AMENDMENT 5 TO THE ATLANTIC HERRING FMP: DRAFT DISCUSSION DOCUMENT

This document summarizes the work of the New England Fishery Management Council's Herring Committee, Advisory Panel (AP), and Plan Development Team (PDT) to date regarding the development of specific management measures and the range of alternatives that may be analyzed in the Draft EIS for Amendment 5 to the Herring FMP. Relevant background and supporting information/analyses provided by the Herring PDT are also included in this document.

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1.0 INTRODUCTION

The New England Fishery Management Council (Council) is developing an amendment to the Fishery Management Plan (FMP) for Atlantic herring (*Clupea harengus*) under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), recently reauthorized as part of the Magnuson-Stevens Reauthorization Act of 2006 (MSRA). In accordance with the National Environmental Policy Act (NEPA), the Council also intends to prepare an Environmental Impact Statement (EIS) that will analyze the impacts of this amendment on both the physical and human environment.

1.1 PURPOSE AND NEED

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1.2 GOALS AND OBJECTIVES

1.2.1 Goals and Objectives – Herring Fishery Management Program (Amendment 1)

The goals and objectives of the Atlantic herring fishery management program were specified in Amendment 1 to the Herring FMP and will continue to frame the long-term management of the resource and fishery:

GOAL (AMENDMENT 1): Manage the Atlantic herring fishery at long-term sustainable levels consistent with the National Standards of the Magnuson-Stevens Fishery Conservation and Management Act.

OBJECTIVES (AMENDMENT 1):

1. Harvest the Atlantic herring resource consistent with the definition of overfishing contained in the Herring FMP and prevent overfishing.

2. Prevent the overfishing of discrete spawning components of Atlantic herring.

3. Avoid patterns of fishing mortality by age which adversely affect the age structure of the stock.

4. Provide for the orderly development of the herring fishery in inshore and offshore areas, taking into account the viability of current and historical participants in the fishery.

5. Provide for long-term, efficient, and full utilization of the optimum yield from the herring fishery while minimizing waste from discards in the fishery. Optimum yield is the amount of fish that will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, taking into account the protection of marine ecosystems, including maintenance of a biomass that supports the ocean ecosystem, predator consumption of herring, and biologically sustainable human harvest. This includes recognition of the importance of Atlantic herring as one of many forage species of fish, marine mammals, and birds in the Northeast Region.

6. Prevent excess capacity in the harvesting sector.

7. Minimize, to the extent practicable, the race to fish for Atlantic herring in all management areas.

8. Provide, to the extent practicable, controlled opportunities for fishermen and vessels in other Mid-Atlantic and New England fisheries.

9. Promote and support research, including cooperative research, to improve the collection of information in order to better understand herring population dynamics, biology and ecology, and to improve assessment procedures.

10. Promote compatible U.S. and Canadian management of the shared stocks of herring.

11. Continue to implement management measures in close coordination with other Federal and State FMPs and the ASMFC management plan for Atlantic herring, and promote real-time management of the fishery.

1.2.2 Goals and Objectives of Amendment 5 (Proposed)

At this time, it is intended that the management measures considered in this amendment will address one or more of the following:

GOAL (AMENDMENT 5)

To develop an amendment to the Herring FMP to improve catch monitoring and ensure compliance with the Magnuson-Stevens Fishery Conservation and Management Act (MSA)

OBJECTIVES (AMENDMENT 5)

1. To implement measures to improve the long-term monitoring of catch (landings and bycatch) in the herring fishery;

2. To implement other management measures as necessary to ensure compliance with the MSA;

3. To implement management measures to address bycatch in the Atlantic herring fishery;

4. In the context of Objectives 1 -4 (above), to consider the health of the herring resource and the important role of herring as a forage fish and a predator fish throughout its range.

Discussion

The objectives specific to Amendment 5 may change as the management alternatives are developed and the Council narrows the scope of the amendment. Ultimately, the Council will approve conservation and management measures to address the relevant management issues and meet the goals/objectives that it determines are appropriate to address for Amendment 5, also considering the goals/objectives of the herring management program that were established in Amendment 1.

1.3 AMENDMENT 5 – DEVELOPMENT OF ALTERNATIVES AND ANTICIPATED TIMELINE

The measures proposed in this amendment were originally developed as part of Amendment 4 to the Atlantic Herring FMP, but Amendment 4 was split in June 2009 so that the Council could develop annual catch limits (ACLs) and accountability measures (AMs) in a timely manner. The ACL/AM component was completed as part of Amendment 4, and other measures under consideration (catch monitoring program, river herring bycatch measures, criteria for midwater trawl access to groundfish closed areas, measures to address interactions with the Atlantic mackerel fishery) will be developed in Amendment 5.

After gathering information during the scoping period for Amendment 4 (through June 30, 2008), the Herring Committee began work on developing a range of alternatives to be considered and analyzed in a Draft Environmental Impact Statement (DEIS) and public hearing document for Amendment 4. Committee meetings were held during the scoping period so that background information could be provided by the Herring PDT and scoping comments could be submitted by the public and the Herring Advisory Panel (AP). The Committee met jointly with the Herring AP during July 2008 and met independently during September/October 2008 to continue work on the development of management alternatives and develop recommendations for the Council to review at its meeting in October 2008.

At the October 7-9, 2008 meeting, the Council reviewed work on the management alternatives and considered the Herring Committee's recommendations regarding specific management measures for further development in Amendment 4. Following the October Council meeting, the Committee continued to flesh out the details of the management alternatives that will be forwarded to the Council for approval and incorporation into a Draft EIS (DEIS) for Amendment 4. At its November 2008 meeting, the Council agreed to also develop measures during 2009 that establish criteria for midwater trawl access to the groundfish closed areas; these measures are now proposed for inclusion in Amendment 5.

In late 2008, the Council also solicited suggestions/proposals from stakeholders regarding the specific elements of a catch monitoring program for the Atlantic herring fishery. Stakeholder proposals were reviewed by the Herring Committee at the December 2008/January 2009 meetings, and some elements of the proposals have been incorporated into the Committee's alternatives for further consideration in this document. The Council approved these proposals for further consideration/development at its February 2009 meeting. In April 2009, the Council prioritized the management issues to be addressed in Amendment 4:

1. Annual Catch Limits and Accountability Measures;
2. Catch Monitoring Program;
3. Measures to Address River Herring Bycatch;
4. Criteria for Midwater Trawl Access to Groundfish Closed Areas; and
5. Measures to Address Interactions with the Mackerel Fishery.

