



## Mid-Atlantic Fishery Management Council

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# MEMORANDUM

**Date:** February 3, 2014  
**To:** Council  
**From:** Jason Didden *JDD*  
**Subject:** Mackerel-Squid-Butterfish (MSB) Topics, Wednesday February 12, 9am

There are two topics scheduled for Wednesday morning:

1. Framework 9 – Measures to address slippage (Action) (Document follows this page)
  - p. 53 Appendix 1 – AM5 Herring Slippage Analysis
  - p. 73 Appendix 2 – Mackerel Slippage Analysis 2012-2013
  - p. 75 Appendix 3 – Herring Slippage Analysis 2012-2013
  - p. 85 Appendix 4 – NERO Letter RE: Am14 Partial Approval
2. Omnibus Observer Funding Amendment (Update)
  - NMFS NERO staff will present. A separate, 19-page document follows the Framework 9 document



**FRAMEWORK ADJUSTMENT 9 TO THE**

**Atlantic Mackerel, Squid, and Butterfish  
Fishery Management Plan**

**DISCUSSION DOCUMENT /  
DRAFT ENVIRONMENTAL ASSESSMENT**

**February 2014**

**Mid-Atlantic Fishery Management Council**

**in cooperation with**

**the National Marine Fisheries Service (NMFS)**

**First Framework Meeting: December 10, 2013**

**Second Framework Meeting: February 12, 2014**

**Final approved by NOAA: XXXXXXXXXX**

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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 2,204.62 pounds)
NE	Northeast
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
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
VTR	Vessel Trip Report

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

## - 2.0 EXECUTIVE SUMMARY

Amendment 14 is implementing a variety of measures to monitor and control the catch of river herrings and shads (RH/S) in the mackerel (monitoring and control) and longfin squid (monitoring only) fisheries.

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 the 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.

- 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 slipped catch. Observer protocols include documenting fish that remain in the net in a discard log before they are released, 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 also not considered slipped catch.

Since observed trips are used to extrapolate discards and/or catch up to the entire fleet, the focus has accordingly been on slippage on observed trips so that an accurate picture of overall fleet behavior can be generated.

Amendment 14 will implement a rule that unless safety, mechanical, or spiny dogfish issues make it inappropriate, limited access longfin squid and mackerel vessels cannot release hauls of fish (“slippage”) prior to observer documentation when observers are available, and catch affidavits would 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 fleet wide, any vessels making additional non-exempted slippages would have to terminate their trip. 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. In this sense the cap would primarily have been an extra accountability measure.

Since 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 could have the potential to substantially affect any analysis of the data or extrapolations of incidental catch made from the data. This issue is especially acute with the mackerel fishery because of the relatively small river herring and shad mortality cap currently being implemented that could close the mackerel fishery in 2014 and beyond. Therefore, alternatives to minimize slippage were included in Amendment 14, and some are reconsidered in this framework since the overall value of observer data could be compromised because of the relatively large quantities of fish that can be caught, but not documented, in even a single tow. All of the alternatives are geared toward addressing this issue.

Accordingly, this framework considers several 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. Only one of the following alternatives would be chosen (no combinations). Since all of the alternatives apply only to limited access mackerel vessels on observed trips, this qualification (underlined) for the alternatives will not be repeated.

Again, non-exempted slippages (those other than for reasons related to safety, mechanical (i.e. any gear failure), or spiny dogfish) are prohibited by regulations being implemented in Amendment 14. The alternatives are described in Section 4 and summarized below (see also Table 1 below).

**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.

**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 10nm 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.

**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** - 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.

**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. 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.

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**

### **Managed Resources**

Longfin squid, *Illex* squid, and butterfish should not be affected by the status quo or the action alternatives since the alternatives relate only to the mackerel fishery, and mortality is controlled separately for those species with hard quotas and accountability measures.

The current measures in effect for these fisheries are further described at:

<http://www.nero.noaa.gov/regs/info.html>.

Any of the action alternatives could lead to less mackerel fishing. Trip modifications and trip terminations for observed trips per the action alternatives are unlikely to impact overall mackerel fishing effort. However, if the data gained by avoiding slippage leads to a closure of the mackerel fishery due to the river herring and shad 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 fishing may have minimal impacts on the mackerel stock. Thus impacts for mackerel are best characterized as low positive for all action alternatives, and the difference between alternatives is likely negligible.

### **Non-target Resources**

The non-target species impacted by the mackerel fishery are described in Section 5.5. All of the action alternatives could lead to better data being collected because slippage would be discouraged more than under the status quo. All of the action alternatives could also lead to less mackerel effort compared to the status quo, which could reduce non-target resource impacts, including RH/S.

### **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 other federally managed species should be negligible with the status quo or any of the action alternatives.

### **Protected Resources (Endangered Species, Marine Mammals)**

The protected resources impacted by the mackerel fishery are described in Section 5.4. All of the action alternatives could also lead to less mackerel effort compared to the status quo, which could reduce protected resources impacts.

## 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 would lead to higher RH/S populations. If restrictions on slippage led to earlier closures of the mackerel fishery, then revenues from mackerel fishing could be reduced, resulting in negative socioeconomic impacts. Individual trips that had consequences from slippage could also lose revenues or have their costs increase. There is also concern that further restricting slippage could create incentives for vessel operators to act unsafely.

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- **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 additional accountability measures related to slippage. These measures may be needed to ensure that catch of incidentally-caught species such as river herring and shad are fully documented when vessels in the mackerel fishery are being observed. Full documentation will ensure that the river herring and shad cap is estimated accurately.

**3.2 HISTORY OF FISHERY MANAGEMENT PLANS DEVELOPMENT**

**TO BE ADDED**

**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.

## - 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 status quo and no action are 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/>.

### **Background on Slippage**

Amendment 14 is implementing a variety of measures to monitor and control the catch of river herrings and shads in the mackerel (monitoring and control) and longfin squid (monitoring only) fisheries.

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 the 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.

- 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 slipped catch. Observer protocols include documenting fish that remain in the net in a discard log before they are released, 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 also not considered slipped catch.

Since observed trips are used to extrapolate discards and/or catch up to the entire fleet, the focus has accordingly been on slippage on observed trips so that an accurate picture of overall fleet behavior can be generated. Amendment 14 will implement a rule that unless safety, mechanical, or spiny dogfish issues make it inappropriate, limited access longfin squid and mackerel vessels cannot release hauls of fish (“slippage”) prior to observer documentation when observers are available, and catch affidavits would 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 fleet 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 fleet 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 11<sup>th</sup> 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 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. In this sense the cap would primarily have been an extra accountability measure. 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).

Since 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 could have the potential to substantially affect any analysis of the data or extrapolations of incidental catch made from the data. This issue is especially acute with the mackerel fishery because of the relatively small river herring and shad mortality cap currently being implemented that could close the mackerel fishery in 2014 and beyond. Therefore, alternatives to minimize slippage were included in Amendment 14, and some are reconsidered in this framework since the overall value of observer data could be compromised because of the relatively large quantities of fish

that can be caught, but not documented, in even a single tow. All of the alternatives are geared toward addressing this issue.

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 appears to constitute a very small portion of the herring and mackerel fisheries. While this is true, examination of observer data and the river herring/shad cap amounts proposed for 2014 illustrate why slippage is still an important issue for the river herring/shad cap on the mackerel fishery. In 2014, the cap is proposed to be 236 metric tons. 236 metric tons is approximately 500,000 pounds. If 10% (0.1) of the mackerel fishery is observed, then approximately 50,000 pounds of actually observed river herring and shad could close the mackerel fishery (50,000 observed/0.1 = 500,000 extrapolated). Numerous NMFS analyses (see Appendices 1,2,3) 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.

Accordingly, this framework considers several alternatives related to restricting 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. Only one of the following alternatives would be chosen (no combinations). Since all of the alternatives apply only to limited access mackerel vessels on observed trips, this qualification (underlined) for the alternatives will not be repeated.

Currently, non-exempted slippages (those other than for reasons related to safety, mechanical (i.e. any gear failure), or spiny dogfish) are prohibited by regulations being implemented in Amendment 14. For alternatives that include new consequences for non-exempted slippages, the Council needs to indicate whether vessels would be out of regulatory compliance even if they follow the consequence. If yes, then even if vessels follow the consequence for a non-exempted consequence (such as terminating a trip), they would still be subject to enforcement actions. If no, then regarding slippage, vessels would only be subject to enforcement action if they do not follow the consequence. To date staff has followed the first approach, but several individuals have raised concerns that if vessels are adhering to the consequence rules, then it seems unfair if they will still be held out of compliance. Table 1 (above) summarizes the alternatives.

**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.

**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 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, moving to another may be easy or may be far enough to cause a de-facto trip termination, depending on fish availability.

**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 nm wide. Depending on where in a statistical area a vessel was located, moving to another may be easy or may be far enough to cause a de-facto trip termination, depending on fish availability.

**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 southern New England and Mid-Atlantic area are approximately 50-80 nm wide. Depending on where in a statistical area a vessel was located, moving to another may be easy or may be far enough to cause a de-facto trip termination, depending on fish availability.

**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. 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.

**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. Statistical areas in

southern New England and Mid-Atlantic area are approximately 50-80 miles wide. Depending on where in a statistical area a vessel was located, moving to another may be easy or may be far enough to cause a de-facto trip termination, depending on fish availability.

**Alternative 6b** - 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 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.

**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 southern New England and Mid-Atlantic area are approximately 50-80 miles wide. Depending on where in a statistical area a vessel was located, moving to another may be easy or may be far enough to cause a de-facto trip termination, depending on fish availability.

**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.

## - 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 of mackerel will be provided. The 2014 specifications environmental assessment may be viewed at <http://www.nero.noaa.gov/regs/2014/January/14smb2014specspr.html> for 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 basic biology of Atlantic mackerel, 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, is detailed in the Essential Fish Habitat (EFH) document for the species, located at: <http://www.nefsc.noaa.gov/nefsc/habitat/efh/>.

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/>. Mackerel will be in year 2 of three-year multiyear specifications in 2014,

and additional information is available in the 2013 specifications EA, available at: <http://www.nero.noaa.gov/regs/>.

## **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.

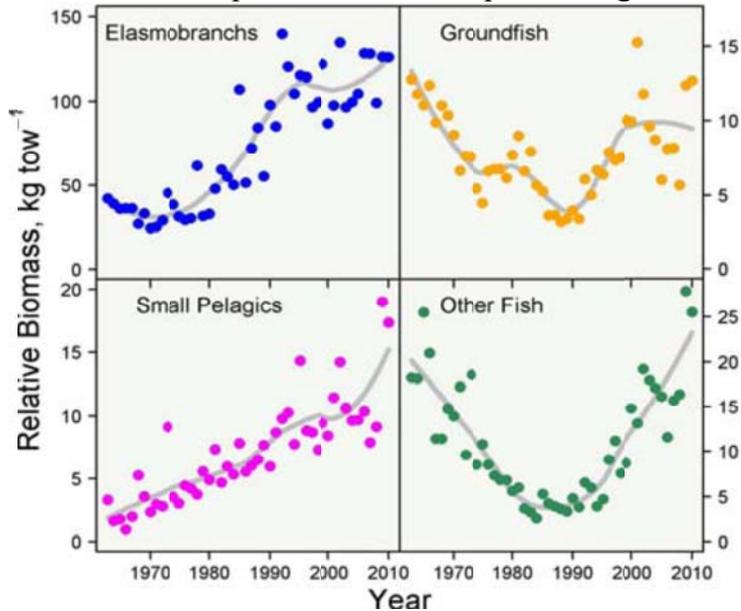
Developing ecosystem policies will be a multi-year process. In the meantime, this section provides background on the broad ecosystem in which the Atlantic Mackerel, Squid, and Butterfish fisheries generally take place. This section is generally adapted from the “Ecosystem Status Report for the Northeast 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 also takes 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 km<sup>2</sup> 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 fleets. 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.

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 managed resource is described using fundamental information on habitat requirements by life history stage that is summarized in a series of documents produced by NMFS and available at: <http://www.nefsc.noaa.gov/nefsc/habitat/efh/>. Matrices of habitat parameters (i.e. temperature, salinity, light, etc.) for eggs/larvae and juveniles/adults were developed and the updated EFH designations (text and maps) use this information and are available at <http://www.nero.noaa.gov/nero/regs/com.html> in the Amendment 11 EIS (search for Amendment 11 in the July 2011 actions). In general, the EFH for the MSB species is the water column itself, and the species have temperature and prey preferences/needs that drive the 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-tending mobile gear as described in the following table (see Stevenson et al 2004):

Table 2. EFH descriptions for species vulnerable to trawl gear

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

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

### **5.3.1 Fishery Impact Considerations**

Any actions implemented in the FMP 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>). Mackerel are primarily caught by mid-water trawls (which should not impact the bottom) but longfin squid, *Illex* squid, and butterfish are primarily caught with bottom trawls (mobile bottom-tending gear) that does contact the bottom. Amendment 9 included an analysis of the adverse impacts of the MSB fisheries on EFH (as required pursuant to 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 (Veaches and Norfolk) to protect tilefish EFH and prohibited all bottom trawling activity. Because there have be 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 7.0), 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 via Amendment 16 to the MSB FMP.

#### **5.4 ESA Listed Species and MMPA Protected Species**

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

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

\* = Known to have interacted with MSB fisheries

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

\*Bottlenose dolphin (*Tursiops truncatus*) Protected

**Sea Turtles Species** **Status**

\*Leatherback sea turtle (*Dermochelys coriacea*) Endangered  
 Kemp's ridley sea turtle (*Lepidochelys kempii*) Endangered  
 Green sea turtle (*Chelonia mydas*) Endangered  
 Hawksbill sea turtle (*Eretmochelys imbricata*) Endangered  
 \*Loggerhead sea turtle (*Caretta caretta*)  
 -Northwest Atlantic DPS Threatened

**Fish Species** **Status**

Shortnose sturgeon (*Acipenser brevirostrum*) Endangered  
 Atlantic salmon – Gulf of Main DPS (*Salmo salar*) Endangered  
 Atlantic sturgeon (*Acipenser oxyrinchus*)  
 Chesapeake Bay DPS Endangered  
 New York Bight DPS Endangered  
 Carolina DPS Endangered  
 South Atlantic DPS Endangered  
 Gulf of Maine DPS Threatened  
 Cusk (*Brosme brosme*) Candidate

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

**Species** **Status**

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

Under section 118 of the MMPA, NMFS must publish and annually update the List of Fisheries (LOF), which places all U.S. commercial fisheries in one of three categories based on the level of incidental serious injury and mortality of marine mammals in each fishery (arranging them according to a two tiered classification system). The categorization of a fishery in the LOF determines whether participants in that fishery may be required to comply with certain provisions of the MMPA, such as registration, Northeast Fishery Observer Program observer coverage, and take reduction plan requirements. The classification criteria consists of a two tiered, stock-specific approach that first addresses the total impact of all fisheries on each marine mammal stock (Tier 1) and then addresses the impact of the individual fisheries on each stock (Tier 2). If the total annual mortality and serious injury of all fisheries that interact with a stock is less

than 10% of the Potential Biological Removal (PBR) for the stock then the stock is designated as Tier 1 and all fisheries interacting with this stock would be placed in Category III. Otherwise, these fisheries are subject to categorization under Tier 2. PBR is the product of minimum population size, one-half the maximum productivity rate, and a "recovery" factor (MMPA Sec. 3. 16 U.S.C. 1362; Wade and Angliss 1997). The current (2012) list of fisheries is available at: <http://www.nmfs.noaa.gov/pr/interactions/lof/>.

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

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

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

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

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

### **Marine Mammal Stock Assessment Reports:**

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

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

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

#### 5.4.1 Commercial Fisheries Interactions

The following is a description of species of concern because they are protected under MMPA and, as discussed above, have had documented interactions with fishing gears used to harvest species managed under this FMP. Five year take averages are provided as found in Waring *et al* (2012). Only interactions with mackerel are described here, but information regarding the other fisheries in this FMP can be found in the 2014 specifications environmental assessment at <http://www.nero.noaa.gov/regs/2014/January/14smb2014specspr.html>.

##### **Common dolphin (PBR = 529, all fisheries annual take 2006-2010 = 164)**

The common dolphin may be one of the most widely distributed species of cetaceans, as it is found worldwide in temperate, tropical, and subtropical seas. They are widespread from Cape Hatteras northeast to Georges Bank (35° to 42° North latitude) in outer continental shelf waters from mid-January to May. Exact total numbers of common dolphins off the US or Canadian Atlantic coast are unknown, although the most recent Stock Assessment Report considers the best abundance estimate for common dolphins to be 67,191 (Coefficient of Variation (CV) =0.29). PBR for the western North Atlantic common dolphin is 529. See Waring *et al.* 2012 (<http://www.nmfs.noaa.gov/pr/sars/>) for more life history information.

*Fishery Interactions* - The following fishery interaction information was taken from the latest stock assessment for common dolphin contained in Waring *et al.* (2012) which summarizes incidental mortality of this species. Annual averages are presented below – details on encounters may be reviewed in Waring *et al* (2012).

Atlantic Mackerel - This fishery is primarily prosecuted with mid-water trawl in the Mid-Atlantic but also with bottom trawl as well. As noted above, the mean estimated annual mortality of common dolphin during the five year period 2006-2010 in the Mid-Atlantic bottom trawl fishery was 103 animals (CV=0.13). For the Mid-Atlantic mid-water trawl fishery the mean estimated annual mortality of common dolphin was 1 (CV=0.7) during the five year period 2006-2010. The portion attributable to the directed Atlantic mackerel fishery is unknown.

