approximately 33 of those were adult equivalents (Murray 2015b).These latter estimates are a decrease from the average annual loggerhead bycatch in bottom otter trawls during 1996-2004, which Murray (2008) estimated to be 616 sea turtles (CV=0.23, 95% CI over the nine-year period: 367-890). Based on data collected by observers for reported sea turtle captures in bottom otter trawl gear from 2005-2008, Warden (2011b), using species landed, also estimated total loggerhead interactions attributable to managed species. The estimated average annual bycatch of loggerhead sea turtles in bottom otter trawl gear for trips primarily landing scallops during 2005-2008 was 95 loggerheads (95% CI =60-140; Warden 2011b). Murray (2015b) provided similar estimates of loggerhead interactions by managed fished species from 2009-2013. Specifically, an estimated average annual take of six loggerheads (95% CI=0-23) were attributed to the scallop fishery.

Gear Interaction Factors

Although sea turtles have the potential to interact with multiple gear types, such as dredge or trawl gear, the risk of an interaction is affected by multiple factors, including where and when

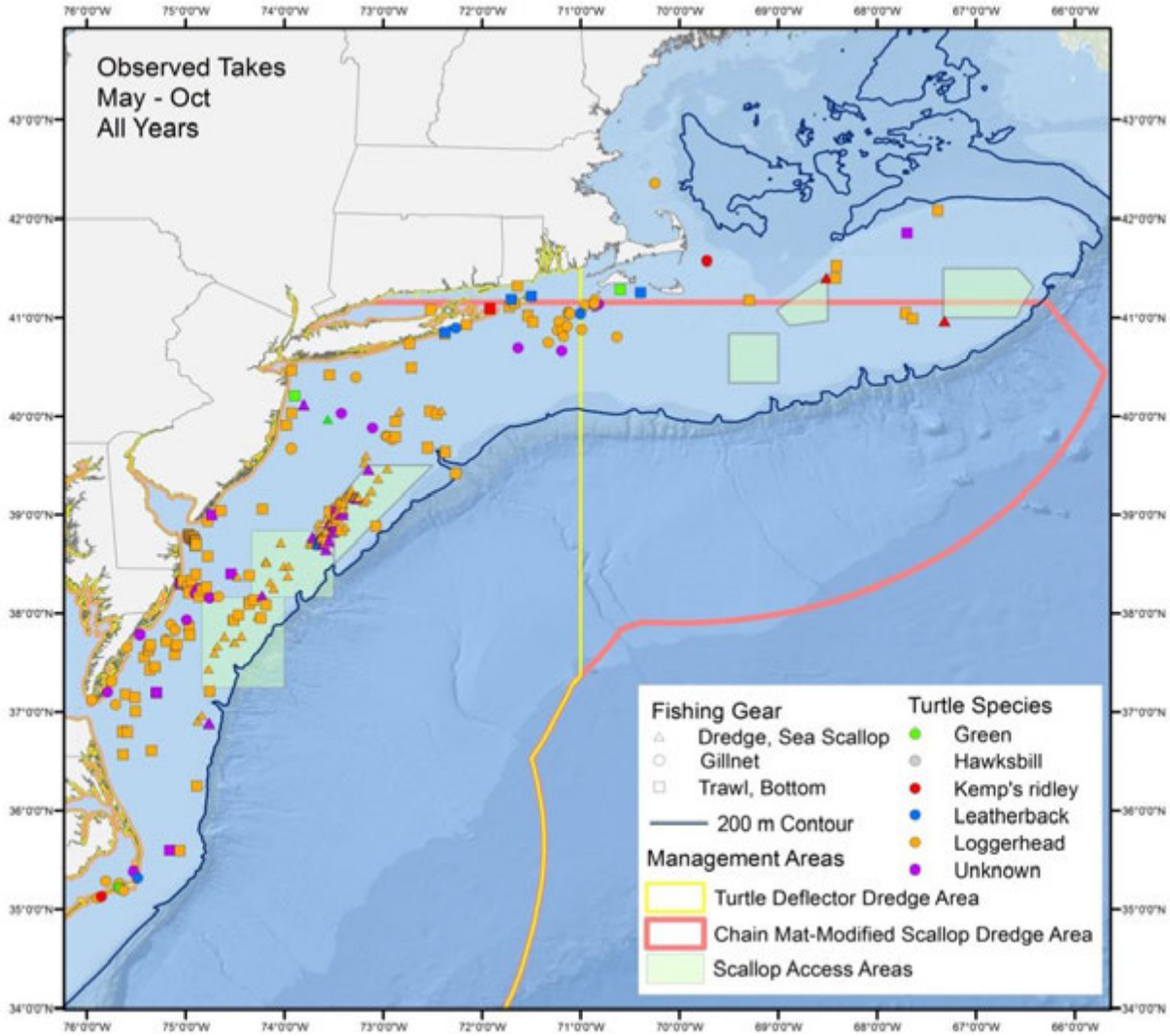
[13] Warden (2011a) and Murray (2013, 2015b) define the mid-Atlantic slightly differently, but both include waters north to Massachusetts. See the respective papers for a more complete description of these areas.

fishing effort is focused, the type of gear being used, environmental conditions, and sea turtle occurrence and distribution. Based on studies done by Murray and Orphanides (2013), Murray (2013), and Warden (2011a), it was concluded that both fishery dependent and independent encounter rates were a function of latitude, sea surface temperature (SST), depth, and salinity. Specifically, these studies found a decreasing trend in encounter rates as latitude increases; an increasing trend as SST increases; a bimodal relationship between encounter rates and salinity; and higher encounter rates in depths < 50 m.

Summary of Observed Locations of Turtle Interactions with Scallop Dredge, Bottom Trawl, and Gillnet Gear

Figure 2 provides a depiction of the overall observed locations of sea turtle interactions with gillnet (drift and sink), bottom trawl (fish, scallop, and twin), and sea scallop dredge (bottom tending) gear in the Northeast Region from 1989-2013 during the months of May-October. Moderately and severely decomposed animals are not included in Figure 2. For additional maps depicting turtle interactions in bottom tending gears during November or December –April, a period of low to no sea turtle occurrence in the Northeast Region, please see Section 4.3 of Framework 26 of the Scallop FMP.

Figure 17 – Observed location of turtle interactions in bottom tending gears in the Northeast Region in the months of May – October (1989-2013)



4.3.1.2 Atlantic Sturgeon

4.3.1.2.1 Atlantic Sturgeon Distribution

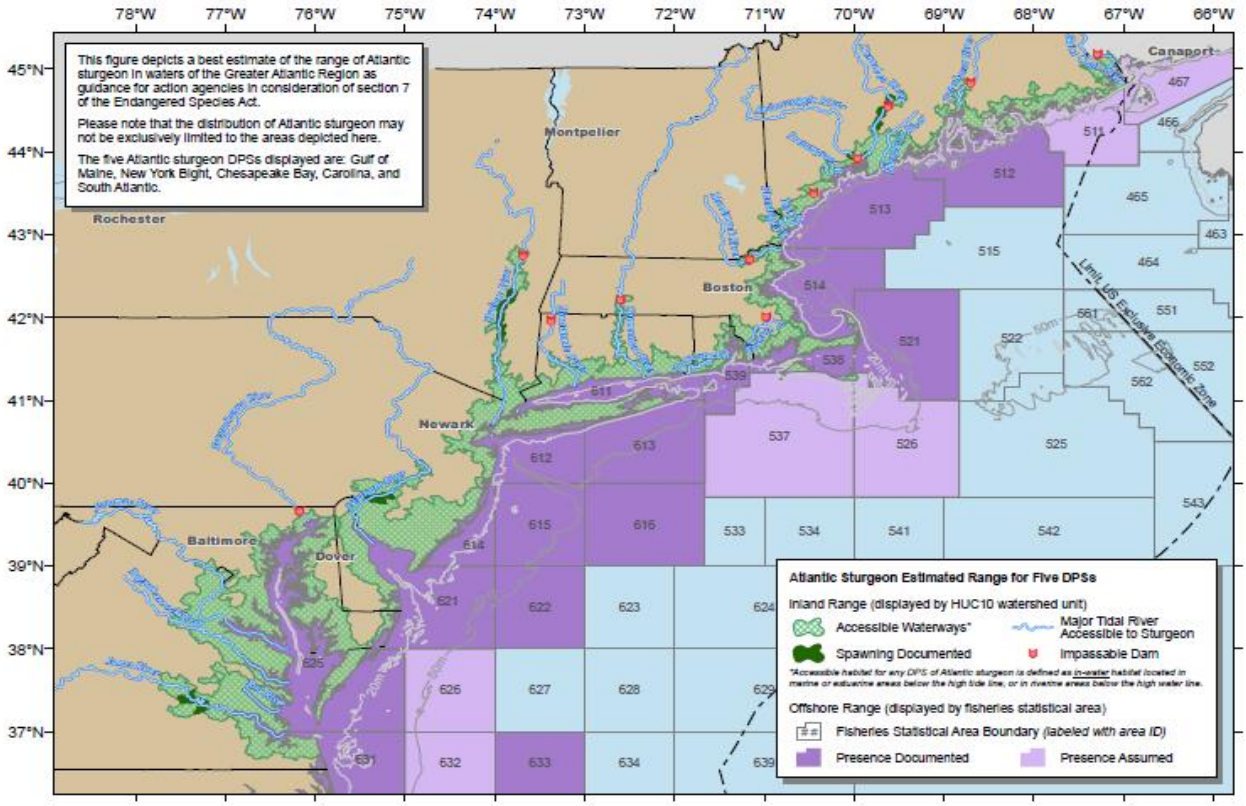
During the development of Framework 26 to the Scallop fishery, the PDT used various sources of information to describe the occurrence and distribution of Atlantic sturgeon DPSs in the affected environment of the scallop fishery. Below, the PDT provides a summary of the information provided in FW 26, with any updates (i.e., literature) since the issuance of the framework provided. For additional details on the information below please refer to section X of Framework 26. Further, additional information on the biology, status, and range wide

distribution of each distinct population segment of Atlantic sturgeon please refer to 77 FR 5880 and 77 FR 5914 (finalized February 6, 2012), as well as the Atlantic Sturgeon Status Review Team's (ASSRT) 2007 status review of Atlantic sturgeon (ASSRT 2007).

The marine range of U.S. Atlantic sturgeon extends from Labrador, Canada, to Cape Canaveral, Florida. All five DPSs of Atlantic sturgeon have the potential to be located anywhere in this marine range (See; ASSRT 2007; Dovel and Berggren 1983; Dadswell *et al*. 1984; Kynard *et al*. 2000; Stein *et al*. 2004a; Dadswell 2006; Laney *et al*. 2007; Dunton *et al*. 2010; Erickson *et al*. 2011; Wirgin *et al*. 2012; Waldman *et al.* 2013; O'Leary *et al*. 2014; Wirgin *et al*. 2015). In fact, several genetic studies, have been conducted to address DPS distribution and composition in marine waters (Wirgin *et al*. 2012; Damon-Randall *et al*. 2013; Waldman *et al*. 2013; O'Leary *et al.* 2014; Wirgin *et al*. 2015). Using samples from Atlantic sturgeon captured from various marine aggregation sites along the Northeast coast, results from these studies showed that these aggregations, regardless of location, were comprised of all 5 DPSs of Atlantic sturgeon; however, each DPS comprised various percentages of the aggregation depending on the area along the coast the aggregation was found and sampled (Wirgin *et al*. 2012; Damon-Randall *et al*. 2013; Waldman *et al*. 2013; O'Leary *et al*. 2014).[14]

[14] Within the marine range of Atlantic sturgeon, several marine aggregation areas have been identified adjacent to estuaries and/or coastal features formed by bay mouths and inlets along the U.S. eastern seaboard. For specific information on these various aggregation areas please see: Stein *et al*. 2004a; Laney *et al*. 2007; Dunton *et al*. 2010; Erickson *et al*. 2011; Oliver *et al*. 2013; Bath *et al*. 2000; Savoy and Pacileo2003; and Waldman *et al*. 2013.

Figure 18 – Estimated range of Atlantic Sturgeon Distinct Population Segments (DPSs)



Source: http://www.greateratlantic.fisheries.noaa.gov/protected/section7/guidance/maps/atlanticsturgeon.pdf.pdf

Based on fishery- independent and dependent data, as well as data collected from tracking and tagging studies, in the marine environment, Atlantic sturgeon appear to primarily occur inshore of the 50 meter depth contour (Stein *et al*. 2004 a,b; Erickson *et al*. 2011; Dunton *et al*. 2010); however, Atlantic sturgeon are not restricted to these depths, as excursions into deeper continental shelf waters have been documented (Timoshkin 1968; Collins and Smith 1997; Stein *et al.* 2004a,b; Dunton *et al*. 2010; Erickson *et al*. 2011)). Data from fishery-independent surveys and tagging and tracking studies also indicate that Atlantic sturgeon undertake seasonal movements along the coast (Dunton *et al*. 2010; Erickson *et al*. 2011). In general, analysis of fishery-independent survey data indicates a coastwide distribution of Atlantic sturgeon from the spring through the fall, with Atlantic sturgeon being more centrally located (e.g., Long Island to Delaware) during the summer months; and a more southerly (e.g., North Carolina, Virginia) distribution during the winter (Dunton *et al*. 2010; Erickson *et al*. 2011). Although studies such as Erickson *et al*. (2011) and Dunton *et al*. (2010) provide some indication that Atlantic sturgeon are undertaking seasonal movements horizontally and vertically along the U.S. eastern coastline, there is no evidence to date that all Atlantic sturgeon make these seasonal movements and therefore, may be present throughout the marine environment throughout the year.

4.3.1.2.2 Gear Interactions

Atlantic sturgeon captures in Northeast fisheries have been documented and recorded by the NEFOP. Review of available observer data indicates that no Atlantic sturgeon have been reported as caught in scallop dredge or trawl gear where the haul target or trip target is scallop. However, according to the NMFS Opinion on the sea scallop fishery issued on July 12, 2012, given the known capture of Atlantic sturgeon in trawl fisheries operating in the affected area of the scallop fishery (Stein *et al*. 2004b; ASMFC 2007; Miller and Shepard 2011), it is reasonable to anticipate that some small level of bycatch may occur in the scallop trawl fishery; however, the incidence rate is likely to be very low. The 2012 Opinion also concluded that, given the way that scallop dredges operate, the lack of documented interactions is likely reflective of a true lack of captures of Atlantic sturgeon in scallop dredge gear.

4.4 ECONOMIC AND SOCIAL ENVIRONMENT

4.4.1 Introduction

This section of the document describes the economic and social trends of the scallop fishery, including trends in landings, revenues, prices and foreign trade for the sea scallop fishery since 1994. In addition, it provides background information about the scallop fishery in various ports and coastal communities in the Northeast.

4.4.2 Trends in landings, prices and revenues

During the period from 2002 fishing year to 2012 fishing year, the scallop landings averaged about 57.4 million pounds peaking over 64.8 million lb. in 2004 fishing year. The recovery of the scallop resource and consequent increase in landings and revenues was striking given that average scallop landings per year were below 16 million pounds during the 1994-1998 fishing years. However, the landings from the Northeast sea scallop fishery fell to 40.4 million pounds in 2013 fishing year and to 32.5 million pounds in the 2014 fishing year for the first time since 2001 (Figure 19 and Table 29).

The increase in the abundance of scallops coupled with higher scallop prices increased the profitability of fishing for scallops by the general category vessels especially after 2002 fishing year. As a result, general category landings increased from less than 0.4 million pounds during the 1994-1998 fishing years to more than 4 million pounds during the fishing years 2005-2009, peaking at 7 million pounds in 2005 or 13.5% of the total scallop landings (Table 30). The landings by the general category vessels declined after 2009 as a result of the Amendment 11 implementation that restricts TAC for the limited access general category fishery to 5.5% of the total ACL. The landings by limited access general category fishery including by IFQ, NGOM and incidental permits, declined to about 2.5 million lb. in 2013 and 2014 fishing years (Figure 19).

Figure 19 - Scallop landings by permit category and fishing year (in lb., dealer data)

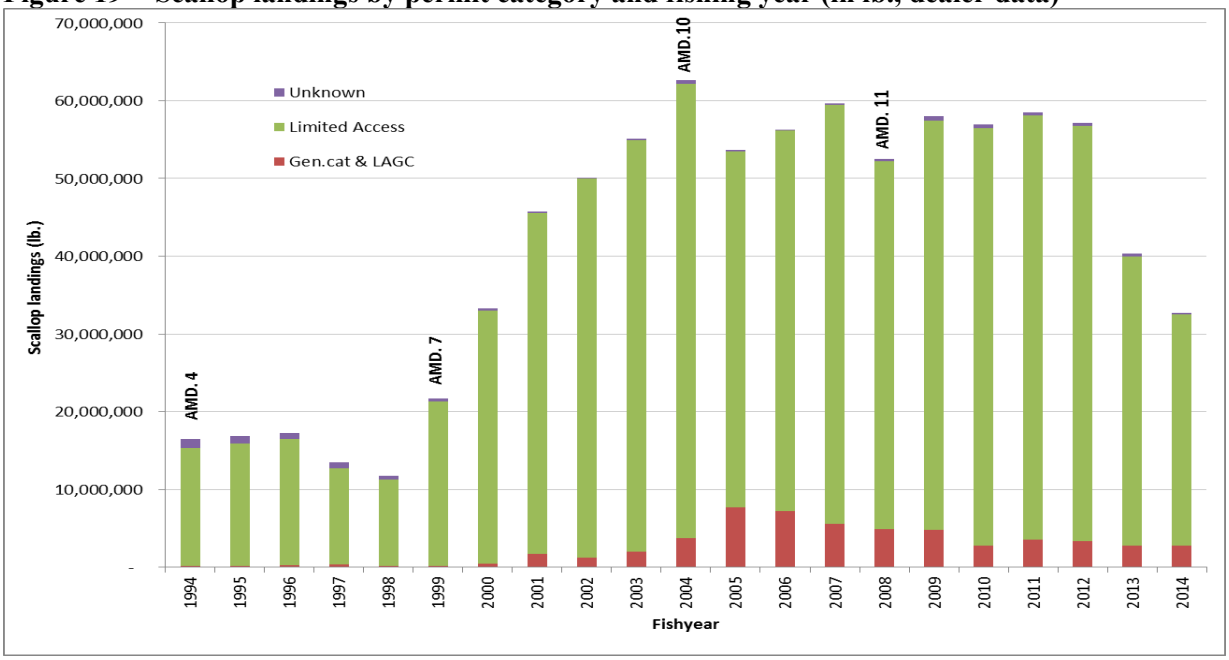
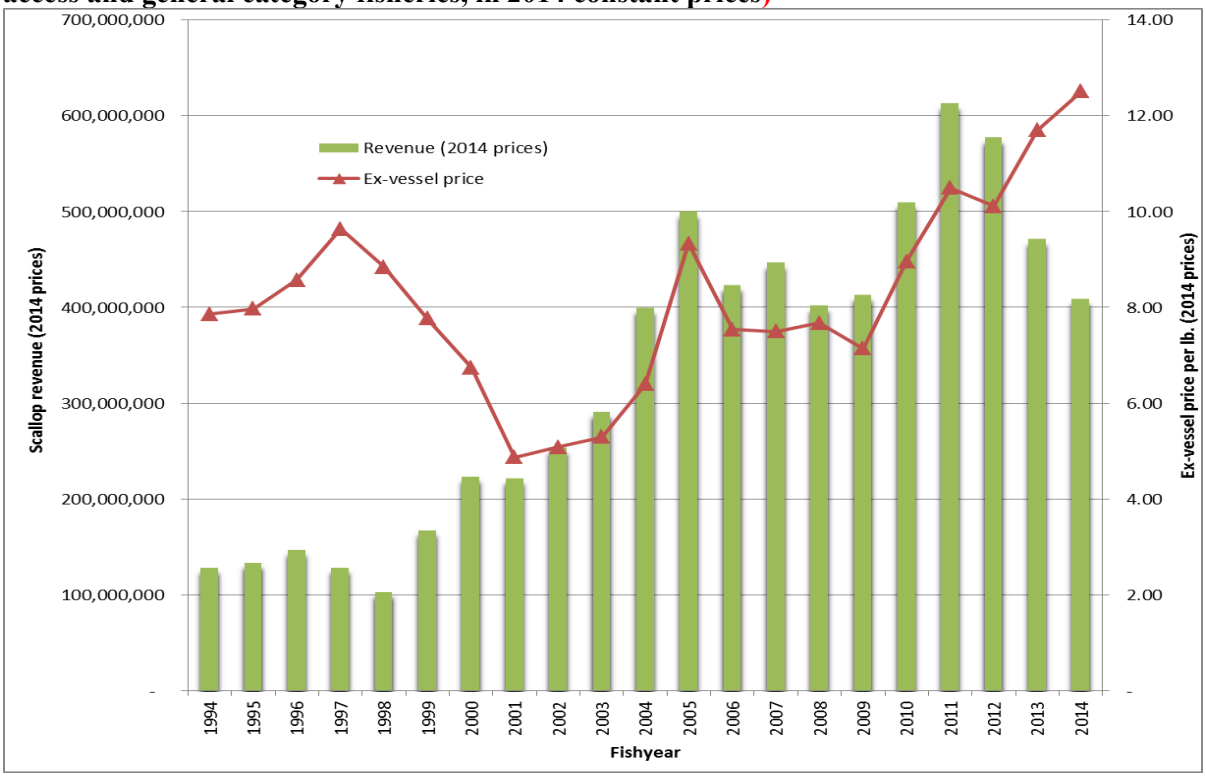


Figure 20 shows that total fleet revenue more than quadrupled in 2011 ($601 million, in inflation adjusted 2011 dollars) fishing year from its level in 1994 ($127 million, in inflation adjusted 2011 dollars). Scallop ex-vessel prices increased after 2001 as the composition of landings changed to larger scallops that in general command a higher price than smaller scallops. However, the rise in prices was not the only factor that led to the increase in revenue in the recent years compared to 1994-1998. In fact, inflation adjusted ex-vessel prices in 2008-2009 were lower than prices in 1994 (Figure 20). The increase in total fleet revenue was mainly due to the increase in scallop landings and the increase in the number of active scallop vessels during the same period.

The ex-vessel prices increased significantly to over $10 per pound of scallops in 2011 fishing year as the decline in the value of the dollar led to an increase in exports of large scallops to the European countries resulting in record revenues from scallops reaching to $601 million for the first time in scallop fishing industry history (Figure 20). The scallop ex-vessel prices peaked to $11.7 per lb. in 2013 due to the decline in landings by almost 30% in the same year. As a result, scallop revenue declined by a smaller percentage (18%) relative to the decline in decline in landings, from about $568 million in 2012 to $466 million (in 2014 prices) in 2013, a level which still could be considered high by historical standards (Figure 20). Similarly in 2014, scallop landings declined to about 32.5 million pounds (or by 20% from the levels in 2013) and scallop revenue declined to $403 million, at a smaller rate (or by 14%), due to the increase in average annual price to $12.5 (Figure 20).

Figure 20 - Trends in total scallop revenue and ex-vessel price by fishing year (including limited access and general category fisheries, in 2014 constant prices)



The trends in landings and revenue per full-time vessel were similar to the trends for the fleet as a whole. Figure 21 shows that average scallop revenue per full-time dredge vessel reached $1,800,000 in 2011 as a result of higher landings combined with an increase in ex-vessel prices. For full-time small dredge vessels, average revenue per vessel increased to over $1,400,000 in 2011 (Figure 22). However, average scallop revenue per full-time dredge vessel declined in 2014 to $1,238,220 for full-time and to $741,782 per the full-time small dredge vessel due to the decline in landings in this fishing year (Figure 21 and Figure 22).

Figure 21 - Trends in average scallop landings per full time vessel by category (Dealer data)

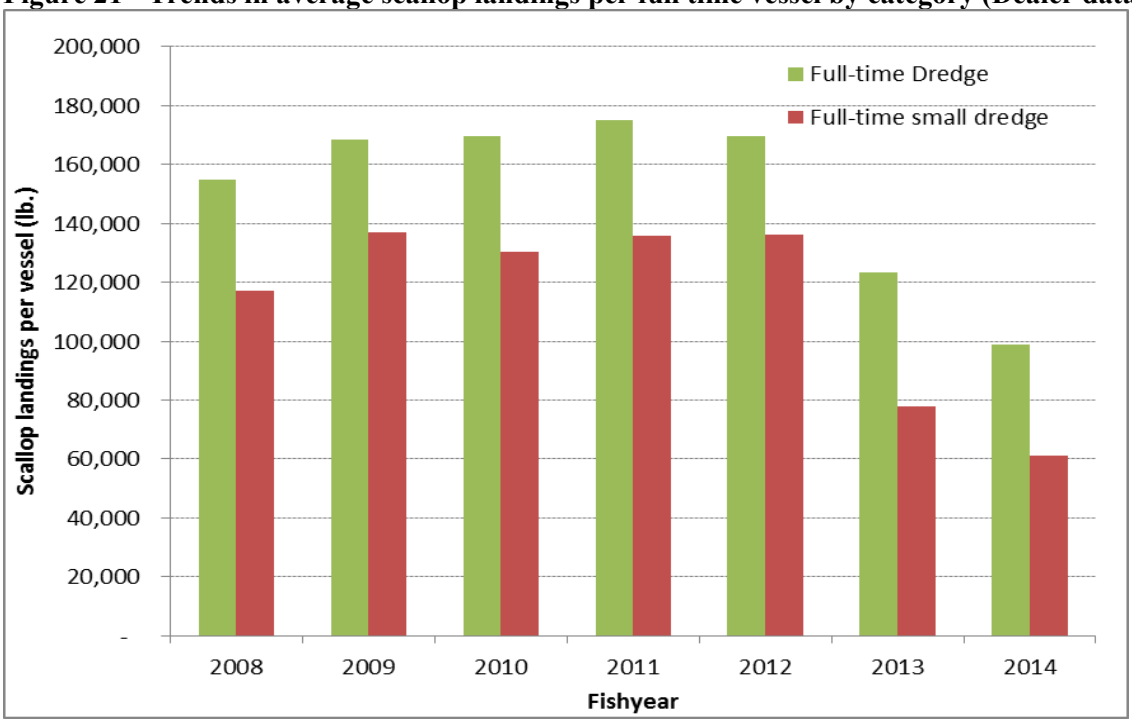
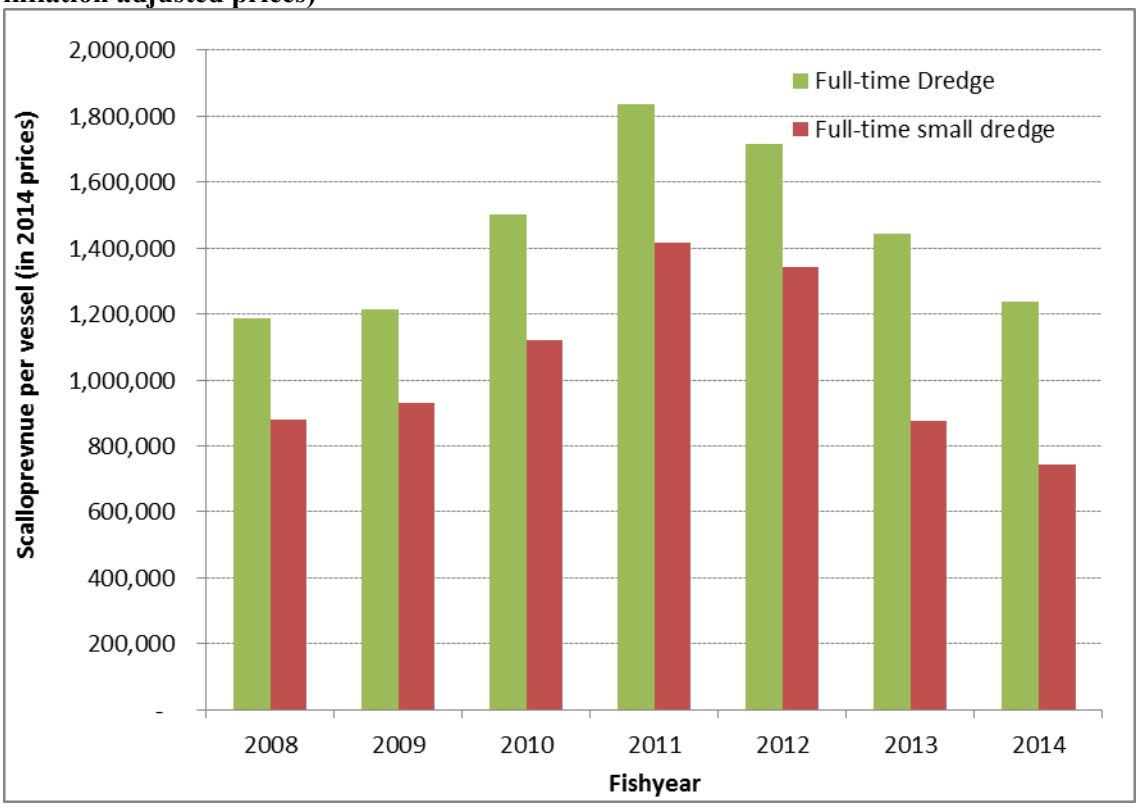


Figure 22 - Trends in average scallop revenue per full-time vessel by category (Dealer data, in 2014 inflation adjusted prices)



Although general category landings declined after 2009, scallop landings and revenue per active limited access general category vessel exceeded the levels in 2009 as the quota is consolidated on or fished by using fewer vessels (Figure 23 and Figure 24). It should be noted that these are estimated numbers from dealer data based on some assumptions in separating the LAGC landings from LA landings. It was assumed that if an LA vessel also had an LAGC permit, those trip landings which are less than 600 lb. in 2011 and less than 400 lb. in 2010 and 2009 were LAGC landings and any among above these were LA landings.

Figure 23 - Trends in average scallop landings per vessel for the LAGC fishery by permit category

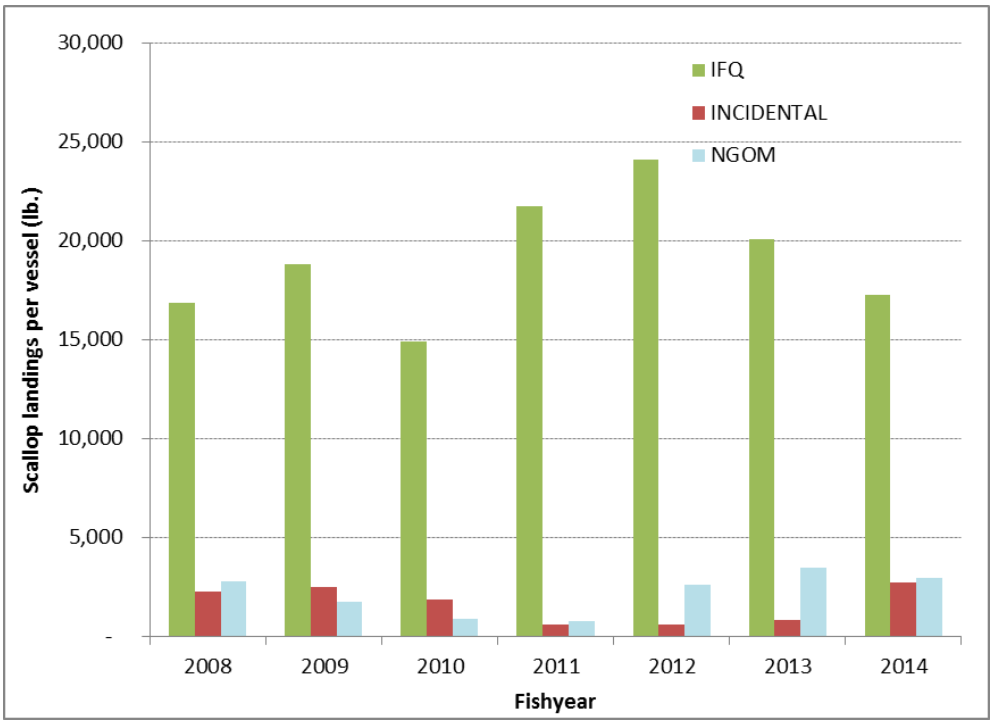
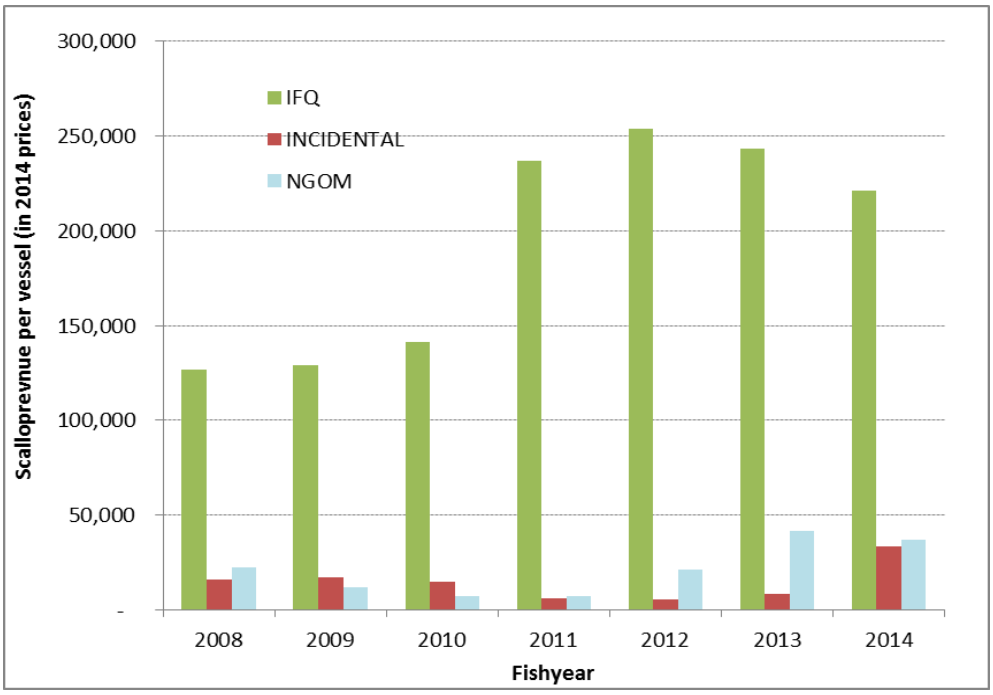


Figure 24 - Trends in average scallop revenue per vessel for the LAGC fishery (dealer data, in 2014 inflation adjusted prices)



4.4.3 Trends in allocations, effort and LPUE

Prior to the 1999 fishing year, the scallop fishery was managed by overall DAS allocations in the open areas. There has been a steady decline in the total open area DAS allocations from 1994 to 1998 fishing years as a result of the effort-reduction measures of Amendment 4 (Table 12). DAS allocations during this period were reduced by about 30% from 204 DAS in 1994 to 142 DAS in 1998 fishing year. Open area DAS was further reduced to 120 DAS by Amendment 7 and in frameworks 11 to 15 during the period from the 1999 fishing year to 2003 fishing year (Table 13). As a result, estimated DAS-used (VTR data) reached the lowest levels of about 24,000 days in the 1999 from over 30,000 days in 1995-1996 (Figure 25).