The Herring Committee continued to work with the Herring Advisory Panel and Herring PDT on the development of management alternatives for Amendment 4 throughout the first half of 2009, and the Council reviewed progress on Amendment 4 at its June 2009 meeting. While some

elements of the amendment were complete and ready to move forward at that time, the larger, more significant components of the catch monitoring program and other measures (river herring bycatch measures, groundfish closed area access) required additional work/discussion. To ensure that the ACL/AM provisions of Amendment 4 could be implemented for the 2011 fishing year (as mandated by the MSA), the Council was required to submit the ACL/AM action (i.e., Amendment 4) to NMFS no later than May 2010. This would have required completion of the development of alternatives and the Draft EIS for Amendment 4 during the fall of 2009; the Council recognized that this timeline was highly unlikely since the range of alternatives for catch monitoring and measures to address other issues in the amendment were not fully developed as of June 2009, and Council staff/Herring PDT work was diverted to the 2010-2012 specifications process for much of summer/fall 2009. The Council therefore decided to split Amendment 4 so that the ACL/AM provisions could be completed in a timely manner, and the other elements of the action could be further developed in Amendment 5, following completion of Amendment 4 and the 2010-2012 specifications. Development of the Amendment 5 catch monitoring alternatives continued through the summer/fall 2009 and early 2010 while the Council addressed the 2010-2012 fishery specifications and completed Amendment 4. The final Amendment 4 document was submitted to NMFS on April 23, 2010. During the management priority discussion in November 2009, the Council approved the continuation of the development of Amendment 5, with an additional issue to be addressed – spawning protection.

The Draft Environmental Impact Statement (DEIS) for Amendment 5 will be developed based on a range of alternatives identified for consideration by the Council and comment by the public and interested parties. Once the DEIS for Amendment 5 is prepared and approved, and once the Council identifies its preferred alternative(s) based on the information in the DEIS, the Council will distribute the DEIS as well as an abbreviated public hearing document for public review. A 45-day public hearing and comment period will allow interested stakeholders to comment on any aspects of the Amendment 5 DEIS, including the alternatives under consideration and the analyses of the impacts prepared by the Council's Herring PDT. Following a review of all public comments and input from the Herring Advisory Panel and Herring Committee, the Council will select the final management measures for submission to the Secretary of Commerce as Amendment 5 to the Herring FMP. The Council is scheduled to select the final measures for Amendment 5 in 2011.

The following "milestones" in the development of Amendment 5 are anticipated at this time:

1. Herring Committee, PDT, and Advisory Panel continue development of alternatives for Amendment 5	FEB – SEPT 2010
2. Council approves Amendment 5 alternatives for analysis in DSEIS	SEPT 2010
3. Council approves Draft Amendment 5/DSEIS and public hearing document and selects preferred alternatives	JAN 2011 OR APR 2011
4. Herring Amendment 5 Public Hearings	FEB/MAR OR MAY/JUNE 2011
5. Council reviews public and advisor comments and O/S recommendations; approves final Amendment 5 measures	APRIL-JUNE OR SEPT 2011
6. Staff submits Amendment 5	JUNE OR OCTOBER 2011
7. Amendment 5 Implementation	ASAP 2012 FY

2.0 MEASURES TO ESTABLISH A CATCH MONITORING PROGRAM FOR THE ATLANTIC HERRING FISHERY

2.1 BACKGROUND

The Council has identified ***catch monitoring*** as a primary management issue for consideration in Amendment 5 and has directed the Herring Committee to focus on the development of specific management alternatives to improve catch monitoring in the herring fishery. "Catch monitoring" is intended to be comprehensive in nature and relates to improving the collection of information regarding shoreside (landings of herring and other species) and at-sea catch (including bycatch/discards and slippage/unsampled catch), as well as improving vessel/dealer reporting and real-time quota (ACL/sub-ACL) monitoring.

A catch monitoring program for the Atlantic herring fishery that supplements and improves the existing program can take on many forms and include several different approaches. In general, two important elements of the fishery must be adequately documented to improve catch monitoring and ensure that data are as complete and accurate as possible: (1) **at-sea catch**; and (2) **portside/dockside landings**. At-sea monitoring should focus on both total catch and bycatch– everything that enters the net and is either pumped aboard the fishing vessel or discarded at sea. Dockside monitoring and/or portside sampling should focus on accurate and real-time accounting of landings and incidental catch – all fish are is brought to port and offloaded from the vessel, either to a processing plant, a bait truck/dealer, other fish dealers, or to be disposed of as bycatch. Another important element of catch monitoring is improving reporting and ensuring real-time monitoring of the management area sub-ACLs for the Atlantic herring fishery.

A thorough understanding of the strengths and weaknesses of the existing catch monitoring program is a fundamental first step towards designing a new and better program. This has been the focus of the Herring Committee and Advisory Panel's discussions during and since the initiation of Amendment 5. The existing catch monitoring program will be described in detail

and evaluated to the extent possible as part of the description and discussion of the no action alternative in the Amendment 5 Draft EIS.

2.2 GOALS AND OBJECTIVES (CATCH MONITORING PROGRAM)

In general, the goals (numbered) and objectives (bulleted) of the catch monitoring program established in Amendment 5 are:

(1) To create a cost effective and administratively feasible program for provision of accurate and timely records of catch of all species caught in the herring fishery;

- Review federal notification and reporting requirements for the herring fishery to clarify, streamline, and simplify protocols;

(2) Develop a program providing catch of herring and bycatch species that will foster support by the herring industry and others concerned about accurate accounts of catch and bycatch, i.e., a well-designed, credible program;

- Avoid prohibitive and unrealistic demands and requirements for those involved in the fishery, i.e., processors and fishermen using single and paired midwater trawls, bottom trawls, purse seines, weirs, stop seines, and any other gear capable of directing on herring;
- Improve communication and collaboration with sea herring vessels and processors to promote constructive dialogue, trust, better understanding of bycatch issues, and ways to reduce discards;
- Eliminate reliance on self-reported catch estimates;

(3) Design a robust program for adaptive management decisions;

(4) Determine if at-sea sampling provides bycatch estimates similar to dockside monitoring estimates;

- Assure at-sea sampling of at-sea processors' catches is at least equal to shoreside sampling;
- Reconcile differences in federal and states' protocols for dockside sampling, and implement consistent dockside protocols to increase sample size and enhance trip sampling resolution.

Comment [lls1]: August 2010 = Herring AP supports a monitoring program that will have the capacity to generate accurate estimates of catch, bycatch, and incidental catch across the fishery sufficient for the determination of the biological implications of that catch, bycatch, and incidental catch

2.3 DEVELOPMENT OF AMENDMENT 5 CATCH MONITORING ALTERNATIVES

The Herring Committee, in consultation with the Herring AP and PDT, has reviewed and discussed numerous detailed comments regarding the establishment of a catch monitoring program for the Atlantic herring fishery in this amendment. In addition, the Committee has received reports and presentations from individuals on the Herring PDT who work closely with the NOAA Fisheries Observer Program as well as portside/dockside samplers and those who have participated in related research projects.

