



## Mid-Atlantic Fishery Management Council

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Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

# MEMORANDUM

**Date:** November 27, 2013  
**To:** Council  
**From:** Jason Didden *JDD*  
**Subject:** MSB Framework 9 - Slippage

Per the Council's October 2013 motion regarding slippage (release of unobserved catch on observed trips), Council staff has developed a discussion document for the December Council meeting, which would be Framework meeting 1 for Framework 9 to the Atlantic Mackerel, Squid, and Butterfish (MSB) Fishery Management Plan. The discussion document follows. Preliminary communication with NMFS staff suggests that the included range of alternatives is likely reasonable, but NMFS will provide additional input at the meeting. The Amendment 14 disapproval letter from NMFS is also included since it discusses the slippage issue in some detail, and an Appendix from Amendment 14 that analyses slippage follows the NMFS letter.

**FRAMEWORK ADJUSTMENT 9**

**TO THE**

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

**DISCUSSION DOCUMENT FOR  
1<sup>st</sup> FRAMEWORK MEETING**

**December 2013**

**Mid-Atlantic Fishery Management Council**

**in cooperation with**

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

**First Framework Meeting: December 10, 2013**  
**Second Framework Meeting: XXXXXXXXXX (Likely February 2014)**  
**Final approved by NOAA: XXXXXXXXXX**

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## 1.0 TABLE OF CONTENTS - **TO BE ADDED**

### 2.0 EXECUTIVE SUMMARY

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 was primarily 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 an appendix).

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.

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 large quantities of fish that can be caught, but not documented, in a single tow.

To address these issues, this framework considers several alternatives related to slippage in the mackerel fishery, which is the fishery that was proposed to have a slippage cap. Only one of the following 5 alternatives would be chosen (no combinations of alternatives would be chosen, though some alternatives may combine several measures).

**Alternative 1 - No Action:** The current prohibition on non-exempted slippages in the mackerel and longfin squid fisheries would still be in place. 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 with limited access mackerel permits to return to port following any non-exempted slippage. This measure would serve as an additional accountability measure related to both the general prohibition on non-exempted slippages and the river herring and shad cap.

**Alternative 3** - Require vessels with limited access mackerel permits to vacate a statistical area in which any non-exempted slippage occurs (for the remainder of a trip). This measure would serve as an additional accountability measure related to both the general prohibition on non-exempted slippages and the river herring and shad cap.

**Alternative 4** - Require vessels with limited access mackerel permits to vacate a statistical area in which any slippage besides the safety exemption occurs (for the remainder of a trip). This measure would serve as an additional accountability measure related to both the general prohibition on non-exempted slippages and the river herring and shad cap.

**Alternative 5** - Require vessels with limited access mackerel permits to vacate a statistical area in which any slippage besides the safety exemption occurs (for the remainder of a trip). In addition, if any non-exempted slippage occurs they would have to terminate the trip. Mechanical and dogfish issues that led to a slippage would thus require leaving a statistical area but not require trip termination. This measure would serve as an additional accountability measure related to both the general prohibition on non-exempted slippages and the river herring and shad cap.

### **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.

#### **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.

1. Enhance the probability of successful (i.e., the historical average) recruitment to the fisheries.
2. Promote the growth of the U.S. commercial fishery, including the fishery for export.
3. 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.
4. Provide marine recreational fishing opportunities, recognizing the contribution of recreational fishing to the national economy.
5. Increase understanding of the conditions of the stocks and fisheries.
6. 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**

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/>.

### **4.1 Alternative 1 (Status Quo/no action – non-exempted slippage prohibition)**

The current prohibition on non-exempted slippages in the mackerel and longfin squid fisheries would still be in place. Violations would be handled through the NOAA enforcement process. Captains are required to submit affidavits regarding the circumstances of any slippage.

### **4.2 Alternative 2 (Trip termination for non-exempted slippage events)**

This alternative would require vessels with limited access mackerel permits to return to port following any non-exempted slippage. This measure would serve as an additional accountability measure related to both the general prohibition on non-exempted slippages and the river herring and shad cap.

### **4.3 Alternative 3 (Vacate statistical area for non-exempted slippage events)**

This alternative would require vessels with limited access mackerel permits to vacate a statistical area in which any non-exempted slippage occurs (for the remainder of a trip). This measure would serve as an additional accountability measure related to both the general prohibition on non-exempted slippages and the river herring and shad cap.

### **4.4 Alternative 4 (Vacate statistical area for non-safety slippage events)**

This alternative would require vessels with limited access mackerel permits to vacate a statistical area in which any slippage besides the safety exemption occurs (for the remainder of a trip). This measure would serve as an additional accountability measure related to both the general prohibition on non-exempted slippages and the river herring and shad cap.

#### **4.5 Alternative 5 (Vacate statistical area for non-safety slippage events and trip termination for non-exempted slippage events)**

This alternative would require vessels with limited access mackerel permits to vacate a statistical area in which any slippage besides the safety exemption occurs (for the remainder of a trip). In addition, if any non-exempted slippage occurs they would have to terminate the trip. Mechanical and dogfish issues that led to a slippage would thus require leaving a statistical area but not require trip termination. This measure would serve as an additional accountability measure related to both the general prohibition on non-exempted slippages and the river herring and shad cap.