Table 12 – DAS allocations per full-time vessel

Implementation Year	Allocations based on the Management Action	Total DAS Allocation
1994	Amendment 4	204
1995	Amendment 4	182
1996	Amendment 4	182
1997	Amendment 4	164
1998	Amendment 4	142

Table 13 - DAS and access area allocations per full-time vessel

Year	Action	DAS	AA trips	CA1	CAII	NLS	VB	HC	ETA	DMV	Poss. Limit
1999	FW11	120	3	Closed	3 trips	Closed	Closed	Closed	N/A	N/A	10000
2000	FW12	120	6	2 trips	3 trips	1 trip	Closed	Closed	N/A	N/A	10000
2001	FW14	120	3	Closed	Closed	Closed	3 trips		N/A	N/A	17000
2002	FW14	120	3	Closed	Closed	Closed	3 trips		N/A	N/A	18000
2003	FW15	120	3	Closed	Closed	Closed	3 trips		N/A	N/A	21000
2004	FW16, A10	42	7	Closed	2 trips	1 trip	converted to open area	4 trips	Closed	N/A	18000
2005	FW16	40	5	1 trip	1 trip	Closed		3 trips	Closed	N/A	18000
2006	FW18	52	5 + HC carryover[15]	Closed	3 trips	2 trips		open for 2005 carryover trips	Closed	N/A	18000
2007	FW18/FW20	51	5 + HC carryover	1 trip	Closed	1 trip		open for 2005 carryover trips	3 trips	Closed (Jan 1, 2007)	18000
2008	FW19	35	5	Closed	Closed	1 trip		Closed	4 trips	Closed	18000
2009	FW19	42	5	Closed	1 trip	Closed		Closed	3 trips	1 trip	18000
2010	FW21	38	4	Closed	Closed	1 trip		Closed	2 trips	1 trip	18000
2011	FW22 and EA	32	4	1.5 trips	0.5 trips	Closed by emergency		1 trip	converted to open area	1 trip	18000
2012	FW22 and EA	34	4	1 trip[16]	1 trip	0.5 trips		1.5 trips	Closed (Dec 12, 2012, by EA)	Closed by EA (trips converted to CA1)	18000
2013	FW24	33	2	118 trips[17]	182 trips	116 trips		210 trips	Closed	Closed	13000
2014	FW25	31	2	Closed	197 trips	116 trips		Closed	Closed	313 trips[18]	12000
2015	FW26	30.86	3[19]	Closed	Closed	Closed		Merged into one MAAA, but inshore part of ETA closed			17000

[15] *FW18 also allowed vessels to exchange 2006 CA2 and NL trips for ETA 2007 trips.*
[16] *1 trip after emergency action May 2012 (157 vessels get initial trip per FW22 and 156 get CA1 trip converted from initial DMV trip).*
[17] *FW25 then allows unused trips to be carried over to future year.*
[18] *Vessels given choice of Delmarva trip or 5 DAS.*
[19] *Vessels were not allocated trips in access areas, instead a poundage was allocated with a possession limit.*

Until the implementation of Amendment 10, each access area trip were assigned a 10 DAS trade-off such that any vessel that choose not to fish in access areas could instead fish for scallops in the open areas for 10 DAS. Thus, before 2004, total DAS allocation for the access areas is calculated as the number of trips multiplied by 10 DAS (even though it might have taken less than 10 DAS to land the possession limit in those areas). Following this method, Table 12 and Table 13 show that total DAS allocations for open and access areas per full-time vessel declined from 204 DAS in 1994 to 120 DAS in 2003.

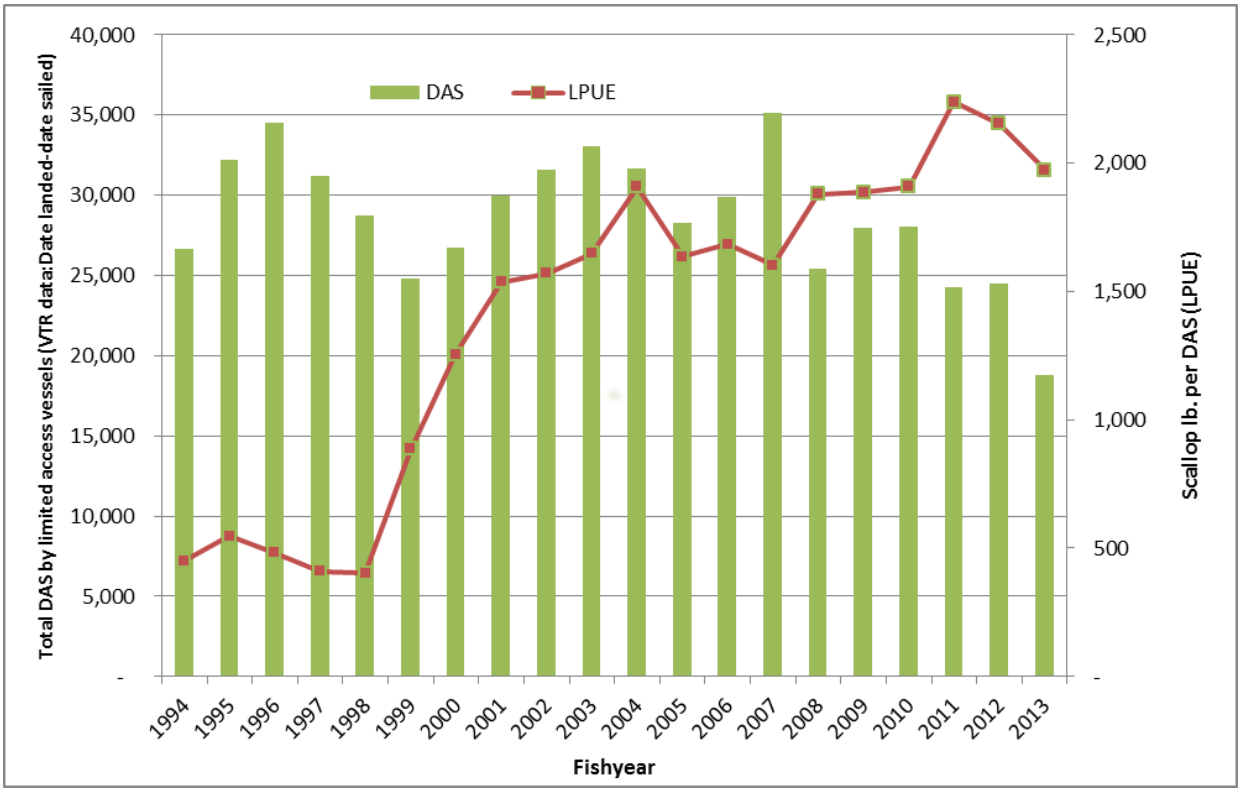
After fishing year 1999, fishing effort started to increase as more limited access vessels participated in the sea scallop fishery. The increase in total effort was mostly due to the increase in the number of vessels because total DAS allocations (mostly less than 120 days) were lower than the DAS allocations in the mid-1990s (over 142 days, Table 13).

The recovery of the scallop resource and the dramatic increase in fishable abundance after 1999 increased the profits in the scallop fishery, thus leading to an increase in participation by limited access vessels that had been inactive during the previous years. Georges Bank closed areas were opened to scallop fishing starting in 1999 by Framework 11 (CAII) and later by Framework 13 (CAII, CAI, NLS), encouraging many vessel owners to take the opportunity to fish in those lucrative areas. Frameworks 14 and 15 provided controlled access to Hudson Canyon and VA/NC areas. As a result, the number of active limited access permits in the sea scallop fishery increased from 258 in 2000 to 303 in 2003. The total fishing effort by the fleet increased to about 33,000 days in 2003 from about 26,700 days in 2000 (Figure 25). Total fishing effort (DAS used) declined after 2003 even though the number of active limited access permits increased to over 330 since 2006, and to over 340 permits since 2009 (Table 25).

With the implementation of Amendment 10 (2004) the limited access vessels were allocated DAS for open areas and area specific access area trips with no open area trade-offs. Although the vessels could no longer use their access area allocations in the open areas, Amendment 10 and Frameworks 16 to 18 continued to include an automatic DAS charge of 12 DAS for each access area trip until it was eliminated by NMFS.

Total DAS-used declined further in 2008 to about 25,400 days as the open area DAS allocations are reduced by 30% from 51 days to 35 days per full-time vessel, but increased to 26,300 in 2009 as the limited access vessels received access area trips (5 trips per vessel) and 42 open area days. Total DAS-used by the limited access vessels were higher in 2010 despite lower number of access area trips (4 trips per vessel). Open area DAS allocations were slightly higher in 2010 (38 DAS versus 37 DAS in 2009) and vessels spend more time fishing in the access areas. Total DAS-used further declined since 2011 due to the decrease in open area DAS allocations. As a result of reduction in the number of access area trips to two trips per full-time vessel in 2013 fishing year, the total DAS-used reached its lowest level in this year with a total of 18,809 days as defined by the difference in the date landed and date sailed form the VTR records.

Figure 25 - Total DAS-used (Date landed – Date sailed from VTR data) by all limited access vessels and LPUE



The impact of the decline in effort below 30,000 days since 2005 (with the exception of 2007) on scallop revenue per vessel was small, however, due to the increase in LPUE from about 1600 pounds per day-at-sea in 2007 to over 2237 pounds per day-at-sea in 2011 and to about 1900 lb. per day-at-sea in all areas (As estimated from date landed – date sailed from VTR data, Figure 25). Figure 26 shows that LPUE for the full-time dredge vessels was higher (about 2200 lb. in 2013 fishing year) than the LPUE of small dredge vessels (about 1416 lb. in 2013 fishing year).

It must be cautioned that these LPUE numbers are lower than the estimates used in the PDT analyses used to estimate open area DAS allocations. The numbers in Figure 25 through Figure 26 are obtained from the VTR database and include the steam time as calculated the days spent at sea starting with the sail date and ending with the landing date. In addition, those numbers include both open and access areas. In contrast, total "DAS used" in the fishery is the value incorporated in the LPUE models by the PDT to calculate future DAS allocations in the open areas for the full-time vessels. In these models, the value for DAS used comes from the field "DAS charged" from the DAS database. DAS charged is based on the time a vessel crossed the VMS demarcation line going out on a trip, and the time it crossed again coming back from a trip, so it wouldn't include the time from (to) the port to (from) the demarcation line at the start (end) of the trip. Therefore, the DAS-used (LPUE) calculated from the VTR data would be greater (lower) than the DAS-used (LPUE) calculated from the demarcation line in the DAS database. Because VTR data is available for a longer period, however, it is useful in analyzing the historical trends in LPUE (from port to port) since 1994.

Figure 26 - LPUE for full-time vessels by permit category (VTR data, includes steam time and LA vessels with IFQ permits as well)

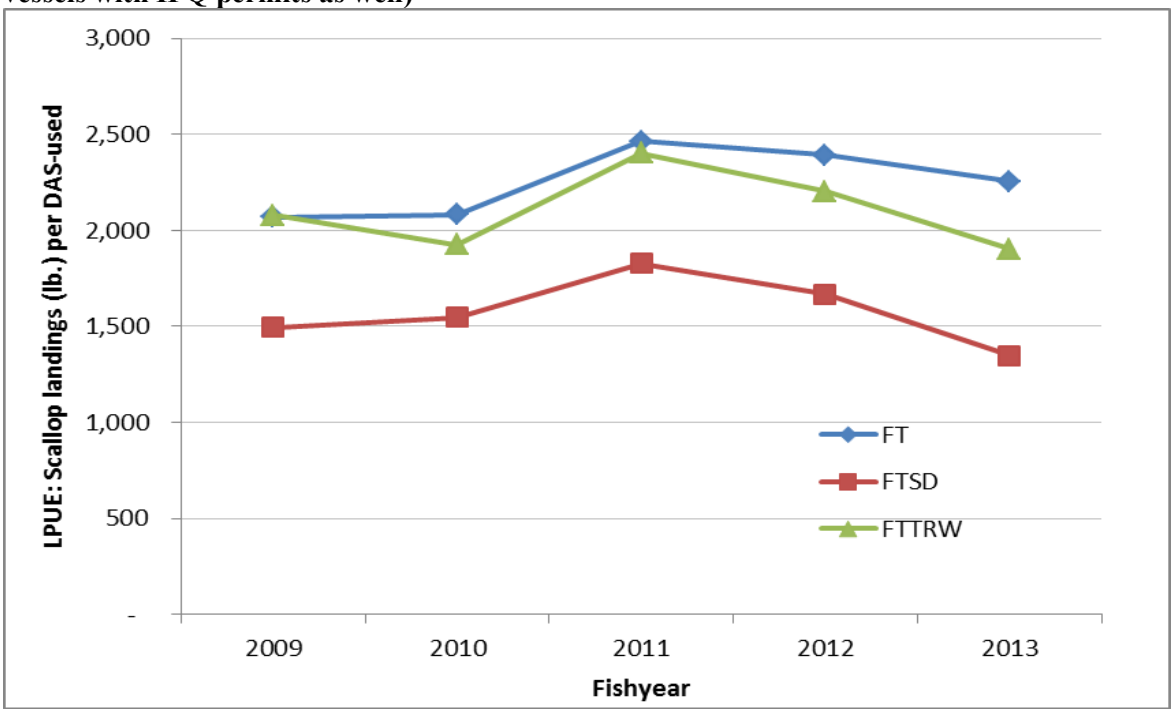
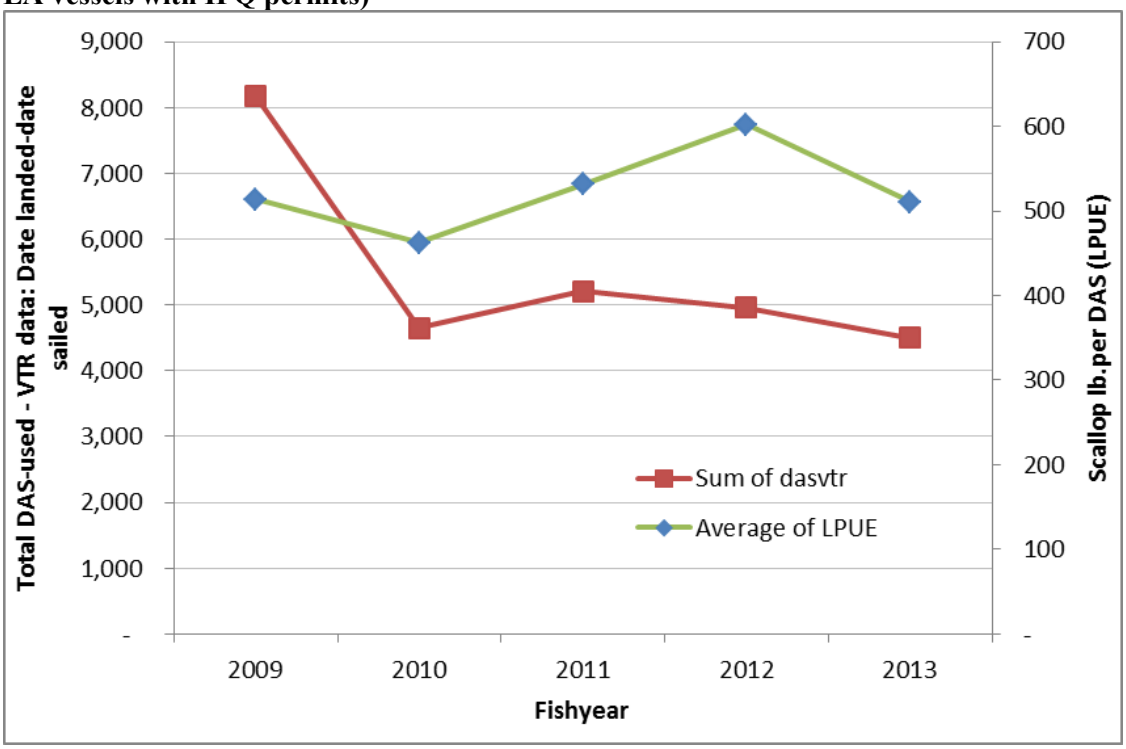


Figure 27 - LPUE and DAS-used for LAGC-IFQ vessels (VTR data includes steam time, excluding LA vessels with IFQ permits)



4.4.7 Trends in the meat count and size composition of scallops

Average scallop meat count has declined continuously since 1999 as a result of effort-reduction measures, area closures, and an increase in ring sizes implemented by the Sea Scallop FMP. The share of larger scallops increased with the share of U10 scallops rising to over 20% during 2006-2008, to 15% in 2009 -2011, to about 20% in 2012-2013 and to 26% in 2014 fishing year compared to less than 10% in 2000-2004. Similarly, the share of 11-20 count scallops increased from 13% in 1999 to 79% in 2011, but declined to 60% in 2014 fishing year. On the other hand, the share of 30 or more count scallops declined from 37% in 1999 to 1% or less since 2008 (Table 15). Larger scallops priced higher than the smaller scallops contributed to the increase in average scallop prices especially since 2010 (Table 17 and Figure 20).

Table 14 - Scallop landings by market category (including landings by all permit categories excluding unknown category)

Fishyear	Under 10 Count	11-20 Count	21-30 Count	>30 Count	Grand Total
1999	3,690,533	2,613,754	6,195,369	7,365,692	19,865,348
2000	2,393,703	6,771,024	14,364,895	7,282,469	30,812,091
2001	1,520,424	10,783,931	24,596,256	4,587,499	41,488,110
2002	2,484,107	7,436,720	34,083,568	2,133,778	46,138,173
2003	3,644,668	12,221,010	31,844,817	1,755,259	49,465,754
2004	5,105,290	28,928,288	24,986,628	588,931	59,609,137
2005	6,906,267	31,608,791	11,482,597	1,126,285	51,123,940
2006	13,273,263	28,801,692	10,772,955	705,158	53,553,068
2007	14,903,951	32,021,763	7,518,148	2,227,602	56,671,464
2008	12,293,851	27,677,737	10,229,476	366,744	50,567,808
2009	8,420,979	35,689,194	12,145,131	172,383	56,427,687
2010	8,737,293	35,978,383	10,932,767	66,311	55,714,754
2011	8,564,518	45,261,304	3,247,867	309,435	57,383,124
2012	10,546,525	41,957,522	3,499,366	77,778	56,081,191
2013	8,663,797	24,740,353	5,594,132	131,537	39,129,819
2014	8,044,488	19,053,052	4,091,161	291,228	31,479,929

Table 15 - Size composition of scallops (excluding unknown category)

Fishyear	UNDER 10 COUNT	11-20 COUNT	21-30 COUNT	>30 COUNT	Grand Total
1999	19%	13%	31%	37%	100%
2000	8%	22%	47%	24%	100%
2001	4%	26%	59%	11%	100%
2002	5%	16%	74%	5%	100%
2003	7%	25%	64%	4%	100%
2004	9%	49%	42%	1%	100%
2005	14%	62%	22%	2%	100%
2006	25%	54%	20%	1%	100%
2007	26%	57%	13%	4%	100%
2008	24%	55%	20%	1%	100%
2009	15%	63%	22%	0%	100%
2010	16%	65%	20%	0%	100%
2011	15%	79%	6%	1%	100%
2012	19%	75%	6%	0%	100%
2013	22%	63%	14%	0%	100%
2014	26%	61%	13%	1%	100%

Table 16 - Composition of scallop revenue by size (excluding unknown category)

Fishyear	U10	11-20	21-30	31+	Grand Total
2008	25.15%	54.44%	19.73%	0.69%	100.00%
2009	18.58%	60.66%	20.48%	0.27%	100.00%
2010	20.41%	59.53%	19.93%	0.12%	100.00%
2011	15.28%	78.31%	5.88%	0.53%	100.00%
2012	19.70%	74.00%	6.16%	0.14%	100.00%
2013	23.65%	61.84%	14.19%	0.32%	100.00%
2014	28.65%	58.16%	12.39%	0.80%	100.00%

Table 17 - Price of scallop by market category (in 2014 inflation adjusted prices)

Fishyear	UNDER 10 COUNT	11-20 COUNT	21-30 COUNT	>30 COUNT	Grand Total
1999	8.4	8.6	7.9	7.0	7.7
2000	9.3	7.1	6.3	6.4	6.7
2001	7.8	5.0	4.7	4.8	4.9
2002	7.2	5.2	4.9	5.7	5.1
2003	6.3	5.2	5.3	5.8	5.4
2004	7.5	6.5	6.1	6.3	6.4
2005	9.5	9.3	9.2	9.1	9.3
2006	7.0	7.7	8.1	8.0	7.6
2007	7.8	7.5	7.2	6.7	7.5
2008	7.8	7.5	7.4	7.2	7.6
2009	8.8	6.8	6.7	6.4	7.1
2010	11.4	8.1	8.8	9.1	8.7
2011	10.6	10.3	10.8	10.2	10.4
2012	10.5	9.9	10.0	9.9	10.0
2013	12.5	11.5	11.6	11.3	11.7
2014	14.0	12.0	11.9	10.8	12.5

Monthly distribution of scallop landings by market category shows that landings as a percent of annual totals were, in general higher in months April to July in years 2009 to 2014. Table 18 highlights the months when U10 landings as a total of annual U10 landings were 19% or higher. In recent years, again the bulk of U10 landings occurred in months of April through August. However, that wasn't the case in 2009, 2010 and 2011 when the majority of U10 landings occurred respectively in June (36% in 2009), in July (54% in 2010) and August (41% in 2011). Table 19 shows the ex-vessel prices by month and market category. In general, the prices were higher in winter months corresponding to lower landings. However, there are no clear trends from year to year when prices for each size category were higher in some months compared to the other months. This is because the change in import prices, in size composition of landings and changes in other factors that affect the supply and demand for exports have impacts on the monthly and annual scallop prices for each size category (See Appendix 1, Price Model).

Table 18 - Monthly distribution of scallop landing by market category

		Month											
Year	**Meat count**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
2009	NA	0%	0%	3%	20%	13%	21%	13%	9%	5%	9%	5%	2%
	U10	3%	3%	10%	9%	12%	36%	10%	8%	5%	4%	1%	1%
	11-20	2%	2%	12%	15%	17%	15%	12%	11%	6%	4%	3%	1%
	21-30	6%	8%	6%	2%	5%	5%	7%	8%	12%	8%	17%	16%
	31 plus	0%	1%	1%	1%	1%	2%	0%	3%	15%	17%	9%	51%
2009 Total		**3%**	**3%**	**11%**	**12%**	**14%**	**16%**	**11%**	**10%**	**7%**	**5%**	**5%**	**4%**
2010	NA	4%	5%	6%	10%	15%	15%	33%	8%	0%	0%	3%	1%
	U10	1%	1%	5%	9%	9%	10%	54%	7%	3%	1%	1%	1%
	11-20	1%	2%	8%	17%	18%	15%	9%	11%	10%	3%	4%	2%
	21-30	11%	8%	12%	6%	5%	4%	1%	6%	9%	17%	12%	9%
	31 plus	64%	2%	1%	1%	0%	1%	0%	1%	1%	13%	16%	0%
2010 Total		**3%**	**3%**	**8%**	**13%**	**14%**	**12%**	**14%**	**9%**	**9%**	**6%**	**5%**	**3%**
2011	NA	0%	0%	0%	6%	3%	7%	6%	51%	22%	4%	0%	0%
	U10	1%	1%	3%	8%	13%	9%	7%	41%	10%	4%	2%	2%
	11-20	1%	3%	10%	12%	17%	14%	9%	12%	9%	6%	5%	3%
	21-30	22%	12%	13%	5%	3%	2%	1%	1%	6%	15%	12%	8%
	31 plus	2%	0%	13%	67%	16%	0%	0%	0%	0%	0%	0%	1%
2011 Total		**2%**	**3%**	**9%**	**11%**	**16%**	**12%**	**8%**	**16%**	**9%**	**6%**	**5%**	**3%**
2012	NA	8%	3%	0%	6%	0%	30%	19%	13%	9%	0%	4%	8%
	U10	1%	0%	3%	7%	12%	20%	25%	15%	7%	4%	2%	4%
	11-20	2%	3%	12%	13%	16%	15%	10%	10%	7%	6%	3%	3%
	21-30	9%	13%	8%	8%	10%	7%	4%	6%	8%	13%	8%	6%
	31 plus	1%	8%	0%	0%	0%	0%	0%	0%	0%	37%	54%	0%
2012 Total		**2%**	**3%**	**10%**	**11%**	**15%**	**15%**	**13%**	**11%**	**7%**	**6%**	**3%**	**4%**
2013	NA	0%	0%	0%	3%	23%	29%	20%	11%	11%	1%	1%	0%
	U10	2%	2%	5%	14%	17%	17%	19%	12%	7%	3%	1%	1%
	11-20	5%	4%	7%	14%	23%	14%	11%	9%	7%	3%	1%	1%
	21-30	4%	1%	9%	12%	3%	10%	14%	14%	14%	8%	6%	7%
	31 plus	5%	0%	0%	2%	7%	0%	0%	0%	2%	3%	50%	31%
2013 Total		**4%**	**3%**	**7%**	**14%**	**19%**	**14%**	**13%**	**10%**	**8%**	**4%**	**2%**	**2%**
2014	NA	0%	2%	0%	18%	4%	38%	17%	6%	15%	0%	0%	0%
	U10	1%	2%	3%	18%	22%	19%	14%	13%	6%	1%	0%	0%
	11-20	2%	4%	5%	18%	19%	14%	15%	10%	8%	2%	1%	1%
	21-30	7%	11%	5%	2%	4%	11%	8%	13%	13%	9%	9%	9%
	31 plus	1%	1%	1%	0%	2%	3%	0%	13%	4%	19%	19%	37%
2014 Total		**2%**	**5%**	**5%**	**15%**	**17%**	**15%**	**14%**	**11%**	**8%**	**3%**	**2%**	**2%**
Grand Total		**3%**	**3%**	**9%**	**12%**	**15%**	**14%**	**12%**	**11%**	**8%**	**5%**	**4%**	**3%**

Table 19 - Scallop ex-vessel prices by month and market category (in current prices)

		Month											
Year	**Meat count**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
2009	NA	7.1	9.8	6.6	6.1	5.9	5.5	6.0	6.1	7.1	6.3	6.9	6.5
	U10	8.4	8.8	7.8	7.9	7.9	7.5	8.2	8.5	8.7	8.9	9.4	9.6
	11-20	7.2	7.2	6.4	6.0	6.0	5.8	6.2	6.3	6.7	6.9	7.5	7.9
	21-30	6.9	6.7	6.5	5.9	5.8	5.3	5.9	6.1	6.3	6.3	6.5	6.2
	31 plus	5.6	6.5	5.8	5.4	6.2	5.1		6.2	6.1	5.9	6.2	5.7
2009 Total		**7.4**	**7.5**	**6.8**	**6.6**	**6.6**	**6.4**	**6.8**	**6.8**	**7.2**	**7.2**	**7.3**	**7.1**
2010	NA	6.9	8.2	5.5	6.5	7.4	7.9	9.6	6.4			6.4	9.5
	U10	9.2	10.7	11.2	10.0	10.0	10.2	10.5	9.8	10.0	10.3	10.7	11.1
	11-20	7.8	8.2	7.8	6.8	6.7	7.2	8.7	8.2	8.6	9.1	9.7	10.0
	21-30	5.8	6.2	6.5	6.3	6.2	6.5	8.2	8.2	8.5	8.5	9.2	9.5
	31 plus	5.4	5.5	5.8	2.9		6.0		7.5	7.5	8.4	9.1	8.7
2010 Total		**6.9**	**7.8**	**8.3**	**7.8**	**7.7**	**8.1**	**9.7**	**8.7**	**8.9**	**9.1**	**9.6**	**9.9**
2011	NA	10.6	9.6		9.7	22.3	9.8	9.9	9.9	10.5	24.8		
	U10	11.2	11.1	10.4	10.5	10.3	10.3	10.3	9.7	10.7	10.8	11.3	11.6
	11-20	10.2	9.6	9.3	9.7	9.8	9.5	9.8	9.9	10.4	10.3	10.7	11.0
	21-30	9.6	9.3	9.2	9.7	9.8	9.7	10.3	10.8	10.6	10.2	10.5	10.7
	31 plus	9.0	8.5	8.5	9.2	9.5				10.7		10.5	10.7
2011 Total		**10.1**	**9.8**	**9.5**	**9.9**	**10.1**	**9.8**	**10.0**	**9.8**	**10.5**	**10.6**	**10.7**	**11.0**
2012	NA	10.1	11.1		10.6	10.2	7.9	9.4	10.1	10.0		10.3	10.3
	U10	12.0	12.0	11.0	11.1	10.3	9.2	9.6	10.3	10.4	11.2	12.3	12.5
	11-20	11.7	10.9	9.8	9.6	9.7	9.0	9.4	10.0	10.0	10.2	10.9	10.6
	21-30	11.2	10.7	9.6	9.3	9.7	9.5	9.3	9.8	9.7	10.0	10.2	10.0
	31 plus	11.5	10.1								9.7	9.8	
2012 Total		**11.6**	**11.0**	**10.0**	**9.9**	**9.9**	**9.1**	**9.5**	**10.1**	**10.1**	**10.4**	**11.1**	**11.1**
2013	NA	0.5			6.1	0.0	3.1	3.5	6.6	6.5	12.1	9.2	12.0
	U10	12.2	12.3	12.4	11.9	11.3	12.4	12.3	12.1	12.7	13.3	14.2	14.9
	11-20	10.9	10.9	11.1	10.9	10.5	10.9	11.6	12.0	12.2	12.5	13.4	13.6
	21-30	10.2	10.5	10.4	10.6	10.3	10.6	11.4	11.8	11.8	11.9	12.3	12.3
	31 plus	10.1			10.0	9.7	9.0		11.4	7.9	11.4	11.6	10.9
2013 Total		**11.2**	**11.3**	**11.3**	**11.1**	**10.7**	**11.3**	**11.7**	**11.9**	**12.2**	**12.6**	**13.1**	**13.4**
2014	NA	7.0	15.5		13.2	12.1	12.4	10.1	9.3	13.0			95.5
	U10	15.2	15.1	16.1	13.9	12.3	14.2	14.7	14.4	14.3	15.7	16.1	16.0
	11-20	14.1	13.3	13.5	11.7	11.2	12.3	12.6	12.5	12.4	13.7	14.2	13.8
	21-30	12.8	11.8	11.9	11.7	11.1	12.2	12.3	12.3	12.1	12.5	12.4	11.4
	31 plus	11.7	11.0	11.0		10.3	11.6	11.2	11.9	12.3	12.2	11.6	9.3
2014 Total		**13.9**	**13.3**	**13.8**	**12.6**	**11.7**	**13.1**	**13.3**	**13.2**	**13.0**	**13.9**	**13.5**	**13.6**

4.4.8 Trends in permits by permit plan and category

Table 20 shows the number of limited access vessels by permit category from 2003 to 2014. The fishery is primarily full-time, with a small number of part-time permits. There are no occasional permits left in the fishery since 2009 because these were converted to part-time small dredge. Of these permits, the majority is dredge vessels, with a small number of full-time small dredge and full-time trawl permit holders. The permit numbers shown in Table 20 include duplicate entries because replacement vessels receive new permit numbers and when a vessel is sold, the new owner would get a new permit number. The unique vessels with right-id numbers are shown in Table 22 for 2008-2012. For example, only 347 out of 356 permits in 2008 belonged to unique vessels. The number of LAGC permits held by limited access vessels is shown in Table 21.

Table 20 - Number of limited access vessels by permit category and gear

Permit category	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015*
Full-time (FT)	242	248	255	256	254	259	252	253	257	254	251	249
Full-time small dredge (FTSD)	48	57	59	63	56	55	54	53	53	52	52	50
Full-time net permit (FTTRW)	15	19	14	12	11	11	11	11	11	12	12	11
Total full-time	305	324	328	331	321	326	317	316	321	318	315	310
Part-time (PT)	4	3	3	2	2	2	2	2	2	2	2	2
Part-time small dredge (PTSD)	26	30	34	35	32	34	34	32	33	32	33	30
Part-time trawl (PTTRW)	3	-	-	-	-	-	-					
Total part-time	33	33	37	37	34	37	38	34	35	34	35	32
Occasional (OC)	3	1	2	1	1	-	-	-				
Occasional trawl (OCTRW)	5	5	-	-	-	-	-	-				
Total occasional	8	6	2	1	1	0	0	0	0	0	0	0
Total Limited access	346	363	367	369	356	361	353	351	356	352	350	342

** As of June 2015. Note: The permit numbers above include duplicate entries because replacement vessels receive new permit numbers and when a vessel is sold, the new owner would get a new permit number.*

Table 21 - LAGC permits held by limited access vessels by permit category

AP-YEAR	IFQ	NGOM	Incidental
2008	41	19	87
2009	43	28	116
2010	40	28	114
2011	42	28	114
2012	41	27	119
2013	41	27	118
2014	40	27	116
2015	40	27	112

Note: The permit numbers above include duplicate entries because replacement vessels receive new permit numbers and when a vessel is sold, the new owner would get a new permit number. 2014 numbers are preliminary.

Table 22 - Scallop Permits by unique right-id and category by application year

Permit category	2008	2009-2015
Full-time	250	250
Full-time small dredge	52	52
Full-time net boat	11	11
Total full-time	**313**	**313**
Part-time	2	2
Part-time small dredge	31	32
Part-time trawl	0	0
Total part-time	**33**	**34**
Occasional	1	0
Total Limited access	347	347

Table 23 shows that the number of general category permits, including permits held by LA vessels, declined considerably after 2007 as a result of the Amendment 11 provisions. Although not all vessels with general category permits were active in the years preceding 2008, there is no question that the number of vessels (and owners) that hold a limited access general category permit under the Amendment 11 regulations are less than the number of general category vessels that were active prior to 2008 (Table 23). The numbers of LAGC permits by category, excluding the LA vessels that also have an LAGC permit, are shown in **Table 24**. The number of permits includes the permits of the replacement vessels within a given year.

Table 23 - General category permit before and after Amendment 11 implementation (including the LA vessels with LGC permits)

AP_YEAR		Number of permits qualify under Amendment 11 program			Grand Total
	General category permit (up to 2008)	Limited access general category (A)	Limited access NGOM permit (B)	Incidental catch permit (C)	
2000	2263				2263
2001	2378				2378
2002	2512				2512
2003	2574				2574
2004	2827				2827
2005	2950				2950
2006	2712				2712
2007	2493				2493
2008		342	99	277	718
2009		344	127	301	772
2010		333	122	285	740
2011		288	103	279	670
2012		290	110	280	680
2013		278	97	282	657
2014		260	103	260	623
2015*		242	90	242	574

*Preliminary numbers as of June 2015.