The catch monitoring measures under consideration in this amendment are still under development, as the issues are quite complicated, and input regarding the kinds of approaches that should be considered has been extensive. Some options have been eliminated from further

consideration, some have been added, and some have been modified; this process will continue through discussion between the Herring Committee, Advisory Panel, PDT, and interested parties until the Committee/Council is comfortable that it has developed a reasonable range of options for further analysis and additional public input. At this time, the management options under consideration for catch monitoring in Amendment 5 are described individually in this document so that each measure can be evaluated independently in terms of costs, benefits, and the nature and utility of the information it may generate. Ultimately, the Committee/Council will merge the measures described in the following sections to formulate more comprehensive management alternatives for further consideration and analysis in the Draft EIS for Amendment 5. The catch monitoring alternatives that are evaluated in the DEIS are intended to be packages of management measures that incorporate the various options described in the following sub-sections. To the extent possible, the analyses provided in the DEIS will consider the interaction between the catch monitoring measures and the potential cumulative impacts of the measures on the herring resource and the herring fishery.

2.4 MEASURES TO IMPROVE QUOTA MONITORING AND REPORTING

Increasing compliance with reporting will help to improve the accuracy of landings data and quota/TAC monitoring, which will lead to more effective management of the herring fishery. The Council is considering management measures to provide for real-time quota monitoring to the extent possible. The following subsections describe the measures that are currently under consideration/development to improve real-time quota monitoring, reporting, and compliance.

2.4.1 Modifications to Interactive Voice Response (IVR) Reporting Requirements

2.4.1.1 Background

Currently, vessels participating in the Atlantic herring fishery are required to call-in and report their herring catch on a weekly basis through the Interactive Voice Response (IVR) system. The IVR system is an automated, phone-based reporting method initially created for multispecies dealer reporting. It was later modified to include Atlantic herring catch reports in response to the need for real-time quota monitoring. The regulations specify that the owner or operator of any vessel issued a limited access Atlantic herring permit must submit an Atlantic herring catch report via the IVR system each week, regardless of how much herring is caught (including weeks when no herring is caught), unless exempted from this requirement by the Regional Administrator. In addition, the owner or operator of any vessel issued an open access permit for Atlantic herring that catches 2,000 pounds of Atlantic herring on any trip in a week must submit an Atlantic herring catch report via the IVR system for that week as required by the Regional Administrator.

The main reason for utilizing the IVR system in the Atlantic herring fishery is to monitor the Total Allowable Catch (TAC) limits set for the four herring management areas. As part of the Atlantic herring fishery specification process, each management area is annually assigned a TAC (in metric tons). Although vessels are also required to report catches with vessel trip report (VTR) forms, near real-time data is obtained through the IVR system allowing the TACs to be monitored. When the catch in a management area is projected to reach 95% of its specified TAC

(or 92% in areas with research set-asides), the Regional Administrator enacts a closure for all directed herring fishing, and all vessels are restricted to a herring possession limit of 2,000 pounds to accommodate incidental catch.

The IVR system currently requires vessel owners/operators to submit herring catch reports through the IVR system even during weeks when the vessel may not have fished and/or may not have caught any herring. These are considered "negative reports," i.e., reports of zero catch. NMFS supports the continuation of negative IVR reporting in the herring fishery and has indicated that other fisheries are moving towards implementing this requirement where applicable. Negative IVR reports ensure that catch/landings data are more complete and affirm an action relative to vessels' fishing activity during any given week. Negative reports help to resolve potential problems with "missing" data; for example, if a vessel has been submitting herring catch reports through the IVR system and does not fish or catch herring for several weeks, the negative reports allow database managers to know that the vessel did not fish or catch herring during those weeks, versus making assumptions about the vessel's fishing activity and/or applying a proxy level of catch for the vessel's missing reports. Data gaps must be addressed in a timely fashion in order to use the IVR system for real-time quota monitoring, so if negative reports are not filed, it is less clear whether the available data accurately characterize catch in the fishery for quota monitoring purposes.

During the scoping process and ongoing discussions regarding the development of Amendment 5, several possible modifications to the herring IVR reporting system have been proposed for further consideration. The intent of these measures would be to improve reporting compliance and the accuracy and timeliness of quota monitoring information.

In this amendment, it will be important to clarify and ensure, to the extent possible, that all catch is required to be reported. Management area TACs represent total allowable catch, which includes landings and discards. Monitoring the TACs in a timely an effective manner will require improved reporting and documentation of bycatch/discards in the fishery. Observer reports, confirmed by industry members, indicate that herring vessels (trawlers and purse seiners) sometimes release hauls for various reasons (too many fish to pump to vessel; fish too small, bycatch, etc). The amount of fish released should be reported as discard (through whatever mechanism determined in this amendment) and counted toward TAC monitoring, in addition to being reported on VTRs. Efforts should be made in this amendment to improve reporting of discards in the Atlantic herring fishery.

Current regulations for VTR reporting in Section 648.7 require vessels to submit the following information on VTRs: Vessel name; USCG documentation number (or state registration number, if undocumented); permit number; date/time sailed; date/time landed; trip type; number of crew; number of anglers (if a charter or party boat); gear fished; quantity and size of gear; mesh/ring size; chart area fished; average depth; latitude/longitude (or loran station and bearings); total hauls per area fished; average tow time duration; hail weight, in pounds (or count of individual fish, if a party or charter vessel), by species, of all species, or parts of species, such as monkfish livers, **landed or discarded**; and, in the case of skate discards, "small" (i.e., less than 23 inches (58.42 cm), total length) or "large" (i.e., 23 inches (58.42 cm) or greater, total

length) skates; dealer permit number; dealer name; date sold, port and state landed; and vessel operator's name, signature, and operator's permit number (if applicable).

Current regulations for IVR reporting in Section 648.7 state the following for IVR reporting: The owner or operator of a vessel issued a permit to fish for Atlantic herring must report catches (retained and discarded) of herring each week to an IVR system, as specified in paragraphs (b)(2)(i)(A) and (B) of this section. The report shall include at least the following information, and any other information required by the Regional Administrator: Vessel identification, week in which species are caught, **pounds retained, pounds discarded**, management areas fished, and pounds of herring caught in each management area for the week. The IVR reporting week begins on Sunday at 0001 hrs (12:01 AM) local time and ends Saturday at 2400 hrs (12 midnight). Weekly Atlantic herring catch reports must be submitted via the IVR system by midnight, Eastern Time, each Tuesday for the previous week. Reports are required even if herring caught during the week has not yet been landed.

2.4.1.2 No Action Option

Under the no action option, no changes would be made to the current IVR call-in system. Current IVR reporting provisions are as follows:

- The owner or operator of any vessel issued a limited access herring permit must submit an Atlantic herring catch report via the IVR system each week, regardless of how much herring is caught (including weeks when no herring is caught), unless exempted from this requirement by the Regional Administrator.
- An owner or operator of any vessel issued an open access permit for Atlantic herring that catches 2,000 lb (907.2 kg) of Atlantic herring on any trip in a week must submit an Atlantic herring catch report via the IVR system for that week as required by the Regional Administrator.
- The IVR report shall include at least the following information, and any other information required by the Regional Administrator: Vessel identification, week in which species are caught, pounds retained, pounds discarded, management areas fished, and pounds of herring caught in each management area for the week. The IVR reporting week begins on Sunday at 0001 hrs (12:01 a.m.) local time and ends Saturday at 2400 hrs (12 midnight). Weekly Atlantic herring catch reports must be submitted via the IVR system by midnight, Eastern Time, each Tuesday for the previous week. Reports are required even if herring caught during the week has not yet been landed.
- Atlantic herring IVR reports are not required from Atlantic herring carrier vessels.

