

FRAMEWORK ADJUSTMENT 9 TO THE

Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan

ENVIRONMENTAL ASSESSMENT

January 2014

**Prepared by the Mid-Atlantic Fishery Management Council
in cooperation with
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Council Address

Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201
Dover, DE 19901

NMFS Address

Greater Atlantic Regional Office
55 Great Republic Drive
Gloucester, MA 01930



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LIST OF ACRONYMS AND ABBREVIATIONS

ABC	Acceptable Biological Catch
ACL	Annual Catch Limit
ACT	Annual Catch Target
ASMFC	Atlantic States Marine Fisheries Commission or Commission
ATGTRT	Atlantic Trawl Gear Take Reduction Team
B	Biomass
CFR	Code of Federal Regulations
CV	coefficient of variation
DAH	Domestic Annual Harvest
DAP	Domestic Annual Processing
DPS	Distinct Population Segment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act of 1973
F	Fishing Mortality Rate
FMP	Fishery Management Plan
FR	Federal Register
GB	Georges Bank
GOM	Gulf of Maine
IOY	Initial Optimum Yield
M	Natural Mortality Rate
MAFMC	Mid-Atlantic Fishery Management Council
MMPA	Marine Mammal Protection Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act (as currently amended)
MSB	Atlantic Mackerel, Squid, Butterfish
MSY	Maximum Sustainable Yield
MT (or mt)	Metric Tons (1 mt equals about 2,204.6 pounds)
NE	Northeast
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NM	Nautical Mile
NMFS	National Marine Fisheries Service (NOAA Fisheries)
NOAA	National Oceanic and Atmospheric Administration
OFL	Overfishing Level

PBR	Potential Biological Removal
RH/S	River herring (blueback and alewife) and shad (American shad and hickory shad)
RSA	Research Set-Aside
SARC	Stock Assessment Review Committee
SAW	Stock Assessment Workshop
SNE	Southern New England
SSC	Scientific and Statistical Committee
TALFF	Total allowable level of foreign fishing
TRAC	Transboundary Resource Assessment Committee
US	United States
VEC	Valued Ecosystem Component
VTR	Vessel Trip Report

Note: "Mackerel" refers to "Atlantic mackerel" unless otherwise noted.

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2.0 EXECUTIVE SUMMARY

Introduction

Amendment 14 implemented a variety of measures to monitor and control the catch of river herrings and shads (RH/S) in the Atlantic mackerel and longfin squid fisheries, including a RH/S cap that can close the mackerel fishery once it has caught a certain amount of RH/S. The cap was set at 236 metric tons (MT) for 2014. The 2015 specifications will use a lower cap, which starts at 89 mt and then increases to 155 mt if the mackerel fishery catches more than 10,000 mt of mackerel. The cap is tracked for "mackerel trips," which are trips that land more than 20,000 pounds of mackerel. None of the alternatives in this document consider changing the cap levels.

One issue considered by Amendment 14 was "slippage," which is unobserved catch, i.e., catch that is discarded prior to being observed, sorted, sampled, and/or brought on board a fishing vessel. Slippage can include the release of fish from a codend or seine prior to completion of pumping or the release of an entire catch/net/codend/bag while the catch is still in the water. Small quantities of fish that cannot be pumped and that remain in the net at the end of pumping operations are considered to be operational discards and not "slippage." Observer protocols include documenting unobserved fish that remain in the net, and existing regulations require vessel operators to assist the observer in this process. Discards that occur at-sea after catch is brought on board and sorted and sampled by an observer are not considered "slippage."

The RH/S cap is monitored weekly by multiplying the ratio of RH/S catch to all landings on mackerel trips times the amount of all landings on mackerel trips. Since observed trips are used to determine the ratio, the primary concern has accordingly been on slippage on observed trips so that the cap is tracked accurately. As detailed in Section 4, even a relatively small number of slippage events could compromise the integrity of the cap calculations. Slippage also erodes the value of observer data for general bycatch estimates, because if catches are slipped the observer data will not include those fish.

To minimize slippage, Amendment 14 implemented a rule that unless safety, mechanical, or spiny dogfish issues make it necessary, limited access longfin squid and mackerel vessels cannot release hauls of fish ("slippage") prior to observer documentation when observers are available, and catch affidavits have to be completed for any slippage event. For mackerel limited access vessels, in Amendment 14 there was also a proposed but ultimately disapproved measure that would have imposed an additional consequence for non-exempted slippages whereby after 10 non-exempted (i.e. besides safety, mechanical, spiny dogfish) slippages (fishery-wide), any vessels making additional non-exempted slippages would have to terminate their trip (no fishing activity could occur on the return to port).

Because the MSB fisheries, and especially the mackerel fishery are relatively high-volume fisheries that can catch large quantities of fish in a single tow (as frequently documented in observer data), even a few slipped hauls have the potential to substantially affect any analysis or extrapolations of incidental catch made from the data. This issue is especially acute with the mackerel fishery because of the relatively small RH/S mortality cap that could close the mackerel fishery in 2015 and beyond. Therefore, alternatives to minimize slippage were included in Amendment 14, and some are reconsidered in this framework since the overall quality/value of observer data could be compromised due to slippage. All of the alternatives are geared toward addressing this issue. The alternatives were designed to be stand-alone alternatives, i.e. combinations of alternatives are not applicable.

This framework only considers alternatives related to slippage on observed trips in the mackerel fishery (i.e. all alternatives apply to vessels with mackerel limited access permits), which is the fishery that was originally proposed to have a slippage cap. Since all of the alternatives **apply only to limited access mackerel vessels on observed trips**, this qualification for the alternatives will not be repeated.

As summarized below and detailed in Section 4, the alternatives consider additional consequences for some currently prohibited slippages as well as adding new consequences for some of the previously exempted slippages that had no consequences. The goal is not to trigger any consequences for slippages; rather the goal is to allow full sampling of all fish, so that optimally no consequences for slippage ever occur, which would just mean that all fish are being sampled on observed trips, which is the overall goal of this action.

Alternatives

The Council originally selected Alternative 2 as preferred in February 2014, but then decided to recommend Alternative 6b as preferred in June 2014 in order to minimize slippage and achieve alignment with the New England Fishery Management Council's slippage provisions for the Atlantic herring fishery, which are the equivalent of Alternative 6b. The alternatives are described in Section 4 and summarized below (see also Table 1 below).

Alternative 1, No Action, which is the status quo - The current prohibition on non-exempted slippages during observed trips in the mackerel and longfin squid fisheries would still be in place. Non-exempted slippages are all slippages except those due to safety, mechanical (i.e. any gear failure), or spiny dogfish issues. Violations would be handled through the NOAA enforcement process. Captains are required to submit affidavits regarding the circumstances of any slippage.

Alternative 2 - Require vessels to terminate their trip following any non-exempted slippage on observed trips. Notification of slippage events via VMS would be required to make enforcement feasible.

Alternative 3 - Require vessels to vacate a statistical area in which any non-exempted slippage occurs on observed trips (for the remainder of a trip). Notification of slippage events via VMS would be required to make enforcement feasible.

Alternative 4 - There would be no consequences for slippages due to safety. Require vessels to vacate a statistical area in which any slippage besides the safety exemption occurs on observed trips (for the remainder of a trip). Notification of slippage events via VMS would be required to make enforcement feasible.

Alternative 5a – There would be no consequences for slippages due to safety. Mechanical and dogfish slippages would require vacating a statistical area (for the remainder of a trip). If any non-exempted slippages occur the vessel would have to terminate the trip. Notification of slippage events via VMS would be required to make enforcement feasible.

Alternative 5b – There would be no consequences for slippages due to safety. Mechanical and dogfish slippages would require moving 10 nautical miles (nm) before fishing again, and staying 10 nm from the slippage event location for the remainder of the fishing trip. If any non-exempted slippages occur the vessel would have to terminate the trip. No fishing activity could occur on the return to port. Notification of slippage events via VMS would be required to make enforcement feasible.

Alternative 6a - Mechanical, dogfish, and safety issues that led to a slippage would require leaving a statistical area (for the remainder of a trip). If any non-exempted slippages occur the vessel would have to terminate the trip. Notification of slippage events via VMS would be required to make enforcement feasible.

Alternative 6b (preferred) - Mechanical, dogfish, and safety issues that led to a slippage would require moving 15nm before fishing again, and staying 15nm from the slippage event location for the remainder of the fishing trip. If any non-exempted slippages occur the vessel would have to terminate the trip. No fishing activity could occur on the return to port. Notification of slippage events via VMS would be required to make enforcement feasible.

Alternative 7a – There would be no consequences for slippages due to dogfish. Mechanical and safety slippages would require vacating a statistical area (for the remainder of a trip). If any non-exempted slippages occur the vessel would have to terminate the trip. Notification of slippage events via VMS would be required to make enforcement feasible.

Alternative 7b - There would be no consequences for slippages due to dogfish. Mechanical and safety slippages would require moving 20nm before fishing again, and staying 20nm from the slippage event location for the remainder of the fishing trip. If any non-exempted slippages occur the vessel would have to terminate the trip. No fishing activity could occur on the return to port. Notification of slippage events via VMS would be required to make enforcement feasible.

Table 1. Alternative Summary

Alternative	Slippage Trigger	Consequence
1	Safety, Mechanical, Spiny Dogfish related	None
	Other slippages	Enforcement actions by NOAA
2	Safety, Mechanical, Spiny Dogfish related	None
	Other slippages	trip termination (and violation)
3	Safety, Mechanical, Spiny Dogfish related	None
	Other slippages	vacate stat area (and violation)
4	Safety related	None
	Mechanical, Spiny Dogfish related	Vacate stat area
	Other slippages	vacate stat area (and violation)
5a	Safety related	None
	Mechanical, Spiny Dogfish related	Vacate stat area
	Other slippages	trip termination (and violation)
5b	Safety related	None
	Mechanical, Spiny Dogfish related	Move 10 nm before fishing again
	Other slippages	trip termination (and violation)
6a	Safety, Mechanical, Spiny Dogfish related	Vacate stat area
	Other slippages	trip termination (and violation)
6b	Safety, Mechanical, Spiny Dogfish related	Move 15 nm before fishing again
	Other slippages	trip termination (and violation)
7a	Spiny Dogfish related	None
	Safety or Mechanical related	Vacate stat area
	Other slippages	trip termination (and violation)
7b	Spiny Dogfish related	None
	Safety or Mechanical related	Move 20 nm before fishing again
	Other slippages	trip termination (and violation)

Impacts Summary for the Preferred Alternative

The impacts of each alternative are described in Section 6, and the impacts of the preferred alternative (6b) as compared to the no action/status quo, are summarized below.

Managed Resources

Longfin squid, *Illex* squid, and butterfish should not be affected by the no action or the preferred alternative (6b) since the alternatives relate only to the mackerel fishery (which is generally a separate fishery from the others), and mortality is controlled separately for those other species with hard quotas and accountability measures. The current measures in effect for those fisheries are further described at: <http://www.nero.noaa.gov/regs/info.html>.

Direct effects from trip modifications and/or trip terminations for observed trips per the preferred alternative are unlikely to impact overall mackerel fishing effort because of the low levels of observer coverage and low levels of slippage. Also, it is not anticipated that many trips would have slippage events – they are relatively rare currently and would be expected to be even rarer given the proposed deterrents. If the data gained by avoiding

slippage leads to a closure of the mackerel fishery due to the RH/S cap, less fishing effort toward mackerel, and less mackerel catch, may result. However, the mackerel stock's abundance and availability appears to be strongly affected by environmental conditions, and a marginal reduction in mackerel catches may have minimal impacts on the mackerel stock. Thus impacts for mackerel are best characterized as low positive for the preferred alternative compared to the no action.

Non-target Resources

The non-target species impacted by the mackerel fishery are described in Section 5.5. Compared to the no-action, the preferred alternative (6b) could lead to better data on non-target catches being collected because slippage would be discouraged more than under the no action. If the data gained by avoiding slippage leads to a closure of the mackerel fishery due to the RH/S cap, less fishing effort toward mackerel, and less non-target catch, may result (including RH/S catch). However, while the mackerel fishery does catch RH/S, there is no direct evidence that reducing RH/S catch in the mackerel fishery will necessarily lead to higher RH/S populations given the variety of challenges faced by RH/S populations (habitat, catch, predation, climate change, etc.). The benefits related to the anti-slippage provisions are based on the assumption that vessels will facilitate observer sampling rather than be subject to the slippage consequences. Overall, impacts for the non-target resources described in Section 5.5 are best characterized as positive for the preferred alternative compared to the no action.

Physical Environment and Essential Fish Habitat Impacts

While the alternatives considered in this action could impact mackerel effort levels, as described in Section 6.1 mackerel are primarily caught with mid-water trawl gear. This gear should not substantially impact the bottom so any impacts on the habitat of federally managed species should be negligible with no action or any of the action alternatives. There is some bottom trawling for mackerel and the preferred alternative could reduce mackerel effort through the RH/S cap, so any impact, while minimal, would be low positive compared to no action.

Protected Resources (Endangered Species, Marine Mammals)

The protected resources impacted by the mackerel fishery are described in Section 5.4. Compared to the no-action, the preferred alternative (6b) could lead to better data on non-target catches being collected because slippage would be discouraged more than under the no action. If the data gained by avoiding slippage leads to a closure of the mackerel fishery due to the RH/S cap, less fishing effort toward mackerel, and less protected resource impacts, may result. Overall, impacts for the protected resources described in Section 5.4 are best characterized as low positive for the preferred alternative compared to the no action.

Human Communities - Socioeconomic Impacts

Socioeconomic impacts are mixed. If restricting slippage improves overall RH/S conservation, then there could be associated socioeconomic benefits. However, while the mackerel fishery does catch RH/S, there is no direct evidence that reducing RH/S catch in the mackerel fishery will necessarily lead to higher RH/S populations given the variety of challenges faced by RH/S populations (habitat, catch, predation, climate change, etc.). If restrictions on slippage lead to earlier closures of the mackerel fishery, then revenues from mackerel fishing could be reduced, resulting in negative socioeconomic impacts (though mackerel catches have been very low in recent years). Individual trips that had consequences from slippage could also lose revenues or have their costs increase, but hopefully will just allow observers to document all catch rather than slip a haul and be subject to the slippage consequences. Regardless, due to the low observer coverage in this fishery, the low rate of slippage, and presumably less slippage in the future, there would likely be very few trips directly impacted by the slippage consequences. As described above, the primary impact would be indirect in terms of the improved RH/S data by minimizing slippage. There is also some concern that further restricting slippage could create incentives for vessel operators to act unsafely, but the proposed measures still allow fishing after a safety-related slippage event (the vessel would have to move 15 nautical miles before fishing again and remain 15 nautical miles away from the slippage event for the remainder of the trip).

Table 2. Summary Impacts of no action and preferred alternative relative to no action.

Framework 9 Alternatives - No action and preferred.	Managed Resource	Essential Fish Habitat	Protected Resources	Human Communities	Non-target Species
Alt 1 - No action - No additional anit-slippage measures.	positive	negligible	low negative	low positive	low negative
Alt 6b (PREFERRED) - Move 15nm for safety, mechanical, and spiny dogfish slippages; trip termination for other slippages	low positive	low positive	low positive	mixed	positive

3.0 PURPOSE AND NEED, MANAGEMENT UNIT, MANAGEMENT OBJECTIVES, AND HISTORY OF FISHERY MANAGEMENT PLAN DEVELOPMENT

3.1 *PURPOSE AND NEED*

The purpose of this framework is to consider immediate consequences for fishing vessels when a haul is slipped, i.e. when all fish are not brought on board for sampling by an observer. When a haul is slipped this is called “slippage.” The proposed measures are needed to prevent slippage, which will ensure that observers are able to sample all catch of incidentally-caught species (including river herring and shad) on observed trips, providing the most accurate data for catch caps and monitoring. The goal is not to trigger slippage consequences, and optimally slippage consequences are never triggered, which would just mean that all fish are being observed on observed trips, which is the overall goal of this action.

In this document, "catch" refers to all fish caught in a fishery (whether targeted or not and whether retained or discarded). Targeted fish are those intended to be caught. Incidentally-caught or non-target species are those caught but not targeted. Bycatch usually refers to discards but is a term often used in fishery management to refer to several different things and so it is not used in this document except where unavoidable or customary (for example a report title, quotation, protected resource section, etc.). Instead, fish caught and then discarded at sea are called "discards." Fish that are not targeted but are landed are called "incidentally landed catch."

3.2 *HISTORY OF FISHERY MANAGEMENT PLAN DEVELOPMENT*

The earliest management actions implemented under this FMP involved the sequential phasing out of foreign fishing for these species in US waters and the development of domestic fisheries. All MSB species are considered to be fully utilized by the US domestic fishery to the extent that sufficient availability should lead to full harvest of the landings quotas (known as domestic annual harvest or DAH). More recent actions have focused on reducing discards and habitat impacts, as well as implementing annual catch limits and accountability measures that are tied to control rules based on a uniform Council risk policy. All of the historical amendments and frameworks for this FMP are available at <http://www.mafmc.org/fisheries/fmp/msb>.

Amendment 14 to the MSB FMP is particularly relevant to this framework. Amendment 14 implemented a variety of measures to monitor and/or control the catch of RH/S in the Atlantic mackerel and longfin squid fisheries, including a RH/S cap that can close the mackerel fishery once it has caught a certain amount of RH/S. The cap was set at 236 metric tons in 2014. The 2015 specifications use a lower cap, which starts at 89 mt and

then increases to 155 mt if the mackerel fishery catches more than 10,000 mt of mackerel.

One issue considered by Amendment 14 was "slippage," which is unobserved catch, i.e., catch that is discarded prior to being observed, sorted, sampled, and/or brought on board a fishing vessel. Slippage can include the release of fish from a codend or seine prior to completion of pumping or the release of an entire catch/net/codend/bag while the catch is still in the water. Small quantities of fish that cannot be pumped and that remain in the net at the end of pumping operations are considered to be operational discards and not "slippage." Observer protocols include documenting unobserved fish that remain in the net, and existing regulations require vessel operators to assist the observer in this process. Discards that occur at-sea after catch is brought on board and sorted and sampled by an observer are not considered "slippage."

Slippage is important because if RH/S catches are routinely slipped and observers do not record those catches, the cap will be biased low. The RH/S cap is monitored weekly by multiplying the ratio of RH/S catch to all retained fish on observed mackerel trips times the amount of all landings on all mackerel trips (from dealer weighout data). Since observed trips are used to determine the ratio, the primary concern has accordingly been slippage on observed trips so that the cap is tracked accurately. If RH/S are routinely slipped, the cap estimate could be a substantial underestimate of the actual RH/S catch.

Amendment 14 analyses found that from 2006-2010 approximately 26% (73 of 277 or 15 per year) of hauls on observed mackerel trips (trips that caught 50% or more mackerel or at least 100,000 pounds mackerel) had some unobserved catch. Catch may be unobserved for a variety of reasons, for example transfer to another vessel without an observer, observer not on station, or haul slipped (dumped) in the water. The above numbers would thus be an upper bound on slippage events.

NMFS has repeatedly noted that slippage occurs infrequently in the Atlantic herring and mackerel fisheries. While this is true, examination of observer data and the RH/S cap amounts for 2015 demonstrate why slippage is still an important issue for the RH/S cap on the mackerel fishery. In 2015, the cap will initially be 89 metric tons. 89 metric tons is approximately 200,000 pounds. If 10% (0.1) of the mackerel fishery is observed, then approximately 20,000 pounds of actually observed RH/S could close the mackerel fishery (20,000 observed/0.1 = 200,000 extrapolated). NMFS analyses¹ have shown that slippage events in the range of 50,000 pounds occur, and just one such slippage (if the fish are river herring or shad) could mean the difference between the cap closing the fishery or the cap estimate appearing to be very low relative to the cap closure threshold. Lesser slippage amounts, for example in the 5,000 – 10,000 pound range could have less, but still substantial impacts on cap estimation. While we can't know the composition of slipped catches, if catches with RH/S are slipped and the amounts are in the range of

¹ For example see Table 147 in Appendix 1. Appendix 1 provides information on slippage for 2008-2010. Appendix 2 provides information on 2012-2013 slippage in the mackerel fishery, including slippage events of 15,000 and 20,000 pounds. Appendix 3 documents slippage events in the Atlantic Herring fishery 2012-2013.

recent slippages, the cap will not be closed when it should be as designed by the Council. So the existing data on slippage relative to observer coverage levels clearly shows that even a few slippages of RH/S around the size that have been occurring could lead to a cap estimation that is not reflective of reality, and substantially underrepresents the actual RH/S that has been caught.

To address the slippage issue, Amendment 14 implemented a rule that unless safety, mechanical, or spiny dogfish issues make it necessary, limited access longfin squid and mackerel vessels being observed cannot release hauls of fish (“slippage”) prior to observer documentation when observers are available, and catch affidavits have to be completed for any slippage event. The exemptions were included as an acknowledgement that there may be times when slippage happens for legitimate reasons.

The regulations detail the restrictions and provisions for exemptions:

(3) *Measures to address slippage.* (i) No vessel issued a limited access Atlantic mackerel permit or a longfin squid/butterfish moratorium permit and carrying a NMFS-approved observer may release fish from the net, transfer fish to another vessel that is not carrying a NMFS-approved observer, or otherwise discard fish at sea, unless the fish has first been brought on board the vessel and made available for sampling and inspection by the observer, except in the following circumstances:

(A) The vessel operator has determined, and the preponderance of available evidence indicates that, there is a compelling safety reason; or

(B) A mechanical failure precludes bringing some or all of the catch on board the vessel for sampling and inspection; or

(C) The vessel operator determines that pumping becomes impossible as a result of spiny dogfish clogging the pump intake. The vessel operator shall take reasonable measures, such as strapping and splitting the net, to remove all fish that can be pumped from the net prior to release.

(ii) If fish are released prior to being brought on board the vessel, including catch released due to any of the exceptions in paragraphs (n)(3)(i)(A)-(C) of this section, the vessel operator must complete and sign a Released Catch Affidavit detailing the vessel name and permit number; the VTR serial number; where, when, and for what reason the catch was released; the estimated weight of each species brought on board (if only part of the tow was released) or released on that tow. A completed affidavit must be submitted to NMFS within 48 hr of the end of the trip. (§648.11 - At-sea sea sampler/observer coverage.)

For mackerel limited access vessels, in Amendment 14 there was also a proposed but ultimately disapproved measure that would have imposed an additional consequence for non-exempted slippages whereby after 10 non-exempted (i.e. besides safety, mechanical, spiny dogfish) slippages (fishery-wide), any vessels making additional non-exempted slippages would have to terminate their trip. Because of the inability to A) identify why it was biologically or operationally acceptable to allow the fishery 10 un-exempted slippage events prior to triggering the trip termination requirement (as opposed to any other number of slippage events) and B) because the vessels making the 11th or additional slippages might not have contributed to the first 10 (and forcing them to return to port could thus be unfair), NMFS disapproved this trip-termination due to slippage measure.

By upholding the general non-exempted slippage prohibition, vessels that make non-exempted slippages would be subject to penalties via the NOAA enforcement process, even though the cap was disapproved. Slippages for non-exempted reasons currently constitute a violation and that would remain in effect for all alternatives considered in this action, including the preferred alternative. In the disapproval letter, NMFS stated the following:

"Prohibiting slippage would improve the quality of observer catch data, especially data on bycatch species encountered in the mackerel and longfin squid fisheries...If the Council wants to revise the slippage cap, the revisions would need to address issues concerning the biological/administrative justification for the cap's trigger, and equity. The slippage cap could be revised to be more similar to the sampling requirements in Groundfish Closed Area I, such that all vessels that slip catch have a consequence. This revision would alleviate the concern we had with the equitable application of the slippage cap among those who contribute to reaching the cap, as well as the concern we had with the basis for triggering the cap.

The consequence of slipped catch could be a requirement to either return to port, or leave the statistical area where the slippage event occurred. The measure proposed in Amendment 14 exempted slippage for safety, mechanical, or excess spiny dogfish catch from consequence, except that the vessel would still be required to complete a released catch affidavit. We recommend that the same exemptions should apply if the Council wishes to consider a measure that would require any vessel that slipped to return to port or leave the statistical area." (The complete letter is included as Appendix 4).

In response to the NMFS disapproval the Council re-considered the slippage issue, and decided that the risk from slippage related to undermining the RH/S cap is great enough that consideration of additional measures was warranted, even for the previously exempted slippage reasons. Therefore this action considers both additional consequences for currently non-exempted slippages (trip termination) as well as consequences for the currently "exempted" slippages since both the cap estimates and overall value of observer data could be compromised due to slippage. The potential impact on the cap from even a

few slippages (as described above) is why the Council decided consideration of additional measures to deter slippage (be it the currently prohibited or currently exempted variety) was necessary.

3.3 FISHERY MANAGEMENT PLANS GENERAL MANAGEMENT OBJECTIVES/GOALS

The objectives, as described in the Fishery Management Plans as currently amended, are listed below.

- Enhance the probability of successful (i.e., the historical average) recruitment to the fisheries.
- Promote the growth of the U.S. commercial fishery, including the fishery for export.
- Provide the greatest degree of freedom and flexibility to all harvesters of these resources consistent with the attainment of the other objectives of this Fishery Management Plans.
- Provide marine recreational fishing opportunities, recognizing the contribution of recreational fishing to the national economy.
- Increase understanding of the conditions of the stocks and fisheries.
- Minimize harvesting conflicts among U.S. commercial, U.S. recreational, and foreign fishermen.

