Framework 25 to the Scallop FMP

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

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

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Executive Summary

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

The primary purpose of this action is to set scallop fishery specifications for the 2014 fishing year, as well as default measures for FY2015. This action is needed to achieve the objectives of the Atlantic Sea Scallop Fishery Management Plan (FMP), which is to prevent overfishing and improve yield-per-recruit from the fishery. In addition to the No Action alternative, the Council considered various 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.

The preferred alternative includes a specific Acceptable Biological Catch (ABC) level as required by the reauthorized Magnuson Act (2007). The ABC was calculated using the same method as in Framework 24, with updated data. The Scientific and Statistical Committee (SSC) gave recommendations for scallop acceptable biological catch of 26,240 mt in 2014 and 29,683 mt for 2015 (default), which includes non-yield fishing mortality (discards and incidental mortality).

Fishery specifications for 2014 and default measures for 2015 are included in this action for both limited access and limited access general category vessels. Under the preferred alternative, full-time limited access vessels will be allocated 31 open area DAS and 12 for part-time vessels. Access areas available to the fishery in 2014 include: Nantucket Lightship, Closed Area II, and Delmarva. All other access areas will be closed to the scallop fishery in 2014. Each full-time limited access vessel will be allocated two 12,000 pound trips; one in either Nantucket Lightship or Closed Area II, and one in Delmarva. Full-time vessels will be given a choice to fish in Delmarva up to 12,000 pounds, or get 5 additional DAS on top of their annual allocation of 31 DAS. Part-time vessels will be allocated one 9,600 pound trip that can be used in any of the three access areas; this is equivalent to 40% of a full-time permit allocation.

The preferred alternative also includes a handful of measures to reduce mortality on smaller scallops in Nantucket Lightship and Delmarva. Specifically, compensation fishing for research set-aside catch would be prohibited from those two areas in FY2014, vessels would be limited to fishing in Delmarva between June-August, or three months after FW25 is implemented, and crew limits used in open areas would be imposed on access area trips in Delmarva in FY2014 only.

The total limited access general category (LAGC) allocation will be equivalent to 5.5% of the total ACL available to the fishery for 2014, which is approximately 2.42 million pounds. Individual vessels will be allocated a set poundage they can harvest based on their individual contribution factor. LAGC vessels are also allocated 5.5% of the TAC in each access area, with the exception of Closed Area II. The TAC that would have been available for that area for LAGC vessels will be prorated to other scallop access areas closer to shore (Nantucket Lightship and Delmarva). This action also sets the LAGC NGOM hard TAC at 70,000 pounds and the target TAC for LAGC vessels with incidental catch permits at 50,000 pounds.

This action also includes default measures for FY2015. Default measures only include DAS allocations for LA vessels, 17 DAS for full-time vessels, which is equivalent to 75% of projected DAS. The default LAGC IFQ allocation is equivalent to 1,273 mt for 2015 as well as the same TACs for NGOM and incidental catch permits. Default measures will not include access area trip allocations for either limited access or general category vessels. These 2015 default measures are scheduled to be replaced by specifications set in Framework 26, likely implementation in May 2015.

This framework adjustment also addresses other issues added by the Council. Specifically unused Closed Area I trips from FY2012 and FY2013, as well as accountability measures for the SNE/MA windowpane flounder sub-ACL allocated to the scallop fishery. The preferred alternative would allow limited access scallop vessels with unused 2012 and 2013 Closed Area I trips to use that access in a future fishing year that Closed Area I reopens. Finally, the preferred alternative also includes accountability measures for the scallop fishery if they exceed their sub-ACL of SNE/MA windowpane flounder and AMs are triggered. Two specific AMs are recommended: a reactive seasonal gear modification area west of 71 W excluding access areas for all scallop vessels, and a proactive gear modification that would limit the number of rings in the apron of a scallop dredge to seven in the same area all year.

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 yield non-significant neutral to low positive impacts.

Table 1 – Summary of Framework 25 preferred alternatives, other measures, and Council rationale for preferred alternatives

FW25 ALTERNATIVES	DESCRIPTION	COUNCIL RATIONALE
OFL/ABC SECTION 2.1.1 PAGE 32	Alt 1 – No Action: Default 2014 OFL/ABC from FW24 (OFL = 35,110 mt and ABC = 30,353 mt) **Alt 2 – Updated estimate of OLF/ABC (OFL = 30,419 mt and ABC = 26,240 mt)**	The Council recommends this alternative as preferred primarily because it is based on the most updated estimates of scallop biomass. Setting OFL and ABC on the best available data should help prevent overfishing compared to using outdated information. The estimate of scallop biomass is based on relatively data rich information and much of the resource is surveyed each year, and in some cases multiple surveys are conducted in more critical areas. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.
SPECIFICATIONS FOR LA VESSELS SECTION 2.1.3 PAGE 36	FW25 considered 6 overall allocation alternatives. All have the same LAGC IFQ and set-asides. But LA sub-ACT varies for each including the number of DAS and access area trips. Alt 1 – No Action: Total catch = 23.8 mil lbs.; 23 DAS only Alt 2 – Total catch = 31.7 mil lbs.; 23 DAS and two 12,000 lb trips (NL, CA2, and Del) Alt 3 – Total catch = 31.7 mil lbs.; 23 DAS and two 12,000 lb trips (NL, CA2, and Del), Del trip is voluntary (or 5 DAS) **Alt 4 – Total catch = 38.5 mil lbs.; 31 DAS and two 12,000 lb trips (NL, CA2, and Del) Del trip is voluntary (or 5 DAS)** Alt 5 – Total catch = 35.9 mil lbs.; 28 DAS and two 12,000 lb trips (NL, CA2, and Del) Del trip is voluntary (or 5 DAS) Alt 6 – Total catch = 37.9 mil lbs.; 37 DAS and one 12,000 lb trips (NL, CA2, Del closed)	The Council recommends this alternative as preferred primarily to stabilize catch from 2013 to 2015. The Council discussed that there are tradeoffs associated with fishing harder in open areas in 2014, but in this instance the potential benefits outweigh the potential risks. . There is a substantial amount of biomass within closed scallop access areas in the Mid-Atlantic; and there is a high degree of confidence that biomass will be there in 2015 and beyond based on recent surveys. Furthermore, there is also a substantial amount of scallop biomass in GF and EFH closures. All these areas will remain closed to the scallop fishery in 2014; therefore, the risk of overfishing the resource from increased effort in open areas is minimal since a large proportion of total biomass is within closed areas. The preferred alternative would result in highest landings (38.5M), revenues ($427.8 million) and total economic benefits ($429.9 million) in 2014 among all the alternatives considered in this action. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.
MEASURE TO PROTECT RECRUITMENT IN NL SECTION 2.1.3.7 PAGE 46	**Option 1 – no restriction within NL** Option 2 – restrict access to northern part of NL to protect recruitment in southern area	The Council recommends this alternative as preferred primarily because the small scallops observed in the southern part of this access area are very small, less than 40 mm and are expected to pass through scallop fishing gear. Based on the distribution of adult scallops, most fishing effort will likely be north of this area anyway (Figure 4) and limiting effort in access areas is a bad precedence. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

ADDITIONAL MEASURES TO REDUCE MORTALITY ON SMALL SCALLOPS IN NL AND DELMARVA SECTION 2.1.3.8 PAGE 49	Alt1 - No Action – no additional measures **Alt 2 – Prohibit RSA in NL** **Alt 3 – Prohibit RSA in Del** **Alt 4 – Limit access in Del from June-August only** **Alt 5 – Restrict crew limits in Delmarva**	The Council recommends these alternatives as preferred primarily to reduce the potential for incidental mortality on smaller scallops and reduce overall mortality in these areas. High concentrations of small scallops were observed in the southern part of NL and Delmarva access area in 2013. It is likely that high proportion of RSA compensation effort would occur in these relatively nearshore areas increasing potential impacts on small scallops. Concentrating fishing effort in a season with relatively high meat weights (June-August) can have positive impacts on the scallop resource. Fewer scallops would be harvested to attain the same overall TAC for the area. Restricting crew size in Delmarva could help reduce incentive for highgrading, which may have increased impacts on mortality. The Council clarified that these measures are for FY2014 only as precautionary measures to further protect the high concentrations of small scallops observed within NL in 2013 and two year classes of scallops in Delmarva. These alternatives were also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.
MEASURES TO ADDRESS UNUSED CLOSED AREA I ACCESS AREA TRIPS SECTION 2.1.3.9 PAGE 53	Alt 1 - No Action – no rollover of unused trips **Alt 2 – Rollover to CA1** Alt 3 – Rollover to open areas *Numerous sub-options considered – See Table 13 on page 57*	The Council recommends this alternative as preferred primarily in order to preserve fairness and effectiveness of the lottery system. Some trips in this area were not economically feasible and had potentially increased impacts on the environment from increased fishing effort to attain possession limits. This action would allow a rollover of unused access when the area reopens. The Council clarified that this access would need to be accounted under the LA sub-ACL in the fishing year it is permitted; it is not additional catch above the LA-ACL. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.
SPECIFICATIONS FOR LAGC VESSELS SECTION 2.1.4 PAGE 58	Alt 1 – No Action: Default IFQ from FW24 (1,258 mt) **Alt 2 – Updated IFQ (1,099 mt)**	The alternative is a direct results of the previous decision related to the overall OFL and ABC for the fishery (Section 2.1.1). The sub-ACL for the LAGC fishery is removed directly from the total ACL (ABC after an estimate of discards is removed).
LAGC IFQ TRIPS IN ACCESS AREAS SECTION 2.1.4.3 PAGE 58	Option 1 – No access area trips for LAGC IFQ fishery Option 2 – 5.5% of each area TAC to LAGC fishery **Option 3 – 5.5% of each area TAC but prorate CA2 trips** *See Table 15 on page 60*	The Council recommends this alternative as preferred because it helps provide the LAGC fishery with 5.5% access to both open and access areas. LAGC vessels are not required to fish in access areas, and may decide to fish their IFQ from open areas regardless, but this measure maintains that overall access to all access areas combined. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

NGOM HARD TAC SECTION 2.1.5 PAGE 60	**<u>Alt 1</u> - No Action – 70,000 pounds** <u>Alt 2</u> – 58,000 pounds	The Council recommends this alternative as preferred primarily because the biomass estimate for this area is still relatively uncertain. While there have been two biomass surveys of the federal NGOM area, they have not covered the entire management unit, including some areas that are currently being fished. Overall fishing effort has been low in this area (less than 10,000 pounds annually), but did increase in 2013 to over 30,000 pounds. The Council recognizes that additional resource surveys may be warranted in this area to help define a more accurate TAC, but in the meantime using historical catches to set the TAC is reasonable. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.
AMs for SNE/MA WP FLOUNDER SECTION 2.2 PAGE 62	<u>Alt 1</u> - No Action – No AMs for scallop fishery <u>Alt 2</u> – seasonal closed areas **<u>Alt 3</u> – seasonal gear restricted areas** **<u>Alt 4</u> – proactive gear modification**	The Council recommends this alternative as preferred primarily because the proposed gear modification has very promising results for reducing flatfish bycatch, especially windowpane flounder. The AM area identified includes essentially the entire SNE/MA WP stock area, and the gear modification would be required during the two months with highest estimates of windowpane bycatch reduction (February and March). In general, gear modifications are expected to cause less shifts in effort compared to area closures. Shifts in effort can have uncertain impacts, and the preferred alternative may have fewer distributional impacts compared to other alternatives. The Council further discussed that while these AMs may not be as effective if overages are relatively large they can be revisited in a future action. The likelihood of these AMs being triggered is currently very small since the fishery is projected to catch less than half of the sub-ACL allocation. The Council also recommends the proactive AM as preferred primarily because it is an outdated regulation, and prevents vessels from voluntarily fishing with aprons shorter than 7 rows. Recent gear research suggests that shorter aprons reduce flatfish bycatch. This proactive AM could better enable the scallop fishery overall to reduce bycatch of all flatfish species and help prevent exceeding sub-ACLs proactively. Both alternatives were also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

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LIST OF ACRONYMS

A10 – Amendment 10 to the Atlantic Sea Scallop Fishery Management Plan
A15 – Amendment 15 to the Atlantic Sea Scallop Fishery Management Plan
AA – Access Area
ABC – Acceptable Biological Catch
ACL – Annual Catch Limit
ACT – Annual Catch Target
AM – Accountability Measure(s)
AP – Advisory Panel
BiOp, BO – Biological Opinion
B_{MSY} – Biomass at Maximum Sustainable Yield
CAI – Closed Area I
CAII – Closed Area II
CASA – Catch-At-Age Size-At-Age (model)
CFF – Coonamessett Farm Foundation
DAS – Day-at-sea
DEL – Delmarva
CPUE – Catch Per Unit Effort
EA – Environnemental Assessment
EEZ – Exclusive Economic Zone
ESA – Endangered Species Act
EFH – Essential Fish Habitat
ET, ETA – Elephant Trunk Area
F_{MSY} – Fishing Mortality at Maximum Sustainable Yield
FMP – Fishery Management Plan
FR – Federal Register
FW24 - Framework Adjustment 24 to the Atlantic Sea Scallop Fishery Management Plan
FW25 - Framework Adjustment 25 to the Atlantic Sea Scallop Fishery Management Plan
FY – Fishing Year
GARFO – Greater Atlantic Regional Fishery Office
GB – Georges Bank
GF – Groundfish
GC – General Category
GOM – Gulf of Maine
HC – Hudson Canyon
IFQ – Individual Fishing Quota
IRFA – Initial Regulatory Flexibility Analysis
LA – Limited Access
LAGC – Limited Access General Category
LPUE – Landings Per Unit Effort
LT – Long-term
MA – Mid-Atlantic
MAFMC – Mid-Atlantic Fishery Management Council
M-S Act – Magnuson Stevens Act
MSY – Maximum Sustainable Yield
NEFMC – New England Fishery Management Council
NEFSC – Northeast Fisheries Science Center
NEPA – National Environmental Policy Act
NGOM – Northern Gulf of Maine
NL, NLAA – Nantucket Lightship Access Area
NMFS – National Marine Fisheries Service

NOAA – National Oceanographic Atmospheric Administration
OA – Open Area
OFD – Overfishing Definition
OFL – Overfishing Limit
OY – Optimum Yield
PDT – Scallop Plan Development Team
RIR – Regulatory Impact Review
RSA – Research Set-Aside
SH/MW – Shell Height-Meat Weight (relationship)
SMAST –School of Marine Science and Technology, University of Massachusetts, Dartmouth
SNE – Southern New England
SNE/MA – Southern New England/Mid-Atlantic
SSC – Science and Statistical Committee
ST – Short-term
TAC – Total Allowable Catch
TDD – Turtle deflector dredge
U10 – A classification for large scallops, less than 10 meats per pound.
VEC – Valued Ecosystem Component
VIMS – Virginia Institute of Marine Science
VMS – Vessel Monitoring System
VTR – Vessel Trip Reports
WGOM – Western Gulf of Maine
WP – Windowpane flounder
YTF/YT – Yellowtail flounder

1.0 BACKGROUND AND PURPOSE

1.1 BACKGROUND

This framework to the Scallop Fishery Management Plan (FMP) sets fishery specifications for fishing year (FY) 2014 and default measures for FY 2015. The New England Fishery Management (Council) decided to develop a one-year action only, including default measures for Year 2 only (FY2015). This decision was made to get the management cycle back in-sync with the scallop assessment schedule. The scallop resource is scheduled for a benchmark assessment in the spring/summer of 2014. Therefore, the status of the stock will be reviewed and more up to date information will be available in 2014 that can be used to set management measures for FY2015 and FY2016.

The list of measures required to be in a framework has increased over the years to include overall annual catch limits, specific allocations for both limited access (LA) and limited access general category (LAGC) vessels. Below is a list of the measures required as part of the scallop fishery specifications:

- Overfishing Limit (OFL) and Acceptable Biological Catch (ABC), which is approved by the SSC;
- Annual Catch Limits (ACL) (for both the limited access and limited access general category fisheries, and Annual Catch Target (ACT) for the LA fishery;
- Allocations for limited access vessels include DAS allocations, access area allocations with associated possession limits;
- Allocations for limited access general category vessels include an overall IFQ for both permit types, as well as a fleetwide, area-specific maximum number of access area trips available for the general category fishery;
- NGOM hard-TAC;
- Incidental catch target-TAC; and
- Set-aside of scallop catch for the industry funded observer program and research set-aside program.

Through Framework 48 to the Multispecies FMP the Council allocated a sub-ACL of SNE/MA windowpane flounder to the scallop fishery. Since, all sub-ACLs require accountability measures (AMs) if exceeded, those measures will also be developed in this action. The sub-ACL for SNE/MA windowpane flounder was set at 36% of the total ABC for that stock. This percentage of the ABC would be used to determine the scallop fishery sub-ABC, and then this would be adjusted for management uncertainty to get the scallop fishery sub-ACL. This allocation is based on the 90th percentile of the scallop fishery catches from 2001-2010. For 2014 and 2015 the scallop fishery sub-ACL is 186 mt.

Finally, the Council identified one additional item to consider when Framework 25 was officially initiated in April 2013. Specifically, the Council requested that measures be developed to address Closed Area I access areas trips allocated in FY2013. Catch rates have declined rapidly in that area and measures will be considered in this action that would potentially allow vessels to

use those trips in a future fishing year and/or area. At a subsequent Council meeting the consideration of unused 2012 Closed Area I trips was included as well.

1.2 PURPOSE AND NEED

The primary need of this action is to achieve the objectives of the Atlantic Sea Scallop FMP to prevent overfishing and improve yield-per-recruit from the fishery. The primary purpose for this action is to set specifications including: OFL, ABC, scallop fishery ACLs and ACTs including associated set-asides, day-at-sea (DAS) allocations, general category fishery allocations, and area rotation schedule and allocations for the 2014 fishing year, as well as default measures for FY2015 that are expected to be replaced by a subsequent action. Related to this primary need, the Council is developing measures to improve yield per recruit from Closed Area I. Specifically, this action will also consider measures to address unused Closed Area I access area trips allocated to a portion of the limited access scallop fishery in FY2013 and FY2012. Catch rates have declined rapidly in this area and measures were developed to reduce potentially negative environmental and disproportional economic impacts of these allocations.

Another purpose of this action is to establish accountability measures (AMs) for the SNE/MA windowpane flounder sub-ACL. These AMs are needed to help prevent overfishing and reduce catch of SNE/MA windowpane flounder if the scallop fishery exceeds their sub-ACL of this stock.

Table 2 – Summary of the purpose and need for measures developed in Framework 25 including section number with specific alternatives

Need	Purpose	Section # with specific alternatives
1. To achieve the objectives of the Atlantic Sea Scallop FMP to prevent overfishing and improve yield-per-recruit from the fishery	1. To set specifications for FY2014 and FY2015 (default): OFL, ABC, ACLs, LA ACT, DAS, general category allocations, and area rotation schedule and related allocations. 2. To address low catch rates in Closed Area I that may have negative impacts on the environment in that area as well as disproportional economic impacts.	Section 2.1 Section 2.1.2.4
2. To reduce bycatch of SNE/MA windowpane flounder if the scallop fishery exceeds their annual limit (sub-ACL)	To implement AMs for the SNE/MA windowpane flounder sub-ACL allocated to the scallop fishery	Section 2.2

1.3 SUMMARY OF SCALLOP FISHERY MANAGEMENT PLAN

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. See Section 1.3.1 below for a more detailed description of the rotational area management program implemented by Amendment 10.

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.

1.3.1 Detailed background on rotational area management

Rotational area management is the cornerstone of scallop fisheries management. There are four types of areas in this system: 1) “open areas” where scallop fishing can occur using DAS or IFQ; 2) areas completely closed to scallop fishing year-round to reduce impacts on EFH and/or groundfish mortality; 3) areas temporarily closed to scallop vessels to protect small scallops until a future date; and 4) areas open to very restricted levels of scallop fishing called “access areas”. When scallop vessels are fishing in these areas they are limited in terms of total removal and sometimes season.

Amendment 10 introduced area rotation: areas that contain beds of small scallops are closed before the scallops experience fishing mortality, then the areas re-open when scallops are larger, producing more yield-per-recruit. The details of which areas should close, for how long and at what level they should be fished were described and analyzed in Amendment 10. Except for the access areas within the groundfish closed areas on Georges Bank, all other scallop rotational areas should have flexible boundaries. Amendment 10 included a detailed set of criteria or guidelines that would be applied for closing and re-opening areas. Framework adjustments would then be used to actually implement the closures and allocate access in re-opened areas.

The general management structure for area rotation management is described in Table 3. An area would close when the expected increase in exploitable biomass in the absence of fishing mortality exceeds 30% per year, and re-open to fishing when the annual increase in the absence

of fishing mortality is less than 15% per year. Area rotation allows for differences in fishing mortality targets to catch scallops at higher than normal rates by using a time averaged fishing mortality so the average for an area since the beginning of the last closure is equal to the resource-wide fishing mortality target.

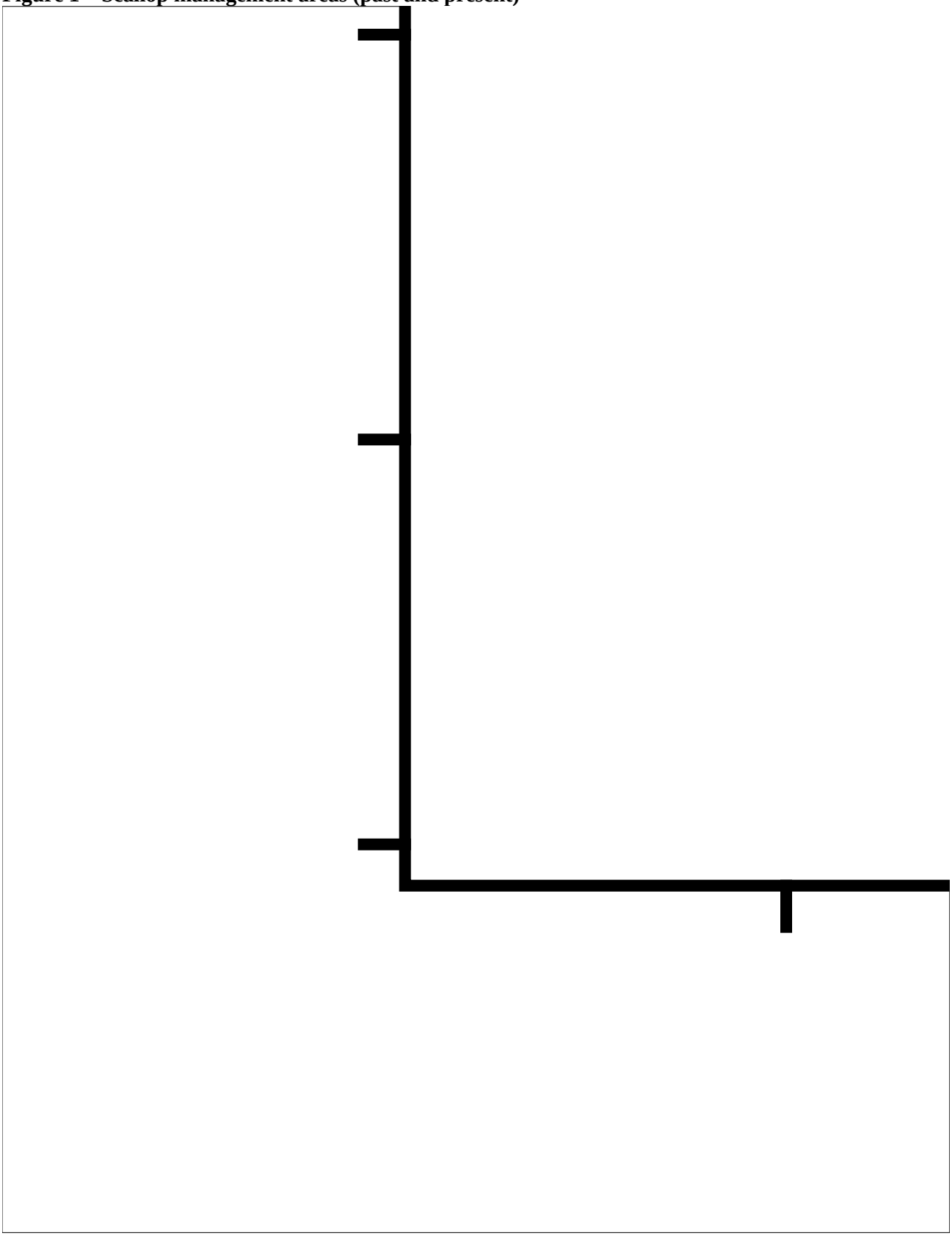
Figure 1 shows the boundaries of current and past scallop access areas (green shaded) on Georges Bank and in the Mid-Atlantic. Areas that are closed to the scallop fishery are indicated as well: groundfish mortality closed areas (hollow) and EFH closed areas (hatched). For the most part some of these areas are closed to the fishery if small scallops are present, some areas are open as access areas with a controlled level of fishing, and some may be "open areas" that may be fished using DAS, not access area trips. Each year limited access vessels are allocated a set number of trips with possession limits to fish in specific access areas. And general category vessels are awarded a fleetwide maximum of trips that can be taken per area.

The NEFMC is currently reviewing the EFH and groundfish mortality closed areas in this region in the EFH Omnibus Amendment. Based on the outcome of that action the current boundaries of these closed areas may change. Therefore, future scallop access areas may also be different, and current restrictions to fish in EFH closed areas may be different as well. Since this action is primarily limited to FY2014, and any of these potential changes will only be effective during the 2015 fishing year (under the best case scenario); Framework 25 will only address specifications based on the current areas available to the scallop fishery – areas outside of EFH closed areas and areas within CA1, CA2, and NL that have been available to the scallop fishery in the past.

Table 3- General management structure for area rotation management as implemented by Amendment 10

Area type	Criteria for rotation area management consideration	General management rules	Who may fish
Closed rotation	Rate of biomass growth exceeds 30% per year if closed.	No scallop fishing allowed Scallop limited access and general category vessels may transit closed rotation areas provided fishing gear is properly stowed. Scallop bycatch must be returned intact to the water in the general location of capture.	Any vessel may fish with gear other than a scallop dredge or scallop trawl Zero scallop possession limit
Re-opened controlled access	A previously closed rotation area where the rate of biomass growth is less than 15% per year if closure continues. Status expires when time averaged mortality increases to average the resource-wide target, i.e. as defined by the Council by setting the annual mortality targets for a re-opened area.	Fishing mortality target set by framework adjustment subject to guidelines determined by time averaging since the beginning of the most recent closure. Maximum number of limited access trips will be determined from permit activity, scallop possession limits, and TACs associated with the time-average annual fishing mortality target. Transfers of scallops at sea would be prohibited	Limited access vessels may fish for scallops only on authorized trips. Vessels with general category permits will be allowed to target scallops or retain scallop incidental catch, with a 400 pounds scallop possession limit in accordance with general category rules.
Open	Scallop resource does not meet criteria to be classified as a closed rotation or re-opened controlled access area	Limited access vessels may target scallops on an open area day-at-sea General category vessels may target sea scallops with dredges or trawls under existing rules. Transfers of scallops at sea would be prohibited	All vessels may fish for scallops and other species under applicable rules.

Figure 1 – Scallop management areas (past and present)



1.4 SUMMARY OF FY2014 DEFAULT MEASURES APPROVED IN FRAMEWORK 24

The Council routinely sets default measures for the fishing year following the intended length of an action in the event that subsequent actions are not in place at the start of the following fishing year. For example, the scallop fishing year starts on March 1, but complete management measures are not usually in place until May. This lag is primarily due to the fact that scallop specifications are set using the most up to date survey data collected the summer before the start of the fishing year. The results are typically available in August, a new ABC is reviewed by the SSC in September, and the PDT develops and analyzes specification alternatives in early fall before final Council action at the November meeting. Staff generally completes the submission package by the end of the year and the action is reviewed and implemented by NMFS typically in May.

In the past, measures have been in place on March 1 that are inferior to measures proposed for implementation in a subsequent action using more updated information. Ultimate catch levels may be higher or lower depending on updated survey results, some areas with access area trips assigned may not be able to support that level of effort, or small scallops may show up in a new survey suggesting the area should be closed to protect new recruitment. In order to minimize the potentially negative impacts of having measures in place on March 1 that ultimately need to be changed, the Council more recently only allocated DAS to the limited access fishery as default measures for FY2014; no access area trips were assigned to limited access vessels or general category vessels.

Therefore, if Framework 25 is delayed past March 1, 2014, scallop vessels would be restricted to fishing in open areas until final FY 2014 specifications are implemented. However, vessels would be able to fish FY 2013 compensation trips in the access areas that were open in FY 2013 (e.g., HC, NLS, CA1, and CA2) for the first 60 days that those areas are open in FY 2014, or until Framework 25 is approved and implemented, whichever occurs first. In addition, the default DAS allocations were set at 75% of the projection to be precautionary. Therefore, vessels will receive a set number of DAS on March 1, 2014, and that may be different than the ultimate number of DAS awarded under FW25.

The default measures for 2014 also included the required ABC and ACL values, but they will likely be replaced by this action. The table below summarizes the default values that will be effective on March 1, 2014 until FW25 is implemented to replace them. Vessels with a LAGC IFQ permit will receive an allocation based on the contribution factor assuming the total LAGC IFQ is 2.5 million pounds. Individual allocations for FY2014 may ultimately change based on the final sub-ACL approved in FW25. LAGC IFQ vessels are responsible to payback any overage the following year if the ultimate IFQ for FY2014 is lower than the allocation under the default sub-ACL.

If FW25 is not adopted these allocations would remain in place for all of FY2014 and beyond until replaced by a subsequent action.

Table 4 - ACL related values and allocations for 2014 (default measures approved in FW24)

	2014*
OFL	31,110 mt (68,585,801 lb)
ABC	23,697 mt (52,242,952 lb)
incidental	22.7 mt (50,000 lb)
RSA	567 mt (1,250,000 lb)
OBS	237 mt (522,429 lb)
ACL after set-asides/incidental removed *(= ABC-(incidental + RSA +OBS))*	22,870.3 mt (50,420,523 lb)
LA sub-ACL (94.5% of ACL)	21,612 mt (47,647,385 lb)
IFQ-only (5% of ACL)= sub-ACL = ACT	1,144 mt (2,521,026 lb)
IFQ + LA (0.5% of ACL)=sub-ACL=ACT	114 mt (252,103 lb)

** 2014 measures are default and expected to be adjusted based on FW25*

Table 5 – Summary of FY2014 default allocations for LA vessels (approved in FW24)

	LA FT	LA PT	LA Occasional
2014	23	9	2

** Default DAS is 75% of the total DAS projected for FY2014 (31 DAS)*

2.0 MANAGEMENT ALTERNATIVES UNDER CONSIDERATION

2.1 FISHERY SPECIFICATIONS

2.1.1 Overfishing Limit (OFL) and Acceptable Biological Catch (ABC)

The MSA was reauthorized in 2007. Section 104(a) (10) of the Act established new requirements to end and prevent overfishing, including annual catch limits (ACLs) and accountability measures (AMs). Section 303(a)(15) was added to the MSA to read as follows: ‘‘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.’’ ACLs and AMs are required by fishing year 2010 if overfishing is occurring in a fishery, and they are required for all other fisheries by fishing year 2011. The Council initiated Scallop Amendment 15 to comply with these new ACL requirements, and that action was implemented in 2011.

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. The determination of ABC will consider scientific uncertainty and the Council may not exceed the fishing level recommendations of its Science and Statistical Committee (SSC) in setting ACLs (Section 302(h)(6)). The MSA enhanced the role of the SSCs, mandating that they shall provide ongoing scientific advice for fishery management decisions, including recommendations for acceptable biological catch (MSA 302(g(1)(B)). This requirement for an SSC recommendation for ABC was effective in January 2007.

2.1.1.1 No Action (Alternative 1)

Under “No Action”, the overall OFL and ABC would be equivalent to default 2014 values adopted in Framework 24 (Table 6). These would remain in place until a subsequent action replaced them. These values were selected based on the same control rules: 1) OFL is equivalent to the catch associated with an overall fishing mortality rate of 0.38; and 2) ABC is set with a 25% chance of exceeding OFL where risk is evaluated in terms of the probability of overfishing compared to the fraction loss to yield. The overall fishing mortality rate used for setting ABC is 0.32. These values include estimated discard mortality. Therefore, when the fishery specifications are set based on these limits, the estimate of discard mortality is removed first and allocations are based on the remaining ABC available (Table 6, column to the far right).

Table 6 – Summary of OFL and ABC FY2014 (default) values approved by the SSC in Framework 24 (in metric tons)

	OFL (including discards at OFL)	ABC (including discards)	Discards (at ABC)	ABC available to fishery (after discards removed)
2014 (default)	35,110	30,353	6,656	23,697

2.1.1.2 Updated estimate of ABC for FY2014 and FY2015 (default) (Alternative 2) *(Preferred Alternative)*

The SSC first met on September 16, 2013 to review updated estimates of OFL and ABC for Framework 25. The PDT presented an update of stock status for 2012 as well as updated estimates of OFL and ABC for FY2014 and FY2015. Unfortunately, there was not a quorum at the meeting. The SSC proceeded with the discussion and did accept the updated estimates; however, at the following September Council meeting it was decided that the SSC should review the same information again when a quorum was available.

Therefore, the SSC met again on November 15, 2013. The SSC reviewed updated estimates of OFL and ABC based on revised PDT analyses. Several errors were discovered when the PDT prepared documents for the second SSC meeting. These errors were related to calculation mistakes and did not change the overall estimates of OFL or ABC substantially. The final values are very similar to the previous estimates; 2014 estimates are actually a bit higher (Table 7).

Table 7 – Proposed OFL and ABC for FY2014 and 2015 (default) approved by the SSC (mt)

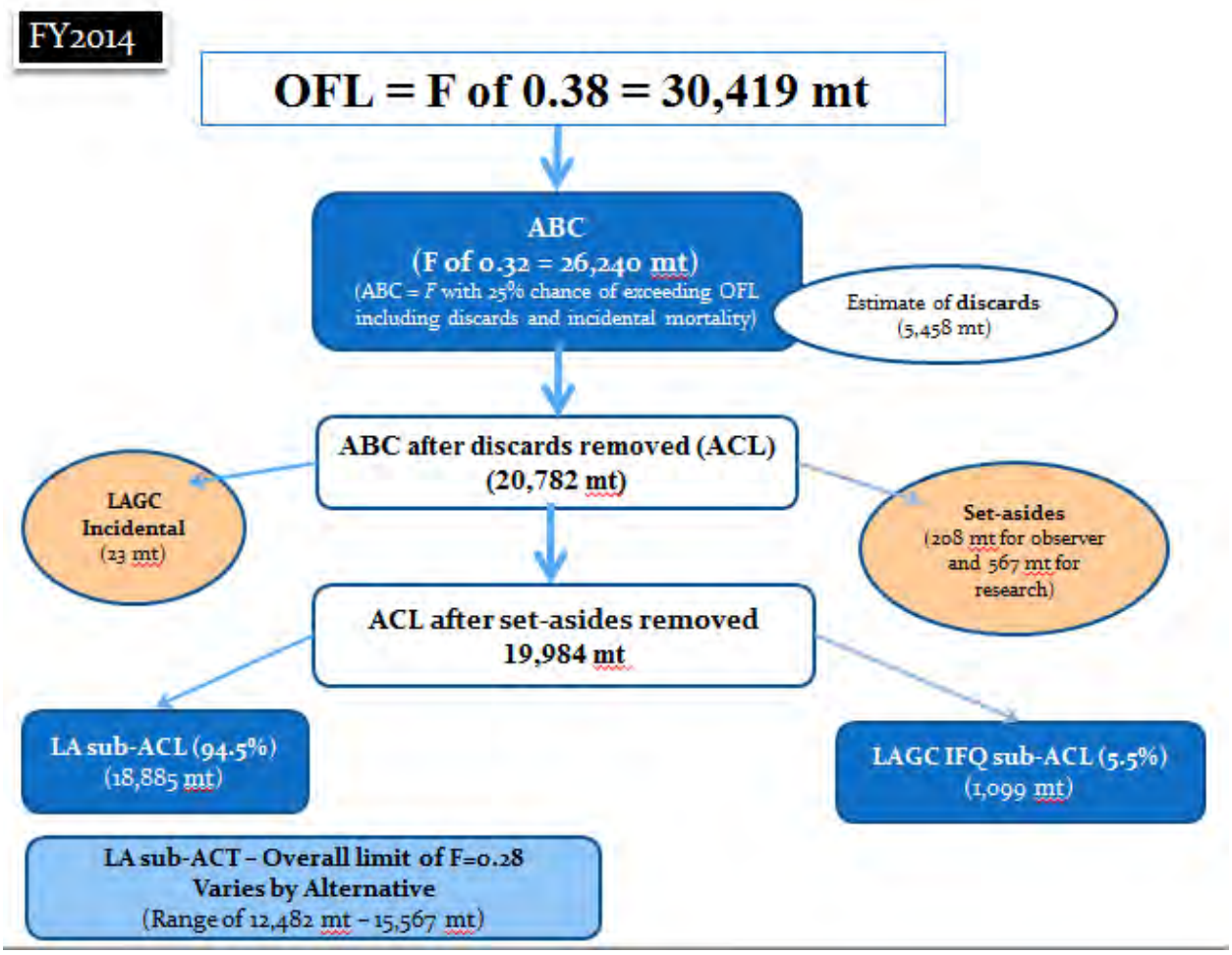
Year	OFL (including discards)	ABC (including discards)	Discards at ABC	ABC available to fishery = ACL (after discards removed)
2014	30,419	26,240	5,458	20,782
2015	34,247	29,683	5,701	23,982

Council rationale for preferred: The Council recommends this alternative as preferred primarily because it is based on the most updated estimates of scallop biomass. Setting OFL and ABC on the best available data should help prevent overfishing compared to using outdated information. The estimate of scallop biomass is based on relatively data rich information and much of the resource is surveyed each year, and in some cases multiple surveys are conducted in more critical areas. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

2.1.2 Annual catch limits (ACLs)

In the Scallop FMP, ACL is equivalent to ABC, after removing an estimate of discards and incidental mortality. ABC is the catch equivalent to applying an overall F of 0.32 on the entire resource, the fishing mortality rate that has a 25% chance of exceeding OFL (0.38). From ABC/ACL several set-asides are removed for the observer program, research program, and vessels with a limited access incidental catch permit. After those set-asides are removed, the remaining catch is divided between the LA and LAGC fisheries into two sub-ACLs; 94.5% for the LA fishery sub-ACL, and 5.5% for the LAGC fishery sub-ACL. Figure 2 summarizes how the various ACL terms are related in the Scallop FMP.

Figure 2 – Summary of scallop fishery catch limits proposed in this action (FY2014)



The ACLs and set-asides are the same for all specification alternatives under consideration in this action, except the No Action. Because the No Action alternative is based on default measures previously set in FW24, the sub-ACLs and set-asides are different based on a previous estimate of overall OFL and ABC before using updated survey and fishery data. Table 8 summarizes the ACLs and set-asides under consideration for 2014, and Table 9 includes the default ACL values for 2015.

Aside from the No Action Alternative, the only difference between the FW25 specification alternatives is the LA sub-ACT; all other ACL related values are the same. The LA fishery has a sub-ACT to account for management uncertainty. This "buffer" for management uncertainty is used to address the uncertainty in annual catches in the LA fishery. Several measures provide flexibility for the LA fishery, but also have associated uncertainty in terms of total annual catches. For example, the allowance to carry forward up to 10 DAS from one fishing year to the next, the broken trip provision for access area trips that allows a LA vessel to fish unused catch up to 60 days into the next fishing year, and underestimates in catch rates from open areas that could impact overall catch.

The sub-ACT for the LA fishery is equivalent to the catch associated with the fishing mortality rate that has a 25% chance of exceeding the ABC (0.32), currently estimated to be 0.28 overall. It also needs to be pointed out that the projected catch for each of the scenarios under consideration is based on the resource *available* to the fishery, not including potential catch from closed areas since that is not accessible to the fishery. Therefore, the projected catch for a scenario is often even lower than the limit of catch associated with 0.28 if scallop biomass is within closed areas. In the end the sub-ACT for the LA fishery is the remainder of the projected catch for each scenario after allocations are set for the LAGC sub-ACL and set-asides for observer coverage, research and incidental catch. Table 8 also includes the LA sub-ACTs for each alternative under consideration in this action.

The LAGC fishery is allocated an overall IFQ equivalent to the sub-ACL for that fishery; there is no sub-ACT for the LAGC fishery. Therefore, the LAGC-sub ACL is the same for all alternatives under consideration, except the No Action.

Table 8 – Summary of ACL related values for FW25 specification alternatives (FY2014)

	Alt 1 (No Action)	**FW25 Specification Alternatives (Alt 2, 3, 4, 5, and 6)**				
OFL (including discards and incidental mortality)	68,585,801 lb. 31,110 mt	67,062,427 lb. 30,419 mt				
ABC after discards removed = ACL	52,242,952 lb. 23,697 mt	45,816,475 20,782 mt				
Observer set-aside	522,429 lb. 237 mt	458,562 lb. 208 mt				
Research set-aside	1,250,000 lb. 567 mt	1,250,000 lb. 567 mt				
Incidental catch	50,000 lb 22.7 mt	50,000 lb 22.7 mt				
LA sub-ACL	47,647,385 lb. 21,612 mt	41,634,305 18,885 mt				
LA sub-ACT	34,012,918 lb. 15,428 mt	**Alt2** 27.5 mil 12,482 mt	**Alt3** 27.5 mil 12,482 mt	**Alt4** 34.3 mil 15,567 mt	**Alt5** 31.7mil 14,387 mt	**Alt6** 33.7 mil 15,294 mt
LAGC sub-ACL (no sub-ACT)	2.77 mil 1,258 mt	2.42 mil 1,099 mt				

The LA sub-ACL is the remaining catch available from each scenario after all set asides are removed (research, observer, and LAGC incidental) as well as the sub-ACL for the LAGC IFQ fishery (1,258 mt). All set-asides plus the sub-ACL for the LAGC IFQ fishery is equivalent to 1,896.7 mt for FY2014.

Table 9 – Summary of ACL related values for FW25 specification alternatives (default FY2015)

	2015
OFL (including discards and incidental mortality)	75,501,724 lb. 34,247 mt
ABC after discards removed = ACL	52,871,269 lb. 23,982 mt
Observer set-aside	529,110 lb. 240 mt
Research set-aside	1,250,000 lb. 567 mt
Incidental catch	50,000 lb 22.7 mt
LA sub-ACL	48,234,778 lb. 21,879 mt
LA sub-ACT	36,463,509 lb. 16,540 mt
LAGC sub-ACL (no sub-ACT)	2.55 mil 1,273 mt

2.1.3 Specifications for limited access vessels

Specifications for the limited access fishery include DAS and access area trips as limited by the ACT for the limited access fishery and what areas are open to the fishery. This action considered a wide range of alternative ACTs based on a variety of possible allocation scenarios. A summary of the various allocation alternatives for the LA fishery are described in Table 10. Alternative 1 is the No Action alternative, default specifications from FW24. Alternatives 2 and 3 are essentially the same with one small difference related to access in Delmarva. These potential specifications are based on the principles adopted in Amendment 15 for setting fishing mortality targets in the scallop fishery. Finally, the Council included three additional alternatives that increase total catch in FY2014 to be similar to FY2013 (Alternatives 4-6). These alternatives increase fishing mortality in open areas above Fthreshold on a temporary basis in order to better stabilize catch from 2013 to 2015.

2.1.3.1 Alternative 1 (No Action – Default measures from Framework 24)

Under No Action, the sub-ACL for the LA fishery would be 21,612 mt (47,647,385 lb) and sub-ACT of 15,428 mt (34,012,918 lb). The specifications would include default measures approved in Framework 24 for FY2014 which are 75% of the projected DAS for that year. For full-time vessels that is equivalent to 23 DAS (75% of 31 DAS) and 9 DAS for part-time vessels. There are no access area allocations under No Action. These measures would remain in place until replaced by another action.

The overall estimate of projected F in all areas combined from this alternative is 0.10, which is lower than the maximum F allowed under the current system used for setting ACT (overall limit of 0.28 in all areas). Total projected catch for the No Action alternative from all sources of catch (including set-asides and LAGC catch) is 10,798 mt, or 23.8 million pounds.

2.1.3.2 Alternative 2 (Basic run using fishing mortality target principles in the FMP – 23 DAS and 2 trips in either CA2, NL and Delmarva)

This is the basic alternative the PDT generally begins with when identifying possible specification alternatives. Target catches in this fishery are driven by three principles developed as part of the "hybrid" overfishing definition approved in Amendment 15. The three main principles that are used in this FMP to set target catches for the fishery are:

1) fishing mortality in open areas cannot exceed 0.38;
2) a spatially averaged fishing mortality target is limited to 0.28 for all areas combined (open and closed areas); and
3) fishing mortality targets for access areas are based on a time-averaged principle, higher F in some years followed by closures or limited fishing levels in other years.

When these principles are applied to the estimated biomass in each area for FY2014 the allocations for full-time LA vessels are:

- 23 DAS for FT vessels in open areas (when open area F is set at 0.38); and
- Two 12,000 pound access area trips per FT vessel. Each vessel would be allocated one trip in Delmarva and one trip in either NL or CA2, to be allocated by lottery. Roughly 116 trips would be allocated in NL and 197 in Closed Area II. A target F of 0.4 per area would be applied in areas with sufficient exploitable biomass and lower growth potential.
- Part-time (PT) vessels would receive one access area trip at 9,600 lb and 9 DAS. PT vessels could fish their access trip in any one area open (i.e., Delmarva, CA2, or NL).
- The remaining scallop access areas would be closed to the scallop fishery in 2014: Closed Area I, Elephant Trunk would remain closed, and this action would close the Hudson Canyon access area.
- Total projected catch for Alternative 2 from all sources of catch (including set-asides and LAGC catch) is 14,364 mt, or 31.7 million pounds.

The overall estimate of projected F in all areas combined from this alternative is 0.17, which is lower than the maximum F allowed under the current system used for setting ACT (overall limit of 0.28 in all areas). Therefore, in this particular year the principle that limits open area F at 0.38 is the constraining factor in terms of setting total catch limits. The LA-sub ACL for this alternative is 18,885 mt (41,634,305 lb), and the LA-ACT is 12,482 mt (27.5 million pounds), the remaining catch available after set-asides and allocations for LAGC IFQ and LAGC incidental fisheries.

The default measures for FY2015 for this alternative would be:

1. 75% of the projected DAS in FY2015 for LA vessels (Projected DAS for FT vessel in 2015 is 25 DAS; therefore default DAS for FT LA vessels would be 19 DAS) See Table 11. Default DAS for part-time vessels would be 8 DAS.
2. 100% of the sub-ACL for LAGC IFQ vessels (projected sub-ACL for LAGC IFQ vessels in FY2015 is 2.8 million pounds).

2.1.3.3 Alternative 3 (Basic run using fishing mortality target principles in the FMP – 23 DAS and 2 trips in either CA2, NL and Delmarva, but flexibility to exchange a Delmarva trip for 5 open area DAS)

This alternative is similar to Alternative 2, but flexibility has been added related to the Delmarva access area trip in an effort to provide additional conservation for that area. LA vessels will be given a choice to use one access area trip of 12,000 pounds in Delmarva, or five open area DAS.

The primary rationale for giving vessels a choice is to provide some potential for additional protection for Delmarva, while keeping total catch similar to Alternative 2. If scallops are of harvestable size in Delmarva and in higher densities than open areas then vessels would be expected to fish there. But if projections are not correct, giving vessels a choice to fish in open areas instead may help reduce impacts on smaller scallops if projected catch rates and sizes are overestimated. This flexibility may help self-regulate the area to better reflect the fishing condition in Delmarva, which is more uncertain than some of the other access areas due to the large proportion of smaller scallops and more uncertainty about natural mortality and growth in that access area.

There are other measures under consideration to further reduce mortality in Delmarva in Section 2.1.3.7 and 2.1.3.8.

When this alternative was first developed the idea was that DAS could be used in Delmarva rather than treating the area as an access area. However, as the PDT, AP and Committee worked on the details it became clear that modifying the status of the area even temporarily created more issues and would be more difficult to implement. Therefore, at the November Committee meeting the Committee recommended modifying this alternative so that it remained an access area with a maximum allocation per vessel, but vessels could choose whether to fish in the area under the possession limit, or use open area DAS outside of Delmarva instead. The Council agreed with this modification at the December Council meeting.

Providing this flexibility does have the potential to increase fishing mortality in open areas above the current target of 0.38. Limiting open area effort at 0.38 is one of the three principles used in this FMP to set fishery target fishing levels. This alternative would initially only allocate access up to that maximum target of 0.38 for open areas, but the model estimates that some vessels will choose to use open area DAS rather than a Delmarva trip, and open area effort under this alternative is expected to be 0.40, above the limit used for setting target fishing levels. This estimate is only a projection and it is uncertain how many vessels will decide to fish in open areas over Delmarva. But is should be recognized that this alternative has projected open area fishing levels about 0.38.

The allocations related to this alternative are similar to Alternative 2, but fishing in Delmarva is voluntary.

- 23 DAS for FT vessels in open areas (when open area F is set at 0.38);
- Two 12,000 pound access area trips per FT vessel. Each vessel would be allocated one trip in Delmarva and one trip in either NL or CA2, to be allocated by lottery. Roughly 116 trips would be allocated in NL and 197 in Closed Area II. A target F of 0.4 per area would be applied in areas with sufficient exploitable biomass and lower growth potential.

- The trip allocated for Delmarva is voluntary. FT vessels can either choose to use that access opportunity in Delmarva up to 12,000 pounds, or fish five additional DAS in open areas and no access in Delmarva. If the latter, a FT LA vessel would be allocated 28 DAS (23 DAS plus 5 DAS) and one access area trip in either NL or CA2.
- A FT vessel would be permitted to trade Delmarva trips. However, if a vessel traded in one Delmarva trip for a total of 2 Delmarva trips in 2014, it would only be permitted to convert one of those trips into open area DAS. No vessel could convert more than one Delmarva trip to DAS.
- Part-time (PT) vessels would receive one access area trip at 9,600 lb and 9 DAS. PT vessels could fish their access trip in any one area open (i.e., Delmarva, CA2, or NL). PT vessels would *not* be allowed to convert a Delmarva trip into open area DAS.
- The remaining scallop access areas would be closed to the scallop fishery in 2014: Closed Area I, Elephant Trunk would remain closed, and this action would close the Hudson Canyon access area.
- Total projected catch for Alternative 3 from all sources of catch (including set-asides and LAGC catch) is 14,396 mt, or 31.7 million pounds.

The overall estimate of projected F in all areas combined from this alternative is 0.17, which is lower than the maximum F allowed under the current system used for setting ACT (overall limit of 0.28 in all areas). Therefore, in this particular year the principle that limits open area F at 0.38 is the constraining factor in terms of setting total catch limits. The LA-sub ACL for this alternative is 18,885 mt (41,634,305 lb), and the LA-ACT is 12,482 mt (27.5 million pounds), the remaining catch available after set-asides and allocations for LAGC IFQ and LAGC incidental fisheries.

The default measures for FY2015 for this alternative would be:

1. 75% of the projected DAS in FY2015 for LA vessels (Projected DAS for FT vessel in 2015 is 25 DAS; therefore default DAS for FT LA vessels would be 19 DAS) See Table 11. Default DAS for part-time vessels would be 8 DAS.
2. 100% of the sub-ACL for LAGC IFQ vessels (projected sub-ACL for LAGC IFQ vessels in FY2015 is 2.8 million pounds)

NMFS will ultimately determine when and how a LA FT vessel needs to notify the Agency about their Delmarva trip based on programming and enforcement needs. One possible option is that NMFS will reach out to vessel owners giving them the option to receive 5 additional DAS or one 12,000 pound Delmarva trip. Once a vessel decides they will no longer be allowed to exchange any portion of a Delmarva trip of DAS. Specifically, if a vessel decides to receive the Delmarva trip that decision is final and cannot be converted into DAS. Vessels would have the opportunity to make the choice whether to fish in Delmarva or receive open area DAS within the first 90 days after FW25 is implemented.

Current broken trip provisions would still apply to Delmarva trips. If a vessel breaks that trip within the last 60 days the area is open that fishing year, any unused catch would be available during the first 60 days the area is open the following year. In order to prevent excessive effort in the open areas vessels would only be allowed to exchange their initial Delmarva trip for DAS.

If a vessel trades in another Delmarva trip it would not be allowed to exchange the new trip for DAS.

2.1.3.4 Alternative 4 (Increase target F in open areas to bring total catch to 2013 level – 31 DAS and 2 trips in either CA2, NL and Delmarva, but flexibility to exchange a Delmarva trip for 5 open area DAS) *(Preferred Alternative)*

This alternative is similar to Alternative 3, but open area F has been increased to bring total catch to projected FY2013 levels. This alternative was developed by the PDT based on a Scallop Committee Motion from November 2013. The Council agreed to include this alternative for consideration at the December 2013 meeting.

Projected catch for FY2013 was 17,327 mt, or just over 38 million pounds. To attain that level of catch for 2014, open area DAS would need to increase to 31 DAS per FT vessel compared to 23 DAS under consideration in Alternatives 2 and 3. This increase of 8 DAS has an associated increase in open area F of 0.52 overall (MA and GB open areas combined), compared to 0.38 in Alternatives 2 and 3. Access area allocations for this alternative would remain the same as Alternative 3. If a FT vessel chose to use open area DAS instead of a Delmarva access area trip, their total DAS allocation for the year would be 36 DAS (31 DAS plus 5 DAS), and one access area trip in NL or CA2.

This alternative would temporarily modify one of the three principles used for setting target catch levels in this fishery. When the Council updated the overfishing definition in Amendment 15 it also revised the principles related to how fishing targets should be set in the FMP. The overfishing definition is still exclusive to the estimates of biomass and fishing mortality rates related to when the stock is considered overfished, or when overfishing is occurring. But when the Council updated the status determinations for the overfishing definition in Amendment 15, the principles for setting target catch levels were also revised. The three principles approved for setting target catch levels are: 1) fishing mortality in open areas cannot exceed 0.38; 2) a spatially averaged fishing mortality target is limited to 0.28 for all areas combined (open and closed areas); and 3) fishing mortality targets for access areas are based on a time-averaged principle, higher F in some years followed by closures or limited fishing levels in other years.

This specification alternative would temporarily, just for FY2014, modify the first principle for setting target catch levels and allow open area F to exceed $F_{threshold}$ (0.38). Open area projected F would increase to a level that provides projected catch levels similar to FY2013, but not to exceed an overall combined F of 0.28 for all areas, the second principle of setting target catch levels. The estimates of F for this alternative are 0.52 for open areas, and 0.21 overall for all areas combined. The other two principles for setting target catch levels are maintained in this alternative.

Alternative 4 includes:

- 31 DAS for FT vessels in open areas (when open area F is increased to attain 2013 projected catch levels); and
- Two 12,000 pound access area trips per FT vessel. Each vessel would be allocated one trip in Delmarva and one trip in either NL or CA2, to be allocated by lottery. The results of the lottery are attached to this action in Appendix IV. Roughly 116 trips would be

allocated in NL and 197 in Closed Area II. A target F of 0.4 per area would be applied in areas with sufficient exploitable biomass and lower growth potential.

- The trip allocated for Delmarva is voluntary. FT vessels can either choose to use that access opportunity in Delmarva up to 12,000 pounds, or fish five additional DAS in open areas and no access in Delmarva. If the latter, a FT LA vessel would be allocated 36 DAS (31 DAS plus 5 DAS) and one access area trip in either NL or CA2.
- A FT vessel would be permitted to trade Delmarva trips. However, if a vessel traded in one Delmarva trip for a total of 2 Delmarva trips in 2014, it would only be permitted to convert one of those trips into open area DAS. No vessel could convert more than one Delmarva trip to DAS.
- Part-time (PT) vessels would receive one access area trip at 9,600 lb and 12 DAS. PT vessels could fish their access trip in any one area open (i.e., Delmarva, CA2, or NL). PT vessels would *not* be allowed to convert a Delmarva trip into open area DAS. If any part-time vessels convert back to an occasional permit in 2014, their DAS allocation would be 3 DAS and one access area trip at 2,000 pounds under this alternative.
- The remaining scallop access areas would be closed to the scallop fishery in 2014: Closed Area I, Elephant Trunk would remain closed, and this action would close the Hudson Canyon access area.
- Total projected catch for Alternative 4 from all sources of catch (including set-asides and LAGC catch) is 17,447 mt, or 38.5 million pounds.

The overall estimate of projected F in all areas combined from this alternative is 0.21, which is lower than the maximum F allowed under the current system used for setting ACT (overall limit of 0.28 in all areas). Therefore, in this particular year the principle that limits open area F at 0.38 is the constraining factor in terms of setting total catch limits. The LA-sub ACL for this alternative is 18,885 mt (41,634,305 lb), and the LA-ACT is 15,567 mt (34.3 million pounds), the remaining catch available after set-asides and allocations for LAGC IFQ and LAGC incidental fisheries.

The default measures for FY2015 for this alternative would be:

1. 75% of the projected DAS in FY2015 for LA vessels (Projected DAS for FT vessel in 2015 is 23 DAS; therefore default DAS for FT LA vessels would be 17 DAS) See Table 11. Default DAS for part-time vessels would be 7 DAS.
2. 100% of the sub-ACL for LAGC IFQ vessels (projected sub-ACL for LAGC IFQ vessels in FY2015 is 2.8 million pounds)

NMFS will ultimately determine when and how a LA FT vessel needs to notify the Agency about their Delmarva trip based on programming and enforcement needs. One possible option is that NMFS will reach out to vessel owners giving them the option to receive 5 additional DAS or one 12,000 pound Delmarva trip. Once a vessel decides they will no longer be allowed to exchange any portion of a Delmarva trip of DAS. Specifically, if a vessel decides to receive the Delmarva trip that decision is final and cannot be converted into DAS. Vessels would have the opportunity to make the choice whether to fish in Delmarva or receive open area DAS within the first 90 days after FW25 is implemented.

Current broken trip provisions would still apply to Delmarva trips. If a vessel breaks that trip within the last 60 days the area is open that fishing year, any unused catch would be available during the first 60 days the area is open the following year. In order to prevent excessive effort in the open areas vessels would only be allowed to exchange their initial Delmarva trip for DAS. If a vessel trades in another Delmarva trip it would not be allowed to exchange the new trip for DAS.

Council rationale for preferred: The Council recommends this alternative as preferred primarily to stabilize catch from 2013 to 2015. The Council discussed that there are tradeoffs associated with fishing harder in open areas in 2014, but in this instance the potential benefits outweigh the potential risks. Increasing effort in open areas could increase bycatch and associated impacts on the environment compared to alternatives with lower DAS. However, overall effort in this fishery is lower than it has been, and the scallop fishery does have sub-ACLs for several bycatch species as well as a handful of measures that should help reduce overall bycatch. Scallop catch was substantially reduced in 2013, and is expected to increase in 2015. Increasing effort in open areas for just 2014 would help stabilize catch until 2015 when landings are expected to increase. Overall, there is a preference to catch more from open areas in 2014, and less in 2015. Low supply and large swings in total landings can have negative impacts on markets and the fishery.

There is a substantial amount of biomass within closed scallop access areas in the Mid-Atlantic; and there is a high degree of confidence that biomass will be there in 2015 and beyond based on recent surveys. Furthermore, there is also a substantial amount of scallop biomass in GF and EFH closures. All these areas will remain closed to the scallop fishery in 2014; therefore, the risk of overfishing the resource from increased effort in open areas is minimal since a large proportion of total biomass is within closed areas. While fishing mortality estimates are uncertain, and have been underestimated in recent years, the projected F for this alternative is 0.21; still comfortably below the F threshold of 0.28 for setting target catch levels, and the F threshold associated with overfishing (0.38).

In the short term this alternative is projected to increase total revenue by over $60 million dollars in FY2014 compared to the alternative in this action that is based on the principles used to set target catches in this FMP (Alternative 2). In 2015, the projected estimate of revenue for this alternative is $20 million lower than Alternative 2; therefore the benefits in 2014 for Alternative 4 are minimized relatively quickly by 2015. This is primarily driven by lower DAS allocations in 2015 for this alternative. Total DAS would need to be reduced in 2015 to bring open area F back to 0.38; about 2 DAS less than Alternative 2. Overall there are tradeoffs, but the Council believes the level of risk associated with this alternative is acceptable. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

2.1.3.5 Alternative 5 (Increase target F in open areas so that open area DAS in 2015 are only reduced by one DAS to allow higher DAS in 2014 - 28 DAS and 2 trips in either CA2, NL and Delmarva, but flexibility to exchange a Delmarva trip for 5 open area DAS)

This alternative is similar to Alternative 4, but open area F is limited so that projected 2015 DAS only reduce by one DAS. This alternative was developed by the PDT based on a Scallop

Committee Motion from November 2013. The Council agreed to include this alternative for consideration at the December 2013 meeting.

If open area F in 2014 is constrained to a level that only causes a reduction of one DAS in 2015 the total open area DAS allocation for FT LA vessels in 2014 is 28 DAS. This alternative has a total projected catch of 16,263 mt, or 35.9 million pounds. This increase in DAS has an associated increase in open area F of 0.47 overall (MA and GB open areas combined). Access area allocations for this alternative would remain the same as Alternative 3. If a FT vessel chose to use open area DAS instead of a Delmarva access area trip, their total DAS allocation for the year would be 33 DAS (28 DAS plus 5 DAS), and one access area trip in NL or CA2.

This alternative would also temporarily modify one of the three principles used for setting target catch levels in this FMP. The three principles approved for setting target catch levels are: 1) fishing mortality in open areas cannot exceed 0.38; 2) a spatially averaged fishing mortality target is limited to 0.28 for all areas combined (open and closed areas); and 3) fishing mortality targets for access areas are based on a time-averaged principle, higher F in some years followed by closures or limited fishing levels in other years. This alternative would temporarily, just for FY2014, modify the first principle and allow open area projected F to exceed $F_{threshold}$ (0.38). Projected open area F would increase to 0.47; and overall F of 0.20 for all areas combined. The other two principles for setting target catch levels are maintained in this alternative.

Alternative 5 includes:

- 28 DAS for FT vessels in open areas (when open area F is increased); and
- Two 12,000 pound access area trips per FT vessel. Each vessel would be allocated one trip in Delmarva and one trip in either NL or CA2, to be allocated by lottery. Roughly 116 trips would be allocated in NL and 197 in Closed Area II. A target F of 0.4 per area would be applied in areas with sufficient exploitable biomass and lower growth potential.
- The trip allocated for Delmarva is voluntary. FT vessels can either choose to use that access opportunity in Delmarva up to 12,000 pounds, or fish five additional DAS in open areas and no access in Delmarva. If the latter, a FT LA vessel would be allocated 33 DAS (28 DAS plus 5 DAS) and one access area trip in either NL or CA2.
- A FT vessel would be permitted to trade Delmarva trips. However, if a vessel traded in one Delmarva trip for a total of 2 Delmarva trips in 2014, it would only be permitted to convert one of those trips into open area DAS. No vessel could convert more than one Delmarva trip to DAS.
- Part-time (PT) vessels would receive one access area trip at 9,600 lb and 11 DAS. PT vessels could fish their access trip in any one area open (i.e., Delmarva, CA2, or NL). PT vessels would *not* be allowed to convert a Delmarva trip into open area DAS.
- The remaining scallop access areas would be closed to the scallop fishery in 2014: Closed Area I, Elephant Trunk would remain closed, and this action would close the Hudson Canyon access area.
- Total projected catch for Alternative 5 from all sources of catch (including set-asides and LAGC catch) is 16,306 mt, or 35.9 million pounds.

The overall estimate of projected F in all areas combined from this alternative is 0.19, which is lower than the maximum F allowed under the current system used for setting ACT (overall limit

of 0.28 in all areas). Therefore, in this particular year the principle that limits open area F at 0.38 is the constraining factor in terms of setting total catch limits. The LA-sub ACL for this alternative is 18,885 mt (41,634,305 lb), and the LA-ACT is 14,387 mt (31.7 million pounds), the remaining catch available after set-asides and allocations for LAGC IFQ and LAGC incidental fisheries.

The default measures for FY2015 for this alternative would be:

1. 75% of the projected DAS in FY2015 for LA vessels (Projected DAS for FT vessel in 2015 is 24 DAS; therefore default DAS for FT LA vessels would be 18 DAS) See Table 11. Default DAS for part-time vessels would be 7 DAS.
2. 100% of the sub-ACL for LAGC IFQ vessels (projected sub-ACL for LAGC IFQ vessels in FY2015 is 2.8 million pounds)

NMFS will ultimately determine when and how a LA FT vessel needs to notify the Agency about their Delmarva trip based on programming and enforcement needs. One possible option is that NMFS will reach out to vessel owners giving them the option to receive 5 additional DAS or one 12,000 pound Delmarva trip. Once a vessel decides they will no longer be allowed to exchange any portion of a Delmarva trip of DAS. Specifically, if a vessel decides to receive the Delmarva trip that decision is final and cannot be converted into DAS. Vessels would have the opportunity to make
the choice whether to fish in Delmarva or receive open area DAS within the first 90 days after FW25 is implemented.

Current broken trip provisions would still apply to Delmarva trips. If a vessel breaks that trip within the last 60 days the area is open that fishing year, any unused catch would be available during the first 60 days the area is open the following year. In order to prevent excessive effort in the open areas vessels would only be allowed to exchange their initial Delmarva trip for DAS. If a vessel trades in another Delmarva trip it would not be allowed to exchange the new trip for DAS.

2.1.3.6 Alternative 6 (Increase target F in open areas to bring total catch to 2013 level AND keep Delmarva closed – 37 DAS and 1 trip in either CA2 or NL)

This alternative is similar to Alternative 4 in terms of trying to maintain FY2013 catch levels for FY2014, but Delmarva remains closed in this alternative. This alternative was developed by the PDT based on a Scallop Committee Motion from November 2013. The Council agreed to include this alternative for consideration at the December 2013 meeting.

For this alternative Delmarva remains closed and open area F increases until catch is similar to projected catch levels in 2013. This alternative has a total projected catch of 17,201 mt, or 37.9 million pounds. This increase in DAS has an associated increase in open area F of 0.63 overall (MA and GB open areas combined). Under this alternative, each vessel would receive one access area trip from NL or CA2; Delmarva would remain closed.

This alternative would also temporarily modify one of the three principles used for setting target catch levels in this FMP. The three principles approved for setting target catch levels are: 1) fishing mortality in open areas cannot exceed 0.38; 2) a spatially averaged fishing mortality

target is limited to 0.28 for all areas combined (open and closed areas); and 3) fishing mortality targets for access areas are based on a time-averaged principle, higher F in some years followed by closures or limited fishing levels in other years. This alternative would temporarily, just for FY2014, modify the first principle and allow open area projected F to exceed $F_{threshold}$ (0.38). Projected open area F would increase to 0.63; and overall F of 0.18 for all areas combined. The other two principles for setting target catch levels are maintained in this alternative.

Alternative 6 includes:

- 37 DAS for FT vessels in open areas (when open area F is increased to attain 2013 projected catch levels and Delmarva remains closed); and
- One 12,000 pound access area trips per FT vessel from CA2 or NL (applying a target F of 0.4 per area in areas with sufficient exploitable biomass and lower growth potential). Each vessel would be allocated one trip by lottery. Roughly 116 trips would be allocated in NL and 197 in Closed Area II.
- Part-time (PT) vessels would receive one access area trip at 4,800 lb and 15 DAS. PT vessels could fish their access area trip in any one area open (CA2 or NL).
- The remaining scallop access areas would be closed to the scallop fishery in 2014: Closed Area I, Elephant Trunk would remain closed, and this action would close the Hudson Canyon access area.
- Total projected catch for Alternative 6 from all sources of catch (including set-asides and LAGC catch) is 17,178 mt, or 37.9 million pounds.

The overall estimate of projected F in all areas combined from this alternative is 0.18, which is lower than the maximum F allowed under the current system used for setting ACT (overall limit of 0.28 in all areas). Therefore, in this particular year the principle that limits open area F at 0.38 is the constraining factor in terms of setting total catch limits. The LA-sub ACL for this alternative is 18,885 mt (41,634,305 lb), and the LA-ACT is 15,294 mt (33.7 million pounds), the remaining catch available after set-asides and allocations for LAGC IFQ and LAGC incidental fisheries.

The default measures for FY2015 for this alternative would be:

1. 75% of the projected DAS in FY2015 for LA vessels (Projected DAS for FT vessel in 2015 is 22 DAS; therefore default DAS for FT LA vessels would be 16 DAS) See Table 11. Default DAS for part-time vessels would be 6 DAS.
2. 100% of the sub-ACL for LAGC IFQ vessels (projected sub-ACL for LAGC IFQ vessels in FY2015 is 2.8 million pounds).

Table 10 – Summary of 2014 FW25 specification alternatives and allocations under consideration

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Description of Alternative	No Action Default measures set in FW24	Basic run with OFD principles	Basic run with OFD principles - but choice for Delmarva	Basic run but increase target F in OA to bring catch to 2013 levels - choice for Delmarva	Basic run but increase target F in OA to limit 2015 DAS reduction - choice for Delmarva	Increase target F in OA to bring catch to 2013 levels - keep Delmarva closed
FT LA DAS	23 DAS (OA F=0.38)	23 DAS (OA F=0.38)	23 DAS (OA F=0.40) Vessel Choice: 1) DEL trip or 2) 5 additional DAS (total of 28 DAS)	31 DAS (OA F=0.52) Vessel Choice: 1) DEL trip or 2) 5 additional DAS (total of 36 DAS)	28 DAS (OA F=0.48) Vessel Choice: 1) DEL trip or 2) 5 additional DAS (total of 33 DAS)	37 DAS (OA F=0.62)
PT LA DAS	9 DAS	9 DAS	9 DAS	12 DAS	11 DAS	15 DAS
# of FT AA trips	0	2	2 or 1	2 or 1	2 or 1	1
# of PT AA trips	0	1*	1*	1*	1*	1*
NL	closed	Open (116 trips) (632 mt) (12,000 FT Poss limit)	Open (116 Trips) (632 mt) (12,000 FT Poss limit)	Open (116 Trips) (632 mt) (12,000 FT Poss limit)	Open (116 Trips) (632 mt) (12,000 FT Poss limit)	Open (116 Trips) (632 mt) (12,000 FT Poss limit)
CA2	closed	Open (197 trips) (1073 mt) (12,000 FT Poss limit)	Open (197 trips) (1073 mt) (12,000 FT Poss limit)	Open (197 trips) (1073 mt) (12,000 FT Poss limit)	Open (197 trips) (1073 mt) (12,000 FT Poss limit)	Open (197 trips) (1073 mt) (12,000 FT Poss limit)
DEL	closed	Open (313 trips) (1993 mt) (12,000 FT Poss limit)	Open But vessels have choice to fish there OR 5 OA DAS	Open But vessels have choice to fish there OR 5 OA DAS	Open But vessels have choice to fish there OR 5 OA DAS	closed
Total AA (mt)	0	3,744	1,751 - 3,744	1,751 - 3,744	1,751 - 3,744	1,751
Gen Cat	2.77 mil 1,258 mt	2.42 mil 1,099 mt	2.42 mil 1,099 mt	2.42 mil 1,099 mt	2.42 mil 1,099 mt	2.42 mil 1,099 mt
Total catch (Total F)	23.8 mil 10,798 mt (Total F = 0.10)	31.7 mil 14,364 mt (Total F = 0.18)	31.7 mil 14,396 mt (Total F = 0.17)	38.5 mil 17,447 mt (Total F = 0.21)	35.9 mil 16,306 mt (Total F = 0.19)	37.9 mil 17,178 mt (Total F = 0.18)

Note that three scallop access areas would be closed to the scallop fishery in 2014: CA1, ET and HC.

** PT vessels are awarded 40% of a FT allocation in terms of the combination of DAS and access area allocation. PT vessels can decide which access area to take their one allocated trip from any area open that fishing year.*

Table 11 - Summary of LA FT default 2015 allocations for each alternative consideration

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
FT LA DAS	23	19	19	17	18	16
PT LA DAS	9	8	8	7	7	6
# of AA trips	0	0	0	0	0	0

2.1.3.7 Measures to protect recruitment within access areas potentially opening in 2014

There were three options considered for this alternative. Option 1 would not restrict scallop access within any of the access areas open in 2014; Option 2 is related to Nantucket Lightship and Option 3 is related to Closed Area 2. The Committee did not ultimately include the option for Closed Area 2, so that has been moved to the considered and rejected section.

Based on 2013 survey results from several sources there is evidence of very large recruitment within and around NL, and to a lesser extent within CA2. The areas with recruitment are somewhat discrete and do not completely overlap areas with larger scallops. Therefore, the PDT has identified potential boundaries within NL and CA2 that could be closed to protect recruitment, but scallop fishing could take place in any area within the access area that is not included in these designated recruitment areas.

These alternatives are separate from the overall specifications alternatives 1-6. They could be selected separately in combination with any of the specification alternatives.

2.1.3.7.1 Option 1 (No Action) – no restriction on fishing location within GB access areas *(Preferred Alternative)*

LA and LAGC trips could take place throughout the open GB access areas, no sub-area defined to protect scallop recruitment.

Council rationale for preferred: The Council recommends this alternative as preferred primarily because the small scallops observed in the southern part of this access area are very small, less than 40 mm and are expected to pass through scallop fishing gear. Based on the distribution of adult scallops, most fishing effort will likely be north of this area anyway (Figure 4). Industry members provided input that there would be no incentive for vessels to fish on small scallops and further limiting activity within an access area is a bad precedence; suggesting that additional constraints in access areas should only be considered if there are serious potential impacts, and that is not the case here. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

2.1.3.7.2 Option 2 – Trips restricted to northern part of NL access area only

The boundary for the NL access area would be temporarily modified to restrict access in the northern portion of the access area only. Vessels would not be permitted to fish NL access area trips south of 40.5° N Lat. This restriction would also be applied to any RSA compensation

fishing, as well as compensation trips taken in the first 60 days of FY2015. This option is being considered to reduce impacts on the very large recruitment event that was observed in 2013 (Figure 3). The survivability of these scallops is uncertain, but limiting effort in this area could have beneficial impacts by reducing incidental mortality from scallop fishing.

Using 2013 survey results from VIMS dredge tow locations in NL a boundary option was developed at 40.5° N. Lat (Figure 4). The PDT evaluated the proportion of large and small scallops within the boundary option. Less than 10% of small scallops (less than 80mm) are within the access area, over 90% in the protected area. And 96% of all adult scallops in NL are within the access area and only 4% in the protected area (Table 12). The length distribution of scallops observed in the VIMS survey are in Figure 5, and the majority of the small scallops are south of 40.5° Lat.

Figure 3 – Abundance of 2013 pre-recruits on GB from NEFSC and VIMS dredge tows combined (less than 40 mm)

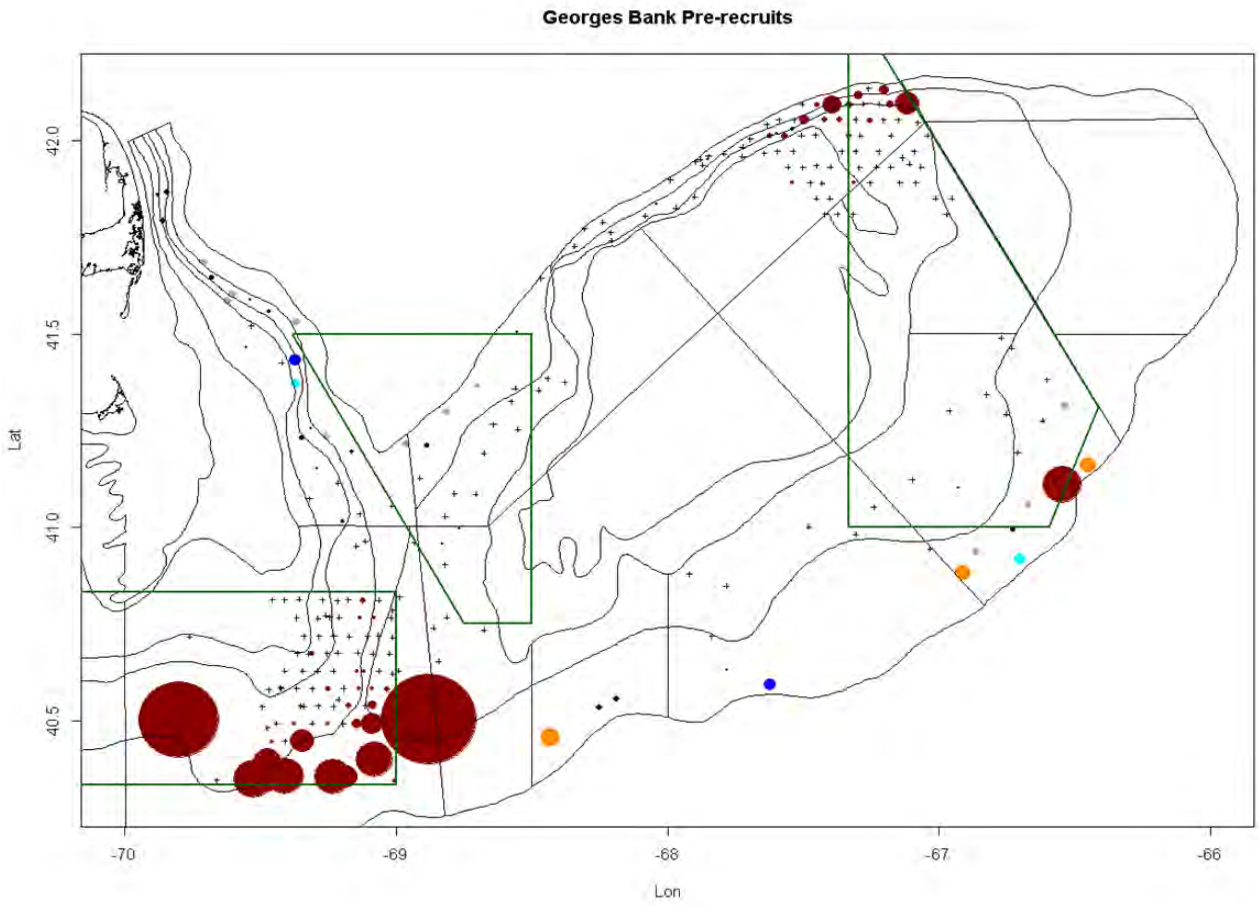


Figure 4 – Spatial distribution of adult scallops >80mm shell height relative to a potential closure boundary at 40.5° N Lat (top) and small scallops <80 mm (bottom)

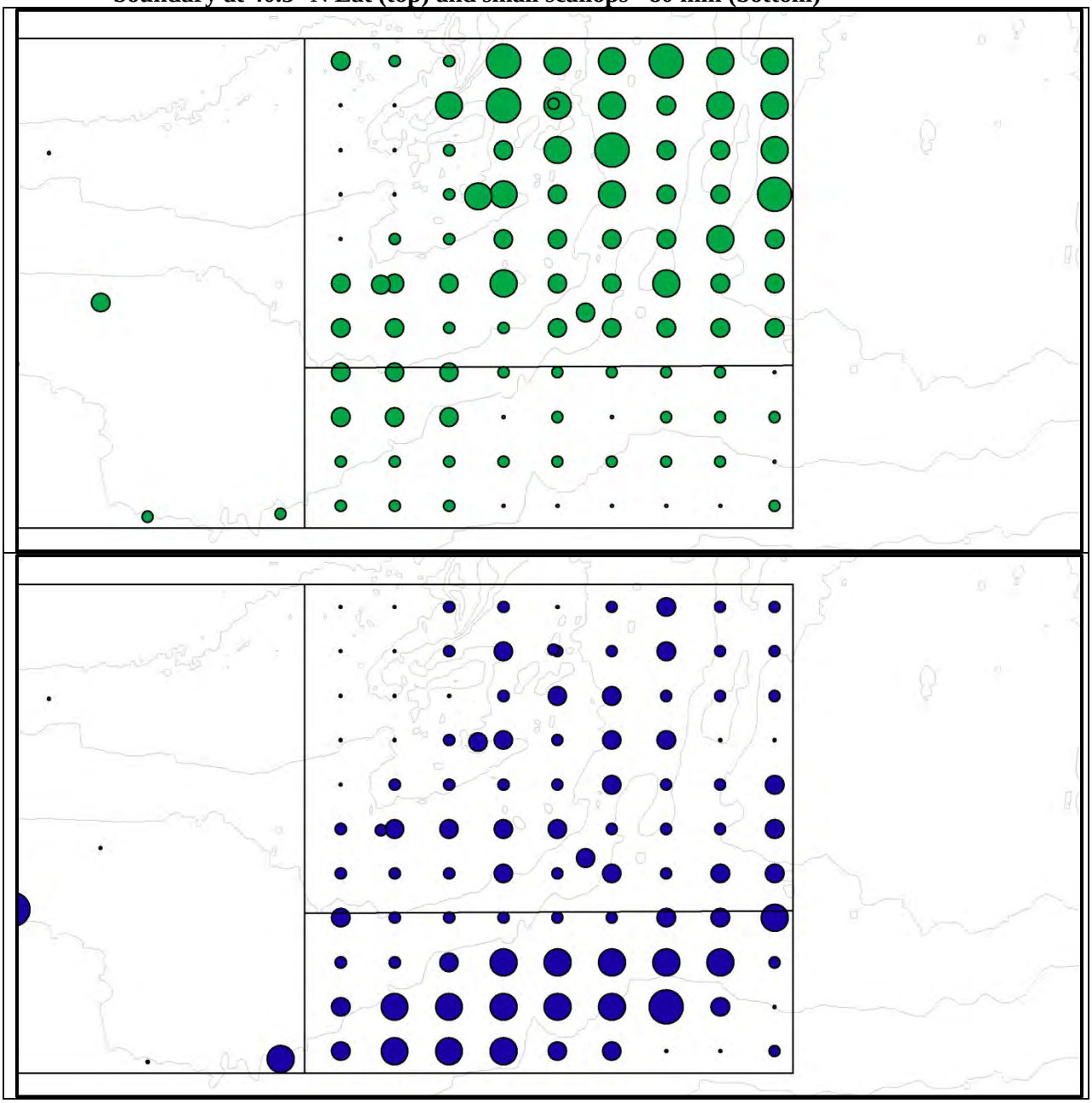
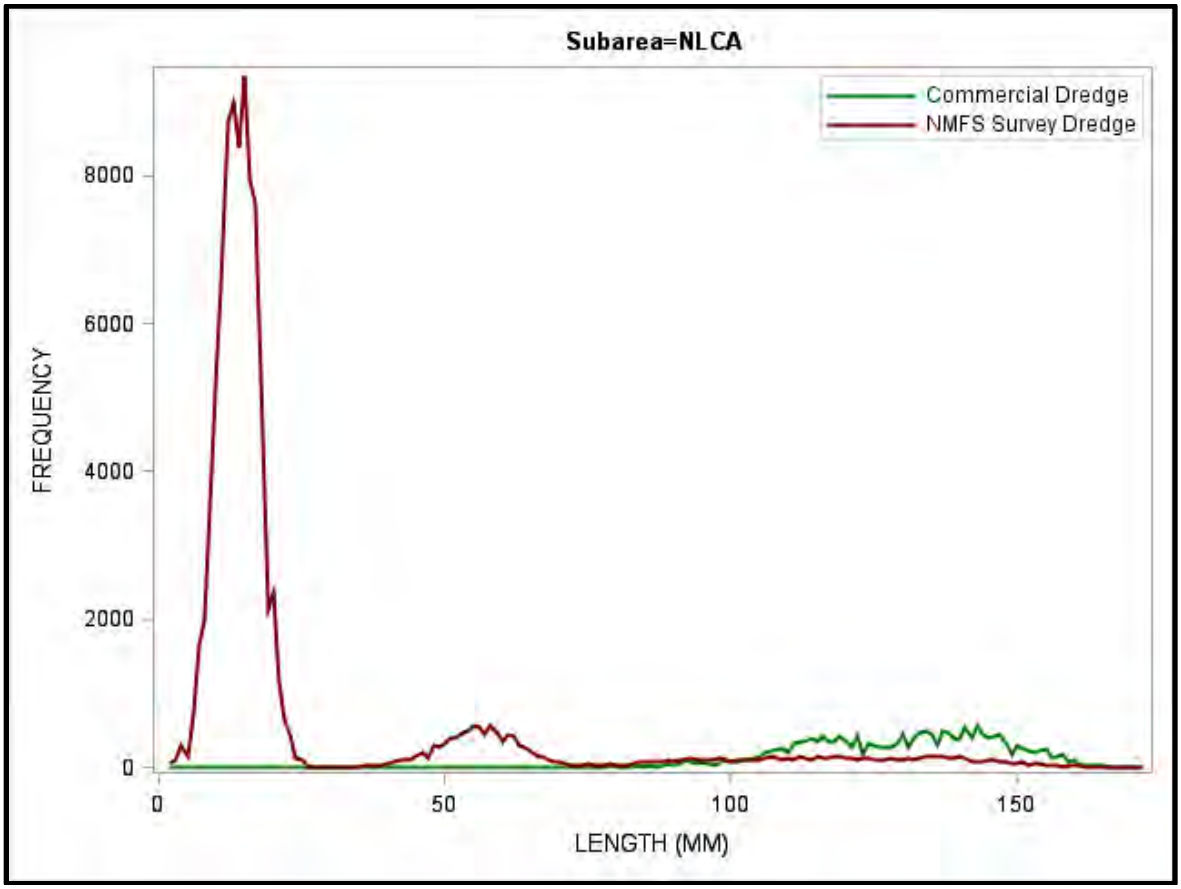


Table 12 – Percentage of scallops by category (adults >80mm) observed to fall in either the open or closed areas as delineated by a boundary like at 40.5 N

	recruits	adults
open	9%	96%
closed	91%	4%

Figure 5 - Length frequency distribution of scallops observed during the VIMS survey of NLCA during June of 2013. The majority of recruit scallops are spatially distributed south of 40.5 degrees N. A less abundant occurrence of 2 year old scallops (~60 mm) were observed to be more widely distributed especially north of the proposed closure line.



2.1.3.8 Additional measures to reduce mortality on smaller scallops in NL and/or Delmarva

These measures were developed to potentially reduce mortality on smaller scallops observed in both Nantucket Lightship and Delmarva access areas. These measures are intended to be temporary in nature, just one fishing year to reduce mortality from fishing access in these areas. Opening Delmarva in 2014 to the fishery is complex since some biomass is projected to be harvestable size, but much of the resource is still smaller than the 4-inch gear. Therefore, Alternatives 3,4, and 5 were developed to reduce overall mortality from fishing in this area by minimizing incidental and discard mortality, and concentrating fishing when meat weights are higher. In addition, very small scallops were observed in Nantucket Lightship. A relatively small amount of fishing is likely to be allocated to that area, but Alternative 2 was developed to reduce mortality on the small scallops within NL.

2.1.3.8.1 No Action – No additional measures to reduce mortality on smaller scallops in NL and Delmarva (Alternative 1)

No specific measures in addition to area rotation would be implemented to further reduce mortality on smaller scallops in NL or Delmarva. Under current regulations RSA compensation fishing can occur in any area that is open to the fishery, including open areas and any access area open that year. For example, under Specification Alternatives 2-5 in this action RSA compensation fishing could occur in open areas, Delmarva, Nantucket Lightship, or Closed Area II. The total set-aside for RSA is equivalent to 1.25 million pounds.

2.1.3.8.2 Alternative 2 – Prohibit FY2014 RSA compensation fishing from occurring in NL *(Preferred Alternative)*

This alternative would prohibit RSA compensation fishing in Nantucket Lightship in FY2014. The Council clarified that this alternative would allow research trips within NL, and if compensation fishing was planned to occur on the research trip that would be allowed. But separate RSA compensation only trips would not be permitted within the NL access area if this alternative is adopted.

In recent years a substantial proportion of total RSA catch has come out of Nantucket Lightship and it is increasing the fishing mortality in that area, reducing the amount of access for the fishery overall. For example, in FY2012 the LA fishery was allocated about 2.94 million pounds and the LAGC fishery was allocated 296 trips in the NL access area. In the same year a total of 1.25 million pounds of RSA compensation was allocated to vessels that applied and were granted RSA compensation, from any area open to the fishery. The PDT estimates that about 1 million pounds of 2012 RSA compensation was harvested in FY2012, and over 750,000 pounds, or over 75% of all RSA catch was from NL (statistical area 526).