Table 24 - LAGC permits after Amendment 11 implementation (excluding the LAGC permits held by limited access vessels)

AP-YEAR	IFQ	NGOM	Incidental
2008	280	79	173
2009	304	100	190
2010	293	94	172
2011	248	82	166
2012	237	70	163
2013	222	77	149
2014	220	76	144
2015	202	63	130

Note: 2015 is preliminary (as of June 2015)

The trends in the estimated number of active limited access vessels are shown in Table 25 by permit plan.

Table 26 shows the number of active LAGC vessels by permit category excluding those LA vessels which have both LA and LAGC permits. Although the number of active permits (128 in 2014) are higher in 2014 compared to the 2013 fishing year, this may be due either an increase in the number of participating vessels or an increase in permits due to vessel replacements or transfers.

Table 25 - Active vessels by fishyear and permit category (Vessels that landed any amount of scallops, Dealer Data)

Fishyear	FT	PT	FTSD	PTSD	FTTRW	PTTRW	OCTRW	Grand Total
1994	188	9	3	4	24	17	13	258
1995	185	9	2	2	24	12	8	242
1996	183	11	2	5	22	17	6	246
1997	176	8		4	18	16	3	225
1998	182	5	1	2	19	16	2	227
1999	196	8	1	3	14	16	6	244
2000	206	10	1	3	16	16	6	258
2001	212	12	11	6	16	17	6	280
2002	217	12	24	7	16	9	5	290
2003	225	10	30	12	15	6	3	301
2004	230	4	42	18	13	3	3	313
2005	234	3	50	23	12		2	324
2006	243	2	49	28	12			334
2007	248	2	53	30	11			344
2008	243	2	52	28	11			336
2009	244	2	53	31	11			341
2010	249	2	52	32	11			346
2011	250	2	53	32	11			348
2012	252	2	52	30	11			347
2013	250	2	52	30	11			345
2014	250	2	51	30	11			344

Table 26 - Number of active vessels with LAGC permits by permit category (Dealer data, excludes LA vessels with LAGC permits)

Fishyear	IFQ	NGOM	Incidental	Grand Total
2009	206	11	67	284
2010	147	8	51	206
2011	141	8	56	205
2012	120	12	66	198
2013	115	25	59	199
2014	128	24	58	210

4.4.9 Trends in landings by permit category, state and port, and gear type

4.4.9.1 Landings by permit category

Table 27 through Table 28 describes scallop landings by limited access vessels by gear type and permit category. These tables were obtained by combining the dealer and permit databases.

Most limited access category effort is from vessels using scallop dredges, including small dredges. The number of full-time trawl permits has decreased continuously and has been at 11 full-time trawl permitted vessels since 2008 (Table 20). Furthermore, according to the 2009-2011 VTR data, the majority of these vessels (10 out of 11 in 2010) landed scallops using dredge gear even though they had a trawl permit. There has also been an increase in the numbers of full-time and part-time small dredge vessels after 2002.

Table 28 shows the percent of limited access landings by permit and year. In terms of gear, majority of the scallop landings by the limited access vessels were with dredge gear including the small dredges, with significant amounts also landed by full-time and part-time trawls until 2000. Table 28 shows that the percentage of landings by FT trawl permits declined after 1998 to about 3% of total limited access scallop landings in 2011. There were only 11 FT trawl permits in 2014. However, 2009-2013 VTR data showed that over 90% of the scallop pounds by the FT trawl permitted vessels are landed using dredge gear (10 vessels) since these vessels are allowed to use dredge gear even though they have a trawl permit. Similarly, all of the part-time trawl and occasional trawl permits are converted to small dredge vessels. Over 84% of the scallop pounds are landed by vessels with full-time dredge and close to 11% landed by vessels with full-time small dredge permits in 2014 fishing year. Including the full-trawl vessels that use dredge gear, the percentage of scallop pounds landed by dredge gear amounted to over 99% of the total scallop landings in 2009-2014.

Table 27 - Scallop landings (lbs.) by limited access vessels by permit category

Fishyear	FT	PT	FTSD	PTSD	FTTRW	PTTRW	OCTRW
1994	12,992,793	77,668	NR**	NR**	1,804,974	191,825	4,290
1995	13,752,423	205,147	NR**	NR**	1,477,777	140,178	45,409
1996	14,185,833	259,791	NR**	13,336	1,282,612	376,874	93,375
1997	11,078,071	148,742		19,093	773,243	242,396	NR**
1998	9,486,893	84,929	NR**	NR**	1,111,119	351,722	NR**
1999	18,877,937	303,397	NR**	15,692	1,382,335	564,111	15,950
2000	29,221,728	599,186	NR**	80,741	1,871,048	710,032	14,284
2001	38,707,405	861,087	765,342	208,176	2,578,316	744,057	17,062
2002	42,319,380	918,534	1,757,695	269,284	2,980,542	504,441	31,876
2003	45,461,772	932,815	3,125,474	482,472	2,612,065	272,668	NR**
2004	48,873,669	323,389	5,654,387	825,223	2,432,866	125,949	NR**
2005	37,935,508	236,757	4,788,085	1,379,360	1,250,771		NR**
2006	40,846,955	NR**	5,223,125	1,304,877	1,339,748		
2007	43,091,302	NR**	6,917,823	1,601,167	1,678,258		
2008	37,617,260	NR**	6,117,525	1,298,183	1,536,814		
2009	41,266,837	NR**	6,971,699	1,397,169	1,821,156		
2010	42,484,132	NR**	6,774,054	1,927,559	1,790,240		
2011	43,662,880	NR**	6,944,234	1,651,826	1,908,903		
2012	42,781,924	NR**	7,081,245	1,391,171	1,780,017		
2013	30,809,109	NR**	4,057,183	937,523	1,226,997		
2014	24,674,281	NR**	3,126,758	681,917	864,244		

**Note: Although these vessels have trawl permits, majority of these vessels used dredge gear. As a result, over 90% of the scallop landings by the FT trawl permitted vessels are caught using dredge gear in 2009-2010 according to the VTR data.*

***The landings by part-time and occasional vessels are not reportable (NR) due to the confidentiality requirements since there were less than 3 active vessels in those years.*

Table 28 - Percentage of scallop landings (lbs.) by limited access vessels by permit category

Fishyear	FT	PT	FTSD	PTSD	FTTRW	PTTRW	OCTRW
1994	85.93%	0.51%		0.02%	11.94%	1.27%	0.03%
1995	87.74%	1.31%		0.06%	9.43%		0.29%
1996	87.35%	1.60%		0.08%	7.90%	2.32%	0.57%
1997	90.35%	1.21%		0.16%	6.31%	1.98%	0.00%
1998	85.92%	0.77%		0.00%	10.06%	3.19%	0.03%
1999	89.21%	1.43%		0.07%	6.53%	2.67%	0.08%
2000	89.88%	1.84%		0.25%	5.76%	2.18%	0.04%
2001	88.21%	1.96%		0.47%	5.88%		0.04%
2002	86.75%	1.88%	3.60%	0.55%	6.11%		0.07%
2003	85.96%	1.76%	5.91%	0.91%	4.94%		0.00%
2004	83.90%		9.71%	1.42%	4.18%		0.03%
2005	83.18%		10.50%	3.02%	2.74%		0.03%
2006	83.72%		10.70%	2.67%	2.75%		0.00%
2007	80.58%		12.94%	2.99%	3.14%		0.00%
2008	80.41%		13.08%	2.78%	3.29%		0.00%
2009	79.84%		13.49%	2.70%	3.52%		0.00%
2010	79.84%		12.73%	3.62%	3.36%		0.00%
2011	80.29%		12.77%	3.04%	3.51%		0.00%
2012	80.35%		13.30%	2.61%	3.34%		0.00%
2013	82.82%		10.90%	2.56%	3.30%		0.00%
2014	83.77%		10.62%	2.32%	2.93%		0.00%

**Note: Although these vessels have trawl permits, majority used dredge gear in 2009-2010 and over 90% of the scallop landings by the FT trawl permitted vessels are caught using dredge gear during the same years.*

Since 2001, there has been considerable growth in fishing effort and landings by vessels with general category permits, primarily as a result of resource recovery and higher scallop prices. Amendment 11 implemented a limited entry program for the general category fishery allocating 5% of the total projected scallop catch to the general category vessels qualified for limited access. The main objective of the action was to control capacity and mortality in the general category scallop fishery. There is also a separate limited entry program for general category fishing in the Northern Gulf of Maine. In addition, a separate limited entry incidental catch permit was adopted that will permit vessels to land and sell up to 40 pounds of scallop meat per trip while fishing for other species.

During the transition period to the full-implementation of Amendment 11, the general category vessels were allocated 10% of the scallop TAC. Beginning with 2010 fishing year, limited access general category IFQ vessels were allocated 5% of the estimated scallop catch resulting a decline in landings by the general category vessels (Table 29 and Table 30). These tables were obtained from the dealer and permit databases. The trip information obtained from the dealer data shows the permit number but does not specify whether a particular trip was taken as a limited access (LA) or general category (LAGC) trip. Because many vessels had and have both LA and general category permits, to separate the LA trips from LAGC trips for the same vessel

requires some assumptions. If a vessel had both an LA and LAGC-IFQ permit, it was assumed that if scallop landings were equal or less than 400lb. (600lb.) for years up to 2010 (after 2010), that was an LAGC trip. If an LA vessel also had an LAGC-incidental permit, it was assumed that if scallop landings were equal or less than 100lb. that was an LAGC-incidental trip. For the LAGC-NGOM fishery it was assumed that if the scallop landings were equal or less than 200lb., that trip was a LAGC trip, otherwise it was an LA trip. In addition to these issues, there were many trips that were not associated with any valid permit plan (perhaps due to mistakes in the entry of permit number by dealers). Thus, it must be pointed out that the separation of landings by permit plan were estimated from the above assumptions and could differ slightly from actual landings. For example, Table 30 shows that in 2014 fishyear, the *estimated landings* by LAGC vessels including those by vessels with IFQ, NGOM and incidental catch permits and including the LAGC landings by the LA vessels that have both permits, amounted to 7.5% of total scallop landings in that fishyear.

Table 29 - *Estimated Landings* by permit plan before and after Amendment 11 implementation

Fishyear	Gencat & LAGC*	LA	NA	Grand Total
1994	125,001	15,128,621	1,203,669	16,457,291
1995	123,952	15,675,688	1,080,425	16,880,065
1996	213,535	16,234,409	759,431	17,207,375
1997	357,684	12,264,001	825,890	13,447,575
1998	164,185	11,042,134	567,277	11,773,596
1999	150,498	21,160,523	368,907	21,679,928
2000	425,364	32,510,711	354,600	33,290,675
2001	1,649,749	43,882,217	191,046	45,723,012
2002	1,124,933	48,784,134	132,652	50,041,719
2003	1,861,075	52,930,243	301,670	55,092,988
2004	3,699,334	58,288,383	652,773	62,640,490
2005	7,723,080	45,750,967	184,078	53,658,125
2006	7,097,155	48,888,678	288,678	56,274,511
2007	5,488,221	53,560,101	621,568	59,669,890
2008	4,785,198	46,842,633	847,472	52,475,303
2009	4,203,751	51,738,924	2,030,811	57,973,486
2010	2,330,701	53,277,449	1,352,837	56,960,987
2011	3,122,403	54,432,220	924,766	58,479,389
2012	2,962,148	53,296,551	899,001	57,157,700
2013	2,441,871	37,216,834	758,286	40,416,991
2014	2,436,637	29,454,959	664,572	32,556,168

*Includes landings IFQ landings by vessels with LAGC and LA permits.

Table 30 - *Estimated Landings* by permit plan (Dealer Data)

Fishyear	Gencat & LAGC*	LA	NA	Grand Total
1994	0.76%	91.93%	7.31%	100.00%
1995	0.73%	92.87%	6.40%	100.00%
1996	1.24%	94.35%	4.41%	100.00%
1997	2.66%	91.20%	6.14%	100.00%
1998	1.39%	93.79%	4.82%	100.00%
1999	0.69%	97.60%	1.70%	100.00%
2000	1.28%	97.66%	1.07%	100.00%
2001	3.61%	95.97%	0.42%	100.00%
2002	2.25%	97.49%	0.27%	100.00%
2003	3.38%	96.07%	0.55%	100.00%
2004	5.91%	93.05%	1.04%	100.00%
2005	14.39%	85.26%	0.34%	100.00%
2006	12.61%	86.88%	0.51%	100.00%
2007	9.20%	89.76%	1.04%	100.00%
2008	9.12%	89.27%	1.61%	100.00%
2009	7.25%	89.25%	3.50%	100.00%
2010	4.09%	93.53%	2.38%	100.00%
2011	5.34%	93.08%	1.58%	100.00%
2012	5.18%	93.24%	1.57%	100.00%
2013	6.04%	92.08%	1.88%	100.00%
2014	7.48%	90.47%	2.04%	100.00%

**Includes landings by LAGC IFQ, LA IFQ and NGOM and incidental permits.*

The general category scallop fishery has always been a comparatively small but diverse part of the overall scallop fishery. The number of vessels participating in the general category fishery has continued to rise until 2007 when the New England Fisheries Management Council proposed limiting access in response to concerns of redirected effort from other fisheries. When the limited access general category was implemented, in 2008, there was a corresponding decline in the total number of active vessels. Then again in 2010, there was a decline in the number of active general category vessels when the GC IFQ program began and a "hard" Total Allowable Catch of 5% of the total scallop catch limit was established. These declines are evident in Table 29 and Table 30 and in Table 26 where the overall number of active vessels and scallop landings dropped, both in 2008 and in 2010.

4.4.9.2 Number of permit and landings by state and port

The Scallop PDT generally describes changes in the scallop fishery at the community level based on both port of landing, and home port state. A port of landing is the actual port where fish and shellfish have been landed, where a home port is the port identified by a vessel owner on a vessel permit application and is where supplies are purchased and crew is hired. Statistics based on port of landing begin to describe the benefits that other fishing related businesses (such as dealers and processors) derive from the landings made in their port. Alternatively, statistics based on homeport give an indication of the benefits received by vessel owners and crew from

that port. However, during this analysis the PDT observed that many vessels declare a primary port for the year and it does not always match up with the actual port the vessel landed the majority of scallop catches for the year. Therefore, these results should take that into consideration.

In terms of home state, the majority of the limited access vessels are from MA, followed by NJ, VA and NC (Table 31). The same is true in terms of primary state of landing, however, the number of vessels with a primary port of VA has increased and those with a primary port of NC have declined since 2009.

Table 31 - Number of limited access permits by home state (Permit data)

HPST	2009	2010	2011	2012	2013	2014
CT	10	10	10	10	9	9
FL	4	4	4	4	3	3
MA	148	147	152	153	151	149
ME	3	3	3	3	3	3
NC	42	38	39	40	40	40
NJ	92	92	95	94	95	95
NY	3	3	2	2	2	1
PA	5	4	3	3	3	3
RI	3	3	2	2	2	2
VA	44	46	43	45	44	45
Grand Total	**354**	**350**	**353**	**356**	**352**	**350**

The largest numbers of permitted limited access scallop vessels have home ports of New Bedford, MA and Cape May, NJ, which represent 39% and 21% of all limited access vessels, respectively (Table **32**). The number of vessels homeported in some ports on the periphery of scallop fishing grounds has declined over time. Many ports have remained relatively stable in terms of LA vessels, but in ports like Newport News, VA and Norfolk, VA the number of LA vessels homeported in those areas has decreased between 2001 and 2011. On the other hand, some southern ports like New Bern, NC, Beaufort, NC and Seaford, VA have seen increases in the number of LA vessels homeported in those areas. Several southern ports have remained constant such as Wanchese, NC, Lowland NC, and Hampton, VA. Highlighting the difference between port of landing and home port however, are ports like New Bern, NC and Wanchese, NC, both of which are the home ports of a number of vessels with scallop landings but where no (or very little) landings were made. It should also be noted that some scallop companies have merged over time, and while a vessel may still be homeported in one state, it may actually be owned by a company from another state, and product landed in that state compared to the homeport of the vessel. These nuances cannot easily be tracked.

Table 32 - Number of permitted limited access scallop vessels. By homeport, 2001-2014

State	Homeport	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
MA	NEW BEDFORD	90	97	102	111	125	131	133	132	134	133	137	139	136	134
NJ	CAPE MAY	36	42	50	54	68	71	73	68	67	67	73	75	76	76
VA	NEWPORT NEWS	21	21	21	22	23	19	19	18	17	18	16	17	17	17
VA	SEAFORD	2	3	4	4	5	5	5	5	6	7	12	14	13	13
NC	NEW BERN	8	8	8	8	13	12	14	11	12	11	11	10	11	11
NJ	BARNEGAT LIGHT	9	8	8	10	11	10	10	10	10	10	10	10	10	10
NC	WANCHESE	8	7	7	6	6	8	8	8	8	8	8	8	8	8
NC	LOWLAND	7	7	8	9	8	8	8	7	7	7	7	7	7	6
NJ	POINT PLEASANT	3	3	3	4	3	3	3	6	7	9	6	4	4	4
VA	HAMPTON	6	6	6	7	4	8	6	6	6	5	6	6	6	7
CT	NEW LONDON	1	1	1	1	3	5	5	5	5	5	5	5	4	4
MA	BOSTON	12	11	10	7	7	7	7	6	5	6	5	4	4	5
MA	FAIRHAVEN	10	8	8	7	8	7	5	4	4	4	5	6	7	7
NC	BEAUFORT							1	2	5	4	5	6	5	5
VA	NORFOLK	27	27	27	22	13	11	11	11	11	12	5	4	4	4
CT	STONINGTON	4	6	7	7	4	4	5	4	4	4	4	4	4	4
PA	PHILADELPHIA	5	5	6	6	5	5	5	5	5	4	3	3	3	3
RI	POINT JUDITH	1	1	2	1	2	3	3	3	3	2	3	2	2	2

In terms homeport state, most LA landings were from vessels with homeports in MA, followed by NJ, then VA and NC (Table 24). The results are very similar when summarized by the primary port identified by the vessel, with some important differences. For example, vessels with homeports in some states like Florida, Pennsylvania and Rhode Island are not landing scallops in those states, so the catch is distributed in other primary states of landing such as MA, NJ, and VA (Table 35). For North Carolina for example, more catch is attributed to vessels homeported in NC, but much of those landings are being landed in other states. Furthermore, there are still vessels that declare the primary port to be NC, but based on dealer records, that catch is not being landed in NC.

Table 33 - Number of limited access permits by primary state (Permit data)

PPST	2009	2010	2011	2012	2013	2014
CT	10	10	10	10	9	9
MA	149	148	153	154	152	151
ME	3	3	3	3	3	3
NC	26	24	24	25	26	26
NJ	97	94	97	97	97	95
NY	2	3	2	2	2	1
PA	1	1	1	1	1	1
RI	3	3	2	2	2	2
VA	63	64	61	62	60	62
Grand Total	**354**	**350**	**353**	**356**	**352**	**350**

Table 34 - Scallop landings (lb.) by home state of landing for limited access vessels (excluding LAGC trips)

Home State	2009	2010	2011	2012	2013	2014
CT	1,786,264	1,629,919	1,702,981	1,734,927	1,133,957	834,479
FL	635,381	513,461	691,611	538,642	311,395	230,598
MA	24,233,341	25,599,643	25,417,196	25,655,744	18,005,451	14,526,286
ME	365,003	427,946	493,777	506,692	295,863	218,366
NC	5,200,091	4,655,988	5,242,348	5,317,039	3,121,677	2,848,100
NJ	11,840,288	13,022,734	13,257,807	12,362,825	9,388,867	7,523,201
NY	477,178	377,581	230,739	302,011	190,902	58,602
PA	717,292	555,580	417,780	392,613	255,390	250,701
RI	135,255	367,124	371,925	382,428	284,240	231,057
VA	6,663,213	6,655,381	7,195,533	6,137,427	4,920,680	4,108,925

Table 35 - Scallop landings by primary state of landing for limited access vessels

Primary State	2009	2010	2011	2012	2013	2014
CT	1,786,264	1,629,919	1,702,981	1,734,927	1,133,957	834,479
FL	24,378,487	25,711,381	25,503,567	25,776,580	18,150,126	14,617,040
MA	365,003	427,946	493,777	506,692	295,863	218,366
ME	2,830,019	2,535,099	2,784,913	2,873,661	1,848,398	1,320,782
NC	12,300,667	13,265,059	13,612,857	12,632,698	9,322,872	7,659,945
NJ	285,243	361,900	230,739	302,011	190,902	58,602
NY	184,108	148,263	171,625	198,809	131,568	84,428
PA	135,255	367,124	371,925	382,428	284,240	231,057
RI	9,788,260	9,358,666	10,149,313	8,922,542	6,550,496	5,805,616
VA	1,786,264	1,629,919	1,702,981	1,734,927	1,133,957	834,479

LAGC IFQ vessels are distributed up and down the coast as well. The number of LAGC IFQ trips for these vessels have been summarized by both homeport state and primary port state as identified by the permit owner (Table 36 and Table 37). There are some differences, but overall, the numbers of permits were similar. The vessels homeported in MA and NJ landed the major proportion of scallops since 2009 (Table 38).

Table 36 - Number of LAGC-IFQ permits by home state (excludes LA vessels, Permit data)

HPST	2008	2009	2010	2011	2012	2013	2014
CT	5	5	4	1	3	3	3
DE	3	3	3	3	3	3	3
FL	2	2					
GA	2	1	1				
MA	98	111	107	95	89	84	79
MD	7	11	10	9	8	7	5
ME	26	22	16	12	11	8	6
NC	32	39	40	30	29	25	21
NH	9	10	7	6	6	5	5
NJ	62	69	75	62	56	57	53
NY	19	20	17	17	18	17	17
PA	1	1	1	1	1	1	1
RI	5	5	6	7	7	6	6
TX					1	1	1
VA	9	5	6	5	5	5	4
Grand Total	**280**	**304**	**293**	**248**	**237**	**222**	**204**

Table 37 - Number of LAGC-IFQ permits by primary state (excludes LA vessels, Permit data)

PPST	2008	2009	2010	2011	2012	2013	2014
CT	5	5	4	1	3	3	3
DE	1	1	1	1	1	1	1
FL	2	3	1	1			
GA	2	1	1				
MA	101	113	109	97	90	85	80
MD	10	14	13	12	11	10	8
ME	23	20	14	11	11	8	6
NC	30	36	39	29	30	26	22
NH	8	9	6	5	5	4	4
NJ	64	70	75	62	56	57	53
NY	18	20	17	17	18	17	17
RI	6	6	7	7	7	6	6
VA	10	6	6	5	5	5	4

Table 38 - Scallop landings(lb.) by home state for LAGC-IFQ vessels (excluding IFQ trips by LA vessels, dealer and permit data)

Home State	2009	2010	2011	2012	2013	2014
CT	44,704	6,191	6,644	44,958	18,421	25,007
DE	6,314	10,810	12,908	13,649	6,745	6,294
GA	37,090	10,258				
MA	582,248	560,610	955,898	1,087,646	918,392	645,607
MD	256,295	58,850	58,671	53,159	24,923	43,770
ME	97,090	29,541	60,590	36,852	NA	60,737
NC	478,256	238,981	315,672	170,389	191,439	156,873
NH	26,758	NA	10,225	9,252	9,148	11,676
NJ	1,304,558	769,107	1,053,814	1,023,063	823,277	832,510
NY	258,373	176,558	188,235	256,211	221,668	211,917
PA	8,726	8,859	NA	9,226	NA	NA
RI	38,218	24,277	43,546	72,127	56,405	46,095
TX				18,450	11,270	12,658
VA	88,466	43,513	52,452	48,542	30,423	17,236

**Notes: "NA" indicates that either there were no landings or that the data could not be shown for the confidentiality reasons because the number of vessels was less than 3.*

Table 39 - Scallop landings(lb.) by primary state for LAGC-IFQ vessels (excluding IFQ trips by LA vessels, dealer and permit data)

Primary State	2009	2010	2011	2012	2013	2014
CT	44,704	6,191	6,644	44,958	18,421	25,007
FL	29,631	29,595				
GA	37,090	10,258				
MA	582,248	563,677	960,933	1,096,411	926,531	651,725
MD	270,386	82,643	85,901	79,236	44,895	59,356
ME	88,157	29,541	60,590	36,852	673	60,737
NC	441,846	208,600	306,719	181,162	193,899	154,489
NH	26,758		NA	NA	NA	5,558
NJ	1,313,080	777,558	1,059,406	1,032,289	827,124	832,590
NY	258,373	176,558	188,235	256,211	221,668	211,917
RI	47,151	24,277	43,546	72,127	56,405	46,095
VA	87,672	31,724	47,083	43,791	26,006	22,986

4.4.10 Trip and Fixed Costs for scallop vessels

4.4.10.1 Trips Costs

Data for variable costs, i.e., trip expenses include food, fuel, oil, ice, water and supplies and obtained from observer cost data for 1994-2014. Average trip cost per DAS for the full-time dredge vessels amounted to over $2155 per day-at-sea during the same period (Table 41). Average trip costs for full-time small dredge vessels were about $1609 per day-at-sea (Table 43).

Table 40 - Observer data information for full-time dredge vessels

Fishyear	Number of trips	Scallop lb. per trip	Average DAS fished	Average LPUE (lb./DAS all areas)	Average crew per trip
1994	17	5090	12.65	399	6.6
1995	18	5852	10.67	494	6.7
1996	34	6591	12.71	487	6.0
1997	22	6085	13.32	444	6.2
1998	12	6699	7.83	2380	5.7
1999	68	11115	8.16	1446	6.5
2000	237	11155	7.07	1724	6.5
2001	85	18030	9.76	1897	7.0
2002	99	17026	9.94	1681	7.0
2003	96	19816	10.61	1843	7.0
2004	220	18466	8.45	2215	6.9
2005	134	18315	9.39	2028	6.9
2006	123	13580	7.58	1873	6.9
2007	204	15572	7.82	2111	6.8
2008	150	16541	8.17	2101	6.8
2009	96	18711	9.02	2048	7.0
2010	77	18093	8.40	2099	6.9
2011	103	19821	8.18	2388	7.1
2012	131	21489	9.05	2311	7.1
2013	92	18650	8.28	2261	6.9
2014	74	18303	8.74	2038	7.0
1994-2014 average	**2092**	**16306**	**8.66**	**1952**	**6.8**

Table 41 - Fuel and total trip costs for FT dredge vessels (in 2014 inflation adjusted prices)

Fishyear	Average fuel price	Average fuel costs per DAS	Average trip costs per DAS*	Average total trip costs per trip*	Average fuel costs per trip	Fuel costs as a % of total trip costs
1994	4.0	2251	2468	31587	29216	92%
1995	3.3	2070	2200	24693	23763	96%
1996	3.9	2329	2585	32268	29133	90%
1997	3.1	1859	2185	28680	24861	87%
1998	3.7	2144	2651	22033	18581	84%
1999	1.4	2111	2153	19434	19137	98%
2000	3.6	1908	2146	14582	13072	90%
2001	3.8	1734	1992	19080	17099	90%
2002	3.9	1951	2185	21540	19588	91%
2003	3.4	1852	2079	21407	19666	92%
2004	3.4	1802	2134	17813	15222	85%
2005	3.5	1825	2102	19216	16917	88%
2006	3.2	1716	1975	14522	13280	91%
2007	3.3	1792	2168	16837	14265	85%
2008	3.6	1816	1991	15640	14514	93%
2009	3.6	2042	2080	19031	18815	99%
2010	3.5	1962	2281	18667	16559	89%
2011	3.6	1933	2133	17473	16026	92%
2012	3.6	2054	2243	19146	18286	96%
2013	3.6	2085	2188	17639	16870	96%
2014	3.7	2404	2626	22749	21249	93%
1994-2014 average	3.4	1911	2155	18378	16654	91%

***Includes fuel, supply and damage costs**

Table 42 - Observer data information for the full-time small dredge vessels

Fishyear	Number of trips	Average Scallop lb. per trip	Average DAS fished per trip	Average LPUE (lb./DAS all areas)	Average crew per trip
2003	4	5559	5.75	921	5.0
2004	21	10646	9.24	1174	5.0
2005	13	11903	8.54	1349	5.0
2006	18	13841	8.39	1627	5.6
2007	32	11290	7.44	1571	5.4
2008	41	13370	7.37	1774	5.3
2009	22	10168	6.32	1405	5.3
2010	10	11239	5.90	1870	5.3
2011	16	11863	6.88	1660	5.4
2012	26	13882	7.69	1708	5.3
2013	16	8112	6.13	1211	5.4
2014	9	8562	6.22	1353	4.9
2003-2014	**230**	**11639**	**7.42**	**1531**	**5.3**

Table 43 - Fuel and total trip costs for full-time small dredge vessels (in 2014 inflation adjusted prices)

Fishyear	Average fuel price	Average fuel costs per DAS	Average trip costs per DAS*	Average total trip costs per trip*	Average fuel costs per trip
2003	3.0	1618	2285	11543	8502
2004	3.3	923	1141	10948	9115
2005	3.3	1323	1447	11654	10860
2006	3.3	2268	2917	13311	11191
2007	3.4	1391	1767	12356	9862
2008	3.5	1106	1479	11037	8491
2009	3.6	1169	1243	7119	6955
2010	3.3	1114	1253	7332	6560
2011	3.5	1245	1199	8859	9405
2012	3.6	1306	1581	11718	10557
2013	3.8	1377	1837	10869	7571
2014	3.7	1474	1768	11020	9207
Average for 2003-2014	3.5	1315	1609	10841	9149

***Includes fuel, supply and damage costs**

Table 44 - Observer data information for LAGC IFQ vessels

Fishyear	Number of trips	Average Scallop lb. per trip	Average DAS fished	Average LPUE (lb./DAS all areas)	Average crew per trip
2008	10	323	1.10	313	2.9
2009	13	340	1.00	340	3.0
2010	19	361	1.00	361	2.9
2011	78	438	1.05	430	3.1
2012	44	500	1.00	500	3.4
2013	106	392	1.01	389	2.9
2014	81	416	1.02	412	2.6
2008-2014	**351**	**416**	**1.02**	**412**	**2.9**

Table 45 - Fuel and total trip costs for LAGC IFQ vessels (in 2014 inflation adjusted prices)

Fishyear	Average fuel price	Average fuel costs per DAS	Average trip costs per DAS*	Average total trip costs per trip*	Average fuel costs per trip
2008	4.1	710	835	1206	1005
2009	3.4	821	949	1365	1214
2010	3.5	555	572	687	647
2011	3.7	418	489	595	513
2012	3.7	455	476	487	464
2013	3.6	600	673	701	626
2014	3.7	672	828	896	731
Average for 2008-2014	3.7	607	698	824	720

***Includes fuel, supply and damage costs**

4.4.10.2 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, taxes, utility, interest, communication costs, association fees and dock expenses. According to the observer data on fixed costs for the period 2001 to 2007, the fixed costs including maintenance, repairs, engine and gear replacement and hull and liability insurance averaged $191,167 (in 2011 prices) per full-time vessel included in the sample (See Appendix I to Framework 26, Economic Model, Section 1.1.3, Tables 5 to 9).

Table 46 provides updated numbers for the fixed costs for years 2011 and 2012 using the NMFS 2011 and 2012 Cost Surveys. Average fixed costs with and without upgrade costs are much higher in 2011 compared to 2012. However, this is probably because the sample of scallop vessels included each year are different with larger vessels included in 2011. Interestingly, average fixed costs (excluding the upgrade costs) per limited access vessel in 2012 ($212,336) were just slightly higher than average fixed costs estimates for 2001-2007. The 2011-2012

survey data will be combined with the observer and survey data from earlier years to estimate fixed costs functions to simulate (extrapolate) those expenses for the limited access fleet for future analyses (For preliminary estimates please see Appendix 1, Economic Model).

Table 46 - Fixed costs per vessel by permit category (in current prices)

YEAR	Values	FT	PT	LAGC	Grand Total
2011	Number of vessels	14	4	7	25
	Fixed costs per vessel	329,665	164,371	54,477	226,165
	Fixed costs including upgrade	404,297	201,245	74,427	279,445
	Average HP per vessel	984	478	334	721
	Average length per vessel	87	79	53	76
	Average vessel value	4,215,708	1,750,000	732,143	2,788,717
	Average scallop revenue	1,795,677	527,400	168,911	1,137,258
	% of revenue from scallops	92%	71%	47%	76%
2012	Number of vessels	9		3	12
	Fixed costs per vessel	212,336		66,145	175,789
	Fixed costs including upgrade	287,377		81,178	235,827
	Average HP per vessel	840		487	751
	Average length per vessel	83		50	75
	Average vessel value	3,544,444		383,333	2,754,167
	Average scallop revenue	1,517,900		111,910	1,166,403
	% of revenue from scallops	87%		48%	77%

Main fixed costs items consisted of repairs and maintenance, insurance, interest payments and vessel upgrade (Table 47). It seems repairs and maintenance was quite high in 2011 for the vessels included in the survey which may explain why overall costs were higher in this year. In addition, scallop revenues peaked in 2011 to a total of more than $600 million for the fleet possibly providing more funds and incentive for many vessel owners to invest in repair expenses.

Table 47 - Composition of fixed costs per vessel by permit category (in current prices)

YEAR	Values	FT	PT	LAGC
2011	Number of vessels	14	4	7
	Insurance	82,659	29,843	10,023
	Interest payments	77,148	1,000	7,310
	Repairs and maintenance	127,436	81,157	15,426
	Communications costs	3,678	2,741	2,210
	Haul costs	5,025	15,012	3,914
	Moor	6,708	2,400	2,186
	Shop expenses	9,440	3,500	1,900
	Travel expenses	10,140	1,140	2,288
	Association fees	5,335	2,607	2,300
	Vessel upgrade	74,632	36,874	19,950
2012	Number of vessels	9		3
	Insurance	55,077		8,500
	Interest payments	14,799		5,567
	Repairs and maintenance	65,833		18,467
	Communications costs	3,787		1,687
	Haul costs	6,017		900
	Moor	8,217		2,475
	Shop expenses	12,222		10,683
	Travel expenses	3,063		800
	Association fees	9,147		583
	Vessel upgrade	75,040		15,033

4.4.11 Trends in Foreign Trade

Figure 28 shows scallop exports and imports in pounds including fresh, frozen and processed scallops. Although those numbers possibly include exports of bay, calico or weathervane scallops, it mainly consists of sea scallops.