2.4.1.3 Option – Require Trip-by-Trip IVR Reporting

Under this option, the following provisions would apply:

Limited Access Permit Holders (Categories A, B, C)

- All limited access permit holders (Category A, B, and C) would be required to submit an Atlantic herring catch report via the IVR system on a trip-by-trip basis.
- Negative reports would continue to be submitted on a weekly basis (status quo).
- Limited access permit holders also would be required to report a NMFS-specified trip identifier (ex., first page VTR serial number for the trip); this will establish a mechanism to more accurately match/link trips between the IVR, VTR, and dealer databases.
- Offloading to at-sea herring dealers (i.e., carriers that sell fish) would be considered the same as offloading to a shoreside dealer for the purposes of IVR reporting.

2.4.1.3.1 Sub-Options for Open Access Permit Holders (Category D)

Open Access Sub-Option 1:

- Open access permit holders would be required to submit an Atlantic herring catch report via the IVR system on a trip-by-trip basis for any trips on which herring is caught (landed or discarded).
- Negative IVR reports would not be required for open access permit holders.
- Open access permit holders also would be required to report a NMFS-specified trip identifier (ex., first page VTR serial number for the trip); this will establish a mechanism to more accurately match/link trips between the IVR, VTR, and dealer databases.
- Offloading to at-sea herring dealers (i.e., carriers that sell fish) would be considered the same as offloading to a shoreside dealer for the purposes of IVR reporting.

Open Access Sub-Option 2:

- Open access permit holders that possess a Letter of Authorization (LOA) to transfer Atlantic herring at sea would be required to submit an Atlantic herring catch report via the IVR system on a trip-by-trip basis for any trips on which herring is caught (landed or discarded). These permit holders also would be required to report a NMFS-specified trip identifier (ex., first page VTR serial number for the trip); this will establish a mechanism to more accurately match/link trips between the IVR, VTR, and dealer databases.
- Negative IVR reports (weekly) would be required for open access permit holders that possess a LOA to transfer Atlantic herring at sea. The current LOA would be revised to include this requirement.
- Open access permit holders that do not receive a LOA to transfer Atlantic herring at sea would continue to be subject to current (status quo) IVR reporting requirements (weekly reporting for vessels that catch 2,000 pounds of Atlantic herring on any trip in a week, negative reports not required).

- Offloading to herring carrier vessels would be considered the same as offloading to a shoreside dealer for the purposes of IVR reporting.

2.4.1.3.2 Sub-Options for Trip-by-Trip Reporting Deadlines

Deadline Sub-Option 1:

For permit holders that would be subject to a requirement to report catch via the IVR system on a trip-by-trip basis, the deadline for reporting would be within **24 hours** of each offload or prior to starting the next fishing trip, whichever is less.

Deadline Sub-Option 2:

For permit holders that would be subject to a requirement to report catch via the IVR system on a trip-by-trip basis, the deadline for reporting would be within **6 hours** of each offload or prior to starting the next fishing trip, whichever is less.

2.4.1.4 Option – Maintain Weekly IVR Reporting Requirement with New Reporting Deadline

Under this measure, **IVR weekly reporting deadlines would be changed from Tuesday midnight (current) to Monday midnight** – this would provide better lead time for projections and management area closures. For permit holders that would be subject to a requirement to report catch via the IVR system on a weekly basis (proposed in the alternative described above for open access permit holders and negative reports for limited access permit holders), weekly Atlantic herring catch reports and negative reports must be submitted via the IVR system by midnight, Eastern Time, each Monday for the previous week.

2.4.1.5 Option: Eliminate IVR Reporting and Implement VMS Reporting for Quota Monitoring

This option would eliminate the IVR call-in system and would implement requirements for vessels to report Atlantic herring catch on a real-time basis through their VMS (see options for VMS reporting in Section 2.4.2 below).

2.4.2 Measures to Address VTR/VMS Reporting and Related Provisions

The Council may select any combination of the following options to address VMS/VTR reporting and related provisions.

2.4.2.1 No Action Option

Under the no action option, no changes to VTR reporting or VMS provisions would be implemented in Amendment 5.

2.4.2.2 Option: Require Vessel Trip Reports (VTRs) to be Submitted on a Weekly Basis

This measure would require vessels to submit VTRs on a weekly basis (versus the current monthly requirement). This measure could facilitate timely cross-checking between VTRs and weekly dealer reports.

2.4.2.3 Option: Eliminate the VMS "Power Down" Provision for Limited Access Herring Vessels

This measure would prohibit limited access herring vessels from turning off their VMS units when in port unless specifically authorized by NMFS through a Letter of Exemption, consistent with VMS provisions for the multispecies, scallop, and surf clam/ocean quahog fleet:

- The Northeast Fisheries Regulations allow vessels holding certain permits to turn off their VMS units during periods when the vessel will be out of the water or during extended periods of no fishing activity. The request must be made in advance of the intended exemption period, and a "Letter of Exemption" (LOE) must be issued by NMFS. Vessels may not turn VMS units off until they receive a LOE approval from NMFS.
    - **All Vessels.** May request a Letter of Exemption from NMFS if the vessel is expected to be out of the water for more than 72 consecutive hours.
    - **Limited Access Multispecies, Limited Access Scallop and Surfclam/Ocean Quahog Vessels (Proposed to Add Limited Access Herring Vessels).** May sign out of the VMS program for a minimum of 30 consecutive days by obtaining a Letter of Exemption from NMFS. The vessel may not engage in ANY fisheries until the VMS unit is turned back on.

2.4.2.4 Option: Require Daily VMS Reporting of Atlantic Herring Catch and Discards

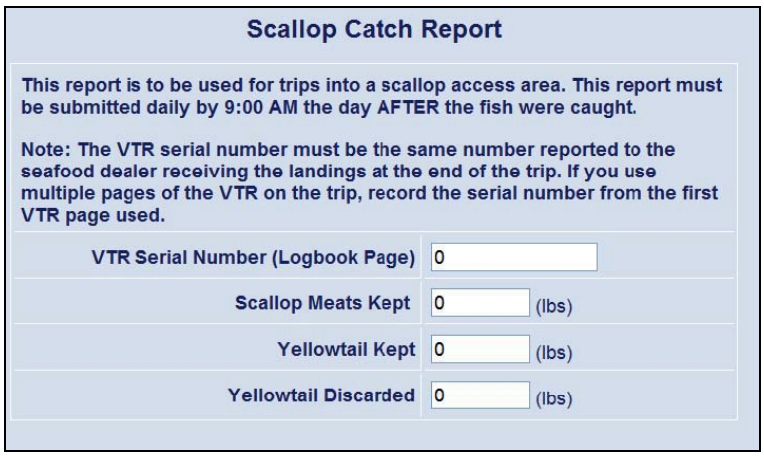
This measure would require that limited access herring vessels (Category A, B, and C) report Atlantic herring catch and discards, and management area fished on a daily basis through their vessel monitoring systems (VMS) on any declared herring trip (i.e., when they are not declared out of the Atlantic herring fishery (DOF)).