When the total allocation for an access area is less than 3 million pounds for the directed fishery (LA plus LAGC allocation), adding 75% of the total RSA set-aside (or over 1 million pounds) becomes a large proportion of the total catch from the area (over 25% of the total catch from the area). The projection models used by the Scallop PDT for fishery specification assume that RSA catch is distributed evenly from all areas open to the fishery. Therefore, if 75% of RSA fishing it is actually coming from one access area, the estimate of fishing mortality for that area is being underestimated.

In 2013, the LA fishery was allocated about 1.5 M pounds and the LAGC fishery was allocated 206 trips in NL, for a total of about 1.6 million pounds. The total RSA set-aside in 2013 was again 1.25 million pounds. To date, 1.16 million pounds of RSA compensation have been harvested in FY2013 (some likely from 2012 RSA allocation as well). This year over 700,000 pounds were again harvested from NL, over 60% or the total RSA catch. That amount of catch is almost 50% of the total catch from NL to date (700,000 pounds / 1.6 million pounds), and could be higher if more RSA catch is used in NL during the last few months of the 2013 fishing year. Based on these recent trends, NL is an attractive area for RSA compensation fishing. Therefore, prohibiting RSA fishing from that area for one year only could help reduce mortality on the small scallops observed in that area.

Council rationale for preferred: The Council recommends this alternative as preferred primarily to reduce the potential for incidental mortality on smaller scallops observed in the southern part of this access area. The directed fishery has relatively little access in this area in FY2014 (about 1.4 million pounds), and the potential is relatively high for a substantial amount of the total RSA compensation fishing (1.25 million pounds) to take place in NL based on trends in recent years where 75% of the total RSA was caught from NL. Reducing the potential impact of incidental mortality on small scallops in this area could have very positive impacts long-term on scallop biomass and the fishery if these small scallops survive. While 1.25 million pounds is a relatively small proportion of the total scallop catch for the year, if it is potentially concentrated in an area with high concentrations of small scallops there could be negative impacts from incidental mortality. The Council clarified that this is for FY2014 only as a precautionary measure to further protect the high concentrations of small scallops observed within NL in 2013. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

2.1.3.8.3 Alternative 3 – Prohibit FY2014 RSA compensation fishing from occurring in Delmarva *(Preferred Alternative)*

This alternative would prohibit RSA compensation fishing in Delmarva in FY2014. The Council clarified that this alternative would allow research trips within Delmarva, and if compensation fishing was planned to occur on the research trip that would be allowed. But separate RSA compensation only trips would not be permitted within the Delmarva access area if this alternative is adopted.

This access area is relatively close to shore and could be an attractive area for vessels in the south to harvest RSA compensation. Prohibiting RSA fishing in this area would improve overall yield from the area in 2015 and beyond. Delmarva has been closed for most of 2012 and all of 2013 so there is no recent catch info available in terms of RSA catch from Delmarva. But similar to NL, it is an access area that is relatively close to shore for many MA ports. It is the only access area scheduled to be open in FY2014; therefore, may be an attractive area for RSA compensation fishing. Therefore, prohibiting RSA fishing from that area for one year only could help reduce mortality on the resource in that area and better protect it for the fishery for future years.

Council rationale for preferred: The Council recommends this alternative as preferred primarily to reduce the potential for incidental mortality on smaller scallops observed in the Delmarva access area. While there is some access allocated in Delmarva for the directed fishery in FY2014, a substantial proportion of the total biomass in that area is still less than optimal size for harvest. There were two strong year classes in that area, and some scallops are estimated to be smaller than scallop fishing gear (Figure 51). Therefore, smaller scallops that pass through the gear could experience incidental mortality from fishing effort. Prohibiting RSA compensation fishing in the area could help reduce overall fishing pressure in Delmarva with beneficial impacts on the resource long term, and higher allocations for the fleet overall from that area in 2015 and beyond. Delmarva is relatively close to shore and could be an attractive area for RSA fishing, particularly for vessels from Mid-Atlantic ports. While 1.25 million pounds is a relatively small proportion of the total scallop catch for the year, if it is potentially concentrated in an area with relatively high concentrations of smaller scallops there could be negative impacts from incidental

mortality. The Council clarified that this is for FY2014 only as a precautionary measure to further protect the second year class of scallops observed in Delmarva. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

2.1.3.8.4 Alternative 4 – Limit FY2014 fishing in Delmarva access area from June 1 – August 31, or three months after implementation of FW25 *(Preferred Alternative)*

The Scallop PDT recommended that access not be granted in Delmarva until June to allow scallops in that area one last growth spurt in May. The Scallop AP went further and recommended a two-month window of time between June 1 and July 31 to reduce overall mortality in that area. The Committee rounded the opening to three months to provide vessels time to access the area, but recommend closing the area before September 1 when MA scallop meat yields decline in the fall. FW25 is expected to be implemented around June 1 due to several delays in development of this action. If that is the case then access would be permitted in Delmarva from June 1 – August 31 in FY2014. If FW25 is implemented later than June 1, the window for access would end 90 days after implementation. Because projections are more uncertain in this area and there are relatively smaller scallops in Delmarva this alternative would reduce overall mortality from fishing in the area by compressing effort during the season with highest yields. Vessels would still be permitted to break a trip within the last 60 days the area is open, and complete those trips within the first 60 days the area is open in FY2015 (i.e. March and April, 2015).

Council rationale for preferred: The Council recommends this alternative as preferred primarily to reduce overall mortality in Delmarva by concentrating fishing effort in a season with relatively high meat weights compared to other months of the year. If effort is confined to the summer and early fall, fewer scallops would be harvested to attain the same overall TAC for the area. In the Mid-Atlantic average meat weights are highest between April and August, and lowest between October and February (Figure 53). FW25 will likely not be implemented until June, so the Council recommends vessels have three months to take these trips, but the area should ideally close before September when meat weights decline. It was also discussed, that vessels that do not complete their trip in this window would be permitted to carry that allocation forward to the first 60 days of the next fishing year under the carryover provisions in the Scallop FMP. Therefore, some of this effort may be fished in March and April the following year. April does have higher than average meat weights and while March does not, it is still higher than most winter months, and scallops in Delmarva would grow overall as more time passes. The Council clarified that this is for FY2014 only as a precautionary measure to further protect the second year class of scallops observed in Delmarva. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

2.1.3.8.5 Alternative 5 – Restrict crew limits in Delmarva access area in FY2014 to be consistent with open area limits *(Preferred Alternative)*

Limited access scallop vessels have crew size limits when fishing in open areas, but there are no crew size limits when fishing in access areas since there is a possession limit. However, because scallops are projected to be smaller in Delmarva if the area opens under this action, a crew limit could help reduce the potential for highgrading and associated mortality on smaller scallops.

This alternative would implement the same crew limits that exist for open areas: 7 individuals per LA vessel, and if a vessel is participating in the small dredge program it may not have more than five people on board. It was noted that access trips in other areas (NL and CA2) would not be constrained by this temporary crew limit.

Council rationale for preferred: The Council recommends this alternative as preferred primarily to reduce overall mortality in Delmarva by reducing the potential for highgrading on smaller scallops. Since scallops are generally smaller in Delmarva an additional crew member or two could increase the potential mortality from that area if vessels decide not to target larger scallops and instead cut more scallops to attain the same possession limit. If this measure reduces the incentive for highgrading, which increases mortality, it could have beneficial impacts on the resource within Delmarva. The Council is aware that some of the measures in this section could be "micromanaging" the Delmarva access area trips, which generally is not favored under flexible area rotation management, but the Council is also aware that there are risks associated with access Delmarva with relatively small scallops still present in that area, so this handful of measures are intended to minimize those potential impacts and reduce overall mortality within Delmarva. The Council clarified that this is for FY2014 only as a precautionary measure to further protect the second year class of scallops observed in Delmarva, and would not impact crew limits in other access areas. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

2.1.3.9 Measures to address unused Closed Area 1 access area trips

The Council developed a range of measures to address unused CA1 access area trips. Catch rates dropped dramatically in this area and some vessels were not able to complete trips. Because only some vessels received trips in CA1 through the lottery system, and those trips could not be fished in a different area, these measures were developed to reduce negative impacts on the environment in that area as well as disproportional economic impacts. The preferred alternative for this section is Alternative 2, Option 1, Sub-option C, as well as Alternative 2, Option 2, sub-option C.

2.1.3.9.1 No Action – No rollover of FY2012 or FY2013 access area allocation (Alternative 1)

Vessels with unused FY2013 Closed Area I allocation will be permitted to fish those trips until the end of the 2013 fishing year. Consistent with current regulations, if a vessel breaks a trip in the last 60 days of the 2013 fishing year, the vessel can fish the remainder of that trip during the first 60 days of the next fishing year, <u>but only if that access area is open</u>.

Based on the current condition of scallop biomass in Closed Area I, the area is not expected to be open under the rotational management program in FY2014. However, vessels will be able to fish their FY2013 compensation trips in the first 60 days of FY2014. Compensation trips for CA1 broken after December 30, 2013 must begin no later than April 29, 2014. All closed Area I compensation trips from trips broken after December 30, 2013, if not taken, will expire on April 30, 2014.

Under No Action, there is no opportunity left for vessels with unused FY2012 CA1 trips. Those trips expired at the end of FY2012. And if a vessel broke a trip within the last 60 days of that

fishing year it could have fished the remaining possession limit within the first 60 days the area opened in FY2013, which was between May 20-July 20, 2013. Since that date has passed these trips are completely expired under No Action.

2.1.3.9.2 Alternative 2 – Allow rollover of unused Closed Area I allocation to future fishing year *(Preferred Alternative)*

This alternative would extend the deadline to use Closed Area I access area trips. This alternative has two options in terms of 2012 trips and/or 2013 trips, as well as three sub-options in terms of the length of time trips can rollover (Table 14). Option 1 for FY2013 trips only with three sub-options to extend the trips through FY2014, FY2015, or until CA1 reopens. Option 2 is for FY2012 CA1 trips with the same three sub-options for the length of the extension. For this alternative, both Option 1 (2013 trips) and Option 2 (2012 trips) can be selected.

The Committee also clarified that if CA1 trips are permitted to rollover in this action, the trips could be taken within the existing CA1 access area, or a revised CA1 access area if modified by the EFH Omnibus Amendment. Specifically, if the EFH closed area within Closed Area I is modified or removed by that action, a subsequent scallop action could modify the access area boundaries to extend farther north. If that happens unused CA1 trips from 2012 and/or 2013 could be fished in the expanded area if an alternative in this section is selected.

Council rationale for preferred: The Council recommends this alternative as preferred primarily because there is a desire to enable access for vessels that received a trip through the lottery system to an area with much lower than projected catch rates. Trips in this area were not economically feasible and had potentially increased impacts on the environment from increased fishing effort to attain possession limits. In the last two specification packages the Council has recommended the use of a lottery system to allocate access to scallop access areas when there is insufficient biomass in one single area to enable one trip for every vessel in the fishery. In order to preserve fairness and effectiveness of the lottery system overall, the Council recommends that vessels with unused trips be allowed to rollover unused allocation in Closed Area I when the area reopens. The Council recommends this allowance for both unused 2012 and 2013 CA1 trips. Sub-Option C is also preferred, which would allow access when CA1 re-opens, potentially after the EFH Omnibus Amendment, which may eliminate EFH areas in CA1 that contain relatively high concentrations of scallop biomass. The Council clarified that this access would need to be accounted under the LA sub-ACL in the fishing year it is permitted; it is not additional catch above the LA-ACL. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

2.1.3.9.2.1 Option 1 – Allow rollover of unused FY2013 Closed Area I allocation *(Preferred Alternative)*

Vessels would be permitted to fish unused 2013 Closed Area I for a specified period of time. The PDT estimates that the unused FY2013 allocation is over one million pounds. The Council clarified that vessels do not have to submit a broken trip adjustment sheet for unused 2013 trips.

- Sub-option A – unused allocation could be fished through February 28, 2015, the end the 2014 fishing year

- Sub-option B - unused allocation could be fished through February 28, 2016, the end the 2015 fishing year
- Sub-option C - unused allocation could be fished the fishing year that CA1 reopens as an access area under a future action ***(Preferred Alternative)***

2.1.3.9.2.2 Option 2 – Allow rollover of unused FY2012 Closed Area I allocation *(Preferred Alternative)*

Vessels would be permitted to fish unused 2012 Closed Area I for a specified period of time. The PDT estimates that there is about 680,000 pounds of unused 2012 CA1 allocation. Most vessels have less than 500 pounds of unused allocation, but about 18 vessels have between 1,000 and 6,000 pounds unharvested, and over 30 vessels have 8,000 pounds or more (Table 13). The Council clarified that any rollover of unused 2012 allocation would be limited to vessels that submitted a broken trip adjustment sheet and qualify for a broken trip only. Therefore, the majority of vessels that had relatively little unused allocation likely did not submit a broken trip adjustment sheet. The PDT estimates that about 350,000 pounds have been submitted through broken trip adjustment sheets. Therefore, the maximum amount of catch from unused 2012 trips would be around 350,000 pounds.

- Sub-option A – unused allocation could be fished through February 28, 2015, the end the 2014 fishing year
- Sub-option B - unused allocation could be fished through February 28, 2016, the end the 2015 fishing year
- Sub-option C - unused allocation could be fished the fishing year that CA1 reopens as an access area under a future action ***(Preferred Alternative)***

Table 13 - FY2012 scallop limited access sub-ACL Closed Area 1: number of vessels by range of allocated pounds under-harvested

Number of Vessels	Under-harvested (lb)
129	0-100
22	101-200
11	201-300
9	301-400
9	401-500
7	501-600
5	601-700
7	701-800
4	801-900
7	1000-2000
6	2001-4000
5	4001-6000
4	8000-10000
8	10001-15000
10	16000-19000
5	25000-35000
4	35001-36000

2.1.3.9.3 Alternative 3 – Unused Closed Area I allocation could be fished in open areas

This alternative would convert unused Closed Area I allocation into access in open areas instead. There are two options being considered for when access would be granted: FY2014 or some in FY2014 and some in FY2015 (Table 14). There are two sub-options for how access would be allocated. Sub-option A would directly convert unused Closed Area I allocation into open area allocation in terms of pounds. Sub-option B would convert unused Closed Area I allocation into DAS. If the Council selects this alternative it needs to specify if the rollover is for unused 2013 and 2012 trips, or just unused 2013 trips.

2.1.3.9.3.1 Option 1 – Unused Closed Area I allocation could be fished in open areas through FY2014

Vessels would have until the end of FY2014 to fish unused CA1 allocation in open areas. Allocation will be granted in pounds or DAS based on the sub-options below.

- Sub-option A – unused allocation would be allocated in pounds. Vessels would receive an LOA to fish unused allocation in open areas
- Sub-option B - unused allocation would be allocated in DAS. The PDT will provide a conversion factor for NMFS to use to assign DAS allocations for unused allocation. *DAS conversion would need to be conservative to prevent unintended consequences on the resource in open areas as well as other segments of the fishery. Concerns rose about vessels having different capacities in open areas.*

  PDT Recommendation - any unused allocation would be divided by 3,000 pounds to get DAS conversion. This is based on current projection of open area LPUE for 2014 (2,700 pounds per DAS) and rounded up to 3,000 pounds to acknowledge that the model underestimates LPUE and to limit unintended consequence. For example, if a vessel has 12,000 pounds of unused allocation the DAS conversion would be 4DAS.

2.1.3.9.3.2 Option 2 – Unused Closed Area I allocation would be divided with 40% available in FY2014 and 60% in FY2015.

Vessels with unused CA1 allocation will be allowed to fish that allocation in either FY2014 or FY2015. All vessels with unused allocation would be placed in a lottery. Forty percent of the unused allocation would be granted access in FY2014 and 60% of unused allocation would be granted access in FY2015. This was recommended as a way to spread catch over two years to reduce impacts of additional catch on other limited access vessels. The catch from this rollover will need to be considered under the LA sub-ACL for each fishing year. Allocation will be granted in pounds or DAS based on the sub-options below.

- Sub-option A – unused allocation would be allocated in pounds. Vessels would receive an LOA to fish unused allocation in open areas
- Sub-option B - unused allocation would be allocated in DAS. The PDT will provide a conversion factor for NMFS to use to assign DAS allocations for unused allocation.

  DAS conversion would need to be conservative to prevent unintended consequences on the resource in open areas as well as other segments of the fishery. Concerns were raised about vessels having different capacities in open areas.

PDT Recommendation - any unused allocation would be divided by 3,000 pounds to get DAS conversion. This is based on current projection of open area LPUE for 2014 (2,700 pounds per DAS) and rounded up to 3,000 pounds to acknowledge that the model underestimates LPUE and to limit unintended consequence. For example, if a vessel has 12,000 pounds of unused allocation the DAS conversion would be 4DAS. The Council agreed with this recommendation, and if selected this is how DAS would be calculated.

Table 14 – Summary of alternatives under consideration for unused Closed Area I alternatives.
Preferred alternatives in italics and underlined

ALTERNATIVE	DESCRIPTION
No Action (Alt 1)	No rollover of 2012 or 2013 trips
Alternative 2	***Allow rollover in CA1 access area (or a revised CA1 access area if modified by the EFH omnibus action)***
Option 1	***2013 trips only***
Sub-Option A	Through FY2014
Sub-Option B	Through FY2015
Sub-Option C	***When CA1 reopens***
Option 2	***2012 trips only***
Sub-Option A	Through FY2014
Sub-Option B	Through FY2015
Sub-Option C	***When CA1 reopens***
Alternative 3	Allow rollover in open areas
Option 1	Unused trips could be fished through FY2014
Sub-Option A	Allocation in pounds
Sub-Option B	Allocation in DAS conversion
Option 2	Unused allocation divided by FY (40% in FY2014 and 60% in FY2015) by lottery
Sub-Option A	Allocation in pounds
Sub-Option B	Allocation in DAS conversion

2.1.4 Specifications for limited access general category IFQ vessels

Specifications for the LAGC fishery include an overall IFQ allocation for vessels with LAGC IFQ permits, a hard TAC for vessels with a LAGC NGOM permit, and a target TAC for vessels with a LAGC incidental catch permit (40 pound permit).

2.1.4.1 Alternative 1 (No Action – Default LAGC IFQ allocation from FW24)

Under FY2014 default measures the LAGC IFQ allocation is 1,258 mt for vessels with a LAGC IFQ permit as well as LA vessels with a LAGC IFQ permit. This allocation is equivalent to 5.5% of the ACL projected for FY2014 from FW24. This total is higher than the total IFQ allocated in FY2013, and higher than the projected sub-ACL under this action. Therefore, on March 1, 2013 LAGC vessels will be allocated a higher IFQ based on default measures than what LAGC IFQ vessels will likely ultimately be allocated under FW25. Similar to FY2013, LAGC vessels will need to be aware that final allocations for FY2014 are likely to be lower than allocations received on March 1, 2014 before FW25 is implemented.

2.1.4.2 Updated LAGC IFQ for FY2014 and FY2015 (default) (Alternative 2) *(Preferred Alternative)*

The total sub-ACL for the LAGC fishery is the same regardless of the allocation scenario selected (Alternative 2-6). The LAGC IFQ fishery is allocated 5.5% of the total ACL for the fishery. A portion of LAGC IFQ is reserved for LA vessels with LAGC IFQ permits (0.5%) and the remaining catch is available for vessels with LAGC IFQ permits (Table 15). For FY2014 the total LAGC IFQ is equivalent to about 1099 mt. The default 2015 IFQ allocation is about 1,273 mt, 100% of the projected LAGC sub-ACL for 2015.

Table 15 – Summary of LAGC IFQ allocations under consideration in FW25 (same for all allocation scenarios)

LAGC Allocations	2014	2015 (default)
IFQ-only (5% of ACL)= sub-ACL = ACT	999 mt	1,157 mt
IFQ + LA (0.5% of ACL)=sub-ACL=ACT	100 mt	116 mt

Council rationale for preferred: The alternative is a direct results of the previous decision related to the overall OFL and ABC for the fishery (Section 2.1.1). The sub-ACL for the LAGC fishery is removed directly from the total ACL, ABC after an estimate of discards is removed. Because the preferred ABC is based on the best available data, it should help prevent overfishing compared to using outdated information (No Action).

2.1.4.3 Allocation of fleetwide access area trip allocations for LAGC fishery

This action is considering three options for allocating fleetwide trips to the LAGC IFQ fishery. Option 1 is No Action; LAGC IFQ trips will not be allocated in any of the scallop access areas in 2014 or 2015 (default). Under the current regulations LAGC trips in access areas are set by framework. Under Option 2 the LAGC fishery would be allocated 5.5% of the total 2014 access

area TAC for every area open in a particular year. And Option 3 is to take the 5.5% from CA2 and prorate those trips proportionally among the remaining areas open in a particular year. As with the limited access scallop fleet, no access area trips would be allocated for the 2015 default LAGC IFQ measures. If final specifications are not in place before the start of the 2015 fishing year vessels with LAGC IFQ would be permitted to fish their 2015 default quota allocations from open areas only. Once a subsequent action is implemented to set final 2015 measures, LAGC IFQ vessels would be permitted to fish their quota from access areas with available LAGC trips.

2.1.4.3.1 Option 1 – No Action for LAGC IFQ access area trips

Access rea trips are set by framework action, and if this action does not specify the number of trips per area LAGC IFQ vessels would not be able to fish in scallop access areas in FY2014. They would need to harvest all IFQ from open areas. Under the current regulations, Closed Area 2 is closed to LAGC IFQ vessels since it has not been allocated LAGC trips for several years.

2.1.4.3.2 Option 2 - Allocate 5.5% of each access area TAC to the LAGC IFQ fishery

This alternative would allocate 5.5% of the access area TAC per area to the LAGC fishery in the form of fleetwide trips. Vessels would still be restricted to the possession limit of 600 pounds. Once the fleetwide max is projected to be fished, NMFS would close that access area to LAGC IFQ vessels for the remainder of the 2014 fishing year. See Table 16 for a summary of the trips that would be available to the LAGC fishery.

2.1.4.3.3 Option 3 - Allocate 5.5% of the total access area TAC available and prorate LAGC IFQ trips proportionally in all areas open that year excluding CA2 *(Preferred Alternative)*

This alternative would allocate 5.5% of the 2014 access area TAC per area to the LAGC fishery in the form of fleetwide trips. However, the trips available from CA2 would be shifted to other access areas closer to shore. All CA2 trips would be divided equally among the other areas open that year. For example, under Specification Alternative 2 the LAGC fishery would be allocated 226 trips in CA2 in 2014. Under this option those trips would be shifted to NL and Delmarva proportionally, adding about 113 additional trips per area. This alternative would provide 5.5% of total access area effort to the LAGC fishery, regardless of which areas are open.

Vessels would still be restricted to the possession limit of 600 pounds. Once the fleetwide max is projected to be fished, NMFS would close that access area to LAGC IFQ vessels for the remainder of the fishing year. See Table 16 for a summary of the trips that would be available to the LAGC fishery.

Table 16 – Summary of alternatives for LAGC fleetwide trips per access area for FY2014
(Preferred Alternative in bold and italics)

2014		Del	CA2	NL	Total TAC and # trips
No Action (Alt 1)	AA TAC	0	0	0	0
	LAGC TAC	0	0	0	0
	# LAGC trips (Option 1 – no trips)	0	0	0	0
	# LAGC trips (Option 2)	0	0	0	0
	# LAGC trips (Option 3 - no CA2)	0	0	0	0
Alt 2, 3, 4, and 5	AA TAC	1993	1119	632	3744
	LAGC TAC	109.6	61.5	34.8	205.9
	# LAGC trips (Option 1 – no trips)	0	0	0	0
	# LAGC trips (Option 2)	403	226	128	757
	# LAGC trips (Option 3 - no CA2)	***516***	***0***	***241***	***757***
Alt 6	AA TAC	0	1119	632	1751
	LAGC TAC	0	61.5	34.8	96.3
	# LAGC trips (Option 1 – no trips)	0	0	0	0
	# LAGC trips (Option 2)	0	226	128	354
	# LAGC trips (Option 3 - no CA2)	0	0	354	354

Council rationale for preferred: The Council recommends this alternative as preferred because it helps provide the LAGC fishery with 5.5% access to both open and access areas. Since LAGC vessels do not currently fish in CA2 for 600 pounds trips when that area is open to the fishery they do not access that area. This alternative shifts that potential access to areas closer to shore, maintaining the same 5.5% access to access areas overall. LAGC vessels are not required to fish in access areas, and may decide to fish their IFQ from open areas regardless, but this measure maintains that overall access to all access areas combined. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

2.1.5 Specifications for limited access general category NGOM vessels

The Council approved a separate limited entry program for the NGOM with a hard-TAC. Framework 25 is considered a separate hard TAC for this area for 2014 and 2015(default). Individuals qualified for a permit if their vessel had a general category permit when the control date was implemented (November 1, 2004). There is no landings qualification for this permit. Vessels would be restricted to fish in this area under a 200 pound possession limit until the overall hard-TAC was reached. In 2011, 110 vessels were issued a LAGC NGOM scallop permit during all of or part of the year and 164 other vessels were issued a LAGC permit in CPH. The majority of the 110 NGOM permits in 2011 were from MA (53 vessels) and 35 from Maine. Ten vessels are homeported in NH, and the rest are from NC, NJ, RI and NY.

Amendment 11 specified that the Scallop PDT will recommend a hard-TAC for the federal portion of the scallop resource in the NGOM. The amendment recommended that the hard-TAC

be determined using historical landings until funding is secured to undertake a NGOM stock assessment. The hard TAC for 2010 was 70,000 pounds based on historical catch records. The Council considered the TAC in FW23 again because that action also considered allowing NGOM vessels to declare state only trips, and that catch would not count against the federal TAC. While that measure was approved, the Council decided not to lower the NGOM TAC because catch from LAGC IFQ vessels that fish in the NGOM will still count against the TAC. Therefore, the TAC was set at 70,000 pounds for 2012 as well.

FW24 considered a lower TAC of 58,000 pounds based on a resource survey of the NGOM management unit (See Section 2.1.5.2 of FW24). However, the Council selected 70,000 pounds in FW24 for FY2013 as well. Total catches from NGOM vessels have been relatively low: about 11,500 pounds in 2010 and just under 8,000 pounds in both 2011 and 2012. However, catch in 2013 has increased to over 37,000 pounds. Most of this catch is from statistical area 513, off NH and southern Maine.

2.1.5.1 No Action NGOM hard-TAC (Alternative 1 - 70,000 pounds) *(Preferred Alternative)*

The NGOM hard TAC would remain at 70,000 pounds until changed by a future scallop action. This value is based on historical landings from VTR data. While current landings are not near the TAC, there has been an increase in catch recently. The majority of the NGOM area has not been surveyed, and some historical fishing grounds have been closed to the fishery (i.e. Jeffrey's Bank). Therefore, an alternative based on historical catch was considered.

Council rationale for preferred: The Council recommends this alternative as preferred primarily because the biomass estimate for this area is still relatively uncertain. While there have been two biomass surveys of the federal NGOM area, they have not covered the entire management unit, including some areas that are currently being fished therefore must have reasonable biomass, as well as some areas that are currently closed that are known to have scallop biomass. Some of the areas that are currently closed may open in the near future as a result of the EFH Omnibus Amendment, and some new areas may close. Overall fishing effort has been low in this area (less than 10,000 pounds annually), but did increase in 2013 to over 30,000 pounds. The Council recognizes that additional resource surveys may be warranted in this area to help define a more accurate TAC, but in the meantime using historical catches to set the TAC is reasonable. It was noted that this TAC is only 12,000 pounds higher than the other alternative considered, and both are expected to help prevent overfishing of the resource in that area. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

2.1.5.2 Updated NGOM hard-TAC (Alternative 2 – 58,000 pounds)

A scallop resource survey was conducted in 2012 to estimate the scallop biomass in the federal portion of the NGOM management area. This project was funded by a 2011 RSA award, and updated the first survey of this area that was conducted in 2009. About 200 stations were completed in the 2012 survey in five overall survey areas. Overall the biomass was very patchy and some areas had poor meat conditions (smaller meats on Platt's and Fippennies Banks compared to shell heights).

The PDT reviewed the results of this survey in FW24 and recommend that the TAC for that action be set using the same assumptions developed in Framework 22. See Section 2.6.3.2.1 of Framework 22 for more information about survey methods and biomass estimate analyses. Very briefly, the PDT recommended using the lower 25th percentile because there is substantial variability in the federal water biomass estimate in this region and it is a generally accepted principle that data poor/high uncertainty stocks require more precaution. Therefore, the PDT recommended the TAC be set at the 25th percentile at an exploitation rate of 0.25 and dredge efficiency of 0.50. Using updated values, that equals a hard TAC of 58,000 pounds. Since there is no new information the PDT recommends considering the same value in this action.

2.2 ACCOUNTABILITY MEASURES FOR THE SNE/MA WINDOWPANE FLOUNDER SUB-ACL ALLOCATED TO THE SCALLOP FISHERY

2.2.1 No Action SNE/MA Windowpane flounder AM (Alternative 1)

Under No Action, the sub-ACL for SNE/MA windowpane flounder would not have accountability measures specific to the scallop fishery. If the scallop fishery exceeds their sub-ACL, no measures would be triggered to limit or reduce future windowpane catch in the scallop fishery. This is not in compliance with NMFS regulation and guidance on ACL management, which requires an AM for every ACL and sub-ACL.

In terms of when AMs trigger in general, under No Action, if the scallop fishery is below their sub-ACL, and the GF fishery is over their sub-ACL, but the sum of all catch is below the total ACL, then no AMs would trigger in the groundfish fishery. In the reverse, if the scallop fishery exceeds their sub-ACL, but the total ACL is not exceeded because other components of the fishery were under their sub-ACLs, then AMs would NOT trigger for the scallop fishery (unless they exceed their sub-ACL by more than 50%). The program for SNE/MA windowpane flounder was designed so that each component of the fishery is accountable, but the trigger to implement AMs only occurs if the total ACL is exceeded, not just one particular sub-ACL.

However, under No Action, if the overage by the scallop fishery is substantial causing the overall ACL to be exceeded, AMs would trigger for the groundfish fishery because there are currently no AMs specific to the scallop fishery. If No Action is adopted in Scallop Framework 25, it would be likely that the next groundfish action would consider an AM for the scallop fishery to address this issue. The sub-ACL management strategy used by the Council for other species is that each fishery is accountable, and an overage that causes the total ACL to be exceeded should not impact a fishery that did not cause the overage.

2.2.2 Reactive AM - Seasonal Area Closure (Alternative 2)

This alternative would close a specified area for a period of time with higher bycatch rates of SNE/MA windowpane flounder. This AM would apply to all scallop vessels, LA and LAGC IFQ vessels. The PDT used a variety of sources of information to identify which areas should be included in this AM alternative. Appendix 1 is a detailed summary of the data sources and methods used by the PDT for development of WP AM alternatives. In general, a statistical model was created (GAM model) that estimates scallop and WP catch rates independently based on observer data from FY2006-2012. Data were binned into ten minute squares by month. A

mean d:k ratio was calculated across years and a target decrease in WP bycatch of 30% was used to help identify candidate AM areas.

The main source of information used to identify the season of the AM alternative was also observer data. A separate GAM model was developed that predicts bycatch by month and depth using all observed scallop trips from 1999-2011. Analyses were broken out by depth as well as month. During most months, bycatch is highest at 20 fathoms. However, during the fall, bycatch seems to be higher at 30 fathoms. Based on these results the PDT developed seasons for each of the AM areas developed, which are during the months with highest bycatch ratios. After the PDT developed initial areas NMFS Enforcement reviewed the polygons and raised some concern about the overall enforceability of these areas. Therefore, boundaries were adjusted to have more north/south and east/west boundaries.

The final AM areas, seasons, and triggers for this seasonal closure alternative are in **Figure 6**.

- Area 1 would be implemented if AMs were triggered and the overage was >0 and <=5% of the sub-ACL. Area 1 would be closed to all LA and LAGC scallop vessels between August 1 and November 30.
- Area 1 and 2 would be implemented if AMs were triggered and the overage was >5% and <=10% of the sub-ACL. Area 1 would be closed to all LA and LAGC scallop vessels between August 1 and November 30 and Area 2 would be closed to all LA and LAGC vessels in August and September. Note that Area 2 overlaps with part of the Elephant Trunk Access Area. This area would NOT be impacted by this AM, only the part of Area 2 that is in open areas.
- Area 1, 2, and 3 would be implemented if AMs were triggered and the overage was >10% of the sub-ACL. Area 1 would be closed to all LA and LAGC scallop vessels between August 1 and November 30; Area 2 would be closed to all LA and LAGC vessels in August and September; and Area 3 would be closed to all LA and LAGC vessels in February and March. Note that Area 2 overlaps with part of the Elephant Trunk Access Area. This area would NOT be impacted by this AM, only the part of Area 2 that is in open areas.

The groundfish regulations include the details for when the scallop fishery WP sub-ACLs is considered exceeded. First, if the total ACL was exceeded and the scallop fishery sub-ACL was exceeded by any amount; or 2) if the total ACL was not exceeded BUT the scallop fishery exceeded its sub-ACL by 50% or more. Similar to how the YT AMs work in the scallop fishery; if reliable info is available mid-year to determine the need to implement AMs, then AMs would start the following FY. If reliable info is NOT available mid-year NMFS would wait a full FY ti implement AMs (if overage in 2013 – AMs effective in 2015).

Figure 6 – WP AM areas under consideration for WP AM Alternative 2 – seasonal closed areas

The final areas and seasons were developed using estimates of WP catch reduction and % of effort expected to be displaced by the various areas and seasons considered. **Table 17** is a summary of the associated WP reduction and % of effort displaced from the WP AM areas.

Table 17 – Summary of estimated WP reduction and % of scallop fishery effort displaced by the three AM alternative areas

Note that 2008 estimates are likely not as accurate as other years since VMS data for summer months in 2008 are not available.

5%			Effort Displacement		
Year	Reduction		LA_Open	LAGC_Open	LAGC_UnClass
2007	1.5%		2.2%	0.0%	5.8%
2008	0.0%		0.4%	5.1%	0.0%
2009	1.0%		0.4%	1.4%	0.0%
2010	18.0%		4.3%	4.5%	0.0%
2011	2.8%		0.5%	8.7%	0.0%
2012	1.4%		1.3%	3.6%	0.0%
Mean	5.0%		1.7%	3.6%	1.2%
Median	1.5%		1.3%	3.6%	0.0%
10%					
Year	Reduction		LA_Open	LAGC_Open	LAGC_UnClass
2007	26.7%		3.5%	0.0%	11.3%
2008	2.4%		1.4%	12.9%	0.0%
2009	8.0%		2.1%	2.9%	0.0%
2010	18.2%		4.5%	6.3%	0.0%
2011	2.8%		0.5%	8.8%	0.0%
2012	1.5%		1.4%	5.1%	0.0%
Mean	11.4%		2.4%	4.6%	2.3%
Median	8.0%		2.1%	5.1%	0.0%
20%					
Year	Reduction		LA_Open	LAGC_Open	LAGC_UnClass
2007	27.5%		4.5%	0.0%	14.2%
2008	6.9%		12.0%	12.9%	13.2%
2009	17.5%		6.3%	6.2%	0.8%
2010	41.7%		8.4%	7.5%	0.0%
2011	13.0%		7.5%	15.6%	0.0%
2012	35.8%		10.4%	10.4%	0.0%
Mean	27.1%		7.4%	7.9%	3.0%
Median	27.5%		7.5%	7.5%	0.0%

2.2.3 Reactive AM - Seasonal gear restricted area (Alternative 3) *(Preferred Alternative)*

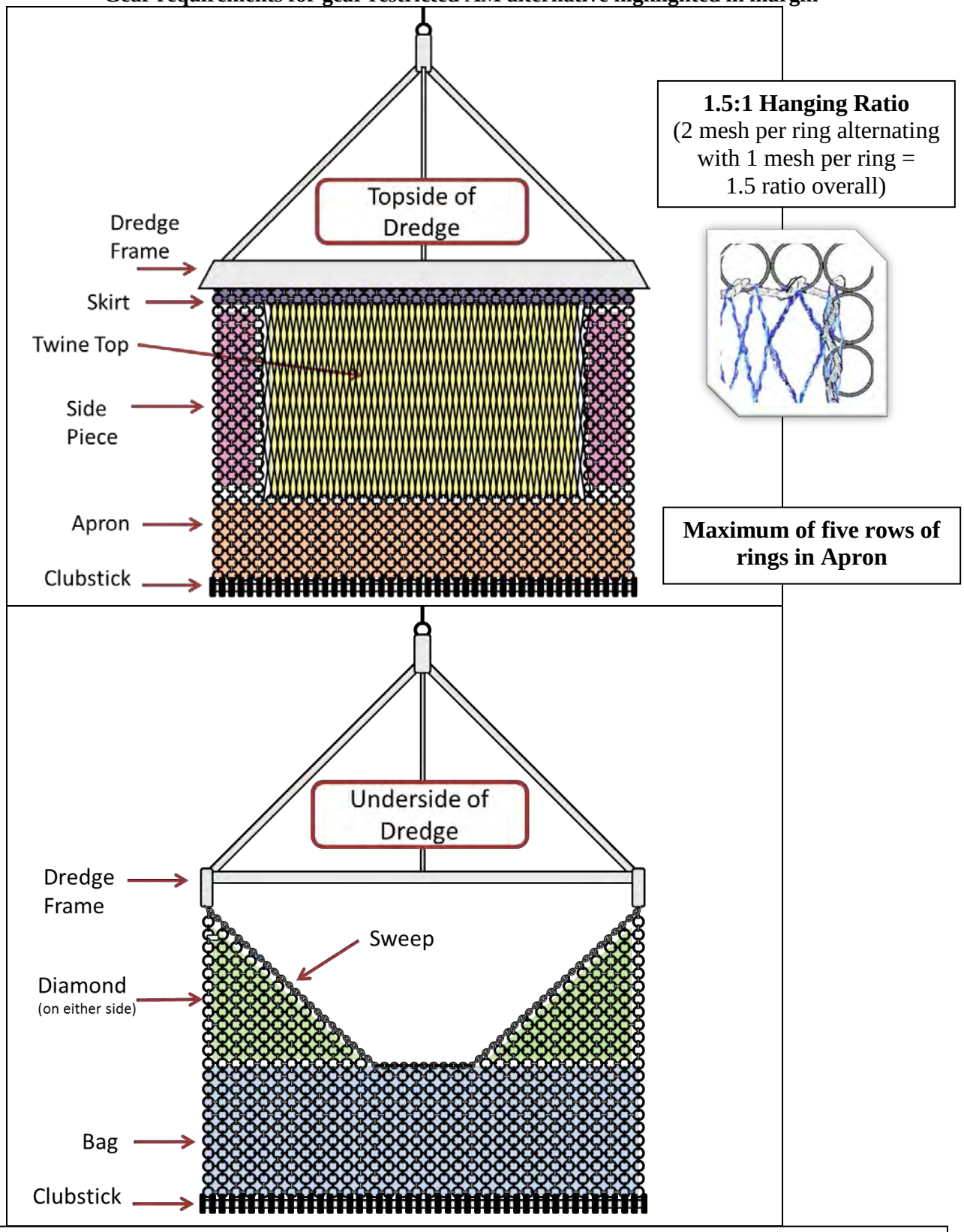
This alternative would implement a gear restricted area for a specified period of time with higher bycatch rates of SNE/MA windowpane flounder. The specific gear modification has two elements: 1) shorter apron in the dredge bag; and 2) reduced twine top hanging ratio. Figure 7 is a drawing of typical scallop dredge gear. The two gear elements involved with this gear modified area are highlighted in the margin of the figure. The AM area is all waters west of 71 W, excluding Mid-Atlantic access areas (Figure 8). If the AM is triggered and the overage by the scallop fishery is estimated to be >o and <20%, the AM would be in effect for the month of February. If the AM is triggered and the overage by the scallop fishery is over 20% the AM would be in effect for the months of February and March. The Scallop PDT has estimated the amount of "WP savings", or reduced WP catch associated with this AM alternative in Table 18. This is calculated by estimating the WP and scallop catch from this area based on observer and VMS data and applying a 45% reduction for WP catch based on results from gear tests of the modified dredge gear. See Appendix 1 for a summary of the research used by the PDT to complete analyses related to this gear modification alternative.

First, the maximum number of rows allowed in the apron of the topside of the dredge would be five rows. A vessel could fish with fewer rows of rings, but the maximum number of rows would be restricted to five. Second, the maximum hanging ratio for the dredge would be 1.5:1 overall; that is an average of 1.5 meshes per ring for the width of the twine top. The twine top is usually connected to the topside of the dredge frame by several rows of rings called the skirt. Individual meshes of the twine top are connected to each ring across the skirt of the dredge. Some vessels use a hanging ratio of 2:1, which means 2 meshes per ring. Some vessels fish with a lower hanging ratio, and some with a greater ratio of 3:1 or even 5:1. An overall hanging ratio of 1.5:1 means that the twine top is hung alternating 2 meshes per ring and 1 mesh per ring, for an overall average of 1.5 meshes per ring for the entire width of the twine top.

A dredge would be in compliance if the ratio did not exceed 1.5 based on the total number meshes in the twine top (counted at the bottom where the twine top connects to the apron) divided by the total number of rings that the twine top is connected to in the apron. For example, an apron that is 40 rings wide (not including any ring in the side pieces) would only be able to use a twine top with 60 or fewer meshes so that the overall ratio of meshes to rings did not exceed 1.5 (60 meshes/40 rings = 1.5). The regulation would not be based on the number of meshes across the top of the twine top connected to the skirt of the dredge, because some vessels connect the twine top to the frame with chain instead of rings.

This AM would apply to all scallop vessels, LA and LAGC IFQ vessels. The Council clarified that since this AM would impact all vessels on a scallop trip it would apply to vessels that fish for scallops with trawl gear as well. Specifically, if this AM were triggered a vessel fishing for scallops with trawl gear would be prohibited from fishing for scallops within the gear restricted area while the AM is effective. However, if a vessel with trawl gear wants to fish in the AM area and season if it were implemented, it would be permitted to switch to the modified dredge gear. Otherwise, vessels fishing for scallops with trawl gear would be prohibited in the AM area and season if AMs are triggered.

Figure 7 – Typical Scallop dredge gear (topside of gear on top and underside on bottom)
Gear requirements for gear restricted AM alternative highlighted in margin



Source: Goff, K. D. 2002. Ring diameter and closed area scallop fisheries. Masters thesis, Virginia Institute of Marine Science, College of William and Mary. (Note: labels and colors added to original figure).
Insert figure of hanging ratio courtesy of Coonamessett Farm Foundation.

Figure 8 – WP AM area under consideration for WP AM Alternative 3 – seasonal gear restricted area (*Preferred Alternative*)

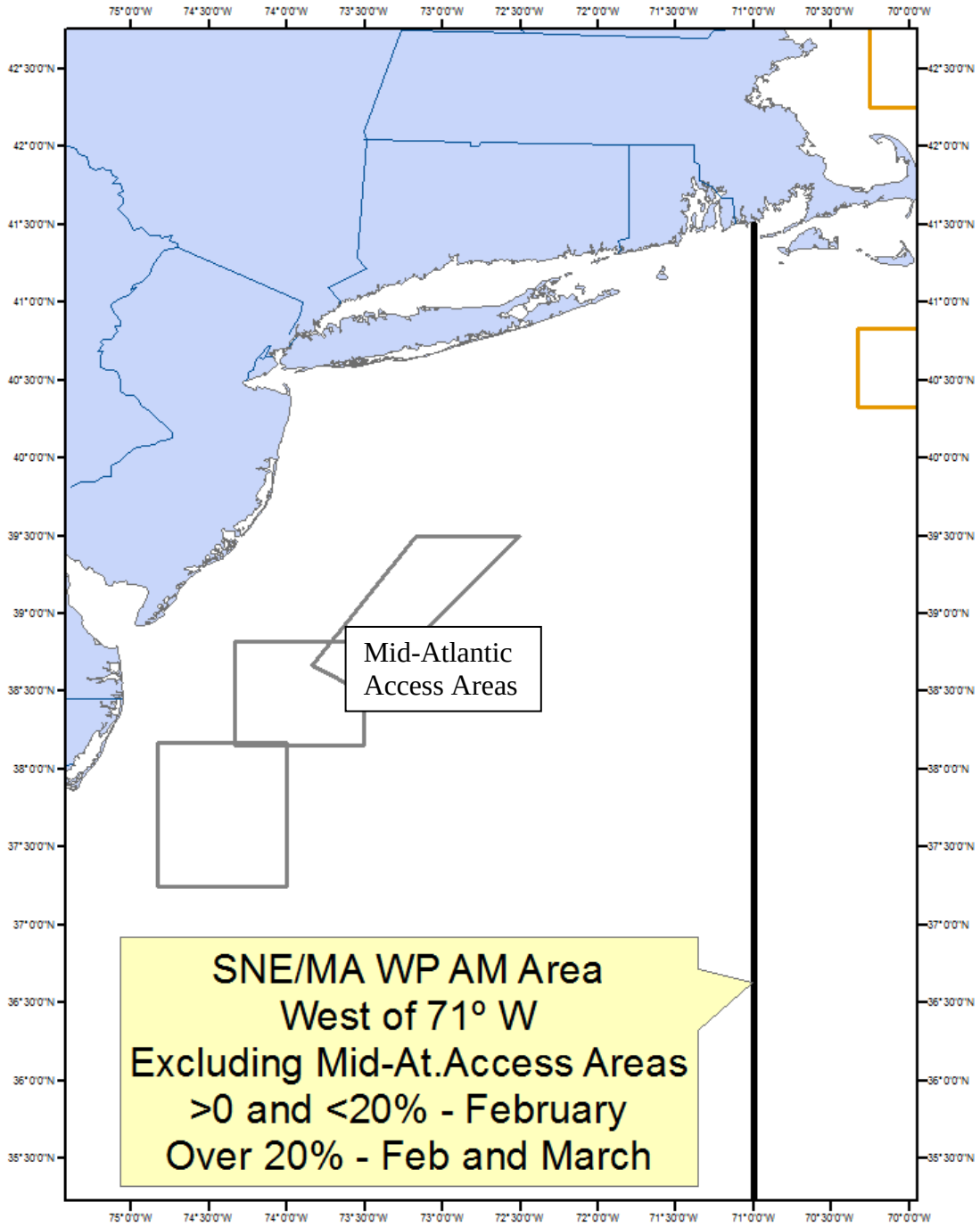


Table 18 - Estimate of WP reduction from Gear Modification AM by month for open areas west of 71 W (% reduction compared to projected WP catch with no AM and applying 45% reduction from the gear modification in the area west of TDD line (71 W))

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2007	1.62%	3.98%	4.40%	4.53%	1.03%	2.05%	2.87%	6.20%	8.19%	3.53%	1.19%	0.83%
2008												
2009	1.81%	6.04%	6.95%	4.91%	0.53%	3.01%	3.32%	2.28%	7.00%	1.17%	0.21%	0.68%
2010	1.93%	6.99%	4.40%	4.34%	0.93%	1.90%	1.40%	4.98%	7.67%	2.52%	0.73%	1.22%
2011	2.33%	6.66%	11.43%	10.61%	1.38%	0.98%	1.11%	1.47%	2.55%	2.02%	1.07%	1.05%
2012	2.07%	9.70%	10.93%	6.60%	1.46%	1.37%	1.34%	3.51%	3.58%	1.36%	0.48%	0.52%
mean	2.0%	6.7%	7.6%	6.2%	1.1%	1.9%	2.0%	3.7%	5.8%	2.1%	0.7%	0.9%

Council rationale for preferred: The Council recommends this alternative as preferred primarily because the proposed gear modification has very promising results for reducing flatfish bycatch, especially windowpane flounder. The AM area identified includes essentially the entire SNE/MA WP stock area, and the gear modification would be required during the two months with highest estimates of windowpane bycatch reduction (February and March). In general, gear modifications are expected to cause less shifts in effort compared to area closures. Shifts in effort can have uncertain impacts. Furthermore, the area closures considered in Alternative 2 may have higher disproportional impacts that this alternative since it is over a larger area, potentially not impacting one segment of the fleet more than another. Finally, if vessels begin to fish with this gear modification and they are content with the results they may choose to fish with it in all areas voluntarily since it reduces overall bycatch, including bycatch of smaller scallops, with relatively minor reductions in overall scallop catch. The Council further discussed that while these AMs may not be as effective if overages are relatively large they can be revisited in a future action. The likelihood of these AMs being triggered is currently very small since the fishery is projected to catch less than half of the sub-ACL allocation. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

2.2.4 Proactive AM – Modify gear regulations to include a <u>maximum</u> of seven rings in the apron of a dredge in all areas (Alternative 4) *(Preferred Alternative)*

Within the current twine top restrictions in Section 648.51 of the scallop regulations it states that a dredge greater than 8 feet in width, must have <u>at least</u> seven rows of rings between the terminus of the dredge (clubstick) and the twine top. Framework 5 implemented this regulation in 1995 to protect against the overharvest of small scallops. At that time some vessels were running twine top along the topside of the dredge all the way down to the clubstick. Since the mesh used for twine top was much smaller than it is today this practice essentially turned the dredge bag into a net, which has higher mortality on small scallops.

Now that twine top mesh is a required to be a minimum of 10 inches there is less incentive to run it back to the terminus of the dredge. However, recent gear research has shown that a shorter apron, for example 5 rows of rings from the clubstick, may reduce flatfish bycatch. This action is considering a seasonal gear restriction AM that would require vessels to use a shorter apron, but that will only be implemented f an AM is triggered, and would only be required in the specified AM area and season. In contrast, this measure would modify the current requirement to have <u>at least</u> a seven row apron, and instead require vessels to have a maximum of seven rows. This measure may reduce flatfish bycatch by requiring vessels that fish in the AM area all year to use a maximum of seven rows, and enable vessels to voluntarily fish with an even shorter apron, less than seven rings, to proactively reduce flatfish bycatch in any area or season. <u>This measure would apply to all scallop dredge vessels (LA and LAGC IFQ). The Council clarified at the final meeting that this proactive AM would only be required in the same AM area preferred in Alternative 3; west of 71 W, excluding access areas (</u>Figure 8<u>); but it would be required all year.</u>

The current gear restriction is outdated and is no longer necessary with larger mesh size restrictions. In addition, it is counter to innovations that could help reduce flatfish bycatch. Therefore, modifying this dated regulation is a proactive AM, not only for SNE/MA WP but all

flatfish bycatch that overlap with this AM area. The combination of a shorter apron and lower hanging ratio has been shown to be more selective for larger scallops.

Council rationale for preferred: The Council recommends this alternative as preferred primarily because this is an outdated regulation, and it prevents vessels from voluntarily fishing with aprons shorter than 7 rows. Recent gear research suggests that shorter aprons reduce flatfish bycatch (Section 5.6.2.4). This proactive AM was supported by the Council to better enable the scallop fishery overall to reduce bycatch of all flatfish species and help prevent exceeding sub-ACLs in the first place. It was noted at the final meeting that this alternative should be renamed to clarify that it is a proactive AM for all flatfish, not just SNE/MA windowpane flounder. Because most of the fishery seems to be using aprons that are greater than 7 rows (**Table 86**), and this requirement would be effective in essentially the entire Mid-Atlantic all year, excluding access areas, there could be beneficial impacts right away. This alternative was also recommended as preferred by both the Council's Scallop Oversight Committee and Advisory Panel.

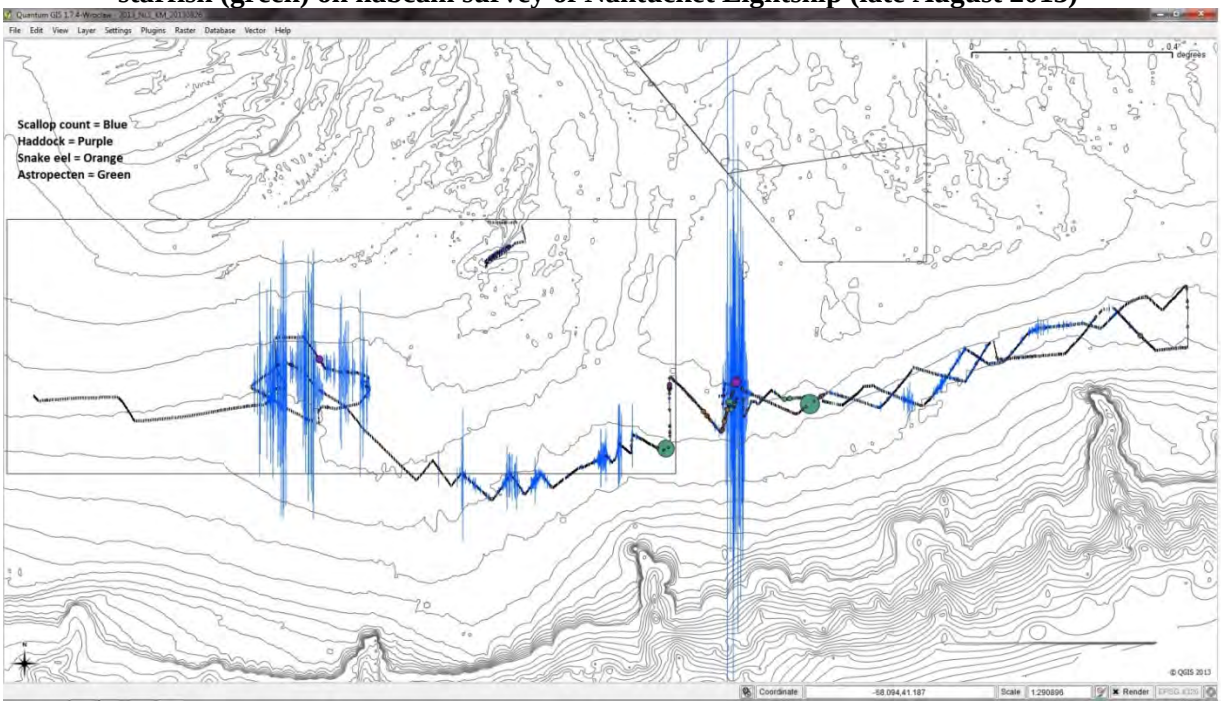
2.3 CONSIDERED AND REJECTED ALTERNATIVES

2.3.1 New scallop access area closure in and around NL

Based on the results of 2013 scallop surveys there seems to be a very large year class of small scallops in and around the current NL access area. The PDT discussed that an alternative could be developed that would encompass these small scallops in a new access area. The area would remain closed for several years and then reopen as a scallop access area. The precise boundaries were not defined, but the idea discussed was that it would include the southern part of the access area as well as potions of the existing EFH closed area in NL and some area to the east that is currently open to the scallop fishery. The average size of scallops observed was 17mm.

Following the PDT meeting in August 2013 when this area was first discussed Arnie's Fisheries surveyed the general area to help delineate how widespread the recruitment was. Habcam was towed for five days in and around NL and large densities were observed within a depth of 60-70 fathoms within the EFH closed area in NL and around 80 fathoms in the NL access area and waters to the east in open areas (Figure 9).

Figure 9 – Abundance of scallops (blue), haddock (purple), snake eel (orange) and astropecten or starfish (green) on habcam survey of Nantucket Lightship (late August 2013)



Rationale for Rejection: It is very difficult to assess scallops that are very small. There is higher predation and mortality on these scallops and they are in deeper waters than typical. Therefore, their survivability is more uncertain. These small scallops are in an area that is not heavily fished by the scallop fishery, so incidental impacts should be limited. The average size is 17mm; therefore these small scallops will go through commercial gear. There are some larger scallops mixed in these areas and it may be better to access the exploitable scallops now before the smaller scallops grow larger and incidental impacts may be greater. Closing more open area now to be part of a future access area will potentially reduce DAS further for FY2014, and the allocation for 2014 DAS will likely be lower than 2013 already; therefore, timing of this closure is not preferred. The Council can revisit this area as a potential closed area next year and decisions can be made based on more information after another survey season.

2.3.2 Option 3 – Scallop access area trips prohibited in southeast corner of CA2 access area

Small scallops were also observed in the surveys of CA2 (SMAST and NEFSC survey). The length frequencies of all measured scallops on the SMAST survey of CA2 are shown in Figure 10. The number of scallops less than and larger than 100 mm displayed in Figure 11. The PDT developed a range of potential boundary options for a recruitment protection area within CA2 south (Figure 13 and Figure 12).

Figure 10 – Number of scallops by shell height (5mm bins) from 2013 SMAST survey of CA2 south

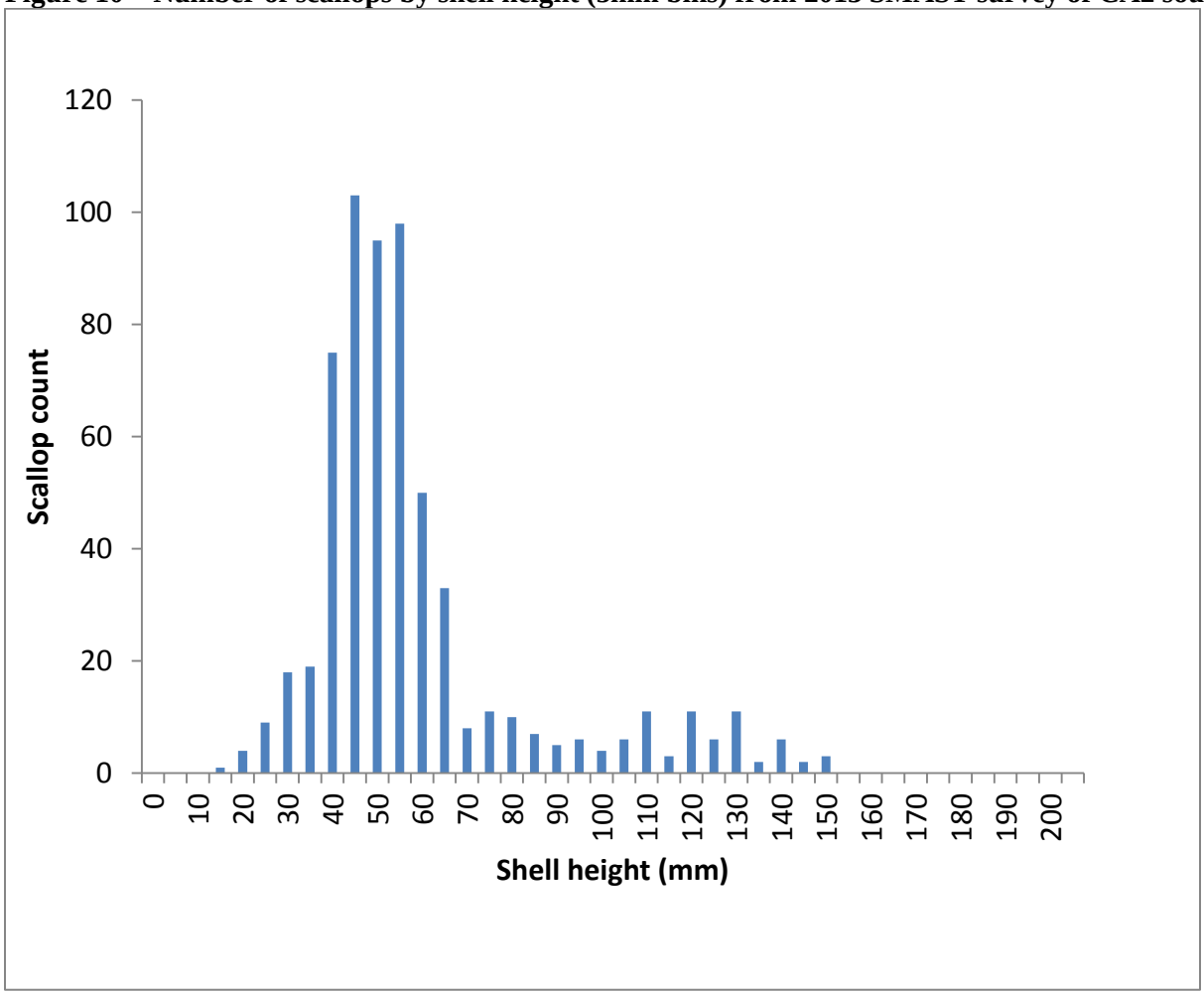


Figure 11 – Number of scallops less than 100 mm (TOP) and larger than 100 mm (BELOW) measures from SMAST 2013 survey of CA2 south

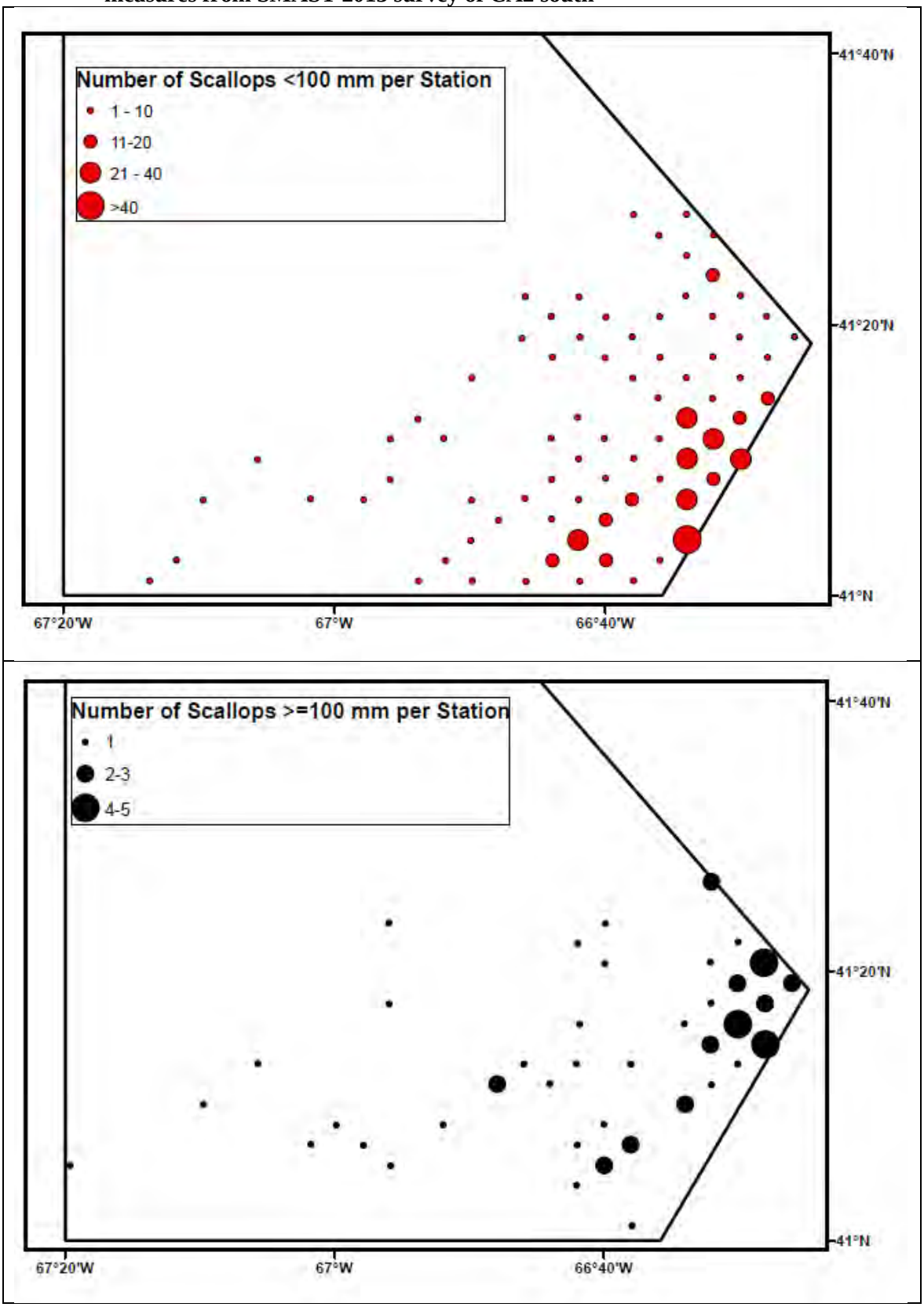


Figure 12 – Adult (left) and recruit (right) scallop biomass from two surveys (2013). Possible closure area in southeast corner highlighted in blue

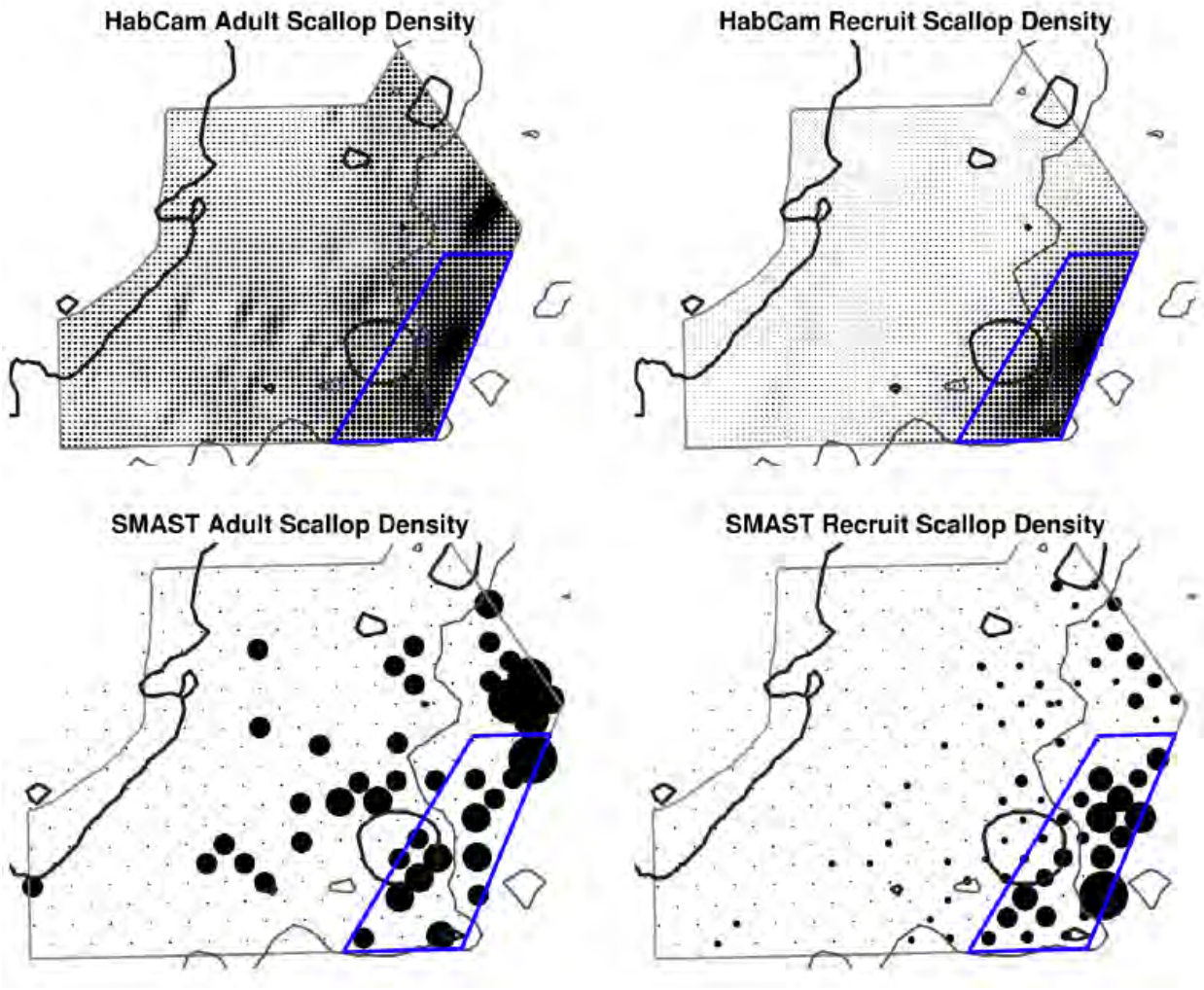


Figure 13 – Several possible scenarios developed by the PDT for consideration for boundaries within CA2 south to protect recruitment in southeast corner of access area

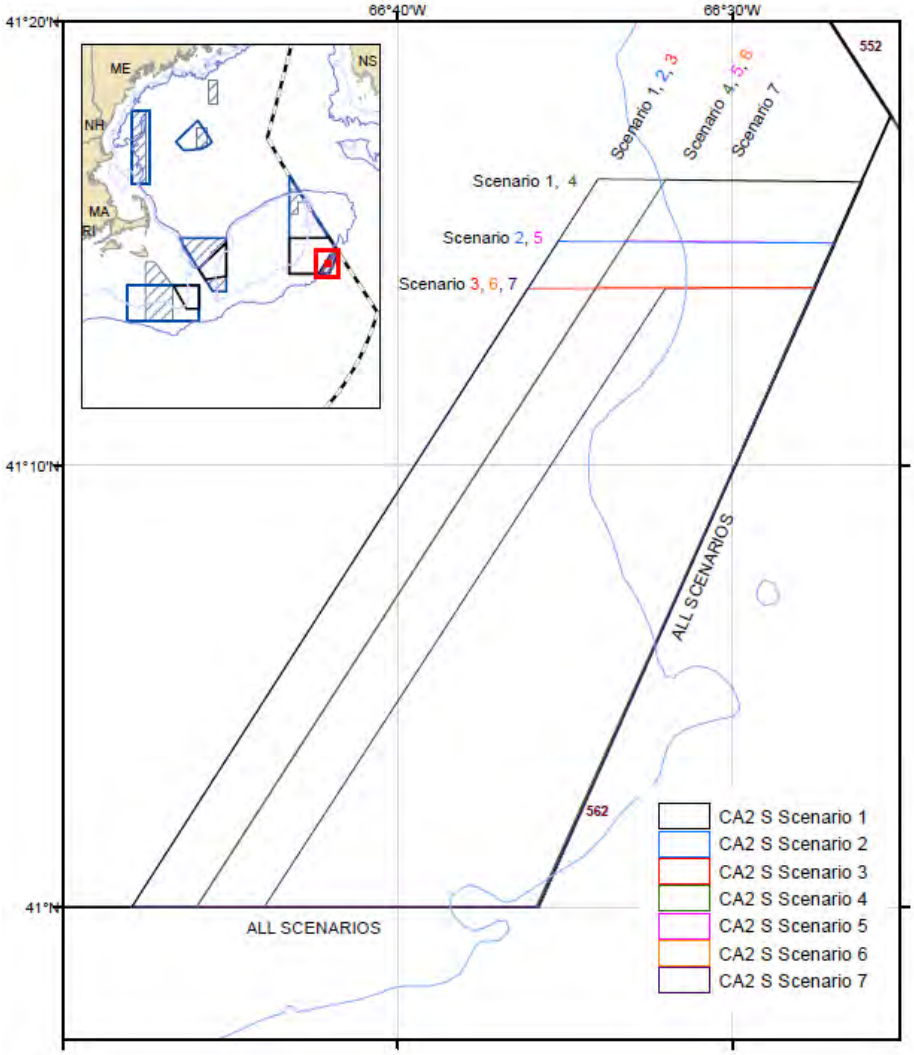


Table 19 – Estimate of the percentage of scallop recruitment and adult biomass within and outside of possible boundaries within CA2 south.

Scenario	HABCAM		SMAST	
	%Recruits Included	% Adults Included	%Recruits Included	% Adults Included
1	73	28	79.7	37.9
2	70.6	26.6	79.7	37.9
3	67.7	25.2	76.2	28.8
4	65.8	24.2	73.6	33.3
5	64	23.2	73.6	33.3
6	61.7	22.1	70.1	24.2
7	51.8	18	54.5	13.6

Rationale for Rejection: The Scallop AP and Committee reviewed this proposal form the PDT and decided not to include it for consideration at this time. There is a substantial amount of larger scallops mixed within the area that has smaller scallops. There are concerns that scallops are not dense in this area and the fleet will need access to more of the adult population. More importantly, the southeast portion of CA2 is general a low YT bycatch region, and since the YT allocation for 2014 is very small, the fleet may need to concentrate in that area to avoid YT. The AP also commented that CA2 may not be open in 2015 so it would be important to harvest larger scallops now if the area is not open for several years.

2.3.3 Alternatives for unused Closed Area I access areas – Allow vessels with unused FY2013 Closed Area I catch to fish that allocation in a different access area

This alternative would allow a vessel with an unused FY2013 trip to harvest that catch from a different access area. Two options are being considered in terms of the deadline vessels would need to complete unused Closed Area I trips: Option 1 is through FY2014; and Option 2 is through FY2015. The PDT will identify the appropriate access area in this action, or in a future scallop action, particularly if Option 2 is selected.

Rationale for Rejection: There are no access areas available in FY2014 that can support additional catch. All available catch is already being allocated for FY2014 access.

2.3.4 Proactive AM – Include a maximum twine top hanging ratio of 1.5:1 for all areas (Alternative 5)

Currently there is no limit on the number of meshes a scallop dredge vessel can use in the twine top of their dredge, so long as the opening is at least 10 inches. The more meshes that are used, the tighter the meshes pull together when fished. For example, many vessels fish with 60 meshes across a 15 ft. dredge, but some fish with as many as 80 or 90 meshes across. As meshes pull tighter there is less space for scallops and fish to escape the gear.

Twine top mesh is connected to the topside of the dredge frame by either rings or chains. In the case of rings, the number of meshes per ring is referred to as the hanging ratio. Some vessels fish a 2:1 hanging ratio which means 2 meshes per ring. Some vessels fish a lower ratio than this (fewer mesh per ring), and other vessels fish a higher ratio (more meshes per ring).

The most effective way to regulate the gear so that the twine top is fished as it was intended to with greater openings for escapement of finfish is to restrict the hanging ratio. Research has shown that lower hanging ratios increase finfish escapement. This alternative would require a maximum hanging ratio of 1.5 meshes per ring, on average for the entire width of the twine top. <u>This measure would apply to all scallop vessels (LA and LAGC IFQ) in all areas (access and open areas).</u>

Rationale for Rejection: The Committee decided not to include this alternatives as a proactive AMs at this time based on a recommendation from the Advisory Panel. It was argued that scallop vessels are now required to use turtle deflector dredges in the Mid-Atlantic and the potential benefits of that new gear requirement are still uncertain. It is possible the TDD gear

modification will reduce windowpane bycatch levels substantially. Therefore, the Advisory Panel argued that before more proactive gear modifications are required more time and resources should be spent evaluating the impacts of current gear requirements. There was also concern voiced that reducing bycatch of other flatfish before sub-ACLs are assigned could have negative impacts on the scallop fishery in terms of future allocations.

2.3.5 Proactive AM – Maximum of five rows of rings in the apron of dredge gear in all newly opened access areas on GB (NL, CA1, and CA2) (Alternative 6)

This alternative would require a maximum of five rows in the apron of dredge gear on all scallop vessels (LA and LAGC IFQ) in all access areas on GB, including NL, CA1, and CA2. If new scallop access areas are developed on GB and this measure is adopted, this gear restriction should be considered for new access areas as well. Vessels would not be subject to this proactive AM when fishing in open areas.

Rationale for Rejection: The Committee decided not to include this alternatives as a proactive AMs at this time based on a recommendation from the Advisory Panel. It was argued that scallop vessels are now required to use turtle deflector dredges in the Mid-Atlantic and the potential benefits of that new gear requirement are still uncertain. It is possible the TDD gear modification will reduce windowpane bycatch levels substantially. Therefore, the Advisory Panel argued that before more proactive gear modifications are required more time and resources should be spent evaluating the impacts of current gear requirements. There was also concern voiced that reducing bycatch of other flatfish before sub-ACLs are assigned could have negative impacts on the scallop fishery in terms of future allocations.

2.3.6 Proactive AM – Maximum twine top hanging ratio of 1.5:1 in all newly opened access areas on GB (NL, CA1, and CA2) (Alternative 7)

This alternative would require a maximum hanging ratio of 1.5 meshes per ring, on average for the entire width of the twine top. All vessels (LA and ALGC IFQ) would be required to fish with this hanging ratio, or less, in all access areas on GB, including NL, CA1, and CA2. If new scallop access areas are developed on GB and this measure is adopted, this gear restriction should be considered for new access as well. Vessels would not be subject to this proactive AM when fishing in open areas.

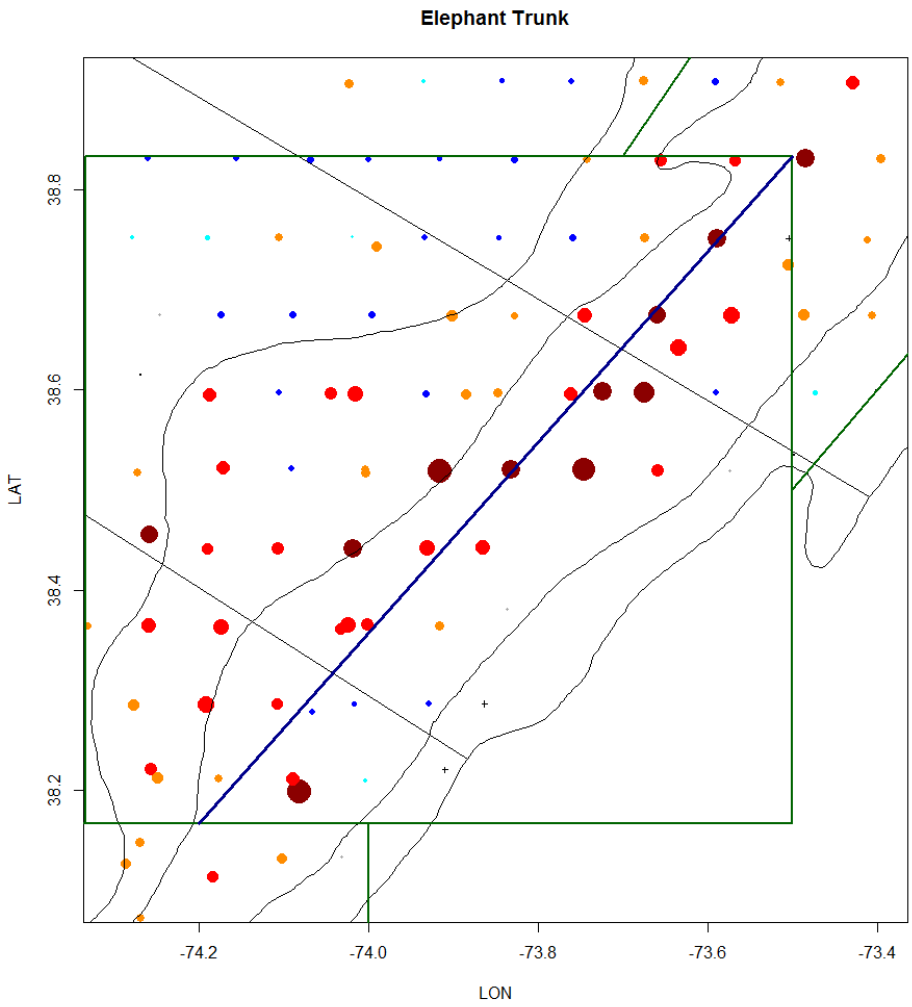
Rationale for Rejection: The Committee decided not to include this alternatives as a proactive AMs at this time based on a recommendation from the Advisory Panel. It was argued that scallop vessels are now required to use turtle deflector dredges in the Mid-Atlantic and the potential benefits of that new gear requirement are still uncertain. It is possible the TDD gear modification will reduce windowpane bycatch levels substantially. Therefore, the Advisory Panel argued that before more proactive gear modifications are required more time and resources should be spent evaluating the impacts of current gear requirements. There was also concern voiced that reducing bycatch of other flatfish before sub-ACLs are assigned could have negative impacts on the scallop fishery in terms of future allocations.

2.3.6.1.1 Alternative 4 – Allow unused Closed Area I allocation to be fished in deeper waters of ET in FY2014

ET is not ready to be an access area for the directed fishery. However, if this action is looking for a place to fish unused CA1 trips and not impact the open areas it may be possible to send this effort into the deeper waters of ET. The PDT is not comfortable opening all of ET for this effort because the risk of negative impacts on scallops in that area is too high. Scallops do not grow as large in deeper waters so the growth potential in that area is not as great as the shallower portions of ET.

The PDT is still working on a more refined boundary for this alternative. If this is included in FW25 a more specific boundary will be developed.

Figure 14 – Proposed boundary for potential deep-water access in ET in 2014 for unused CA1 trips



Rationale for Rejection: The PDT developed this alternative to find a place to send unused trip in 2014. The Scallop AP and Committee reviewed this idea but expressed concern that the future of the fishery for the next few years is in ETA, and accessing that area too early could be very risky. Therefore, this option was not included in the document for further consideration.

3.0 REFERENCE INFORMATION RELATED TO FISHERY SPECIFICATIONS (COUNCIL ACTION AND ANALYSES NOT REQUIRED)

This section does not include any alternatives under consideration in this action. Rather, the information presented in this section only summarizes reference material related to fishery specifications or supporting analyses. For example, there are various set-asides that are automatically set based on overall catch limits set in this fishery so Section 3.1 and 3.2 have been included here to help clarify the various components of the fishery that are more automatic. These set-asides do not require Council action or analysis, as the processes that set these specific allocations have already been analyzed in previous scallop actions or they are specified through other fishery actions.

Similarly, the Council approves specific research priorities relative to the RSA set-aside program in the Scallop FMP, Section 3.2.1. Finally, the PDT estimates YT and WP projected catch for the various fishery specification alternatives under consideration. Even though the GF FMP now allocated a set percentage of the available ACL to the scallop fishery, these analyses are still completed to evaluate potential impacts. They have been included in a separate section primarily for future reference.

3.1 SPECIFICATIONS FOR LIMITED ACCESS GENERAL CATEGORY INCIDENTAL CATCH VESSELS

Amendment 15 included a provision that the Scallop FMP should consider the level of mortality from incidental catch and remove that from the projected total catch before allocations are made to the directed fisheries. The amendment requires the PDT to develop an estimate of mortality from incidental catch and remove that from the total. This section includes a summary of the PDT estimate and the value that was removed from the total projected catch before allocations to the limited access and general category fisheries were made.

In 2010, 294 vessels qualified for an incidental catch permit; 275 were issued on vessels and 19 in CPH. The majority of permits are on vessels homeported in Massachusetts (113 vessels) followed by New Jersey, Rhode Island, North Carolina and New York. In 2011 total catch from these vessels was 38,700 pounds, about 77% of the target TAC. Finally, in the NMFS yearend report for FY2012 the total catch from vessels was estimated at 61,869 pounds, about 24% above the 50,000 pound target TAC. The PDT discussed if a higher value should be considered in this action but recommended it be left at 50,000 pounds for now. This level of catch is very small and will not have impacts on the overall resource, and 2012 is the first time it has exceeded the target. The PDT will continue to monitor this source of mortality and recommend a higher TAC in a future action if necessary. <u>Based on these analyses, the Council did not develop alternatives for setting a target TAC for incidental catch; instead the target allowable catch will remain at 50,000 pounds and will be re-evaluated in the future</u>.

3.2 TAC SET-ASIDES FOR OBSERVERS AND RESEARCH

In Amendment 15 the Council recommended that set-asides for research and observers should be removed from the overall ACL, rather than percentages of open area DAS and access area TACs. More set-aside is actually available when this change is made because it is removed before buffers for management uncertainty are factored in. Prior to Amendment 15 set-asides were

taken out from the allocation level, what is now known as the ACT, whereas now set asides are removed from the total ACL level.

The ultimate values that are set-aside for the observer and research programs are not a decision the Council has to make in each Framework. Amendment 15 changed the research set-aside from a percent of projected catch to a set poundage of 1.25 million pounds, or 567 mt. Therefore, there are no alternative research set-aside allocations under consideration in this action. While modifying the amount of research set-aside is a frameworkable item, this action is not considering different values; thus the set-aside for the research program will be 1.25 million pounds in 2014, as well as 2015 unless changed in a subsequent action.

The observer set-aside is still based on a percent of catch, not a set poundage, but it is a percent of the total ACL before buffers for management uncertainty are factored in. The total set-aside for observers in FY2014 is 208 mt, and 240 mt for FY2015(default), equivalent to 1% of the ABC=ACL. Because the compensation rates are based on pounds-per-area, the observer set-aside is divided proportionally (Table 20).

NMFS could use the proportional breakdown of the total set-aside by area below to set the initial set-aside compensation rates by area (open and access) (Table 20). However, since FW24 the observer set-aside is no longer area specific. NMFS can adjust set-aside per area to provide more compensation being used in one area and less in another.

Table 20 – Summary of 2014 observer set-aside by area

Area	% of TAC by area	OBS set-aside (mt)
NLS	3%	7
CAII	6%	13
Delmarva	12%	24
Total AA	21%	44
Open areas	79%	164
All Areas	100%	208

Note: This table presents the observer set-aside broken out by area (applied proportionally based on the total TAC by area)

3.2.1 Research priorities (Approved by the Council in April 2013)

The research priorities used for the RSA set-aside are defined by the Council. In April 2013 the Council approved research priorities to be used in the next funding announcement, usually June 2013 for the 2014 fishing year. These priorities were set for two years, but they may get revisited and adjusted in the next scallop action for a possible announcement in 2014.

Scallop research priorities approved by the Council for 2013 and 2014

HIGHEST PRIORITIES (not listed in order of importance):

- An intensive industry-based survey of each of relevant scallop access areas (Closed Area I, Closed Area II, Nantucket Lightship, Delmarva, Elephant Trunk, and Hudson Canyon).

The primary deliverable of these surveys would be to estimate total allowable catches (TACs) under the rotational area management program if the data from these surveys are available by August of the prior fishing year. Areas scheduled to be open in the following fishing year generally have a higher priority than other areas.

- Identification and evaluation of methods to reduce the impact of the scallop fishery with respect to bycatch. This would include projects that determine seasonal bycatch rates, characterize spatial and temporal distributional patterns as well as the associated discard mortality rates of yellowtail flounder, and other key bycatch species.
- An intensive industry-based survey of areas that may be candidate access areas in the future (i.e. open areas with high scallop recruitment or closed areas that may open to fishing in the future such as groundfish mortality closed areas or current habitat closed areas).
- Broad, resource wide industry-based survey of entire scallop resource area.

MEDIUM PRIORITY (not listed in order of importance):

- Other resource surveys, to expand and/or enhance survey coverage in areas that have the potential to be important resource areas, but currently have a lack of comprehensive survey coverage.
- Research to support the investigation of the loggerhead turtle behavior in the Mid-Atlantic (via satellite tagging or other means) to understand their seasonal movements, vertical habitat utilization, and how and where interactions with dredge gear are occurring. This priority topic also includes monitoring of scallop dredge and trawl operations, and the development of further gear modifications if monitoring should indicate current designs are not eliminating the threat or harm to sea turtles or are resulting in unacceptable scallop catch loss.
- Studies aimed at addressing issues that were identified as research priorities at the latest assessment: i.e. incidental gear mortality, discard mortality, mortality from predation (i.e. starfish, dogfish, etc.), and seasonal growth of scallops.
- Research aimed at describing the occurrence as well as understanding the mechanisms of processes that affect scallop product quality and marketability (i.e grey meats, diseases). Related to that, research that would evaluate the potential magnitude of impacts on scallop mortality from “scallop quality” discarding (while shucking).
- Research aimed at the effects of chemicals, water quality, and other environmental stressors on reproduction and growth of scallops (i.e. jet fuel, pesticides, ocean acidification, etc.).

OTHER PRIORITIES (not listed in order of importance):

- Other scallop biology projects, including studies aimed at understanding recruitment processes (reproduction, larval and early post-settlement stages), growth, and natural mortality (including predation and disease).
- Investigation of variability in dredging efficiency across habitats, times, areas, and gear designs to allow for more accurate quantitative estimates of scallop dredge impacts on the seabed and development of practicable methods to minimize or mitigate those impacts.
- Habitat characterization research including, but not limited to: video and/or photo transects of the bottom within scallop access areas and within closed scallop areas and in comparable fished areas that are both subject and not subject to scallop fishing before and after scallop fishing commences (BACI or before after control impact dredge impact

studies); identification of nursery and over-wintering habitats of species that are vulnerable to habitat alteration by scallop fishing; and other research that relates to habitats affected by scallop fishing, including, but not limited to, long-term or chronic effects of scallop fishing on marine resource productivity, other ecosystem effects, habitat recovery potential, and fine scale fishing effort in relation to fine scale habitat distribution. In particular, projects that directly support evaluation of present and candidate EFH closures to assess whether these areas are accomplishing their stated purposes and to assist better definition of the complex ecosystem processes that occur in these areas.