3.4 MANAGEMENT UNIT/SCOPE

The management unit is currently all northwest Atlantic mackerel (*Scomber scombrus*), longfin squid (*Doryteuthis (Amerigo) pealeii*, formerly named *Loligo pealeii*), *Illex illecebrosus*, and butterfish (*Peprilus triacanthus*) under U.S. jurisdiction.

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4.0 MANAGEMENT ALTERNATIVES

Introduction

The management regimes and associated management measures within the Fishery Management Plan for the managed resources have been refined over time and codified in regulation. The plan also has provisions whereby the current management measures “roll over” from year to year in the event no further action has yet been taken. The *status quo* management measures for the managed resources, therefore, each involve a set of indefinite (i.e., in force until otherwise changed) measures that have been established. These measures will continue as they are even if the actions contained within this framework are not taken (i.e., no action). The no action alternative for these managed resources is therefore equivalent to *status quo*. On that basis, the no action/status quo is presented in conjunction for comparative impact analysis relative to the action alternatives. Current mackerel-squid-butterfish regulations may be found here: <http://www.nero.noaa.gov/nero/regs/>.

This framework only considers alternatives related to slippage on observed trips in the mackerel fishery (i.e. all alternatives apply to vessels with mackerel limited access permits), which is the fishery that was originally proposed to have a slippage cap. Since all of the alternatives **apply only to limited access mackerel vessels on observed trips**, this qualification for the alternatives will not be repeated. In addition for all alternatives, if a vessel brings up a net to check the catch composition and then lowers the net again without releasing the contents this action would not be considered slippage. This is sometimes called a “test tow” but the key is if no catch is released then slippage has not occurred.

Alternative 1 - No Action: The current prohibition on non-exempted slippages during observed trips in the mackerel and longfin squid fisheries would still be in place. Non-exempted slippages are all slippages except those due to safety, mechanical (i.e. any gear failure), or spiny dogfish issues. Violations would be handled through the NOAA enforcement process. Captains are required to submit affidavits regarding the circumstances of any slippage.

Alternative 2 - Require vessels to terminate their trip following any non-exempted slippage on observed trips. Notification of slippage events via VMS would be required to make enforcement feasible. The current prohibition on non-exempted slippages during observed trips in the mackerel and longfin squid fisheries would remain in place, so any non-exempted slippages by vessels with limited access mackerel permits would still constitute a violation. No fishing activity could occur on the return to port.

Alternative 3 - Require vessels to vacate a statistical area in which any non-exempted slippage occurs on observed trips (for the remainder of a trip). Notification of slippage events via VMS would be required to make enforcement feasible. Statistical areas in the southern New England and Mid-Atlantic area are approximately 50-80 nautical miles

(nm) wide. Depending on where in a statistical area a vessel was located and where fish are, moving to another may be easy (less than 1 nm) or may be far enough (50-80 nm or more) to cause a de-facto trip termination. The current prohibition on non-exempted slippages during observed trips in the mackerel and longfin squid fisheries would remain in place, so any non-exempted slippages by vessels with limited access mackerel permits would still constitute a violation.

Alternative 4 - There would be no consequences for slippages due to safety. Require vessels to vacate a statistical area in which any slippage besides the safety exemption occurs on observed trips (for the remainder of a trip). Notification of slippage events via VMS would be required to make enforcement feasible. Statistical areas in southern New England and Mid-Atlantic area are approximately 50-80 nautical miles (nm) wide. Depending on where in a statistical area a vessel was located and where fish are, moving to another may be easy (less than 1 nm) or may be far enough (50-80 nm or more) to cause a de-facto trip termination. The current prohibition on non-exempted slippages during observed trips in the mackerel and longfin squid fisheries would remain in place, so any non-exempted slippages by vessels with limited access mackerel permits would still constitute a violation.

Alternative 5a – There would be no consequences for slippages due to safety. Mechanical and dogfish slippages would require vacating a statistical area (for the remainder of a trip). If any non-exempted slippages occur the vessel would have to terminate the trip. Notification of slippage events via VMS would be required to make enforcement feasible. Statistical areas in the southern New England and Mid-Atlantic area are approximately 50-80 nautical miles (nm) wide. Depending on where in a statistical area a vessel was located and where fish are, moving to another may be easy (less than 1 nm) or may be far enough (50-80 nm or more) to cause a de-facto trip termination. The current prohibition on non-exempted slippages during observed trips in the mackerel and longfin squid fisheries would remain in place, so any non-exempted slippages by vessels with limited access mackerel permits would still constitute a violation.

Alternative 5b – There would be no consequences for slippages due to safety. Mechanical and dogfish slippages would require moving 10nm before fishing again. If any non-exempted slippages occur the vessel would have to terminate the trip. No fishing activity could occur on the return to port. Notification of slippage events via VMS would be required to make enforcement feasible. The 10nm was based on 3nm being the median distance from the end of one haul to the beginning of another on observed trips 2009-2013 that caught at least 20,000 pounds of mackerel and 500 pounds of RH/S (approx. 85 hauls on 20 trips). A range of 10nm, 15nm, and 20 nm was then used for alternatives 5b, 6b, and 7b respectively. The current prohibition on non-exempted slippages during observed trips in the mackerel and longfin squid fisheries would remain in place, so any non-exempted slippages by vessels with limited access mackerel permits would still constitute a violation. This alternative would create a restricted, circular no-fishing area that the vessel would have to stay away from (radius = 10nm, diameter = 20nm, area = 314nm^2) for any vessel that does an “exempted” slippage (for the remainder of the trip).

Alternative 6a - Mechanical, dogfish, and safety issues that led to a slippage would require leaving a statistical area (for the remainder of a trip). If any non-exempted slippages occur the vessel would have to terminate the trip. No fishing activity could occur on the return to port. Notification of slippage events via VMS would be required to make enforcement feasible. Statistical areas in the southern New England and Mid-Atlantic area are approximately 50-80 nautical miles (nm) wide. Depending on where in a statistical area a vessel was located and where fish are, moving to another may be easy (less than 1 nm) or may be far enough (50-80 nm or more) to cause a de-facto trip termination. The current prohibition on non-exempted slippages during observed trips in the mackerel and longfin squid fisheries would remain in place, so any non-exempted slippages by vessels with limited access mackerel permits would still constitute a violation.

Alternative 6b (PREFERRED) - Mechanical, dogfish, and safety issues that led to a slippage would require moving 15nm before fishing again. If any non-exempted slippages occur the vessel would have to terminate the trip. No fishing activity could occur on the return to port. Notification of slippage events via VMS would be required to make enforcement feasible. The 15nm was based on 3nm being the median distance from the end of one haul to the beginning of another on observed trips 2009-2013 that caught at least 20,000 pounds of mackerel and 500 pounds of RH/S (approx. 85 hauls on 20 trips). A range of 10nm, 15nm, and 20 nm was then used for alternatives 5b, 6b, and 7b respectively to consider disincentives to slip catches on observed trips. The current prohibition on non-exempted slippages during observed trips in the mackerel and longfin squid fisheries would remain in place, so any non-exempted slippages by vessels with limited access mackerel permits would still constitute a violation (in addition to requiring a return to port). This alternative would create a restricted, circular no-fishing area that the vessel would have to stay away from (radius = 15nm, diameter = 30nm, area = 707nm^2) for any vessel that does an “exempted” slippage (for the remainder of the trip).

This alternative was preferred because it establishes a consistent disincentive against slipping for all reasons, while generally allowing a trip to keep fishing (in a different location) if a slippage occurs for one of the currently exempted reasons. While 6a also establishes consequences for all slippages events, basing the move on statistical areas would mean that moves would be inconsistent distances since a vessel’s particular location within a statistical area and the varying sizes and shapes of statistical areas would determine how far it had to move – some slippages could theoretically require moving less than 1 nm across a statistical area boundary, while some could require de-facto trip termination, depending on where the vessel (and fish) were located.

This alternative includes an additional consequence (trip termination) for already-prohibited slippages (for reasons other than safety, mechanical problems, or dogfish). While one would not expect vessels to self-report slippages that would send them home, and violations would be difficult to prove (e.g. a vessel saying there was a mechanical issue when they did not want to bring fish aboard), the Council included this provision in its preferred alternative to reinforce the importance of avoiding slippage and because NOAA Enforcement indicated that if someone was found to be abusing the system, inclusion of this provision would mean that two violations had occurred (slipping for a

prohibited reason and not returning to port), which should serve to overall further deter slippage.

Another reason that this alternative was preferred is that it would make the mackerel fishery slippage rules consistent with the herring fishery slippage rules recommended by the New England Fishery Management Council. Vessels participate in both fisheries and having the rules be consistent is useful for keeping regulations understandable.

Alternative 7a – There would be no consequences for slippages due to dogfish. Mechanical and safety slippages would require vacating a statistical area (for the remainder of a trip). If any non-exempted slippages occur the vessel would have to terminate the trip. Notification of slippage events via VMS would be required to make enforcement feasible. Statistical areas in the southern New England and Mid-Atlantic area are approximately 50-80 nautical miles (nm) wide. Depending on where in a statistical area a vessel was located and where fish are, moving to another may be easy (less than 1 nm) or may be far enough (50-80 nm or more) to cause a de-facto trip termination. The current prohibition on non-exempted slippages during observed trips in the mackerel and longfin squid fisheries would remain in place, so any non-exempted slippages by vessels with limited access mackerel permits would still constitute a violation.

Alternative 7b - There would be no consequences for slippages due to dogfish. Mechanical and safety slippages would require moving 20nm before fishing again. If any non-exempted slippages occur the vessel would have to terminate the trip. Notification of slippage events via VMS would be required to make enforcement feasible. The 20nm was based on 3nm being the median distance from the end of one haul to the beginning of another on observed trips 2009-2013 that caught at least 20,000 pounds of mackerel and 500 pounds of RH/S (approx. 85 hauls on 20 trips). A range of 10nm, 15nm, and 20 nm was then used for alternatives 5b, 6b, and 7b respectively. The current prohibition on non-exempted slippages during observed trips in the mackerel and longfin squid fisheries would remain in place, so any non-exempted slippages by vessels with limited access mackerel permits would still constitute a violation. This alternative would create a restricted, circular no-fishing area that the vessel would have to stay away from (radius = 20nm, diameter = 40nm, area = 1,256nm²) for any vessel that does an “exempted” slippage (for the remainder of the trip).

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5.0 DESCRIPTIONS OF THE AFFECTED ENVIRONMENT AND FISHERIES

Note: Given the narrow focus of this framework on the mackerel fishery and slippage, even though this fishery management plan includes Atlantic mackerel, squids, and butterfish, only descriptions relevant to mackerel are generally provided. The 2015 specifications draft environmental assessment may be viewed at <http://www.greateratlantic.fisheries.noaa.gov/regs/> for recently updated information on the other species.

This section identifies and describes the *valued ecosystem components* (Beanlands and Duinker 1984) that comprise the affected environment and may be affected by the alternatives proposed in this document. The valued ecosystem components are identified and described here as a means of establishing the context for the impact analysis that will be presented in section 6's "Analysis of Impacts." The significance of the various impacts of the proposed alternatives on the valued ecosystem components will also be assessed from a cumulative effects perspective. The valued ecosystem components are:

- Managed resources (Atlantic mackerel)
- Habitat including EFH for the managed resources and non-target species
- Endangered and other protected resources
- Non-target species
- Human communities

Overviews of the managed species and of the physical environment are described first, to establish the context for the valued ecosystem components. Impacts of the alternatives on the physical environment are addressed through analysis of impacts on habitat, as most of the impacted physical environment comprises EFH for various species.

5.1 Description of the Managed Resources

Mackerel

The following summarizes information provided in more detail in Amendment 14 (<http://www.greateratlantic.fisheries.noaa.gov/regs/2013/August/12smba14pr.html>), the Essential Fish Habitat (EFH) source document for the species (<http://www.nefsc.noaa.gov/nefsc/habitat/efh/>), and the most recent mackerel assessment (<http://www.nefsc.noaa.gov/saw/reports.html>).

Atlantic mackerel is a semi-pelagic/semi-demersal (may be found near the bottom or higher in the water column) schooling fish species primarily distributed between Labrador (Newfoundland, Canada) and North Carolina. Mackerel contingents migrate north-south with changing water temperatures, but some of the Council's advisers who mackerel fish have questioned if the historical patterns described in the literature are

persisting currently. Atlantic mackerel in the northwest Atlantic are assessed as a unit stock and are considered one stock for fishery management purposes. Ongoing genetic and modeling analyses may provide more information on mackerel stock structure in the near future.

Mackerel are 0.1" long at hatching, grow to about 2" in two months, and reach a length of 8" in December, near the end of their first year of growth. During their second year of growth they reach about 10" in December, and by the end of their fifth year they grow to an average length of 13" FL. All Atlantic mackerel are sexually mature by age 3; while about 50% of the age 2 fish are mature. The maximum age observed is 17 years.

Atlantic mackerel are opportunistic feeders that can ingest prey either by individual selection of organisms or by passive filter feeding. Larvae feed primarily on zooplankton. Juveniles eat mostly small crustaceans such as copepods, amphipods, mysid shrimp, decapod larvae, and small pelagic mollusks. Adults feed on the same food as juveniles but diets also include a wider assortment of organisms and larger prey items.

Atlantic mackerel are an important prey species and are known to be preyed upon by many pelagic and demersal fish species, as well as by marine mammals and seabirds. The recent TRAC estimated mortality for a subset of key finfish predators (www.mar.dfo-mpo.gc.ca/science/trac/tsr.html) but estimates for marine mammals and seabirds are not available.

The mackerel stock was most recently assessed via a Transboundary Resource Assessment Committee in 2010 (TRAC 2010), which analyzed data through 2008 (www.mar.dfo-mpo.gc.ca/science/trac/tsr.html). A number of different models and model formulations were evaluated. Given the uncertainty in the assessment results, the TRAC agreed that short term projections and characterization of stock status relative to estimated reference points would not be an appropriate basis for management advice at this time. As such, the status of Atlantic mackerel is unknown with respect to being overfished or not, and unknown with respect to experiencing overfishing or not. Recent results from the NEFSC Spring Trawl survey (the spring survey catches the most mackerel) are highly variable, and are graphed in the "NEFSC Biological Update" that is created as part of the SSC ABC-setting process. These are available at: <http://www.mafmc.org/ssc-meeting-documents/>.

Longfin squid, *Illex* squid, and butterfish are not impacted by this action. However, there is no indication of overfishing with these species, and more information can be found in the annual specifications environmental assessment, at <http://www.greateratlantic.fisheries.noaa.gov/regs/2014/November/14msb2015174specspr.html>.

5.2 Physical Environment

Climate, physiographic, and hydrographic differences separate the Atlantic Ocean from Maine to Florida into two distinct areas, the New England-Middle Atlantic Area and the South Atlantic Area, with the natural division occurring at Cape Hatteras, though the division is better thought of as a mixing zone rather than as a definitive boundary. The MSB fisheries are prosecuted in the New England-Middle Atlantic Area. The inshore New England-Middle Atlantic area is fairly uniform physically and is influenced by many large coastal rivers and estuarine areas. The continental shelf (characterized by water less than 650 ft. in depth) extends seaward approximately 120 miles off Cape Cod, narrows gradually to 70 miles off New Jersey, and is 20 miles wide at Cape Hatteras. Surface circulation is generally southwesterly on the continental shelf during all seasons of the year, although this may be interrupted by coastal indrafting and some reversal of flow at the northern and southern extremities of the area. Water temperatures range from less than 33° F from the New York Bight north in the winter to over 80° F off Cape Hatteras in summer.

Within the New England-Middle Atlantic Area, the principal area within which the MSB fisheries are prosecuted is the Northeast Shelf Ecosystem which includes the area from the Gulf of Maine to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream. A number of distinct subsystems comprise the region. The Gulf of Maine is an enclosed coastal sea, characterized by relatively cold waters and deep basins, with various sediment types. Georges Bank is a relatively shallow coastal plateau that slopes gently from north to south and has steep submarine canyons on its eastern and southeastern edge. It is characterized by highly productive, well-mixed waters and fast-moving currents. The Mid-Atlantic Bight is comprised of the sandy, relatively flat, gently sloping continental shelf from southern New England to Cape Hatteras, NC. Detailed information on the affected physical and biological environments inhabited by the managed resources is available in Stevenson et al. (2006).

Ecosystem Considerations

The Mid-Atlantic Fishery Management Council (Council) has engaged its SSC to help the Council:

- Develop ecosystem level goals, objectives, and policies;
- Incorporate ecosystem structure and function in FMPs to account for ecological sustainability;
- Anticipate and/or respond to shifts in ecological conditions and/or processes; and
- Consider evolving current FMPs into regional ecosystem-based plans.

The Council is currently developing ecosystem policies with its SSC. In the meantime, this section provides background on the broad ecosystem in which the Atlantic Mackerel, Squid, and Butterfish fisheries generally take place. This section is generally adapted from the “Ecosystem Status Report for the Northeast U.S. Continental Shelf Large

Marine Ecosystem” (Ecosystem Assessment Program 2011 - <http://www.nefsc.noaa.gov/publications/crd/crd1207/crd1207.pdf>). The Council's SSC may also take ecosystem factors into account when setting ABCs.

The Northeast U.S. Continental Shelf Large Marine Ecosystem is a dynamic, highly productive, and intensively studied system providing a broad spectrum of ecosystem goods and services. This region, encompassing the continental shelf area between Cape Hatteras and the Gulf of Maine, spans approximately 250,000 km² and supports some of the highest revenue fisheries in the U.S. The system historically underwent profound changes due to very heavy exploitation by distant-water and domestic fishing. Further, the region is experiencing changes in climate and physical forcing that have contributed to large-scale alteration in ecosystem structure and function. Projections indicate continued future climate change related to both short and medium terms cyclic trends as well as non-cyclic climate change. The main findings of the 2011 Ecosystem Assessment Program update are:

- The Northeast Shelf Large Marine Ecosystem can be divided into four Ecological Production Units, which can in turn provide spatial domains for Ecosystem Based Fisheries Management.
- Atlantic basin scale climate indices, the North Atlantic Oscillation and the Atlantic Multidecadal Oscillation, are at extreme levels, which are reflected in local scale climate changes.
- The physical nature of the Northeast U.S. Continental Shelf Large Marine Ecosystem continues to change, notably there has been a decline in Labrador origin water, which influences salinity and food web processes in the ecosystem, and, there has been an increase in water column stratification, which affects the vertical transport of nutrients.
- Recent increases in primary phytoplankton production are not matched by increases in secondary zooplankton production raising the concern that the phytoplankton community structure is shifting to species that fail to effectively enter the food web.
- Many benthic resources have increased in recent years, which can be attributed to both fishery management strategies and environmental effects. The total biomass of fish species remains high.
- Though revenues have remained at high levels in the commercial fishing industry, employment in marine-related employment sectors has declined in recent years.

NMFS provided a 2014 update, available at <http://www.nefsc.noaa.gov/ecosys/advisory/current/> with the following summary:

- Sea surface temperatures (SSTs) in the Northeast Shelf Large Marine Ecosystem during 2013 represented a moderation of thermal conditions compared to the record highs observed in 2012. The moderation in temperature was not uniform over the ecosystem, with more cooling occurring in the southern part of the ecosystem.

- Bottom temperature collected during the most recent fall survey indicate that benthic thermal conditions in the Middle Atlantic Bight have cooled to below average and have remained above average in the Gulf of Maine.
- The fall bloom on the Northeast Shelf was poorly developed with the exception of some bloom activity in the Gulf of Maine; no fall bloom was detected on the Georges Bank.
- Despite the moderation in thermal conditions on the Shelf, warm water thermal habitats remained at high levels in 2013.
- The arrival of the fall thermal transition has gotten progressively later in all areas of the Northeast Shelf, with the most pronounced shift occurring in the northern part of the ecosystem. The shift in fall timing has delayed fall by nearly a month in some areas.
- An experimental forecasting data product suggests that sea surface temperature will remain above average through summer into fall.

Also see <http://nefsc.noaa.gov/ecosys/> for a variety of ecosystem considerations being investigated by the NMFS Northeast Fisheries Science Center.

Since mackerel and the squids at least partially feed on small pelagics or their larvae at some life stage, and all MSB species are preyed upon by a wide variety of finfish at some life stage, mean catches of several fish groups in the NEFSC bottom trawl surveys are provided in the figure below. The 2009 Ecosystem Assessment Program (<http://www.nefsc.noaa.gov/publications/crd/crd0911/crd0911.pdf>) also noted that consumption of finfish by marine mammals has had a substantially increasing trend.

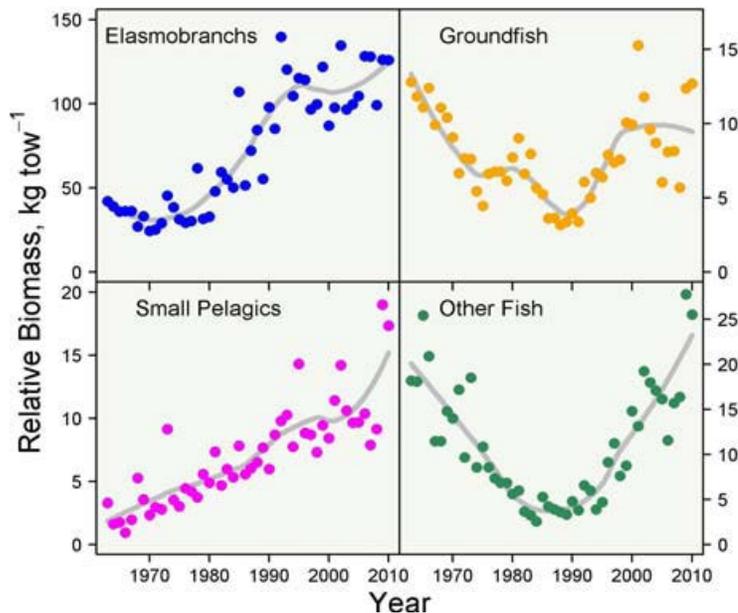


Figure 1. Mean catch per tow of various species caught in NEFSC bottom trawl surveys

5.3 Habitat, Including Essential Fish Habitat (EFH)

Pursuant to the Magnuson Stevens Act / EFH Provisions (50 CFR Part 600.815 (a)(1)), an FMP must describe EFH by life history stage for each of the managed species in the plan. This information was updated via Amendment 11 to the MSB FMP. EFH for the four species managed under this FMP is described using fundamental information on habitat requirements by life history stage that is summarized in a series of EFH source documents produced by NMFS and available at: <http://www.nefsc.noaa.gov/nefsc/habitat/efh/>. The updated EFH designations (text and maps) are available at <http://www.habitat.noaa.gov/protection/efh/efhmapper/>. In general, EFH for the MSB species is the water column itself, and the species have temperature and prey preferences/needs that determine the habitat suitability of any particular area/depth, thus fishing activity has minimal impacts. Longfin squid also use hard bottom, submerged vegetation, other natural or artificial structure, and sand or mud to attach/anchor eggs, but there are no known preferences for different types of substrates or indications that fishing activity may negatively impact longfin squid egg EFH.