One of most significant change in the trend for foreign trade for scallops after 1998 was the striking increase in scallop exports. The increase in landings scallops led to a tripling of U.S. exports of scallops from about 5 million pounds in 1998 fishyear to a record amount of 29 million pounds in 2011 fishing year. During the same period, export prices increased as well as scallop landings continued to include a higher proportion of larger sized scallops (Figure 29 and Figure 30). Total exports declined 18 million lb. in 2014 as the landings declined by 45% in the same year compared to the levels in 2011.

In contrast, imports of scallops declined to 42 million lb. in 2011 from about 60 million lb. in 2010, that is, by almost 30% (Figure 28). Because of the increase in the value of scallop exports to over $228 million and of re-exports to $20 million in 2011, and the decline in the value of imports to $268 million, the scallop trade deficit (the difference in the value of exported and imported scallops) reached to its lowest level, $20 million, since 1994 (Figure 32). Therefore, rebuilding of scallops as a result of the management of the scallop fishery benefited the nation by

reducing the scallop trade deficit in addition to increasing the revenue for the scallop fishery as a whole.

However, this trend was sharply reversed in the 2013 fishing year as the value of imports jumped to about $400 million and the value of exports declined to about $147 million. This trend continued in 2014 as well. As a result, scallop deficit increased drastically to over $200 million since 2013 (**Figure 32**).

Figure 28 - Scallop exports and imports (lb.)

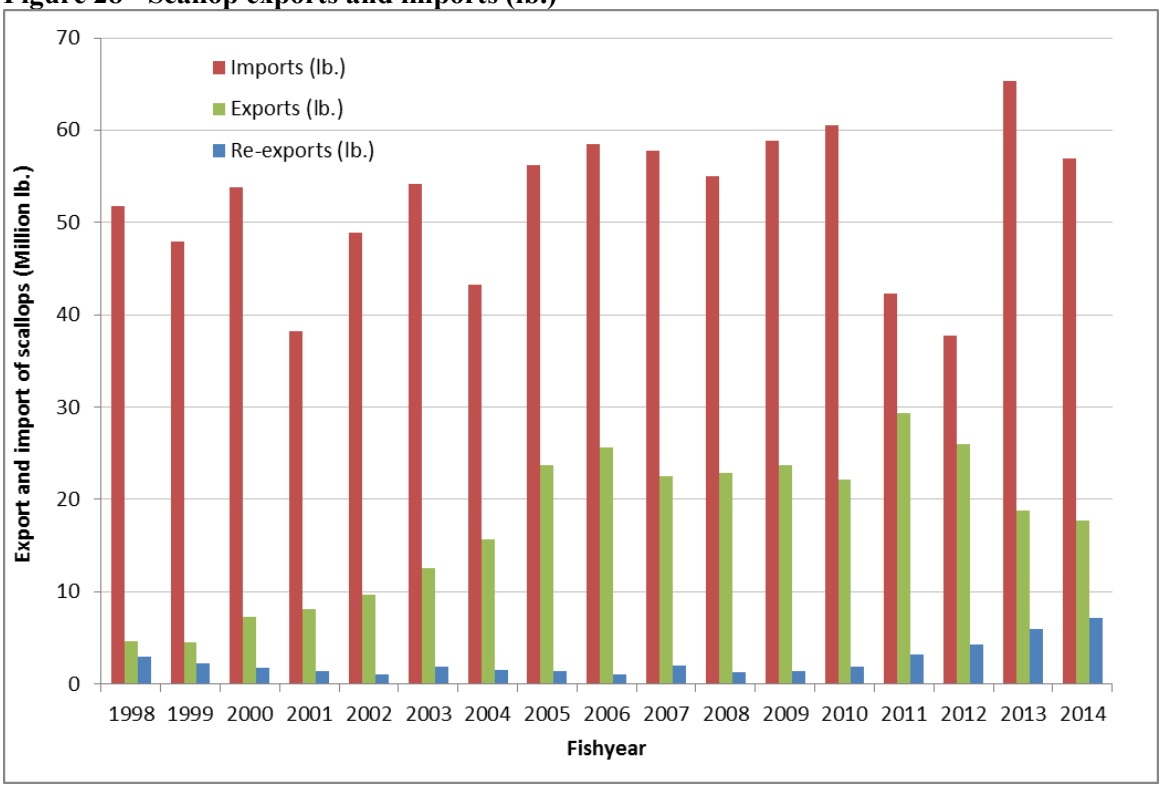


Figure 29 – Average annual price of scallop exports and imports (Million $, in inflation adjusted 2014 prices)

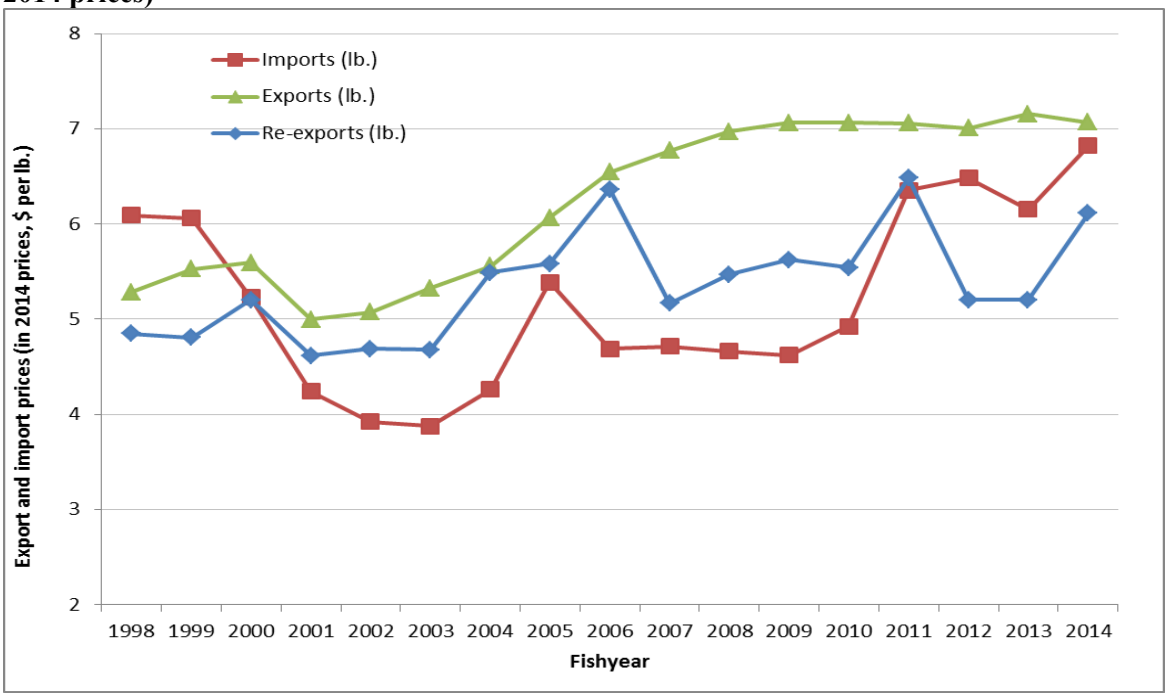


Figure 30 - Percentage composition of landings and ex-vessel price by market size category

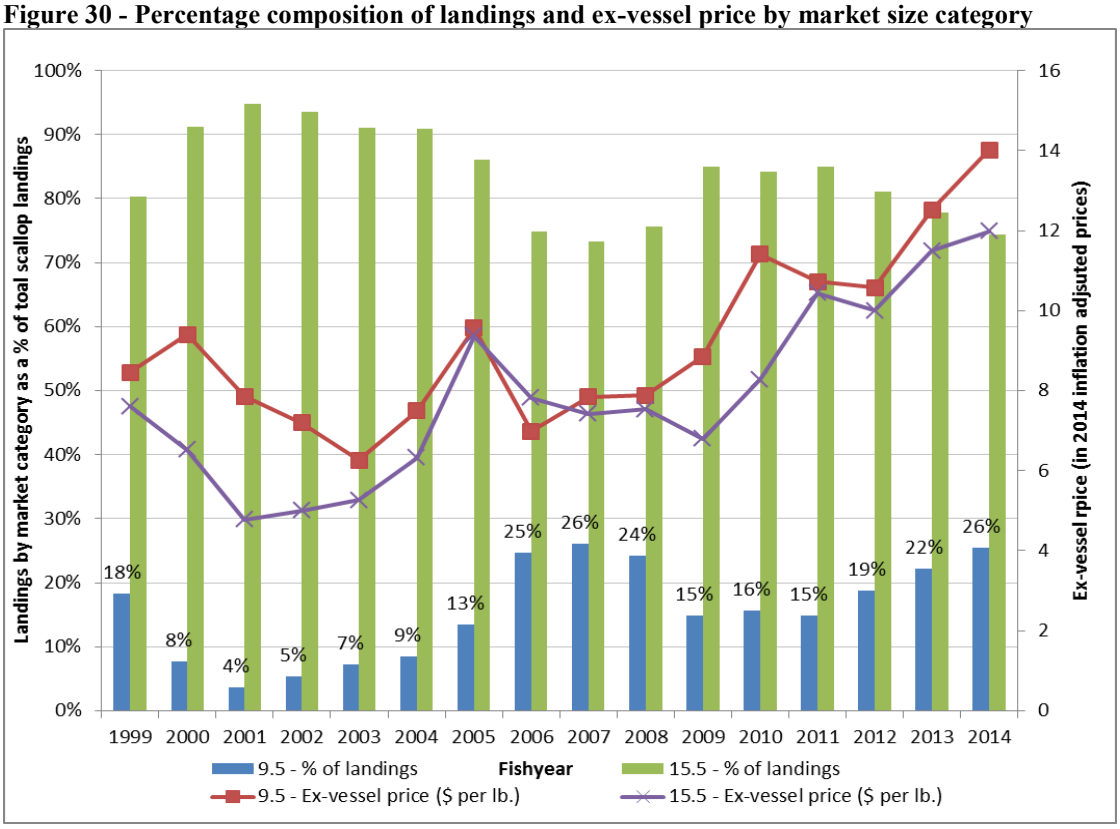


Figure 31 - Value of scallop exports and imports (Million $, in inflation adjusted 2014 prices))

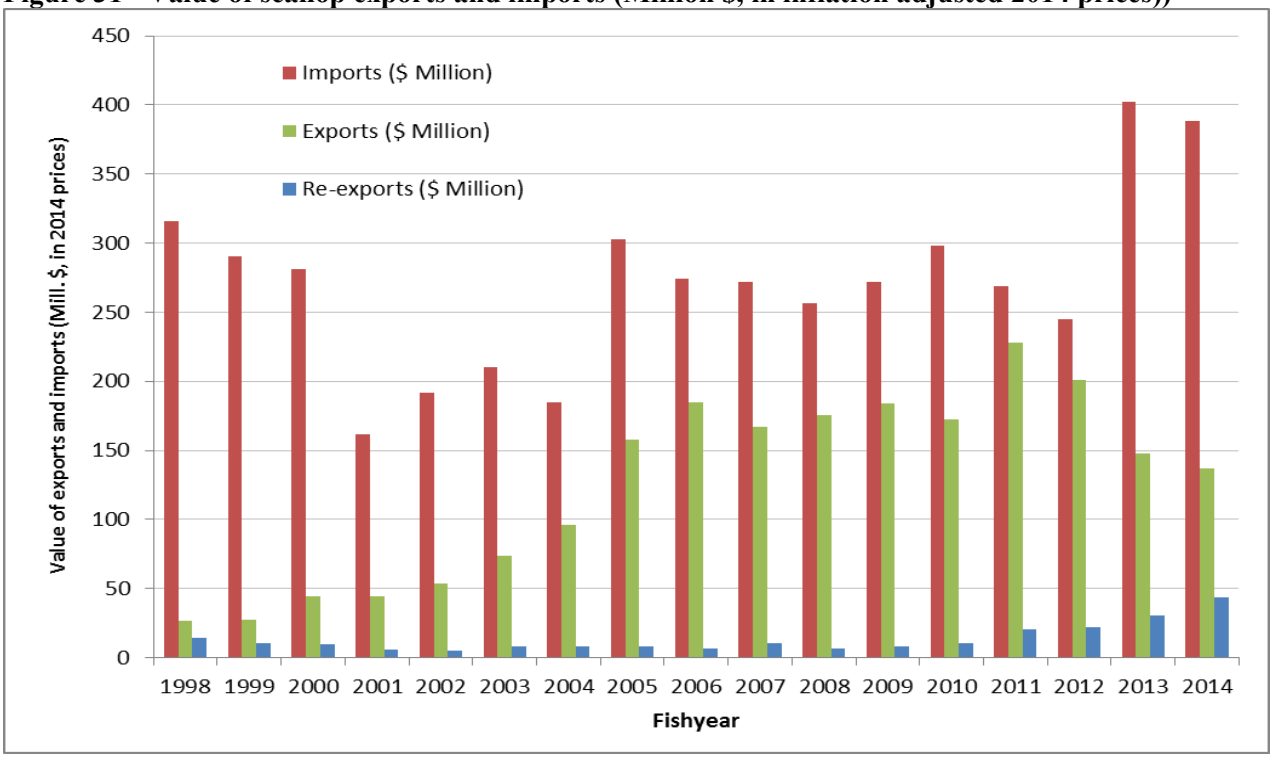
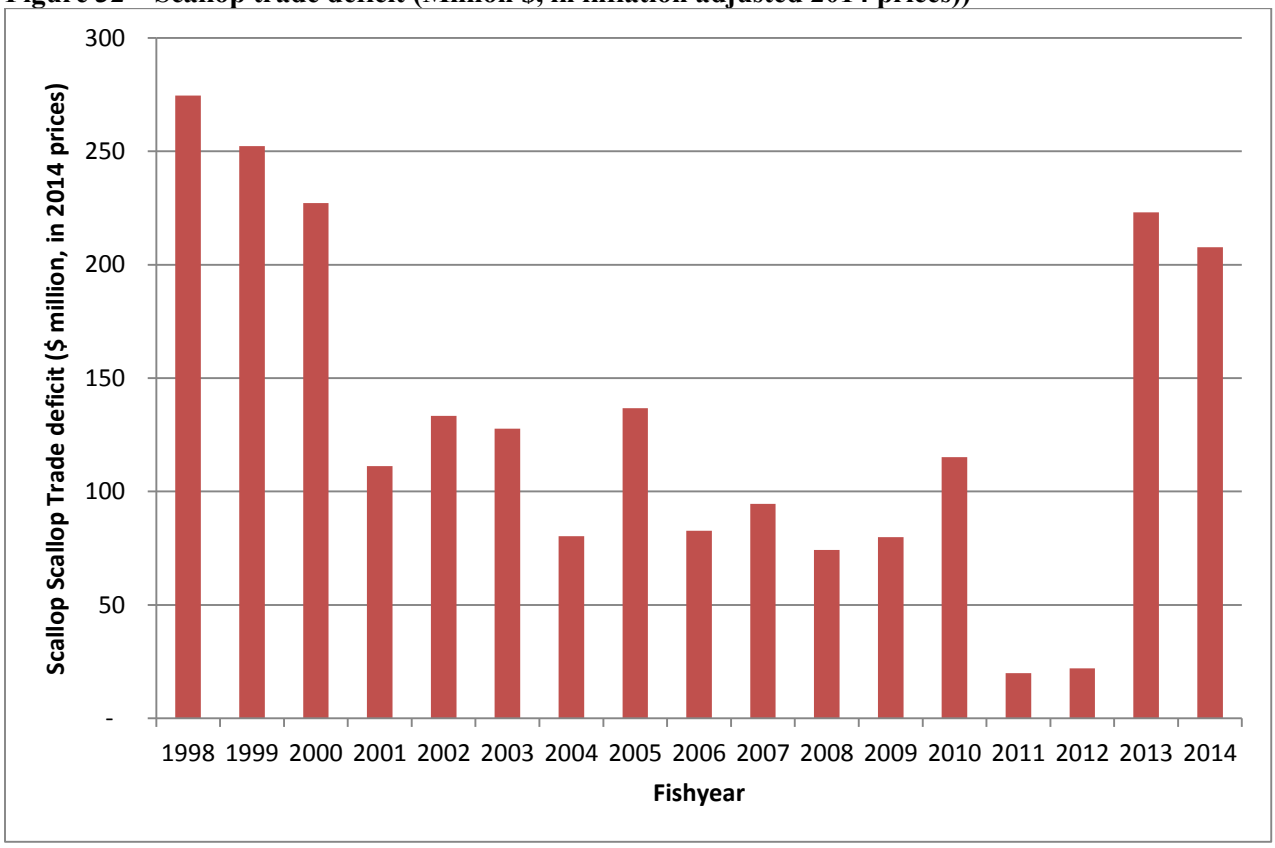


Figure 32 – Scallop trade deficit (Million $, in inflation adjusted 2014 prices))



4.4.11.1 Scallop imports by country

The main substitutes of sea scallops are the imports from China, Peru and Argentina, Japan and Canada (Figure 33). While the scallops imported from Japan and Canada are relatively similar to the domestic product in size and prices, imports from other countries are generally smaller in size and less expensive than the domestic scallops (Figure 34). A proportion of imports are re-exported especially to Canada and Western European countries (Figure 35).

Figure 33 - Scallop imports by country of origin

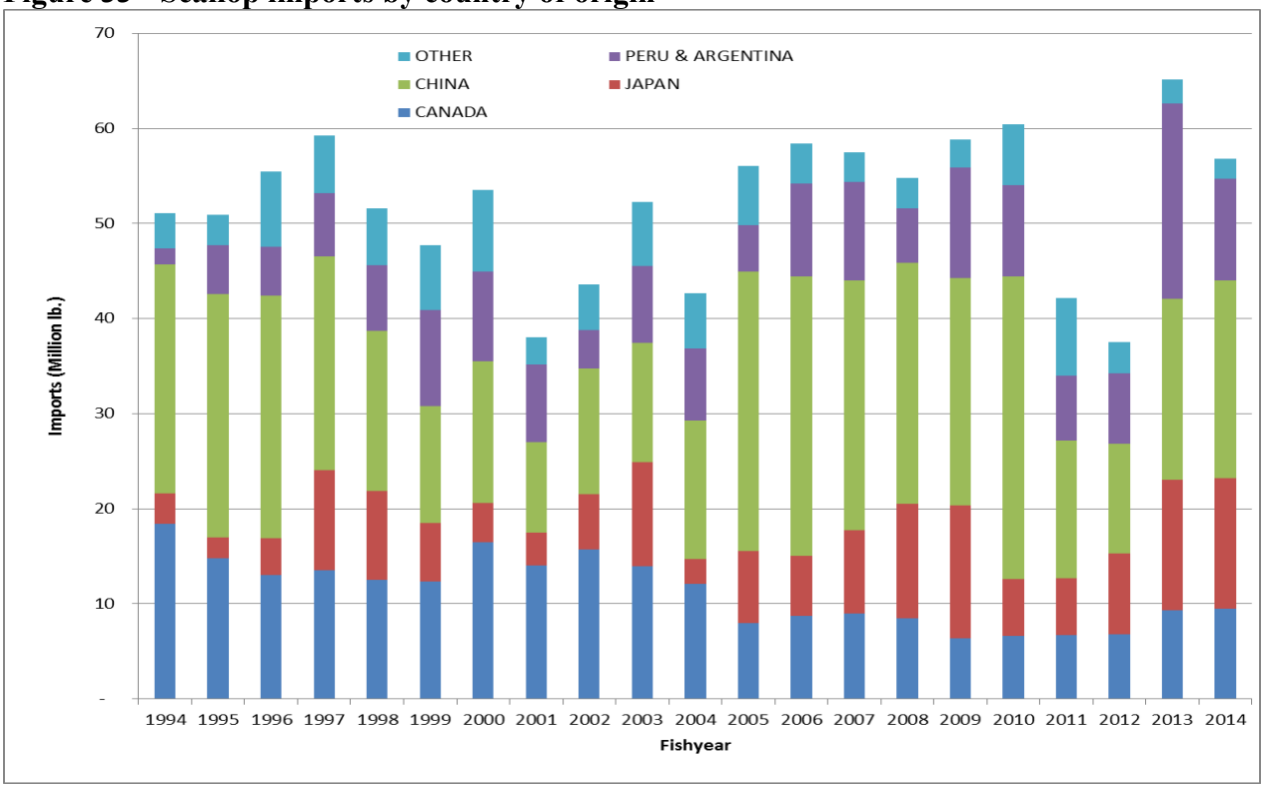


Figure 34 - Scallop import prices by country of origin (in 2014 prices)

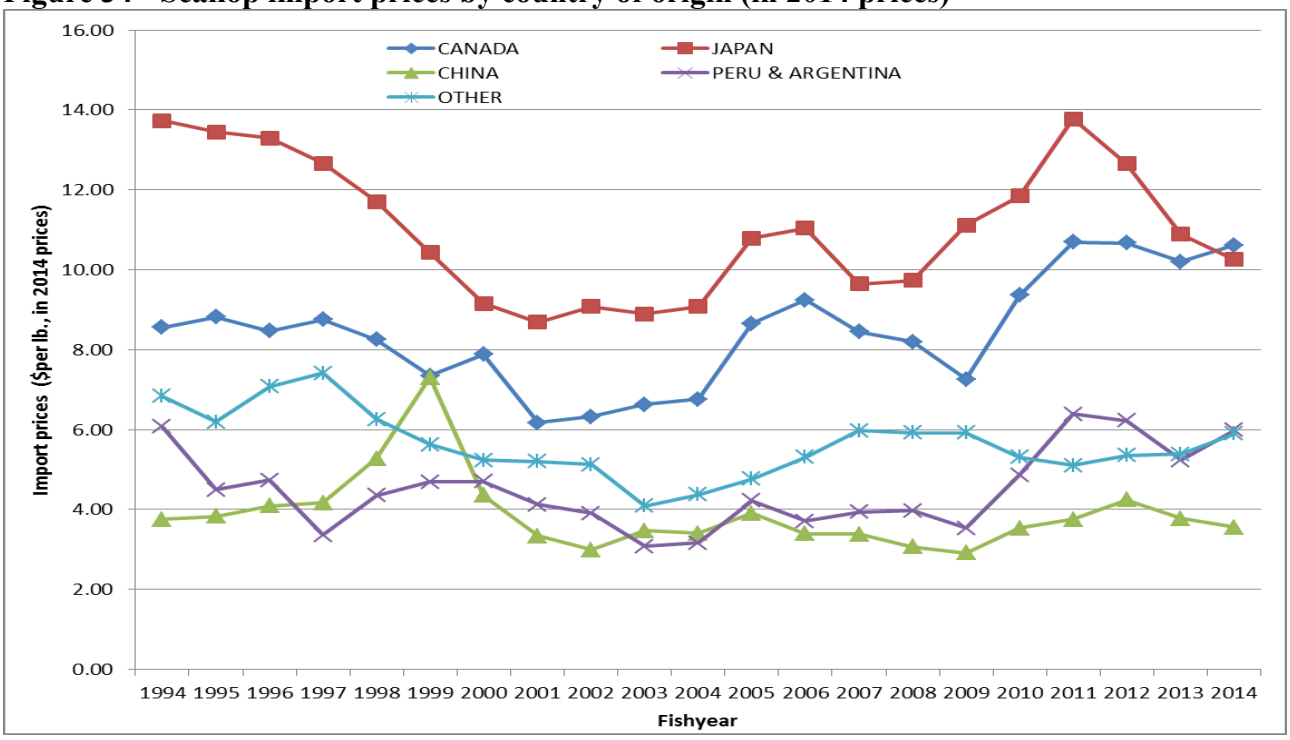
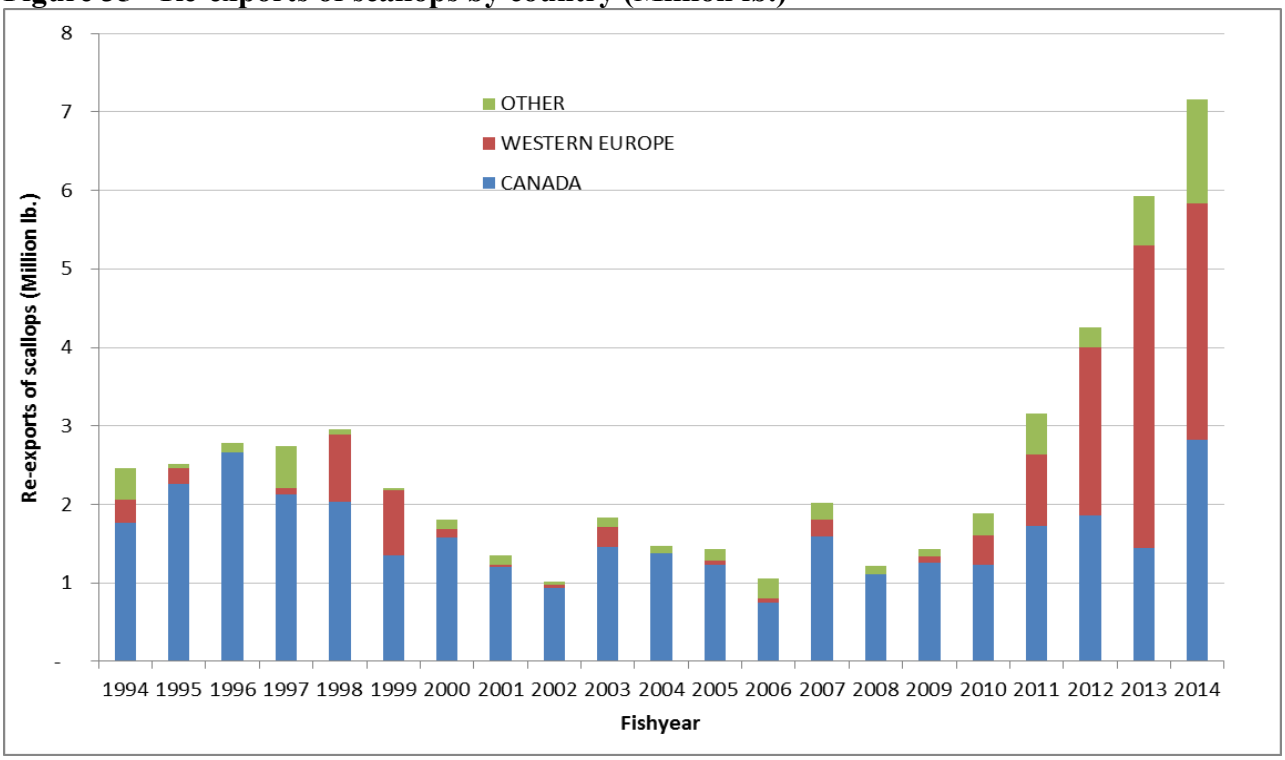


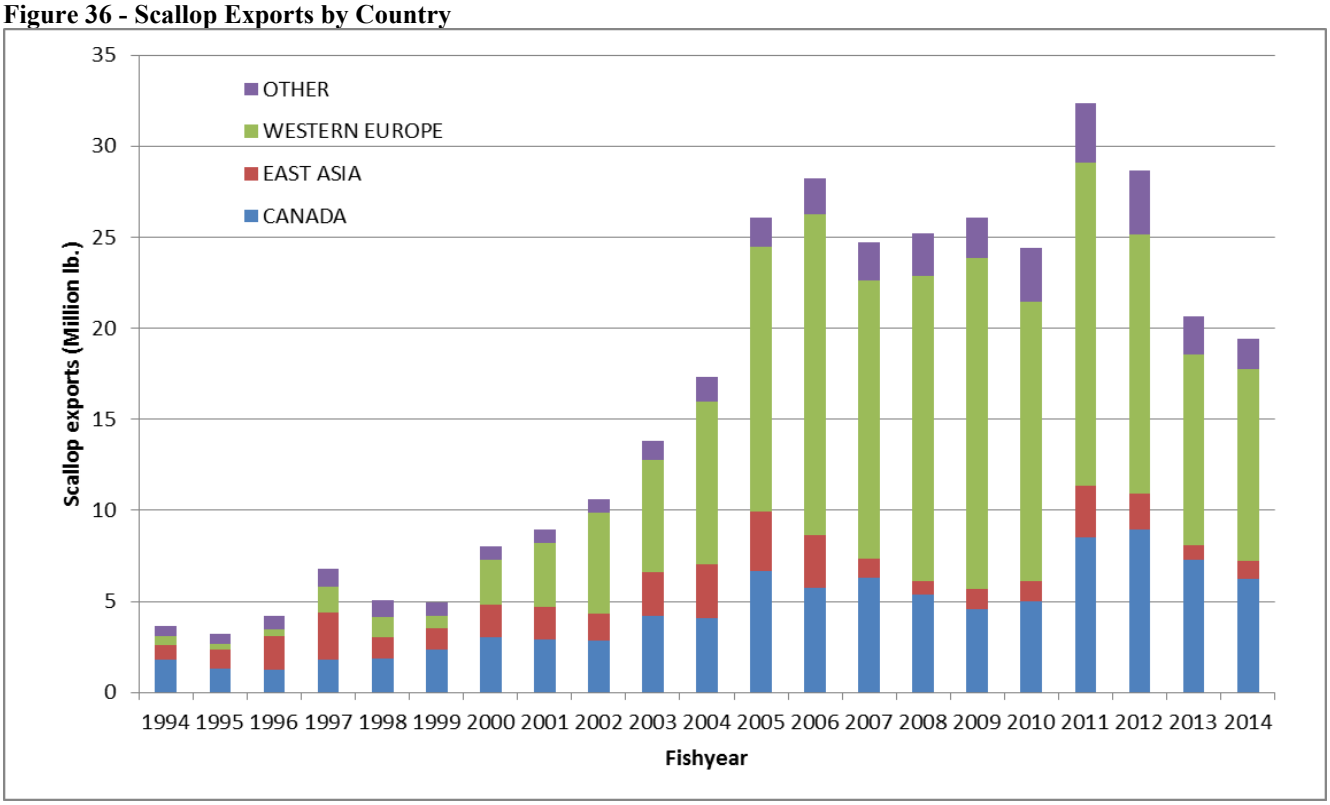
Figure 35 - Re-exports of scallops by country (Million lb.)



4.4.11.2 Scallop exports by country

One of most significant change in the trend for foreign trade for scallops after 1999 was the striking increase in scallop exports. The increase in landings of especially larger sized scallops increased U.S. exports of scallops from about 5 million pounds in 1999 fishing year to a record amount of over 32 million pounds in 2011 fishing year. Western European Countries constituted the largest markets for sea scallop exports (Figure 36).

Figure 36 - Scallop Exports by Country



4.4.12 Northern Gulf of Maine Fishery

Since adoption of the NGOM federal fishery in 2008 total landings from that area have been relatively low. However, landings increased in 2013 and 2014 (Table 48). IN recent years there has been an increase in offshore fishing activity in an area that was fished more historically, Platt's Bank (Figure 37). Scallop fishing in the GOM is traditionally a winter fishery. The state of Maine scallop season is from December – March. As catches increase in federal waters within the NGOM, the risk of the federal TAC being reached and vessels with state permits not being able to fish in state waters is higher. For comparison, the state water landings in both Maine and Massachusetts are much higher than federal water landings (Table 50).

Figure 37 – LAGC fishing activity in the GOM based on VMS data.
Vessel is considered "fishing" if speed between VMS pings is less than 4.5 knots. Pings are binned into a 0.1 nautical mile grid and only locations with 3 or more LAGC vessels are shown. Semi-transparent tan circles are FY2007-2012 combined, and black triangles are March 2013-September 2015. Cluster of black triangles at approximately 43° 7.5' N/69° 35' W represent effort on Platts Bank (over 100 trips, 7 vessels, total landings 18,000 lb. in 2013).

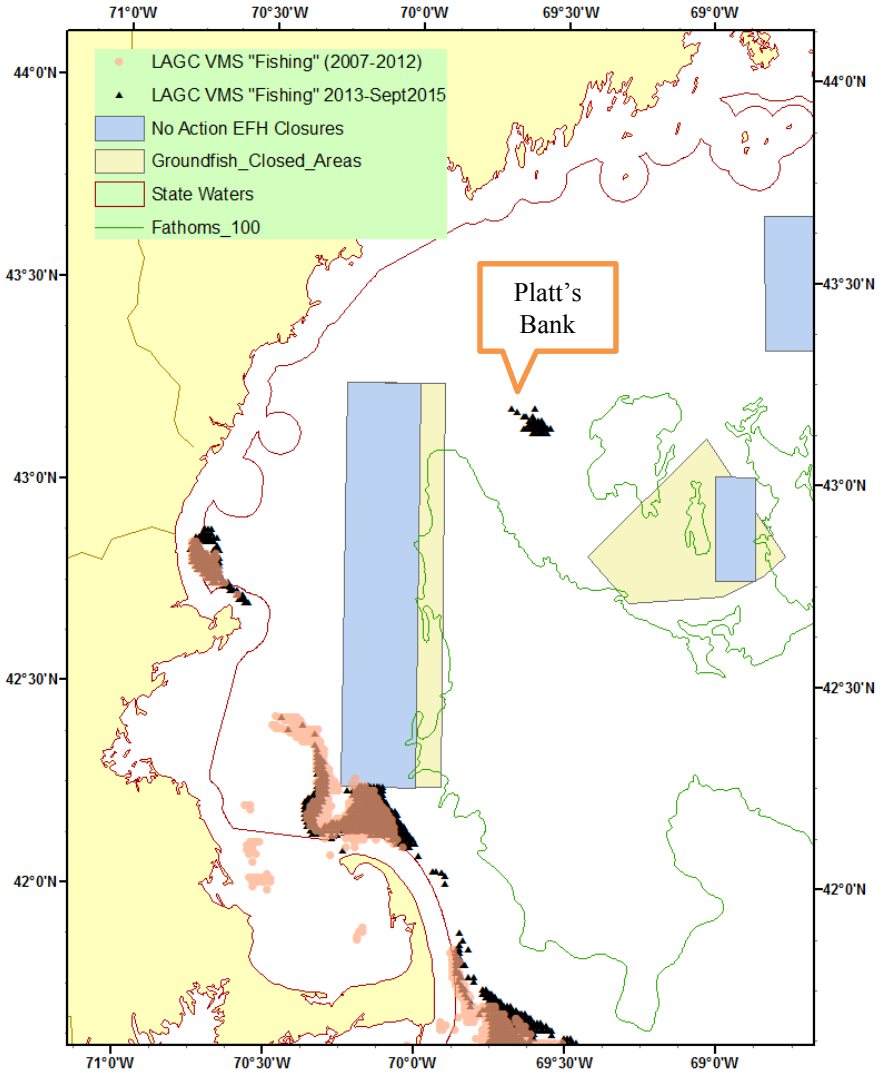


Table 48 – Summary of federal NGOM scallop catch

Year	NGOM landings	% of TAC (70,000 lbs.)
2010	11,539	16.5%
2011	7,946	11.4%
2012	7,733	11.0%
2013	40,663	58.1%
2014	43,015	61.5%
2015 (through 7/22/15)	*18,211*	*26.0%*

Table 49 is a summary of the number of known fishers that have state only permitted vessels that land scallops. All states have been combined, except Maine, the only state with a substantial number of state only permitted vessels. Table 50 is a summary of sea scallop catch from state permitted vessels from state waters in 2008-2013. Most states do not have any reported landings, and some information is confidential because it is from a small number of vessels and/or dealers. Table 51 summarizes state only catch in Maine by month. Total landings have increased dramatically, with most effort in December and January.