- Scallop and area management research, including but not limited to: evaluation of ways to control predation on scallops; research to actively manage spat collection and seeding of sea scallops; social and economic impacts and consequences of closing areas to enhance productivity and improve yield of sea scallops and other species; and estimation of factors affecting fishing power for each limited access vessel.
- Develop methodologies or alternative ways for the scallop fleet to collect and analyze catch and bycatch data on a near real-time basis (i.e. collection of scallop meat weight and quality data, specific bycatch information, etc. Potential ideas include but are not limited to: concepts like a "Study fleet", electronic monitoring, dockside monitors, bag tags, etc.).

3.3 UPDATED PROJECTIONS OF FLATFISH BYCATCH (YT AND WINDOWPANE)

This section includes a summary of the updated YT and windowpane flounder bycatch projections based on FW25 allocations. The Groundfish FMP is the plan that sets the YT and WP flounder sub-ACLs for the scallop fishery. Groundfish Framework 48 recently changed the allocation method to a fixed percentage of the total ACL for GB YT (16% of the US ABC). The sub-ACL for SNE/MA YT is not based on a method that is set in the regulations like it is for GB YT. Most recently the Council set the sub-ACL at 90% of the high estimate of scallop fishery catch of SNE/Mid-Atlantic yellowtail flounder for 2013-2015. But this method could vary. Modifying the 2014 allocation of SNE/MA YT for the scallop fishery sub-ACL is not currently under consideration in Framework 51.

Finally, for SNE/MA windowpane the sub-ACL allocation method is set in the GF regulations at 36% of the total ACL. The sub-ACL values were recommended and analyzed in a separate action (Framework 48 to the Multispecies FMP) but has been referenced here to help keep track of decisions being taken in other actions related to the scallop fishery.

Table 21 – Summary of sub-ACLs allocated to the scallop fishery under the Multispecies FMP (mt)

	2014	2015
GB YT	50.9	Not available
SNE/MA YT	66	64
SNE/MA WP	183	183

The final estimates of projected YT catch by the scallop fishery for 2014 and 2015 are summarized below (**Table 23**) and the associated bycatch rates used to generate these projections are summarized in Table 22. Similarly, the bycatch rates for WP are in Table 24, and the projected catch of WP in 2014 and 2015 are in Table 25.

The Scallop PDT generated two bycatch projections for 2014; the low value is using 2012 bycatch rates, and the higher value is based on 2013 bycatch rates from observer data. The only major difference is for GB YT because the bycatch rate was twice as high in 2012 from CA2 access area trips compared to 2013. The 2014 projected catch of GB YT is above the sub-ACL for all the specification alternatives under consideration except No Action. For SNE/MA YT some alternatives are below and some are above. And for SNE/MA WP all specification alternatives are well below the sub-ACL.

Bycatch projections are complex because they combine not only projections of future scallop biomass, but also projections of biomass for bycatch species, bycatch rates, and assumptions of future fishing behavior in terms of spatial and temporal fishing patterns. These estimates should primarily be used to provide a way to compare the potential impacts of these scenarios on bycatch of key groundfish species and not considered a precise prediction of actual bycatch in a future fishing year. These issues are described in more detail in Section 4.5, description of non-target species, and Section 5.6, potential impacts on non-target species.

Table 22 – 2014 estimated bycatch rates by area based on both 2012 and 2013 observer data

	GBC2	**GBOp**	**SNEOp**	**Maop**	**NLS**
2012 Y:S	0.0675	0.0125	0.0059	0.0073	0.0065
2014 Y:S	0.0626	0.0104	0.0041	0.0083	0.0145
2013 Y:S	0.0298	0.0092	0.0044	0.0076	0.0098
2014 Y:S	0.0321	0.0088	0.0044	0.0077	0.0106

Table 23 – 2014 estimated YT catches based on both 2012 and 2013 observer data

Alternative		GBC2	GBOp	GB	MASNEOp	NLS	MA/SNE
NA	2014 YT (from 2012)	0.0	26.6	**26.6**	45.6	0.0	**45.6**
NA	2014 YT (from 2013)	0.0	22.4	**22.4**	42.4	0.0	**42.4**
Alt2 (23 DAS)	2014 YT (from 2012)	70.0	26.6	**96.6**	45.6	9.2	**54.8**
Alt2 (23 DAS)	2014 YT (from 2013)	35.9	22.4	**58.2**	42.4	6.7	**49.1**
Alt3 (23 DAS Del flex)	2014 YT (from 2012)	70.0	27.7	**97.7**	47.5	9.2	**56.7**
Alt3 (23 DAS Del flex)	2014 YT (from 2013)	35.9	23.3	**59.2**	44.3	6.7	**50.9**
Alt 4 (31DAS)	2014 YT (from 2012)	70.0	33.7	**103.7**	58.5	9.2	**67.7**
Alt 4 (31DAS)	2014 YT (from 2013)	35.9	28.4	**64.2**	54.5	6.7	**61.1**
Alt 5 (28DAS)	2014 YT (from 2012)	70.0	31.3	**101.3**	54.0	9.2	**63.2**
Alt 5 (28DAS)	2014 YT (from 2013)	35.9	26.3	**62.2**	50.3	6.7	**57.0**
Alt 6 (37DAS/DmvCl)	2014 YT (from 2012)	70.0	38.5	**108.5**	67.3	9.2	**76.5**
Alt 6 (37DAS/DmvCl)	2014 YT (from 2013)	35.9	32.4	**68.2**	62.7	6.7	**69.3**

Table 24 - 2014 estimated bycatch rates by area, as well as observed bycatch rates from 2012 and 2013 observer data

	2012	2013	2014
maop	0.011	0.014	0.012
sneop		0.001	0.001
dmv			3.50E-05
nls	0.042	0.063	0.066

Table 25 – 2014 estimated WP catches based on 2012 observer data

	maop	sne	nls	dmv	Total
Alt 1 NoAction	21.3	3.9	0	0	25.2
Alt 2 - 23DAS	21.3	3.9	41.9	0.1	67.2
Alt3	23.4	4	41.9	0.1	69.4
Alt4 - 31DAS	27.4	5	41.9	0.1	74.4
Alt 5 - 28DAS	25.2	4.6	41.9	0.1	71.8
Alt 6 - 37 DAS nodmv	31.4	5.8	41.9	0	79.1

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. 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. Dredge tows are still completed in each stratum, and a digital camera (Seahorse) is towed behind the survey vessel on all three legs of the survey. In addition, SMAST completes a video survey in portions of the scallop resource area. VIMS conducts an intensive grid design survey towing two dredges in several areas that vary year to year. Finally, Arnie's Fisheries has completed very intensive optical surveys of discrete areas that also change each year using a towed camera similar to the one used by NEFSC (Habcam). The Scallop PDT combines the results from all available surveys to estimate sea scallop biomass and recruitment on an annual basis.

4.1.1 Biomass

4.1.1.1 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.

In 2012, GB biomass was primarily concentrated in NL, the Channel, and cod HAPC within CA2. In 2013, GB biomass declined in all areas, especially the Channel. Figure 15 - Figure 17 shows the survey results for scallop biomass and abundance for GB. Note the SMAST figure is in numbers and the other two are biomass. Overall, GB biomass has been declining since 2010 (Figure 21). The total biomass estimate for the Channel in 2013 is about 10,000 mt lower than it was in 2012, primarily due to high levels of fishing that went on in that area in 2013.

Figure 15 - Total scallop biomass (g/tow) on GB from the 2013 NEFSC dredge tows as well as 2013 VIMS dredge tows (in NL and northern edge) (TOP) compared to 2012 biomass estimates (BOTTOM)

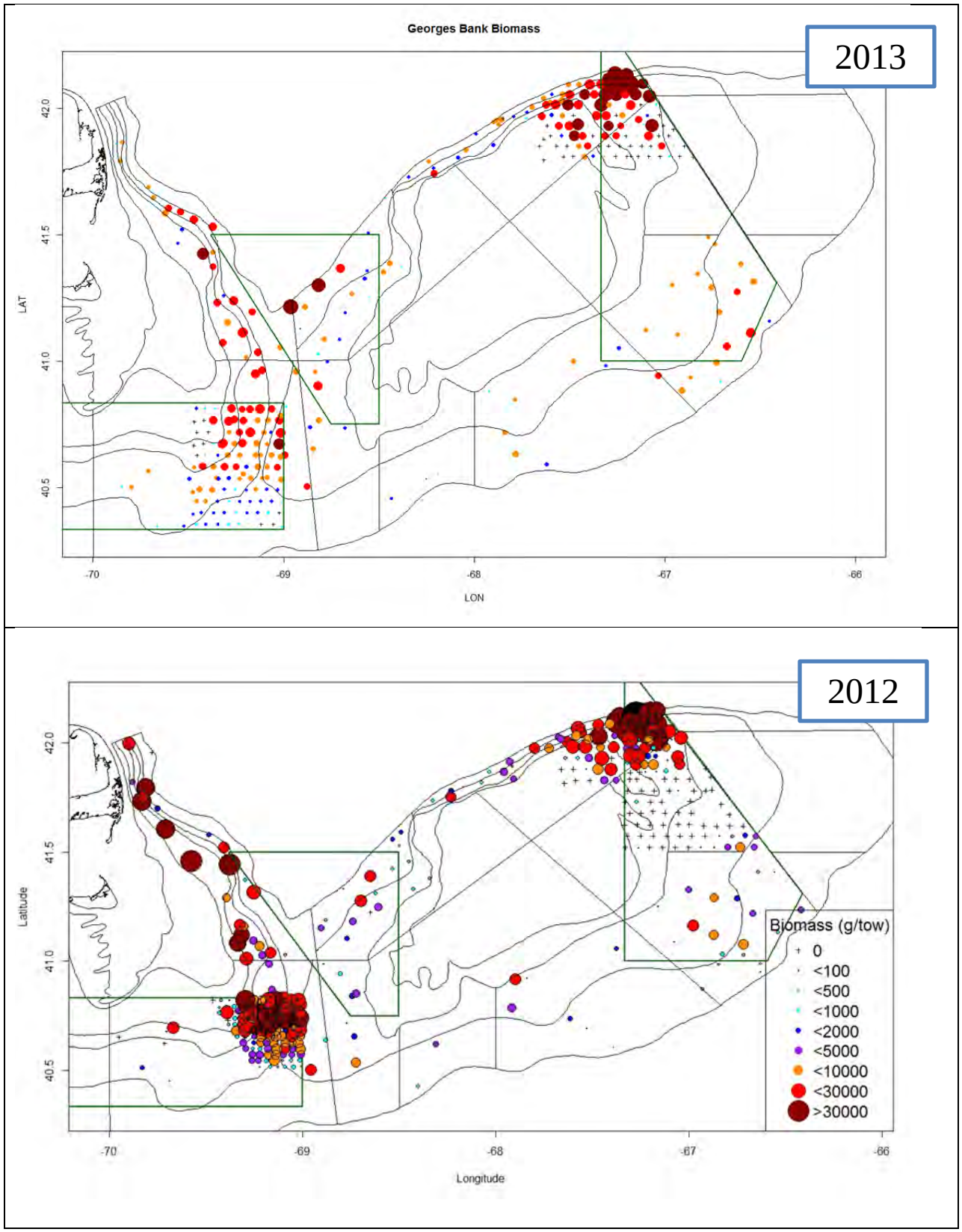


Figure 16 - Total scallop abundance (numbers per station) on in CA2 south (2013 SMAST video survey)

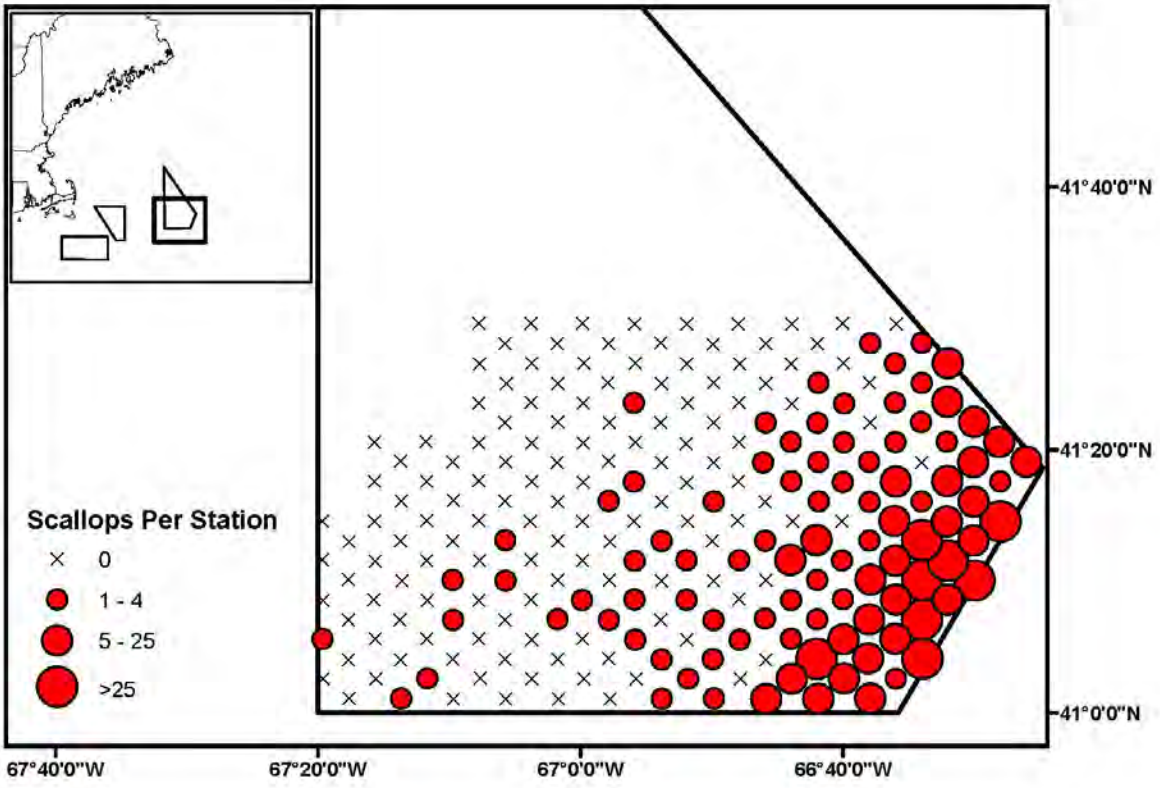
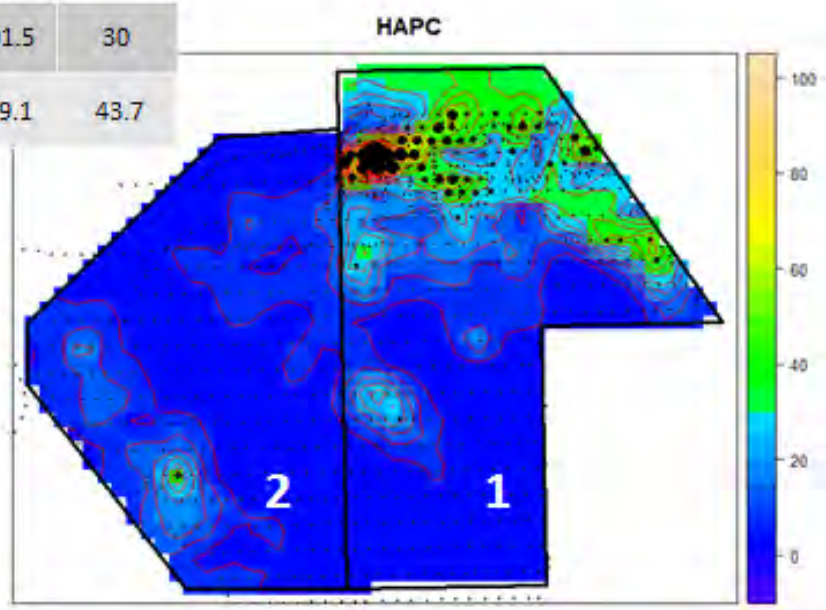
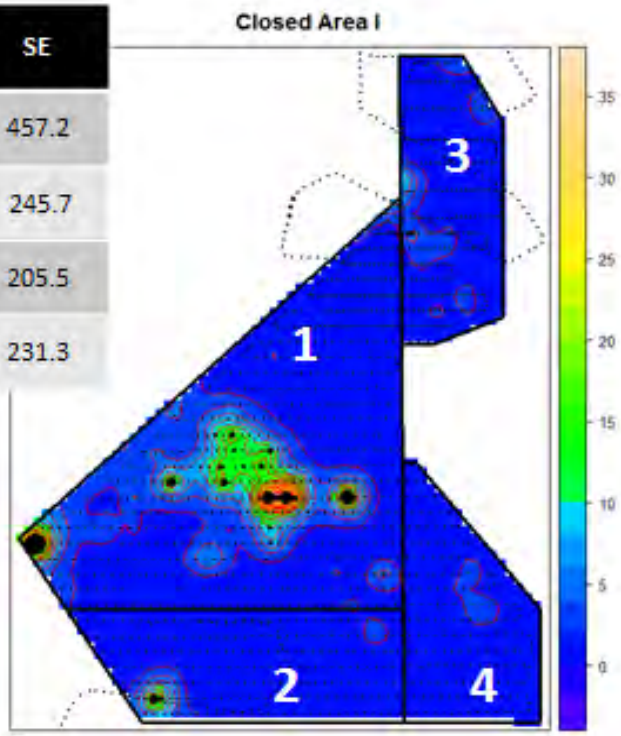


Figure 17 - Total scallop biomass in areas on GB combining optical survey results from 2013 NEFSC and Habcam

Area	Size (k²)	Biomass (mt)	SE
1	633.42	9101.5	30
2	539.29	2709.1	43.7



Area	Size (k²)	Biomass (mt)	SE
1	1241.61	3473.9	457.2
2	464.06	575.3	245.7
3	372.77	551.6	205.5
4	363.4	406.7	231.3



4.1.1.2 Mid-Atlantic

In general, Mid-Atlantic biomass is declining. This is 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. Figure 18 through Figure 20 show survey results for MA biomass with highest concentrations in Elephant Trunk. The large number of small scallops observed in 2012 in all three MA access areas seems to have survived, but these animals are too small for harvesting. Note the SMAST figure is in numbers and the other two are biomass. Overall MA scallop abundance is widespread, but density is relatively low for larger animals and has declined in recent years (Figure 21).

Figure 18 - Total scallop biomass (g/tow) for the Mid-Atlantic from the 2012 NEFSC dredge tows as well as 2012 VIMS dredge tows in Hudson Canyon and inshore NYB

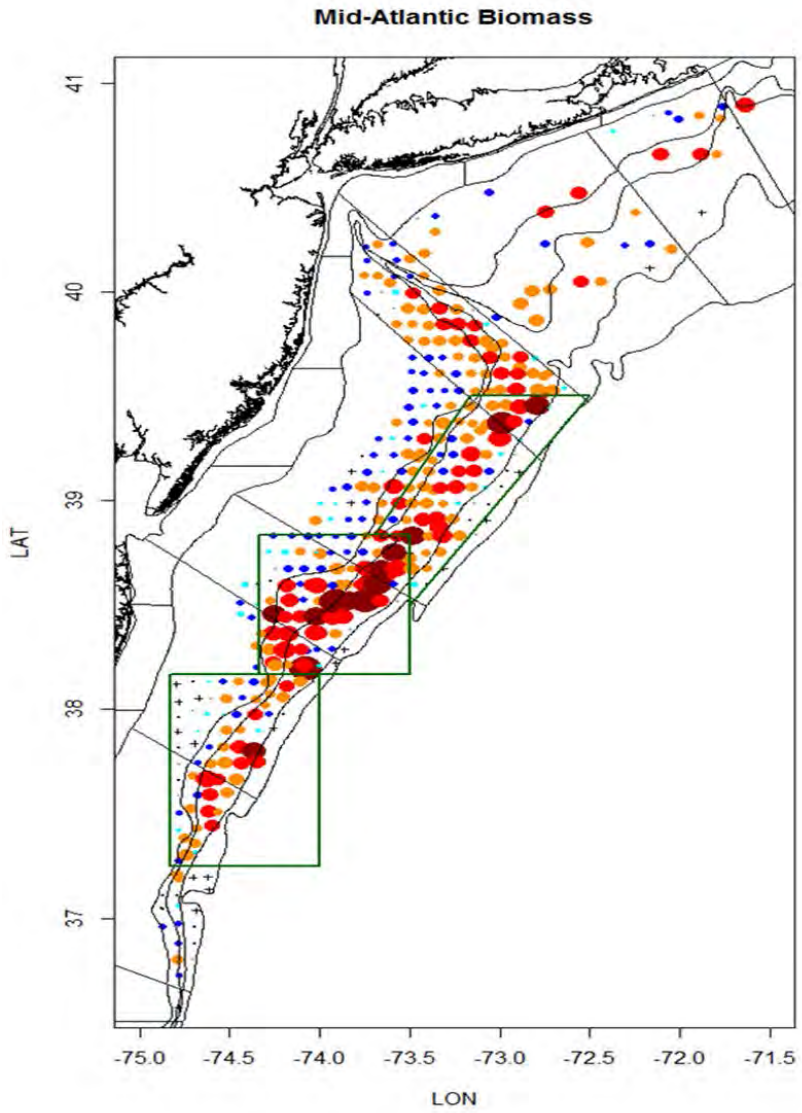


Figure 19 - Total scallop abundance (numbers per station) for Delmarva from the 2013 SMAST video survey

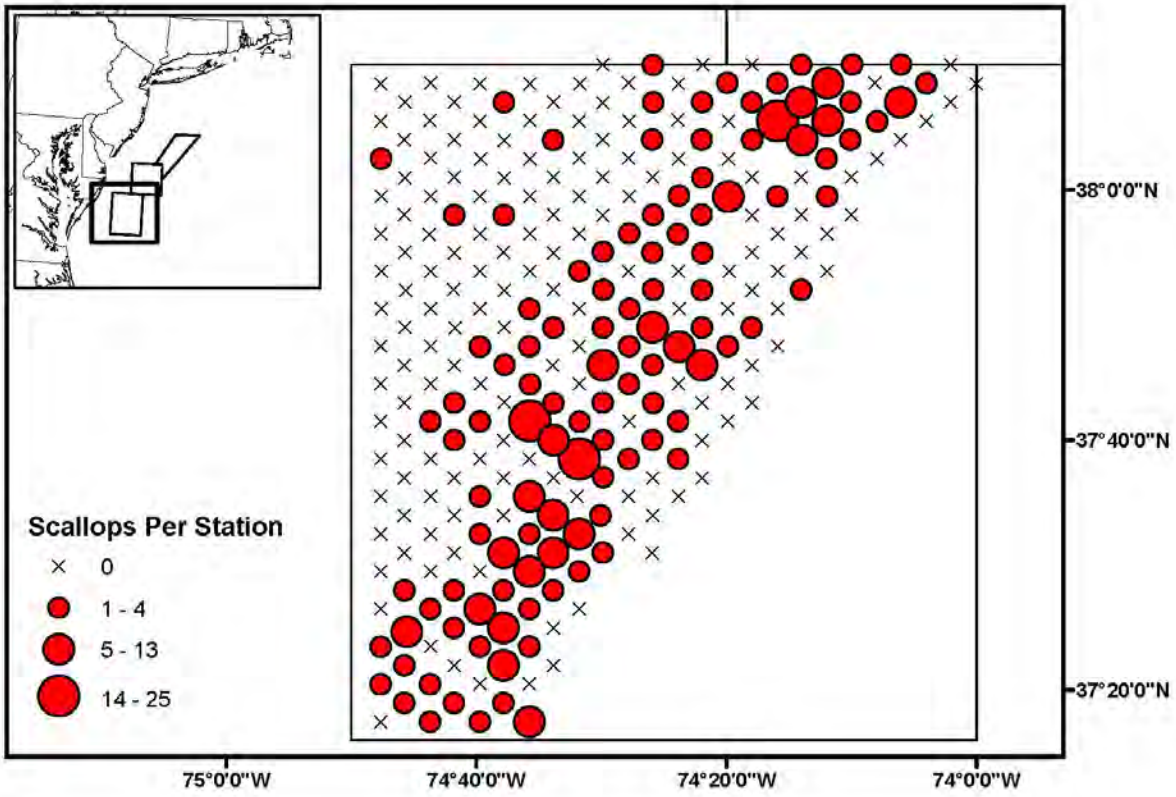


Figure 20 - Total scallop biomass for the Mid-Atlantic from the 2013 NEFSC optical survey (Seahorse)

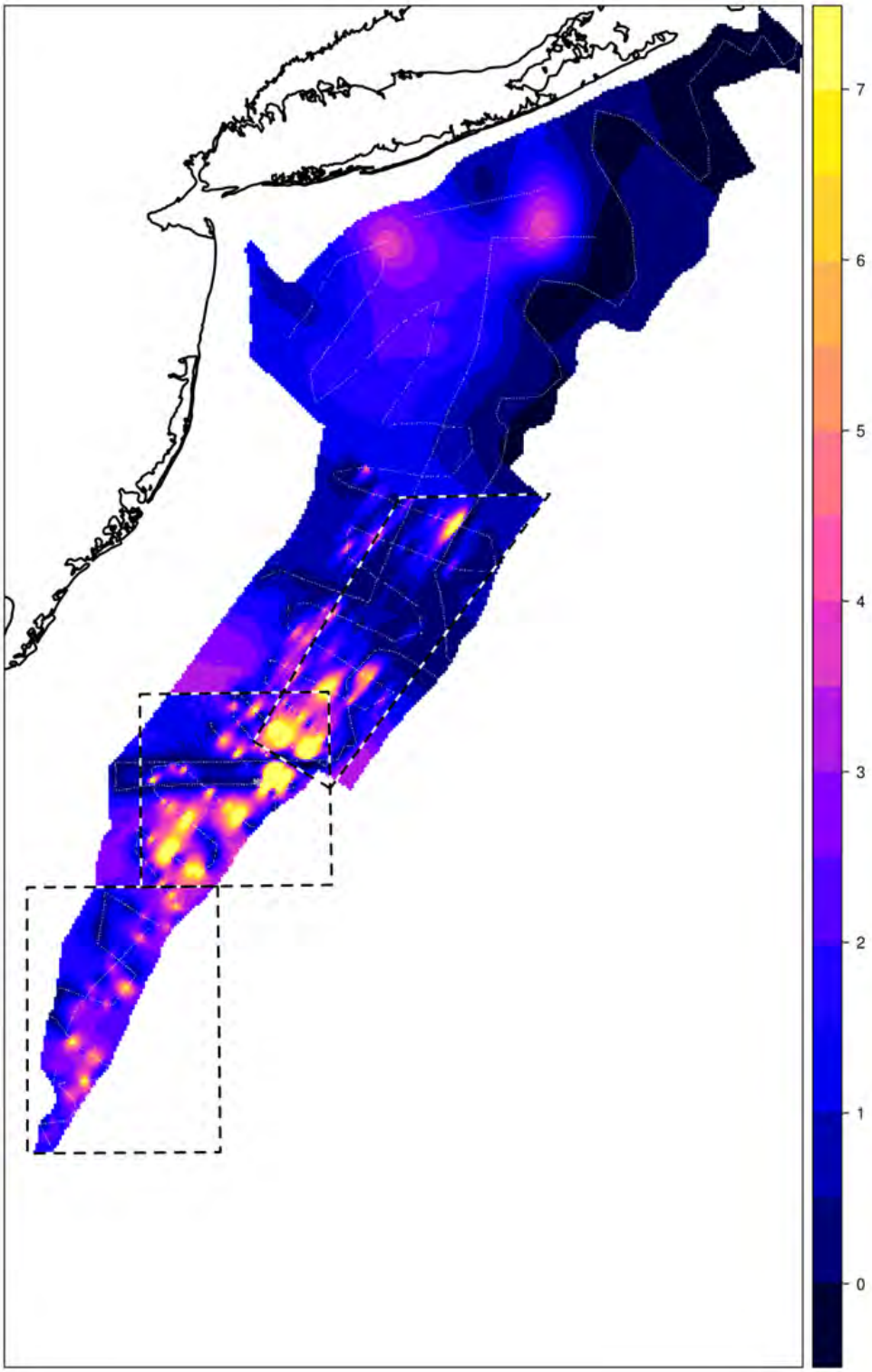


Figure 21 – NEFSC biomass survey indices (through 2012)

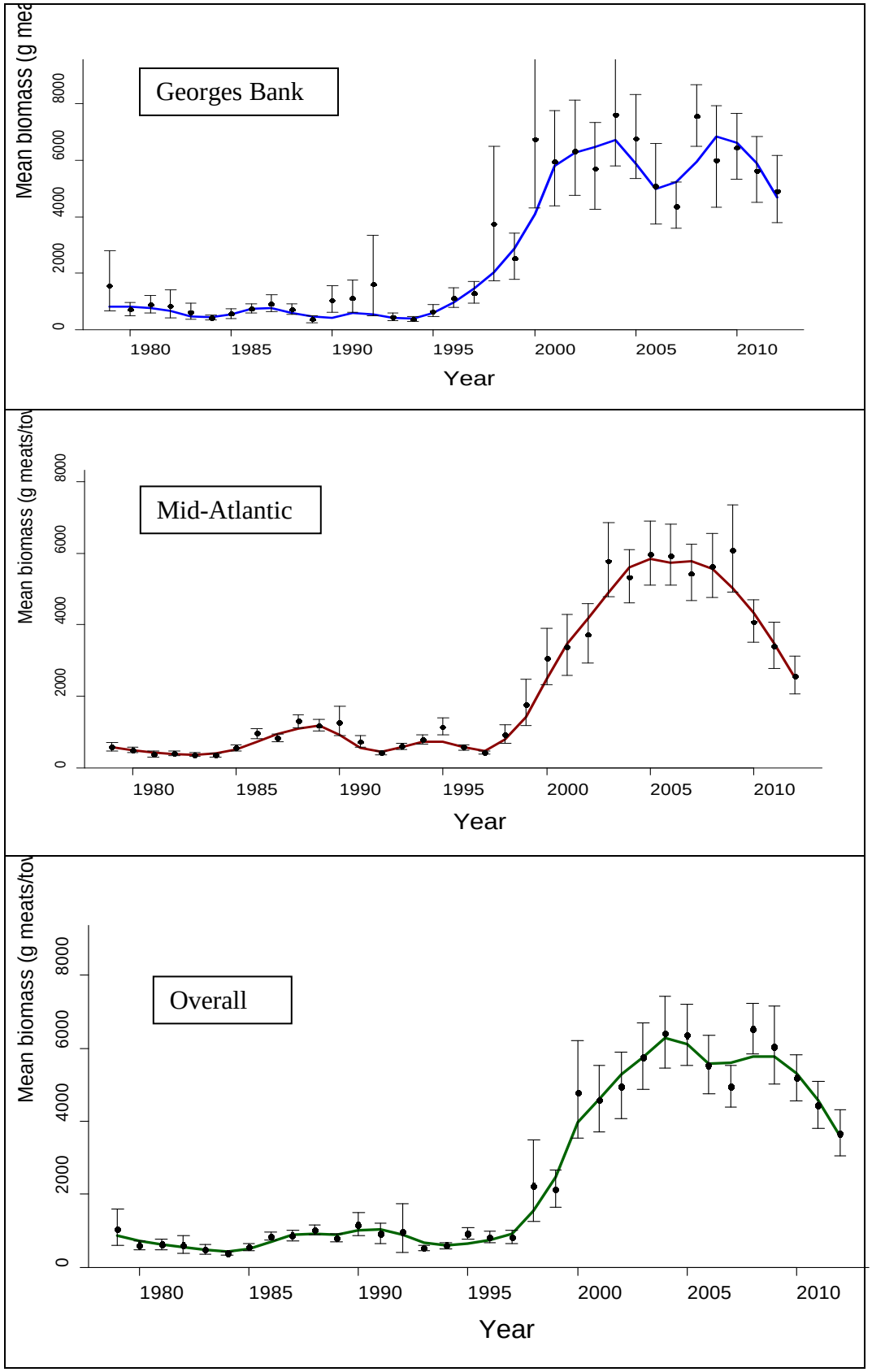


Table 26 – Summary of biomass estimates by SAMS area (2013 surveys)

Mid-Atlantic Bight	Dredge	SE	Habcam	SE	SMAST	SE	Mean	SE
Hudson Canyon South	7839	1126	7528	1097			7684	786
Delmarva	4559	605	6067	655	6249	803	5625	400
Elephant Trunk	14317	1758	19063	1993			16690	1329
Inshore of ET	109	421	868	825			489	463
Virginia Beach	1208	605	395	388			802	359
NYB/LI (includes str 21)	20662	2468	29816	2485			25239	1751
Block Island	N/S	N/S	1655	364			1655	364
TotalMA Rotational	26715	2173	32658	2367			29687	1607
TotalMA Open	21979	2575	31079	2647			26529	1847
Total MidAtlantic	**48694**	**3370**	**63737**	**3551**			**56216**	**2338**
Georges Bank								
Closed Area I Acc	494	108	3340	401			1917	208
Closed Area I NA	16940	5750	4553	747			10747	2899
Closed Area II Acc	5552	1042	9845	1221	5148	1049	6848	639
Closed Area II NA	9041	1220	8497	765			8769	720
NLS Acc	3271	342	4098	584			3685	338
NLS NA	90	28	N/S	N/S			90	28
S Channel	11711	2842	13496	1130			12603	1529
Southern Flank	5704	1197	11445	1946			8575	1142
Northern Edge	4425	580	3160	537			3793	395
Total GB Clsd/Acc	35389	5980	30333	1771			32861	3119
Total GB Open	21840	3138	28101	2313			24970	1949
Total Georges Bank	**57229**	**6754**	**58434**	**2913**			**57027**	**7899**
TOTAL	**105923**	**7548**	**122171**	**4593**			**113242**	**8238**

Table 27 – Summary of biomass estimates by SAMS area (2012 surveys)

			Summary of 2012 Survey Results							
	Dredge		SMAST Video		Habcam		Mean	SE	IVM	SE
MidAtlantic	**Bms(mt)**	**SE**	**Bms(mt)**	**SE**	**Bms(mt)**	**SE**				
Delmarva	2299	220	4762	674	3005	798	3355	356	2566	202
HCSAA	6791	530	6532	1082	7139	642	6821	455	6882	382
ET	4570	803	7021	1419	8130	847	6574	612	6366	539
VB	102	55	NS	NS	NS	NS	102	55	102	55
NYB	11803	2084	4673	810	8750	1015	8408	819	6728	606
LI	13196	1273	13053	1147	10351	185	12200	575	10476	181
Stratum21	2077	265	2632	709	1540	426	2083	290	1992	214
Block Island	NS	NS	1803	463	821	NA	1803	463	1803	463
MidAtl	**40837**	**2648**	**40476**	**2516**	**39736**	**1736**	**41346**	**1418**	**36915**	**1068**
									40169	**1257**
Georges Bank										
CL1ACC	4431	716	5789	1180	3054	356	4425	475	3494	307
CL1NA	1768	729	6990	3572	10230	877	6330	1250	5266	554
CL-2(N)	11207	1233	14921	4036	8183	2240	11437	1593	10799	1044
CL-2(S)	7007	1110	6014	1000	7404	707	6808	551	6955	512
NLS-Access	8598	699	4401	722	4434	324	5811	352	5062	273
NLS-NA	23	13	2412	857	NS	NS	2412	857	2412	857
SCC	12420	1353	10873	2610	10230	877	11174	1023	10878	708
SCH	6924	1011	11370	3649	14195	1201	10830	1324	10002	757
NEP	4004	1163	3933	983	5836	481	4591	532	5291	405
SEP	1027	124	2226	390	7111	NA	2226	390	2226	390
Georges Bank	**57408**	**2916**	**68930**	**7345**	**70677**	**2994**	**65672**	**2953**	**62385**	**1988**
									64248	**2009**
Total	**98246**	**3939**	**109406**	**7764**	**110413**	**3460**	**107018**	**3276**	**99299**	**2257**
									104417	**2370**

4.1.1.3 Northern Gulf of Maine

The last survey of the federal portion of NGOM management area was completed in 2012 from a 2011 RSA award. About 200 stations were completed in five overall survey areas. Overall the biomass was very patchy and some areas had poor meat conditions (smaller meats on Platt's and Fippennies Banks compared to shell heights)(Figure 22 - Figure 24). Most biomass found in SE part of NGOM management area (offshore from northeastern MA in survey areas 4 and 5) with some recruitment observed in that area as well. The level of scallop fishing in federal waters in the NGOM remains very low; catches have been about 8-15,000 per year since 2008 when the limited access NGOM fishery was first implemented.

Figure 22 – NGOM estimate of biomass from 2012 NGOM dredge survey

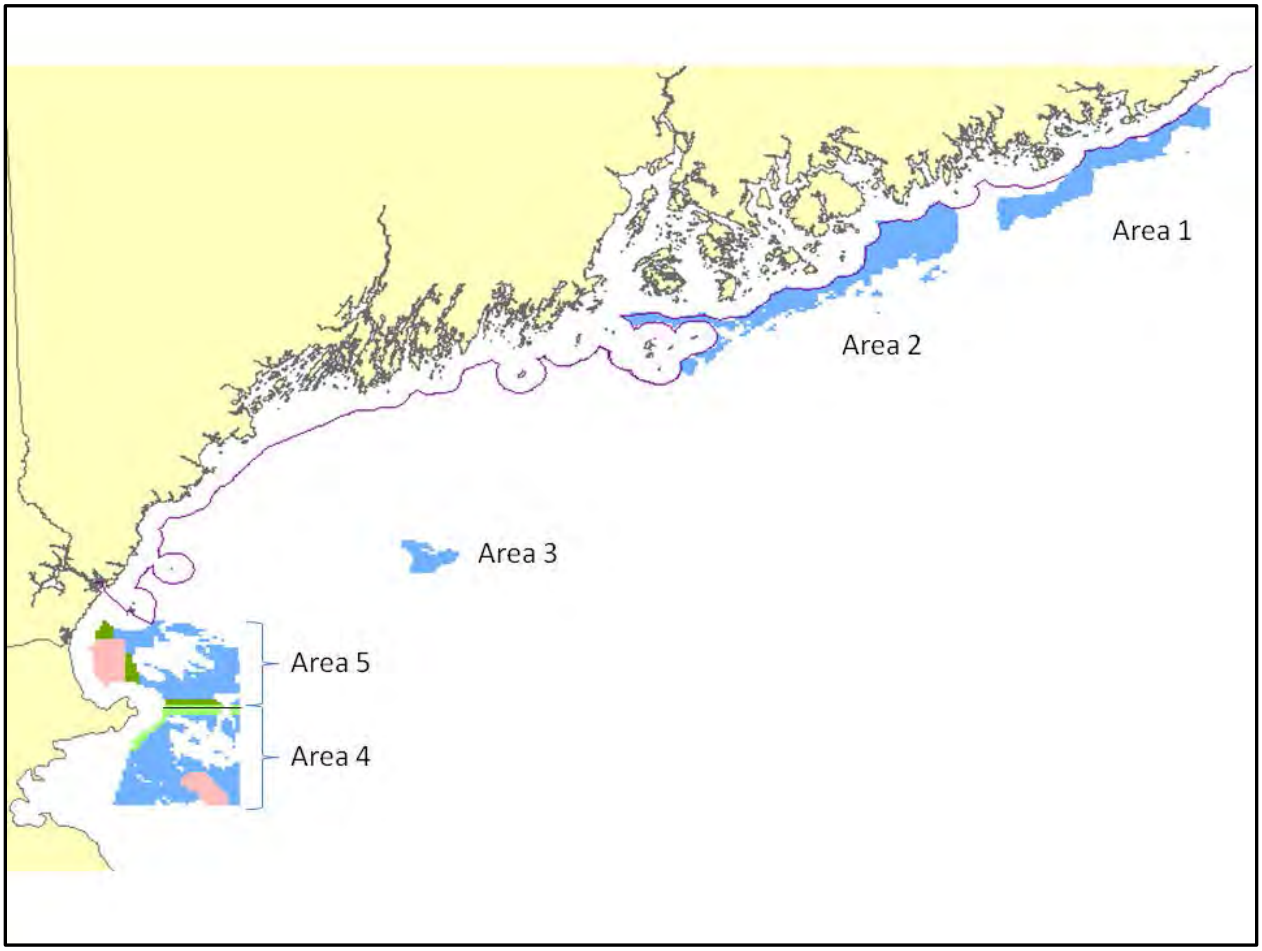


Figure 23 – Mean biomass per survey area within NGOM

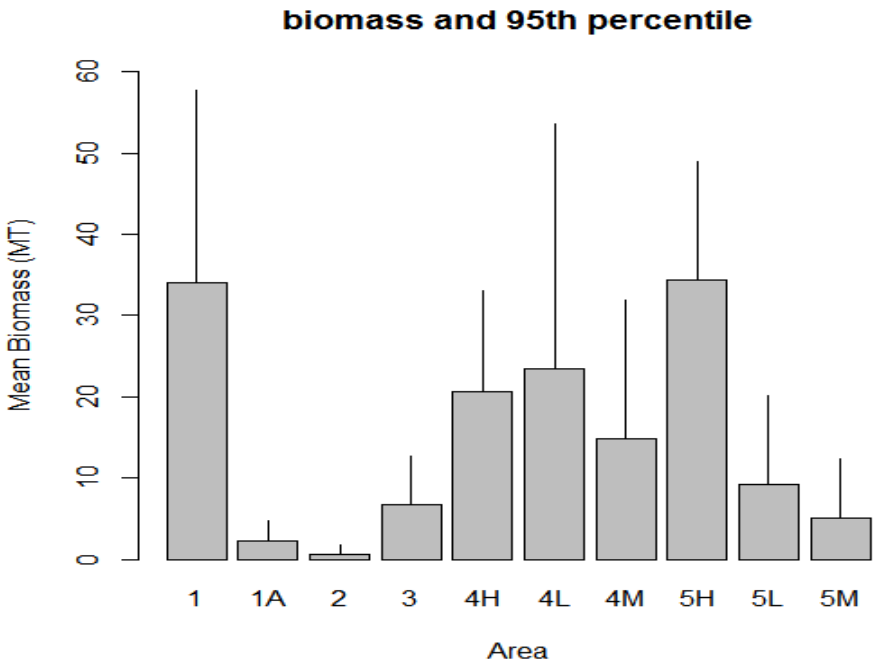
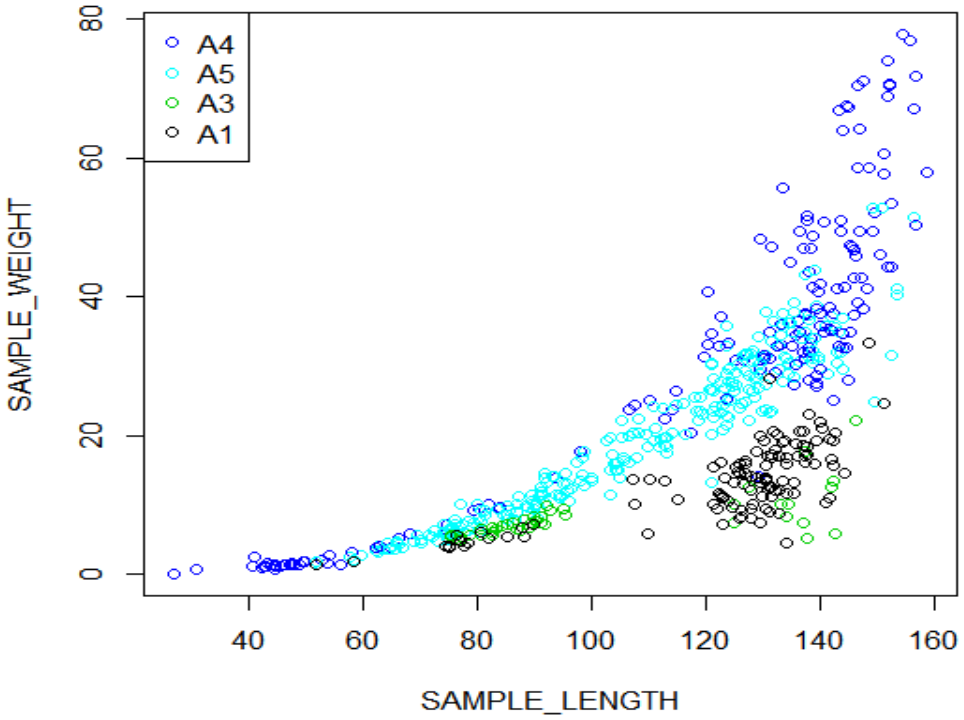


Figure 24 – Individual shell height meat weight relationships by survey area (1, 3, 4, and 5)



4.1.2 Recruitment

Recruitment was strong on GB for several years (2008-2010) but declined with very little signs of recruitment in 2011 and 2012. However, in 2013 a very large number of small scallops were observed in and around the Nantucket Lightship access area (Figure 25). The largest tow on record from the NEFSC dredge survey database was collected just east of the access area, over 60,000 scallops in one tow. It is very difficult to get a quantitative estimate of biomass from scallops this small. Many are assumed to escape the survey gear.

Recruitment in the MA was unusually high during 1998-2008. MA recruitment then declined for several years, but improved again in 2011 and 2012. According to all 2012 survey results, recruitment was very widespread in the MA and dense in all MA access areas, especially ETA. There was some concern that these high levels of recruitment would not materialize, but many two year old scallops are still present (**Figure 26**). Overall, recruitment in 2013 is still relatively high (**Figure 27**).

Figure 25 – Recruitment on GB from 2013 NEFSC and VIMS dredge surveys combined (TOP) and NEFSC habcam survey (BOTTOM)

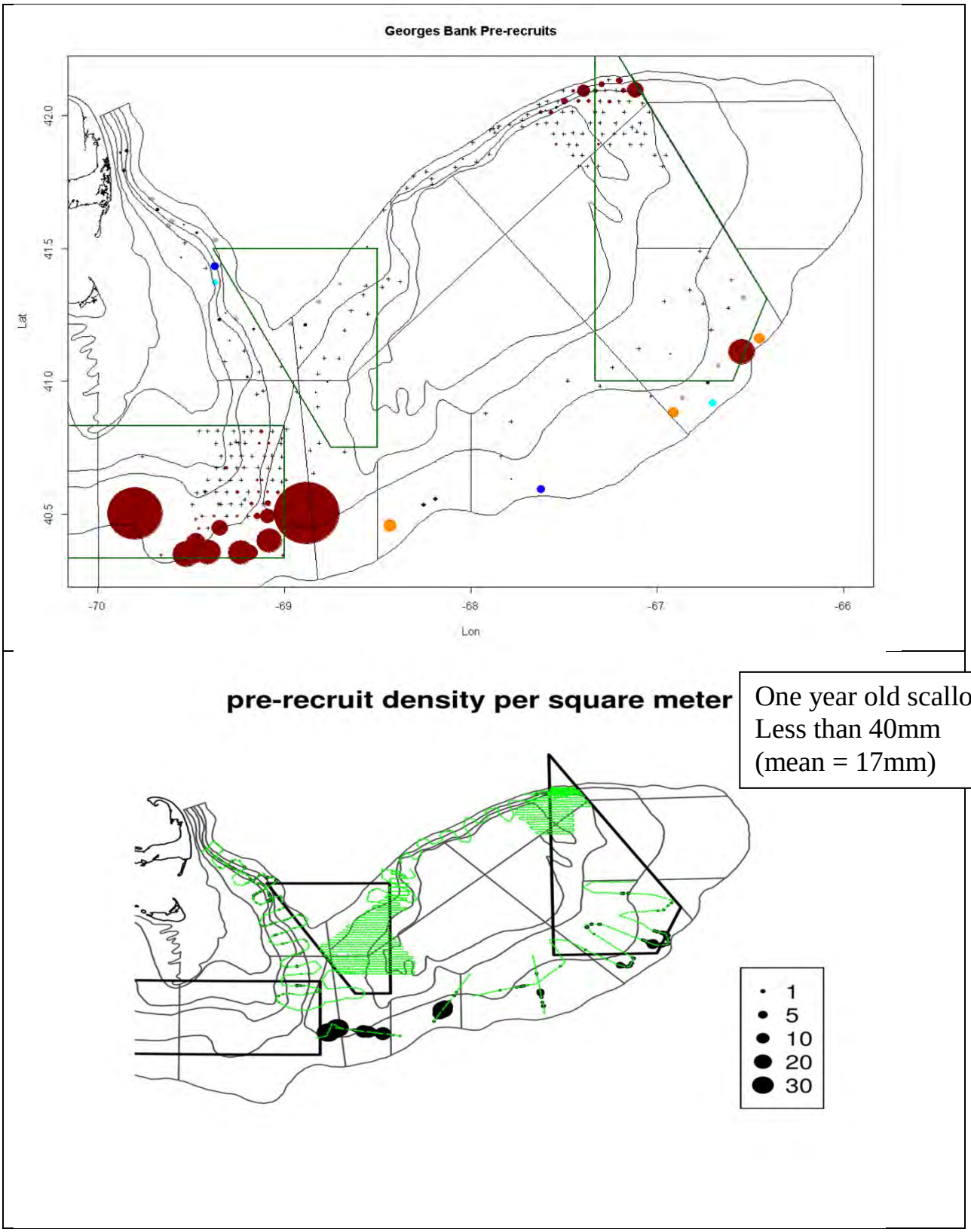


Figure 26 Two year old recruit density in MA from 2013 NEFSC optical survey

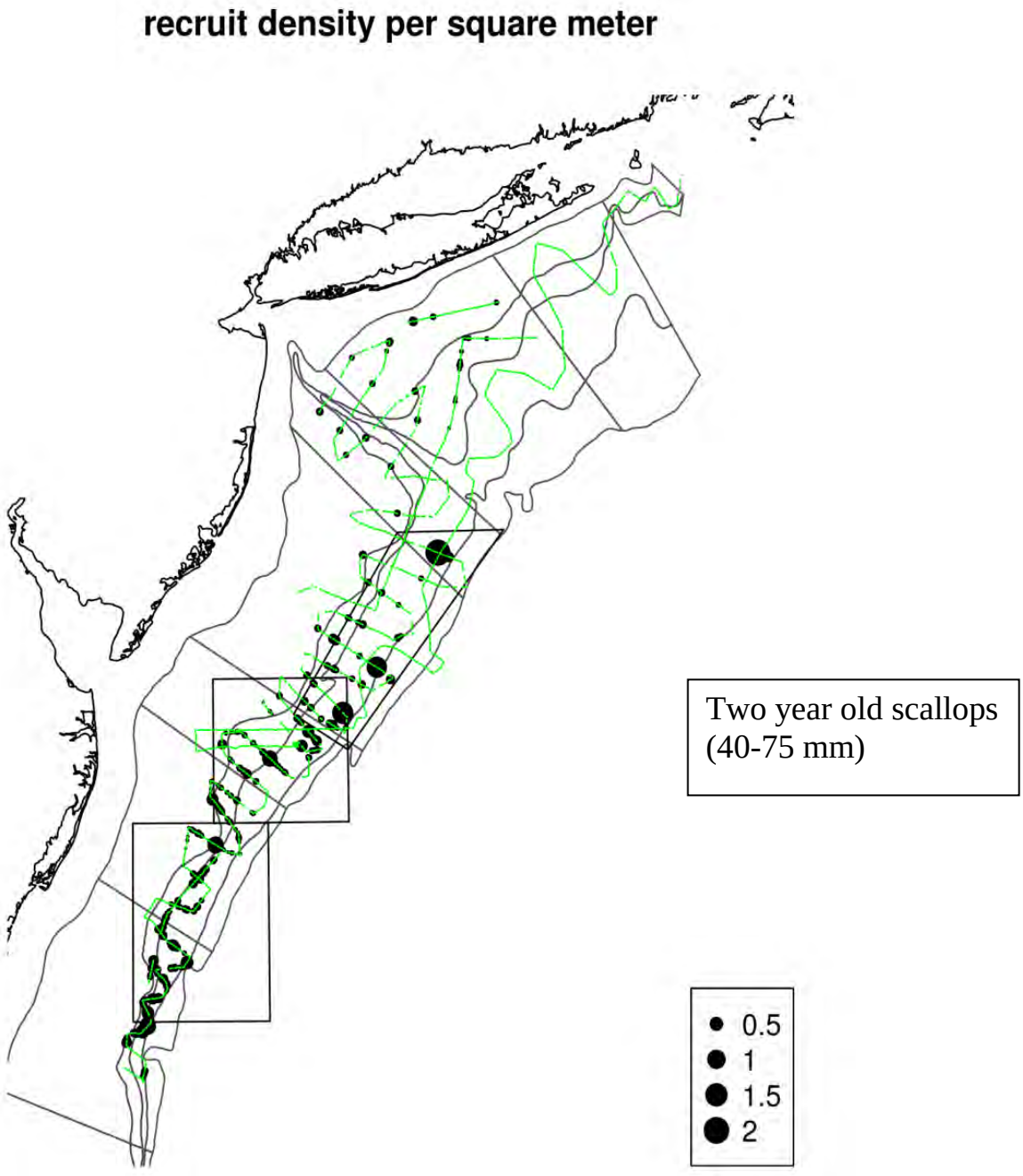
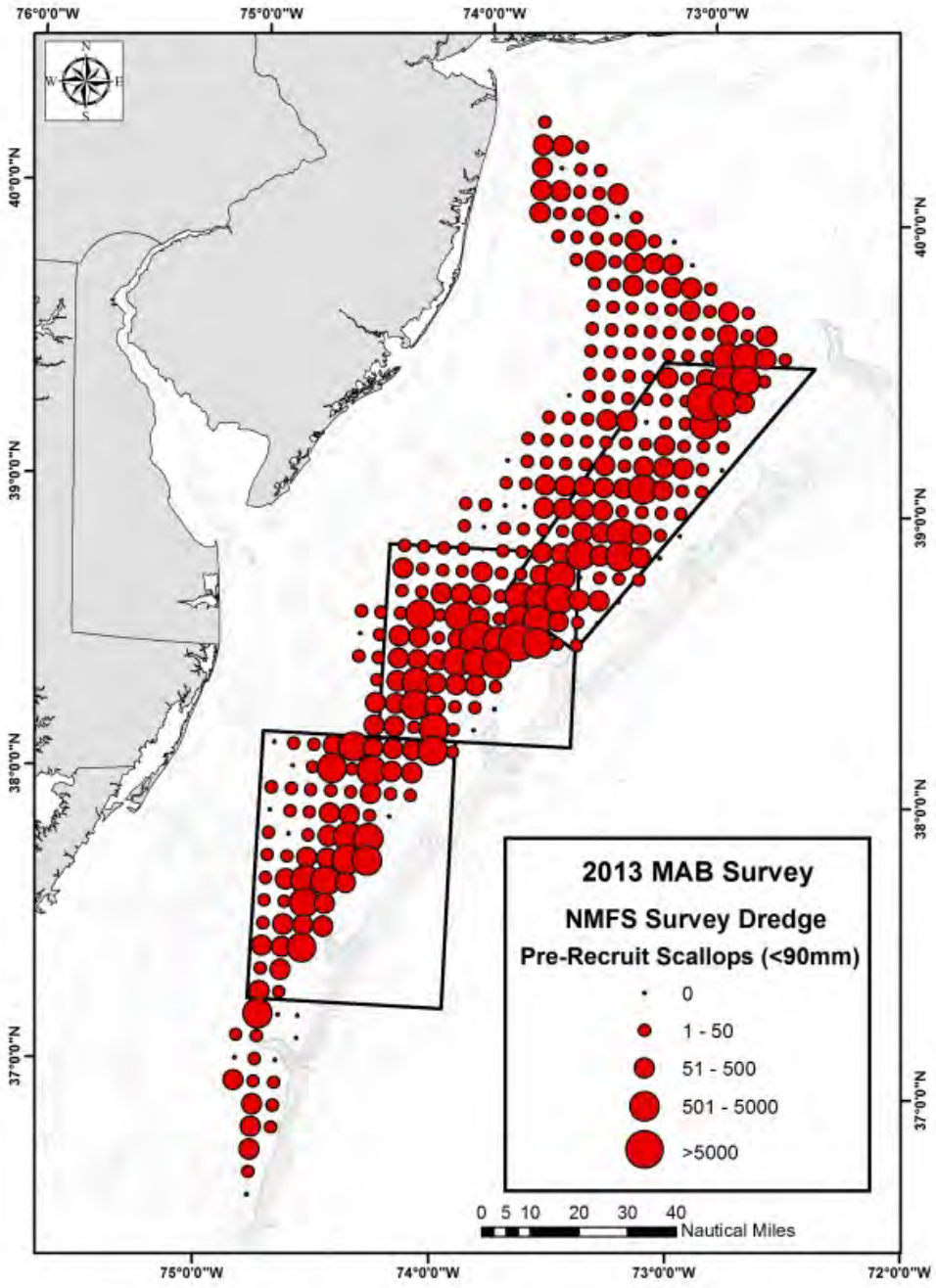


Figure 27 – 2013 Abundance of small scallops (pre-recruits less than 90mm) from the VIMS survey using the NMFS survey dredge



4.1.3 Fishing mortality and status of the stock

Four types of mortality are accounted for in the assessment of the sea scallop resource: natural, discard, incidental, and fishing mortality. The updated stock assessment established new values for natural mortality on both stocks. The new estimates are M = 0.12 for Georges Bank, and M = 0.15 for the Mid-Atlantic (NEFSC, 2010), compared to 0.10 used for the resource overall in previous assessments since natural mortality increases with larger shell heights. Discard mortality occurs when scallops are discarded on directed scallop trips because they are too small to be economically profitable to shuck or due to high-grading during access area trips to previously-closed areas. Total discard mortality is estimated at 20% (NEFSC, 2007). Incidental mortality is non-landed mortality associated with scallop dredges that likely kill and injure some scallops that are contacted but not caught by crushing their shells. The last benchmark assessment in 2010 used 0.20 on Georges Bank and 0.10 in the Mid-Atlantic (NEFSC, 2010), compared to earlier values of 0.15 on Georges Bank and 0.04 for Mid-Atlantic. The increase in assumed values for both natural and incidental mortality is expected to reduce the productivity potential of the stock, which is likely to cause the model to produce less (over) optimistic projections moving forward.

Finally, fishing mortality, the mortality associated with scallop landings on directed scallop trips, is calculated separately for Georges Bank and the Mid-Atlantic because of differences in growth rates. Fishing mortality peaked for both stocks in the early 1990s, but has decreased substantially since then as tighter regulations were put into place including area closures, and biomass levels recovered. In general, *F* has remained stable on Georges Bank since 1995, and the Mid-Atlantic has shown larger fluctuations and an overall higher *F* (Figure 12). Figure 13 shows F and biomass estimates for the combined stock overall.

The formal stock status update was prepared through FY2009 as part of SARC 50 (NEFSC, 2010), and the F_{max} reference point was changed to F_{msy}. F_{msy} for the whole stock was estimated from the Stochastic Yield Model (SYM) to be 0.38. SARC 50 estimated that overall fishing mortality in 2009 was 0.38, consistent with recent years. Since the fishing mortality in 2009 was equal to F_{msy}, overfishing did not occur (*F* must be above the threshold).

Figure 12 - Fishing mortality (red line) and biomass estimates (y^{-1}, gray bars) from the CASA model for scallops on Georges Bank (right) and in the Mid-Atlantic (left), through 2009

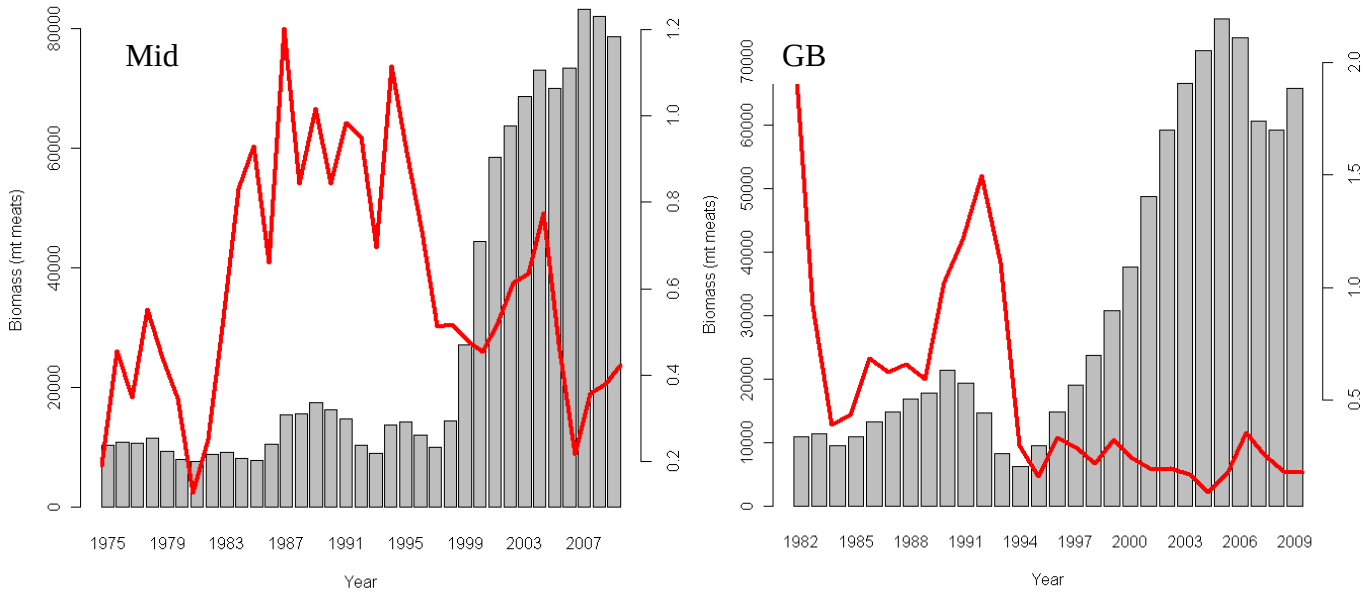
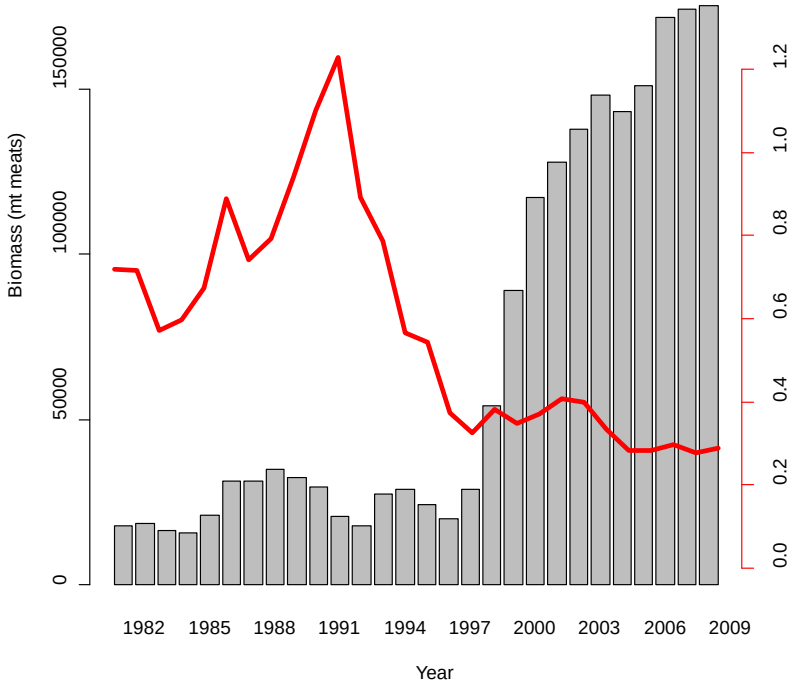


Figure 13 - Fishing mortality (red line) and biomass estimates (y^{-1}, gray bars) from the CASA model for sea scallop resource overall (Georges Bank and Mid-Atlantic combined) through 2009



The Scallop PDT met in May 2013 to review updated biomass and fishing mortality estimates developed for Framework 25. The results are not an official stock status update, but were completed for the purposes of setting fishery allocations for FY2014-2015 in Framework 25. A catch at size model (CASA model) is used by the PDT to estimate realized scallop biomass and fishing mortality. It was updated through 2012 using 2012 dredge (NEFSC and VIMS) and video (SMAST) surveys, as well as complete FY2012 fishery data. Habcam surveys were not used in CASA estimate for 2012, but will likely be included next year.

Based on the overfishing definition in the Scallop FMP, overfishing occurs when F exceeds Fmsy (0.38). The scallop stock is overfished when biomass is below ½ Bmsy. The last scallop stock assessment estimated Bmsy at 125,358, so ½ Bmsy = 62,679 mt. Since the last benchmark assessment (2010) three full years of observer, survey and fishery data have been added 2010-2012. Total biomass in MA and GB are almost unchanged from 2011, but exploitable biomass is down in MA. The total biomass estimate for 2012 is over 100,000 mt, well above the overfishing threshold of 62,679 – therefore, the stock is not overfished.

Fishing mortality increased on GB, and fishing effort shifted there from the MA for the first time since 2006. Fishing mortality increased in MA as well, MA catch declined but estimated F is actually higher because there is less exploitable biomass is in that area overall. Therefore, the estimate of overall F increased compared to recent years (0.377). This estimate is just below the overfishing threshold of 0.38 so overfishing is not occurring. Total F was about 0.32 in 2010 and 0.33 in 2011.

Table 28 – 2012 sea scallop stock status – overfishing is not occurring and the resource is not overfished

	Total 2012 Estimate	Stock Status Reference Points
Biomass (in 1000 mt)	119	½ Bmsy = 62,679
F	0.377	OFL = 0.38

Figure 30 – CASA estaimte of biomass through 2012

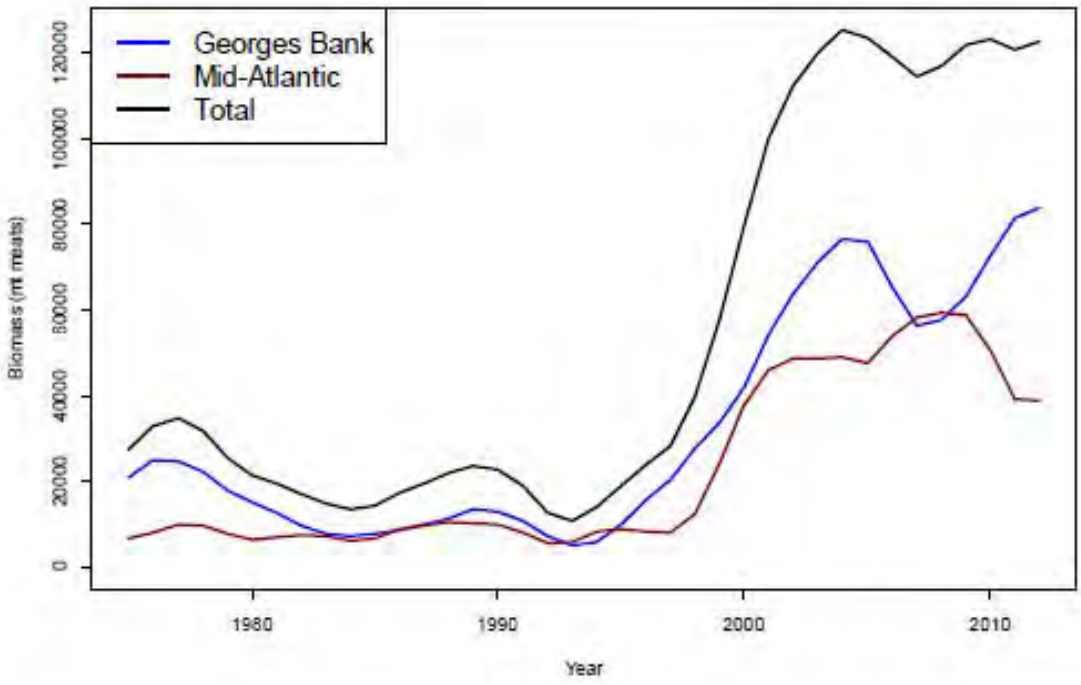
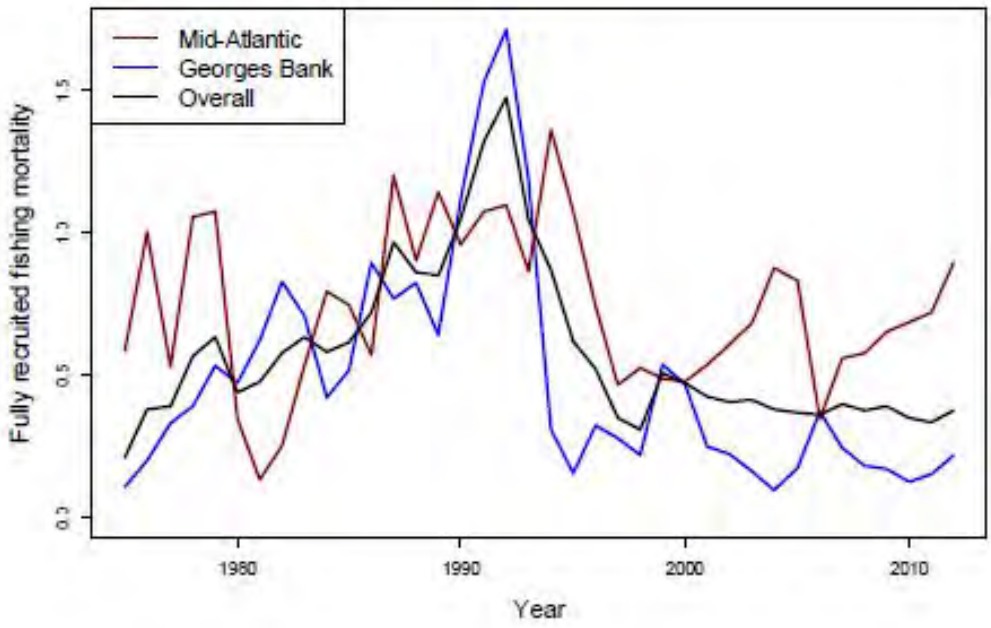


Figure 31 – CASA estimte of fishing mortaltiy through 2012



4.1.4 Scallop resource in state waters

Many states do not have sea scallops in state waters; therefore, there are no specific permits or management programs in place. However, some states do have some basic measures in place and a handful have many that are similar to federal regulations. The only states in the North Atlantic that seem to have sea scallops consistently in state waters are Massachusetts (MA) and Maine (ME).

4.1.4.1 Massachusetts

In Massachusetts, no person can possess scallops in excess of recreational limits (1 bushel) unless licensed as a commercial fisherman. An individual can harvest scallops commercially by hand if they have a commercial permit endorsed for sea scallop diving permit or with mobile gear if they have a limited access Coastal Access Permit (CAP).

Federal scallopers may be dually permitted (i.e., hold federal scallop permit and a state CAP permit) thereby enabling them to fish mobile gear for scallops in state and federal waters or they may be federal-only (i.e., hold a federal scallop permit but no CAP) thereby limiting their mobile gear fishing for scallops to federal waters. Federal-only scallopers landing in MA must hold some state landing permit (e.g., boat permit). LAGC vessels likely make up the majority of dual permit holders while LA vessels dominate the federal-only permit class in Massachusetts.

The state amended state waters sea scallop dredge measures in the fall of 2011 to constrain daily catches of sea scallops within the state waters fishery and require gear modifications to reduce bycatch. Originally implemented by permit conditions, a suite of state waters sea scallop regulations (322 CMR 4.10 and 6.05) were codified in the summer of 2013. All vessels fishing in state waters under the authority of a CAP are subject to the following regulations:

1. Trip Limit.

* CAP holders may not retain or possess more than 200 lbs. of sea scallop meats or 2,000 lbs. of whole (shell-on) sea scallops per 24-hour day or per trip, whichever is longer;
* In those instances when a vessel has both shucked meats and whole scallops, the weight of the whole scallops will be multiplied by 0.10 to determine its equivalency in meats;
* Exceptions: i) Federally permitted scallop vessels that hold a CAP, may fish in state waters but must adhere to the state trip limit while fishing in state waters. ii) Federal sea scallop permit holders may possess sea scallops in excess of these limits provided the dredge gear is stowed and they are transiting state waters for the purpose of landing their catch.
* Compliance with the whole in-shell sea scallop trip limit will be determined through a volumetric equivalency: one level-filled standard fish tote is the equivalent to 100 pounds of whole in-shell sea scallops. For mixed landings of in-shell and shucked sea scallops, the weight of whole in-shell sea scallops is multiplied by 0.10 to determine its equivalent shucked sea scallop weight. Federal sea scallop permit holders may possess sea scallops in excess of these limits provided the dredge gear is stowed and they are transiting state waters for the purpose of landing their catch.
* Lastly, it is now unlawful by state regulation (in addition to federal regulation) for commercial fishermen who have only a state permit to fish in federal waters. Moreover, the discard of live sea scallops is prohibited in the harbors and estuaries known as the inshore restricted waters and defined at 322 CMR 4.02(2).

2. Gear Modifications to reduce by catch.

* Effective January 1, 2012, it shall be unlawful to fish with or have aboard a sea scallop dredge with rings less than 4 inches in inside diameter;
* Also effective on January 1, 2012, it shall be unlawful to fish with or have aboard a sea scallop dredge with twine top that has square or diamond mesh openings smaller than 10 inches; no additional material is allowed to cover the twine top to restrict the mesh openings to less than 10 inches in diameter.

It remains unlawful to catch scallops in MA with a shell less than 3.5-inches with a 10% tolerance for undersized scallops and no scallops can be landed in-shell unless the area fished is approved by the National Shellfish Sanitation Program.

4.1.4.2 Maine

The state of Maine has a very developed state water management program that has evolved over time and has changed dramatically in recent years following implementation of the federal NGOM program. Overall the current state plan is very consistent with the federal management program. The fishery became limited entry in 2008 and since that time there has been mandatory dealer and vessel reporting requirements. There is a 70 day fishing season for state waters, except Cobscook Bay which is a 50 day season, between December and March with specific weekdays that are prohibited during those months and prohibition on fishing at night as well. There are a handful of gear requirements including but not limited to: ring size restriction of 4-inches, twine top minimum of 5.5 inches, limits on number of rows in the dredge based on dredge width, and no chafing gear or cookies allowed. Areas such as Cobscook Bay and Gouldsboro Bay have maximum dredge widths (5.5 ft. and 4.5 ft., respectively). In-shell scallops must be 4-inches, there is a possession limit of 15 gallons of meats (~135 pounds) per day per vessel (10 gallons or ~90 pounds in Cobscook Bay), and non-commercial licenses may not possess more than 1 gallon of scallop meats per day. Finally, license holder must be on board when vessel is scallop fishing.

In 2012, the state implemented 3 scallop management zones, allowing for different rebuilding strategies to be employed in each (Figure 32). For Zone 1, the western part of the state, the previously closed areas (Figure 33) were retained as Limited Access Areas with fishing restricted to 1 day per week and well as targeted closures aimed at protecting broodstock scallops. In Zone 2, the eastern part of the state, a 10 year rotational management plan is currently being phased in, where 2/3rd of the bottom will be closed for rebuilding and 1/3 open. In Zone 3, the Cobscook Bay area, the previously closed area was retained as a Limited Access Area with 1 day per week harvest and a reduced season of 50 days and limit of 10 gallons of meats has been implemented.

The Limited Access Areas are governed by a trigger mechanism whereby when in-season data indicate that 30-40% of the harvestable biomass has been removal, the area will close. Also, the Limited Access Areas are currently being retained in Zone 2, but will phase out when the full rotational management plan in implemented. Finally, seasonal targeted closures are implemented each season to protect high concentrations of sublegal scallops as well as broodstock scallops in Zone 1.

For more information about the 2013-14 Maine state waters fishery see:
http://www.maine.gov/dmr/rm/scallops/management/2013-14/index.htm

Figure 32 – Three scallop management zones in Maine state waters

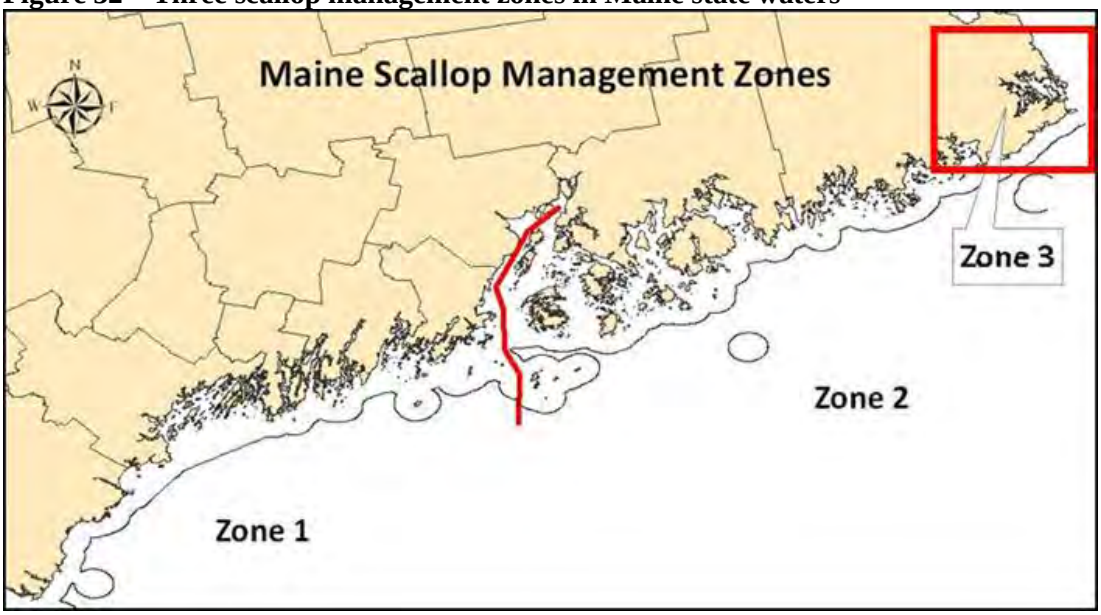
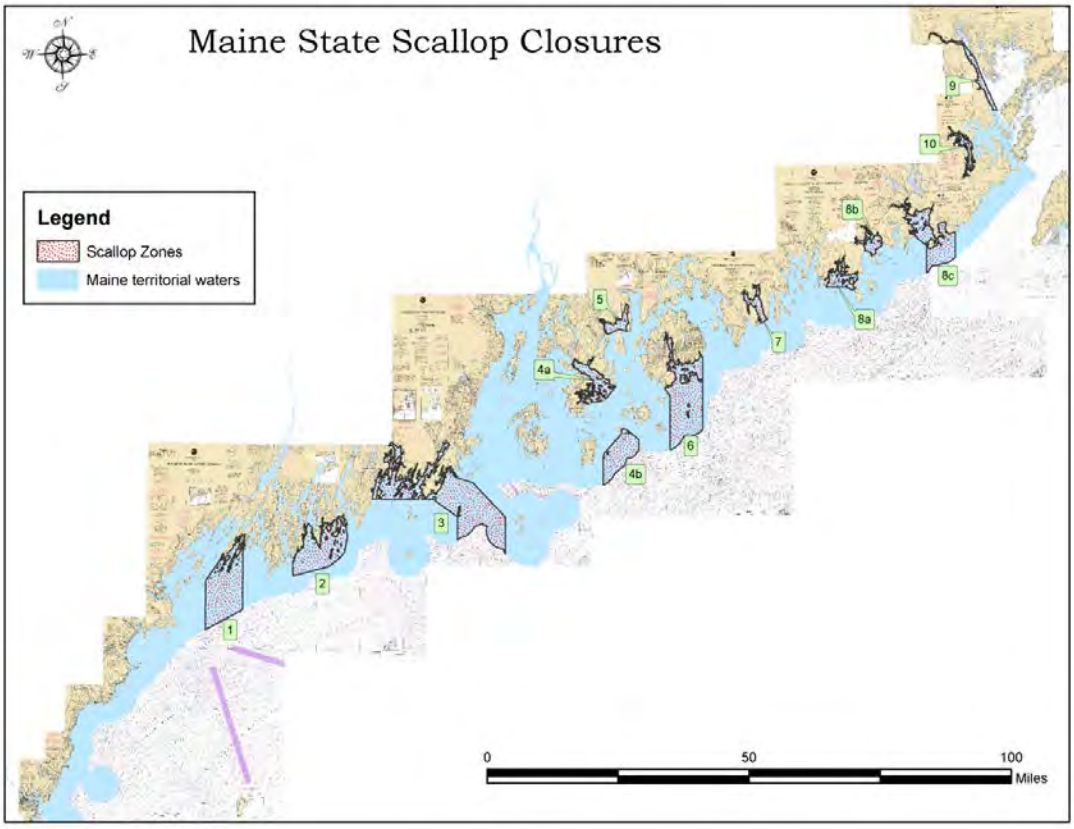


Figure 33 – Scallop conservation areas in Maine state waters



Scallop effort has increased in Maine state waters in recent years. There has been a relatively large amount of reactivated effort in the state fishery primarily due to: 1) the newly rebuilt closed areas reopening last year; 2) the high price for scallops; and 3) the decline in the multispecies fishery and the northern shrimp moratorium. All of these factors have likely lead to the increase in scallop fishing effort within state waters. The new participants and reopening of the newly rebuilt closed areas resulted in a 9 year landings high in 2012 of 289,827 pounds, which is an eight fold increase from the all-time low in 2005 (Figure 34) with the December 2012 landings being higher than the entire 2009 landings (Figure 35). However, those landings were caught by approximately 150 additional participants compared to previous years (Figure 36).

Figure 34 - Maine scallop landings from 1950 to 2012. Landings are reported in meat pounds.

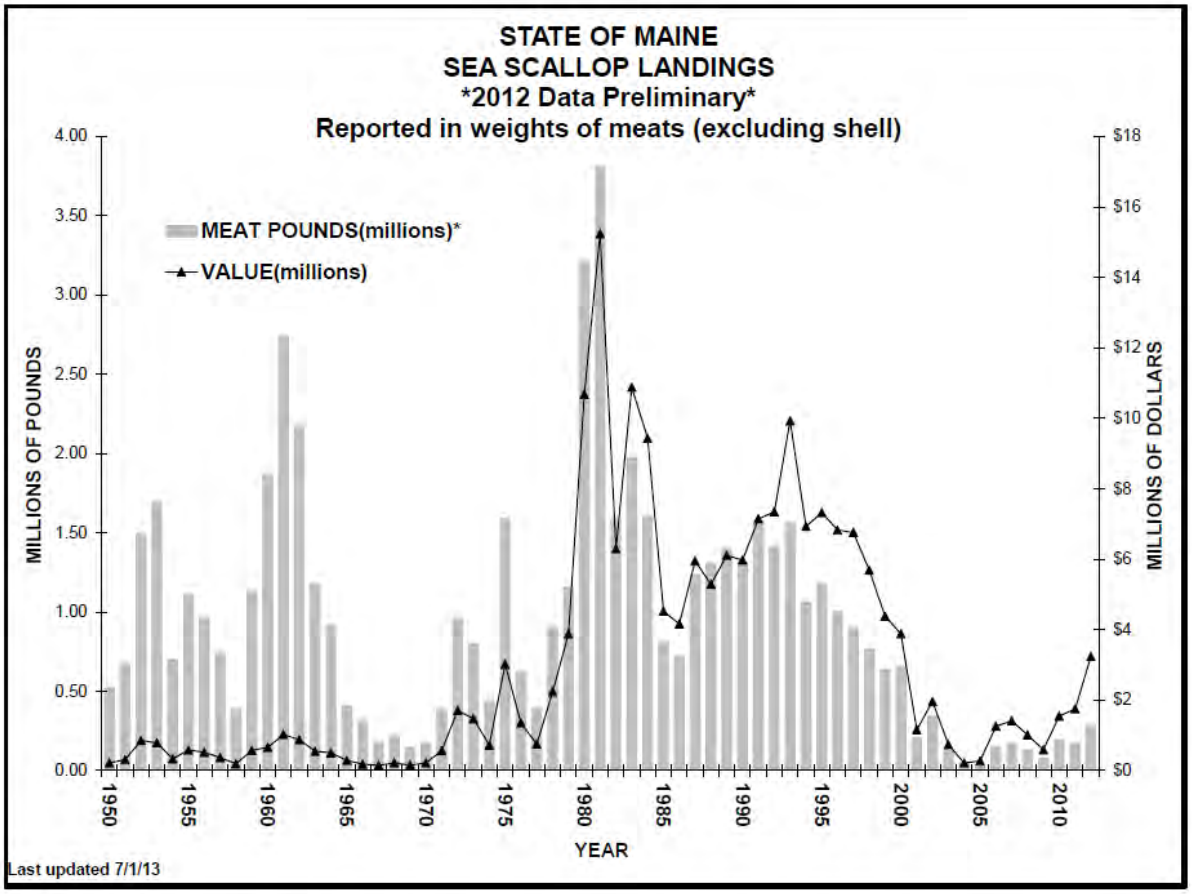


Figure 35 – Monthly scallop landings (2008-2012) (in meat pounds)

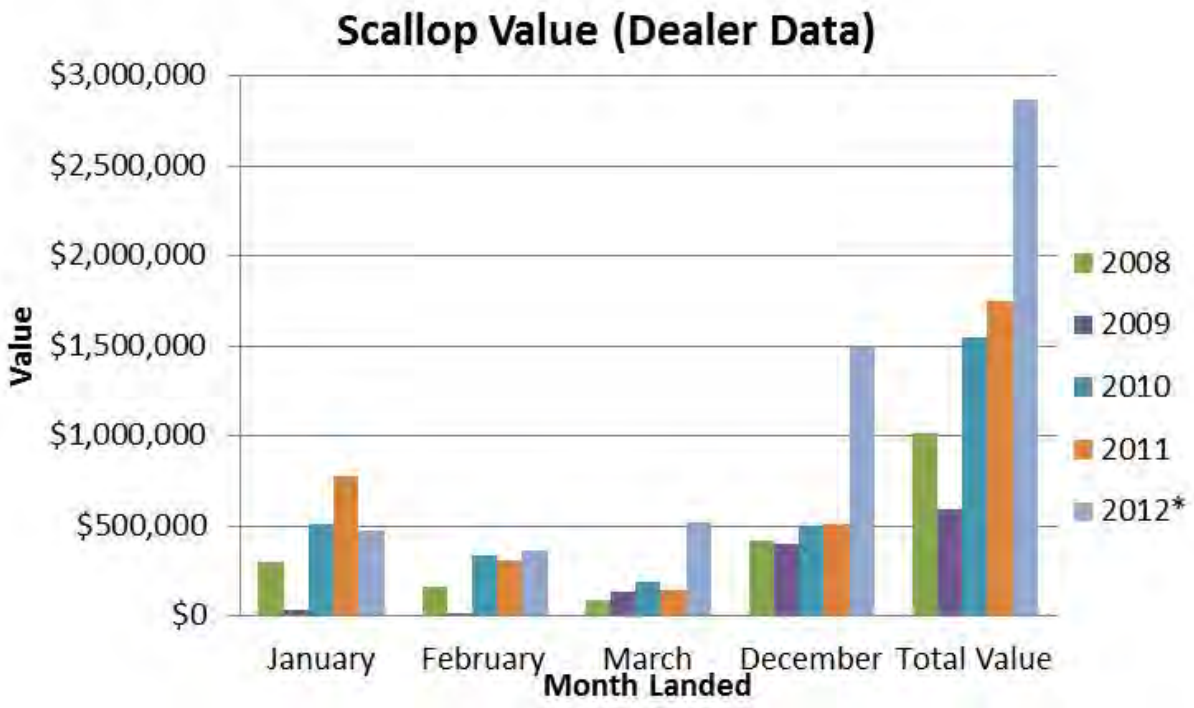
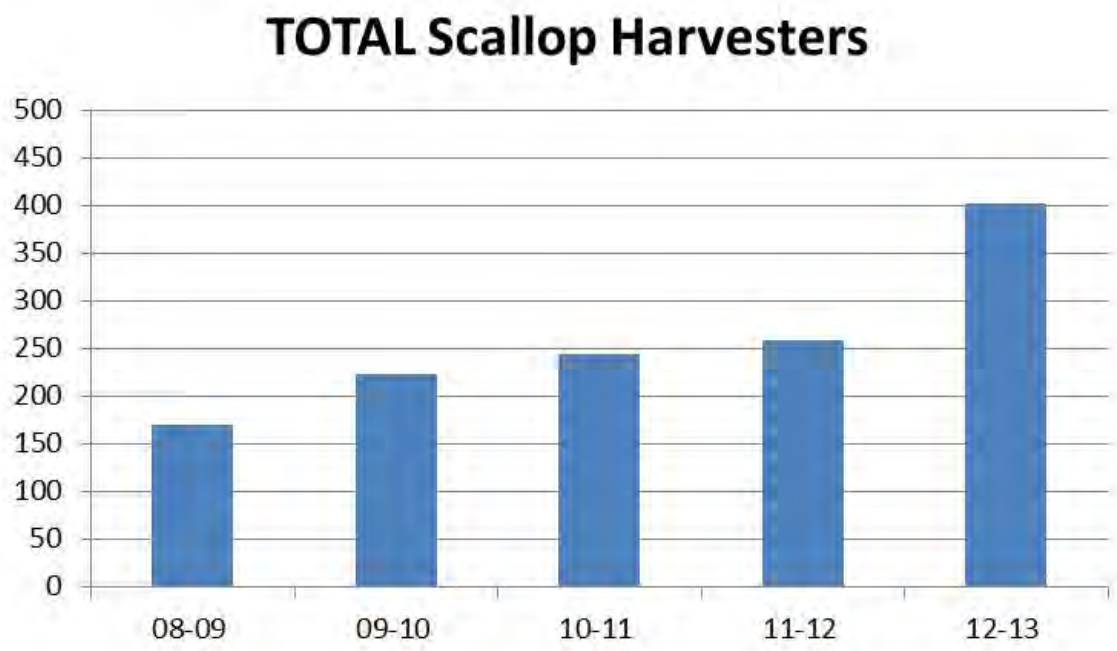


Figure 36 – Number of active ME state water license holders in each season for the past five years



State water landings

Table 29 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 30 is a summary of sea scallop catch from state permitted vessels from state waters in 2008-2012. 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 29 – Number of known fishers that contribute to state only scallop catch (calendar year 2008-2012) (Source: ACCSP).