**Atlantic white-sided dolphin (*Lagenorhynchus acutus*) (PBR = 304, all fisheries annual take 2006-2010 = 212)**

Atlantic white-sided dolphins (*Lagenorhynchus acutus*) are found in temperate and sub-polar waters of the North Atlantic, primarily in continental shelf waters to the 100m depth contour. The exact total number of white-sided dolphins (*Lagenorhynchus acutus*) along the eastern US and Canadian Atlantic coast is unknown, although the best available current abundance estimate for white-sided dolphins in the western North Atlantic stock is 48,819 (CV=0.61). PBR for the western North Atlantic stock of white-sided dolphin (*Lagenorhynchus acutus*) is 304. See Waring *et al.* 2012 (<http://www.nmfs.noaa.gov/pr/sars/>) for more life history information.

*Fishery Interactions* - The following information was taken from the latest stock assessment for white-sided dolphin (*Lagenorhynchus acutus*) contained in Waring *et al* (2012) which summarized incidental mortality of this species. Annual averages are presented below – details on encounters may be reviewed in Waring *et al* (2012).

Atlantic Mackerel - This fishery is primarily prosecuted with mid-water trawl in the Mid-Atlantic but also with bottom trawl as well. As noted above, the mean estimated annual mortality during the five year period 2006-2010 in the Mid-Atlantic bottom trawl fishery was 20 animals (CV=0.09). For the Mid-Atlantic mid-water trawl fishery the mean estimated annual mortality of common dolphin was 12 (CV=0.45) during the five year period 2006-2010. The portion attributable to the directed Atlantic mackerel fishery is unknown.

**Long-finned (*Globicephala melas*) and short-finned (*Globicephala macrorhynchus*) pilot whales (PBR = 265, all fisheries annual take 2005-2009 = 162) (Note, an updated 2012 assessment document was not available at the time this document was written).**

There are two species of pilot whales in the Western Atlantic - the Atlantic (or long-finned) pilot whale, *Globicephala melas*, and the short-finned pilot whale, *G. macrorhynchus*. These species (sp.) are difficult to identify to the species level at sea. Preliminary analysis suggests the following distribution of the two species: sightings south of the mouth of the Chesapeake Bay are likely short-finned pilot whales, as are offshore (near the 4,000m depth contour) sightings from off the mouth of the Chesapeake Bay through off New Jersey. Sightings from the mouth of the Chesapeake Bay to the Southern Edge of Georges Bank along the 100/1,000 m depth contours are likely mixed. Sightings in the Gulf of Maine and east and north of Cape Cod are likely long-finned pilot whales, as are sightings in shelf waters immediately southeast of Nantucket. The minimum population size for short-finned pilot whales is estimated to be 17,190 and the minimum population size for long-finned pilot whales is estimated to be 9,333. PBR for short-finned pilot whales is estimated to be 172 and PBR for long-finned pilot whales is estimated to be 93 (total is 265). See Waring *et al.* 2011 (<http://www.nmfs.noaa.gov/pr/sars/>) for more life history information.

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

Atlantic Mackerel - This fishery is primarily prosecuted with mid-water trawl in the Mid-Atlantic but also with bottom trawl as well. As noted above, the mean estimated annual mortality during the five year period 2005-2009 in the Mid-Atlantic bottom trawl fishery was 30 animals (CV=0.16). For the Mid-Atlantic mid-water trawl fishery the mean estimated annual mortality of common dolphin was 2.4 (CV=0.99) during the five year period 2005-2009. The portion attributable to the directed Atlantic mackerel fishery is unknown.

**Risso's dolphin (*Grampus griseus*) (PBR = 95, all fisheries annual take 2006-2010 = 17)**

Risso's dolphins are distributed worldwide in tropical and temperate seas, and in the Northwest Atlantic occur from Florida to eastern Newfoundland. Off the northeast U.S. coast, Risso's dolphins are distributed along the continental shelf edge from Cape Hatteras northward to Georges Bank during spring, summer, and autumn. In winter, the range is in the Mid-Atlantic Bight and extends outward into oceanic waters. The best population estimate for the western North Atlantic Risso's dolphin is 15,197 (CV=0.55). See Waring *et al.* 2012 (<http://www.nmfs.noaa.gov/pr/sars/>) for more life history information.

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

#### Mid- Atlantic Bottom Trawl

Fifteen Risso's dolphins were observed taken in mid-Atlantic bottom trawl fisheries in 2010. This is the first time this species was observed taken in this fishery. The 2010 mortality estimate is currently not available. Until this bycatch estimate can be developed, the 2006-2010 average annual mortality attributed to the mid-Atlantic bottom trawl is calculated as 3 animals (15 animals/5 years). The specific fishery responsible for the 2010 interactions is not yet known.

#### Mid-Atlantic Mid-water Trawl

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

**Bottlenose dolphin (*Tursiops truncatus*) Offshore Form (not updated in 2012 so information below is from Waring et al 2008). (PBR = 566, all fisheries take is unknown)**

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

Fisheries Information

Total estimated mean annual fishery-related mortality for this stock during 2001-2006 is unknown, however mortalities of offshore bottlenose dolphins were observed during this period in the Northeast Sink Gillnet and Mid-Atlantic Gillnet commercial fisheries.

Earlier Interactions

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

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

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

**5.4.2 Atlantic Trawl Gear Take Reduction Plan**

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

The immediate goal of a Take Reduction Plan is to reduce, within six months of implementation, the incidental serious injury or mortality of marine mammals from commercial fishing to levels less than PBR. The long-term goal is to reduce, within five

years of its implementation, the incidental serious injury and mortality of marine mammals from commercial fishing operations to insignificant levels approaching a zero serious injury and mortality rate, taking into account the economics of the fishery, the availability of existing technology, and existing state or regional FMPs.

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

The ATGTRT recommended that two plans be developed to achieve the overall goal of the Take Reduction Strategy to reduce the incidental take of marine mammals in Atlantic trawl fisheries. These include an Education and Outreach Plan and a Research Plan as part of an overall take reduction strategy. The ATGTRT established two sub-groups to develop the Education and Outreach and Research Plans. The Education and Outreach Plan identifies activities that promote the exchange of information necessary to reduce the bycatch of marine mammals in Atlantic trawl fisheries. The Research Plan identifies information and research needs necessary to improve our understanding of the factors resulting in the bycatch in Atlantic trawl fisheries. The results of the identified research will be used to direct additional research and/or identify measures to reduce the serious injury and mortality of short- and long-finned pilot whales, Atlantic white-sided dolphins, and common dolphins in trawl fisheries to levels approaching the Zero Mortality Rate Goal. The Atlantic Trawl Gear Take Reduction Strategy is available at: [http://www.nero.noaa.gov/prot\\_res/atgtrp/](http://www.nero.noaa.gov/prot_res/atgtrp/).

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

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

The primary species likely to be adversely affected by the MSB fishery would be loggerhead sea turtles, as they are the most abundant species occurring in U.S. Atlantic waters. Sea sampling and observer data indicate that fewer interactions occur between fisheries that capture MSB and leatherback, Kemp's ridley, and green sea turtles. The primary area of impact of the directed commercial fishery for MSB on sea turtles is likely bottom otter trawls in waters of the Mid-Atlantic from Virginia through New York, from

late spring through fall (peak longfin squid abundance July-October). In New England, interactions with trawl gear may occur in summer through early fall (peak squid abundance August -September), although given the level of effort, the probability of interactions is much lower than in the Mid-Atlantic.

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

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

On March 16, 2010, the Services announced 12-month findings on petitions to list the North Pacific populations and the Northwest Atlantic populations of the loggerhead sea turtle as DPSs with endangered status and published a proposed rule to designate nine loggerhead DPSs worldwide, seven as endangered (North Pacific Ocean DPS, South Pacific Ocean DPS, Northwest Atlantic Ocean DPS, Northeast Atlantic Ocean DPS, Mediterranean Sea DPS, North Indian Ocean DPS, and Southeast Indo-Pacific Ocean DPS) and two as threatened (Southwest Indian Ocean DPS and South Atlantic Ocean DPS). On March 22, 2011, the timeline for the final determination was extended for six months until September 16, 2011 (76 FR 15932).

A final listing determination was published on September 22, 2011 (76 FR 58867). Unlike the proposed listing, the final listing designates four DPSs (Northwest Atlantic, South Atlantic, Southeast Indo-Pacific, Southwest Indian) as threatened, and five DPSs (Northeast Atlantic, Mediterranean, North Indian, North Pacific, South Pacific) as endangered.

#### 5.4.4 Atlantic sturgeon

In 2012 NOAA's Fisheries Service announced a final decision to list five distinct population segments (DPS) of Atlantic sturgeon under the Endangered Species Act. The Chesapeake Bay, New York Bight, Carolina, and South Atlantic DPSs of Atlantic sturgeon were listed as endangered, while the Gulf of Maine DPS was listed as threatened. Atlantic sturgeon from any of the five DPSs could occur in areas where MSB fisheries operate, and the species has been captured in gear targeting longfin squid (Stein et al. 2004a, ASMFC 2007). Therefore, this Environmental Assessment includes background information on Atlantic sturgeon in this section and considers the anticipated effects of the action on Atlantic sturgeon in Section 7 of this Environmental Assessment.

Atlantic sturgeon is an anadromous species that spawns in relatively low salinity, river environments, but spends most of its life in the marine and estuarine environments from Labrador, Canada to the Saint Johns River, Florida. There are no total population size estimates for any of the 5 Atlantic sturgeon DPSs at this time. However, there are two estimates of spawning adults per year for two river systems (e.g., 863 spawning adults for the Hudson River, and 343 spawning adults per year for the Altamaha River). The Altamaha estimate represent only a fraction of the total population size of this subpopulation as Atlantic sturgeon do not spawn every year. Additionally, neither of these estimates include sub-adults or early life stages. Detailed life history information may be found in the 2007 Atlantic Sturgeon Status Review, available at: <http://sero.nmfs.noaa.gov/pr/esa/Sturgeon/Atl%20Sturgeon/atlanticsturgeon2007.pdf>.

Atlantic sturgeon are known to be captured in sink gillnet, drift gillnet, and otter trawl gear (Stein et al. 2004a, ASMFC TC 2007). Of these gear types, sink gillnet gear poses the greatest known risk of mortality for by-caught sturgeon (ASMFC TC 2007). Sturgeon deaths are rarely reported in the otter trawl observer dataset (ASMFC TC 2007). However, the level of mortality after release from the gear is unknown. For the years 2006 through 2010, an average of 775 Atlantic sturgeon encounters with small mesh otter trawl gear occurred in all areas (759 in the 600 series of statistical areas).

NOAA Fisheries Northeast Regional Office's Sustainable Fisheries Division reinitiated formal intra-service consultation with the Protected Resources Division on the continued operation of seven fisheries as authorized by NMFS including MSB. Re-initiation of these consultations was necessary as these fisheries may affect five distinct population segments of Atlantic sturgeon that were newly listed as threatened or endangered on February 6, 2012. Comments on a draft biological opinion were due July 19, 2013 and a final biological opinion was not available when this document was created. The draft biological opinion found that the MSB fisheries are not likely to appreciably reduce the likelihood of species survival for any Atlantic sturgeon DPS.

## 5.5 Other Non-Target Species

### Mackerel Fishery

Other than river herring and shad, this document does not discuss in detail the non-target interactions in the mackerel fishery because in 2014 mackerel will be in year two of three-year multi-year specifications and non-target interactions for the three-year specifications were analyzed in the 2013 specifications (see <http://www.nero.noaa.gov/regs/> for the accompanying environmental assessment). In general, non-target interactions in the mackerel fishery are relatively low. Non-target interactions include spiny dogfish, river herrings (blueback and alewife), silver hake, butterfish, scup, American shad, *Illex* squid, and a variety of other species caught in small quantities. 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 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, since the alternatives are designed to support the river herring and shad cap that is proposed to be placed on their catch in the mackerel fishery.

### River Herring

In the most recent Commission river herring stock assessment (ASMFC 2012), 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.

As part of a recent negative Endangered Species Act listing determination for river herring, NMFS completed an extinction risk analysis ([http://www.nero.noaa.gov/prot\\_res/candidatespeciesprogram/RiverHerringSOC.htm](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.

NMFS and the Council are beginning a proactive conservation strategy for river herring. This strategy is described at the river herring species of concern website, [http://www.nero.noaa.gov/prot\\_res/candidatespeciesprogram/RiverHerringSOC.htm](http://www.nero.noaa.gov/prot_res/candidatespeciesprogram/RiverHerringSOC.htm), 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 Catches in the Mackerel Fishery

Amendment 14 analyzed catch of river herrings and shads (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.

## **5.6 Human Communities and Economic Environment – Mackerel Fishery**

This section describes the socio-economic importance of the mackerel fishery. 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/fmp/history/smb-hist.htm> for more information or visit NMFS' community profiles page at: [http://www.nefsc.noaa.gov/read/socialsci/community\\_profiles/](http://www.nefsc.noaa.gov/read/socialsci/community_profiles/).

This section describes the following for mackerel: history of landings, prices and total revenues since 1982, specification performance for the last 10 years, 2012 data for permitted and active vessels by state, 1997-2012 numbers of permits, 2012 vessel dependence on each managed species as a proportion of total ex-vessel sales, 2010-2012 landings by state, 2010-2012 landings by month, 2010-2012 landings by gear, 2010-2012 landings in key ports, 2010-2012 numbers of active dealers, and 2010-2012 vessel trip report catches by key statistical area. There is also a market overview section for mackerel per the FMP as well as sections for recreational mackerel and longfin squid catch (butterfish are not caught in substantial amounts by recreational fishermen). 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 proprietary business data of fishery participants.

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 2014 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.

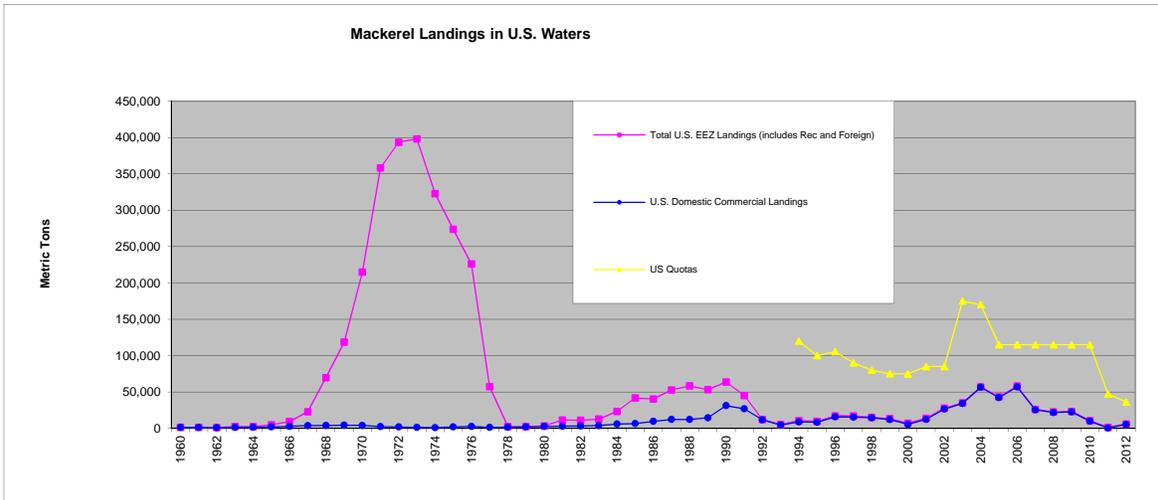


Figure 2. Historical Atl. Mackerel Landings in the U.S. EEZ.

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 2013 data suggests that around 3,500-4,000 mt will be landed in 2013.

Nominally ex-vessel price has generally varied between about \$200-\$400 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. 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). 2012 landings totaled 5,336 mt and generated \$3.9 million in ex-vessel revenues.

### **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, primarily because the fisheries have not approached the quotas. Beginning in 2012 any ABC overages must be repaid pound for pound. Discard information is not available to 2012, but it does not appear that mackerel would have approached anywhere near its ABC since discards and recreational catch are usually quite low according to the

most recent assessment (TRAC 2012). The 2013 ABC was 43,781 mt, which is also the ABC for 2014.

Table 3. Mackerel Quota Performance. (mt)

Year	Harvest (mt) (Commercial and Recreational)	Quota (mt) (Rec+Com)	Percent of Quota Landed
2003	35,068	175,000	20%
2004	56,912	170,000	33%
2005	43,302	115,000	38%
2006	58,371	115,000	51%
2007	26,130	115,000	23%
2008	22,517	115,000	20%
2009	23,238	115,000	20%
2010	10,649	115,000	9%
2011	1,463	47,395	3%
2012	6,019	36,264	17%

Source: Unpublished NMFS dealer reports and MRIP data

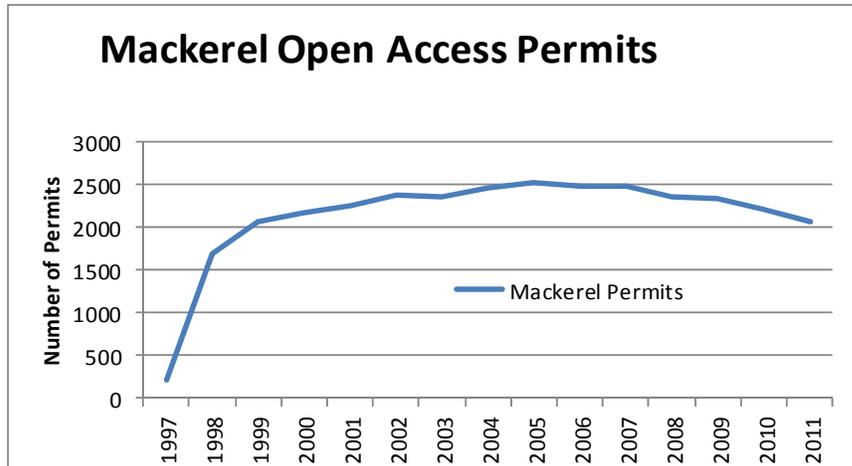
Participation in the fishery was low in 2012 related to the low availability of mackerel. The tables and figures below and on the following pages describe vessel participation, vessel dependency, distribution of landings by state/month/gear/port, dealer participation, and the general at-sea location of recent mackerel landings/catches.

