

FRAMEWORK ADJUSTMENT 9 TO THE

Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan

ENVIRONMENTAL ASSESSMENT

Finalized June 2015

**Prepared by the Mid-Atlantic Fishery Management Council
in cooperation with
the National Marine Fisheries Service (NMFS)**

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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 onboard 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.

As allowed under Council on Environmental Quality (CEQ) guidance, some information in this document is incorporated by reference. In these cases, reference information or a link is provided along with a summary of the relevant information.

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. Any required moves (15nm) are short enough distances that one would not expect differential impacts on protected resources given their typically wide ranges, and it is generally expected that vessels will simply not slip rather than slip. Also, slippages are relatively rare occurrences to begin with, so not many relocations should occur and overall effort would not be substantially altered by relocated effort.

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 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 weightout 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 ($20,000 \text{ observed}/0.1 = 200,000$ 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 = $1,256\text{nm}^2$) for any vessel that does an “exempted” slippage (for the remainder of the trip).

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 MSB specifications Environmental Assessment may be viewed at <http://www.greateratlantic.fisheries.noaa.gov/regs/2015/March/15smbspecs20152017fr.html> 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/14msb2015174specsp_r.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.

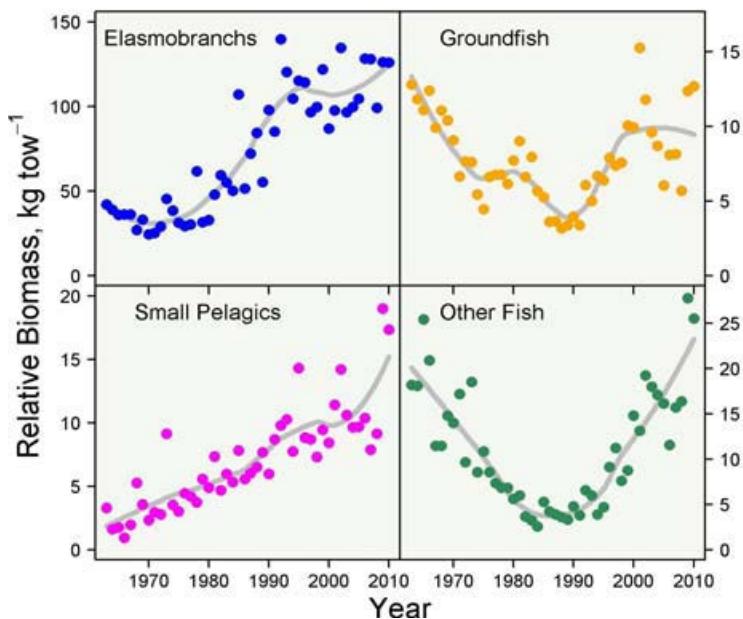


Figure 1. Mean catch per tow of various species caught in NEFSC bottom trawl surveys

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/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 to Saco 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 Endangered and other Protected Species

There are numerous species of fish, marine mammals, and sea turtles 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 (MMPA) of 1972 (see Table 4). For additional information on the species provided in Table 4 (e.g., life history, distribution, stock status), please visit: http://www.nero.noaa.gov/prot_res/ and <http://www.nmfs.noaa.gov/pr/sars/region.htm>.

A subset of the species identified in Table 4 are known to have the potential to interact with gear types used to prosecute the MSB fisheries (primarily mid-water trawls and bottom trawls). In the following section (5.4.1), available information on gear interactions with a given species (or species group) will be provided.

Table 4.Species Protected Under the ESA and/or MMPA that May Occur in the Affected Environment of the MSB FMP

Species	Status	Potentially affected by this action?
Cetaceans		
North Atlantic right whale (<i>Eubalaena glacialis</i>)	Endangered	No
Humpback whale (<i>Megaptera novaeangliae</i>)	Endangered	No
Fin whale (<i>Balaenoptera physalus</i>)	Endangered	No
Sei whale (<i>Balaenoptera borealis</i>)	Endangered	No
Blue whale (<i>Balaenoptera musculus</i>)	Endangered	No
Sperm whale (<i>Physeter macrocephalus</i>)	Endangered	No
Pygmy sperm whale (<i>Kogia breviceps</i>)	Protected	No

Species	Status	Potentially affected by this action?
Dwarf sperm whale (<i>Kogia sima</i>)	Protected	No
Minke whale (<i>Balaenoptera acutorostrata</i>)	Protected	Yes
Pilot whale (<i>Globicephala spp.</i>) ¹	Protected	Yes
Risso's dolphin (<i>Grampus griseus</i>)	Protected	Yes
Atlantic white-sided dolphin (<i>Lagenorhynchus acutus</i>)	Protected	Yes
Short Beaked Common dolphin (<i>Delphinus delphis</i>) ²	Protected	Yes
Atlantic Spotted dolphin (<i>Stenella frontalis</i>)	Protected	No
Striped dolphin (<i>Stenella coeruleoalba</i>)	Protected	No
Beaked whales (<i>Ziphius</i> and <i>Mesoplodon</i> spp) ³	Protected	No
Bottlenose dolphin (<i>Tursiops truncatus</i>) ⁴	Protected	Yes
Harbor porpoise (<i>Phocoena phocoena</i>)	Protected	Yes
Sea Turtles		
Leatherback sea turtle (<i>Dermochelys coriacea</i>)	Endangered	Yes
Kemp's ridley sea turtle (<i>Lepidochelys kempii</i>)	Endangered	Yes
Green sea turtle (<i>Chelonia mydas</i>)	Endangered ⁵	Yes
Loggerhead sea turtle (<i>Caretta caretta</i>), Northwest Atlantic DPS	Threatened	Yes
Hawksbill sea turtle (<i>Eretmochelys imbricate</i>)	Endangered	No
Fish		
Shortnose sturgeon (<i>Acipenser brevirostrum</i>)	Endangered	No
Atlantic salmon (<i>Salmo salar</i>)	Endangered	Yes
Atlantic sturgeon (<i>Acipenser oxyrinchus</i>)		
<i>Gulf of Maine DPS</i>	Threatened	Yes
<i>New York Bight DPS, Chesapeake Bay DPS, Carolina DPS & South Atlantic DPS</i>	Endangered	Yes
Cusk (<i>Brosme brosme</i>)	Candidate	Yes
Pinnipeds		
Harbor seal (<i>Phoca vitulina</i>)	Protected	Yes
Gray seal (<i>Halichoerus grypus</i>)	Protected	Yes
Harp seal (<i>Phoca groenlandicus</i>)	Protected	No
Hooded seal (<i>Cystophora cristata</i>)	Protected	No
Critical Habitat		

Species	Status	Potentially affected by this action?
North Atlantic Right Whale ⁶	ESA-listed	No
Northwest Atlantic DPS of Loggerhead Sea Turtle	ESA-listed	No

Notes:

¹ There are 2 species of pilot whales: short finned (*G. melas melas*) and long finned (*G. macrorhynchus*). Due to the difficulties in identifying the species at sea, they are often just referred to as *Globicephala spp.*

² Prior to 2008, this species was called “common dolphin.”

³ There are multiple species of beaked whales in the Northwest Atlantic. They include the cuvier’s (*Ziphius cavirostris*), blainville’s (*Mesoplodon densirostris*), gervais’ (*Mesoplodon europaeus*), sowerbys’ (*Mesoplodon bidens*), and trues’ (*Mesoplodon mirus*) beaked whales. Species of *Mesoplodon*; however, are difficult to identify at sea, and therefore, much of the available characterization for beaked whales is to the genus level only.

⁴ This includes the Western North Atlantic Offshore, Northern Migratory Coastal, and Southern Migratory Coastal Stocks of Bottlenose Dolphins (see Waring *et al.* 2014 for further details).

⁵ Green turtles are currently listed in U.S. waters as threatened except for the Florida breeding population which is listed as endangered. Due to the inability to distinguish between these populations away from the nesting beach, green turtles are considered endangered wherever they occur in U.S. waters. On March 23, 2015, a proposed rule was issued to remove the current range-wide listing and, in its place, list eight DPSs as threatened and three as endangered (80 FR 15272).

⁶Originally designated June 3, 1994 (59 FR 28805); Newly proposed February 20, 2015 (80 FR 9314).

In Table 4, please note that cusk, a NMFS “species of concern,” and a “candidate species” under the ESA, occurs in the affected environment. Candidate species are those petitioned species that NMFS is actively considering for listing as endangered or threatened under the ESA and those species for which NMFS has initiated an ESA status review through an announcement in the *Federal Register*. Candidate species receive no substantive or procedural protection under the ESA; however, NMFS recommends that project proponents consider implementing conservation actions to limit the potential for adverse effects on candidate species from any proposed project. Please note, as cusk receive no substantive or procedural protection under the ESA (due to its candidate species status), this species will not be discussed further in this document.

5.4.1 Interactions Between Commercial Trawl Gear and Protected Species

The mackerel component of the MSB FMP is prosecuted primarily with mid-water trawls, but bottom trawls are also used to some extent. A subset of protected species of fish, marine mammals, and sea turtles (see Table 4) are known to be vulnerable to interactions with mid-water and/or bottom trawl gear. In the following sections, available information on protected species interactions with these gear types will be provided.

Please note, these sections are not a comprehensive review of all fishing gear types known to interact with a given species; emphasis is only being placed on those gear types primarily used to prosecute the MSB fisheries.

5.4.1.1 Marine Mammals

Cetaceans and pinnipeds are found throughout the waters of the Northwest Atlantic. As they feed, travel, and breed in many of the same ocean areas utilized for commercial fishing, they are at risk of becoming entangled or bycaught in various types of fishing gear with interactions resulting in serious injury or mortality to the animal. Although not necessarily attributed to the MSB FMP specifically, depending on the species, marine mammals have been observed to be seriously injured or killed in mid-water and/or bottom trawl gear.

Pursuant to the MMPA, NMFS publishes a List of Fisheries (LOF) annually, classifying U.S. commercial fisheries into one of three categories based on the relative frequency of incidental serious injuries and/or mortalities of marine mammals in each fishery.² The MSB FMP is categorized within the LOF; specifically, based on gear type used to prosecute the FMP, Category II fisheries can be found in this FMP (see Table 5). Table 5 provides information on cetacean and pinniped species observed seriously injured and/or killed by these Category II fisheries from 2007-2011 (see Waring *et al.* 2014).

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² The most recent LOF was issued August 25, 2014; 79 FR 50589.

Table 5. Cetacean and pinniped species observed seriously injured and/or killed by Category II fisheries in the affected environment of the MSB FMP. A (*) indicates those species driving the fisheries classification.

Category II			
Fishery/Gear Type	Species Observed Injured/Killed	Observed in 2007-2011	Mean Annual Mortality ¹
Mid-Atlantic Mid-Water Trawl (Including Pair Trawl)	Risso's dolphin	Y	0.2
	White-sided dolphin (*)	Y	6
	Short-beaked common dolphin	Y	0.6
	Long and short-finned pilot whales	Y	2.4
	Gray seal	Y	0.2
Northeast Mid-Water Trawl (Including Pair Trawl)	White-sided dolphin	N	N/A
	Long and short-finned pilot whales (*)	Y	4
	Harbor seal	Y	0.7
Northeast Bottom Trawl	Harp seal	Y	0.4
	Harbor seal	Y	0.8
	Gray seal	Y	9.2
	Long and short-finned pilot whales	Y	10
	Short-beaked common dolphin	Y	19
	White-sided dolphin (*)	Y	73
	Harbor porpoise	Y	4.5
	Bottlenose dolphin (offshore)	Y	20
	Minke whale	Y	1.8
	Risso's dolphin	Y	2.5
Mid-Atlantic Bottom Trawl	White-sided dolphin	Y	4
	Long and short-finned pilot whales (*)	Y	26
	Short-beaked common dolphin (*)	Y	96
	Risso's dolphin (*)	Y	42
	Bottlenose dolphin (offshore)	Y	20
	Harbor seal	Y	0.2
	Notes: (continued next page)		
¹ Based on observer data from 2007-2011, estimates of serious injury and estimates of mortality are provided for every year of observation in Waring <i>et al.</i> 2014. Estimated “combined mortality” per year of observation is also provided in Waring <i>et. al</i> 2014; this is equal to the “estimated serious injury” +			

“estimated mortality” for every year observed. The “mean annual mortality” is the average of each “estimated combined mortality” value over the 5 year period of observation (Waring *et al.* 2014).

Sources: Waring *et al.* 2014; August 25, 2014, List of Fisheries (79 FR 50589).

Based in the information in Tables 4 and 5, minke whales are the only species of large whales that have been observed seriously injured and killed in trawl gear. In regards to bottom trawl gear, the frequency of interactions have declined since 2006 (estimated annual mortality=3.7 whales), with zero observed interactions in 2010 and 2011, and the annual average estimated mortality and serious injury from the Northeast bottom trawl fishery from 2007 to 2011 equaling 1.8 whales (Waring *et al.* 2014). Since 2003, there has also been only one observed minke whale incidentally taken in mid-water trawl gear; this incidence was observed in 2013 (NMFS NEFSC FSB 2014).

As provided in Tables 4 and 5, there are also multiple species of small cetacean (bottlenose, common, risso’s, and white-sided dolphins; short-and long finned pilot whales; harbor porpoise) and pinnipeds (gray, harbor, and harp seals) that have been observed seriously injured or killed in fisheries using mid-water and/or bottom trawl gear. For further information on these interactions, see Waring *et al.* 2014.

Atlantic Trawl Gear Take Reduction Strategy (ATGTRS)

In 2006, the Atlantic Trawl Gear Take Reduction Team (ATGTRT) was convened to address the incidental mortality and serious injury of long-finned pilot whales (*Globicephala melas*), shortfinned pilot whales (*Globicephala macrorhynchus*), common dolphins (*Delphinus delphis*), and white sided dolphins (*Lagenorhynchus acutus*) incidental to bottom and mid-water trawl fisheries operating in both the Northeast and Mid-Atlantic regions. Because none of the marine mammal stocks of concern to the ATGTRT are classified as a “strategic stock,” nor do they currently interact with a Category I fishery, it was determined at the time that development of a take reduction plan was not necessary.³

In lieu of a take reduction plan, the ATGTRT agreed to develop an ATGTRS. The ATGTRS identifies informational and research tasks, as well as education and outreach needs the ATGTRT believes are necessary, to provide the basis for decreasing mortalities and serious injuries of marine mammals to insignificant levels approaching zero mortality and serious injury rates. The ATGTRS also identifies several potential voluntary measures that can be adopted by certain trawl fishing sectors to potentially reduce the incidental capture of marine mammals. For additional details on the ATGTRS, please visit: <http://www.greateratlantic.fisheries.noaa.gov/Protected/mmp/atgtrp/>

³ A strategic stock is defined under the MMPA as a marine mammal stock: for which the level of direct human-caused mortality exceeds the potential biological removal level; which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; or which is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA.

5.4.1.2 Sea Turtles

Sea turtles have been incidentally injured or killed in various gear types (e.g., gillnets, trawls, hook and line gear, dredge); however, of the gear types that could be possibly used in the MSB FMP, bottom trawl gear poses the greatest risk to sea turtles and therefore, will be the focus of the following discussion.⁴ In addition, although sea turtle interactions with trawl gear have been observed in waters from the GOM to the Mid-Atlantic, most of the observed interactions have occurred in the Mid-Atlantic. As few sea turtle interactions have been observed in the GOM and GB regions of the Northwest Atlantic, there is insufficient data available to conduct a robust model-based analysis on sea turtle interactions with trawl or gillnet gear in these regions and therefore, produce a bycatch estimate for these regions. As a result, the following bycatch estimates are based on observed sea turtle interactions in bottom trawl gear in the Mid-Atlantic.