	Number of Known Fishers			
	2009	2010	2011	2012
ME Dealer Reports	119	179	209	353
ME Harvester Reports**	228	238	265	338
Other States	30	24	29	26

Table 30 - Calendar year scallop landings from state permitted vessel that do not have a federal permit (Source: ACCSP). Small landings from several other states not listed.

Year	2008	2009	2010	2011	2012
Massachusetts	28,986	167,865	121,416	205,933	132,869
Maine (Harvester reports)*	87,808	132,769	244,603	212,331	353,541

**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.*

4.2 ECONOMIC AND SOCIAL TRENDS IN THE SEA SCALLOP FISHERY

This section provides background information in terms of landings, revenues, permits, vessels and various ports and coastal communities in the Northeast Sea Scallop Fishery. For more detailed information about the Economic and Social Trends in the Sea Scallop Fishery please see Appendix I to Framework 24 document (Appx. I, FRW 24).

4.2.1 Trends in Landings, prices and revenues

In the fishing years 2003-2011, the landings from the northeast sea scallop fishery stayed above 50 million pounds, surpassing the levels observed historically (Figure 37). 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, less than one-third of the present level of landings. The increase in the abundance of

scallops coupled with higher scallop prices increased the profitability of fishing for scallops by the general category vessels. 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. The landings by the general category vessels (including limited access general category landings by LA vessels, and vessels with incidental and NGOM permits), 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. However, the landings by limited access general category IFQ fishery increased in 2012 from its levels in 2010 due to a higher projected catch and a higher ACT for all permit categories.

Figure 37. Scallop landings by permit category and fishing year (in lb., dealer data)

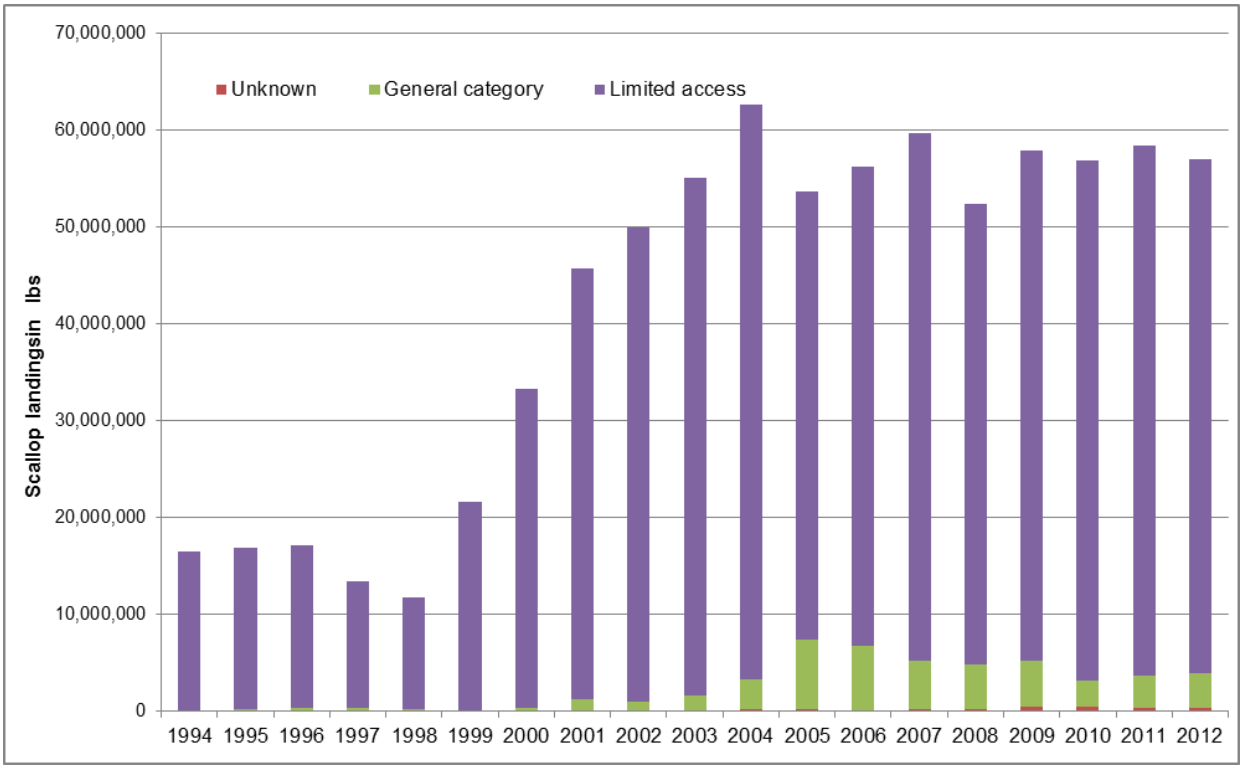
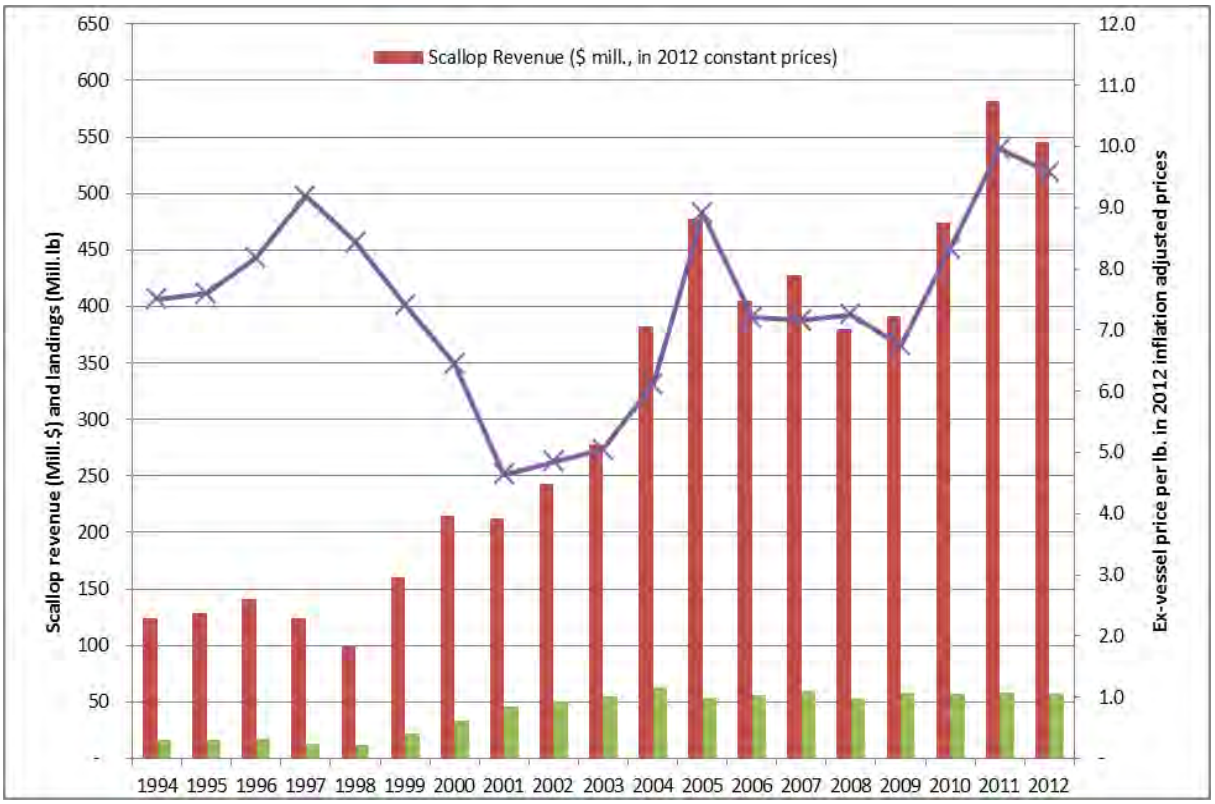


Figure 38 shows that total fleet revenues more than quadrupled in 2011 ($582 million) fishing year from its level in 1994 ($123 million, in inflation adjusted 2011 dollars). Scallop ex-vessel prices increased after 2001 as the composition of landings changed to larger scallops that in general command 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 38). The increase in total fleet revenue was mainly due to the increase in scallop landings and the increase in the number of active limited access vessels during the same period. The ex-vessel prices increased significantly to about $10 per pound of scallops in 2011 fishing year, as the decline in dollar attracted more imports of large scallops from the European countries resulting in record revenues from scallops reaching to $582 million for the first time in scallop fishing industry

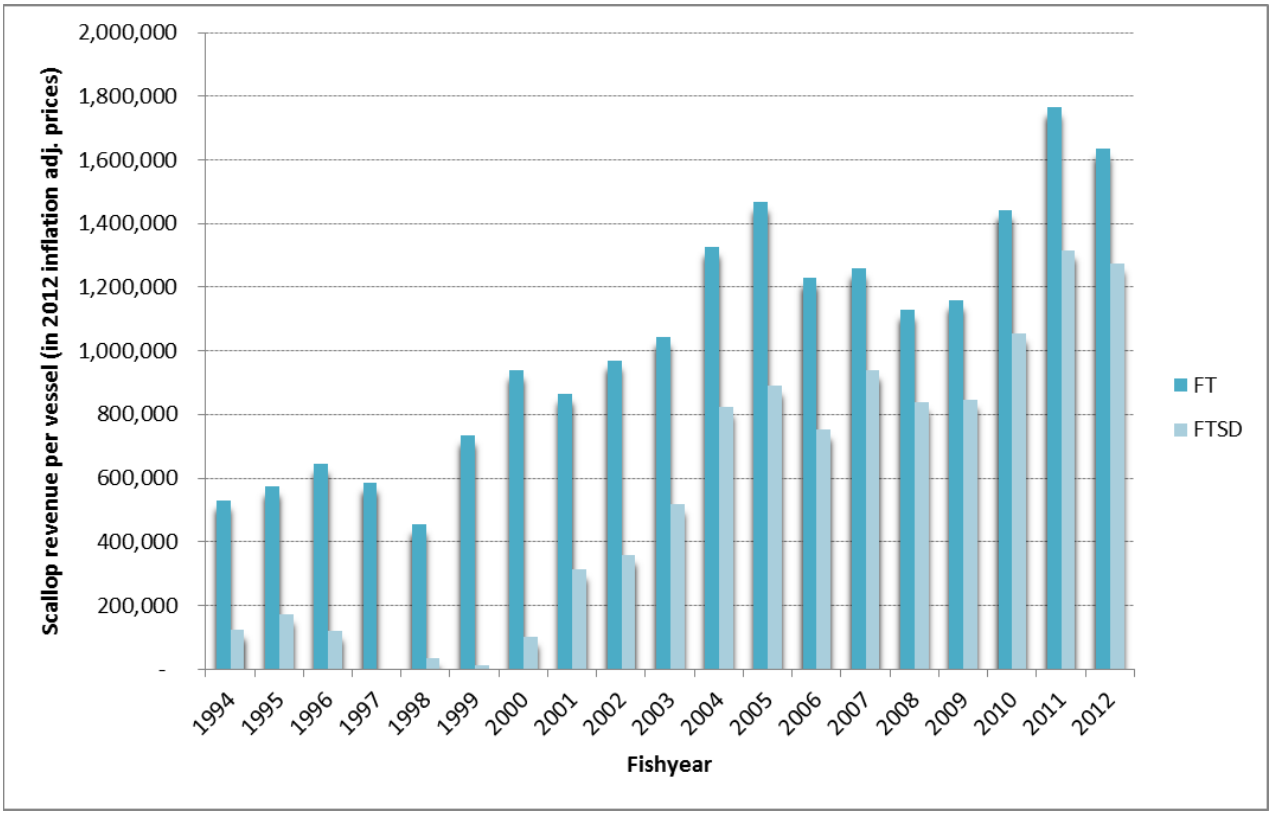
history (Figure 38). Total scallop revenue for the fleet declined to $546 million in 2012 fishing year as a result of the drop in price and landings.

Figure 38. Trends in total scallop landings, revenue and ex-vessel price by fishing year (including limited access and general category fisheries, revenues and prices are expressed in 2011 constant prices)



The trends in revenue per full-time vessel were similar to the trends for the fleet as a whole. The average scallop revenue per limited access full-time dredge vessel almost quadrupled from about $530,000 in 1994 to over $1,764,000 in 2011 as a result of higher landings combined with an increase in ex-vessel price to about $10.00 per pound of scallops. In 2012 fishing year, average annual revenue per full-time dredge vessel amounted to about $1,634,000 and average annual revenue per full-time dredge vessel was about 1,275,000, slightly down from the levels in 2011 fishing year (Figure 39).

Figure 39. Trends in average scallop revenue per full-time (FT) and full-time small dredge (FTSD) vessel



Although general category landings declined after 2009, the revenue per active limited access general category vessel increased in 2012 as the quota is consolidated on or fished by using fewer vessels. 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.

Table 31. Estimated Average annual revenue per limited access general category vessel (includes LA vessels with LAGC permits, Dealer Data)

Values	Fishyear	IFQ	INCI	NGOM
Number of permits	2009	231	73	12
	2010	179	67	12
	2011	170	76	15
	2012	159	88	16
Average scallop lb. per vessel	2009	18,650	2,685	2,038
	2010	13,319	2,255	595
	2011	19,608	797	757
	2012	19,992	561	1,707
Average scallop revenue per vessel	2009	116,164	16,192	12,915
	2010	117,567	18,106	4,727
	2011	202,737	7,741	6,885
	2012	203,712	5,296	12,119

4.2.2 Trends in effort and LPUE

There has been a steady decline in the total DAS used by the limited access scallop vessels from 1994 to 2011 fishing years as a result of the effort-reduction measures since Amendment 4 (1994). The numbers in Figure 40 are obtained from the VTR database and include the steam time showing 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. Figure 40 shows that total DAS-used declined further in 2008 as the open area DAS allocations are reduced by 30% from 51 days to 35 days per full-time vessel, but increased in 2009 as the limited access vessels received access area trips (5 trips per vessel).

Open area DAS allocations were slightly higher in 2010 (38 DAS versus 37 DAS in 2009), resulting in slightly higher total DAS-used by the limited access vessels despite lower number of access area trips (4 trips per vessel). Total DAS-used decreased further in 2011, despite the increase in the open area DAS allocations as LPUE (the landings per DAS-used including the steam time from VTR data) surged to about 2300 lb. per DAS as an average for all the limited access vessels (Figure 40).

The LPUE is much higher if it was calculated as 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. Table 32 shows that LPUE reached over 2,600 lb. per DAS in 2010 and over 2,829 lb. per DAS in 2011 in the open areas using the dealer data. Updated numbers for the open area LPUEs in Table 33 shows that LPUE in open areas in 2013 were close to the levels in 2011.

Figure 40. Total DAS-used (Date landed – Date sailed from VTR data) by all limited access vessels and LPUE

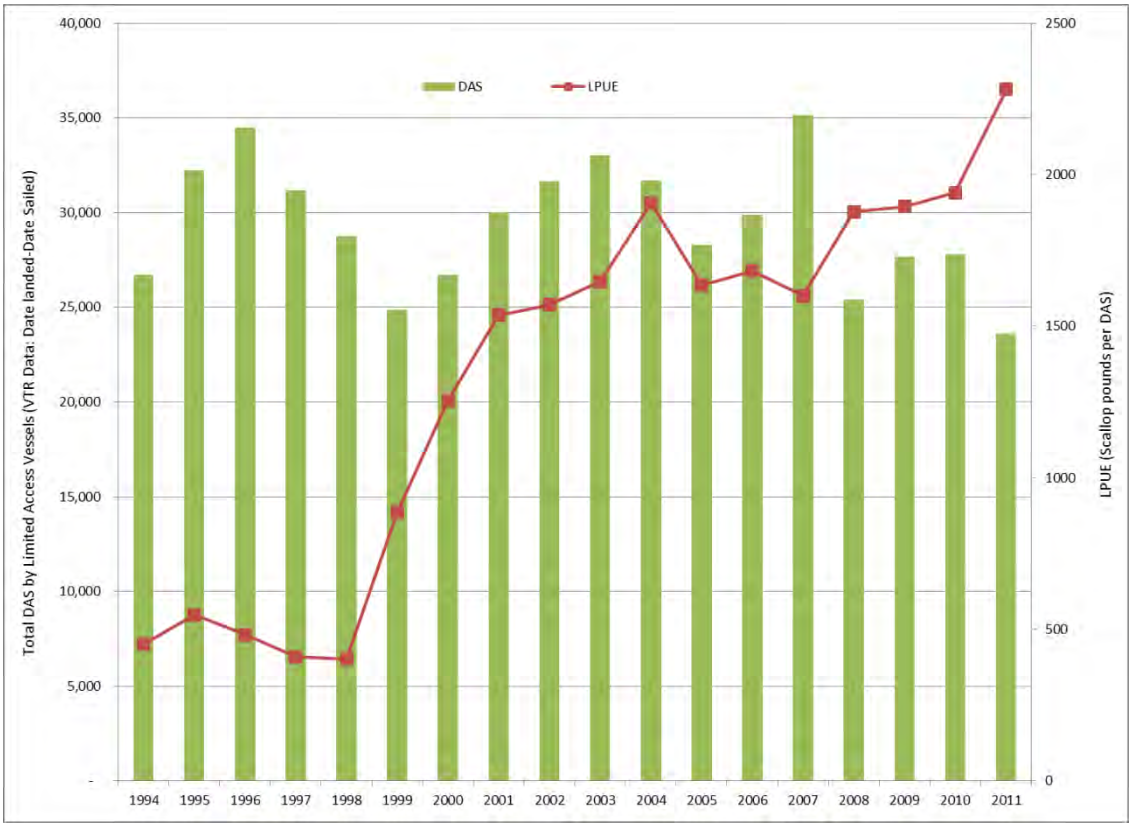


Table 32 – LPUE by area and fish year (Full-time limited access vessels, Dealer and VMS data)

Area	2010	2011
Closed Area 1		2,781
Closed Area 2		2,327
Delmarva	2,229	2,002
Elephant Trunk	1,751	1,644
Hudson Canyon		2,717
Nantucket Lightship	2,741	3,506
OPEN	2,454	2,829

Note: LPUEs were calculated for regular trips, i.e., excluding split trips.

Table 33 – LPUE in the open areas (Limited access Full-time vessels, Dealer and VMS data)

Values	2012	2013
LPUE (VTR data)	2,527	2,789
LPUE (AMS data)	2,653	3,137

4.2.3 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 about 15% in 2009-2011 and to 19% in 2012 fishing year compared to less than 10% in 2000-2004. The share of 11-20 count scallops increased from 13% in 1999 to 75% in 2012 peaking to 79% in 2011 fishing year. On the other hand, the share of 31to 40 count scallops declined from 23% in 1999 to 1% or less since 2008 (Table 34) and the share of 41 + count scallops declined to near 0% since 2001 from 14% in 1999.

Larger scallops priced higher than the smaller scallops contributed to the increase in average scallop prices in recent years despite larger landings (Table 35). The price of smaller scallops, especially the 21 to 30 count scallops, increased however in 2011 fishing year as their supply declined to 6% of total scallop landings. The scarcity of smaller scallops reduced the differences in price of large and small scallops especially in 2011 fishing year. It seems that the premium for the U10 scallops increased a little in 2012 relative to the prices of smaller scallops.

Table 34. Size composition of scallops

Fishyear	UNDER 10 COUNT	11-20 COUNT	21-30 COUNT	31-40 COUNT	41+ COUNT
1998	2%	23%	28%	19%	28%
1999	19%	13%	31%	23%	14%
2000	8%	22%	47%	22%	2%
2001	4%	26%	59%	11%	0%
2002	5%	16%	74%	5%	0%
2003	7%	25%	64%	4%	0%
2004	9%	49%	42%	1%	0%
2005	14%	62%	22%	2%	0%
2006	25%	54%	20%	1%	0%
2007	26%	57%	13%	4%	0%
2008	24%	55%	20%	1%	0%
2009	15%	63%	22%	0%	0%
2010	16%	65%	20%	0%	0%
2011	15%	79%	6%	1%	0%
2012	19%	75%	6%	0%	0%

Table 35. Price of scallop by market category (in 2012 inflation adjusted prices)

Fishyear	UNDER 10 COUNT	11-20 COUNT	21-30 COUNT	31-40 COUNT	41+ COUNT
1998	10.2	9.2	8.9	8.5	7.5
1999	8.2	8.3	7.7	7.0	6.4
2000	9.1	6.9	6.1	6.2	6.4
2001	7.6	4.8	4.5	4.6	4.5
2002	7.0	5.1	4.8	5.5	4.7
2003	6.1	5.1	5.1	5.7	5.4
2004	7.3	6.3	5.9	6.1	7.2
2005	9.2	9.1	9.0	8.8	9.5
2006	6.7	7.5	7.9	7.8	6.5
2007	7.6	7.3	7.0	6.5	5.6
2008	7.6	7.3	7.2	7.0	5.8
2009	8.5	6.6	6.5	6.2	6.8
2010	11.0	7.9	8.6	8.9	6.9
2011	10.4	10.1	10.5	10.0	8.4
2012	10.2	9.7	9.8	9.7	NA

4.2.4 The trends in participation by permit, vessel characteristics and gear type

The limited access scallop fishery consists of 347 vessels. It is primarily full-time, with 250 full-time (FT) dredge, 52 FT small dredge vessels and 11 FT net boats. There no occasional permits left in the fishery since 2009 because they were converted to part-time small dredge (32 vessels in 2011). Similarly, there are only two part-time permits because most were converted into full-time dredge vessels after 2000 (Table 36).

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 reducing the number of general category permits after 2007. In 2011, there were 288 LAGC IFQ permits, 103 NGOM and 279 incidental catch permits in the fishery totaling 670 permits. 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 37).

Table 36. Scallop Permits by unique right-id and category by application year

Permit category	2009-2012
Full-time	250
Full-time small dredge	52
Full-time net boat	11
Total full-time	**313**
Part-time	2
Part-time small dredge	32
Part-time trawl	0
Total part-time	**34**
Occasional	0
Total Limited access	347

Table 37. LAGC Permits (may include duplicate records for replaced vessels with different permit numbers)

Permit Category	Application Year	LA and LAGC permit	LAGC permit only	Grand Total
IFQ	2009	41	303	344
	2010	40	293	333
	2011	41	247	288
	2012	41	237	278
NGOM	2009	28	99	127
	2010	28	94	122
	2011	27	76	103
	2012	27	69	96
Incidental	2009	116	185	301
	2010	113	172	285
	2011	114	165	279
	2012	117	162	279
Grand Total		**733**	**2102**	**2835**

4.2.5 Landings by gear type

Most limited access category effort is from vessels using scallop dredges, including small dredges. The number of vessels using scallop trawl gear has decreased continuously and has been at 11 full-time trawl vessels since 2006. In comparison, there has been an increase in the numbers of full-time and part-time small dredge vessels after 2002. About 80% of the scallop pounds are landed by full-time dredge and about 13% landed by full-time small dredge vessels since the 2007 fishing year (Section 1.1.6 of Appx. I, FRW 24).

Most general category effort is, and has been, from vessels using scallop dredge and other trawl gear. The percentages of scallop landings show that landings made with a scallop dredge in 2012 continue to be the highest compared to other general category gear types (Table 18 and Table 22, Appx. I, FRW 24).

4.2.6 Trends in ownership patterns in the scallop fishery

Sea Scallop Limited access fishery has a highly concentrated ownership structure. According to the ownership data for 2011, only 63 out of 344 vessels belonged to single boat owners (Table 30, Appx.I, FW 24). The rest were owned by several individuals and/or different corporations with ownership interest in more than one vessel. This in contrast to the LAGC IFQ Fishery which is dominated mostly with single boat owners --118 out of 259 active vessels belonged to the single boat owners (Table 32, ibid.).

4.2.7 Trip Costs for the Limited Access Full-time vessels

Data for variable costs, i.e., trip expenses include food, fuel, oil, ice, water and supplies and obtained from observer cost data for 1994-2012. The share of fuel costs increased amounted to about 80% of the total trip costs and average trip cost per DAS for the full-time dredge vessels amounted to over $2154 per day-at-sea in 2012 (See Table 34, Appx.I, FW24 for values in 1994-2011). However, there has been a decline in the fuel costs in the East Coast an average of 4.3% during the 2013 fishing year up to November 2013 and an increase in the food and other products by an 1.17% in the same period, it was estimated that the total trip costs for a FT dredge vessel would be about $2,085 in 2013.

4.2.8 Trends in Foreign Trade

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 especially of larger scallops led to a tripling of U.S. exports of scallops from about 5 million pounds in 1999 to a record amount of 32 million pounds in 2011 (Figure 11, Appx.I, FW24). In contrast, imports of scallops declined to 42 million lb. in 2011 from over 60 million lb. in the preceding five years, that is by almost 30%. Because of the increase in the value of scallop exports to over $214 million in 2011, the difference in the value of exported and imported scallops, that is scallop trade deficit reached to its lowest level, $42 million, since 1994 (Figure 33, ibid.). 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.

4.2.9 Dependence on the Scallop Fishery

Both full-time and part-time limited access vessels had a high dependence on scallops as a source of their income. Full-time limited access vessels had a high dependence on scallops as a source of their income and the majority of the full-time vessels (94%) derived more than 90% of their revenue from the scallop fishery in 2011 (Table 37, Appx. I, FRW 24). Comparatively, part-time limited access vessels were less dependent on the scallop fishery in 2011, with only 37% of part-time vessels earning more than 90% of their revenue from scallops (Table 37, ibid).

Table 38 (ibid) shows that general category permit holders (IFQ and NGOM) are less dependent on scallops compared to vessels with limited access permits. In 2011, less than half (43%) of IFQ permitted vessels earned greater than 50% of their revenue from scallops. Among active NGOM permitted vessels (that did not also have a limited access permit), 88% had no landings with scallops in 2011. Scallops still comprise the largest proportion of the revenue for IFQ

general category vessels, accounting for 38.6% of these vessels revenue. Scallops still comprise the largest proportion of the revenue for IFQ general category vessels, accounting for 38.6% of these vessels revenue (Table 39 Appx I, FRW 24,). For NGOM vessels (that did not also have a limited access permit) scallop landings accounted for less than 1% of revenue in 2011. The composition of revenue for both the IFQ and NGOM general category vessels are shown in Table 39 (ibid).

4.2.10 Trends in Employment in the Scallop Fishery

The number of crew positions, measured by summing the average crew size of all active limited access vessels on all trips that included scallops, has increased slightly from 2,172 positions in 2007 to 2,262 positions in 2011 (a 4% increase) (Table 47, Appx. I, FRW 24). Broken out by home port state, the number of crew positions has stayed relatively constant during the past five years. Limited access vessels with a home port in Massachusetts and New Jersey experienced the largest percentage increase (5%: 969 to 1015 crew positions in MA and 15%: 490 to 564 crew positions in NJ). However, total crew effort in the limited access fishery, measured by crew days, declined from 207,088 to 160,355 (23%, Table 50, Appx I, FRW 24) from 2007 to 2011. The number of crew days on general category vessels followed a similar pattern as the general category crew positions and trips, with large declines in 2008 and 2010, but then an increase in days in 2011(Table 52, ibid.).

4.2.11 Trends in the Number of Seafood Dealers

Dealer data shows that the actual landings of scallops are highly concentrated in the states of Massachusetts (58%), New Jersey (24%) and Virginia (13%), but that dealers from all over New England and the Mid Atlantic are buying these scallops. Table 53 (Appx.I, FW24) shows that Massachusetts is still the state with the most dealers purchasing scallops at 48, but states like New York, New Jersey and Maine also have large numbers of dealers and seafood processors buying scallops. In recent years the total number of dealers purchasing scallops has declined, from a high of 303 dealers in 2005, to 161 dealers in 2011. Without more information about these seafood related businesses it is difficult to draw any conclusions about the recent decline in the number of dealers, but it is interesting to note that the largest declines in dealers accepting scallops has been in Massachusetts, which had 107 dealers in 2005, but had only 48 in 2011.

4.2.12 Trends in scallop landings by port

The landed value of scallops by port landing fluctuated from 1994 through 2011 for many ports. In 2011 New Bedford accounted for 53% of all scallop landings and it continues to be the number one port for scallop landings. Included in the top five scallop ports are: Cape May, NJ; Newport News, VA; Barnegat Light/Long Beach NJ; and Seaford, VA. It is also fair to describe the fishing activities in these ports as highly reliant on the ex-vessel revenue generated from scallop landings as scallop landings represent greater than 75% of all ex-vessel revenue for each of the ports (Table 59, Appx. I, FRW 24). There are also a number of ports with a comparatively small amount of ex-vessel revenue from scallops but where that scallop revenue represents a vast majority of the revenue from landings of all species (Table 60, ibid.). In 2011, in the ports of Newport News, VA and Seaford, VA; revenue from scallop landings accounted for 89.0% and 99.9% of all ex-vessel revenue respectively (Table 60, ibid.).

In terms of homestate, the vessels from MA landed over 45% of scallops in 2010 and 2011 fishing years, followed by NJ with about 24.5% of all scallops landed by vessels homeported in this state (Appx. I, FRW 24). Scallops also comprise a significant proportion of revenue (and landings) from all species with over 90% of total revenue in VA, over 75% of total revenue in NC, over 60% of total revenue in MA and over 68% of total revenue in NJ (ibid.).

As in previous years, 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 62, Appx. I, FRW 24). New Bedford also has the greatest number of general category scallop vessels, but while limited access vessels are mostly concentrated in the ports of New Bedford and Cape May, general category vessels are more evenly distributed throughout coastal New England. In addition to New Bedford, Point Judith, RI, Gloucester, MA, Boston, MA, Cape May, NJ and Barnegat Light, NJ, are all the homeport of at least 20 vessels with general category scallop permits (Table 63, ibid).

4.3 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 41, 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.

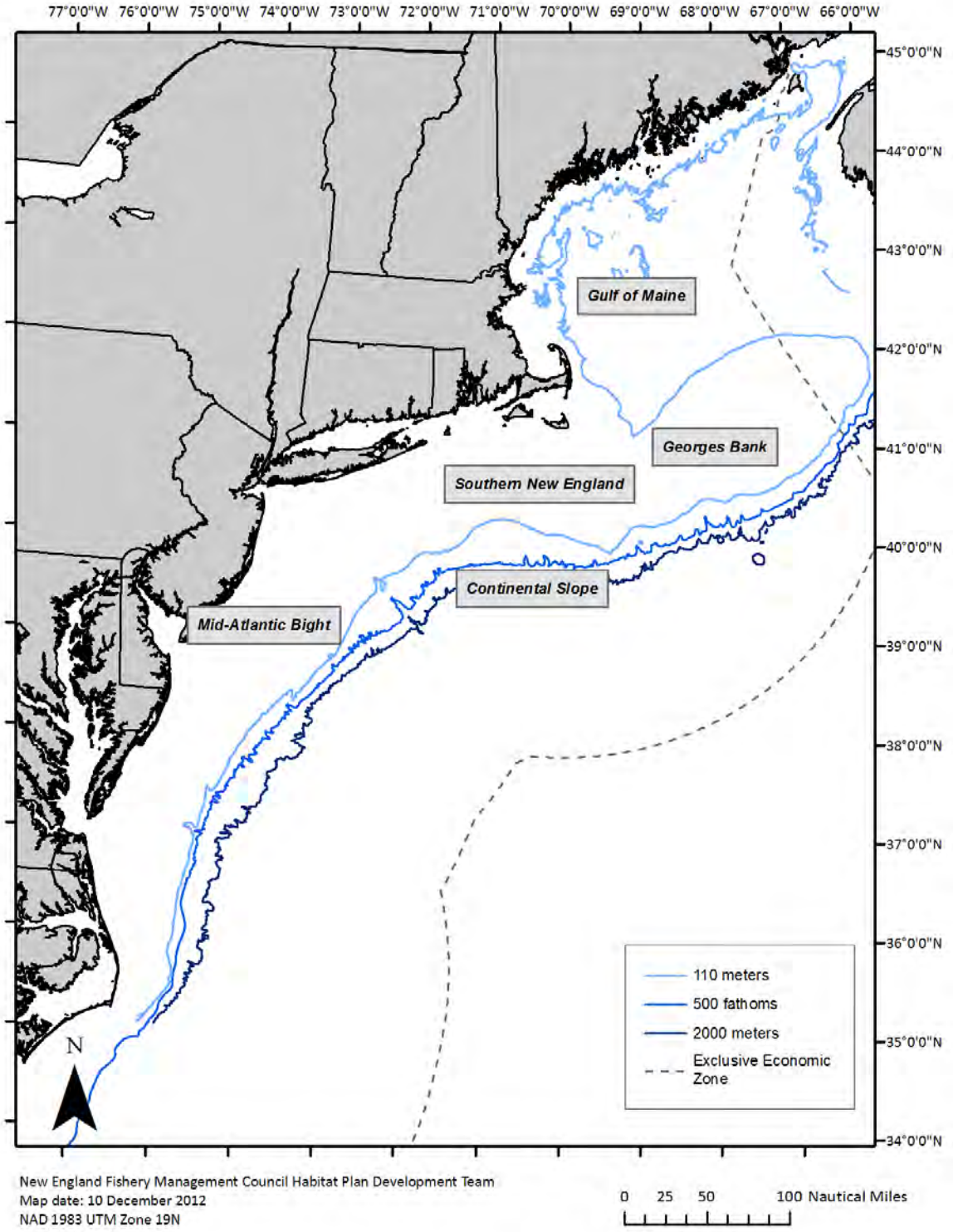
Most of the current EFH designations were developed in NEFMC Essential Fish Habitat Omnibus Amendment 1 (1998). Most recently, Amendment 16 to the Northeast Multispecies FMP adds Atlantic wolffish to the management unit and includes an EFH designation for the

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.

During 2014, the Council plans to finalize OA2, including development of updated management areas to address habitat and groundfish related objectives. Assuming current timelines are met and final Council approval occurs in September 2014, the action should be implemented by summer 2015.

Figure 41 – Northeast U.S Shelf Ecosystem and geographic extent of the US sea scallop fishery



4.4 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 here to facilitate consideration of the species most likely to interact with the scallop fishery relative to the preferred alternative.

A more complete description of protected resources inhabiting the action area is provided in Amendment 15 to the Sea Scallop FMP (See Amendment 15 to the Atlantic Sea Scallop Fishery Management Plan, Section 4.3, Protected Species, for a complete list. An electronic version of the document is available at http://www.nefmc.org/scallops/index.html.).

Cetaceans	***Status***
North Atlantic right whale (*Eubalaena glacialis*)	Endangered
Humpback whale (*Megaptera novaeangliae*)	Endangered
Fin whale (*Balaenoptera physalus*)	Endangered
Blue whale (*Balaenoptera musculus*)	Endangered
Sei whale (*Balaenoptera borealis*)	Endangered
Sperm whale (*Physeter macrocephalus*)	Endangered
Minke whale (*Balaenoptera acutorostrata*)	Protected
Beaked whale (*Ziphius* and *Mesoplodon spp.*)	Protected
Pilot whale (*Globicephala* spp.)	Protected
Spotted and striped dolphin (*Stenella spp.*)	Protected
Risso's dolphin (*Grampus griseus*)	Protected
White-sided dolphin (*Lagenorhynchus acutus*)	Protected
Common dolphin (*Delphinus delphis*)	Protected
Bottlenose dolphin: coastal stocks (*Tursiops truncatus*)	Protected
Harbor porpoise (*Phocoena phocoena*)	Protected
Pinnipeds	
Harbor seal (*Phoca vitulina*)	Protected
Gray seal (*Halichoerus grypus*)	Protected
Harp seal (*Phoca groenlandica*)	Protected
Hooded seal (*Crystophora cristata*)	Protected
Sea Turtles	
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered
Green sea turtle (*Chelonia mydas*)	Endangered[1]
Loggerhead sea turtle – NWA DPS(*Caretta caretta*)	Threatened[2]

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

Fish

Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered
Atlantic salmon (*Salmo salar*)	Endangered
Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*)	
Gulf of Maine DPS	Threatened
New York Bight DPS, Chesapeake Bay DPS,	Endangered
Carolina DPS & South Atlantic DPS	Endangered
Cusk (*Brosme brosme*)	Candidate
Dusky shary (*Carcharhinus obscurus*)	Candidate

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

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

Threatened and Endangered Species <u>Not</u> Likely to be Affected by the Alternatives under Consideration

According to the most recent Biological Opinion (Opinion) issued by NMFS on July 12, 2012, the agency has determined that species not likely to be affected by the Atlantic Sea Scallop FMP or by the operation of the fishery include the shortnose sturgeon, the Gulf of Maine distinct population segment (DPS) of Atlantic salmon, hawksbill sea turtles, and the following whales: North Atlantic right, humpback, fin, sei, blue, and sperm whales, all of which are listed as endangered species under the ESA. NMFS also concluded that the continued authorization of the sea scallop fishery would not have any adverse impacts on cetacean prey, and that it would not affect the oceanographic conditions that are conducive for calving and nursing of large cetaceans. The reader is referred to Section 4.3.1.1 of the scallop Amendment 15 EIS for a complete description regarding species not likely to be affected by the alternatives under consideration. These species descriptions include the cetaceans and pinnipeds listed above. In addition, it is noted that according to the 2013 List of Fisheries (78 FR 53336), there have been no documented marine mammal species interactions with either the sea scallop dredge fishery or the Atlantic shellfish bottom trawl fishery; therefore, the scallop fishery is considered a Category

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[2] *NWA DPS = Northwest Atlantic distinct population segment which encompasses loggerheads found north of the equator, south of 60° N latitude, and west of 40° W longitude.*

III fishery under the MMPA (i.e., a remote likelihood or no known incidental mortality and serious injuries of marine mammals).

Threatened and Endangered Species Potentially Affected Adversely by the Alternatives under Consideration

Section 7 of ESA requires each Federal agency to insure that any action authorized, funded, or carried out by the agency is not likely to jeopardize the continued existence of any endangered or threatened species or critical habitat of such species. Since the Scallop FMP is approved and implemented by the NMFS Greater Atlantic Regional Fisheries Office (GARFO), formerly the Northeast Regional Office (NERO), they requested intra-service section 7 consultation on February 28, 2012.

NMFS requested reinitiating consultation because of the 2012 listing of five distinct population segments (DPS) of Atlantic sturgeon under ESA as well as new information on sea turtle interactions with the sea scallop fishery. New information included: 1) new sources of information on the effects of the scallop fishery on sea turtles based on new estimates of average annual sea turtle bycatch (Murray (2011) and Warden (2011a)); 2) new information about levels of serious injury/mortality to sea turtles in the fishery (Upite 2011); 3) updated assessments of the likelihood of serious injury/mortality from new gear requirements (Milliken et al (2007), Smolowitz et al (2010) and Scallop PDT analyses in Framework 23); and 4) new management measures required in FW22 and FW23 that reduce impacts on sea turtles. Finally, the recent opinion explained the change in ESA listing of loggerhead sea turtles from a single species to nine separate DPSs, of which only the Northwest Altantic (NWA) DPS overlaps with and may be affected by the scallop fishery.

The 2012 consultation concluded that the continued operation of the scallop fishery may adversely affect, but is not likely to jeopardize the continued existence of NWA DPS loggerhead, leatherback, Kemp's ridley, or green sea turtles, or any of the five listed DPSs of Atlantic sturgeon. NMFS anticipates the incidental take of ESA-listed species in the scallop fishery as follows:

- **for the NWA DPS of loggerhead sea turtles, they anticipate (a) the annual average take of up to 161 individuals in dredge gear, of which up to 129 per year may be lethal in 20l2 and up to 46 per year may be lethal in 2013 and beyond,[3] and (b) the annual average take of up to 140 individuals in trawl gear, of which up to 66 per year may be lethal;**
- **for leatherback sea turtles, they anticipate the annual lethal take of up to two individuals in dredge and trawl gear combined;**

[3] The estimated mortality numbers presented in the Biological Opinion for scallop dredges with chain mats in 2012 are conservative in that they are overestimates of actual mortalities. Mortality rates used for 2012 are based on those estimated for observed turtle takes (e.g., turtles captured in the dredge and brought on deck), yet a percentage of the estimated takes are not observed (e.g., interactions where turtles were excluded by the chain mat) and these takes are considered to have a lower mortality rate.

- **for Kemp's ridley sea turtles, they anticipate the annual take of up to three individuals in dredge and trawl gear combined (for 2012, up to three takes are anticipated to be lethal, while for 2013 and beyond, up to two takes are anticipated to be lethal);**
- **for green sea turtles, they anticipate the annual lethal take of up to two individuals in dredge and trawl gear combined;**
- **for Atlantic sturgeon, they anticipate the annual take of up to one individual from either the Gulf of Amine, New York Bight, Chesapeake Bay, Carolina, or South Atlantic DPS in trawl gear; once every 20 years this take is expected to result in mortality.**

NMFS is required to minimize the impact of these takes so several Reasonable and Prudent (RPMs) were identified. Terms and conditions were also included to specify how the RPMs should be implemented. Both RPMs and terms and conditions are non-discretionary and must be implemented by NMFS. The complete list of RPMs and terms and conditions can be found in the NMFS 2012 biological opinion on the scallop fishery located at http://www.nero.noaa.gov/prot_res/section7/NMFS-signedBOs/2012ScallopBiOp071212.pdf.

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. The impacts of the scallop fishery on bycatch have been reduced through management measures involving ring size, larger twine top, limits on effort, 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 38.

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 38** for the current status of these species, which has been updated based on assessment results summarized in Groundfish FW51, Skate FW2, and Monkfish FW7.

Table 38: Status of non-target species known to be caught in scallop fishing gear, updated with assessment results summarized in GF FW51, Monkfish FW7 and Skate FW2

Species	***Stock***	***Overfished?***	***Overfishing?***
Summer flounder (fluke)	Mid-Atlantic Coast	No	No
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	Yes
Northeast Skate Complex	Winter skate	No	Yes
Multispecies	Windowpane - GOM/GB	Yes	Yes
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	Yes	No
Multispecies	Yellowtail flounder - SNE/MA	No	No
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/statusoffisheries/SOSmain.htm

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. However, SNE/MA windowpane is not an allocated sub-ACL until the 2013 fishing year; therefore is not included in these 2012

tables. The tables below describe a summary of multispecies catch from the scallop fishery in fishing year 2012 under the Multispecies plan. A complete summary of all catch in the multispecies fishery for 2012 can be found at: http://www.nero.noaa.gov/ro/fso/reports/Sector_Monitoring/FY12_Mults_Catch_Estimates.pdf

Total catch of GB YT was much lower in 2012 compared to 2011 (1,150.9 mt), and higher for SNE/MA YT in 2012 compared to 2011 (503.6 mt) (**Table 41**). However catch from the scallop fishery was higher in 2012 compared to 2011 (83.9 mt), partially because more access was allocated in the CA2 access area, which typically has higher bycatch rates than other areas on GB. Landings of YT in the scallop fishery was still relatively low even though LA scallop vessels were required to land all legal sized YT in 2012 (under 30 mt for both stocks). Most YT was discarded in the scallop fishery.

Table 42 compares the GF catch in the scallop fishery to the sub-ACL for YT species, as well as the total ACLs. In 2012, the sub-ACL of GB YT was lower for the scallop fishery, 156.9 mt compared to 200.8 mt in 2011. The scallop fishery was estimated to catch more YT than their sub-ACL (164 mt) equal to 30% of the total catch, but AMs were not triggered since the total ACL was not exceeded and the scallop fishery did not exceed their sub-ACL by more than 50%. For SNE/MA YT the scallop fishery was allocated a sub-ACL of 127 mt, but only 42.5% was caught, equal to less than 6% of total SNE/MA YT catch.

Table 41 – Summary of 2012 year end accounting of NE Multispecies catch (mt)

Stock	Total GF Catch	Scallop Catch	Total GF Landings	Scallop Landings	Total GF Discards	Scallop Discards
GB YT	384.9	164.0	227.5	25.1	157.4	138.9
SNE/MA YT	593.5	54.0	435.6	2.4	157.9	51.6

Table 42 – Summary of 2012 ACLs, catch, and percent of ACLs caught by the scallop fishery

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	547.8	156.9	164.0	104.5%	30%
SNE/MA YT	936	127	54.0	42.5%	5.8%

5.0 IMPACTS OF ALTERNATIVES UNDER CONSIDERATION

5.1 SCALLOP RESOURCE

5.1.1 Fishery specifications

5.1.1.1 Overfishing Limit (OFL) and Acceptable Biological Catch (ABC)

ACLs and AMs have been required under the MSA since fishing year 2010 if overfishing is occurring in a fishery, and 2011 for all other fisheries. The Council initiated Scallop Amendment 15 to comply with these new ACL requirements, and that action was implemented in 2011. In addition, an OFL and ABC are required, and the Council may not set catch limits above the ABC recommended by the SSC.

5.1.1.1.1 No Action (Alternative 1)

Under "No Action", the overall OFL and ABC would be equivalent to default 2014 values adopted in Framework 24 (Table 5). These would remain in place until a subsequent action replaced them. The No Action ABC is higher than the updated estimate of ABC under consideration in this action (Alternative 2). Therefore, setting management measures based on the No Action ABC, an ABC that is above the updated value could increase the risk of overfishing, and have potentially negative impacts on the scallop resource if the harvest level exceeds OFL.

5.1.1.1.2 Updated estimate of ABC for FY2014 and FY2015 (default) (Alternative 2) *(Preferred Alternative)*

The SSC reviewed updated estimates of OFL and ABC based on revised PDT analyses using 2013 survey and fishery data available. The proposed values are in (Table 6). Compared to the No Action ABC (Alternative 1), these values are potentially more beneficial for the scallop resource because they are based on more updated information and reduce the risk of overfishing. This action is only setting ABC for 2014 and 2015, but the 2015 ABC will be reevaluated in a future framework action. This alternative is expected to have positive impacts on the scallop resource because it is based on the best available science and reduces the risk of overfishing, compared to the No Action ABC value.

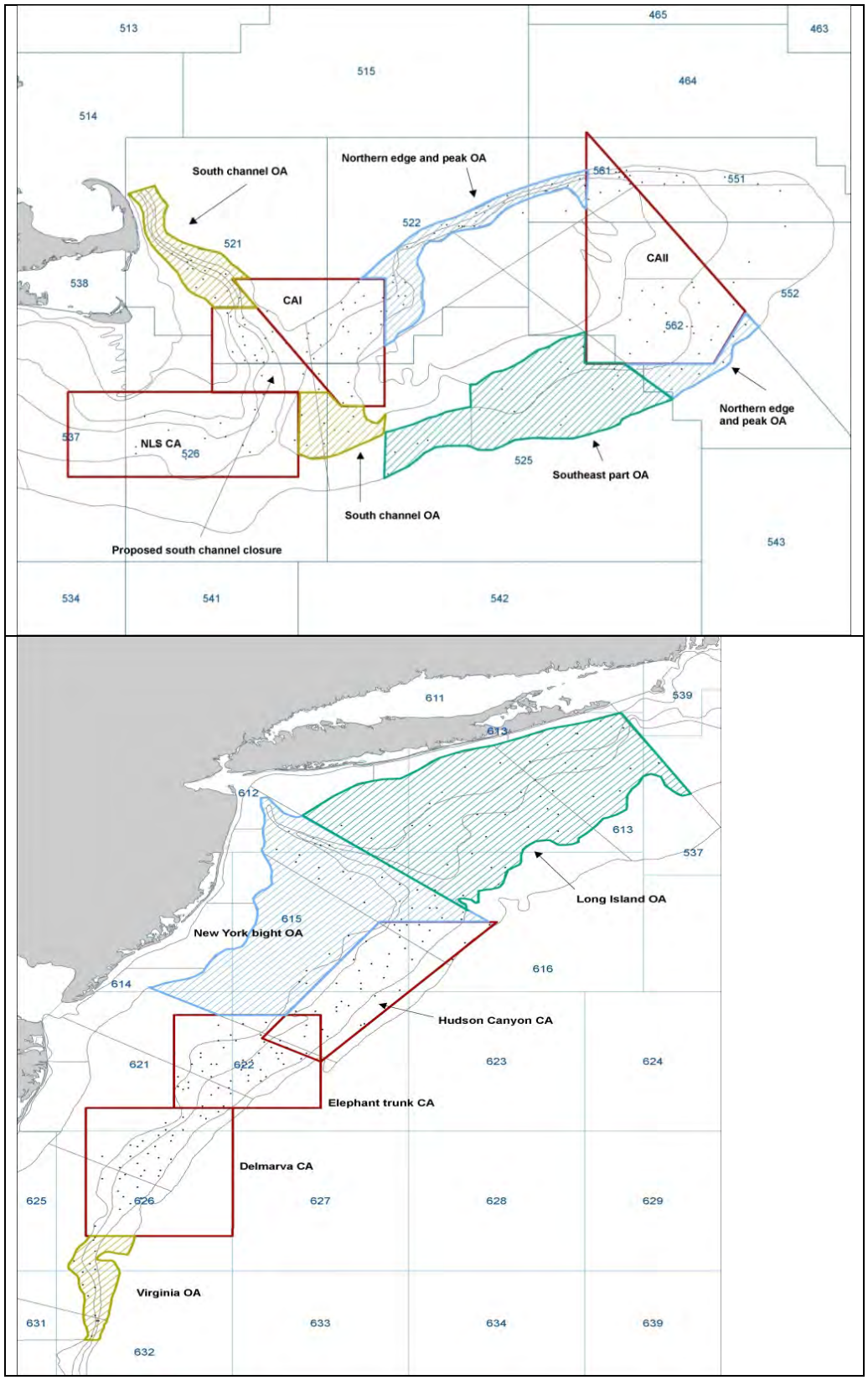
5.1.1.2 Summary of biological projections for overall specification alternatives considered in this action

The biological impacts for the allocation alternatives considered in this action are based on results from an updated version of the SAMS (Scallop Area Management Simulator) model. This model has been used to project abundances and landings to aid management decisions since 1999. SAMS is a size-structured model that forecasts scallop populations in a number of areas. (Figure 42).

It is important to note that this model is based on fishing mortality by area and the inputs are not fishery-based in terms of DAS, etc. The simulation does not model individual vessels or trips; it models the fleet as a whole. The output of the model is then used to eventually compute individual DAS allocations after set-asides, general category landings, etc. are removed. The SAMS model provides projected exploitable biomass estimates, scallop landings, estimates of

fishing mortality, average LPUE, DAS used and bottom area swept by area. All of these projections are described in the following tables and figures. Projections are run out 14 years to provide long-term impacts as required by law. After year two, the model uses the same assumptions for allocations in 2016 and beyond. Therefore, the only difference between the overall performances of alternatives is during the first 2 years.

Figure 42- SAMS model areas, with statistical areas and stratum boundaries on Georges Bank and the Mid-Atlantic



5.1.1.2.1 Projected biomass and exploitable biomass

- Total biomass is similar for all alternatives considered (Figure 43).
- Biomass is expected to increase modestly over the long term because of growth of smaller scallops in the Mid-Atlantic.
- Long-term projections are over 160,000 mt.
- Figure 44 shows exploitable biomass, and again all alternatives have similar projections, but in 2015 exploitable biomass is highest for No Action (over 90,000 mt), followed by Alternatives 2 and 3 (about 87,000 mt), then Alternative 5 (85,000mt), and finally Alternatives 4 and 6 (about 83,000 mt).
- Alternative 3 has slightly higher long term exploitable biomass than the other options due to lower fishing levels in 2014.

Figure 43 - Comparison of projected total scallop biomass for alternatives under consideration

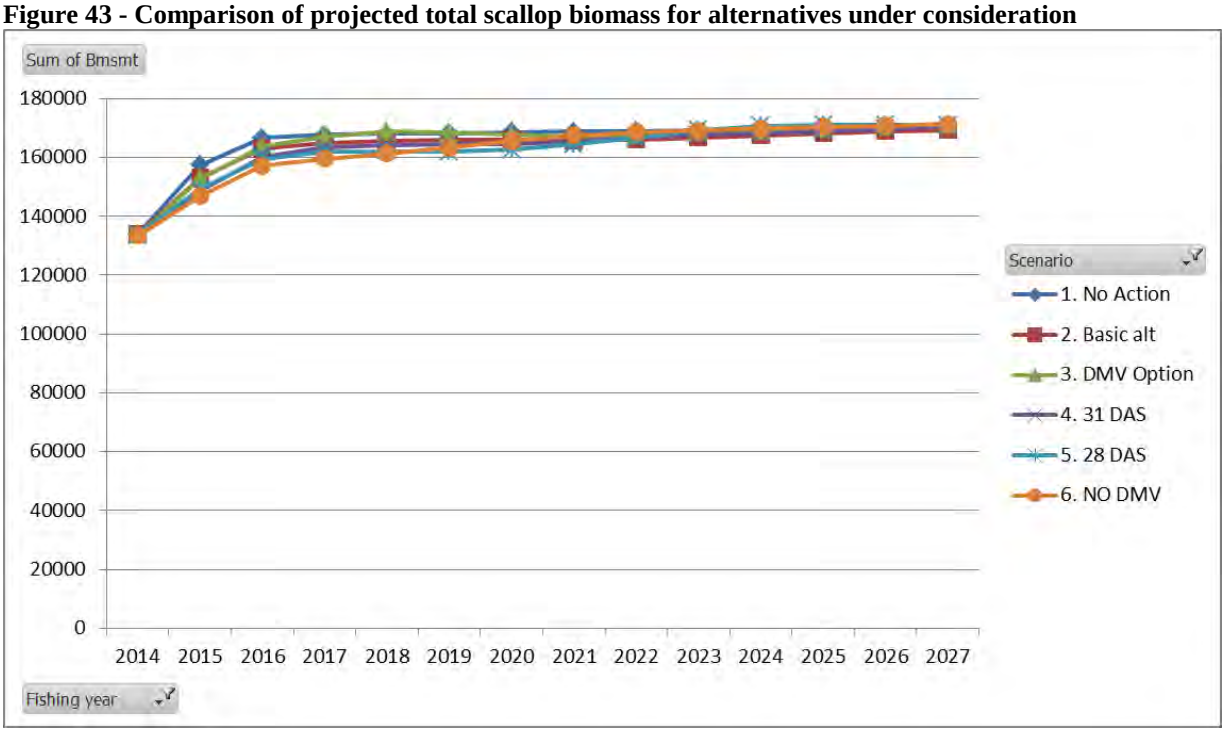


Figure 44 - Comparison of projected exploitable scallop biomass for alternatives under consideration

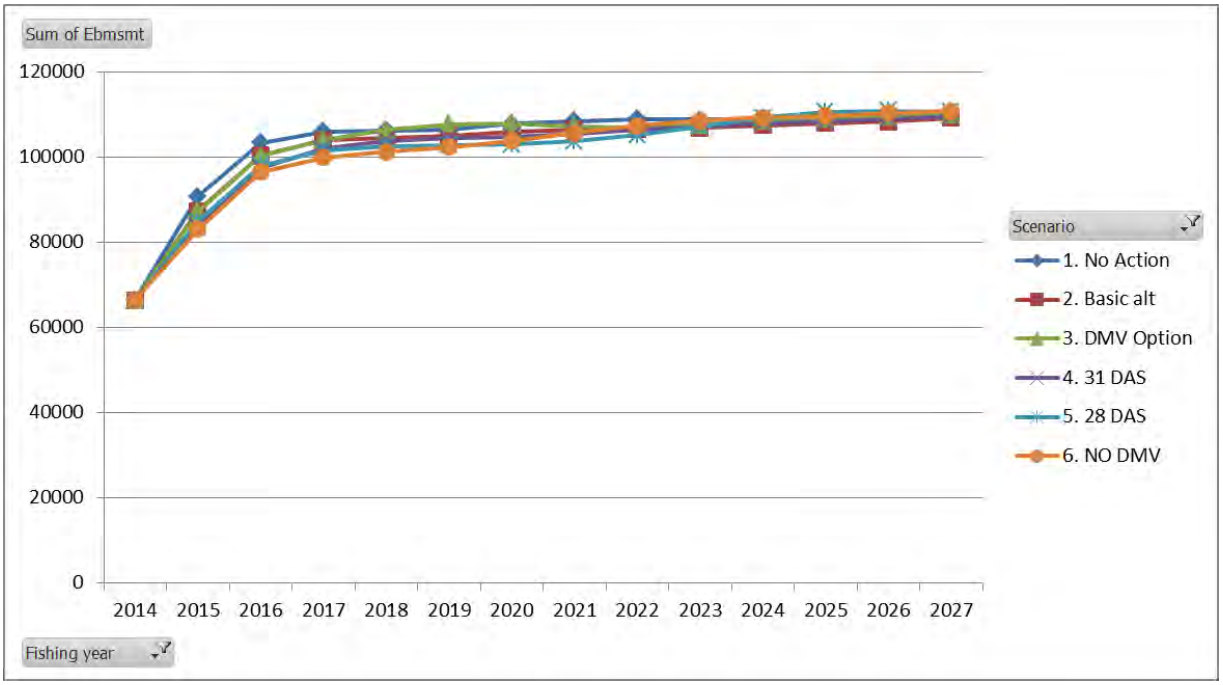


Table 39 – Projected exploitable biomass by year for each alternative (mt)

Sum of Ebmsmt	Scenario					
Fishing year	1. No Action	2. Basic alt	3. DMV Opti	4. 31 DAS	5. 28 DAS	6. NO DMV
2014	66352	66353	66352	66352	66352	66352
2015	90753	87393	87201	83632	84927	83065
2016	103333	100435	100227	97378	98000	96479
2017	105991	103927	104100	101934	101525	99942
2018	106248	104522	106331	103817	102565	101247
2019	106480	105048	107703	104417	102893	102382
2020	107833	105918	107948	104784	102975	103755
2021	108477	106497	107271	105573	103700	105598
2022	108912	106502	106961	106468	105109	107311
2023	108764	106813	107535	107250	107205	108606
2024	108897	107494	108480	107894	109288	109249
2025	109569	107906	109066	108330	110589	109633
2026	110340	108310	109391	108945	110915	110350
2027	110674	109168	109902	109595	110623	110759
Grand Total	**1452623**	**1426286**	**1438468**	**1416369**	**1416666**	**1414728**

5.1.1.2.2 Projected scallop landings

- Landings are highest for Alternative 4 and 6 in 2014 due to higher open area DAS, but projected landings for these two alternatives are slightly lower than the other alternatives in the long term (Figure 45 and Table 40).
- Alternatives 2 and 3 have higher catch levels in 2014 compared to No Action, but lower catch than Alternative 5.
- In the long term Alternative 3 has slightly higher total catch of all the FW25 alternatives, followed by Alternative 2 and Alternative 5, and finally Alternatives 4 and 6.
- Higher catches are projected in 2016 and 2017 based on openings of MA access areas that are projected to have relatively high levels of exploitable biomass.
- These projections assume the EFH and GF closed areas that are currently closed remain closed.

Figure 45 - Comparison of projected scallop landings for alternatives under consideration

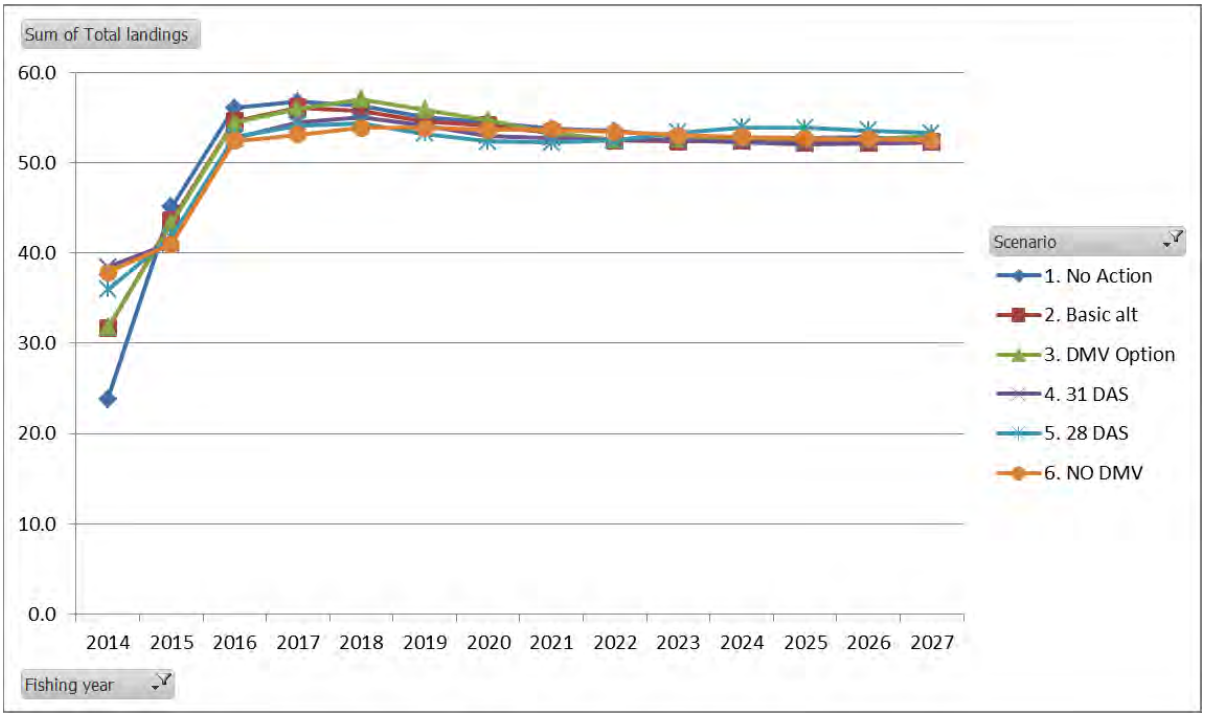


Table 40 – Projected scallop landings per year for each alternative (million pounds)

Sum of Total landings	Scenario					
Fishing year	1. No Action	2. Basic alt	3. DMV Option	4. 31 DAS	5. 28 DAS	6. NO DMV
2014	23.8	31.7	31.7	38.5	35.9	37.9
2015	45.1	43.6	43.3	41.1	41.8	41.0
2016	56.1	54.6	54.4	52.7	52.9	52.4
2017	56.8	56.1	55.9	54.5	54.1	53.1
2018	56.3	55.7	57.1	55.0	54.4	53.9
2019	55.1	54.5	55.9	54.1	53.2	53.8
2020	54.5	54.2	54.7	53.0	52.4	53.7
2021	53.8	53.3	53.3	52.7	52.3	53.7
2022	53.5	52.5	52.5	52.5	52.5	53.4
2023	52.8	52.4	52.6	52.5	53.3	53.0
2024	52.7	52.4	52.8	52.3	53.9	52.9
2025	52.8	52.2	52.6	52.1	53.9	52.7
2026	52.8	52.2	52.7	52.1	53.6	52.6
2027	52.4	52.3	53.0	52.2	53.3	52.5
Grand Total	**718.4**	**717.8**	**722.6**	**715.5**	**717.4**	**716.5**

5.1.1.2.3 Total fishing mortality and open area fishing mortality

Total Fishing Mortality

- The ACL structure set up in the Scallop FMP prescribes that the ACT for the fishery should not include allocations that are projected to have an overall F rate higher than 0.28, the rate that has a 25% chance of exceeding the ABC, which is 0.32.
- All the alternatives under consideration have a total estimate of fishing mortality considerably lower than the target used to set fishery allocations for the fishery (F=0.28). The range under consideration is between 0.10 (No Action) and 0.21 (Alternative 4) (Table 41).
- Because there is currently a relatively large amount of total biomass within EFH and GF closed areas, as well as MA access areas, the overall F rates are relatively low for the fishery even with higher DAS allocations. Specifically, increasing DAS from 23 DAS under Alternative 3 to 31 DAS under Alternative 4, only increases overall F by 0.04; the alternatives are exactly the same except Alternative 4 allocates 8 more DAS than Alternative 3.
- Therefore, the risk of overfishing is relatively low for all of the alternatives under consideration since the projected F rates are well below 0.28. However, the model does tend to underestimate F. In recent years when the Scallop PDT has evaluated the projected F rate compared with the actual F rate the following year, total F has been underestimated by 20-30% in some years. Therefore, actual F may end up being closer to, or even exceeding 0.28 the target F rate, (ACT for the fishery), but there is still a relatively low risk of exceeding 0.38 (OFL for the fishery). Most of the scenarios are just under of over 0.20 overall, and if actual F exceeds 0.38 that would be over 50% higher than the target.

Table 41 – Projected overall F for the various scenarios under consideration

Average of Ove		Scenario					
subperiod	Fishing year	1. No Action	2. Basic alt	3. DMV Option	4. 31 DAS	5. 28 DAS	6. NO DMV
2014-2015	2014	0.10	0.18	0.17	0.21	0.19	0.18
	2015	0.23	0.23	0.22	0.22	0.22	0.23
2014-2015 Total		**0.17**	**0.21**	**0.20**	**0.22**	**0.21**	**0.21**
2016-2018	2016	0.28	0.28	0.28	0.28	0.28	0.28
	2017	0.28	0.28	0.28	0.28	0.28	0.28
	2018	0.28	0.28	0.28	0.28	0.28	0.28
2016-2018 Total		**0.28**	**0.28**	**0.28**	**0.28**	**0.28**	**0.28**
2019-2027	2019	0.27	0.27	0.27	0.28	0.28	0.28
	2020	0.27	0.27	0.27	0.27	0.27	0.27
	2021	0.26	0.27	0.26	0.26	0.27	0.27
	2022	0.26	0.26	0.26	0.26	0.26	0.26
	2023	0.26	0.26	0.26	0.26	0.26	0.26
	2024	0.26	0.26	0.26	0.26	0.26	0.26
	2025	0.26	0.26	0.26	0.26	0.26	0.26
	2026	0.26	0.26	0.26	0.26	0.26	0.25
	2027	0.25	0.26	0.26	0.25	0.26	0.25
2019-2027 Total		**0.26**	**0.26**	**0.26**	**0.26**	**0.26**	**0.26**
Grand Total		**0.25**	**0.26**	**0.26**	**0.26**	**0.26**	**0.26**

Open Area Fishing Mortality

- Unlike total projected fishing mortality described above, the projected *open area* F does vary between the alternatives.
- Open Area F has been capped at 0.38 for Alternatives 1, 2 and 3 in the model runs. One of the principles used in setting fishery targets in this FMP since Amendment 15 is that open area F should not exceed 0.38 (Fmsy). This constraint caps open area DAS at 23 DAS in FY2014 for all three alternatives.
- Alternative 3 provides flexibility for FT LA vessels to either fish a Delmarva trip, or exchange that trip for 5 open area DAS. When that flexibility is added to the model it estimates that some effort will in fact shift to open areas, resulting in an increase in projected F in open areas of 0.02 (0.38 to 0.40). This equates to about 20% of the Delmarva trips to open areas. More or fewer vessels may actually shift effort, but the model estimates that this flexibility could increase overall open area effort, and reduce F in Delmarva.
- Alternatives 4-6 increase open area DAS to increase catch in FY2014 to be more similar to FY2013 levels. This increase has correspondingly higher open area F estimates; 0.48 for Alternative 5 (28 DAS), 0.52 for Alternative 4 (31 DAS), and 0.62 for Alternative 6 (37 DAS).
- Higher F rates in open areas can lead to growth overfishing in open areas with potentially negative long-term impacts on the scallop resource.
- After FY2014 the model assumes that the 0.38 maximum will be put in place again for open area DAS in 2015 and beyond; therefore, in the long-term the open area F estimates are very similar. The only differences are in the first few years (2015-2018). The combined estimate of open area F in the LT is highest for Alternative 6, followed by Alt 4, then Alt5, then Alt 3, and Alt 2 and No Action have the same combined open area F estimate.

Table 42 – Projected *open area* F estimates for the various scenarios under consideration

Sum of OpF		Scenario					
subperiod	Fishing ye	1. No Actior	2. Basic alt	3. DMV Op	4. 31 DAS	5. 28 DAS	6. NO DMV
2014-2015	2014	0.38	0.38	0.40	0.52	0.48	0.62
	2015	0.38	0.38	0.39	0.39	0.39	0.38
2014-2015 Total		**0.76**	**0.76**	**0.79**	**0.91**	**0.87**	**1.00**
2016-2018	2016	0.35	0.35	0.37	0.37	0.37	0.35
	2017	0.34	0.34	0.33	0.32	0.32	0.32
	2018	0.36	0.36	0.36	0.35	0.35	0.35
2016-2018 Total		**1.05**	**1.05**	**1.06**	**1.04**	**1.04**	**1.02**
2019-2027	2019	0.38	0.38	0.38	0.38	0.38	0.38
	2020	0.38	0.38	0.38	0.38	0.38	0.38
	2021	0.38	0.38	0.38	0.38	0.38	0.38
	2022	0.38	0.38	0.38	0.38	0.38	0.38
	2023	0.38	0.38	0.38	0.38	0.38	0.38
	2024	0.38	0.38	0.38	0.38	0.38	0.38
	2025	0.38	0.38	0.38	0.38	0.38	0.38
	2026	0.38	0.38	0.38	0.38	0.38	0.38
	2027	0.38	0.38	0.38	0.38	0.38	0.38
2019-2027 Total		**3.42**	**3.42**	**3.42**	**3.42**	**3.42**	**3.42**
Grand Total		**5.23**	**5.23**	**5.27**	**5.37**	**5.33**	**5.44**

5.1.1.2.4 Estimate of landings per DAS (LPUE) and number of DAS

LPUE

- Alternatives with higher DAS allocations have lower estimates of average catch per DAS (Table 43).
- The estimate with the highest open area DAS allocation (Alt6) is just over 2,500 pounds per DAS compared to Alternatives 2 and 3; estimated LPUE is about 2,670 per DAS, a 170 pound difference per DAS (Figure 46).
- These estimates are based on all LA vessels combined, including small dredge permits.
- This potential impact on LPUE takes several years to recover; by 2017 estimates for all areas are more similar around 2,750 pounds per DAS.
- Over time LPUE is estimated to increase for all areas as more total catch comes from access areas in future years.

DAS

- Figure 47 and Table 44 show the estimate of FT DAS for each alternative.
- Note that these estimates are model outputs and not what FT vessels would be allocated. For Alternatives that provide a choice for Delmarva access (Alts 3, 4, and 5) these figures show what the model estimates DAS fishing would be per vessel if vessels had that choice. Keep in mind this model estimates fishing effort for the fleet overall, not on an individual vessel basis.
- Based on the estimates of LPUE in Delmarva and open areas and other assumptions in the model about fishing behavior, the model projects that some level of effort (about 20%, 1 DAS out of 5DAS) would shift from Delmarva to open areas.
- More or fewer vessels may actually chose to fish open area DAS instead of Delmarva trips, but these analyses are primarily based on estimated catch rates and other factors like proximity to homeport.
- By increasing DAS in 2014 there are associated DAS reductions in 2015 in order to get overall F back to 0.38 for open areas. Alt 6 increases DAS the most from the baseline alternatives; Alt 6 is 14 DAS higher than Alt 2 and 3. Therefore, allocating more DAS in 2014 under Alt 6 is associated with an estimated 3 DAS reduction needed in 2015 compared to the projected DAS allocations for the baseline alternative (Alt 2 and 3).
- Similarly, Alt 4 and 5 increase DAS in 2014 above the baseline alternatives. The reduction in 2015 DAS estimated to bring open area F back to 0.38 in 2015 is 2 DAS for Alt 4, and one DAS for Alt 5.

Figure 46 – Projected estimate of open area catch rates (LPUE) for each scenario

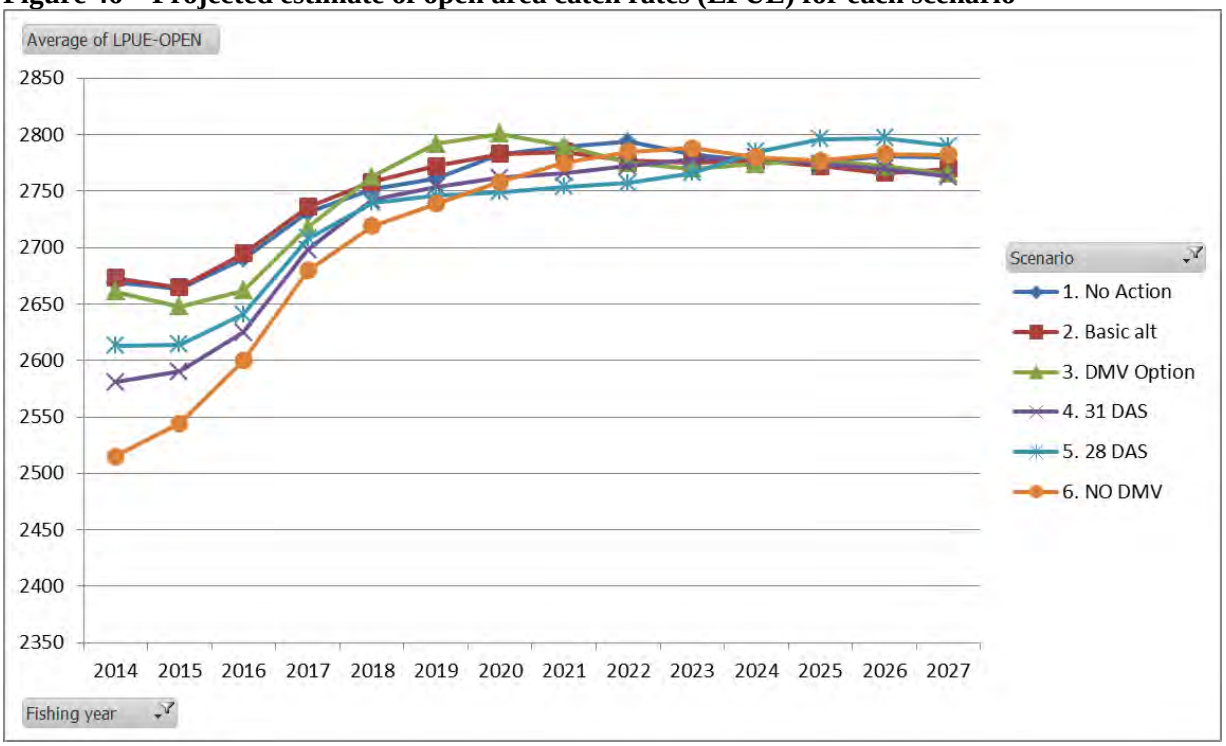


Table 43 – Projected estimate of open area catch rates (LPUE) for each scenario

Average of LPUE-OPEN	Scenario					
Fishing year	1. No Action	2. Basic alt	3. DMV Option	4. 31 DAS	5. 28 DAS	6. NO DMV
2014	2669	2673	2661	2581	2613	2515
2015	2664	2665	2648	2590	2614	2544
2016	2690	2695	2662	2625	2641	2600
2017	2731	2736	2718	2698	2708	2680
2018	2752	2758	2763	2742	2740	2719
2019	2761	2772	2792	2754	2746	2739
2020	2783	2783	2801	2762	2749	2758
2021	2789	2785	2790	2766	2754	2775
2022	2794	2777	2775	2772	2757	2785
2023	2783	2775	2770	2778	2766	2788
2024	2776	2777	2774	2780	2785	2780
2025	2776	2772	2777	2774	2796	2777
2026	2781	2766	2772	2770	2797	2783
2027	2780	2770	2765	2763	2790	2782
Grand Total	**2752**	**2750**	**2748**	**2725**	**2733**	**2716**

Figure 47 – Projected number of open area DAS per FT vessel based on allocation decision in FY2014 only

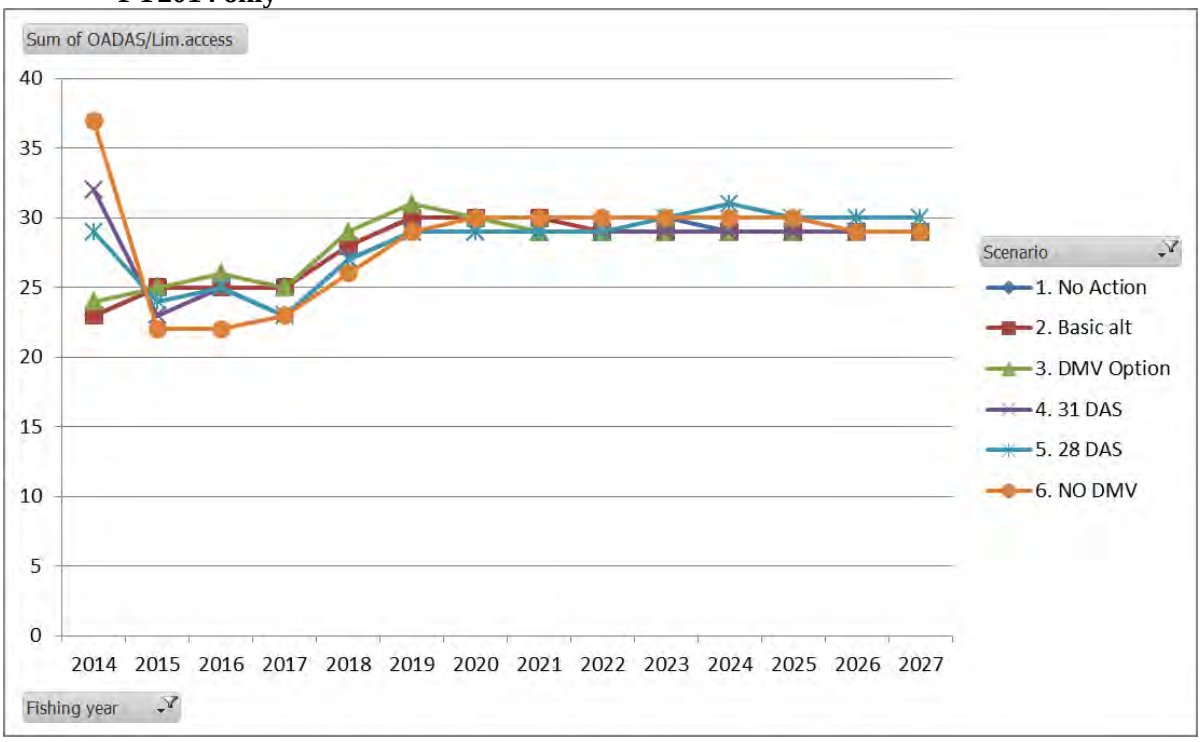


Table 44 – Estimate of FT open area DAS for each specification alternative

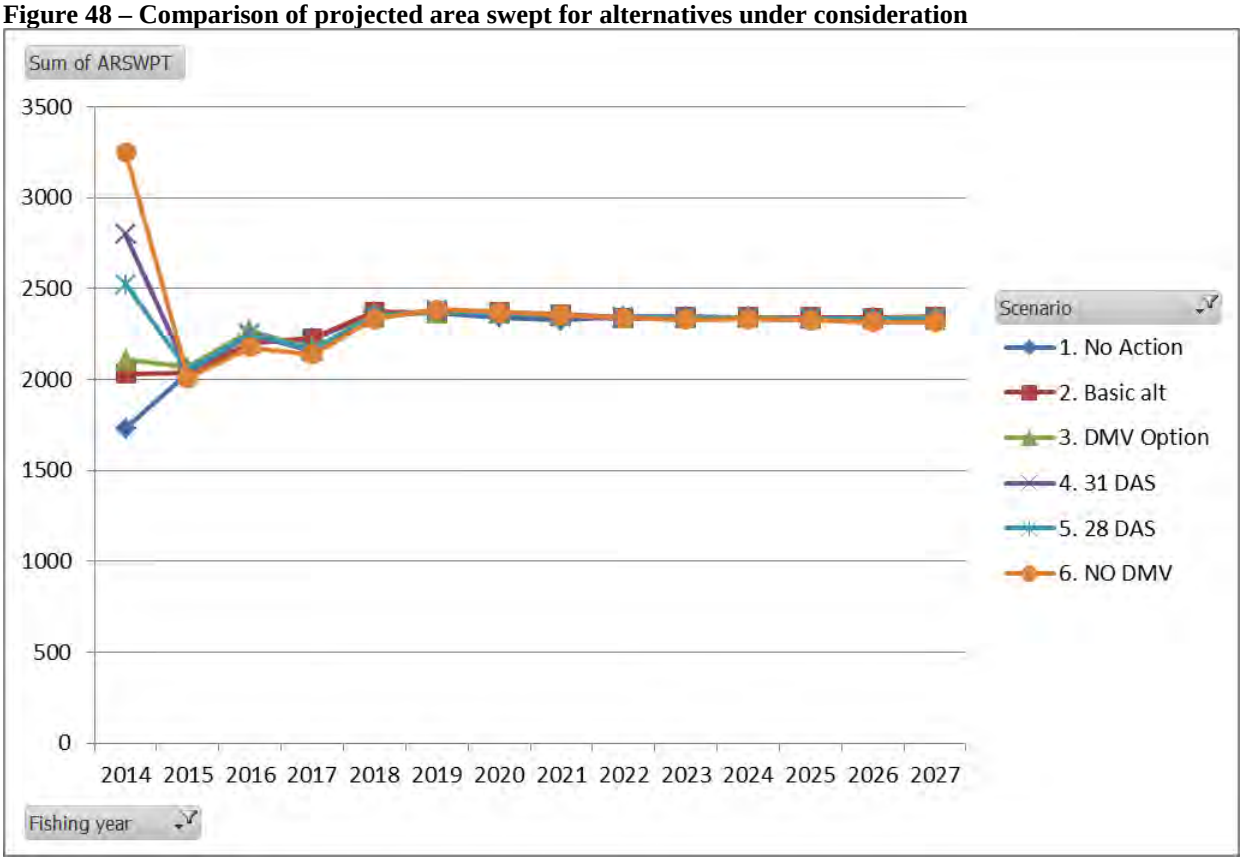
Sum of OADAS/Lim.acce	Scenario					
Fishing year	1. No Action	2. Basic alt	3. DMV Option	4. 31 DAS	5. 28 DAS	6. NO DMV
2014	23	23	✿ 24	✿ 32	✿ 29	37
2015	25	25	25	23	24	22
2016	25	25	26	25	25	22
2017	25	25	25	23	23	23
2018	28	28	29	27	27	26
2019	30	30	31	29	29	29
2020	30	30	30	29	29	30
2021	30	30	29	29	29	30
2022	30	29	29	29	29	30
2023	30	29	29	29	30	30
2024	29	29	29	29	31	30
2025	29	29	29	29	30	30
2026	29	29	29	29	30	29
2027	29	29	29	29	30	29
Grand Total	**392**	**390**	**393**	**391**	**395**	**397**

✿ *Denotes an estimate of open area DAS used per vessel for each scenario given the flexibility to use open area DAS or 12,000 pounds in Delmarva. This is not what vessels would be allocated. The model is projecting approximately one more DAS per vessel would be fished in open areas compared to Delmarva. The alternatives that allow this flexibility (Alts 3, 4, and 5) however do not allow a vessel to split access between Delmarva and open areas. A vessel would have to make a decision about what area to fish in.*

5.1.1.2.5 Projected bottom area swept

- Area swept is an indicator of the level of fishing associated with each alternative; higher area swept values represent higher potential impacts on the resource and associated impacts.
- Alternative 6 has the highest estimate of area swept in 2014 compared to the other alternatives due to higher open area DAS under this alternative (Figure 48).
- No Action (Alternative 1) has the lowest estimate of area swept since it does not include any access area effort.
- The estimate of total area swept is a bit higher for Alternative 2 and 3 compared to No Action, but these alternatives have lower area swept than all the other alternatives under consideration.
- The projections of area swept become very similar after the first year when the principles that are used to set fishery allocations in this FMP are applied consistently to all alternatives.
- It is important to note that while there are differences between these alternatives in terms of projected area swept, overall all of the alternatives have lower area swept projections than recent years. The range under consideration in this action is about 1,700 square nautical miles for No Action and up to 3,200 for Alternative 6. Framework 24 projected area swept to be about 4,000 square nautical miles for 2013 allocations several years before that estimated area swept was closer to 5,000 (2010). Therefore, area swept is declining overall in this fishery under area rotation.
- Therefore, in terms of potential impacts on the environment from scallop fishing including incidental scallop mortality, bycatch of scallops and other species, as well as potential impacts on benthic habitats, all the alternatives under consideration have potentially fewer associated impacts compared to recent fishing years since the estimates of area swept for all alternatives are lower than recent years. However, the range of estimated area swept is quite broad for the alternatives under consideration; Alternative 6 being almost twice as high as No Action.

Figure 48 – Comparison of projected area swept for alternatives under consideration



5.1.1.2.6 Projected shell/height frequencies per access area

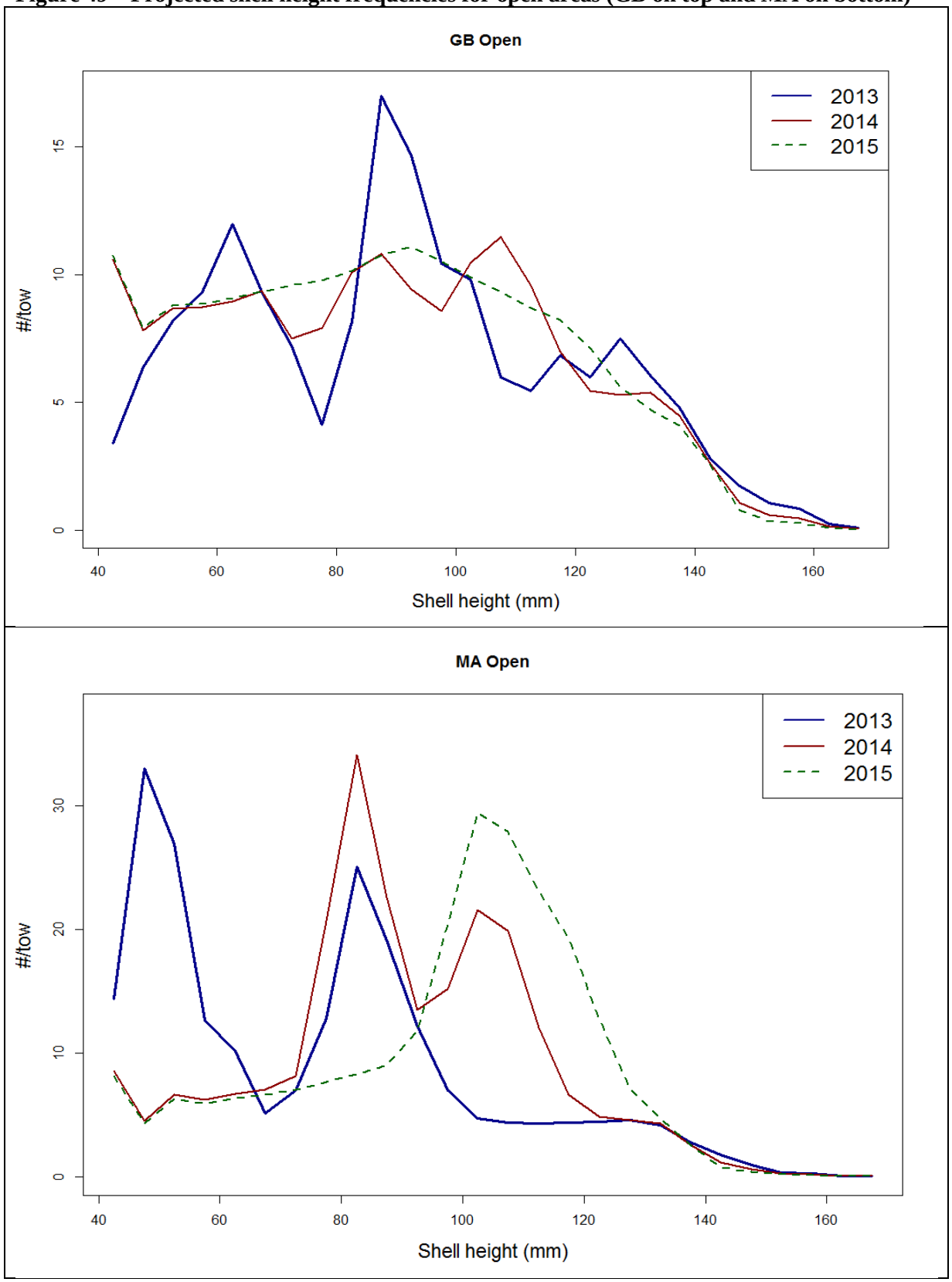
The Scallop PDT has completed projections of shell height frequencies per area for the next several years to show the composition of scallops in each area based on 2013 survey results and estimated growth, fishing mortality, and natural mortality. The blue line in the following figures is the size and frequency of scallops measured in the 2013 survey season, the red line is the projected size and frequency of those scallops for May 2014, and finally the green line is the projected size and frequency of the same scallops for May 2015. These estimates assumed fishing effort based on Specification Alternative 2, the basic run including 23 open DAS per FT vessel and two 12,000 pound access trips split between Delmarva, Nantucket Lightship and Closed Area II.