Table 4. 2012 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
MA	.	3	.	3
ME	1	.	.	1
NH	.	2	.	.
NJ	.	4	.	.
NY	.	.	1	1
RI	2	.	.	3
VA	.	.	.	1

Source: Unpublished NMFS dealer reports and permit data.

Figure 3. Mackerel Permits Per Year



Source: Unpublished NMFS permit data.

The mackerel fishery fully became a limited access fishery in 2013. The current numbers of permits are 31 Tier 1 permits, 26 Tier 2 permits, and 89 Tier 3 permits. 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.

Table 5. 2012 Vessel Dependence on Mackerel (revenue-based)

Dependence on Mackerel	Number of Vessels in Each Dependency Category
1%-5%	21
5%-25%	11
25%-50%	2
More than 50%	2

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

Table 6. Recent Landings by State (mt)

Source: Unpublished NMFS dealer reports

YEAR	CT	MA	MD	ME	NA	NC	NH	NJ	NY	RI
2010	17	5,514	0	161	9	21	0	2,128	50	1,976
2011	17	234	0	90	5	3	0	48	60	73
2012	8	1,874	0	19	1	1	0	915	25	2,493

Table 7. Recent Landings by Month (mt)

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	5,633	2,654	1,187	160	102	57	10	4	5	54	2	10
2011	22	91	131	113	35	13	56	1	14	4	18	33
2012	668	3,576	948	20	49	4	5	1	36	18	5	5

Source: Unpublished NMFS dealer reports

Table 8. Recent Landings by Gear (mt)

YEAR	Gill Nets	Bottom Trawl	Single Mid-Water Trawl	Pair Mid-Water Trawl	Trap/Pots/Pound Nets/Weight	Other/Unknown
2010	37	2,763	1,992	4,149	33	903
2011	27	327	69	72	5	30
2012	4	3,063	576	1,488	24	181

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 2010-2012 (combined) included (from more mackerel dollars to less): North Kingstown, RI; New Bedford, MA; Gloucester, MA; Cape May, NJ; Fall River, MA; Point Judith, RI; and Montauk, NY. (Source: Unpublished NMFS dealer reports.)

Table 9. Recent Numbers of Active Dealers

	Number of dealers buying at least \$10,000 Mackerel	Number of dealers buying at least \$100,000 Mackerel
2010	13	5
2011	13	0
2012	5	5

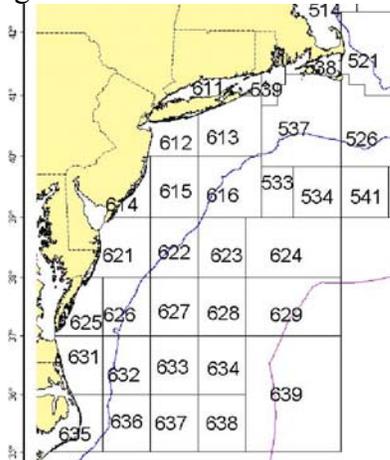
Source: Unpublished NMFS dealer reports

Table 10. Kept Catch in Statistical areas with at least 1,000 mt of mackerel caught in at least one recent year

YEAR	_612	_616	_622	_621
2010	5759.72	383.46	1260.19	1130.74
2011	3.64	99.85	17.95	59.25
2012	2392.64	1526.66	2.81	.

Source: Unpublished NMFS vessel trip reports

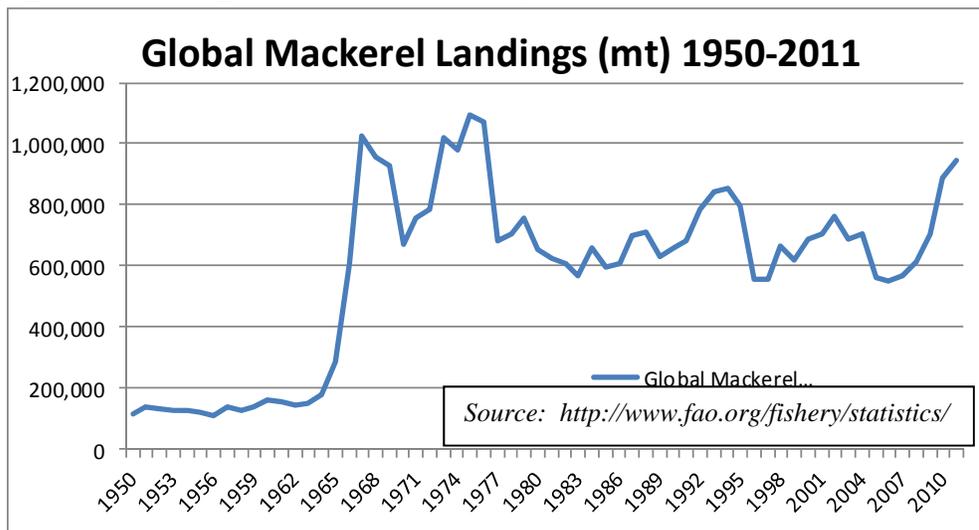
Figure 4. NMFS Statistical Areas



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

US mackerel (western Atlantic) are a substitute for European mackerel (eastern Atlantic), which are caught in much larger quantities. There are ongoing political battles in Europe over mackerel allocations that have recently led to European mackerel losing some Marine Stewardship Council certifications. It is unclear how demand for US mackerel may be impacted by these still unfolding events, but the MSB advisory panel has indicated that in general the demand for mackerel is high 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. 2002-2012 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 11. Recreational Harvest (rounded to nearest mt) of Mackerel, 2002-2012.

Year	Harvest (MT)
2002	1,294
2003	770
2004	473
2005	1,032
2006	1,511
2007	584
2008	783
2009	603
2010	759
2011	932
2012	683

*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?**

The alternatives considered are fully described in section 4. The key determinant of biological impact on the managed resources is how much fish can be caught, i.e. the annual catch limit (commonly referred to as a quota). However in recent years the mackerel fishery has not caught much of its quota due to lack of availability, abundance, or both. Thus even the status quo allows an expansion of catch. To the degree that extra effort is used to expand catch, impacts on non-target species, habitat, and protected resources could increase even under the status quo. Conversely, for the same reasons that catch has been lower than the quotas, catch and effort, and related impacts, could decrease under the status quo. Rather than repeat this concept for every resource, this document acknowledges that under any of the proposed alternatives effort and related impacts could increase or decrease for reasons other than the alternatives under consideration, and the analytical consideration is whether in any given year, would the alternative under consideration result in relatively less or additional impacts compared to how the fishery might operate under the status quo.

For habitat, protected resources, and non-target species impacts, the key determinant is not so much the catch itself but the amount and character of the related effort. A decrease in effort may result in positive impacts as a result of fewer encounters and/or fewer habitat impacts from fishing gear, while an increase in effort may result in negative impacts. Similar effort likely results in neutral impacts. Again, the mackerel fishery can experience large swings in availability and/or abundance, and therefore swings in effort independent of any regulatory changes.

To facilitate tracking of alternatives in this impact section, Table 1 is reproduced here (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?)

### **6.1 Biological Impacts on Managed Species- Atlantic Mackerel**

Because the mackerel fishery is the only MSB FMP fishery impacted by this action, and 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. Impacts for mackerel are described below.

U.S. mackerel landings have ranged from 1,463 metric tons to 10,649 metric tons over 2010-2012. Regardless of the restrictions on slippage considered in this document, mackerel catch is controlled by other measures (acceptable biological catch, annual catch limits, weekly monitoring) and should be limited such that overfishing does not occur. Thus impacts on the mackerel stock because of the slippage alternatives, and any change in monitoring of the RH/S cap that result, should be negligible since mackerel is still managed with its own quota. Restricting slippage may 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). Stricter slippage rules may result in bigger reductions. Alternative 1 (the status quo) is least strict. Alternatives 2 and 3 are the next strictest since while they could increase the penalty for non-exempt slippages, 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 (and are likely approximately equivalent in terms of reducing mackerel effort/catch). Alternatives 6a and 6b are the strictest measures to reduce slippage because they add consequences for all of the currently exempt slippages. Being the strictest, 6a and 6b are the most likely to result in lower mackerel effort/catches (more RH/S may be recorded by observers and close the mackerel fishery earlier). However, given the existing limits on mackerel catch, positive impacts for the mackerel stock are likely low. 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.

## **6.2 Habitat Impacts**

While the alternatives considered in this action could impact mackerel effort levels as described in Section 6.1 above, mackerel are primarily caught with mid-water trawl gear, which should not substantially impact the bottom so any impacts on habitat of other federally managed species should be negligible with the status quo or any of the action alternatives. This is basically the same finding as was included in Amendment 14 related to the RH/S cap and potential changes to mackerel fishing effort, i.e. that since mid-water trawl gear is principally used, habitat impacts should be negligible.

### **6.3 Impacts on Protected Resources**

Due to the year-to-year variation in catch and effort in the mackerel fishery, it is difficult to quantify protected species impacts. Section 5.4 describes the available information on recent interactions between the mackerel fishery and endangered and other protected species. Since the mackerel fishery overlaps with some marine mammal distributions, some marine mammal interactions are possible with the species highlighted in Section 6.4. The distribution of sea turtles also overlaps with the operation of the mackerel fishery. However, most of these species, including green, Kemp's ridley and loggerhead sea turtles, stay close to the coast feeding on bottom dwelling species (i.e., crabs) or vegetation where the mackerel fishery is less likely to occur and no interactions have been observed. Leatherbacks generally do not prey on fish and are unlikely to be attracted to operations of this fishery. While consumption of mackerel by Loggerheads has been documented, loggerheads do not generally target fast-moving fish such as mackerel (Dodd 1988). Thus, interactions between sea turtles and the mackerel fishery are not anticipated. Atlantic sturgeon occurs in the mackerel fishing area throughout the mackerel fishing season. The Stein et al. (2004a) review of sturgeon bycatch from 1989-2000 showed no observed sturgeon bycatch on vessels targeting Atlantic mackerel. See Section 6.4 for additional information on Atlantic sturgeon interactions in small-mesh otter trawl fisheries. Without changes to slippage restrictions (i.e. the status quo), similar impacts would be expected.

Restricting slippage may 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). Stricter slippage rules may result in bigger reductions. Alternative 1 (the status quo) is least strict. Alternatives 2 and 3 are the next strictest since while they could increase the penalty for non-exempt slippages, 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 (and are likely approximately equivalent in terms of reducing mackerel effort/catch). Alternatives 6a and 6b are the strictest measures to reduce slippage because they add consequences for all of the currently exempt slippages. Being the strictest, 6a and 6b are the most likely to result in lower mackerel effort/catches (more RH/S may be recorded by observers and close the mackerel fishery earlier).

These potential effort reductions from the action alternatives could have some positive impact to protected resources, but would depend on mackerel availability, RH/S encounter rates, protected species encounter rates, and the degree to which potential slippages that had RH/S present in the net are discouraged. As described above, stricter measures could reduce effort more, and therefore have greater benefits for protected resources. Given the indirect effect of slippage on protected resource impacts, the overall impact of any of the action alternatives is likely to be low positive.

## 6.4 Socioeconomic Impacts

There are potentially both positive and negative socioeconomic impacts associated with the alternatives considered in this action, including concerns about impacting safety at sea.

### Positive

If status quo mackerel fishing is hindering recovery of RH/S stocks, the RH/S cap could help those stocks recover. There is no information that mackerel fishing is a 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. Stricter restrictions would tend to result in the largest reductions (see 6.1 for relative comparisons). If the cap assists recovery of RH/S, then the cap, and indirectly the restriction of slippage, might 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).

### Negative

To the degree that the RH/S cap restricts mackerel fishing compared to the status quo, and to the degree that restricting slippage means the cap may close the mackerel fishery earlier (see Section 6.1 for relative comparisons), 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, and the ratio of RH/S catch (both in hauls that normally would be observed and in those that would otherwise be slipped). Individual trips that had slippage consequences imposed could also 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. Slippage events are not frequent according to analysis of observer data (see appendices 1-3).

Concerns have 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, 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 to a new statistical area 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.”

Council staff has not yet come up with ways to 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. This issue will be discussed during a February 10, 2013 AP meeting, and staff will relay the results of that meeting to the Council at the Council meeting.

### **6.5 Impacts on non-Target Fish Species**

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 status quo prosecution of the mackerel fishery. Since mackerel is in multi-year level catch specifications, one would generally expect impacts on non-target species from the status quo to be approximately similar as those in recent years. Due to the year-to-year variation in catch and effort in the mackerel fishery related to fish availability, it is difficult to quantify non-target impacts.

Generally the mackerel fishery has relatively low non-target species impacts, but catches of river herrings and shads (RH/S) are a concern. The 2013 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 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.

As described in Section 4, slippage events have the potential to substantially alter the estimation of RH/S in the RH/S cap. 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. Stricter slippage rules may result in bigger reductions. Alternative 1 (the status quo) is least strict. Alternatives 2 and 3 are the next strictest since while they could increase the penalty for non-exempt slippages, 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 (and are likely approximately equivalent in terms of reducing mackerel effort and RH/S catch). Alternatives 6a and 6b are the strictest measures to reduce slippage because they add consequences for all of the currently exempt slippages. Being the strictest, 6a and 6b are the most likely to result in lower RH/S catches (more RH/S may be recorded by observers and close the mackerel fishery earlier). To the degree that the mackerel fishery is closed earlier, other incidentally-caught species would benefit as well.

## **6.6 Cumulative Impacts of Preferred Alternatives on Identified Valued Ecosystem Components**

### ***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 specification recommendations 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 current date (January 2014) and Dec 31, 2018, a period of five years. The temporal scope of this analysis does not extend beyond 2018 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 gradual development of domestic fishing fleet. 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 bycatch 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 will be revisited in a new upcoming amendment. Amendment 13 to the MSB FMP implemented Annual Catch Limit and Accountability Measures.

In the near future Amendment 14 is likely to result in additional mitigation of non-target catch of river herring and shads. Amendment 14 will both increase and improve monitoring (vessel, dealer, and observer) of the mackerel and longfin squid fisheries and implement a cap catch of river herrings and shads in the mackerel fishery in 2014. Monitoring improvements include minimization of unobserved catch, observer facilitation and assistance, weekly vessel trip reporting, additional trip notification, and electronic vessel monitoring systems and reporting.

Annual specifications actions in future years should maintain the benefits as described above. Other actions expected before 2018 include Amendment 16, which will protect deep water corals, Framework 8, which will optimize butterfish quota management, Framework 9, which will improve observer operations by minimizing slippage (unobserved discards), and an omnibus Amendment to increase observer coverage through industry funding.

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 all of 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 may have caused short-term economic dislocations.

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. Non-fishing activities, in this sense, 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 MSFMCA, 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 also 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. 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 significant 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 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 actions, the Council should insure that cumulative impacts of these actions will remain positive. The cumulative effects of the proposed actions 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 and the United States fishing industry. 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 remedial action by the Council in subsequent years (i.e., reduced specifications) resulted in stock rebuilding to the point that 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 current status is unknown and the Council is maintaining the butterfish cap for the longfin squid fishery to help limit butterfish mortality at SSC-approved levels that should avoid overfishing.

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, but these are generally not quantifiable at present. 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 stocks as a result of fishing.

Additional cumulative effects analysis will focus on any preferred alternative, but the impacts analysis above suggests that no significant impacts will occur relative to the managed species.

### **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 Veatches 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.

Additional cumulative effects analysis will focus on any preferred alternative, but the impacts analysis above suggests that no significant impacts will occur relative to the habitat.

### **6.6.3 Protected Species**

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

As noted above, none of the management measures for 2014 under the preferred alternatives are expected to result in substantial changes to levels of effort relative to the status quo. 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.

Additional cumulative effects analysis will focus on any preferred alternative, but the impacts analysis above suggests that no significant impacts will occur relative to protected resources, so the cumulative effect of any of the proposed measures in conjunction with past and future management actions under the FMP and take reduction measures developed under the MMPA should continue to reduce the impact of these fisheries on the protected species listed in section 5.4.

#### **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.

Additional cumulative effects analysis will focus on any preferred alternative.

#### **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.

None of the management measures considered in this action are expected to substantially promote or result in increased overall levels of bycatch relative to the status quo because none are expected to substantially increase effort. Additional cumulative effects analysis will focus on any preferred alternative.

#### **6.7 Summary of cumulative impacts**

**TO BE ADDED.**

- **7.0 CONSISTENCY WITH THE MAGNUSON-STEVENSON ACT**

There are not expected to be inconsistencies between this action and the Magnuson Stevens Act. This biggest concern that has been raised relates to National Standard 10:

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

Safety at sea issues are described in Section 6.4 above.

- **8.0 OTHER APPLICABLE LAWS**

**TO BE ADDED.**

- **9.0 PREPARERS & LIST OF AGENCIES AND PERSONS CONSULTED**

**TO BE ADDED.**

- **10.0 LITERATURE CITED AND OTHER SELECTED REFERENCES**

**TO BE ADDED.**

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	Total
<b>OBS</b>	18	138	53	209	74	473	162	709	28,938
<b>VTR</b>	78	489	222	789	352	1844	591	2787	106,301
<b>Dealer</b>									101,025
<b>IVR</b>									102,617
<b>% coverage</b>	<b>23%</b>	<b>28%</b>	<b>24%</b>	<b>26%</b>	<b>21%</b>	<b>26%</b>	<b>27%</b>	<b>25%</b>	<b>27% (VTR) 29% (Dealer) 28% (IVR)</b>

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 sill 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).