Table 49 – Number of known fishers that contribute to state only scallop catch (calendar year 2008-2012) (Source: ACCSP).

	Number of Known Fishers				
	2010	20102	2011	2012	2013
ME Dealer Reports	119	222	280	353	401
ME Harvester Reports**	228	250	287	369	364
Other States	30	24	29	26	41

Table 50 - Calendar year scallop landings from state permitted vessel that do <u>not</u> have a federal permit (Source: ACCSP). Small landings from several other states not listed.

Year	2008	2009	2010	2011	2012	2013
Massachusetts	28,986	167,865	121,416	205,898	132,869	53,873
Maine (Harvester reports)*	87,808	132,769	253,527	234,557	359,444	454,096

**Maine Department of Marine Resources did not have mandatory harvester reporting until December 2008, no not all harvester landings for 2008 are complete for that calendar year.*

Table 51 – Maine state water scallop landings by month

Scallop Meat Pounds by Month (Dealer Data)						
Year	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
January	39,252	3,835	70,884	80,410	41,400	181,329
February	20,765	2,609	44,980	31,883	32,039	32,733
March	11,275	19,114	23,476	15,004	52,759	50,619
December	58,962	52,861	53,018	47,759	124,043	138,450
Total Landings	**136,556**	**79,923**	**193,753**	**175,123**	**251,631**	**424,547**

4.4.16 State water landings

The Scallop FMP also tracks scallop landings from state waters. When Amendment 15 first implemented ACLs, an estimate of state waters landings was 160,000 pounds, based on the most

recent year of data available. Since that time effort in state waters has increased. The Scallop PDT has updated the target catch from state waters based on a three year average using data from 2012-2014. Table 52 summarizes recent state water catch from vessels that do not have a federal permit. This catch is outside of the OFL/ACL structure used to manage the federal fishery since it is in state waters not included in the survey or management area. Therefore, this catch does not get deducted from the overall OFL/ACL structure. The updated value for state water catch for Framework 27 is 622,312 pounds.

Table 52 – Summary of state water landings from vessels that do NOT have a federal permit

FY	NEW estimated total
2010	1,021,970
2011	593,261
2012	683,463
2013	590,510
2014	592,962
3yr AVG	622,312

4.5 NON-TARGET SPECIES

Non-target species (sometimes referred to as incidental catch or bycatch) include species caught by scallop gear that are both landed and not landed, including small scallops. There are several measures in place that were designed to reduce bycatch including gear modifications, limits on effort, seasonal restrictions etc. In general, rotational area management is designed to improve and maintain high scallop yield, while minimizing 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 access areas is low compared with fishing time in open areas due to differences in LPUE. Incidental catch is sometimes higher in access areas compared to open areas, but in general total scallop landings is also usually higher in access areas.

Potential non-target species caught incidentally in the scallop fishery were identified in Amendment 15 and previous scallop framework actions based primarily on discard information from the 2009 SBRM report (NEFSC 2009) and various assessments such as GARM III and the Skates Data-poor Workshop. Based on a report presented by NEFSC (2009), the Scallop Plan Development Team identified the following species as having more than 5% of total estimated catch from discards in the scallop fishery: monkfish, skate (overall), and windowpane flounder. The status of these species is listed in Table 53.

Assessment data show that the scallop fishery caught more than 5% of the bycatch (compared to overall catch) for some multispecies stocks by region. Georges Bank (GB) and Southern New England (SNE) yellowtail flounder were caught in amounts greater than 5%, but Cape Cod yellowtail only has occasional spikes over 5%. Although there is greater than 5% caught in both the GB/GOM and SNE/MA regions for windowpane flounder, the catch is generally greater in SNE/MA. The Skate Data-poor Working Group identified the greatest bycatch for the scallop fishery as little and winter skates. See Table 53 for the current status of these species, which has been updated based on assessment results summarized in Groundfish FW53, Skate FW2, and Monkfish FW7.

Table 53: Status of non-target species known to be caught in scallop fishing gear, updated with assessment results through 2014

Species	*Stock*	*Overfished?*	*Overfishing?*
Summer flounder (fluke)	Mid-Atlantic Coast	No	Yes
Monkfish	GOM/Northern GB	No	No
Monkfish	Southern GB/MA	No	No
Northeast Skate Complex	Barndoor skate	No	No
Northeast Skate Complex	Clearnose skate	No	No
Northeast Skate Complex	Little skate	No	No
Northeast Skate Complex	Rosette skate	No	No
Northeast Skate Complex	Smooth skate	No	No
Northeast Skate Complex	Thorny skate	Yes	No
Northeast Skate Complex	Winter skate	No	No
Multispecies	Windowpane - GOM/GB	Yes	No
Multispecies	Windowpane - SNE/MA	No	No
Multispecies	Winter flounder - GB	Yes	Yes
Multispecies	Winter flounder - GOM	Unknown	No
Multispecies	Winter flounder - SNE/MA	Yes	No
Multispecies	Yellowtail flounder - CC/GOM	Yes	Yes
Multispecies	Yellowtail flounder - GB	Unknown	Unknown
Multispecies	Yellowtail flounder - SNE/MA	Yes	Yes
Atlantic Surfclam	Mid-Atlantic Coast	No	No
Ocean Quahog	Atlantic Coast	No	No

Updates available through NMFS's Status of U.S. Fisheries Quarterly Reports http://www.nmfs.noaa.gov/sfa/fisheries_eco/status_of_fisheries/

4.5.1 Bycatch species with sub-ACL allocations

The only bycatch species with sub-ACLs for the scallop fishery are in the groundfish plan: GB YT, SNE/MA YT, and SNE/MA WP flounder. The tables below describe a summary of multispecies catch from the scallop fishery in fishing years 2015 to date, 2014, and 2013. A complete summary of all catch in the multispecies fishery can be found at: http://www.greateratlantic.fisheries.noaa.gov/aps/monitoring/nemultispecies.html

Total catch of **GB YT** by the scallop fishery in 2015 to date is at about 70% of the sub-ACL allocation for the year (26 mt out of a total 38mt allocation) (Table 54). Almost all of this

bycatch is from scallop effort in open areas, and a small amount from within the access area in CA2 south in March and April from 2014 access area trips that were carried over to the first 60 days of FY2015. In 2014 the scallop fishery exceeded the sub-ACL of GB YT (59 mt of catch compared to a sub-ACL of 51mt – 116.5%) (Table 55). Higher catches were expected in 2014 since the fishery was allocated access in CA2south. More than half of the total 2014 scallop fishery catch of GB YT came from the access area within CA2 (about 37 mt out of a total catch of 59.3 mt). Accountability measures were not implemented because the total ACL for GB YT was not exceeded, and the scallop fishery did not exceed the sub-ACL by more than 50%. In 2013, total catch of GB YT in the scallop fishery was lower than 2014 despite the fact that overall allocations of DAS and CA2 access were at similar levels. Total catch in 2013 was 37.5 mt, about 90% of the 41.5 mt sub-ACL allocated that year (Table 56).

Total catch of **SNE/MA YT** is currently estimated at 19 mt, or almost 30% of the total sub-ACL allocation of 66mt (Table 54). A little over 10% of this total catch estimate to date is from LAGC trawl vessels. In 2014 the scallop fishery was also allocated a total sub-ACL of 66mt, and the fishery was estimated to catch almost all of it (63mt or 96% of the sub-ACL) (Table 55). In 2013 the sub-ACL was lower at 43.6 mt, and the scallop fishery exceeded that allocation, 48.6 mt or about 111%. Again, about 10% of the total catch was by LAGC vessels that use trawl gear, but the majority of catch was from LA vessels fishing in open areas in southern New England (about 50% of the total catch), followed by LA vessels in NL (14%). Accountability measures did not trigger for the scallop fishery because the total ACL was not exceeded and the scallop fishery did not exceed the sub-ACL by more than 50%.

Finally, total catch of **SNE/MA windowpane flounder** by the scallop fishery in 2015 to date is relatively low, about 40 mt so far, or about 21% of the sub-ACL (Table 54). The allocation of SNE/MA WP to the scallop fishery has been consistent since 2013 at 183mt per year. In 2014 the fishery caught about 74% of the allocation, and in 2013 about 70% (Table 55 and Table 56). This catch represents about 25% of the total ACL for that species for both years.

Table 54 – 2015 scallop fishery catch to date of GF species with sub-ACL allocations in mt (and pounds). Preliminary data for March-September 29, 2015 only

Stock	Total ACL	Sub-ACL to Scallop fishery	Catch of GF by scallop fishery	Percent of sub-ACL used	Percent of total ACL used by scallop fishery
GB YT	240 (529K)	38 (83,766)	32 (71,022)	84.8%	13.3%
SNE/MA YT	666 (1.47mil)	66 (145,505)	20 (44,386)	30.5%	3.0%
SNE/MA WP	527 (1.16 mil)	183 (403,446)	139 (307,246)	76.2%	26.4%

Table 55 – 2014 year end scallop fishery catch of GF species with sub-ACL allocations (mt).

Stock	Total ACL	Sub-ACL to Scallop fishery	Catch of GF by scallop fishery	Percent of sub-ACL used	Percent of total ACL used by scallop fishery
GB YT	318.1	50.9	59.3	116.4%	18.6%
SNE/MA YT	665	66	64.8	98.2%	9.7%
SNE/MA WP	527	183	140	76.5%	26.6%

Table 56 – 2013 year end scallop fishery catch of GF species with sub-ACL allocations (mt).

Stock	Total ACL	Sub-ACL to Scallop fishery	Catch of GF by scallop fishery	Percent of sub-ACL used	Percent of total ACL used by scallop fishery
GB YT	208.5	41.5	37.5	90.4%	18.0%
SNE/MA YT	665	43.6	48.6	111.5%	7.3%
SNE/MA WP	527	183	129.1	70.5%	24.5%

5.0 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

5.1 SCALLOP RESOURCE

5.1.1 No Action

The scallop fishing year is out of sync with the framework adjustment process and the timing of when the scallop survey data become available for analysis. As a result, actions have not been implemented at the start of the fishing year, TACs have been misestimated due to reliance on older data, and extra actions have been required to compensate. These delays can have negative impacts on the scallop resource because scallop meat weights vary by season. Higher meat weights are generally in the late spring and summer, and decline in the fall to their lowest in the winter (Figure 38). Therefore, more scallops would need to be harvested for the same poundage in the winter compared to the summer. In the scallop fishery effort is controlled in access areas under a possession limit, compared to a time constraint (DAS) in open areas. Therefore, if a vessel is fishing in an access area there is no time limit; therefore, in the winter when meat weights are lower a vessel may decide to fish longer to harvest their full allocation. Increased fishing time can have negative impacts on the resource from increased incidental and discard mortality.

There have been several instances when final measures are not implemented until the summer or later (Table 3), and these delays can compress fishing in seasons with lower meat weights (fall and winter). For example, Framework 25 was not implemented until June 16, 2014 and that action included two access area trips per FT vessel in CA2, NL or Delmarva, which were not available to the fishery until June 16. Because the allocations were not available in April, May and early June (all relatively high meat weight months), it is possible that realized fishing mortality was higher than projected. Table 58 and Figure 40 show the monthly distribution of scallop landings from 1998-2014. In general, the fishing year begins in March and monthly landings are about 8% of the total annual landings that month, landings continue to increase to about 14% per month for May and June. Total landings begin to decline in July and August (about 12% per month) and tapper off more quickly for the remainder of the fishing year (3-4% per month for the winter months).

This general trend in landings varies from year to year, and the timing of final specifications can impact this trend, primarily because there is typically a spike in landings when final access area allocations are available to the fishery when a final framework action is implemented. Figure 41 is also a plot of monthly catches, but the last five years are shown individually (2010-2014). Overall the monthly distribution of landings is similar to the longer 17-year time series, but in a few cases total monthly catches increased later in the season when frameworks were implemented. For example, in 2010 Framework 21 was implemented on June 28, 2010 so access areas were not available to the fishery until that date. In that year vessels fished in open areas areas and in July monthly catches rose to 14% of total catch, compared to the 17-year average of 12%. Similarly in 2011, Framework 21 was not implemented until August 1, 2011. Again vessels fished in open areas starting in March, but the final access area allocations were not available to the fleet until later in the summer. In that year total landings in August spiked to 16% of total landings, compared to the average monthly total for August of 11%. Since average meat weights are lower in July and August compared to earlier in the season, the overall

mortality (negative impacts on the resource) is likely higher if trips are fished in the late summer compared to the spring (Figure 38).

The Council now routinely sets default measures that are designed to be in place at the start of the fishing year that are ultimately replaced by specifications set in a following action. Default measures can minimize some of the potentially negative impacts of delayed specifications and are generally set conservatively to reduce potential negative impacts on the resource. However, default measures are typically a fraction of the final specifications and require additional administrative work and can cause confusion for the fleet when the fishing year begins under one set of allocations, and are then replaced with a second set of allocations later in the year.

5.1.2 Develop a specification setting process

This alternative would no longer require a framework action to set scallop fishery specifications. Instead a specification-only action would be developed, which is much more limited in scope and would not include other measures that can slow down the overall timeline for implementation. Less time overall is expected to be needed to develop, analyze, and review a specification process compared to frameworks that often include other measures. Therefore, final allocations are expected to be in place closer to the start of the fishing year, but would still not necessarily meet March 1 because the Council does not take final action until the end of November or early December. Compared to No Action this alternative is expected to have neutral to low positive impacts on the resource. Neutral impacts could be expected because there is still no guarantee that all final allocations would be available at the start of the fishing year, but low positive impacts could also be expected because a specification process is more limited in scope, likely reducing the overall time needed to develop, analyze, and review actions with fishery specifications.

Implementing a specification process should help measures be in place closer to the start of the fishing year, potentially providing more flexibility for vessels to fish their allocations during higher meat weight months. Some vessels may still choose to fish in lower meat weight seasons for better prices and other reasons, but having final measures in place earlier would at least provide the opportunity to fish trips sooner when meat weights are more optimal. Overall, the range of impacts from this alternative is low negative (if measures are still implemented after the start for the fishing year) to low positive (if they are implemented earlier), and neutral to low positive compared to No Action.

5.1.3 Change the start of the fishing year to April 1

This alternative would modify the start of the fishing year to April 1 and would support the current timeline for integrating the best available science into the management process. Moving the start of the fishing year back one month allows for needed time to process, analyze, and integrate survey data from the current year into management decisions for fishery specifications being developed for the following year. Even under the alternative that would implement a specification setting process (Alternative 2.2) the estimated date of implementation is sometime in March to early April (Table 5). Therefore, final measures are not expected to be in place before March 1 under that alternative alone. Under this alternative, (Alternative 2.3) the start date of the fishing year would move to April 1, increasing the likelihood that final fishery allocations would be implemented at the start of the fishing year. This alternative is expected to have low positive impacts compared to No Action and combining this alternative with

Alternative 2.2 is expected to have the greatest chance of implementing fishery specifications in place before the fishing year begins.

Because this alternative only proposes to move the start date of the fishing year back one month later there are no major impacts on the resource expected in terms of optimizing yield per recruit. Historically there were increased fishing levels at the beginning of the fishing year when vessels received their annual allocations, but in more recent years that increase in fishing effort at the start of the fishing year has not been as prevalent (Table 58).

If there is an increase in fishing effort at the start of the fishing year this alternative would have beneficial impacts compared because meat weights are larger in April compared to March (Figure 38). The recent assessment updated the estimates for seasonal meat weight variation using more data. The annual values for GB are generally higher (~15%) in the recent assessment compared to the last assessment, and slightly lower (~2%) for the MA. The assessment concluded that the estimates are higher on GB due to an increase in observed meat weights (Figure 39) and the shift in MA is relatively small likely drive by a combination of various changes in how observer data were analyzed and small changes in the shell height to meat weight model. In summary, this alternative may have low positive impacts on the resource if there is a surge of effort at the start of the fishing year since April has generally higher meat yields compared to most other months.

Figure 38 – Seasonal meat weight anomalies in most recent stock assessment (2014) compared to previous assessment (2010) for Georges Bank and the Mid-Atlantic. ***Source: Appendix B3 of SAW59***

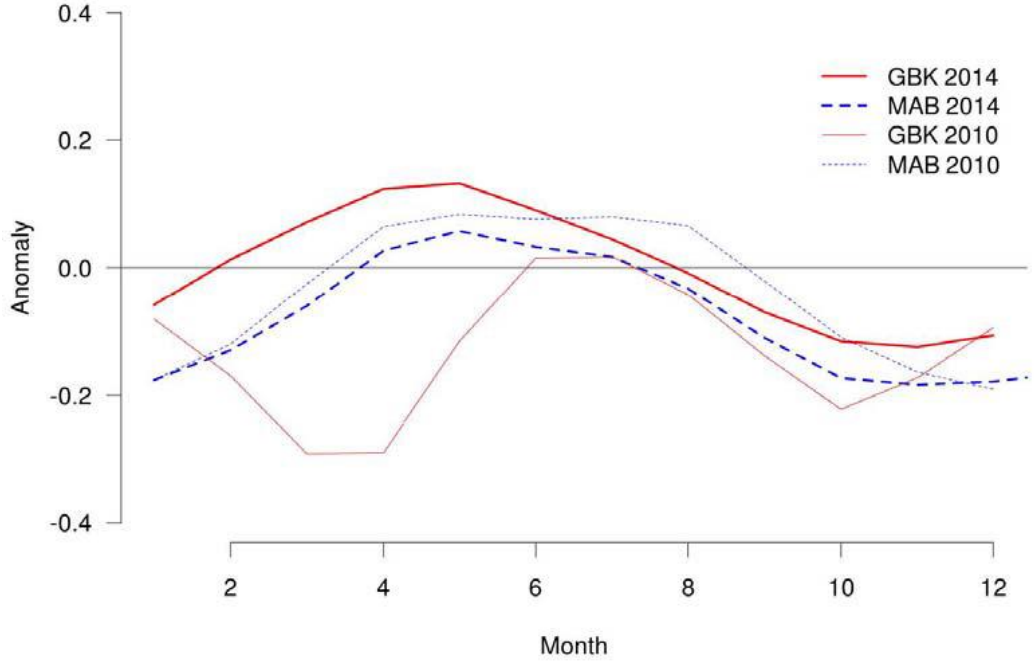
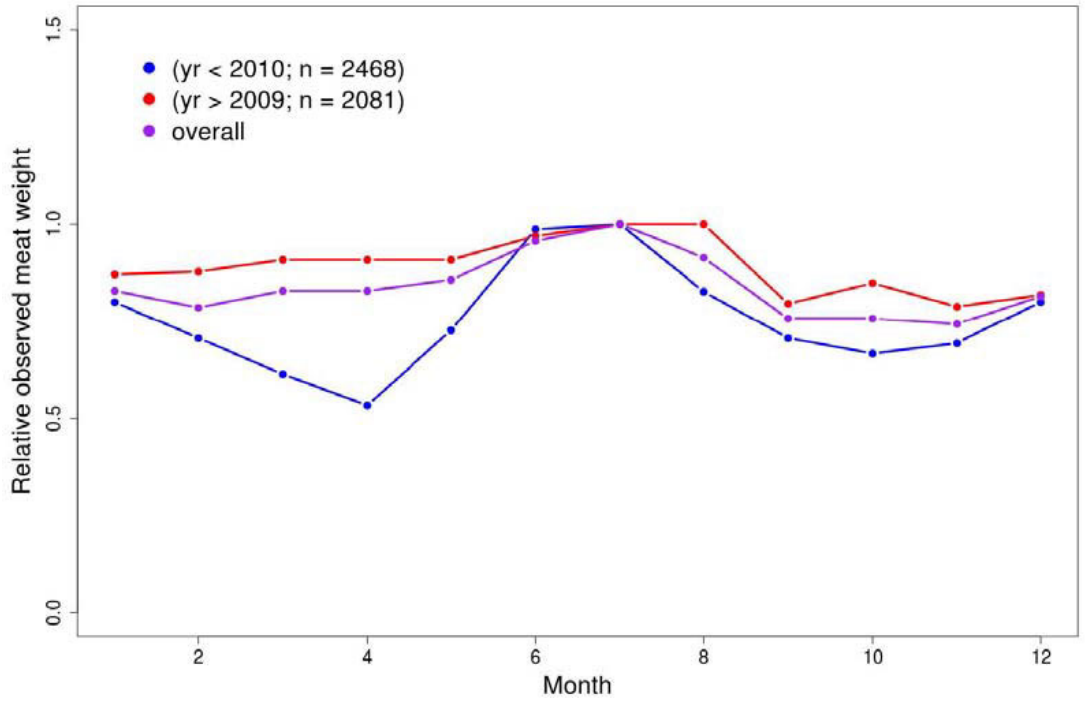


Figure 39 – Relative monthly meat weight in observed commercial catches on GB for the period prior to 2010, after 2010, and overall. ***Source: Appendix B3 of SAW59***



5.2 PHYSICAL ENVIRONEMENT AND ESSENTIAL FISH HABITAT

5.2.1 No Action

Currently, fishery specifications are set via a framework adjustment to the FMP, with the start of the fishing year on March 1. Combining the timing of when the scallop survey data become available for analysis, and the timing of the framework adjustment process, specifications have generally not been implemented at the start of the fishing year. However, the implementation date of the annual framework does not change the overall magnitude of the fishery in terms of the number of DAS, access area trips, or IFQ allocations. Rather, the implementation date affects how long default specifications would be in place. These default specifications tend to be conservative, such that overharvest of the resource is very unlikely. Thus, the current approach of framework adjustment action/March 1 fishing year does not appear to be generating substantial positive or negative impacts on EFH.

In general, under No Action access area allocations are not available at the start of the fishing year, and in many cases not until the summer. In some years vessels are awarded multiple access area trips, and with delayed implementation there is less time for vessels to harvest scallops during higher meat weight seasons (spring and summer). This reduced flexibility can shift effort into seasons with lower meat weights potentially increasing area swept because it takes longer to harvest the same poundage if average meat weights are lower. Increased area swept can have potentially negative impacts on benthic communities if vessels fish longer to harvest the same poundage of scallop meat.

5.2.2 Develop a specifications setting process

This alternative would no longer require a framework adjustment action to set scallop fishery specifications. While the survey timing would remain the same, a specifications package is expected to require less time to develop, analyze, and review compared to frameworks that often include other measures. Therefore, final allocations are expected to be in place closer to the start of the fishing year under this alternative. If allocations are available sooner it provides more flexibility and time for vessels to harvest scallops during months with higher meat weights relative to later in the year. This flexibility can have potentially low positive impacts on EFH compared to No Action, which often implements access area allocations several months after the start of the current fishing year (March 1). However, since the overall allocations would ultimately be the same for the year the overall magnitude of the fishery in terms of adverse impacts on EFH would be the same. Thus, this alternative is expected to have neutral to low positive impacts on EFH. And compared to No Action, the expected impacts are also neutral to low positive since allocations are expected to be available sooner under this alternative.

5.2.3 Change the start of the fishing year to April 1

This alternative would modify the start of the fishing year from March 1 to April 1. As above, while the survey timing would remain the same, pushing the fishing year back to April 1 would allow for the specifications to be in place closer to the start of the fishing year, reducing reliance on default measures. This alternative is expected to have neutral impacts on EFH because overall allocations for the year would ultimately be the same, and if implemented by framework action (No Action) measures may get delayed, which can have low negative impacts on area swept wif vessels have less time to fish in higher meat weight months. If this alternative is combined with

the specifications process (Alternative 2.2) overall impacts are expected to be neutral to low positive because overall allocations would be the same (neutral impacts) but if measures are implemented closer to the start of the fishing year overall area swept may be lower by some amount if more effort is during higher meat weight months.

5.3 PROTECTED RESOURCES

5.3.1 No Action

The No Action would maintain the current framework process to set scallop fishery specifications biennially, with the intent to have these specifications in place by March 1, the start of federal scallop fishing year. However, based on a long history of trying to implement scallop specifications in this manner, it is clear the scallop fishing year is out of sync with the framework adjustment process, and the timing of when the scallop survey data becomes available for analysis, as scallop specifications are rarely in place by March 1. As a result, actions have not been implemented at the start of the fishing year, TACs have been misestimated due to reliance on older data, and extra actions have been required to compensate. The delays can have negative impacts not only on the scallop resource, but also protected resources.

Although, in general, the timing of specifications does not change the overall magnitude of the fishery in terms of adverse effects on the environment since the same number of DAS, access area trips, and IFQ allocations will ultimately be allocated for the year whether they are available in March, April, or later in that fishing year, it does cause a delay in when vessels can begin fishing and therefore, effect the potential duration in which gear is in the water. Specifically, delays can cause vessels to increase area swept. Scallop meat weights are higher in the spring compared to later in the year, so in access areas it could take a vessel longer to harvest the same poundage of scallops in the late summer/fall compared to earlier in the year (See Figure 38– meat weights in the MA are highest in April through July). As interaction risks to protected resources are strongly associated, in part, with the duration of time gear is in the water, any increase in harvest time (i.e., area swept) has the potential to increase interactions with protected resources, specifically, as noted in Section 4.3, Atlantic sturgeon and sea turtle species.

In regards to Atlantic sturgeon, according to the NMFS 2012 Scallop Biological Opinion (Opinion), available information has shown no Atlantic sturgeon reported as caught in scallop dredge or in trawl gear where the haul target or trip target is scallop (NMFS 2012).[20] Given the known capture of Atlantic sturgeon in trawl fisheries operating in the affected environment (Stein *et al*. 2004; ASMFC 2007; NEFSC 2011a), the NMFS 2012 Opinion concluded that it is reasonable to anticipate that some small level of bycatch may occur in the scallop trawl fishery; however, given the way that scallop dredges operate, the lack of documented interactions is likely reflective of a true lack of captures of Atlantic sturgeon in scallop dredge gear and therefore, Atlantic sturgeon interactions with dredge gear is not expected. As the sea scallop fishery is primarily executed with dredge gear (~95% of the fisheries fleet) and the No Action does not change the gear usage in the fishery, potential interactions with Atlantic sturgeon are expected to be low, with or without any changes in the specification process. However, it is

[20] NMFS issued a biological opinion (Opinion) on the scallop fishery on July 12, 2012. The Opinion included an incidental take statement (ITS) authorizing the take of specific numbers of ESA listed species of sea turtles and Atlantic sturgeon. On May 1, 2015, an amended ITS was issued to the Opinion. For further information, please visit: http://www.greateratlantic.fisheries.noaa.gov/protected/section7/bo/actbo.html

important to recognize that even though no takes of Atlantic sturgeon have been observed to date in this fishery, it does not mean the current operating conditions under the No Action do not introduce risks to these species that one day could result in an interaction.

Sea turtle species, as described in section 4.3, are known to interact with scallop fishing gear. Most observed interactions occur in the Mid-Atlantic, where these species overlap with the scallop fishery primarily during the months of May through October (see Section 4.3). If allocations specific to access areas in the Mid-Atlantic (Hudson Canyon, ETA, and Delmarva) are implemented later in the fishing year (i.e. June compared to March), there are potentially negative impacts on turtles if vessels ultimately fish more in the summer compared to the spring.

Further, as described above, scallop meat weights are higher in the spring compared to later in the year, so in access areas it could take a vessel longer to harvest the same poundage of scallops in the late summer/fall compared to earlier in the year (See Figure 38– meat weights in the MA are highest in April through July), resulting in higher fishing effort levels in the summer when sea turtles are present. This increase in effort (via increases in area swept) has the potential to increase interactions with sea turtles, particularly because under this scenario gear may be present in the water for a longer period of time, thereby increasing the interaction risks to sea turtles. It is important to note; however, operation of the scallop fishery is currently covered by the ITS issued and authorized with the NMFS 2012 Opinion. To date, exceedance of any authorized sea turtles takes has not occurred. As a result, although maintaining the No Action conditions allows for the persistence of operating conditions that pose adverse risks to sea turtles, there is no indication that takes of sea turtles have gone above and beyond what has been considered and authorized by NMFS to date under these conditions. As a result, continuation of operating conditions under the No Action are not expected to introduce any new risks to these species that have not been considered by NMFS to date (NMFS 2012; NMFS 2015). Further, under the No Action, the scallop fishery has to comply with current sea turtle chain matt and TDD regulations (see section 4.3 for details).

Based on the information provided above, and due to the fact that sea turtle TDD and Chain Matt regulations will continue to be in place, we expect the No Action to have low negative to negative impacts to sea turtles and Atlantic sturgeon.

5.3.2 Develop a specification setting process

This alternative would no longer require a framework action to set scallop fishery specifications. Less time overall is expected to be needed to develop, analyze, and review a specification process compared to frameworks that often include other measures. Therefore, final allocations are expected to be in place closer to the start of the fishing year under this alternative. Compared to No Action this alternative may have positive impacts on protected resources if allocations are available earlier. Specifically, if specifications include access area allocations in Mid-Atlantic access areas and those allocations are available closer to March compared to June, more effort could take place during times when turtles are less common (early spring; see Section 4.3), potentially having positive impacts on turtles compared to the scenario of late allocations in the summer (see No Action above for details).

Further, area swept may decrease if allocations are available closer to March as poundage can be attained quicker during the early spring when scallop meat weight is likely higher. With a

decrease in area swept, gear is likely to be in the water for a short duration, thereby decreasing interaction risks to sea turtles. In regards to Atlantic sturgeon, although there is no information to date that would suggest availability of allocations earlier or later in the year provides any substantial positive or negative impacts to these species, any time a means can be put into place that may result in a decrease in time in which gear is in the water, and/or a decrease in effort, equates to a positive impact to protected species, including sturgeon. With interactions between Atlantic sturgeon and the scallop fishery expected to be low, this alternative would likely further reduce this interaction risk and therefore, afford positive impacts to this species as well.

5.3.3 Change the start of the fishing year to April 1

This alternative would change the start of the fishing year to April 1 and would support the current timeline for integrating the best available science into the management process. If the Council decides to only select this alternative, a framework process would still be required to set scallop fishery specifications. Under that scenario there may still be delays beyond April because other measures would likely be included for consideration that can extend the time needed to develop, analyze and review analyses. If the framework process is maintained it is possible that specifications will not be in place for April 1 even if this alternative is selected and the fishing year is changed under this alternative. Therefore, on its own, this alternative is expected to have similar low negative to negative impacts on protected species as described in No Action because delays in implementation are still expected under a framework process.

If this alternative is selected *in addition* to the alternative to implement a specification process (Alternative 2.2), then there is a greater chance that specifications would be in place on April 1, the start of the fishing year under this alternative. Having all specifications available on April 1 is expected to have positive impacts on protected resources, the same impacts as described in Section 5.3.2. Alternative 2.2 is the measure that is expected to directly reduce the time needed to review specification packages and enable allocations to be in place earlier in the year, which would have positive impacts on protected species. Alternative 2.3 alone does not have direct impacts on protected species compared to No Action because specifications could still be delayed beyond April 1 if they are developed as part of a complex framework action. However, if both alternatives are selected it is more likely that specifications would be implemented before the start of the fishing year (April 1) reducing the low negative to negative impacts on protected resources from delayed implementation of specifications under No Action (Alternative 2.1). Based on the above, depending on the means of implementing this alternative, impacts to protected resources could range from neutral compared to No Action (alternative implemented on its own) to positive (alternative adopted with Alternative 2.2).

5.4 ECONOMIC AND SOCIAL ENVIRONMENT

5.4.1 No Action

The no action alternative for setting scallop fishery specifications is by framework action at least biennially, with default measures. Under the no action alternative there will be no change in the scallop fishing year or in the specifications process. Because the scallop fishing year is out of sync with the framework adjustment process and the timing of when the scallop survey data become available for analysis, estimation of TACs has to rely on older data resulting in inaccuracies, or specifications are implemented late. Since overfishing of the scallop resource

due to incorrect estimation of TACs and DAS allocations needs to be corrected by future actions, the no action alternative could result in more stringent regulations and a decline in scallop landings in future years, which will have negative impacts both on the scallop fishermen due to reduced revenues and on seafood consumers due to lower landings and potentially higher prices.

Although framework actions include default measures that are designed to be in place at the start of the fishing year until the specifications are set in a following action, default allocations are typically a fraction of the final specifications and typically do not include allocations for access area trips. This results in reduced flexibility for scallop vessels to take trips at the optimal times based on the current resource and market conditions including prices and fishing costs. The increased uncertainty and confusion regarding when the fishing year begins under one set of allocations, and are then replaced with a second set of allocations later in the year can cause inefficiencies in business planning. These issues can potentially have negative impacts on profits and economic benefits from the scallop resource.

5.4.2 **Develop a specification setting process**

This alternative would no longer require a framework action to set scallop fishery specifications. Instead a specification-only action would be developed, which is much more limited in scope and would not include other measures that can slow down the overall timeline for implementation. As a result, final allocations are expected to be in place closer to the start of the fishing year, although not necessarily meet March 1 because the Council does not take final action until the end of November or early December. This change would also provide more time to incorporate the updated survey data from the current year into the fishery specifications being developed for the following year. A more accurate estimation of TACs for the access areas will reduce uncertainty associated with the rotational area management, and an implementation time that coincides better with the fishing year will benefit the scallop fishery. Therefore, compared to No Action, this alternative is expected to have low positive economic impacts on the scallop fishery by reducing the delays in implementation, by increasing the flexibilities for scallop vessels to optimally determine the timing and duration of their trips according to the current market and scallop resource conditions and by making it possible to integrate the updated survey data into TAC estimation.

5.4.3 Change the start of the fishing year to April 1

This alternative would modify the start of the fishing year from March 1 to April 1. This change will be consistent with the current time it takes to process, analyze, and integrate survey data from the current year into management decisions for fishery specifications being developed for the following year. It will also improve the likelihood that final allocations would be implemented at the start of the fishing year. Even under the alternative that would implement a specification setting process (Alternative 2.2), the estimated date of implementation is sometime in March to early April, which is not too different than the date under this alternative, Alternative 2.3 (Table 5).

Changing the start of the fishing year to April 1 will reduce the time lag between the fishing year and the time when the survey data becomes available. A more accurate estimation of TACs for the access areas will reduce uncertainty associated with the rotational area management, and an implementation time that coincides better with the fishing year will benefit the scallop fishery with low positive economic impacts on the participants compared to the No Action alternative.