There are other lifestages of federally-managed species that have designated EFH that may be susceptible to adverse impacts from bottom trawls used in SMB fisheries, depending on the geographic distribution of their essential habitats in relation to the footprint of SMB bottom trawl fishing activity. EFH for all the federally-managed species in the region that could potentially be affected by SMB bottom trawling activity is described in the following table (see Stevenson et al 2004):

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Table 3. EFH descriptions for species vulnerable to trawl gear

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Bottom Type
American plaice	juvenile	GOM, including estuaries from Passamaquoddy Bay to Saco Bay, ME and from Massachusetts Bay to Cape Cod Bay	45 - 150	Fine grained sediments, sand, or gravel
American plaice	adult	GOM, including estuaries from Passamaquoddy Bay to Saco Bay, ME and from Massachusetts Bay to Cape Cod Bay	45 - 175	Fine grained sediments, sand, or gravel
Atlantic cod	juvenile	GOM, GB, eastern portion of continental shelf off SNE, these estuaries: Passamaquoddy Bay to Saco Bay, Massachusetts Bay, Boston Harbor, Cape Cod Bay, Buzzards Bay	25 - 75	Cobble or gravel
Atlantic cod	adult	GOM, GB, eastern portion of continental shelf off SNE, these estuaries: Passamaquoddy Bay to Saco Bay, Massachusetts Bay, Boston Harbor, Cape Cod Bay, Buzzards Bay	10 - 150	Rocks, pebbles, or gravel
Atl halibut	juvenile	GOM and GB	20 - 60	Sand, gravel, or clay
Atl halibut	adult	GOM and GB	100 - 700	Sand, gravel, or clay
Barndoor skate	juvenile/ adult	Eastern GOM, GB, SNE, Mid-Atlantic Bight to Hudson Canyon	10-750, most < 150	Mud, gravel, and sand
Black sea bass	juvenile	GOM to Cape Hatteras, NC, including estuaries from Buzzards Bay to Long Island Sound, Gardiners Bay, Barnegat Bay to Chesapeake Bay, Tangier/ Pocomoke Sound, and James River	1 - 38	Rough bottom, shellfish/ eelgrass beds, manmade structures, offshore clam beds, and shell patches
Black sea bass	adult	GOM to Cape Hatteras, NC, including Buzzards Bay, Narragansett Bay, Gardiners Bay, Great South Bay, Barnegat Bay to Chesapeake Bay, and James River	20 - 50	Structured habitats (natural and manmade), sand and shell substrates preferred
Clearnose skate	juvenile/ adult	GOM, along continental shelf to Cape Hatteras, NC, including the estuaries from Hudson River/Raritan Bay south to the Chesapeake Bay mainstem	0 – 500, most < 111	Soft bottom and rocky or gravelly bottom
Haddock	juvenile	GB, GOM, and Mid-Atlantic south to Delaware Bay	35 - 100	Pebble and gravel
Haddock	adult	GB, eastern side of Nantucket Shoals, and throughout GOM	40 - 150	Broken ground, pebbles, smooth hard sand, and smooth areas between rocky patches
Little skate	juvenile/ adult	GB through Mid-Atlantic Bight to Cape Hatteras, NC; includes estuaries from Buzzards Bay south to mainstem Chesapeake Bay	0-137, most 73 - 91	Sandy or gravelly substrate or mud
Ocean pout	eggs	GOM, GB, SNE, and Mid-Atlantic south to Delaware Bay, including the following estuaries: Passamaquoddy Bay to Saco Bay, Massachusetts Bay and Cape Cod Bay	<50	Generally sheltered nests in hard bottom in holes or crevices
Ocean pout	juvenile	GOM, GB, SNE, Mid-Atlantic south to Delaware Bay and the following estuaries: Passamaquoddy Bay to Saco Bay, Massachusetts Bay, and Cape Cod Bay	< 50	Close proximity to hard bottom nesting areas
Ocean pout	adult	GOM, GB, SNE, Mid-Atlantic south to Delaware Bay and the following estuaries: Passamaquoddy Bay to Saco Bay, MA Bay, Boston Harbor, and Cape Cod Bay	< 80	Smooth bottom near rocks or algae
Pollock	adult	GOME, GB, SNE, and Mid-Atlantic south to New Jersey and the following estuaries: Passamaquoddy Bay, Damariscotta R., MA Bay, Cape Cod Bay, Long Island Sound	15 – 365	Hard bottom habitats including artificial reefs
Red hake	juvenile	GOM, GB, continental shelf off SNE, and Mid-Atlantic south to Cape Hatteras, including the following estuaries: Passamaquoddy Bay to Saco Bay, Great Bay, MA Bay to Cape Cod Bay; Buzzards Bay to CT River, Hudson River, Raritan Bay, and Chesapeake Bay	< 100	Shell fragments, including areas with an abundance of live scallops
Red hake	adult	GOM, GB, continental shelf off SNE, Mid-Atlantic south to Cape Hatteras, these estuaries: Passamaquoddy Bay to Saco Bay, Great Bay, MA Bay to Cape Cod Bay; Buzzards Bay to CT River, Hudson River, Raritan Bay, Delaware Bay, and Chesapeake Bay	10 - 130	In sand and mud, in depressions

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Bottom Type
Redfish	juvenile	GOM, southern edge of GB	25 - 400	Silt, mud, or hard bottom
Redfish	adult	GOM, southern edge of GB	50 - 350	Silt, mud, or hard bottom
Rosette skate	juvenile/ adult	Nantucket shoals and southern edge of GB to Cape Hatteras, NC	33-530, most 74-274	Soft substrate, including sand/mud bottoms
Scup	juvenile/ adult	GOM to Cape Hatteras, NC, including the following estuaries: MA Bay, Cape Cod Bay to Long Island Sound, Gardiners Bay to Delaware inland bays, and Chesapeake Bay	0-38 for juv 2-185 for adult	Demersal waters north of Cape Hatteras and inshore estuaries (various substrate types)
Silver hake	juvenile	GOM, GB, continental shelf off SNE, Mid-Atlantic south to Cape Hatteras and the following estuaries: Passamaquoddy Bay to Casco Bay, ME, MA Bay to Cape Cod Bay	20 – 270	All substrate types
Summer Flounder	juvenile/ adult	GOM to Florida – estuarine and over continental shelf to shelf break	0-250	Demersal/estuarine waters, varied substrates. Mostly inshore in summer and offshore in winter.
Smooth skate	juvenile/ adult	Offshore banks of GOM	31–874, most 110-457	Soft mud (silt and clay), sand, broken shells, gravel and pebbles
Thorny skate	juvenile/ adult	GOM and GB	18-2000, most 111-366	Sand, gravel, broken shell, pebbles, and soft mud
Tilefish	juvenile/ adult	Outer continental shelf and slope from the U.S./Canadian boundary to the Virginia/North Carolina boundary	100 - 300	Burrows in clay (some may be semi-hardened into rock)
White hake	juvenile	GOM, southern edge of GB, SNE to Mid-Atlantic and the following estuaries: Passamaquoddy Bay, ME to Great Bay, NH, Massachusetts Bay to Cape Cod Bay	5 - 225	Seagrass beds, mud, or fine grained sand
Winter flounder	adult	GB, inshore areas of GOM, SNE, Mid- Atlantic south to Delaware Bay and the estuaries from Passamaquoddy Bay, ME to Chincoteague Bay, VA	1 - 100	Mud, sand, and gravel
Winter skate	juvenile/ adult	Cape Cod Bay, GB, SNE shelf through Mid-Atlantic Bight to North Carolina; includes the estuaries from Buzzards Bay south to the Chesapeake Bay mainstem	0 - 371, most < 111	Sand and gravel or mud
Witch flounder	juvenile	GOM, outer continental shelf from GB south to Cape Hatteras	50 - 450 to 1500	Fine grained substrate
Witch flounder	adult	GOME, outer continental shelf from GB south to Chesapeake Bay	25 - 300	Fine grained substrate
Yellowtail flounder	adult	GB, GOM, SNE and Mid-Atlantic south to Delaware Bay and these estuaries: Sheepscot River and Casco Bay, ME, MA Bay to Cape Cod Bay	20 - 50	Sand or sand and mud

5.3.1 Fishery Impact Considerations

Actions implemented that affect species with overlapping EFH were assessed in Amendment 9 to the MSB FMP in 2008 (<http://www.mafmc.org/fmp/history/smb-hist.htm>). When the fishery has been active in recent years, mackerel are primarily caught by mid-water trawls which only occasionally impact the bottom (see NMFS 2005), but longfin squid, *Illex* squid, and butterfish are primarily caught with mobile bottom-tending gear that does contact the bottom. Amendment 9 included an analysis of the adverse impacts of the MSB fisheries on EFH (per section 303(a)(7) of the MSA). In

Amendment 9 the Council determined that bottom trawls used in MSB fisheries do have the potential to adversely affect EFH for some federally-managed fisheries in the region and closed portions of two offshore canyons (Lydonia and Oceanographer) to squid trawling. Subsequent closures were implemented in these and two other canyons (Veatch and Norfolk) to protect tilefish EFH and prohibited all bottom trawling activity. Because there have been no significant changes to the manner in which the MSB fisheries are prosecuted, and because none of the alternatives being considered in this document should adversely affect EFH (see section 6), no additional alternatives to minimize adverse effects on EFH are considered as part of this management action. The Council is also considering protections for deep-sea corals on the outer continental shelf and slope via Amendment 16 to the MSB FMP (<http://www.mafmc.org/actions/msb/am16>).

5.4 ESA Listed Species and MMPA Protected Species

There are numerous species which inhabit the environment within the management unit of this FMP that are afforded protection under the Endangered Species Act (ESA) of 1973 (i.e., for those designated as threatened or endangered) and/or the Marine Mammal Protection Act of 1972 (MMPA). Eighteen species are classified as endangered or threatened under the ESA, while the rest are protected by the provisions of the MMPA. The subset of these species that are known to have interacted with the MSB fisheries is starred in the list below, including several candidate species (species being considered for listing as an endangered or threatened species).

Candidate species receive no substantive or procedural protection under the ESA; however, NMFS recommends considering conservation actions to limit the potential for adverse effects on candidate species. The Protected Resources Division of the NMFS Northeast Regional Office has initiated review of recent stock assessments, bycatch information, and other information for these candidate species which will be incorporated in the status review reports for candidate species

* = Known to have interacted with MSB fisheries

<u>Cetacean Species</u>	<u>Status</u>
North Atlantic right whale (<i>Eubalaena glacialis</i>)	Endangered
Humpback whale (<i>Megaptera novaeangliae</i>)	Endangered
Fin whale (<i>Balaenoptera physalus</i>)	Endangered
Blue whale (<i>Balaenoptera musculus</i>)	Endangered
Sei whale (<i>Balaenoptera borealis</i>)	Endangered
Sperm whale (<i>Physeter macrocephalus</i>)	Endangered
Minke whale (<i>Balaenoptera acutorostrata</i>)	Protected
Beaked whales (<i>Ziphius and Mesoplodon spp.</i>)	Protected
*Risso's dolphin (<i>Grampus griseus</i>)	Protected
*Pilot whale (<i>Globicephala spp.</i>)	Protected
*White-sided dolphin (<i>Lagenorhynchus acutus</i>)	Protected

*Common dolphin (<i>Delphinus delphis</i>)	Protected
Spotted and striped dolphins (<i>Stenella spp.</i>)	Protected
*Bottlenose dolphin (<i>Tursiops truncatus</i>)	Protected

<u>Sea Turtles Species</u>	<u>Status</u>
*Leatherback sea turtle (<i>Dermochelys coriacea</i>)	Endangered
Kemp's ridley sea turtle (<i>Lepidochelys kempii</i>)	Endangered
Green sea turtle (<i>Chelonia mydas</i>)	Endangered
Hawksbill sea turtle (<i>Eretmochelys imbricata</i>)	Endangered
*Loggerhead sea turtle (<i>Caretta caretta</i>)	
-Northwest Atlantic DPS	Threatened

<u>Fish Species</u>	<u>Status</u>
Shortnose sturgeon (<i>Acipenser brevirostrum</i>)	Endangered
Atlantic salmon – Gulf of Main DPS (<i>Salmo salar</i>)	Endangered
*Atlantic sturgeon (<i>Acipenser oxyrinchus</i>)	
Chesapeake Bay DPS	Endangered
New York Bight DPS	Endangered
Carolina DPS	Endangered
South Atlantic DPS	Endangered
Gulf of Maine DPS	Threatened
Cusk (<i>Brosme brosme</i>)	Candidate

Protected Species Interactions with the Managed Resources – Includes Fishery Classification under Section 118 of Marine Mammal Protection Act

<u>Species</u>	<u>Status</u>
Common dolphin (<i>Delphinus delphis</i>)	Protected
White-sided dolphin (<i>Lagenorhynchus acutus</i>)	Protected
Pilot whale (<i>Globicephala spp.</i>)	Protected
Leatherback sea turtle (<i>Dermochelys coriacea</i>)	Endangered
Loggerhead sea turtle (<i>Caretta caretta</i>)	
-Northwest Atlantic DPS	Threatened
Risso's dolphin (<i>Grampus griseus</i>)	Protected
Bottlenose dolphin (<i>Tursiops truncatus</i>)	Protected

Under section 118 of the MMPA, NMFS must publish and annually update the List of Fisheries (LOF), which places all U.S. commercial fisheries in one of three categories based on the level of incidental serious injury and mortality of marine mammals in each fishery (arranging them according to a two tiered classification system). The categorization of a fishery in the LOF determines whether participants in that fishery may be required to comply with certain provisions of the MMPA, such as registration, Northeast Fishery Observer Program observer coverage, and take reduction plan requirements. The classification criteria consists of a two tiered, stock-specific approach that first addresses the total impact of all fisheries on each marine mammal stock (Tier 1)

and then addresses the impact of the individual fisheries on each stock (Tier 2). If the total annual mortality and serious injury of all fisheries that interact with a stock is less than 10% of the Potential Biological Removal (PBR) for the stock then the stock is designated as Tier 1 and all fisheries interacting with this stock would be placed in Category III. Otherwise, these fisheries are subject to categorization under Tier 2. PBR is the product of minimum population size, one-half the maximum productivity rate, and a "recovery" factor (MMPA Sec. 3. 16 U.S.C. 1362; Wade and Angliss 1997). The current List of Fisheries is available at: <http://www.nmfs.noaa.gov/pr/interactions/lof/>.

Under Tier 2, individual fisheries are subject to the following categorization:

Category I. Annual mortality and serious injury of a stock in a given fishery is greater than or equal to 50% of the PBR level;

Category II. Annual mortality and serious injury of a stock in a given fishery is greater than one percent and less than 50% of the PBR level; or

Category III. Annual mortality and serious injury of a stock in a given fishery is less than one percent of the PBR level.

In Category I, there is documented information indicating a "frequent" incidental mortality and injury of marine mammals in the fishery. In Category II, there is documented information indicating an "occasional" incidental mortality and injury of marine mammals in the fishery. In Category III, there is information indicating no more than a "remote likelihood" of an incidental taking of a marine mammal in the fishery or, in the absence of information indicating the frequency of incidental taking of marine mammals, other factors such as fishing techniques, gear used, methods used to deter marine mammals, target species, seasons and areas fished, and species and distribution of marine mammals in the area suggest there is no more than a remote likelihood of an incidental take in the fishery. "Remote likelihood" means that annual mortality and serious injury of a stock in a given fishery is less than or equal to 10% of the PBR level or, that it is highly unlikely that any marine mammal will be incidentally taken by a randomly selected vessel in the fishery during a 20-day period or, in the absence of reliable information it is at the discretion of the Assistant Administrator for Fisheries to determine whether the incidental injury or mortality qualifies (or not) for a specific category.

Marine Mammal Stock Assessment Reports:

As required by the Marine Mammal Protection Act (MMPA), NMFS has incorporated earlier public comments into revisions of marine mammal stock assessment reports (SARs). These reports contain information regarding the distribution and abundance of the stock, population growth rates and trends, the stock's Potential Biological Removal level, estimates of annual human-caused mortality and serious injury from all sources, descriptions of the fisheries with which the stock interacts, and the status of the stock. The MMPA requires these assessments to be reviewed at least annually for strategic stocks and stocks for which significant new information is available, and at least once

every 3 years for non-strategic stocks. The most recent SARs are available at: <http://www.nmfs.noaa.gov/pr/sars/>.

NMFS elevated the (mid-water) MSB fishery to Category I in the 2001 LOF but it was reduced to a Category II fishery in 2007 (see discussion below describing the Atlantic Trawl Gear Take Reduction Plan). The reduction in interactions documented between the MSB fisheries and several species/stocks of marine mammals compared to previous years led to the re-classification. No classification changes have occurred since 2007.

5.4.1 Commercial Fisheries Interactions

The following is a description of species of concern because they are protected under MMPA and, as discussed above, have had documented interactions with fishing gears used to harvest species managed under this FMP. Five year take averages are provided as found in Waring *et al* (2013) unless otherwise noted.

Common dolphin (PBR = 1,125, all fisheries annual take 2007-2011 = 168)

The common dolphin may be one of the most widely distributed species of cetaceans, as it is found worldwide in temperate, tropical, and subtropical seas. They are widespread from Cape Hatteras northeast to Georges Bank (35° to 42° North latitude) in outer continental shelf waters from mid-January to May. Exact total numbers of common dolphins off the US or Canadian Atlantic coast are unknown, although the most recent Stock Assessment Report considers the best abundance estimate for common dolphins to be 173,486 (Coefficient of Variation (CV) =0.36). PBR for the western North Atlantic common dolphin is 1,125. See Waring *et al.* 2013 (<http://www.nmfs.noaa.gov/pr/sars/>) for more life history information.

Fishery Interactions - The following fishery interaction information was taken from the latest stock assessment for common dolphin contained in Waring *et al.* (2013) which summarizes incidental mortality of this species. Annual averages are presented below – details on encounters may be reviewed in Waring *et al* (2013).

Atlantic Mackerel - This fishery is primarily prosecuted with mid-water trawl in the Mid-Atlantic but also with bottom trawl as well. As noted above, the mean estimated annual mortality of common dolphin during 2007-2010 in the Mid-Atlantic bottom trawl fishery was 96 animals (CV=0.13). For the Mid-Atlantic mid-water trawl fishery the mean estimated annual mortality of common dolphin was 1 (CV=0.7) during 2007-2011. The portion attributable to the directed Atlantic mackerel fishery is unknown.

Atlantic white-sided dolphin (*Lagenorhynchus acutus*) (PBR = 304, all fisheries annual take 2007-2011 = 117)

Atlantic white-sided dolphins (*Lagenorhynchus acutus*) are found in temperate and sub-polar waters of the North Atlantic, primarily in continental shelf waters to the 100m depth contour. The exact total number of white-sided dolphins (*Lagenorhynchus acutus*) along the eastern US and Canadian Atlantic coast is unknown, although the best available current abundance estimate for white-sided dolphins in the western North Atlantic stock is 48,819 (CV=0.61). PBR for the western North Atlantic stock of white-sided dolphin (*Lagenorhynchus acutus*) is 304. See Waring *et al.* 2013 (<http://www.nmfs.noaa.gov/pr/sars/>) for more life history information.

Fishery Interactions - The following information was taken from the latest stock assessment for white-sided dolphin (*Lagenorhynchus acutus*) contained in Waring *et al* (2013) which summarized incidental mortality of this species. Annual averages are presented below – details on encounters may be reviewed in Waring *et al* (2013).

Atlantic Mackerel - This fishery is primarily prosecuted with mid-water trawl in the Mid-Atlantic but also with bottom trawl as well. As noted above, the mean estimated annual mortality during 2007-2011 in the Mid-Atlantic bottom trawl fishery was 4 animals (CV=0.2). For the Mid-Atlantic mid-water trawl fishery the mean estimated annual mortality of common dolphin was 6 (CV=0.53) during 2007-2011. The portion attributable to the directed Atlantic mackerel fishery is unknown.

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Long-finned (*Globicephala melas*) and short-finned (*Globicephala macrorhynchus*) pilot whales (PBR = 358, all fisheries annual take 2007-2011 = 162).

There are two species of pilot whales in the Western Atlantic - the Atlantic (or long-finned) pilot whale, *Globicephala melas*, and the short-finned pilot whale, *G. macrorhynchus*. These species (sp.) are difficult to identify to the species level at sea. Preliminary analysis suggests the following distribution of the two species: sightings south of the mouth of the Chesapeake Bay are likely short-finned pilot whales, as are offshore (near the 4,000m depth contour) sightings from off the mouth of the Chesapeake Bay through off New Jersey. Sightings from the mouth of the Chesapeake Bay to the Southern Edge of Georges Bank along the 100/1,000 m depth contours are likely mixed. Sightings in the Gulf of Maine and east and north of Cape Cod are likely long-finned pilot whales, as are sightings in shelf waters immediately southeast of Nantucket. The best estimate population size for short-finned pilot whales is 21,515 (C.V. = 0.37) and for long-finned pilot whales to be 26,535 (C.V. = 0.35). PBR for short-finned pilot whales is estimated to be 159 and PBR for long-finned pilot whales is estimated to be 199 (total is 358). See Waring *et al.* 2013 (<http://www.nmfs.noaa.gov/pr/sars/>) for more life history information. 2011 estimates were not available for all gear types when this document was written.

Fishery Interactions - The following information was taken from the latest stock assessment for pilot whales (*Globicephala* sp.) contained in Waring *et al* (2011) which summarized incidental mortality of this species. Annual averages are presented below – details on encounters may be reviewed in Waring *et al* (2011).

Atlantic Mackerel - This fishery is primarily prosecuted with mid-water trawl in the Mid-Atlantic but also with bottom trawl as well. As noted above, the mean estimated annual mortality during 2007-2010 in the Mid-Atlantic bottom trawl fishery was 29 animals (CV=0.19). For the Mid-Atlantic mid-water trawl fishery the mean estimated annual mortality of common dolphin was 2.4 (CV=0.99) during 2007-2011. The portion attributable to the directed Atlantic mackerel fishery is unknown.

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Risso's dolphin (*Grampus griseus*) (PBR = 126, all fisheries annual take 2007-2011 = 62)

Risso's dolphins are distributed worldwide in tropical and temperate seas, and in the Northwest Atlantic occur from Florida to eastern Newfoundland. Off the northeast U.S. coast, Risso's dolphins are distributed along the continental shelf edge from Cape Hatteras northward to Georges Bank during spring, summer, and autumn. In winter, the range is in the Mid-Atlantic Bight and extends outward into oceanic waters. The best population estimate for the western North Atlantic Risso's dolphin is 18,250 (CV=0.46). See Waring *et al.* 2013 (<http://www.nmfs.noaa.gov/pr/sars/>) for more life history information.

Foreign Fishery Interactions - NMFS foreign-fishery observers reported four deaths of Risso's dolphins incidental to squid and mackerel fishing activities in the continental shelf and continental slope waters between March 1977 and December 1991. In the pelagic pair trawl fishery, one mortality was observed in 1992.

Mid-Atlantic Mid-water Trawl

One Risso's dolphin mortality was observed in this fishery for the first time in 2008. Until additional information is obtained, the assumed average mortality in this fishery is calculated as 0.2 animals (1 animal/5 years).

Bottlenose dolphin (*Tursiops truncatus*) Offshore Form (from Waring et al 2013). (PBR = 561, all fisheries annual take = 42)

There are two morphologically and genetically distinct bottlenose dolphin morphotypes described as the coastal and offshore forms. Both inhabit waters in the western North Atlantic Ocean along the U.S. Atlantic coast. See <http://www.nmfs.noaa.gov/pr/sars/> for more life history information.

Fisheries Information - Earlier Interactions

Thirty-two bottlenose dolphin mortalities were observed in the pelagic pair trawl fishery between 1991 and 1995. Estimated annual fishery-related mortality (CV in parentheses) was 13 dolphins in 1991 (0.52), 73 in 1992 (0.49), 85 in 1993 (0.41), 4 in 1994 (0.40) and 17 in 1995 (0.26).

Although there were reports of bottlenose dolphin mortalities in the foreign squid mackerel butterfish fishery during 1977-1988, there were no fishery-related mortalities of bottlenose dolphins reported in the self-reported fisheries information from the mackerel trawl fishery during 1990-1992.

One bottlenose dolphin mortality was documented in the North Atlantic bottom trawl in 1991 and the total estimated mortality in this fishery in 1991 was 91 (CV=0.97). Since 1992 there were no bottlenose dolphin mortalities observed in this fishery.

5.4.2 Atlantic Trawl Gear Take Reduction Plan

In September 2006, the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) convened the Atlantic Trawl Gear Take Reduction Team (ATGTRT) under the Marine Mammal Protection Act (MMPA). The ATGTRT was convened to address incidental mortality and serious injury of long-finned pilot whales (*Globicephala melas*), short-finned pilot whales (*Globicephala macrorhynchus*), common dolphins (*Delphinus delphis*), and Atlantic white-sided dolphins (*Lagenorhynchus acutus*) in several trawl gear fisheries operating in the Atlantic Ocean. These marine mammal species are known to interact with the Mid-Atlantic Mid-Water Trawl, the Mid-Atlantic Bottom Trawl, Northeast Mid-Water Trawl and the Northeast Bottom Trawl fisheries.

The immediate goal of a Take Reduction Plan is to reduce, within six months of implementation, the incidental serious injury or mortality of marine mammals from commercial fishing to levels less than PBR. The long-term goal is to reduce, within five years of its implementation, the incidental serious injury and mortality of marine mammals from commercial fishing operations to insignificant levels approaching a zero serious injury and mortality rate, taking into account the economics of the fishery, the availability of existing technology, and existing state or regional FMPs.

Presently, none of these marine mammal stocks under consideration by the ATGTRT are classified as a strategic stock nor do they currently interact with a Category I fishery. NOAA's General Counsel legal guidance has stated that neither the 11 month timeline for the development of a Take Reduction Plan nor the 5 year goal for reaching the Zero Mortality Rate Goal apply to non-strategic stocks that do not interact with Category I fisheries. The ATGTRT agreed that while a take reduction plan may not be required at this time, efforts should be made to identify and conduct research necessary to identify measures to reduce serious injury and mortality of marine mammals in Atlantic trawl fisheries and, ultimately, to achieve the MMPA's Zero Mortality Rate Goal. This information is captured in the Atlantic Trawl Gear Take Reduction Strategy (ATGTRS).

The ATGTRT recommended that two plans be developed to achieve the overall goal of the Take Reduction Strategy to reduce the incidental take of marine mammals in Atlantic trawl fisheries. These include an Education and Outreach Plan and a Research Plan as part of an overall take reduction strategy. The ATGTRT established two sub-groups to develop the Education and Outreach and Research Plans. The Education and Outreach Plan identifies activities that promote the exchange of information necessary to reduce the bycatch of marine mammals in Atlantic trawl fisheries. The Research Plan identifies information and research needs necessary to improve our understanding of the factors resulting in the bycatch in Atlantic trawl fisheries. The results of the identified research will be used to direct additional research and/or identify measures to reduce the serious injury and mortality of short- and long-finned pilot whales, Atlantic white-sided dolphins,

and common dolphins in trawl fisheries to levels approaching the Zero Mortality Rate Goal. The Atlantic Trawl Gear Take Reduction Strategy is available at: http://www.nero.noaa.gov/prot_res/atgtrp/.