> *The operator of a limited access herring vessel must submit reports via VMS, in accordance with instructions provided by the Regional Administrator, for each day of the fishing trip when declared into the herring fishery. The reports must be submitted in 24-hour intervals for each day, beginning at 0000 hr and ending at 2400 hr, and must be submitted by 0900 hr of the following day, or as instructed by the Regional Administrator. The reports must include at least the following information:*
>
> *(A) Total pounds of Atlantic herring kept and discarded;*
>
> *(B) Date fish were caught and management area in which fish were caught; and*
>
> *(C) NMFS-specified trip identifier (ex., VTR serial number), as instructed by the Regional Administrator.*

Discussion

There are currently three vendors that offer VMS equipment approved for use in the NE Region: Boatracs, Inc.; Thrane and Thrane; and Skymate (OrbComm). Limited access Atlantic Scallop and Multispecies permit holders are required transmit catch data through their VMS units via a catch report form that is included in VMS software (Figure 1). The most common report timing used in these fisheries requires that permit holders send a completed catch report before 9 a.m. local time each day for the previous day's catch. The data entered into the catch report form is sent by email as a comma-delimited string to a general NMFS Office of Law Enforcement (OLE) email address; the catch report emails must come from registered VMS units. The submitted data is then automatically uploaded to NMFS Fisheries Statistics Office (FSO) databases for quota monitoring and analysis. Data supplied via VMS is generally available no more than one hour after transmission.

Figure 1 Example: VMS Scallop Catch Report



2.4.2.5 Option: Require Trip-by-Trip VMS Reporting of Atlantic Herring Catch and Discards

This measure would require that limited access herring vessels (Category A, B, and C) report Atlantic herring catch and discards, and management area fished through their vessel monitoring systems (VMS) on any declared herring trip (i.e., when they are not declared out of the Atlantic herring fishery (DOF)).

> *The operator of a limited access herring vessel must submit reports via VMS, in accordance with instructions provided by the Regional Administrator, for each trip when declared into the herring fishery. The reports must be submitted within 24 hours of offloading to an at-sea or land-based herring dealer, or prior to the start of the next fishing trip, whichever is less. The reports must include at least the following information:*

Comment [lls2]: Based on the proposed definition of "offload" in the following sub-section. Intent is to require a VMS catch report every time fish are transferred to a dealer, either at-sea or shoreside.

(A) Total pounds of Atlantic herring kept and discarded;

(B) Date fish were caught and management area in which fish were caught; and

(C) NMFS-specified trip identifier (ex., VTR serial number), as instructed by the Regional Administrator

2.4.2.6 Option: Modify the Regulatory Definition of "Offload" for the Atlantic Herring Fishery

This option would modify the regulatory definition of *offload* for the purposes of the Atlantic herring fishery to clarify reporting provisions.

An *offload* is currently defined in §648.2 as follows:

Offload or offloading means to begin to remove, to remove, to pass over the rail, or to otherwise take away fish from any vessel…

Under this option, the definition of offload would be modified as to add the following:

For the purposes of the Atlantic herring fishery, an offload or offloading means to remove, begin to remove, to pass over the rail, or otherwise take fish away from any vessel for sale to either a permitted At-sea Atlantic Herring dealer (as defined under the option in Section 2.4.3 of this document) or a permitted land-based Atlantic herring dealer.

2.4.3 Measures to Address Carrier Vessels and Letters of Authorization (LOAs)

2.4.3.1 Background Information

Establishing a catch monitoring program for the Atlantic herring fishery in Amendment 5 provides an opportunity to review and possibly modify/clarify existing regulatory definitions and current permit/reporting provisions as they pertain to reporting Atlantic herring fishing activity. Some modifications may help to improve reporting compliance, ensure accuracy and completeness of data, and improve consistency between databases.

The Letters of Authorization (LOAs) issued by NMFS for the Atlantic herring fishery currently allow an unlimited amount of herring (or the amount allowed by the vessels' herring permit) to be transferred at-sea (a) from herring catcher vessels to carriers; (b) between federally-permitted herring vessels; and (c) from herring catcher vessels to non-permitted vessels for personal use as bait (see Table 1 as well as the example LOAs distributed at July 30, 2008 Herring Committee Meeting). As a result, many transfers of herring at-sea may not be captured in both of the databases (IVR and dealer) used for in-season monitoring of catch and landings, which can lead to incomplete catch data and inconsistencies between datasets.

Table 1 Summary of Current Letters of Authorization for the Atlantic Herring Fishery

LOA	Who	Provisions
Transfer at Sea	Any permitted herring vessels wishing to transfer herring at sea	• Enrollment duration: Permit year • Transfer, within the transferring vessel's permitted possession limits, to vessels not issued an Atlantic herring permit for personal use as bait, provided that the vessel does not have purse seine, midwater trawl, pelagic gillnet, sink gillnet, or bottom trawl gear aboard; • Transfer, within the transferring vessel's permitted possession limits, to vessels issued an Atlantic herring carrier LOA, or to permitted at-sea processors; • Transfer, within the transferring vessel's permitted possession limits, to another permitted herring vessel
Carrier*	Any permitted herring vessels wishing to transport herring from catcher vessels to land-based dealers	• Enrollment period: Minimum 7 days • Receive, transport, and transfer Atlantic herring caught by another vessel. • No gear allowed on board • All reporting requirements associated with carrier's permit apply
Midwater trawl*	Any permitted herring vessels wishing to fish with midwater trawl gear in the Gulf of Maine (GOM)/Gorges Bank (GB) Regulated Mesh Area (RMA)	• Enrollment period: Minimum 7 days • Vessel may fish with midwater trawl gear in GOM/GB RMA, including Closed Area I, Closed Area II, and Nantucket Lightship Closed Area, with nets less than the minimum mesh size at §648.80(a)(3)(ii). • All reporting requirements associated with vessel's permit apply • NFMS observer program 72 hrs prior to trip • Notification call to OLE 6 hrs prior to landing
Purse Seine*	Any permitted herring vessels wishing to fish with purse seine gear in the GOM/GB RMA	• Enrollment period: Minimum 7 days • Vessel may fish with purse seine gear in GOM/GB RMA, including Closed Area I, Closed Area II, and Nantucket Lightship Closed Area, with nets less than the minimum mesh size at §648.80(a)(3)(ii). • All reporting requirements associated with vessel's permit apply • NFMS observer program 72 hrs prior to trip • Notification call to OLE 6 hrs prior to landing

Table 2 below summarizes information about vessels that have obtained a herring carrier LOA from 2006-2009. Vessel length is included, and herring Amendment 1 permit category is provided for 2008 and 2009 (Amendment 1 permit categories were implemented during the 2007 fishing year). Vessels that possess herring limited access permits A, B and C are required to have VMS according to Amendment 1 regulations. Vessels with open access Category D permits are not required to have VMS for the herring permit but may be required to have VMS from permits in other fisheries (scallops and multispecies, for example).