The change in the fishing year will, however, require a change in the business plans of the scallop fishermen. Presently, the fishing year begins at a time when meat-weight of scallops begins to increase and a higher yield per unit effort could be obtained from scallop fishing. As a result, the vessels start using their day-at-sea based on the current resource and market conditions and fishing costs (such as fuel prices). If the fishing year starts in April, the vessel owners may need to postpone part of their day-at-sea allocations until the following March. Average proportion of landings that occurred in March was about 8% during the period from 1998 fishing year to the 2014 fishing year, within a range of 5% to 12% (Figure 40, Figure 41, and Table 58).

If the landings are postponed to the following March (i.e. the last month of the fishing year, under this alternative) because of the change in the start of the fishing year to April 1, and if the resource and market conditions turn out to be less favorable than they were expected a year ago; for example, because of a decline scallop prices or a decline catch per-unit effort, the scallop fishermen will incur a loss from not using them in earlier months. This loss is not expected to be high, however, taking into consideration that some of the effort normally occurred in March could be shifted to other months when meat weights are even higher and due to other mitigation factors discussed below.

Starting the fishing year in April could also lead to increased effort in this month if fishermen would want to postpone a smaller proportion of their allocations to the following March due to uncertainties. However, an increase in scallop landings in April (compared to the earlier years when the start of the fishing year was in March) could also have some beneficial impacts compared to No Action (or compared to Alternative 2) because meat weights are larger in April compared to March (Figure 38). Although, average price of scallops could decline somewhat with increased landings in April, the higher prices associated with larger size scallops are expected to outweigh negative impacts on average prices and revenues. Figure 40 shows that percent of total scallop revenue (average of the fishing years 1998-2014) obtained in months March through June usually increased with the increase in landings during these months although average ex-vessel prices declined slightly. Of course, this represents an average trend as there were fluctuations in monthly and annual prices from year to year depending on the changes in the size composition of landings, in import prices, in demand for exports, in demand by fish consumers and in the level of landings (Figure 42, see also the price model presented in Appendix I).

In addition, any losses associated with increased effort in April are expected to be low since part of the landings that originally would have occurred in March could be distributed to months other than April when meat-counts are better or prices are higher. Other factors, such as constraints on labor due to some crew members working on multiple boats with the reduced landings, especially in the last couple of years, also help spread the effort throughout the fishing year.

There are also some additional mitigating factors that would reduce the risks associated with unforeseen conditions when the fishing year ends at the end of March. Present regulations allow a vessel to carry over 10 days-at-sea to the next fishing year, and this provision could be used if it turns out that the market conditions are not optimal or if there are vessel breakdowns in the following year in March.

In summary, starting the fishing year a month later will require some change in business planning and will create some risks due to reduced predictability of the resource and market conditions in March, a month when yields start improving. Negative impacts associated with this change are expected to be minimal and also are expected to decline over time as the vessel-owners gain experience with the new fishing year and learn to adjust their business plans more efficiently to the new conditions.

On the positive side, a more accurate estimation of area TACs and day-at-sea allocations will improve scallop yield over the long-term, increase revenues, and reduce the business costs associated with constantly changing regulations. Therefore, the positive economic impacts of changing the fishing year are expected to outweigh the negative impacts in situations when the scallop resource and market conditions turn out to be less favorable than expected at the end of the new fishing year (March). Thus, this alternative will have positive impacts on the scallop fishery compared to the No Action alternative and combining this alternative with Alternative 2.2 will result in the greatest chance of implementing fishery specifications in place before the fishing year begins, increasing the economic benefits for the scallop fishery associated with these measures.

If this alternative is selected, the first fishing year/permit year that would begin on April 1 is expected to be 2018. The 2017 fishing year and permit year would be extended to 13 months (from March 1, 2017, through March 31, 2018). Fishery allocations and limits for year 1 (assumed to be 2017) would be prorated slightly to account for this shift in the start of the year one month later. Without this extension in the first year of implementation, scallop fishermen would not be able to land scallops and earn any income from scallops in March 2018. Not only this would disrupt the business plans, but displacement of effort that would normally occur in March to other months could also have some low negative impacts on fishing costs and possibly on revenues if prices were affected negatively as well. Therefore, extending fishing year to 13 months and prorating allocations accordingly will have positive impacts on the scallop fishery by allowing fishing to continue in March 2018 without disruption to supply of scallops, scallop revenues and business plans during transition to a new fishing year in April 2018.

Table 57 - Effective dates of implementation and number of access area trips

Specifications Setting Action	Fishing Years*	Effective Date	# AA trips
Framework 26	2015	5/1/2015	3
Framework 25	2014	6/16/2014	2
Frameworks 24/49	2013	5/20/2013	2
Framework 22	2011-2012	8/1/2011	4 , 4
Framework 21	2010	6/28/2010	4
Framework 19	2008-2009	6/1/2008	5, 5
Framework 18	2006-2007	6/15/2006	5, 5
Framework 16	2004(mid-year adjustment) – 2005	11/2/2004	7 5
Framework 15	2003	3/1/2003	3
Framework 14	2001-2002	6/15/2001	3 , 3
Framework 12	2000	3/1/2000	6
Framework 11	1999	6/15/1999	3

Figure 40 - Monthly distribution of scallop landings, revenues and ex-vessel prices (1998 -2014 fishing years)

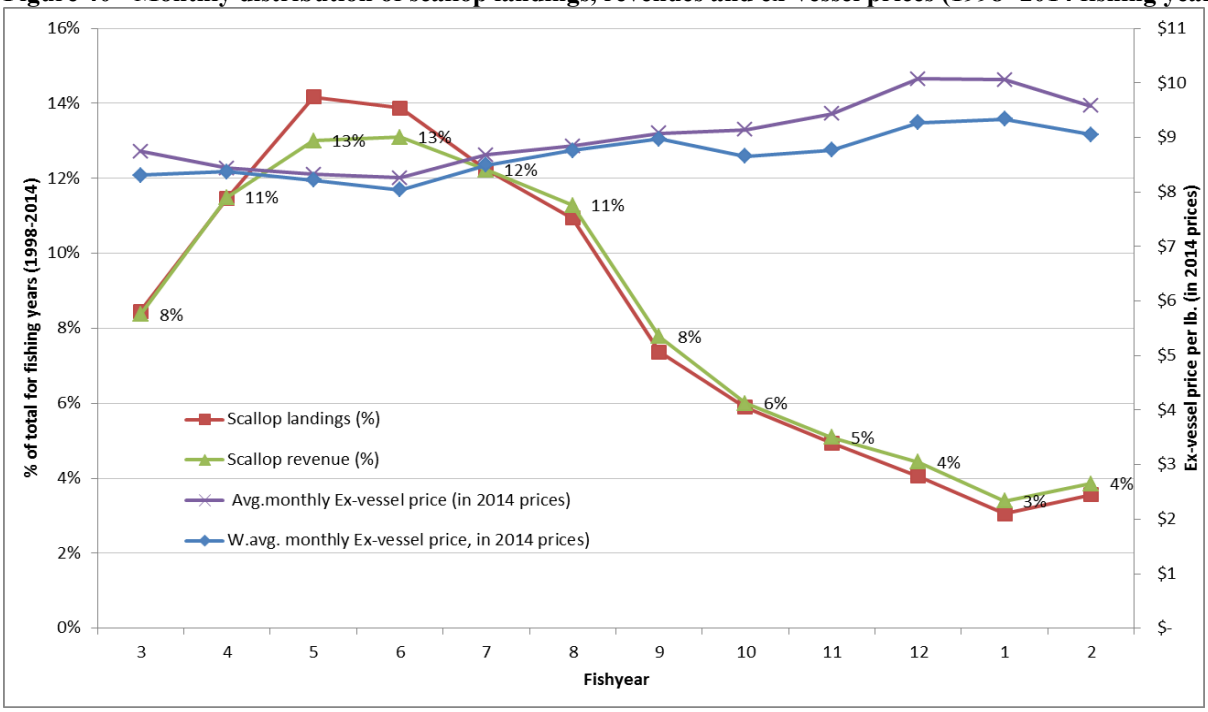


Figure 41 - Monthly distribution of scallop landings, revenues and ex-vessel prices (2010 -2014 fishing years)

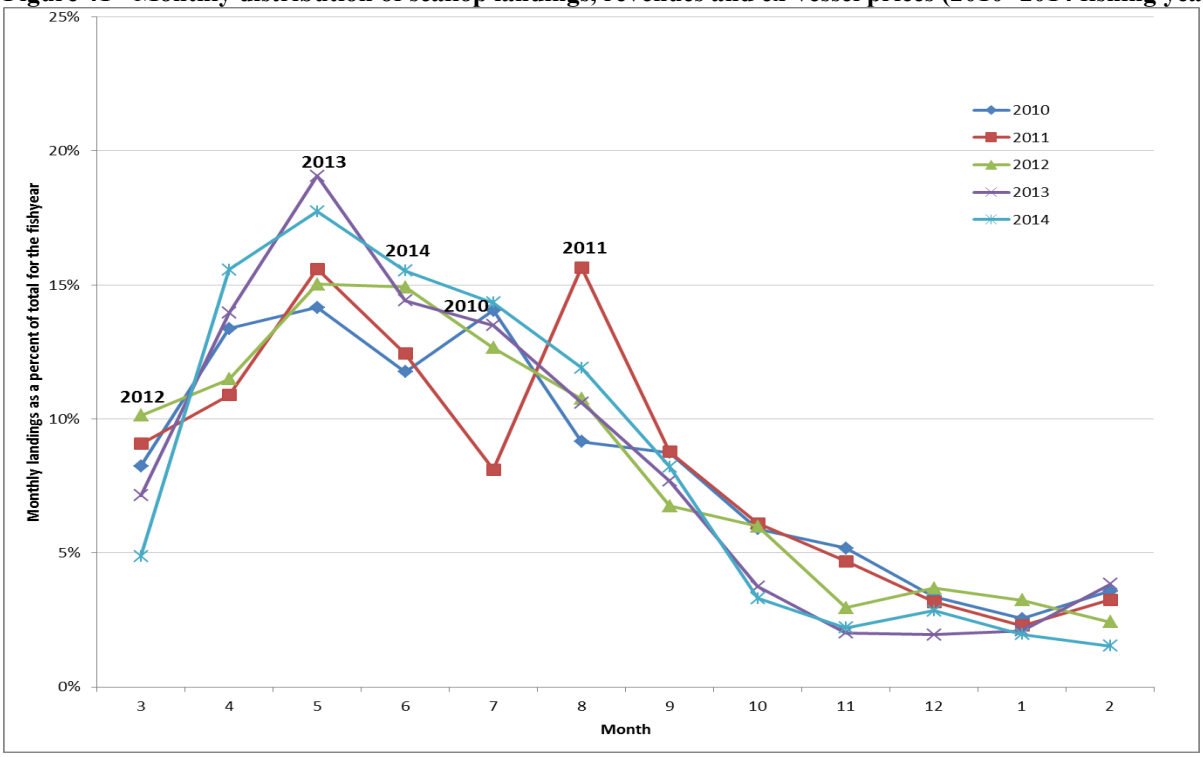


Figure 42 - Monthly ex-vessel prices (weighted averages, in 2014 prices)

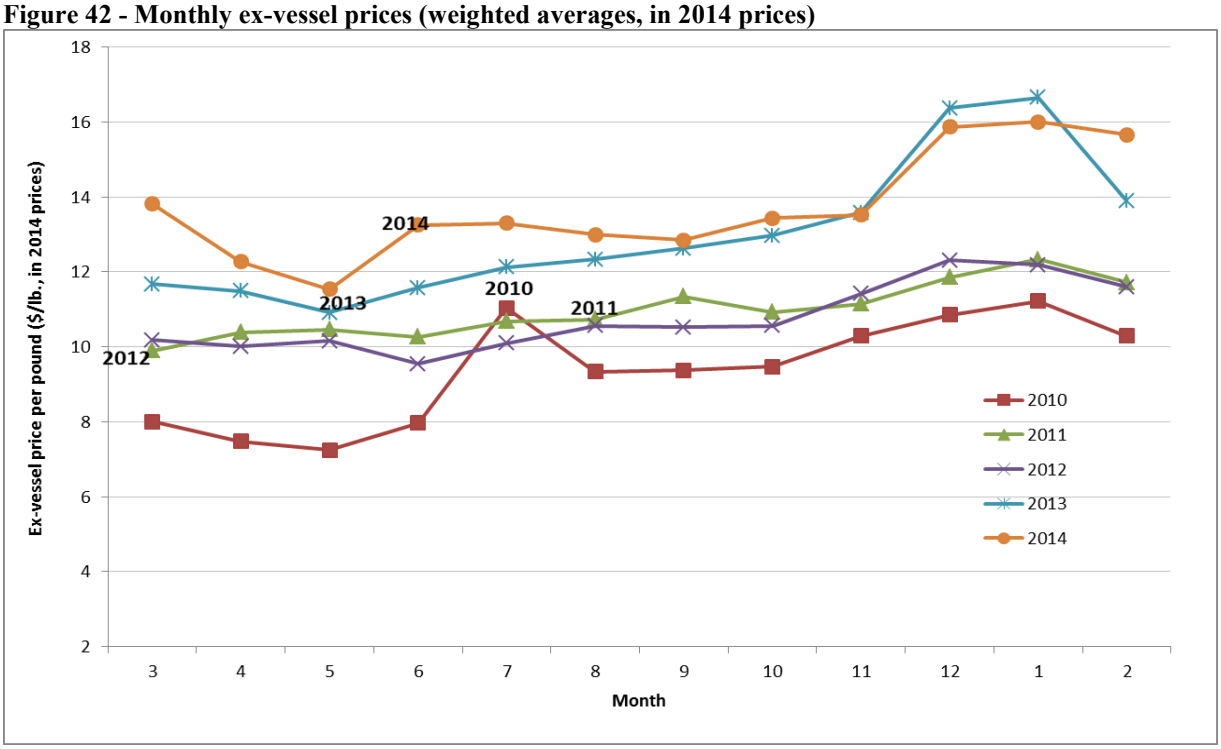


Table 58 - Monthly distribution of landings (% of fishyear totals, includes landings by all permit categories)

Fishyear	3	4	5	6	7	8	9	10	11	12	1	2	Effective dates of implement.
1998	7%	11%	11%	12%	11%	10%	6%	7%	6%	5%	4%	8%	
1999	7%	9%	13%	14%	14%	11%	5%	10%	6%	4%	2%	5%	6/15/1999
2000	6%	9%	14%	12%	11%	11%	8%	8%	5%	5%	6%	5%	3/1/2000
2001	6%	11%	13%	12%	12%	9%	8%	9%	6%	5%	4%	6%	6/15/2001
2002	7%	10%	12%	13%	12%	12%	9%	7%	6%	5%	3%	4%	3/1/2002
2003	8%	9%	13%	13%	12%	10%	7%	10%	7%	4%	3%	5%	3/1/2003
2004	8%	10%	12%	13%	10%	10%	8%	6%	9%	6%	4%	4%	11/2/2004
2005	7%	10%	14%	13%	14%	11%	9%	6%	5%	4%	3%	3%	3/1/2004
2006	7%	10%	11%	17%	16%	16%	7%	6%	4%	3%	2%	1%	6/15/2006
2007	12%	10%	12%	17%	12%	10%	6%	5%	5%	4%	3%	4%	3/1/2007
2008	12%	14%	12%	15%	13%	10%	5%	2%	5%	5%	3%	4%	6/1/2008
2009	12%	12%	13%	16%	11%	9%	7%	5%	5%	4%	3%	3%	3/1/2009
2010	8%	13%	14%	12%	14%	9%	9%	6%	5%	3%	3%	4%	6/28/2010
2011	9%	11%	16%	12%	8%	16%	9%	6%	5%	3%	2%	3%	8/1/2011
2012	10%	11%	15%	15%	13%	11%	7%	6%	3%	4%	3%	2%	3/1/2012
2013	7%	14%	19%	14%	13%	11%	8%	4%	2%	2%	2%	4%	5/20/2013
2014	5%	16%	18%	16%	14%	12%	8%	3%	2%	3%	2%	2%	6/16/2014
Grand Total	**8%**	**11%**	**14%**	**14%**	**12%**	**11%**	**7%**	**6%**	**5%**	**4%**	**3%**	**4%**	**100%**

Note: Highlighted cells show implementation dates for each year.

Table 59. Monthly distribution of revenue (% of fishyear totals, includes revenues by all permit categories)

Fishyear	3	4	5	6	7	8	9	10	11	12	1	2	Grand Total
1998	9%	11%	13%	12%	11%	9%	5%	6%	7%	6%	4%	7%	100%
1999	7%	8%	11%	13%	13%	11%	6%	11%	7%	6%	2%	5%	100%
2000	6%	8%	12%	11%	11%	12%	9%	10%	5%	6%	5%	4%	100%
2001	7%	11%	14%	12%	12%	10%	8%	7%	5%	5%	4%	6%	100%
2002	7%	10%	10%	11%	11%	12%	10%	8%	7%	6%	4%	4%	100%
2003	8%	8%	12%	12%	12%	11%	7%	10%	7%	4%	3%	6%	100%
2004	7%	9%	11%	11%	9%	10%	8%	7%	10%	8%	5%	5%	100%
2005	7%	9%	13%	12%	14%	13%	10%	6%	6%	4%	3%	3%	100%
2006	8%	12%	13%	16%	14%	14%	7%	5%	4%	3%	2%	2%	100%
2007	12%	11%	12%	15%	12%	10%	6%	5%	5%	5%	3%	4%	100%
2008	11%	13%	11%	15%	13%	11%	6%	3%	5%	5%	3%	4%	100%
2009	12%	12%	12%	16%	11%	9%	7%	5%	5%	4%	3%	3%	100%
2010	7%	11%	11%	10%	17%	10%	9%	6%	6%	4%	3%	4%	100%
2011	8%	11%	15%	12%	8%	16%	9%	6%	5%	4%	3%	4%	100%
2012	10%	11%	15%	14%	12%	11%	7%	6%	3%	4%	4%	3%	100%
2013	7%	13%	17%	14%	14%	11%	8%	4%	2%	3%	3%	4%	100%
2014	5%	15%	16%	16%	15%	12%	8%	3%	2%	3%	2%	2%	100%
Grand Total	**8%**	**11%**	**13%**	**13%**	**12%**	**11%**	**8%**	**6%**	**5%**	**4%**	**3%**	**4%**	**100%**

Table 60 - Average price by month (in 2014 inflation adjusted prices, includes landings by all permit categories)

Fishyear	3	4	5	6	7	8	9	10	11	12	1	2	Grand Total
1998	13.6	11.9	13.3	11.9	11.7	10.1	10.2	9.8	12.7	13.0	12.6	10.4	11.8
1999	9.0	8.0	7.5	7.8	8.3	9.1	10.3	10.0	9.4	11.7	11.8	9.6	8.8
2000	7.0	6.8	6.6	6.6	7.7	8.1	8.1	9.7	8.8	8.0	7.4	6.8	7.5
2001	6.2	5.7	5.8	5.8	5.8	6.0	5.5	4.8	4.8	5.0	5.8	5.7	5.6
2002	5.6	5.6	5.1	5.0	5.1	5.5	6.1	6.6	6.9	7.0	6.8	6.6	5.7
2003	6.3	5.9	5.4	5.5	5.7	6.7	6.5	6.4	6.5	7.0	7.2	7.0	6.1
2004	6.2	6.4	5.9	5.9	5.9	7.1	7.6	7.6	8.2	8.4	8.8	10.0	7.0
2005	9.7	8.7	9.0	9.3	10.0	11.2	11.7	11.5	11.3	10.9	10.1	9.7	10.1
2006	9.1	8.9	9.6	7.8	6.8	7.4	8.0	7.6	8.4	9.4	9.3	10.5	8.1
2007	7.8	9.1	8.1	7.5	8.2	8.0	7.8	8.1	8.2	8.6	8.3	8.0	8.1
2008	7.6	7.7	7.8	7.8	7.9	8.1	8.3	8.6	8.2	8.3	8.1	8.0	7.9
2009	7.3	7.2	7.0	7.2	7.4	7.2	7.6	7.7	7.6	7.4	7.2	8.0	7.3
2010	8.0	7.5	7.2	8.0	11.0	9.3	9.4	9.5	10.3	10.9	11.2	10.3	9.0
2011	9.9	10.4	10.5	10.3	10.7	10.7	11.3	10.9	11.1	11.9	12.3	11.7	10.7
2012	10.2	10.0	10.2	9.5	10.1	10.6	10.5	10.6	11.4	12.3	12.2	11.6	10.4
2013	11.7	11.5	10.9	11.6	12.1	12.3	12.6	13.0	13.6	16.4	16.6	13.9	12.1
2014	13.8	12.3	11.5	13.3	13.3	13.0	12.8	13.4	13.5	15.9	16.0	15.7	12.9
Grand Total	**8.3**	**8.4**	**8.2**	**8.0**	**8.5**	**8.8**	**9.0**	**8.7**	**8.8**	**9.3**	**9.3**	**9.0**	**8.5**

5.5 NON-TARGET SPECIES

5.5.1 No Action

The scallop fishing year is out of sync with the framework adjustment process and the timing of when the scallop survey data become available for analysis. As a result, actions have not been implemented at the start of the fishing year, TACs have been misestimated due to reliance on older data, and extra actions have been required to compensate. These delays can have negative impacts on the scallop resource, and if delays cause vessels to increase area swept there could be negative impacts on bycatch of non-target species if gear is fishing longer. However, in general the timing of specifications does not change the overall magnitude of the fishery in terms of adverse effects on bycatch since the same number of DAS, access area trips, and IFQ allocations will ultimately be allocated for the year whether they are available in March, April, or later in that fishing year.

The only type of scallop fishery allocations that are really impacted by a delay are access area allocations, the majority of DAS allocations are available on March 1 under default measures (typically about 75% of projected DAS), and LAGC IFQ vessels are allocated their entire projected IFQ at the start of the fishing year. In addition, there are a handful of measures that provide flexibility to carry effort to the following fishing year, which allow a vessel to fish beyond the end of the fishing year. Therefore, even if a vessel does not have their final allocation at the start of a fishing year, it is possible for a vessel to carry effort allocated later in that year and fish it in the beginning of the next fishing year. This flexibility makes it difficult to predict when vessels will eventually fish access area trips, because under No Action they already have the ability to delay fishing during the first 60 days of the next fishing year (March and April). Therefore, overall the impacts of these delays in terms of seasonal distributional effects are complex to evaluate because fishing behavior is difficult to predict and there are measures in place that afford flexibility and enable vessels to shift effort seasonally. In general, if area swept is higher under No Action because it reduces flexibility, impacts on bycatch could be greater, but there are mechanisms in place under No Action that may minimize these potential impacts. In some years vessels are awarded multiple access area trips, and with delayed implementation there is less time for vessels to harvest scallops during higher meat weight seasons (spring and summer). This reduced flexibility can shift effort into seasons with lower meat weights increasing area swept, with potentially negative impacts on bycatch and other fisheries.

5.5.2 Develop a specification setting process

This alternative would no longer require a framework action to set scallop fishery specifications. Less time overall is expected to be needed to develop, analyze, and review a specification process compared to frameworks that often include other measures. Therefore, final allocations are expected to be in place closer to the start of the fishing year under this alternative. Compared to No Action this alternative is expected to have low positive impacts on bycatch of non-target species because there would be fewer delays that can potentially increase area swept and impacts on non-target species. If access area allocations are available earlier in the year, it is possible that more scallop fishing activity could overlap with the season of highest meat weights (April-July). If more access area effort occurs during that season, compared to later in the summer, overall area swept may be lower, with potentially positive impacts on bycatch of non-target species from a total area swept perspective.

However, some bycatch species have different seasonal and spatial distributions. In general, if there are bycatch species that are more aggregated in scallop access areas in the spring there could be increased interaction. However, vessels do have flexibility to fish all year, excluding seasonal restrictions, so it is uncertain when trips would actually happen, making it difficult to predict how effort patterns could change as a result of access area allocations potentially being available earlier in the year.

5.5.3 Change the start of the fishing year to April 1

This alternative would modify the start of the fishing year to April 1 and would support the current timeline for integrating the best available science into the management process. This alternative is expected to have neutral impacts on bycatch because overall allocations for the year would ultimately be the same. If this alternative reduces area swept compared to No Action then there could be positive impacts on bycatch, but they would be low because this alternative only shifts the start date by one month so the magnitude of any effort shifts is minimal. And any potentially positive impacts from reduced area swept could be outweighed by differences in seasonal and spatial distributions of bycatch species. Predicting the direct impacts on bycatch is relatively uncertain because it is difficult to predict potential shifts in scallop effort.

If the Council decides to only select this alternative, a framework process would still be required to set scallop fishery specifications. Under that scenario there may still be delays beyond April because other measures would likely be included for consideration that can extend the time needed to develop, analyze and review analyses. If the framework process is maintained it is possible that specifications will not be in place for April 1 even if the fishing year is changed under this alternative. Therefore, on its own, this alternative is expected to have similar low negative to negative impacts on non-target species as described in No Action because delays in implementation are still expected under a framework process.

If this alternative is selected *in addition* to the alternative to implement a specification process (Alternative 2.2), then there is a greater chance that specifications would be in place on April 1, the start of the fishing year under this alternative. Having all specifications available on April 1 is expected to have positive impacts on non-target species, the same impacts as described in Section 5.3.2. Alternative 2.2 is the measure that is expected to directly reduce the time needed to review specification packages and enable allocations to be in place earlier in the year, which would have positive impacts on non-target species. Alternative 2.3 alone does not have direct impacts on non-target species compared to No Action because specifications could still be delayed beyond April 1 if they are developed as part of a complex framework action. However, if both alternatives are selected it is more likely that specifications would be implemented before the start of the fishing year (April 1) reducing the low negative to negative impacts on non-target species from delayed implementation of specifications under No Action (Alternative 2.1).

Based on the above, depending on the means of implementing this alternative, impacts to non-target species could range from negative (alternative implemented on its own) to positive (alternative adopted with Alternative 2.2).

5.6 CUMULATIVE EFFECTS

7.6.1 Introduction

The Council on Environmental Quality (CEQ) and agency policy (NOAA Administrative Order 216-6) require a cumulative effects assessment (CEA) as part of an EIS or EA. CEQ regulations (40 CFR Part 1508.7) define the term "cumulative effects" 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 other words, the purpose of the CEA is to integrate into the impact analyses, the combined effects of many actions over time that would be missed if each action were evaluated separately. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective but rather, the intent is to focus on those effects that are truly meaningful.

This section examines the potential direct and indirect effects of the preferred alternatives in Amendment 19 together with past, present, and reasonably foreseeable future actions that affect the human environment. These predictions of potential synergistic effects from multiple actions, past, present and/or future will generally be qualitative in nature.

<u>Valued Ecosystem Components (VEC)</u>

The Affected Environment (Section 4.0) identified and described the following VECs considered in this action and CEA:

1. Atlantic sea scallop resource;
2. Physical environment and essential fish habitat (EFH);
3. Protected resources;
4. Human communities (includes economic and social effects on the fishery and fishing communities); and
5. Non-target species

<u>Temporal Scope of the VECs</u>

While the effects of historical fisheries are considered, the temporal scope of past and present actions for scallop resource and non-target species is primarily focused on actions that have taken place since implementation of the initial Atlantic Sea Scallop FMP in 1982. The temporal scope for the human communities VEC extends back to 1994. This is when Amendment 4 first adopted a limited entry program which had distributional impacts on individuals and port that participated in the scallop fishery. For protected resources, the temporal context focuses back to the 1980s and 1990s, when NMFS began generating stock assessments for marine mammals and turtles that inhabit waters of the U.S. EEZ thereby creating a baseline for current stock assessments. Finally, for the physical environment and EFH, the temporal context focuses back to 1996 when the Magnuson-Stevens Act was reauthorized and included specific requirements to describe and identify essential fish habitat in each FMP.

The temporal scope of future actions for all VECs extends five years into the future (2020). This period was chosen because the dynamic nature of resource management and the lack of specific information on future projects make it difficult to predict impacts beyond this timeframe.

Geographic Scope of the VECs

The geographic scope of the analysis of impacts to the scallop resource, non-target species and habitat for this action is the total range of these VECs in the Western Atlantic Ocean, as described in the Affected Environment section of the document (Section 4.0). The physical range of the Atlantic sea scallop resource in northeast region of the United States ranges 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 endangered and protected species, the geographic range is the total range of each species (Section 4.3).

Because the potential exists for far-reaching sociological or economic impacts on U.S. citizens who may not be directly involved in fishing for the managed resources, the overall geographic scope for human communities is defined as all U.S. human communities. Limitations on the availability of information needed to measure sociological and economic impacts at such a broad level necessitate the delineation of core boundaries for the human communities. Therefore, the geographic range for the human communities is defined as those fishing communities bordering the range of the scallop fishery (Section 4.4) from the U.S.-Canada border to, and including, North Carolina.

Analysis of Total Cumulative Effects

The cumulative effects assessment of an EA ideally makes effect determinations based on the culmination of three elements:

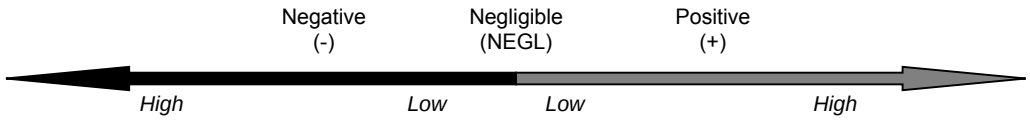
(1) impacts from past, present and reasonably foreseeable future actions; PLUS
(2) the baseline condition for resources and human communities (note – the baseline condition consists of the present condition of the VECs plus the combined effects of past, present and reasonably foreseeable future actions); PLUS
(3) impacts from the preferred alternatives.

Table 62 presents a description of past, present and reasonably foreseeable future actions. The baseline conditions of the resources and human community are subsequently summarized although it is important to note that beyond the stocks managed under this FMP and protected species, quantitative metrics for the baseline conditions are not available. Finally, this section includes a brief summary of the impacts from the alternatives contained in this framework. The culmination of all these factors is considered when making the cumulative effects assessment.

To enhance the clarity and maintain consistency this EA evaluates impacts using the definitions and qualifiers outlined in Table 61.

Table 61 – Impact definitions for cumulative effects analyses

VEC	Direction		
	Positive (+)	**Negative (-)**	**Negligible/Neutral (0)**
Allocated target species, other landed species, bycatch, and protected resources	Actions that increase stock/population size	Actions that decrease stock/population size	Actions that have little or no positive or negative impacts to stocks/populations
Physical Environment/ Habitat/EFH	Actions that improve the quality or reduce disturbance of habitat	Actions that degrade the quality or increase disturbance of habitat	Actions that have no positive or negative impact on habitat quality
Human Communities	Actions that increase revenue and social well-being of fishermen and/or associated businesses	Actions that decrease revenue and social well-being of fishermen and/or associated businesses	Actions that have no positive or negative impact on revenue and social well-being of fishermen and/or associated businesses
	Impact Qualifiers:		
All VECs: Mixed	**both positive and negative**		
Low (L, as in low positive or low negative)	To a lesser degree		
High (H; as in high positive or high negative)	To a substantial degree		
Likely	Some degree of uncertainty associated with the impact		



7.6.2 Past, present and reasonably foreseeable future actions

The following is a synopsis of the most applicable past, present, and reasonably foreseeable future actions that have the potential to interact with the current action (Table 62). For a complete historical list of this past, present, and reasonably foreseeable future actions, please see Amendment 15 – the last EIS developed for the Atlantic Sea Scallop FMP.

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, protected resources and non-target species that may be affected by the Preferred Alternative.

Table 62. Summary of Effects on VECs from, Past, Present, and Reasonably Foreseeable Future FMP and Other Fishery Related Actions

Actions	Scallop Resource	Habitat/ EFH	Protected Resources	Human Communities	Non-Target species
Past and Present Fishing Actions					
Scallop FMP (1982)- sought to restore adult scallop stock and reduce fluctuation in stock abundance	+	+	+	+	+
Scallop Amendment 4 (1994) - implemented a limited access program. Qualifying vessels were assigned DAS limits according to which permit category they qualified for: full-time, part-time or occasional. Also included new gear regulations to improve size selection and reduce bycatch, a vessel monitoring system, and an open access general category scallop permit.	+	+	+	Mixed	+
Amendment 7 (1998) - changed the overfishing definition, the day-at-sea schedule, and lowered mortality targets. Also 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.	+	+	+	+	+
Framework 11 (1999) - allowed the first scallop fishing within portions of the Georges Bank groundfish closed areas since 1994. This successful "experiment" with closing an area and reopening it for controlled scallop fishing further motivated the Council to shift overall scallop management to an area rotational system	+	+	+	H+	0
Amendment 10 (2004) - 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 mortality on small scallops and reduce contact with the bottom. Total DAS allocated under Amendment 10 were reduced, which had indirect benefits to EFH by reducing overall scallop fishing effort and thus reducing area swept by dredge gear. It should be noted that sea scallop EFH is not considered adversely affected by dredge or otter trawl fishing effort.	+	+	+	+	+
Amendment 11 (2008) - implemented a limited entry program for the general category fishery to control capacity and mortality. Each qualifying vessel received an individual allocation in pounds of scallop meat with a possession limit of 400 pounds. The fleet of qualifying vessels receives a total allocation of 5% of the total projected (LA and LAGC) scallop catch each fishing year. Also established separate limited entry programs for general category fishing in the Northern Gulf of Maine, limited access scallop fleet fishing under general category rules, and an incidental catch permit category.	+	+	+	Mixed	+
Amendment 15 (2011) - Implemented ACLs and AMs to prevent overfishing of scallops and yellowtail flounder; addressed excess capacity in the LA scallop fishery; and adjusted several aspects of the overall program to make the Scallop FMP more effective, including making the EFH closed areas consistent under both the scallop and groundfish FMPs for scallop vessels.	+	+	L- to L+	L+	+
Framework 23 (2012) - required a turtle deflector dredge to minimize impacts of the scallop fishery on sea turtles.	L+	0	+	L- to L+	0
Framework 24, 25, 26, and 27 (2013-2016) – set fishery allocations to prevent overfishing.	+	L-	L-	+	L-
Amendment 13 to the Multispecies FMP (2004) - implemented a range of measures to minimize the impacts of bottom trawling in the GOM, GB and SNE. Closed 2,811 square nautical miles (Habitat Closed Areas) to all bottom-tending mobile fishing gear, including scallop dredges	Mixed	+	0	Mixed	+

Actions	Scallop Resource	Habitat/ EFH	Protected Resources	Human Communities	Non-Target species
Amendment 16 to the Multispecies FMP (2010) - identified a process for setting annual catch limits (ACLs) for all groundfish species. A sub-ACL will apply to all scallop fishery catches of yellowtail flounder.	0	+	0	Mixed	+
Framework 44 to the Multispecies FMP (2010) - provided an incentive for scallop fishermen to reduce their YT bycatch in order to maximize scallop yield. Required that all limited access vessels be required to land all legal-sized yellowtail flounder, which will improve data quality.	0	0	0	L+	L- to L+
Framework 47 to the Multispecies FMP (2012) - removed the cap that limited the catches of yellowtail flounder in the Georges Bank access areas to 10 percent of the ACL. Implemented AMs for the scallop fishery if the overall ACLs for either Georges Bank or SNE/MA are exceeded or, if the total ACL for a given broad stock area is not exceeded but the scallop fishery exceeds its sub-ACL for that area by 50 percent or more. Enabled an in-season yellowtail flounder transfer to the groundfish fishery.	0	0	0	L- to L+	+
Framework 48 to the Multispecies FMP (2013) - implemented a sub-ACL for southern windowpane flounder to the scallop fishery, sub-ACL allocation of GB YT for the scallop fishery: 40% of the US ACL in 2013, and a set allocation of 16% for future years.	0	0	0	0	+
Framework 51 and 52 to the Multispecies FMP (2013 and 2014) – revised rebuilding programs for several GF stocks and revised annual catch limits, prohibit possession of YT by LA scallop fishery.	0	0	0	L- to L+	L- to L+
Reasonably Foreseeable Future Fishing Actions					
Omnibus Essential Fish Habitat Amendment (2016)- Updates EFH and HAPC designations, Considers the effects of fishing gear on EFH and includes measures to minimize, mitigate or avoid those impacts that are more than minimal and temporary in nature. Further, it reconsiders existing closures put in place to protect EFH and groundfish mortality in the Northeast Region.	Likely 0	Likely +	Likely 0	Likely +	Likely +
Framework 28 (2017) - will set specifications for fishing years 2017 and default measures for 2018.	Likely +	0	0	Likely +	L- to 0
Framework 55 to the Multispecies FMP (2016) – set ACLs for GF stocks	0	0	0	L- to L+	L- to L+

Scallop Resource

The cumulative impacts of past, present, and reasonably foreseeable future management actions have resulted in substantial effort reductions in the scallop fishery. Sea scallop biomass increased considerably between from 1998 to 2004, and has been fairly steady since then, with modest decreases in 2013 and 2014, and large increases in juvenile biomass in 2015. The resource was declared rebuilt in 2001, and has not been considered overfished since then. Overfishing has not been considered to be occurring since 2005, although it has been very close during a few years since 2005. It is estimated that area rotation management and allocating effort using ACL management will continue to prevent overfishing and provide a healthy resource for the scallop industry and nation for the long-term. In general, the actions in the foreseeable future are expected to have positive impacts on the scallop resource overall. In summary, the cumulative impacts of past, present and reasonably foreseeable future actions are positive for the scallop resource.