In a study done by Warden (2011a), it was estimated that from 2005-2008, the average annual loggerhead interactions in bottom trawl gear in the Mid-Atlantic (i.e., south of Cape Cod, Massachusetts, to approximately the North Carolina/South Carolina border) was 292 (CV=0.13, 95% CI=221-369), with an additional 61 loggerheads (CV=0.17, 95% CI=41-83) interacting with trawls, but being released through a Turtle Excluder Device.⁵ Of the 292 average annual observable loggerhead interactions, approximately 44 of those were adult equivalents (Warden 2011a).⁶ This estimate is a decrease from the average annual loggerhead bycatch in bottom otter trawls during 1996-2004, which Murray (2008) estimated to be 616 sea turtles (CV=0.23, 95% CI over the nine-year period: 367-890). This decrease is likely due to decreased fishing effort in high-interaction areas (Warden 2011a). Warden (2011b), using species landed, also estimated total loggerhead interactions attributable to managed species. The average annual number of loggerhead interactions (estimated observable and unobservable but quantifiable) attributed to the overall MSB FMP were 25 sea turtles; however, considering each species landed under the MSP FMP individually, zero loggerhead interactions were attributed to the landing of mackerel. Since 2008, NMFS NEFSC FSB has documented 18 loggerhead sea turtles in bottom trawl gear on trips where the top landed species were Atlantic longfin squid (16) and butterfish (3) (NMFS NEFSC FSB 2014). In addition, green, Kemp's ridley, and leatherback sea turtles have been documented in bottom trawl gear in areas that overlap with the MSB FMP; seven of these (2 leatherbacks, 1 green, and 4 unknown species), were captured on trips where the top landed species was Atlantic longfin squid (NMFS NEFSC FSB 2014); however, none of

⁴ Although sea turtles have the potential to interact with mid-water trawl gear, the risk of an interaction is likely to be low (i.e., since 1993, only 5 sea turtles (leatherbacks) have been observed serious injured or killed in mid-water trawl gear; primary species being landed was tuna; NMFS NEFSC FSB 2014).

⁵ Warden (2011a) defines the mid-Atlantic as waters north to Massachusetts. See the respective paper for a more complete description of the area.

⁶ Adult equivalence considers the reproductive value of the animal (Warden 2011, Murray 2013), providing a “common currency” of expected reproductive output from the affected animals (Wallace *et al.* 2008), and is an important metric for understanding population level impacts (Haas 2010).

these sea turtle species were observed captured on trips where the top landed species was Atlantic mackerel.

Although sea turtles have the potential to interact with multiple gear types, such as trawl gear, the risk of an interaction is affected by multiple factors, including where and when fishing effort is focused, the type of gear being used, environmental conditions, and sea turtle occurrence and distribution. Murray and Orphanides (2013) recently evaluated fishery-independent and dependent data to identify environmental conditions associated with turtle presence and the subsequent risk of a bycatch encounter if fishing effort is present; it was concluded that fishery independent encounter rates were a function of latitude, sea surface temperature (SST), depth, and salinity. When the model was fit to fishery dependent data (gillnet, bottom trawl, and scallop dredge), Murray and Orphanides (2013) found a decreasing trend in encounter rates as latitude increases; an increasing trend as SST increases; a bimodal relationship between encounter rates and salinity; and higher encounter rates in depths between 25 and 50 m. Based on the above 2005-2008 data obtained on loggerhead interactions in bottom trawl gear, Warden (2011a) also found that latitude, depth and SST were associated with the interaction rate, with the rates being highest south of 37° N in waters < 50 meters deep and SST > 15°C (Table 6).

Table 6. Mid-Atlantic trawl bycatch rates (Warden 2011a)

Latitude Zone	Depth, SST	Loggerheads/Day Fished
<37 °N	<=50 m, <=15° C	0.4
	<=50 m, >=15° C	2.06
	>50 m, <= 15° C	0.07
	>50 m, >15° C	0.09
37 - 39 °N	<=50 m, <=15° C	0.04
	<=50 m, >=15° C	0.18
	>50 m, <= 15° C	0.01
	>50 m, >15° C	0.07
>39 °N	<=50 m, <=15° C	<0.01
	<=50 m, >=15° C	0.03
	>50 m, <= 15° C	<0.01
	>50 m, >15° C	0.01

5.4.1.3 Atlantic Sturgeon

There are three documents, covering three time periods, that use data collected by the Northeast Fisheries Observer Program to describe bycatch of Atlantic sturgeon: Stein *et al.* (2004b) for 1989-2000; ASMFC (2007) for 2001-2006; and Miller and Shepard (2011) for 2006-2010; None of these provide estimates of Atlantic sturgeon bycatch by DPS. Information provided in all three documents indicate that sturgeon bycatch occurs in gillnet and trawl gear, with the most recent document estimating, based on fishery observer data and VTR data from 2006-2010, that annual bycatch of Atlantic sturgeon was 1,342 and 1,239, respectively (Miller and Shepard 2011). Specifically, Miller and

Shepard (2011) observed Atlantic sturgeon interactions in trawl gear with small (< 5.5 inches) and large (\geq 5.5 inches) mesh sizes, as well as gillnet gear with small (< 5.5 inches), large (5.5 to 8 inches), and extra-large mesh (>8 inches) sizes. Although Atlantic sturgeon were observed to interact with trawl and gillnet gear with various mesh sizes, based on observer data, Miller and Shepard (2011) concluded that gillnet gear, in general, posed a greater risk of mortality to Atlantic sturgeon than did trawl gear. Estimated mortality rates in gillnet gear were 20.0%, while those in otter trawl gear were 5.0% (Miller and Shepard 2011). Similar conclusions were reached in Stein *et al.* 2004b and ASMFC 2007 reports, in which both studies also concluded, after review of observer data from 1989-2000 and 2001-2006, that observed mortality is much higher in gillnet gear than in trawl gear.

Although Atlantic sturgeon deaths have rarely been reported in bottom otter trawl gear (ASMFC 2007), it is important to recognize that effects of an interaction may occur long after the interaction. Based on physiological data obtained from Atlantic sturgeon captured in otter trawls, Beardsall *et al.* (2013) suggests that factors such as longer tow times (i.e., > 60 minutes), prolonged handling of sturgeon (> 10 minutes on deck), and the type of trawl gear/equipment used, may increase the risk of physiological disruption or impairment (e.g., elevated cortisol levels, immune suppression, impaired osmoregulation, exhaustion) to Atlantic sturgeon captured in otter trawls and therefore, may result in an increased risk of post-release mortality. The authors also note that post-release exhaustion, even after a 60 minute trawl capture, results in behavioral disruption to Atlantic sturgeon and caution that repeated bycatch events may compound post-release behavioral effects to Atlantic sturgeon which in turn, may affect essential life functions of Atlantic sturgeon (e.g., predator avoidance, foraging, migration to foraging or spawning sites) and therefore, Atlantic sturgeon survival (Beardsall *et al.* 2013). Although the study conducted by Beardsall *et al.* (2013) provides some initial insight into the post-release effects to Atlantic sturgeon captured in trawl gear, additional studies are needed to clearly identify the “after” effects of a trawl interaction. As it remains uncertain what the overall impacts to Atlantic sturgeon survival are from trawl interactions, trawls should not be completely discounted as a form of gear that poses a mortality risk to Atlantic sturgeon.

5.4.1.4 Atlantic Salmon

There have been a low number of observed Atlantic salmon interactions with fisheries and various gear types. According to the Biological Opinion issued by NMFS Greater Atlantic Regional Fisheries Office on December 16, 2013, NMFS Northeast Fisheries Science Center’s (NEFSC) Northeast Fisheries Observer and At-Sea Monitoring Programs documented a total of 15 individual salmon incidentally caught on over 60,000 observed commercial fishing trips from 1989 through August 2013 (NMFS 2013; Kocik *et al.* 2014). Specifically, Atlantic salmon were observed bycaught in gillnet (11/15) and bottom otter trawl gear (4/15), with 10 of the incidentally caught salmon listed as “discarded” and five reported as mortalities (Kocik (NEFSC), pers. comm (February 11, 2013) in NMFS 2013). The genetic identity of these captured salmon is unknown; however, the NMFS 2013 Biological Opinion considers all 15 fish to be part of the GOM

Distinct Population Segment, although some may have originated from the Connecticut River restocking program (i.e., those caught south of Cape Cod, Massachusetts).

The above information, specifically the very low number of observed Atlantic salmon interactions in gillnet and trawl gear reported in the Northeast Fisheries Observer Program's database (which includes At-Sea Monitoring data), suggests that interactions with Atlantic salmon are rare events (NMFS 2013; Kocik *et al.* 2014); however, it is important to recognize that observer program coverage is not 100 percent. As a result, it is likely that some additional interactions with Atlantic salmon have occurred, but have not been observed or reported.

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 weightout 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 weightout 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 7. 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 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.

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.

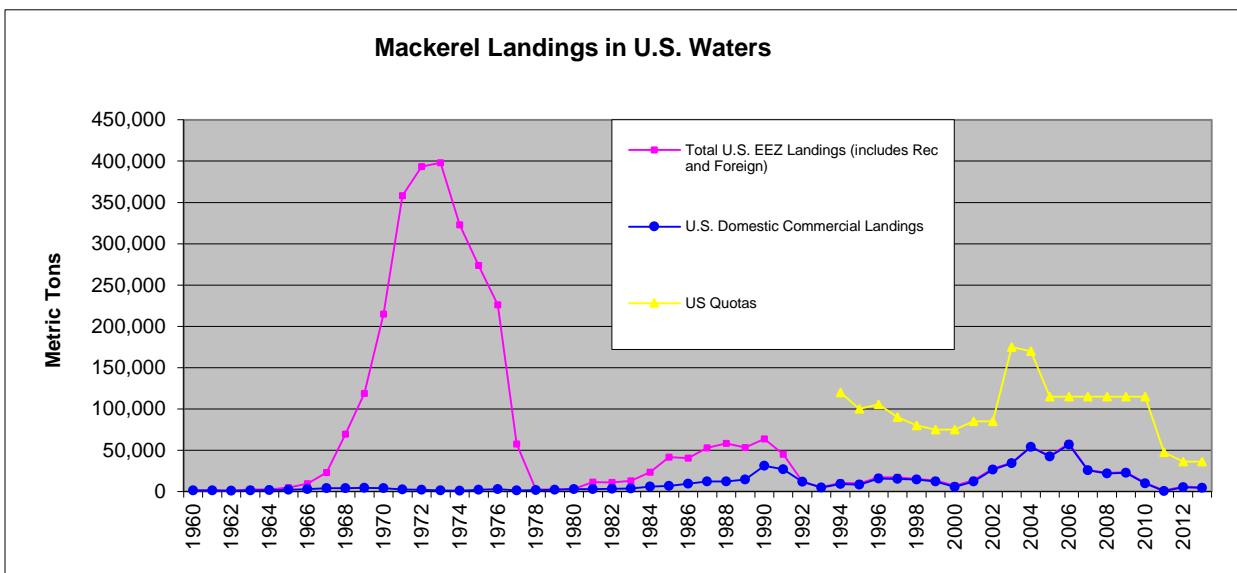
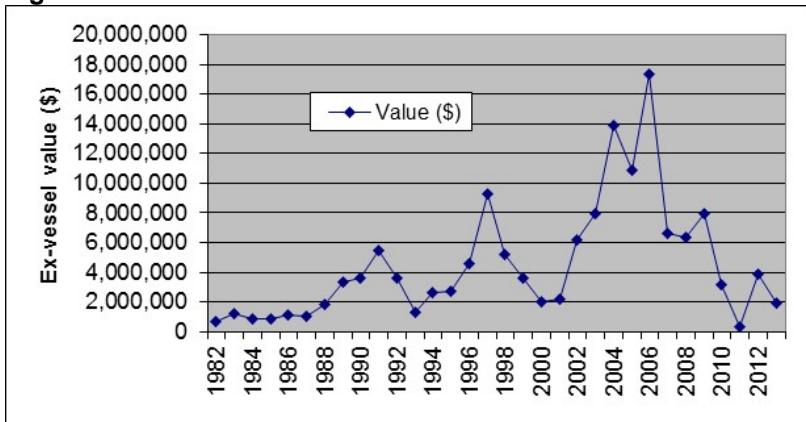


Figure 2. Historical Atl. Mackerel Landings in the U.S. EEZ.

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 8. 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 9. 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 10. 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 11. 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 12. 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 13. 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 14. Tier 1/2 Homeports

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

Table 15. 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 16. 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 17. 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*

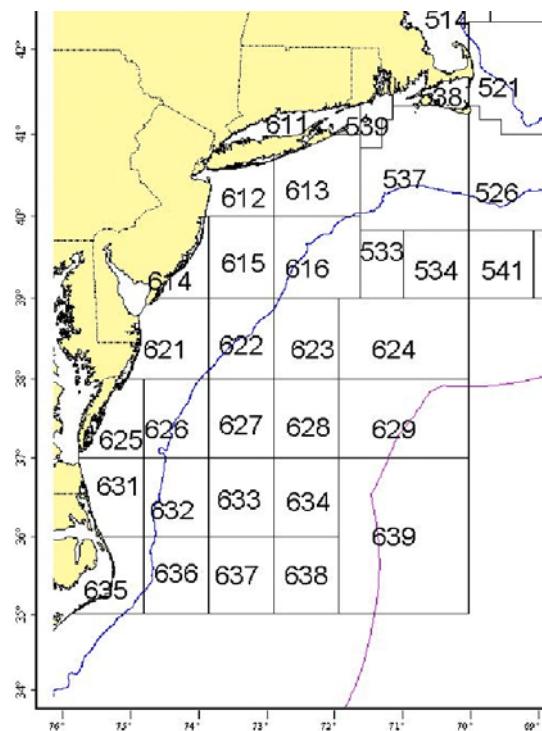


Figure 4. NMFS Statistical Areas

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.

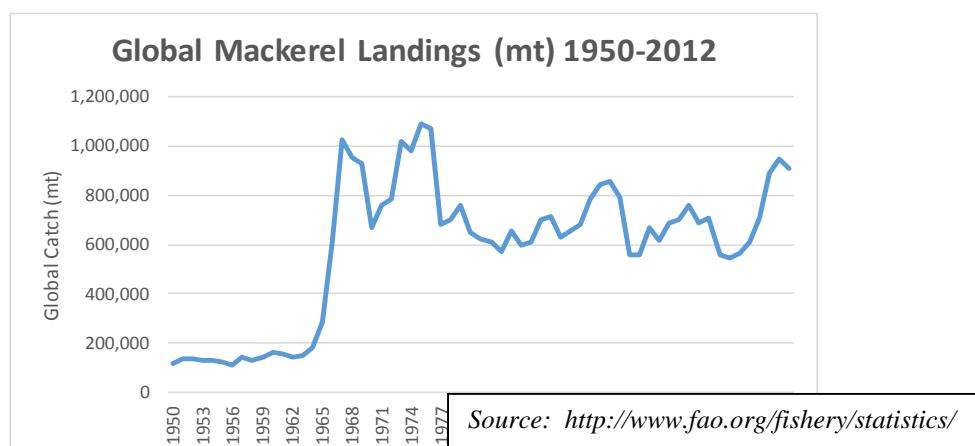


Figure 5. World production of Mackerel, 1950-2011.

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 18. 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 trips⁷ 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 might provide more opportunity to record RH/S than under the status quo. If, as a result,

⁷ 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 weightout database 2011-2013.

more RH/S are recorded, it could mean that mackerel catch/effort could be lower because RH/S cap estimates will be higher with higher likelihood of early fishery closure.

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 and it includes the possibility of introducing or spreading a nonindigenous species. This potential impact does not fit into the sections below so it is addressed in this introduction. There is no evidence or indication that these fisheries have ever resulted or would ever result in the introduction or spread of nonindigenous species.

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. All else being equal, less slippage might provide more opportunity to record RH/S than under the status quo. If, as a result, more RH/S is recorded, it could mean that mackerel catch/effort could be lower because RH/S cap estimates will be higher with higher likelihood of early fishery closure. Thus 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) may 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 13), 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. All else being equal, less slippage might provide more opportunity to record RH/S than under the status quo. If, as a result, more RH/S is recorded, it could mean that mackerel catch/effort could be lower because RH/S cap estimates will be higher with higher likelihood of early fishery closure. Thus 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) may 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

6.3.1 No-action/Status Quo

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.

No-action Non-ESA Listed Species Impacts

The MSB FMP, specifically the mackerel component, does overlap with the distribution of non-ESA listed species of marine mammals (cetaceans and pinnipeds). As a result, marine mammal (non-ESA listed species) interactions with bottom or mid-water trawl gear are possible (see section 5.4.1); however, ascertaining the risk of an interaction and the resultant potential impacts of the No Action on cetaceans and pinnipeds (marine mammals) are difficult and somewhat uncertain, as quantitative analysis has not been performed. However, we have considered, to the best of our ability, available information on marine mammal interactions with commercial fisheries, of which, the MSB FMP is a component (Waring *et al.* 2014). Aside from harbor porpoise and several stocks of bottlenose dolphin, there has been no indication that takes of non-ESA listed species of marine mammals in commercial fisheries has gone above and beyond levels which would result in the inability of each species population to sustain itself over the last 5 years (Waring *et al.* 2014). Specifically, aside from harbor porpoise and several stocks of bottlenose dolphin, potential biological removal (PBR) has not been exceeded for any of the non-ESA listed marine mammal species identified in section 6.5 (Waring *et al.* 2014). Although harbor porpoise and several stocks of bottlenose dolphin have experienced levels of take that have resulted in the exceedance of each species PBR, take reduction plans have been implemented to reduce bycatch in the fisheries affecting these species (Harbor Porpoise Take Reduction Plan (HPTRP), effective January 1, 1999 (63 FR 71041); Bottlenose Dolphin Take Reduction Plan (BDTRP), effective April 26, 2006 (71 FR 24776)). These plans are still in place and are continuing to assist in decreasing bycatch levels for these species. Although the information presented is a collective representation of commercial fisheries interactions with non-ESA listed species of marine

mammals, and does not address the effects of the MSB FMP specifically, the information does demonstrate that to date, operation of the MSB FMP, or any other fishery, has not resulted in a collective level of take that threatens the continued existence of non-ESA listed marine mammal populations.