### **5.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND FISHERIES**

**TO BE ADDED.** However, the narrow focus of this framework will mean this section should be simple. It will discuss the present mackerel fishery, its non-target interactions, and what is known about the extent of slippage during observed trips. This information would be very similar to what was presented in Amendment 14 or the annual specifications' Environmental Assessments. Staff will likely request for the NMFS Observer Program to provide an updated summary of slippage that focuses on vessels with mackerel limited access permits. A report on slippage from the observer program that was included in Amendment 14's Environmental Impact Statement is included as an appendix.

### **6.0 ENVIRONMENTAL IMPACTS**

**TO BE ADDED.** However, the narrow focus of this framework will mean this section should be simple and impacts relatively limited. It will focus on how avoiding slippage can improve observer data, how observer data are used for the river herring and shad cap, and how the river herring and shad cap might help river herring and shad. Generally the impacts of the alternatives should be mostly neutral across most measures, with positive gains for non-target species like river herring and shad due to better data. There will probably be mixed results for human communities related to the slippage consequences.

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

**TO BE ADDED**

### **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.**





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

NOV - 7 2013

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

Dear Rick:

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

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

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

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

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



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

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

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

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

### **Increased Observer Coverage Requirements**

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

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

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

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

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

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

### **Measures to Minimize Slippage**

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

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

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

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

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

If the Council wants to revise the slippage cap, the revisions would need to address issues concerning the biological/administrative justification for the cap's trigger, and equity. The slippage cap could be revised to be more similar to the sampling requirements in Groundfish Closed Area I, such that all vessels that slip catch have a consequence. This revision would

alleviate the concern we had with the equitable application of the slippage cap among those who contribute to reaching the cap, as well as the concern we had with the basis for triggering the cap.

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

### **Reporting Requirements for Dealers**

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

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

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

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

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

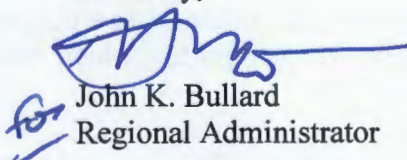
The sub-option requiring dealers to document how they estimate the composition of catch was intended to gather information on methods used by dealers to estimate species composition. Another way to obtain that type of information would be to gather it as part of a data collection program that would update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

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

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

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

Sincerely,



John K. Bullard  
Regional Administrator

Appendix 5: Northeast Fishery Science Center Report on Slippage and FISH, NK usage.

(Borrowed from 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**

<b>Year</b>	<b>Gear Type</b>	<b>Total Trips</b>	<b>Total Days</b>	<b>Total Herring Landed (lbs.)</b>	<b>Obs Trips</b>	<b>Obs Days</b>	<b>Obs Herring Kept (lbs.)</b>	<b>% trips obs</b>	<b>% days obs</b>	<b>% herring obs</b>
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).

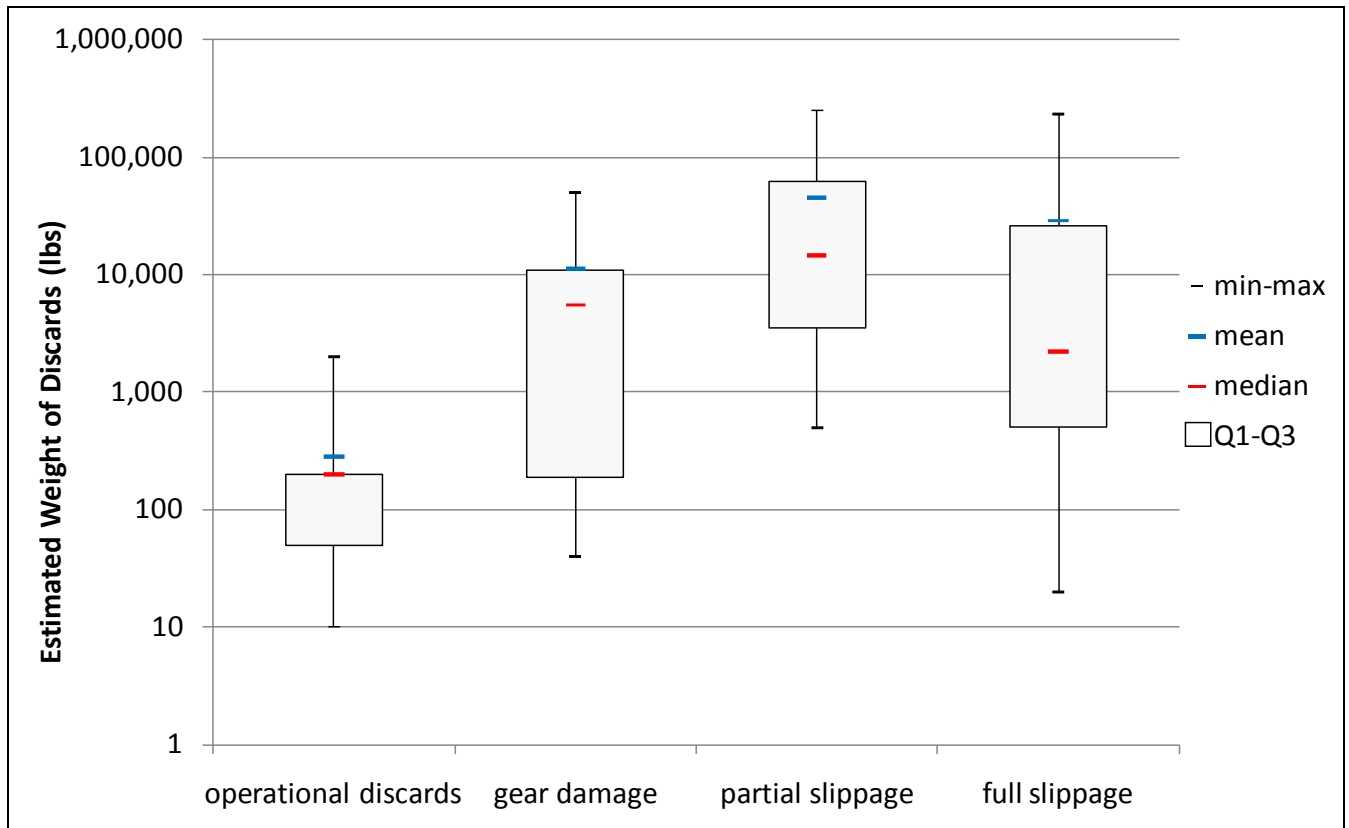
For the 2008/2009 data, NEFOP staff examined the data by hand to investigate and summarize comments that were provided about slippage events. Sampling protocols in 2008/2009 did not include comprehensive and detailed documentation of slippage events, so there were events for which no comments were provided.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