Open Areas (Figure 49)

- GB Open Areas – Evidence of several year classes present – wide range of sizes, but low frequency. Greatest number of scallops at 90mm in 2013 and some of those will be of harvestable size for FY2014, but a number of scallops will still be small for 4-inch gear.

- MA Open Areas – More evidence of recruitment in the MA open areas, and higher frequency compared to GB, but many scallops will still be too small for the gear in FY2014 (over 100 mm).

Figure 49 – Projected shell height frequencies for open areas (GB on top and MA on bottom)



Georges Bank Access Areas (Figure 50)

- Closed Area 2 – Example of an area that has some larger scallops that should be fished; frequency is low but not much growth potential left. There is some recruitment that was observed (less than 40 mm) in parts of the CA2 access area in the 2013 survey. These scallops will not enter the fishery for several years.

- NL – Low frequency of larger scallops – could support some access, but not much. Evidence of strong year classes coming, primarily in the southern part of the access area.

Mid-Atlantic access areas

- Delmarva – Evidence of two strong year classes. Scallops are projected to be right above 100mm in FY2014, but substantial proportion may still be smaller 90mm. In 2015 the majority of the scallops are projected to be harvestable with the 4-inch gear. There is evidence of another strong year class behind the first one, second peak at 50mm in 2013 survey. (Figure 51)

- Hudson Canyon – Data support that the area should remain closed until 2015, majority of scallops not projected to be harvestable size in 2014 (Figure 52).

- Elephant Trunk – Data support that the area should remain closed until 2015, majority of scallops not projected to be harvestable size in 2014. Note that the frequency of scallops per tow much higher for this access area; therefore higher levels of fishery access projected for this MA access area than both Delmarva and Hudson Canyon (Figure 52).

Figure 50 – Projected shell height frequencies for CA2 on top and NL on bottom

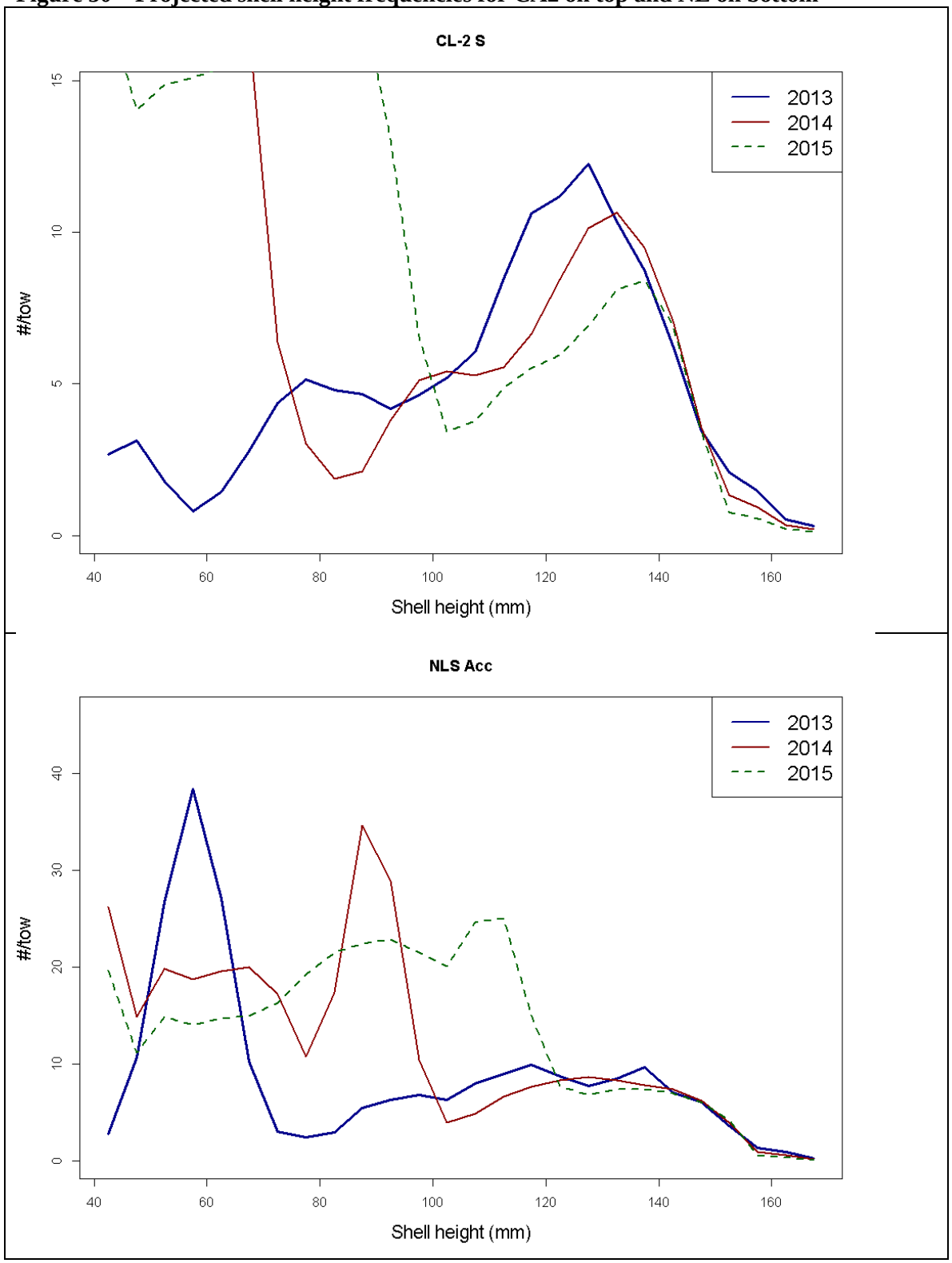


Figure 51 - Projected shell height frequencies for Delmarva access area

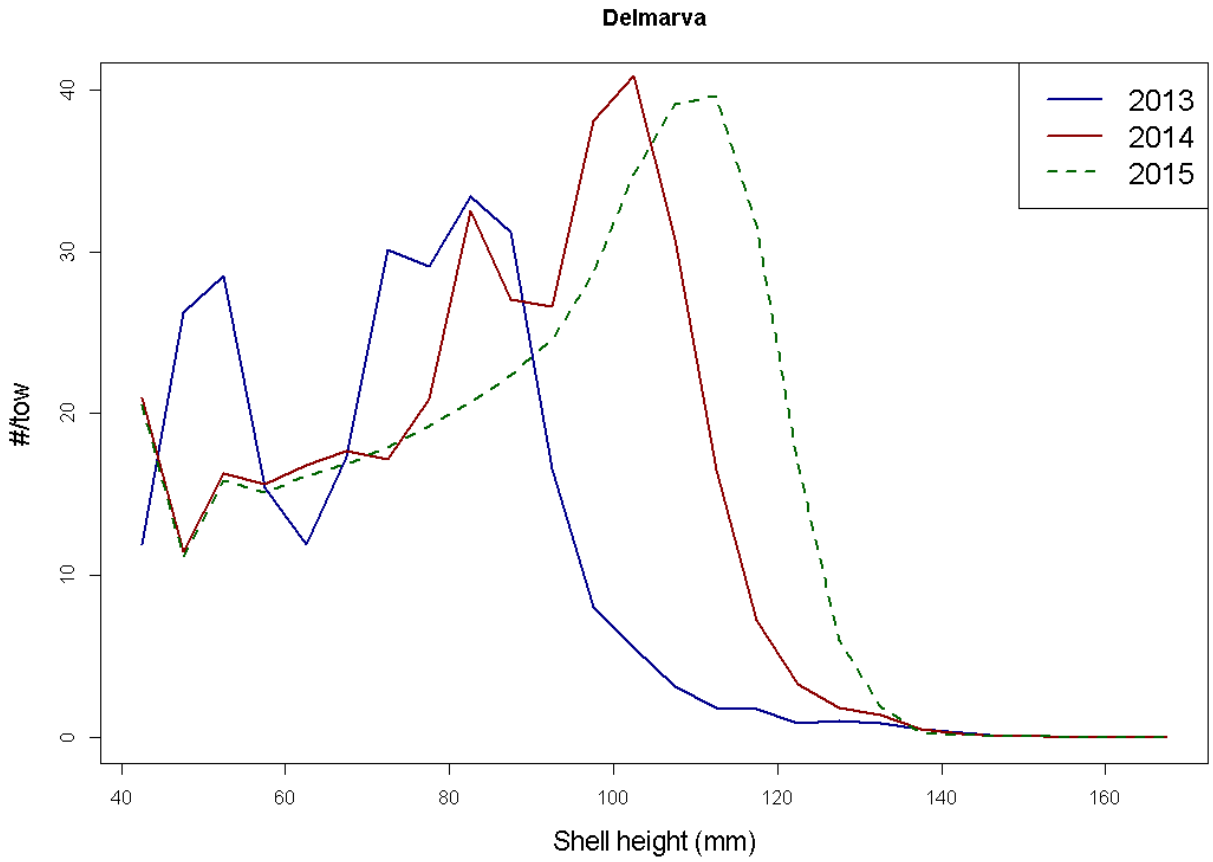
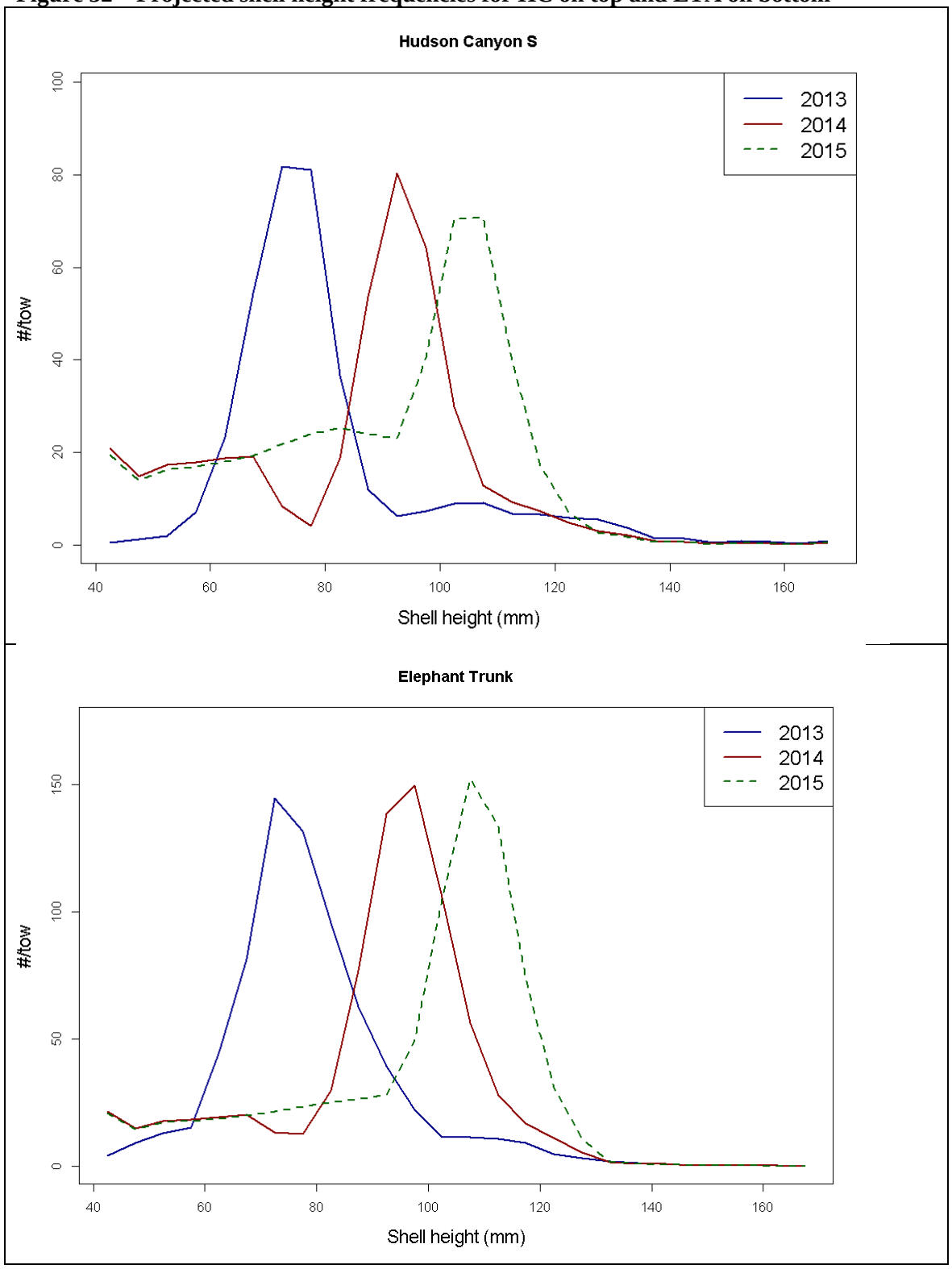


Figure 52 – Projected shell height frequencies for HC on top and ETA on bottom



5.1.1.3 Summary of the potential impacts of fishery specification alternatives

Specifications for the limited access fishery include DAS and access area trips as limited by the ACT for the limited access fishery and what areas are open to the fishery. This action considered a wide range of alternative ACTs based on a variety of possible allocation scenarios. A summary of the various allocation alternatives for the LA fishery are described in Table 8 in the main document.

5.1.1.3.1 Alternative 1 (No Action – Default measures from Framework 24)

Under No Action, the sub-ACL for the LA fishery would be 21,612 mt (47,647,385 lb) and sub-ACT of 15,428 mt (34,012,918 lb). The specifications would include default measures approved in Framework 24 for FY2014 which are 75% of the projected DAS for that year. For full-time vessels that is equivalent to 23 DAS (75% of 31 DAS projected in FW24) and 9 DAS for part-time vessels. There are no access area allocations under No Action. These measures would remain in place until replaced by another action.

The Council recommended very precautionary default measures for the second fishing year in FW24 knowing that this subsequent action would replace the default measures. Since the default measures from FW24 only included 75% of projected DAS and no access area trips, when any of the FW25 specification alternatives are compared to No Action the total landings are higher and therefore would be characterized in this document as having negative impacts to the scallop resource. However, it is important to note that compared to recent fishing years, the projected scallop catch for all FW25 scenarios is lower than FY2012, and lower or similar to FY2013.

The impacts of the No Action alternative are positive on the scallop resource; estimates of fishing mortality are low under these specifications, thus the risk of overfishing is low (Table 41). Total biomass projections are high under the No Action alternative; and slightly higher than the long-term total and exploitable biomass projections of all the other alternatives under consideration (Figure 43 and Figure 44).

5.1.1.3.2 Alternative 2 (Basic run using OFD fishing mortality target principles – 23 DAS and 2 trips in either CA2, NL and Delmarva)

This alternative includes:

- 23 DAS in open areas (when open area F is set at 0.38); and
- Two 12,000 pound access area trips per FT vessel. Each vessel would be allocated one trip in Delmarva and one trip in either NL or CA2, to be allocated by lottery.
- Total projected catch for Alternative 2 from all sources of catch (including set-asides and LAGC catch) is 14,364 mt, or 31.7 million pounds.

Estimates of fishing mortality are low under Alternative 2, thus the risk of overfishing is low (Table 41). Total biomass projections are high under this alternative (Figure 43). The impacts of Alternative 2 on the scallop resource of this alternative are neutral compared to No Action (same DAS but no access area trips). While Alternative 2 includes more access in several access areas, this has a small impact on overall estimates of fishing mortality and biomass projections since

the level of effort from these access area trips is low, and a relatively high proportion of total biomass is in areas that are closed to the fishery (GF and EFH closures).

Alternative 2 would have neutral impacts compared to Alternative 3 since these alternatives are very similar in terms of overall projected biomass and fishing mortality, with only one small difference about flexibility of Delmarva trips for FT vessels. Alternative 2 would likely have low positive impacts on the scallop resource compared to alternatives with higher effort levels in open areas (Alternatives 4-6). However, these potential differences are limited since this is essentially a one year action, and a substantial amount of total biomass is not accessible to the fishery. Since a large proportion of the total biomass is not available to the fishery the impacts on the scallop resource overall are relatively similar for all the alternatives under consideration. The differences in impacts on the resource are primarily related to the scallop resource in open areas only.

5.1.1.3.3 Alternative 3 (Basic run using OFD fishing mortality target principles – 23 DAS and 2 trips in either CA2, NL and Delmarva, but flexibility to exchange a Delmarva trip for 5 open area DAS)

This alternative is similar to Alternative 2, but flexibility has been added related to the Delmarva access area trip in an effort to potentially provide additional conservation for that area. LA FT vessels will be given a choice to use one access area trip of 12,000 pounds in Delmarva, or five open area DAS.

Total projected catch for Alternative 3 from all sources of catch (including set-asides and LAGC catch) is 14,396 mt, or 31.7 million pounds.

Estimates of fishing mortality are low under Alternative 3, thus the risk of overfishing is low (Table 41). Total biomass projections are high under this alternative (Figure 43). The impacts of Alternative 3 on the scallop resource are neutral compared to No Action (same DAS but no access area trips). While Alternative 3 includes more access in several access areas, this has a small impact on overall estimates of fishing mortality and biomass projections since the level of effort from these access area trips is low, and a relatively high proportion of total biomass is in areas that are closed to the fishery (GF and EFH closures).

Alternative 3 would have neutral impacts compared to Alternative 2 since these alternatives are very similar in terms of overall projected biomass and fishing mortality, with only one small difference about flexibility of Delmarva trips for FT vessels. If vessels have flexibility to fish in Delmarva or open areas under Alternative 3 and some vessels choose to fish in open areas, there could be more positive impacts on the resource within Delmarva compared to Alternative 2. Lower effort levels in Delmarva in FY2014 could have beneficial impacts on the resource there and provide more yield for the fishery in the future from that area. Open area F may increase as a result, but that depends on how many vessels choose to exchange their Delmarva trip.

This alternative does have a higher estimate of open area fishing mortality due to potentially higher DAS from Delmarva exchanges to open areas. This projected level is higher than Fmsy

(0.38) and could lead to growth overfishing in open areas, which could have negative longer-term impacts on the scallop resource, compared to alternatives with lower projected fishing levels in open areas. However, this alternative is limited to one year, and if DAS are reduced in 2015 to levels below 0.38, the potential impacts on the scallop resource in open areas would be more temporary.

Alternative 3 would likely have low positive impacts on the scallop resource compared to alternatives with higher effort levels in open areas (Alternatives 4-6). However, these differences are limited since this is essentially a one year action, and a substantial amount of total biomass is not accessible to the fishery. Since a large proportion of the total biomass is not available to the fishery the impacts on the scallop resource overall are relatively similar for all the alternatives under consideration. The differences in impacts on the resource are primarily related to the scallop resource in open areas only.

5.1.1.3.4 Alternative 4 (Increase target F in open areas to bring total catch to 2013 level – 31 DAS and 2 trips in either CA2, NL, and Delmarva, but flexibility to exchange a Delmarva trips for 5 open area DAS (*Preferred Alternative)*

This alternative is similar to Alternative 3, but open area F has been increased to bring total catch to projected FY2013 levels. To attain 2013 catch levels (38 million pounds), open area DAS would need to increase to 31 DAS per FT vessel. Access area allocations for this alternative would remain the same as Alternative 3. If a FT vessel chose to use open area DAS instead of a Delmarva access area trip, their total DAS allocation for the year would be 36 DAS (31 DAS plus 5 DAS), and one access area trip in NL or CA2. Total projected catch for Alternative 4 from all sources of catch (including set-asides and LAGC catch) is 17,447 mt, or 38.5 million pounds.

Estimates of fishing mortality are low under Alternative 4, thus the risk of overfishing is low (Table 41). Total biomass projections are high under this alternative (Figure 43). This alternative does have a higher estimate of open area fishing mortality due to higher DAS allocations (F=0.52). This projected level is higher than Fmsy (0.38) and could lead to growth overfishing in open areas, which could have negative long-term impacts on the scallop resource, compared to alternatives with lower fishing levels in open areas. Growth overfishing is when a resource is harvested before its optimal size that would produce the maximum yield per animal. This alternative is limited to one year, and if DAS are reduced in 2015 to levels below 0.38, the potential impacts on the scallop resource in open areas would be more temporary.

Compared to No Action, Alternative 4 does have a higher estimate of overall fishing mortality, 0.21 compared to 0.10 for No Action. Both are well below the limit of 0.28 used as the target for setting fishery allocations in this fishery, but projected F levels have been underestimated by the model used by the Scallop PDT. Therefore, Alternative 4 would likely have negative impacts on the scallop resource in open areas in 2014 compared to No Action and Alternatives 2, 3, and 5, and low positive compared to Alternative 6 (**Table 42**). However, the projected fishing mortality levels are well below overfishing thresholds, and LT biomass projections are not much different than No Action in the long-term. Finally, any of these potential impacts are limited to one year

and since a substantial proportion of total scallop biomass is within closed areas (GF and EFH closures, as well as scallop access areas in the Mid-Atlantic), the impacts to the overall scallop resource are minimal even if open area effort is increased above Fmsy.

5.1.1.3.5 Alternative 5 (Increase target F in open areas so that open area DAS in 2015 are only reduced by one DAS to allow higher DAS in 2014 - 28 DAS and 2 trips in either CA2, NL and Delmarva, but flexibility to exchange a Delmarva trip for 5 open area DAS)

This alternative is similar to Alternative 4, but open area F is limited so that projected 2015 DAS only reduce by one DAS. This alternative has a total projected catch of 16,306 mt, or 35.9 million pounds. Access area allocations for this alternative would remain the same as Alternative 3. If a FT vessel chose to use open area DAS instead of a Delmarva access area trip, their total DAS allocation for the year would be 33 DAS (28 DAS plus 5 DAS), and one access area trip in NL or CA2.

Estimates of fishing mortality are low under Alternative 5, thus the risk of overfishing is low (Table 41). Total biomass projections are high under this alternative (Figure 43). This alternative does have a higher estimate of open area fishing mortality due to higher DAS allocations (F=0.48). This projected level is higher than Fmsy (0.38) and could lead to growth overfishing in open areas, which could have negative long-term impacts on the scallop resource, compared to alternatives with lower fishing levels in open areas. However, this alternative is limited to one year, and if DAS are reduced in 2015 to levels below 0.38, the potential impacts on the scallop resource in open areas would be more temporary.

Compared to No Action, this alternative does have a higher estimate of overall fishing mortality, 0.19 compared to 0.10 for No Action. Both are well below the limit of 0.28 used as the target for setting fishery allocations in this fishery, but projected F levels have been underestimated by the model used by the Scallop PDT. Therefore, Alternative 5 would likely have negative impacts on the scallop resource in open areas in 2014 compared to No Action and Alternatives 2 and 3, and low positive impacts compared to Alternatives 4 and 6 (**Table 42**). However, the projected fishing mortality levels are well below overfishing thresholds, and biomass projections are not much different than No Action in the long-term. Finally, any of these potential impacts are limited to one year and since a substantial proportion of total scallop biomass is within closed areas (GF and EFH closures), the impacts to the overall scallop resource are minimal even if open area effort is increased above Fmsy.

5.1.1.3.6 Alternative 6 (Increase target F in open areas to bring total catch to 2013 level <u>AND keep Delmarva closed</u> – 37 DAS and 1 trip in either CA2 or NL)

This alternative is similar to Alternative 4 in terms of trying to maintain FY2013 catch levels for FY2014, but Delmarva remains closed in this alternative. This alternative has a total projected catch of 17,178, or 37.9 million pounds. Under this alternative, each vessel would receive one access area trip from NL or CA2; Delmarva would remain closed.

Estimates of fishing mortality are low under Alternative 6, thus the risk of overfishing is low (Table 41). Total biomass projections are high under this alternative (Figure 43). This alternative does have a higher estimate of open area fishing mortality due to higher DAS allocations (F=0.62). This projected level is higher than Fmsy (0.38) and could lead to growth overfishing in open areas, which could have negative long-term impacts on the scallop resource, compared to alternatives with lower fishing levels in open areas. However, this alternative is limited to one year, and if DAS are reduced in 2015 to levels below 0.38, the potential impacts on the scallop resource in open areas would be more temporary.

Compared to No Action, this alternative does have a higher estimate of overall fishing mortality, 0.18 compared to 0.10 for No Action. Both are well below the limit of 0.28 used as the target for setting fishery allocations in this fishery, but projected F levels have been underestimated by the model used by the Scallop PDT. Therefore, Alternative 6 would likely have negative impacts on the scallop resource in open areas in 2014 compared to all the other alternatives under consideration (**Table 42**). However, the projected fishing mortality levels are well below overfishing thresholds, and biomass projections are not much different than No Action in the long-term. Finally, any of these potential impacts are limited to one year and since a substantial proportion of total scallop biomass is within closed areas (GF and EFH closures), the impacts to the overall scallop resource are minimal even if open area effort is increased above Fmsy.

5.1.1.3.7 Measures to protect recruitment within access areas potentially opening in 2014

Based on 2013 survey results from several sources there is evidence of very large recruitment within and around NL, and to a lesser extent within CA2. Therefore, this action considered a boundary within NL that would prohibit scallop fishing effort in the areas within NL with higher concentrations of small scallops. Option 1 (No Action) – no restriction on fishing location within GB access areas and Option 2 (trips restricted to northern part of NL only).

The impacts of the preferred alternative, Option 1 (No Action), are expected to be neutral to low negative on the scallop resource. The majority of the scallops in the southern part of NL are small, and would pass through scallop dredge gear. However, some could be crushed from fishing activity, potentially increasing incidental mortality from NL access area trips. Scallop fishing effort will likely be more concentrated farther to the north in more traditional fishing grounds that do not overlap the larger concentrations of small scallops in the southern part of the access area. However, there are some larger scallops in the south as well, and if fishing is not favorable in the north some fishing activity may occur in the area that overlaps with the high concentration of small scallops.

The impacts of Option 2 are likely low positive on the scallop resource compared to Option 1, No Action. If fishing is prohibited in this area, incidental scallop mortality on smaller scallops in this area will be lower compared to Option 1. However, the total allocation of NL effort is relatively low in 2014, and more fishing will likely occur in the northern part of the access area anyway, so Option 2 may not have much of a direct impact on scallop mortality either way if

vessels chose not to fish in that area anyway based on the relatively low level of adult scallops in that region (Table 12).

5.1.1.3.8 Additional measures to reduce mortality on smaller scallops in NL and/or Delmarva

This action considered a handful of measures to reduce mortality on smaller scallops in NL and Delmarva access areas. Alternative 1 (No Action) would reduce mortality on smaller scallops by managing the area under area rotation compared to open areas. But no additional measures would be taken to further reduce mortality; therefore, No Action would have neutral impacts on the scallop resource compared to other measures that provide potentially additional benefits.

Alternative 2 would prohibit RSA compensation fishing in NL and Alternative 3 would prohibit RSA compensation fishing in Delmarva. Both alternatives are preferred alternatives and would likely have low positive impacts on the scallop resource because these measures would limit overall fishing activity in areas with recent recruitment. RSA compensation fishing is a small proportion of overall fishing effort, equivalent to 1.25 million pounds overall. However, vessels are allowed to fish compensation pounds in any area open to the fishery. Therefore, if both these alternatives are selected vessels would need to fish RSA compensation fishing in CA2 or open areas in 2014. NL and Delmarva are both relatively close to shore, and thus likely candidates for RSA compensation fishing. Since vessels are allocated RSA compensation in pounds, the potential for highgrading is potentially higher because vessels are not fishing under DAS. Therefore, since survey results show the presence of small scallops in both NL and Delmarva, limiting effort in those areas would reduce incidental fishing mortality on smaller scallops in those areas.

Overall Alternatives 2 and 3 would likely have low positive impacts on the scallop resource compared to No Action. These alternatives would limit RSA fishing to open areas and CA2, so effort would be higher in those areas compared to a situation where some amount of RSA fishing took place in NL and Delmarva. But reducing incidental mortality and overall fishing pressure in NL and Delmarva would potentially increase future scallop yield from those areas.

Alternative 4 would constrain fishing in Delmarva between June and August, or three months after implementation of FW25 to concentrate fishing in a season with higher yields. This is also a preferred alternative and could have potentially low positive impacts on the scallop resource within Delmarva by constraining effort during the time of year when scallop meat weights are larger. Allowing access even earlier in the year would also help (i.e. May) but it is unlikely that FW25 will be implemented in May. Therefore, by constraining effort in June-August fewer scallops will be harvested to attain the same possession limits compared to fishing in months with lower yields. A large proportion of effort may have occurred during this season already, but having the limit would ensure that vessels do not increase effort during seasons with lower meat weights (fall and winter). Compared to No Action, this measure may have potential low positive impacts on the resource within Delmarva, which is important for 2014 since biomass of smaller scallops is still relatively large in that area. It is difficult to compare the potential benefits of this

measure to Alternatives 2, 3 and 5 in this section; they are intended to be additive in nature. Each one is expected to have low positive impacts on the scallop resource on a relatively small level compared to No Action.

Finally, Alternative 5 would restrict crew limits in Delmarva to the limits used in open area fishing in order to reduce potential highgrading on small scallops within Delmarva. This alternative is also a preferred alternative. Because scallops are still relatively small in Delmarva this measure would help reduce the potential for highgrading. Vessels could still take an additional crew member or two for access area trips in NL and or CA2, but not in Delmarva in 2014 as a way to reduce potential impacts on smaller scallops within Delmarva. Compared to No Action this measure could have low positive impacts on the scallop resource in Delmarva by limiting the overall number of crew. Crew limits have been eliminated for scallop access area trips since there is a possession limit controlling effort in access areas, but if scallops are generally smaller in Delmarva an additional crew member or two could increase the potential mortality from that area if vessels decide not to target larger scallops and instead cut more scallops to attain the same possession limit. If this measure reduces the incentive for highgrading, which increases mortality, it could have low positive impacts on the resource compared to No Action.

5.1.1.3.9 Measures to address unused Closed Area 1 access area trips

This action considered a handful of measures to address unused 2012 and 2013 CA1 access area allocation (Table 14). Alternative 1 (No Action) would *prohibit* rollover of unused trips. Alternative 2 would allow rollover of unused CA1 allocation *within CA1*, with the window to use the trips and the original specification year of the trips varying by option and sub-option. Alternative 2 Option 1 would allow rollover of unused FY2013 CA1 trips, through the end of FY2014 (sub-option A), the end of FY2015 (sub-option B), or to be taken when CA1 reopens (sub-option C). Alternative 2 Option 2 would allow rollover of unused FY2012 CA1 trips, through the end of FY2014 (sub-option A), the end of FY2015 (sub-option B), or to be taken when CA1 reopens (sub-option C). Alternative 3 would allow rollover of unused CA1 allocation to be fished in *open areas*. Alternative 3 Option 1 would allow the trips to be fished in open areas through the end of FY2014, while Option 2 would divide the allocation with 40% of unused trips available in FY2014 and 60% in FY2015. **The preferred alternative for this action is Alternative 2, Option 1, sub-option C as well as Alternative 2, Option 2, sub-option C.**

Catch rates have declined substantially within this access area, and when vessels fish in an area with low catch rates there are negative impacts on the scallop resource, other environmental factors like EFH and bycatch, as well as negative impacts on the fishery from reduced profits. Overall this amount of unused access is relatively small compared to the total fishery overall and would be within the total ACL for the fishery in whatever FY this allocation is available. Therefore, there are no additional impacts on the resource overall that are not within the total ACL available to the fishery under any of the alternatives considered, neutral impacts on the resource overall for all of the alternatives and sub-options in this section. These measures primarily differ in terms of which vessels are able to harvest this unused catch, vessels with

unused CA1 allocation, or the fishery overall if these trips expire. The Council clarified that any rollover of unused CA1 allocation would be accounted for under the sub-ACL for the LA fishery.

The No Action alternative would have potentially low positive impacts on the resource if vessels with unused 2013 CA1 allocation decide not to fish any unused catch. However, under No Action vessels are permitted to fish unused 2013 CA1 allocation during the first 60 days of the 2014 fishing year (March and April of 2014). Catch rates are projected to be low in that area in 2014 as well, but vessels may still decide to take these trips rather than lose the allocation completely. The level of effort under No Action will depend on whether it is economically feasible or not. But if there are even marginal profits, or vessels expect to break even, they may decide to fish 2013 CA1 allocation, which could have potentially low negative impacts on the scallop resource in that area due to relatively low catch rates in that area. Therefore, No Action could have potentially low positive to potentially low negative impacts on the resource depending on fishing behavior of vessels with unused 2013 allocation. There is about one million pounds of unused 2013 CA1 allocation; unused 2012 allocation would not be available under No Action.

Alternative 2 would allow rollover of unused allocation in a future FY (Option1 for 2013 CA1 trips and Option 2 for 2012 CA1 trips). Both options have several sub-options specifying how long the extension would be (FY2015, FY2016, or when CA1 reopens as an access area under a future FW). Alternative 2 overall could have low negative impacts on the resource within CA1 compared to No Action, if vessels do not use any broken trips in March and April of 2014. In general the more access permitted to rollover under this action (2013 trips only, 2012 trips only, or both 2012 and 2013 trips) the greater the potential low negative impacts. Furthermore, it is more likely that if vessels are given a longer extension through 2015 (sub-option A), or 2016 (sub-option B) more unused allocation would likely be fished compared to No Action. While an extension could increase total removals from the area, if unused allocation is fished when the resource is in better condition and catch rates are higher, the overall impacts may be neutral compared to No Action. Finally, under sub-option C, allow unused CA1 allocation in a future fishing year potentially after CA1 is expanded, overall low negative impacts would be lower than if effort is confined to the existing access area because catch rates would be higher if the CA1 access area was expanded, actually having potentially low positive impacts on the scallop resource compared to No Action.

Alternative 3 includes similar sub-options to Alternative 2 except access would shift from CA1 to open areas. There are similar sub-options for which trips can rollover (2013 and/or 2012) when unused allocation would need to be fished (2015 or 2016), and how access would be allocated (pounds or DAS). Alternative 3 overall could have low negative impacts on the resource compared to No Action, since most vessels would likely fish in open areas if given the opportunity since catch rates are still low in CA1. Option 2 would spread this effort out over two years arguably having a lower impact on the scallop resource in open areas in 2014, but compared to No Action overall, potential impacts still low negative.

Both Alternatives 2 and 3 will impact future access for the LA fishery overall since this unused catch will need to be accounted for within the LA sub-ACL. Future access in and around CA1 (Alternative 2) or open areas (Alternative 3) will be lower for the overall fleet compared to No Action.

5.1.1.4 Specifications for limited access general category vessels

Specifications for the LAGC fishery include an overall IFQ allocation for vessels with LAGC IFQ permits, a hard TAC for vessels with a LAGC NGOM permit, and a target TAC for vessels with a LAGC incidental catch permit (40 pound permit) (See Section 3.1 for incidental catch TAC).

5.1.1.4.1 LAGC IFQ specifications

Under Alternative 1 (No Action – default LAGC IFQ allocations from FW24), the LAGC IFQ allocation is 1,258 mt for vessels with a LAGC IFQ permit as well as LA vessels with a LAGC IFQ permit. This allocation is equivalent to 5.5% of the ACL projected for FY2014 from FW24. Alternative 2, the preferred alternative, revises the ACL with updated survey and fishery information and the sub-ACL allocation for the LAGC IFQ fishery under consideration is 1,099mt for all specification alternatives (Alternatives 2-6). Alternative 2 would likely have positive impacts on the resource compared to No Action because it is based on updated survey and fishery information. Overall effort needs to be reduced in 2014 compared to default 2014 levels from FW24 because updated survey results indicate that biomass is lower than projected.

5.1.1.4.1.1 Allocation of fleetwide access area trip allocations for LAGC fishery

This action is considering three options for allocating fleetwide trips to the LAGC IFQ fishery. Option 1 is No Action; LAGC IFQ trips will not be allocated in any of the scallop access areas in 2014 or 2015 (default). Under Option 2 the LAGC fishery would be allocated 5.5% of the total 2014 access area TAC for every area open in a particular year. And Option 3 is to take the 5.5% from CA2 and prorate those trips proportionally among the remaining areas open in a particular year. As with the limited access scallop fleet, no access area trips would be allocated for the 2015 default LAGC IFQ measures. (Table 16).

If trips are not taken in these areas, LAGC catch is assumed to be taken in open areas instead. In some cases, catch rates are higher in access areas so it may take longer for a LAGC vessel to fish for IFQ in open areas; however, in other cases catch rates can be higher in some open areas compared to access areas. Overall, LAGC catch in access areas is a small percentage of the overall catch and vessels tend to fish where catch rates are higher, so if they are higher in access areas most trips should be fished there, and if they are not more LAGC catch could come from open areas.

Under No Action (Option 1) LAGC IFQ vessels would not be allocated trips in access areas. Therefore all IFQ catch would come from open areas. Since the overall allocation of LAGC IFQ is a relatively small proportion of total scallop catch the location of effort does not have a major impact on the resource. Thus, impacts of No Action are neutral on the scallop resource. Option 2 would allocate 5.5% of each area TAC to the LAGC IFQ fishery in fleetwide trips per access

area. In theory this option would have low positive impacts on the resource compared to No Action because LAGC IFQ effort would be distributed over more areas and not all in open areas. However, these trips are voluntary, and even if LAGC IFQ trips are available in an access area the fleet may fish in open areas instead. Therefore, the impacts of this measure are generally neutral compared to No Action.

Option 3 would take the CA2 trips and prorate them to other access areas open that year. Option 3 would also have neutral impacts on the scallop resource overall because these trips are accounted for in the overall projections and are a relatively small proportion of total catch. However, this could increase fishing in some areas above target levels (Option 2). For example, under Option 3, the 226 LAGC trips from CA2 under Option 2 would be shifted to NL and Delmarva under Specification Alternatives 2-5, and all 226 trips into NL for Specification Alternative 6 (Delmarva is closed). Overall there is potentially added fishing pressure for the remaining areas, (about 135,600 pounds – 226 trips at 600 pounds each). But all available LAGC trips may not be taken in access areas, and overall this is not a considerable amount of catch; thus Option 3 would also have neutral impacts on the resource overall compared to Option 2 and Option 1.

5.1.1.4.2 Specifications for limited access general category NGOM vessels

The Council approved a separate limited entry program for the NGOM with a hard-TAC. Framework 25 considers a separate hard TAC for this area for 2014 and 2015(default). This action is considering No Action (70,000 pound TAC) and Alternative 2 (58,000 pounds).

The No Action NGOM alternative of 70,000 pounds, the preferred alternative, marginally increases the risk of excess fishing and therefore could potentially have low negative impacts on the scallop resource within the NGOM. FW23 allowed vessels with a federal NGOM permit to declare on a trip basis if it is fishing in federal or state waters. If that vessel is fishing exclusively in state waters that catch no longer applies to the NGOM TAC. Therefore, there is now less need to inflate the NGOM federal TAC to account for catches on vessels with NGOM permits fishing in state waters, if vessels are accurately reporting fishing location per trip.

Vessels with LAGC IFQ vessels in that area will still have catch applied to the NGOM TAC, but overall there is little IFQ reported catch within the NGOM. The NGOM TAC has been well below the 70,000 pound limit in recent years (just under 8,000 pounds in 2011 and 2012). However, catch does seem to be increasing, it is currently estimated over 30,000 pounds in FY2013 to date. Section 4.1.4.2 describes some changes in fishing regulations in Maine that may have caused an increase in scallop fishing in the NGOM in 2013.

Alternative 2 (58,000 pounds) is expected to reduce the chance of excess fishing in federal waters in the NGOM based on results of the recent scallop survey of that area (Section 4.1.1.3). Therefore, compared to the No Action (70,000 pound TAC) this option could have a low positive impact on the scallop resource by reducing the chance for excess fishing in NGOM. Fishing levels in the NGOM are currently very low, much lower than both TAC alternatives. Therefore impacts on the overall scallop resource from these alternatives are minimized.

5.1.2 Accountability measures for the SNE/MA windowpane flounder sub-ACL allocated to the scallop fishery

This action considers a range of AM alternatives including: No Action (Alternative 1); seasonal closed areas (Alternative 2); seasonal gear restricted areas (Alternative 3); and a proactive gear modification AM (Alternative 4). The preferred alternative is Alternative 3 in all waters west of 71° W for the month of February if the is overage is less than 20% and February and March if it is over 20%. Both the seasonal closure and seasonal gear restricted area alternatives have various areas and seasons under consideration based on the amount of bycatch overage. In general, AMs that impose seasonal closures or gear restrictions can have impacts on the scallop resource depending on how the fishery responds to an AM. Some effort shifts could be expected with all of the WP AM alternatives, and effort shifts can have negative consequences on the scallop resource if effort shifts to less optimal areas and into seasons with lower meat weights.

Under No Action, no specific measures would be adopted that would constrain the scallop fishery if the WP sub-ACL were exceeded. Therefore, the No Action would have neutral impacts on the scallop resource because it would not alter fishing activity.

Alternative 2 is an area based AM that would close various areas for specified periods of time based on the percent overage (**Figure 6**). Both LA and LAGC vessels would be subject to these closures. This alternative could change behavior of scallop vessels by limiting the time they could fish in these areas, by causing an effort shift spatially or temporally. It is difficult to assess the actual impacts of this measure since it depends on how vessels will react to this potential restriction. If vessels decide to still fish in these areas but shift fishing to seasons with higher meat weights there could be potentially beneficial impacts on the scallop resource. Most of the AM seasonal closures are during months with lower meat yields (fall and late winter). But vessels may also decide to fish in different areas, which could have negative impacts on the resource if other areas have lower catch rates.

Overall, these AM areas do not overlap with a substantial amount of total scallop effort, so overall impacts on the scallop resource from these potential effort shifts may be limited. **Table 17** shows that under the worst case scenario, over a 10% overage, less than 8% of all LA and LAGC effort would be impacted by these seasonal closures based on recent effort patterns. Compared to No Action however, Alternative 2 could have potentially low negative to potentially low positive impacts on the resource depending on how effort shifts by area and seasons as a result of the AM closure.

Alternative 3 is a seasonal gear restricted area. If triggered, scallop vessels would only be allowed to fish west of 71° W (excluding access areas) with a modified dredge, which is a shorter apron (maximum of 5 rows) and an average of 1.5 meshes per ring for the width of the twine top (Figure 7 and Figure 8). The seasons are the month of February if an overage is less than 20% and the months of February and March if the overage is over 20%.

The potential impacts on the scallop resource from this measure are complex and mixed. If a vessel decides *not* to modify their gear and instead fish in the same area but outside of the AM

season, the impacts may be low positive on the scallop resource if effort shifts to a season with higher meat yields. February and March are relatively low meat yield months in the Mid-Atlantic, especially compared to April-July (**Figure 53**). Therefore, if effort shifts from these months to other seasons with higher yields the overall impacts could be low positive. However, February is typically a low fishing month so the overall impacts are limited. On the other hand the month of March is a month with relatively high open area effort in the Mid-Atlantic (**Table 77**).

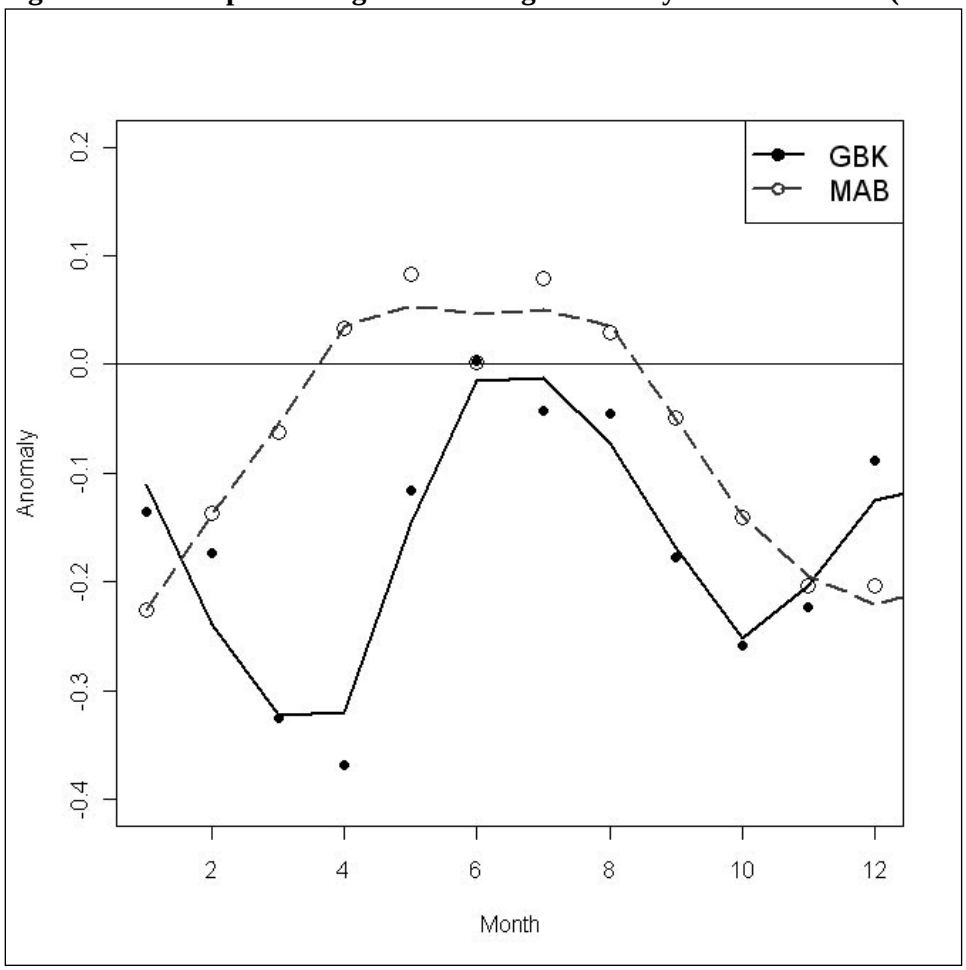
If a vessel decides to modify their gear and fish in that season the potential impacts on the scallop resource could be low positive to low negative, or neutral overall. There may be low negative impacts because the modified gear catches fewer scallops, so vessels may need to fish longer. Results suggest that the modified gear catches about 10% fewer scallops than the standard New Bedford dredge (See Appendix III). If vessels fish longer there could be potentially low negative impacts on the resource, but vessels would be fishing under DAS for this AM, so any potential increased effort from this modified gear would be limited.

However, the modified gear does seem to be more selective for larger scallops. If fewer small scallops are retained by the modified gear than discard mortality on small scallops may be lower with the modified gear. This could have potentially low positive impacts on the scallop resource by reducing discard mortality on smaller scallops that would have otherwise been retained, sorted, and returned to the sea using the standard dredge. Some of these potential impacts may in the end cancel each other out having more neutral impacts on the scallop resource overall.

This alternative includes vessels with trawl gear. Therefore, if a trawl vessel (LA or LAGC) wants to fish in the gear restricted area and season it would have to convert to the modified dredge gear. If trawl vessels convert there may be potentially positive impacts on the scallop resource based on research which showed that trawl gear tends to catch smaller scallops better than larger scallops (Rudders et al, 2000). But it may not be feasible for a trawl vessel to convert to dredge gear, and in that case this gear modification AM would essentially be a closure to trawl vessels west of 71° W for either the month of February, or Feb-March depending on the estimated overage. Overall, the level of effort by scallop trawl vessels is very limited, especially in Feb and March. Therefore, the direct impacts of this AM alternative on the scallop resource, specific to effort shifts from scallop trawl vessels, is neutral overall.

In summary, Alternative 3 would have low negative to low positive impacts on the scallop resource. These impacts would likely be relatively minor on the resource since some of these impacts may cancel each other out, and February is a relatively low fishing effort month in the scallop fishery, so any effort shifts that could have impacts on the resource are relatively minor overall. This alternative may have fewer impacts on the scallop resource compared to Alternative 2 because in general seasonal closures tend to cause effort shifts that can have negative consequences. Both Alternatives 2 and 3 may cause effort shifts compared to No Action, but Alternative 2 has a greater potential for effort shifts since the seasons are longer and some vessels may decide to modify gear under Alternative 3 and fish in the AM area rather than shift effort akin to a seasonal closure.

Figure 53 – Scallop shell height: meat weight anomaly for GB and MA (Hennen and Hart, 2012)



Alternative 4 is the only proactive AM considered in the document. If adopted, this alternative would be effective as soon as FW25 is implemented, and is not based on an overage of a sub-ACL. All dredge vessels would be prohibited to fish with more than seven rows of rings in the apron of their dredge in all waters west of 71° W, excluding access areas. Currently the regulations require that all dredges greater than 8 feet have at least seven rows of rings in the apron of the dredge. This is an outdated requirement from a time when twine top mesh were much smaller. Changing the requirement to a maximum of seven, from a minimum of seven, would enable vessels to fish with fewer rings and a larger twine top. A larger twine top reduces bycatch of finfish and small scallops.

There may be beneficial impacts on the scallop resource from this measure since fewer rows of rings increases the escapement of small scallops and does not cause too many large scallops to escape, which would require vessels to fish longer. (**Table 83**) Increased fishing time to compensate for any potential loss in scallop catch is somewhat limited in this case since this

proactive AM is restricted to DAS. Therefore, vessels cannot increase the fishing time beyond their annual allocation of DAS. If fewer small scallops are caught with shorter aprons, discard mortality would be lower, having potentially low positive impacts on the resource compared to No Action. These potential benefits may be limited compared to current fishing practices because many vessels already fish with seven rows in the apron of the dredge.

However, adopting this measure would prevent vessels from fishing with more than seven in SNE and MA, and enable vessels to fish with fewer rows than seven voluntarily. Fewer rows (i.e. five rows of rings) have been found to reduce bycatch, but fewer than seven is currently prohibited in the regulations. If some vessels decide to fish with fewer than seven rows as a result of this proactive AM that may reduce impacts on scallop mortality since results suggest that dredges with fewer rings are more selective for larger scallops, and catch fewer small scallops. Furthermore, if vessels fish with a shorter apron in this area and are content with the performance, they may end up fishing with a shorter apron is other areas as well, which would have additional benefits for the resource by reducing bycatch of small scallops.

It is difficult to compare this alternative to Alternative 2 and 3 since this is proactive and can be additive to either Alternative 2 or 3. The modified gear tests suggested that about 10% fewer scallops are caught with the shorter apron and lower hanging ratio. This proactive alternative is only related to one of the modified gear elements (shorter apron) so the impacts on scallop catch are potentially different. However, if some reduction in scallop catch is expected from a shorter apron that could have low positive impacts on scallops because this would be in all open areas west of 71° W. Open area fishing is limited by DAS so fewer scallops caught in the same time period would have beneficial impacts on the resource, especially smaller scallops.

5.2 PHYSICAL ENVIRONMENT AND ESSENTIAL FISH HABITAT

This section is a qualitative review of the possible impacts to Essential Fish Habitat that could result from adoption of alternatives included in this framework adjustment. These evaluations consider impacts to benthic habitat generally, across the EFH designations for various species (scallops, groundfish, etc.) in aggregate, rather than evaluating impacts at the level of individual EFH designations. This is consistent with the fact that there are considerable spatial overlaps between individual EFH designations in areas where the scallop fishery operates.

Implementing the various measures in this framework action may cause changes to both the magnitude and the direction of adverse effects to EFH. The magnitude of adverse effects is generally related to (1) the location of fishing effort, because habitat vulnerability is spatially heterogeneous, and (2) the amount of fishing effort, specifically the amount of seabed area swept or bottom time. To the extent that adoption of an alternative would shift fishing to more vulnerable habitats, and/or increase seabed area swept, adoption would be expected to cause negative habitat impacts. If adoption of an alternative is expected to reduce seabed area swept or cause fishing effort to shift away from more vulnerable into less vulnerable habitats, a positive

habitat impact would be expected. The magnitude of these effects relates to the proportion of total scallop fishing effort that is affected by a particular alternative.

Bearing in mind that both the direction and magnitude of changes are difficult to predict, because changes in fishing behavior in response to management actions can be difficult to predict, adverse effects could shift as follows:

- ABC, ACLs, and annual specifications: The preferred alternative ABC/ACL overall may have potentially positive habitat impacts because the FW25 ABC/ACL values are based on the best available data and are lower than the No Action ABC/ACL. For the LA fishery, the specifications under consideration have potentially positive or neutral habitat impacts as compared to current fishing levels (2013) because all the specification alternatives provide less or similar access levels as FY2013. The No Action alternative in this document is actually the default measures from FW24, which are precautionary DAS only. Therefore, compared to No Action, all of the specification alternatives provide more fishery access, thus higher potential impacts on EFH. There is some variation in potential impacts between alternatives due to higher/lower open area DAS allocations and whether Delmarva trips must be taken in Delmarva (Alternative 2), can be taken in open areas (Alternatives 3-5), or Delmarva is closed (Alternative 6). For LAGC fishery, EFH impacts would likely be neutral compared to current fishing levels (2013) because the overall IFQ for all specification alternatives is similar to 2013. Compared to No Action, EFH impacts are expected to be positive because all the specification alternatives have a lower 2014 IFQ than the default No Action IFQ that is based on a higher ACL. But these impacts are of small magnitude since the LAGC fishery is a relatively small proportion of the overall fishery. For NGOM TAC and incidental TAC, no measurable change in impacts would be expected as compared to the No Action alternative.
- Accountability measures for SNE/MA windowpane flounder: Alternatives that close areas or shift effort from periods of low meat yield (fall winter) are generally expected to perform better in terms of scallop resource impacts, and thereby catch rates and EFH impacts. Redistribution of effort could result in increased habitat impacts, if effort becomes more concentrated in fewer areas, which could reduce catch rates and increase area swept. But the magnitude of such changes is small since the AM areas do not overlap with highly concentrated fishing areas and seasons, and the AMs are limited to open areas, which are controlled by DAS, so vessels cannot increase effort above their allocated DAS.

In summary, the overall impact of the preferred alternative on EFH is likely to be neutral compared to recent fishing levels (2013) and potentially negative compared to the default No Action alternative in this action because it only includes a precautionary level of DAS. This is because the greatest magnitude of change is likely to result from the specifications for the limited Access fishery, and the magnitude of effort in this fishery under the preferred alternative specifications is very similar to current fishing levels (FY2013), and higher than the default No Action alternative.

5.2.1 Fishery specifications

5.2.1.1 Overfishing Limit (OFL) and Acceptable Biological Catch (ABC)

5.2.1.1.1 No Action (Alternative 1)

Under No Action, the OFL and ABC would remain at 2014 default levels specified in Framework 24.

- OFL = 35,110 mt;
- ABC=30,353 mt;
- Discards=6,656 mt;
- ABC less discards available to fishery=23,697 mt.

These levels are higher than the alternative specifications, which include updated scientific information. If biomass estimates do not adequately support these higher specifications, they could lead to reduced efficiency and thus greater area swept to achieve the same catch. These issues could carry forward into future years if increased effort in the short term compromises future yield. Overall, using the No Action OFL and ABC values is expected to result in negative impacts to EFH.

5.2.1.1.2 Updated estimate of ABC (Alternative 2)

The action alternative updates OFL and ABC numbers for 2014, and sets 2015 default values as well.

- For FY 2014:
  - OFL = 30,419 mt;
  - ABC=26,240 mt;
  - Discards=5,458 mt;
  - ABC less discards available to fishery=ACL=20,782 mt.
- Default FY 2015:
  - OFL = 34,247 mt;
  - ABC=29,683 mt;
  - Discards=5,701 mt;
  - ABC less discards available to fishery=ACL=23,982 mt.

These updated values are consistent with the most recent data and are expected to be a more accurate estimation for the scallop resource. Therefore, it is expected that there would be less, but more efficient, fishing under this lower ABC, which would have lower area swept. This would have positive impacts on EFH compared to the No Action alternative.

5.2.1.2 Specifications for limited access vessels

Specification alternatives 1-6 are compared in terms of their impacts to EFH using the projected bottom area swept values from the SAMS model simulations (Section 5.1.1.2.5). These area swept estimates are closely related to the LPUE estimates. Generally, scenarios with higher LPUE have lower area swept, and scenarios with lower LPUE have higher area swept.

5.2.1.2.1 Alternative 1 (No Action)

No Action specifications are 23 DAS for full-time vessels and 9 DAS for part-time vessels. In the scallop FMP, the No Action specifications are 75% of the default from the previous specifications framework, with no access area allocations. Without these access area trips, overall effort and area swept is lower in 2014 under the No Action alternative, even though open area DAS are the same as for Alternatives 2 and 3. LPUE estimates for No Action and Alternative 2 are very similar (2669 vs. 2673 lb/day) and open area DAS would be allocated at the same rate, but area swept is lower for no action because no access area trips are allocated. 2015 area swept is very similar across all the alternatives. Therefore, No Action would have low positive impacts on EFH, but it also has the lowest projected landings of any of the alternatives.

5.2.1.2.2 Alternative 2 (Basic run using OFD fishing mortality target principles)

These specifications are similar to No Action with the addition of access area trips. Alternative 2 would have low negative impacts on EFH compared to the No Action because it has a higher area swept, but landings are higher as well. It should be noted that while Alternative 2 has low negative impacts compared to No Action it has positive impacts compared to recent fishing levels (FY2012 and FY2013). Projected area swept for Alternative 2 is lower than projected area swept levels in recent years.

LPUE and area swept values are very similar between Alternative 2 and Alternative 3. Alternative 2 would have neutral to potentially low negative impacts compared to Alternative 3, because they are essentially the same except for the flexibility to take Delmarva trips in open areas under Alternative 3. Alternative 2 would have low positive impacts on EFH compared to Alternatives 4, 5, and 6 as it would results in a lower area swept.

5.2.1.2.3 Alternative 3 (Basic run using OFD fishing mortality target principles with Delmarva flexibility)

LPUE and area swept values are very similar between Alternative 2 and Alternative 3. Alternative 2 would have neutral impacts compared to Alternative 3, because they are essentially the same except for the flexibility to take Delmarva trips in open areas under Alternative 3. It is difficult to estimate how many vessel owners/operators will choose to fish allocated Delmarva access area trips in open areas. Because vessels can trade access trips, one possible outcome is that southern vessels will trade for Delmarva trips, end up with more than one, and take the first trip into the area, choosing to take the second trip depending on catch rates and product quality during the first trip. In general, because this alternative is more flexible than Alternative 2 by allowing vessels to choose where to fish, impacts on EFH may be low positive compared to Alternative 2, assuming vessels fish is areas with higher LPUEs. Alternative 3 would have low positive impacts on EFH compared to Alternatives 4, 5, and 6 as it would results in a lower area swept.

These specifications are similar to No Action with the addition of access area trips. Alternative 2 would have low negative impacts on EFH compared to the No Action because it has a higher area swept, but landings are higher as well. It should be noted that while Alternative 3 has low negative impacts compared to No Action it has positive impacts compared to recent fishing

levels (FY2012 and FY2013). Projected area swept for Alternative 3 is lower than projected area swept levels in recent years.

5.2.1.2.4 Alternative 4 (Basic run but increase target F in open areas, with Delmarva flexibility) (*Preferred Alternative*)

In fishing year 2014, area swept estimates for this alternative are the second highest of all the alternatives, with the only one higher being Alternative 6, where Delmarva is closed. This is because an additional 8 DAS are allocated to each full-time vessel during 2014. Overall, Alternative 4 still has a lower level of fishing effort than the current fishing year, 2013, but the alternative would have low negative impacts as compared to No Action, and compared to Alternatives 2, 3, and 5. Alternative 4 would have low positive impacts to EFH compared to Alternative 6 as Alternative 4 would result in a lower area swept. It should be noted that while Alternative 4 has low negative impacts compared to No Action it has positive impacts compared to recent fishing levels (FY2012 and FY2013). Projected area swept for Alternative 4 is lower than projected area swept levels in recent years.

Projected landings in 2014 are also higher than No Action, Alternative 2, or Alternative 3, but lower in 2015. Again, it is hard to know how much effort will occur in Delmarva vs. in open areas. In general, area swept has decreased substantially in this fishery. Framework 24 projected 2013 area swept to be about 4,000 square nautical miles for the selected alternative, and the years before that was about 5,000 square nautical miles. The estimate for FY2014 for Alternative 4, the preferred alternative, is about 2,800 square nautical miles, which is potentially a reduction compared to projected area swept in FY2013.

5.2.1.2.5 Alternative 5 (Basic run but increase target F in open areas to allow higher DAS in 2014, with Delmarva flexibility)

This alternative allocates fewer DAS as compared to Alternatives 4 and 6, but more than Alternatives 1, 2, or 3. Area swept is lower than Alternatives 4 and 6, but higher than Alternatives 1-3, so EFH impacts would be expected to be low positive and low negative, respectively. It should be noted that while Alternative 5 has low negative impacts compared to No Action it has positive impacts compared to recent fishing levels (FY2012 and FY2013). Projected area swept for Alternative 5 is lower than projected area swept levels in recent years

5.2.1.2.6 Alternative 6 (Increase target F and keep Delmarva closed)

Overall, this alternative has the highest area swept and overall impacts to EFH would be low negative compared to the No Action as well as Alternatives 2, 3, 4, and 5 because so much fishing is allocated to open areas. Because overall 2014 effort is relatively higher under this alternative, effort and landings are expected to be relatively lower in 2015.

5.2.1.2.7 Measures to protect recruitment within access areas potentially opening in 2014

Under Option 1 (No Action), the preferred alternative, there would be no restriction on fishing location within the NL access area. This would have neutral impacts on EFH as access is

allocated under area rotation based on available biomass, so overall impacts on EFH are minimized.

Under Option 2, NL access fishing would only be allowed north of 40.5° N latitude to reduce impacts on recruits observed in the 2013 survey. This cuts off roughly the southern third of the access area. The impacts of Option 2 on EFH are likely to be neutral compared to No Action, as scallop fishing will probably be concentrated in the northern part of the access area regardless of the option selected, based on the biomass distribution in the area.

5.2.1.2.8 Additional measures to reduce mortality on smaller scallops in NL and/or Delmarva

Under Alternative 1 (No Action) there would be no additional measures to reduce mortality on smaller scallops in NL and Delmarva. This would have neutral impacts on EFH in NL and/or Delmarva as RSA trips are a fairly small component of the scallop fishery overall.

Alternative 2 is preferred and it would prohibit RSA compensation fishing in NL. It would have neutral impacts on EFH as RSA fishing is a small percentage of total scallop fishing and it will take place somewhere, whether it occurs in NL, or one of the other areas open to the fishery.

Alternative 3 is preferred and it would prohibit RSA compensation fishing in Delmarva. It would have neutral impacts on EFH as RSA fishing is a small percentage of total scallop fishing and it will take place somewhere, whether it occurs in Delmarva, or one of the other areas open to the fishery.

Alternative 4 is preferred and it would limit the fishing season in Delmarva to June 1-August 31 (or the first three months after this Framework goes into effect, if implementation is later than June 1). This alternative directs fishing into the area during a time when meat weights are higher, such that harvest of the trip limits takes fewer numbers of scallops and therefore less fishing time. This alternative therefore would likely have potentially low positive impacts on EFH. The amount of effort that will be expended in Delmarva in 2014 will varies depending on the specification alternative selected. Some of the specification alternatives provide flexibility in terms of whether the trips can be taken in Delmarva or elsewhere, so the magnitude of this positive impact varies, but would not approach significance.

Alternative 5 is preferred and it would restrict crew limits in the Delmarva access area to be consistent with open area limits. This may reduce the ability for vessels to highgrade within the area. High grading has additional impacts on seabed habitats because more or longer tows are completed and the largest scallops are selected to be shucked and landed. Limits on crew size reduce the possibility of highgrading, and therefore this alternative would potentially have low positive impacts on EFH. As noted above the amount of effort that will be expended in Delmarva in 2014 will varies depending on the specification alternative selected, so the magnitude of this low positive impact would vary depending on the specifications alternative selected.

5.2.1.2.9 Measures to address unused Closed Area 1 access area trips

Under Alternative 1 (No Action), there would be no rollover of FY2012 or FY2013 access area trips, because CA1 is not scheduled to be open during 2014. This will lead to lower fishing effort and have low positive impacts on EFH.

Alternative 2 would allow rollover of unused CA1 trips, with the window to use the trips and the original specification year of the trips varying by option and sub-option. Alternative 2 Option 1 would allow rollover of unused FY2013 CA1 trips, through the end of FY2014 (sub-option A), the end of FY2015 (sub-option B), or to be taken when CA1 reopens (sub-option C). Alternative 2 Option 2 would allow rollover of unused FY2012 CA1 trips, through the end of FY2014 (sub-option A), the end of FY2015 (sub-option B), or to be taken when CA1 reopens (sub-option C).

Total rollover could be as high as 1.5 million lbs, which is roughly 2% of the 2014 and 2015 specifications estimated landings, combining all unused CA1 catch from both fishing years. Because of the condition of the scallop resource in CA1, catch rates in the area are likely to be poor, and area swept for a given amount of catch is likely to be high. Therefore, these rollover provisions will have a negative impact on EFH relative to No Action, although it is difficult to predict how many vessels will choose to fish their rollover trips. Sub-option B, and to a greater extent, C, would have low positive impacts as compared to sub-option A because these sub-options extend the rollover over a longer time period, and during this time, the CA1 access area might be expanded, depending on the outcomes of the Omnibus Habitat Amendment and subsequent scallop framework.

Under Alternative 3, unused CA1 trips could be fished in open areas. Alternative 3 Option 1 would allow the trips to be fished in open areas through the end of FY2014, while Option 2 would divide the allocation with 40% of unused trips available in FY2014 and 60% in FY2015. This Alternative would have negative impacts as compared to No Action, because more effort would occur in 2014 (Options 1 and 2) and in 2015 (Option 2 only). These allocations would be in addition to the 2014 and default 2015 specifications described above, which are heavily focused on open area vs. access area fishing. The impacts of Alternative 3 compared to Alternative 2 depend on the catch rates in these areas. If catch rates remain relatively high in the open areas, similar to access area catch rates, then the impacts of these alternatives on EFH would be similar. If catch rates in open areas decline, then there may be low negative impacts on EFH from Alternative 3 compared to Alternative 2, assuming access would not be granted into Closed Area I until projected catch rates are suitable.

5.2.1.3 Specifications for limited access general category IFQ vessels

These include an overall IFQ allocation for vessels with IFQ permits, a hard TAC for the NGOM, and a target TAC for incidental catch permits.

5.2.1.3.1 LAGC IFQ specifications

The Alternative 1 (No Action) allocation of 1,258 mt was specified as the default FY2014 allocation in FW24. This represents an increase from the status quo allocation for FY2013, so

there would likely be a small increase in effort, area swept. Therefore, the No Action Alternative would likely have low negative impacts on EFH.

The Alternative 2-6 specifications include the same allocation of 1,099 mt for FY2014, with 100 mt allocated to LA vessels with IFQ permits, and 999 mt allocated to IFQ-only vessels. These amounts are slightly lower than the No Action allocations (and are also lower than the status quo 2013 allocations) and therefore would likely have low positive impacts on habitat and EFH, in comparison to No Action. The reduced catch limits are consistent with the most recent biological analyses and survey data, and therefore are expected to have positive biological impacts on the scallop resource. To the extent that the alternative specifications lead to reduced area swept per catch as compared to No Action fishing levels, they would have positive impacts on habitat and EFH. The mechanism for reduced area swept per catch would be higher catch rates on average combined with lower fishing effort overall.

5.2.1.3.1.1 Allocation of access area trips to IFQ vessels

These options specify how access trips will be allocated to the IFQ fishery. Option 1 does not allocate any trips in access areas to LAGC IFQ vessels. Option 2 allocates 5.5% of the total access area TAC for every area open in 2014 to the IFQ fleet (CA2, NL, possible Delmarva depending on alternative selected for Limited Access specifications). And Option 3, the preferred alternative, allocates 5.5% of the total access area TAC for every area open in 2014 to the IFQ fleet, but prorates the CA2 allocation across the other areas open (NL and Delmarva, unless Alternative 6 is selected and Delmarva is closed). There would be a 600 lb. possession limit per trip under either option.

All three options are expected to have negligible impacts on habitat and EFH because the LAGC access trips are a relatively minor component of the scallop fishery overall. Furthermore, LAGC IFQ trips in access areas are voluntary, and if vessels do not fish them they will likely harvest that catch in open areas instead, so the same overall landings and area swept would be expected, assuming LAGC vessels fish in areas with higher catch rates.

5.2.1.3.2 Specifications for limited access general category NGOM vessels

The Alternative 1 (No Action) NGOM specification is a hard TAC limit of 70,000 lb. per year. Recent catch levels have been well below this TAC for the last several years, thus the potential overall impacts on habitat are minimal. Therefore, No Action would have neutral impacts on EFH.

Alternative 2 proposes lowering the annual hard TAC limit to 58,000 lb. per year, based on data from a 2012 survey. In theory, fishing under these specifications is expected to have biological benefits and thereby short and long run benefits to EFH as scallop populations grow and fishing becomes more efficient (i.e., higher catch rates). However, since the recent catch in the NGOM area has been much lower than the TAC (over 30,000 lb in 2013, to date), in reality, the habitat impacts of this change are unlikely to differ from no action. Therefore, Alterantive 2 would have neutral impacts on EFH compared to the No Action.

5.2.2 Accountability measures for the SNE/MA windowpane flounder sub-ACL allocated to the scallop fishery

This action considered a range of AM alternatives including: No Action (Alternative 1); seasonal closed areas (Alternative 2); seasonal gear restricted areas (Alternative 3); and a proactive gear modification AM (Alternative 4). The preferred alternative is Alternative 3 in all waters west of 71° W for the month of February if the overage is less than 20% and February and March is over 20%. Both the seasonal closure and seasonal gear restricted area alternatives have various areas and seasons under consideration based on the amount of bycatch overage. In general, AMs that impose seasonal closures or gear restrictions can have impacts depending on how the fishery responds to an AM. Some effort shifts could be expected with all of the WP AM alternatives, and effort shifts can have negative consequences on EFH if effort shifts causes overall increases in area swept as a result less optimal fishing.

Under No Action, no specific measures would be adopted that would constrain the scallop fishery if the WP sub-ACL were exceeded. Therefore, the No Action would have neutral impacts on EFH because fishing activity would not be altered.

Alternative 2 is an area based AM that would close various areas for specified periods of time based on the percent overage (**Figure 6**). Both LA and LAGC vessels would be subject to these closures. This alternative could change behavior of scallop vessels by limiting the time they could fish in these areas, by causing an effort shift spatially or temporally. It is difficult to assess the actual impacts of this measure since it depends on how vessels will react to this potential restriction. If vessels decide to still fish in these areas but shift fishing to seasons with higher meat weights there could be low positive impacts on EFH if area swept declines as a result. Most of the AM seasonal closures are during months with lower meat yields (fall and late winter). But vessels may also decide to fish in different areas, which could have potentially negative impacts on EFH if other areas have lower catch rates.

Overall, these AM areas do not overlap with a substantial amount of total scallop effort, so overall impacts on EFH from these potential effort shifts may be limited. **Table 17** shows that under the worst case scenario, over a 10% overage, less than 8% of all LA and LAGC effort would be impacted by these seasonal closures based on recent effort patterns. Compared to No Action however, Alternative 2 would likely have low positive to low negative impacts on EFH depending on how vessels respond to a seasonal closure.

Alternative 3 is a seasonal gear restricted area. If triggered, scallop vessels would only be allowed to fish west of 71° W (excluding access areas) with a modified dredge, which is a shorter apron (maximum of 5 rows) and an average of 1.5 meshes per ring for the width of the twine top (Figure 7 and Figure 8). The seasons are the month of February if an overage is less than 20% and the months of February and March if the overage is over 20%.

The potential impacts on EFH from this measure are complex because they depend on fishers response to the AM restriction. If a vessel decides *not* to modify their gear and instead fish in the same area but outside of the AM season, the impacts may be low positive on EFH if effort shifts

to a season with higher meat yields, lower area swept for the same catch. However, if a vessel instead decides to modify their gear and fish in that season the potential impacts on EFH could be low negative to neutral overall. There may be low negative impacts because the modified gear catches fewer scallops, so vessels may need to fish longer. If vessels fish longer there could be potentially negative impacts on EFH, but LA vessels would be fishing under DAS for this AM, so any potential increased effort from this modified gear would be limited. Furthermore, this restriction is limited to the Mid-Atlantic, which in general is not as vulnerable to fishery impacts compared to more complex bottoms farther north. Therefore, Alternative 3 would likely have low negative to low positive impacts on EFH compared to the No Action.

Alternative 3 may have low positive impacts on EFH compared to Alternative 2 because in general seasonal closures tend to cause effort shifts that can have negative consequences. Both Alternatives 2 and 3 may cause effort shifts compared to No Action, but Alternative 2 has a greater potential for effort shifts since the seasons are longer and some vessels may decide to modify gear under Alternative 3 and fish in the AM area rather than shift effort akin to a seasonal closure.

Alternative 4 is the only proactive AM considered in the document. If adopted, this alternative would be effective as soon as FW25 is implemented, and is not based on an overage of a sub-ACL. All dredge vessels would be prohibited to fish with more than seven rows of rings in the apron of their dredge in all waters west of 71° W, excluding access areas. Currently the regulations require that all dredges greater than 8 feet have at least seven rows of rings in the apron of the dredge. A larger twine top reduces bycatch of finfish and small scallops.

Alternative 4 would have neutral impacts on EFH as their gear modifications is related to the topside of the dredge and does not come into contact with the seafloor. It is difficult to compare this alternative to Alternative 2 and 3 since this is proactive and can be additive to either Alternative 2 or 3.

5.3 PROTECTED RESOURCES

5.3.1 Background

The Framework Adjustment 25 alternatives are evaluated below for their impacts on protected resources with a focus on threatened and endangered sea turtles, as noted in the Affected Environment Section. As with the analyses provided in the last scallop management action, the species considered here are loggerhead, leatherback, Kemp's ridley and green sea turtles.

Both scallop dredge and scallop trawl gear will be addressed in this section, generally collectively, given they are the most commonly used gears by general category and limited access vessels in this fishery. To evaluate impacts it may be helpful to note that the majority of fishing effort is attributed to the dredge fishery. Most of the approximately 340 active limited access vessels use dredge gear. There are approximately 300 limited access general category vessels that are allowed to land 5.5% percent of the total projected scallop landings. However,

only about 170 LAGC vessels were active in 2011, about 80% of LAGC catch from vessels with dredge gear and 20% from trawl gear.

To briefly summarize the sea scallop fishery management program, it employs a limited access permit system and controls DAS use in scallop open areas. Limited numbers of trips with trip limits also are allowed in designated rotational access areas. Major harvest areas include Georges Bank with less activity in the Gulf of Maine. Both are regions in which turtles are far less likely to be found relative to Mid-Atlantic waters, where effort and scallop catch levels have increased in recent years. In addition, directed general category scallop fishing effort has increased overall since 1994, including new effort in the Mid-Atlantic, but this trend was addressed by measures implemented in Amendment 11 to the Atlantic Sea Scallop Fishery Management Plan that implemented a limited access program for this fleet.

Although scallop fishing is a year-round activity, takes of sea turtles are most likely to occur from May through November given the overlap of the sea turtle distribution (Shoop and Kenney 1992; Braun-McNeill and Epperly 2002) and fishery effort (NEFMC 2003, 2005). However, takes of sea turtles may occur on rare occasions outside these months, as evidenced by the observed capture of a loggerhead sea turtle in the Delmarva access area in December 2011 (NMFS 2012).

Sea turtles are present seasonally in the Mid-Atlantic, moving up the coast from southern wintering areas as water temperatures warm in the spring and returning in the fall (NMFS 2012). With the exception of the unusual December interaction noted above, fisheries observers have only recorded sea turtle interactions with scallop gear during June – October (Figure 1). While sea turtle interactions could occur in any month throughout the Mid-Atlantic, higher probabilities have generally been associated with warm sea water temperatures (>19C) and depths between 50 and 70 m (see Murray 2004a, 2004b, 2005, 2007, 2011b for more information on estimated bycatch rates and observer coverage levels).

With respect to sea turtle interactions with the fishery overall, it is noteworthy that there were very low levels of observer coverage throughout the fishery up to 2001 (though observer coverage during 2001 and 2002 was concentrated mainly in the Hudson Canyon Access Area). Since that time, bycatch rates, with a focus on the Mid-Atlantic, have been analyzed in a number of publications that are discussed in the Affected Environment section.

In mid-2006, NMFS finalized a rule (71 FR 50361, August 23, 2006) that required scallop fishermen operating south of 41 9.0' N from May 1 through November 30 each year to equip dredges with chain mats. The intent of the dredge gear modification is to reduce the severity of some turtle interactions that might occur by preventing turtles from entering the dredge bag. Chain mats do not decrease the number of turtles in contact with the gear; rather they decrease the likelihood that turtles will suffer serious injuries. Because chain mats are designed to keep turtles out of the dredge bag, enumerating observed interactions in and around scallop dredge gear became difficult after 2006. The requirement is expected to reduce the severity of some turtle interactions with scallop dredge gear. For the years the Elephant Trunk access area was

open to the fishery, although from 2007-2010 there was a seasonal closure of the area from September 1-October 31 to reduce impacts on sea turtles. Under this action that area will revert back to a closed area to protect the small scallops found in that area. In addition, Delmarva will remain closed to scallop vessels to protect the small scallops in that area as well.

In addition, FW23 to the Scallop FMP requires that all LA and LAGC vessels fishing with a dredge greater than or equal to 10 feet six inches in the Mid-Atlantic (west of 71° W longitude) from May 1- October 31 use a "turtle deflector dredge". This requirement went into effect on May 1, 2013. The Council supported this modification to minimize impacts on sea turtles.

Discussions regarding sea turtle interactions with the fishery are largely qualitative and based on factors such as projected DAS use-by-area and projected bottom area swept (Section 5.1.1.2.5). It is important to recognize that neither factor directly relates to the frequency of turtle bycatch in the fishery, but provide some measure of how much effort is projected to occur and which areas might be subject to more or less activity based on catch rates. Although it is not repeated in each alternative, the general assumption is made that turtles interactions occur when and where scallop fishing effort overlaps with the presence of sea turtles. Risks may be greater during turtle high use periods, but interactions could still occur in the margins of that period given that both turtle distribution and fishing activities are highly variable.

5.3.2 Fishery specifications

5.3.2.1 Overfishing Limit (OFL) and Acceptable Biological Catch (ABC)

This action sets Acceptable Biological Catch (ABC) values for 2014 and 2015(default).

- 2014 – OFL: 30,419 mt; ABC=26,240 mt
- 2015 (default) – OFL = 34,247 mt; ABC=29,683 mt

The No Action levels are higher than the alternative specifications, which include updated scientific information. If biomass estimates do not adequately support these higher specifications, they could lead to reduced efficiency and thus greater area swept to achieve the same catch. These issues could carry forward into future years if increased effort in the short term compromises future yield. Therefore, using the No Action OFL and ABC values is expected to result in low negative impacts to protected species.

The preferred alternative is consistent with the most recent data and is expected to be a more accurate estimation for the scallop resource. Therefore, it is expected that there would be less, but more efficient, fishing under this lower ABC, which would have lower area swept. This would have low positive impacts on protected resources compared to the No Action alternative.

5.3.2.2 Specifications for limited access vessels

All FW25 alternatives have lower total bottom contact time compared to recent levels; the fishery was estimated to be around 5,000 square nautical miles in 2010 and about 4,000 in 2013. The range of estimated area swept for FY2014 for the specifications under consideration is about 1,700 square nautical miles for No Action and up to 3,200 for Alternative 6 (Figure 48). If the

fishery is expected to cover less area, and all other conditions are held constant such as spatial and temporal distribution of effort, the potential for interactions with protected species would be lower.

The No Action alternative would likely have positive impacts on protected resources because it only includes DAS, no access area effort trips, thus low effort levels in the Mid-Atlantic. In 2014, Alternative 6 has the greatest estimate of area swept (and potential for protected species interactions), followed by Alternative 4, then Alternative 5, followed by Alternatives 2 and 3 which are essentially the same. The alternatives that allow vessels to take Delmarva trips in open areas rather than within Delmarva (Alternatives 3, 4, and 5) should decrease potential interactions with protected resources compared to Alternative 2. Vessels with two dredges from northern ports may not choose to fish in Delmarva for 12,000 pounds, and instead may choose the option to fish 5 open area DAS instead. Chances are those trips would then be fished in areas farther north like the great south channel. The risks of scallop gear interacting with sea turtles is very low on GB and the Channel, and definitely lower than if that effort took place in the Delmarva access area. Some vessels homeported closer to Delmarva, as well as single dredge vessels may be more inclined to use the Delmarva trip. However, if these vessels decided to fish in open areas they may be fishing in the Mid-Atlantic anyway, so impacts on turtles overall may be more neutral from these vessels.

Alternative 6 keeps Delmarva closed which could have positive impacts on protected resources, compared to the other action alternatives, but this alternative also has the highest DAS. Some of those DAS would likely be fished in the Mid-Atlantic, so while there would be less effort in Delmarva, there would be more open area effort under this alternative in general. As open areas get fished harder catch rates decline and vessels may fish longer, which may have negative impacts on protected resources.

5.3.2.2.1 Measures to protect recruitment within access areas potentially opening in 2014

Under Option 1 (No Action), the preferred alternative, there would be no restriction on fishing location within the NL access area. Under Option 2, NL access fishing would only be allowed north of 40.5° N latitude to reduce impacts on recruits observed in the 2013 survey. This cuts off roughly the southern third of the access area.

The impacts of Option 2 on protected resources are therefore likely to be neutral compared to No Action, as scallop fishing will probably be concentrated in the northern part of the access area regardless of the option selected, based on the biomass distribution in the area. In general, this area is farther north than where sea turtles are found in higher concentrations in the Mid-Atlantic.

5.3.2.2.2 Additional measures to reduce mortality on smaller scallops in NL and/or Delmarva

Under Alternative 1 there would be no additional measures to reduce mortality on smaller scallops in NL and Delmarva. The No Action alternative (Alternative 1) is likely to have neutral impacts on protected resources because there would be no additional measures adopted that

would potentially shift effort. Overall fishery specifications under area rotation typically keeps catch rates high and reduces overall area swept.

Alternatives 2 and 3 are preferred, and if adopted these measures would prohibit RSA compensation fishing in NL and Delmarva. The RSA limitation in NL for Alternative 2 may have neutral impacts on protected resources. If vessels are prohibited from fishing RSA compensation in NL they will have to fish that allocation in other areas open to the fishery (CA2, open areas, or Delmarva, unless Alternative 3 in this section is adopted as well, which would close Delmarva to RSA fishing as well). Arguably, prohibiting fishing in NL could shift some portion of that effort into open areas in the MA. More fishing in the MA could increase potential interactions with sea turtles and associated impacts. However, chances are vessels that were going to fish RSA in NL may choose to fish in open areas near that access area if that is near their homeports (i.e. New Bedford).

On the other hand, Alternative 3 would prohibit RSA fishing in Delmarva. If that alternative is selected, in addition to Alternative 2, it could negate any added effort in the MA from NL being closed to RSA fishing. If RSA compensation fishing is prohibited in Delmarva that would potentially have low positive impacts on protected resources. But if it is closed, RSA compensation fishing will likely take place from open areas, some in the MA and potentially some on GB. Therefore, overall impacts on protected resources are expected to be neutral from No Action (Alternative 1) and Alternatives 2 and 3, because the RSA compensation fishing effort is a relatively small proportion of overall scallop fishing effort, about 3% this fishing year (1.25 million pounds out of 38 million pounds), and some potential effort shifts to the MA may be cancelled out from prohibiting RSA fishing in Delmarva.

Alternative 4, also a preferred alternative, would restrict fishing in Delmarva to the summer months when meat weights are highest. This restriction may help reduce area swept for a Delmarva trip taken in the summer compared to fishing for the same poundage when meats are smaller. But June-August does coincide with the season when turtles are more likely to overlap with the scallop fishery in Delmarva. If effort is concentrated in those three months only, Alternative 4 could result in low negative impacts on protected resources as the potential for interactions would be greater compared to No Action. However, it is likely that some vessels will not take the Delmarva trip at all, and choose to fish in open areas instead, which could then be fished in any open area during the entire fishing year. The amount of effort that will be expended in Delmarva in 2014 varies depending on the specifications alternative. Therefore, the magnitude of this low negative impact is difficult to identify, but would not approach significance.

In addition, if catch rates are not high in Delmarva in June – August, vessels are able to break those trips and complete them in the first 60 days of the following fishing year (March and April, 2015), under the current broken trip provision in the scallop fishery regulations. In that case, impacts on protected resources would be low positive since turtles are not typically in the Delmarva vicinity in March and April, they are generally further south. Therefore, depending on

how vessels react to this provision. Alternative 4 could result in low negative to low positive impacts compared to No Action.

Finally, Alternative 5, also a preferred alternative, would adopt crew limits in Delmarva akin to open area crew limits. Compared to No Action, Alternative 5 would likely have low positive impacts on protected resources because it may reduce the ability for vessels to highgrade, or fish longer in Delmarva with more crew. High grading increases the amount of time that fishing gear is in the water having potentially higher negative impacts on protected resources because more or longer tows are completed and the largest scallops are selected to be shucked and landed. As noted above the amount of effort that will be expended in Delmarva in 2014 varies depending on the specifications alternative selected, so the magnitude of this low positive impact is difficult to identify but would not approach significance.

5.3.2.2.3 Measures to address unused Closed Area 1 access area trips

This action considered a handful of measures to address unused 2012 and 2013 CA1 access area allocation. Alternative 1 (No Action) would *prohibit* rollover of unused trips. Alternative 2 would allow rollover of unused CA1 allocation *within CA1*, with the window to use the trips and the original specification year of the trips varying by option and sub-option. Alternative 2 Option 1 would allow rollover of unused FY2013 CA1 trips, through the end of FY2014 (sub-option A), the end of FY2015 (sub-option B), or to be taken when CA1 reopens (sub-option C). Alternative 2 Option 2 would allow rollover of unused FY2012 CA1 trips, through the end of FY2014 (sub-option A), the end of FY2015 (sub-option B), or to be taken when CA1 reopens (sub-option C). Alternative 3 would allow rollover of unused CA1 allocation to be fished in *open areas*. Alternative 3 Option 1 would allow the trips to be fished in open areas through the end of FY2014, while Option 2 would divide the allocation with 40% of unused trips available in FY2014 and 60% in FY2015. **The preferred alternative for this action is Alternative 2, Option 1, sub-option C as well as Alternative 2, Option 2, sub-option C.**

Overall this amount of unused access is relatively small compared to the total fishery overall and would be within the total ACL for the fishery in whatever FY this allocation is available. Therefore, there are no additional impacts that are not within the total ACL available to the fishery under any of the alternatives considered; therefore, neutral impacts on protected resources overall for all of the alternatives and sub-options in this section. These measures primarily differ in terms of which vessels are able to harvest this unused catch, vessels with unused CA1 allocation, or the fishery overall if these trips expire. The Council clarified that any rollover of unused CA1 allocation would be accounted for under the sub-ACL for the LA fishery.