Based on this information, and the fact that there is continual monitoring of non-ESA listed marine mammal species bycatch, and that voluntary measures exist that reduce serious injury and mortality to marine mammal species incidentally caught in trawl fisheries (see the Atlantic Trawl Gear Take Reduction Strategy, section 5.4.1.1), it is not expected that the No Action will introduce any new risks or additional takes to non-ESA listed marine mammal species that have not already been considered by NMFS to date and therefore, is not expected to affect the continued existence of non-ESA listed species of marine mammals. For these reasons, Status Quo/ No Action is expected to have low negative impacts on non-ESA listed species of marine mammals.

No-action ESA Listed Species Impacts

The MSB FMP, specifically the mackerel component, does overlap with ESA listed species distribution. As a result, ESA listed species interactions with bottom or mid-water trawl gear are possible (see section 5.4.1); however, ascertaining the risk of an interaction and the resultant potential impacts of the No Action on ESA-listed species are difficult and somewhat uncertain, as quantitative analysis has not been performed. However, we have considered, to the best of our ability, how the fishery has operated in regards to listed species since 2013, when NMFS issued a Biological Opinion (Opinion) on the operation of seven commercial fisheries, including the MSB FMP (NMFS 2013). Specifically, we have focused on available information on ESA-listed species interactions with commercial fisheries, of which, the MSB FMP is a component (NMFS 2013; see section 5.4.1). The Opinion issued on December 16, 2013, included an incidental take statement authorizing the take of specific numbers of ESA listed species of sea turtles, Atlantic salmon, and Atlantic sturgeon. The MSB FMP is currently covered by the incidental take statement authorized in NMFS 2013 Opinion.

The 2013 biological opinion concluded that the fishery may affect, but would not jeopardize the continued existence of any ESA listed species. The No Action will retain status quo operating conditions in the MSB FMP and therefore, changes in fishing effort or behavior are not expected. As a result, the No Action is not expected to result in the introduction of any new risks or additional takes to ESA listed species that have not already been considered and authorized by NMFS to date (NMFS 2013). Further, the MSB FMP has not resulted in the exceedance of NMFS authorized take of any ESA listed species from 2013 to the present. Thus as concluded in the NMFS 2013 Opinion, No Action / the Status Quo is not expected to result in levels of take that would jeopardize the continued existence of ESA listed species. For these reasons, and the fact that observed take of any ESA listed species has not been attributed specifically to the landing of the mackerel component of the MSB FMP, the No Action is expected to have low negative impacts on ESA-listed species.

6.3.2 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 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. 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) may 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.

It is also possible that the slippage consequences could cause small redistributions of effort due to the move along rules. However, as described in Section 3.2 and further analyzed in MSB Amendment 14 and Atlantic Herring Amendment 5, slippage events are relatively infrequent. Further, with the slippage prohibitions and proposed consequences, one would expect slippage to be even less frequent. Based on this, any shifts in effort are expected to be infrequent and rare events. Should the move along provisions (to a new statistical area or by distance) be triggered, effort may be redistributed to some degree. However, the distance in which effort may be redistributed will be small relative to status quo conditions. That is, any effort location changes will be confined to the same waters and areas that are already subject to fishing by trawling and, relatively speaking, within the general proximity to the area the vessel was required to move from. Further, any shifts in effort will be confined to areas which have been considered by NMFS in its assessment of fishery effects to protected species (ESA and non-ESA listed species) and have been determined to be areas where takes are not expected to be so great that the continued existence of the species is jeopardized (NMFS 2013; Waring et al. 2014).

Since effort redistribution is not expected to be substantial, the impacts of the action alternatives depend more on potential changes to overall effort (lower), as described above.

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). All else being equal, less slippage might provide more opportunity to record RH/S than under the status quo. If, as a result, more RH/S is recorded, it could mean that mackerel catch/effort could be lower because RH/S cap estimates will be higher with higher likelihood of early fishery closure. Thus

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) may 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

Direct and indirect negative impacts are 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 19. 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 20. 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.

All else being equal, less slippage might provide more opportunity to record RH/S than under the status quo. If, as a result, more RH/S is recorded, it could mean that mackerel catch/effort could be lower because RH/S cap estimates will be higher with higher likelihood of early fishery closure. Thus 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) may 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.

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.

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 and it includes impacts to unique or historical places. 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.

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 below summarizes this information for each alternative based on the discussion earlier in the socioeconomics subsection.

Table 21. 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	Lowest - other slippages are already prohibited
	Other slippages	Enforcement actions by NOAA		
2	Safety, Mechanical, Spiny Dogfish related	None	Lowest - other slippages are already prohibited	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.
	Other slippages	trip termination (and violation)		
3	Safety, Mechanical, Spiny Dogfish related	None	Highest	Highest
	Other slippages	vacate stat area (and violation)		
4	Safety related	None	Highest	Highest
	Mechanical, Spiny Dogfish related	Vacate stat area		
	Other slippages	vacate stat area (and violation)		
5a	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.	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	trip termination (and violation)		
5b	Safety related	None	Highest	Highest
	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	Highest
		trip termination (and violation)		
	Other slippages	(and violation)		
6b	Safety, Mechanical, Spiny Dogfish related	Move 15 nm before fishing again	Highest	Highest
		trip termination (and violation)		
	Other slippages	(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.	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	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.	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	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) may 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]. RH/S species should benefit from less fishing effort and the cap directly controls RH/S mortality in the mackerel fishery. All else being equal, less slippage might provide more opportunity to record RH/S than under the status quo. If, as a result, more RH/S is recorded, it could mean that mackerel catch/effort could be lower because RH/S cap estimates will be higher with higher likelihood of early fishery closure. Thus compared to the no action, 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) may 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 cumulative 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 low positive cumulative 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. 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 low positive cumulative 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 cumulative 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 cumulative impacts.

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, we have 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 weightout 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-STEVENS 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 butterfish 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 Vetch'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?

A complete discussion of the potential impacts of the proposed management measures is provided in Section 6 of this document. NMFS has determined that despite the potential socio-economic impacts resulting from this action, there is no need to prepare an EIS. The purpose of NEPA is to protect the environment by requiring Federal agencies to consider the impacts of their proposed actions on the human environment, defined as “the natural and physical environment and the relationship of the people with that environment.” The EA for this action describes and analyzes the preferred alternatives

and concludes that there will be no significant impacts to the natural and physical environment. While some fishermen, shore-side businesses, and others may experience impacts to their livelihood, these impacts, in and of themselves, do not require the preparation of an EIS, as supported by NEPA's implementing regulations at 40 C.F.R. 1508.14. Consequently, because the EA demonstrates that the action's potential natural and physical impacts are not significant, the execution of a FONSI remains appropriate under these criteria. Also, socioeconomic impacts (as described in Section 6) are estimated to be low negative to positive (and not significant).

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?

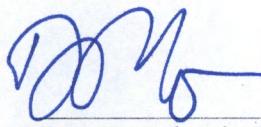
Overall fishing effort is not expected to increase in magnitude under the proposed action (see section 6.0 of this document). In addition, none of the proposed measures are expected to substantially alter fishing methods, activities, or the spatial and/or temporal distribution of fishing effort. Thus, 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 Atlantic mackerel, squid, and butterfish 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.


for JOHN BULLARD
Greater Atlantic Regional Administrator, NOAA

7/20/15
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. 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 Section 6.3 of this Environmental Assessment.

7.4 Endangered Species Act

Section 7(a)(2) of the ESA requires that each Federal agency shall ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species. When the action of a Federal agency may affect species listed as threatened or endangered, that agency is required to consult with either the NOAA Fisheries Service (NMFS) or U.S. Fish and Wildlife Service (FWS), depending upon the species that may be affected.

The National Marine Fisheries Service (NMFS), Greater Atlantic Regional Fisheries Office completed formal consultation on the MSB FMP and six other FMPs on December 16, 2013. 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.”

The Council has concluded that the proposed measures and the prosecution of the associated fisheries will not cause effects to ESA-listed species that were not already considered in the 2013 Opinion and therefore, will not change any of the conclusions and determinations reached in the 2013 Opinion (i.e., no jeopardy to any ESA listed species; no destruction or adverse modification to critical habitat). For further information on the

potential impacts of the fisheries and the proposed management action, see Section 6.3 of this document.

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 15 CFR 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, A Security 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

8.0 BACKGROUND DOCUMENTS AND LITERATURE CITED

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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, butterfish, 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

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

5.3.2.1 Analysis of Available Slippage Data

This section provides a summary and technical assessment of available information collected by observers at the NEFOP about ***Released Catch/Catch Not Brought on Board***.

Data on slippage events need to be collected in a more consistent manner, and this amendment provides an opportunity to implement the necessary elements of a catch monitoring program to do so. Originally, the Northeast Fisheries Observer Program was not designed to sample high-volume fisheries for species composition and/or collect detailed information about released catch events and net slippage, but this is a need that has arisen in recent years and something that continues to be addressed in the observer sampling protocol, added to observer logs, and addressed through provisions requiring detailed information when slippage events occur. The NEFOP has taken significant steps to improve the collection of this information since before the Council began the development of Amendment 5. Analyses of available slippage data collected by observers over recent years confirms that (1) information about these events and the amount and composition of fish that are slipped has improved; and (2) the number of full/partial slippage events occurring on limited access herring vessels has declined.

Observer Coverage Levels

Table 144 summarizes coverage rates from the NEFSC Observer Program for the 2007-2010 calendar years (also the herring fishing years) by gear type for all trips that landed greater than 2,000 pounds of Atlantic herring. 2008, 2009, and 2010 have seen relatively high levels of coverage across all major gear types in the fishery. Summary coverage rates based on the number of trips observed as a percentage of the number of trips taken are 4.1% in 2007, 14.8% in 2008, 20.6% in 2009, and 31.7% in 2010. During the 2010 fishing year (regardless of trip type), the Northeast Fisheries Observer Program covered trips for about 46% of all Atlantic herring landings.

Table 144 Observer Program Coverage Rates for Trips Landing Greater than 2,000 pounds of Herring, 2007-2010

Year	Gear Type	Total Trips	Total Days	Total Herring Landed (lbs.)	Obs Trips	Obs Days	Obs Herring Kept (lbs.)	% trips obs	% days obs	% herring obs
2007	OTF	397	569	10,518,575	12	15	411,751	3%	3%	4%
2007	OTM	138	451	17,491,210	10	40	1,918,285	7%	9%	11%
2007	PTM	240	849	74,405,385	14	58	6,880,147	6%	7%	9%
2007	PUR	346	743	70,088,194	10	23	2,122,267	3%	3%	3%
2008	OTF	100	234	4,588,190	4	4	70,409	4%	2%	2%
2008	OTM	28	107	8,816,600	16	59	3,163,763	57%	55%	36%
2008	PTM	269	1044	110,453,766	46	176	27,211,668	17%	17%	25%
2008	PUR	232	550	59,211,542	27	64	6,941,134	12%	12%	12%
2009	OTF	180	306	9,647,215	11	15	554,579	6%	5%	6%
2009	OTM	50	242	13,875,075	16	69	3,747,316	32%	29%	27%
2009	PTM	356	1321	153,345,903	98	350	49,596,367	28%	26%	32%
2009	PUR	223	596	49,706,514	42	130	9,943,521	19%	22%	20%
2010	OTF	185	343	8,452,546	9	22	298,691	5%	6%	4%
2010	OTM	58	230	19,851,018	32	122	10,190,452	55%	53%	51%
2010	PTM	290	1129	98,165,321	128	545	47,528,352	44%	48%	48%

OTF – small mesh bottom trawl; OTM – single midwater trawl; PTM – paired midwater trawl; PUR – purse seine

Herring is Atl Herring or Unk Herring

Day defined as (date land - date sail) + 1

Landings data from Vessel Trip Reports

A closer look at observer coverage for the primary gear types in the herring fishery show that coverage rates have been relatively high for the most recent years. Table 145 summarizes observer coverage levels for 2009 by gear type, based on number of trips and number of sea days corresponding with landings from the VTR, Dealer, and IVR databases. **All observed trips for these gear types** (SMW = single midwater trawl, PMW = paired midwater trawl, and PS = purse seine) are included in Table 145 *regardless of target species or pounds of herring landed*. The totals also include trips covered by two or more observers (i.e., pair trawl trips, trips with catcher/carriers). Overall, coverage across the vessels using the primary gear types in the herring fishery was greater than 20% in 2009 and averaged close to 30% based on herring landings.

Table 145 Summary of NEFOP Observer Coverage Levels by Gear Type, January – December 2009

	# trips				# sea days				Metric tons of herring landed
	SMW	PMW	PS	Total	SMW	PMW	PS	Total	
OBS	18	138	53	209	74	473	162	709	28,938
VTR	78	489	222	789	352	1844	591	2787	106,301
Dealer									101,025
IVR									102,617
% coverage	23%	28%	24%	26%	21%	26%	27%	25%	27% (VTR) 29% (Dealer) 28% (IVR)

A detailed assessment of observer coverage rates based on limited access herring permit category further confirms that the NEFOP has been covering the vessels managed by the Herring FMP and subject to the Amendment 5 provisions at relatively high levels in recent years. Table 146 summarizes observer coverage by the NEFOP for 2009 and 2010 collectively (combined). The total percent coverage based on the weight of herring landed was 33%; compared to the coverage rates in prior years, coverage for midwater trawls and purse seine vessels has never been as high.

Table 146 Observer Program Coverage Rates for 2009-2010, by Gear and Permit Category

Permit	Gear	Total Trips	Total Days	Trips w/ Herring	Total Herring Landed (000's of pounds)	Obs Trips	Obs Days	Observed Herring Kept (000's of pounds)	% Trips Obs	% Days Obs	% Herring Obs
A	Pair Trawl	882	3,382	683	250,685	329	1,250	96,696	37%	37%	39%
A/B	Single Trawl	123	530	108	33,726	54	211	13,918	44%	40%	41%
A	Purse Seine	398	1,086	362	66,752	101	290	11,794	25%	27%	18%
A	Bottom Trawl	1,020	4,344	118	12,202	119	713	482	12%	16%	4%
B/C	Bottom Trawl	5,278	11,262	409	5,710	465	1,068	356	9%	9%	6%
D	Bottom Trawl	36,511	83,639	657	454	2,609	9,386	25	7%	11%	6%

2008/2009 Slippage Information

**It is important to note that 2008/2009 slippage information is not directly comparable to 2010 slippage information due to increased observer coverage, changes to observer protocols, and implementation of the observer discard log in 2010. While the 2008/2009 information is useful to generally characterize the nature/extent of slippage in the fishery, it is not a complete record of slippage events observed during these years (unlike 2010); 2010 slippage data has been determined by the Herring PDT to be more complete and more reliable.*

Table 147 provides some information about released catch in the herring fishery based on observed trips during 2008 and 2009 where slippage events occurred and details were provided by the vessel captain/operator. In general, released catch includes operational discards (fish still in gear after pumping is completed), partial slippage (some fish pumped), full slippage (no fish pumped), and gear damage. Partial/full slippage accounted for about 1.5% of total observed catch in 2008 and 2009 (total observed catch – 120,932,721 pounds). When operational discards were observed during 2008 and 2009, comments indicated fish “were left in net after pumping” or “fell out of gear when pumps were switched.” Operational discarding events represent the smallest amounts of released catch (see Figure 80). Partial slippage events included comments like “vessel capacity filled,” “too many dogfish,” “poor quality haul,” “pump jammed by dogfish,” and “captain did not like the mackerel:herring ratio.” Full slippage events included comments like “herring too small,” “too many dogfish,” “not enough to be worth pumping,” and “undesired catch, thought he set on herring” (Figure 81 and Figure 82).