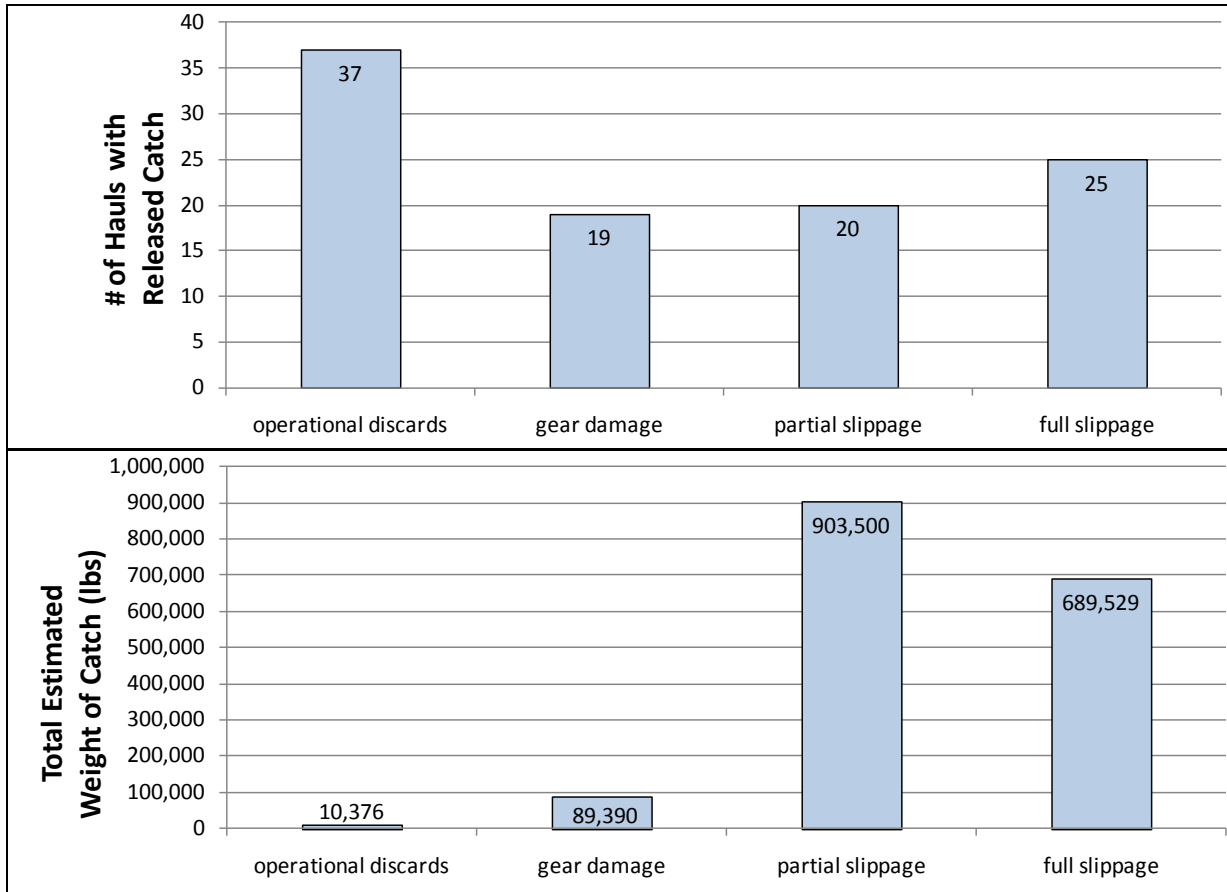
year	month	# hauls covered	kept lbs observed	# hauls w/ released catch	estimated lbs released
2008	Jan	18	822,447	0	
2008	Feb	13	2,621,846	0	
2008	Mar	17	2,184,187	5	17,000
2008	Apr	7	1,890,207	0	
2008	May	21	4,884,872	1	20,000
2008	Jun	27	2,560,004	2	280
2008	Jul	34	3,712,098	5	250,600
2008	Aug	14	2,626,778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