While the list of vessels that may engage in carrier activities changes from year to year, it appears that the majority of vessels that obtain a carrier LOA in any given year already use VMS as a requirement of the permit they possess for herring and/or other federal fisheries. In 2008, there were two vessels with Category D permits that obtained the herring carrier LOA. One of these vessels was less than 50 feet and does not possess any other permits that would require VMS. The other Category D carrier vessel in 2008 is a larger vessel (50-100 feet) and is required to use VMS from another federal permit (scallops). In 2009, there were five vessels with Category D permits that obtained the herring carrier LOA. Four of these vessels were less than 50 feet in length; two of these four vessels are required to use VMS due to their multispecies permits. The additional Category D carrier vessel in 2009 was slightly larger (50-100 feet) but does not possess other federal permits that require VMS.

Table 2 Summary of Vessels (Length, Herring Permit Category) that Obtained Herring LOA for Carrier Activities

Fishing Year	Vessels with Carrier LOA	Vessel Size			A1 Permit Category			
		<50 ft	50 - 100 ft	>100 ft	A	B	C	D
2006	**6**		4	2				
2007	**16**	1	10	5				
2008	**13**	1	7	5	10		1	2
2009	**19**	5	8	6	12	2		5

2.4.3.2 No Action Option

Under the no action option, no changes to the current Letters of Authorization (LOAs) for the herring fishery would be implemented in Amendment 5 (Table 1). No additional provisions related to carrier vessels would be implemented in this amendment either.

2.4.3.3 Option: Establish a New At-Sea Herring Dealer Permit

This option would establish a new Federal At-Sea Herring Dealer permit that would be required for carrier or other vessels that sell Atlantic herring to any entity.

- This option would modify the definition of "Atlantic Herring Dealer" in Section 648.2 (Definitions) to include carrier vessels that may sell fish.
- The permit would require compliance with federal dealer reporting requirements (Section 648.7) at any time the vessel is in possession of the at-sea dealer permit. A "dealer identifier" would have to be developed for at-sea for the purposes of reporting. Vessels that have both the At-Sea Herring Dealer Permit and a herring fishing permit would be required to fulfill the reporting requirements of both permits while in possession of both permits.
- Carrier vessels would still be required to obtain a LOA from the NMFS Regional Administrator to engage in carrying activities.

2.4.3.4 Option: Require VMS on All Carrier Vessels for Declaration Purposes

This measure would require all Atlantic herring carrier vessels to utilize a VMS for the purposes of declaring when they may be engaged in herring carrying activities. Declarations that may be required through VMS are described in Section 2.4.3.5.1 of this document.

2.4.3.5 Options to Modify Restrictions for Carriers During LOA Enrollment Period

The following options are intended to provide carrier vessels with additional flexibility during the time in which they are enrolled as carriers. These options are dependent on incorporating carrier vessels into the pre-trip declaration program through VMS (Sections 2.4.3.4 and 2.4.5 of this document).

2.4.3.5.1 Option: Eliminate Minimum Seven-Day Enrollment Period and Allow Carriers to Engage in Other Activities During LOA Enrollment

Under this option, vessels that want to act as Atlantic herring carriers could obtain a LOA from NMFS to do so for the entire fishing year. Vessels would be required to use their VMS declaration to indicate whether or not they will be engaged in herring carrying activity. The pre-trip declaration that may be required through VMS is identified in Section 2.4.5 of this document, and options for declaring are described below.

If carrier vessels are required to utilize VMS for trip declaration purposes, then this option would allow them to engage in other activities while in possession of the herring carrier LOA. Prior to each fishing trip, the carrier vessels could utilize VMS declarations to indicate what activity they intend to engage in during the trip. If the vessel declares "carrier other," then it cannot carry Atlantic herring on that fishing trip.

- Herring vessels on standard fishing trips would declare HER-HER for a herring fishing trip, or DOF when not participating in the fishery.
- Carrier vessels that possess the Carrier LOA could declare HER-CAR. These vessels would be subject to the provisions of the LOA and would not be allowed to carry other species on that trip.
- Carrier vessels that possess the Carrier LOA could declare OTH-CAR. These vessels would not be allowed to carry Atlantic herring on that trip.

2.4.3.5.2 Dual Option for Carriers: Eliminate Minimum Enrollment Period and Allow Carriers to Engage in Other Activities OR Status Quo Carrier LOA

This option would allow carriers to choose either:

1. Eliminate the minimum seven-day enrollment period and engage in other activities during LOA enrollment (identical to the provisions described in Section 2.4.3.5.1 above); or
2. Maintain the status quo (minimum seven day enrollment period with current restrictions, described in Table 1).

This option is similar to the multispecies requirements for common pool vessels fishing in the RGAs:

> *Common pool vessels fishing in the RGAs would be required to declare into these areas via VMS, as instructed by the Regional Administrator. In lieu of a VMS declaration, the Regional Administrator may authorize such vessels to obtain a letter of authorization (LOA) to fish in these RGAs. The minimum participation period for these LOAs would be 7 consecutive days, meaning that a vessel must agree to fish in these areas for a minimum of 7 consecutive days. If issued a LOA, a vessel must retain the LOA on board for the duration of the participation period.*

2.4.4 Measures to Address Vessel-to-Vessel Transfers of Atlantic Herring

NMFS has indicated that the current provisions and allowances for transfers of herring at sea are problematic and may be one of the most challenging problems when trying to resolve differences between databases and/or ensure completeness of Atlantic herring catch/landings data.

VTR records indicate that 933,862 pounds of herring were reported as "sold for bait" by vessels, presumably as transfers at sea. To date, during the 2008 fishing year, 25 unique vessels have been issued a Letter of Authorization to transfer Atlantic herring at-sea. VTR records for the 2008 fishing year are incomplete, and since most activity occurs during summer/fall, only 76,625 pounds have been reported as "sold for bait" in 2008 to date. Of the reported bait transactions during 2007 and 2008 to date, only 24 were for 10,000 pounds or more. The largest transaction reported was for 20,000 pounds. However, it is unclear what percentage of the total transfers at sea and/or bait transactions between vessels these numbers may represent because this activity may be under-documented due to the current reporting system and allowance of at-sea transfers

to occur in this fishery without restriction on the amount or nature of the transfer. NMFS suspects that transfer at-sea activity may be substantially higher than the current data indicate; addressing this issue could help to resolve some discrepancies between databases and provide for more complete and accurate records of the activity occurring in this fishery.

In Amendment 5, the Council is considering measures to minimize transfers at sea and/or standardize reporting requirements for vessels transferring/receiving herring. Management options currently under consideration to address transfers of herring at sea are described below and are not necessarily independent of each other.