For the 2008/2009 data, NEFOP staff examined the data by hand to investigate and summarize comments that were provided about slippage events. Sampling protocols in 2008/2009 did not include comprehensive and detailed documentation of slippage events, so there were events for which no comments were provided. The data in Table 147 and Figure 80 – Figure 83, therefore, do not represent all slippage events that were observed, but rather just the events for which additional information was provided by the captain. This is no longer the case, as the NEFOP discard log implemented in 2010, as well as observer re-training for high-volume fisheries sampling, has produced clearer protocols for observers and allowed for detailed information to be collected about all slippage events that are observed in the fishery (see additional 2010 information below).

Table 147 Frequency of Released Catch Events 2008/2009

year	month	# hauls covered	kept lbs observed	# hauls w/ released catch	estimated lbs released
2008	Jan	18	822,447	0	
2008	Feb	13	2,621,846	0	
2008	Mar	17	2,184,187	5	17,000
2008	Apr	7	1,890,207	0	
2008	May	21	4,884,872	1	20,000
2008	Jun	27	2,560,004	2	280
2008	Jul	34	3,712,098	5	250,600
2008	Aug	14	2,626,778	0	
2008	Sep	5	110,020	1	200
2008	Oct	40	6,617,020	6	18,740
2008	Nov	24	5,181,209	2	130
2008	Dec	18	4,794,028	4	25,400
2009	Jan	38	7,432,979	2	10,201
2009	Feb	28	2,782,767	6	175,950
2009	Mar	16	1,958,569	2	226,000
2009	Apr	17	3,585,031	3	300
2009	May	33	3,711,450	10	107,675
2009	Jun	35	2,339,028	22	28,595
2009	Jul	43	5,773,521	23	181,580
2009	Aug	36	3,040,099	15	81,650
2009	Sep	85	17,204,553	27	402,117
2009	Oct	64	10,046,838	20	214,400
2009	Nov	67	11,730,652	34	938,215
2009	Dec	11	131,920	2	6,025

Figure 80, Figure 81, and Figure 82 summarize the comments that NEFOP observers received from vessel captains regarding released catch events in 2008 and 2009. During these years, the estimates of the amount of released catch were most often provided by the captains. These figures only summarize events for which comments were provided by the captain; providing these details is voluntary, and while cooperation between the industry and observers has always been good, additional details were not required, and observers did not ask as many questions about the released catch until the implementation of the discard log in 2010. Based on comments received for some of the events that occurred in 2008 and 2009, operational discards and gear damage accounted for 55% of the released catch events, but represented a much smaller fraction of the total estimated weight of released catch (less than 6%). The estimated weight of partial slippage events (events for which captains provided an estimate) in 2008/2009 averaged 45,175 pounds, and the estimated weight of full slippage events (when comments were provided) averaged 27,581 pounds (Figure 80 and Figure 81).

Figure 80 Analysis of Comments Regarding Released Catch 2008/2009

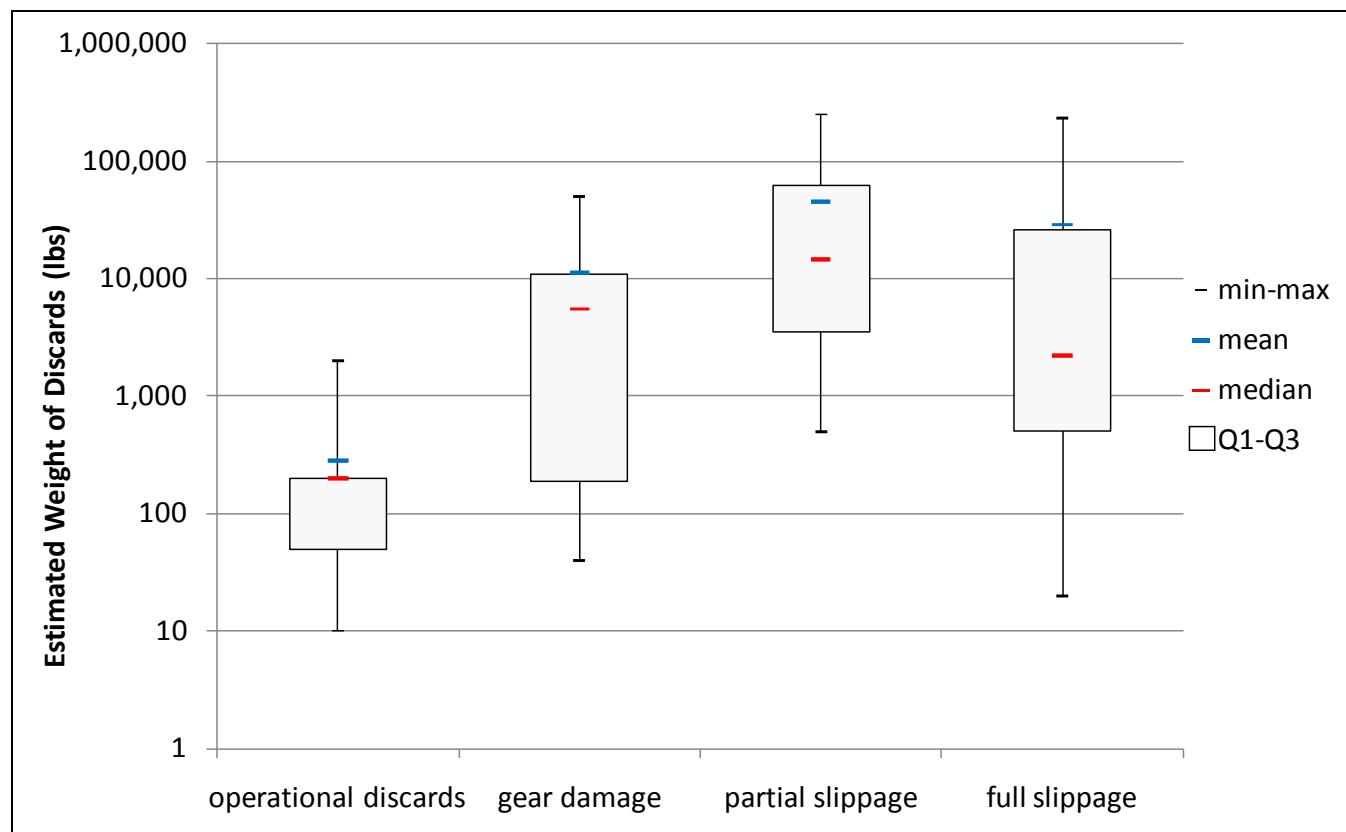


Figure 81 Analysis of Comments Regarding Released Catch 2008/2009 (continued)

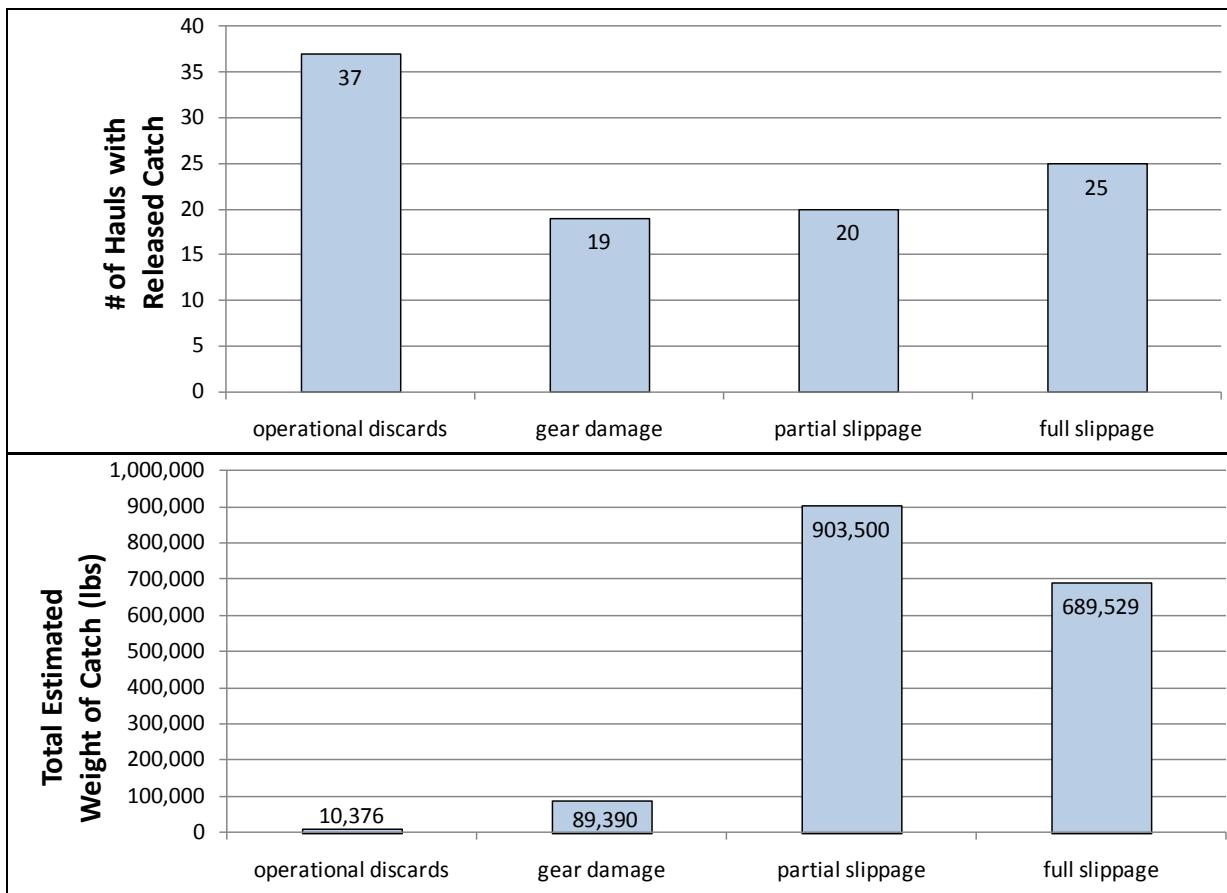
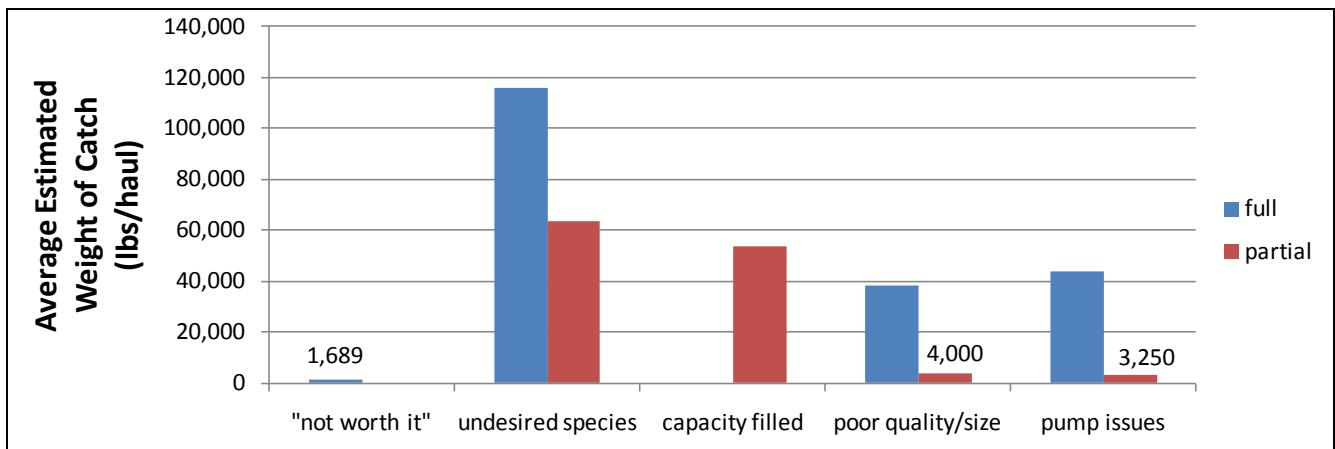


Figure 82 Information About Full and Partial Slippage Events 2008/2009



Slippage information collected by observers in 2008 and 2009 was also examined to identify similarities/differences between events occurring on vessels using different gear types (Figure 83). The information provided in 2008 and 2009 suggests that purse seine vessels may experience more released catch events as a result of operational discards and/or gear damage than midwater trawl vessels. Purse seine vessels fish almost exclusively in the inshore Gulf of Maine (Area 1A), and the nature of the gear and the operation of the fishery may result in more instances of operational discards and/or gear damage. This is an important consideration relative to management measures that would require purse seine vessels to bring all fish across the deck for sampling, including operational discards (i.e., recently-revised Closed Area I sampling provisions).

However, as indicated in Figure 83 and previously discussed, comments were not provided for all released catch events, and information about these events is incomplete. The implementation of the discard log in 2010, along with increased cooperation from the industry and a desire by everyone to obtain better information about released catch, has improved sampling, reduced the amount of released catch that could not be observed, and improved the quality of information collected about these events (see 2010 information below).

Figure 83 Analysis of Comments Regarding Released Catch 2008/2009 by Gear Type

	# of Hauls with Comments				# of Hauls Observed
	Operational Discards	Gear Damage	Full Slippage	Partial Slippage	
Bottom Trawl			2		63
Purse Seine	21	13	11	4	205
Paired Midwater Trawl	14	5	9	15	558
Single Midwater Trawl	2	1	2	1	83

Post-Pumping Questions

	# Hauls w/ fish left in net	# Hauls w/o fish left in net	# Hauls could not see	% of Hauls w/ Responses
Purse Seine	75	82	14	83%
Paired Midwater Trawl	129	92	125	62%
Single Midwater Trawl	6	41	7	65%

2010 Slippage Information

**It is important to note that 2008/2009 slippage information is not directly comparable to 2010 slippage information due to increased observer coverage, changes to observer protocols, and implementation of the observer discard log in 2010. While the 2008/2009 information is useful to generally characterize the nature/extent of slippage in the fishery, it is not a complete record of slippage events observed during these years (unlike 2010); 2010 slippage data has been determined by the Herring PDT to be more complete and more reliable.*

The NEFOP has updated its observer training program to address new requirements for herring vessel access to Closed Area I as well as general training for observing high volume fisheries. In 2010, the NEFOP conducted three high-volume fishery training classes to recertify 70 observers. The program was designed to improve sampling in fisheries that pump fish on board and ensure that only experienced observers who have proven high data quality will be assigned to these fisheries. The program was developed to improve fishery-specific training and focuses on defining gear, understanding bycatch issues, knowing and identifying species of concern, subsampling methodology, common scenarios, safety, and the process of pumping fish on board.

The NEFOP also implemented a discard log in 2010 to obtain more detailed information regarding discards in high-volume fisheries. The new discard log is being completed for every haul, and it includes fields to provide information on what kind of discard event may have occurred, whether or not the observer could see the contents of the codend when pumping stopped, why catch may have been discarded, information about the composition of discarded catch, and any challenges the observer may have experienced when observing the haul. Observers are also documenting released catch (including operational discards and slippage events) with photographs whenever possible, and bringing in samples of fish from every trip to confirm species identification.

Between increased observer coverage levels, an increase in information being provided by the fishermen and crew, and the new observer discard log implemented in 2010, data collected by observers regarding released catch events on limited access herring vessels during the 2010 fishing year provides much more detail about catch not brought on board herring vessels, and overall, the information collected about slippage has improved considerably. Operational discards have been confirmed by observers to be relatively small amounts of fish that may remain in the net following a successful haul/pump; these fish are usually caught in the net and/or cannot be pumped on board. Information collected by observers about operational discards has improved, and hauls with operational discards are considered to be “observed” hauls; the operational discards are estimated by the observers and represent “small” amounts of fish. Any partial or full released catch (“slippage” as defined in Amendment 5) is considered unobserved, but observers still collect as much information as possible about these discards.

In 2010, observer coverage for the midwater trawl fleet was close to 30% fishery-wide and was even higher on Georges Bank (85% coverage by weight of fish landed). Overall, observers provided data for 929 hauls on limited access herring vessels during the 2010 fishing year. The new discard log allows observers to provide more information about reasons for not bringing fish on board, including who estimated the released catch, additional details regarding why the catch was released, and whether the discards were observed on the deck or in the water; additional information from the 2010 discard log should be available by the end of this year and will be added to the final Amendment 5 EIS document.