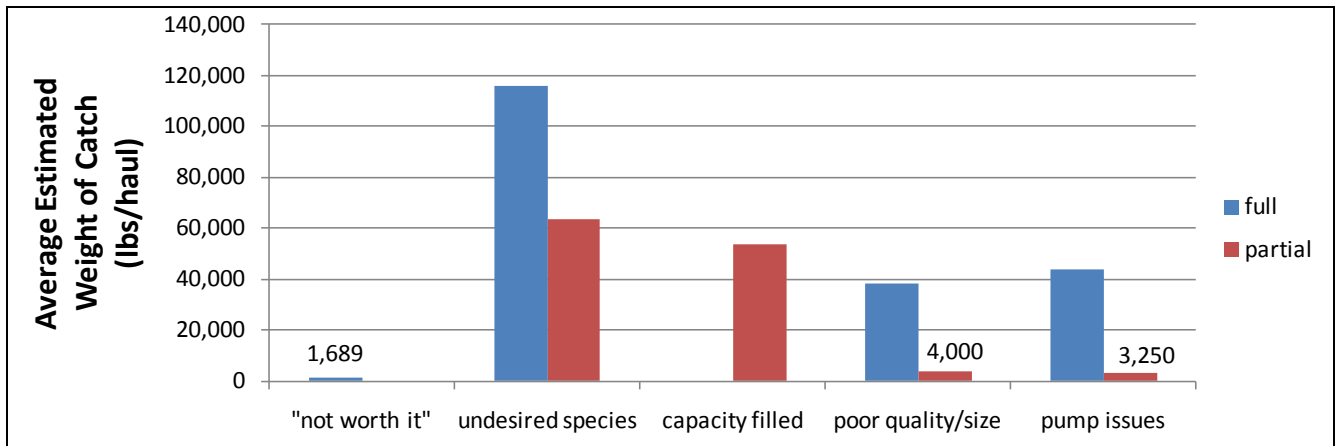
**Figure 80 Analysis of Comments Regarding Released Catch 2008/2009**



**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.

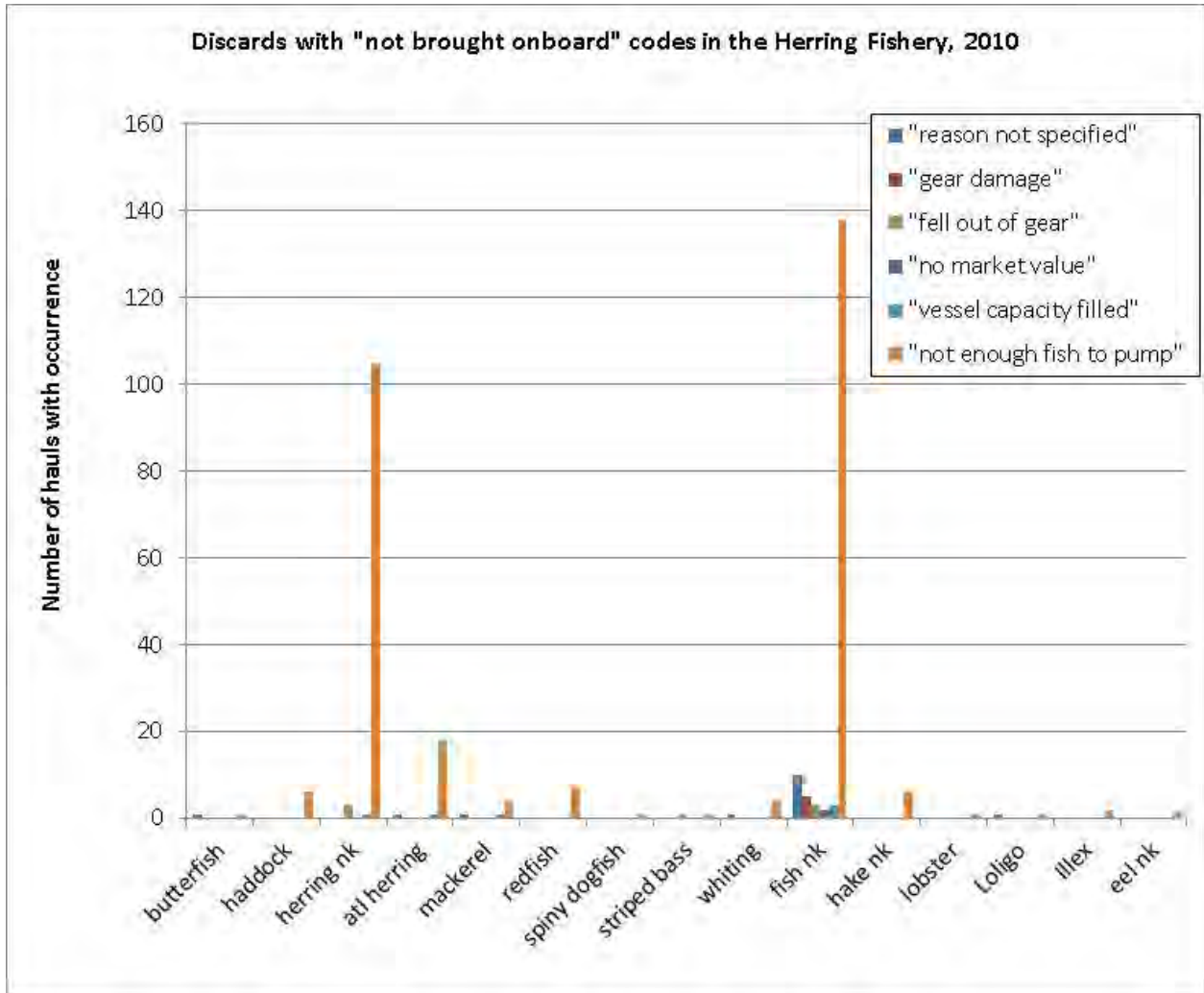
A preliminary review of the observer data indicate that in 2010, only 35 records (approximately 30 unique hauls) of 929 hauls (3.2%) that were observed on limited access herring vessels were documented to have experienced full or partial slippage events. The total estimated catch not brought on board 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.