2.4.4.1 No Action Option

Under the no action option, reporting requirements and other restrictions for vessels transferring Atlantic herring at sea would remain unchanged. All herring vessels would be allowed to transfer herring at sea based on the current provisions, which are summarized below:

- A vessel that transfers herring at sea to a vessel that receives it for personal use at bait must report all transfers on the Fishing Vessel Trip Report.
- A vessel that transfers herring at sea to an authorized carrier vessel must report all transfers weekly via the IVR system and must report all transfers on the Fishing Vessel Trip Report. Each time the vessel offloads to the carrier vessel is defined as a trip for the purposes of reporting requirements and possession allowances.
- A vessel that transfers herring at sea to an at-sea processor must report all transfers weekly via the IVR system and must report all transfers on the Fishing Vessel Trip Report. Each time the vessel offloads to the at-sea processing vessel is defined as a trip for the purposes of the reporting requirements and possession allowances. For each trip, the vessel must submit a Fishing Vessel Trip Report and the at-sea processing vessel must submit the detailed dealer report.
- A transfer between two vessels issued valid Atlantic herring permits requires each vessel to submit a Fishing Vessel Trip Report, filled out as required by the LOA to transfer herring at sea, and a weekly IVR report for the amount of herring each vessel lands.

2.4.4.2 Option: Establish a Regulatory Definition of Transfer at Sea for the Atlantic Herring Fishery

A *transfer* is currently defined in §648.2 as follows:

Transfer means to begin to remove, to remove, to pass over the rail, or to otherwise take away fish from any vessel and move them to another vessel.

The actions that qualify as transfers that are currently permitted for the herring fishery are described in the transfer at sea provisions at §648.13(f). The regulations allow permitted Atlantic herring vessels to engage in the following activities:

- Transfer, within the transferring vessel's permitted possession limits, to vessels not issued an Atlantic herring permit for personal use as bait, provided that the vessel does not have purse seine, midwater trawl, pelagic gillnet, sink gillnet, or bottom trawl gear aboard;
- Transfer, within the transferring vessel's permitted possession limits, to vessels issued an Atlantic herring carrier LOA, or to permitted at-sea processors;
- Transfer, within the transferring vessel's permitted possession limits, to another permitted herring vessel.

This option would establish a regulatory definition of *transfer at sea* for the purposes of the Atlantic herring fishery to clarify provisions related to each vessel engaged in the operation.

Sub-Option 1: Define a herring transfer at sea as: *a transfer of herring directly from a permitted Atlantic herring vessel (i.e. in the vessel hold or on deck) to another vessel for personal use as bait, to an Atlantic herring carrier or at-sea processor, or to another permitted herring vessel.*

Sub-Option 2: Define a herring transfer at sea as: *a transfer from an Atlantic herring vessel (i.e. in the vessel hold or on deck), codend, purse seine to another vessel for personal use as bait, to an Atlantic herring carrier or at-sea processor, or to another permitted herring vessel. Two vessels hauling one codend is pair trawling and is not considered a transfer at sea.*

2.4.4.3 Option: Expand Possession Restrictions to All Vessels Working Cooperatively in the Atlantic Herring Fishery (to Include Purse Seine Vessels and Vessels that Transfer Herring At-Sea)

The regulations at §648.204(b) state that both vessels involved in a pair trawl operation must be issued the herring permit appropriate for the amount of herring jointly possessed by both of the vessels participating in the pair trawl operation. This means that the more restrictive possession limit of the vessels participating in a pair trawl operation is the limit of the total amount of herring that the vessels may jointly fish for, possess, or land in any calendar day.

For example, if Vessel 1 has a Category A permit, which has no possession limit, and Vessel 2 has a Category C permit, with a possession limit of 55,000 lbs/day, then the vessels are only permitted to jointly fish for, possess, and land 55,000 lbs/day.

This option would expand the provisions §648.204(b) to include paired purse seine operations and transfers at sea between vessels. In summary, vessels working cooperatively are subject to the vessels' the more restrictive possession limit.

2.4.4.4 Option: Restrict Transfers At-Sea to Only Vessels with Category A or B Limited Access Permits

This measure would allow only vessels participating in the limited access directed fishery for Atlantic herring (Category A or B permits) to transfer herring at sea.

- Transferring and receiving vessels would be required to possess a limited access Category A or B permit for the herring fishery.
- Herring carrier vessels operating under a Carrier LOA would be exempt from this requirement.

If selected alone (i.e., without a measure to address open access permit holders, see below), this measure limits at-sea transfers to the limited access directed fishery permit holders only. These are the vessels that do not operate under a possession limit for herring, improving at-sea enforceability.

2.4.4.5 Option: Prohibit Transfers At-Sea to Non-Permitted Vessels

This measure would allow only vessels that possess a federal Atlantic herring permit to transfer herring at sea. Non-permitted vessels would be prohibited from receiving herring at-sea, even for personal use as bait.

- Transferring and receiving vessels would be required to possess a Category A, B, C, or D permit for the herring fishery. The Category D permit is an open access permit, so any vessel can obtain this permit, but possession of this permit subjects the vessel to VTR and other reporting requirements.

This measure may improve reporting compliance. Requiring a federal permit of some sort by all vessels engaged in the transfer activity reduces the likelihood that some herring catch, even in small amounts, will not be documented. However, this measure would require that vessels with no Federal permits (recreational vessels, for example) obtain a permit for herring and comply with all related reporting requirements.

2.4.4.6 Option: Improve Reporting of Herring Transferred At-Sea to Carriers

This option would expand reporting requirements for catcher vessels transferring Atlantic herring to carrier vessels. This option would require carrier vessels to report the NMFS-specified trip identifier (for example, VTR serial number) from the catcher vessel when

offloading to a dealer. Carrier vessels acting as dealers would be required to report the NMFS-specified trip identifier from the catcher vessels in their dealer reports.

2.4.5 Measures to Address Trip Declaration and Notification Requirements

A comprehensive catch monitoring program will likely require notification by vessels prior to taking trips (to deploy observers) and/or prior to landing (to deploy dockside samplers), so efforts should be made to clarify notification requirements and ensure that all vessels participating in the herring fishery are subject to the same requirements. The existing call-in requirement for vessels to request an observer before leaving port was established in response to concerns about haddock bycatch and the establishment of the haddock catch cap in the herring fishery (Framework 40B to the Multispecies FMP) and currently applies only to Category A and B vessels fishing on a declared herring trip. Although developed for a very specific purpose, this requirement has been helpful to the Observer Program to determine the schedule of observer coverage and know better where and when herring trips will occur. It also helps NMFS to estimate and target specific levels of coverage in the fishery during the fishing year. If the notification program is set up in the most efficient manner, it can help to reduce operating costs for the observer program, as fishing trips are more predictable and less time is spent determining when/where observed trips should occur. If the expectation is that all herring vessels should be observed during some or all of their fishing operations, then this measure could assist the Observer Program in deploying observers in the most efficient way across the entire fishery while minimizing the burden on the vessels. The proposed modifications to the current program (options for notification, timing) would both improve efficiency and reduce the burden on the industry.