Table 148 provides data for the 332 observer records (287 unique hauls) in 2010 that included fish not brought on board. About 290 of these hauls were documented with “not enough fish to pump,” i.e., operational discards. Observers document operational discards as *Herring NK* if they are able to see the fish that are not pumped and confirm that the discards are all herring-bodied fish. Otherwise, the discards are documented as *Fish NK* (see below for more information about the evolution of the Herring NK and Fish NK categories). The total weight of fish not brought on board estimated by observers in 2010 was about 460,000 pounds; this includes operational discards, which, although more frequent, generally represent very small amounts of fish. Total herring landings for this fleet in 2010 were about 58 million pounds.

A preliminary review of the observer data indicate that in 2010, only 35 records (approximately 30 unique hauls) of 929 hauls (3.2%) that were observed on limited access herring vessels were documented to have experienced full or partial slippage events. The total estimated catch not brought on board compared to the total observed catch on these vessels in 2010 was about 0.7% (this does not include fish that were brought on board and then discarded). In addition, there were 99 hauls observed in Closed Area I during 2010, under the new provisions for sampling catch, implemented in November 2009. There were no slippage events observed in these 99 hauls, and consequently no Released Catch Affidavits were submitted from the Closed Area I fishery in 2010. There appears to have been one released catch event (estimated 1,500 pounds) on a haul that ended (but did not begin) in Closed Area I. However, the recently-implemented revisions to the Closed Area I rules (January 2011) require that all operational discards be brought on board; potential logistical and sampling issues associated with this new requirement are unclear because fishing effort has not yet moved into Closed Area I this year.

Table 148 Summary of 2010 Observed Events on Limited Access Herring Vessels (by Number and Estimated Weight of Fish in Lbs.) with Fish Not Brought on Board

	species	"reason not specified"	"gear damage"	"fell out of gear"	"no market value"	"vessel capacity filled"	"not enough fish to pump"
Number of hauls with occurrence	butterfish		1				1
	haddock						6
	herring nk				3	1	105
	atl herring		1			1	18
	mackerel		1			1	4
	redfish						7
	spiny dogfish						1
	striped bass				1		1
	whiting		1				4
	fish nk	10		5	3	2	3
	hake nk						6
	lobster						1
	<i>Loligo</i>		1				1
	<i>Illex</i>						2
	eel nk						2
Estimated weight (lbs)	butterfish		5				1
	haddock						72
	herring nk				410	3,000	20,622
	atl herring		100			175	6,425
	mackerel		50			175	155
	redfish						38
	spiny dogfish						25
	striped bass				12		10
	whiting		10				372
	fish nk	169,450		108,000	4,700	44,000	20,050
	hake nk						215
	lobster						10
	<i>Loligo</i>		3				10
	<i>Illex</i>						13
	eel nk						8,150

Figure 84 Observed Events on Limited Access Herring Vessels (by Number of Hauls) with Fish Not Brought on Board in 2010

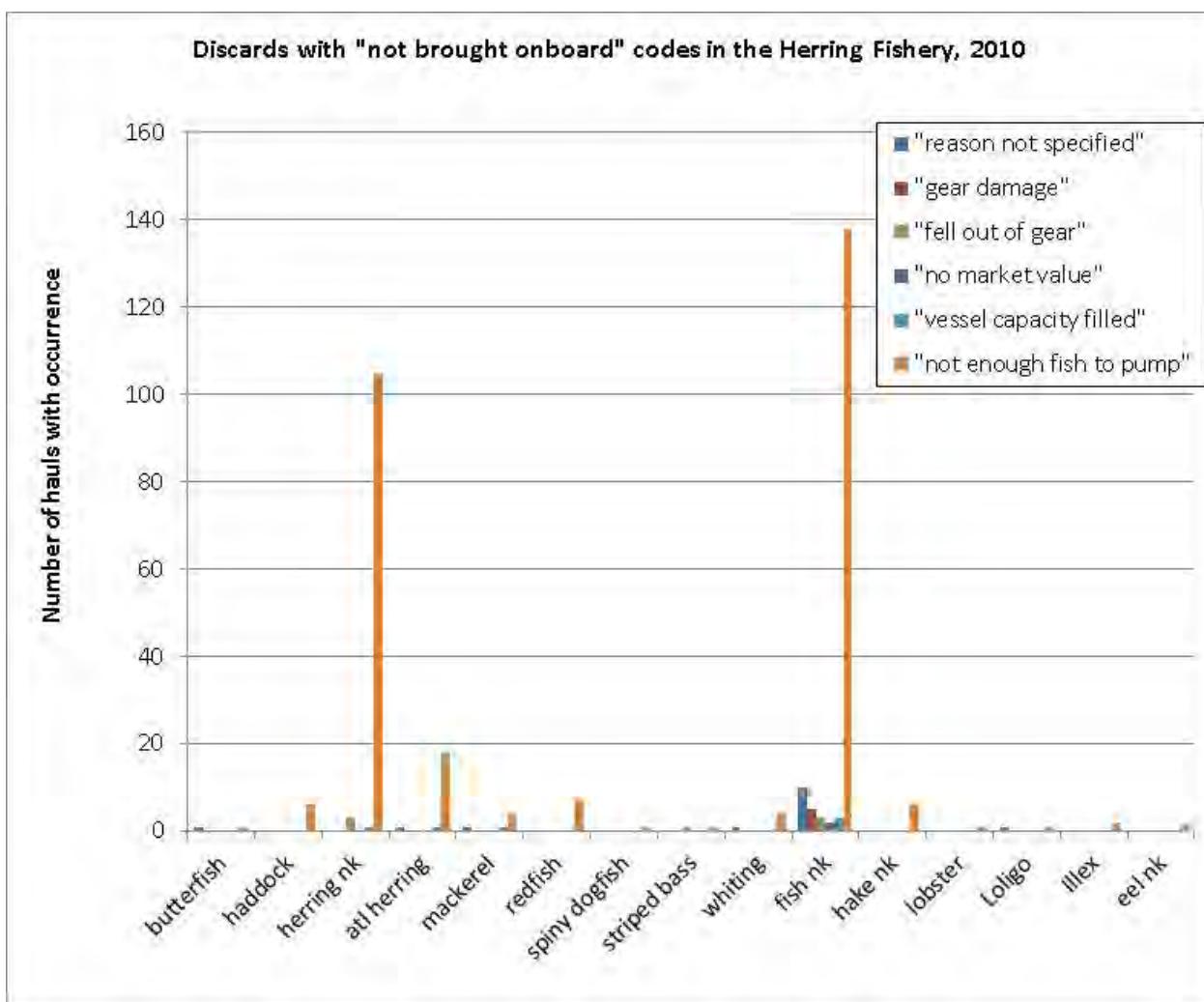
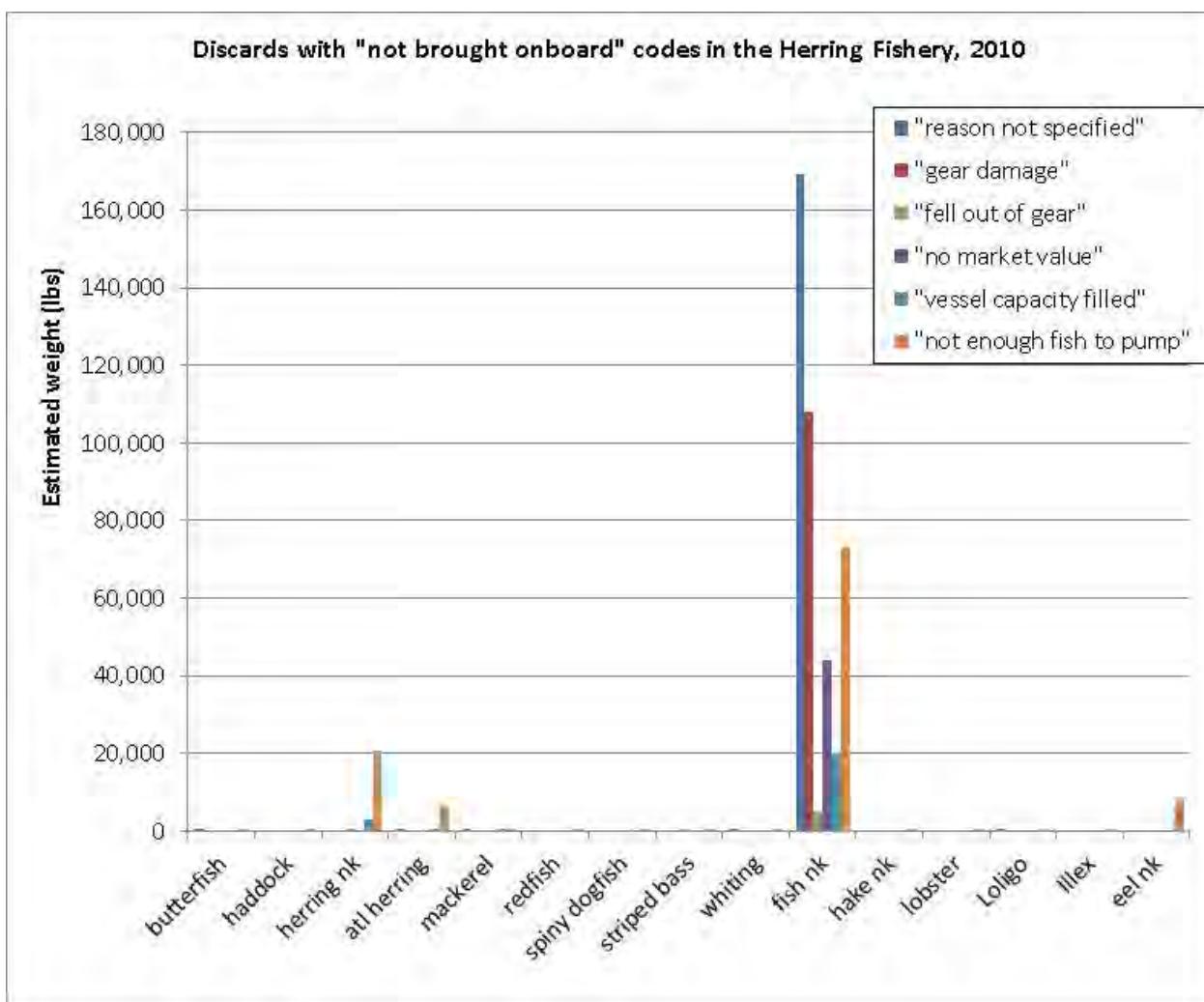


Figure 85 Observed Events on Limited Access Herring Vessels (by Estimated Weight of Fish in Pounds) with Fish Not Brought on Board in 2010



Use of “Herring NK” and “Fish NK”

It is important to understand the use of the Fish NK and Herring NK categories in the observer data and the ongoing effort by the NEFOP to reduce these categories and better document all fish either kept, discarded, transferred, or not brought on board in the limited access herring fishery. In 2009, the NEFOP transitioned to the use of Fish NK to represent the component of the catch for which observers could not verify identification. This includes partial and fully released tows and operational discards. Prior to 2009, Fish NK, or Herring NK, or Atlantic herring were used to describe this component of the catch, depending upon observer determinations based on their own visual inspection and/or captain and crew input.

In 2009, the NEFOP also transitioned to the use of Fish NK to represent the composition of the catch pumped to the paired vessel when an observer is not present on the boat taking on the fish. Prior to 2009, Atlantic herring, or Herring NK, or Fish NK were used to represent this component of the catch, based on the observers assumption that partial catches being pumped to the vessel they were deployed on, were made up of the similar species composition of that being pumped to the alternate vessel. The 2009 and 2010 protocols for the use of Fish NK and Herring NK were consistent. Using the most recent data as an example (Table 149), the majority of Fish NK records in 2010 (54%) are associated with fish that were pumped to the paired vessel without an observer present to subsample. These fish were landed, sold, and documented through the dealer and VTR data (along with IVR at the time), and the landings may have been sampled through a State portside sampling program.

In 2010, Herring NK was documented on 122 hauls, and Fish NK was documented on 200 hauls. The majority of Herring NK (86%) was due to “not enough fish to pump” (operational discards). Sixty nine percent (69%) of Fish NK was associated with operational discards. In general, the amounts of fish classified in these categories per haul are relatively small. There was one sampling event in 2010 that documented 30,000 pounds of Herring NK “kept,” which represents almost half of all Herring NK observed in 2010 (Table 149, Figure 86, Figure 87). In this one event, the observer was able to see the fish as they came on board, and during the pumping process, the observer could confirm that the fish were all herring-bodied fish but could not obtain basket samples for safety reasons. About $\frac{1}{2}$ of observed Fish NK and Herring NK in 2010 was landed; in these cases, portside sampling would be beneficial to confirm the species composition of the landings.

The remaining Fish NK records are mostly associated with fish that were discarded and the reason was not specified, fish that were discarded due to gear damage and operational discards. Operational discards that the observer is able to visually inspect and therefore term Herring NK instead of Fish NK, represent 36% of the herring NK records. Nine percent (9%) of the Herring NK records are associated with fish that mainly fell from the chute, were seen by the observer and therefore identified as herring, then washed overboard. Species identification issues also result in the use of Fish NK or Herring NK. In these cases, an observer has sent in a whole fish sample, which is identified by experienced staff at the NEFOP. If the observer has mis-identified the species the use of Fish NK or Herring NK may be used. In 2010, there was one record changed to Herring NK due to mis-identification of the species.

Table 149 Quantification of Fish NK and Herring NK (in Pounds) on Observed Hauls by Limited Access Herring Vessels in 2010

Number of hauls with occurrence	species group	"kept"	"kept, transferred to other vessel"	"discarded, other"	"discarded, poor quality, gear damage"	"discarded no market, too small"	"discarded no market, reason not specified"	"not brought onboard reason not specified"	"not brought onboard gear damage"	"not brought onboard fell out of gear"	"not brought onboard no market value"	"not brought onboard vessel capacity filled"	"not brought onboard not enough fish to pump"	TOTALS
herring nk		2	0	10	0	1	1	0	0	3	0	0	105	122
		1.6%	0 %	8.2%	0%	0.8%	0.8%	0 %	0 %	2.5%	0 %	0 %	86.1%	
fish nk		6	11	14	1	0	5	10	5	3	3	4	138	200
		3%	5.5%	7%	0.5%	0%	2.5%	5%	2.5%	1.5%	1.5%	2 %	69 %	
														322
Observed Pounds	herring nk	30,004	0	5,620	0	100	150	0	0	410	0	0	20,622	56,906
		52.73%	0 %	9.9%	0 %	0.2%	0.3%	0 %	0 %	0.7%	0 %	0 %	36.2%	
fish nk		110	692,240	67,065	20	0	90,430	169,450	108,000	4,700	52,000	23,050	72,766	1,279,831
		0.01%	54.1%	5.2%	0 %	0 %	7.1%	13.2%	8.4%	0.4%	4.1%	1.8%	5.7%	
														1,336,737

Figure 86 Use of Fish NK and Herring NK Codes on Observed Limited Access Herring Trips (by Number of Hauls) in 2010