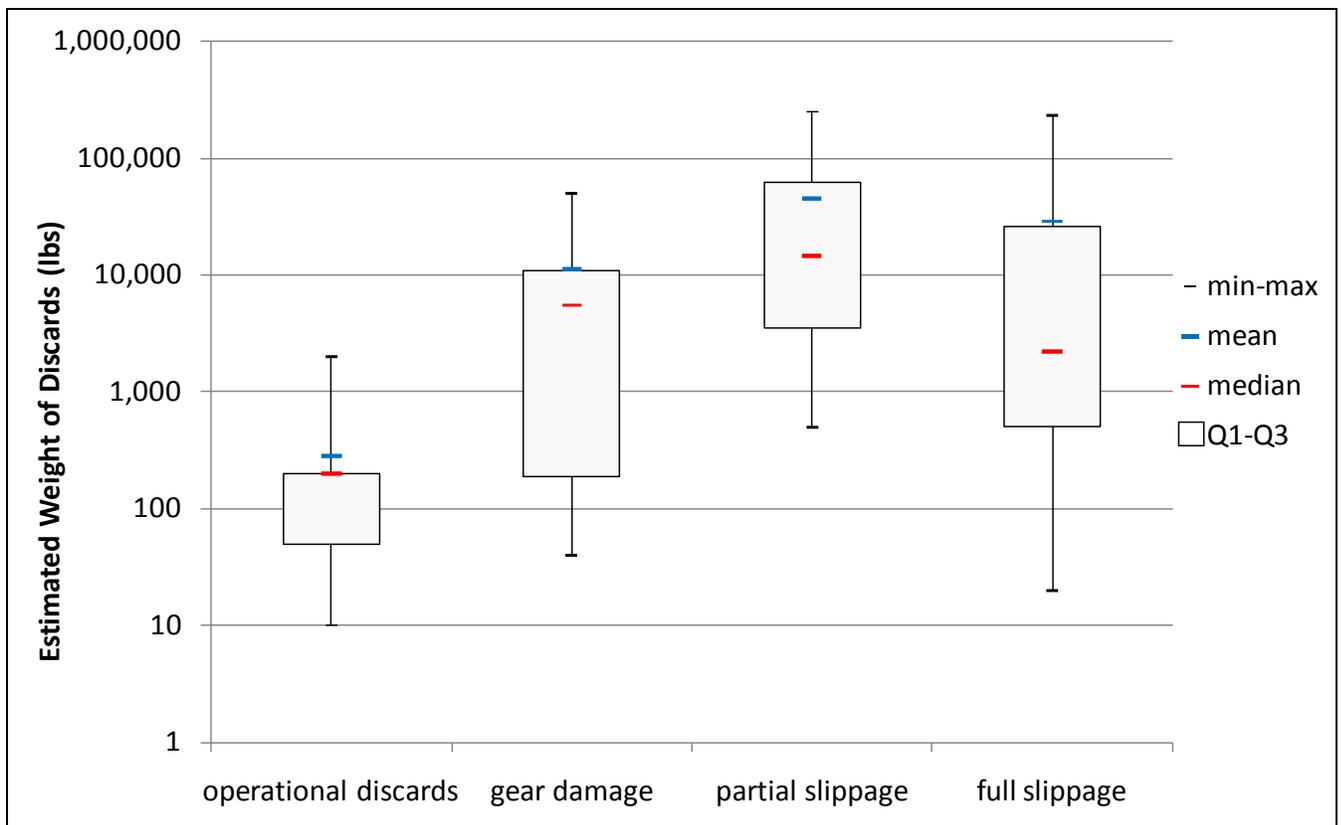
For the 2008/2009 data, NEFOP staff examined the data by hand to investigate and summarize comments that were provided about slippage events. Sampling protocols in 2008/2009 did not include comprehensive and detailed documentation of slippage events, so there were events for which no comments were provided. 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**

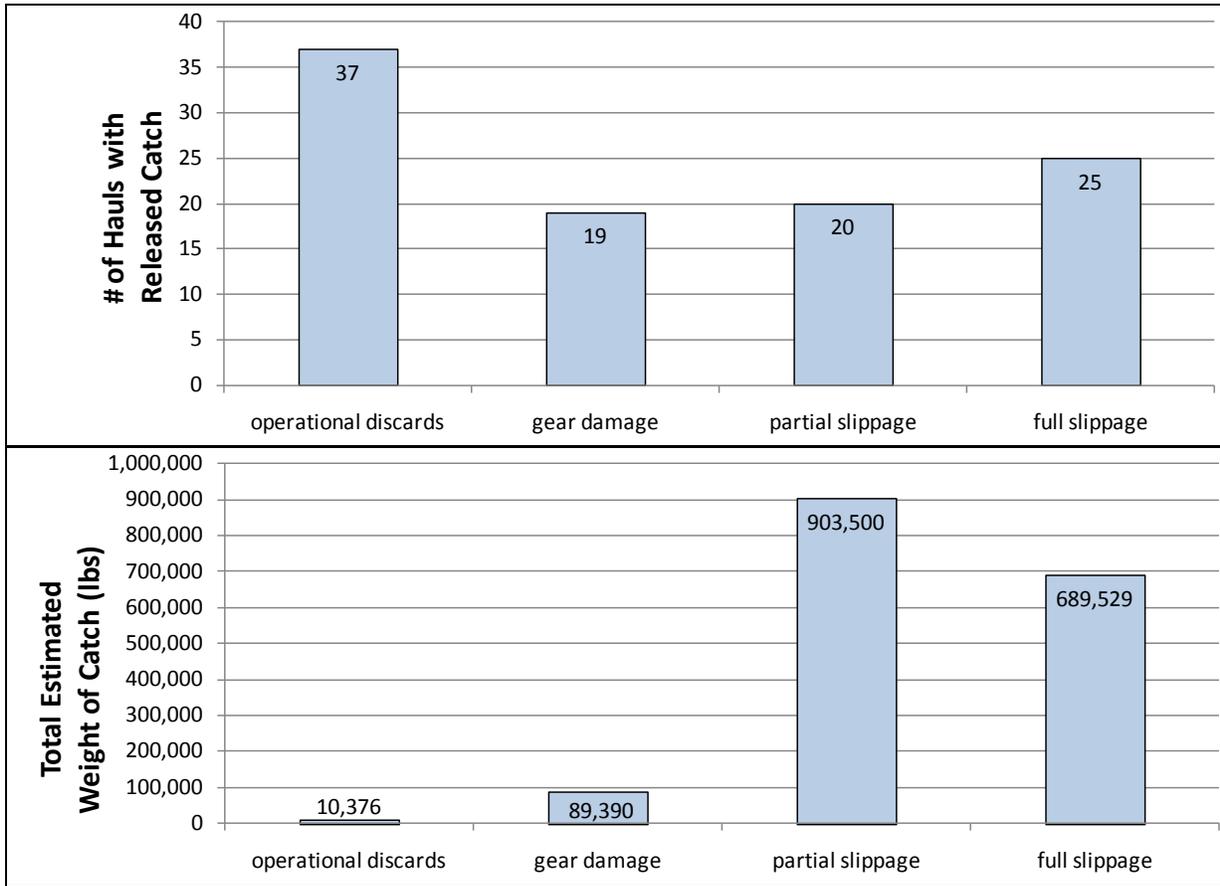
year	month	# hauls covered	kept lbs observed	# hauls w/ released catch	estimated lbs released
2008	Jan	18	822,447	0	
2008	Feb	13	2,621,846	0	
2008	Mar	17	2,184,187	5	17,000
2008	Apr	7	1,890,207	0	
2008	May	21	4,884,872	1	20,000
2008	Jun	27	2,560,004	2	280
2008	Jul	34	3,712,098	5	250,600
2008	Aug	14	2,626,778	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).

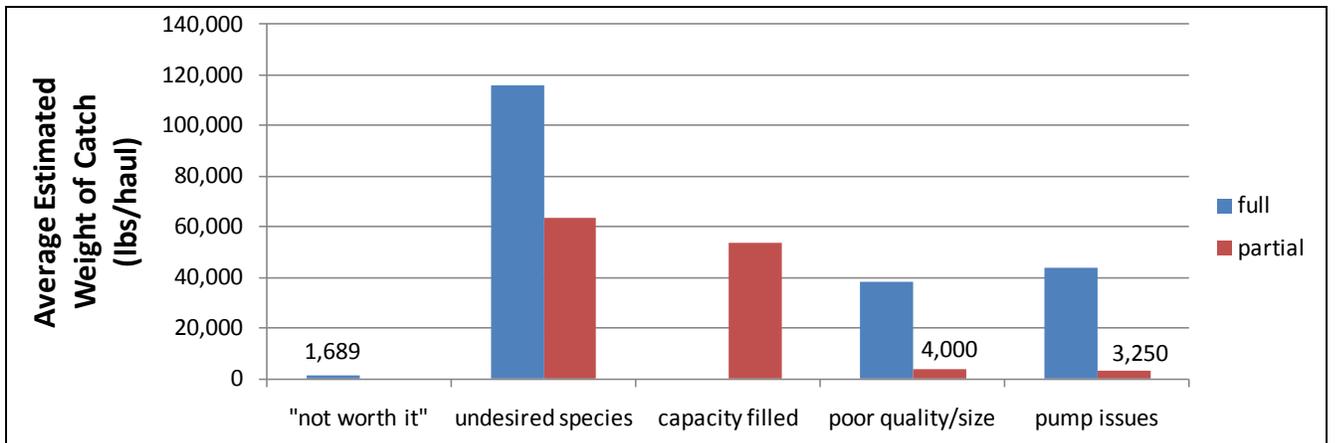
**Figure 80 Analysis of Comments Regarding Released Catch 2008/2009**



**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	
<b>Bottom Trawl</b>			2		63
<b>Purse Seine</b>	21	13	11	4	205
<b>Paired Midwater Trawl</b>	14	5	9	15	558
<b>Single Midwater Trawl</b>	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
<b>Purse Seine</b>	75	82	14	83%
<b>Paired Midwater Trawl</b>	129	92	125	62%
<b>Single Midwater Trawl</b>	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.

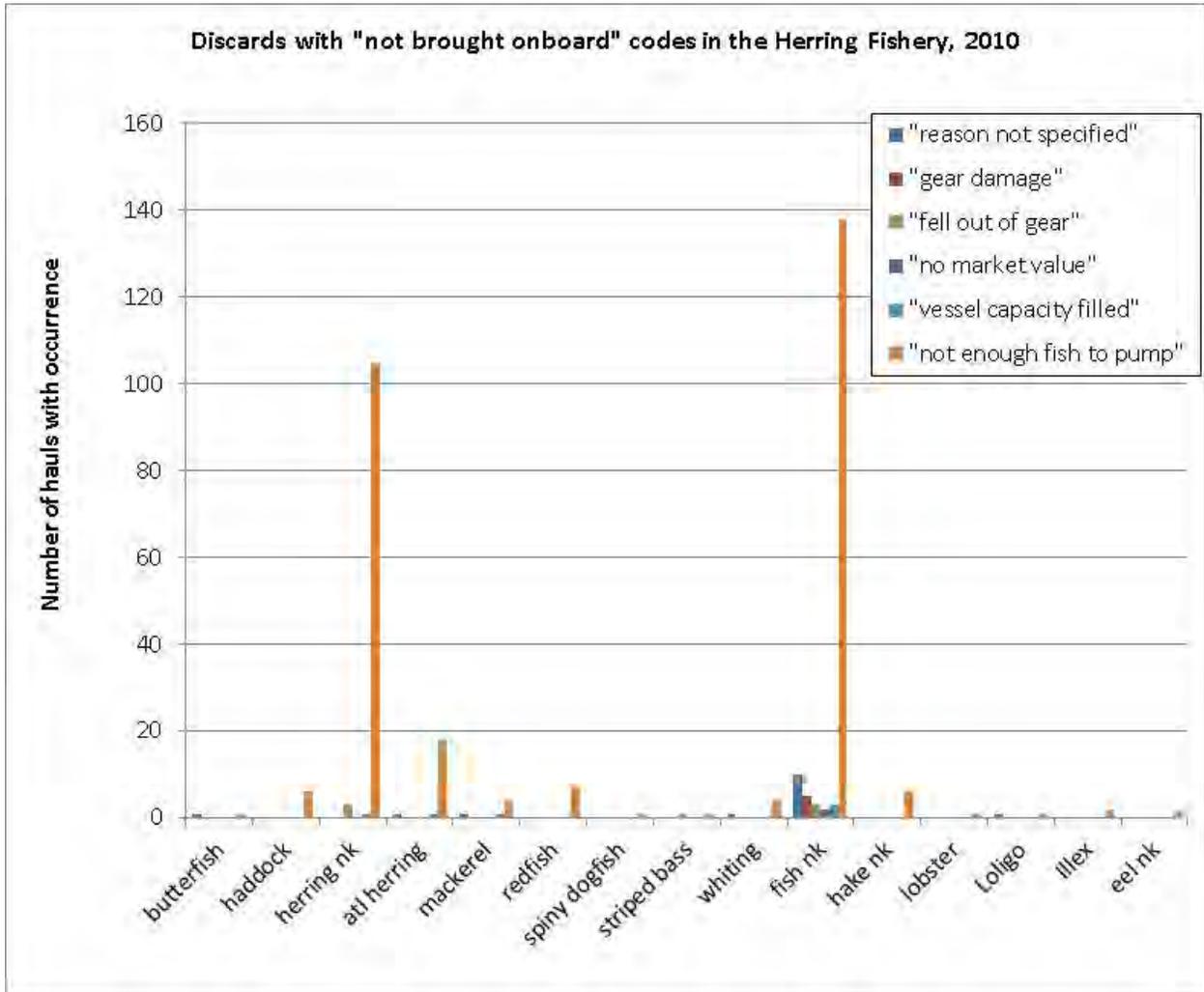
Table 148 provides data for the 332 observer records (287 unique hauls) in 2010 that included fish not brought on board. About 290 of these hauls were documented with “not enough fish to pump,” i.e., operational discards. Observers document operational discards as *Herring NK* if they are able to see 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.

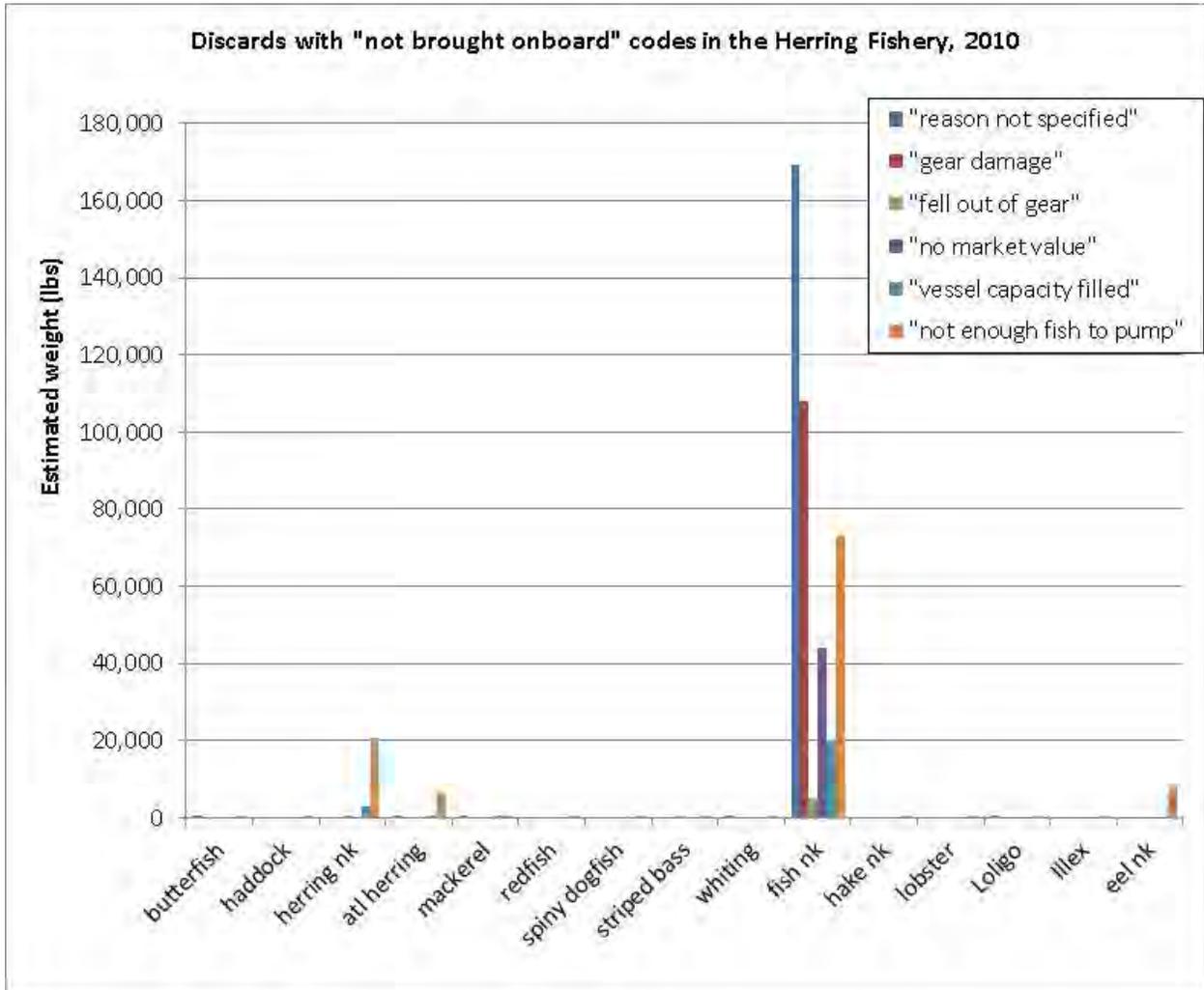
**Table 148 Summary of 2010 Observed Events on Limited Access Herring Vessels (by Number and Estimated Weight of Fish in Lbs.) with Fish Not Brought on Board**

	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	138
	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	72,766	
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.