Physical Environment and EFH
Mobile bottom-tending gear (trawls and dredges) reduce the bottom habitat complexity (NRC 2002). When repeated over the long term trawling and dredging can also result in discernible changes in benthic communities and can result in loss of benthic productivity and thus biomass available for fish. These effects vary with sediment type. Sandy communities experience lower levels of negative effects given inherently lower susceptibility to impact, and are expected to recover more quickly from disturbance in areas of higher natural disturbance where biological communities are adapted to a dynamic environment. Hard-bottom areas such as bedrock, cobble and coarse gravel are more susceptible to negative impacts associated with mobile bottom-tending gear fishing. Recovery times may be longer particularly in less dynamic environments where the substrate and attached epifauna are more stable.

The primary gear used in the scallop fishery is dredge gear; however, there is some limited use of otter trawl gear. It is assumed for this analysis that the effects of mobile bottom-tending 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, including a suite of habitat closure areas where these gears are prohibited, and other actions that have reduced fishing effort and increased efficiency. If approved by NMFS, the EFH Omnibus Amendment will implement a new suite of measures to minimize impacts on habitat and EFH overall, including in portions of the northeast region where the scallop fishery is active. Thus positive impacts are expected from this future action. Overall, the combination of past, present and reasonably foreseeable future actions is expected to improve protection for vulnerable benthic habitats, and continue to promote efficiency in the harvest of fishery resources, thereby reducing adverse effects of fishing on EFH. Also, the updated EFH designations in the EFH Omnibus Amendment should facilitate agency consultations on non-fishing projects. Such consultations aim to reduce the negative habitat impacts associated with various activities occurring in the marine environment. However, despite these mitigation measures, it is likely that fishing and non-fishing activities will continue to degrade habitat quality.

Protected Species
The primary protected species impacted by the scallop fishery is sea turtles. The sea scallop FMP has several measures that minimize impacts on sea turtles. A gear modification called turtle chains was implemented in 2006 to minimize impact of takes. General reductions in scallop fishing have also reduced takes. In general, scallop effort has declined (e.g., reduced DAS allocations and access area trips) over the years and catch per-unit-of-effort has increased dramatically under area rotation, implemented through Amendment 10 in 2004. In more recent years scallop effort has shifted from the Mid-Atlantic region to areas of Georges Bank, which 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 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.

Finally, FW23 to the Scallop FMP required all dredges greater than 10 feet 6 inches fishing in the Mid-Atlantic from May-October to use a turtle deflector dredge (TDD). The key elements of the turtle deflector dredge are: a forward cutting bar, a reduced number of bale bars, and reduced spacing of struts. All these elements are expected to reduce the likelihood of a turtle passing under the dredge frame and getting stuck in the dredge frame.

Other non-scallop fishery actions that have been implemented over the last decade to protect sea turtles include: requiring turtle excluder devices (TEDs) in summer flounder trawls, gillnet mesh-size regulations, prohibitions on the use of pound net leaders, hook and bait requirements for pelagic longline gear, and regulations regarding how to handle sea turtles in such a manner as to prevent injury.

Overall, the cumulative impacts of past, present and reasonably foreseeable future actions are positive for protected resources, due to reduced gear interactions with sea turtles.

Human Communities

All actions taken under the Scallop FMP have had effects on human communities. None have specifically been developed to primarily address elements of fishing related businesses and communities, but many actions have included specific measures designed to improve flexibility and efficiency. In general, actions that prevent overfishing have long-term economic 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 and Amendment 11 for the general category fishery 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 vessel owners, crew and their families in the scallop fishery by increasing their fishing revenues, incomes and standard of living. The 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. Future actions are expected to continue this trend. Therefore, the cumulative impacts of past, present and reasonably foreseeable future actions are positive for human communities.

Non-target Species

Actions taken by the Council in the Scallop FMP in the past and present are mostly positive on non-target species. Specific gear and area restrictions have reduced bycatch of various non-target species. Effort controls and increased efficiency of the fleet have also likely reduced impacts on non-target species. However, some non-target species are still overfished (see Table 65). Future actions are anticipated to continue rebuilding and maintaining sustainable stocks. There are several stocks that have been allocated a sub-ACL as bycatch in the scallop fishery (GB YT, SNE/MA YT and SNE/MA windowpane flounder). Having a sub-ACL and AMs likely reduces overall bycatch of these stocks in the scallop fishery. Therefore, the cumulative impacts of past, present and reasonably foreseeable future actions should yield positive impacts for non-target species in the long-term.

7.6.2.1 Non-fishing Impacts

Non-fishing activities were also considered when determining the combined effects from past, present and reasonably foreseeable future actions. Activities that have meaningful effects on the VECs include the introduction of chemical pollutants, sewage, changes in water temperature, ocean acidification, salinity, dissolved oxygen, and suspended sediment into the marine environment. These activities pose a risk to the all of the identified VECs in the long term. Human induced non-fishing activities that affect the VECs under consideration in this document tend to be concentrated in near shore areas. Examples of these activities include, but are not limited to, agriculture, port maintenance, beach nourishment, coastal development, marine transportation, marine mining, dredging and the disposal of dredged material. 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. There is more and more evidence that changes in water quality resulting from increasing acidification and water temperature could have potentially negative cumulative impacts on the scallop resource and fishery.

Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and, as such, may indirectly constrain the sustainability of the scallop resource, non-target species, and protected resources. Decreased habitat suitability would tend to reduce the tolerance of these VECs to the impacts of fishing effort. Mitigation of this outcome through regulations that would reduce fishing effort could then negatively impact human communities. This action is not expected to change the impacts on the VECs described above from non-fishing impacts. The Council has recently added a specific research priority to the Scallop RSA program that would support research in this subject. Specifically, proposals focused on research aimed at the effects of chemicals, water quality, and other environmental stressors on reproduction and growth of scallops is now in the "medium" priority category. Hopefully future research proposals will be submitted related to this subject to improve the current understanding of these potential impacts on the scallop resource and fishery.
Table 63 summarizes non-fishing impacts applicable to this action.

Table 63 - Summary of effects from non-fishing activities

Action	Description	Impacts on Scallops	Impacts on Habitat	Impacts on Protected Resources	Impacts on Human Communities	Impacts on Non-target species
P,Pr,RFFA Near shore non-fishing activities	These activities include, but are not limited to agriculture, port maintenance, beach nourishment, coastal development, marine transportation, marine mining, dredging and the disposal of dredged material.	**Negative at Site-** impacts primarily inshore	**Likely Negative Inshore** – may lead to destruction of habitat	**Negative at Site** – inshore species impacted by reduced water quality	**Likely Negative** - loss of fishing opportunities may occur	**Negative at Site** – inshore species impacted by reduced water quality
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	**Likely negative –** no data	**Likely negative –** may lead to destruction of habitat	**Likely negative –** no data	**Likely negative –** no data	**Likely negative –** no data

Action	Description	Impacts on Scallops	Impacts on Habitat	Impacts on Protected Resources	Impacts on Human Communities	Impacts on Non-target species
P, Pr, RFFA Exotic Species	Introduction of non-indigenous and reared species	**Likely Negative**- while no direct evidence exists, it is likely that invasive species may affect overall ecosystem health and the biomass of marketable species	**Likely Negative**- exotic species (ex., tunicates) found to adversely impact EFH and displace marketable and forage species	**Likely Negative**– ecosystem effects of non-native species	**Likely Negative**- while no direct evidence exists, it is likely that invasive species may affect overall ecosystem health and the biomass of marketable species	**Likely Negative**– ecosystem effects of non-native species
RFFA Liquefied Natural Gas (LNG) terminals & Offshore Wind Energy Facilities	Transportation of natural gas via tanker to terminals located offshore and onshore, Construction of wind turbines to harness electrical power	**Likely Negative**– short-term disruption of habitat during construction could negatively impact organisms	**Negative** - habitat negatively impacted during construction phase and due to increased vessel traffic. Offshore wind facilities could affect the distribution of fishing effort and thus habitat impacts.	**Negative** – may disrupt protected species during construction through increased noise and poor water quality	**Negative** - may restrict access to fishing areas **Positive –** location of LNG facilities offshore may protect or improve communities. Wind provides renewable clean energy	**Negative** – may disrupt species during construction through increased noise and poor water quality
P, Pr, RFFA Ocean acidification and warming	The acidification and warming of the Earth's oceans due to rising levels of carbon dioxide	**Likely Negative-** interferes with development, growth and survival of shellfish	**Likely Negative -** may cause ecosystem and food wed effects that affect the benthic environment, Direct negative impacts on pelagic habitats.	**Likely Negative-** changes in food webs may occur but are not well understood	**Likely Negative-** if loss of fishing opportunities occur	**Likely Negative-** changes in food webs may occur but are not well understood
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		**Likely Negative**	**Likely Negative**	**Likely Negative**	**Likely Negative**	**Likely Negative**

Table 64 summarizes the effects of past, present and reasonably foreseeable future fishing and non-fishing actions on the VECs identified for Framework 26.

Table 64 – Summary effects of past, present and reasonably foreseeable future fishing and non-fishing actions on the VECs identified for Framework 26

VEC	Past Actions	Present Actions	Reasonably Foreseeable Future Actions	Combined Effects of Past, Present, Future Actions
Scallop Resource	**Positive** Combined effects of past actions have improved scallop biomass	**Positive** Current regulations continue to manage for a sustainable resource	**Positive** Future actions are anticipated to maintain a sustainable resource	**Positive** The scallop resource is rebuilt and sustainable stocks are expected to continue through current and future management
Physical Environment/ Habitat/EFH	**Mixed** Combined effects of effort reductions and better control of non-fishing activities have been positive. But fishing activities and non-fishing activities continue to reduce habitat quality	**Mixed** Effort reductions and better control of non-fishing activities have been positive. But fishing activities and non-fishing activities continue to reduce habitat quality	**Mixed** Future regulations will likely control effort and thus habitat impacts. But fishing activities and non-fishing activities continue to reduce habitat quality	**Mixed** Continued fisheries management will likely control effort and thus fishery related habitat impacts. But fishery and non-fishery related activities will continue to reduce habitat quality
Protected Resources	**Positive** Combined effects of past fishery actions have reduced effort and thus interactions with protected resources	**Positive** Current regulations continue to control effort, thus reducing opportunities for interactions	**Positive** Future regulations will likely control effort and decrease interactions through gear modifications	**Positive** Continued effort controls along with past fishery regulations will likely help stabilize protected species interactions. Some negative impacts from non-fishery related activities, but additional protections in place for turtles outweigh these negative environmental factors from non-fishing activities.
Human Communities	**Positive** Fishery resources have been rebuilt to support profitable industries and communities	**Positive** Current regulations continue to manage for sustainable stocks and profitable industries	**Positive** As effort controls and rotation management are maintained or strengthened, economic impacts will be positive	**Positive** Sustainable resources should support viable communities and economies
Non-Target Species	**Mixed** Combined effects of past actions have decreased effort, improved habitat protection, and implemented rebuilding plans when necessary. However, some stocks remain overfished	**Positive** Current regulations continue to manage for sustainable stocks, thus controlling effort on direct and discard/bycatch species	**Positive** Future actions are anticipated to continue rebuilding and strive to maintain sustainable stocks	**Short-term Negative** Several groundfish stocks are currently overfished, have overfishing occurring, or both **Long-Term Positive** Stocks are being managed to attain rebuilt status

Impact Definitions:
-Scallop resource, Non-target species, Endangered and Other Protected Species: positive=actions that increase stock size and negative=actions that decrease stock size
-Habitat: positive=actions that improve or reduce disturbance of habitat and negative=actions that degrade or increase disturbance of habitat
-Human Communities: positive=actions that increase revenue and well-being of fishermen and/or associated businesses and negative=actions that decrease revenue and well-being of fishermen and/or associated businesses

7.6.3 Baseline Conditions for Resources and Human Communities

For the purposes of a cumulative effects assessment, the baseline conditions for resources and human communities is considered the present condition of the VECs plus the combined effects of the past, present, and reasonably foreseeable future actions. Table 65 summarizes the added effects of the condition of the VECs (i.e., status/trends from Section 5.7.2) and the sum effect of the past, present and reasonably foreseeable future actions (from **Table 64** above). The resulting CEA baseline for each VEC is exhibited in the last column (shaded). In general, straightforward quantitative metrics of the baseline conditions are only available for the managed resources, non-target species, and protected resources. The conditions of the habitat and human communities VECs are complex and varied. As such, the reader should refer to the characterizations given in Sections 5.2 and 5.4. As mentioned above, this cumulative effects baseline is then used to assess cumulative effects of the proposed management actions in Table 66.

Table 65. Cumulative effects assessment baseline conditions of the VECs

VEC		Status/ Trends, Overfishing Occurring	Status/ Trends, Overfished	Combined Effects of Past, Present Reasonably Foreseeable Future Actions (Table 3)	Combined CEA Baseline Conditions
Scallop Resource		No	No	**Positive** The scallop resource is rebuilt and sustainable stocks are expected to continue through current and future management	**Positive** The scallop resource is not overfished or experiencing overfishing. Stocks are being managed to retain this status
Habitat		Fishing impacts are complex and variable and typically adverse (see section 4.2); Non-fishing activities had historically negative but site-specific effects on habitat quality.		**Mixed** – future regulations will likely control effort and thus habitat impacts . But non-fishing activities occurring. An omnibus amendment to the FMP with mitigating habitat measures is under development.	**Mixed** - reduced habitat disturbance by fishing gear but impacts from non-fishing actions, such as global warming, could increase and have a negative impact.
Protected Resources		Leatherback, Kemp's ridley and green sea turtles are classified as endangered and the Northwest Atlantic Distinct Population (DPS) of loggerhead sea turtles are classified as threatened under ESA. Atlantic sturgeon DPSs listed as threatened or endangered under the ESA (Gulf of Maine: threatened; New York Bight, Chesapeake Bay, Carolina, and South Atlantic: endangered).		**Positive** – reduced gear encounters through gar modifications and additional management actions taken under the ESA.	**Positive** – reduced gear encounters through gar modifications and additional management actions taken under the ESA.
Human Communities		Fishery resources have been rebuilt to support profitable industries and communities		**Positive -** Sustainable resources should support viable communities and economies	**Positive -** Sustainable resources should support viable communities and economies
Non-Target Species		***Overfished?***	***Overfishing?***		
	GB Yellowtail Flounder	Unknown	Unknown	**Negative** – short term: Several stocks are currently overfished, have overfishing occurring, or both; **Positive** – long term: Stocks are being managed to attain rebuilt status. Continued management of directed stocks will also control incidental catch/bycatch	**Negative** – short term: Overharvesting in the past contributed to several stocks being overfished or where overfishing is occurring; **Positive –** long term: Regulatory actions taken over time have reduced fishing effort and with the addition, stocks are expected to rebuild in the future.
	SNE/MA Yellowtail Flounder	*Yes*	*Yes*		
	CC/GOM Yellowtail Flounder	*Yes*	*Yes*		
	GB Winter Flounder	*Yes*	*Yes*		
	GOM Winter Flounder	Unknown	No		
	SNE/MA Winter Flounder	*Yes*	No		
	Northern (GOM-GB) Windowpane Flounder	*Yes*	No		
	Southern (SNE-MA) Windowpane Flounder	No	No		
	Summer flounder (fluke)	No	*Yes*		
	Monkfish (Northern GB)	No	No		
	Monkfish (Southern GB/MA)	No	No		
	Barndoor skate	No	No		
	Clearnose skate	No	No		

	Little skate	No	No		
	Rosette skate	No	No		
	Smooth skate	No	No		
	Thorny skate	*Yes*	*Yes*		
	Winter skate	No	*Yes*		
	Atlantic Surfclam	No	No		
	Ocean Quahog	No	No		

5.7.4 Summary Effects of Amendment 19 Actions

The alternatives contained in Amendment 19 are relatively straight-forward and primarily administrative in nature. The alternatives and potential impacts are summarized in Table 66 (summary of impacts from action – for a complete discussion of impacts please see Section 5.0 of document). Overall this action proposes to implement a specification setting process as well as modifying the start date of the fishing year from March 1 to April 1.

In general, the adoption of these measures will potentially have low positive impacts on the scallop resource and fishery because collectively if final fishery allocations are available earlier in the year vessels will have more flexibility and more fishing opportunities would be available to the fleet earlier in the year when scallop meat weights are generally greater. Some vessels may still choose to fish in lower meat weight seasons for better prices and other reasons, but having final measures in place earlier would at least provide the opportunity to fish trips sooner when meat weights are more optimal. Starting the fishing year a month later will require some change in business planning and will create some risks due to reduced predictability of the resource and market conditions in March, a month when yields start improving. Negative impacts associated with this change are expected to be minimal and also are expected to decline over time as the vessel-owners gain experience with the new fishing year and learn to adjust their business plans more efficiently to the new conditions.

Overall the measures are expected to have negligible impacts on bycatch and EFH since effort is not expected to change much spatially or seasonally, to a minor degree. However, there may be some positive impacts on protected resources, namely turtles, if full allocations are available earlier in the year and more fishing potentially takes place before turtles are present in the Mid-Atlantic during summer months.

Table 66 – Summary of Impacts expected on the VECs

A19 Alternatives	Potential Impacts of the Alternatives to the Fishery Management Plan			
	Atlantic Sea Scallop	Essential Fish Habitat and Non-target Species/Fisheries	Protected Resources	Fishery Related Businesses and Communities
Alternative 2.1 No Action Specs by FW and March 1 start date	Low negative	Low negative to neutral	Negative	Low negative
Alternative 2.2 Specification Process Specs can be implemented by spec action	Low negative to low positive	Neutral to Low positive	Positive	Low positive

Alternative 2.3 Change FY to April 1 Start of FY shifts from March 1 to April 1	Low positive	Neutral to Low positive	Low negative to Negative	Low positive

7.6.4 Cumulative Effects Analysis

The regulatory atmosphere within which Federal fishery management operates requires that management actions be taken in a manner that will optimize the conditions of resources, habitat, and human communities. Consistent with NEPA, the M-S Act requires that management actions be taken only after consideration of impacts to the biological, physical, economic, and social dimensions of the human environment. Given this regulatory environment, and because fishery management actions must strive to create and maintain sustainable resources, **the overall cumulative effects of the preferred alternative on all VECs should yield non-significant neutral to low positive impacts**. This is not to say that some aspects of the various VECs are not experiencing negative impacts, but rather that when taken as a whole and compared to the level of unsustainable effort that existed prior to and just after the fishery came under management control, the overall long-term trend is positive.

To determine the magnitude and extent of cumulative impacts of the preferred alternative, 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). Table 66 provides as a summary of likely effects of management alternatives contained in Amendment 19. The CEA baseline that, as described above in Table 65, represents the sum of the past, present, and reasonably foreseeable future (identified hereafter as "other") actions and conditions of each VEC. When an alternative has a positive effect on a VEC, for example, reduced fishing mortality on a managed species, it has a positive cumulative effect on the stock size of the species when combined with the "other" actions that were also designed to increase stock size. In contrast, when an alternative has a negative effect on a VEC, such as increased mortality, the cumulative effect on the VEC would be negative and tend to reduce the positive effects of the "other" actions. The resultant positive and negative cumulative effects are described below for each VEC.

<u>Scallop Resource</u>

As noted in Table 65, the combined impacts of past federal fishery management actions have rebuilt the scallop resource and increased scallop biomass. For the most part, the actions proposed by Amendment 19 are expected to have neutral to low positive impacts and continue the sustainability of the scallop resource. A specification process and shifting the start of the fishing year are not expected to have direct impacts on preventing overfishing. If measures are in place on time vessels will have more time to potentially harvest allocations at more ideal times having potentially low positive impacts on the scallop resource over the long-term. 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 should yield non-significant positive impacts on the scallop resource.**

Habitat, Including EFH

As noted in Table 65, the combined impacts of past federal fishery management actions have had positive impacts on EFH. In terms of reasonably foreseeable future actions, there are several EFH actions that may have potentially positive effects on EFH. In addition, better control of non-fishing activities has also been positive for habitat protection. However, both fishing and non-fishing activities continue to decrease habitat quality. None of the measures in this action are expected to have substantial impacts on habitat or EFH. The proposed action is primarily administrative and overall, the combination of past, present, and future actions is expected to reduce fishing effort and hence reduce damage to habitat; however, it is likely that fishing and non-fishing activities will continue to degrade habitat quality. 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 should yield non-significant neutral impacts on habitat and EFH.**

Protected Resources

As noted in Table 65, the combined impacts of past federal fishery management actions have had positive effects on protected resources. However, sea turtles, have been, are, and will continue to be, negatively impacted by a variety of fishing and non-fishing activities. 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. The direct and indirect effects of the measures under consideration in Amendment 19 are expected to have low negative to positive impacts on protected resources. 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 should yield non-significant neutral impacts on protected resources since there may be low impacts in both directions.**

Human Communities

As noted in Table 65 the past federal fishery management actions have adjusted open area DAS allocations, implemented trip limits and allocations for the access areas and rotation area management. These past actions have had positive impacts on the scallop industry by increasing the revenues, producer and consumer surpluses and net benefits.

The direct and indirect effects of the measures under consideration in Amendment 19 are expected to be low positive compared to No Action because added flexibility should better enable vessels to fish when it is most ideal for their individual business (Table 66).

In terms of reasonably foreseeable future actions, there is one scallop related action that is expected to have positive impacts overall, Framework 28 and several other actions related to EFH and protected resources that may have impacts that are not fully determined yet because

decisions have not been made, but could be potentially low positive or low negative 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 66). In addition, the effects of non-fishing activities on the fishery-related businesses and communities are mostly potentially negative (**Table 63**).

In summary, 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), **these actions yield potentially low positive cumulative impacts on the fishery-related businesses and communities.**

Non-Target Species

As noted in Table 65, the combined impacts of past federal fishery management actions have decreased effort and improved habitat protection, which benefits non-target species. In addition, current regulations continue to manage for sustainable stocks, thus controlling effort on direct and discard/bycatch species. The actions proposed by Amendment 19 are expected to continue this trend. Finally, future actions are anticipated to continue rebuilding and thus limit the take of discards/bycatch in the scallop fishery, particularly through ACL management with AMs. The other measures proposed in this action are expected to have primarily neutral impacts on non-target species. Overall, continued management of directed stocks will also control catch of non-target species. In addition, the effects of non-fishing activities on bycatch are potentially negative. **Overall, the cumulative effects should yield non-significant neutral impacts on non-target species.**

Table 67 - Summary of cumulative effects of the preferred alternative

	Scallop Resource	Physical Habitat/EFH	Protected Resources	Human Communities	Non-Target Species
Direct/Indirect Impacts of Preferred Alternative	Neutral to low Positive	Neutral to low positive	Neutral to low positive	Low Positive	Neutral
Combined Cumulative Effects Assessment Baseline Conditions	Positive	Mixed	Positive	Positive	Short term Negative Long-term Positive
Cumulative Effects	Non-significant Positive	Non-significant Neutral	Non-significant Neutral	Non-significant Positive	Non-significant Neutral

8.0 COMPLIANCE WITH APPLICABLE LAW

8.1 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

8.1.1 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 is primarily administrative in nature and does not propose any measures expected to have direct impacts on the ability of the plan to prevent overfishing while achieving optimum yield. Overfishing limits would still be set by framework, or specification process (if approved), using the same structure and principles adopted under previous actions.

The preferred alternatives propose to implement a specification process and shift the start date of the fishing year back one month. Neither measure is expected to have direct impacts on the conservation of this resource and ability of the plan to achieve optimum yield on a continuing basis. The preferred alternatives are expected to reduce potential economic and biological consequences from late implementation of specifications and reduce overall administrative burdens associated with late implementation. Therefore, from that perspective, the preferred alternatives may have indirect beneficial impacts on the conservation and management of this resource in general by improving the ability of the FMP to prevent overfishing and achieve optimum yield.

In this action the Council had available updated estimates of fishing mortality from the recent benchmark assessment through 2013 (SARC 59) as well as recent surveys conducted in 2015. Section 4.1 includes a summary of the recent assessment, status of the fishery, and updated survey results. Total biomass was estimated to be 133,000 mt in 2013 and overall F was estimated at 0.32. That biomass estimate is well above the overfishing threshold of 48,240 mt, and the overfished threshold of 0.48 (OFL). **Therefore, overfishing is not occurring and this resource is not overfished**.

(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 CASA model that is expected to generate more accurate results using a wide variety of data sources. This model uses information from all available sources, including surveys conducted outside of the NMFS federal scallop survey. Specifically, results from three other scallop surveys were integrated into the overall CASA model: optical survey by SMAST, dredge survey from VIMS, and optical survey from HABCAM. The CASA model was reviewed and approved for management use in the 2007 scallop assessment. This in addition to the Scallop Area Management Simulator (SAMS) model and Swept Area Seabed Impact (SASI) model used for habitat analysis are current, peer-reviewed modeling methods.

(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 action do not discriminate between residents of different states. This action is primarily administrative in nature and will apply to all scallop vessels, regardless of permit or vessel type. If anything, shifting the start of the fishing year back one month could have beneficial impacts on smaller vessels that are not as powerful to fish in more inclement winter weather. If there is a pulse of effort at the start of a fishing year it would be in April 1 compared to March 1.

(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 preferred alternatives are not related to economic allocations and are not expected to have direct impacts on the efficiency with which fishery resources are utilized. The prposed action is administrative in nature and if anything will provide more flexibility for vessels to fish allocations throughout the fishing year.

(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. Implementation of a specification setting process better enables the Council to implement fishery allocations based on updated survey information in a timely way.

Therefore, this action enhances the ability of the FMP to adapt to changing resource conditions. Natural resources vary and adjusting fishery specifications on a regular basis allows for relatively rapid changes to adjust to varying resource conditions.

(7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The proposed action is not expected to have any additional direct costs for the fishing industry. There may be some needed adjustments to business plans to account for a new fishing year start date, but any costs are expected to be short-term. The proposed action is expected to reduce administrative burdens associated with duplicate notices for fishery allocations under default measures and again several months later during the fishing year when final measures are implemented. Delayed implementation of specifications causes confusion for the fishery and requires more administrative staff time to adjust fishery allocations and explain delayed measures to reviewers and permit owners.

(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.

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. The proposed action will not change the impacts anticipated under previous major amendments to the Scallop FMO including Amendment 10, Amendment 11, and Amendment 15. Overall, the economic impacts of the preferred alternative are expected to be low positive.

(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 minimized as a result of efficiencies under the overall area rotation system, which has increased scallop landings but reduced overall area swept. 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.

The Preferred Alternatives are expected to have neutral to low positive impacts on non-target species. Delays can have indirect negative impacts on bycatch if vessels need to fish in times and places with lower scallop catch rates. In general, these measures are administrative, so the impacts on bycatch and non-target species are neutral. There may be some positive impacts on turtle bycatch if allocations are available earlier in the year and vessels fish in the Mid-Atlantic before turtles are more prevalent in that area. A summary of the impacts of these measures are analyzed and described in Section 5.5. 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.

This action does not propose any new measures that would change the findings in Amendment 10, Amendment 11 and Amendment 15 relative to safety at sea. Fishing is dangerous all times of the year, but moving the start of the scallop fishing year from March 1 to April 1 could have low positive impacts on safety if smaller vessels want to fish new allocations at the start of the year.

8.1.2 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 4.4 of Amendment 15 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. The SSC reviewed the most recent work on assessing this resource and determined that acceptable biological catch be set at 37,852 mt in both 2016 and 2017 (default). Acceptable Biological Catch (ABC) is defined as the

maximum catch that is recommended for harvest, consistent with meeting the biological objectives of the management plan, and this action does not modify these levels that were set in the last framework action (Framework 27).

This level was recommended by the Science and Statistical Committee (SSC) and various sources of scientific uncertainty were considered when setting this value. ABC calculations were based on the overfishing definition approved in Amendment 15, spatially averaged $F = 0.48$. Fishery specifications are based on the ACT, or annual catch target. The control rule for target catches used in this FMP is that the spatially combined target fishing mortality must be no higher than that which gives a 25% probability of exceeding the ABC. This current estimate is a maximum of 0.34 for the ACT in the Scallop FMP. Target fishing mortalities can be set below these limits but not above them. Under these principles, the probable future condition of this fishery is sustainable.

Current domestic landings and processing capabilities are around 50-60 million lbs. Total landings have been above that level in some years since 2004, and are projected to be close to 47 million pounds for 2016. However, the actual landings could be higher or lower than this amount depending on the actual recruitment and scallop stock biomass in the open areas. In the past, actual landings of scallops exceeded the projected landings, but in 2014 and 2015 they are likely to be lower than projections. Again, this action will not impact the allocations or projected catches of the fishery set under Framework 27.

(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 general category 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 framework 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 framework 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 framework.

(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 for the Atlantic sea scallop and its associated fisheries are described in Section 5.1.8 of Amendment 10 and Section 4.1 of Amendment 15. Other data already collected include fishery dependent data described in Section 6.2.4 of Amendment 10 and Section 4.4 of Amendment 15, 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 extend 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, Amendment 11, Amendment 15, Framework 16, and Frameworks 18 - 27). Any additional impacts from measures proposed in this action on fishery participants are summarized in Section 5.4. 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 were updated in the most recent stock assessment (2014) and are presented and explained in Section 4.1 of this document. Under this overfishing definition, the overfishing threshold will be based on the spatially averaged $F = 0.48$. Acceptable Biological Catch (ABC) is defined as the maximum catch that is recommended for harvest, consistent with meeting the biological objectives of the management plan. ABC for this fishery is set by applying 0.38, the fishing mortality rate that has a 25% chance of exceeding the OLF. Finally, the target fishery specifications are set below ABC at a fishing mortality target that has a 25% chance of exceeding the ABC (ACT = 0.34). The preferred alternative for this action has an overall spatially averaged fishing mortality target of 0.11.

(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 standardized bycatch reporting methodology (SBRM). 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;

The Proposed Action does not address recreational fishing regulations. There are no substantial recreational or charter fishing sections in the scallop fishery. Any recreational scallop fishing is likely conducted by diving, and harvest is by hand, maximizing the survival of released scallops.

(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, Section 4.4 in Amendment 11, Section 4.4 of Amendment 15, 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 is administrative in nature and does not include any fishery allocations; therefore the measures do not need to account for differences in commercial, recreational, and charter fishing sectors. Section 5.4 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 overall FMP or participants in the federal fishery.

(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.

This action is administrative in nature and does not include any fishery allocations or catch limits. Catch limits will continue to be set through framework or specification process to prevent overfishing and ensure accountability.

8.2 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.

8.2.1 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 2.0 (alternatives including the proposed action);
- The environmental impacts of the proposed action are described in Section 5.0;
- A determination of significance is in Section 6.2.2; and,
- The agencies and persons consulted on this action are listed in Section 6.2.3 and 6.2.4.

While not required for the preparation of an EA, this document includes the following additional sections that are based on requirements for an Environmental Impact Statement (EIS).

- An executive summary can be found on page iii;
- A table of contents can be found on page ix;
- Background and purpose are described in Section 1.0;
- A summary of the document can be found in the executive summary, page iii;
- A brief description of the affected environment is in Section 4.0;
- Cumulative impacts of the proposed action are described in Section 5.6;
- A list of preparers is in Section 6.1.2.3.

8.2.2 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. Section 5.1 summarizes the overall impacts of this action on the target species. This action is administrative in nature and proposes to implement a specifications process and modify the start date of the fishing year from March 1 to April 1. None of the modifications are expected to cause increases in fishing mortality above the overfishing threshold that would jeopardize the sustainability of the scallop resource. The action is designed to be consistent with the mortality targets adopted in Amendment 10 and the overall target has been set at a level less than ABC taking into account sources of biological and management uncertainty, as described in Amendment 15.

(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 15.

Section 5.5 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 15, thus there is no indication that impacts on non-target species will be different.

(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. Section 5.2 summarizes the overall impacts of this action on habitat and EFH. 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 low negative to neutral.**

(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. This action does not modify the primary measures used to manage the fishery and is not expected to change fishing behavior in any substantial way to adversely impact safety.

(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 as fishing behavior is not expected to change in any substantial way.