Sea turtles are generally farther south than the Closed Area I access area; therefore, fishing in this area is generally neutral in terms of impacts on protected resources. Whether trips expire under No Action (Alternative 1), or if they rollover to a future fishing year or expanded area within Closed Area 1 (Alternative 2); the impacts on protected resources are still expected to be neutral.

Under Alternative 3, unused CA1 trips could be fished in open areas. Compared to Alternative 2 and No Action this alternative could potentially have low negative impacts on protected resources because some of the unused CA1 trips may be fished in Mid-Atlantic open areas. The total unused catch is approximately 1.5 million pounds; it is not likely that all of that catch would be fished in the Mid-Atlantic during the summer and fall when turtles are present in the area, but some of it could. Additionally, the overall amount of potential additional effort is relatively small compared to the directed fishery in that area already.

5.3.2.3 Specifications for limited access general category IFQ vessels

These include an overall IFQ allocation for vessels with IFQ permits, a hard TAC for the NGOM, and a target TAC for incidental catch permits.

5.3.2.3.1 LAGC IFQ specifications

The Alternative 1 (No Action) allocation of 1,258 mt was specified as the default FY2014 allocation in FW24. This represents an increase from the status quo allocation for FY2013, so there would likely be a small increase in effort and area swept. Therefore, the No Action would likely have low negative impacts on protected resources.

The Alternative 2-6 specifications include the same allocation of 1,099 mt for FY2014, with 100 mt allocated to LA vessels with IFQ permits, and 999 mt allocated to IFQ-only vessels. These amounts are slightly lower than the No Action allocations (and are also lower than the status quo 2013 allocations). Therefore, Alternative 2 would likely have low positive impacts on protected resources compared to No Action. The reduced catch limits are consistent with the most recent biological analyses and survey data, and therefore are expected to have positive biological impacts on the scallop resource. To the extent that the alternative specifications lead to reduced area swept per catch as compared to No Action fishing levels, they would have positive impacts on protected resources. The mechanism for reduced area swept per catch would be higher catch rates on average combined with lower fishing effort overall.

5.3.2.3.1.1 Allocation of access area trips to IFQ vessels

These options specify how access trips will be allocated to the IFQ fishery. Option 1 does not allocate any trips in access areas to LAGC IFQ vessels. Option 2 allocates 5.5% of the total access area TAC for every area open in 2014 to the IFQ fleet (CA2, NL, possible Delmarva depending on alternative selected for Limited Access specifications). And Option 3, the preferred alternative, allocates 5.5% of the total access area TAC for every area open in 2014 to the IFQ fleet, but prorates the CA2 allocation across the other areas open (NL and Delmarva, unless Alternative 6 is selected and Delmarva is closed). There would be a 600 lb. possession limit per trip under either option.

All three options are expected to have negligible impacts on protected resources because the LAGC access trips are a relatively minor component of the scallop fishery overall. Furthermore, LAGC IFQ trips in access areas are voluntary, and if vessels do not fish them they will likely harvest that catch in open areas instead, so the same overall landings and area swept would be expected, assuming LAGC vessels fish in areas with higher catch rates. However, Option 3

would provide more potential access in Delmarva, which is an area with higher potential for interaction with sea turtles compared to CA2. Under Option 3, 113 more trips would be available to the LAGC IFQ fishery in Delmarva (516 trips compared to 403 trips under Option 2, and zero trips in Delmarva under Option 1).

In reality however, no LAGC vessels would likely fish in CA2 for 600 pounds, and while Option 3 provides more potential access in an area where sea turtles are more likely to be present in the summer and fall, if LAGC IFQ vessels did not fish in Delmarva, they would likely fish in areas nearby, which potentially have similar impacts on protected resources. Therefore, Option 3 may have neutral to potentially low negative impacts on protected resources compared to Option 1 and Option 2. Even though Option 3 provides more potential access in Delmarva, if catch rates are not relatively high in Delmarva LAGC vessels will not fish there. Instead they would harvest their allocation in open areas, so actual impacts may be neutral if LAGC vessels do not fish all the allocated trips in Delmarva.

5.3.2.3.2 Specifications for limited access general category NGOM vessels

The preferred alternative, Alternative 1 (No Action) NGOM specification is a hard TAC limit of 70,000 lb. per year, and Alternative 2 proposes to lower the TAC to 58,000 pounds. The No Action would have neutral impacts on protected resources since the Gulf of Maine is not a primary location where sea turtles are found. Similarly, Alternative 2 would have neutral impacts on protected resources compared to No Action because the NGOM is not a primary location where sea turtles are found. Furthermore, recent catch levels have been well below this TAC for the last several years, thus the potential for protected resource interactions from the NGOM fishery are minimal.

5.3.3 Accountability measures for the SNE/MA windowpane flounder sub-ACL allocated to the scallop fishery

This action considered a range of AM alternatives including: No Action (Alternative 1); seasonal closed areas (Alternative 2); seasonal gear restricted areas (Alternative 3); and a proactive gear modification AM (Alternative 4). The preferred alternative is Alternative 3 in all waters west of 71° W for the month of February if the overage is less than 20% and February and March if it over 20%. Both the seasonal closure and seasonal gear restricted area alternatives have various areas and seasons under consideration based on the amount of bycatch overage. In general, AMs that impose seasonal closures or gear restrictions can have impacts depending on how the fishery response to an AM. Some effort shifts could be expected with all of the WP AM alternatives, and effort shifts can have negative consequences on protected resources in particular if effort shifts to the Mid-Atlantic during the summer and fall, and overall area swept increases as a result less optimal fishing.

Under No Action, no specific measures would be adopted that would constrain the scallop fishery if the WP sub-ACL were exceeded. Therefore, the No Action Alternative would have neutral impacts on protected resources because fishing activity would not be altered.

Alternative 2 is an area based AM that would close various areas for specified periods of time based on the percent overage (**Figure 6**). Both LA and LAGC vessels would be subject to these closures. This alternative could change behavior of scallop vessels by limiting the time they could fish in these areas, by causing an effort shift spatially or temporally. It is difficult to assess the actual impacts of this measure since it depends on how vessels will react to this potential restriction. If vessels decide to still fish in these areas but shift fishing to seasons with higher meat weights Alternative 2 could result in low positive impacts on protected resources if area swept declines as a result. Most of the AM seasonal closures are during months with lower meat yields (fall and late winter). Vessels may also decide to fish in different areas, which could also result in potentially positive impacts on protected resources if effort shifts from the Mid-Atlantic to GB, where potential interaction with sea turtles is much lower.

Overall, these AM areas do not overlap with a substantial amount of total scallop effort, so overall impacts on protected resources from these potential effort shifts may be limited. **Table 17** shows that under the worst case scenario, over a 10% overage, less than 8% of all LA and LAGC effort would be impacted by these seasonal closures based on recent effort patterns. Compared to No Action however, Alternative 2 would likely have low positive to positive impacts on protected resources depending on how vessels respond to a seasonal closure.

Alternative 3 is a seasonal gear restricted area. If triggered, scallop vessels would only be allowed to fish west of 71° W (excluding access areas) with a modified dredge, which is a shorter apron (maximum of 5 rows) and an average of 1.5 meshes per ring for the width of the twine top (Figure 7 and Figure 8). The seasons are the month of February if an overage is less than 20% and the months of February and March if the overage is over 20%. There are no direct impacts of this gear modification expected in terms of reduced bycatch of protected resources. Scallop dredge vessels are already required to use a turtle deflector dredge and turtle chains; both measures were designed to help prevent a turtle from entering the dredge bag.

The potential impacts on protected resources depend on how fishers respond to this AM; and the impacts may range from low negative to low positive. If a vessel decides *not* to modify their gear and instead fish in the same area but outside of the AM season, the impacts may be low negative if vessels fish in the same area but a season with higher potential for interaction with sea turtles. Or the impacts could be low positive on protected resources if effort shifts to GB. If a vessel instead decides to modify their gear and fish in that season the potential impacts on protected resources could be low negative to neutral overall. There may be low negative impacts because the modified gear catches fewer scallops, so vessels may need to fish longer. But this AM is for February and March only; therefore, interactions with sea turtles during those months are very unlikely.

Both Alternatives 2 and 3 may cause effort shifts compared to No Action, but Alternative 2 has a greater potential for effort shifts since the seasons are longer and some vessels may decide to modify gear under Alternative 3 and fish in the AM area rather than shift effort akin to a seasonal closure.

Alternative 4 is the only proactive AM considered in the document. If adopted, this alternative would be effective as soon as FW25 is implemented, and is not based on an overage of a sub-ACL. All dredge vessels would be prohibited to fish with more than seven rows of rings in the apron of their dredge in all waters west of 71° W, excluding access areas. Currently the regulations require that all dredges greater than 8 feet have at least seven rows of rings in the apron of the dredge. A larger twine top reduces bycatch of finfish and small scallops.

There are no direct impacts on protected resources expected from this gear modification. It is difficult to compare this alternative to Alternative 2 and 3 since this is proactive and can be additive to either Alternative 2 or 3. Overall Alternative 4 is neutral in terms of protected species impacts compared to No Action, while Alternative 2 and 3 are potentially low positive or low negative, depending on potential effort shifts.

5.4 ECONOMIC IMPACTS

5.4.1 Introduction

The following sections analyze the economic impacts of the management alternatives considered in Framework 25 and compare these with No Action alternative. The objective of the cost-benefit analysis is to evaluate the net economic benefits arising from changes in consumer and producer benefits that are expected to occur with implementation of a regulatory action. As the Guidelines for the Economic Analysis of the Fishery Management Action (NMFS, 2007) [4] state "the proper comparison is '*with the action' to 'without the action'* rather than to *'before and after the action*,' since certain changes may occur even without action and should not be attributed to the regulation." Even without action, the scallop stock abundance in open and access areas will be different, requiring changes in open area DAS and trip allocations in order to maximize yield from the fishery over the long-term. As a result, landings, scallop prices, fishing costs, revenues and benefits from the fishery would change.

Furthermore, the Guidelines indicate that "the baseline is what is likely to occur in the absence of any of the proposed actions" and that "The No Action alternative should be the basis of comparison for other alternatives. However, the No Action alternative does not necessarily mean a continuation of the present situation, but instead is the most likely scenario for the future, in the absence of other alternative actions"[5]. Therefore, the consistency of the Framework 25 analyses with these guidelines require that the biological and economic impacts of the proposed specification measures compared to the "No Action" scenario as defined in Section 2.2.1.1 of the document.

As the Guidelines for Economic Analysis of Fishery Management Actions specify, "benefits and costs are measured from the perspective of the Nation, rather than from that of private firms or

[4] Guidelines for Economic Reviews of National Marine Fisheries Service Regulatory Actions, March 2007, http://www.nmfs.noaa.gov/sfa/domes_fish/EconomicGuidelines.pdf
[5] Ibid, p.12

individuals. Benefits enjoyed by other nations are not included, although tax payments by foreign owners, and export revenues, are benefits to the Nation."

The overall benefit and costs of the fishery management actions generally vary over time depending on the rate of growth of the stock and according to the nature of management measures implemented to maximize the yield from fishery. Although a general guideline for the period of analysis cannot be established for all fishery management actions due to the diversity of possible situations and measures to be dealt with, the Guidelines state that "the period of analysis could reflect the time it takes for the fishery to move from its initial equilibrium along the expansion path to the final equilibrium point (including the time needed for the present value of costs and benefits to approximate zero) due to the adoption of the proposed regulation, holding all other influence constant." In addition, the Guidelines indicate that "a reasonable attempt should be made to conduct the analysis over a sufficient period of time to allow a consideration of all expected effects."
Because fishery management actions in general result in short-term costs for the industry in terms of foregone revenue, "choosing a period of analysis that is too short may bias the analysis toward costs, where costs are incurred in the short-term and benefits are realized later." Similarly, the Office of Management and Budget (OMB, 2003) indicated that the analyses should "present the annual time stream of benefits and costs expected to result from the rule," and state that "the beginning point for your stream of estimates should be the year in which the final rule will begin to have effects" and "the ending point should be far enough in the future to encompass all the significant benefits and costs likely to result from the rule."[6]

Furthermore, the economic impacts of the proposed regulations over the long-term should be evaluated by the discounted cumulative present value of the stream of benefits since benefits or costs that occur sooner are generally more valuable (or have a positive time preference). OMB Circular points out that the analytically preferred method of handling temporal differences between benefits and costs is to adjust all the benefits and costs to reflect their value in equivalent units of consumption and to discount them at the rate consumers and savers would normally use in discounting future consumption benefits (OMB, 2003). Discount rate is the interest rate used in calculating the present value of expected yearly benefits and costs. This Circular suggests that for regulatory analysis, the cost-benefit analyses should provide estimates of net benefits using both three percent and seven percent.

This section examines the economic impacts of the proposed regulations in Framework 25. Although Framework 25 is a one year action, it will have impacts on the future yield from scallop resources, on scallop revenues and total economic benefits. The short- and the long-term economic impacts of the specification alternatives are analyzed in Section 5.4.3. The present value of long-term benefit and costs of the specification alternatives are estimated using both a 3% and a 7% discount rate. The higher discount rate provides a more conservative estimate and a lower bound for the economic benefits of alternatives compared with the benefits predicted using a lower discount rate.

[6] OMB Circular A-4 (September 17, 2003), http://www.whitehouse.gov/omb/circulars_a004_a-4/

5.4.2 Acceptable Biological Catch (Section 2.1.1)

5.4.2.1 No Action ABC

Reauthorization of the MSA requires the SSC to set an acceptable biological catch (ABC), or maximum catch level that can be removed from the resource taking into account all sources of biological uncertainty. The Council is prohibited from setting catch limits above that level. This new requirement is expected to have long-term economic benefits on the fishery by helping to ensure that catch limits and fishing mortality targets are set at or below ABC. This should help prevent overfishing and optimize yield on a continuous basis. Under "No Action" for FY 2014, the overall ABC for each year would be identical to that of the default FY 2014 ABC for the fishery of 52.3 million pounds (23,697 MT), after accounting for discards. From a cost benefit point of view, No Action ABC is expected to have neutral impacts. Compared to the preferred alternative, No Action would have positive economic impacts in the short-run because ABC for the fishery would exceed the ABC levels for the preferred alternative (20,782 MT) in 2014, allowing higher allocations, landings and revenues for the scallop fleet. However, the updated ABC values based on the best available science through 2013 and are lower than the ABC values under No Action. Therefore, if the specifications were based on the No Action ABC values, fishing effort would be higher than it should which could result in overfishing of the scallop resource. This would have negative impacts on the scallop yield, revenues and total economic benefits from the scallop resource in the long-term.

5.4.2.2 **ABC for 2014 and default for 2015**

The updated values for ABC are provided in Section 2.1.1.2 of the FW25 document. The ABC available to the fishery (after removing the discards) will be lower than the No Action levels, 20,782 MT, in 2014. The default 2015 ABC level, 23,982 MT, will be slightly higher, however, than the No Action ABC of 23,697 MT (net of discards). Therefore, this measure is expected to have negative impacts on the landings and revenues, producer and consumer surpluses and net economic benefits to the nation in the short-term. It will have positive economic benefits over the long-term because the ABC values were determined based on the recent surveys and best available science to prevent overfishing of the scallop resource.

5.4.3 Economic impacts of the Framework 25 specification alternatives

Framework 25 includes five allocation alternatives (ALT2, ALT3, ALT4 and ALT5) in addition to the "No Action" scenario (ALT1). These alternatives allocate a different number of open area DAS and access area trips in 2014 as summarized Table 45 below. The biological model projected landings, LPUE and size composition of landings for each of these alternatives for 2014-2027. These projections were then used as inputs in the economic model to estimate prices, revenues, costs, producer and consumer surpluses and total economic benefits from the scallop fishery. This section includes total landings and revenues for the entire fishery, including landings from LA, LAGC, and set-asides. The impacts of alternatives on individual LA vessels are expected to be proportional to the aggregate impacts on revenues, fishing costs and net revenues (producer surplus). The impacts of alternatives on individual LAGC vessels are

analyzed separately in Section 5.4.3.11, because the overall IFQ allocation is the same for all scenarios, equivalent to 5.5% of the total ACL for the fishery.

The consistency of the Framework 25 analyses with the Guidelines for the Economic Analysis of the Fishery Management Action (NMFS, 2007) [7] require that the biological and economic impacts of alternatives compared to the "No Action" (i.e., without the action) alternative as defined in Section 2.1.2.1 of the document. The definition of "No Action" follows a regulatory approach and refers to continuation of the allocations that are specified in the present regulations so long as they are compatible with the other measures included in those regulations. Therefore, the "No Action" alternative does not reflect, a "state" or baseline that correspond to the same amount of fishing effort in 2013, but rather it refers to "what is likely to occur in the absence of any of the proposed actions". If No Action was taken in 2014, specifications would include default measures approved in Framework 24 for FY2014. Accordingly open area DAS allocations will equal to 23 days-at-sea per full-time vessels, or 75% of the allocations in 2012 (31 days) and there will be no access area allocations.

In the following sections, the costs and benefits of the Framework 25 alternatives are compared to the values for the "No Action" alternative. The previous Frameworks also included a status quo scenario *(SQ)* to reflect the changes in landings and economic benefits as a result of changes in allocations from their current values. The alternative 4 in this action reflects a scenario that maintains landings at the projected FY2013 levels by allocating 31 open area days and 2 access area trips with a flexibility to use a DMV trip in the open areas. This is also the preferred alternative for Framework 28. Therefore, for the purposes of Framework 25 analyses, the projected economic benefits for other alternatives will also be compared to the benefits for alternative 4 (ALT4) instead to an hypothetical SQ scenario that keeps the allocations at 2013 levels (33 open area days and 2 access area trips). Table 45 and Table 46 shows the economic impacts of the alternatives compared to both No Action and to ALT4. In all the sections that follow, the terms "ALT4" and "SQ" are used interchangeably. ALT4 is also equivalent to the preferred specification alternative.

Section 5.4.3.1 to 5.4.3.6 provide a summary of the economic impacts of each alternative separately, in terms of landings, revenues and total economic benefits (producer surplus plus consumer surplus) followed by in Section 5.4.3.7, a discussion of the comparative impacts of the specification alternatives. Section 5.4.3.7.1 to Section 5.4.3.7.5 provide a detailed discussion of economic impacts for landings, prices, effort, employment, trip costs, consumer and producer surpluses and total economic benefits.

[7] Guidelines for Economic Reviews of National Marine Fisheries Service Regulatory Actions, March 2007, http://www.nmfs.noaa.gov/sfa/domes_fish/EconomicGuidelines.pdf

Table 45. Economic Impacts for 2014: Estimated landings (Million lb.) and revenues (Million $) (in inflation adjusted 2013 values) (2012 Fishyear revenues=$546 million, estimated revenues for Fishyear 2013=$460 million)

Values	1. No Action	2. Basic Run	3. DMV option	4. 31 DAS	5. 28 DAS	6. No DMV
FT LA DAS	23 DAS	23 DAS (OA F=0.38)	23 DAS (OA F=0.40)	31 DAS (OA F=0.52)	28 DAS (OA F=0.48)	37 DAS (OA F=0.62)
Vessel Choice			1) DEL trip or 2) 5 DAS (total of 28 DAS)	1) DEL trip or 2) 5 DAS (total of 36 DAS)	1) DEL trip or 2) 5 DAS (total of 33 DAS)	DMV Closed
# of Access Area Trips	0	2	2 or 1	2 or 1	2 or 1	1
Total landings (Mill. lb.)	23.8	31.7	31.7	38.5	35.9	37.9
Difference from No Action		7.9	7.9	14.7	12.1	14.1
Difference from ALT 4	-14.7	-6.8	-6.8	0	-2.6	-0.6
Total revenue (Mill. $)	280.5	363.6	364.3	427.8	404.6	422.8
Difference from No Action		83.1	83.8	147.3	124.1	142.3
Difference from ALT 4	-147.3	-64.2	-63.5	0	-23.2	-5
Producer Surplus (Mill. $)	261.9	339.2	339.8	397.2	376.3	392.0
Difference from No Action		77.3	77.9	135.3	114.4	130.1
Difference from ALT 4	-135.3	-58	-57.4	0	-20.9	-5.2
Total Economic Benefits (Mill.$)	278.1	363.3	364.1	429.9	405.7	424.0
Difference from No Action		85.2	86.0	151.8	127.6	145.9
Difference from ALT 4	-151.8	-66.6	-65.8	0	-24.2	-5.9

Table 46. Long-term Impacts: Cumulative present value of revenues, producer surplus and total economic benefits *net of No Action* values (in 2013 inflation adjusted values and at 3% discount rate)

Values	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
Total landings (million lb.)	**718.4**	**717.8**	**722.6**	**715.5**	**717.4**	**716.5**
Total landings *net of No Action* landings (million lb.)		-0.6	4.2	-2.9	-1	-1.9
Total landings *net of ALT4* landings (million lb.)	2.9	2.3	7.1		1.9	1
Values net of No Action	**At 3% discount rate**					
Revenue ($ million)		22.7	52.4	18.5	20.6	16.9
Producer Surplus ($ million)		21	47.9	15.1	17.9	12.7
Total Benefits ($ million)		17.2	50.5	6.5	10.7	5.2
Values net of No Action	At 7% discount rate					
Revenue ($ million)		32.7	54.7	36	28.3	29.3
Producer Surplus ($ Million)		30.3	50.2	31.6	25.2	24.4
Total Benefits ($ Million)		28.5	53.2	26.3	19.5	19.1
Values net of ALT 4	**At 3% discount rate**					
Revenue ($ Million)	-18.5	4.2	33.9		2.1	-1.6
Producer Surplus ($ Million)	-15.2	5.8	32.7		2.7	-2.5
Total Benefits ($ Million)	-6.5	10.7	44.1		4.2	-1.2
Values net of ALT4	At 7% discount rate					
Revenue ($ Million)	-36.0	-3.3	18.7		-7.7	-6.7
Producer Surplus ($ Million)	-31.6	-1.3	18.6		-6.4	-7.2
Total Benefits ($ Million)	-26.3	2.1	26.9		-6.9	-7.2

5.4.3.1 No Action: Summary of economic impacts

As a result of fewer open area DAS (23 days instead of 33 days in 2013) and no allocations to access areas, the landings (23.8M lb.), revenues ($280.5M), and total economic benefits ($278.1) for No Action would be much lower compared to the other alternatives in 2014 including ALT4 (SQ landings), which maintains the landings at approximately 2013 levels (Table 1). Over the long-term from 2014 to 2027, the present value of revenues, producer surplus and total economic benefits under No Action will still be lower compared to all alternatives. This is because the large negative impacts in 2014 ($147 million reduction in revenue compared to ALT4) outweighs the positive impacts on landings and economic benefits after 2014 (Table 46).

5.4.3.2 ALT2: Summary of economic impacts

ALT2 would have short and long term positive economic impacts compared to the No Action. This alternative would result in higher landings (31.7M lb.), revenues ($363.6), and total

economic benefits ($363.3) in 2014 compared to No Action because it allows 2 access area trips while keeping the open area days at 23 DAS. However, the landings, revenues and total economic benefits for this alternative will be lower in 2014 compared to other alternatives (Table 1). Revenues for Alternative 2 in 2014 would be $64.2 million lower and total economic benefits would be $66.6 million lower than ALT4. Over the long-term from 2014 to 2027, the present value of revenues, producer surplus and total economic benefits under this alternative would be higher than No Action, ALT4 to ALT6, but lower than ALT3 levels using a 3% discount rate to estimate future benefits. If a 7% discount rate was to estimate present values over the long-term, the revenues and total economic benefits of this alternative would be second largest after ALT3 values (Table 46).

5.4.3.3 ALT3: Summary of economic impacts

ALT3 would have short and long term positive economic impacts compared to the No Action. The economic impacts of this alternative would be similar to that of ALT2 in the short-term, with higher landings (31.7M lb.), revenues ($364.3), and total economic benefits ($364.1) in 2014 compared to No Action due allocation of 2 or 1 access area trips with a flexibility to fish in the open areas instead of a trip to DMV. However, the landings, revenues and total economic benefits for this alternative would be lower in 2014 compared to other action alternatives. Revenues for Alternative 3 in 2014 would be $63.5 million lower and total economic benefits would be $65.8 million lower than ALT4 (Table 1). Over the long-term from 2014 to 2027, however, the present value of revenues, producer surplus and total economic benefits for ALT3 would exceed the values for all the alternatives including the No Action level whether a 3% or a 7% discount rate is used to estimate future benefits (Table 46). Over the long-term, the total economic benefits under this alternative would be $26.9 million (at 7% discount rate) to $44.1 million (at 3% discount rate) higher than the benefits for preferred alternative (ALT4).

5.4.3.4 ALT4 (Preferred Alternative): Summary of economic impacts

ALT4 would have short and long term positive economic impacts compared to the No Action. This alternative reflects status quo conditions by maintaining the landings at the projected FY2013 levels and allocates 31 open area days and 2 or 1 access area trips with a flexibility to use one trip in the open areas. It results in highest landings (38.5M), revenues ($427.8 million) and total economic benefits ($429.9 million) in 2014 among all the alternatives considered in this Framework (Table 1). Revenues, producer surplus and total economic benefits for ALT4 would exceed the No Action levels over the long term as well. However the increase in revenues ($18.5 million, net of No Action level), producer surplus ($15.1 million, net of No Action level) and total economic benefits ($6.5 million) net of No Action values would be less than the increase under other alternatives except for ALT6 (Table 46) when a 3% discount rate was used to estimate present values. If future benefits were discounted at 7%, ALT4 would have slightly higher net economic benefits (by $26.3 million net of NoAction values) and would rank 2nd in terms of revenues and rank 3rd in terms of total economic benefits in the long-term compared to No Action levels (Table 46).

5.4.3.5 ALT5: Summary of economic impacts

ALT5 would have short and long term positive economic impacts compared to the No Action. This alternative would allocate 28 open area DAS and would result in higher landings 35.9M in 2014 compared to No Action, ALT2 and ALT3 levels (Table 1). The revenues ($404.6 million) and total economic benefits ($405.7 million) are expected to exceed No Action levels respectively by $124.1 million and by $127.6 million in 2014. Revenues and total economic benefits for ALT5 would be lower than the levels for ALT4 and ALT6 in 2014. Revenues, producer surplus and total economic benefits for ALT4 would exceed the No Action levels over the long term as well whether a 3% of 7% discount rate is used. In comparison to other alternatives, ALT5 will also result in slightly higher *increase* in the present value of revenues (by $20.6, net of No Action values) and total economic benefits ($10.7 million, net of No Action values) compared to both ALT 4 and ALT 6, but lower than ALT3 levels if a 3% discount rate was used to estimate future benefits. However, if the value of the future revenues were discounted using a 7% discount rate, ALT5 would have lower revenues and total economic benefits compared to ALT2 to ALT4, and slightly higher benefits than ALT6 (Table 46).

5.4.3.6 ALT6: Summary of economic impacts

ALT6 would have short and long term positive economic impacts compared to the No Action. This alternative would allocate 37 open area DAS and would have similar (but slightly lower) landings (37.9 M lb.) compared to ALT4, which exceeds the levels for No Action and ALT2, ALT3 and ALT5 (Table 1). The revenues ($422.8 million) and total economic benefits ($424 million) are expected to exceed No Action levels respectively by $142.3 million and by $145.9 million in 2014. Revenues, producer surplus and total economic benefits for ALT6 would exceed the No Action levels over the long term as well whether a 3% of 7% discount rate is used. However, this alternative would result in smallest increase in the present value of revenues ($16.9 million increase compared to No Action) and total economic benefits ($5.2 million increase compared to No Action) compared to ALT2 to ALT5 using a 3% discount rate to estimate future benefits. However, if the value of the future revenues were discounted using a 7% discount rate, ALT6 would have lower total economic benefits compared to ALT2, ALT3, ALT4 and ALT5 and lower revenues compared to ALT2, ALT3, ALT4, but it would have slightly revenues than ALT5 over the long term from 2014 to 2026 (Table 46).

5.4.3.7 Comparison of economic impacts of specification alternatives

This section provides a discussion of the comparative impacts of the Framework 25 alternatives on landings, prices, revenues, costs, employment, consumer and producer surpluses and total economic benefits. Although the Tables include the results for all these six alternatives, the discussion also highlights a comparison of the alternatives with No Action as well as with Alternative 4 (ALT4) because the latter is the preferred alternative and also reflects the status quo conditions resulting in an amount of landings in 2014 similar to levels in 2013. These results are summarized for 2014 fishing year and over the long-term (2014-2027) as follows:

- Alternatives other than No Action (ALT1) would allocate 1 or 2 access area trips and some would provide a choice to vessels to use one DMV trip in the open areas (ALT 3 to ALT 5) and ALT 4 to ALT 6 would allocate higher open area DAS. Consequently, the landings and revenues for those alternatives (ALT 2 to ALT 6) are projected to exceed the landings for No Action levels in 2014 fishing year (Table 1).
- The alternatives with higher open area DAS (ALT 4 to ALT 6) result in higher landings in 2014, ranging from 35.9M lb. for ALT 5 (28 DAS) to 38.5M lb. for ALT 4 (31 DAS) compared to alternatives that allocate 23 DAS (ALT 2 and ALT 3), which result in landings of 31.7M lb. in 2014. The difference in the projected landings from the No Action levels ranges from 7.9 million lb. (ALT 2 and 3) to about 14.7 million lb. (ALT 4) for 2014 fishing year (Table 1).
- However, starting with 2015 and over the long-term, the landings for all alternatives except for ALT 3 are expected to be lower than the No Action levels (Table 2). The alternatives that allocate higher open area DAS (ALT 4 to ALT 6) in the short-term result in lower landings in the long-term compared to No Action as well as compared to ALT 2 and ALT 3 that limit open area mortality to F=0.40 (ALT 3) or below (No Action and ALT 2). Overall, ALT 3 (DMV option) is estimated to result in highest landings in the long-term exceeding the landings under the No Action and ALT4.
- Even though the sum of landings over the long-term (2014-2027) is lower than landings for No Action alternative (except for ALT3), the long-term present value of revenues, producer surplus (revenue net of trip costs) and total economic benefits (consumer plus producer surplus) will exceed the No Action values for all alternatives. This is mainly because the increase in revenues compared to No Action levels is quite large in 2014 (ranging from $83.1 million ALT2 to $147.3 million for ALT4), outweighing the negative impacts on revenues in the rest of the period (Table 1 and Table 2). As a result, the increase in present value of total economic benefits will range from $5.2 million (ALT 6) to $50.5 million (ALT 3) in the long-term using a discount rate of 3% (Table 3).
- There is a trade-off, however, in revenues, producer surplus and total economic benefits in the short-term versus in the long-term for each alternative. ALT 3 (DMV) is expected to result in smallest increase in revenues, producer surplus and net economic benefits in the short-term (2014), but largest increase over the long-term compared to No Action levels. The present value of the cumulative revenues will exceed the No Action revenues by $52.4 million, the present value of the cumulative producer surplus by $47.9 million and total economic benefits by $50.5 million under ALT 3 over the long-term using a 3% discount rate. Although the economic impacts of ALT2 is similar to that for ALT3 in 2014, over the long-term, the economic benefits from ALT2 will fall short of the levels for ALT3 as the latter option provides greater flexibility to vessels to take an additional 5 open area DAS instead of a DMV trip (Table 46).
- Conversely, ALT 4 would have the highest increase in revenues, producer surplus and total economic benefits in 2014, but will have a smaller increase in revenues ($18.5 million), producer surplus ($15.1 million) and total economic benefits ($6.5 million) over the long-term compared to No Action and other alternatives except for ALT6 (Table 46) when a 3% discount rate was used to estimate present values. The present value of the economic benefits estimated for ALT 6 is similar to the levels for ALT 4, however,

economic benefits for this alternative is slightly lower than for ALT4 both in 2014 and in the long-term (Table 45 and Table 46). ALT5 is expected to result in about $124.1 million increase in revenues and $127.6 million increase in total economic benefits compared to No Action in 2014, but lower than the levels for ALT4 and ALT6. However, in the long-term this alternative will result in slightly higher increase in revenues (by $20.6) and total economic benefits ($10.7 million) compared to both ALT 4 and ALT 6 using a 3% discount rate to estimate present values (Table 46).

- Although the present value of the revenues, producer and total economic benefits (absolute values) would be slightly lower for all alternatives if a 7% discount rate was applied, the increase in those values compared to No Action levels would be larger. However, when the value of the future revenues were discounted using a 7% discount rate, ALT4 would result in the second highest revenues of the long-term after ALT3, and third largest total benefits after ALT3 and ALT2 (Table 46). This is because, a 7% discount rate places less weight to decline in future revenue compared to a 3%. As a result, increase in the short-term revenue outweighs the decline in future revenue to a greater degree, changing the rank of alternatives in terms of their impacts on the revenues and total economic benefits (Table 46).
- The results for the producer surplus and total economic benefits are similar to that of revenues when present values at estimated using a 7% discount rate. However, there is a small difference in the ranking of ALT 2 and ALT 4, such that ALT2 results in slightly larger economic benefits compared to ALT4 (Table 46). ALT3 ranks first in terms of positive impacts on the present value of total economic benefits (including both the producer and consumer benefits). Present value of economic benefits is similar to the levels for ALT 5 and ALT6 in the long-term (2014-2027).
- It should be pointed out that the actual values of revenues for all alternatives could potentially exceed those shown in Table 1 to Table 46. They are based on conservative estimates for prices (Table 49 below) assuming no change in import prices, disposable income and exports to separate out the impacts of landings with those alternatives on prices. However, the reverse is possible too, if for example, the Japanese scallops recover offering competition to domestic scallops and if import prices and exports decline. For these reasons, estimated numbers for revenues and economic benefits should be mainly used for comparing one alternative with another rather than for predicting the actual values on future years.
- As compared to No Action, the overall DAS used will increase by 31.5% (ALT2) to 65.8% (ALT6) in 2014 (Table 56). Therefore, the level of employment in the scallop fishery as measured by CREW*DAS will be higher under all alternatives compared to No Action (ALT1). The open area DAS (31 Days) and access area trip allocations (2 trips) for ALT4 will be similar to the levels in 2013 (33 days and 2 trips) depending on whether vessels use their DMV trip in the open areas or in the DMV access area. Therefore, employment is not expected to change much in 2014 compared to levels in 2013 fishing year and given that FW25 is a one-year action.
- Finally, each specification alternative also includes default measures for 2015 fishing year that would be in place until the next Framework action is implemented. Instead of rolling over the projected DAS in 2015 (23 DAS under the preferred alternative) until the

new Framework is implemented, this measure would allocate only 75% of the projected DAS in FY2015 for LA vessels (or 17 DAS for the preferred alternative) to prevent potentially negative impacts on the resource and scallop yield. Thus those measures are expected to have positive economic benefits for the scallop fishery in the long-term.

The following sections describes the detailed results of the proposed options on landings, effort, prices, revenues, producer and consumer surpluses and total economic benefits annually (for 2014 and beyond) and also for distinct periods including short-term (2014-2015) and long-term (2014 to 2027) for all alternatives.

5.4.3.7.1 Impacts on Landings, Price and Revenue

No Action (ALT1) and the alternatives two and three (ALT2 and ALT3) would result in smaller landings in the short-term (2014-2015) compared to ALT1, ALT2 and ALT3 (Table 5). Because No Action would allocate zero access area trips and keep the open area DAS allocation at 23 DAS per LA vessel, the landings with No Action would be about 23.8 million lb. in 2014, while under the alternatives ALT4, ALT 5 and ALT6, it would exceed 35 million lb. For the overall long-term period from 2014 to 2027, however, landings for ALT3 are estimated to exceed the levels for the No Action by about 4.2 million lb., whereas the landings for the rest of the alternatives will be lower than No Action landings by 0.6 million lb. (ALT 2) to 2.9 million lb. for ALT4.

Table 47. Estimated Landings (Million lb.) (Est.lb. in 2013=40 to 41 mill.lb.)

Period	Fishing year	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	2014	23.8	31.7	31.7	38.5	35.9	37.9
	2015	45.1	43.6	43.3	41.1	41.8	41.0
2014-2015 Total		**68.9**	**75.3**	**75.1**	**79.5**	**77.8**	**78.9**
2016-2018	2016	56.1	54.6	54.4	52.7	52.9	52.4
	2017	56.8	56.1	55.9	54.5	54.1	53.1
	2018	56.3	55.7	57.1	55.0	54.4	53.9
2016-2018 Total		**169.1**	**166.4**	**167.4**	**162.3**	**161.4**	**159.4**
2019-2027	2019	55.1	54.5	55.9	54.1	53.2	53.8
	2020	54.5	54.2	54.7	53.0	52.4	53.7
	2021	53.8	53.3	53.3	52.7	52.3	53.7
	2022	53.5	52.5	52.5	52.5	52.5	53.4
	2023	52.8	52.4	52.6	52.5	53.3	53.0
	2024	52.7	52.4	52.8	52.3	53.9	52.9
	2025	52.8	52.2	52.6	52.1	53.9	52.7
	2026	52.8	52.2	52.7	52.1	53.6	52.6
	2027	52.4	52.3	53.0	52.2	53.3	52.5
2019-2027 Total		**480.4**	**476.0**	**480.1**	**473.7**	**478.3**	**478.3**
Grand Total		**718.4**	**717.8**	**722.6**	**715.5**	**717.4**	**716.5**

Table 48. Estimated landings net of No Action levels (Million lb.)

Period	Fishing year	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	2014		7.9	7.9	14.7	12.1	14.1
	2015		-1.5	-1.8	-4.0	-3.3	-4.1
2014-2015 Total			**6.4**	**6.2**	**10.7**	**8.9**	**10.0**
2016-2018	2016		-1.4	-1.6	-3.3	-3.2	-3.7
	2017		-0.7	-0.8	-2.3	-2.6	-3.7
	2018		-0.6	0.8	-1.2	-1.9	-2.4
2016-2018 Total			**-2.6**	**-1.6**	**-6.8**	**-7.7**	**-9.7**
2019-2027	2019		-0.5	0.8	-1.0	-1.8	-1.3
	2020		-0.4	0.2	-1.5	-2.2	-0.9
	2021		-0.4	-0.5	-1.0	-1.5	-0.1
	2022		-1.1	-1.0	-1.0	-1.0	-0.1
	2023		-0.5	-0.2	-0.3	0.5	0.2
	2024		-0.3	0.1	-0.4	1.2	0.1
	2025		-0.5	-0.1	-0.7	1.1	0.0
	2026		-0.6	-0.1	-0.6	0.8	-0.2
	2027		-0.1	0.6	-0.2	0.9	0.1
2019-2027 Total			**-4.4**	**-0.3**	**-6.8**	**-2.1**	**-2.1**
Grand Total			**-0.6**	**4.2**	**-2.9**	**-1.0**	**-1.8**

Prices are estimated using the ex-vessel price model that takes into account the impacts of changes in meat count, domestic landings, exports, import prices, income of consumers, and composition of landings by market category (i.e., size of scallops) including a price premium on under count 10 scallops. The price estimates shown in Table 7 correspond to the price model outputs assuming that the import prices will be constant at their 2012 levels (given that 2013 trade data is not complete yet), scallop exports will constitute about 50% of the domestic landings, and the disposable income will be constant at the current levels in 2013, so that only the effects of the reduction in and changes in the size composition of landings could be identified. As such, these are conservative estimates for prices and actual prices could be higher (lower) than the values estimated in Table 7 if the import prices, exports and disposable income increase (decrease) in the future years. For example, estimated prices under ALT4 is ($11.12 per lb. of scallops) lower than the estimated prices for 2013 fishing year ($11.38) and there has been an increasing trend in the scallop prices in the recent months, indicating that potentially the prices and revenues for 2014 fishing year could be higher than the values shown in Table 49 and Table 50.

Although the absolute values for revenues, producer and consumer surpluses, and total economic benefits would change with the value of estimated prices, the percentage differences of these values for alternatives 2 to 6 relative to the No Action alternative would not change in any substantial way. Higher prices than estimated in Table 7 will increase the short-term positive impact of all the alternatives on revenues compared to No Action, while lower prices reduce this

impact. The long-term benefits will be greater with higher prices and smaller with lower prices, however.

Table 49. Estimated ex-vessel prices (in 2013 inflation adjusted prices, Avg. Price in 2012=$9.78, Estimated price in 2013=$11.38)

Period	Fishing year	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	2014	11.78	11.48	11.48	11.12	11.25	11.16
	2015	10.54	10.61	10.62	10.73	10.69	10.71
2014-2015 Total		**11.16**	**11.04**	**11.05**	**10.93**	**10.97**	**10.94**
2016-2018	2016	9.99	10.04	10.05	10.13	10.12	10.12
	2017	9.95	9.95	9.97	10.02	10.04	10.08
	2018	10.00	10.00	9.94	10.02	10.05	10.08
2016-2018 Total		**9.98**	**10.00**	**9.99**	**10.06**	**10.07**	**10.09**
2019-2027	2019	10.08	10.08	10.01	10.09	10.13	10.10
	2020	10.11	10.13	10.09	10.17	10.21	10.14
	2021	10.17	10.19	10.19	10.21	10.24	10.15
	2022	10.19	10.25	10.26	10.24	10.25	10.18
	2023	10.24	10.27	10.26	10.25	10.22	10.22
	2024	10.26	10.27	10.26	10.27	10.20	10.24
	2025	10.27	10.28	10.26	10.28	10.20	10.26
	2026	10.26	10.29	10.27	10.29	10.22	10.27
	2027	10.28	10.28	10.26	10.29	10.25	10.28
2019-2027 Total		**10.21**	**10.23**	**10.21**	**10.23**	**10.21**	**10.21**
Grand Total		**10.29**	**10.29**	**10.28**	**10.29**	**10.29**	**10.29**

The economic impacts of the alternatives considered in this Framework are compared with the No Action alternative to be consistent with the definition provided in Section 2.2.1 and with Guidelines for the Economic Analysis of the Fishery Management Action (NMFS, 2007). The value of the estimated revenue alternatives ALT2 to ALT6 would be higher in the short-term (2014) compared to No Action. The main reason for this is that the regulations would allow no access area trip allocations in 2014, compared to 1 to 2 trips for other alternatives.

The impacts of the Framework 25 alternatives on the annual revenues and the present value of the cumulative revenues for each period are shown in Table 8 (undiscounted values) and in Table 14 (at 3% discount rate) to Table 17 (at 7% discount rate). ALT 3 (DMV) is expected to result in smallest increase in revenues in the short-term (2014-2015), but largest increase over the long-term compared to No Action levels. The present value of the cumulative revenues will exceed No Action revenues by $52.4 million ($54.7 million) under ALT 3 over the long-term if a 3% discount rate (7% discount rate) is used. Although the economic impacts of ALT2 is similar to that for ALT3 in the short-term, over the long-term, the economic benefits from ALT2 will fall short of the levels for ALT3 as the latter option provides greater flexibility to vessels to take an additional 5 open area DAS instead of a DMV trip.

Conversely, ALT 4 would have the highest increase in revenues (by $114 million) in the short-term (2014-2015) but would have a smaller increase in revenues ($18.5 million) over the long-term (2014 to 2027) compared to No Action and other alternatives except for of ALT6 (an increase of $16.9 million net of No Action) if the present value of revenues are estimated using a 3% discount rate (Table 15). However, if the value of the future revenues were discounted using a 7% discount rate, ALT4 would result in the second highest revenues of the long-term after ALT3 (Table 17). The revenues under ALT4 are estimated to decline in 2016-2027 in a greater degree compared to other alternatives. A 7% discount rate places less weight to decline in future revenue compared to a 3%. As a result, increase in the short-term revenue outweighs the decline in future revenue to a greater degree, changing the rank of alternatives in terms of their impacts on the revenues and total economic benefits.

ALT5 is expected to result in about $98 million increase in revenues compared to No Action in the short-term (2014-2015), lower than the levels for ALT4 and ALT6. However, in the long-term this alternative would result in slightly higher increase in revenues (by $20.6) compared to both ALT 4 and ALT 6 if a 3% discount rate was used. If the future revenues were estimated using a 7% discount rate, ALT5 would result in lower revenues than ALT2, ALT3, and ALT4.

In the previous Framework actions, in addition to the No Action alternative, the results of the alternatives were also compared with the SQ alternative to show the results when DAS and access area trip allocations were set at exactly the same values as in the previous years (i.e., 33 full-time DAS and 2 trips in 2013). Alternative 4 (preferred alternative) in this action reflects, however, a scenario that maintains landings at the projected FY2013 levels by allocating 31 open area days and 2 access area trips (similar to allocations in 2013 fishing year). The comparison of revenues for ALT4 with other alternatives indicates this alternative would generate the largest revenues in 2014, but 4th (2nd) largest revenues in the long-term from 2014 to 2027 using a 3% (7%) discount rate with ALT3 outperforming the rest of the alternatives in terms of long-term revenues regardless of the discount rate applied.

The revenues for the preferred alternative (ALT4) is estimated to be $427.8 million in 2014 fishing year, which is less than the estimated revenue ($460 million) for 2013 fishing year. This is because biological model projections for scallop landings (38.5 million lb.) are less than the estimated landings in 2013 (about 40 to 41 million lb.). Similarly, as indicated above, prices projected by the price model are conservative estimates and could turn out to be lower than the actual prices in 2014. Therefore, the preferred alternative (ALT4) would have low negative impacts on the revenues of the vessels compared to the levels in 2013 fishing year.

Table 50. Scallop Revenue Projections (Million $, in 2013 inflation adjusted values prices, not discounted) Estimated revenue in 2012 fishing year=$546 million and in 2013 fishing year= $460 million

Period	Fishing year	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	2014	280.5	363.6	364.3	427.8	404.6	422.8
	2015	475.0	462.7	460.2	440.7	446.9	439.0
2014-2015 Total		**755.5**	**826.3**	**824.6**	**868.5**	**851.5**	**861.8**
2016-2018	2016	559.8	548.4	547.2	534.0	535.0	530.3
	2017	564.6	558.6	557.6	546.3	543.5	535.5
	2018	562.5	557.1	567.2	551.6	546.7	543.1
2016-2018 Total		**1686.9**	**1664.1**	**1672.0**	**1631.9**	**1625.1**	**1608.8**
2019-2027	2019	555.0	549.8	559.3	545.8	539.1	543.9
	2020	551.4	548.5	551.9	539.3	534.4	543.9
	2021	546.7	543.4	543.2	538.7	535.3	545.1
	2022	545.7	537.9	538.9	538.1	538.0	543.6
	2023	541.2	538.1	540.3	538.5	545.0	542.0
	2024	541.1	538.5	541.4	536.8	549.6	541.4
	2025	541.7	536.9	540.3	535.6	549.5	540.9
	2026	541.7	537.0	540.6	536.4	547.6	540.3
	2027	538.6	537.8	543.6	537.4	545.9	539.7
2019-2027 Total		**4903.1**	**4867.9**	**4899.4**	**4846.6**	**4884.3**	**4880.9**
Grand Total		**7345.5**	**7358.3**	**7396.0**	**7347.0**	**7360.9**	**7351.6**

Table 51. Present value of total scallop revenue (Million $, using 3% discount rate, in 2013 prices)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	741.7	812.9	811.2	855.7	838.5	849.1
2016-2018	1544.1	1523.1	1530.0	1493.4	1487.4	1472.4
2019-2027	3771.3	3743.9	3768.3	3726.5	3751.9	3752.6
Grand Total	**6057.1**	**6079.8**	**6109.5**	**6075.6**	**6077.7**	**6074.0**

Table 52. Present value of total scallop revenue net of No Action revenue (Million $, using 3% discount rate)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015		71.2	69.5	114.0	96.8	107.4
2016-2018		-21.1	-14.1	-50.8	-56.8	-71.7
2019-2027		-27.4	-3.0	-44.8	-19.4	-18.7
Grand Total		**22.7**	**52.4**	**18.5**	**20.6**	**16.9**

Table 53. Present value of total scallop revenue (Million $, using 7% discount rate)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	724.5	796.1	794.5	839.7	822.3	833.1
2016-2018	1379.0	1360.0	1365.8	1333.2	1328.0	1314.6
2019-2027	2712.0	2692.1	2709.8	2678.6	2693.5	2697.0
Grand Total	**4815.4**	**4848.1**	**4870.1**	**4851.4**	**4843.7**	**4844.7**

Table 54. Present value of total scallop revenue net of No Action revenue (Million $, using 7% discount rate)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015		71.6	70.0	115.3	97.8	108.7
2016-2018		-19.0	-13.1	-45.8	-51.0	-64.4
2019-2027		-19.9	-2.2	-33.4	-18.6	-15.0
Grand Total		**32.7**	**54.7**	**36.0**	**28.3**	**29.3**

5.4.3.7.2 Impacts of Framework 25 specification alternatives on DAS, fishing costs and open area days and employment

Table 1 shows open area DAS per full-time vessel for each alternative and fishing year and Table 9 show total fleet DAS from all areas. Total effort measured in terms of DAS used as a sum total of all areas will be higher in the short-term for all the alternatives compared to No Action because ALT2 to ALT 6 allocates one or more trips to access areas whereas No Action alternative would allocate no access area trips. Total DAS would be greater for ALT4, ALT 5 and ALT6 because these alternatives would allocate more open area DAS compared to No Action and to ALT2 and ALT3. However, starting in 2015, total effort measured in terms of DAS used will be lower under those alternatives compared to No Action because lower fishing mortality in 2014 under the No Action alternatives makes it possible to allocate more access area trips and open area DAS in the future years).

As compared to No Action, the overall DAS used will increase by 31.5% (ALT2) to 65.8% (ALT6) in 2014 (Table 56). Therefore, the level of employment in the scallop fishery as measured by CREW*DAS will be higher under all alternatives compared to No Action (ALT1). Employment will be higher under ALT6 and ALT4 (Preferred Alternative) compared to other alternatives. The open area DAS (31 Days) and access area trip allocations (2 trips) for ALT4 will be similar to the levels in 2013 (33 days and 2 trips) depending also on whether vessels use DMV trip in the open areas or in DMV access area. Therefore, employment is not expected to change much in 2014 compared to levels in 2013 fishing year especially given that FW25 is a one year action.

Total trip costs for the fleet vary with the total DAS-used for each alternative. Table 11 shows that those alternatives that allocate more DAS result in higher trip costs both in the short-term and long-term as higher costs in 2014 outweighs relatively lower r costs in the rest of the period compared to No Action. Present value of the fleet costs are summarized and compared with No Action Table 12 using a discount rate of 3% and in Table 13 using a discount rate of 7%. In 2014-2015, the present value of the total trips costs (including food, fuel, ice, water, ice and supplies) will be higher by $5 million for ALT2 and by $10 million for ALT4 using a discount rate of 3% compared to No Action (Table 11 and Table 13). For the long-term period from 2014 to 2027, the increase in the cumulative present value of the trip costs rages from about $2 million for ALT 2 to close to $5 million for ALT6 depending on the discount rate used.

Table 55. Total DAS (sum of open and access areas)

Period	Fishing year	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	2014	8918	11727	11775	14672	13560	14785
	2015	16371	15957	15899	15258	15443	15250
2014-2015 Total		**25289**	**27684**	**27674**	**29930**	**29003**	**30035**
2016-2018	2016	19781	19410	19462	18961	18957	18784
	2017	19930	19764	19743	19281	19126	18833
	2018	19874	19701	20151	19511	19277	19203
2016-2018 Total		**59585**	**58875**	**59356**	**57753**	**57360**	**56820**
2019-2027	2019	19326	19120	19506	19031	18737	19037
	2020	19060	18964	19065	18647	18452	18938
	2021	18786	18667	18625	18556	18429	18887
	2022	18696	18397	18427	18468	18503	18729
	2023	18498	18393	18487	18443	18761	18577
	2024	18496	18403	18520	18336	18878	18523
	2025	18502	18343	18459	18277	18820	18468
	2026	18479	18342	18476	18311	18706	18405
	2027	18334	18361	18621	18350	18623	18362
2019-2027 Total		**168177**	**166990**	**168186**	**166419**	**167909**	**167926**
Grand Total		**253051**	**253549**	**255216**	**254102**	**254272**	**254781**

Table 56. Percentage increase in total DAS compared to No Action DAS (Sum of open and access areas)

Period	Fishing year	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	2014		31.5%	32.0%	64.5%	52.1%	65.8%
	2015		-2.5%	-2.9%	-6.8%	-5.7%	-6.8%
2014-2015 Total			**9.5%**	**9.4%**	**18.4%**	**14.7%**	**18.8%**
2016-2018	2016		-1.9%	-1.6%	-4.1%	-4.2%	-5.0%
	2017		-0.8%	-0.9%	-3.3%	-4.0%	-5.5%
	2018		-0.9%	1.4%	-1.8%	-3.0%	-3.4%
2016-2018 Total			**-1.2%**	**-0.4%**	**-3.1%**	**-3.7%**	**-4.6%**
2019-2027	2019		-1.1%	0.9%	-1.5%	-3.0%	-1.5%
	2020		-0.5%	0.0%	-2.2%	-3.2%	-0.6%
	2021		-0.6%	-0.9%	-1.2%	-1.9%	0.5%
	2022		-1.6%	-1.4%	-1.2%	-1.0%	0.2%
	2023		-0.6%	-0.1%	-0.3%	1.4%	0.4%
	2024		-0.5%	0.1%	-0.9%	2.1%	0.1%
	2025		-0.9%	-0.2%	-1.2%	1.7%	-0.2%
	2026		-0.7%	0.0%	-0.9%	1.2%	-0.4%
	2027		0.1%	1.6%	0.1%	1.6%	0.2%
2019-2027 Total			**-0.7%**	**0.0%**	**-1.0%**	**-0.2%**	**-0.1%**
Grand Total			**0.2%**	**0.9%**	**0.4%**	**0.5%**	**0.7%**

Table 57. Total trip costs (In 2013 inflation adjusted values prices, not discounted) ($ Millions)

Period	Fishing year	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	2014	18.6	24.5	24.6	30.6	28.3	30.8
	2015	34.1	33.3	33.1	31.8	32.2	31.8
2014-2015 Total		**52.7**	**57.7**	**57.7**	**62.4**	**60.5**	**62.6**
2016-2018	2016	41.2	40.5	40.6	39.5	39.5	39.2
	2017	41.6	41.2	41.2	40.2	39.9	39.3
	2018	41.4	41.1	42.0	40.7	40.2	40.0
2016-2018 Total		**124.2**	**122.8**	**123.8**	**120.4**	**119.6**	**118.5**
2019-2027	2019	40.3	39.9	40.7	39.7	39.1	39.7
	2020	39.7	39.5	39.7	38.9	38.5	39.5
	2021	39.2	38.9	38.8	38.7	38.4	39.4
	2022	39.0	38.4	38.4	38.5	38.6	39.0
	2023	38.6	38.3	38.5	38.5	39.1	38.7
	2024	38.6	38.4	38.6	38.2	39.4	38.6
	2025	38.6	38.2	38.5	38.1	39.2	38.5
	2026	38.5	38.2	38.5	38.2	39.0	38.4
	2027	38.2	38.3	38.8	38.3	38.8	38.3
2019-2027 Total		**350.6**	**348.2**	**350.7**	**347.0**	**350.1**	**350.1**
Grand Total		**527.6**	**528.6**	**532.1**	**529.8**	**530.1**	**531.2**

Table 58. Total trip costs (In 2013 inflation adjusted values prices, at 3% discount rate, $ Million)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015		5.0	5.0	9.7	7.8	10.0
2016-2018		-1.4	-0.5	-3.5	-4.3	-5.3
2019-2027		-1.9	0.0	-2.9	-0.8	-0.5
Grand Total		**1.7**	**4.5**	**3.3**	**2.7**	**4.2**

Table 59. Total trip costs (In 2013 inflation adjusted values prices, at 7% discount rate, $ Million)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015		5.0	5.0	9.8	7.9	10.0
2016-2018		-1.2	-0.5	-3.2	-3.8	-4.7
2019-2027		-1.4	0.0	-2.2	-0.9	-0.4
Grand Total		**2.4**	**4.5**	**4.5**	**3.1**	**4.9**

5.4.3.7.3 Present Value of Producer Surplus

Producer surplus (benefits) for a particular fishery shows the net benefits to harvesters, including vessel owners and crew, and is measured by the difference between total revenue and operating costs. Annual values for the producer surplus are shown in Table 60 and indicate that ALT4 and ALT6 results in largest producer surplus in 2014 but smallest in 2015 fishing year.

The increase in present value of total producer surplus would range from $64.5 million for ALT 3 to $104.3 million for ALT4 in the short-term (2014-2015) and would range from $12.7 million (ALT 6) to $47.9 million (ALT 3) in the long-term using a discount rate of 3% (2014-2027, Table 19).

ALT 3 (DMV) is expected to result in smallest increase in producer surplus in the short-term (2014-2015), but largest increase over the long-term compared to No Action levels. In comparison, ALT 4 will have the highest increase in producer (by $104.3 million) in the short-term (2014-2015) but will have a smaller increase in producer benefits ($15.1 million) over the long-term (2014 to 2027) compared to No Action and other alternatives except for ALT6, which results in smallest long-term producer benefits when a 3% discount rate is applied to estimate the present values (Table 19). ALT5 is expected to result in about $89 million increase in producer surplus compared to No Action in the short-term (2014-2015), lower than the levels for ALT4 and ALT6. However, in the long-term this alternative would result in slightly higher increase in producer surplus (by $17.9 million) compared to ALT 4 and ALT 6.

Table 60. Annual values for producer surplus (Million $, in 2013 inflation adjusted values, not discounted)

Period	Fishing year	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	2014	261.9	339.2	339.8	397.2	376.3	392.0
	2015	440.9	429.4	427.1	408.9	414.7	407.2
2014-2015 Total		**702.8**	**768.6**	**766.9**	**806.1**	**791.0**	**799.2**
2016-2018	2016	518.5	507.9	506.7	494.5	495.5	491.1
	2017	523.1	517.4	516.5	506.1	503.6	496.2
	2018	521.1	516.1	525.1	510.9	506.5	503.0
2016-2018 Total		**1562.7**	**1541.3**	**1548.3**	**1511.5**	**1505.6**	**1490.4**
2019-2027	2019	514.7	509.9	518.6	506.1	500.1	504.2
	2020	511.7	508.9	512.1	500.4	495.9	504.4
	2021	507.5	504.5	504.3	500.0	496.8	505.7
	2022	506.8	499.6	500.4	499.6	499.4	504.6
	2023	502.6	499.7	501.8	500.0	505.9	503.2
	2024	502.5	500.2	502.8	498.6	510.2	502.8
	2025	503.1	498.7	501.8	497.5	510.3	502.4
	2026	503.2	498.7	502.1	498.2	508.6	501.9
	2027	500.4	499.5	504.8	499.1	507.0	501.4
2019-2027 Total		**4552.5**	**4519.7**	**4548.7**	**4499.6**	**4534.2**	**4530.8**
Grand Total		**6817.9**	**6829.7**	**6863.9**	**6817.2**	**6830.8**	**6820.4**

However, the ranking of the alternatives in terms of the impacts on producer surplus changes if the value of the future values were discounted using a 7% discount rate. In this case, ALT4 would result in the second highest revenues of the long-term after ALT3 (Table 21). The producer surplus under ALT4 is estimated to decline in 2016-2027 compared to No Action in a greater degree compared to other alternatives. A 7% discount rate places less weight to decline in future values compared to a 3%. As a result, increase in the short-term producer surplus outweighs the decline in future benefits relatively more, changing the rank of alternatives in terms of their impacts on the revenues, producer surplus and total economic benefits.

Table 61. Present value of producer surplus (using 3% discount rate, Million $)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	690.0	756.1	754.5	794.2	779.0	787.4
2016-2018	1430.4	1410.7	1416.8	1383.2	1377.9	1364.0
2019-2027	3501.5	3476.0	3498.5	3459.6	3482.9	3483.2
Grand Total	**5621.8**	**5642.8**	**5669.7**	**5637.0**	**5639.7**	**5634.5**

Table 62. Present value of producer surplus net of No Action values (using 3% discount rate, Million $)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015		66.1	64.5	104.3	89.0	97.4
2016-2018		-19.7	-13.6	-47.2	-52.5	-66.4
2019-2027		-25.4	-3.0	-41.9	-18.6	-18.3
Grand Total		**21.0**	**47.9**	**15.1**	**17.9**	**12.7**

Table 63. Present value of producer surplus (using 7% discount rate, Million $)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	674.0	740.5	739.0	779.4	763.9	772.6
2016-2018	1277.4	1259.6	1264.7	1234.8	1230.2	1217.8
2019-2027	2517.8	2499.3	2515.7	2486.6	2500.2	2503.2
Grand Total	**4469.2**	**4499.5**	**4519.4**	**4500.8**	**4494.4**	**4493.6**

Table 64. Present value of producer surplus net of No Action values (using 7% discount rate, Million $)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015		66.6	65.0	105.4	89.9	98.6
2016-2018		-17.8	-12.7	-42.6	-47.2	-59.6
2019-2027		-18.5	-2.2	-31.3	-17.6	-14.6
Grand Total		**30.3**	**50.2**	**31.6**	**25.2**	**24.4**

5.4.3.7.4 Present Value of Consumer Surplus

Consumer surplus for a particular fishery is the net benefit that 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 the amount of fish harvested goes up. Present value of the consumer surplus are shown in Table 22 (using a 3% discount rate) and Table 24 (using a 7% discount rate), and the cumulative present values net of No Action levels are summarized in Table 23 and Table 25. In the short-term (2014-2015), all alternatives have a positive impact on the consumer surplus compared to No Action levels, with ALT4 and ALT6 having the largest

impacts. However, over the long-term from 2014 to 2027, the present value of the consumer surplus is estimated to decline compared to the No Action levels for ALT2, ALT4 to ALT6, except for under ALT3 with a small increase in consumer surplus (Table 23 and Table 25). This is mainly because No Action would result in slightly higher landings over the long-term compared to all alternatives except for ALT3 (Table 5).

Table 65. Present value of consumer surplus (using 3 % discount rate, Million $)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	58.9	64.6	64.3	69.5	67.3	69.0
2016-2018	174.0	170.0	171.3	163.3	162.1	159.1
2019-2027	397.4	391.7	397.3	388.7	393.6	394.7
Grand Total	**630.2**	**626.4**	**632.9**	**621.5**	**623.0**	**622.7**

Table 66. Present value of consumer surplus net of No Action values (using 3% discount rate, Million $)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015		5.8	5.5	10.7	8.5	10.1
2016-2018		-4.0	-2.7	-10.6	-11.9	-14.9
2019-2027		-5.7	-0.1	-8.7	-3.8	-2.7
Grand Total		**-3.8**	**2.6**	**-8.7**	**-7.2**	**-7.5**

Table 67. Present value of consumer surplus (using 7% discount rate, Million $)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	57.3	63.1	62.8	68.1	65.9	67.6
2016-2018	155.4	151.8	152.8	145.8	144.7	142.0
2019-2027	286.3	282.2	286.3	279.8	282.6	284.1
Grand Total	**499.0**	**497.1**	**502.0**	**493.7**	**493.2**	**493.7**

Table 68. Present value of consumer surplus net of No Action values (using 7% discount rate, Million $)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015		5.9	5.6	10.9	8.7	10.3
2016-2018		-3.6	-2.6	-9.6	-10.7	-13.4
2019-2027		-4.1	0.0	-6.5	-3.7	-2.2
Grand Total		**-1.8**	**3.0**	**-5.2**	**-5.7**	**-5.3**

5.4.3.7.5 Present Value of Total Economic Benefits

Economic benefits include the benefits both to the consumers and to the fishing industry, and equal the sum of benefits to the consumers and producers. Annual values for the economic benefits are shown in Table 26. The cumulative present value of the total benefits are summarized in Table 26 (3% discount rate) and Table 28 (7% discount rate), and the economic benefits net of No Actions levels are shown in Table 27 (3% discount rate) and Table 29 (7% discount rate).

The short-term (2014-2015) economic benefits for all alternatives are expected to exceed the levels for No Action ranging from $70 ($70.6) million for ALT3 to 114.9 ($116.3) million for ALT4 using a discount rate of 3% (7%).

There are trade-offs between the short-term and the long-term benefits, however, with ALT3 resulting in highest net economic benefits over the long-term from 2014 to 2027 by $50.5 ($53.6) million using a 3% (7%) discount rate to estimate present values. This is followed by ALT2 ($17.2 million) and ALT5 ($10.7 million), with ALT4 and ALT6 resulting in lowest net benefits in 2014-2027 using a 3% discount rate and compared to No Action levels (Table 27). The results are similar if the net economic benefits were estimated suing a 7% discount rate, except this time ALT4 would result in third largest benefits after ALT3 and ALT2 (Table 29).

Table 69. Annual values of total economic benefits (undiscounted, in 2013 inflation adjusted values, Million $)

Period	Fishing year	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	2014	278.1	363.3	364.1	429.9	405.7	424.0
	2015	484.9	471.1	468.4	446.9	453.8	445.3
2014-2015 Total		**762.9**	**834.5**	**832.4**	**876.8**	**859.5**	**869.3**
2016-2018	2016	581.4	568.3	566.6	551.5	552.8	547.9
	2017	587.3	580.6	579.3	566.6	563.5	554.4
	2018	584.0	578.2	589.6	572.0	566.4	562.0
2016-2018 Total		**1752.7**	**1727.1**	**1735.5**	**1690.0**	**1682.7**	**1664.2**
2019-2027	2019	575.3	569.8	581.0	565.4	558.0	562.9
	2020	571.2	567.9	572.2	557.5	551.9	562.5
	2021	565.7	561.9	561.7	556.4	552.3	563.8
	2022	564.4	555.3	556.2	555.4	555.0	562.1
	2023	558.9	555.1	557.6	555.8	562.8	560.0
	2024	558.5	555.6	558.9	554.0	568.2	559.1
	2025	559.0	553.9	557.7	552.4	568.3	558.3
	2026	559.3	553.8	557.9	553.3	566.1	557.8
	2027	555.9	554.9	561.1	554.2	563.9	557.0
2019-2027 Total		**5068.3**	**5028.3**	**5064.3**	**5004.5**	**5046.5**	**5043.6**
Grand Total		**7584.0**	**7589.9**	**7632.3**	**7571.3**	**7588.7**	**7577.1**

Table 70. Present value of total economic benefits (using 3% discount rate, Million $)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	748.8	820.7	818.8	863.8	846.3	856.3
2016-2018	1604.4	1580.8	1588.1	1546.5	1540.0	1523.1
2019-2027	3898.8	3867.7	3895.7	3848.3	3876.4	3877.9
Grand Total	**6252.0**	**6269.2**	**6302.6**	**6258.5**	**6262.7**	**6257.3**

Table 71. Net economic benefits (net of No Action values , using 3% discount rate, Million $)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015		71.9	70.0	114.9	97.5	107.5
2016-2018		-23.6	-16.3	-57.9	-64.4	-81.3
2019-2027		-31.1	-3.1	-50.6	-22.4	-20.9
Grand Total		**17.2**	**50.5**	**6.5**	**10.7**	**5.2**

Table 72. Present value of total economic benefits (using 7% discount rate, Million $)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015	731.2	803.6	801.8	847.5	829.8	840.2
2016-2018	1432.8	1411.4	1417.6	1380.5	1374.9	1359.8
2019-2027	2804.2	2781.6	2802.0	2766.4	2782.8	2787.3
Grand Total	**4968.2**	**4996.6**	**5021.4**	**4994.5**	**4987.6**	**4987.3**

Table 73. Present value of total economic benefits net of No Action values (using 7% discount rate, Million $)

Period	1. No Action	2. Basic Run	3. DMV option	4. 31DAS	5. 28 DAS	6. No DMV
2014-2015		72.4	70.6	116.3	98.6	108.9
2016-2018		-21.3	-15.2	-52.2	-57.8	-73.0
2019-2027		-22.6	-2.2	-37.7	-21.3	-16.8
Grand Total		**28.5**	**53.2**	**26.3**	**19.5**	**19.1**

5.4.3.8 **Measures to protect recruitment within access areas potentially opening in 2014**

Based on 2013 survey results from several sources there is evidence of very large recruitment within and around NL, and to a lesser extent within CA2. Therefore, this action is considering a boundary within NL that would prohibit effort in the areas within NL with higher concentrations of small scallops. Option 1 (No Action) – no restriction on fishing location within GB access areas and Option 2 (trips restricted to northern part of NL only).

Option 1 (No Action) is expected to have neutral or slightly negative impacts on the scallop resource and consequently on yield from the scallop fishery. This would likely result in negligible economic impacts in the short-term, but slightly negative impacts on landings, revenues and total economic benefits over the long-term.

By restricting the trips to the northern part of NL only, Option 2 could result in slightly positive impacts on the scallop resource compared to Option 1, No Action. This option is expected to have negligible impacts on landings, revenues and total economic benefits in the short-term, however. Although costs could slightly increase due to reduced flexibility about where to fish,

the total allocation of NL effort is relatively low in 2014, and more fishing will likely occur in the northern part of the access area anyway. However, in the long-term, Option 2 could have slightly positive economic impacts compared to No Action as yield, landings and revenues would increase with the increase the scallop resource.

5.4.3.9 **Additional measures to reduce mortality on smaller scallops in NL and/or Delmarva**

The action is considering a handful of measures to reduce mortality on smaller scallops in NL and Delmarva access areas. Alternative 1 (No Action) would not include any additional measures to reduce mortality on small scallops and would therefore have neutral impacts on landings, revenues and economic benefits.

Alternative 2 would prohibit RSA compensation fishing in NL and Alternative 3 would prohibit RSA compensation fishing in Delmarva. Alternatives 2 and 3 would be more restrictive than the No Action Alternative 1 because they would limit operational flexibility possibly resulting in slightly higher costs. However, these alternatives may have slight benefits on the scallop resource by limiting effort in those areas with potential impacts on smaller scallops from incidental mortality. Therefore, Alternatives 2 and 3 would have positive impacts on long-term yield, revenues and total economic benefits compared to No Action overall.

Alternative 4 would constrain fishing in Delmarva between June and August, or three months after implementation of FW25 to concentrate fishing in a season with higher yields. Alternative 5 would restrict crew limits in Delmarva to limits used in open area fishing to reduce potential highgrading on small scallops in Delmarva. As a result, both of these alternatives could have beneficial impacts on the scallop resource and would therefore have long-term positive impacts on landings, revenues and total economic benefits compared to No Action.

5.4.3.10 **Measures to address unused Closed Area 1 access area trips**

This action is considering a handful of measures to address unused 2012 and 2013 CA1 access area allocation. Alternative 1 (No Action) would not allow rollover of unused trips. Alternative 2 would allow rollover of unused allocation in a future FY (Option1 for 2013 trips and Option 2 for 2012 trips). Both options have several sub-options specifying how long the extension would be (FY2015, FY2016, or when CA1 reopens as an access area under a future FW). Alternative 3 includes similar options in terms of when unused allocation would rollover, but allocation would be moved to open areas instead. Sub-options include allocation in either DAS, pounds, and a sub-option to spread the carryover out over two years. The preferred alternative for this action is Alternative 2, Option 1, sub-option C as well as Alternative 2, Option 2, sub-option C.

No Action would prevent a vessel from fully utilizing its allocation if it had, for example, a broken trip, which would have a negative impact on the revenues and profits if those vessels with unused trips. Alternative 2 would have positive economic impacts on vessels with unused trips by allowing them to land their CA1 allocations in a future year and low negative impacts on the

rest of the fishery since this rollover would likely result in reduction in allocations in future years for the fleet.

Alternative 3 would also have positive short-term impacts for those vessels with potential rollover allocations, but allocation would be moved to open areas instead. Option 1 and 2 differ in whether the allocation would be fished in just FY2014 or spread between FY2014 and FY2015; the latter would reduce vessel flexibility and would have lower economic benefits by postponing some trips by another year. Both options have sub-options to assign unused allocations in either pounds or DAS; given the latter would be calculated conservatively, it might have a relatively less positive impacts especially for those vessels that have lower capacities of catch per DAS.

Both Alternatives 2 and 3 will impact future access for the LA fishery overall since this unused catch will need to be accounted for within the LA sub-ACL. Future access in and around CA1 (Alternative 2) or open areas (Alternative 3) will be lower for the overall fleet compared to No Action. Spreading access over two years instead would lower those negative impacts somewhat although not totally. Therefore, the economic impacts of the preferred alternative (Alternative 2) and Alternative 3 would be positive for those vessels that are allowed to use their unused trips in a future year and would be low negative on the remainder of the fleet with no unused trips.

5.4.3.11 **Specifications for limited access general category IFQ vessels**

Specifications for the LAGC fishery include an overall IFQ allocation for vessels with LAGC IFQ permits, a hard TAC for vessels with a LAGC NGOM permit, and a target TAC for vessels with a LAGC incidental catch permit (40 pound permit).

5.4.4.11.1 LAGC IFQ specifications

Under No Action, the FY2014 default measures the LAGC IFQ allocation is 1,258 MT or 2.77 million lb. for vessels with a LAGC IFQ permit as well as LA vessels with a LAGC IFQ permit. This allocation is equivalent to 5.5% of the ACL projected for FY2014 from FW24. Alternative 2 updates the sub-ACL with updated survey and fishery information, which results an allocation of 1,099mt, or 2.42 million lb. for the LAGC fishery for all specification alternatives under consideration (Alternatives 2 to 6). Because the landings for No Action alternative would exceed the landings for Alternative 2 by about 0.35 million lb., this alternative would have positive economic impacts on LAGC fishery in the short-term. Although the economic impacts of No Action will be positive on the LAGC IFQ vessels in the short-term, the level of LAGC TAC is higher than it should be to prevent overfishing of the scallop resource. As a result, No Action would lower the scallop yield, landings and revenues over the long-term and result in lower economic benefits for all the participants of the fishery.

Conversely, Alternative 2 would have low negative economic impacts compared to the No Action as it would reduce the revenues and profits for the LAGC fishery participants in the short term compared to No Action levels. However, No Action TAC is higher than the LAGC allocations in 2013, which was about 2.44 mill. lb. Thus, under Alternative 2 this fishery would

get about the same amount of allocation as it did in 2013 fishing year. Therefore, Alternative 2 is expected to have negligible economic impacts if any on the participants of the LAGC fishery compared to the status quo levels in 2013.

5.4.4.11.1.1 Allocation of fleetwide access area trip allocations for LAGC fishery

This action is considering three options for allocating fleetwide trips to the LAGC IFQ fishery. Option 1 is No Action; LAGC IFQ trips will not be allocated in any of the scallop access areas in 2014 or 2015 (default). Under Option 2 the LAGC fishery would be allocated 5.5% of the total 2014 access area TAC for every area open in a particular year. And Option 3 is to take the 5.5% from CA2 and prorate those trips proportionally among the remaining areas open in a particular year. As with the limited access scallop fleet, no access area trips would be allocated for the 2015 default LAGC IFQ measures.

Under No Action (Option 1) LAGC IFQ vessels would not be allocated trips in access areas. Therefore all IFQ catch would come from open areas. This would have low negative impacts for the LAGC IFQ vessels because their trips costs would be higher compared to fishing in access areas with a higher abundance.

Option 2 allocates trips to CA2, areas which is not accessible for many smaller LAGC IFQ vessels. Thus most of these trips would be taken in the open areas instead of in other access areas with higher scallop abundance, having potentially low positive impacts compared to No Action (Option 1), but low negative economic impacts for this fishery compared to a more optimum allocation system that excludes CA2 (i.e., Option 3).

And a third option would be to take the 5.5% from CA2 and prorate those trips proportionally among the remaining areas open in a particular year. This option is expected to have positive economic impacts on the LAGC vessels compared to Option 2 because they would be able to use CA2 trips in areas closer to the shore with lower trip costs. Although the possession limit will stay at 600 pounds, if the LPUEs in access areas are higher than open areas, the vessels will be able to land scallops in a shorter time, again saving on the trip costs and increasing their profits compared to Option 2.

5.4.4.11.2 Specifications for limited access general category NGOM vessels

The Council approved a separate limited entry program for the NGOM with a hard-TAC. Framework 25 is considered a separate hard TAC for this area for 2014 and 2015(default). This action is considering No Action (70,000 pound TAC) and Alternative 2 (58,000 pounds).

If Alternative 2 of this measure is adopted the LAGC NGOM TAC would be updated for FY2014 based on the results from a 2012 scallop resource survey in the area. Compared to Alternative 1, the No Action alternative, the TAC set by Alternative 2 decreases from 70K lbs to 58K lbs.

No Action is expected to have neutral economic impacts on the NGOM fishery or scallop fishery in general. However, a 70,000 pounds TAC for NGOM fishery marginally increases the risk to

excess fishing and therefore could potentially have low negative impacts on the scallop resource and long-term economic benefits.

Alternative 2 would set the TAC at 58,000 pounds in accordance with the updated surveys to be precautionary, which could have long-term benefits for the scallop resource. However, given that current scallop catches by NGOM vessels are very low, either TAC level would likely not impact vessel revenue. Thus, Alternative 2 would have neutral economic impacts compared to the No Action.

5.4.3.12 **Accountability measures for the SNE/MA windowpane flounder sub-ACL allocated to the scallop fishery**

This action considered a range of AM alternatives including No Action, seasonal closed areas (Alternative 2), seasonal gear restricted areas (Alternative 3), and a proactive gear modification AM (Alternative 4). Based on the amount of overage, the seasonal closure and seasonal gear restricted area alternatives have various areas and seasons under consideration. Figure 6 in the main document summarizes the areas and seasons under consideration and Table 14 summarizes the estimated amount of WP reduction and percent of scallop effort potentially impacted by these AM areas.

5.4.3.12.1 **No Action SNE/MA Windowpane flounder AM (Alternative 1)**

Under Alternative 1 (No Action), the sub-ACL for SNE/MA windowpane flounder would not have accountability measures specific to the scallop fishery, thus, neutral economic impacts are expected in the short-term for the participants of the scallop fishery. If the overage by the scallop fishery is substantial causing the overall ACL to be exceeded, AMs would trigger for the groundfish fishery because there are currently no AMs specific to the scallop fishery. However, this is not in compliance with NMFS regulation and guidance on ACL management, which requires an AM for every ACL and sub-ACL.

5.4.3.12.2 **Reactive AM - Seasonal Area Closure (Alternative 2)**

Alternative 2 would close a specified area for a period of time to all scallop vessels (LA and LAGC) with higher bycatch rates of SNE/MA windowpane flounder if the scallop fishery exceeds their sub-ACL and the entire ACL is exceeded, or the sub-ACL is exceeded by more than 50%. The PDT developed seasons for each of the AM areas developed (**Figure 6**), which are during the months with highest bycatch ratios depending on the overage if the AMs were triggered. If windowpane overage was <=5% of the sub-ACL, then Area 1 would be closed to all LA and LAGC scallop vessels for four months between August 1 and November 30. If overage was >5% and <=10% of the sub-ACL, then, Area 2 would also be closed for in August and September and if the overage was >10%, and Area 3 would be closed as well in February and March. As a result, vessels will shift their effort to other areas and seasons. According to the GMA model estimates (**Table 17**), if the overage is 5% (10%), the proposed closures would result in a 1.7% (2.4%) effort displacement for LA vessels and 3.6% (4.6%) effort displacement for the LAGC vessels in the closure areas. If the overage is larger than 20%, displaced effort will

be about 7.4% of total for LA and 7.9% of the total effort for the LAGC vessels. Therefore, those closures would result in some amount of effort displacement in the scallop fishery with relatively small economic impacts compared to the No Action especially if the overage if less than 20%. The net economic impacts of this alternative would be low positive if the beneficial impacts on the scallop yield by fishing in the seasons when meat weights are larger outweighing the costs associated with reduced flexibility due to a narrower fishing season under this option. Conversely, if the increase in fishing costs due to reduced flexibility exceeds the benefits of fishing in seasons when meat weights are larger, the net economic impacts could be low negative. Thus, the net economic impacts of Alternative 2 compared to No Action could range from low negative to low positive in the short-term, or could even be neutral especially given that it is not very likely the AMs will trigger as the current projection of WP catch for the scallop fishery is less than half of the sub-ACL allocation. However, potentially positive impacts on the scallop yield and reduction of the risk of triggering yellowtail AMs could result in positive economic impacts over the long-term.

5.4.3.12.3 **Reactive AM - Seasonal gear restricted area (Alternative 3)**

Alternative 3 would implement a gear restricted area for a specified period of time with higher bycatch rates of SNE/MA windowpane flounder if the scallop fishery exceeds their sub-ACL and the entire ACL is exceeded, or the sub-ACL is exceeded by more than 50%. The AM area shall be all waters west of 71 W, not including scallop access areas. If AMs are triggered and the overage by the scallop fishery is estimated to be >0 and <20% the AM would be in place for the month of February. If the overage is over 20% the AM season would be for the months of February and March.

Although reduced flexibility and potentially reduced landings due to fishing with modified gear will have some negative economic impacts on the scallop vessels, these impacts are expected to be low. Based on input from the Scallop Advisory Panel, the required gear modification is expected to have minor impacts on fishing costs. If a vessel switches its gear several times a year there is labor cost involved, but some vessels may just fish with this gear all year, and that could even result in some costs savings since there is less gear with the modified dredge.

The gear modifications will only be applied during the month of February if the overage rate is less than 20% and in both February and March if the overage is 20% or more. About 1% of the landings in Mid-Atlantic open areas took place February and another 10% in March by the LA vessels, however, in terms of overall landings in all open areas, 2% of scallop pounds were landed in February and 8% in March as an average for 201-2012 fishing years. Therefore, this alternative could result some effort displacement for some vessels that choose not to fish during these months with modified gear. The economic impacts could be slightly higher for the LAGC vessels if instead of fishing with the modified gear they chose not to fish in February or March if the AM triggered. About 3% of LAGC scallop landings took place during February and another 6% in March in the open Mid-Atlantic areas (Table 75).

The dredge modification in this alternative is expected to reduce scallop catch, up to 10% fewer in terms of catch weights. Therefore, vessels may need to tow longer to attain the same amount of scallop catch, which could increase the trip costs. However, the results from this gear study demonstrated that while the modified gear caught fewer scallops, the gear is more selective at catching larger scallops. If the gear is less efficient at catching smaller scallops, then the impacts on total scallop pounds landed could be small or negligible. In addition, given that larger scallops usually sell at a higher price, the impacts on revenues could be negligible or slightly positive.

Therefore, the net economic impacts of this Alternative could be slightly negative, neutral, or slightly positive depending on the relative impacts on fishing costs, landings and revenues. However, Alternative 3 could have potentially low positive impacts compared to Alternative 2, because instead of closures, it would require fishing with modified gear in those areas for at most two months in February and March and would still allow the vessels the option to fish in other areas or seasons if they choose not to modify their gear.

The Council clarified with Alternative 3 that vessels with trawl gear are included, meaning they are not exempt from the AM. This could have low negative economic impacts on trawl vessels compared to No Action since they are unlikely to change their gear to fish in February and March in the event of an AM trigger.

A trawl vessel could switch to dredge gear and fish with the modified gear during the AM season, but this may not be very likely for many trawl vessels, especially if the season is only for two months of the year. Table 77 shows that about 5.6% of scallops were landed in February and another 5.6% in March by LAGC vessels that use a trawl, therefore, this option is likely increase the costs due to the displacement with effort. Again, however, the net economic impacts will depend to what extent the fishing in seasons when meat weights are larger will outweigh or falls short of the costs associated with reduced flexibility due to a narrower fishing season.

Table 74. Composition of scallop landings by area and month: Averages for 2010 -2012 (% by area, open areas and LA Vessels only)

Month	GB	Mid-At	All
1	2%	1%	1%
2	3%	1%	2%
3	4%	10%	8%
4	11%	14%	13%
5	17%	29%	25%
6	20%	15%	18%
7	12%	8%	10%
8	8%	6%	7%
9	8%	8%	8%
10	8%	5%	6%
11	4%	2%	3%
12	2%	1%	2%
Grand Total	100%	100%	100%

Table 75. Composition of scallop landings by area and month: Averages for 2010 -2011 (% by area, open areas and LAGC permits only)

Month	GB	Mid-At	All Areas
1	3%	3%	**3%**
2	3%	3%	**3%**
3	8%	6%	**6%**
4	11%	9%	**10%**
5	15%	14%	**14%**
6	14%	19%	**18%**
7	16%	14%	**14%**
8	12%	11%	**11%**
9	7%	7%	**7%**
10	4%	6%	**6%**
11	3%	5%	**4%**
12	4%	4%	**4%**
Grand Total	100%	100%	**100%**

Table 76. Composition of scallop landings by area, month and gear: Averages for 2010 -2011 (% by area, open areas and LAGC permits only)

Area/Month	GB		GB Total	Mid-At		Mid-At Total	Grand Total
	Dredge	OTF+OTC		Dredge	OTF+OTC		
1	1%	0%	**1%**	2%	1%	**3%**	**3%**
2	1%	0%	**1%**	2%	1%	**3%**	**3%**
3	2%	0%	**2%**	5%	1%	**5%**	**7%**
4	3%	0%	**3%**	6%	1%	**7%**	**9%**
5	4%	0%	**4%**	8%	3%	**11%**	**15%**
6	4%	0%	**4%**	10%	5%	**15%**	**19%**
7	4%	0%	**4%**	8%	3%	**11%**	**15%**
8	2%	0%	**2%**	6%	1%	**7%**	**9%**
9	2%	0%	**2%**	3%	1%	**4%**	**6%**
10	1%	0%	**1%**	3%	1%	**4%**	**5%**
11	1%	0%	**1%**	2%	1%	**3%**	**4%**
12	1%	0%	**1%**	2%	1%	**3%**	**4%**
Grand Total	23%	0%	**24%**	58%	18%	**76%**	**100%**

Table 77. Monthly distribution of scallop landings in Mid-Atlantic Open areas by month and gear: Averages for 2010 -2011 (% for each gear, LAGC permits only)

Area/Month	Mid-At	
	Dredge	OTF+OTC
1	3.4%	5.6%
2	3.4%	5.6%
3	8.6%	5.6%
4	10.3%	5.6%
5	13.8%	16.7%
6	17.2%	27.8%
7	13.8%	16.7%
8	10.3%	5.6%
9	5.2%	5.6%
10	5.2%	5.6%
11	3.4%	5.6%
12	3.4%	5.6%
Grand Total	100.0%	100.0%

5.4.3.12.4 **Alternative 4 – Proactive gear modification**

All scallop dredge vessels (LA and LAGC) would only be able to fish with a maximum of seven rows of rings in the apron of their dredge in waters west of 71 W, excluding the Mid-Atlantic access areas to reduce the chance the fishery would exceed the sub-ACL. The current regulation is a minimum of seven, so vessels are not able to fish with fewer than seven.

Most scallop vessels already fish with seven rows of rings on the topside of the dredge bag, so won't be affected by this measure. However, some vessels may want to fish with more rows in the apron of their dredge in harder bottoms (i.e. Great South Channel). Therefore, this proactive measure would be confined to SNE and the MA for now.

If vessels decide to fish with fewer than seven rows (i.e. 5 rows as was tested in the gear modification study) tow times may increase since shorter aprons are expected to catch fewer scallops. However, shorter aprons are expected to be more selective and retain fewer small scallops. If that is the case, then then the impacts on scallop landings could be negligible if the composition of catch changes towards larger scallops.

In short, this alternative could increase fishing costs for vessels that fish with more than 7 rows of rings. However, given that this measure will affect only a subset of vessels and fishing in SNE and Mid-Atlantic, it likely would have low negative economic impacts on the participants of the scallop fishery compared to Alternative 1 or Alternative 2. Over the long-term, compared to No

Action, this measure could have potentially positive economic benefits on the resource if it enables vessels to reduce bycatch and reduce the likelihood that AMs are triggered.