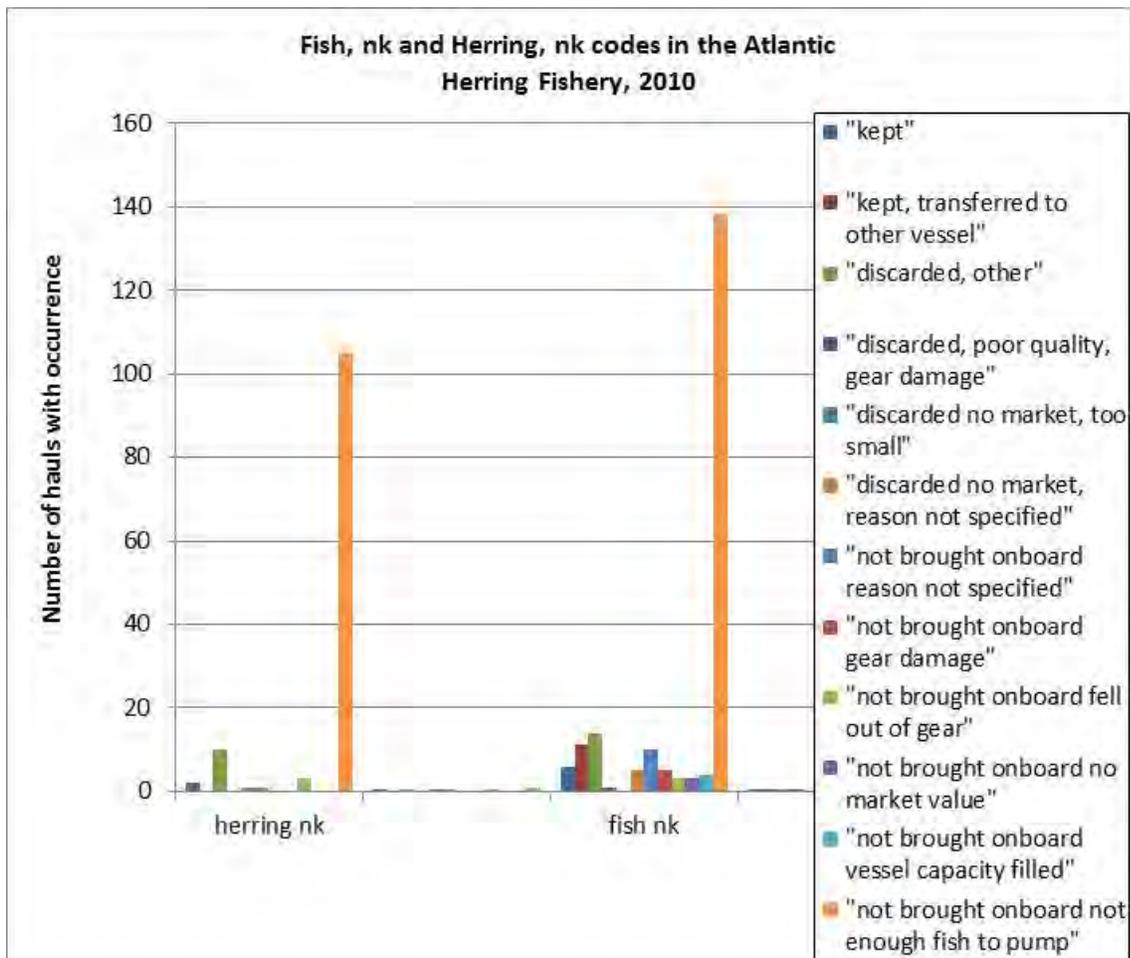
In 2010, Herring NK was documented on 122 hauls, and Fish NK was documented on 200 hauls. The majority of Herring NK (86%) was due to “not enough fish to pump” (operational discards). Sixty nine percent (69%) of Fish NK was associated with operational discards. In general, the amounts of fish classified 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 ½ 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.

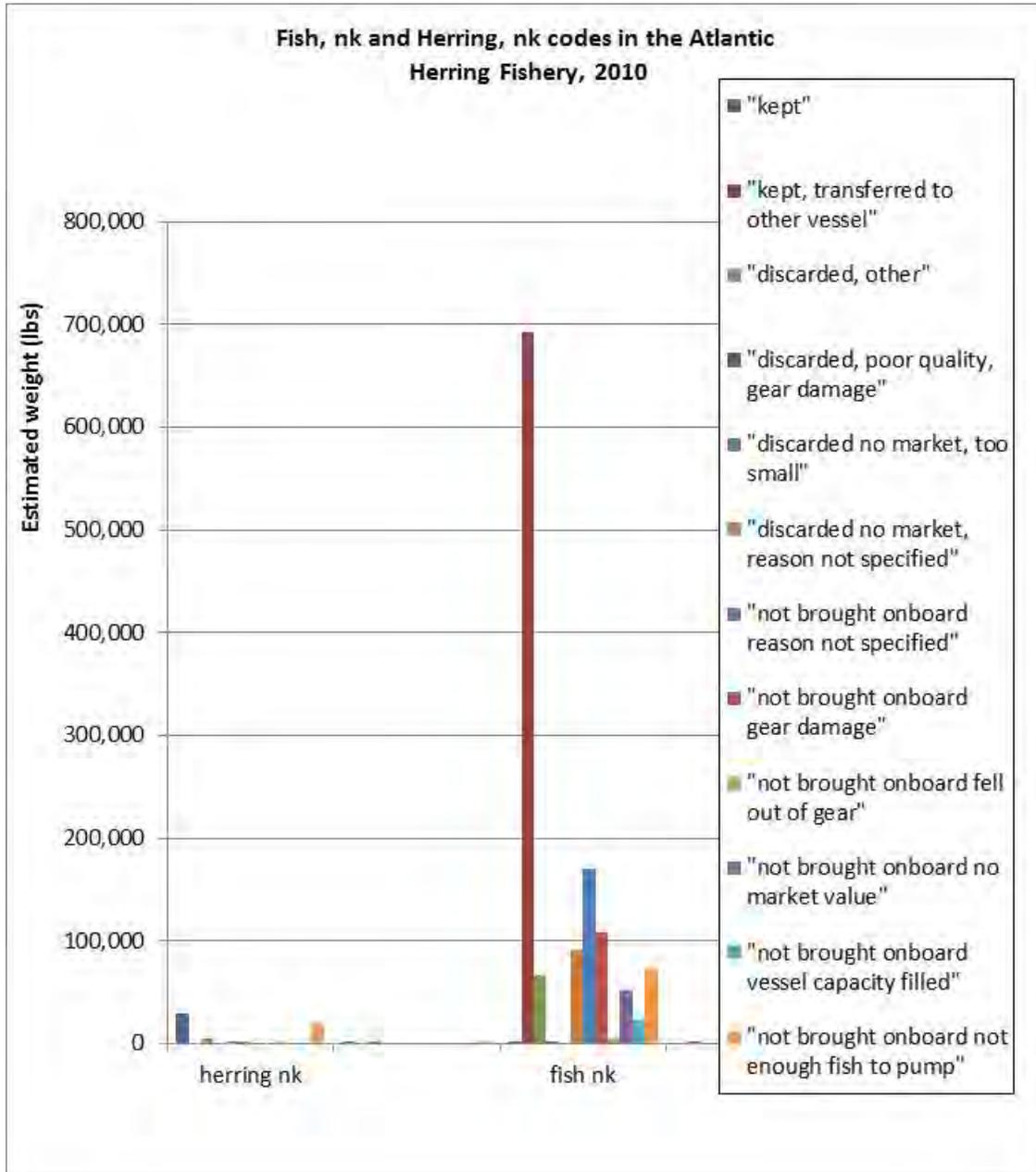
**Table 149 Quantification of Fish NK and Herring NK (in Pounds) on Observed Hauls by Limited Access Herring Vessels in 2010**

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	0	105
	1.6%	0 %	8.2%	0%	0.8%	0.8%	0 %	0 %	2.5%	0 %	0 %	0 %	86.1%	
fish nk	6	11	14	1	0	5	10	5	3	3	4	4	138	200
	3%	5.5%	7%	0.5%	0%	2.5%	5%	2.5%	1.5%	1.5%	2 %	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**

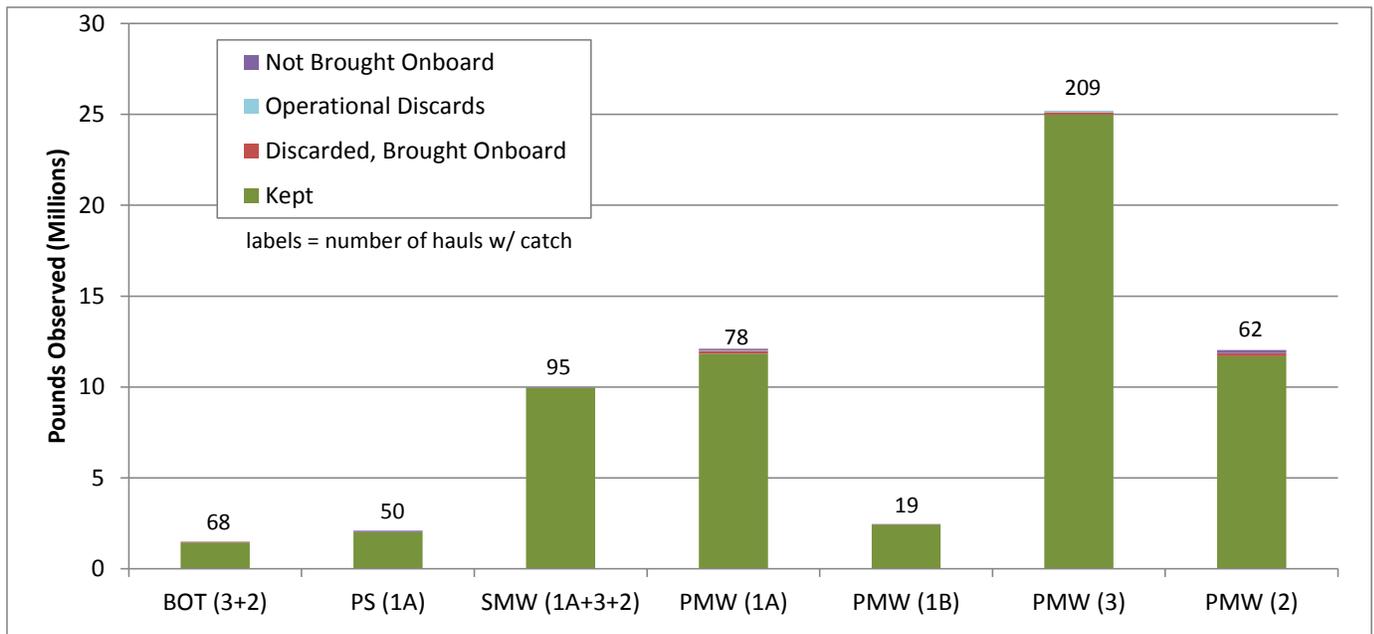


**Figure 87 Use of Fish NK and Herring NK Codes on Observed Limited Access Herring Trips (by Estimated Weight) in 2010**



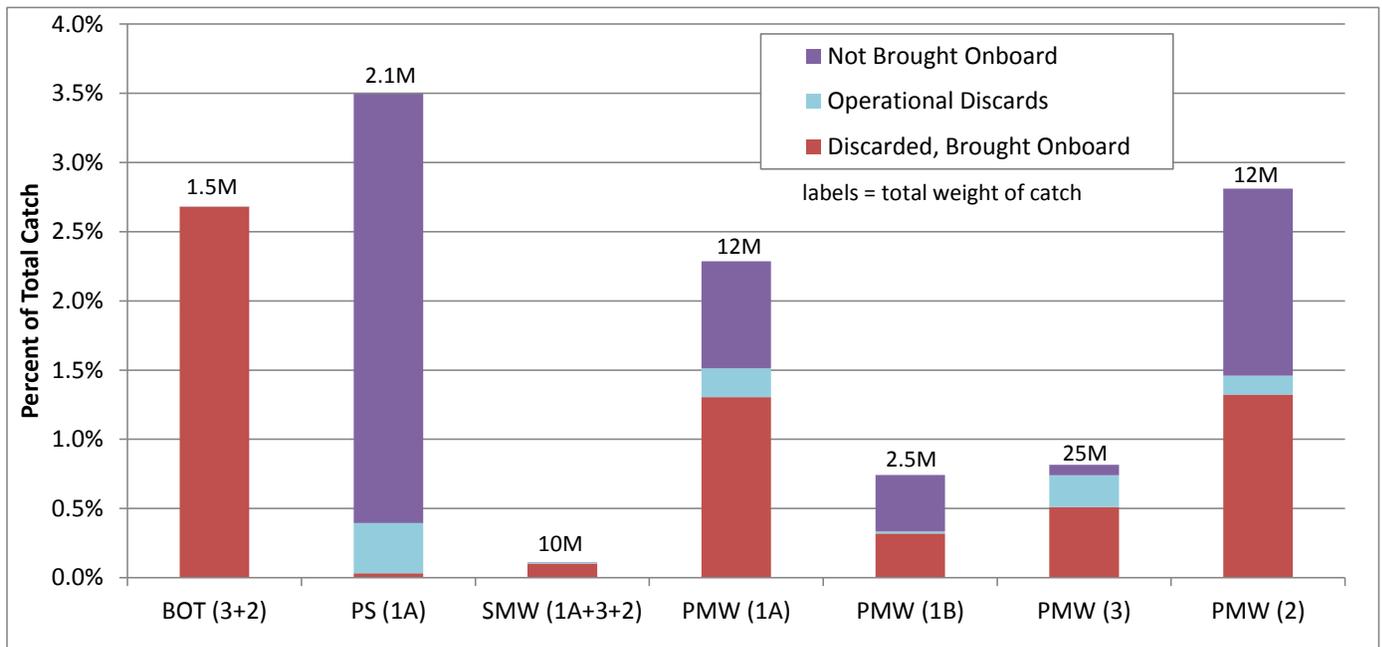
Available information suggests that the amount of fish estimated to be slipped in full/partial slippage events is less than 100,000 pounds. Information provided by vessel captains in 2008/2009, although incomplete, indicates that the estimated weight of partial slippage events (events for which captains provided an estimate) 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.



Fisheries Sampling Branch

Not brought onboard summary for herring fishery, 2012-2013

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:

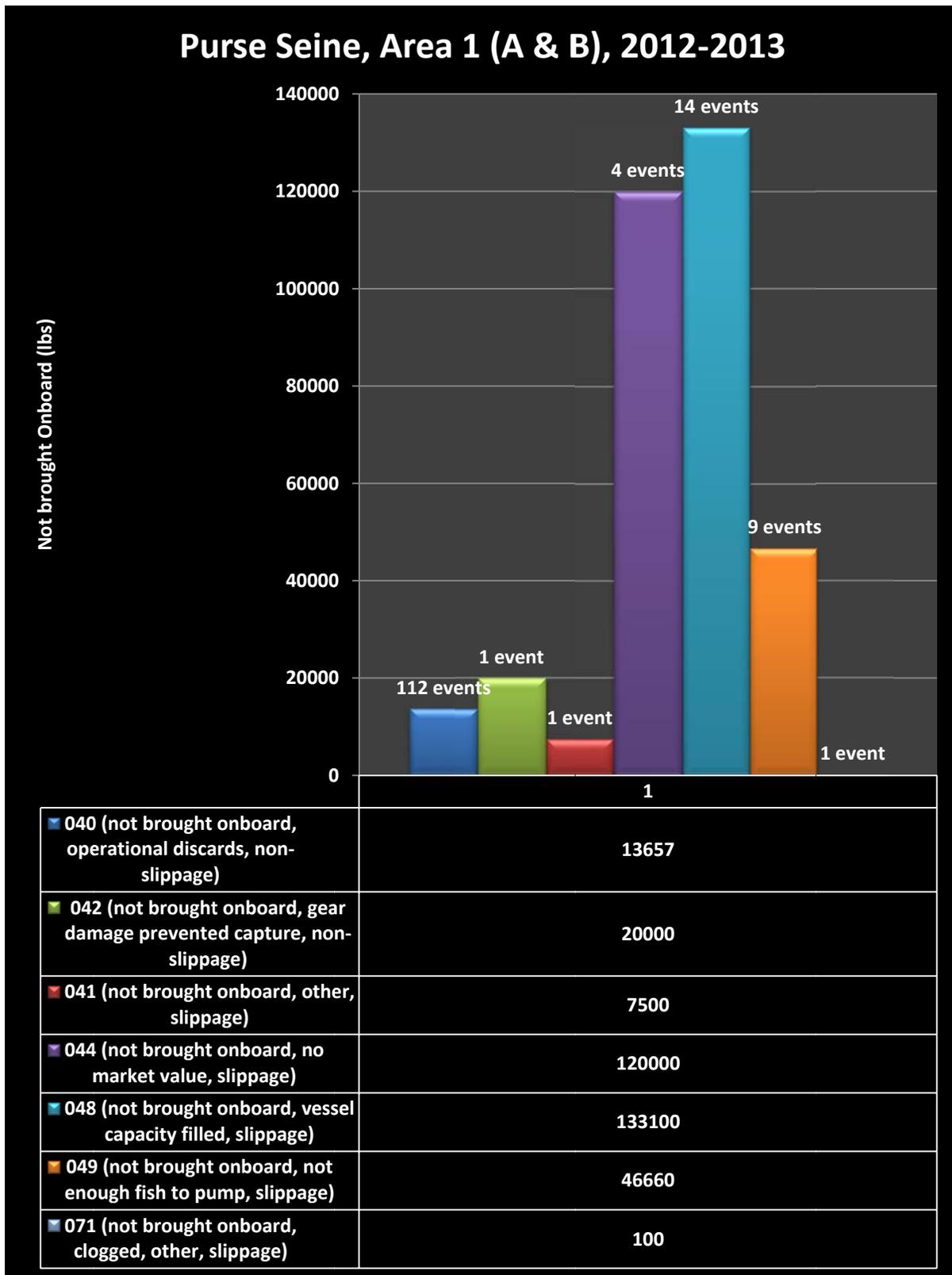
- All data present are termed ‘observed’ (*i.e.* observed kept, observed slipped catch, observed non-slipped catch). This indicates data recorded by the fisheries observer, not to suggest observed vs. unobserved hauls.
- The terms ‘Slipped catch’ and ‘slippage’ are used synonymously.
- Event: An ‘event’ 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 &amp; 1B are combined</i>	20	14	114 113: Operational Discards 1: Gear damage
<b>Total Trips</b>	<b>Total Observed Kept Atl. Herring</b>	<b>Total Observed Slipped Catch</b>	<b>Total Observed Non-slipped Catch</b>
92	13,729,168 lbs	307,360 lbs	33,657 lbs
Area 2	0	0	0
<b>Total Trips</b>	<b>Total Observed Kept Atl. Herring</b>	<b>Total Observed Slipped Catch</b>	<b>Total Observed Non-slipped Catch</b>
0	0	0	0
Area 3	0	0	0
<b>Total Trips</b>	<b>Total Observed Kept Atl. Herring</b>	<b>Total Observed Slipped Catch</b>	<b>Total Observed Non-slipped Catch</b>
0	0	0	0
	<b>TOTAL (all areas)</b>	<b>TOTAL (all areas)</b>	<b>TOTAL (all areas)</b>
	13,729,168 lbs	307,360 lbs	33,657 lbs
Total Slippage (or total non-slippage)/Total Kept	N/A	2.3%	0.3%