5.4.3 Description of Turtle Species with Documented Interactions with the MSB Fisheries

The October 2010 Biological Opinion for the MSB (http://www.nero.noaa.gov/prot_res/section7/NMFS-signedBOs/SMB%20BIOP%202010.pdf) fisheries contains detailed information on sea-turtle interactions. This document updates information on sea turtle interactions with trawl gear in the MSB fisheries. Summary information is provided below and the full document above may be consulted for details.

The primary species likely to be adversely affected by the MSB fishery would be loggerhead sea turtles, as they are the most abundant species occurring in U.S. Atlantic waters. Sea sampling and observer data indicate that fewer interactions occur between fisheries that capture MSB and leatherback, Kemp's ridley, and green sea turtles. The primary area of impact of the directed commercial fishery for MSB on sea turtles is likely bottom otter trawls in waters of the Mid-Atlantic from Virginia through New York, from late spring through fall (peak longfin squid abundance July-October). In New England, interactions with trawl gear may occur in summer through early fall (peak squid abundance August -September), although given the level of effort, the probability of interactions is much lower than in the Mid-Atlantic.

There have been 9 observed sea turtle takes in the MSB fishery during the past 11 years (using top species landed). All sea turtle takes have occurred in bottom otter trawl gear participating in the squid fishery. Loggerhead sea turtles are more likely to interact with MSB trawl gear but green, Kemp's ridley and leatherback interaction may also occur. All sea turtles were released alive, except a 2002 take, when a gillnet was hauled up as part of the catch when the loggerhead turtle entangled was fresh dead.

Based on data collected by observers for the reported sea turtle captures in or retention in MSB trawl gear, the NEFSC has estimated loggerhead bycatch in the MSB trawl fishery 2005-2008 to be about 25 animals annually (Warden 2011). NMFS estimates 1 leatherback, 2 green, and 2 Kemp's ridley turtles are taken each year based on the very low encounter rates for these species and/or unidentified turtles (Murray 2008).

On March 16, 2010, the Services announced 12-month findings on petitions to list the North Pacific populations and the Northwest Atlantic populations of the loggerhead sea turtle as DPSs with endangered status and published a proposed rule to designate nine loggerhead DPSs worldwide, seven as endangered (North Pacific Ocean DPS, South Pacific Ocean DPS, Northwest Atlantic Ocean DPS, Northeast Atlantic Ocean DPS, Mediterranean Sea DPS, North Indian Ocean DPS, and Southeast Indo-Pacific Ocean DPS) and two as threatened (Southwest Indian Ocean DPS and South Atlantic Ocean

DPS). On March 22, 2011, the timeline for the final determination was extended for six months until September 16, 2011 (76 FR 15932).

A final loggerhead listing determination was published on September 22, 2011 (76 FR 58867). Unlike the proposed listing, the final listing designates four DPSs (Northwest Atlantic, South Atlantic, Southeast Indo-Pacific, and Southwest Indian) as threatened, and five DPSs (Northeast Atlantic, Mediterranean, North Indian, North Pacific, and South Pacific) as endangered. Critical habitat has also recently been designated – see http://www.nmfs.noaa.gov/pr/species/turtles/criticalhabitat_loggerhead.htm for details.

5.4.4 Atlantic sturgeon

In 2012 NOAA's Fisheries Service announced a final decision to list five distinct population segments (DPS) of Atlantic sturgeon under the Endangered Species Act. The Chesapeake Bay, New York Bight, Carolina, and South Atlantic DPSs of Atlantic sturgeon were listed as endangered, while the Gulf of Maine DPS was listed as threatened. Atlantic sturgeon from any of the five DPSs could occur in areas where MSB fisheries operate, and the species has been captured in gear targeting longfin squid (Stein et al. 2004a, ASMFC 2007). Therefore, this Environmental Assessment includes background information on Atlantic sturgeon in this section and considers the anticipated effects of the action on Atlantic sturgeon in Section 7 of this Environmental Assessment. Detailed life history information may be found in the 2007 Atlantic Sturgeon Status Review, available at: <http://sero.nmfs.noaa.gov/pr/esa/Sturgeon/Atl%20Sturgeon/atlanticsturgeon2007.pdf>.

Since the ESA listing of Atlantic sturgeon, new stock assessment efforts have been completed (Kocik et al. 2013). Atlantic sturgeon are frequently sampled during the Northeast Area Monitoring and Assessment (NEAMAP) survey. NEAMAP has been conducting trawl surveys from Cape Cod, Massachusetts to Cape Hatteras, North Carolina in nearshore waters at depths to 18.3 meters (60 feet) during the fall since 2007 and depths up to 36.6 meters (120 feet) during the spring since 2008 using a spatially stratified random design with a total of 35 strata and 150 stations per survey. The information from this survey can be directly used to calculate minimum swept area population estimates during the fall, which range from 6,980 to 42,160 with coefficients of variation between 0.02 and 0.57 and during the spring, which range from 25,540 to 52,990 with coefficients of variation between 0.27 and 0.65. These are considered minimum estimates because the calculation makes the unlikely assumption that the gear will capture 100% of the sturgeon in the water column along the tow path. For this analysis, we have determined that using the median value of the 50% efficiency as the best estimate of the Atlantic sturgeon ocean population is most appropriate at this time. This results in a total population size estimate of 67,776 fish, which is considerably higher than the estimates that were available at the time of listing (Kocik et al. 2013).

Fisheries Interactions

Atlantic sturgeon are known to be captured in sink gillnet, drift gillnet, and otter trawl gear (Stein et al. 2004a, ASMFC TC 2007). Of these gear types, sink gillnet gear poses the greatest known risk of mortality for bycaught sturgeon (ASMFC TC 2007). Sturgeon deaths were rarely reported in the otter trawl observer dataset (ASMFC TC 2007). However, the level of mortality after release from the gear is unknown (Stein et al. 2004a). In a review of the Northeast Fishery Observer Program (NEFOP) database for the years 2001-2006, observed bycatch of Atlantic sturgeon was used to calculate bycatch rates that were then applied to commercial fishing effort to estimate overall bycatch of Atlantic sturgeon in commercial fisheries. This review indicated sturgeon bycatch occurred in statistical areas abutting the coast from Massachusetts (statistical area 514) to North Carolina (statistical area 635) (ASMFC TC 2007). Based on the available data, participants in an ASMFC bycatch workshop concluded that sturgeon encounters tended to occur in waters less than 50 m throughout the year, although seasonal patterns exist (ASMFC TC 2007). The ASMFC analysis determined that an average of 650 Atlantic sturgeon mortalities occurred per year (during the 2001 to 2006 timeframe) in sink gillnet fisheries. Stein et al. (2004a), based on a review of the NMFS Observer Database from 1989-2000, found clinal variation in the bycatch rate of sturgeon in sink gillnet gear with lowest rates occurring off of Maine and highest rates off of North Carolina for all months of the year.

In an updated, preliminary analysis, the Northeast Fisheries Science Center (NEFSC) was able to use data from the NEFOP database to provide updated estimates for the 2006 to 2010 timeframe. Data were limited by observer coverage to waters outside the coastal boundary and north of Cape Hatteras, NC. Sturgeon included in the data set were those identified by federal observers as Atlantic sturgeon, as well as those categorized as unknown sturgeon. At this time, data were limited to information collected by the observer program; limited data collected in the At-Sea Monitoring Program were not included, although preliminary views suggest the incidence of sturgeon encounters was low.

The preliminary analysis apportioned the estimated weight of all sturgeon takes to specific fishery management plans. The analysis estimates that between 2006 and 2010, a total of 15,587 lbs of Atlantic sturgeon were captured and discarded in bottom otter trawl (7,740 lbs) and sink gillnet (7,848 lbs) gear. The analysis results indicate that 7.1% (550 lbs) of the weight of sturgeon discards in bottom otter trawl gear could be attributed to the large mesh bottom trawl fisheries if a correlation of FMP species landings (by weight) was used as a proxy for fishing effort. Additionally, the analysis results indicate that 4.0% (314 lbs) of the weight of sturgeon discards in sink gillnet gear could be attributed to the large mesh gillnet fisheries if a correlation of FMP species landings (by weight) was used as a proxy for fishing effort.

These additional data support the conclusion from the earlier bycatch estimates that the MSB fisheries may interact with Atlantic sturgeon. A Biological Opinion (NMFS 2013) was issued on December 16, 2013 and concluded that the MSB fisheries may adversely

affect, but is not likely to jeopardize the continued existence of any of the five DPSs of Atlantic sturgeon. The Biological Opinion included reasonable and prudent measures, as well as terms and conditions which will further reduce impacts to Atlantic sturgeon.

5.5 Other Non-Target Species (Mackerel Fishery)

Various species are caught incidentally by the mackerel fishery. For non-target species that are managed under their own FMP, incidental catch/discards are also considered as part of the management of that fishery. These species will be impacted to some degree by the prosecution of the mackerel fishery.

The primary database used to assess discarding is the NMFS Observer Program database, which includes data from trips that had trained observers onboard to document discards. One critical aspect of using this database to describe discards is to correctly define the trips that constitute a given directed fishery. Presumably some criteria of what captains initially intend to target, how they may adjust targeting over the course of a trip, and what they actually catch would be ideal. Thus to begin this process, staff first reviewed 2011-2013 trips in the dealer weighout database to see if a certain trip definition could account for most mackerel landed. Since the mackerel fishery has changed substantially in recent years a more recent, three-year time period was examined. The result of this review resulted in the following definition for mackerel trips using landings: All trips that had at least 50% mackerel by weight and all trips over 100,000 pounds of mackerel regardless of the ratio of other species. This definition results in capturing 90% of all mackerel landings in the dealer weighout database 2011-2013. The other trips with lower mackerel landings landed a variety of species, mostly Atlantic herring, silver hake, longfin squid, and scup. The set of trips in the observer database with the same mackerel criteria included 4 on average for each year 2011-2013 (the mackerel fishery has not been very active in recent years). These trips made 49 hauls of which 94% were observed. Hauls may be unobserved for a variety of reasons, for example transfer to another vessel without an observer, observer not on station, haul slipped (dumped) in the water, etc.

Information on catch and discards is provided for observed hauls in the table below. Since there were so few observed trips, extrapolations are not made but the total observed values are provided. Also, given that the amounts of mackerel and Atlantic herring caught on these trips is about the same, and that both were mostly retained, it is not clear if these trips were primarily targeting mackerel or Atl. herring. Fishermen and processors on the Council's MSB Advisory Panel have also reported that mackerel caught in recent years have mostly been caught incidental to Atl. herring fishing rather than during focused mackerel fishing because of the lack of fishable mackerel concentrations.

A number of alternatives involve exemptions or different consequences for slippages related to dogfish catches, and while dogfish do not appear to constitute a major bycatch issue for the mackerel fishery based on the table below, if nets are being slipped because

of dogfish they would not get recorded in observer data, and Appendices 1 and 3 do describe instances where dogfish were cited as a reason for slippage.

Table 4. Incidental Catch and Discards in the Mackerel Fishery.

NE Fisheries Science Center Common Name	Pounds Observed Caught	Pounds Observed Discarded	Of all discards observed, percent that comes from given species	Percent of given species that was discarded
MACKEREL, ATLANTIC	3,505,435	79	1%	0%
HERRING, ATLANTIC	3,279,282	337	3%	0%
HERRING, BLUEBACK	28,135	79	1%	0%
ALEWIFE	25,952	1,068	9%	4%
BUTTERFISH	7,596	0	0%	0%
DOGFISH, SPINY	4,992	4,992	44%	100%
FISH, NK	3,885	3,885	34%	100%
SQUID, ATL LONG-FIN	1,193	0	0%	0%
SHAD, AMERICAN	704	4	0%	1%
HAKE, SILVER	693	4	0%	1%
BASS, STRIPED	574	574	5%	100%
SQUID, SHORT-FIN	198	0	0%	0%
SKATE, LITTLE	197	197	2%	100%
SCUP	170	0	0%	0%
OCEAN POUT	149	149	1%	100%
HAKE, RED (LING)	74	54	0%	73%
HADDOCK	60	0	0%	0%
SKATE, WINTER (BIG)	11	0	0%	0%
HERRING, NK	10	10	0%	100%
SKATE, WINTER (BIG)	4	4	0%	100%

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The primary non-target species of current concern for mackerel, and for which there are relevant management measures proposed in this action, are river herrings and shads (RH/S) so additional information on RH/S is provided below.

River Herring

In the most recent Atlantic States Marine Fisheries Commission river herring stock assessment, of the 24 river herring stocks for which sufficient data are available to make a conclusion, 23 were depleted relative to historic levels and one was increasing. The status of 28 additional stocks could not be determined because the time-series of available data was too short. Estimates of coastwide abundance and fishing mortality could not be developed because of the lack of adequate data. The “depleted” determination was used instead of “overfished” because of the many factors that have contributed to the declining abundance of river herring, which include not just directed and incidental fishing, but likely also habitat issues (including dam passage, water quality, and water quantity), predation, and climate change. There are no coastwide reference points. The NEFSC trawl survey, which is the only coastwide fisheries-independent survey, showed increasing trends in relative abundance beginning in 2008 (ASMFC 2012).

As part of a recent river herring status review under the Endangered Species Act, NMFS completed an extinction risk analysis

(http://www.nero.noaa.gov/prot_res/candidatespeciesprogram/RiverHerringSOC.htm).

This analysis investigated trends in river herring relative abundance for each species range-wide as well as for each identified stock complex. This analysis found that "the abundance of alewife range-wide significantly increased over time (mid 1970s-2012), but the increase in blueback herring abundance was not significant (page 7 and Figures 8 and 9 of the referenced document). These range-wide analyses incorporated data from fishery independent surveys with the widest geographic extent, specifically the Northeast Fisheries Science Center spring and fall bottom trawl surveys and Canada's Department of Fisheries and Oceans (DFO) Scotian Shelf survey. Stock-specific analyses incorporated run count data and stock-specific fishery-independent surveys. Stock-specific analyses indicated that the abundance of the Canadian alewife stock complex was significantly increasing, the abundance of the mid-Atlantic blueback herring stock complex was significantly decreasing, and all other analyzed stock complexes were not significantly increasing or decreasing in abundance. The status review concluded that the species did not currently warrant listing under the ESA.

NMFS and the ASMFC are engaged in a proactive conservation strategy for river herring and the Council is also involved in the endeavor. This strategy is described at <http://www.nero.noaa.gov/protected/riverherring/tewg/index.html>, and will bring a variety of management partners and stakeholders together to address river herring threats and plan conservation and data gathering activities.

Shad

The most recent American shad stock assessment report (ASMFC 2007) identified that American shad stocks are highly depressed from historical levels. Of the 24 stocks of American shad for which sufficient information was available, 11 were depleted relative to historic levels, 2 were increasing, and 11 were stable (but still below historic levels). The status of 8 additional stocks could not be determined because the time-series of data was too short or analyses indicated conflicting trends. Taken in total, American shad stocks do not appear to be recovering. The assessment concluded that current restoration actions need to be reviewed and new ones need to be identified and applied. These include fishing rates, dam passage, stocking, and habitat restoration. There are no coastwide reference points for American shad. There is no stock assessment available for hickory shad.

River Herring and Shad (RH/S) Catches in the Mackerel Fishery

Amendment 14 analyzed catch of RH/S extensively, and a FEIS is available at <http://www.nero.noaa.gov/regs/2013/August/12smba14pr.html>. The analysis described in Appendix 2 of Amendment 14's EIS found that Mid-Atlantic mid-water trawl fishing in Quarter 1, which is largely but not completely mackerel fishing, accounted for about 35% of total ocean river herring catch and about 12% of total ocean shad catch from 2005-2010 (about 160.6 metric tons of river herring and 7.6 tons of shad). While it is not clear what impact that level of catch is having on RH/S stocks, these average annual amounts translate to close to 2 million fish (mostly river herring) if a five fish per pound conversion is used (the offshore fishery is likely to encounter juveniles). As described in the 2014 Specifications Environmental Assessment (<http://www.nero.noaa.gov/regs/2014/January/14smb2014specspr.html>), analysis suggests that in recent years, RH/S catches in the mackerel fishery have been in the range of 78 mt - 1273 mt (about 170,000 pounds to nearly 3,000,000 pounds) when the fishery is operating (i.e. 2006-2010 - mackerel catches were very low from 2011-2012). Most of that catch would be expected to be river herring according to both Amendment 14 analyses and the ratios observed on trips in the observer database that catch mackerel. While the ratio of RH/S catch in the mackerel fishery is relatively low, the quantities of RH/S may be substantial relative to the run size of RH/S in many rivers.

While there has not been much of a mackerel fishery in recent years, if the mackerel fishery redevelops the RH/S cap will limit RH/S catch in the mackerel fishery. The cap was set at 236 metric tons (MT) for 2014. The 2015 specifications will propose a lower cap, which starts at 89 mt and then increases to 155 mt if the mackerel fishery catches more than 10,000 mt of mackerel.

5.6 Human Communities and Economic Environment – Mackerel Fishery

This section describes the socio-economic importance of the MSB fisheries. Recent Amendments to the MSB FMP contain additional information, especially demographic information on ports that land MSB species. See Amendments 11 and 14 at <http://www.mafmc.org/msb/> for more information or visit NMFS' communities page at: http://www.nefsc.noaa.gov/read/socialsci/community_profiles/.

For each species with alternatives in this document (mackerel), Section 6.6 describes the following: history of landings, prices and total revenues since 1982, specification performance for the last 10 years, 2013 data for permitted and active vessels by state, 2013 vessel dependence on each managed species as a proportion of total ex-vessel sales, 2011-2013 landings by state, 2011-2013 landings by month, 2011-2013 landings by gear, 2011-2013 landings in key ports, 2011-2013 numbers of active dealers, and 2011-2013 vessel trip report catches by key statistical area. There is also a market overview section for mackerel per the FMP. If less than either 3 vessels or 3 dealers were active for a given species in a given port, or if there is other concern about data confidentiality, some information may be withheld or limited in order to maintain the confidentiality of fishery participants' proprietary business data.

The Council employed a new procedure for gathering information from its Squid-Mackerel-Butterfish Advisory Panel during the 2012 specifications setting process, which it continued for the 2015 specifications. The MSB Advisory Panel created a "Fishery Performance Report" for each species based on the advisors' personal and professional experiences as well as reactions to an "informational document" for each species created by Council staff. The Informational Documents and Fishery Performance Reports may be found here <http://www.mafmc.org/ssc-meeting-documents/>. These documents, while not NMFS or peer-reviewed, and also containing some preliminary information, were constructed using the same basic analytical techniques as this document and may be of interest to readers looking for additional descriptive fishery information.

Historical Commercial Fishery – History of Landings

The modern northwest mackerel fishery began with the arrival of the European distant-water fleets in the early 1960's. Total international commercial landings (Northwest Atlantic Fisheries Organization Subareas 2-6,) peaked at 437,000 mt in 1973 and then declined sharply to 77,000 by 1977 (Overholtz 1989). The MSA established control of the portion of the mackerel fishery occurring in US waters (Northwest Atlantic Fisheries Organization Subareas 5-6) under the auspices of the Council. Reported foreign landings in US waters declined from an unregulated level of 385,000 mt in 1972 to less than 400 mt from 1978-1980 under the MSA (the foreign mackerel fishery was restricted by NOAA Foreign Fishing regulations to certain areas or "windows." Under the MSB FMP foreign mackerel catches were permitted to increase gradually to 15,000 mt in 1984 and then to a peak of almost 43,000 mt in 1988 before being phased out again.

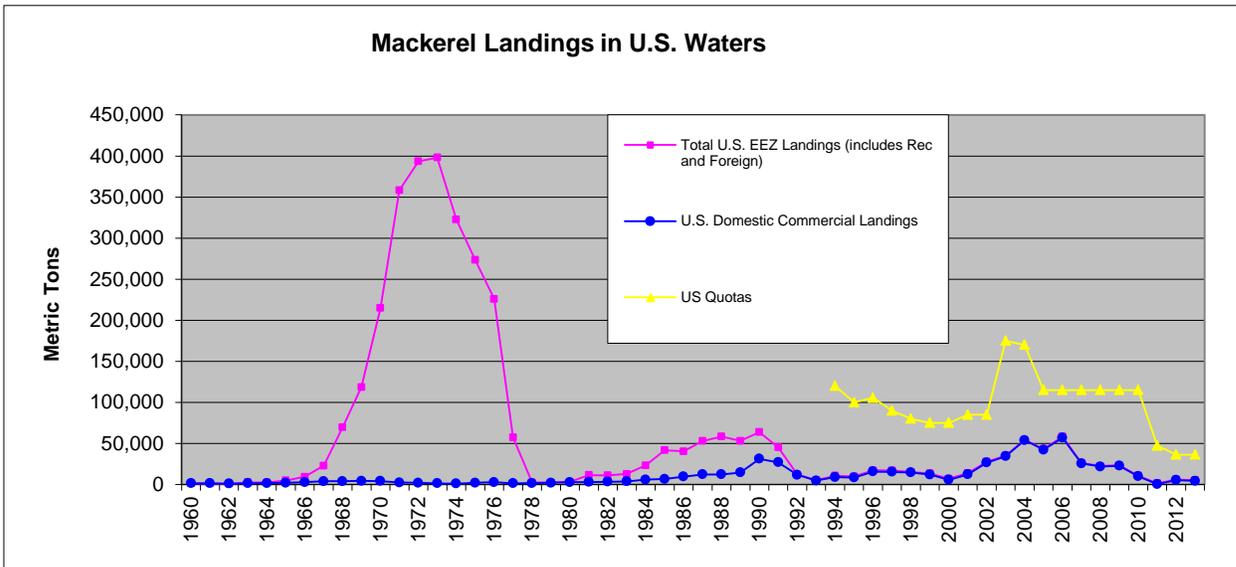
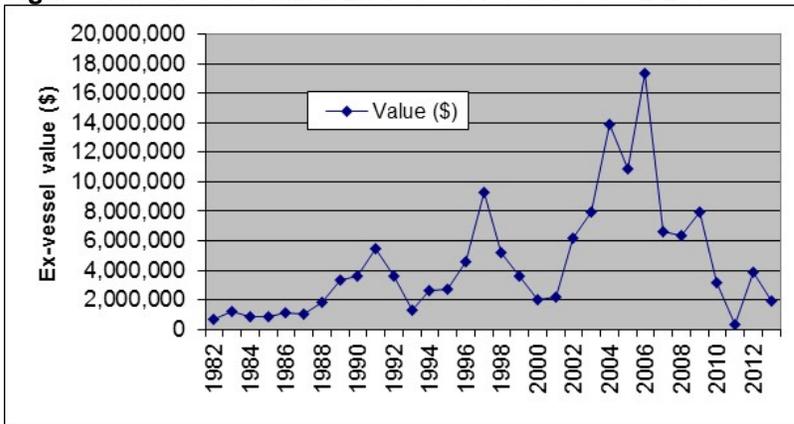


Figure 2. Historical Atl. Mackerel Landings in the U.S. EEZ.

US commercial landings of mackerel increased steadily from roughly 3000 mt in the early 1980s to greater than 31,000 mt by 1990. US mackerel landings declined to relatively low levels 1992-2000 before increasing in the early 2000's. The most recent years have seen a significant drop-off in harvest. The mackerel fishery usually catches 95% of its mackerel by May 1 so while incomplete, available 2014 data suggests that around 3,500-4,500 mt will be landed in 2014.

Nominally ex-vessel price has generally varied between about \$200-\$700 per mt but when inflation is taken into account there was erosion in the ex-vessel per-pound value of mackerel from 1982-2010. 2011 and 2012 prices increased substantially (near \$700/mt), which is likely at least partially related to the low levels of mackerel landed. 2013 ex-vessel prices were about \$436/mt. Total ex-vessel value tracks both price and the quantity of fish landed (see Fishery Information Document at <http://www.mafmc.org/ssc-meetings/2013/april-may> for details). 2013 landings totaled 4,372 mt and generated \$1.9 million in ex-vessel revenues.

Figure 3. Mackerel Nominal Ex-Vessel Revenues 1982-2013.



Fishery Performance

Weekly dealer data triggers in-season management actions that institute relatively low trip limits when 90% of the commercial DAH is landed. The table below lists the performance of the mackerel fishery (commercial and recreational together) compared to the effective quota for the last 10 years. There have been no quota overages over this period, but the fisheries have not approached the quotas. Since 2012 any ABC overages must be repaid pound for pound. Discard information is not available since 2011, but it does not appear that mackerel would have approached anywhere near its ABC since discards are usually quite low according to the most recent assessment (TRAC 2010). The 2013 ABC was 43,781 mt, which is also the ABC for 2014.

Table 5. Mackerel Quota Performance (mt)

Year	Harvest (mt) (Commercial and Recreational)	Quota (mt) (Rec+Com)	Percent of Quota Landed
2004	54,298	170,000	32%
2005	43,275	115,000	38%
2006	58,352	115,000	51%
2007	26,142	115,000	23%
2008	22,498	115,000	20%
2009	23,235	115,000	20%
2010	10,739	115,000	9%
2011	1,478	47,395	3%
2012	6,015	36,264	17%
2013	5,261	36,264	15%

Source: Unpublished NMFS dealer reports and MRIP data

Participation in the fishery was low in 2013 related to the low availability of mackerel. The tables and figures below and on the following pages describe vessel participation, vessel dependency, distribution of landings by state/month/gear/port, dealer participation, and the general at-sea location of recent mackerel landings/catches.