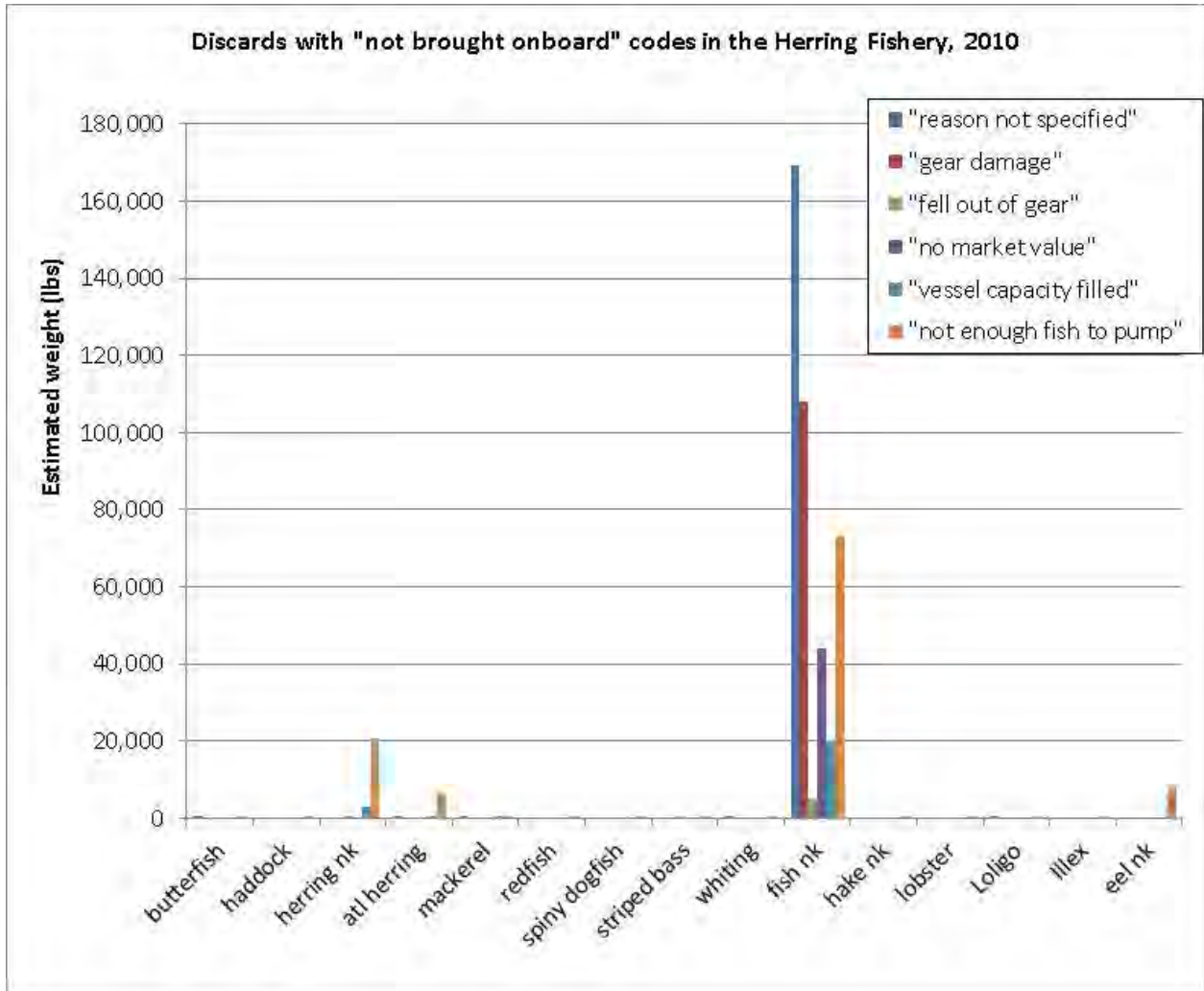
**Table 148 Summary of 2010 Observed Events on Limited Access Herring Vessels (by Number and Estimated Weight of Fish in Lbs.) with Fish Not Brought on Board**