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

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



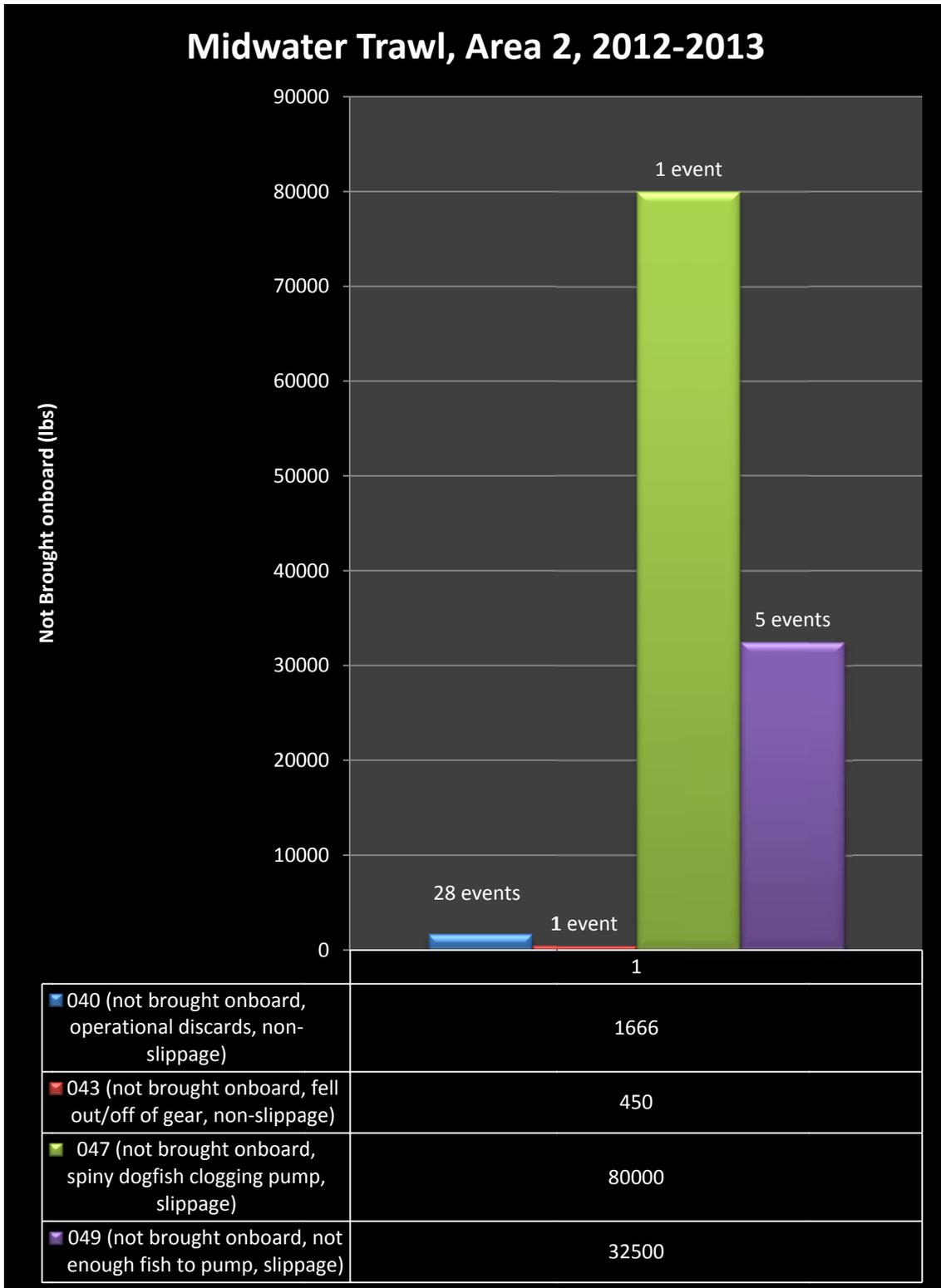
Note: 040, 042 are considered 'not brought onboard, non-slippage'

## MIDWATER TRAWL, PAIRED & SINGLE

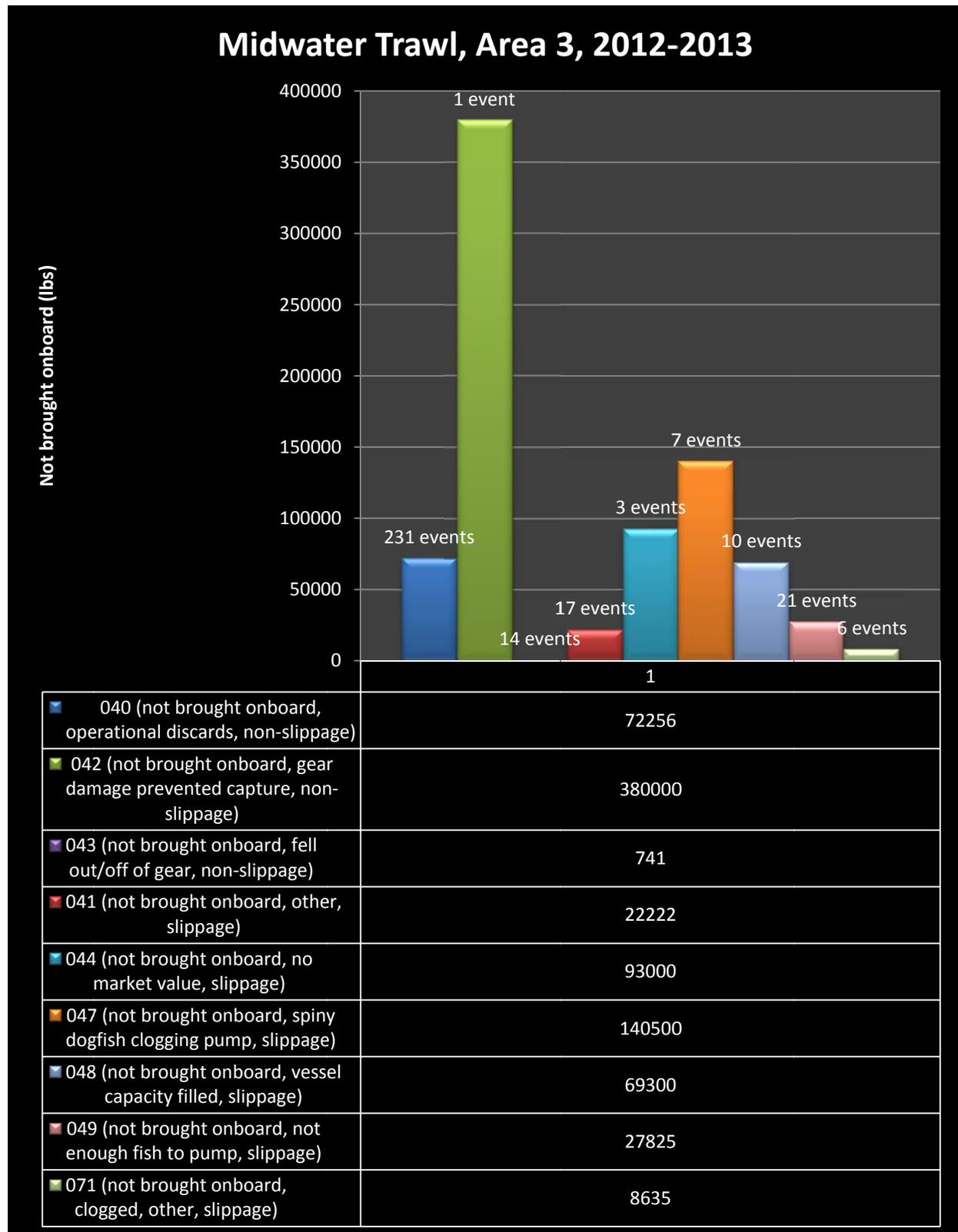
NOT BROUGHT ONBOARD VESSEL			
HERRING MANAGEMENT AREA	SLIPPAGE EVENTS		NON-SLIPPAGE EVENTS
	Partial Release	Full Release	Other
Area 1A	0	0	1 Operational Discards
<b>Total Trips 8</b>	<b>Total Observed Kept Atl. Herring (lbs) 1,599,785</b>	<b>Total Observed Slipped Catch (lbs) 0</b>	<b>Total Observed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

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

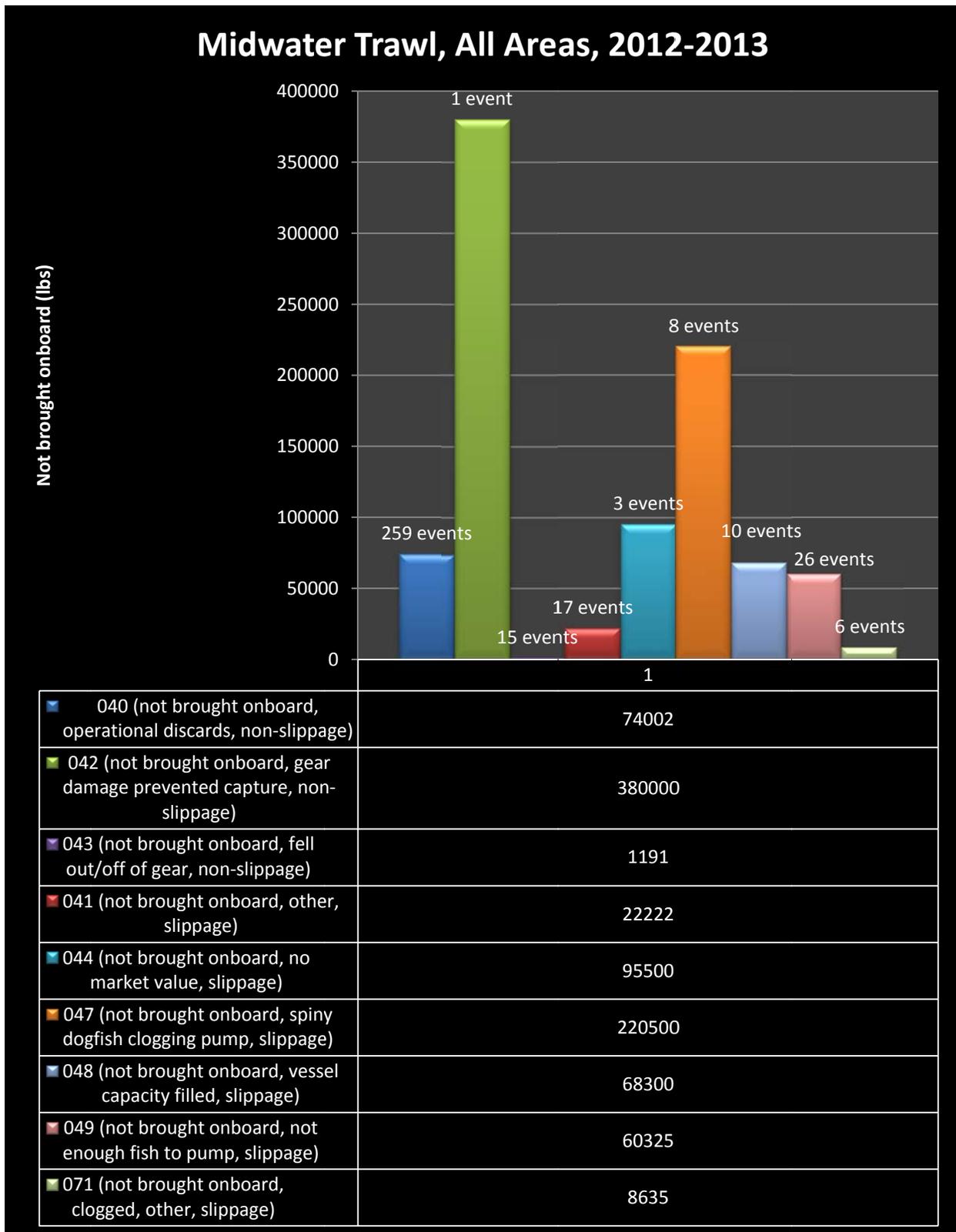
Note: Slippage was not due to safety or mechanical failure



**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
<b>Total Trips</b>	<b>Total Observed Kept Atl. Herring</b>	<b>Total Observed Slipped Catch</b>	<b>Total Observed Non- slipped Catch</b>
<b>1</b>	<b>1,804 lbs</b>	<b>0 lbs</b>	<b>0 lbs</b>
Area 1B	0	0	0
<b>Total Trips</b>	<b>Total Observed Kept Atl. Herring</b>	<b>Total Observed Slipped Catch</b>	<b>Total Observed Non- slipped Catch</b>
<b>0</b>	<b>0 lbs</b>	<b>0 lbs</b>	<b>0 lbs</b>
Area 2	1 Small amount released, other	1 Non-desired species	0
<b>Total Trips</b>	<b>Total Observed Kept Atl. Herring</b>	<b>Total Observed Slipped Catch</b>	<b>Total Observed Non- slipped Catch</b>
<b>37</b>	<b>5,257,569 lbs</b>	<b>510 lbs</b>	<b>0</b>
Area 3	0	0	0
<b>Total Trips</b>	<b>Total Observed Kept Atl. Herring</b>	<b>Total Observed Slipped Catch</b>	<b>Total Observed Non- slipped Catch</b>
<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	<b>TOTAL (all areas)</b>	<b>TOTAL (all areas)</b>	<b>TOTAL (all areas)</b>
	<b>5,259,373 lbs</b>	<b>510 lbs</b>	<b>0 lbs</b>
Total Slippage (or non- slippage)/Total Kept	N/A	0.01%	0

<b>TOTAL SLIPPED CATCH (all areas)</b>	<b>510 lbs</b>
<b>% dogfish</b>	<b>0%</b>
<b>% safety</b>	<b>0%</b>
<b>% mechanical failure</b>	<b>0%</b>

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





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.

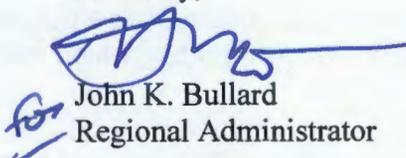
The sub-option requiring dealers to document how they estimate the composition of catch was intended to gather information on methods used by dealers to estimate species composition. Another way to obtain that type of information would be to gather it as part of a data collection program that would update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

# **Draft Discussion Document**

## **Industry-Funded Monitoring Omnibus Amendment**



**Prepared by the National Marine Fisheries Service**

**January 2014**

## **INTRODUCTION**

The New England and Mid-Atlantic Councils are interested in increasing monitoring or other types of data collection in some fishery management plans (FMPs) to assess the amount and type of catch, to monitor annual catch limits, and/or provide other information for management. This increased monitoring is above and beyond coverage required through the Standardized Bycatch Reporting Methodology (SBRM), the Endangered Species Act (ESA) or Marine Mammal Protection Act (MMPA). The amount of available Federal funding to support additional monitoring and legal constraints on the sharing of costs between the National Marine Fisheries Service (NMFS) and the fishing industry have recently prevented NMFS from approving proposals for industry-funded monitoring in some fisheries, specifically Atlantic Herring Amendment 5, Atlantic Mackerel Amendment 14, and Northeast (NE) Multispecies Framework Adjustment 48. The Councils have initiated an omnibus amendment to remedy the disapprovals of these actions and to reconsider new monitoring requirements for the Atlantic herring and mackerel fisheries.