Table 6. 2013 Data for Permitted and Active Vessels by State

Principal Port State	1,000,000 or more pounds	100,000- 1,000,000 pounds	50,000- 100,000 pounds	10,000- 50,000 pounds
CT	.	.	.	1
MA	3	.	.	4
ME	1	.	1	1
NH	.	.	.	1
NJ	.	1	.	2
NY	.	.	.	1
RI	.	2	2	3

Source: Unpublished NMFS dealer reports and permit data.

The mackerel fishery became a limited access fishery in 2013 except for open-access incidental catch permits. The current numbers of permits are 32 Tier 1 permits, 24 Tier 2 permits, and 90 Tier 3 permits. When the directed fishery is open, there are no trip limits for Tier 1, Tier 2 has a 135,000 pound trip limit and Tier 3 has a 100,000 pound trip limit. Tier 3's trip limit is reduced to 20,000 pounds if it catches 7% of the commercial quota. Open access incidental permits have a 20,000 pound per trip limit. Only a few vessels accounted for most mackerel landings in 2013 (see table above).

Table 7. 2013 Vessel Dependence on Mackerel (revenue-based)

Source: Unpublished NMFS dealer reports – not at state level due to data confidentiality issues

Dependence on Mackerel	Number of Vessels in Each Dependency Category
1%-5%	23
5%-25%	13
25%-50%	4
More than 50%	5

Table 8. Recent Landings by State (mt)

Source: Unpublished NMFS dealer reports

YEAR	CT	MA	MD	ME	NA	NC	NH	NJ	NY	RI
2011	17	234	0	90	5	3	0	48	60	73
2012	4	1,874	0	19	1	1	0	915	25	2,493
2013	9	3,302	0	465	2	0	3	21	9	562

Table 9. Recent Landings by Month (mt)

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	22	91	131	113	35	13	56	1	14	4	18	33
2012	668	3,576	948	19	48	4	5	1	35	18	5	4
2013	109	2,075	1,149	148	26	9	29	28	21	23	33	723

Source: Unpublished NMFS dealer reports

Table 10. Recent Landings by Gear (mt)

YEAR	Gill Nets	Bottom Trawl	Single Mid-Water Trawl	Pair Mid-Water Trawl	Trap/Pots/Pound Nets/Weir	Other/Unknown
2011	27	327	69	72	5	30
2012	4	3,059	576	1,488	24	181
2013	6	965	166	2,338	15	883

Source: Unpublished NMFS dealer reports

Because of data confidentiality issues, details for port revenues from mackerel cannot be provided. Ports that had at least \$100,000 in ex-vessel revenues from mackerel over 2011-2013 (combined) included (from more mackerel dollars to less): North Kingstown, RI; Gloucester, MA; New Bedford, MA; Cape May, NJ; Portland, ME, and Point Judith, RI. (Source: *Unpublished NMFS dealer reports.*) Permit data is public however, and the tables below provide the homeport and principal landing port for the 57 mackerel vessels with Tier 1 and Tier 2 permits, which land almost all of the mackerel in a given year and would be the most likely to be affected by this action. While more principal ports are listed in the permit data, the majority of mackerel would be expected to be landed in the above listed ports with recent substantial landings even if mackerel became more available and landings increased substantially.

Table 11. Tier 1/2 Homeports

HOME PORT STATE ▼	HOME PORT CITY ▼	Total
<input type="checkbox"/> MA	BOSTON	4
	GLOUCESTER	4
	NEW BEDFORD	8
	WOODS HOLE	1
MA Total		17
<input type="checkbox"/> ME	BATH	1
	CUNDYS HARBOR	1
	PORTLAND	1
	ROCKLAND	1
ME Total		4
<input type="checkbox"/> NC	WANCHESE	1
NC Total		1
<input type="checkbox"/> NH	NEWINGTON	2
NH Total		2
<input type="checkbox"/> NJ	CAPE MAY	21
NJ Total		21
<input type="checkbox"/> NY	GREENPORT	1
	MONTAUK	2
NY Total		3
<input type="checkbox"/> PA	PHILADELPHIA	2
PA Total		2
<input type="checkbox"/> RI	DAVISVILLE	1
	NARRAGANSETT	1
	POINT JUDITH	4
	TIVERTON	1
RI Total		7
Grand Total		57

Table 12. Tier 1/2 Principal Ports

PRINCIPAL PORT STATE	PRINCIPAL PORT CITY	Total
MA	FAIRHAVEN	1
	GLOUCESTER	4
	NEW BEDFORD	7
	WOODS HOLE	1
MA Total		13
ME	PORTLAND	3
	ROCKLAND	1
	VINALHAVEN	1
ME Total		5
NH	NEWINGTON	2
NH Total		2
NJ	CAPE MAY	22
	WILDWOOD	1
NJ Total		23
NY	GREENPORT	1
	MONTAUK	2
NY Total		3
RI	DAVISVILLE	2
	NARRAGANSETT	2
	POINT JUDITH	5
	TIVERTON	1
RI Total		10
VA	HAMPTON	1
VA Total		1
Grand Total		57

Table 13. Recent Numbers of Active Dealers

	Number of dealers buying at least \$10,000 Mackerel	Number of dealers buying at least \$100,000 Mackerel
2011	13	0
2012	5	5
2013	16	4

Source: Unpublished NMFS dealer reports

Table 14. Kept Catch (mt) in Statistical areas with at least 1,000 mt of mackerel caught in at least one recent year

YEAR	_612	_521	_616	_522
2011	4		100	13
2012	2,393	38	1,527	45
2013	15	2,010		1,511

Source: Unpublished NMFS vessel trip reports

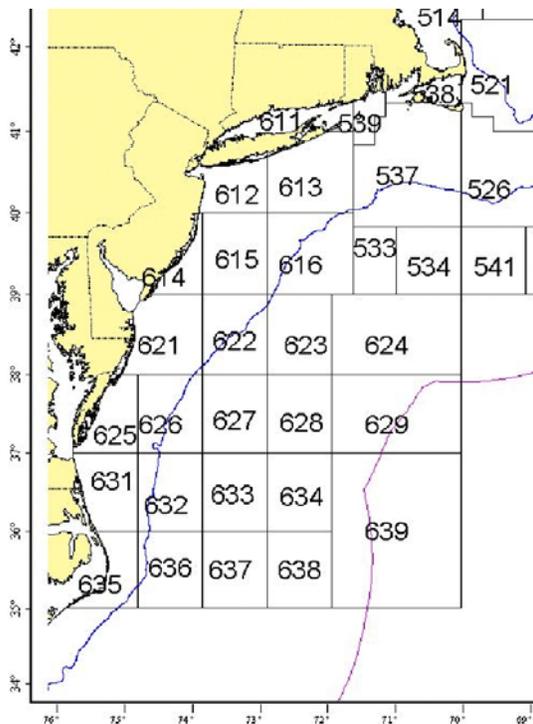
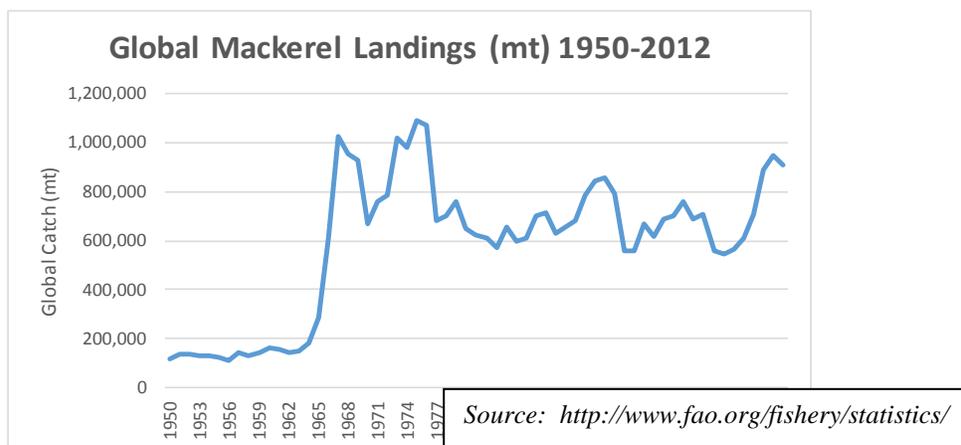


Figure 4. NMFS Statistical Areas

Current Market Overview for Mackerel and World Production (Required by FMP)

U.S. mackerel (western Atlantic) are a substitute for European mackerel (eastern Atlantic), which are caught in much larger quantities. It is unclear how demand for U.S. mackerel may be impacted by European catches, but the MSB advisory panel has indicated that the demand for mackerel is high enough to support catches near the quotas if the product is of high quality.



Source: <http://www.fao.org/fishery/statistics/>

Figure 5. World production of Mackerel, 1950-2011.

Recreational Fishery

Mackerel can be seasonally important to the recreational fisheries of the Mid-Atlantic and New England regions. They may be available to recreational anglers in the Mid-Atlantic primarily during the winter and spring, depending on annual conditions. Mackerel are caught in New England in the summer and fall and are often targeted for purposes of collecting live bait, especially for large striped bass. 2004-2013 recreational landings of mackerel, as estimated from the Marine Recreational Information Program (“MRIP”), are given in the table below. Most mackerel are caught in the private/rental mode but some are caught in the party/charter and shore modes as well. Approximately 10% of all mackerel caught (by number) are released. Compared to other recreationally-important species, estimates for mackerel recreational harvest have low precisions due to low encounter rates. Earlier years (1980s-1991) had higher catches (consistently in the 1,000-4,000 mt range) but most recent years have been below 1,000 mt.

Table 15. Recreational Harvest (rounded to nearest mt) of Mackerel, 2004-2013.

Year	Harvest (MT)
2004	465
2005	1,005
2006	1,491
2007	596
2008	755
2009	600
2010	845
2011	947
2012	683
2013	895

Source: Personal communication from NMFS, Fisheries Statistics Division.

6.0 WHAT ARE THE IMPACTS (Biological and Human Community) FROM THE ALTERNATIVES CONSIDERED IN THIS DOCUMENT?

Introduction

The measures considered in this action could have impacts on the Valued Ecosystem Components (VECs) that have been identified as relevant for this action, which include:

1. The managed resource, i.e. Atlantic mackerel.
2. Habitat that may be impacted by mackerel fishing.
3. Protected resources that may have interactions with mackerel fishing activities.
4. Socioeconomic impacts on fishing communities and others with an interest in the mackerel fishery and its impacts on other VECs.
5. Non-target fish species that may be caught incidentally to mackerel fishing.

This action is intended to control slippage because of its deleterious impact on observer data, especially in regards to the RH/S cap (as detailed above in Section 3 and

summarized in the non-target section below). Thus the impacts are most directly felt regarding non-target species (especially RH/S) and socioeconomics. However, any regulation that affects fishing behavior may impact other VECs, and these impacts are also discussed for each VEC below. To facilitate tracking of alternatives in this section, Table 1 is reproduced immediately below (all alternatives are detailed in Section 4).

Alternative	Slippage Trigger	Consequence
1	Safety, Mechanical, Spiny Dogfish related	None
	Other slippages	Enforcement actions by NOAA
2	Safety, Mechanical, Spiny Dogfish related	None
	Other slippages	trip termination (and violation)
3	Safety, Mechanical, Spiny Dogfish related	None
	Other slippages	vacate stat area (and violation)
4	Safety related	None
	Mechanical, Spiny Dogfish related	Vacate stat area
	Other slippages	vacate stat area (and violation)
5a	Safety related	None
	Mechanical, Spiny Dogfish related	Vacate stat area
	Other slippages	trip termination (and violation)
5b	Safety related	None
	Mechanical, Spiny Dogfish related	Move 10 nm before fishing again
	Other slippages	trip termination (and violation)
6a	Safety, Mechanical, Spiny Dogfish related	Vacate stat area
	Other slippages	trip termination (and violation)
6b	Safety, Mechanical, Spiny Dogfish related	Move 15 nm before fishing again
	Other slippages	trip termination (and violation)
7a	Spiny Dogfish related	None
	Safety or Mechanical related	Vacate stat area
	Other slippages	trip termination (and violation)
7b	Spiny Dogfish related	None
	Safety or Mechanical related	Move 20 nm before fishing again
	Other slippages	trip termination (and violation)

Another introductory issue concerns how the alternatives can be grouped in terms of strictness of prohibiting slippage, which impacts how the mackerel fishery may be affected, which in turn affects how the VECs may be impacted. Alternative 1 (no action/the status quo) would continue to allow the currently exempted slippages (as described above) and all others would remain prohibited and subject to NOAA enforcement actions. Alternatives 2 and 3 are slightly stricter compared to the no action since while they could increase the effective penalty for non-exempt slippages (by also requiring trip termination); all of the slippages due to the current exemptions are not proposed to have any new consequences. Alternatives 4, 5a, 5b, 7a, and 7b result in new consequences for some of the current exemptions and are therefore likely the next strictest. However, since they all leave some exempted slippage with no consequence, they all may have a similar impact since vessels could default to the exempted reason without a consequence and keep slipping.

Alternatives 6a and 6b (preferred) are the strictest measures to reduce slippage because they add consequences for all slippages, including all currently non-exempted and

exempted. Being the strictest, 6a and 6b are most likely to result in lower mackerel effort/catches- by eliminating slippages more RH/S may be recorded by observers and close the mackerel fishery earlier. 6b, the preferred alternative requires a uniform move of 15 nautical miles (nm) before fishing again and vessels have to stay 15 nm away from the slippage event location. Regarding 6a, statistical areas in the southern New England and Mid-Atlantic area are approximately 50-80 nm wide. Depending on where in a statistical area a vessel was located and where fish are, moving to another may be easy (less than 1 nm) or may be far enough (50-80 nm or more) to cause a de-facto trip termination. While vacating a statistical area may require a small or large move by a vessel depending on its location, if slippages are reduced to minimal levels in either case (because all slippages have disincentives that fishermen want to avoid), impacts are likely to be similar between 6a and 6b (minimal slippages should occur and more RH/S may be recorded by observers, thereby closing the mackerel fishery earlier).

It is not expected that the slippage consequences themselves would have substantial direct impacts. Observer coverage is too low and as detailed in Appendices 1-3, slippages happen too infrequently to impact overall effort directly in terms of vacating a statistical area, moving away from a slippage event, or even terminating a trip. Analysis in the specifications Environmental Assessments has shown that less than 5 mackerel trips² average per year have been observed in recent years (2011-2013), and the Standardized Bycatch Reporting Methodology is assigning minimal mid-water trawl coverage and a relatively low percentage of small-mesh bottom coverage for upcoming years. Another Amendment is considering requiring higher observer coverage on the mackerel fishery and/or mackerel-relevant gear types, but again it is expected that slippage events, which are rare now, would be even rarer with the additional disincentive to slip catches.

Rather, the primary impacts are indirect and relate to making sure that observers are able to accurately record what is caught on observed trips. As described earlier in Section 3, even a relatively few slippage events could substantially bias the RH/S cap downward. The action alternatives should reduce slippage by initiating consequences for the currently exempted slippages (those due to safety, mechanical issues, and dogfish) and/or adding additional consequences for the non-exempted slippages (all other reasons). Restricting slippage could reduce mackerel effort/catches if the mackerel fishery is closed earlier related to the RH/S cap (more RH/S may be recorded by observers and close the fishery earlier). As further detailed below, it is really the potential of closing the fishery earlier that drives the primary impacts for the alternatives since slippage events, while potentially substantially impacting the RH/S cap, are a relatively rare occurrence. It is also possible that given industry participation in voluntary bycatch avoidance programs and the very low catches of RH/S in 2014 under the RH/S cap, the fishery may well continue to stay below the cap even with less slippage, in which case mackerel catch/effort would not be impacted at all. However, all else being equal, less slippage likely will mean that more RH/S will be recorded than under the status quo, which should

² Here mackerel trips are defined as trips that had at least 50% mackerel by weight and all trips over 100,000 pounds of mackerel regardless of the ratio of other species – this definition results in capturing 90% of all mackerel landings in the dealer weighout database 2011-2013.

mean that less mackerel catch/effort will occur because RH/S cap estimates will be higher.

6.1 Biological Impacts on Managed Species- Atlantic Mackerel

Because the mackerel fishery is the only MSB FMP fishery impacted by this action, and because the mackerel fishery does not catch substantial quantities of squid or butterfish relative to overall catches of those other species, no impacts are expected for those species related to any of the action alternatives compared to the no action. If no-action is taken, these other species will continue to be sustainably managed under their own control rules with the Council's risk policy and other regulations that govern their catches. The same would be true under any of the action alternatives in this document. Therefore, only impacts for mackerel are described below.

No-action/Status Quo Mackerel Impacts

If no action is taken and the status quo persists, mackerel will continue to be sustainably managed under its own control rules with the Council's risk policy that governs mackerel catch limits. These rules require mackerel catches (landings and discards) to be less than a level set by the SSC, and the SSC sets those levels in order to avoid overfishing. While there is some uncertainty about the status of the mackerel stock, the Council's risk policy is designed to avoid overfishing and accounts for scientific uncertainty. This approach would continue under no action and is the primary way that biological impacts on the mackerel stock are managed. The slippage alternatives are primarily designed to avoid unobserved discards on observed trips, and while there would not be additional slippage consequences and therefore presumably the same level of ongoing slippage with no action, there is no information to suggest that mackerel discards are a substantial issue for the mackerel stock even if some are in slipped hauls. Thus taking no action should have no impacts on the mackerel stock despite the slippage issue, but since the no action includes ongoing management of the mackerel stock, impacts from the no action are likely overall positive on the managed resources.

Action Alternatives Mackerel Impacts

As described above in the introduction of this Section, the action alternatives should not impact the mackerel stock directly compared to the no action or each other relative to the consequences for slipping. Compared to no-action, the action alternatives may have indirect impacts on mackerel fishing due to changes in monitoring of the RH/S cap and reductions in mackerel catches/effort from earlier cap closures. As further explained in the introduction of the Section, compared to the no action, Alternatives 2 and 3 may slightly reduce mackerel catch/effort, Alternatives 4, 5a, 5b, 7a, and 7b may result in additional catch/effort reduction beyond Alternatives 2 and 3, and Alternatives 6a and 6b (preferred) would likely result in the most mackerel catch/effort reduction. So the order (least to greatest) of likely mackerel catch/effort reduction for the alternatives is [1], [2 and 3], [4, 5a, 5b, 7a, and 7b], and [6a and 6b]. However, given the existing limits on

mackerel catch, additional positive impacts for the mackerel stock are likely low as catch is already constrained within levels that should be acceptable. This is consistent with Amendment 14, which found that if the mackerel fishery is closed because of the cap, mackerel catches would be lower than would otherwise occur, but are already managed separately. Thus overall impacts from the action alternatives compared to no action are low-positive, with 6a and 6b being the most positive since they would be expected to reduce mackerel catch/effort the most. Alternatives 4, 5a, 5b, 7a, and 7b would also be low positive, but less than 6a and 6b. Alternatives 2 and 3 would also be low positive compared to no action, but the least compared to the other action alternatives.

6.2 Habitat Impacts

No-action/Status Quo Habitat Impacts

If no action is taken and the status quo persists, it is expected that mackerel will continue to be fished in a similar manner as in recent years. While the fishery has not been very active recently for any gear type (see Table 10), when the fishery has been more active (e.g. 2004-2009 – see previous years' specifications Environmental Assessments for details), mackerel have primarily been caught with mid-water trawl gear, which should not substantially impact the bottom. There is some bottom trawl effort in every year, but not enough to cause impacts that are more than minimal. Thus any impacts on habitat of other federally managed species should be negligible with no action (mackerel EFH consists of the water column and should not be impacted by fishing at all).

Action Alternatives Habitat Impacts

As described above in the introduction of this Section, the action alternatives should not impact mackerel effort directly compared to the no action or each other relative to the consequences for slipping. Compared to no-action, the action alternatives may have indirect impacts on mackerel fishing due to changes in monitoring of the RH/S cap and reductions in mackerel catches/effort from earlier cap closures. As further explained in the introduction of the Section, compared to the no action, Alternatives 2 and 3 may slightly reduce mackerel catch/effort, Alternatives 4, 5a, 5b, 7a, and 7b may result in additional catch/effort reduction beyond Alternatives 2 and 3, and Alternatives 6a and 6b (preferred) would likely result in the most mackerel catch/effort reduction. So the order (least to greatest) of likely mackerel catch/effort reduction for the alternatives is [1], [2 and 3], [4, 5a, 5b, 7a, and 7b], and [6a and 6b]. However, given the primary use of mid-water trawl gear in most years when mackerel catches are substantial, impacts should be low for all action alternatives compared to the no action. Thus overall habitat impacts from all the action alternatives compared to no action are low-positive, with 6a and 6b being the most positive since they would be expected to reduce mackerel catch/effort the most. Alternatives 4, 5a, 5b, 7a, and 7b would also be low positive, but less than 6a and 6b. Alternatives 2 and 3 would also be low positive compared to no action, but the least compared to the other action alternatives.

6.3 Impacts on Protected Resources

No-action/Status Quo Protected Resource Impacts

If no action is taken and the status quo persists, it is expected that mackerel will continue to be fished in a similar manner as in recent years. While the fishery has not been very active recently, that may change in the future. Section 5.4 describes the available information on recent interactions between the mackerel fishery and endangered and other protected species. Since the mackerel fishery overlaps with some marine mammal distributions, some marine mammal interactions are possible with the species highlighted in Section 5.4. The distribution of sea turtles also overlaps with the operation of the mackerel fishery. However, most of these species, including green, Kemp's ridley and loggerhead sea turtles, stay close to the coast feeding on bottom dwelling species (i.e., crabs) or vegetation where the mackerel fishery is less likely to occur and no interactions have been observed. Leatherbacks generally do not prey on fish and are unlikely to be attracted to operations of this fishery. While consumption of mackerel by Loggerheads has been documented, loggerheads do not generally target fast-moving fish such as mackerel (Dodd 1988). Thus, interactions between sea turtles and the mackerel fishery are not anticipated. Atlantic sturgeon occurs in the mackerel fishing area throughout the mackerel fishing season. The Stein et al. (2004a) review of sturgeon catch from 1989-2000 showed no observed sturgeon catch on vessels targeting Atlantic mackerel. See Section 5.4 for additional information on Atlantic sturgeon interactions in small-mesh otter trawl fisheries. Overall, given the ongoing interactions and slippage issues, the no action's impact on protected resources is likely low negative.

Action Alternatives Protected Resource Impacts

As described above in the introduction of this Section, the action alternatives should not impact mackerel effort directly compared to the no action or each other relative to the consequences for slippage. Compared to no-action, the action alternatives may have indirect impacts on mackerel fishing due to changes in monitoring of the RH/S cap and reductions in mackerel catches/effort from earlier cap closures. As further explained in the introduction of the Section, compared to the no action, Alternatives 2 and 3 may slightly reduce mackerel catch/effort, Alternatives 4, 5a, 5b, 7a, and 7b may result in additional catch/effort reduction beyond Alternatives 2 and 3, and Alternatives 6a and 6b (preferred) would likely result in the most mackerel catch/effort reduction. So the order (least to greatest) of likely mackerel catch/effort reduction for the alternatives is [1], [2 and 3], [4, 5a, 5b, 7a, and 7b], and [6a and 6b]. Since protected resources impacted by the mackerel fishery (see 5.4 above) should benefit from less fishing effort, overall protected resource impacts from the action alternatives compared to no action are low-positive, with 6a and 6b being the most positive since they would be expected to reduce mackerel catch/effort the most. Alternatives 4, 5a, 5b, 7a, and 7b would also be low positive, but less than 6a and 6b. Alternatives 2 and 3 would also be low positive compared to no action, but the least compared to the other action alternatives.

6.4 Socioeconomic Impacts

No-action/Status Quo Socioeconomic Impacts

If no action is taken and the status quo persists, it is expected that mackerel will continue to be fished in a similar manner as in recent years. While the fishery has not been very active recently, that may change in the future. With no action, the positive socioeconomic impacts of the revenues generated by the mackerel fishery would continue (see section 5.6). However, if status quo mackerel fishing is hindering recovery of RH/S stocks (i.e. slippage is letting more RH/S be caught than intended), then that hindrance also would persist. While it is not known what exactly has depleted many RH/S stocks, potential impacts on RH/S from the mackerel fishery and associated gear types are discussed in Section 5.5. The lack of robust RH/S stocks can affect RH/S commercial revenues, RH/S recreational opportunities, RH/S ecosystem services, cultural values for RH/S, and/or other non-market existence values (i.e. value gained by the public related to the knowledge that RH/S are being conserved successfully). These lost socioeconomic benefits would persist under the no action if the mackerel fishery's impacts on RH/S are large enough to negatively affect RH/S stocks. In addition, under the no action alternative the lack of consequences for the exempted slippage reasons would not force vessel operators to potentially make a choice between slipping a catch because of safety concerns (and dealing with the consequence) versus trying to bring a haul aboard in unsafe conditions to avoid a slippage consequence. Given the ongoing mackerel revenues and lack of direct connection between the mackerel fishery and RH/S populations, the no action's socioeconomic impact is likely low positive.

Action Alternatives Socioeconomic Impacts

Like the no action, there are potentially both positive and negative socioeconomic impacts associated with the action alternatives, and they are addressed separately below.