	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				
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.

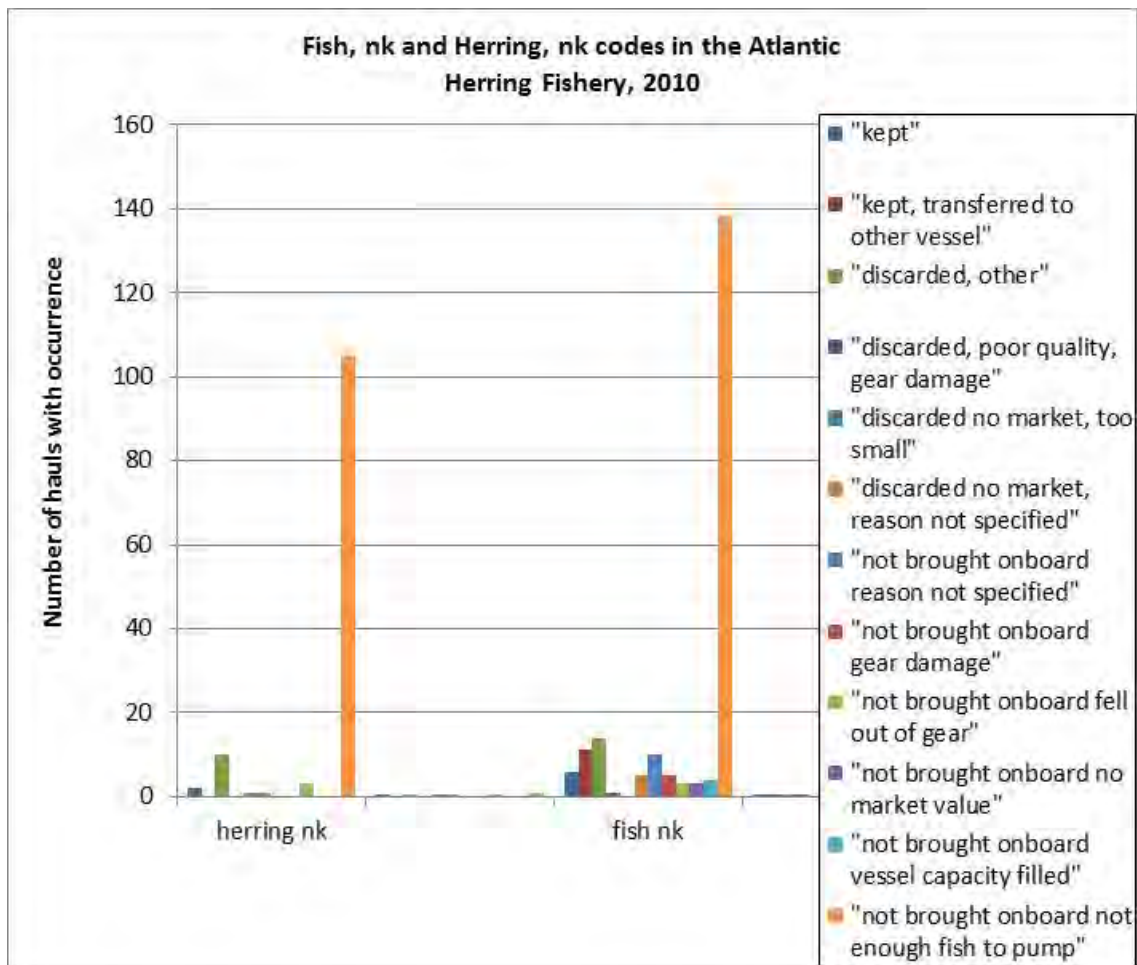
In 2010, Herring NK was documented on 122 hauls, and Fish NK was documented on 200 hauls. The majority of Herring NK (86%) was due to “not enough fish to pump” (operational discards). Sixty nine percent (69%) of Fish NK was associated with operational discards. In general, the amounts of fish classified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