### **The Legal Constraints**

The Anti-Deficiency Act (ADA) prohibits augmenting or improperly shifting congressional appropriations, and a criminal prohibition restricts supplementing government employee salaries. These provisions tightly control government funding and services. The basic funding principle is that congressional appropriations establish a maximum authorized program level that cannot be exceeded without specific statutory authorization, and any monitoring or observer funding must comply with these restrictions. When Congress appropriates money for observer coverage, NMFS cannot obligate funding for a monitoring program if the total costs to fund that program and existing monitoring programs exceeds its appropriations for that purpose. The NMFS Northeast Region receives certain line items and set amount of funds in those line items to fund its infrastructure costs for monitoring programs. NMFS cannot shift funds appropriated for another purpose to pay for new monitoring programs, without congressional authorization. Consequently, NMFS cannot approve monitoring levels for which there is potentially insufficient funding because NMFS cannot spend funds on contracts that are not provided for in its appropriations. Also, insufficiently funded monitoring coverage would result in coverage levels that would not meet the FMP's goals and objectives.

NMFS also cannot commit to pay for costs that do not fall under its legal obligations to pay for government services. NMFS has interpreted this to mean that it can only be obligated to pay for its infrastructure costs to support industry-funded programs and cannot commit to pay for any costs generated from sampling activities for these programs. This standard was applied to the monitoring cost provisions recently proposed in the Herring, Mackerel, and NE Multispecies FMPs and resulted in the disapproval of those measures.

The Miscellaneous Receipts Statute requires Federal employees to deposit any money received on behalf of the government into the general Treasury, unless otherwise directed by law. This means that if NMFS could accept funds from the industry, NMFS would be required to direct

those funds to the Treasury and would not be able to reserve them to pay for monitoring in the Northeast. The Alaska Region has special authorization in the Magnuson-Stevens Act (MSA) to collect fees from the industry and to put these fees into a fund to be used to defray the costs of monitoring in that region (Section 313). The NMFS Northeast Region does not have any such authority, except for cost recovery for Limited Access Privilege Programs (LAPPs).

Given these legal constraints, the PDT/FMAT has been tasked with developing alternatives for the omnibus amendment that would allow NMFS to approve the Councils' future proposals for new monitoring programs while meeting the legal requirements outlined above. The PDT/FMAT used the following criteria in developing the alternatives outlined in this document. The alternatives must allow NMFS to approve new monitoring programs **without**:

- Obligating itself to pay for any costs beyond its appropriations;
- Obligating itself to redirect appropriations designated for another purpose;
- Obligating itself to pay for costs it is not required to by law; and/or
- Requiring itself to accept funds from the fishing industry or other entity in order to meet its obligations.

Note that this action would not automatically allow for higher coverage levels in NE fisheries. This action establishes a tool that NMFS and the Councils could use to provide additional monitoring in NE fisheries when funding becomes available. This means that in years when there is no additional funding to cover NMFS infrastructure costs, above funding for SBRM, the tools developed in this action would not be used and there would be no additional monitoring coverage, even if industry is able to fully fund their cost responsibilities.

### **Purpose and Need**

The purpose of this action is to consider measures that would allow the Councils to implement industry-funded monitoring coverage in New England and Mid-Atlantic FMPs. This amendment would allow industry funding to be used in conjunction with available Federal funding to pay for additional monitoring to meet FMP-specific coverage targets. This amendment would also establish standard administrative requirements for monitoring providers and vessels. Additionally, this amendment would establish monitoring coverage targets for the Atlantic Herring FMP and the Atlantic Mackerel, Squid, Butterfish FMP, which are anticipated to enhance the monitoring of at-sea catch of herring, mackerel, river herring, shad, haddock, and other species harvested in the herring and mackerel fisheries. This amendment is being done as an omnibus to ensure consistency for industry-funded monitoring programs across New England and Mid-Atlantic FMPs.

### **Types of Measures Considered**

The PDT/FMAT for this amendment will develop a range of management options for the Councils to consider. These could include, but are not limited to:

- A standard definition of the costs associated with industry-funded monitoring programs and determination of the costs that NMFS and the industry would each be responsible for;
- A process by which NMFS and/or the Councils would prioritize Federal funding for monitoring across FMPs, when Federal funding is not sufficient to meet all coverage targets;
- Add industry-funded monitoring programs (e.g., portside/dockside monitoring, at-sea monitoring, electronic monitoring) to the list of measures that can be modified by framework adjustment in each FMP;
- Standards for service providers and monitors (e.g., for portside/dockside monitoring, at-sea monitoring, electronic monitoring); and
- Monitoring coverage targets or requirements for certain permit categories and/or gear types for the Atlantic herring and Atlantic mackerel fisheries.

**Proposed Timeline for Amendment**

<b>Action</b>	<b>Timeline, based on current Council meeting schedule</b>
Councils initiate amendment	September/October 2013
First PDT/FMAT meeting	December 2013
Second PDT/FMAT meeting	January 2014
Councils approve draft range of alternatives to be developed	January/February 2014
PDT/FMAT/Councils develop alternatives, draft EA	January-April 2014
Councils approve draft EA for public review	April 2014
30-day public comment period on draft amendment	May 2014
Councils take final action	June 2014
EA finalized, proposed rule drafted	July 2014
Proposed rule publishes with 30 day comment period	September 2014
Comment period ends, final rule drafted	October 2014
Final rule publishes	November 2014

## **ACTION ALTERNATIVES**

### **Omnibus Alternative Set 1: Definition of costs and cost-responsibility for industry-funded monitoring programs**

The following alternatives consider a standard definition of cost responsibility between NMFS and the industry for supporting monitoring programs above and beyond SBRM. We note that there is only a single action alternative for the cost delineation because there are legal requirements that dictate cost responsibilities, as described in the Introduction.

#### **Alternative 1a: No Action**

Under the no action alternative, there would be no standard definition of costs and cost responsibility for New England and Mid-Atlantic fisheries. Cost definitions and the determination of who pays for them would be considered individually by each FMP as industry-funded monitoring programs are developed.

#### **Alternative 1b: Definition of industry-funded monitoring cost responsibility**

Under Alternative 1b, there would be a standard definition of those costs associated with industry-funded monitoring programs that NMFS and the industry would be responsible for. This standard definition would be used by the Councils when developing any industry-funded monitoring program for New England and Mid-Atlantic fisheries in future actions. The definition described below is already in operation in the Atlantic sea scallop and NE multispecies fisheries, although it is not explicitly defined in those FMPs. Selection of this alternative would only codify the cost responsibilities in regulation and would not change the operations of those fisheries.

#### **NMFS Cost Responsibilities**

NMFS shall be responsible for funding the costs to set standards for, monitor performance of, and support industry-funded monitoring programs. These program elements would include:

- Training and debriefing of monitors
- Certification of monitoring providers and individual monitors
- Developing and executing vessel selection
- Data processing

#### **Industry Cost Responsibilities**

The industry shall be responsible for funding all other costs of the monitoring program. These program elements and activities would include, but are not limited to:

- Costs to the provider for deployments and sampling (e.g., travel and salary for observer deployments and debriefing)
- Equipment, as specified by NMFS, to the extent not provided by NMFS
- Costs to the provider for observer time and travel to a scheduled deployment that doesn't sail and was not canceled by the vessel prior to the sail time.
- Provider overhead and project management costs (e.g., facility costs, training)
- Other costs of the provider to meet performance standards laid out by a fishery management plan

### **Option 1c: Vessel cancellation charges**

This option would provide specific instructions for how costs to the provider for observer time and travel to a scheduled deployment that doesn't sail and was not cancelled by the vessel prior to the sail time, would be charged to the industry. This may include provisions for a fee and travel costs to be paid to observer providers by vessels when there is a “no show” or “cancellation” by vessels when less than 12-hr notice is provided relative to the initially specified dock departure time. Payment of fees would be a part of permit requirements, in that outstanding fees would result in non-renewal of permits. This option could be selected in addition to Option 1a or 1b.

This measure does not already exist in the Atlantic Sea Scallop and NE Multispecies FMPs. This option, if selected, would change the current operations of monitoring programs in those fisheries.

[Note: This option was included as a way to provide a disincentive to individual vessels that do not provide adequate notice of a cancelled trip without penalizing other vessels. This option would require further development by the PDT/FMAT.]

### **Omnibus Alternative Set 2: Regional Prioritization Process**

The alternatives in this section address the issue of what to do when Federal funding is not sufficient to cover NMFS’s costs to support the Council’s desired coverage level (above and beyond SBRM) for a given FMP.

#### **General Approach**

As described in Omnibus Alternative Set 1, NMFS and the industry both have costs associated with monitoring programs above and beyond SBRM. Due to legal and budgetary constraints described in the Introduction, NMFS cannot approve proposals for additional monitoring that it does not have the Federal funding to support (i.e., to cover NMFS’s costs outlined in Alternative 1b). Therefore, the Councils and NMFS need an approach that would allow NMFS to approve a proposal for a new monitoring program without committing to fund its costs to support that program until it has the funding to do so. The PDT/FMAT considered a general approach with built-in flexibility to adjust coverage levels for a given FMP based on the total amount of

Federal funding available to cover NMFS's costs for coverage above sea days allocated through the SBRM or to meet ESA and MMPA requirements.

The first component of the PDT/FMAT's approach requires individual FMPs to specify a coverage target, rather than a mandatory coverage level, that NMFS and the Councils should aim to achieve on an annual basis to meet certain FMP objectives. The realized coverage level for the fishery in a given year (above and beyond SBRM) could fall anywhere between the coverage target and no additional coverage above SBRM. The realized coverage level in a given year would be determined by the amount of funding available to cover NMFS's costs in that year as allocated through a prioritization process, which is the second component outlined below. This would allow NMFS to approve a new monitoring program in general, without committing to support coverage levels above appropriated funding or before funding is determined to be available.

When coverage targets exist for multiple FMPs, the Councils and NMFS must decide how to allocate the total Federal funding available among all FMPs. The Councils and NMFS must decide which FMPs would be provided with additional monitoring for a given year and which would not, and what prioritization would maximize benefits to the region. The PDT/FMAT considered several alternatives for a regional prioritization process, described below, by which NMFS and the Councils could allocate Federal funds among FMPs to cover NMFS's cost responsibilities. Under all of the alternatives, industry would be responsible for the costs outlined in Alternative 1b, unless it is determined that Federal funds were also to be used to offset industry's cost responsibility. Additional prioritization of Federal funds to offset industry's costs through an administrative mechanism is possible under Alternatives 2b and 2c. The administrative mechanism by which those funds would be distributed is not a part of this action, but is being developed by NMFS separately. Under all of the alternatives, NMFS's costs to support the coverage levels resulting from the prioritization process must be fully funded.

Alternatives 2b and 2c provide the Councils and NMFS with more discretion to make trade-offs between FMPs, but also require more analysis and resources. The primary difference between these two alternatives is who (NMFS or Councils) would lead the prioritization process and analysis. Alternatives 2d, 2e, and 2f use a formulaic approach, eliminating much of the discretion and analytical burden of Alternatives 2b and 2c.

In many cases, funds appropriated to NMFS to support NE monitoring programs are restricted for use in certain fisheries or programs (e.g., catch shares or SBRM). These funds must be used to support monitoring programs that meet the criteria of the funding line and may not be directed to support other fisheries. In addition, coverage levels for the NE multispecies and Atlantic sea scallop fisheries are specified through existing processes that do not allow for coverage levels to fluctuate based upon NMFS's funding, so NMFS must fully fund its infrastructure costs for monitoring in those fisheries. NMFS cannot reduce coverage in these fisheries in order to increase coverage in another FMP. Thus, "Federal funding" discussed throughout this section refers to any funds that are available above funds allocated to meet SBRM or other programs or requirements. In all of the alternatives developed by the

PDT/FMAT, funding for NMFS's costs for these programs would be "taken off the top" before any remaining funding is allocated to support NMFS's costs for other industry-funded monitoring programs. However, the alternatives below could apply to the NE multispecies and Atlantic sea scallop fisheries to the extent that the Council desires coverage above levels currently set by those FMPs.

### **Alternative 2a: No Action**

Under the no action alternative, the Northeast Fisheries Science Center and Northeast Fisheries Observer Program would determine the allocation of any available funding to support NMFS costs responsibilities related to industry-funded monitoring programs. This would not affect funding necessary for observer coverage to meet the requirements of the SBRM, ESA, or MMPA.

### **Alternative 2b: NMFS-led prioritization process**

Under Alternative 2b, the Regional Administrator and Science and Research Director would determine, in consultation with the Councils, how to allocate NMFS available resources to resources support NMFS cost responsibilities required to achieve coverage targets for industry-funded monitoring coverage. After those costs are funded, NMFS would also determine, in consultation with the Councils, the allocation of any remaining funding available to offset industry costs established in Herring and Mackerel Alternative Set 1 and other FMP actions. The costs would be defined as described by Omnibus Alternative Set 1. Funding for SBRM, ESA, and MMPA observer coverage would not be changed by this measure. Any funding for industry-funded monitoring programs would be allocated separate from any funding for SBRM or other statutory requirements and any coverage would be above and beyond coverage for SBRM or other statutory requirements.

The prioritization process would have the following steps:

- 1) NMFS would develop a proposed allocation of Federal resources across FMPs with industry-funded monitoring programs. If available funding in a given year is sufficient, this distribution would be based on the allocation necessary to fully implement the industry-funded monitoring coverage targets specified in each FMP. If available funding is not sufficient to fully fund all industry-funded monitoring programs, then NMFS would recommend an allocation of resources across FMPs that would include:
  - The total amount of funding and seadays necessary to meet the coverage targets specified by each FMP if each FMP were fully funded, including each FMP's share of the total;
  - The coverage level for each FMP if each FMP maintains its percentage share of the total funding (e.g., a fishery with a bigger share of the total funding pie would absorb a bigger share of the shortfall);
  - The coverage levels that incorporate the recommended prioritization; and
  - The rationale for the recommended prioritization.

NMFS' recommendation would be based upon a consideration of:

- Any restrictions on the appropriations;
- Funding necessary to meet mandatory coverage levels or standards in any FMPs or other legal mandates (i.e., required sector at-sea monitoring coverage in the NE multispecies fishery);
- Objectives of the individual industry-funded monitoring programs established by FMPs;
- The statistical basis for the FMP coverage target, including an evaluation of the basis for the coverage target (i.e., why the specified coverage level is necessary);
- Coverage already available in a fishery from other sources (e.g., if SBRM coverage in a given year provides sufficient information, additional industry-funded monitoring coverage may not be necessary);
- The extent to which proposed coverage or combinations of coverage would benefit management of fisheries or fleet types operating under multiple FMPs;
- The cost of coverage in each fishery, including the marginal cost and benefit of different coverage levels;
- Available funding to offset industry costs;
- Data needs of upcoming fishery management actions;
- Status of the stock of interest (i.e., coverage of a stock in poor condition would be prioritized over coverage of a stock in better condition);
- Risk to management based on fishery performance (e.g., a stock for which the quota is consistently under harvested is unlikely to face the same management risk as one with a constraining quota);
- The minimum level of coverage defined in the FMP that would provide sufficient information to meet the FMP's objectives for additional monitoring; and
- Any other criteria identified by NMFS and/or the Councils.

Some of the information above would be defined or analyzed in the original FMP action that created the industry-funded monitoring program. NMFS would first look to the original FMP action for information and update or supplement this information as necessary.

- 2) At the Spring NRCC meeting, NMFS and the Councils would review NMFS's proposed allocation of funding and recommend any modifications to the prioritization.
- 3) Following this discussion, NMFS would provide the Councils, at the earliest practicable opportunity: (1) The estimated industry-funded monitoring coverage levels that incorporate the recommended prioritization, based on available funding; and (2) the rationale for the recommended prioritization, including the reason for any deviation from the NRCC's recommendations. The Councils may recommend revisions and additional considerations to be made by the Regional Administrator and Science and Research Director.

The process is outlined above as an annual process. However, an annual process could be time intensive and strain Council and NMFS resources. The prioritization process could be in effect for longer than one year by remaining as specified until revised.

The Councils may choose to form a joint committee or hold a joint Council meeting instead of using the NRCC as the forum for the prioritization process.

Step 3 allows the Councils and NMFS to discuss any final revisions to the distribution, which might be necessary if the final budget is not known at the time of initial prioritization and is less than expected.

### **Alternative 2c: Council-led prioritization process**

Under this alternative, the Regional Administrator and Science and Research Director would inform the Councils of NMFS's available funding to achieve coverage targets for industry-funded monitoring coverage, including supporting NMFS's infrastructure costs and/or any offset of industry costs established in Herring and Mackerel Alternative Set 1 and other FMP actions. If available funding in a given year is sufficient, this distribution would be based on the allocation necessary to fully implement the industry-funded monitoring coverage targets specified in each FMP. If available funding is not sufficient, the Councils would determine the best allocation of available funding across FMPs with industry-funded monitoring programs to meet regional priorities and make recommendations to NMFS. NMFS and industry's costs would be defined as described by Alternative Set 1. Funding for SBRM, ESA, and MMPA observer coverage would not be changed by this measure.

The prioritization process would have the following steps:

- 1) If available funding is not sufficient to fully fund all industry-funded monitoring programs, the Councils would form a PDT/FMAT to develop a proposed allocation of resources across FMPs with industry-funded monitoring programs that would include:
  - The total amount of funding and seadays necessary to meet the coverage targets specified by each FMP if each FMP were fully funded, including each FMP's share of the total;
  - The coverage level for each FMP if each FMP maintains its percentage share of the total funding (e.g., a fishery with a bigger share of the total funding pie would absorb a bigger share of the shortfall);
  - The coverage levels that incorporate the recommended prioritization; and
  - The rationale for the recommended prioritization.