Positive

If status quo mackerel fishing is hindering recovery of RH/S stocks, effective application of the RH/S cap could help those stocks recover. There is no information that mackerel fishing is a specific cause of the decline of RH/S stocks, but RH/S are caught in the mackerel fishery. Restricting slippage could result in less RH/S being caught in the mackerel fishery by closing the mackerel cap/fishery earlier (i.e. at the appropriate time). If the cap assists recovery of RH/S, then more effective implementation of the RH/S cap by restriction of slippage could result in additional socioeconomic benefits related to RH/S commercial revenues, RH/S recreational opportunities, RH/S ecosystem services, cultural values for RH/S, and/or other non-market existence values (i.e. value gained by the public related to the knowledge that RH/S are being conserved successfully). While it is difficult to quantify these benefits, the directionality of the action alternatives would be positive compared to no action and depend on the proportion of reduced mackerel fishing effort (less mackerel fishing effort should mean more RH/S stay in the water,

which would lead to the benefits described above). As further explained in the introduction of the Section, compared to the no action, Alternatives 2 and 3 may slightly reduce mackerel catch/effort, Alternatives 4, 5a, 5b, 7a, and 7b may result in additional catch/effort reduction beyond Alternatives 2 and 3, and Alternatives 6a and 6b (preferred) would likely result in the most mackerel catch/effort reduction. So the order (least to greatest) of likely mackerel catch/effort reduction for the alternatives is [1], [2 and 3], [4, 5a, 5b, 7a, and 7b], and [6a and 6b]. Since benefits tied to having more RH/S should increase with less mackerel fishing effort, overall RH/S-related socioeconomic impacts from the action alternatives compared to no action are positive, with 6a and 6b being the most positive since they would be expected to reduce mackerel catch/effort the most. Alternatives 4, 5a, 5b, 7a, and 7b would likely be low positive (less than 6a and 6b). Alternatives 2 and 3 would also be low positive compared to no action, but the least compared to the other action alternatives. While these relative benefits should occur, it is not possible to determine the absolute magnitude of the benefits.

Negative

There are three kinds of potential negative impacts related to the action alternatives: direct, indirect, and safety at sea issues, as further described below.

Direct Negative Impacts

As discussed previously, the direct impacts from slippage consequences are expected to be minimal because of the low observer coverage and low slippage rates. In addition, with the additional slippage consequences, slippage would be expected to occur even less frequently than has occurred recently (that is the whole goal of this action), so the consequences would be expected to be rarely invoked. Another Amendment is considering requiring higher observer coverage on the mackerel fishery and/or mackerel-relevant gear types, but again it is expected that slippage events, which are rare now, would be even rarer with the additional disincentive to slip catches.

Individual trips that had slippage consequences imposed could see their revenues fall or costs rise, depending on when in their trip the consequence was imposed, where they were, and what their response to the slippage was (move or terminate a trip). Slippage events are not frequent according to analysis of observer data (see Appendices 1-3), but do occur. If vessels have to move after a slippage consequence they may or may not be able to keep fishing in another area, depending on fish availability. Any reduction in revenues would be a negative impact, and would vary depending on what point in the trip a slippage event occurs. While the proposed measures propose a move-along rule for some slippages and trip terminations for other slippages, it is anticipated that vessels will generally choose to allow observers to sample catches rather than be subject to the consequences for slippages. In fact, an optimal outcome would be for the slippage consequences to never be triggered, which would simply mean that all fish are being observed on observed trips, which is the overall goal of this action. In this respect, direct impacts related to any of the action alternatives are likely to be low compared to no action, especially given the low rate of slippage occurrences even under no action.

Alternatives 2 and 3 add consequences (trip termination and vacating a statistical area respectively) for already prohibited actions, and so would be expected to be triggered rarely and have minimal impact as there have been no violations for this to date. All other action alternatives also require trip termination for slippages besides safety, mechanical issues, and dogfish, but again this requirement should have minimal impact since these slippages are already prohibited and no violations have been reported to date. Trip terminations do not increase vessel costs since vessels have to return to port eventually regardless, but they do decrease vessel revenues.

Alternatives 4, 5a, 5b, 7a, and 7b also add consequences (vacating the statistical area or moving a distance) for some of the currently exempted slippages but not for all slippages. Alternatives 6a and 6b (preferred) add consequences (vacating the statistical area or moving a distance) for all currently-exempted slippages (safety, mechanical, dogfish issues). The key for evaluating impacts among these alternatives are the different impacts between vacating a statistical area or moving a set distance (and staying that distance away from the slippage event for the remainder of the trip). The impacts from vacating a statistical area depend on where in a statistical area a vessel was located and where fish are. Moving to another may be easy (less than 1 nm) or may be far enough (50-80 nm or more) to cause a de-facto trip termination, especially if fish are not available in other areas.

To provide a sense of typical costs and revenues from mackerel fishing, Amendment 14 analyzed cost information from 2010 observer data and revenue information from 2010 dealer data to develop the following tables (see next page) on trip costs (does not include boat payments) and revenues for mackerel fishing by mid water trawlers (MWT) and small mesh bottom trawlers (SMBT). Given limited activity in the mackerel fishery in recent years and low observer coverage, these tables still provide the best available perspective on mackerel fishing costs and revenues.

Table 16. Mackerel Mid-Water Trawl Costs and Revenues

	Mid-Water Trawl (MWT) (more than 3 mil pounds/ year)	Paired MWT (more than 3 mil pounds/year)	Paired MWT (less than 3 mil pounds/year)
Average Days	2	4	2
Avg Revenue/Day	8,059	14,486	16,075
Ave Cost/Day	3,494	2,602	2,602

Table 17. Mackerel Small Mesh Bottom Trawl Costs and Revenues

	Bottom Trawl (more than 3 million pounds per year)
Average Days	8
Avg Revenue/Day	12,945
Ave Cost/Day	1,639

If a vessel has to return to port early due to trip termination, the approximate impact would be the average revenue per day from these tables times the number of days early the vessel went home. At the end of a trip the impact might be minimal and it would be larger if the vessel was nearer the beginning of a trip.

If a vessel has to depart a statistical area, it may have to move 1 nm or 50+ nm before fishing again. The main impact is likely to be taking the vessel away from the most productive fishing grounds, but fuel costs would be incurred as well, proportionate to the distance moved.

If a vessel had to move a set distance 10nm-20nm before fishing again and had to stay that distance away from the slippage location for the remainder of the trip, again the primary impact is likely to be forcing the change in fishing location and resulting changes in fishing productivity, but some fuel costs would also be incurred proportional to the distance moved. Fuel efficiency varies by vessel.

Given the low observer coverage rates, the low rate of slippage on those trips, and that vessels could just choose not to slip (and let observers see fish), it is expected that the direct costs to vessels would be minimal from any of the action alternatives. Indirect costs are discussed next.

Indirect Negative Impacts

To the degree that the RH/S cap restricts mackerel fishing compared to no action/the status quo, and to the degree that restricting slippage means the cap may close the mackerel fishery earlier, some value of mackerel fishing could be lost under the action alternatives. The amount of loss would depend on the availability of mackerel in a given year, how the RH/S cap is set in a given year, and the ratio of RH/S catch (both in hauls

that normally would be observed and in those that would otherwise be slipped). Vessels may also be able to mitigate restrictions on mackerel fishing by targeting other species.

As further explained in the introduction of the Section, compared to the no action, Alternatives 2 and 3 may slightly reduce mackerel catch/effort, Alternatives 4, 5a, 5b, 7a, and 7b may result in additional catch/effort reduction beyond Alternatives 2 and 3, and Alternatives 6a and 6b (preferred) would likely result in the most mackerel catch/effort reduction. So the order (least to greatest) of likely mackerel catch/effort reduction for the alternatives is [1], [2 and 3], [4, 5a, 5b, 7a, and 7b], and [6a and 6b]. Thus socioeconomic impacts related to lost mackerel revenues from the action alternatives compared to no action are negative, with 6a and 6b being the most negative since they would be expected to reduce mackerel catch/effort the most by reducing slippage the most. Alternatives 4, 5a, 5b, 7a, and 7b would also be negative, but less than 6a and 6b. Alternatives 2 and 3 would also be negative compared to no action, but the least compared to the other action alternatives. Because recent mackerel landings have been low and RH/S catch in the first year of the RH/S cap was very low, it is possible that there may be minimal impacts if the fleet can continue to avoid RH/S. Because of this, while the alternatives can be ranked against each other as described above, the impacts are likely low negative for all of them.

Safety at Sea Impacts

Concerns have also been raised about the impact on safety at sea from further limiting slippage. Specifically, there is a concern that if a vessel would otherwise slip a catch due to a safety issue, restrictions on, and/or consequences from, slippage may encourage vessel operators to not slip, thereby putting a crew in danger. For example, if weather worsened during a haul, but slipping the haul would require moving as in some alternatives, vessel operators may attempt to bring fish aboard in unsafe conditions when they would have otherwise slipped the catch and made the vessel ready for poor weather conditions. National Standard 10 states that “Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.” There is a potential tension between conservation issues and safety in this case. The National Standard 10 guidelines from NMFS anticipate this and state:

“The qualifying phrase “to the extent practicable” recognizes that regulation necessarily puts constraints on fishing that would not otherwise exist. These constraints may create pressures on fishermen to fish under conditions that they would otherwise avoid. This standard instructs the Councils to identify and avoid those situations, if they can do so consistent with the legal and practical requirements of conservation and management of the resource.”

There is not a way to totally mitigate the tension between ensuring catch is observed and eliminating a potential incentive to operate in an unsafe manner. However, the option of slipping a catch for the sake of safety and adhering to the consequence (moving to a new

area) would still be an option for a vessel operator so the action alternatives should not induce substantial safety issues compared to no action.

Socioeconomics Summary

Since mackerel revenues have been low in recent years, and since vessels will have the opportunity to mitigate any restrictions triggered by the action alternatives, overall it is expected that socioeconomic impacts may range from low negative, to positive if RH/S stocks are improved as a result of improved incidental catch conservation through the action alternatives. Compared to no action, the preferred alternative (6b) and 6a have the highest potential for short term negative impacts on the mackerel fishery but also the highest potential for long term positive impacts related to improved RH/S conservation. The other action alternatives have more moderate impacts both in terms of negative short term impacts and positive long term impacts. The table on the next page summarizes this information for each alternative based on the discussion earlier in the socioeconomics subsection.

Table 18. Summary Socioeconomic Impacts

Alt. #	Slippage Trigger	Consequence	Potential Short Term Negative Fishery Impact Relative to No Action	Potential Long Term Positive Impact Related to RH/S Benefits Relative to No Action
1	Safety, Mechanical, Spiny Dogfish related	None	NA	
	Other slippages	Enforcement actions by NOAA		
2	Safety, Mechanical, Spiny Dogfish related	None	Lowest - other slippages are already prohibited	
	Other slippages	trip termination (and violation)		
3	Safety, Mechanical, Spiny Dogfish related	None		
	Other slippages	vacate stat area (and violation)		
4	Safety related	None	Intermediate - Some of the currently exempted slippages have new consequences but some do not, so reduction in slippage is likely not as much as 6a or 6b.	
	Mechanical, Spiny Dogfish related	Vacate stat area		
	Other slippages	vacate stat area (and violation)		
5a	Safety related	None		
	Mechanical, Spiny Dogfish related	Vacate stat area		
	Other slippages	trip termination (and violation)		
5b	Safety related	None		
	Mechanical, Spiny Dogfish related	Move 10 nm before fishing again		
	Other slippages	trip termination (and violation)		
6a	Safety, Mechanical, Spiny Dogfish related	Vacate stat area	Highest	
	Other slippages	trip termination (and violation)		
6b	Safety, Mechanical, Spiny Dogfish related	Move 15 nm before fishing again	Highest	
	Other slippages	trip termination (and violation)		
7a	Spiny Dogfish related	None	Intermediate - Some of the currently exempted slippages have new consequences but some do not, so reduction in slippage is likely not as much as 6a or 6b.	
	Safety or Mechanical related	Vacate stat area		
	Other slippages	trip termination (and violation)		
7b	Spiny Dogfish related	None		
	Safety or Mechanical related	Move 20 nm before fishing again		
	Other slippages	trip termination (and violation)		

6.5 Impacts on non-Target Fish Species

No-action/Status Quo Non-Target Impacts

If no action is taken and the status quo persists, it is expected that mackerel will continue to be fished in a similar manner as in recent years. While the fishery has not been very active recently, that may change in the future. Various species are caught incidentally by the mackerel fishery, as described in Section 5.5. For non-target species that are managed under their own FMP, incidental catch/discards are also considered as part of the management of that fishery. These species will be impacted to some degree by the status quo prosecution of the mackerel fishery, though the mackerel fishery has a relatively low rate of non-target interactions compared to other fisheries (e.g. longfin squid).

While generally the mackerel fishery has relatively low non-target species impacts, catches of RH/S are a concern. The 2015 specifications Environmental Assessment has details on RH/S catch, as does the EIS for Amendment 14 (both can be located at <http://www.nero.noaa.gov/regs/>). As described in the 2015 Specifications Environmental Assessment (<http://www.nero.noaa.gov/regs/2014/January/14smb2014specspr.html>), analysis suggests that in recent years, RH/S catches in the mackerel fishery have been in the range of 78 mt - 1273 mt (about 170,000 pounds to nearly 3,000,000 pounds) when the fishery is operating (i.e. 2006-2010 - mackerel catches were very low from 2011-2012). Most of that catch would be expected to be river herring (not shad) according to both Amendment 14 analyses and the ratios observed on trips in the observer database that catch mackerel.

As described in Section 3, slippage events have the potential to substantially alter the estimation of RH/S in the RH/S cap. To summarize, NMFS analyses (see Appendices 1-3) have shown that slippage events in the range of 50,000 pounds occur, and just one such slippage (if the fish are river herring or shad) could mean the difference between the cap closing the fishery or not. Lesser slippage amounts, for example in the 5,000 – 10,000 pound range could have less, but still substantial impacts on cap estimation. If slippage events of RH/S occur routinely in the range of past slippage events, the cap estimates will be biased low and cap closures would occur late or not at all. While one cannot know what was in all past slippage events, slippage has the potential to undermine the effective application of the cap, which would allow more incidental RH/S mortality than intended by the Council.

Overall, given the ongoing non-target interactions and slippage issues, the no action's impact on non-target species is likely low negative.

Action Alternatives RH/S Impacts

Building off the previous paragraph, restrictions on slippage could therefore improve the accuracy of the cap estimates, and to the degree that RH/S catch that would have otherwise been unobserved/slipped is accounted for in the RH/S cap, catch of RH/S in the mackerel fishery could be reduced (the mackerel fishery should be closed earlier without slippage than with slippage). The amount of benefit should be proportional to the amount of slippage reduced, and while slippage is relatively rare, as described earlier in Section 3 only a few slippage events could substantially bias the RH/S cap, leading to a failure to close the mackerel fishery appropriately. As further explained in the introduction of the Section, compared to the no action, Alternatives 2 and 3 may slightly reduce mackerel catch/effort, Alternatives 4, 5a, 5b, 7a, and 7b may result in additional catch/effort reduction beyond Alternatives 2 and 3, and Alternatives 6a and 6b (preferred) would likely result in the most mackerel catch/effort reduction. So the order (least to greatest) of likely mackerel catch/effort reduction for the alternatives is [1], [2 and 3], [4, 5a, 5b, 7a, and 7b], and [6a and 6b]. Since RH/S species should benefit from less fishing effort, and the cap directly controls RH/S mortality in the mackerel fishery, overall RH/S impacts from the action alternatives compared to no action are positive, with 6a and 6b being the most positive since they would be expected to reduce mackerel catch/effort the most. Alternatives 4, 5a, 5b, 7a, and 7b would likely be low positive (less than 6a and 6b). Alternatives 2 and 3 would also be low positive compared to no action, but the least compared to the other action alternatives.

Action Alternatives Other Non-Target Impacts

As described above in the introduction of this Section, the action alternatives should not impact mackerel effort directly compared to the no action or each other relative to the consequences for slipping. Compared to no-action, the action alternatives may have indirect impacts on mackerel fishing due to changes in monitoring of the RH/S cap and reductions in mackerel catches/effort from earlier cap closures. As further explained in the introduction of the Section, compared to the no action, Alternatives 2 and 3 may slightly reduce mackerel catch/effort, Alternatives 4, 5a, 5b, 7a, and 7b may result in additional catch/effort reduction beyond Alternatives 2 and 3, and Alternatives 6a and 6b (preferred) would likely result in the most mackerel catch/effort reduction. So the order (least to greatest) of likely mackerel catch/effort reduction for the alternatives is [1], [2 and 3], [4, 5a, 5b, 7a, and 7b], and [6a and 6b]. Since non-target species impacted by the mackerel fishery (see 5.5 above) should benefit from less fishing effort, overall non-target impacts (besides RH/S) from the action alternatives compared to no action are low-positive, with 6a and 6b being the most positive since they would be expected to reduce mackerel catch/effort the most. Alternatives 4, 5a, 5b, 7a, and 7b would also be low positive, but less than 6a and 6b. Alternatives 2 and 3 would also be low positive compared to no action, but the least compared to the other action alternatives.

6.6 Cumulative Impacts on Identified Valued Ecosystem Components

The impacts of the proposed preferred alternative considered herein are expected to be positive since they are likely to provide positive biological impacts as discussed above and mixed socioeconomic benefits with a net socioeconomic impact of low negative to positive.

The preferred alternative is considered the most reasonable action to achieve the FMP's conservation objectives while optimizing the outcomes for fishing communities given the conservation objectives, as per the MSA and the objectives of the FMP. The expected impacts of each alternative have been analyzed earlier in this section and are summarized in Table 2 in the Executive Summary for the no action and preferred alternative.

Definition of Cumulative Effects

A cumulative impact analysis is required by the Council on Environmental Quality's regulation for implementation of NEPA. Cumulative effects are defined under NEPA 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 action (40 CFR section 1508.7)."

The cumulative impacts of past, present, and future Federal fishery management actions (including the measures recommended in this document) should generally be positive. The mandates of the MSA as currently amended and of the NEPA require that management actions be taken only after consideration of impacts to the biological, physical, economic, and social dimensions of the human environment. Therefore, it is expected that under the current and proposed management regime, the long term cumulative impacts will contribute toward improving the human environment.

Temporal Scope

The temporal scope of this analysis is primarily focused on actions that have taken place since 1976, when these fisheries began to be managed under the MSA. For endangered and other protected species, the context is largely focused on the 1980s and 1990s, when NMFS began generating stock assessments for marine mammals and turtles that inhabit waters of the U.S. EEZ. In terms of future actions, the analysis considers the period between the expected effective date of this action (approximately January 1, 2015) and Dec 31, 2019, a period of five years. The temporal scope of this analysis does not extend beyond 2019 because the FMP and the issues facing these fisheries may change in ways that can't be effectively predicted.

Geographic Scope

The geographic scope of the analysis of impacts to fish species and habitat for this action is the range of the fisheries in the Western Atlantic Ocean, as described in the Affected

Environment and Environmental Consequences sections of the document. For endangered and protected species the geographic range is the total range of each species. The geographic range for socioeconomic impacts is defined as those fishing communities bordering the range of the fisheries for mackerel, longfin squid and *Illex* squid and butterfish which occur primarily from the U.S.- Canada border to Cape Hatteras, although the management unit includes all the coastal states from Maine to Florida.

Summary of the Past, Present and Reasonably Foreseeable Future Actions

The earliest management actions implemented under this FMP involved the sequential phasing out of foreign fishing for these species in US waters and the development of domestic fisheries. All MSB species are considered to be fully utilized by the US domestic fishery to the extent that sufficient availability would allow full harvest of the DAH/landings quota. More recent actions have focused on reducing discards, incidentally-caught (and landed) fish, and habitat impacts.

Past actions which had a major impact on the fishery included: the implementation of a limited access program in Amendment 5 to control capacity in the squid and butterfish fisheries; revision of overfishing definitions in Amendment 6; modification of vessel upgrade rules in Amendment 7; and implementation of overfishing and rebuilding control rules and other measures in Amendment 8. Amendment 9 allowed multi-year specifications, extended the moratorium on entry into the *Illex* fishery without a sunset provision; adopted biological reference points recommended by the SARC 34 (2002) for longfin squid; designated EFH for longfin squid eggs, and prohibited bottom trawling by MSB-permitted vessels in Lydonia and Oceanographer Canyons. Amendment 10's measures included increasing the longfin squid minimum mesh to 2 1/8 inches in Trimesters 1 and 3 and implementing a butterfish mortality cap in the longfin squid fishery. Amendment 11 implemented mackerel limited access, a recreational-commercial mackerel allocation, and EFH updates. Amendment 12 implemented a Standardized Bycatch Reporting Methodology that has since been vacated by court order and replaced by a soon to be implemented new methodology. Amendment 13 to the MSB FMP implemented Annual Catch Limit and Accountability Measures.

Amendment 14 is likely to result in ongoing mitigation of non-target catch of RH/S. Amendment 14 increased and improved reporting and monitoring (vessel, dealer, and observer) of the mackerel and longfin squid fisheries and implemented a cap catch of RH/S in the mackerel fishery in 2014. Monitoring improvements include reduction of unobserved catch, observer facilitation and assistance, weekly vessel trip reporting, additional trip notification, and electronic vessel monitoring systems and reporting.

Past annual specifications have limited catches to avoid overfishing. Annual specifications actions in future years should maintain the benefits as described above. Other actions expected to be implemented before 2019 include Amendment 16, which will protect deep water corals, a new Standardized Bycatch Reporting Methodology, this Framework, which will improve observer operations by minimizing slippage (unobserved discards), and an omnibus Amendment to increase observer coverage through industry

funding. This Omnibus Amendment will not necessarily result in immediately increased observer coverage because sufficient funds (from both industry for at-sea costs and NOAA for shoreside costs) may not be available. Rather, this amendment will set up a mechanism for increasing observer coverage should sufficient funding become available.

Amendment 5 and Framework 3 to the Atlantic Herring FMP will institute similar river herring/shad measures for the Atlantic Herring fishery (many MSB-permitted vessels have Atlantic herring permits as well) and implementation should be in parallel to Amendment 14.

Regarding protected resources, a take reduction strategy for long-finned pilot whales (*Globicephala melas*), short-finned pilot whales (*Globicephala macrorhynchus*), white-sided dolphins (*Lagenorhynchus acutus*), and common dolphins (*Delphinus delphis*) has been developed and is described in Section 6.

Overall, the past fishery actions described in the above section have served to reduce effort or the impacts of effort through access limitations, upgrade restrictions, area and gear restrictions, EFH designations, monitoring, and accountability. These reductions have likely benefitted the managed species, habitat, protected resources, and non-target species. By ensuring the continued productivity of the managed resources, the human communities that benefit from catching the managed resources have also benefited in the long term though at times quota reductions or other restrictions may have caused short-term economic dislocations (especially in the case of butterfish).

In addition to the direct effects on the environment from fishing, the cumulative effects to the physical and biological dimensions of the environment may also come from non-fishing activities (e.g. climate change, point source and non-point source pollution, shipping, dredging, storm events, etc.). Regarding climate change, all of the MSB species are sensitive to water temperature and data have demonstrated increases in water temperature in the Mid-Atlantic and New England and likely responses from fish (Overholtz et al 2011, NEFSC 2012).

Impacts from non-fishing activities generally relate to habitat loss from human interaction and alteration or natural disturbances. These activities are widespread and can have localized impacts to habitat such as accretion of sediments from at-sea disposal areas, oil and mineral resource exploration, aquaculture, construction of at-sea wind farms, bulk transportation of petrochemicals and significant storm events. In addition to guidelines mandated by the MSA, NMFS reviews some of these types of effects during the review process required by Section 404 of the Clean water Act and Section 10 of the Rivers and Harbors Act for certain activities that are regulated by Federal, state, and local authority. The jurisdiction of these activities is in "waters of the United States" and includes both riverine and marine habitats.

Cumulative Effects Analysis

The cumulative impacts of this FMP were last fully addressed in final form by the EIS for Amendment 14 (<http://www.nero.noaa.gov/regs/2013/August/12smba14pr.html>). All four species in the management unit are managed primarily via annual specifications to control fishing mortality so the operation of the fishery is generally reviewed annually. As noted above, the cumulative impact of this FMP and annual specification process has been positive since its implementation after passage of the Magnuson Act for both the resources and communities that depend on them. The elimination of foreign fishing, implementation of limited access, and control of fishing effort through implementation of the annual specifications have had a positive impact on target and non-target species since the current domestic fishery is being prosecuted at lower levels of fishing effort compared to the historical foreign fishery. The foreign fishery was also known to take substantial numbers of marine mammals including common dolphin, white sided dolphin, and pilot whales.

The Council continues to manage these resources in accordance with the National Standards required under the Magnuson-Stevens Act. First and foremost the Council has strived to meet the obligations of National Standard 1 by adopting and implementing conservation and management measures that prevent overfishing, while achieving, on a continuing basis, the optimum yield for the four species and the United States fishing industry. The Council uses the best scientific information available (National Standard 2) and manages these resources throughout their range (National Standard 3). The management measures do not discriminate between residents of different states (National Standard 4), and they do not have economic allocation as its sole purpose (National Standard 5). The measures account for variations in fisheries (National Standard 6), avoid unnecessary duplication (National Standard 7), they take into account fishing communities (National Standard 8), address bycatch (discards) in these fisheries (National Standard 9) and promote safety at sea (National Standard 10). By continuing to meet the National Standards requirements of the Magnuson-Stevens Act through future FMP amendments and other actions, the Council should insure that cumulative impacts of these actions will remain positive. The cumulative effects of the proposed measures will be examined for the following five valued economic components: target/managed species, habitat, protected species, communities, and non-target species.