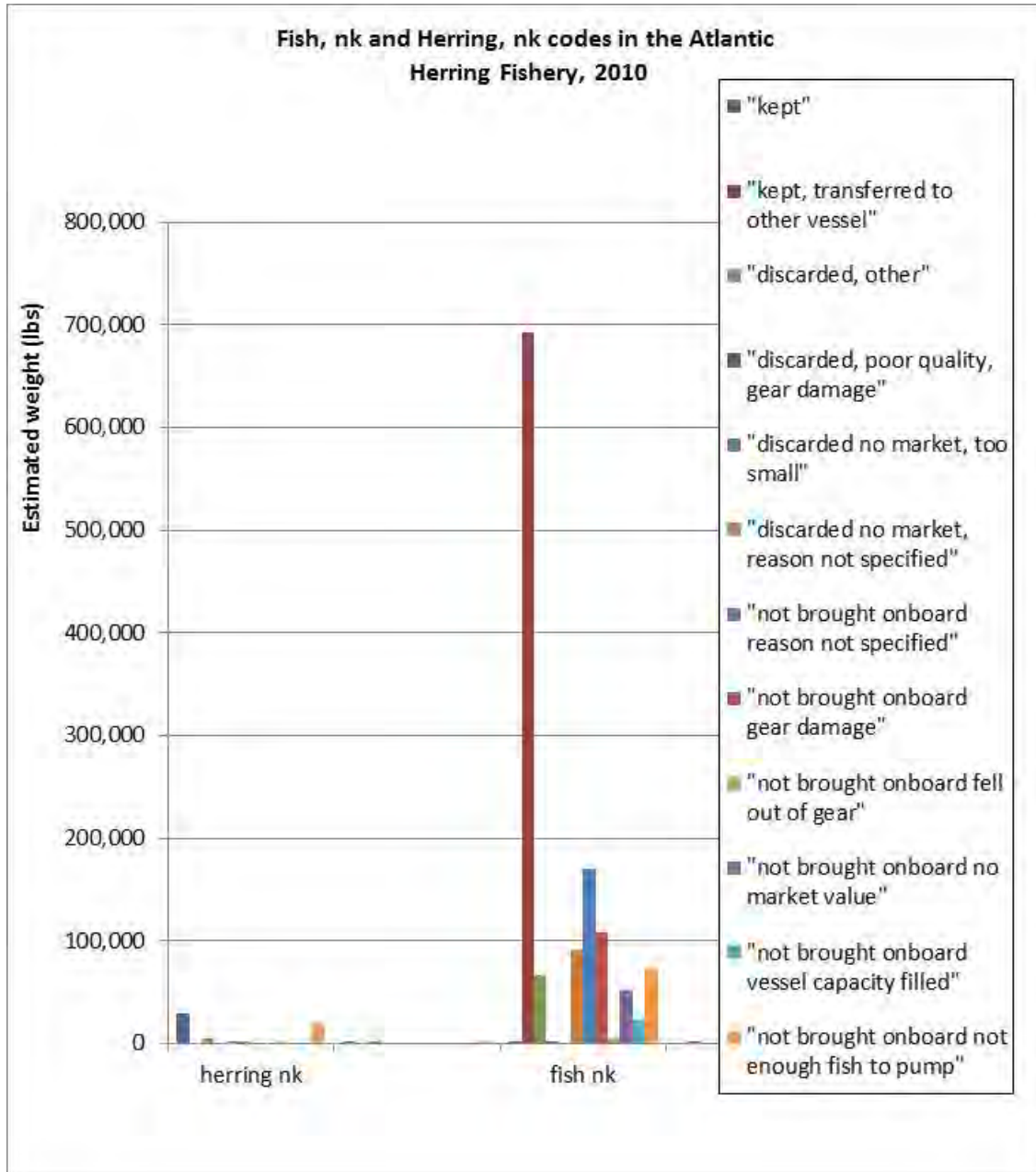
**Table 149 Quantification of Fish NK and Herring NK (in Pounds) on Observed Hauls by Limited Access Herring Vessels in 2010**