5.4.4 **Uncertainties and risks**

The economic impacts presented in the above sections are analyzed using the estimate of prices, costs, revenues and total net benefits based on the economic model provided in Appendix II. The estimated fishing costs are used in calculating producer surplus for the proposed alternatives, which shows total revenue net of variable costs. The costs and the benefits of the proposed alternatives were analyzed based on the biological projections of landings, DAS and LPUE and the available information about the vessel costs and characteristics, crew shares and prices. The numerical results of these analyses should be interpreted with caution due to uncertainties about the likely changes in:

- factors affecting scallop resource abundance
- fishing behavior
- fixed costs
- variable costs
- import prices
- demand for scallop exports
- bycatch and revenues from other fisheries
- the crew share system
- change in the number of active vessels
- structural changes in ownership
- changes in the composition of fleet in terms of tonnage, HP and crew size of the active vessels
- disposable income and preferences of consumers for scallops.

The estimated values of the economic cost/benefit analysis should be used solely in comparing preferred action with the other alternatives since the uncertainties related to landings and prices are expected to affect all alternatives in the same direction.

The landings streams, DAS and LPUE were obtained from the biological model, which is based on fishing mortality by area and the inputs are not fishery-based in terms of DAS, etc. The biological simulations do not model individual vessels or trips; it models the fleet as a whole. The output of the biological model and the landings streams were used to estimate the costs and benefits of the preferred action and alternatives. The results for economic impacts would change if the actual landings, size composition of landings and LPUE are different than the forecasted values from the biological model.

The prices are estimated using the ex-vessel price model described in Appendix II. This model takes into account the impacts of changes in meat count, domestic landings, exports, price of imports, income of consumers, and composition of landings by market category (i.e., size of scallops) including a price premium on under count 10 scallops.

The important changes in external factors, i.e., in exports, imports, value of dollar, export and import prices had some unpredictable impacts on scallop prices in recent years, first resulting an increase to over $8 per pound (in terms of 2008 prices) in 2005, then a consequent decline to about $7 per pound (in terms of 2008 prices) in 2006 even though there was not a significant increase in scallop landings in 2006 (about 56 million lb.) compared to 2005 (about 54 million lb.). Since 2010 fishing year, however, the decline in the value of dollar, strong demand for scallops especially from the European countries and a diminished supply from Japan and other competing, scallop-producing nations resulted in much higher prices than anticipated in Framework 21 to Framework 24. Thus, any change in the external factors that affect price, such as in import prices or in the differences between the actual and projected landings will result in differences in the actual and estimated prices.

In addition, the prices were estimated by holding the values of the all the variables that impact prices, such as import prices and disposable income, at the recent levels. For example, disposable income per capita and import prices are assumed to stay constant at the 2013 level. This is because it is not possible to predict accurately the changes in the future values of the explanatory variables and also because our goal is determine the response in prices to the change in landings and the composition in terms of market category given other things held constant. Therefore, future prices could be higher (or lower) than predicted depending on the values of the explanatory variables.

For these reasons, the empirical results of the economic analyses should be used to compare alternatives with each other and with No Action --rather than to estimate the absolute values--since a change in the variables listed above will change the numerical results in the same direction. For example, an increase in import prices would lead to a rise in ex-vessel prices and revenues for all alternatives above the levels estimated in the sections above. An increase in the price of oil, on the other hand, would increase the variable costs and reduce the cost savings under all options. While these changes would affect the absolute values of net economic benefits, the ranking of alternatives in terms of their impacts on revenues, costs, and net benefits are not expected to change.

5.5 SOCIAL IMPACTS

The consideration of the social impacts of the changes made in this framework is required pursuant to the National Environmental Policy Act (NEPA) of 1969 and the Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1976. NEPA requires that before any agency of the federal government may take “actions significantly affecting the quality of the human environment,” that agency must prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS) that includes the integrated use of the social sciences (NEPA Section 102(2)(C)). Social science analysis is required by multiple sections of the MSA. Section 303(b)(6) on limited entry requires examination of "(A) present participation in the fishery, (B) historical fishing practices in, and dependence on, the fishery, (C) the economics of the fishery, (D) the capability of fishing vessels used in the fishery to engage in other fisheries,

(E) the cultural and social framework relevant to the fishery and any affected fishing communities, and (F) any other relevant considerations." Section 303A provides guidelines for implementing social and economic components of Limited Access Privilege Programs (LAPPs). Section 303(a)(9) on preparation of Fishery Impact Statements notes they "shall assess, specify, and describe the likely effects, if any, of the conservation and management measures on--(A) participants in the fisheries and fishing communities affected by the plan or amendment; and (B) participants in the fisheries conducted in adjacent areas under the authority of another Council, after consultation with such Council and representatives of those participants."

Finally, National Standard 8 stipulates that "conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities" (16 U.S.C. § 1851 *et seq*.). A fishing community is then defined as being "substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community" (16 U.S.C. § 1802 (17)).

The need to measure, understand and mitigate the social impacts of fisheries policy is an essential part of the management process. Managers have an obligation to consider how policy changes affect the human context of the fishery, including the direct and indirect impacts on the safety, wellbeing, quality of life, fishery dependence, culture and social structure of communities. These impacts can be felt at the individual, family and community level which can make measuring and considering them difficult as the impact variables are typically differentially distributed. There is general consensus however, as to the types of impact to be considered; the section of the human environment where the impacts may be felt; likely social impacts; and the steps to enhance positive impacts while mitigating negative ones (ICPGSIA, 2003).

Broadly defined, social impacts that need to be considered are the "social and cultural consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs, and generally cope as members of society" (Burdge and Vanclay 1995). Identifying possible social impact variables is a topic of much debate but the development of standard definitions for a set of the most common and consequential social impacts are underway. The current National Marine Fisheries Service "Guidelines for Social Impact Assessment," provides some assistance in defining relevant social factors/variables. It is suggested that the following five social factors/variables should be considered when comparing the preferred management alternative to the alternatives not selected:

1. The *Size and Demographic Characteristics* of the fishery-related work force residing in the area; these determine demographic, income, and employment effects in relation to the work force as a whole, by community and region.

2. The *Attitudes, Beliefs and Values* of fishermen, fishery-related workers, other stakeholders and their communities; these are central to understanding behavior of fishermen on the fishing grounds and in their communities.
3. The effects of proposed actions on *Social Structure and Organization*; that is, changes in the fishery's ability to provide necessary social support and services to families and communities.
4. The *Non-Economic Social Aspects* of the proposed action or policy; these include lifestyle issues, health and safety issues, and the non-consumptive and recreational uses of living marine resources and their habitats.
5. The *Historical Dependence on and Participation* in the fishery by fishermen and communities, reflected in the structure of fishing practices, income distribution and rights. (NMFS, 2007)

Longitudinal data describing these social factors region-wide and in comparable terms is limited; though the new cost and crew surveys currently being implemented by the NEFSC will begin to alleviate this. For this framework the "guidelines" document provides a range of variables to consider when predicting potential social impacts. It should also be noted that the academic literature on the subject has provided multiple lists of potential social variables, but it also cautions that such lists should not be considered "exhaustive" or "a checklist" (ICGPSIA, 1994; Vanclay, 2002; Burdge, 2004). Ultimately judgment must be used in choosing which variables are salient in any particular case.

Yet another source of information regarding potential social factors specific to fishing communities in the Northeast can be gleaned from a series of ten "social impact informational meetings" sponsored by the NEFMC during the preparation of Amendment 13 to the (NE) Multispecies FMP. Based on comments provided by local stakeholders during these meetings five social impact factors were developed to describe the level of impact felt by fishing communities and families because of management changes: 1) regulatory discarding; 2) safety; 3) disruption in daily living; 4) changes in occupational opportunities and community infrastructure; and 5) formation of attitudes. These factors, while initially developed for the multispecies fishery, overlap with those variables suggested by NMFS guidelines and have the added benefit of reflecting specific concerns of fishermen in the Northeast.

In the preparation of this document, qualitative and quantitative methods have been used to assess the relative impact of the proposed management measures. Ports most closely involved with the scallop fishery, and likely to be affected by the proposed measures, were identified in the previous scallop SAFE reports. While some management measures tend to produce certain types of social impacts it is not always possible to predict precise effects when there are multiple overlaying management measures such as in this proposed action. Also changes to the human environment often occur in small, incremental amounts and the character of a particular impact can be hidden by the gradual nature with which it occurs. Such impacts will be noted where they are possible to discern or where the potential for cumulative impacts seems likely. Therefore the discussion of social impacts for alternatives will indicate the likely directional impacts of specific measures e.g., positive, negative, or neutral.

5.5.1 Fishery specifications

5.5.1.1 Overfishing Limit (OFL) and Acceptable Biological Catch (ABC)

ACLs and AMs have been required under the MSA by fishing year 2010 if overfishing is occurring in a fishery, and 2011 for all other fisheries. The Council initiated Scallop Amendment 15 to comply with these new ACL requirements, and that action was implemented in 2011. In addition, an OFL and ABC are required, and the Council may not set catch limits above the ABC recommended by the SSC.

5.5.1.1.1 No Action (Alternative 1)

Under "No Action", the overall OFL and ABC would be equivalent to default 2014 values adopted in Framework 24 (Table 5 in main document). These would remain in place until a subsequent action replaced them.

The current default ABC for is 23,697 mt, after accounting for discards, which is higher than the ABCs recommended by the SSC for this action. If Alternative 1 (No Action) is adopted there would likely be neutral near-term social impacts felt by the individuals and communities involved in the scallop fishery. However, in the long-term, if the default ABCs set by Alternative 1 are achieved, they could affect the sustainability of the catch because they exceed the SSC recommended catch levels. Long-term sustained catches that exceed the recommended ABC could translate into negative social impacts threatening the *Historical Dependence on and Participation* in the fishery. It is also possible that the adoption of the default ABC for FY2014 – FY2015 could have a small but negative impact on the formation of *Attitudes and Beliefs* regarding government and management because these ABCs would not be based on the best available science.

5.5.1.1.2 Updated estimate of ABC for FY2014 and FY2015 (default) (Alternative 2)

The SSC reviewed updated estimates of OFL and ABC based on revised PDT analyses. The proposed values are in (Table 6 of the main document). If Alternative 2 of this measure is adopted the ABC for FY2014, and the default ABC for 2015 would be set based on updated information. Compared to Alternative 1, the No Action alternative, the ABCs set by Alternative 2 are smaller and would reduce catches of scallops for the years specified. If Alternative 2 is adopted a near-term, negative impact (compared to No Action) should be expected on the *Size and Demographic Characteristics* of the fishery-related work force as reduced catch and revenue would affect income, and employment opportunities. It is expected that near-term reductions in catch will have long-term benefits for the scallop resource. Therefore, the long-term effects of adopting Alternative 2 would likely have a positive impact on both the *Size and Demographic Characteristics* of and the *Historical Dependence on and Participation* in the fishery. It is also possible that the adoption of new ABCs for FY2014 and 2015 based on the best available science, could have a small but positive impact on the formation of *Attitudes and Beliefs* regarding management and government.

5.5.1.2 Specifications for limited access vessels

Specifications for the limited access fishery include DAS and access area trips as limited by the ACT for the limited access fishery and what areas are open to the fishery. This action considered a wide range of alternative ACTs based on a variety of possible allocation scenarios. A summary of the various allocation alternatives for the LA fishery are described in Table 8 in the main document. The potential social impacts from Alternatives 1-6 of this section are described together below.

With no access area allocations under No Action, the potential impacts of the No Action alternative are negative social impacts affecting the *Historical Dependence on and Participation* in the fishery. The reduced sense of security in an individual's future planning of fishery operations would also have a negative effect on the *Lifestyle/Noneconomic social aspects* of the fishery.

Alternatives 2-6 all provide a higher long-term present value of cumulative revenues (see Economic Impacts), thus they would likely (to differing degrees) have a more positive impact on related social impacts on the overall *Size and Demographic Characteristics* in the fishery, compared with the No Action alternative. Alternatives 2-3 contain the same number of allocated open access days, but Alternatives 4-6 contain higher open access days in exchange for a closed area trip, providing more operational flexibility (compared with the No Action alternative) and positive impacts on the *Life-style/Non-economic social aspects* of the fishery, especially for those fishermen less mobile or closer to preferred fishing grounds. Alternative 6 provides the largest short-term revenues (see Economic Impacts), and thus in the short term may have positive social impacts on *Historical Dependence on and Participation* in more vulnerable entities in the fishery, but smaller total economic benefits than Alternatives 3-5, which therefore have a greater probability of positively affecting *Size and Demographic Characteristics* in the long-term.

5.5.1.3 Measures to protect recruitment within access areas potentially opening in 2014

Based on 2013 survey results from several sources there is evidence of very large recruitment within and around NL, and to a lesser extent within CA2. Therefore, this action is considering a boundary within NL that would prohibit effort in the areas within NL with higher concentrations of small scallops. Option 1 (No Action) – no restriction on fishing location within GB access areas and Option 2 (trips restricted to northern part of NL only).

If Option 1 (No Action) is adopted there will likely be neutral near-term social impacts felt by the individuals and communities involved in the scallop fishery. Option 2 would be more constraining in the short term than the No Action option because it would limit operational flexibility and impact the *Life-style/Non-economic social aspects* of the fishery. However, in the long-term, if small scallops noted in high concentrations are caught before they are able to grow, the No Action alternative could have a number of negative social impacts. Thus the impacts of Option 2, compared to No Action, could have a positive impact on the formation of *Attitudes and Beliefs* regarding government and management because this option would be more aligned with the rotational management strategies that have guided the scallop fishery for a number of years.

Option 2, compared with No Action, could also in the long term have a positive impact on *Size and Demographic Characteristics* in the fishery with the expected long-term growth in the scallop biomass in NL if fishing on the concentrated small scallops is avoided.

5.5.1.4 Additional measures to reduce mortality on smaller scallops in NL and/or Delmarva

The action is considering a handful of measures to reduce mortality on smaller scallops in NL and Delmarva access areas. Alternative 1 (No Action) would not include any additional measures to reduce mortality on small scallops. Alternative 2 would prohibit RSA compensation fishing in NL and Alternative 3 would prohibit RSA compensation fishing in Delmarva. Alternative 4 would limit fishing in Delmarva between June and August, or three months after implementation of FW25 to concentrate fishing in a season with higher yields. Finally, Alternative 5 would restrict crew limits in Delmarva to limits used in open area fishing to reduce potential highgrading on small scallops in Delmarva.

Alternative 1 would have neutral social impacts as it would not limit operational flexibility. Alternatives 2 and 3 would be more constraining than the No Action Alternative 1 because they would limit operational flexibility and impact the *Life-style/Non-economic social aspects* of the fishery. However, if near-term reductions in catch have long-term benefits for the scallop resource, then the long-term effects of adopting Alternative 2 and 3 would likely have a positive impact on both the *Size and Demographic Characteristics* of and the *Historical Dependence on and Participation* in the fishery. Alternative 4 would be more constraining on *Life-style/Non-economic social aspects* of the fishery, but the higher expected yields may have a short term positive impact on *Size and Demographic Characteristics*. Alternative 5 could have a negative impact on *Size and Demographic Characteristics* for those no longer fishing on vessels with fewer sites, but with a potentially offsetting positive impact on income for those fishermen remaining on RSA trips in Delmarva. Moreover, it could have a small but positive effect on the *Attitudes and Beliefs* regarding fairness and equity issues, if highgrading is discouraged.

5.5.1.5 Measures to address unused Closed Area 1 access area trips

This action is considering a handful of measures to address unused 2012 and 2013 CA1 access area allocation. Alternative 1 (No Action) would not allow rollover of unused trips. Alternative 2 would allow rollover of unused allocation in a future FY (Option1 for 2013 trips and Option 2 for 2012 trips). Both options have several sub-options specifying how long the extension would be (FY2015, FY2016, or when CA1 reopens as an access area under a future FW). Alternative 3 includes similar options in terms of when unused allocation would rollover, but allocation would be moved to open areas instead. Sub-options include allocation in either DAS, pounds, and a sub-option to spread the carryover out over two years.

Overall this amount of unused access is relatively small compared to the total fishery overall and would be within the total ACL for the fishery in whatever FY this allocation is available. Therefore, there are no additional impacts on the resource overall that are not within the total ACL available to the fishery under any of the alternatives considered, neutral impacts on the resource overall for all of the alternatives and sub-options in this section. These measures

primarily differ in terms of which vessels are able to harvest this unused catch, vessels with unused CA1 allocation, or the fishery overall if these trips expire.

No Action would prevent a vessel from fully utilizing its allocation if it had, for example, a broken trip, which would have a negative impact on the *Size and Demographic Characteristics* of and the *Historical Dependence on and Participation* in the fishery for those vessels.

Alternative 2 would have positive short-term economic impacts on vessels with unused trips by allowing them to land their CA1 allocations in a future year with positive impacts on *Size and Demographic Characteristics* of and the *Historical Dependence on and Participation* in the fishery for those vessels. There could also be low negative impacts on the rest of the fishery since this rollover would likely result in reduction in allocations in future years for the fleet.

Alternative 3 would also have positive short-term impacts for those vessels with potential rollover allocations with positive impacts on *Size and Demographic Characteristics* of and the *Historical Dependence on and Participation* in the fishery for those vessels, but allocation would be moved to open areas instead. Option 1 and 2 differ in whether the allocation would be fished in just FY2014 or spread between FY2014 and FY2015; the latter would reduce vessel flexibility, which can have negative impacts on the *Life-style/Non-economic social aspects* of the fishery. Alternative 3 also has sub-options to assign unused allocations in either pounds or DAS; given the latter would be calculated conservatively, it might have a relatively more negative effect on the *Historical Dependence on and Participation* in the fishery, especially for those vessels who have lower capacities of catch per DAS.

5.5.1.6 Specifications for limited access general category IFQ vessels

Specifications for the LAGC fishery include an overall IFQ allocation for vessels with LAGC IFQ permits, a hard TAC for vessels with a LAGC NGOM permit, and a target TAC for vessels with a LAGC incidental catch permit (40 pound permit).

5.5.1.6.1 LAGC IFQ specifications

Under No Action the FY2014 default measures the LAGC IFQ allocation is 1,258 mt for vessels with a LAGC IFQ permit as well as LA vessels with a LAGC IFQ permit. This allocation is equivalent to 5.5% of the ACL projected for FY2014 from FW24. Alternative 2 updates the sub-ACL with updated survey and fishery information and the allocation under consideration is 1,099mt for all specification alternatives under consideration (Alternative 2-6).

Compared to Alternative 1, the No Action alternative, the smaller total allocation set by Alternative 2 would reduce catches of scallops for the years specified. If Alternative 2 is adopted a near-term, negative impact should be expected on the *Size and Demographic Characteristics* of the fishery-related work force as reduced catch and revenue would affect income, and employment opportunities. But it is expected that near-term reductions in catch will have long-term benefits for the scallop resource. Therefore, the long-term effects of adopting Alternative 2 would likely have a positive impact on both the *Size and Demographic Characteristics* of and the *Historical Dependence on and Participation* in the fishery.

5.5.1.6.1.1 Allocation of fleetwide access area trip allocations for LAGC fishery

This action is considering three options for allocating fleetwide trips to the LAGC IFQ fishery. Option 1 is No Action; LAGC IFQ trips will not be allocated in any of the scallop access areas in 2014 or 2015 (default). Under Option 2 the LAGC fishery would be allocated 5.5% of the total 2014 access area TAC for every area open in a particular year. And Option 3 is to take the 5.5% from CA2 and prorate those trips proportionally among the remaining areas open in a particular year. As with the limited access scallop fleet, no access area trips would be allocated for the 2015 default LAGC IFQ measures.

Under No Action (Option 1) LAGC IFQ vessels would not be allocated trips in access areas. Therefore all IFQ catch would come from open areas. This could have low negative impacts for the LAGC IFQ vessels because their trips costs could be higher compared to fishing in access areas with a higher abundance, thus potential negative impacts on the *Size and Demographic Characteristics* of and the *Historical Dependence on and Participation* in the fishery.

Option 2 allocates LAGC trips from all access areas equivalent to their overall 5.5% allocation. Providing opportunity in scallop access areas for LAGC IFQ vessels would have low positive impacts on *Attitudes, Beliefs and Values, Size and Demographic Characteristics* of and the *Historical Dependence on and Participation* in the fishery in the short-term compared to No Action. However, since it is not feasible for LAGC IFQ vessels to fish in Closed Area 2, having access in this area is not useful. Therefore, Option 3 that would take the 5.5% from CA2 and prorate those trips proportionally among the remaining access areas closer to shore would have more positive impacts on *Attitudes, Beliefs and Values* and *Historical Dependence on and Participation* in the fishery compared to Option 2 and Option 1 (No Action).

5.5.1.6.2 Specifications for limited access general category NGOM vessels

The Council approved a separate limited entry program for the NGOM with a hard-TAC. Framework 25 is considered a separate hard TAC for this area for 2014 and 2015(default). This action is considering No Action (70,000 pound TAC) and Alternative 2 (58,000 pounds).

No Action is expected to have neutral economic impacts on the NGOM fishery or scallop fishery in general. However, a 70,000 pounds TAC for NGOM fishery marginally increases the risk of excess fishing and therefore could potentially have low negative impacts on the scallop resource and long-term low negative impacts on both the *Size and Demographic Characteristics* of and the *Historical Dependence on and Participation* in the fishery.

If Alternative 2 of this measure is adopted the LAGC NGOM TAC would be updated for FY2014 based on the results from a 2012 scallop resource survey in the area. Alternative 2 decreases the TAC from No Action, (70,000 pounds) to 58,000 lbs. If Alternative 2 is adopted a near-term, negative impact could be expected on the *Size and Demographic Characteristics* of the fishery-related work force as reduced catch and revenue would affect income, and employment opportunities. However, because recent catch levels have been well below both TAC options, these potential negative impacts would likely not impact vessel revenue and associated impacts. In the long term, a lower TAC (Alternative 2) will have long-term benefits

for the scallop resource if it allows the stock to better recover. Therefore, the long-term effects of adopting Alternative 2 could have a positive impact on both the *Size and Demographic Characteristics* of and the *Historical Dependence on and Participation* in the fishery compared to the No Action.

5.5.2 Accountability measures for the SNE/MA windowpane flounder sub-ACL allocated to the scallop fishery

This action considered a range of AM alternatives including No Action, seasonal closed areas (Alternative 2), seasonal gear restricted areas (Alternative 3), and a proactive gear modification AM (Alternative 4). Based on the amount of overage, the seasonal closure and seasonal gear restricted area alternatives have various areas and seasons under consideration. Figure 6 in the main document summarizes the areas and seasons under consideration and Table 14 summarizes the estimated amount of WP reduction and percent of scallop effort potentially impacted by these AM areas.

Alternative 1 (No Action), though it poses no short-term impacts on the scallop fishery, has the potential to cause negative social impacts on other fisheries if an overage of windowpane flounder caught by the scallop fishery were to substantially exceed the overall ACL. Alternatives 2-4 provide a way to address this issue and bring the fishery into compliance with Council management strategy on sub-ACLs, which could have a small but positive impact on the formation of *Attitudes and Beliefs* regarding management and government overall.

Alternative 2 would close areas seasonally based where there are high bycatch rates of SNE/MA windowpane flounder, whereas Alternative 3 would seasonally restrict such area with gear modifications. Since Alternative 2 would close particular areas to fishing, it could have negative impacts (compared to No Action) on the *Historical Dependence on and Participation* in the fishery, and on the *Size and Demographic Characteristics* of the fishery-related work force as reduced catch and revenue would affect income, and employment opportunities. Such impacts would be localized on the groups of fishermen who tend to use the closed areas relatively more, especially if they are not able to move to other fishing areas. However, Alternative 3 would entail additional costs for gear modification, so would also have a negative impact on those social impact factors to the extent the costs affected participation or revenue compared to the No Action.

In addition, Alternative 3 could have potentially low positive impacts compared to Alternative 2, because instead of closures, it would require fishing with modified gear in those areas for at most two months in February and March and would still allow the vessels the option to fish in other areas or seasons if they choose not to modify their gear. Seasonal gear modified areas are generally more flexible than area closures; therefore, positive impacts on *Historical Dependence on and Participation* in a fishery as well as *Attitudes and Beliefs* regarding management and government overall.

Alternative 4 would, rather than close or restrict areas, modify the current but outdated gear regulations for all areas and for all scallop vessels in favor of a shorter apron that may reduce

flatfish bycatch. This alternative would also entail additional costs for gear modification, so would also have a negative impact on those social impact factors of *Historical Dependence on and Participation* in the fishery, and on the *Size and Demographic Characteristics* of the fishery-related work force compared to the No Action. However, it would not have a differential impact on portions of the fleet that work in bycatch high areas, and may have a positive impact on the formation of *Attitudes and Beliefs* regarding management in that in recognizes innovative gear modifications.

5.6 NON-TARGET SPECIES

5.6.1 Fishery specifications

5.6.1.1 Overfishing Limit (OFL) and Acceptable Biological Catch (ABC)

This action sets Acceptable Biological Catch (ABC) values for 2014 and 2015 (default).

- 2014 – OFL: 30,419 mt; ABC=26,240 mt
- 2015 (default) – OFL = 34,247 mt; ABC=29,683 mt

The No Action levels are higher than the alternative specifications, which include updated scientific information. If biomass estimates do not adequately support these higher specifications, they could lead to reduced efficiency and thus greater area swept to achieve the same catch. These issues could carry forward into future years if increased effort in the short term compromises future yield. Therefore, using the No Action OFL and ABC values is expected to result in low negative impacts to non-target species.

The preferred alternative is consistent with the most recent data and is expected to be a more accurate estimation for the scallop resource. Therefore, it is expected that there would be less, but more efficient, fishing under this lower ABC, which would have lower area swept. This would have low positive impacts on non-target species compared to the No Action alternative.

Although it is the foundation upon which the ACL values are based, the specification of the ABC itself is largely administrative in nature, and any change in impacts to non-target species and other fisheries are instead attributable to the ACL specifications, including how the ACLs are distributed among vessels and areas. Therefore, neither the No Action OFL/ABC, nor the preferred alternative ABC described above, are expected to have impacts on non-target species.

5.6.1.2 Specifications for limited access vessels

Specification alternatives 1-6 are primarily compared in terms of their impacts to non-target species and other fisheries using several sources of information: 1) the projected bottom area swept values from the SAMS model simulations (Section 5.1.1.2.5); 2) projected catch estimates; and 3) general input from the Groundfish Plan Development Team. This information is described in the section below and the potential impacts of the specification alternatives on non-target species are summarized in Section 5.6.1.2.1.

The area swept estimates are closely related to the LPUE estimates. Generally, scenarios with higher LPUE have lower area swept, and scenarios with lower LPUE have higher area swept. The Scallop PDT also estimated the projected catch of the three sub-ACLs allocated to the scallop fishery: GB yellowtail flounder, SNE/MA yellowtail flounder, and SNE/MA windowpane flounder. Section 3.3 summarizes the methods used and projected catch values for all six specification alternatives. Bycatch projections are complex because they combine not only projections of future scallop biomass, but also projections of biomass for bycatch species, bycatch rates, and assumptions of future fishing behavior in terms of spatial and temporal fishing patterns. In the past, final bycatch from the scallop fishery has been lower than projected catches for most species, but that may not always be the case. Therefore, the projected bycatch estimates are helpful for providing a potential catch estimate, but these estimates should primarily be used to provide a way to compare the potential impacts of these scenarios on bycatch of key groundfish species, and not considered a precise prediction of actual bycatch in a future fishing year.

Area swept

All FW25 specification alternatives have lower total bottom contact time compared to recent levels; the fishery was estimated to be around 5,000 square nautical miles in 2010 and about 4,000 in 2013. The range of estimated area swept for FY2014 for the specification alternatives under consideration is about 1,700 square nautical miles for No Action and up to 3,200 nm^2 for Alternative 6 (Figure 48). The less area covered by the fishery, the lower the potential bycatch and associated impacts on non-target species. In 2014, Alternative 6 is estimated to have the greatest area swept (3,200 nm^2), followed by Alternative 4, then Alternative 5, followed by Alternatives 2 and 3 which are essentially the same, and finally No Action has the lowest estimate since it only includes DAS and no access area effort (1,700 nm^2). The preferred alternative (Alternative 4) has an estimate of about 2,800 nm^2, less than estimates for 2013 current levels.

Projected catch of YT and WP

The Scallop PDT estimated the scallop fishery's projected catches of the three groundfish stocks and compared these projections to the respective sub-ACLs allocated to the scallop fishery (Table 78). The 2014 sub-ACL allocation for GB YT is 50.9 mt, 66 mt for SNE/MA YT and 183 mt for SNE/MA WP. A range has been provided; the low value is using 2012 bycatch rates, and the higher value is based on 2013 bycatch rates from observer data. The only major difference is for GB YT because the bycatch rate was twice as high in 2012 from CA2 access area trips. The 2014 projected catch of GB YT is above the sub-ACL for all the alternatives under consideration except No Action. For SNE/MA YT some alternatives are below and some are above the sub-ACL. For SNE/MA WP all specification alternatives are well below the sub-ACL.

The No Action alternative has the lowest projection of groundfish catch because it only includes DAS, no access area trips. However, this alternative also has the lowest scallop landings associated with the allocations. Since all the other specification alternatives include access area

landings and in some cases more DAS, they all have potentially higher catch of non-target species compared to the No Action specifications.

After No Action, Alternative 2 has the lowest projection of GF catch. The estimate of GB YT is slightly above the sub-ACL, but if this projection is high, relative to actual catches, and the fishery avoids bycatch as much as possible it may stay under the sub-ACL.

Alternatives 3, 4, and 5 allow vessels to choose between taking one Delmarva Access Area trip or five open area DAS. This flexibility could reduce the catch of SNE/MA YT and SNE/MA WP compared to Alternative 2. Vessels from northern ports with two dredges may *not* choose to fish in Delmarva for 12,000 pounds, but opt to fish five open area DAS instead. Those trips would likely be fished in areas farther north like the Great South Channel. If vessels shift to the Channel, that could decrease the catch of SNE/MA GF stocks. Some of that Delmarva effort could also shift to the GB stock area, which could increase catch of GB YT compared to Alternative 2.

Some vessels homeported closer to Delmarva, as well as single dredge vessels may be more inclined to use the Delmarva trip under Alternatives 3, 4, and 5. However, if these vessels decided to fish in open areas they may choose to fish in the Mid-Atlantic anyway, so impacts on SNE/MA GF stocks may be similar regardless of whether effort is fished in Delmarva or open areas in the SNE/MA region. Overall, Alternative 3 has similar bycatch estimates to Alternative 2, and Alternatives 4 and 5 are higher since they allocate more DAS. Overall, the amount of effort that will be expended in Delmarva in 2014 is difficult to characterize under these three alternatives because they provide flexibility in terms of whether the trips can be taken in Delmarva or elsewhere, so the magnitude of these impacts is difficult to identify.

Alternative 6 keeps Delmarva closed which could reduce catch of SNE/MA GF from within Delmarva, but this area is not a primary resource area for SNE/MA windowpane flounder as it is farther offshore. Alternative 6 has the highest DAS allocation of any of the alternatives. More effort in open areas will drive down scallop catch rates, and vessels may fish longer, having higher potential catches of non-target species. Thus, overall catch of non-target species may be highest under this alternative, but these potential increases in bycatch are limited since vessels are under DAS management in open areas.

Table 78 – Estimate of YT and WP catch in mt for FY2014 using 2012 and 2013 bycatch rates from observer data compared to sub-ACL allocations for 2014

	GB YT	SNE/MA YT	SNE/MA WP
2014 sub-ACL	**50.9**	**66**	**183**
Alt1 No Action	22.4 - 26.6	42.4 - 45.6	25.2
Alt2	58.2 - 96.6	49.1 - 54.8	67.2
Alt3	59.2 - 97.7	50.9 - 56.7	69.4
Alt4	64.2 - 103.7	61.1 - 67.7	74.4
Alt5	62.2 - 101.3	57.0 - 63.2	71.8
Alt6	68.2 - 108.5	69.3 - 76.5	79.1

Bycatch projections are complex because they are based on a variety of information, each of which has uncertainty associated with the estimates. For example, the biomass estimates for both scallop and groundfish stocks are uncertain, the bycatch rates in one year may be different than another year. Also, the projection of where and when scallop fishing will occur is unknown. There are many assumptions that go into an estimate of projected bycatch that may not occur. For example, bycatch rates of GB YT vary greatly by season in some areas. Therefore, if actual fishing patterns are different than recent trends, the bycatch rates could be very different. In addition, the projection of YT biomass has been less certain with relatively large confidence intervals around the point estimates, and updated estimates have been much lower than projections. This can have a large effect on the projected estimate of bycatch in the scallop fishery if the actual biomass of a bycatch species varies greatly from the original estimate. Table 79 evaluates how previous projections of YT catch have compared to estimates of actual catch.

Yellowtail flounder ACLs and AMs have been in place in the scallop fishery since 2011 and each year the Scallop PDT has estimated the projected catch of YT. During the fishing year NMFS monitors the catch of YT by the scallop fishery based on observer data. In most cases, the final catch estimate has been about half of the projected catch, except for SNE/MA YT in 2011 when the final catch was almost double the projection. This does not mean that actual catch will be half of the projected catch for 2014, but it does suggest that projections have been high in recent years in most cases.

Table 79 – Comparison of projected catches and estimates of final catches for YT in the scallop fishery (in mt)

	Sub-ACL		Projected scallop catch		Final Estimate of catch		% of projection	
	GB	SNE	GB	SNE	GB	SNE	GB	SNE
2011	200.8	82.0	175	58	84	111	48.0%	191.4%
2012	156.9**	127.0	342	84	164	55	48.0%	65.5%

2013	83.4	61.0	85	66	35*	38*	41.2%	57.6%

* Note that 2013 catch estimates are not final – fishing year is not over.
** Original allocation was 307 mt, catch transferred to GF fishery midyear.

Input from GF PDT (from memo to Scallop PDT dated January 17, 2014)
The Groundfish PDT expressed concerns that, with the exception of the No Action alternative for scallop specifications, the projected bycatch of yellowtail flounder are estimated to be near or above the sub-ACL allocations for 2014. Under each of the FW 25 alternatives, the projected catch of Georges Bank yellowtail flounder exceeds the 2014 scallop fishery sub-ACL, and ranges from 114% to 213% of the sub-ACL (i.e., the 2014 sub-ACL is 51 mt, with projected Georges Bank yellowtail flounder catch ranging from 58-109 mt). Projected catch of Southern New England/Mid-Atlantic yellowtail flounder also exceeds the 2014 scallop fishery sub-ACL under some of the scenarios. The Groundfish PDT also recognized that Georges Bank yellowtail flounder has the lowest management uncertainty buffer out of all for the groundfish stocks at 3%. Therefore, alternatives under consideration in FW 25 that potentially increase Georges Bank yellowtail flounder catches may potentially exceed the management uncertainty buffer for the stock. For example, if each component of the fishery exceeds its allocation in 2014 and the scallop fishery exceeds their sub-ACL, the total ACL (318 mt) could be potentially be exceeded, as well as the ABC (328 mt) since the uncertainty buffer is 3% (10 mt).

The Groundfish PDT also discussed with the Scallop PDT how the discard estimates were calculated. This year the Scallop PDT included a projection based on 2012 bycatch rates as well as 2013 bycatch rates since the 2013 rate in Georges Bank Area II is less than half of the 2012 rate. In particular, the Groundfish PDT thought recent estimates of Georges Bank yellowtail flounder might be low, relative to previous years. The Scallop PDT explained that this might be due to a handful of factors including less yellowtail flounder in the area, scallop effort shifts from higher bycatch months to lower bycatch months, and perhaps positive impacts from the SMAST voluntary bycatch avoidance program. The Scallop PDT also noted that the fishing year is not complete and more thorough analyses would be needed to further evaluate the observed lower bycatch rate.

Based on the area swept and projected catch estimates prepared by the Scallop PDT, No Action has positive impacts on non-target species. The estimates of area swept for this scenario are much lower than recent estimates for the fishery; therefore, lower potential for impact on non-target species based on lower area swept for the fishery. After No Action, Alternatives 2 and 3 have the lowest projections of GF catch. The potential impacts of these alternatives are low negative compared to No Action. Alternatives 4, 5, and 6 that increase DAS have negative impacts on non-target species compared to No Action because they have higher projected catches of GF stocks. But all of the scenarios have lower estimates of area swept compared to recent years.

5.6.1.2.1 Summary of potential impacts on non-target species

In general, selecting an alternative that allocates access to the scallop fishery with a high probability of exceeding its sub-ACL for a stock runs a greater risk of exceeding the overall ACL. This could have negative impacts on the stock and the GF fishery overall.

If the scallop fishery exceeds their sub-ACL in 2014 and the entire ACL is exceeded, then AMs would trigger in the scallop fishery in 2015, or 2016 if data are not available in time to implement an AM in 2015. If the total ACL is exceeded, the sub-component responsible is subject to a pound for pound reduction in their sub-ACL the following year. Therefore, if the scallop fishery caused an overage in 2014, the sub-ACL to the scallop fishery in 2015 would be reduced by that amount. When Closed Area 2 closes on August 15, 2014, NMFS should have a decent idea of total GB YT catch, since most CA2 effort will likely occur before the seasonal closure of that area. In the end, there is incentive for the scallop fishery to stay within their allocated sub-ACLs to prevent AMs from triggering, which can have negative economic impacts on the scallop fleet.

The Council discussed that there may be more risk of exceeding the GB YT sub-ACL with the specification alternatives that increase DAS, but the Council was comfortable that there are several measures in place that will help the fishery reduce overall YT catch. For example, the voluntary bycatch avoidance program has been expanded to include open areas as well as windowpane flounder. By expanding the spatial area and number of species included in the program, overall bycatch of non-target species may be reduced if vessels voluntarily move from areas with higher bycatch rates reported through the avoidance program. In addition, there is a seasonal closure in CA2 that was recently modified to prevent scallop fishing in this relatively high bycatch area during the season with higher bycatch rates (mid-August through mid-November). Vessels have to fish CA2 trips around this season, potentially reducing YT catch overall. This seasonal restriction was in place in FY2013 and may have been one of the factors that reduced observed bycatch rates in 2013 compared to 2012.

In addition, there are several gear modifications that some vessels are using voluntarily that have been shown to reduce flatfish bycatch. Specifically, shorter aprons and reduced hanging ratios have been documented to reduce flatfish bycatch substantially. If approved in this action, dredge vessels will be prohibited from having more than seven rows of rings in the apron of their dredge in all waters west of 71° W, excluding access areas, as a proactive AM to reduce flatfish bycatch. Finally, GF FW51 includes a prohibition on possession of YT for LA vessels. Prohibiting possession eliminates any incentive to target YT while fishing for scallops. While the overall catch of YT by the scallop fishery has been relatively low, over 300,000 pounds were landed in 2011 and over 200,000 pounds in 2012, and a small number of vessels did seem to target YT.

All of these measures combined are expected to reduce bycatch overall in the scallop fishery, thus FW25 specifications are expected to have likely negligible impacts on non-target species and bycatch. Since all these measures are designed to help keep the fishery below the sub-ACL it is unlikely that the sub-ACL would be exceeded. In recent years in particular the scallop fishery has demonstrated the ability to reduce bycatch of stocks with sub-ACLs. Total bycatch

of some of these stocks by the scallop fishery have declined. Specifically, in the last two years a transfer of unused GB YT bycatch has been transferred from the scallop sub-ACL to the GF sub-ACL. Area swept projections overall in this action are lower than recent years, thus risks to non-target species are relatively low under these alternatives.

5.6.1.2.2 Measures to protect recruitment within access areas potentially opening in 2014

Under Option 1 (No Action), the preferred alternative, there would be no restriction on fishing location within the NL access area. Under Option 2, NL access fishing would only be allowed north of 40.5° N latitude to reduce impacts on recruits observed in the 2013 survey. This cuts off roughly the southern third of the access area.

The No Action would likely have neutral impacts on non-target species as scallop fishing will probably be concentrated in the northern part of the access areas regardless of the options selected, based on the biomass distribution in the area. Similarly, the impacts of Alternative 2 on non-target species are likely to be neutral compared to No Action.

5.6.1.2.3 Additional measures to reduce mortality on smaller scallops in NL and/or Delmarva

Under Alternative 1 there would be no additional measures to reduce mortality on smaller scallops in NL and Delmarva. The No Action alternative (Alternative 1) is likely to have neutral impacts on non-target species and other fisheries because there would be no additional measures adopted that would potentially shift effort. Overall, fishery specifications under area rotation typically keep catch rates high and reduce overall area swept.

Under the preferred Alternatives 2 and 3, RSA compensation fishing would be prohibited in NL and Delmarva. RSA compensation fishing effort is a relatively small proportion of overall scallop fishing effort, about 3% this fishing year (1.25 million pounds out of 38 million pounds). Any effort shift from NL and/or Delmarva, would be minimal and have negligible impacts on non-target species relative to No Action because overall scallop effort would not change. CA2 does have relatively high bycatch rates of GB YT compared to other areas, but it would be very unlikely that RSA compensation fishing would occur in CA2 since it is relatively far from shore. The majority of RSA compensation fishing occurs in open areas and access areas that are closer to shore.

Under preferred Alternative 4, fishing in Delmarva would be restricted to the summer months when meat weights are highest. This restriction may help reduce area swept for a Delmarva trip taken in the summer compared to fishing for the same poundage when meats are smaller. Therefore, Alternative 4 would have low positive impacts on bycatch of non-target species.

Under preferred Alternative 5, crew limits from open areas would be used in Delmarva. Compared to No Action, Alternative 5 would potentially have low positive impacts on non-target species because it may reduce the ability for vessels to highgrade, or fish longer in Delmarva with more crew. High grading potentially increases the amount of time that fishing gear is in the

water, which potentially increases the catch of non-target species because vessels fish more or longer tows and only the largest scallops are selected to be shucked and landed. As noted above the amount of effort that will be expended in Delmarva in 2014 is less certain because FT LA vessels would have flexibility to exchange these trips for open area DAS under some of the specification alternatives. Therefore, the magnitude of this low positive impact is difficult to identify.

5.6.1.2.4 Measures to address unused Closed Area 1 access area trips

Under Alternative 1 (No Action), there would be no rollover of FY2012 or FY2013 access area trips, because CA1 is not scheduled to be open during 2014. This will lead to lower fishing effort in 2014 and low positive impacts to non-target species.

Catch rates have declined substantially within this access area, and when vessels fish in an area with low catch rates there are negative impacts on non-target species since it takes longer to catch allocated possession limits. Overall this amount of unused access is relatively small compared to the total fishery overall and would be within the total ACL for the fishery in whatever FY this allocation is available. These measures primarily differ in terms of which vessels are able to harvest this unused catch, vessels with unused CA1 allocation, or the fishery overall if these trips expire.

The No Action alternative would have potentially low positive impacts on non-target species if vessels with unused 2013 CA1 allocation decide not to fish any unused catch. However, under No Action vessels are permitted to fish unused 2013 CA1 allocation during the first 60 days of the 2014 fishing year (March and April of 2014). Catch rates are projected to be low in that area in 2014 as well, but vessels may still decide to take these trips rather than lose the allocation completely. The level of effort under No Action will depend on whether it is economically feasible or not. But if there are even marginal profits, or vessels expect to break even, they may decide to fish 2013 CA1 allocation, which could have potentially low negative impacts on non-target species as the scallop catch rates will still be relatively low and area swept will be higher. Therefore, No Action could have potentially low positive to potentially low negative impacts on non-target species depending on fishing behavior of vessels with unused 2013 allocation. There is about one million pounds of unused 2013 CA1 allocation; unused 2012 allocation would not be available under No Action.

Alternative 2 would allow rollover of unused allocation in a future FY (Option1 for 2013 CA1 trips and Option 2 for 2012 CA1 trips). Both options have several sub-options specifying how long the extension would be (FY2015, FY2016, or when CA1 reopens as an access area under a future FW). Alternative 2 overall could have low negative impacts on non-target species within CA1 compared to No Action, if vessels do not use any broken trips in March and April of 2014. In general the more access permitted to rollover under this action (2013 trips only, 2012 trips only, or both 2012 and 2013 trips) the greater the potential low negative impacts. Furthermore, it is more likely that if vessels are given a longer extension through 2015 (sub-option A), or 2016 (sub-option B) more unused allocation would likely be fished compared to No Action. While an extension could increase total removals from the area, if unused allocation is fished when the

resource is in better condition and catch rates are higher, the overall impacts may be neutral compared to No Action. Finally, under sub-option C, allow unused CA1 allocation in a future fishing year potentially after CA1 is expanded, overall low negative impacts may actually be low positive since catch rates would likely be higher in the expanded area.

Alternative 3 includes similar sub-options to Alternative 2 except access would shift from CA1 to open areas. There are similar sub-options for which trips can rollover (2013 and/or 2012) when unused allocation would need to be fished (2015 or 2016), and how access would be allocated (pounds or DAS). Alternative 3 overall could have low negative impacts on non-target species compared to No Action and Alternative 2, since most vessels would likely fish in open areas if given the opportunity since catch rates are still low in CA1. Option 2 would spread this effort out over two years arguably having a lower impact, but compared to No Action overall, potential impacts still low negative.

5.6.1.3 Specifications for limited access general category IFQ vessels

These include an overall IFQ allocation for vessels with IFQ permits, a hard TAC for the NGOM, and a target TAC for incidental catch permits.

5.6.1.3.1 LAGC IFQ specifications

The Alternative 1 (No Action) allocation of 1,258 mt was specified as the default FY2014 allocation in FW24. This represents an increase from the status quo allocation for FY2013, so there would likely be a small increase in effort, area swept, and potential negative impacts to non-target species under No Action. Therefore, the No Action would likely have low negative impacts on non-target species, but the LAGC effort overall is a relatively small proportion of total effort so slight differences in LAGC IFQ have minimal impacts.
The Alternative 2-6 specifications include the same allocation of 1,099 mt for FY2014, with 100 mt allocated to LA vessels with IFQ permits, and 999 mt allocated to IFQ-only vessels. These amounts are slightly lower than the No Action allocations (and are also lower than the status quo 2013 allocations) and therefore would have low positive impacts on non-target species, in comparison to No Action. The reduced sub-ACL is consistent with the most recent biological analyses and survey data, and therefore expected to have positive biological impacts on the scallop resource. To the extent that the alternative specifications lead to reduced area swept per catch as compared to No Action fishing levels, the FW25 specification alternatives would have positive impacts on non-target species. The mechanism for reduced area swept per catch would be higher catch rates on average combined with lower fishing effort overall.

5.6.1.3.2 Allocation of access area trips to IFQ vessels

This action is considering three options for allocating fleetwide trips to the LAGC IFQ fishery. Option 1 is No Action; LAGC IFQ trips will not be allocated in any of the scallop access areas in 2014 or 2015 (default). Under Option 2 the LAGC fishery would be allocated 5.5% of the total 2014 access area TAC for every area open in a particular year. And Option 3 is to take the 5.5% from CA2 and prorate those trips proportionally among the remaining areas open in a particular year. As with the limited access scallop fleet, no access area trips would be allocated for the 2015 default LAGC IFQ measures (Table 16).

If trips are not taken in these areas, LAGC catch is assumed to be taken in open areas instead. In some cases, catch rates are higher in access areas so it may take longer for a LAGC vessel to fish for IFQ in open areas; however, in other cases catch rates can be higher in some open areas compared to access areas. Overall, LAGC catch in access areas is a small percentage of the overall catch and vessels tend to fish where catch rates are higher, so if they are higher in access areas most trips should be fished there, and if they are not more LAGC catch could come from open areas.

All three options are expected to have negligible impacts on non-target species because the LAGC access trips are a relatively minor component of the scallop fishery overall. That being said, between the options, Option 2 would provide more access in Delmarva and NL and no access in CA2 for LAGC vessels. That could be positive for GB YT as CA2 is within the GB YT stock area, but in reality no LAGC vessels would likely go to CA2 for a 600 pound trip since the steaming time is so long, so the impacts are neutral. Even though Option 2 provides more potential access in Delmarva and NL than Option 1 and 3, which could have additional impacts on groundfish sticks in that those areas, if catch rates are not relatively high in those scallop access areas, LAGC vessels will not fish there. Instead, they would harvest their allocation in open areas, so actual impacts may be neutral if LAGC vessels do not fish all the allocated trips in access areas that are available to them.

5.6.1.3.3 Specifications for limited access general category NGOM vessels

The preferred alternative, Alternative 1 (No Action) NGOM specification is a hard TAC limit of 70,000 lb. per year. Recent catch levels have been well below this TAC for the last several years, thus the No Action would have neutral impacts on non-target species.

Alternative 2 proposes lowering the annual hard TAC limit to 58,000 lb. per year, based on data from a 2012 survey. In theory, a lower TAC would mean lower fishing pressure, thus lower impacts on non-target species. However, since the recent catch in the NGOM area has been much lower than the TAC (over 30,000 lb in 2013, to date), in reality, Alternative 2 would have neutral impacts on non-target species compared to No Action.

5.6.2 Accountability measures for the SNE/MA windowpane flounder sub-ACL allocated to the scallop fishery

This action considered a range of AM alternatives including: No Action (Alternative 1); seasonal closed areas (Alternative 2); seasonal gear restricted areas (Alternative 3); and a proactive gear modification AM (Alternative 4). The preferred alternative is Alternative 3 in all waters west of 71° W for the month of February if the overage is less than 20% and February and March if over 20%. The Scallop PDT used a variety of information sources to develop and analyze the WP AM alternatives (Appendix II). In general, a statistical model was created (GAM model) that estimates scallop and WP catch rates independently based on observer data from FY2006-2012. Data were binned into ten minute squares by month, and after closure alternatives were identified, the PDT estimated the reduction in WP catch and scallop effort potentially displaced by the various areas. These analyses are the primary source of information used to assess the

potential impacts of these alternatives on non-target species and other fisheries as well as several gear studies funded through the Scallop RSA program.

5.6.2.1 No Action (no AM for scallop fishery)

Not having an AM could ultimately have negative impacts on non-target species, especially SNE/MA windowpane flounder. The scallop fishery may have less incentive to stay under their sub-ACL without an AM in place. The MSA requires that AMs be implemented for any ACL; therefore, if this action does not include an AM for the scallop fishery, then one would likely be developed in a future action under the Groundfish FMP.

5.6.2.2 Alternative 2 (reactive seasonal area closure AM)

Alternative 2 is an area based AM that would close various areas for specified periods of time based on the percent overage (Figure 6). Both LA and LAGC vessels would be subject to these closures. The areas and seasons were identified to maximize benefits for SNE/MA WP while minimize impacts on the scallop fishery. Table 17 estimates the WP savings associated with each of the AM areas and seasons. There is more detailed information in Appendix II that describes the methods used to estimate these potential impacts. While some of these areas and seasons do not impact a large amount of scallop effort, some of them generate relatively high reductions in WP catch. Under the highest overage alternative, over 10% overage, the potential reduction in WP catch is estimated to be about 27% compared to No Action, from all three areas closing for different lengths of time. Bycatch amounts do vary from year to year, with higher catches in years when the scallop fishery fished in shallower waters (2010).

In general, if AMs are triggered this alternative is expected to reduce WP catch by shifting effort to other areas or seasons when WP bycatch is lower. Therefore, this alternative would have positive impacts on non-target species in this stock area, namely SNE/MA WP flounder, compared to No Action. Effort shifts can be positive for species in that area, but if that effort shifts to a different stock area, catches of other stocks may increase as a result of the effort shift.

Groundfish PDT input (from memo to Scallop PDT dated January 17, 2014)

The Groundfish PDT reviewed information from the Scallop PDT on the development of alternatives for windowpane flounder accountability measures for the scallop fishery. The Groundfish PDT noted in discussions with the Scallop PDT that:

- Gear modification studies suggest that the accountability measures may lead to reductions in windowpane flounder bycatch while having a modest decrease in scallop catch.
- Areas defined for the accountability measures correspond well with previous windowpane flounder bycatch hotspot analyses completed by the Groundfish PDT in preparing Groundfish FW48 (see Appendix IV).
- The Groundfish PDT expressed some concern about the accuracy of the “windowpane flounder reduction” estimates presented in the analyses. The Groundfish PDT supported the overall methodology developed in terms of shifting effort and re-calculating windowpane flounder catch to evaluate the potential impact of the AM. However, it was

noted that there are many complexities with the analyses and caution should be used when considering the possible impacts of the closures/gear modifications.

Table 80 – Summary of estimated WP reduction and % of scallop fishery effort displaced by the three AM alternative areas

Note that 2008 estimates are likely not as accurate as other years since VMS data for summer months in 2008 are not available.

5%			Effort Displacement		
Year	Reduction		LA_Open	LAGC_Open	LAGC_UnClass
2007	1.5%		2.2%	0.0%	5.8%
2008	0.0%		0.4%	5.1%	0.0%
2009	1.0%		0.4%	1.4%	0.0%
2010	18.0%		4.3%	4.5%	0.0%
2011	2.8%		0.5%	8.7%	0.0%
2012	1.4%		1.3%	3.6%	0.0%
Mean	5.0%		1.7%	3.6%	1.2%
Median	1.5%		1.3%	3.6%	0.0%
10%					
Year	Reduction		LA_Open	LAGC_Open	LAGC_UnClass
2007	26.7%		3.5%	0.0%	11.3%
2008	2.4%		1.4%	12.9%	0.0%
2009	8.0%		2.1%	2.9%	0.0%
2010	18.2%		4.5%	6.3%	0.0%
2011	2.8%		0.5%	8.8%	0.0%
2012	1.5%		1.4%	5.1%	0.0%
Mean	11.4%		2.4%	4.6%	2.3%
Median	8.0%		2.1%	5.1%	0.0%
20%					
Year	Reduction		LA_Open	LAGC_Open	LAGC_UnClass
2007	27.5%		4.5%	0.0%	14.2%
2008	6.9%		12.0%	12.9%	13.2%
2009	17.5%		6.3%	6.2%	0.8%
2010	41.7%		8.4%	7.5%	0.0%
2011	13.0%		7.5%	15.6%	0.0%
2012	35.8%		10.4%	10.4%	0.0%
Mean	27.1%		7.4%	7.9%	3.0%
Median	27.5%		7.5%	7.5%	0.0%

5.6.2.3 Alternative 3 (reactive seasonal gear restricted area AM)

Alternative 3, the preferred alternative, is a seasonal gear restricted area. If triggered, scallop vessels would only be allowed to fish west of 71° W (excluding access areas) with a modified dredge, which is a shorter apron (maximum of 5 rows) and an average of 1.5 meshes per ring for the width of the twine top (Figure 7 and Figure 8). The seasons are the month of February if an overage is less than 20% and the months of February and March if the overage is over 20%.

Appendix III is a final report that includes results from this modified gear compared to standard scallop dredge gear. Appendix II includes a summary of these results and includes the findings from the Scallop PDT in terms of this alternative and the potential impacts on non-target species. In general the data support that this gear modification reduces WP bycatch by about 45%, and 37% for YT. There is a relatively small loss of scallop catch as well (under 10%), so vessels may fish longer to make up any potential losses of scallop catch. However, this AM is confined to open areas, so any potential increase in effort from this modified gear AM would be limited by DAS. Table 18 summarizes the potential WP savings from this AM. These values were calculated by estimating the WP catch for the scallop fishery by area using fishery data from 2008-2012, then applying a 45% reduction for any catch within the AM area and season.

This research project included four separate research trips on different scallop dredge vessels testing the standard turtle deflector dredge (TDD) and an experimental dredge with two primary gear modifications: a shorter apron and reduced hanging ratio for the twine top. The four cruises took place between August 2012 and May 2013. A total of about 300 paired tows were completed on four different commercial vessels, about 80 paired tows on each vessel. For each paired tow, the catch was separated by species and counted. All fish were measured to the nearest centimeter, but only counts of winter and little skates.

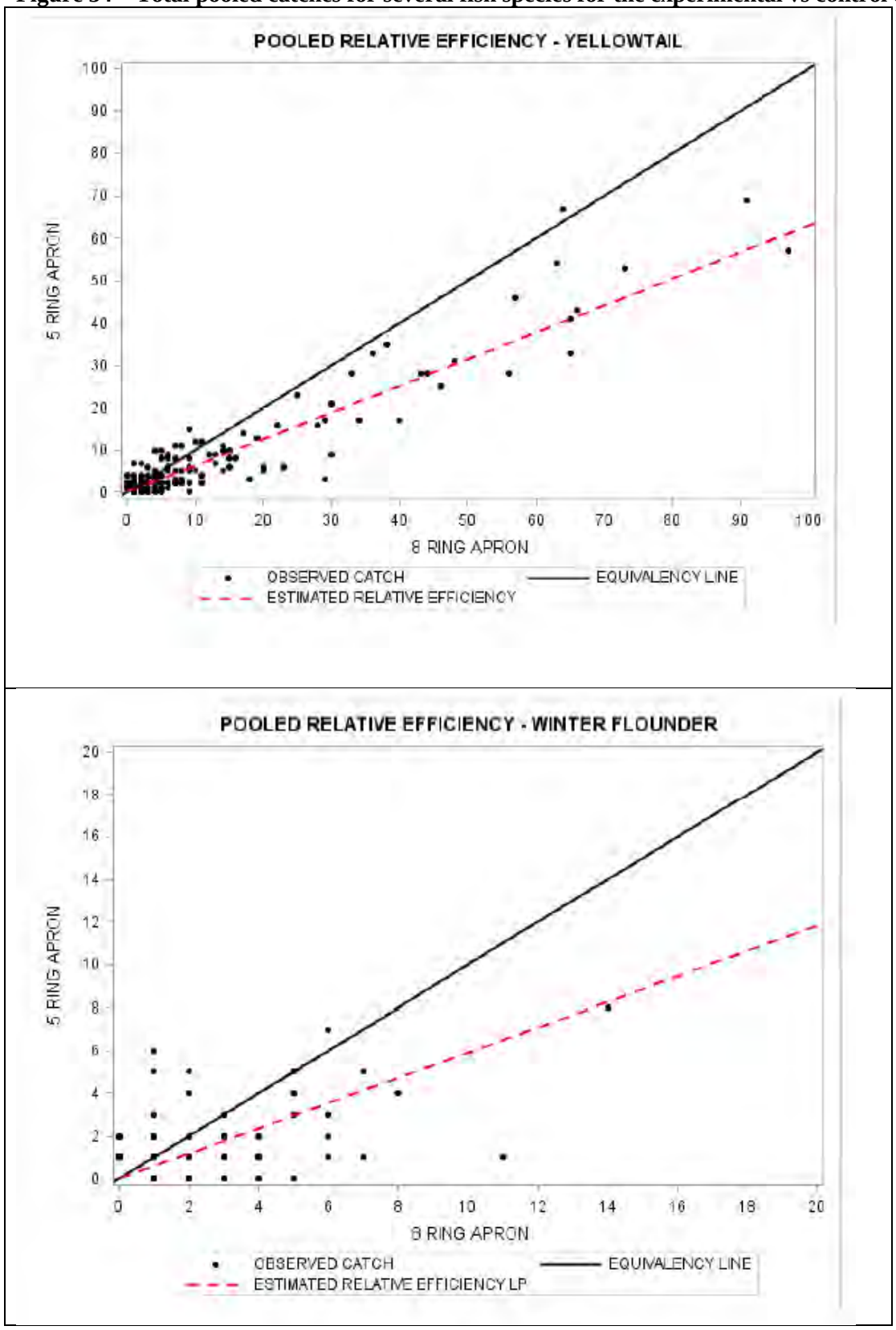
Catch weights and bycatch rates of both gears were compared for each trip and tested for a significant difference using SigmaPlot. In addition, a Generalized Linear Mixed Model (GLMM) was used to analyze the paired catch data and test for differences in both the pooled length catch data as well as test for differences in the length composition of the catch. The model accounted for multiple vessels used in this experiment and slight variations in gear handing and design.

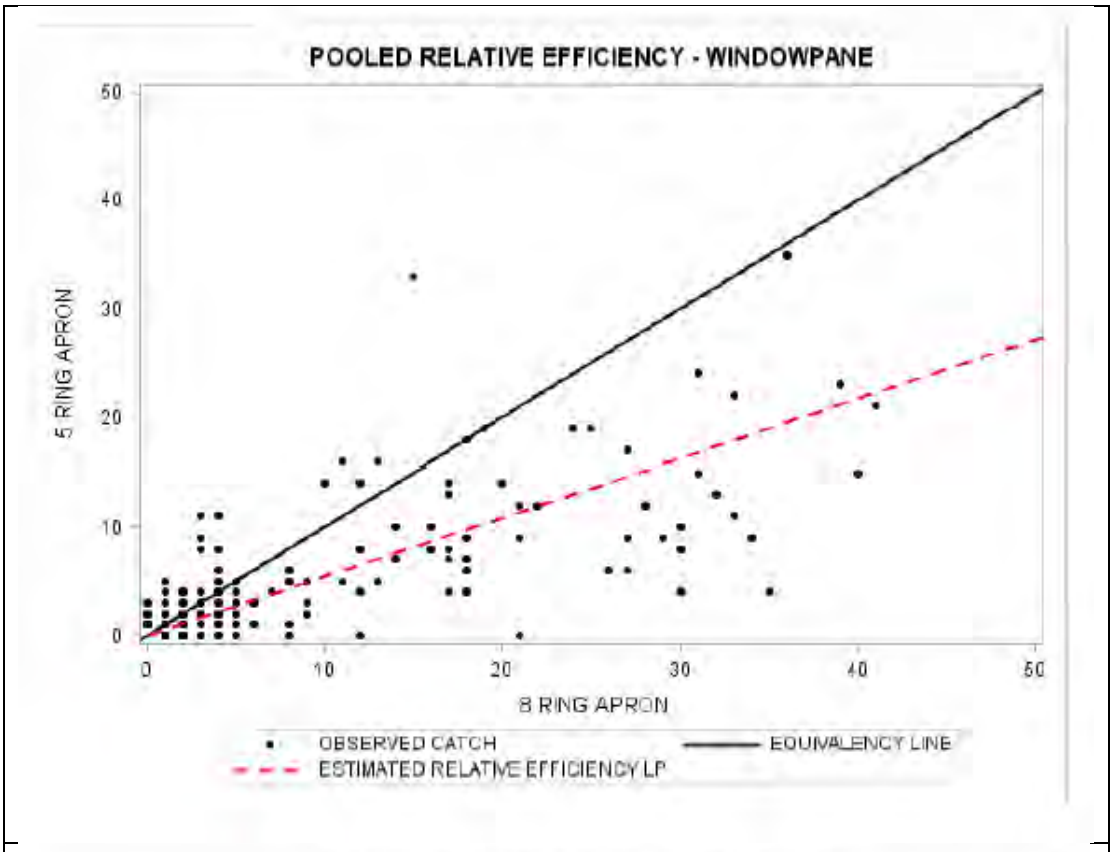
The experimental dredge reduced the catch of YT, winter, and windowpane flounder compared to the control dredge. The average percent change in the catch of the experimental dredge to the control was between 37% and 46% for these three flounder species (**Table 81** and **Figure 54**). In addition, there was an overall reduction in relative efficiency for the experimental dredge versus the control dredge for monkfish, barndoor, and unclassified skates.

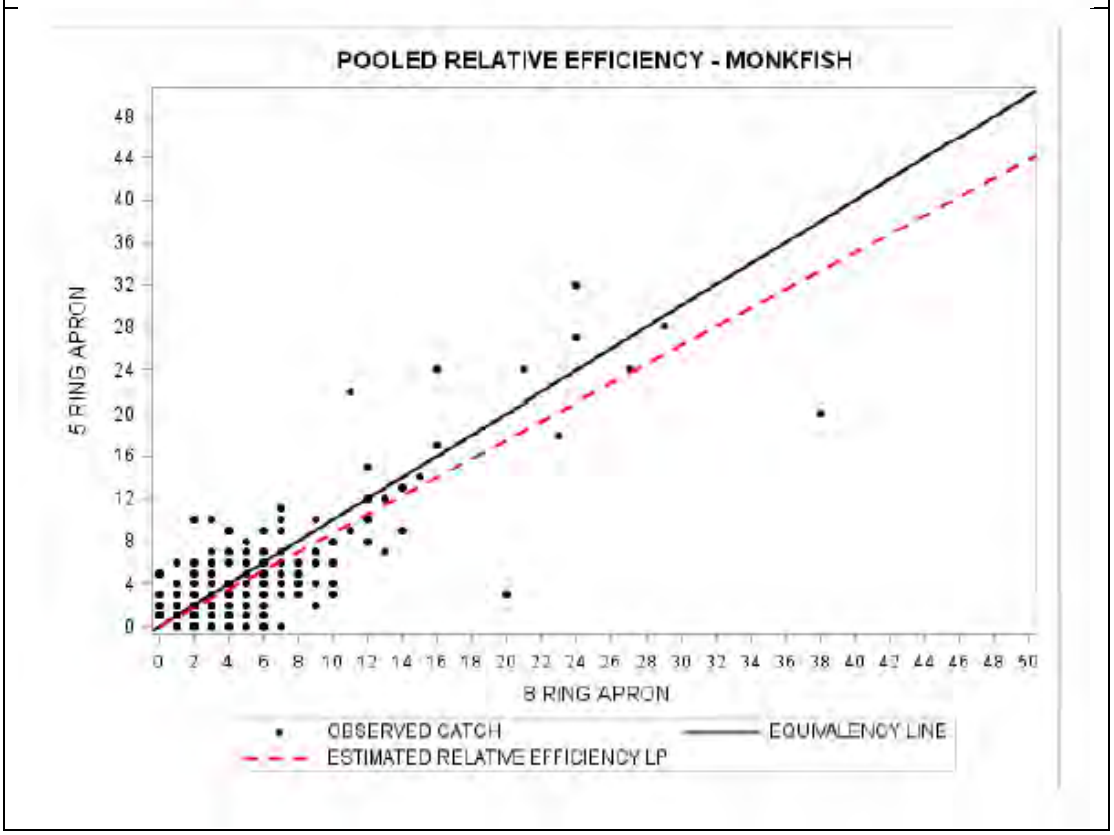
Table 81 – Mixed effects model using pooled catch data from best fit (intercept only) for several fish species. Percent change is the average percent change in catch of experimental versus control dredge

Species	Effect	Estimate	SE	DF	t-value	p-value	LCI	UCI	Exp(Est)	% Change
Yellowtail Flounder	Intercept	-0.463	0.051	189	-9.147	<0.0001	-0.563	-0.363	0.629	-37.1%
Winter Flounder	Intercept	-0.526	0.107	132	-4.932	<0.0001	-0.737	-0.315	0.591	-40.9%
Windowpane Flounder	Intercept	-0.610	0.066	201	-9.259	<0.0001	-0.740	-0.480	0.543	-45.7%
Monkfish	Intercept	-0.131	0.047	228	-2.755	0.0063	-0.224	-0.037	0.877	-12.3%

Figure 54 – Total pooled catches for several fish species for the experimental vs control dredge




POOLED RELATIVE EFFICIENCY - WINDOWPANE
5 RING APRON
8 RING APRON
OBSERVED CATCH
EQUIVALENCY LINE
ESTIMATED RELATIVE EFFICIENCY LP


POOLED RELATIVE EFFICIENCY - MONKFISH
5 RING APRON
8 RING APRON
OBSERVED CATCH
EQUIVALENCY LINE
ESTIMATED RELATIVE EFFICIENCY LP

Under Alternatives 3, if the overage is >0 and <20% the gear restricted AM would apply for the month of February. This is expected to have an associated 6.7% reduction in WP catch (**Table 82**). It was noted that if the overage is over 6.7% this AM may not reduce WP catch to the same level as the overage. Similarly if the overage is over 20% the gear restriction would be for the months of February and March. The expected WP savings for those two months together is 14.3%. It should be noted that the analyses assumes that effort will remain the same by month regardless of implementation of the AM. In reality, some vessels may decide instead to fish on GB, or during a different season. These shifts could reduce SNE/MA WP catch further if vessels shift to an area or season with lower bycatch rates. Effort shifts can be positive for species in that area, but if that effort shifts to a different stock area, catches of other stocks may increase as a result of the effort shift. The Council further discussed that while these AMs may not be as effective if overages are relatively large they can be revisited in a future action. The likelihood of these AMs being triggered is currently very small since the fishery is projected to catch less than half of the sub-ACL allocation.

Table 82 - Estimate of WP reduction from Gear Modification AM by month for open areas west of 71 W (% reduction compared to projected WP catch with no AM and applying 45% reduction from the gear modification in the area west of TDD line (71 W))

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2007	1.62%	3.98%	4.40%	4.53%	1.03%	2.05%	2.87%	6.20%	8.19%	3.53%	1.19%	0.83%
2008												
2009	1.81%	6.04%	6.95%	4.91%	0.53%	3.01%	3.32%	2.28%	7.00%	1.17%	0.21%	0.68%
2010	1.93%	6.99%	4.40%	4.34%	0.93%	1.90%	1.40%	4.98%	7.67%	2.52%	0.73%	1.22%
2011	2.33%	6.66%	11.43%	10.61%	1.38%	0.98%	1.11%	1.47%	2.55%	2.02%	1.07%	1.05%
2012	2.07%	9.70%	10.93%	6.60%	1.46%	1.37%	1.34%	3.51%	3.58%	1.36%	0.48%	0.52%
mean	2.0%	6.7%	7.6%	6.2%	1.1%	1.9%	2.0%	3.7%	5.8%	2.1%	0.7%	0.9%

The potential beneficial impacts from this gear modification are influenced by how much of a change vessels would need to make to current gear to comply with this gear modification. To evaluate this aspect, the Scallop PDT reviewed gear specifications that are recorded on all observed scallop trips. When an observer is deployed on a vessel, it records detailed information about the gear being fished including the height of the apron in the dredge as well as the hanging ratio. The tables and figures below describe the number of observed vessels by apron height and hanging ratio. Some of these trips are from GB and scallop access areas, which would not be impacted by this AM, and this is only a subset of scallop vessels and may not represent the entire fishery. However, hundreds of LA and LAGC vessels are observed each year, so this summary is likely representative of the fishery overall.

Table 83 and **Figure 55** summarize the number of rows in all scallop dredges observed by year. The most common configuration includes nine rows of rings, followed by ten and eight. There are some vessels using seven, but the majority of the fleet seems to be using longer aprons. The number of vessels already using five rows is very small, five out of 600 observed vessels in 2013. Therefore, if this AM is implemented the majority of the fleet would need to reduce their aprons.

Table 83 – Number of rows in apron on observed scallop trips by year

No. of Rows in Apron	2008	2009	2010	2011	2012	2013	Grand Total
4	21	11	13	2	0	0	47
5	14	6	6	0	0	5	31
6	21	23	3	4	1	5	57
7	139	128	105	90	93	67	622
8	243	277	153	217	189	129	1208
9	352	403	298	226	412	184	1875
10	239	256	150	198	251	158	1252
11	72	55	29	72	47	28	303
12	45	18	33	38	30	19	183
13	12	19	15	6	16	5	73
14	1	4	2	9	2	0	18
Grand Total	1159	1200	807	862	1041	600	5669

Figure 55 - Number of rows in apron on observed scallop trips by year

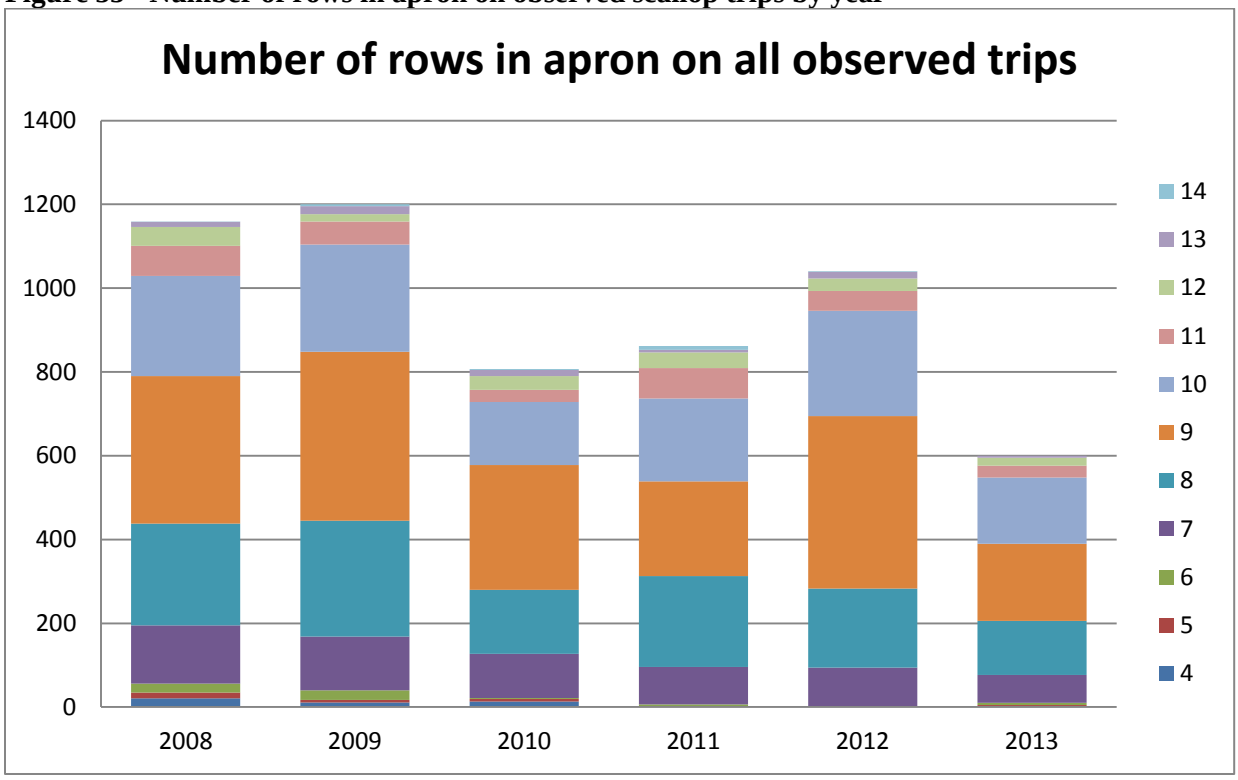


Table 84 is a summary of observed LA vessels and the hanging ratios recorded on observed trips. Most LA vessels that have been observed fish with a 2:1 or 3:1 hanging ratio. The number of LA vessels that fish with higher ratios has declined over time. Table 85 is a summary of LAGC vessels; most vessels observed fish with 3:1, followed by 2:1 and 4:1 hanging ratios. Therefore, if this AM was adopted many vessels would likely need to adjust their gear if they want to fish in the AM area and season.

Table 84 - Summary of observed dredges (2008-2013) on LA vessels (subset of the fishery)

Hanging Ratio	2008	2009	2010	2011	2012	2013
1:1	22	20	17	11	22	9
2:1	230	191	146	156	242	130
3:1	279	266	196	224	286	154
4:1	32	42	26	20	32	10
5:1	4	7	3	6	3	
6:1		3	5			
Grand Total	567	529	393	417	585	303

Table 85 - Summary of observed dredges (2008-2013) on LAGC vessels (subset of the fishery)

Hanging Ratio	2008	2009	2010	2011	2012	2013
1:1	8	11	1		2	
2:1	52	55	18	35	12	17
3:1	135	132	39	58	20	32
4:1	52	31	22	16	9	12
5:1	17	1	8	7	4	6
6:1	8		3			
Grand Total	272	230	91	116	47	67

If effort does shift as a result of these AMs there could be impacts on other non-target species. For example, if a vessel decides not to modify their gear and fish farther north outside of the AM area there could be beneficial impacts on SNE/MA WP. However, other species on GB or GOM may have increased impacts. The amount of effort that will potentially shift and to where is uncertain, so the magnitude of these potential impacts is difficult to identify. Overall, this alternative is expected to have positive impacts on non-target species, especially SNE/MA windowpane flounder compared to No Action. It is difficult to compare this alternative to Alternative 2, because both will cause changes in fishing behavior that are difficult to predict. Overall, Alternative 2 is estimated to further reduce WP catch if all three areas are implemented for higher overages. However, Alternative 3 covers a larger area, and if vessels are satisfied with the performance of the modified gear they may end up fishing with it in more areas and seasons, having low positive impacts for the non-target species compared to Alternative 2.

5.6.2.4 Alternative 4 (proactive gear modification AM)

Alternative 4 is the only proactive AM considered in the document. If adopted, this alternative would be effective as soon as FW25 is implemented, and is not based on an overage of a sub-ACL. All dredge vessels would be prohibited to fish with more than seven rows of rings in the apron of their dredge in all waters west of 71° W, excluding access areas. Currently the regulations require that all dredges greater than 8 feet have at least seven rows of rings in the apron of the dredge. A larger twine top reduces bycatch of finfish and small scallops.

This proactive gear modification may reduce bycatch of non-target species for vessels that fish with more than seven rows in the apron of their dredge within the AM area. Based on the results from observer data, the vast majority of the scallop fishery currently fishes with more than seven rows in the apron of their dredge (Table 83 and Figure 55). When the Scallop Advisory Panel discussed this issue, they estimated that most vessels fish around eight rows in the apron of a dredge, and the range in the industry is probably 7-13 rows. Therefore, if this measure is adopted, a reduction in flatfish bycatch can be expected since most of the fishery is fishing with longer aprons and would need to reduce the height of their apron in all waters west of 71 W, excluding access areas, for the entire fishing year.

Direct field tests of dredges with different apron heights were compared in a 2011 RSA project titled, "*Optimizing the Georges Bank Scallop Fishery by Maximizing Meat Yield and Minimizing Bycatch*"." Fourteen research trips were conducted in both Closed Area I and II from October

2010 through April 2012. Seasonal variations in scallop meat weights and YT flounder bycatch rates were evaluated. The final report from this research was included as Appendix IV to Framework 24. Based on the 14 vessels that participated in that study, most fished with 7 or 8 rows, and 3 fished with more than 10 rows. This research projects supports that shorter aprons improve fish escapement.

Table 86 from the final report shows bycatch rates of YT from trips grouped by apron height. The same standard "turtle" dredge was towed on one side of the vessel with an 8 row apron on all trips, and the other New Bedford style dredge towed on the other side varied by vessel. Most of the vessels fished with an 8 or 7 row apron, and three (the top group) fished with 10 or 13 rows of rings in their apron. When these vessels are separated by group and compared to the turtle dredge, the overall YT bycatch rate is substantially higher for the dredges with higher aprons (0.035 for the turtle dredge with 8 rows and 0.051 for the vessels with higher aprons). About 100 tows were completed on each trip.

Table 86 - Bycatch rates for the selected stations inside CAI and CAII combined with the trips grouped by apron height (larger apron sizes tested are 10 and 13 rows versus smaller aprons of 7 and 8 rows).

			Yellowtail (lbs)		Scallops (lbs)		Bycatch Rate	
All stations	**Twine Top Size**	**Apron Size**	**Turtle**	**New Bedford**	**Turtle**	**New Bedford**	**Turtle**	**New Bedford**
Arcturus (Mar)	8.5 x 90	10 x 40	249	477	7360	8495	0.034	0.056
Westport (May)	8.5 x 80	13 x 40	182	260	9798	9757	0.019	0.027
Wisdom (Jan)	11 x 90	10 x 38	334	432	4617	4543	0.072	0.095
Total			765	1170	21775	22796	**0.035**	**0.051**
Celtic 2010 (Oct)	7.5 x 60	8 x 40	619	538	7575	6666	0.082	0.081
Celtic 2011 (Apr)	7.5 x 60	8 x 40	224	282	7078	7777	0.032	0.036
Liberty (June)	8.5 x 90	7 x 38	231	215	15517	12087	0.015	0.018
Endeavour (July)	8.5 x 80	8 x 40	222	270	9836	9185	0.023	0.029
Regulus (Aug)	7.5 x 43	8 x 38	544	514	6179	5565	0.088	0.092
Resolution (Sept)	10.5 x 36	8 x 42	637	400	5456	5638	0.117	0.071
Ranger (Oct)	9 x 33	7 x 38	763	372	6085	5491	0.125	0.068
Horizon (Dec)	8 x 96	8 x 44	445	336	4501	4338	0.099	0.077
Venture (Feb)	7.5 x 80	7 x 36	332	201	4288	3102	0.077	0.065
Regulus (March)	7.5 x 43	8 x 38	304	360	4040	4166	0.075	0.086
Endeavour (April)	8.5 x 80	8 x 40	446	366	5205		0.086	
Total			4765	3854	75760	64015	**0.063**	**0.060**
Turtle Dredge	8 x 40							

Source: Coonamessett Farm Foundation et al, 2011 RSA Final Report, *Optimizing the Georges Bank Scallop Fishery by Maximizing Meat Yield and Minimizing Bycatch*, August 2012

Overall, this alternative would likely be positive for non-target species compared to No Action since some vessels that fish in the AM area with a dredge apron over 7 rows will need to reduce the height of their apron if this measure is adopted. Alternative 2 and 3 would also likely be positive for non-target species compared to the No Action. Alternative 4 would have neutral to

positive impacts on non-target species compared to Alternative 2 and 3 depending on how effort shifts and fishing behavior changes.

5.7 CUMULATIVE EFFECTS

5.7.1 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 FW 25 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.

Valued Ecosystem Components (VEC)

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

Temporal Scope of the VECs

While the effects of historical fisheries are considered, the temporal scope of past and present actions for scallop resource, non-target species, and physical environment 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 (2019). 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:

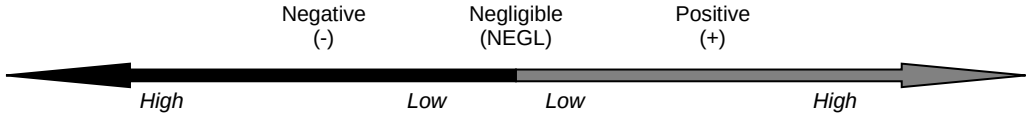
(1) impacts from past, present and reasonably foreseeable future actions; PLUS
(2) the baseline condition for resources and human communities (note – the baseline condition consists of the present condition of the VECs plus the combined effects of past, present and reasonably foreseeable future actions);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

Table 88 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 87.

Table 87 – 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		



5.7.2 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 88). 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 and Appendix I 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 88. 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
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 to the Multispecies FMP (2013) – 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 (2015)- Phase 2 would consider the effects of fishing gear on EFH and move to minimize, mitigate or avoid those impacts that are more than minimal and temporary in nature. Further, it would reconsider closures put in place to protect EFH and groundfish mortality in the Northeast Region.	ND	Likely +	ND	ND	Likely +
Framework 26 (2015) - will set specifications for fishing years 2015 and default measures for 2016.	Likely +	ND	ND	ND	ND
Atlantic Trawl Rule- would require the use of TEDs in trawl fisheries off the Northeast coast including the scallop trawl fishery.	ND	ND	ND	ND	ND

Note: ND = Not determined

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 between 2010-2012. 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 impacts 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 varied with sediment type. Sandy communities experience a low level of impact since there is higher natural disturbance. Hard-bottom areas such as bedrock, cobble and coarse gravel have a high degree of impact from mobile bottom-tending gear 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 bottom tending mobile gear, particularly dredge gear, are generally moderate to high, depending upon the type of bottom and the frequency of fishing activities to demersal species affected by this action. These activities, which cause impacts to essential fish habitat for a number of federally managed species in a manner that is more than minimal and less than temporary in nature, have been mitigated by the measures in Amendment 10 and other actions that have reduced fishing effort and increased efficiency. The EFH Omnibus Amendment will most likely implement a new suite of measures to minimize impacts on habitat and EFH overall. Thus positive impacts are expected from this future action. Overall, the combination of past, present and reasonably foreseeable 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.

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 which reduced impacts on non-target species. However, some non-target species such as GB yellowtail flounder are still overfished (see Table 91). 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.

5.7.2.1 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 89 summarizes non-fishing impacts applicable to this action.

Table 89 - 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 human induced 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 –** no data	**Likely negative –** no data	**Likely negative –** no data	**Likely negative –** no data
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 vessel traffic	**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-** Coral are particularly sensitive to increasing acidity	**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 90 summarizes the effects of past, present and reasonably foreseeable future fishing and non-fishing actions on the VECs identified for Framework 25.

Table 90 – Summary effects of past, present and reasonably foreseeable future fishing and non-fishing actions on the VECs identified for Framework 25

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

5.7.3 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 91 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 **90** 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 92.

Table 91. 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 under the ESA and loggerhead sea turtles are classified as threatened.		**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	GB Yellowtail Flounder	*Yes*	*Yes*	**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	No	No		
	CC/GOM Yellowtail Flounder	*Yes*	*Yes*		
	GB Winter Flounder	No	No		
	GOM Winter Flounder	No	*Yes*		
	SNE/MA Winter Flounder	No	*Yes*		
	Northern (GOM-GB) Windowpane Flounder	*Yes*	*Yes*		
	Southern (SNE-MA) Windowpane Flounder	No	No		
	Summer flounder (fluke)	No	No		
	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	*Yes*	No		
	Atlantic Surfclam	No	No		
	Ocean Quahog	No	No		

5.7.4 Summary Effects of Framework 25 Actions

The alternatives contained in Framework 25 can be divided into two broad categories, as seen in Table 92 (summary of impacts from action – for a complete discussion of impacts please see Section 5.0 of document). First, this action set specifications for the different components of the scallop fishery in FY 2014 and default measures for FY2015. Second, the action considers AMs for SNE/MA windowpane flounder.

In general, the adoption of all of these measures will benefit the scallop resource because collectively they make it more likely that mortality targets are reasonable and will not be exceeded. The measures that constitute the Proposed Action (if based on the Preferred Alternatives) are designed to maintain the sustainability of the scallop resource. The preferred alternative changes have the potential to reduce incentive to catch SNE/MA WP as bycatch and have positive impacts on the stock. Overall the measures are expected to have negligible impacts on protected resources or habitat when compared to the No Action alternative. The specifications are likely to have positive impacts on communities in the short term and long term.

The estimate of YT catch associated with the specifications proposed in this action are projected to be above the 2014 sub-ACL allocations of those non-target species. In general, selecting an alternative that allocates scallop fishing effort with a high probability of exceeding its bycatch sub-ACL for a stock runs a greater risk of exceeding the overall ACL. This could have negative impacts on the bycatch stock and the GF fishery overall. It is important to note that bycatch projections are complex; they are based on variety of assumptions and in the last few years final catch estimates have been below projected catches in most cases.

The Council discussed that there may be more risk of exceeding the GB YT sub-ACL with the specification alternatives that increase scallop fishery DAS, but the Council was comfortable that there are several measures in place that will help the fishery reduce overall YT catch. For example, the voluntary bycatch avoidance program has been expanded to include open areas as well as windowpane flounder. By expanding the spatial area and number of species included in the program, overall bycatch of non-target species may be reduced if vessels voluntarily move from areas with higher bycatch rates reported through the avoidance program. In addition, there is a seasonal closure in CA2 that was recently modified to prevent scallop fishing in this relatively high bycatch area during the season with higher bycatch rates (mid-August through mid-November). Vessels have to fish CA2 trips around this season, potentially reducing YT catch overall. This seasonal restriction was in place in FY2013 and may have been one of the factors that reduced observed bycatch rates in 2013 compared to 2012.

In addition, there are several gear modifications that some vessels are using voluntarily that have been shown to reduce flatfish bycatch. Specifically, shorter aprons and reduced hanging ratios have been documented to reduce flatfish bycatch substantially. If approved in this action, dredge vessels will be prohibited from having more than seven rows of rings in the apron of their dredge in all waters west of 71° W, excluding access areas, as a proactive AM to reduce flatfish bycatch. Finally, GF FW51 includes a prohibition on possession of YT for LA vessels. Prohibiting possession eliminates any incentive to target YT while fishing for scallops.

All of these measures combined are expected to reduce bycatch overall in the scallop fishery, thus FW25 specifications are expected to have likely negligible impacts on non-target species and bycatch. Since all these measures are designed to help keep the fishery below the sub-ACL it is unlikely that the sub-ACL would be exceeded. In recent years in particular the scallop fishery has demonstrated the ability to reduce bycatch of stocks with sub-ACLs. Total bycatch of some of these stocks by the scallop fishery have declined. Specifically, in the last two years a transfer of unused GB YT bycatch has been transferred from the scallop sub-ACL to the GF sub-ACL.