6.6.1. Target Fisheries and Managed Resources

First and foremost, the Council has met the obligations of National Standard 1 by adopting and implementing conservation and management measures that have prevented overfishing, while achieving, on a continuing basis, the optimum yield for the four species. Mackerel were overfished prior to US management under the Magnuson Act and then were subsequently rebuilt under the FMP and subsequent Amendments. While the current status based on a 2010 TRAC assessment is unknown, the stock is likely in better shape compared to if no management had taken place. Longfin squid were considered overfished in 2000 but the species is no longer considered overfished. *Illex* has never been designated as overfished since passage of the Sustainable Fisheries Act.

In the case of butterfish, the fishery has been designated as fully rebuilt with a stock status above its target.

The most obvious and immediate impact on the stocks managed under this FMP occurs as a result of fishing mortality. The Council manages federally permitted vessels which fish for these four species throughout their range in both Federal and state waters. Fishing mortality from all fishing activities that catch these species is controlled and accounted for by the specifications and incorporated into stock assessments.

In addition to mortality on these stocks due to fishing, there are other indirect effects from non-fishing anthropogenic activities in the Atlantic Ocean, but these are generally not quantifiable at present for pelagic and semi-pelagic species like MSB other than noting that climate change is likely to affect at least the distribution of these species (e.g. Overholtz et al 2011). Nonetheless, since these species occur over wide areas of the mid and north Atlantic Ocean and inhabit both inshore and offshore pelagic waters, it is unlikely that any indirect anthropogenic activity currently substantially impacts these populations, especially in comparison to the direct effects on these populations as a result of fishing.

As described above (Section 6.1), the preferred alternative could have low positive impacts for the mackerel stock and therefore no significant cumulative effects to the target fisheries are expected when past and future actions are considered.

The low positive impacts from the proposed action, when considered with the sustainable management practices summarized above, should result in slightly positive, insignificant impacts that are not expected to affect overall fishing mortality. As noted, non-fishing impacts such as climate change have likely affected the distribution of the mackerel, pushing it further northward.

6.6.2 Essential Fish Habitat (EFH)

The 2002 final rule for EFH requires that FMPs minimize to the extent practicable adverse effects on EFH caused by fishing (section 600.815 (a) (2)). Pursuant to the final EFH regulations (50 CFR 600.815(a)(2)), FMPs must contain an evaluation of the potential adverse effects of fishing on EFH designated under the FMP, including effects of each fishing activity regulated under the FMP or other Federal FMPs. The evaluation should consider the effects of each fishing activity on each type of habitat found within EFH. FMPs must describe each fishing activity, review and discuss all available relevant information (such as information regarding the intensity, extent, and frequency of any adverse effect on EFH: the type of habitat within EFH that may be affected adversely; and the habitat functions that may be disturbed), and provide conclusions regarding whether and how each fishing activity adversely affects EFH. The evaluation should also consider the cumulative effects of multiple fishing activities on EFH

The mackerel fishery primarily uses mid-water trawls. Bottom otter trawls are the principal gear used in the squid and butterfish fisheries. In general, bottom tending

mobile gears have the potential to reduce habitat complexity and change benthic communities. Available research indicates that the effects of mobile gear are cumulative and are a function of the frequency and intensity with which an area is fished, the complexity of the benthic habitat (structure), energy of the environment (high energy and variable or low energy and stable), and ecology of the community (long-lived versus short lived). The extent of an adverse impact on habitat requires high resolution data on the location of fishing effort by gear and the location of specific seafloor habitats.

Stevenson *et al.* (2004) performed an evaluation of the potential impacts of otter trawls and susceptible species and life stages are described in Section 6.3. The Council analyzed MSB gear impacts on EFH in Amendment 9, which also included measures which address gear impacts on EFH. To reduce MSB gear impacts on EFH, Amendment 9 prohibited bottom trawling by MSB-permitted vessels in Lydonia and Oceanographer Canyons. Amendment 1 to the Tilefish FMP created closures in these canyons as well as Veatch's and Norfolk canyons for bottom trawling. All EFH designations were updated in Amendment 11 and the new designations will be used in future evaluations. However since the EFH for most MSB species is the water column, MSB species are generally not susceptible to impacts from the MSB fisheries. Overall, impacts on EFH have been reduced and will continue to be analyzed to see if additional minimization is practicable in the future.

The low positive impacts from the proposed action, when considered with the EHF impact reduction activities summarized above, should result in slightly positive, insignificant impacts.

6.6.3 Protected Species

There are numerous species which inhabit the environment within the management unit of this FMP that are afforded protection under the ESA of 1973 and/or the Marine Mammal Protection MMPA. Eleven are classified as endangered or threatened under the ESA, while others are protected by the provisions of the MMPA. The species protected either by the ESA, the MMPA, or the Migratory Bird Act of 1918, that be found in the environment utilized by mackerel, squid and butterfish fisheries are listed in section 6.4.

Prior to the passage of the Magnuson Act and development of this FMP, the foreign prosecution of these fisheries occurred at much higher levels of fishing effort and were likely a major source of mortality for a number of marine mammal stocks, turtles, and sturgeon. The elimination of these fisheries and subsequent controlled development of the domestic fisheries have resulted in lower fishing effort levels.

The low positive impacts from the proposed action, when considered with the protected resource impact reduction activities summarized above, should result in slightly positive, insignificant impacts.

6.6.4 Human Communities

National Standard 8 requires that management measures take into account fishing communities. Communities from Maine to North Carolina are involved in the harvesting of mackerel, squid and butterfish. Through implementation of the FMP for these species the Council seeks to achieve the primary objective of the Magnuson-Stevens Act which is to achieve optimum yield from these fisheries.

The first cumulative human community effect of the FMP has been to guide the development of the domestic harvest and processing fishery infrastructure. Part of this fishery rationalization process included the development of limited access programs to control capitalization while maintaining harvests at levels that are sustainable. In addition, by meeting the National Standards prescribed in the MSA, the Council has strived to meet one of the primary objectives of the act - to achieve optimum yield in each fishery.

The impact analysis above (Section 6.4) suggests that the preferred alternative could have mixed human community/socioeconomic impacts ranging from low negative to positive. As such, the preferred alternative is expected to have non-significant cumulative impacts for the communities which depend on these resources. While the preferred alternative could have some low negative short-term impacts, by enabling the collection of high-quality data on non-target species there should be positive (but not significant) long term impacts.

Overall, the human community impacts from the proposed action are likely positive in the long term, and these positive impacts, when considered with the ongoing benefits from stewardship of the resources summarized above, should result in positive but insignificant impacts.

6.6.5 Non-target Species

National Standard 9 requires Councils to consider the bycatch effects of existing and planned conservation and management measures. The term "bycatch" means fish that are harvested in a fishery, but that are not sold or kept for personal use. Bycatch includes the discard of whole fish at sea or elsewhere, including economic discards and regulatory discards, and fishing mortality due to an encounter with fishing gear that does not result in capture of fish (i.e., unobserved fishing mortality). Bycatch does not include any fish that legally are retained in a fishery and kept for personal, tribal, or cultural use, or that enter commerce through sale, barter, or trade.

In this document, "catch" refers to all fish caught in a fishery (whether targeted or not and whether retained or discarded). Targeted fish are those intended to be caught. Incidentally-caught or non-target species are those caught but not targeted. Bycatch usually refers to discards but is a term often used in fishery management to refer to several different things and so it is not used in this document except where unavoidable

or customary (for example a report title, quotation, protected resource section, etc.). Instead, fish caught and then discarded at sea are called "discards." Fish that are not targeted but are landed are called "incidentally landed catch."

None of the management measures recommended by the Council under the preferred alternative are expected to substantially promote or result in increased overall levels of discards relative to the status quo because none are expected to substantially increase overall effort. Past measures implemented under this FMP which help to control or reduce discards of non-target species in these fisheries include 1) limited entry and specifications which are intended to control or reduce fishing effort, 2) incidental and discard caps or allowances, and 3) minimum mesh requirements. Other FMPs have also regulated MSB fishing to minimize discards as well, such as the Scup Gear Restricted Areas implemented through its FMP. The measures proposed under the preferred alternative, in conjunction with these past actions, should maintain reductions or further reduce historical levels of discards in these fisheries. As described above (Section 6.5), the preferred alternative could have positive impacts for relevant non-target species, especially RH/S.

In addition to mortality on non-target species due to fishing, there are other indirect effects from non-fishing anthropogenic activities in the Atlantic Ocean. For most non-targets that have interactions with the MSB fisheries, it is unlikely that any indirect anthropogenic activity currently substantially impacts these populations, especially in comparison to the direct effects on these populations as a result of fishing. For RH/S, which are the primary species-focus of this action, non-fishing anthropogenic activities have likely had more substantial impacts (such as dams, water withdrawals, and water quality in rivers), and these kinds of issues are detailed in river herring and shad stock assessments (ASMFC 2012, ASMFC 2007). Climate change may also be impacting RH/S (especially since they are river-specific and presumably cannot shift their distribution like pelagic species), and NMFS' Technical Expert Working Group (TEWG) is currently exploring potential climate change-related impacts for river herring - <http://www.greateratlantic.fisheries.noaa.gov/protected/riverherring/tewg/climate/index.html>.

In the near future an Omnibus Observer Amendment will specify ways that Councils can develop industry-funded observer programs, which should further assist efforts to evaluate and reduce discards and undesired incidental catch that is landed. This Omnibus Amendment will not necessarily result in immediately increased observer coverage because sufficient funds (from both industry for at-sea costs and NOAA for shoreside costs) may not be available. Rather, this amendment will set up a mechanism for increasing observer coverage should sufficient funding become available.

The positive impacts from the proposed action, when considered with the non-target impact reduction activities summarized above, should result in positive but insignificant impacts.

These improvements, along with other past management practices are expected to result in non-significant but positive cumulative impacts for non-target species.

6.7 Summary of Cumulative Impacts

The impacts of the preferred alternative (6b) on the biological, physical, and human environment are described above in this section. The overall implementation of the measures considered via this document are expected to generate positive impacts related to improving information on incidentally-caught fish in the mackerel fishery. The proposed actions, together with past and future actions are not expected to result in significant cumulative impacts on the biological, physical, and human components of the environment. As long as management continues to prevent overfishing and rebuild overfished stocks if necessary, the fisheries and their associated communities should continue to benefit. As noted above, the historical development of the FMP resulted in a number of actions which have impacted these fisheries and other valued ecosystem components. The cumulative effects of past actions in conjunction with the proposed measures and possible future actions are discussed above. Within the construct of that analysis, the Council has concluded that no significant cumulative impacts will result from the proposed alternative.

7.0 WHAT LAWS APPLY TO THE ACTIONS CONSIDERED IN THIS DOCUMENT?

7.1 Magnuson-Stevens Fishery Conservation and Management Act

7.1.1 NATIONAL STANDARDS

Section 301 of the Magnuson-Stevens Fishery Conservation and Management Act requires that fishery management plans contain conservation and management measures that are consistent with the ten National Standards:

In General. – Any fishery management plan prepared, and any regulation promulgated to implement any such plan, pursuant to this title shall be consistent with the...national standards for fishery conservation and management.

(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 MSB specifications are designed to avoid acceptable biological catch overages (i.e. avoid overfishing) while also allowing the fishery to achieve the specified quotas, i.e. optimum yield. This action only proposes to improve monitoring of incidental catch.

(2) Conservation and management measures shall be based upon the best scientific information available.

The data sources considered and evaluated during the development of this action include, but are not limited to: permit data, landings data from vessel trip reports, information from resource trawl surveys, sea sampling (observer) data, data from the dealer weighout purchase reports, peer-reviewed assessments and original literature, and descriptive information provided by fishery participants and the public. To the best of the Council's knowledge these data sources constitute the best scientific information available. All analyses based on these data have been reviewed by National Marine Fisheries Service and the public. This action should improve the observer data, which will be used in future decision-making.

(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.

The fishery management plan addresses management of the mackerel, squid, and butterfish stocks throughout the range of the species in U.S. waters, in accordance with the jurisdiction of U.S. law.

(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 proposed management measures are not expected to discriminate between residents of different States. This action does not allocate or assign fishing privileges among various fishermen.

(5) Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

The proposed measures should not impact the overall efficiency of utilization of fishery resources. While the proposed measures do propose a move-along rule for some slippages and trip terminations for other slippages, it is anticipated that vessels will choose to allow observers to sample catches rather than be subject to the consequences for slippages.

(6) Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

Changes in fisheries occur continuously, both as the result of human activity (for example, new technologies or shifting market demand) and natural variation (for example, oceanographic perturbations). Recent stock assessments have suggested that the mackerel, squid, and butterfish stocks are all likely particularly sensitive to environmental variables. In order to provide the greatest flexibility possible for future management decisions, the fishery management plan includes a Framework adjustment mechanism with an extensive list of possible Framework adjustment measures that can be used to quickly adjust the plan as conditions in the fishery change.

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

As always, the Council considered the costs and benefits associated with the management measures proposed in the action when developing this action. This action should not create any duplications related to managing the mackerel, squid, and butterfish resources.

(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 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.

The human community impacts of the action are described above in Section 7 and predicted to be low negative (primarily short term) to potentially positive. While the proposed measures do propose a move-along rule for some slippages and trip terminations for other slippages, it is anticipated that vessels will choose to allow observers to sample catches rather than be subject to the consequences for slippages.

(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.

The Magnuson-Stevens Act defines “bycatch” as fish that are harvested in a fishery, but are not retained (sold, transferred, or kept for personal use), including economic discards and regulatory discards. Incidentally landed catch are fish, other than the target species, that are harvested while fishing for a target species and retained and/or sold. The proposed measures should improve the observer data, which will likely be used in future decision-making regarding discards/bycatch.

(10) Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

Fishing is a dangerous occupation; participants must constantly balance the risks imposed by weather against the economic benefits. According to the National Standard guidelines, the safety of the fishing vessel and the protection from injury of persons aboard the vessel are considered the same as “safety of human life at sea. The safety of a vessel and the people aboard is ultimately the responsibility of the master of that vessel. Each master makes many decisions about vessel maintenance and loading and about the capabilities of the vessel and crew to operate safely in a variety of weather and sea conditions. This national standard does not replace the judgment or relieve the responsibility of the vessel master related to vessel safety. There has been some concern that the measures limiting slippage and the subsequent consequences (move-along or trip termination) could induce unsafe behavior. However, the Council determined that it is important to collect unbiased observer data, and that the master of the vessel is responsible for the safety of his/her vessel and will generally simply bring catch aboard for observers to sample. In cases where doing so would cause safety issues, vessels could begin fishing again once they had moved 15 nautical miles. Given these provisions, the Council determined that safety at sea had been considered to the extent practicable and should not be materially affected by the proposed measures.

7.1.2 OTHER REQUIRED PROVISIONS OF THE MAGNUSON-STEVENSON ACT

Section 303 of the MSA contains 15 additional required provisions for FMPs, which are listed and discussed below. Nothing in this action is expected to contravene any of these required provisions.

(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

The Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan has evolved over time through 14 Amendments and currently uses Acceptable Biological Catch recommendations from the Council's Scientific and Statistical Committee to sustainably manage the Mackerel, Squid, and Butterfish fisheries. Under the umbrella of limiting catch to the Acceptable Biological Catch, a variety of other management and conservation measures have been developed to meet the goals of the fishery management plan and remain consistent with the National Standards. The current measures are codified in the Code of Federal Regulations (50 C.F.R. § 648 Subpart B -

<http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=1e9802ffddb05d0243d9c657fade956c&rgn=div5&view=text&node=50:12.0.1.1.5&idno=50>) and summarized

at <http://www.nero.noaa.gov/regs/infodocs/msbinfosheet.pdf>. This action proposes improvements to observer data collection. As such, the existing and proposed

management measures should continue to promote the long-term health and stability of the fisheries consistent with the MSA.

(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

Every Amendment to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan provides this information. This document also updates this information as appropriate in Section 5.

(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

This provision is addressed via assessments that are conducted through a peer-reviewed process at the NMFS Northeast Fisheries Science Center. The available information is summarized in every Amendment and Specifications document – see Section 5. Full assessment reports are available at: <http://www.nefsc.noaa.gov/saw/>.

(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

Based on past performance and capacity analyses (Amendment 11), if Atlantic mackerel, squid, and butterfish are sufficiently abundant and available, the domestic fishery has the desire and ability to fully harvest the available quotas, and domestic processors can process the fish/squid.

(5) specify the pertinent data which shall be submitted to the Secretary with respect to commercial, recreational, and charter fishing in the fishery, including, but not limited to, information regarding the type and quantity of fishing gear used, catch by species in numbers of fish or weight thereof, areas in which fishing was engaged in, time of fishing, number of hauls, and the estimated processing capacity of, and the actual processing capacity utilized by, United States fish processors

Previous Amendments have specified the data that must be submitted to NMFS in the form of vessel monitoring systems (VMS), vessel trip reports, vessel monitoring, and dealer transactions. The action proposes requiring slippage events to be reported via VMS.

(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

There are no such requests pending, but the plan contains provisions for framework actions to make modifications regarding access/permitting if necessary.

(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

Section 5.3 of this document summarizes essential fish habitat (EFH). Amendments 9 and 11 evaluated habitat impacts, updated essential fish habitat designations, and implemented measures to reduce habitat impacts (primarily related to tilefish essential fish habitat).

(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

The preparation of this action included a review of the scientific data available to assess the impacts of all alternatives considered. No additional data was deemed needed for effective implementation of the plan other than the VMS reporting described above.

(9) include a fishery impact statement for the plan or amendment (in the case of a plan or amendment thereto submitted to or prepared by the Secretary after October 1, 1990) which shall assess, specify, and describe the likely effects, if any, of the conservation and management measures on-- (A) participants in the fisheries and fishing communities affected by the plan or amendment; and (B) participants in the fisheries conducted in adjacent areas under the authority of another Council, after consultation with such Council and representatives of those participants;

Section 6.4 of this document provides an assessment of the likely effects on fishery participants and communities from the considered actions.

(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

Amendments 8 and 9 to the fishery management plan established biological reference points for the species in the plan, and Amendment 10 contained measures for butterflyfish rebuilding. If a fishery is declared overfished or if overfishing is occurring, another Amendment would be undertaken to implement effective corrective measures. A pending framework will also facilitate rapid incorporation of new overfished/overfishing reference points.

(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

NMFS is currently developing an omnibus amendment to implement a new standardized reporting methodology since the previous methodology was invalidated by court order. See <http://nero.noaa.gov/mediacenter/2013/09/draftsbrmamendment.html> for details.

(12) assess the type and amount of fish caught and released alive during recreational fishing under catch and release fishery management programs and the mortality of such fish, and include conservation and management measures that, to the extent practicable, minimize mortality and ensure the extended survival of such fish

The Atlantic mackerel, squid, and butterfish fisheries are primarily commercial. There are some discards in the recreational mackerel fishery, but these are minimal related to the overall scale of the mackerel fishery. There are no size limits that would lead to regulatory recreational discarding of mackerel. There are no catch and release fishery management programs. There is some recreational longfin squid fishing, but it is thought to be relatively minor and the Council is considering if a survey is appropriate to further investigate longfin squid recreational fishing.

(13) include a description of the commercial, recreational, and charter fishing sectors which participate in the fishery and, to the extent practicable, quantify trends in landings of the managed fishery resource by the commercial, recreational, and charter fishing sectors

Every Amendment to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan provides this information. This document also updates this information as appropriate in Section 5.

(14) to the extent that rebuilding plans or other conservation and management measures which reduce the overall harvest in a fishery are necessary, allocate any harvest restrictions or recovery benefits fairly and equitably among the commercial, recreational, and charter fishing sectors in the fishery.

No rebuilding plans are active (or necessary).

(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 annual specifications process addresses this requirement. Acceptable Biological Catch recommendations from the Council's Scientific and Statistical Committee are designed to avoid overfishing and form the upper bounds on catches. There are a variety of proactive and reactive accountability measures for these fisheries, fully described at: <http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=1e9802ffddb05d0243d9c657fade956c&rgn=div5&view=text&node=50:12.0.1.1.5&idno=50#50:12.0.1.1.5.2>.

7.1.3 DISCRETIONARY PROVISIONS OF THE MAGNUSON-STEVENS ACT

Section 303b of the Magnuson-Stevens Act contains 14 additional discretionary provisions for Fishery Management Plans. They may be read on pages of 59 and 60 of National Marine Fisheries Service's redline version of the Magnuson-Stevens Act at: http://www.nmfs.noaa.gov/msa2007/MSA_Amended%20by%20Magnuson-Stevens%20Reauthorization%20Act%20%281-31-07%20draft%29.pdf. Given the limited scope of this action, there are no significant impacts related to such provisions except provision 12: "include management measures in the plan to conserve target and non-target species and habitats, considering the variety of ecological factors affecting fishery populations." The RH/S cap is rooted in the mandate to reduce bycatch/discards as well as this discretionary provision since RH/S are not targeted by the mackerel fishery and are both discarded and retained. This action proposes improvements to observer data that should improve monitoring of the RH/S cap and of RH/S catches in general by the mackerel fishery.

7.1.4 ESSENTIAL FISH HABITAT ASSESSMENT

The measures under the preferred alternatives proposed in this action are not expected to result in substantial changes in effort. Therefore, the Council concluded in section 6 of this document that the proposed measures will have no additional adverse impacts on EFH. Thus no mitigation is necessary. The adverse impacts of bottom trawls used in MSB fisheries on other managed species (not MSB), which were determined to be more than minimal and not temporary in Amendment 9, were minimized to the extent practicable by the Lydonia and Oceanographer canyon closures to squid fishing. In addition, Amendment 1 to the Tilefish FMP closed those canyons plus Veatch's and Norfolk Canyons to all bottom trawling. Therefore, the adverse habitat impacts of MSB fisheries "continue to be minimized" by the canyon closures. Amendment 11 revised all of the MSB EFH designations and EFH impacts will continue to be monitored and addressed as appropriate.

7.2 NEPA

7.2.1 Finding of No Significant Impact (FONSI)

National Oceanic and Atmospheric Administration Administrative Order 216-6 (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality regulations at 40 C.F.R. '1508.27 state that the significance of an action should be analyzed both in terms of context and intensity. Each criterion listed below is relevant to making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the Administrative Order 216-6 criteria and Council on Environmental Quality'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?*

The proposed action is not expected to jeopardize the sustainability of any target species affected by the action (see section 6 of this document). The proposed measures should improve observer data, which if anything should help ensure the long-term sustainability of harvests from the MSB stocks.

2) *Can the proposed action reasonably be expected to jeopardize the sustainability of any non-target species?*

The proposed action is not expected to jeopardize the sustainability of any non-target species (see section 6 of this document) because the proposed measures are not expected to result in substantial increases in overall fishing effort (but rather could decrease effort). The proposed measures should result in better data on non-target interactions in the mackerel fishery.

3) *Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or EFH as defined under the Magnuson-Stevens Act and identified in FMPs?*

The proposed action is not expected to cause damage to the ocean, coastal habitats, and/or EFH as defined under the Magnuson-Stevens Act and identified in the FMP (see Section 6). In general, bottom-tending mobile gear, primarily otter trawls, which are used to harvest mackerel, squid, and butterfish, have the potential to adversely affect EFH for the benthic lifestages of a number of species in the Northeast region that are managed by other FMPs. However, because none of the management measures proposed in this action should cause any increase in overall fishing effort relative to the status quo, they are not expected to have any substantial negative impact on EFH or on coastal and ocean habitats.

4) Can the proposed action reasonably be expected to have a substantial adverse impact on public health or safety?

None of the measures substantially alter the manner in which the industry conducts fishing activities for the target species. Therefore, the proposed actions in these fisheries are not expected to adversely impact public health or safety. There has been some concern that the measures limiting slippage and the subsequent consequences (move-along or trip termination) could induce unsafe vessel behavior. However, the Council determined that it is important to collect unbiased observer data, and that the master of the vessel is responsible for the safety of his/her vessel and will generally simply bring catch aboard for observers to sample. In cases where doing so would cause safety issues, vessels could begin fishing again once they had moved 15 nautical miles. Given these provisions, the Council determined that safety at sea had been considered to the extent practicable and should not be materially affected by the proposed measures.

5) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?

Fishing effort is not expected to increase in magnitude under the proposed measures. In addition, none of the proposed measures are expected to substantially alter fishing methods, activities, or the spatial and/or temporal distribution of fishing effort. Therefore, this action is not expected to have increased negative effects on protected resources.

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.)?

The MSB fisheries are prosecuted using bottom otter trawls, which have the potential to impact bottom habitats. In addition, a number of non-target species are taken incidentally to the prosecution of these fisheries. However, fishing effort is not expected to increase in magnitude under the proposed measures. In addition, none of the proposed measures are expected to substantially alter fishing methods, activities, or the spatial and/or temporal distribution of fishing effort. Therefore, this action is not expected to result in increased negative effects on ecosystem functions.

7) Are significant social or economic impacts interrelated with natural or physical environmental effects?

There are no significant social or economic impacts interrelated with natural or physical environmental effects expected from implementation of this action. A complete discussion of the potential impacts of the proposed management measures is provided in Section 6 of this document.