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**

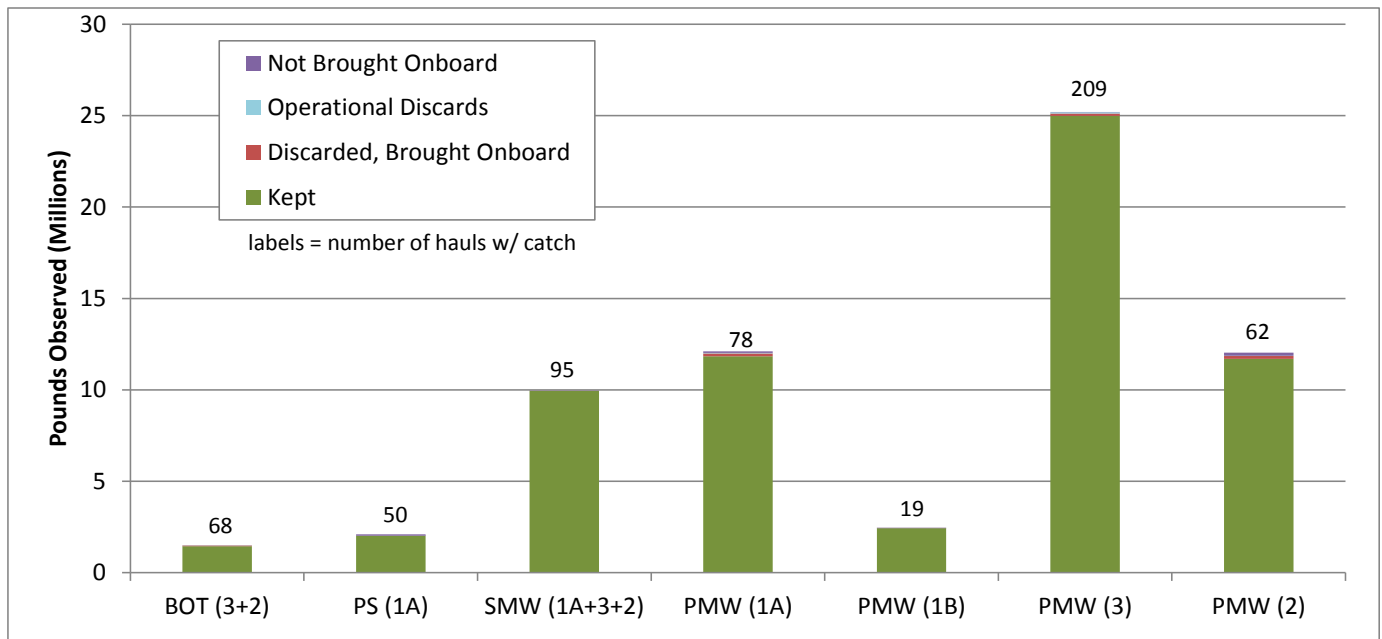


**Figure 87 Use of Fish NK and Herring NK Codes on Observed Limited Access Herring Trips (by Estimated Weight) in 2010**



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).

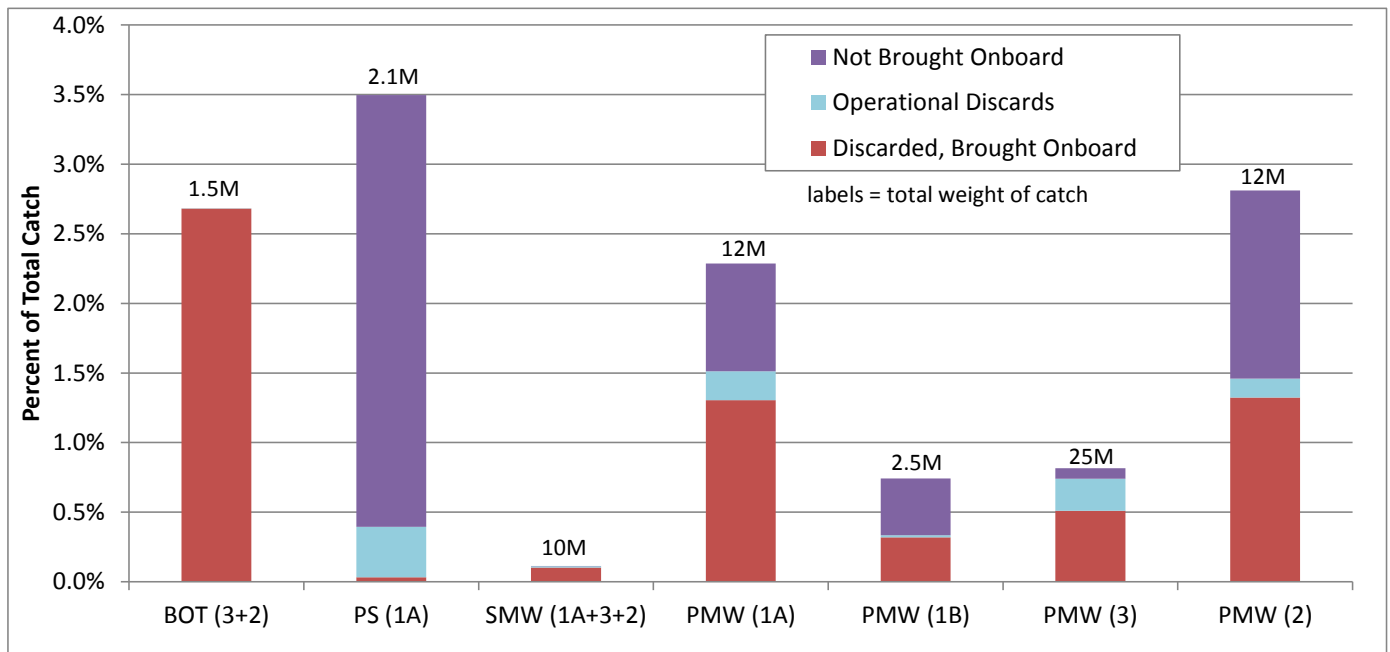
**Figure 88 Summary of 2010 Observed Catch (Pounds) on A/B/C Herring Vessels on Declared Herring Trips by Gear Type, Management Area, and Disposition**



*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*