The PDT/FMAT's recommendation would be based upon a consideration of:

- Any restrictions on the appropriations;

- Funding necessary to meet mandatory coverage levels or standards in any FMPs or other legal mandates (i.e., required sector at-sea monitoring coverage in the NE multispecies fishery);
- Objectives of the individual industry-funded monitoring programs established by FMPs;
- The statistical basis for the FMP coverage target, including an evaluation of the basis for the coverage target (i.e., why the specified coverage level is necessary);
- Coverage already available in a fishery from other sources (e.g., if SBRM coverage in a given year provides sufficient information, additional industry-funded monitoring coverage may not be necessary);
- The extent to which proposed coverage or combinations of coverage would benefit management of fisheries or fleet types operating under multiple FMPs;
- The cost of coverage in each fishery, including the marginal cost and benefit of different coverage levels;
- Available funding to offset industry costs;
- Data needs of upcoming fishery management actions;
- Status of the stock of interest (i.e., coverage of a stock in poor condition would be prioritized over coverage of a stock in better condition);
- Risk to management based on fishery performance (e.g., a stock for which the quota is consistently under harvested is unlikely to face the same management risk as one with a constraining quota);
- The minimum level of coverage defined in the FMP that would provide sufficient information to meet the FMP's objectives for additional monitoring; and
- Any other criteria identified by NMFS and/or the Councils.

Some of the information above would be defined or analyzed in the original FMP action that created the industry-funded monitoring program. The PDT/FMAT would first look to the original FMP action for information and update or supplement this information as necessary.

- 2) At the Spring NRCC meeting, NMFS and the Councils would review the PDT/FMAT's proposed allocation of funding for NMFS infrastructure costs and offsets for industry costs. The NRCC would make any modifications and recommend a prioritization to NMFS.
- 3) NMFS would provide the Councils, at the earliest practicable opportunity: (1) The estimated industry-funded monitoring coverage levels that incorporate the recommended prioritization, based on available funding; and (2) the rationale for the recommended prioritization, including the reason for any deviation from the NRCC's recommendations. The Councils may recommend revisions and additional considerations to be made by the Regional Administrator and Science and Research Director.

Again, the process outlined above could be annual or the allocation of resources could remain as specified unless revised.

#### **Alternative 2d: Proportional prioritization process.**

Under this alternative, the amount of Federal funding available to support industry-funded monitoring in each FMP would be reduced by the same percentage as the funding shortfall, after restrictions on appropriations have been taken into account and any funding needed to meet legal mandates has been deducted (e.g., to meet the required sector at-sea monitoring coverage in the NE multispecies fishery). NMFS would first determine how much funding would be necessary to fully implement the coverage target in each FMP. If the available Federal funding falls short of this amount, the amount of the shortfall would be deducted from the total amount of funding to be allocated to each FMP, proportional to that FMP's share of the total funding need. For example, an FMP that represents 20% of the total funding need would absorb 20% of the total funding shortfall.

There could be a scenario where the available Federal funding for a given FMP would produce a coverage level below the level that was defined by the FMP as providing sufficient information to meet an FMP's objectives for monitoring. For example, an additional 10 observed trips may provide additional data, but not sufficient data to provide a robust estimate of bycatch of the species of interest. In this case, that FMP would not receive additional coverage and the funding for that FMP would be re-allocated proportionally to other FMPs.

NMFS would determine and provide the Councils with: (1) The estimated industry-funded monitoring coverage levels that incorporates the proportional adjustments, based on available funding; and (2) the rationale for the recommended prioritization, including how it deviates from the fully funded coverage levels across all FMPs. This could be done on an annual basis or the allocation of resources could remain as specified unless revised.

**Example** FMP 1 needs \$3 million, FMP 2 needs \$5 million, and FMP 3 needs \$2 million to fully implement their coverage targets. The total funding need is \$10 million, with FMP 1 needing 30%, FMP 2 50%, and FMP 3 20% of the total. If there is only \$8 million in Federal funds for the coming year, then there is a \$2 million shortfall. Using the proportional prioritization process, NMFS would allocate the \$8 million such that each FMP maintains its share of the total. FMP 1 would get 30% of \$8 million, or \$2.4 million, FMP 2 would get 50% of \$8 million, or \$4 million, and FMP 3 would get 20% of \$8 million, or \$1.6 million. These would be the total funds available to the FMPs to fund NMFS's costs for coverage days above SBRM.

#### **Alternative 2e: Cost-based prioritization process.**

Under this alternative, the Federal funding would be assigned to each FMP by sequentially eliminating coverage in FMPs that have the highest funding need until the available funding is

sufficient to meet the funding needs of the FMPs remaining. This process would prioritize fisheries with the cheapest programs first. NMFS would determine and provide the Councils with: (1) The estimated industry-funded monitoring coverage levels that incorporates the prioritization, based on available funding; and (2) the rationale for the recommended prioritization, including how it deviates from the fully-funded coverage target across all FMPs. This could be done on an annual basis or the allocation of resources could remain as specified unless revised.

**Example** FMP 1 needs \$3 million, FMP 2 needs \$5 million, and FMP 3 needs \$2 million to fully implement their coverage targets. The total funding need is \$10 million, with FMP 1 needing 30%, FMP 2 50%, and FMP 3 20% of the total. If there is only \$8 million in Federal funds for the coming year, then there is a \$2 million shortfall. Under the cost-based prioritization approach, NMFS would eliminate the FMP with the highest cost first, FMP 2. Because total funding need of the remaining programs, \$5 million, is less than the available Federal funds, \$8 million, coverage for FMP 1 and FMP 3 would be fully funded. FMP 2 would receive no additional coverage. This leaves \$3 million in unused Federal funds, or this amount could be put toward achieving some coverage for FMP 2.

**Alternative 2f: Coverage ratio-based prioritization process.**

Under this alternative, the amount of funding would be allocated to each FMP by sequentially eliminating coverage in fleets that have the highest ratio of projected coverage days needed in the coming year to actual days absent from port reported in the Vessel Trip Report in the previous year until the available Federal funding is sufficient to meet the funding needs of the remaining FMPs. Essentially the fisheries with the most activity would be prioritized. NMFS would determine and provide the Councils with: (1) the estimated industry-funded monitoring coverage levels that incorporate the prioritization, based on available funding; and (2) the rationale for the recommended prioritization, including how it deviates from the fully funded coverage levels across all FMPs. This could be done on an annual basis or the allocation of resources could remain as specified unless revised.

**Example** FMP 1 needs \$3 million, FMP 2 needs \$5 million, and FMP 3 needs \$2 million to fully implement their coverage targets. The total funding needed is \$10 million, but there is only \$8 million in Federal funds for the coming year, so there is a \$2 million shortfall. Under the coverage ratio-based prioritization approach, NMFS would calculate the following ratio for each FMP:

$$\text{Coverage Ratio} = \frac{\text{Projected coverage days needed for the coming year}}{\text{Days absent in previous year}}$$

If FMP 1 had a ratio of 0.1, FMP 2 a ratio of 0.08, and FMP 3 a ratio of 0.2, FMP 3 would be eliminated from coverage first. Because the total funding need of the remaining programs, \$8 million, can be met by the available Federal funding, \$8

million, coverage for FMP 1 and FMP 2 would be fully funded. FMP 3 would receive no additional coverage in the coming year.

### **Omnibus Alternative Set 3: Industry Funded Monitoring Provisions**

#### **Alternative 3a: No Action**

The SBRM Omnibus Amendment includes an alternative (Alternative 7.3) that would allow the Councils to develop and/or make modifications to an industry-funded observer program, including observer set-aside provisions, through a framework adjustment to the relevant FMP. The SBRM Amendment would include general language in the regulations of each FMP that would allow industry-funded monitoring programs and observer set-aside provisions to be implemented by framework adjustment. However, the SBRM Amendment does not address other types of industry-funded monitoring programs, such as at-sea monitoring, portside/dockside monitoring, and electronic monitoring. Thus, under this status quo alternative, no new provisions for industry-funded at-sea, portside/dockside, and electronic monitoring would be created for any New England or Mid-Atlantic FMP. Should a Council decide, at any point in the future, to require permitted fishing vessels to pay for at-sea, portside/dockside, or electronic monitoring, a full amendment to the relevant FMP would be required. Existing provisions for observers, at-sea monitors, dockside monitors, and electronic monitoring in the Atlantic Sea Scallop and Northeast Multispecies FMPs would be unchanged.

[Note: This alternative set may need to be updated depending upon the timing of the SBRM Amendment.]

#### **Alternative 3b: Addition of Industry-funded Monitoring Provisions as a Measure That Can Be Implemented through a Framework Adjustment to the FMPs.**

Under this option, the Councils would be able to implement other types of industry-funded monitoring programs, including at-sea monitoring, portside/dockside monitoring, or electronic monitoring, through framework adjustments to the relevant FMP. Absent this action, a full FMP amendment would be required to implement industry-funded monitoring programs of all types for all fisheries, with the exception of the existing monitoring programs for the Atlantic Sea Scallop and NE Multispecies FMPs, and any monitoring programs implemented for the Atlantic Herring and Atlantic Mackerel FMPs through this action (provided that options from Alternative Set 3 are selected). If this alternative is selected, the details of any industry funded at-sea, portside/dockside, or electronic monitoring program would be specified and/or modified in a subsequent framework adjustment to the relevant FMP. These details may include, but are not limited to: The level of relevant coverage required in the fishery; the basis for the proposed level and type of coverage; the process for vessel notification and selection; fee collection and administration; standards for monitoring providers; and any other measures necessary to implement the industry-funded monitoring program. Additional NEPA analysis would be required when relevant FMPs develop industry-funded at-sea, portside, or electronic monitoring programs.

[Note: The PDT/FMAT included the known types of monitoring that are available in the New England and Mid-Atlantic Regions in this alternative. At-sea monitoring focuses data collection at sea, recording the type and quantity of total catch and bycatch – anything that enters the net and is either brought aboard the fishing vessel or discarded at sea. Portside monitoring focuses data collection at the dock, accounting for landings and incidental catch, and total catch if all fish are brought to the dock and offloaded from the vessel. Electronic monitoring uses video cameras and other sensors to monitor discards at sea or to monitor compliance with full retention requirements or other requirements at sea. Depending on the information needs for a given fishery, a portside and/or electronic monitoring program could be used in addition to at-sea monitoring to provide more complete catch monitoring, or to reduce the overall monitoring costs for a given fishery (if portside or electronic monitoring can be administered at a lower cost).]

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## Mackerel and Herring Alternative Set 1: Monitoring Alternatives

Atlantic Mackerel Coverage Options	Target Coverage Level	Vessels/fleet where coverage could apply	Consequence (necessity of reaching target)	Other notes
<b>Alternative M1: No action</b>	SBRM (6.5% mackerel catches observed 2006-2010)	<b>Gear and area</b> <ul style="list-style-type: none"> <li>• MWT</li> <li>• SMBT</li> <li>• Mid-Atlantic and New England</li> </ul>	Waivers provided when observer not available	
<b>Alternative M2: Amendment 14 Council preferred with waivers</b>	<ul style="list-style-type: none"> <li>• 100% limited access MWT trips and Tier 1 SMBT trips</li> <li>• 50% Tier 2 SMBT trips</li> <li>• 25% Tier 3 SMBT trips</li> </ul>	<b>Permit and gear combined</b> <ul style="list-style-type: none"> <li>• Limited access mackerel trips</li> <li>• MWT</li> <li>• SMBT</li> </ul>	Waivers provided when observer not available	
<b>Alternative M3: Amendment 14 Council preferred without waivers</b>	<ul style="list-style-type: none"> <li>• 100% limited access MWT trips and Tier 1 SMBT trips</li> <li>• 50% Tier 2 SMBT trips</li> <li>• 25% Tier 3 SMBT trips</li> </ul>	<b>Permit and gear combined</b> <ul style="list-style-type: none"> <li>• Limited access mackerel trips</li> <li>• MWT</li> <li>• SMBT</li> </ul>	Vessels cannot fish without an observer for 100% option. Waivers provided to achieve 50% and 25% options.***	Council may choose to focus only on the 100% coverage options (i.e., exclude Tiers 2 and 3)
<b>Alternative M4: Confidence interval-based coverage targets with waivers</b>	Coverage to result in a certain confidence interval around the RH/S catch cap estimate (e.g., X% certainty that the RH/S catch cap estimate is within +/-Y% of the real number)	<b>Permit, gear and area</b> <ul style="list-style-type: none"> <li>• Limited access mackerel trips</li> <li>• MWT</li> <li>• SMBT</li> <li>• MA and NE</li> </ul>	Waivers provided when observer not available	Aligns with H4 for herring
<b>Alternative M5: Confidence interval-based coverage targets without waivers</b>	Coverage to result in a certain confidence interval around the RH/S catch cap estimate (e.g., X% certainty that the RH/S catch cap estimate is within +/-Y% of the real number)	<b>Permit, gear and area</b> <ul style="list-style-type: none"> <li>• Limited access mackerel trips</li> <li>• MWT</li> <li>• SMBT</li> <li>• MA and NE</li> </ul>	Vessels cannot fish unless adequate coverage exists to maintain the CI for the RH/S cap***	Aligns with H5 for herring

Atlantic Herring Coverage Options	Target Coverage Level	Vessels/fleet where coverage could apply	Consequence (necessity of reaching target)	Other notes
<b>Alternative H1: No action</b>	SBRM coverage	<b>Gear and area</b> <ul style="list-style-type: none"> <li>• MWT</li> <li>• SMBT</li> <li>• Purse Seine</li> </ul>	Waivers provided when observer not available	
<b>Alternative H2: Amendment 5 Council preferred with waivers</b>	100% coverage on Category A and B vessels	<b>Permit and gear combined</b> <ul style="list-style-type: none"> <li>• Category A and B trips</li> <li>• MWT</li> <li>• SMBT</li> <li>• Purse Seine</li> </ul>	Waivers provided when observer not available	
<b>Alternative H3: Amendment 5 Council preferred without waivers</b>	100% Category A and B	<b>Permit and gear combined</b> <ul style="list-style-type: none"> <li>• Limited access herring trips</li> <li>• MWT</li> <li>• SMBT</li> <li>• Purse Seine</li> </ul>	Vessels cannot fish without and an observer***	
<b>Alternative H4: Confidence interval-based coverage targets with waivers</b>	Coverage to result in a certain confidence interval around the RH/S catch cap estimate (e.g., X% certainty that the RH/S catch cap estimate is within +/-Y% of the real number)	<b>Permit, gear and area</b> <ul style="list-style-type: none"> <li>• Limited access herring trips</li> <li>• MWT in NE and MA</li> <li>• SMBT in MA</li> <li>•</li> </ul>	Waivers provided when observer not available	Aligns with M4 for mackerel
<b>Alternative H5: Confidence interval-based coverage targets without waivers</b>	Coverage to result in a certain confidence interval around the RH/S catch cap estimate (e.g., X% certainty that the RH/S catch cap estimate is within +/-Y% of the real number)	<b>Permit, gear and area</b> <ul style="list-style-type: none"> <li>• Limited access herring trips</li> <li>• MWT in NE and MA</li> <li>• SMBT in MA</li> </ul>	Vessels cannot fish unless adequate coverage exists to maintain the CI for the RH/S cap***	Aligns with M5 for mackerel

\*\*\*Alternative M3/H3 and M5/H5 above specify that vessels cannot fish without an observer. This means that, if NMFS funding is not available for infrastructure costs, or if a provider cannot deploy an observer, the trip cannot sail, even if a vessel can pay for the observer.

**Option M6/H6: Require reevaluation of coverage requirement after 2 years to determine if catch rates justify continued expense of continued high coverage level (must be selected with an action alternative).**

Under this alternative, after the selected coverage target was effective for 2 years, each Council would examine the results of any higher coverage in the Atlantic mackerel and Atlantic herring fisheries, and consider if adjustments to the coverage targets are warranted. Depending on the results and desired actions, subsequent action could be accomplished via specifications, a framework adjustment, or an amendment to each FMP, as appropriate. This alternative was selected by each of the Councils in Amendments 5 and 14.

#### **Additional Ideas Discussed by the PDT/FMAT**

##### **Possible addition to Mackerel and Herring Alternative Set 1:**

**Option M7/H7: X year sunset provision for coverage targets (must be selected with an action alternative).**

Under this alternative, the increased coverage targets implemented through this action would expire X years after implementation.

Possible addition to Omnibus Alternative Set 3:

**Alternative 3c: Addition of portside monitoring to observer service provider approval requirements.**

The SBRM Omnibus Amendment contains an alternative (Alternative 7.2) that would modify the sea scallop industry-funded at-sea observer regulations at 50 CFR 648.11(h) and (i) implemented via emergency rule so that the regulations apply to all Council FMPs. The SBRM Amendment would authorize at-sea observer service provider approval and certification for all applicable fisheries, should a Council develop and implement a requirement or option for an industry-funded observer program in other fisheries besides Atlantic sea scallops. The SBRM Amendment alternative considers requirements specific to providers that would provide at-sea observer coverage. However, the SBRM Amendment does not address provider standards for other types of industry-funded monitoring programs. The PDT/FMAT discussed including an alternative in this amendment that would add an approval process for portside/dockside monitoring providers for all FMPs to the regulations considered under Alternative 7.2 in the SBRM Omnibus Amendment. Including portside monitoring to observer service provider approval requirements would not implement a portside monitoring program through this action, but would only implement regulations to approve providers should the Councils

implement an industry-funded portside monitoring program through a future action. This would streamline the development of any future portside monitoring programs in all FMPs.

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