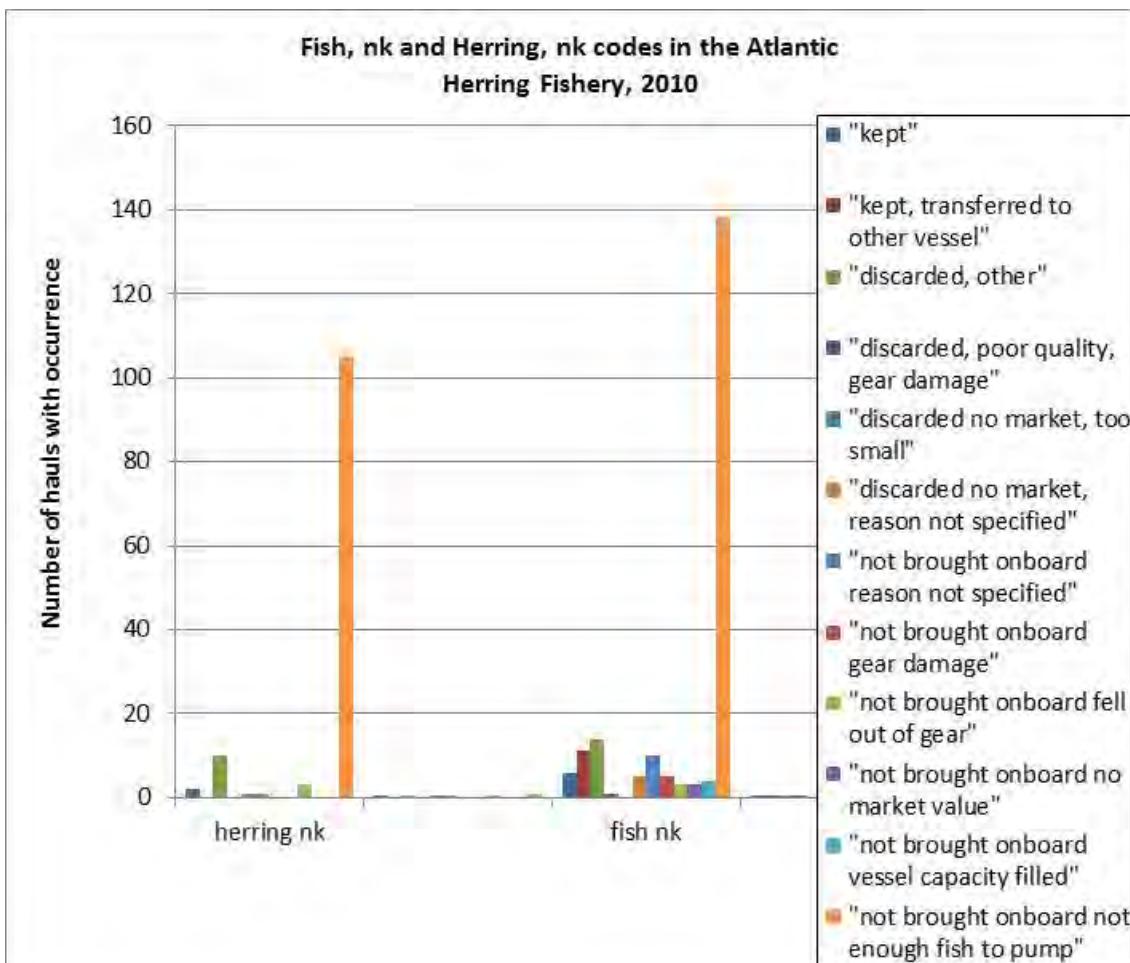
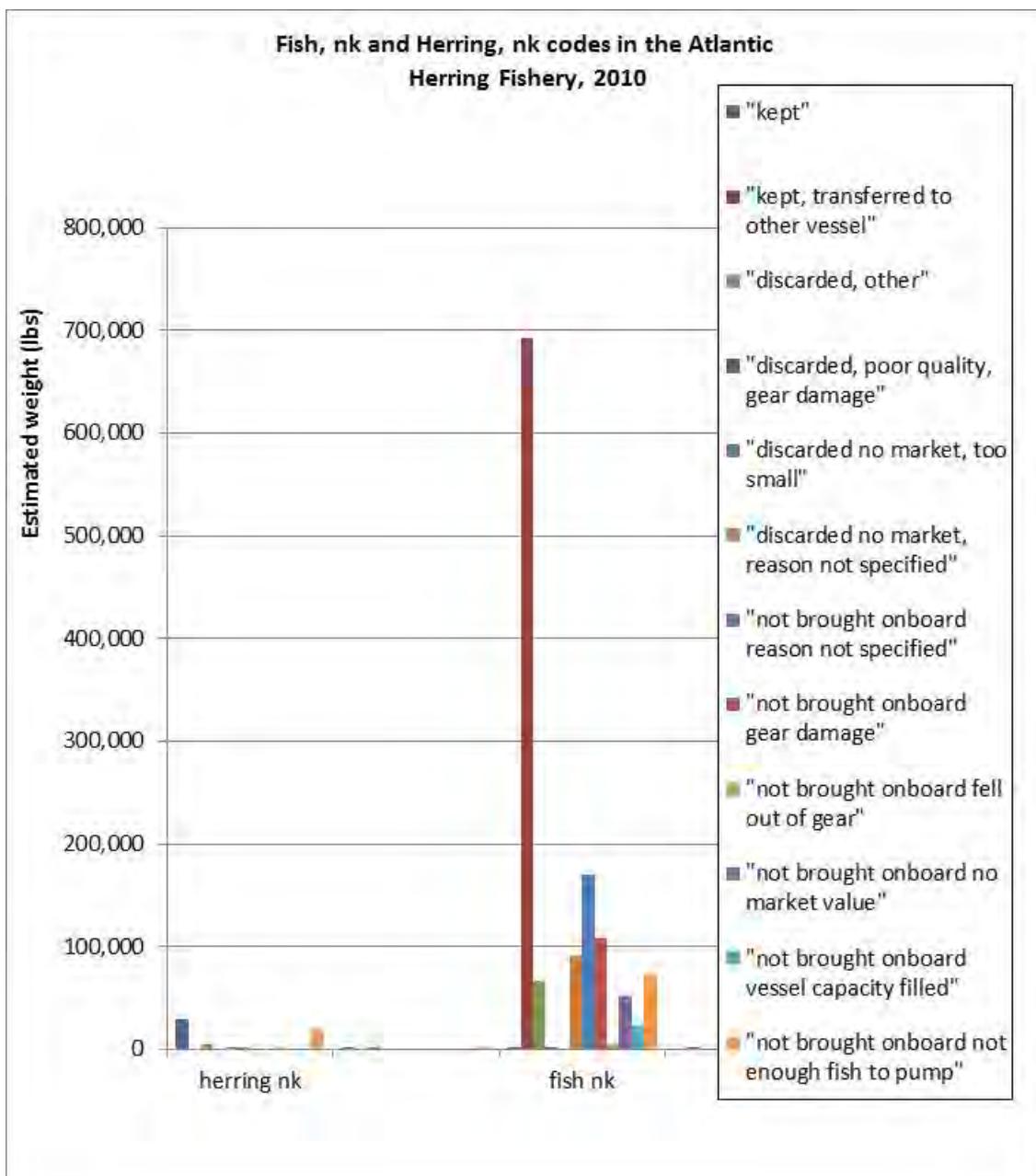
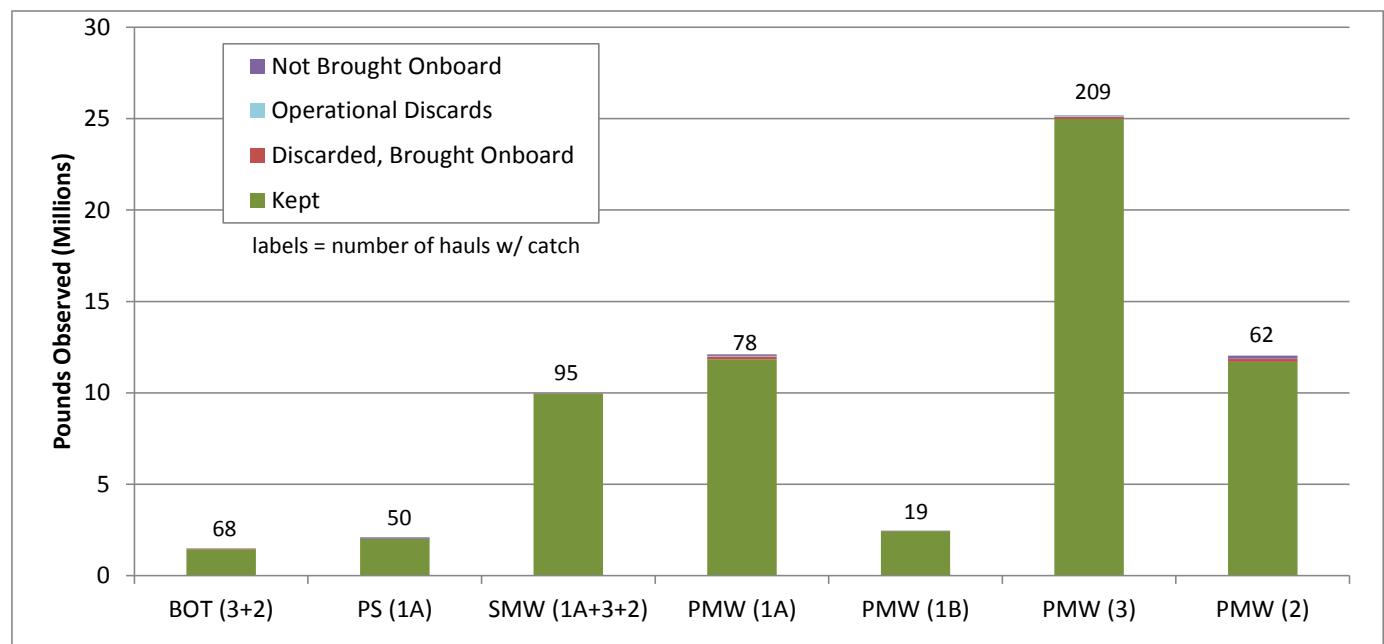


Figure 87 Use of Fish NK and Herring NK Codes on Observed Limited Access Herring Trips (by Estimated Weight) in 2010



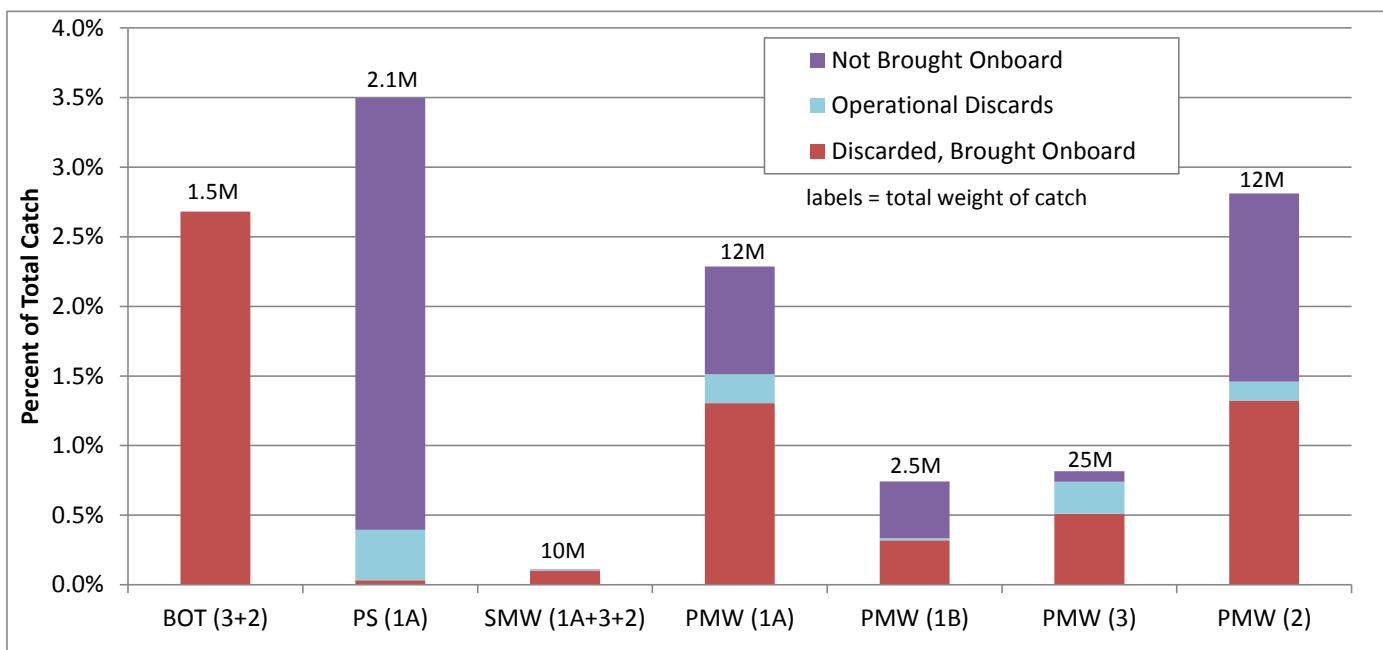
Available information suggests that the amount of fish estimated to be slipped in full/partial slippage events is less than 100,000 pounds. Information provided by vessel captains in 2008/2009, although incomplete, indicates that the estimated weight of partial slippage events (events for which captains provided an estimate) in averaged 45,175 pounds, and the estimated weight of full slippage events (when comments were provided) averaged 27,581 pounds (Figure 80 and Figure 81). Information about slippage events and details about the released catch improved considerably in 2010 with the establishment of the new discard log. In addition, the observed number of slippage events declined in 2010. Figure 88 and Figure 89 characterize discards observed in 2010 and provide some perspective on slippage events by gear type and management area. Because few slippage events were observed in 2010 (with a relatively high level of observer coverage across the fishery), disaggregating the data is more difficult due to confidentiality restrictions. However the information in Figure 88 and Figure 89 show that discards at-sea, in total, represent a very small fraction of catch on herring vessels; catch not brought on board represented the highest fractions of total catch for purse seine and pair trawl vessels fishing in Areas 1 and 2 (purse seine vessels only fish in Area 1).

Figure 88 Summary of 2010 Observed Catch (Pounds) on A/B/C Herring Vessels on Declared Herring Trips by Gear Type, Management Area, and Disposition



BOT – Bottom Otter Trawl; PS – Purse Seine; SMW – Single Midwater Trawl; PMW – Paired Midwater Trawl

Figure 89 Summary of 2010 Observed Discards (as Percent of Total Observed Catch) on A/B/C Herring Vessels on Declared Herring Trips by Gear Type, Management Area, and Disposition



BOT – Bottom Otter Trawl; PS – Purse Seine; SMW – Single Midwater Trawl; PMW – Paired Midwater Trawl

2012 and 2013 Summary of NEFOP Data for Trips catching 20,000 lbs or greater of Atlantic mackerel on bottom otter and midwater trawl vessels.

2013 Data

- 10 midwater trips
- 0 bottom otter trawl trips
- 18 unobserved hauls
- 36 observed hauls
- There were 17 unobserved midwater hauls without slippage. The reason for why these hauls were unobserved was that catch was pumped to another vessel (pair trawl).

Slippage Events

- There was 1 unobserved midwater haul with slippage. Haul comments stated that there was not enough fish to pump, the bag was fully released, with 20,000 lbs of fish, nk (not known) that was estimated by the captain.

2012 Data

- 11 midwater trips
- 3 bottom otter trawl trips
- 24 unobserved hauls
- 71 observed hauls
- There were 16 unobserved midwater hauls without slippage. The reason for why these hauls were unobserved was that catch was pumped to another vessel (pair trawl).
- There were 6 unobserved bottom otter trawl hauls without slippage. The reasons for why these hauls were unobserved are: 1) no reason was stated for why the haul was unobserved; 2) a miscommunication regarding catch handling on deck occurred; 3) no space to work; 4) bad weather.

Slippage Events

- There was 1 unobserved midwater haul with slippage. Haul comments stated that the vessel was filled to capacity and discarded 15,000 lbs of fish, nk estimated by the captain.
- There was 1 unobserved bottom otter trawl haul with slippage. Haul comments stated that there was 5000 lbs of fish, nk and it was released before being brought on board.