Overall, there may be low negative to positive impacts depending on the measures adopted. If final fishery allocations are available earlier in the year it is possible that more effort could be fished before turtles are in the fishing area, which could reduce negative impacts.

(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 is administrative in nature; 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 and the proposed specifications are based on the best available science. Section 5.0 assesses the expected impacts of the preferred alternative on the human environment, and Section 5.6 describes the potential cumulative impacts of this action on the human environment.

(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: It is possible that historic or cultural resources such as shipwrecks could be present in the area where the scallop fishery is prosecuted. However, vessels try to avoid fishing too close to wrecks due to the possible loss or entanglement of fishing gear. Therefore, it is not likely that the proposed action would result in substantial impacts to unique areas.

(10) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?
Response: No, the effects on the human environment are not likely to be highly uncertain or involve unique or unknown risks. The risks and impacts of this action and fishery on the human environment have been discussed and analyzed in previous actions. Scallop vessels have been managed under this FMP since 1982; 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 5.6 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, bycatch, 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 is administrative in nature and is not expected to have significant impacts.

(12) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?
Response: Although there are shipwrecks present in areas where fishing occurs, including some registered on the National Register of Historic Places, vessels try to avoid fishing too close to wrecks due to the possible loss or entanglement of fishing gear. Therefore, it is not likely that the proposed action would adversely affect the historic resources.

(13) Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?
Response: No, the proposed action is not reasonably expected to result in the introduction or spread of a nonindigenous species. The only nonindigenous species known to occur in any substantial amount within the fishery areas is the colonial sea squirt (*Didemnum sp*.). The tunicate occurs on pebble gravel habitat, and does not occur on moving sand. NMFS and the WHOI HabCam have surveyed the area and studies are underway to monitor *Didemnum*'s growth and effect on scallops and their habitat. At this time, there is no evidence that fishing spreads this species more than it would spread naturally. Furthermore, the proposed action is not expected to spread the species more than regular fishing activity would; however, the spread of invasive tunicates and fishing gear needs to be monitored closely.

(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.

(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, 5.5, and 5.6). 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 Amendment 19 to the Sea Scallop Fishery Management Plan, it is hereby determined that Amendment 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, Greater Atlantic Regional Fisheries Office, NMFS Date

8.2.3 List of Preparers; Point of Contact

Questions concerning this document may be addressed to:

Mr. Thomas A. Nies, Executive Director
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 10950
(978) 465-0492

Additional copies of this EA can be requested via the above contact or through the Council's website at http://www.nefmc.org/scallops/index.html

Amendment 19 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 is included in **Table 68**.

Table 68 – List of Scallop PDT members (2015)

Scallop Plan Development Team
Deirdre Boelke, PDT Chair, NEFMC
Lt. Josh Boyle, USCG
Matthew Camisa, MA DMF
Trisha Cheney, ME DMR
Dr. William DuPaul, VIMS
Travis Ford, GARFO, SFD
Emily Gilbert, GARFO, SFD
Benjamin Galuardi, GARFO APS
Dr. Demet Haksever, NEFMC
Dr. Dvora Hart, NEFSC, Population Dynamics
Katherine Richardson, GARFO, NEPA
Chad Keith, NEFSC, Observer Program
Emily Keiley, SMAST
Kevin Kelly, ME DMR
Min-Yang Lee, NEFSC, Social Science Branch
Danielle Palmer, GARFO, PRD
Dr. David Rudders, VIMS

In addition, other individuals contributed data and technical analyses for the document. Jui-Han Chen from NEFSC; and Michelle Bachman and Woneta Cloutier from NEFMC staff assisted with various sections of this document.

8.2.4 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

8.2.5 Opportunity for Public Comment

The proposed action was developed during the period March 2015 through December 2015 and was discussed at the meetings listed in **Table 69**, below. Opportunities for public comment were provided at each of these meetings.

Table 69 – Summary of meetings with opportunity for public comment for Amendment 19

Meeting	Location	Date
Scallop PDT	Mariners House, Boston, MA	3/3/2015
Scallop PDT Conference Call		3/12/2015
Scallop Advisory Panel	Four Points Sheraton, Boston, MA	3/31/2015
Scallop Committee	Four Points Sheraton, Boston, MA	4/1/2015
Joint Scallop PDT & Advisory Panel	Radisson Hotel, Warwick, RI	5/13/2015
Scallop Advisory Panel	Radisson Hotel, Warwick, RI	5/14/2016
Scallop Committee	Fairfield Inn, New Bedford, MA	5/28/2015
NEFMC Council Meeting	Hotel Viking, Newport, RI	6/18/2015
Scallop PDT	New England EPA, Boston, MA	7/15/2015
Scallop PDT	Coonamessett Inn, Falmouth, MA	8/25-26/2015
Scallop PDT Conference Call		9/9/2015
Scallop PDT Conference Call		9/11/2015
Scallop Advisory Panel	Hilton Garden Inn, Boston, MA	9/16/2015
Scallop Committee	Hilton Garden Inn, Boston, MA	9/17/2017
NEFMC Council Meeting	Radisson Hotel, Plymouth, MA	10/1/2015
Scallop PDT	Hilton Garden Inn, Boston, MA	10/7/2015
Scallop PDT Conference Call		10/14/2015
Scallop PDT Conference Call		10/28/2015
Scallop PDT Conference Call		11/9/2015
Scallop Advisory Panel	Radisson Hotel, Warwick, RI	11/18/2015
Scallop Committee	Radisson Hotel, Warwick, RI	11/19/2015
Scallop PDT Conference Call		12/1/2015
NEFMC Council Meeting	Holiday Inn by the Bay, Portland, ME	12/3/2015

8.3 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 provides a summary of the impacts of the proposed action as analyzed in Amendment 19. A final determination of consistency with the MMPA will be made by the agency when Amendment 19 is implemented.

8.4 ENDANGERED SPECIES ACT (ESA)

Section 4.3 of this action contains a description of endangered species potentially affected by the Scallop Fishery and Section 5.3 provides a summary of the impacts of the proposed action as analyzed in Amendment 19. A final determination of consistency with the ESA will be made by the agency when Amendment 19 is implemented.

8.5 ADMINISTRATIVE PROCEDURE ACT (APA)

Sections 551-553 of the Administrative Procedure Act established procedural requirements applicable to informal rulemaking by federal agencies. The purpose is to ensure public access to the federal rulemaking process, and to give public notice and opportunity for comment. The Council did not request relief from notice and comment rule making for this action, and the Council expects that NOAA Fisheries will publish proposed and final rule making for this action.

The Council has held sixteen meetings and seven conference calls open to the public on Amendment 19 (**Table 69**). The Council initiated this action at the June 2015 Council meeting and approved final measures at the December 2015 meeting. After submission to NMFS, a proposed rule and notice of availability for Amendment 19 under the M-S Act will be published to provide opportunity for public comment.

8.6 PAPERWORK REDUCTION ACT (PRA)

The purpose of the Paperwork Reduction Act is to minimize paperwork burden for individuals, small businesses, nonprofit institutions, and other persons resulting from the collection of information by or for the Federal Government. It also ensures that the Government is not overly burdening the public with requests for information. Amendment 19 does not include any new revisions to the current PRA collection requirements.

8.7 COASTAL ZONE MANAGEMENT ACT (CZMA)

Section 307 of the Coastal Zone Management Act (CZMA) is known as the federal consistency provision. Federal Consistency review requires that "federal actions, occurring inside or outside of a state's coastal zone, that have a reasonable potential to affect the coastal resources or uses of that state's coastal zone, to be consistent with that state's enforceable coastal policies, to the maximum extent practicable." The Council previously made determinations that the FMP was consistent with each state's coastal zone management plan and policies, and each coastal state concurred in these consistency determinations (in Scallop FMP). Since the proposed action does not propose any substantive changes from the FMP, the Council has determined that this action is consistent with the coastal zone management plan and policies of the coastal states in this region. Once the Council has adopted final measures and submitted Amendment 19 to NMFS, NMFS will request consistency reviews by CZM state agencies directly.

8.8 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.

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 Greater Atlantic Regional Fisheries 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. NMFS dealer weighout data is the primary data source used to characterize the economic impacts of the management proposals. Other data sources are used as well, See Section 6.1.1 under National Standard 2 for more details. 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 Greater Atlantic Regional Fisheries 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.

8.9 E.O. 13132 (FEDERALISM)

The E.O. on federalism establishes nine fundamental federalism principles for Federal agencies to follow when developing and implementing actions with federalism implications. Previous scallop actions have already described how the management plan is in compliance with this order. Furthermore, this action does not contain policies with Federalism implications, thus preparation of an assessment under E.O. 13132 is not warranted.

8.10 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.

8.11 EXECUTIVE ORDER 12866 (REGULATORY IMPACT REVIEW)

8.11.1 Introduction

The Regulatory Impact Review (RIR) provides an assessment of the costs and benefits of preferred alternatives 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 2180 (RFA).

The Amendment 19 document contains all the elements of the RIR/RFA, and the relevant sections are identified by reference to the document. Economic impacts of this action are summarized in Section 5.4 of this 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.

8.11.2 Economic Impacts

Section 5.4 evaluated economic impacts of Amendment 19 proposed measures and alternatives considered by the Council.

- Section 5.4.1 No Action
- Section 5.4.2 Develop a specification process
- Section 5.4.3 Change the start of the fishing year to April 1

Summary of the economic impacts of the proposed measures

Amendment 19 proposed measures include both Alternative 2, developing a specification process, and Alternative 3, changing the start of the fishing year to April 1st. Under the no action alternative scallop fishery specifications would be set by framework action at least biennially, with default measures and there would be no change in the scallop fishing year or in the specifications process.

Developing a specification only action under Alternative 2 would not include other measures that can delay the overall timeline for implementation. As a result, final allocations would be expected to be in place closer to the start of the fishing year and there would be more time to incorporate the updated survey data from the current year into the fishery specifications being developed for the following year. Alternative 3 would modify the start of the fishing year from March 1 to April l, reducing the time lag between the fishing year and the time when the survey data becomes available. A more accurate estimation of TACs for the access areas will reduce uncertainty associated with the rotational area management. It will also improve the likelihood that final allocations would be implemented at the start of the fishing year. Therefore, compared to No Action, both Alternative 2 and Alternative 3 expected to have low positive economic impacts on the scallop fishery by reducing the delays in implementation, by increasing the flexibilities for scallop vessels to optimally determine the timing and duration of their trips according to the current market and scallop resource conditions and by making it possible to integrate the updated survey data into TAC estimation.

Although the change in the fishing year will require a change in the business plans of the scallop fishermen and may have some risks associated with it as the landings that currently occur in March, a month when yields start improving, are postponed to the next year with the change in the start of fishing year to April. Any negative impacts from to this change are expected to be minimal, however, since some of the effort normally occurred in March could be shifted to other months when meat weights are or prices are higher. Other factors, such as constraints on labor due to some crew members working on multiple boats with the reduced landings, especially in the last couple of years, also help spread the effort throughout the fishing year.
On the positive side, a more accurate estimation of area TACs and day-at-sea allocations will improve scallop yield over the long-term, increase revenues, and reduce the business costs associated with constantly changing regulations. Therefore, the positive economic impacts of changing the fishing year are expected to outweigh the negative impacts in situations when the scallop resource and market conditions turn out to be less favorable than expected at the end of the new fishing year (March). Thus, Alternative 3 will have positive impacts on the scallop fishery compared to the No Action alternative and combining this alternative with Alternative 2.2 as proposed by the Council will result in the greatest chance of implementing fishery specifications in place before the fishing year begins, increasing the economic benefits for the scallop fishery associated with these measures.

The proposed measures are not expected to have any impacts of the overall level of DAS, access area allocations and total allocations for the LAGC – IFQ fishery. Although, there could be some low positive impacts on the landings and revenues of the scallop fishery especially over the long-term for the reasons discussed above, the impacts on employment are expected to be negligible compared to the No action alternative. The cumulative impacts of the measures from

Amendment 19 proposed measures, and the past actions including Amendment 10, Amendment 11, Amendment 15, Framework 27, Framework 26 and Framework 25 to the scallop FMP, are estimated to be positive over the long-term. 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 Amendment 19 measures are estimated to have low positive impacts on producer and total economic benefits as well. Therefore, net cumulative impacts of the proposed measures and the past actions on revenues and economic benefits from the scallop fishery would be positive both in the short- and the long-term.

Enforcement Costs

The enforcement costs and benefits of the proposed options for Amendment 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 Amendment 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 costs of implementing and enforcing the preferred alternative 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.

8.11.3 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.

Amendment 19 is not expected to constitute a "significant regulatory action" based on the economic analyses provided in Section 5.4 and summarized above.

The positive economic impacts of developing a specification process and changing the fishing year are expected to outweigh the business costs associated with a change in fishing year, resulting in low positive economic impacts on the scallop fishery. Thus, the preferred alternatives will not have short or a long-term negative or positive annual impact on the economy by $100 million or more compared to No action. The proposed measures are expected to have neutral or low positive impacts on employment in the scallop fishery. 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 and will not raise novel legal and policy issues, other than those that were already addressed and analyzed in Amendment 10, Amendment 11 and Amendment 15. The preferred alternative 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.

8.11.4 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 preferred alternative would have a "significant economic impact on a substantial number of small entities."

An RFA has been prepared, as required by section 603 of the Regulatory Flexibility Act (RFA). The RFA consists of Amendment 19 analyses, its RFA, and the preamble to this action.

8.11.4.1 Statement of Objective and Need

The primary need of this amendment is to improve the Scallop FMP so that fishery specifications are better aligned with the start of the scallop fishing year. The primary purpose or objective of this action is to amend scallop regulations to: 1) reduce potential economic and biological consequences from late implementation of specifications, and 2) reduce overall administrative burden associated with late implementation.

The proposed regulations would affect all vessels with LA and LAGC scallop permits. The Amendment 19 document provides extensive information on the number and size of vessels and small businesses that would be affected by the proposed regulations, by port and state (See Section 4.4). There were 313 vessels that obtained full-time LA permits in 2015, including 250 dredge, 52 small-dredge, and 11 scallop trawl permits. In the same year, there were also 34 part-time LA permits in the sea scallop fishery. No vessels were issued occasional scallop permits. NMFS issued 220 LAGC IFQ permits in 2014 and 128 of these vessels actively fished for scallops that year (the remaining permits likely leased out scallop IFQ allocations with their permits in Confirmation of Permit History). The RFA defines a small business in shellfish fishery as a firm that is independently owned and operated and not dominant in its field of operation, with receipts of up to $5.5 M annually. Individually-permitted vessels may hold permits for several fisheries, harvesting species of fish that are regulated by several different fishery management plans, even beyond those impacted by the proposed action. Furthermore, multiple permitted vessels and/or permits may be owned by entities affiliated by stock ownership, common management, identity of interest, contractual relationships, or economic dependency. For the purposes of this analysis, "ownership entities" are defined as those entities with common ownership as listed on the permit application. Only permits with identical ownership are categorized as an "ownership entity." For example, if five permits have the same seven persons listed as co-owners on their permit applications, those seven persons would form one "ownership entity," that holds those five permits. If two of those seven owners also co-own

additional vessels, that ownership arrangement would be considered a separate "ownership entity" for the purpose of this analysis.

On June 1 of each year, ownership entities are identified based on a list of all permits for the most recent complete calendar year. The current ownership dataset is based on the calendar year 2014 permits and contains average gross sales associated with those permits for calendar years 2012 through 2014. Matching the potentially impacted 2014 fishing year permits described above (LA and LAGC IFQ) to calendar year 2014 ownership data results in 166 distinct ownership entities for the LA fleet and 106 distinct ownership entities for the LAGC IFQ fleet. Of these, and based on the Small Business Administration (SBA) guidelines, 152 of the LA distinct ownership entities and all 102 of the LAGC IFQ entities are categorized as small. The remaining 14 of the LA and 4 of the LAGC IFQ entities are categorized as large entities, all of which are shellfish businesses.

8.11.4.2 Description of Projected Reporting, Recordkeeping, and other Compliance Requirements of the Proposed Rule

This action contains no new collection-of-information, reporting, or recordkeeping requirements. It does not duplicate, overlap, or conflict with any other Federal law.

Federal Rules which may Duplicate, Overlap or Conflict with this Proposed Rule

The proposed regulations do not create overlapping regulations with any state regulations or other federal laws.

Table 70. Number of vessels and business entities in the scallop limited access fishery (revenues include both from LA and LAGC trips for vessels that hold both permits and in 2015 constant prices).

Business	Values	2012	2013	2014
Large	Number of entities	20	13	14
	Number of permits	132	115	118
	Average scallop revenue per business entity	11,414,660	12,368,840	11,281,758
	Average revenue from other species per entity	887,756	1,200,076	1,138,721
	Average total revenue per business entity	12,302,592	13,569,350	12,420,478
	Total finfish revenue	17,755,125	15,600,994	15,942,091
	Total scallop revenue	228,293,203	160,794,919	157,944,606
	Total revenue	246,051,840	176,401,546	173,886,697
Small	Number of entities	144	152	152
	Number of permits	188	212	215
	Average scallop revenue per business entity	1,972,494	1,791,529	1,582,424
	Average revenue from other species per entity	51,461	51,884	51,006
	Average total revenue per business entity	2,023,955	1,843,414	1,633,430
	Total finfish revenue	7,410,430	7,886,388	7,752,955
	Total scallop revenue	284,039,099	272,312,477	240,528,399
	Total revenue	291,449,529	280,198,865	248,281,354
Number of entities		**164**	**165**	**166**
Number of permits		**320**	**327**	**333**
Average scallop revenue per business entity		**3,123,977**	**2,624,893**	**2,400,440**
Average revenue from other species per business entity		**153,449**	**142,348**	**142,741**
Average total revenue per business entity		**3,277,447**	**2,767,275**	**2,543,181**
Total finfish revenue		**25,165,555**	**23,487,382**	**23,695,046**
Total scallop revenue		**512,332,302**	**433,107,396**	**398,473,005**
Total revenue		**537,501,369**	**456,600,411**	**422,168,051**

Table 71. Number of vessels and business entities in the scallop IFQ fishery (Vessels with LA permits are excluded, revenues are in 2015 constant prices)

Business	Values	2012	2013	2014
Large	Number of entities	4	3	4
	Number of permits	14	13	19
	Average scallop revenue per business entity	9,054,899	9,266,527	7,684,894
	Average revenue from other species per entity	2,967,719	3,306,310	2,697,407
	Average total revenue per business entity	12,022,618	12,572,838	10,382,300
	Total finfish revenue	11,870,877	9,918,931	10,789,627
	Total scallop revenue	36,219,595	27,799,582	30,739,574
	Total revenue	48,090,472	37,718,513	41,529,201
Small	Number of entities	90	94	102
	Number of permits	100	105	112
	Average scallop revenue per business entity	577,740	559,337	545,773
	Average revenue from other species per entity	88,543	64,017	54,861
	Average total revenue per business entity	666,282	623,360	600,642
	Total finfish revenue	7,968,833	6,017,603	5,595,867
	Total scallop revenue	51,996,570	52,577,698	55,668,833
	Total revenue	59,965,403	58,595,876	61,265,518
Number of entities		**94**	**97**	**106**
Number of permits		**114**	**118**	**131**
Average scallop revenue per business entity		**938,470**	**828,632**	**815,174**
Average revenue from other species per business entity		**211,061**	**164,294**	**154,580**
Average total revenue per business entity		**1,149,531**	**992,932**	**969,762**
Total finfish revenue		**19,839,710**	**15,936,534**	**16,385,494**
Total scallop revenue		**88,216,165**	**80,377,280**	**86,408,407**
Total revenue		**108,055,875**	**96,314,389**	**102,794,719**

8.11.4.3 Summary of the Proposed Action

Amendment 19 proposed measures include both Alternative 2, developing a specification process, and Alternative 3, changing the start of the fishing year from March 1st to April 1st. The economic impacts of these alternatives on the scallop fishery as a whole are analyzed in Section 5.4 and summarized in Section 8.11.2 above. The impacts of the proposed action on small business entities are expected to be proportional to the aggregate impacts on the scallop fishery.

Developing a specification only action under Alternative 2 would eliminate the need for a framework action to set annual allocations for the scallop fishery. This will reduce the delays in implementation and make it possible to integrate the updated survey data into TAC estimation. Similarly, changing the start of the fishing year under Alternative 3 from March 1 to April l, would reduce the time lag between the fishing year and the time when the survey data becomes available. This will improve accuracy of TACs for the access areas, and align the implementation time better with the fishing year reducing the uncertainties for the small businesses in the scallop fishery in making their business plans for the fishing year.

The change in the fishing year will, however, require a change in the business plans of the scallop fishermen. Presently, the fishing year begins on March 1st, at a time when meat-weight of scallops begins to increase and a higher yield per unit effort could be obtained from scallop fishing. If the landings are postponed to the following March (i.e. the last month of the fishing year, under this alternative) because of the change in the start of the fishing year to April 1, and if the resource and market conditions turn out to be less favorable than they were expected a year ago; for example, because of a decline scallop prices or a decline catch per-unit effort, the scallop fishermen will incur a loss from not using them in earlier months. This loss is not expected to be high, however, taking into consideration that some of the effort normally occurred in March could be shifted to other months when meat weights are even higher.

For example, starting the fishing year in April could lead to increased effort in this month if fishermen would want to postpone a smaller proportion of their allocations to the following March due to uncertainties. However, an increase in scallop landings in April (compared to the earlier years when the start of the fishing year was in March) could also have some beneficial impacts compared to No Action because meat weights are larger in April compared to March. Although, average price of scallops could decline somewhat with increased landings in April, the higher prices associated with larger size scallops are expected to outweigh negative impacts on average prices and revenues.

In addition, present regulations allow a vessel to carry over 10 days-at-sea to the next fishing year, and this provision could be used if it turns out that the market conditions are not optimal or if there are vessel breakdowns in the following year in March. Other factors, such as constraints on labor due to some crew members working on multiple boats with the reduced landings, especially in the last couple of years, also help spread the effort throughout the fishing year.

In summary, starting the fishing year a month later will require some change in business planning and will create some risks due to reduced predictability of the resource and market conditions in March, a month when yields start improving. Negative impacts associated with this change are expected to be minimal and also are expected to decline over time as the vessel-owners gain experience with the new fishing year and learn to adjust their business plans more efficiently to the new conditions. More importantly, the proposed measures (Alternative 2 and Alternative 3) will improve scallop yield over the long-term, increase revenues, and reduce the business costs associated with constantly changing regulations outweighing any negative impacts associated with the change in fishing year. For these reasons the proposed action is not expected to have significant impacts on small business entities in the scallop fishery.

8.11.4.4 Description of Significant Alternatives to the Proposed Action

Only alternative to the proposed action is the No Action alternative under which the scallop fishery specifications would be set by framework action at least biennially and there would be no change in the scallop fishing year or in the specifications process. Because the scallop fishing year is out of sync with the framework adjustment process and the timing of when the scallop survey data become available for analysis, estimation of TACs has to rely on older data resulting in inaccuracies. Since overfishing of the scallop resource due to incorrect estimation of TACs and DAS allocations needs to be corrected by future actions, the no action alternative will result in more stringent regulations and a decline in scallop landings in future years, which will have

negative impacts both on the scallop fishermen due to reduced revenues and on seafood consumers due to lower landings and potentially higher prices.

Although framework actions include default measures that are designed to be in place at the start of the fishing year until the specifications are set in a following action, default allocations are typically a fraction of the final specifications and include no allocations for access area trips. This results in reduced the flexibility for the scallop vessels in taking trips at the optimal times based on the current resource and market conditions including prices and fishing costs. The increased uncertainty and confusion regarding when the fishing year begins under one set of allocations, and are then replaced with a second set of allocations later in the year could cause inefficiencies in business planning, eventually with negative impacts on profits and economic benefits from the scallop resource.

9.0 GLOSSARY

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.

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.

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.

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.

Endangered species – a species that is in danger of extinction throughout all or a significant portion of its range.

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[21].

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.

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.

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.

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.

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.

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.

[21] 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.

PDT – Scallop plan Development Team; a committee of experts that contributed to and developed the technical analysis and evaluation of alternatives.

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.

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.

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.

Shucking – a manual process of cutting scallop meats from the shell and viscera.

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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APPENDIX 1

Supplementation Options for National Environmental Policy Act (NEPA) Compliance

There may be instances when a new action is similar, or related, to an already completed action. Not every change to a proposed action, including the presence of new information, necessitates the development of a new or supplemental NEPA analysis. Agencies have broad discretion in deciding how to evaluate new information or change in action.

When must a NEPA document be supplemented?

CEQ regulations (40 C.F.R. § 1502.9(c)) require an EIS to be supplemented when the following two conditions exist.[22] Courts have applied the same requirements to EAs that are required for EISs.[23] An EA and an EIS must be supplemented when there is:

1. Substantial change(s) to the proposed action that is/are relevant to environmental concerns; or
2. Significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

What do the CEQ requirements mean?

The CEQ requirements mean that a supplemental NEPA analysis must be prepared if a new proposed action is substantially different from a previously completed but related action.[24] If new information or circumstances have come to light since the completion of the previous action, the new information or circumstances were not previously considered, and this new information would alter the impacts previously considered, then a supplemental NEPA analysis must be prepared. A supplemental NEPA document is not required for a new or modified

[22] Agency's may also prepare supplements when the agency determines that the purposes of the Act will be furthered by doing so. 40 C.F.R. § 1502.9(c)(2).
[23] *See* *Idaho Sporting Cong. v. Alexander,* 222 F.3d 562, 566 n. 2 (9th Cir.2000).
[24] Several courts have concluded that supplementation is necessary only when effects from the proposed action are "substantially" or "seriously" different than those evaluated in prior NEPA analyses. *See, e.g., Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 363 (1989) (holding that supplementation is only required when the proposed action will "affect the quality of the human environment 'in a significant manner or to a significant extent not already consider.'"; *Nat'l Comm. For the New River, Inc. v. FERC*, 373 F.3d 1323, 1330) (D.C. Cir. 2004)(stating that "a supplemental EIS is only required where new information 'provides a *seriously* different picture of the environmental landscape.'") (emphasis added); *Tri-Valley Cares v. U.S. Dept. of Energy*, 671 F.3d 1113 (9th Cir. 20012)(upholding DOE's supplemental environmental report because the conclusions did not show a "seriously different picture of the likely environmental harms stemming from the proposed project.") (citing *Wisconsin v. Weinberger*, 745 F.2d 412, 416-17 (7th Cir. 1984)).

action if the action and its impacts have been analyzed in a previous NEPA document. Based on the responses to the questions below, and consultation with NEPA staff, a "non-NEPA" document[25] may be used to demonstrate that an original NEPA document sufficiently considers and analyzes the proposed action and its effects. NOAA refers to this non-NEPA document as a supplemental information report (SIR).

What is a SIR?

A SIR is a decision document that provides a concise explanation of why a supplemental NEPA analysis is unnecessary. The use of SIRs has become more common over the years and many courts have endorsed the practice.[26] An SIR is *neither* an exemption from NEPA requirements nor a substitute.[27] In practice, the SIR should describe the proposed action and explain that there is no significant new information or substantially changed circumstances and that the proposed action and its effects fall within the scope of a previous and related NEPA document. While NOAA does not yet have a standard format or formal guidance on the usage of SIRs, we have attached an example template. We recommend that the following information be included for each action:

- Cover memo to the File from Regional Administrator (RA) or Science Director (SD) -- *drafted by GARFO staff*
- Title page and date
- Introduction
- Purpose
- Background
- Changes from the original/parent action

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[25] The term "non-NEPA" is used at this time only because the SIR is a fairly new document. It is not described in NEPA law, procedures or formal guidance. Limited guidance through case law exists on its usage.

[26] *See, e.g.,* *Price Rd. Neighborhood Ass'n v. United States Dep't of Transp.,* 113 F.3d 1505, 1510 (9th Cir.1997); *Marsh v. Oregon Natural Resources Council,* 490 U.S. 360, 383–85, 109 S.Ct. 1851, 104 L.Ed.2d 377 (1989) (upholding the Army Corps of Engineers' use of SIR to analyze significance of new reports questioning the environmental impact of a dam project); *Friends of the Bow v. Thompson,* 124 F.3d 1210, 1218–19 (10th Cir.1997) (upholding use of SIR to evaluate significance of new survey of area to be logged); Humane Soc. of U.S. v. Bryson, 924 F. Supp.2d 1228, 1253 (D. Or. 2013) (upholding NMFS' use of a SIR to evaluate significance of new information or changed circumstances related to pinniped predation of ESA-listed salmonids at Bonneville Dam).

[27] *See Idaho Sporting Congress, Inc. v. Alexander*, 222 F.3d 562 (9th Cir. 2000)(faulting the Forest Service for its reliance on a SIR to evaluate the significance of new information or changed circumstances that it knew or should have known it needed to include in its original NEPA analyses relied on a SIR to evaluate information)

- Evaluation of new information/new circumstances/change to action
- Summary of public involvement/comment
- Conclusions/Decision
- Preparers and persons consulted
- References
- Applicable law section, if desired (similar to the section used currently in EAs and EISs)

The document should briefly describe the proposed action and provide sufficient detail to support the determination that the NEPA documentation for the past action adequately analyzes the current proposed action. That is to say, the SIR should explain how and why the proposed action and impacts (or new information) falls within the scope of the alternatives and analysis presented in the original NEPA document.

If there is an existing document related to rulemaking for the proposed action (e.g., an MSA document), the SIR elements listed above should be integrated into the existing document and may be prepared either by Fishery Management Council (FMC) staff or internal staff as appropriate. The contents and scope of the SIR are unrelated to any other applicable laws and executive orders. For all other actions, a separate document must be prepared to address the above listed elements. The SIR (or information required for the SIR) should be kept short, ideally 10 pages or less. In either case, a cover memo to the File would be prepared that summarizes the support for, and conclusions of, the SIR. It should be less than two pages in length, and should also summarize and respond to public comment on the SIR, as applicable.

Asking the following questions will help determine if a supplemental EA or EIS is necessary. The questions are designed to initiate discussions that will help staff decide whether or not an SIR may be used. The determination to use an SIR or to supplement an existing NEPA analysis is not black-and-white. As is often the case, reasons may exist to follow one route or another, and NEPA staff should be consulted to make the determination.

	If answer YES, then prepare:
1. Are there significant or uncertain new impacts from any information about, or changes resulting from, the proposed action?	Supplemental or new NEPA document
2. Does the new information about, or any change from, the proposed action provide a seriously different picture of the likely impacts not adequately envisioned by the original analysis?	Supplemental or new NEPA document
3. Should any new information or change to the action have been known and/or included at the time the original NEPA document was drafted?	Supplemental or new NEPA document
4. Are data or other analyses required in order to characterize the impacts of a proposed action?	Supplemental or new NEPA document
5. Is the proposed action considered a minor variation of one of the alternatives in the previous NEPA document?	SIR
6. Is the proposed action "qualitatively within the spectrum of alternatives" (from CEQs 40 Most Asked Questions[28]) discussed in the previous NEPA document? In other words, is it within the range of alternatives fully analyzed in the original NEPA document? If so, did the original NEPA document take a "hard look[29]" at the effects of the proposed action.	SIR
7. Has the public had an opportunity to comment in the prior NEPA document on impacts similar to the proposed action and alternatives?	SIR

[28] CEQs 40 Most Asked Questions (question number 29) http://ceq.hss.doe.gov/nepa/regs/40/40p3.htm
[29] *Kleppe v. Sierra Club*, 427 U.S. 390, 409 n.21 (1976) (citing *Natural Res. Def. Council v. Morton*, 458 F.2d 827, 838 (D.C. Cir. 1972)). The Supreme Court has held that an agency's decision under NEPA is governed by the APA's "arbitrary and capricious" standard. They require agencies to take a "hard look" at the environmental effects of their proposed action, requiring them to clearly explain what factors they considered in the decision-making process and the weight given to those factors (known as the "hard look doctrine").

What is the process for developing a SIR?

FOR FMC/INTERNAL MSA ACTIONS:

1. The FMC or the Greater Atlantic Regional Fisheries Office (GARFO) initiates a new management action.
2. The project lead, in coordination with NEPA staff, initially proposes whether or not the new action falls within the scope of a previously analyzed action. The questions listed above guide the determination of whether a new or supplemental EA or EIS, or SIR should be prepared.
3. NEPA staff confirm the use of an SIR once the management alternatives are identified by either the FMC or GARFO (for internal actions).
4. FMC staff or GARFO staff incorporate the information required to document the SIR into the MSA/rulemaking analysis.
5. The proposed MSA action follows the MSA regulatory process. NEPA staff review the SIR as part of the regulatory package and documentation. A certificate of attorney review is required from NOAA GC.
6. While public participation is not required for the SIR, it is strongly recommended.[30] In most cases the public will have the opportunity to comment on the use of the SIR through the MSA/rulemaking process.
7. GARFO staff prepare the cover memo that transmits the SIR, even for FMC actions. The RA or SD sign the cover memo only at the final rule stage, leaving room for public comment on and changes to the proposed action through the MSA/rulemaking public comment process.
8. The SIR is not routed through NOAA NEPA (PPI); review and approval by NOAA NEPA is ***not*** required.

FOR INTERNAL/NON-MSA ACTIONS:

1. GARFO or New England Fisheries Science Center (NEFSC) staff initiate a new management action.
2. The project lead, in coordination with NEPA staff, initially proposes whether or not the new action falls within the scope of a previously analyzed action. The questions listed above guide the determination of whether a new or supplemental EA or EIS, or SIR should be prepared.
3. An SIR is drafted by GARFO or NEFSC staff. NEPA program staff are available for consultation and assistance.

[30] There is no requirement to involve the public when an agency considers whether to supplement an EA or EIS. *See Friends of the Clearwater v. Dombeck*, 222 F. 3d 552 (9th Cir. 2000).

4. While public participation is not required for the SIR, it is strongly recommended. In some cases the public will have the opportunity to comment on the use of the SIR through an associated rulemaking process. If there is no associated rulemaking, consult with NEPA staff to find other methods to allow the public to participate/comment.
5. NEPA staff must review/concur on the SIR through the regulatory or other formal review process. A certificate of attorney review is required from NOAA GC.
6. The RA or SD sign the cover memo that transmits the SIR to the File.
7. The SIR is not transmitted to NOAA NEPA (PPI); review and approval by NOAA NEPA is ***not*** required.

Other Considerations

- GC Northeast should be consulted prior to initiating a SIR.
- To ensure that impacts are categorized correctly, subject matter experts should be consulted if an SIR is proposed.
- Standard NEPA delegation of authority is followed for SIRs. In practice, the development, review, and execution of SIRs is virtually the same as that of EAs.
- The conclusion language from the SIR cover memo would be appropriate to use in the determinations section of a decision memo.