8) Is the science used to analyze the effects on the quality of the human environment likely to be highly controversial?

No, and the improvements to observer data proposed in this action should lead to a reduction in controversy from using observer data in future management decisions.

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?

A variety of types of commercial fishing already occur in the management area, and although it is possible that historic or cultural resources such as shipwrecks could be present, 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 preferred alternative 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?

While there is always a degree of variability in the year to year performance of the relevant fisheries, the proposed actions are not expected to substantially increase overall effort or to substantially alter fishing methods and activities. As a result, the effects on the human environment of the proposed measures are not highly uncertain nor do they involve unique or uncertain risks (see section 6.0 of this document).

11) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

The impacts of the preferred alternative on the biological, physical, and human environment are described in sections 6 and 7. The overall interaction of the proposed action with other actions are expected to generate positive impacts, but are not expected to result in significant cumulative impacts on the biological, physical, and human components of the environment.

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?

A variety of types of commercial fishing already occur in the management area, and although it is possible that historic or cultural resources such as shipwrecks could be present, 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 preferred alternative would result in substantial impacts to unique areas.

13) Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?

There is no evidence or indication that these fisheries have ever resulted or would ever result in the introduction or spread of nonindigenous species.

14) Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

The proposed action improves ongoing observer data collection and is not likely to establish a precedent for future actions with significant effects or to represent a decision in principle about a future consideration

15) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

Overall fishing effort is not expected to increase in magnitude under the proposed action (see section 6.0 of this document). In addition, none of the proposed measures are expected to substantially alter fishing methods, activities, or the spatial and/or temporal distribution of fishing effort. Thus, it is not expected that they would threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. The proposed measures have been found to be consistent with other applicable laws as described in this Section.

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?

Overall fishing effort is not expected to increase in magnitude under the proposed action (see sections 6 and 7 of this document). In addition, none of the proposed measures are expected to substantially alter fishing methods, activities or the spatial and/or temporal distribution of fishing effort. Therefore the proposed action is unlikely to result in cumulative adverse effects (including any that could have a substantial effect on the target species or non-target species). There should be some positive (but not significant) impacts for target and non-target species related to the improvements to observer data that should occur under the proposed measures.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting Environmental Assessment prepared for the MSB fisheries, it is hereby determined that the proposed measures will not significantly impact the quality of the human environment as described 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.

Greater Atlantic Regional Administrator, NOAA

Date

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7.3 Marine Mammal Protection Act

The various species which inhabit the management unit of this FMP that are afforded protection under the Marine Mammal Protection Act of 1972 (MMPA) are described in Section 5.4. Four species of marine mammals are known to interact with the mackerel, squid and butterfish fisheries - long and short finned pilot whales, common dolphin and white sided dolphin. None of the measures are expected to significantly alter fishing methods or activities or result in substantially increased effort. The Council has reviewed the impacts of the proposed measures on marine mammals and concluded that the management actions proposed are consistent with the provisions of the MMPA and would not alter existing measures to protect the species likely to inhabit the management units of the subject fisheries. For further information on the potential impacts of the fishery and the proposed management action, see Sections 5 and 6 of this Environmental Assessment.

7.4 Endangered Species Act

Section 7 of the ESA requires Federal agencies conducting, authorizing, or funding activities that affect threatened or endangered species to ensure that those effects do not jeopardize the continued existence of listed species. The Council has concluded that the proposed measures and the prosecution of the associated fisheries are not likely to result in jeopardy to any ESA-listed species under NOAA Fisheries Service jurisdiction, or alter or modify any critical habitat, based on the analysis in this document. For further information on the potential impacts of the fisheries and the proposed management action, see Sections 6.4 and 7 of this document.

Formal consultation on the MSB fishery was last completed on October 29, 2010. The October 29, 2010, Biological Opinion concluded that the operation of the MSB fishery is not likely to jeopardize the continued existence of listed species. An ESA Section 7 consultation for 2012 MSB Specifications was completed on September 9, 2011. The consultation concluded that the proposed specification measures do not constitute a modification to the operations of the MSB fisheries under the FMP that would cause an effect to ESA-listed species or critical habitat not considered in the October 29, 2010 Biological Opinion.

NMFS reinitiated consultation on seven fisheries, including the MSB FMP and finalized a biological opinion in December 2013

(<http://www.greateratlantic.fisheries.noaa.gov/protected/section7/bo/actbo.html>). NMFS determined that:

“After reviewing the current status of the species, the environmental baseline, climate change, cumulative effects in the action area, and the effects of the continued operation of the seven fisheries under their respective FMPs over the next ten years, it is our biological opinion that the proposed action may adversely affect, but is not likely to jeopardize, the continued existence of North Atlantic right whales, humpback whales, fin

whales, and sei whales, or loggerhead (specifically, the NWA DPS), leatherback, Kemp's ridley, and green sea turtles, any of the five DPSs of Atlantic sturgeon, or GOM DPS Atlantic salmon. It is also our biological opinion that the proposed action is not likely to adversely affect hawksbill sea turtles, shortnose sturgeon, smalltooth sawfish DPS, *Acroporid* corals, Johnson's seagrass, sperm whales, blue whales, designated critical habitat for right whales in the Northwest Atlantic, or designated critical habitat for GOM DPS Atlantic salmon."

7.5 Administrative Procedures Act

Section 553 of the Administrative Procedure Act establishes procedural requirements applicable to informal rulemaking by Federal agencies. The purpose of these requirements is to ensure public access to the Federal rulemaking process, and to give the public adequate notice and opportunity for comment. At this time, the Council is not requesting any abridgement of the rulemaking process for this action.

7.6 Paperwork Reduction Act

The purpose of the Paperwork Reduction Act is to control and, to the extent possible, minimize the paperwork burden for individuals, small businesses, nonprofit institutions, and other persons resulting from the collection of information by or for the Federal Government. This action proposes a minor change to VMS reporting requirements. If appropriate, a Paperwork Reduction Act package prepared in support of this action and the information collection required by the proposed action, including forms and supporting statements, will be submitted when implementation action is taken

7.7 Coastal Zone Management Act

Section 307(c)(1) of the Federal Coastal Zone Management Act of 1972 requires that all Federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. Pursuant to the Coastal Zone Management Act regulations at 15 CFR 930.35, a negative determination may be made if there are no coastal effects and the subject action: (1) Is identified by a state agency on its list, as described in ' 930.34(b), or through case-by-case monitoring of unlisted activities; or (2) which is the same as or is similar to activities for which consistency determinations have been prepared in the past; or (3) for which the Federal agency undertook a thorough consistency assessment and developed initial findings on the coastal effects of the activity. Accordingly, NMFS has determined that this action would have no effect on any coastal use or resources of any state. Letters documenting the NMFS negative determination, along with this document, were sent to the coastal zone management program offices of the states of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida. A list of the specific state contacts and a copy of the letters are available upon request.

7.8 Section 515 (Data Quality Act)

Pursuant to NOAA guidelines implementing section 515 of Public Law 106-554 (the Data Quality Act), all information products released to the public must first undergo a Pre-Dissemination Review to ensure and maximize the quality, objectivity, utility, and integrity of the information (including statistical information) disseminated by or for Federal agencies. The following section addresses these requirements.

Utility

The information presented in this document should be helpful to the intended users (the affected public) by presenting a clear description of the purpose and need of the proposed action, the measures proposed, and the impacts of those measures. A discussion of the reasons for selecting the proposed action is included so that intended users may have a full understanding of the proposed action and its implications, as well as the Council's rationale.

Until a proposed rule is prepared and published, this document is the principal means by which the information contained herein is available to the public. The information provided in this document is based on the most recent available information from the relevant data sources. The development of this document and the decisions made by the Council to propose this action are the result of a multi-stage public process. Thus, the information pertaining to management measures contained in this document has been improved based on comments from the public, the fishing industry, members of the Council, and NMFS.

The Federal Register notice that announces the proposed rule and the final rule and implementing regulations will be made available in printed publication, on the website for the Northeast Regional Office, and through the Regulations.gov website. The Federal Register documents will provide metric conversions for all measurements.

Integrity

Prior to dissemination, information associated with this action, independent of the specific intended distribution mechanism, is safeguarded from improper access, modification, or destruction, to a degree commensurate with the risk and magnitude of harm that could result from the loss, misuse, or unauthorized access to or modification of such information. All electronic information disseminated by NOAA Fisheries Service adheres to the standards set out in Appendix III, ASecurity of Automated Information Resources,@ of OMB Circular A-130; the Computer Security Act; and the Government Information Security Act. All confidential information (e.g., dealer purchase reports) is safeguarded pursuant to the Privacy Act; Titles 13, 15, and 22 of the U.S. Code (confidentiality of census, business, and financial information); the Confidentiality of Statistics provisions of the Magnuson-Stevens Act; and NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics.

Objectivity

For purposes of the Pre-Dissemination Review, this document is considered to be a Natural Resource Plan. Accordingly, the document adheres to the published standards of the Magnuson-Stevens Act; the Operational Guidelines, FMP Process; the EFH Guidelines; the National Standard Guidelines; and NOAA Administrative Order 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act.

This information product uses information of known quality from sources acceptable to the relevant scientific and technical communities. Stock status (including estimates of biomass and fishing mortality) reported in this product are based on either assessments subject to peer-review through the Stock Assessment Review Committee or on updates of those assessments prepared by scientists of the Northeast Fisheries Science Center. Landing and revenue information is based on information collected through the Vessel Trip Report and Commercial Dealer databases. Information on catch composition, by tow, is based on reports collected by the NOAA Fisheries Service observer program and incorporated into the sea sampling or observer database systems. These reports are developed using an approved, scientifically valid sampling process. In addition to these sources, additional information is presented that has been accepted and published in peer-reviewed journals or by scientific organizations. Original analyses in this document were prepared using data from accepted sources, and the analyses have been reviewed by NMFS staff with expertise on the subject matter.

Despite current data limitations, the conservation and management measures proposed for this action were selected based upon the best scientific information available. The analyses conducted in support of the proposed action were conducted using information from the most recent complete calendar years, generally through 2013 except as noted. As appropriate, the data used in the analyses provide the best available information on the number of seafood dealers operating in the northeast, the number, amount, and value of fish purchases made by these dealers. Specialists (including professional members of

plan development teams, technical teams, committees, and Council staff) who worked with these data are familiar with the most current analytical techniques and with the available data and information relevant to these fisheries.

The policy choices are clearly articulated in Section 3 of this document as are the management alternatives considered in this action (see Section 4). The supporting science and analyses, upon which the policy choices are based, are described in sections 5 and 6 of this document (also see Appendices 1-3). All supporting materials, information, data, and analyses within this document have been, to the maximum extent practicable, properly referenced according to commonly accepted standards for scientific literature to ensure transparency.

The review process used in preparation of this document involves the responsible Council, the Northeast Fisheries Science Center, the Northeast Regional Office, and NOAA Fisheries Service Headquarters. The Center's technical review is conducted by senior level scientists with specialties in population dynamics, stock assessment methods, demersal resources, population biology, and the social sciences. The Council review process involves public meetings at which affected stakeholders have opportunity to provide comments on the document. Review by staff at the Regional Office is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. Final approval of the action proposed in this document and clearance of any rules prepared to implement resulting regulations is conducted by staff at NOAA Fisheries Service Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

7.9 Regulatory Flexibility Analysis

The purpose of the Regulatory Flexibility Act is to reduce the impacts of burdensome regulations and recordkeeping requirements on small businesses. To achieve this goal, the Regulatory Flexibility Act requires Federal agencies to describe and analyze the effects of proposed regulations, and possible alternatives, on small business entities. To this end, this document contains an Initial Regulatory Flexibility Analysis, found at section 11.0 at the end of this document, which includes an assessment of the effects (or lack thereof) that the proposed action and other alternatives are expected to have on small entities.

7.10 E.O. 12866 (Regulatory Planning and Review)

The purpose of Executive Order 12866 is to enhance planning and coordination with respect to new and existing regulations through a Regulatory Impact Review. This Executive Order requires the Office of Management and Budget (OMB) to review regulatory programs that are considered to be significant. Section 11.0 at the end of this document includes the Regulatory Impact Review, which includes an assessment of the costs and benefits of the proposed action, in accordance with the guidelines established by Executive Order 12866. The analysis shows that this action is not a significant

regulatory action because it will not affect in a material way the economy or a sector of the economy.

7.11 E.O. 13132 (Federalism)

This E.O. established nine fundamental federalism principles for Federal agencies to follow when developing and implementing actions with federalism implications. The E.O. also lists a series of policy making criteria to which Federal agencies must adhere when formulating and implementing policies that have federalism implications. However, no federalism issues or implications have been identified relative to the measures proposed measures. This action does not contain policies with federalism implications sufficient to warrant preparation of an assessment under E.O. 13132. The affected states have been closely involved in the development of the proposed management measures through their representation on the Council (all affected states are represented as voting members of at least one Regional Fishery Management Council). No comments were received from any state officials relative to any federalism implications that may be associated with this action

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9.0 LIST OF AGENCIES AND PERSONS CONSULTED

In preparing this document the Council consulted with the NMFS, New England and South Atlantic Fishery Management Councils, Fish and Wildlife Service, Department of State, and the states of Maine through Florida through their membership on the Mid-Atlantic, New England and /or South Atlantic Fishery Management Councils. In addition, states that are members within the management unit were be consulted through the Coastal Zone Management Program consistency process. Letters were sent to each of the following states within the management unit reviewing the consistency of the proposed action relative to states' Coastal Zone Management Programs: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia and Florida.

10.0 LIST OF PREPARERS AND POINT OF CONTACT

This environmental assessment was prepared by the following member of the Council staff: Jason Didden. Questions about this environmental assessment or additional copies may be obtained by contacting Jason Didden, Mid-Atlantic Fishery Management Council, 800 N. State Street, Dover, DE 19901 (302-674-2331). This Environmental Assessment may also be accessed by visiting the NMFS Northeast Region website at <http://www.nero.noaa.gov/regs/>.

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11.0 INITIAL REGULATORY FLEXIBILITY ANALYSIS AND REGULATORY IMPACT REVIEW

11.1 Initial Regulatory Flexibility Analysis

The Regulatory Flexibility Act (RFA), first enacted in 1980, and codified at 5 U.S.C. 600-611, was designed to place the burden on the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a Federal regulation. Major goals of the RFA are: 1) to increase agency awareness and understanding of the impact of their regulations on small business; 2) to require that agencies communicate and explain their findings to the public; and 3) to encourage agencies to use flexibility and to provide regulatory relief to small entities.

The RFA emphasizes predicting significant adverse impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts, while still achieving the stated objective of the action. When an agency publishes a proposed rule, it must either, (1) “certify” that the action will not have a significant adverse impact on a substantial number of small entities, and support such a certification declaration with a “factual basis”, demonstrating this outcome, or, (2) if such a certification cannot be supported by a factual basis, prepare and make available for public review an Initial Regulatory Flexibility Analysis (IRFA) that describes the impact of the proposed rule on small entities.

This document provides the factual basis supporting a certification that the proposed regulations will not have a “significant impact on a substantial number of small entities” and that an IRFA is not needed in this case. Certifying an action must include the following elements, and each element is subsequently elaborated upon below:

- A. A statement of basis and purpose of the rule
- B. A description and estimate of the number of small entities to which the rule applies
- C. Description and estimate of economic impacts on small entities, by entity size and Industry
- D. An explanation of the criteria used to evaluate whether the rule would impose significant economic impacts
- E. An explanation of the criteria used to evaluate whether the rule would impose impacts on a substantial number of small entities
- F. A description of, and an explanation of the basis for, assumptions used

A – Basis and purpose of the rule

The bases of the rules proposed in this action are the provisions of the MSA for federal fishery management to reduce bycatch/discards to the extent practicable, and conserve non-target species. The purpose of the rules associated with the preferred alternative is to minimize slippage, which will improve observer data, which should in turn improve decision-making that uses observer data. Failure to implement the preferred measures described in this document could result in biased observer data. To assist with further evaluation of the measures proposed in this document, a summary of the preferred alternative is provided next. A full description of all alternatives is provided in Section 4.

Alternative 6b (PREFERRED) - Mechanical, dogfish, and safety issues that led to a slippage would require moving 15nm before fishing again. If any non-exempted slippages occur the vessel would have to terminate the trip. Notification of slippage events via VMS would be required to make enforcement feasible. The current prohibition on non-exempted slippages during observed trips in the mackerel and longfin squid fisheries would remain in place, so any non-exempted slippages by vessels with limited access mackerel permits would still constitute a violation (in addition to requiring a return to port). This alternative would create a restricted circular no-fishing area (radius = 15nm, diameter = 30nm, area = 707nm²) for any vessel that does an “exempted” (related to mechanical, dogfish, or safety issues) slippage for the remainder of the trip.

B – Description and estimate of the number of small entities to which the rule applies

The measures proposed in this action apply to the vessels that hold limited access permits for the MSB fisheries. There are also incidental permits that allow small-scale landings, and more vessels hold incidental permits, but landings of MSB species by incidental permit holders are relatively minor and no changes are proposed for the incidental trip limits.

Many MSB-permitted vessels hold multiple permits and some small entities own multiple vessels with limited access MSB permits. Staff queried NMFS databases for 2013 MSB limited access permits, and then cross-referenced those results with ownership data provided by the Social Science Branch of NMFS’ Northeast Fisheries Science Center. This analysis found that 384 separate vessels hold MSB limited access permits, 287 entities own those vessels, and based on current SBA definitions, 274 are small entities. All of the entities that had revenue fell into the finfish or shellfish categories, and the SBA definitions for those categories for 2014 are \$20.5 million for finfish fishing and \$5.5 million for shellfish fishing. Of the 274 small entities, 29 had no revenue in 2013 and those entities with no revenue are listed as small entities for the purposes of this analysis.

The proposed alternative applies to mackerel limited access permits so those numbers are listed separately (they are a subset of the above entities). This analysis found that 150 separate vessels hold mackerel limited access permits, 114 entities own those vessels, and based on current SBA definitions, 107 are small entities. Of the 107 small entities, 4 had no revenue in 2013 and those entities with no revenue are listed as small entities for the

purposes of this analysis. Of the entities with revenues, their average revenues in 2013 were \$1,201,419. 70 had primary revenues from finfish fishing and 33 had their primary revenues from shellfish fishing.

C – Description and estimate of economic impacts on small entities

Alternative 6b, the only proposed alternative, should not have more than minimal impact on the relevant entities compared to recent operation of the fishery (2011-2013, and 2014's landings to date appear similar to 2013's). First, the primary impact should only be that vessels will not slip catches before observers have a chance to observe/sample them, which should have almost no economic impact on vessels. Slippages for reasons besides safety, mechanical issues, and spiny dogfish are already prohibited, and 6b would require vessels to move 15 nautical miles before fishing again if a slippage for those allowed reasons occurs (vessels could not fish within 15 nautical miles of the slippage event for the rest of the trip). Mackerel revenues over 2011-2013 have averaged \$2.0 million, for an average of approximately \$19,000 per affected small entity (107), compared to their average revenues of \$1,201,419 in 2013 as described in the preceding paragraph. Given the small relative value of mackerel for most affected entities, the infrequency of slippage, and given the consequence of non-prohibited slippages is only to move 15 nautical miles, it seems likely that the economic impacts should be minimal for the affected small entities. This is especially true since only a small portion of trips are observed, and the measures only apply to observed trips.

If slippages have been masking higher RH/S landings, it is possible that prohibiting slippages could lead to the mackerel fishery closing earlier (because of the RH/S cap) than it otherwise would if more slippages were occurring. However, given the very low mackerel catches in recent years (less than 20% of the quota), it is more likely that catch increases might be limited rather than actually having decreased catches, so small entities should not be more than minimally impacted compared to recent fishery operations. In addition, if vessels are prohibited from targeting mackerel due to the cap, they will likely partially mitigate any foregone revenue by fishing for other species (e.g. squid, butterflyfish, herring, etc.).

D/E – An explanation of the criteria used to evaluate whether the rule would impose significant economic impacts/ An explanation of the criteria used to evaluate whether the rule would impose impacts on a substantial number of small entities

Section C describes why the rule is not expected to impose significant economic impacts. In addition, analysis in Section 5 demonstrates that there are only a few vessels that have participated in the mackerel fishery recently due to low mackerel availability.

F – A description of, and an explanation of the basis for, assumptions

Other than those described directly in the above analyses, the primary assumption utilized in the above analyses is that comparing likely 2015 fishery operation to how the fishery operated over 2011-2013 is appropriate. Using the most recent years of fishery operation

is standard practice for Regulatory Flexibility Analysis and there is no indication that such an approach is contraindicated in this case since doing so captures what the industry has recently experienced versus potential impacts going forward from implementation of the proposed measures.

11.2 Regulatory Impact Review

INTRODUCTION

Executive Order 12866 requires a Regulatory Impact Review (RIR) in order to enhance planning and coordination with respect to new and existing regulations. This Executive Order requires the Office of Management and Budget (OMB) to review regulatory programs that are considered to be “significant.” Section 6 assesses of the costs and benefits of the Proposed Action and found the impacts to be mostly neutral or positive. The analysis included in this RIR further demonstrates that this action is not a “significant regulatory action” because it will not affect in a material way the economy or a sector of the economy.

Executive Order 12866 requires a review of proposed regulations to determine whether or not the expected effects would be significant, where a significant regulatory action is one that may:

- 1* Have an annual effect on the economy of \$100 million or more, or adversely affect in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
- 2* Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- 3* Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- 4* Raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in the Executive Order.

OBJECTIVES

The objectives of the MSB FMP are as follows:

- Enhance the probability of successful (i.e., the historical average) recruitment to the fisheries.
- Promote the growth of the U.S. commercial fishery, including the fishery for export.
- Provide the greatest degree of freedom and flexibility to all harvesters of these resources consistent with the attainment of the other objectives of this Fishery Management Plans.
- Provide marine recreational fishing opportunities, recognizing the contribution of recreational fishing to the national economy.
- Increase understanding of the conditions of the stocks and fisheries.
- Minimize harvesting conflicts among U.S. commercial, U.S. recreational, and foreign fishermen.

Consistent with these objectives, this action seeks to facilitate landings consistent with minimizing bycatch and non-target catch of RH/S, which has been an important consideration in Council actions for this fishery in recent years.

AFFECTED ENTITIES

A description of the entities affected by this action is provided in section 11.1 above, and Section 5.6 provides additional detail on participation in the mackerel fishery, which is the only fishery potentially impacted by this action.

PROBLEM STATEMENT

The purpose of this framework is to consider immediate consequences for fishing vessels when a haul is slipped, i.e. when all fish are not brought on board for sampling by an observer. When a haul is slipped this is called “slippage.” The proposed measures are needed to prevent slippage, which will ensure that observers are able to sample all catch of incidentally-caught species (including river herring and shad) on observed trips, providing the most accurate data for catch caps and monitoring. The goal is not to trigger slippage consequences, and optimally slippage consequences are never triggered, which would just mean that all fish are being observed on observed trips, which is the overall goal of this action. Preventing slippage and ensuring accurate observing of mackerel trips is important so that the RH/S cap closes the fishery at the appropriate time.

ANALYSIS OF ALTERNATIVES

Executive Order 12866 mandates that proposed measures be analyzed below in terms of: (1) changes in net benefits and costs to stakeholders, (2) changes to the distribution of benefits and costs within the industry, (3) changes in income and employment, (4)

cumulative impacts of the regulation, and (5) changes in other social concerns. As described in Section 6, the proposed measures may indirectly impact mackerel landings through the RH/S cap, but mackerel landings have been low in recent years and in the first year of the RH/S cap the fishery operated well below the proposed 2015 cap. If similar RH/S encounter rates occur, the mackerel fishery will continue to not be impacted. 2013 mackerel landings revenues totaled less than \$2 million and landings have been less than \$4 million over 2010-2013. While some trips that slip catches may have slippage consequences that reduce revenues and/or increase operating costs, the low rate of observer coverage and low incidence of slippage means that direct impacts from slippage consequences should be minimal. The low levels of activity in the mackerel fishery in recent years, the possibility that the mackerel fishery may not be impacted at all by the RH/S cap, and the positive impacts related to RH/S conservation from effective implementation of the RH/S cap support a determination that this action is not significant for purposes of Executive Order 12866.

There should not be substantial distributional issues (all permit holders are impacted similarly), and impacts on income and employment should mirror the impacts on fishing revenues described above (i.e. should be relatively minor). As described in Section 6, the Council has concluded that no significant cumulative impacts will result from the proposed measures. There are no other expected social concerns.

DETERMINATION OF EXECUTIVE ORDER 12866 SIGNIFICANCE

Given the analysis in Section 6 and summary information above, the action overall should have neutral to low-negative, but not significant, impacts on participants in the mackerel fishery. In addition, there should be no interactions with activities of other agencies and no impacts on entitlements, grants, user fees, or loan programs. The proposed action is also similar to actions considered previously to address slippage and as such does not raise novel legal or policy issues. Therefore the Proposed Action is not considered significant as defined by Executive Order 12866.

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12.0 Appendices

The following Appendices follow this page:

Appendix 1: Northeast Fishery Science Center Report on Slippage and FISH, NK usage
(from NEFMC Atlantic Herring Amendment 5)

Appendix 2: Updated Mackerel Slippage Information

Appendix 3: Updated Atlantic Herring Slippage Information

Appendix 4: Amendment 14 Partial Approval Letter