Criteria used for this summary are:

1. Gear types: Bottom otter trawl (target species Atlantic herring), purse seine (herring), midwater trawl (paired and single combined)
2. Vessels holding a category A, B, or C herring permit
3. Across all herring managements
 - Due to confidentiality constraints, purse seine data for Area 1A and 1B are combined
4. January, 2012 – December, 2013

Clarification points:

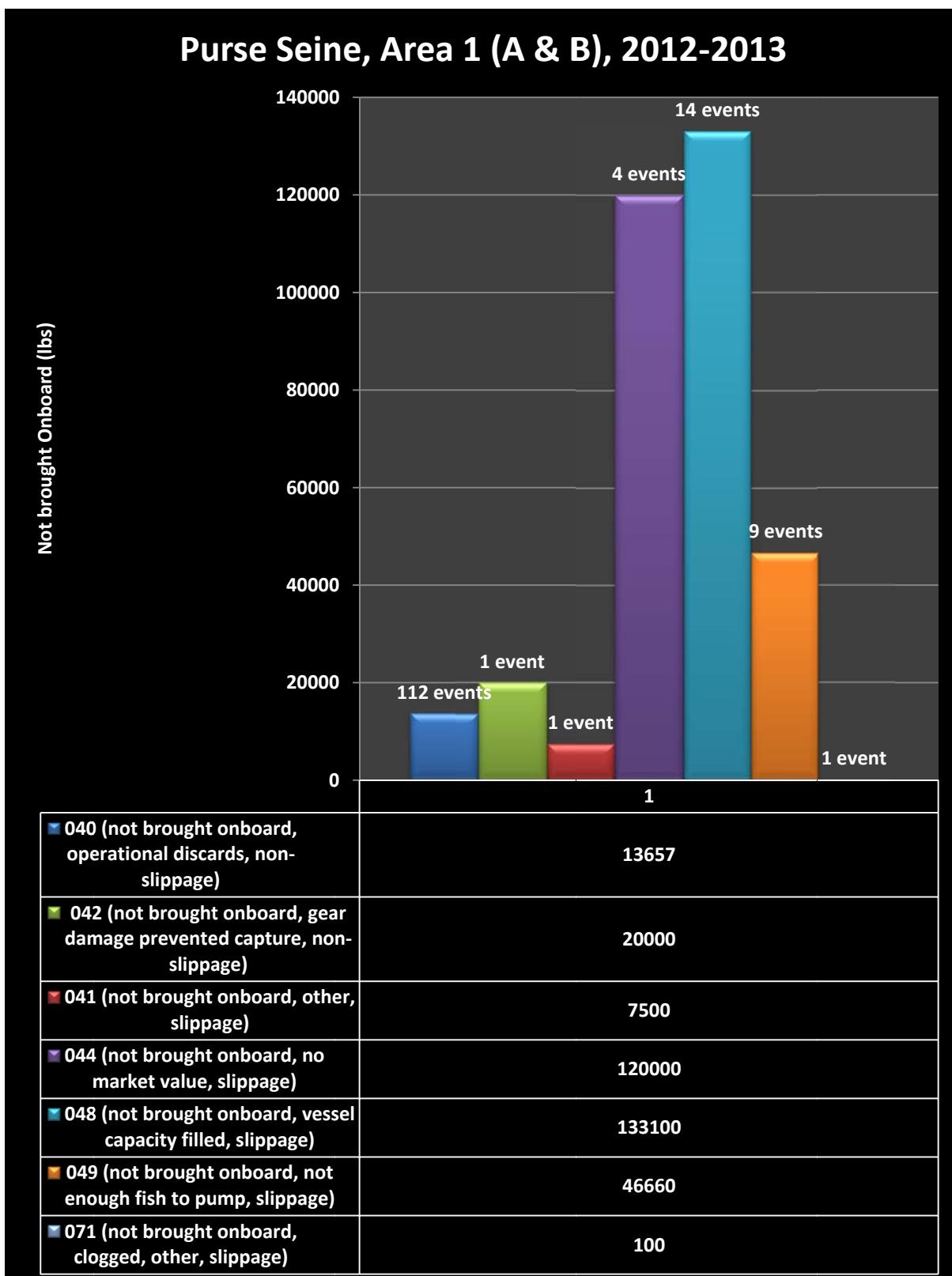
- All data present are termed ‘observed’ (*i.e.* observed kept, observed slipped catch, observed non-slipped catch). This indicates data recorded by the fisheries observer, not to suggest observed vs. unobserved hauls.
- The terms ‘Slipped catch’ and ‘slippage’ are used synonymously.
- Event: An ‘event’ is not synonymous with a ‘haul’, as multiple events may occur within a single haul. For example, a haul may have three different reasons for not bringing catch onboard the vessel: a species fell from the net into the water as the net is being reeled in; clearing a blockage during pumping caused additional fish to be released; and after pumping was completed a small amount of fish remained in the net (operational discards).
- ‘Not brought onboard’ fish disposition codes with explanations and examples are noted on the last page for reference.

PURSE SEINE (HERRING)

HERRING MANAGEMENT AREA	NOT BROUGHT ONBOARD VESSEL		
	SLIPPAGE EVENTS		NON-SLIPPAGE EVENTS
	Partial Release	Full Release	Other
Area 1 (both A & B) <i>Due to confidentiality constraints, Areas 1A & 1B are combined</i>	20	14	114 113: Operational Discards 1: Gear damage
Total Trips 92	Total Observed Kept Atl. Herring 13,729,168 lbs	Total Observed Slipped Catch 307,360 lbs	Total Observed Non-slipped Catch 33,657 lbs
Area 2	0	0	0
Total Trips 0	Total Observed Kept Atl. Herring 0	Total Observed Slipped Catch 0	Total Observed Non-slipped Catch 0
Area 3	0	0	0
Total Trips 0	Total Observed Kept Atl. Herring 0	Total Observed Slipped Catch 0	Total Observed Non-slipped Catch 0
	TOTAL (all areas) 13,729,168 lbs	TOTAL (all areas) 307,360 lbs	TOTAL (all areas) 33,657 lbs
Total Slippage (or total non-slippage)/Total Kept	N/A	2.3%	0.3%

TOTAL SLIPPED CATCH (all areas)	307,360 lbs
% dogfish	0%
% safety	0%
% mechanical failure	0%

Note: Slippage was not due to spiny dogfish, safety, or mechanical failure



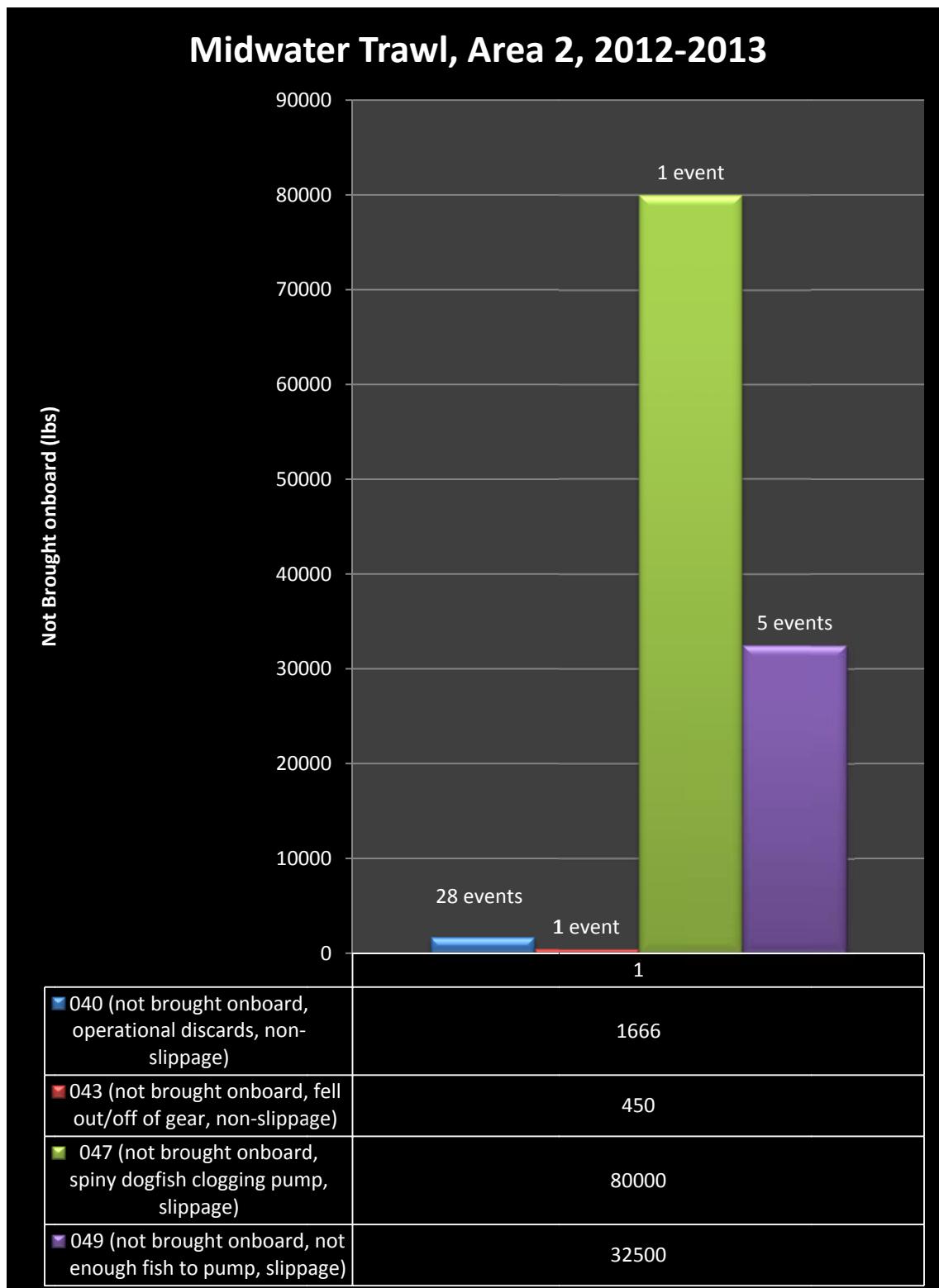
Note: 040, 042 are considered 'not brought onboard, non-slippage'

MIDWATER TRAWL, PAIRED & SINGLE

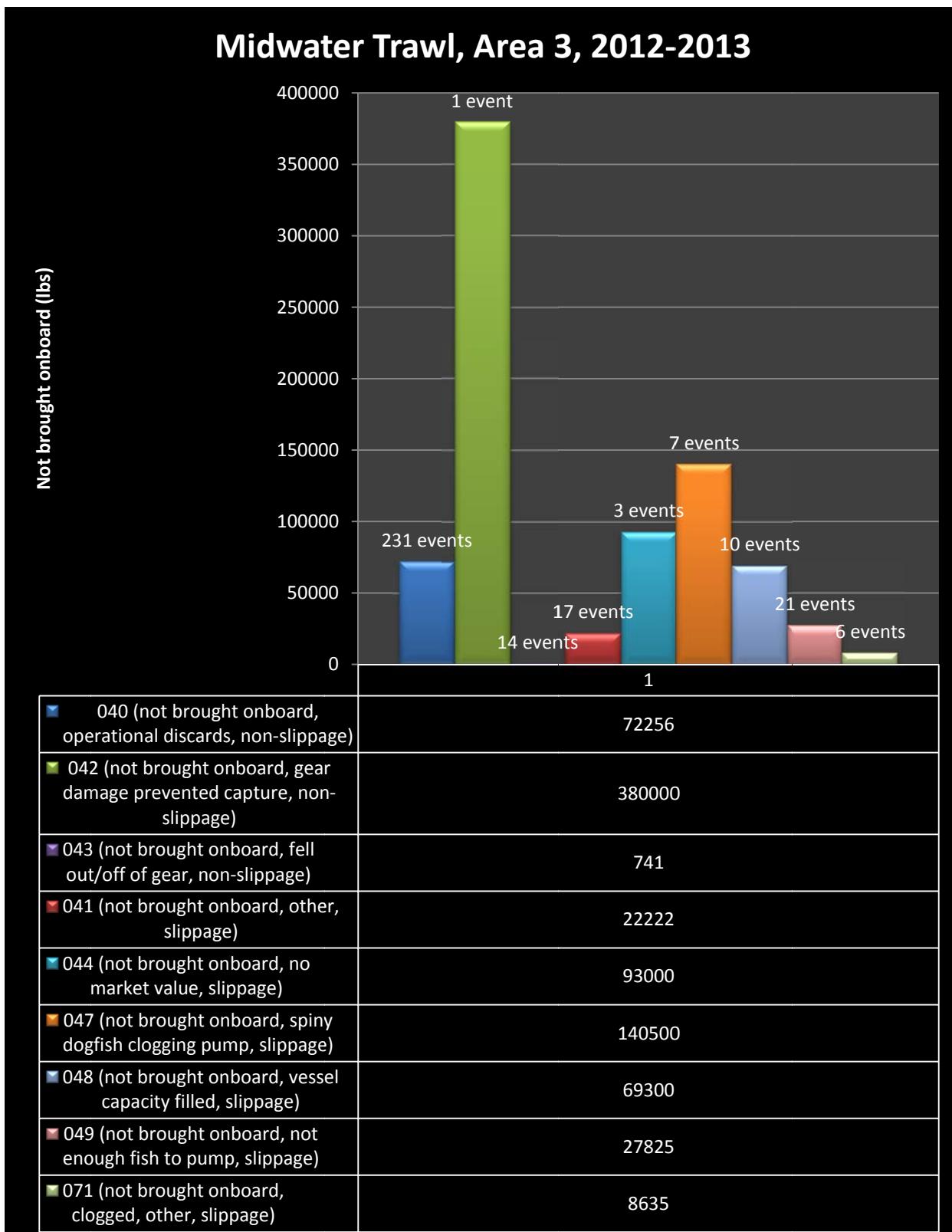
HERRING MANAGEMENT AREA	NOT BROUGHT ONBOARD VESSEL		
	SLIPPAGE EVENTS		NON-SLIPPAGE EVENTS
	Partial Release	Full Release	
Area 1A	0	0	1 Operational Discards
Total Trips 8	Total Observed Kept Atl. Herring (lbs) 1,599,785	Total Observed Slipped Catch (lbs) 0	Total Observed Non- slipped Catch (lbs) 80
Area 1B	0	0	0
Total Trips 0	0	0	0
Area 2	2	4	29 28: Operational discards 1: fell from gear
Total Trips 27	Total Observed Kept Atl. Herring (lbs) 8,205,974	Total Observed Slipped Catch (lbs) 112,500	Total Observed Non- slipped Catch (lbs) 2,116
Area 3 (Including CA1)	42	12	246 231: Operational discards 14: Fell from gear 1: Gear damage
Total Trips 313	Total Observed Kept Atl. Herring (lbs) 89,704,941	Total Observed Slipped Catch (lbs) 361,482	Total Observed Non- slipped Catch (lbs) 452,997
	TOTAL (all areas) 99,510,700 lbs	TOTAL (all areas) 473,982 lbs	TOTAL (all areas) 455,193 lbs
Total Slippage (or non-slippage)/Total Kept	N/A	0.5%	0.5%

TOTAL SLIPPED CATCH (all areas)	473,982 lbs
% dogfish	47%
% safety	0%
% mechanical failure	0%

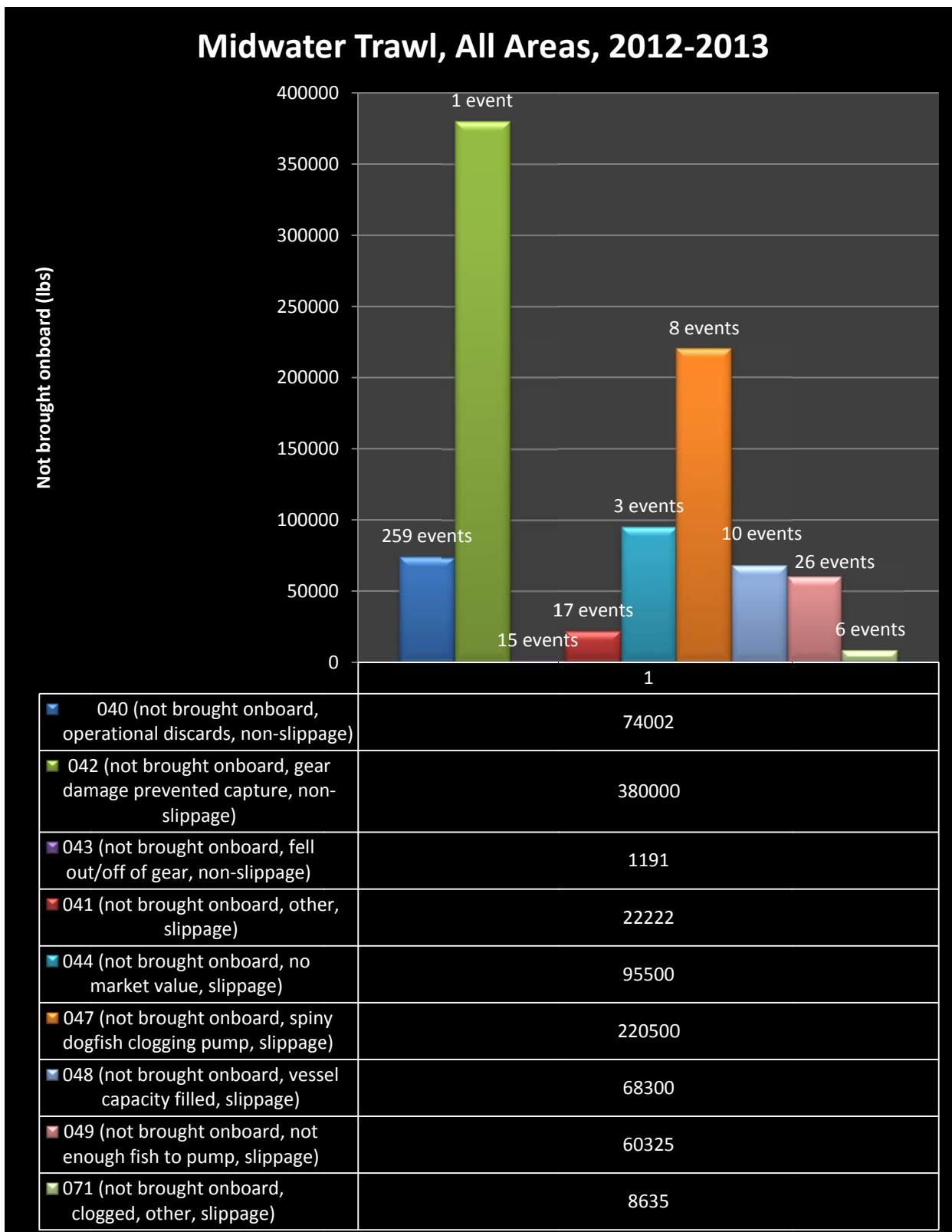
Note: Slippage was not due to safety or mechanical failure