Table 92 – Summary of Impacts expected on the VECs

Management Measure		VECs				
		Managed Resources	**Habitat Including EFH**	**Protected Resources**	**Human Communities**	**Non-target Species**
DECISIONS RELATED TO FISHERY SPECS	**OFL/ABC**	**Positive-** Updated OFL/ABC based on best available science and should not lead to overfishing	**Positive-** Updated OFL/ABC are lower, thus lower potential area swept	**Negligible-** measures are not expected to create additional impacts to Protected Resources	**Short Term- Negative Long term- Positive** Updated ABC values for FW25 are lower than the ABC values under no action, the scallop yield, revenues and net economic benefits should increase long term	**Negligible-** measures are not expected to create additional impacts to non-target species
	SPECIFICATIONS FOR LA VESSELS	**Positive** – Continues rebuilding of this stock, but progress may be slower than the No Action alternative	**Low negative to Low positive** – low negative impacts compared to No Action, but low positive compared to recent years (2012 and 2013) based on projected area swept estimates	**Low negative to Low positive** – low negative impacts compared to No Action, but low positive compared to recent years – less Mid-Atlantic access area effort expected	**Short Term- Positive Long term- Positive** landings, revenues and net economic benefits be higher than No Action levels both in the short- and long-term.	**Low negative to Low positive** – low neg. compared to No Action, but low positive compared to recent years (2012 and 2013) based on projected area swept estimates
	MEASURE TO PROTECT RECRUITMENT IN NL	**Neutral to low negative** – May be higher incidental mortality on small scallops in southern part of NL if vessels fish there	**Neutral –** fishing under area rotation has positive impacts on EFH overall by concentrating effort in areas with higher catch rates	**Neutral –** in general this area does not overlap with high concentrations of turtles	**Short term - Negligible** economic impacts **Long-Term – Low negative** impacts on landings, revenues and total economic benefits.	**Neutral –** fishing will be concentrated in areas with higher scallop catch within the area

DECISIONS RELATED TO FISHERY SPECS	**ADDITIONAL MEASURES TO REDUCE MORTALITY ON SMALL SCALLOPS IN NL AND DELMARVA**	**Low positive** – these measures may reduce incidental and discard mortality on small scallops	**Neutral to low positive –** These measures impact a relatively small amount of effort thus minimal EFH impacts, but if catch rates higher or incidental mortality is reduced area swept lower	**Low negative to Neutral to Low positive –** Most of these measures would have neutral impacts, but effort shifts could cause low increases or decreases in potential interactions with turtles in Delmarva	**Short term - Low negative** impacts due to reduced flexibility **Long-Term - Positive** impacts on landings, revenues and economic benefits from the fishery due to positive impacts on scallop resource.	**Neutral to low positive**– Neutral since relatively small amount of effort, but if catch rates higher area swept lower
	MEASURES TO ADDRESS UNUSED CLOSED AREA I ACCESS AREA TRIPS	**Neutral –** Rollover catch under future sub-ACL therefore no additional impacts	**Neutral –** Rollover catch under future sub-ACL therefore no additional impacts	**Neutral –** Rollover catch under future sub-ACL therefore no additional impacts	**Low negative to low positive –** Some positive economic impacts for vessels with unused trips and low negative impacts on rest of the fishery since this rollover would only be available to subset of fleet with unused trips only and could affect allocations for other vessels in the future	**Neutral –** Rollover catch under future sub-ACL therefore no additional impacts
	SPECIFICATIONS FOR LAGC VESSELS	**Positive-** Updated sub-ACL for LAGC IFQ fishery based on best available science and should not lead to overfishing	**Low Positive-** Updated sub-ACL lower, thus lower potential area swept	**Low Positive** – Updated sub-ACL lower, thus lower potential area swept and potentially fewer interactions with sea turtles	**Short Term- Low Negative Long term- Positive** landings, revenues and fishery should increase long term but will be lower short term	**Low Positive-** Updated sub-ACL lower, thus lower potential area swept
	LAGC IFQ TRIPS IN ACCESS AREAS	**Negligible-** since LAGC IFQ trips in access areas are very small portion of overall fishing effort	**Negligible-** since LAGC IFQ trips in access areas are very small portion of overall fishing effort	**Negligible-** since LAGC IFQ trips in access areas are very small portion of overall fishing effort	**Positive Short-term and long-term** economic impacts on the LAGC vessels because they will be able to use CA2 trips in areas closer to the shore with lower trip costs.	**Negligible-** since LAGC IFQ trips in access areas are very small portion of overall fishing effort

	NGOM HARD TAC	**Low negative to Neutral** – a higher TAC marginally increases the risk of excess fishing in the NGOM, but very small component of the overall fishery so neutral impacts	**Negligible-** since current catches are very low.	**Negligible-** since current catches are very low and NGOM is not primary location where sea turtles found.	**Negligible-** since current catches are very low and the TAC is same as No Action level.	**Negligible-** since current catches are very low.
DECISIONS RELATED TO WP AMs	**AMs for SNE/MA WP Flounder**	**Low Mixed –** Impacts depend on how vessels respond to AM. If shift effort to seasons and areas with higher catch rates could have low positive impacts and vice-versa.	**Low Mixed –** Impacts depend on how vessels respond to AM. If shift effort to seasons and areas with higher catch rates could have low positive impacts and vice-versa.	**Low Mixed –** If vessels choose not to modify gear and fish north of stock area instead there may be reduced impacts on sea turtles. If modify gear and fish in same area impacts would be neutral.	**Short Term - Low negative** economic impacts due to reduced flexibility and marginally lower landings due to fishing with modified gear. **Long Term – Positive** economic benefits on the resource if it enables vessels to reduce bycatch and reduce the likelihood that AMs are triggered.	**Positive –** If triggered the modified gear estimates substantial bycatch reductions. If vessels satisfied with performance of modified gear may use it in more areas and seasons beyond the AM

5.7.4 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 92 provides as a summary of likely cumulative effects found in the various groups of management alternatives contained in Framework 25. The CEA baseline that, as described above in Table 91, 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.

Scallop Resource

As noted in Table 91, the combined impacts of past federal fishery management actions have rebuilt the scallop resource and increased scallop biomass. The actions proposed by FW 25 are expected to have positive to negligible impacts and continue the sustainability of the scallop resource. Reducing the scallop specifications and ABC through this action makes it more likely that mortality targets are reasonable and will not be exceeded. Setting sustainable ACLs and specifications will have 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 91, 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 FW 25 are expected to have substantial impacts on habitat or EFH. The proposed specifications may result in reduced scallop fishing activity and area swept thereby providing some minor short-term benefits to habitat. 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 91, the combined impacts of past federal fishery management actions have had positive to neutral 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 Framework 25 are expected to have negligible to low positive impacts on protected resources. The proposed specifications may lead to reduced area swept per catch, and thus reducing interactions with sea turtles. 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.**

Human Communities

As noted in Table 91 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 Framework 25 are expected to be positive both in the short-term and over the long-term because prevention of overfishing will keep scallop stock biomass, catches and revenues at sustainable levels benefiting the communities engaged in scallop fishing and related industries (Table 92).

The actions proposed by Framework 25 are expected to increase fleet revenues, profits and total economic benefits compared to No Action both in the short-term and over the long-term. The total scallop revenue for the preferred action would exceed the No Action levels by $147.3 million and total economic benefits will exceed No Action levels by $151.8 in 2014 fishing year. Present value of the cumulative revenues for the preferred alternative will exceed No Action levels by $44.2 million (5.6 million) and the present value of the cumulative economic benefits for the preferred alternative would exceed the total economic benefits for No Action by $6.5 ($26.3) million using a 7% (3%) discount rate in the long-term. Therefore, net cumulative impacts of the proposed measures and the past actions on revenues and economic benefits from the scallop fishery would be positive in 2014. As a result, cumulative economic benefits, which measure the sum of benefits from previous and preferred alternatives, are expected to be positive.

In terms of reasonably foreseeable future actions, there is one scallop related action that is expected to have positive impacts overall, Framework 26 and several other actions related to EFH and protected resources that may have impacts that are not determined yet 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 92). In addition, the effects of non-fishing activities on the fishery-related businesses and communities are mostly potentially negative (**Table 89**).

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 positive cumulative impacts on the fishery-related businesses and communities.**

Non-Target Species

As noted in Table 91, 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 Framework 25 are expected to continue this trend. FW 25 has the potential to reduce incentive to catch SNE/MA WP as bycatch which would have positive impacts on that stock. 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. 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 to low positive impacts on non-target species.**

Table 93 - 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	Likely Positive to Neutral	Neutral	Neutral	Likely Positive to Neutral	Neutral to Likely Positive
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 to Positive	Non-significant Positive	Non-significant Neutral to Low Positive

6.0 COMPLIANCE WITH APPLICABLE LAW

6.1.1 Magnuson-Stevens Fishery Conservation and Management Act

6.1.1.1 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.

The OFL/ABC/ACLs developed in this action are consistent with the ACL structure adopted under Amendment 15 to prevent overfishing. Specifically, OFL is set at Fmsy (currently 0.38 for this fishery) and the ABC control rule sets ABC at the F rate estimated to have a 25% change of exceeding OFL (currently 0.32 for this fishery). In the Scallop FMP ACL is equivalent to ABC, after removing discard and incidental mortality, and the fishery allocations (ACT) are set at or below the fishing level estimated to have a 25% chance of exceeding ABC, which is currently 0.28 for this fishery.

This action included six specification alternatives. They are all slightly different in terms of the days-at-sea allocations for the fishery and level of access in several scallop access areas. The No Action alternative includes DAS only. Alternatives 2 and 3 DAS and access area effort are based on three principles used in this fishery to set target catches. The only difference between these two alternatives is that Alternative 3 provides flexibility for FT LA vessels to exchange a Delmarva access area trip for five open area DAS. Alternatives 4, 5, and 6 increase total catch closer to 2013 levels with higher projected open area fishing mortality estimates.

The preferred alternative, Alternative 4, does have a projected open area F of 0.52. This projected level is higher than Fmsy (0.38) and could lead to growth overfishing in open areas, which could have negative long-term impacts on the scallop resource, compared to alternatives with lower fishing levels in open areas. Growth overfishing is when a resource is harvested before its optimal size that would produce the maximum yield per animal. However, this alternative is limited to one year, and if DAS are reduced in 2015 to levels below 0.38, the potential impacts on the scallop resource in open areas would be more temporary. Furthermore, because a large proportion of total biomass is currently within closed areas (GF and EFH closures) as well as Mid-Atlantic access areas that are closed to the fishery in 2014, the overall estimate of F for Alternative 4 is 0.21, well below the target F for ACT of 0.28. Therefore, this alternative has a total projected F below the target used to prevent overfishing in this FMP, and provides more landings to help optimize yield for the US scallop fishery.

All specification alternatives (2-6) have the same LAGC IFQ since it is based on the total ACL for the fishery, which is the same under all alternatives. The LAGC sub-ACL for this action is 1099mt.

In this action the Council had available updated estimates of fishing mortality from the last benchmark assessment through 2009, as well as updated estimated prepared by the Scallop PDT for 2010-2012 (Section 4.1.3). The updated model suggests declining biomass and increasing fishing mortality in the Mid-Atlantic. Total biomass is estimated to be 119,000 mt and overall F is estimated at 0.377. That biomass estimate is well above the overfishing threshold of 62,679 mt, and 0.377 is just below the overfished threshold of 0.38 (OFL). **Therefore, overfishing is not occurring and this resource is not overfished**.

In terms of achieving optimum yield, this action is expected to attain maximum catch levels from access areas by allocating variable access levels per area. No area can sustain a typical fleetwide allocation of one 18,000 pound trip per full-time vessel. Therefore, the preferred alternative allocates a reduced possession limit and varies the amount of access per area to match the available harvest per area. Catch rates will likely vary per area, but this strategy is expected to optimize yield available to the fishery by allocating maximum scallop effort in areas with highest scallop concentrations reducing impacts on EFH and bycatch.

(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.

Lastly, the Council's SSC reviewed and approved the Acceptable Biological Catch (ABC) for this fishery for 2014 and 2015(default) based on updated analyses of biological uncertainty in the parameters used to assess the scallop resource. All of these models were updated for status determination and development of new reference points in June 2010 at the Stock Assessment Workshop in Woods Hole, MA (NEFSC, 2010). Therefore, this is considered the best available science to set MSY in order to prevent overfishing.

(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 includes allocation measures, but they do not discriminate between vessels from various states. Limited access vessels are relatively mobile and are expected to fish in various access areas. Limited access vessels are permitted to trade access area trips with other vessels; therefore, if an area is far from their homeport and they do not want to fish in that area, they can trade for a trip closer to their homeport. In 2014 there are access areas in the Mid-Atlantic and Georges Bank. The lottery mechanism used to allocate access area trips has the potential to give Georges Bank trips to vessels homeported in the Mid-Atlantic, but the lottery mechanism is random, and trip trading is allowed. Furthermore, in this fishing year no vessel will receive more than one trip per area to minimize impacts of different biomass levels between access areas keeping the process as fair and equitable as possible.

General category vessels are not allocated individual access into access areas; it is a fleet-wide allocation of trips for that fishery. Thus, general category vessels can decide to participate in an access area program or not. Therefore, if a vessel is relatively small and cannot fish far offshore or travel great distances to fish in an access area, that vessel can fish its allocation in open areas. Furthermore, this action proposes to prorate the potential CA2 access area trips for LAGC vessels into areas closer to shore to maximize access in access areas if LAGC vessels want to take advantage of access area fishing, but do not have the capability to fish farther offshore.

Some of the LAGC YT AM alternatives had the potential to have higher distributional impacts on some vessels homeported from states located near the SNE/MA YT AM areas. One factor that influenced their recommendation for the seasonal gear area AM is that it is a large area that would basically impact all scallop vessels in the SNE/MA. The seasonal area closure alternative had smaller areas and longer seasons that would potentially have higher disproportional impacts. Furthermore, LAGC trawl vessels can switch to the modified dredge gear if they prefer to continue fishing in the AM area during the time of year it would be closed as an AM.

(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 Allocation Alternative should promote efficiency in the utilization of fishery resources by allocating effort in areas with higher catch rates. In general area rotation promotes

efficiency by increasing catch rates and reducing area swept, which reduce fishing time and increase profits for the fishery.

(6) Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

The Proposed Action takes into account variations among and contingencies in fisheries, fishery resources, and catches. This action enhances the ability of the FMP to adapt to changing resource conditions. The access program is expected to allow the FMP to stabilize fishing effort in open areas, and potentially allowing the FMP greater flexibility to achieve optimum yield through rotational area management in the future. It was noted that it is desirable for the industry to maintain consistent landings from year to year, and the alternative selected (Alternative 4) allows for the highest catch levels that are the same projected catch level as FY2013. These catch levels are still substantially lower than 2012 levels, but compared to the other options considered, the preferred alternative minimizes the impacts of reduced catches from 2012. In FY2015 total projected catch is higher because Mid-Atlantic access areas are expected to open. By increasing catch in 2014 overall landings would be more stable for markets between 2013–2015. Variations in annual catch and allocations are still to be expected under area rotation, a system that is designed to optimize yield from variable recruitment patterns by area and year.

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

The Council considered the costs and benefits associated with the Proposed Action when developing this action. The proposed action does not introduce any new measures that duplicate measures already in place. Area rotation and DAS controls were implemented in 1994; the full area rotation program was implemented in June 2004. Both these types of measures are necessary components of the FMP to achieve the annual mortality targets and prevent the stock from becoming overfished. The increase in the average size of scallops landed, a primary objective of both the FMP and the proposed action, continues to be a major factor that minimizes harvesting costs. The management measures proposed in this action are not duplicative and were developed in close coordination with NMFS and the Mid-Atlantic Fishery Management Council.

(8) Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meet the requirements of paragraph (2), in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

In the Amendment 10 FSEIS, the characteristics and participation of fishing communities involved in the scallop fishery were discussed in Section 7.1.1.3, and the impacts of rotation area management were discussed in Section 8.8. This document includes an update of fishery and community information in Section 4.4. The economic and social impacts, which affect fishing communities, are analyzed and discussed in Sections 5.4 and 5.5. The proposed action will not change these impacts anticipated under Amendment 10.

The proposed action, however, is not expected to jeopardize the sustained participation of fishing communities that have depended on the scallop resource. The area rotation and DAS adjustments are expected to continue to ensure a healthy resource that will be able to support historical levels of participation by fishing communities.

The aggregate economic impacts of the preferred alternative and other alternatives, including the open area DAS and access area trip allocations are expected to be positive both in the short- (2014) and the long-term compared to the No Action alternative. Preferred alternative would result in highest landings (38.5M), revenues ($427.8 million) and total economic benefits ($429.9 million) in 2014 among all the alternatives considered in this Framework (**Table 45**). The total economic benefits of the preferred action would exceed the No Action levels by $151.8 in 2014 fishing year and by $6.5 million ($26.3 million) over the long-term if a 7% (3%) discount rate was used to estimate the present value of cumulative benefits. However, long-term economic benefits under the preferred alternative would be less than the benefits for Alternative 3 using a 7% discount rate, and would be less than the benefits for ALT2, ALT3 and ALT5 using a discount rate of 3% to estimate cumulative present value of net economic benefits. Preferred alternative also reflects status quo conditions by maintaining the landings at the projected FY2013 levels. Therefore, the economic impacts of the preferred alternative is expected to be low compared to the levels in 2013 fishing year.

The economic impacts on the LAGC fishery are the same under all the specification alternatives considered since the IFQ allocation remains the same under all the alternatives,1099 mt. This total catch is very similar to FY2013, 1,111 mt.

(9) Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

Bycatch in the scallop fishery has been greatly reduced and minimized by the success of the FMP to increase scallop biomass and reduce the amount of time fished on a DAS. The FMP has also implemented several gear restrictions that have successfully reduced bycatch. These effects are discussed in detail in Section 6.1.9 of the Amendment 10 FSEIS, and in related sections of that document.

The proposed action includes an AM for the SNE/MA WP sub-ACL. Analyses contained in this document (Section 5.6 and Appendices II and III) support that the gear modification will substantially reduce bycatch of windowpane flounder, as well as other flatfish species.

The Preferred Alternative for fishery specifications, Alternative 4, does have a projected catch of GB yellowtail flounder that is higher than the sub-ACL allocated to the scallop fishery in 2014. Therefore, there is a potential risk that the scallop fishery may exceed their sub-ACL and cause the total ACL to be exceeded (Section 5.6.1.2). It is noted that bycatch projections can vary greatly from actual catch, and have been overestimated for the last three years. Furthermore, there are several measures that are expected to help reduce bycatch in the scallop fishery including a seasonal closure of closed area 2, a voluntary bycatch avoidance program, potential gear modifications, and elimination of the requirement to land legal sized YT (being proposed in

this action). The total estimate of area swept from these specifications are lower than recent years; therefore, the preferred alternative should to the extent practicable, minimize bycatch.

A summary of the impacts of these measures are analyzed and described in Section 5.6. Bycatch of protected species is analyzed in Section 5.3.

(10) Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

Section 6.1.10 in the Amendment 10 FSEIS discusses the effect of current scallop management and of rotation area management on safety. This action does not propose any new measures that would change the findings in Amendment 10. Fishing is dangerous all times of the year, but some of the more restrictive alternatives would limit when vessels could fish in warmer months. The measure to shift LAGC IFQ trips from CA2 to areas closer to shore is expected to promote safety at sea by prohibiting all LAGC vessels from fishing in CA2, some of which are smaller and not as suitable to fish farther offshore.

6.1.1.2 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 26,240 mt in 2014 and 29,683 mt in 2015 (default), including an approximate 5,458 mt for non-yield fishing mortality (discards and incidental mortality) in 2014. Therefore, the overall ABC for the fishery, excluding discards and incidental mortality is 20,782 mt in 2014 and 23,982 mt in 2015 (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 (Section 2.1.1.2).

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 updated hybrid overfishing alternative proposed in Amendment 15. Under this OFD, the overfishing threshold will remain as status quo (spatially averaged F = 0.38). 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 0.28 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 38 million pounds for 2014 for the proposed action (Section 5.4.3). 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 usually exceeded the projected landings in the Frameworks.

(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 t 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 relative to 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 - 24). Any additional impacts from measures proposed in this action on fishery participants are summarized in Section 5.4 and 5.5. Safety in the scallop fishery was described in Section 8.1.5.6 of Amendment 10 and nothing proposed in this action will affect safety of human life at sea.

(10) specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery) and, in the case of a fishery which the Council or the Secretary has determined is approaching an overfished condition or is overfished, contain conservation and management measures to prevent overfishing or end overfishing and rebuild the fishery;

Overfishing reference points describing targets and thresholds for biomass and fishing mortality were updated in 2010 and are presented and explained in Section 4.1.3 of this document. Under this OFD, the overfishing threshold will remain as status quo (spatially averaged F = 0.38). 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 0.32, 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 = 028). The preferred alternative for this action has an overall spatially averaged fishing mortality target of 0.21.

(11) establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority-- (A) minimize bycatch; and (B) minimize the mortality of bycatch which cannot be avoided;

This action does not include changes to the current SBRM. This methodology is expected to assess the amount and type of bycatch in the scallop fishery and help identify ways the fishery can minimize bycatch and mortality of bycatch which cannot be avoided. The scallop fishery

also has an industry funded observer set-aside program that provides additional funding (portion of total scallop catch set-aside) to put observers on scallop vessels.

(12) assess the type and amount of fish caught and released alive during recreational fishing under catch and release fishery management programs and the mortality of such fish, and include conservation and management measures that, to the extent practicable, minimize mortality and ensure the extended survival of such fish;

This Proposed Action does not address recreational fishing regulations. 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 proposes similar catch levels to FY2013. Catch varies based on natural variations in recruitment, and there has been below average recruitment for several years, so catches are not as high as they were in 2011-2012. Over the long term however, the projected catch should be closer to average levels, and is similar to recent years (50 million pounds). The measures included in this action are expected to have positive economic impacts both in the short- (2014) and the long-term compared to the No Action alternative. The proposed specification measures will affect the vessels with limited access permits participating in the sea scallop fishery in similar proportions since each vessel will receive the same number of open areas DAS and access area trip allocations according to their categories they belong, and the limited access general category IFQ vessels receive 5.5% of the total ACL. As a result, the proposed specification measures will have proportionally similar impacts on revenues and profits of each vessel compared to No Action levels.

The lottery mechanism used to allocate access area trips has the potential to give Georges Bank trips to vessels homeported in the Mid-Atlantic, but the lottery mechanism is random, and trip trading is allowed. Furthermore, the Council recommends that no vessel receive more than one trip per area to keep the process as fair and equitable as possible. 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 success of the FMP.

(15) establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability.

The proposed action includes catch limits for certain sectors of the scallop fishery, as well as effort controls for the rest of the fishery that is not under a direct TAC or quota. This action covers 2014 and 2015 (default) only. Measures have been set below the fishing mortality threshold of 0.38, so overfishing is not expected to occur.

Amendment 15 was approved in 2011, which brought the Scallop FMP in compliance with new annual catch limits required under the reauthorized Magnuson-Stevens Act of 2007. The ABC was set in this action under the same principles and the respective values are: 26,240 mt in 2014 and 29,683 mt in 2015 (default). Fishery allocations under the proposed action are set at F = 0.21 overall, and the annual catch from all areas associated with that fishing mortality level is projected to be around 38 million pounds in 2014 under the proposed action.

6.1.2 NEPA

NEPA provides a mechanism for identifying and evaluating the full spectrum of environmental issues associated with federal actions, and for considering a reasonable range of alternatives to avoid or minimize adverse environmental impacts. This document is designed to meet the requirements of both the M-S Act and NEPA. The Council on Environmental Quality (CEQ) has issued regulations specifying the requirements for NEPA documents (40 CFR 1500 – 1508). All of those requirements are addressed in this document, as referenced below.

6.1.2.1 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 5.7;
- A list of preparers is in Section 6.1.2.3.

6.1.2.2 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 sets specifications for fishing years 2014 and 2015 (default) by modifying the rotational area management program implemented by Amendment 10. 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 proposed 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 5.6 summarizes the overall impacts of this action on non-target species. In general, this action does not increase overall fishing effort above levels assessed in Amendment 15, thus there is no indication that impacts on non-target species will be different.

Due to the distribution and behavior of yellowtail flounder, bycatch in the scallop fishery has been documented and is expected to continue under this action. The estimate of YT catch associated with the specifications proposed in this action are projected to be above the 2014 sub-ACL allocations of those non-target species. In general, selecting an alternative that allocates scallop fishing effort with a high probability of exceeding its bycatch sub-ACL for a stock runs a greater risk of exceeding the overall ACL. This could have negative impacts on the bycatch stock and the GF fishery overall. It is important to note that bycatch projections are complex; they are based on variety of assumptions and in the last few years final catch estimates have been below projected catches in most cases.

The Council discussed that there may be more risk of exceeding the GB YT sub-ACL with the specification alternatives that increase scallop fishery DAS, but the Council was comfortable that there are several measures in place that will help the fishery reduce overall YT catch. There are a handful of measures in place that are expected to reduce overall bycatch in the scallop fishery. In recent years in particular the scallop fishery has demonstrated the ability to reduce bycatch of stocks with sub-ACLs. Total bycatch of some of these stocks by the scallop fishery have declined. Specifically, in the last two years a transfer of unused GB YT bycatch has been transferred from the scallop sub-ACL to the GF sub-ACL.

(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 5.1 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, and relative to the No Action alternative, those impacts are marginally positive. Specifically, this action does not allow access into the Habitat Closed Areas, and it maintains the requirement for scallop vessels to use 4-inch rings, which are believed to reduce impacts on benthic environments. Therefore, measures to further mitigate or minimize adverse effects on EFH are not necessary.

(4) Can the proposed action be reasonably expected to have a substantial adverse impact on public health or safety?

Response: No, the proposed action is not reasonably expected to have substantial adverse impacts on public health or safety. 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.

(6) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

Response: The proposed action is not expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area. Section 4.2 describes the physical environment of the affected area including the benthic environment and biological parameters of the scallop resource. In general, this action proposes to maintain fishing mortality at levels similar to those established under Framework 24 (2013 fishing year); 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 5.7 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 5.7 describes fishing and non-fishing past, present and reasonably foreseeable future actions that occurred or are expected to occur in the affected area. Some measures within the proposed action do result in cumulative impacts in some cases, but none of the impacts discussed exceed the threshold that would indicate a significant impact. In summary, the sea scallop resource, EFH, protected species, 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 will modify the rotational area management program, which will have positive impacts on the long-term success of the program at preventing overfishing and achieving optimum yield on a continuing basis.

(12) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?
Response: 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. This action modifies an existing rotational area management program that is designed to be reviewed and adjusted every one to two years. Area rotation was established under Amendment 10, which was an EIS that assessed the long-term impacts of area rotation.

(15) Can the proposed action reasonably be expected to threaten a violation of Federal, State or local law or requirements imposed for the protection of the environment?
Response: No, the proposed action is not reasonably expected to threaten a violation of Federal, State or local law or requirements imposed for the protection of the environment. This action does not propose any changes that would provide incentive for environmental laws to be broken.

(16) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?
Response: No, the proposed action is not reasonably expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species. Both target and non-target species have been identified and assessed in this document (Section 5.1, 5.6, and 5.7). In general, this action will modify the rotational area management program, which will have positive impacts on both target and non-target species.

FONSI DETERMINATION:
In view of the information presented in this document and the analysis contained in the supporting Environmental Assessment prepared for Framework 25 to the Sea Scallop Fishery Management Plan, it is hereby determined that Framework 25 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

6.1.2.3 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

Framework Adjustment 25 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 94.

Table 94 – List of Scallop PDT members (2013)

Scallop Plan Development Team
Deirdre Boelke, PDT Chair, NEFMC
Lt. Josh Boyle, USCG
Matthew Camisa, MA DMF
Dr. William DuPaul, VIMS
Travis Ford, NMFS, SFD
Emily Gilbert, NMFS, SFD
Dr. Demet Haksever, NEFMC
Dr. Dvora Hart, NEFSC, Population Dynamics
Brian Hooper, NMFS, NEPA
Chad Keith, NEFSC, Observer Program
Emily Keiley, SMAST
Kevin Kelly, ME DMR
Dr. Kimberly Murray, NEFSC, Protected Species

Dr. Julia Olsen, NEFSC, Social Science Branch
Dr. David Rudders, VIMS
Robert Vincent, NMFS APS

In addition, other individuals contributed data and technical analyses for the document. Dr. Burton Shank from NEFSC contributed to the analyses of SNE/MA WP AMs. Dr. Jamie Cournane, Dr. Rachel Feeney, Dr. Fiona Hogan, Michelle Bachman, and Woneta Cloutier from NEFMC staff assisted with various sections of this document.

6.1.2.4 Agencies Consulted

The following agencies were consulted in the preparation of this document:

New England Fishery Management Council
Mid-Atlantic Fishery Management Council
National Marine Fisheries Service, NOAA, Department of Commerce
United States Coast Guard, Department of Homeland Security

6.1.2.5 Opportunity for Public Comment

The proposed action was developed during the period February 2013 through January 2014 and was discussed at the meetings listed in Table 95, below. Opportunities for public comment were provided at each of these meetings.

Table 95 – Summary of meetings with opportunity for public comment for Framework 25

Meeting	Location	Date
Scallop PDT	Mariners House, Boston, MA	2/12/13
Scallop AP meeting	Westin Waterfront, Boston, MA	3/26/13
Scallop Committee Meeting	Westin Waterfront, Boston, MA	3/27/13
NEFMC Council Meeting	Hilton Hotel, Mystic, CT	4/25/13
Scallop PDT	Mariners House, Boston, MA	5/21/13
Scallop PDT	Coonamessett Inn, Falmouth, MA	8/19-20/13
SSC Meeting	Omni Providence, RI	9/16/13
Scallop AP Meeting	Best Western, Portsmouth, NH	9/17/13
Scallop Committee Meeting	Best Western, Portsmouth, NH	9/17/13
NEFMC Council Meeting	Cape Codder Resort, Hyannis, MA	9/25/13
Scallop PDT Meeting	Mariners House, Boston, MA	10/29/13
Scallop AP Meeting	Omni Hotel, Providence, RI	11/13/14
Scallop Committee Meeting	Omni Providence, RI	11/14/14
SSC Meeting	Omni Providence, RI	11/15/14
NEFMC Council Meeting	Doubletree Hotel, Danvers, MA	12/16/13
NEFMC Council Meeting	Sheraton Harborside, Portsmouth, NH	1/29/14
Scallop PDT Meeting	Mariners House, Boston, MA	1/6/14
Scallop AP Meeting	Omni Hotel Providence, RI	1/21/14
Scallop Committee Meeting	Omni Hotel Providence, RI	1/22/14
NEFMC Council Meeting	Sheraton Harborside, Portsmouth, NH	1/29/14

6.1.3 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 Framework 25. A final determination of consistency with the MMPA will be made by the agency when Framework 25 is implemented.

6.1.4 Endangered Species Act (ESA)

Section 4.3 of this action contains a description of marine mammals potentially affected by the Scallop Fishery and Section 5.3 provides a summary of the impacts of the proposed action as analyzed in Framework 25. A final determination of consistency with the ESA will be made by the agency when Framework 25 is implemented.

6.1.5 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 eighteen meetings open to the public on Framework 25 (Table 95). The Council initiated this action at the January 2012 Council meeting and approved final measures at the January 2014 meeting. After submission to NMFS, a proposed rule and notice of availability for Framework 25 under the M-S Act will be published to provide opportunity for public comment.

6.1.6 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. Framework 25 does not have any new collection of information requirements subject to the PRA, but the alternative to increase observer set-aside coverage to open area LAGC vessels does expand upon current PRA requirements under the NMFS Northeast Region Observer Providers Family of Forms (OMB Control No. 0648-0546). The amount that the proposed action that would alter the burden hour estimates will be described and evaluated in an updated PRA analysis and public comments will be sought through Framework 25 proposed rulemaking.

6.1.7 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 Framework 25 to NMFS, NMFS will request consistency reviews by CZM state agencies directly.

6.1.8 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 Northeast Regional Office. The notice provides metric conversions for all measurements.

Integrity of Information Product

The information product meets the standards for integrity under the following types of documents:

Other/Discussion (e.g., Confidentiality of Statistics of the Magnuson-Stevens Fishery Conservation and Management Act; NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics; 50 CFR 229.11, Confidentiality of information collected under the Marine Mammal Protection Act.)

Objectivity of Information Product

The category of information product that applies for this product is “Natural Resource Plans.”

In preparing specifications documents, the Council must comply with the requirements of the Magnuson-Stevens Act, the National Environmental Policy Act, the Regulatory Flexibility Act, the Administrative Procedure Act, the Paperwork Reduction Act, the Coastal Zone Management Act, the Endangered Species Act, the Marine Mammal Protection Act, the Data Quality Act, and Executive Orders 12630 (Property Rights), 12866 (Regulatory Planning), 13132 (Federalism), and 13158 (Marine Protected Areas).

This framework is being developed to comply with all applicable National Standards, including National Standard 2. National Standard 2 states that the FMP's conservation and management measures shall be based upon the best scientific information available. Despite current data limitations, the conservation and management measures proposed to be implemented under this framework are based upon the best scientific information available. This information includes

complete NMFS dealer weighout data through 2011. Dealer data is used to characterize the economic impacts of the management proposals. The specialists who worked with these data are familiar with the most recent analytical techniques and with the available data and information relevant to the scallop fishery.

The policy choices (i.e., management measures) proposed to be implemented by this document are supported by the available information. The management measures contained in the framework document are designed to meet the conservation goals and objectives of the FMP.

The supporting materials and analyses used to develop the measures in the framework are contained in the document and to some degree in previous amendments and/or FMPs as specified in this document.

The review process for this framework involves the New England Fishery Management Council, the Northeast Fisheries Science Center, the Northeast Regional Office, and NOAA Fisheries headquarters. The document was prepared by staff of the Council and Center with expertise in scallop resource issues, habitat issues, economics, and social sciences. The Council review process involves public meetings at which affected stakeholders have opportunity to provide comments on the specifications document. Review by staff at the Regional Office is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. Final approval of the specifications document and clearance of the rule is conducted by staff at NOAA Fisheries Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

6.1.9 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.

6.1.10 E.O. 12898 (Environmental Justice)

The alternatives in this framework are not expected to cause disproportionately high and adverse human health, environmental or economic effects on minority populations, low-income populations, or Native American peoples.

6.1.11 Executive Order 12866 (Regulatory Impact Review)

6.1.11.1 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 Framework 25 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.

6.1.11.2 Economic Impacts

Section 5.4 evaluated economic impacts of Framework 25 proposed measures and alternatives considered by the Council. The aggregate economic impacts of the proposed allocation alternatives are analyzed in Section 5.4.3. The numerical results are presented in the tables included in those sections. Sources of uncertainty are identified in Section 5.4.4. The individual measures considered by Framework 25 are discussed in Sections 5.4.2 through 5.4.12 and the relevant subsections shown below:

- Acceptable Biological Catch: Section 5.4.2
- Aggregate Economic Impacts including open area DAS and access area allocations: Section 5.4.3
- Specifications for limited access vessels: Section 5.4.3
- Measures to protect recruitment within access areas potentially opening in 2014: Section 5.4.3.8
- Additional measures to reduce mortality on smaller scallops in NL and/or Delmarva: Section 5.4.3.9
- Measures to address unused Closed Area 1 access area trips: Section 5.4.3.10
- Specifications for limited access general category (LAGC) IFQ vessels: Section 5.4.3.11
- Prorate LAGC IFQ trips proportionally in all areas open that year excluding CA2: Section 5.4.3.11.1.1
- Northern Gulf of Maine (NGOM) Hard-TAC: Section 5.4.3.11.2
- Accountability measures for the SNE/MA windowpane flounder sub-ACL allocated to the scallop fishery: Section 5.4.3.12

6.1.11.3 Summary of Regulatory Impacts

The combined impacts of the specification alternatives on scallop fishery, on consumers and total economic benefits to the nation are analyzed in Section 5.4.3 and subsection from 5.4.3.1 to 5.4.3.7. The economic impacts of the individual measures are discussed in Sections of 5.4.3.8 through 5.4.3.12 as indicated above. All the values for economic impacts are presented in terms of 2012 dollars except for the determination of the significant impacts, cumulative present value of the net economic benefits to the nation are also estimated in terms of the 1996 dollars.

Summary of the aggregate impacts of the proposed measures

The economic impacts of the proposed measures are estimated relative to the "No Action" levels. The Guidelines for the Economic Analysis of the Fishery Management Action (NMFS, 2007) [8] state that in estimating the costs and benefits of an action "the proper comparison is '*with the action' to 'without the action'* rather than to *'before and after the action,*' since certain changes may occur even without action and should not be attributed to the regulation." Furthermore, the Guidelines indicate that "the baseline is what is likely to occur in the absence of any of the proposed actions" and that "The No Action alternative should be the basis of comparison for other alternatives. However, the No Action alternative does not necessarily mean a continuation of the present situation, but instead is the most likely scenario for the future, in the absence of other alternative actions"[9]. Therefore, the consistency of the Framework 25 analyses with these guidelines require that the biological and economic impacts of the proposed measures compared to the "No Action" scenario as defined in Section 2.1.3.1 of the document and described below.

The aggregate economic impacts of the preferred alternative and other alternatives, including the open area DAS and access area trip allocations and TAC for the general category fishery, are expected to be positive both in the short-term (2014) and the long-term compared to the No Action scenario. If No Action is taken, open area DAS will be about 75% (23 DAS in 2014) of what it was in 2013 fishing year (33 DAS) and will have no access area trips instead of two trips they had in 2013. As a result, the landings (23.8M lb.), revenues ($280.5M), and total economic benefits ($278.1) for No Action would be significantly lower compared to the other alternatives in 2014 including ALT4 (SQ landings), which maintains the landings at approximately 2013 levels. Conversely, the preferred alternative will result in highest landings (38.5M), revenues ($427.8 million) and total economic benefits ($429.9 million) in 2014 among all the alternatives considered in this Framework (**Table 45**). The total economic benefits of the preferred action would exceed the No Action levels by $151.8 in 2014 fishing year and by $6.5 million (at 3% discount rate) to $26.3 million (at 7% discount rate) over the long-term from 2014 to 2027 fishing years. However, ALT 4 will have a smaller increase in revenues, producer surplus and total economic benefits ($6.5 million increase compared to No Action) over the long-term (net of No Action values) compared to other alternatives except for ALT6 (**Table 46**) if a 3% discount rate was used to estimate present values. If future benefits were discounted at 7%, however, ALT4 would have slightly higher benefits and would rank 2nd in terms of value of revenues ($36 million) and rank 3rd in terms of total economic benefits ($26.3 million increase compared to No Action) over the long-term net of No Action values (**Table 46**). In terms of 1996 prices, the net benefits will increase by $9.5 million (at 3% discount rate) million to $38.5 million (at 7% discount rate) from the No Action levels for the long-term period from 2014 to 2027 fishing year. Thus the preferred alternative would have positive economic impacts both in the short-term and over the long-term compared to No Action. Preferred alternative also reflects status quo conditions by maintaining the landings at the projected FY2013 levels. Therefore, the economic impacts of this alternative is expected to be quite low compared to the levels in 2013 fishing year.

[8] Guidelines for Economic Reviews of National Marine Fisheries Service Regulatory Actions, March 2007, http://www.nmfs.noaa.gov/sfa/domes_fish/EconomicGuidelines.pdf

[9] Ibid, p.12

The Guidelines for the Economic Analysis of the Fishery Management Action (NMFS, 2007) require that the analysis to include the economic effects of a range of feasible alternatives to "enable the agency to determine the regulatory alternative that maximizes net benefits to the nation…" [10]. The following summarizes the economic impacts of the preferred alternative in comparison to the other alternatives considered in this Framework:

- Revenues for Alternative 2 in 2014 will be $64.2 million lower and total economic benefits would be $66.6 million lower than preferred alternative (ALT4). Over the long-term from 2014 to 2027, the present value of revenues, producer surplus and total economic benefits under this alternative will be higher than the preferred alternative (ALT4).
- Revenues for Alternative 3 in 2014 will be $63.5 million lower and total economic benefits would be $65.8 million lower than ALT4 (**Table 45**). Over the long-term, the total economic benefits under this alternative would be $26.9 million (at 7% discount rate) to $44.1 million (at 3% discount rate) higher than the benefits for preferred alternative (ALT4).
- Revenues and total economic benefits for ALT5 would be lower than the levels for the preferred alternative (ALT4) in 2014. However, in the long-term this alternative will result in slightly higher increase in the present value of revenues (by $20.6) and total economic benefits ($10.7 million) compared to both ALT 4 using a 3% discount rate to estimate future benefits. However, if the value of the future revenues were discounted using a 7% discount rate, ALT5 would have lower revenues and total economic benefits compared to ALT4 (**Table 46**).
- Alternative 6 would have slightly lower (by $5 million) revenues and total economic benefits (by $5.9 million) in 2014 as well slightly lower revenues and total economic benefits over the long-term compared to preferred alternative (ALT4).
- The level of employment in the scallop fishery as measured by CREW*DAS will be higher under all alternatives compared to No Action (ALT1). Employment will be higher under ALT6 and ALT4 (Preferred Alternative) compared to other alternatives. The open area DAS (31 Days) and access area trip allocations (2 trips) for ALT4 will be similar to the levels in 2013 (33 days and 2 trips) depending also on whether vessels use DMV trip in the open areas or in DMV access area. Therefore, employment is not expected to change much in 2014 compared to status quo levels in 2013 fishing year especially given that FW25 is a one year action.
- Each specification alternative also includes default measures for 2015 fishing year that would be in place until the next Framework action is implemented. Instead of rolling over the projected DAS in 2015 (23 DAS under the preferred alternative) until the new Framework is implemented, this measure would allocate only 75% of the projected DAS in FY2015 for LA vessels (or 17 DAS for the preferred alternative) to prevent potentially negative impacts on the resource and scallop yield. Thus those measures are expected to have positive economic benefits for the scallop fishery in the long-term.

[10] Ibid., p.13

- The cumulative impacts of the measures from Framework 25 proposed measures, and the past actions including Amendment 10, Amendment 11, Amendment 15, Framework 22 and Framework 24 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 Framework 25 measures are estimated to have positive impacts on consumer, producer and total economic benefits in 2014 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 in 2014. The actions proposed by Framework 25 are expected to increase fleet revenues, profits and total economic benefits compared to No Action over the long-term. As a result, cumulative economic benefits, which measure the sum of benefits from previous and preferred alternatives, are expected to be positive.

Summary of the impacts of the individual measures

- Because the ABC level for the preferred alternative is lower than the no action ABC, this measure is expected to have negative impacts on the landings and revenues, producer and consumer surpluses and net economic benefits to the nation in the short-term. However, the level of ABC updated in the Framework will help prevent overfishing and optimize yield on a continuous basis. Therefore, this measure is expected to have positive impacts on the landings and revenues, producer and consumer surpluses and net economic benefits to the nation over the long-term.
- This action considered a measure that would prohibit effort in the areas within NL with higher concentrations of small scallops (Option 2). However, preferred alternative is No Action (Option 1) with no restriction on fishing location within GB access areas with low economic impacts in the short-term, but low negative impacts on landings, revenues and total economic benefits over the long-term.
- The preferred alternatives would prohibit RSA compensation fishing in NL (Alternative 2) and in Delmarva (Alternative 3), would constrain fishing in Delmarva between June and August, or three months after implementation of FW25 to concentrate fishing in a season with higher yields (Alternative 4) and would restrict crew limits in Delmarva to limits used in open area fishing to reduce potential highgrading on small scallops in Delmarva (Alternative 5). These alternatives could slightly increase costs due to reduced flexibility in fishing those access areas during certain months and because of the crew limits, however, they are expected to have potentially positive results on the scallop resource with positive impacts on long-term yield, revenues and total economic benefits compared to No Action.
- The preferred alternative, Alternative 2, would have positive economic impacts on the economic benefits for the short-term for making it possible full-use of the pounds allocated to Closed Area 1 in the previous fishing years, 2012 (Option 2, preferred) and 2013 (Option 3, preferred).
- Under the preferred alternative, Alternative 2, allocation for the LAGC IFQ fishery (2.42 million lb.) will be lower than the allocation under the default measures for No Action (2.77 million lb.), with negative economic impacts on the LAGC IFQ fishery compared

to No Action scenario. However, under the preferred alternative, the level for sub-ACL for the LAGC-IFQ fishery is determined according to the new survey results to prevent overfishing and to optimize the yield and revenues for all the participants of the scallop fishery. In addition, No Action TAC is higher than the LAGC allocations in 2013, which was about 2.44 mill.lb. Therefore, under the preferred Alternative (Alternative 2), this fishery will get about the same amount of allocation as it did in 2013 fishing year. As a result, Alternative 2 is expected to have small economic impacts, if any, in the short-term, but positive economic impacts over the long-term compared to No Action levels.

- The preferred alternative will keep the value of incidental catch at (50,000 lb.) and the NGOM TAC at 70,000 lb. Since there is no change in these values from the previous action, preferred alternative will have the same economic impacts as the No Action. Removal of the incidental catch before making allocations will ensure fishing mortality targets are not exceeded, thus, will continue to have positive impacts on the resource, scallop yield, on the revenues and profits of the scallop vessels.
- The preferred alternative would prorate LAGC IFQ trips proportionally in all areas open that year excluding CA2, with positive economic impacts on the LAGC vessels because they will be able to use CA2 trips in areas closer to the shore with lower trip costs.
- Accountability measures for the SNE/MA windowpane flounder sub-ACL include two preferred alternatives that address different aspects of this fishery. The preferred Alternative 3 would implement a gear restricted area for a specified period of time with higher bycatch rates of SNE/MA windowpane flounder if the scallop fishery exceeds their sub-ACL and the entire ACL is exceeded, or the sub-ACL is exceeded by more than 50%. This alternative would apply to all scallop vessels, including LA and LAGC IFQ vessels, but it will mainly impact the LAGC vessels using trawls since, since majority, if not all LA vessels fish using dredges already. A trawl vessel could switch to dredge gear and fish with the modified gear during the AM season, but this may not be very likely for many trawl vessels, especially if the season is only for two months of the year. The net economic impacts of this alternative will depend to what extent the fishing in seasons when meat weights are larger will outweigh or falls short of the costs associated with reduced flexibility due to a narrower fishing season. With preferred Alternative 4, all scallop dredge vessels (LA and LAGC) would only be able to fish with a maximum of seven rows of rings in the apron of their dredge in waters west of 71 W, excluding the Mid-Atlantic access areas to reduce the chance the fishery would exceed the sub-ACL. Although reduced flexibility and potentially reduced landings due to fishing with modified gear coupled with some increase in fishing costs will have some negative economic impacts in the short-term, these impacts are expected to be low. Over the long-term, compared to No Action, this measure could have potentially positive economic benefits on the resource if it enables vessels to reduce bycatch and reduce the likelihood that AMs are triggered.

6.1.11.4 Enforcement Costs

The enforcement costs and benefits of the proposed options for Framework 25 are within the range of impacts addressed in Section 8.9 of Amendment 10 FSEIS and Section 5.4.22 and Section 5.6.3 of Amendment 11. The qualitative analysis included a discussion of the pros and cons of the proposed alternatives from an enforcement perspective. The proposed measures by

Framework 25 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.

6.1.11.5 Determination of Significant Regulatory Action

Executive order 12866 defines a "significant regulatory action" as one that is likely to result in: a) an annual effect on the economy of $100 million or more, or one which adversely affects in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; b) a serious inconsistency or interference with an action taken or planned by another agency; c) a budgetary impact on entitlements, grants, user fees, or loan programs, or the rights and obligations of recipients thereof; d) novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this executive order.

The preceding analysis shows that Framework 25 would not constitute a "significant regulatory action" since it will not raise novel legal and policy issues, other than those that were already addressed and analyzed in Amendment 10, Amendment 11 and Amendment 15. The overall cumulative impacts of the preferred alternative on scallop revenues are expected to be positive for the long-term period 2014-2027compared to the No Action levels as summarized above. Present value of the cumulative revenues for the preferred alternative will exceed No Action levels by $44.2 million (5.6 million) and the present value of the cumulative economic benefits for the preferred alternative would exceed the total economic benefits for No Action by $6.5 ($26.3) million using a 7% (3%) discount rate in the long-term. In terms of 1996 prices, the net benefits will increase by $9.5 million (at 3% discount rate) million to $38.5 million (at 7% discount rate) from the No Action levels for the long-term period from 2014 to 2027 fishing years. Thus the preferred alternative will not have either a short-term or a long-term negative annual impact on the economy by $100 million or more compared to No Action alternative or compared to the status quo conditions in 2013. The proposed alternatives will not adversely affect in a material way the economy, productivity, competition, public health or safety, jobs or state, local, or tribal governments or communities in the long run. The 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.

6.1.12 Initial Regulatory Flexibility Analysis

The purpose of the Regulatory Flexibility Analysis (RFA) is to reduce the impacts of burdensome regulations and record-keeping requirements on small businesses. To achieve this goal, the RFA requires government agencies to describe and analyze the effects of regulations and possible alternatives on small business entities. Based on this information, the Regulatory

Flexibility Analysis determines whether the preferred alternative would have a "significant economic impact on a substantial number of small entities."

6.1.12.1 Problem Statement and Objectives

The purpose of the action and need for management is described in Section 1.2 of the Framework 25 document.

6.1.12.2 Management Alternatives and Rationale

The preferred alternative and other alternatives including "no action" are described in several sections in Section 2.0 of the framework document.

6.1.12.3 Determination of Significant Economic Impact on a Substantial Number of Small Entities

6.1.12.3.1 Description of the scallop permits and vessels

The proposed regulations of Framework 25 would affect vessels with limited access scallop and limited access general category permits. Appendix I to Framework 24 (Economic and Social Trends) provide extensive information on the number, the port, the state, and the size of vessels and small businesses that will be affected by the proposed regulations. The unique number of limited access permits by right-id is provided in Table 96. According to the recent permit data, there were 313 unique vessels that obtained full-time limited access permits in 2013, including 250 dredge, 52 small-dredge and 11 scallop trawl permits. In the same year, there were also 34 part-time limited access permits in the sea scallop fishery. The number of LAGC-IFQ permits declined from 344 in 2009 to 278 in 2012. There were 96 applications for NGOM and 279 applications for incidental catch permit (Table 97). The number of active general category vessels with IFQ permits has declined in recent years, to 159 vessels in 2012 from 231 vessels in 2009 (Table 103). There were 18 active vessels with NGOM permits and 88 vessels with incidental catch permits (up to 40 lb. of scallops per trip) in 2012 as described in Table 103.

Especially full-time limited access vessels had a high dependence on scallops as a source of their income and the majority of the full-time vessels derived more than 90% of their revenue from the scallop fishery during 2009-2012 while only 16 out of 34 of the part-time small dredge vessels derived 90% of their revenue from scallops in the same year (Table 98). It should be pointed out that only the vessels with LAGC-IFQ permits would be affected with the Framework 25 measures, since Framework 25 will have no changes to the total TAC for LAGC NGOM or TAC for the LAGC incidental catch fisheries. Therefore, including the vessels with LA and LA IFQ permits, the proposed alternatives of Framework 25 are expected to have impacts on a substantial number of small entities.

Although the current data on the limited access general category fishery is less than perfect, the available information shows again that more than 50% of the limited access general category IFQ derived more than 90% of their revenues from the scallop fishery (Table 99). Therefore, scallop fishing is an important source of income for the majority of the vessels in the scallop fishery. Appendix I to Framework 24 provide detailed information on the composition of revenue and revenues from other species for the LA and the limited access general category vessels.

Table 96. Scallop Permits by unique right-id and category by application year

Permit category	2008	2009-2013
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 97. LAGC Permits (may include duplicate records for replaced vessels with different permit numbers)

Permit Category	Application Year	LA and LAGC permit	LAGC permit only	Grand Total
IFQ	2009	41	303	344
	2010	40	293	333
	2011	41	247	288
	2012	41	237	278
NGOM	2009	28	99	127
	2010	28	94	122
	2011	27	76	103
	2012	27	69	96
Incidental	2009	116	185	301
	2010	113	172	285
	2011	114	165	279
	2012	117	162	279

Table 98. Number of limited access vessels by the proportion of their revenue from scallops (by Calendar Year)

Scallop Revenue as % of total	Permit category	2009	2010	2011	2012
Less than 50%	PTSD	6	3	3	3
50%-74%	FT	3	5	6	5
	PTSD	6	10	9	9
75%-89%	FT	6	7	3	7
	FTSD	9	7	8	10
	PTSD	NA	7	8	4
>=90%	FT	236	238	242	238
	FTSD	42	43	43	41
	PTSD	16	14	12	16
	FTTRW	10	10	11	9
>=90% Total		**304**	**306**	**308**	**304**
Grand Total		**341**	**348**	**348**	**346**

Source: Dealer database

Table 99. Number of LAGC-IFQ vessels by the proportion of their revenue from scallops (by Calendar Year)

Scallop Revenue as % of total	2009	2010	2011	2012
<50%	74	65	56	42
50%-75%	38	22	21	23
75%-90%	24	14	19	11
>90%	108	91	87	88
Grand Total	**244**	**192**	**183**	**164**

Source: Dealer database

6.1.12.3.2 Description of the small business entities based on ownership information

The RFA recognizes three kinds of small entities: small businesses, small organizations, and small governmental jurisdictions. It 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 million annually. The limited access (LA) and Limited Access General category (LAGC) vessels in the Atlantic sea scallop fishery grossed less than $5 million in scallop revenue according to the dealer's data for 2009 to 2012 fishing years (Table 101 to Table 103). In terms of scallop landings and revenue, 2011 was a record year (Table 100). According to the 2011 dealer data, average annual revenue was 1,591,893 per full-time vessel. Average scallop revenue per limited access general category IFQ vessel was $202,737 in 2011 fishing year (Table 103).

Table 100. Scallop fleet landings, scallop revenue and ex-vessel price (Dollar values are in inflation adjusted 2012 values).

Fishyear	Revenue ($ million)	Landings Million lb.	Prices
1994	123.5	16.5	7.5
1995	128.3	16.9	7.6
1996	140.8	17.2	8.2
1997	123.6	13.4	9.2
1998	99.3	11.8	8.4
1999	160.6	21.7	7.4
2000	214.6	33.3	6.4
2001	212.2	45.7	4.6
2002	242.8	50.0	4.9
2003	278.1	55.1	5.0
2004	382.8	62.6	6.1
2005	478.1	53.7	8.9
2006	405.3	56.3	7.2
2007	427.4	59.7	7.2
2008	380.4	52.5	7.2
2009	391.5	58.0	6.8
2010	474.3	57.0	8.3
2011	582.2	58.5	10.0
2012	546.1	57.0	9.6

Table 101. Annual scallops landings and revenues per full-time limited access vessel by permit category (including TAC set-aside funds used by individual vessels)

Fishyear	Permit category	Scallop Revenue/vessel	Scallop landings/vessel
2008	FT	1,049,003	151,357
	FTSD	816,049	119,220
	FTRW	956,261	141,166
2008 Average		**1,005,723**	**145,499**
2009	FT	1,049,208	162,811
	FTSD	795,478	129,334
	FTRW	1,043,585	174,246
2009 Average		**1,014,389**	**158,691**
2010	FT	1,323,078	163,696
	FTSD	1,020,709	138,194
	FTRW	1,318,911	187,070
2010 Average		**1,282,474**	**161,178**
2011	FT	1,648,748	166,386
	FTSD	1,196,512	119,736
	FTRW	1,800,284	186,214
2011 Average		**1,591,893**	**160,679**
2012	FT	1,582,793	162,687
	FTSD	1,269,427	131,496
	FTRW	1,544,024	163,073
2012 Average		**1,540,210**	**158,608**
Grand Average		**1,280,297**	**156,561**

Table 102. Annual scallops landings and revenues per part-time small dredge limited access vessel (including TAC set-aside funds used by individual vessels)

Fishyear	Scallop Revenue/vessel	Scallop landings/vessel
2008	321,673	46,754
2009	277,598	44,008
2010	450,187	59,016
2011	510,463	51,264
2012	384,891	38,910
Grand Total	**380,182**	**47,791**

Table 103. Estimated Average annual revenue per limited access general category vessel (includes LA vessels with LAGC permits, Dealer Data)

Values	Fishyear	IFQ	INCI	NGOM
Number of permits	2009	231	73	12
	2010	179	67	12
	2011	170	76	15
	2012	159	88	16
Average scallop lb. per vessel	2009	18,650	2,685	2,038
	2010	13,319	2,255	595
	2011	19,608	797	757
	2012	19,992	561	1,707
Average scallop revenue per vessel	2009	116,164	16,192	12,915
	2010	117,567	18,106	4,727
	2011	202,737	7,741	6,885
	2012	203,712	5,296	12,119

Limited access scallop fishery: Multi-boat owners and affiliation

According to the ownership data for the scallop fishery, several individuals have ownership interest in one single vessel or multiple vessels (Framework 24, Section 1.1.8, Appendix I, Economic and Social Trends). In other words, every vessel has multiple owners and some owners of a particular vessel have ownership interest in other vessels with different individuals. The vessel affiliations and the corresponding business entities in the scallop fishery is derived using a method based on 'maximum ownership' criteria as explained in Appendix I, Economic Model and using ownership data for 2012 fishing year. The maximum ownership criteria is basically a tool used in assigning all the vessels owned by an individual into the same entity and including the co-owners in the same pool of affiliation following SBA's criteria for affiliation based on the principle of control that "may arise through ownership, management, or other relationships or interactions between the parties" even when the control is not exercised (CFR 121.103 in its Small Business Size Regulations). This approach is also consistent with the way ownership is defined for the purposes of 5% ownership cap provision in the scallop limited access fishery. However, due to the lack of data on those relationships other than ownership of vessels, the business entities are identified by the ownership interest only.

There have been 132 distinct business entities in the scallop limited access fishery as of 2012 fishing year, slightly lower than the number of businesses in 2010 fishing year. The primary industry of all these individual businesses was identified as "scallop" fishery, because their revenues from the scallop fishery exceeded the revenues from all other species. Scallop revenue averaged over 96% of the total revenue during the 2010-2012 fishing years for the businesses with limited access permits (Table 104).

Table 104. 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).

Values/Fishing Year	2010	2011	2012
Number of entities	136	133	132
Number of permits*	349	349	348
Average scallop revenue per business entity	3,170,123	4,088,345	3,929,500
Average revenue from other species per business entity	120,673	161,245	164,805
Average total revenue per business entity	3,277,486	4,224,130	4,065,589
Scallop revenue as a % of total	96%	97%	97%
Total Scallop revenue	431,136,680	543,749,859	518,693,999
Total revenue	445,738,118	561,809,278	536,657,760

* Number of permits include a few permits for the replacement vessels.

The size category for each business is determined based on the average annual receipts of these entities for 2010-2012 fishing years. Table 105 shows that, as of 2012 fishing year, 193 scallop vessels with both Limited Access (LA) and Limited Access General category (LAGC) permits belonged to 23 large business entities that grossed more than $5 million annually including annual receipts both from scallops and other species, while rest of the 155 vessels owned by small businesses. Majority of the small business entities belonged to individuals who own either one or two boats, while the large business entities owned on the average 7 vessels.

Table 105. Number of small and large business entities in the scallop limited access fishery based on average annual receipts for 2010-2012 fishing years (revenues include both from LA and LAGC trips for vessels that have both permits).

Values	large	small	Grand Total
Number of business entities	23	109	132
Number of limited access permits	193	155	348
Average number of vessels owned	7.1	1.5	2.6
Total annual receipts(avg.per business)	12,015,518	2,150,653	3,869,531

Some of these small entities with close to $5 million gross receipts could move up to the large entity category if they had revenues from other commercial operations including dealer, processing or retail operations as well. Such an extensive affiliation information tracking of ownership for the other affiliated commercial entities is not readily available at this point, however.

Limited access general category scallop fishery: Multi-boat owners and affiliations

Table 106 shows the ownership information for vessels with LAGC-IFQ permits excluding those with LA permits. Overall, there were 145 business entities in 2012 fishing year that owned 181 active vessels with general category limited access permits. The primary industry for the 73 business entities was identified as Multispecies and the primary industry for the rest of the 72 entities was identified as scallop industry based on the proportion of revenue from these species.

All of these business entities were classified as small because their total revenues were less than 5 million, lower than the threshold value for both the Multispecies and scallop fisheries to qualify as large business.

In summary, scallop LA and LAGC fisheries are composed of approximately 204 (132 LA and 72 LAGC-IFQ) business entities (as scallop fishery their primary industry), with 181 of these (109 LA and 72 LAGC-IFQ) considered as small business entities. In addition to these business, there are an additional 49 small business entities with a primary industry in multispecies fishery that also participate in the LAGC-IFQ fishery, Therefore, Framework 25 will have economic impacts on a substantial number of small business entities in the scallop fishery.

Table 106. Annual average revenue for 2010-2012 fishing years and number of owners of LAGC-IFQ vessels as of 2012 Fishyear

Scallop fishing activity	Values	Primary Industry		Grand Total
		Multispecies	Scallop	
No scallop landings	Number of business entities	24		24
	Average total revenue per business entity	303,984		303,984
	Scallop Revenue as a % of total	0%		0%
	Number of vessels	26		26
	Average number of vessels owned per business entity	1.1		1.1
Landed scallops	Number of business entities	49	72	121
	Average total revenue per business entity	427,157	290,773	346,003
	Scallop Revenue as a % of total	16%	86%	58%
	Number of vessels	73	82	155
	Average number of vessels owned per business entity	1.5	1.1	1.3
Number of business entities		**73**	**72**	**145**
Average total revenue per business entity		**386,662**	**290,773**	**339,048**
Scallop Revenue as a % of total		**11%**	**86%**	**48%**
Number of vessels		**99**	**82**	**181**
Average number of vessels owned per business entity		**1.4**	**1.1**	**1.2**

6.1.12.4 Economic impacts of proposed measures and alternatives

6.1.12.4.1 Summary of the aggregate impacts of the DAS and access area allocation alternatives

Rationale for the proposed specification measures is provided in Section 2.1.3 of Framework 25 and aggregate economic impacts of these measures including the open area DAS allocations, and access area trip allocations are analyzed in Section 5.4. The following sections provide an analysis of the impacts on the individual vessel and small business entities based on the fleet-wide impacts of the specification alternatives analyzed in Section 5.4.3.

The economic impacts under E.O. 12866 need not be identified at the vessel or firm level in the RIR, whereas, these levels remains the focus of the RFAA. The aggregate economic impacts of the proposed measures and other alternatives including access area allocations, open area DAS allocations and TAC for the general category fishery are analyzed in Section 5.4.3 both relative to No Action and status quo (SQ) landings (also the preferred alternative, or ALT 4) from a net national benefit perspective and using a cost-benefit framework. The impacts of the ALT4 and other alternatives on the revenues and net revenues of the limited access vessels are estimated in Table 107. According to these estimates, the preferred alternative will increase average revenue per limited access vessel in the scallop fishery by about 53% from the No Action levels in 2014 fishing year (Table 107).

The primary goal of RFAA analysis is to consider, however, the effect of regulations on small businesses and other small entities, recognizing that regulations frequently do not provide for short-term cash reserves to finance operations through several months or years until the positive effects of the regulation start paying off. As described in Section 5.4.3, the preferred alternative, ALT 4, in this action reflects a scenario that maintains landings at the projected FY2013 levels by allocating 31 open area days and 2 access area trips with a flexibility to use a DMV trip in the open areas. Therefore, in addition to the No Action scenario, for the purposes of this RFA analysis, the projected economic benefits of the specification alternatives will also be compared to the benefits for alternative 4 (ALT4) instead of a hypothetical SQ scenario that keeps the allocations at 2013 levels (33 open area days and 2 access area trips). Similarly, in the discussions below, the term ALT4 and SQ are used interchangeably.

The potential economic impacts of the preferred specification alternative (Alternative 4, or ALT4) and other alternatives on an average scallop vessel are expected to be proportional to the aggregate economic impacts. The proposed regulations will change the allocations of the scallop vessels in the same proportions. In 2014 fishing year, under the preferred alternative (ALT4), each limited access vessel's open area DAS allocations (31 DAS) will change in exactly the same percentage compared to the no action (23 days) levels. Similarly, each full time vessel will be allocated two access area trips in 2014 compared to no trips under the No Action alternative.

This will result in proportional impacts on the single and multi-boats owners as well compared to No Action since the open area DAS and access area trips will increase in the same proportions for both groups. This proportional increase in open area DAS and the number of access area trips are expected to increase annual scallop landings and revenues of the large versus and small entities in approximately similar proportions compared to No Action levels. Since the preferred alternative, ALT4, also reflects the status quo conditions (i.e., about the same level of landings as in the previous fishing year), the impacts of the Framework 25 specification alternatives on both the small and large entities are expected to be negligible in 2014 fishing year compared to the previous fishing year and status quo conditions.

For these reasons, the following discussion will focus only on the small business entities and the analyses will be conducted on an individual vessel level given that majority of the small business entities included ownership of either one or two boats (Table 105). The analyses below show the impacts on annual scallop revenues for each average individual vessel with a full-time limited access permit in the scallop fishery although the percentage change in scallop revenues would be

similar for part-time vessels and small business entities with ownership of more than one vessel as well.

6.1.12.4.2 Impacts of Framework 25 specification alternatives on scallop vessels and small business entities

Because the thrust of the RFA analysis is short- and medium-term in nature, the RFA analyses provided below focused on the medium-term (near-term) impacts from 2014 to 2018 fishing years whereas cost-benefit analyses considered impacts also for the long-term from 2014 to 2027 fishing years. Table 107 and
Table 108 provide an analysis of impacts on an average full-time vessel in the scallop fishery based on the economic analyses provided in Section 5.4, by converting annual fleet revenues and net revenues to a per full-time vessel equivalent level (excluding the research and observer set-asides, the share for the general category fishery). Overall, it is estimated that the limited access fishery would land roughly 93.3% of the total scallop landings (after the set asides, buffer for LA fishery, and LAGC TAC is removed), which in turn, is divided by 327 full-time equivalent vessels to estimate the landings and revenues per FT limited access vessel.

The analysis of the fleet-wide aggregate economic impacts indicated that the preferred alternative will have positive economic impacts compared to the no action levels both in the short-term (2014) and over the long-term (2014-2027) mainly because there will be no access area trip allocations under no action in the short-term due to the default regulations and the open area DAS allocations would be lower than the allocation under the preferred alternative. As a result, the estimated gross revenue per vessel and per small business entity (including those small business entities with ownership of multiple vessels) under the preferred alternative (ALT4) would be 53% higher than the no action levels in 2014 compared to no action scenario (Table 107).

Although Framework 25 is a one year action, the estimated revenue streams in the future years show the possible impacts of ALT4 and the alternatives on future revenues. The revenues and net revenues for the preferred alternative is estimated to be 7% less than the no action levels in 2015 fishing year, however, the total revenue for the preferred alternative (ALT4) as sum of revenues in 2014-2015 would still exceed the levels for No Action (Table 107). Similarly, both the revenues and net revenues for the preferred alternative would be slightly higher than No Action levels during the medium term from 2014 to 2018 even though revenues for no action would exceed the levels for the preferred alternative each year starting with 2015 (Table 108).

The preferred alternative (ALT4) would have positive impacts on the revenues and net revenues of the scallop vessels and small business entities over the long-term from 2014 to 2027 as well. The present value of the revenues would exceed the no action values by $18.5 million ($36 million) over the long term if the future revenues were discounted at 3% (7%, Table 45 and Table 46 of section 5.4.3)

The comparison of results with the No Action alternative does not reflect the changes compared to the recent levels of revenues and economic benefits, however. This is because under No Action the vessels would be allocated fewer open area DAS (23 days) compared to what they had in 2013 (33 days) and will have no access area trips compared to two trips they had in 2013.

For these reasons, revenues for no action would be significantly lower ($280.5 million in 2013) compared to the actual revenues in 2012 ($546 million) and in 2013 (estimated to be about $460 million).

For RFA purposes, it would be insightful to examine how the revenues of the small business entities would change relative to the levels if the vessels were allocated exactly the same number of open area DAS and access area trips. The open area DAS and access area trip allocations for the preferred alternative (ALT4) are similar to those levels in 2013 fishing year and in fact, this alternative was designed to produce the same level of landings in 2014 as in 2013 fishing year. For this reason, ALT4 approximates the status quo conditions and is used as the status quo scenario in Table 107 and Table 108 for comparative purposes.

The revenues for the preferred alternative (ALT4) is estimated to be $427.8 million in 2014 fishing year, which is less than the estimated revenue ($460 million) for 2013 fishing year. This is because biological model projections for scallop landings (38.5 million lb.) are less than the estimated landings in 2013 (about 40 to 41 million lb.). Similarly, prices projected by the price model are usually less than the actual prices. Therefore, in reality, actual revenue in 2014 could exceed those projected levels if actual prices and landings exceed the projected values for prices and landings --as was often case in the previous years. For these reasons, it is important that the impacts of the alternatives are analyzed in comparison to baseline values, either to No Action or Status quo, projected by the biological and price models rather than to actual values from previous fishing years. Since the preferred alternative (ALT4) represents the status quo conditions, its impacts on the revenues and net revenues of the limited access vessels and the business entities in the scallop fishery will be minimal.

Each specification alternative also includes default measures for 2015 fishing year that would be in place until the next Framework action is implemented. Instead of rolling over the projected DAS in 2015 (23 DAS under the preferred alternative) until the new Framework is implemented, this measure would allocate only 75% of the projected DAS in FY2015 for LA vessels (or 17 DAS for the preferred alternative) to prevent potentially negative impacts on the resource and scallop yield. Thus those measures are expected to have positive economic benefits for the scallop fishery in the long-term.

Table 107. Estimated fleet revenues and revenues per limited access vessel (Total scallop revenue in 2010=$475 million, total scallop revenue in 2011=$582 million, estimated revenue in 2012=$550 million, estimated revenue in 2013 fishing year=$460 million)

Fishing year	Alternative	Fleet scallop revenue (*) ($ million)	Revenue per FT vessel	Change from No Action	% Ch. from SQ (ALT4) levels
2014	1. No Action	280.5	798,933	0%	-35%
	2. Basic Run	363.6	1,036,723	30%	-15%
	3. DMV option	364.3	1,038,780	30%	-15%
	4. 31DAS	427.8	1,220,435	53%	0%
	5. 28 DAS	404.6	1,153,857	44%	-5%
	6. No DMV	422.8	1,206,088	51%	-1%
2015	1. No Action	475.0	1,355,427	0%	8%
	2. Basic Run	462.7	1,320,197	-3%	5%
	3. DMV option	460.2	1,313,166	-3%	4%
	4. 31DAS	440.7	1,257,252	-7%	0%
	5. 28 DAS	446.9	1,275,098	-6%	1%
	6. No DMV	439.0	1,252,436	-8%	0%
2016	1. No Action	559.8	1,597,871	0%	5%
	2. Basic Run	548.4	1,565,276	-2%	3%
	3. DMV option	547.2	1,562,048	-2%	2%
	4. 31DAS	534.0	1,524,119	-5%	0%
	5. 28 DAS	535.0	1,527,043	-4%	0%
	6. No DMV	530.3	1,513,515	-5%	-1%
2017	1. No Action	564.6	1,611,755	0%	3%
	2. Basic Run	558.6	1,594,464	-1%	2%
	3. DMV option	557.6	1,591,731	-1%	2%
	4. 31DAS	546.3	1,559,432	-3%	0%
	5. 28 DAS	543.5	1,551,310	-4%	-1%
	6. No DMV	535.5	1,528,491	-5%	-2%
2018	1. No Action	562.5	1,605,763	0%	2%
	2. Basic Run	557.1	1,590,359	-1%	1%
	3. DMV option	567.2	1,619,029	1%	3%
	4. 31DAS	551.6	1,574,454	-2%	0%
	5. 28 DAS	546.7	1,560,366	-3%	-1%
	6. No DMV	543.1	1,550,060	-3%	-2%
2014-2018 Totals	1. No Action	2442.4	6,984,198	0%	-2%
	2. Basic Run	2490.4	7,121,468	2%	0%
	3. DMV option	2496.6	7,139,203	2%	0%
	4. 31DAS	2500.4	7,150,141	2%	0%
	5. 28 DAS	2476.7	7,082,124	1%	-1%
	6. No DMV	2470.7	7,065,039	1%	-1%

(*) Includes set asides and general category share
SQ: Status quo landings
ALT4 : Preferred alternative
ALT1: Alternative 1, ALT3: Alternative 3, ALT4:Alternative 4

Table 108. Estimated net revenues per limited access vessel

Fishing year	Alternative	Net Revenue per FT vessel	Change from No Action	% Ch. from SQ (ALT4) levels
2014	1. No Action	746,810	0%	-34%
	2. Basic Run	968,182	30%	-15%
	3. DMV option	969,959	30%	-15%
	4. 31DAS	1,134,682	52%	0%
	5. 28 DAS	1,074,603	44%	-5%
	6. No DMV	1,119,674	50%	-1%
2015	1. No Action	1,259,743	0%	8%
	2. Basic Run	1,226,934	-3%	5%
	3. DMV option	1,220,241	-3%	4%
	4. 31DAS	1,168,074	-7%	0%
	5. 28 DAS	1,184,838	-6%	1%
	6. No DMV	1,163,304	-8%	0%
2016	1. No Action	1,482,257	0%	5%
	2. Basic Run	1,451,831	-2%	3%
	3. DMV option	1,448,298	-2%	2%
	4. 31DAS	1,413,298	-5%	0%
	5. 28 DAS	1,416,245	-4%	0%
	6. No DMV	1,403,728	-5%	-1%
2017	1. No Action	1,495,270	0%	3%
	2. Basic Run	1,478,949	-1%	2%
	3. DMV option	1,476,339	-1%	2%
	4. 31DAS	1,446,740	-3%	0%
	5. 28 DAS	1,439,525	-4%	0%
	6. No DMV	1,418,418	-5%	-2%
2018	1. No Action	1,489,605	0%	2%
	2. Basic Run	1,475,212	-1%	1%
	3. DMV option	1,501,253	1%	3%
	4. 31DAS	1,460,418	-2%	0%
	5. 28 DAS	1,447,698	-3%	-1%
	6. No DMV	1,437,824	-3%	-2%
2014-18	1. No Action	6,488,135	0%	-2%
	2. Basic Run	6,615,558	2%	0%
	3. DMV option	6,630,539	2%	0%
	4. 31DAS	6,637,661	2%	0%
	5. 28 DAS	6,577,358	1%	-1%
	6. No DMV	6,557,398	1%	-1%

(*) Includes set asides and general category share
SQ: Status quo allocations
ALT2 : Preferred alternative
ALT1: Alternative 1, ALT3: Alternative 3, ALT4:Alternative 4

Comparison with other alternatives and the Mitigating Factors

The estimated revenues for the scallop vessels and the small business entities under all alternatives considered in this Framework Action are expected to be lower than those record annual revenues with over $500 million achieved in the 2011 and 2012 fishing years due to

favorable scallop stock conditions and rising prices. However, as indicated above, under the preferred alternative (ALT4), landings and revenues per limited access vessel and the business entity is expected to be similar in magnitude to the levels in fishing year 2013. In addition, if the positive trend in the scallop prices continues, the revenues for the preferred alternative could exceed the projected levels for 2014 fishing year.

Table 107 compares the gross revenues per FT vessel for the preferred alternative and for other alternatives from 2014 to 2018. Table 108 provides a similar comparison based on the net revenues (gross revenues minus trip costs) per FT vessel. The results show that the preferred alternative will have the largest revenues compared to all the other alternatives in 2014 fishing year. The revenues in the medium term, estimated as a sum of annual revenues from 2014 to 2018, will also be larger under the preferred alternative compared to levels for no action and other alternatives. The estimated revenues for other alternatives (ALT2, ALT3, ALT5, and ALT6) will be 1% (ALT6) to 15% (ALT2 and ALT3) lower than the revenues under the preferred alternative (status quo levels) in 2014 (Table 107). Over the medium term, the differences between the alternatives will get smaller in terms of their impacts on revenues and net revenues of vessels. The sum of net revenues for the preferred alternative (ALT4) per scallop vessel and business entity will be higher than the levels under all the other alternatives in the medium term from 2014 to 2018 as well (Table 108). Over the long-term from 2014 to 2027, however, the revenues and total economic benefits for alternative 4 will exceed the benefits for No Action, however, it will have lower economic benefits compared to Alternative 3 (**Table 46**).

In addition to the aggregate economic impacts of the DAS and access area allocations, the economic impacts of the individual measures including those specifications for LAGC IFQ, incidental and NGOM permits are discussed in the relevant subsections of Section 5.4 and summarized in the following sections.

6.1.12.4.3 Economic impacts of the individual measures

Acceptable Biological Catch

- Economic impacts are analyzed in Section 5.4.2
- Rationale is provided in Section 2.1.1
- **Summary of the impacts of the proposed option and mitigating factors**: Because the ABC level for the preferred alternative is lower than the no action ABC, this measure is expected to have negative impacts on the landings and revenues, producer and consumer surpluses and net economic benefits to the nation in the short-term. However, the level of ABC updated in the Framework will help prevent overfishing and optimize yield on a continuous basis. Therefore, this measure is expected to have positive impacts on the landings and revenues, producer and consumer surpluses and net economic benefits to the nation over the long-term.
- **Comparison of the impacts with the alternative options:** There are no alternatives that would generate higher economic benefits for the participants of the scallop fishery over the long-term. No action would have a higher ABC for the scallop fishery compared to the preferred alternative**,** increasing the risks to the resource with potentially negative economic impacts over the long-term.

Measures to protect recruitment within access areas potentially opening in 2014

- Economic impacts are analyzed in Section 5.4.3.8
- Rationale is provided in Section 2.1.3.7
- **Summary of the impacts of the proposed option and mitigating factors**: With the preferred alternative (Option 1: No Action), there will be no restriction on fishing location within GB access areas. This is expected to have neutral or slightly negative impacts on the scallop resource and consequently on yield from the scallop fishery over the long-term.
- **Comparison of the impacts with the alternative options:** Option 2 would restrict trips to northern part of NL only with negligible negative economic impacts in the short-term and slightly positive impacts compared to No Action on the scallop resource, yield, landings and revenues over the long-term.

Additional measures to reduce mortality on smaller scallops in NL and/or Delmarva

- Economic impacts are analyzed in Section 5.4.3.9
- Rationale is provided in Section 2.1.3.8
- **Summary of the impacts of the proposed option and mitigating factors**:
  The preferred alternatives would prohibit RSA compensation fishing in NL (Alternative 2) and in Delmarva (Alternative 3), would constrain fishing in Delmarva between June and August, or three months after implementation of FW25 to concentrate fishing in a season with higher yields (Alternative 4) and would restrict crew limits in Delmarva to limits used in open area fishing to reduce potential highgrading on small scallops in Delmarva (Alternative 5). These alternatives could slightly increase costs due to reduced flexibility in fishing those access areas during certain months and because of the crew limits, however, they are expected to have potentially positive results on the scallop resource with positive impacts on long-term yield, revenues and total economic benefits compared to No Action.
- **Comparison of the impacts with the alternative options:** Alternative 1 (No Action) would not include any additional measures to reduce mortality on small scallops and would have neutral impacts on the scallop resource, landings, revenues and economic benefits in the short-term but potentially negative economic impacts over the long-term.

Measures to address unused Closed Area 1 access area trips

- Economic impacts are analyzed in Section 5.4.3.10
- Rationale is provided in Section 2.1.3.9
- **Summary of the impacts of the proposed option and mitigating factors**: The preferred alternative, Alternative 2, would have positive economic impacts on those scallop vessels with unused trips and positive economic benefits in the short-term and the medium-term making full-use of pounds allocated to Closed Area 1 in the previous fishing years, 2012 (Option 2, preferred) and 2013 (Option 3, preferred) possible. However, roll-over of unused trips will impact future access for the LA fishery overall since this unused catch will need to be accounted for within the LA sub-ACL. Thus preferred alternative could have low negative impacts over the long-term on the remainder of the fleet with no unused trips.
- **Comparison of the impacts with the alternative options:**

- Alternative 1 (No Action) would not allow rollover of unused trips, and would have a negative impact on the revenues and profits for vessels with unused trips. Alternative 3 would also have positive short-term impacts for those vessels with potential rollover allocations, but allocation would be moved to open areas instead. Overall, Alternative 3 could have low negative impacts over the long-term as well on vessels with no unused trips because the catch from the rollover trips will need to be accounted for within the LA sub-ACL.

Specifications for limited access general category IFQ vessels

- Economic impacts are analyzed in Section 5.4.3.11
- Rationale is provided in Section 2.1.4.2
- **Summary of the impacts of the proposed option and mitigating factors**: Under the preferred alternative, Alternative 2, allocation for the LAGC IFQ fishery (2.42 million lb.) will be lower than the allocation under the default measures for No Action (2.77 million lb.), with negative economic impacts on the LAGC IFQ fishery compared to No Action scenario. However, under the preferred alternative, the level for sub-ACL for the LAGC-IFQ fishery is determined according to the new survey results to prevent overfishing and to optimize the yield and revenues for all the participants of the scallop fishery, including the small businesses in the limited access fishery. In addition, No Action TAC is higher than the LAGC allocations in 2013, which was about 2.44 mill.lb. Therefore, under Alternative 2, this fishery will get about the same amount of allocation as it did in 2013 fishing year. As a result, Alternative 2 is expected to have negligible economic impacts, if any, on the small business entities in the LAGC fishery compared to the status quo levels in 2013.
- **Comparison of the impacts with the alternative options:** There are no other alternatives that would generate higher economic benefits for the scallop fishery as a whole including the small business entities in the limited access scallop fishery. Although the economic impacts of No Action (Alternative 1) would be positive on the LAGC IFQ vessels in the short-term only, the level of LAGC TAC is higher than it should be to prevent overfishing of the scallop resource. As a result, No Action would lower the scallop yield, landings and revenues over the long-term and result in lower economic benefits for all participants of the scallop fishery.

Prorate LAGC IFQ trips proportionally in all areas open that year excluding CA2

- Rationale is provided in Executive Summary and in 2.1.4.3
- Economic impacts are analyzed in Section 5.4.3.11.1.1.
- **Summary of the impacts of the proposed option and mitigating factors**: The preferred alternative (Option 3) would prorate LAGC IFQ trips proportionally in all areas open that year excluding CA2, with positive economic impacts on the LAGC vessels because they will be able to use CA2 trips in areas closer to the shore with lower trip costs**.**
- **Comparison of the impacts with the alternative options:** There are no other alternatives that would generate higher economic benefits for the participants of the scallop fishery. Under No Action (Option 1), LAGC IFQ trips will not be allocated in any of the scallop access areas in 2014. Option 2 would allocate trips to CA2, areas

which is not accessible for many smaller LAGC IFQ vessels. Thus, most of these trips are taken in the open areas instead of taken in other access areas with higher scallop abundance, lowering potential economic benefits for this fishery.

Northern Gulf of Maine (NGOM) Hard-TAC

- Rationale is provided in Section 2.1.5
- Economic impacts are analyzed in Section 5.4.3.11.2
- **Summary of the impacts of the proposed option and mitigating factors**: Preferred alternative includes a 70,000 pounds hard-TAC for the NGOM, which is equivalent to the "No Action" scenario as specified in the previous Framework action 21. Thus, the preferred alternative will not have additional economic impacts on the participants of the NGOM fishery.
- **Comparison of the impacts with the alternative options:** The alternative option would set the TAC at 58,000 pounds in accordance with the updated surveys to be precautionary. However, given that current scallop catches by NGOM vessels are very low, either TAC level would likely not impact vessels. Thus, negligible economic impacts are expected from no action and the alternative option.

Accountability measures for the SNE/MA windowpane flounder sub-ACL allocated to the scallop fishery

- Rationale is provided in Section 2.2
- Economic impacts are analyzed in Section 5.4.3.12
- **Summary of the impacts of the proposed option and mitigating factors:** Accountability measures include two preferred alternatives that address different aspects of this fishery. The preferred Alternative 3 would implement a gear restricted area for a specified period of time with higher bycatch rates of SNE/MA windowpane flounder if the scallop fishery exceeds their sub-ACL and the entire ACL is exceeded, or the sub-ACL is exceeded by more than 50%. This alternative would apply to all scallop vessels, including LA and LAGC IFQ vessels, but it will mainly impact the LAGC vessels using trawls since, since majority, if not all LA vessels fish using dredges already. A trawl vessel could switch to dredge gear and fish with the modified gear during the AM season, but this may not be very likely for many trawl vessels, especially if the season is only for two months of the year. The net economic impacts of this alternative will depend to what extent the fishing in seasons when meat weights are larger will outweigh or falls short of the costs associated with reduced flexibility due to a narrower fishing season. With preferred Alternative 4, all scallop dredge vessels (LA and LAGC) would only be able to fish with a maximum of seven rows of rings in the apron of their dredge in waters west of 71 W, excluding the Mid-Atlantic access areas to reduce the chance the fishery would exceed the sub-ACL. Although reduced flexibility and potentially reduced landings due to fishing with modified gear coupled with some increase in fishing costs will have some negative economic impacts on the scallop vessels, these impacts are expected to be low. Over the long-term, compared to No Action, this measure could have potentially positive economic benefits on the resource if it enables vessels to reduce bycatch and reduce the likelihood that AMs are triggered.

- **Comparison of the impacts with the alternative options:** There are no alternatives that would generate higher economic benefits for the participants of the scallop fishery. Although under the No Action (Alternative 1), the sub-ACL for SNE/MA windowpane flounder would not have accountability measures specific to the scallop fishery, this would not be in compliance with NMFS regulation and guidance on ACL management, which requires an AM for every ACL and sub-ACL. Alternative 2 would close a specified area for a period of time to all scallop vessels (LA and LAGC) with higher bycatch rates of SNE/MA windowpane flounder if the scallop fishery exceeds their sub-ACL and the entire ACL is exceeded, or the sub-ACL is exceeded by more than 50%. Therefore, Alternative 2 could have potentially larger negative impacts compared to Alternative 3 (preferred alternative). This is because, instead of closures, Alternative 3 would require fishing with modified gear in those areas for at most two months in February and March and would still allow the vessels the option to fish in other areas or seasons if they choose not to modify their gear.

6.1.12.4.4 Indirectly affected industries

Indirect impacts include the impacts on the sales, income, employment and value-added of industries that supply commercial harvesters, such as the impacts on marine service stations that sell gasoline and oil to scallop vessels. The induced impacts represent the sales, income and employment resulting from expenditures by crew and employees of the indirect sectors. Given that the overall economic impacts of the combined measures proposed by this Framework on the fleet revenues and profits will be positive in the short-term compared to No Action and will be small compared to status quo conditions, their indirect and induced impacts are expected to be small in the short-term as well. Over the medium term from 2014 to 2018, the indirect and induced impacts of the preferred alternative on the indirectly affected businesses will be positive as well compared to No Action and other alternatives considered in this action. Similarly, over the long-term, the preferred alternative is expected to have positive economic impacts on the scallop fishery, and thus will have positive indirect impacts on the indirectly affected industries.

6.1.12.4.5 Identification on Overlapping Regulations

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

7.0 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.

B_{max} – a theoretical value when the scallop stock with median recruitment is fished at Fmax. For a stock without a stock-recruitment relationship, like sea scallops, this stock biomass produces MSY when fished at Fmax.

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[11].

F_{max} – a fishing mortality rate that under equilibrium conditions produces maximum yield-per-recruit. This parameter serves as a proxy for Fmsy for stocks that do not exhibit a stock-recruitment relationship, i.e. recruitment levels are driven mostly by environmental conditions.

Fixed costs - These costs include expenses that are generally independent of the level of fishing activity, i.e., DAS-used, such as insurance, license, half of repairs, office expenses, professional fees, dues, utility, interest, dock expenses, bank, rent, store, auto, travel, and employee benefits.

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

[11] 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.

FMP, an incidental take statement has been issued for a limited number of sea turtles to be taken by permitted scallop vessels.

Localized overfishing – a pattern of fishing that locally exceeds the optimum rate, considering the age structure of the population, recruitment, growth, and natural mortality. This effect may cause mortality that is higher than appropriate on small scallops while under-fishing other areas with large scallops (assuming that the overall amount of effort achieves the mortality target for the entire stock). The combined effect is to reduce the yield from the fishery through the loss of fast-growing small scallops and the loss of biomass from natural mortality on very large scallops.

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.

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.

Recruitment overfishing – a high level of fishing mortality that causes spawning stock biomass to decline to levels that significantly depresses recruitment. Because sea scallops are very productive, this mortality rate is substantially higher than F_{max} and the biomass where recruitment is threatened is much lower than the present biomass target.

SAFE Report – A Stock Assessment and Fishery Evaluation Report, required by the Sustainable Fisheries Act. This report describes the present condition of the resource and managed fisheries, and in New England it is prepared by the Council through its Plan Development Teams (PDT) or Monitoring Committees (MC). The Scallop PDT is the MC for the Atlantic Sea Scallop FMP and prepares this report.

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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