Note: 040 and 043 are considered ‘not brought onboard, non-slippage’



Note: 040, 042, 043 are considered 'not brought onboard, non-slippage'



Note: 040, 042, 043 are considered 'not brought onboard, non-slippage'

BOTTOM OTTER TRAWL_TARGET ATL.HERRING

HERRING MANAGEMENT AREA	NOT BROUGHT ONBOARD VESSEL		
	SLIPPAGE EVENTS		NON-SLIPPAGE EVENTS
	Partial Release	Full Release	Other
Area 1A	0	0	0
Total Trips 1	Total Observed Kept Atl. Herring 1,804 lbs	Total Observed Slipped Catch 0 lbs	Total Observed Non- slipped Catch 0 lbs
Area 1B	0	0	0
Total Trips 0	Total Observed Kept Atl. Herring 0 lbs	Total Observed Slipped Catch 0 lbs	Total Observed Non- slipped Catch 0 lbs
Area 2	1 Small amount released, other	1 Non-desired species	0
Total Trips 37	Total Observed Kept Atl. Herring 5,257,569 lbs	Total Observed Slipped Catch 510 lbs	Total Observed Non- slipped Catch 0
Area 3	0	0	0
Total Trips 0	Total Observed Kept Atl. Herring 0	Total Observed Slipped Catch 0	Total Observed Non- slipped Catch 0
	TOTAL (all areas) 5,259,373 lbs	TOTAL (all areas) 510 lbs	TOTAL (all areas) 0 lbs
Total Slippage (or non- slippage)/Total Kept	N/A	0.01%	0

TOTAL SLIPPED CATCH (all areas)	510 lbs
% dogfish	0%
% safety	0%
% mechanical failure	0%

Note: Slippage was not due to spiny dogfish, safety, or mechanical failure

Not brought onboard fish disposition codes with explanation

SLIPPAGE DISPOSITION CODES	NON-SLIPPAGE DISPOSITION CODES
041: Other Ex: accidental release due to crew miscommunication; extracting a large species	040: Operational discards Relatively small amount of fish that may remain in the codend after pumping is complete
044: Considered to have no market value Ex: A test tow resulting in a majority of non-desired species	042: Gear damage prevented capture Due to gear damage, such as a large tear, the catch was not brought onboard the vessel. Used when the vessel would have otherwise brought the catch onboard.
047: Spiny dogfish clogging pump	043: Fell out/off of gear Ex: fish that may fall out of the net as it's being reeled up on the net reel
048: Vessel capacity filled	
049: Not enough to pump Ex: When net is hauled back and there is so little catch it isn't worth the time/effort to set the pump.	Disposition codes not used in this data set: 045: Safety reason 046: Mechanical failure 070: Quality of fish
071: Clogged, other Catch is released due to a clog other than spiny dogfish. Ex: a basking shark clogs the pump and the remainder of the catch is released to free the clog.	

Appendix 4: Amendment 14 Partial Approval Letter



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

NOV - 7 2013

Richard B. Robins, Chairman
Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201
Dover, DE 19901

Dear Rick:

On November 7, 2013, NOAA's National Marine Fisheries Service, on behalf of the Secretary of Commerce (Secretary), partially approved Amendment 14 to the Atlantic Mackerel, Squid, and Butterfish (MSB) Fishery Management Plan (FMP).

A notice of availability (NOA) soliciting public comments on Amendment 14 was published on August 12, 2013, with a comment period ending October 11, 2013. A proposed rule was published on August 29, 2013, with the same comment period end date. A total of 15 comment letters (several of them form letters with thousands of signatures) were received and considered in making the decision to partially approve Amendment 14, as described below. A summary of the comments received, and NMFS's responses to those comments, will be published in the final rule.

Amendment 14 will improve the catch monitoring program for the mackerel and longfin squid fisheries and address river herring and shad bycatch issues. It contains many measures that will improve management of the MSB fisheries and that can be administered by NMFS. We support improvements to fishery dependent data collections, be it through increasing reporting requirements or expanding the at-sea monitoring of the herring fishery. We also share the Council's concern for reducing river herring and shad bycatch.

However, a few measures in Amendment 14 lacked adequate rationale or development by the Council, and we had utility and legal concerns about the implementation of these measures. These measures are: The dealer reporting requirement; the slippage cap that, if achieved, would require vessels to return to port; and the increased observer coverage requirements for the mackerel fishery, coupled with a limited industry contribution of \$325 per day toward observer costs.

We expressed our concerns about the implementation of these measures throughout the development of this amendment and articulated them in our comment letter (dated June 5, 2012) on the draft EIS. The proposed rule for Amendment 14 also described our concerns about these measures' consistency with the Magnuson-Stevens Fishery Conservation and Management Act and other applicable law. In addition, the proposed rule detailed our July 18, 2013, disapproval of similar measures in the New England Fishery Management Council's Amendment 5 to the Atlantic Herring FMP. While some of the measures disapproved in Amendment 5, in particular the slippage cap and the observer coverage measures, were slightly different from those proposed



in Amendment 14, the differences presented in Amendment 14 did not resolve the concerns that ultimately led to our Amendment 5 partial approval. Therefore, after review of public comment on the NOA and proposed rule, I partially approved measures in Amendment 14 on behalf of the Secretary.

Amendment 14 contains the following measures that improve MSB management and that I approved:

- Instituting weekly VTR for all MSB permits to facilitate quota monitoring and cross-checking with other data sources;
- Requiring 48-hour pre-trip notification to retain more than 20,000 lb of mackerel to facilitate observer placement;
- Requiring VMS and daily catch reporting via VMS for limited access mackerel vessels to facilitate monitoring and cross checking with other data sources;
- Requiring VMS and daily catch reporting via VMS for longfin squid/butterfish moratorium vessels to facilitate monitoring and cross checking with other data sources;
- Requiring 6-hour pre-landing notification via VMS to land over 20,000 lb mackerel to facilitate monitoring, enforcement, and portside monitoring;
- Expanding vessel requirements related to at-sea observer sampling to help ensure safe sampling and improve data quality;
- Prohibiting slippage on limited access mackerel and longfin squid trips, with exceptions for safety concerns, mechanical failure, and spiny dogfish preventing catch from being pumped aboard the vessel, and requiring a released catch affidavit to be completed for each slippage event;
- Evaluating the joint Sustainable Fisheries Coalition/University of Massachusetts School for Marine Science and Technology/Massachusetts Department of Marine Fisheries bycatch avoidance program investigation of providing real-time, cost-effective information on river herring distribution and fishery encounters in River Herring Monitoring/Avoidance Areas;
- Implementing a mortality cap for river herring and shad in the mackerel fishery; and
- Establishing the ability to consider a river herring and shad catch cap, and time/area management to mitigate bycatch of river herring and shad in a future framework.

The following sections detail our concerns about the other measures proposed by the Council in Amendment 14, provides rationale for my disapproval of these measures, and offers recommendations on how to address the approvability concerns in future actions, should the Mid-Atlantic (Council) wish to do so.

Increased Observer Coverage Requirements

Amendment 14 contains a measure that recommends 100-percent observer coverage on midwater mackerel and Tier 1 small-mesh bottom trawl vessels, 50-percent on Tier 2 small mesh bottom trawl vessels, and 25-percent on Tier 3 small mesh bottom trawl mackerel vessels. The 100-percent observer requirement is coupled with an industry contribution of \$325 per day.

New measures developed for an FMP that have the potential for substantial costs, like increased observer coverage, need a funding source. The total costs for observer coverage include two types of costs: (1) Observer monitoring costs (e.g., observer salary and travel); and (2) NMFS

support and infrastructure costs (e.g., observer training, data processing, and infrastructure). While Amendment 14 proposes an industry contribution of \$325 per day to help cover observer monitoring costs, the total observer monitoring costs for the mackerel fishery are higher than \$325 per day. The Department of Commerce (DOC) Office of General Counsel has advised that cost-sharing violates the Anti-Deficiency Act. Based on DOC's advice, there is no current legal mechanism to allow cost-sharing of at-sea costs between NMFS and the industry. Further, budget uncertainties prevent NMFS from being able to commit to fully funding the cost of increased observer coverage in the mackerel fishery, or even commit to the increased support and infrastructure costs that would result under a fully industry-funded program. Because Amendment 14 does not identify a funding source to cover all of the increased costs of observer coverage, the measure is not sufficiently developed to approve at this time. Therefore, I disapproved the increased observer coverage recommendations.

The same measure that specifies 100-percent observer coverage coupled with a \$325 contribution by the industry also specifies that: (1) The increased observer coverage requirement would be re-evaluated by the Council 2 years after implementation; and (2) existing observer service provider requirements would apply to the mackerel fishery. Because these additional measures appear inseparable from the recommended increases in observer coverage, I had to also disapprove these measures.

Earlier this year, an FMAT/PDT was formed to identify a workable, legal mechanism to allow for industry-funded observer coverage in the mackerel fishery, which includes staff from the New England and Mid-Atlantic Councils and NMFS. To further explore the legal issues surrounding industry-funded observer coverage, NMFS formed a working group of Northeast Regional Office, Northeast Fisheries Science Center, NOAA General Counsel Northeast, and NMFS Headquarters staff.

As noted in our September 20, 2013, letter to both the Mid-Atlantic and New England Councils, the NMFS working group has identified an administrative mechanism to allow for industry funding of observer monitoring costs in Northeast Region fisheries, as well as a potential way to help offset funding costs that would be borne by the industry, subject to available funding. This administrative mechanism would be an option to fund observer coverage targets that are higher than Standardized Bycatch Reporting Methodology (SBRM) coverage levels. The mechanism to allow for industry-funded observer coverage is a potential tool for all Northeast Region FMPs. But it would need to be added to each FMP to make it an available tool, should the Council want to use it, and must be accompanied by a regional prioritization of the distribution of annual NMFS support and infrastructure funding. We are pleased that the Council is supportive of NMFS taking the technical lead on an omnibus amendment to establish the administrative mechanism to allow for industry-funded observer coverage in Mid-Atlantic and New England FMPs, and, if the Council desires, we are willing to include observer coverage targets for limited access mackerel vessels using midwater and small-mesh bottom trawls in the omnibus action. We will present an initial range of alternatives for the omnibus amendment at the Council's February meeting.

Measures to Minimize Slippage

Amendment 14 contains a measure that would require limited access mackerel and longfin squid vessels to bring all catch aboard the vessel and make it available for sampling by an observer. If catch is discarded before it has been made available to the observer, that catch is considered slippage.

Amendment 14 would allow catch to be slipped if: (1) Bringing catch aboard compromises the safety of the vessel, (2) mechanical failure prevents the catch from being brought aboard, or (3) spiny dogfish prevents the catch from being pumped aboard. If catch is slipped, the vessel operator would be required to complete a released catch affidavit detailing why catch was slipped and the estimated amount of slipped catch. Additionally, once there have been 10 un-exempted slippage events fleetwide by limited access mackerel vessels carrying an observer, vessels that subsequently slip catch while carrying an observer would be required to return to port.

We are concerned about the rationale for, and legality of, the slippage caps. The threshold for triggering a slippage cap (10 slippage events fleetwide) is arbitrary and does not have a strong supporting analysis in the EIS. The EIS noted that, while documented slippage events are relatively infrequent (an average of 15 unobserved hauls per year from 2006-2010), increases above the estimated 15 unobserved hauls per year could compromise observer data because large quantities of fish can be caught in a single tow. However, the EIS does not provide sufficient rationale for why it is biologically or operationally acceptable to allow the fleet 10 un-exempted slippage events prior to triggering the trip termination requirement, as opposed to any other number of slippage events.

Once a slippage cap has been met, vessels that slip catch with an observer aboard for reasons other than safety, mechanical failure, or spiny dogfish in the pump would be required to return to port. Vessels could continue fishing following slippage events 1 through 10, but must return to port following the 11th slippage event, regardless of the vessel's role in the first 10 slippage events. For these reasons, we believe the slippage caps are inconsistent with the Administrative Procedure Act and National Standard 2, and had to be disapproved.

The requirements to bring all catch aboard and make it available for sampling by an observer and complete a released catch affidavit if catch is slipped appear separable from the slippage cap. Prohibiting slippage would improve the quality of observer catch data, especially data on bycatch species encountered in the mackerel and longfin squid fisheries, and the released catch affidavit would help provide insight into when and why slippage occurs. Therefore, I have approved the prohibition on slippage, except when safety, mechanical failure, or spiny dogfish catch would prevent the catch from being brought aboard the vessel, and the requirement that a released catch affidavit be completed for slipped catch.

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.

Reporting Requirements for Dealers

Amendment 14 contains a requirement that MSB dealers must accurately weigh all fish related to large mackerel and longfin squid landings and, if catch is not sorted by species, dealers would be required to document how they estimated relative species composition.

Dealers currently report the weight of fish, obtained by scale weights and/or volumetric estimates. Because this measure does not specify the methods dealers must use to determine weight and allows volumetric estimates, it is not expected to change dealer behavior and, therefore, is not expected to improve the accuracy of catch weights reported by dealers. Additionally, a qualitative description of how relative species composition is estimated cannot be incorporated into catch monitoring because we must use the weights reported by the dealers, regardless of the methods used to determine weights. Without standards for estimating species composition, we would be unable to evaluate the sufficiency of the information submitted. If this measure were a requirement, and dealers did not document how they estimated relative species composition, it would become a compliance issue and could affect future permit issuance.

For these reasons, we believe this measure does not comply with National Standard 7's requirement to minimize costs and avoid unnecessary duplication, and the Paperwork Reduction Act's requirement for the utility of the measure to outweigh the additional reporting and administrative burden on the dealers. Therefore, I have disapproved the dealer reporting requirement. Revisions to the dealer reporting requirement would need to address our concerns with the accuracy and utility of the information reported, which could be addressed in several ways.

For example, the Council could select Alternative 2b in Amendment 14 (requiring vessel owners to review and validate data for their vessels in Fish-on-Line). This measure would be a change from status quo, and it has some utility as it helps identify, and possibly reduce, discrepancies between dealer and vessel reports. Another way for the Council to revise the dealer reporting requirement would be to clarify and standardize the methods used to "accurately weigh all fish." Does the measure require fish to be weighed using a scale? Does the measure require a volumetric estimate based on a certified fish hold or standardized totes? If the methods to "accurately weigh all fish" were specified, it would likely change dealer behavior from status quo, and may, depending on the methods, improve the accuracy of dealer reports. Alternatively, the Council could take this opportunity to revisit the original concern that sparked the development of the dealer reporting requirement, that reporting and monitoring of landings data

may be insufficient to precisely estimate river herring and shad interactions, and revise the measure to better address that concern. This could take the form of a portside sampling program to provide third-party verification of landings.

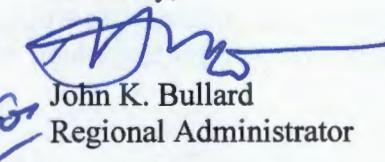
The sub-option requiring dealers to document how they estimate the composition of catch was intended to gather information on methods used by dealers to estimate species composition. Another way to obtain that type of information would be to gather it as part of a data collection program that would update community profiles for Northeast fisheries.

If the Council chooses to revise any of the measures disapproved in Amendment 14, my staff will work with the Council to design effective measures that help improve management of the MSB fisheries. Revised measures could be addressed in upcoming actions. Whether that action would be an amendment or framework would depend on the scope of the revised measure.

I realize the Council may want to address the disapproved measures as soon as possible. The Council will need to weigh the benefits of revising the disapproved measure against the need for putting time and resources towards completing other MSB priorities for 2014. To this point, I recommend that the omnibus amendment led by NMFS address industry-funded observer coverage for the mackerel fishery, and that the slippage cap be revised as part of an upcoming Council action. This would allow these measures to be addressed relatively quickly. Revisions to dealer reporting requirements may take longer to develop, especially if the Council chooses to consider a program that would provide third-party verification of landings, and could be included in a future Council action.

I appreciate the hard work that you and your staff put into developing Amendment 14. While several measures were disapproved, this amendment still does a lot to improve management of the MSB fisheries. I look forward to working with you and your staff on other ongoing improvements to management of the MSB fisheries. Please contact me if you have any questions.

Sincerely,



John K. Bullard
Regional Administrator