2.4.5.1 No Action Option

Under this option, no action would be taken in Amendment 5 to modify trip declaration and notification requirements for vessels participating in the Atlantic herring fishery.

- The existing call-in requirement for vessels to request an observer before leaving port was established in response to concerns about haddock bycatch and the establishment of the haddock catch cap in the herring fishery (Framework 40B to the Multispecies FMP) and currently applies only to Category A and B vessels fishing on a declared herring trip.
- Category A and B vessels fishing on a declared herring trip are also currently required to notify NMFS Law Enforcement via VMS of the time and place of offloading at least six hours prior to crossing the VMS demarcation line on their return trip to port (or six hours prior to landing if the vessel does not fish seaward of the demarcation line).

The above requirements would be maintained under the no action option.

2.4.5.2 Option: Modify and Extend the Pre-Trip Call-in Requirement to All Limited Access Herring Vessels

This option would require limited access herring vessels (Category A, B, and C) to notify the Observer Program **prior to any trip where the operator may harvest, possess, and land Atlantic herring.** It would also modify the call-in requirements to make them less burdensome for the industry.

In order to possess, harvest, or land herring, representatives for Category A, B, and C fishing vessels must provide notice to NMFS, including the vessel name, contact information for coordination of observer deployment, and the date, time, and port of departure at least 18 hours prior to beginning the trip. Vessel representatives may notify NMFS through telephone, fax, email, or other mechanisms (TBD). If a vessel has been issued a limited access herring permit but does not provide notification to NMFS before beginning the fishing trip, the vessel is prohibited from possessing, harvesting, or landing Atlantic herring on that trip.

Comment [lls3]: Details to be developed with input from Observer Program

Sub-Option: Require Atlantic herring carrier vessels to comply with call-in requirements

2.4.5.3 Option: Modify and Extend the Pre-Trip Call-in Requirement and Extend Pre-Landing Notification Requirement to All Limited Access Vessels

In addition to the measures proposed in the above option to modify and extend the pre-trip call-in requirement, this option would require limited access herring vessels (Category A, B, and C) to notify NMFS Law Enforcement via VMS of the time and place of offloading at least six hours prior to crossing the VMS demarcation line on their return trip to port (or six hours prior to landing if the vessel does not fish seaward of the demarcation line).

Sub-Option: Require Atlantic herring carrier vessels to comply with call-in and pre-landing notification requirements

Discussion

Category A and B vessels fishing on a declared herring trip are also currently required to notify NMFS Law Enforcement via VMS of the time and place of offloading at least six hours prior to crossing the VMS demarcation line on their return trip to port (or six hours prior to landing if the vessel does not fish seaward of the demarcation line). Extending the VMS pre-landing requirement to all limited access herring vessels encountering herring on a trip may be an appropriate option to consider, especially if the catch monitoring program developed in this amendment includes a portside sampling program. This notification could facilitate the deployment of portside samplers (the proposed portside sampling alternative in this amendment already includes some form of pre-landings notification, so the current VMS notification could possibly serve this purpose if it is extended to the entire limited access fleet). It would also provide consistency regarding vessels that would be subject to pre-trip and pre-landing notification requirements and may reduce the complexities associated with declarations into/out of the fishery.

2.4.6 Outreach Programs to Improve Compliance and Consistency

The Council recommends that NMFS to conduct outreach programs to enhance the industry's understanding of all regulations pertaining to the reporting of herring catch and the catch monitoring program that may be established in this amendment.

2.4.6.1 Outreach Program to Ensure Consistency in Reporting and Improve Compliance

The Council will work with NMFS to structure an outreach program for improving reporting compliance by vessels and dealers once Amendment 5 is implemented. The Atlantic herring fishery is discrete enough that NMFS could work with the majority of participants in the fishery to standardize and clarify reporting requirements and better ensure that landings/catch data are provided to NMFS in a consistent and complete format.

2.4.6.2 Outreach Program to Foster Cooperation with Catch Monitoring Program

The Council will work with NMFS to structure an outreach program for enhancing communication and fostering cooperation between vessel operators, dealers, processors, and managers upon the implementation of the catch monitoring program proposed in this amendment.

2.5 MEASURES TO CONFIRM THE ACCURACY OF SELF-REPORTING

Amendment 5 may include management measures that require standardization and/or certification of volumetric measurements used to estimate herring landings. Some options under consideration would require catch to be weighed by truck scales or flow scales, while others would require boats to be certified and sealed to assure accurate reports of volume. In all options, independent landings weight verification would be required when a third party is available/provided (for example, portside sampler, enforcement agent).

Comment [lls4]: For all of the options proposed in this section, the details regarding certification of surveyors, weighmasters, and/or scales need to be developed with NMFS.

2.5.1 No Action Option

Under the no action option, measures would not be established in Amendment 5 to require vessels/dealers to standardize/certify volumetric measurements of catch.

2.5.2 Option: Require Sealing and Certification of Vessel Fish Holds or Storage Containers

This option would require that herring Limited Access Category A and B vessels and all herring carrier vessels seal and certify the volume of their fish holds to obtain a more accurate estimate of catch. Limited Access Category C vessels would be required to either certify the volume of their fish holds (as described below for A and B vessels) or hold herring in pre-measured containers on all fishing trips (also described below). This option would also require weight verification of landings by an independent third-party for some portion (TBD) of landings events.

Comment [lls5]: August 2010 – Herring AP recommends that this be the preferred option to better determine the estimated weight on board

As a condition of possessing the limited access permit, **Limited Access Category A and B vessels as well as herring carrier vessels** would be required to contract either the State Sealer of Weights and Measures, the State Sealer's designee, or a marine surveyor to seal and measure their fish holds. The owner of the boat would pay a fee for the measuring and sealing as determined by the State Sealer of Weights and Measures or by the marine surveyor, based on the carrying capacity of the boat. The measure must be in units (to be determined)*****, measured by liquid measure from a calibrated prover to the top of the hatch coaming. The measurement must be marked and permanently sealed, both forward and aft, in the hold, in the most practicable manner, while the boat is afloat. The boat owner would immediately notify the State Sealer of Weights and Measures of any alteration or the breaking of any seal. After measuring and sealing each boat, the State Sealer of Weights and Measures or marine surveyor would provide documentation to either NMFS or the vessel owners, including the name of the owner, the name and capacity of each vessel, and a calibrated volume table. If not provided directly to NMFS, the owner would be responsible for providing the documentation before or upon renewal of the limited access permit. NMFS would be responsible for providing the calibrated volume table to the third party responsible for verifying the catch.

*****In both Europe and Maine, where certified volumetric measurements are used, the conversion between volume and weight has been specified to avoid confusion, and has been for some time (Table 3). One unit of hogshead can vary in interpretation. Conversion between units is also difficult with water involved; an average ought needs to be decided on for converting a volume to a weight. Once the standard unit of measure and corresponding conversion to weight have been determined, a conversion chart for each fish hold would be submitted to NMFS. NMFS would then provide the conversion charts to the party responsible for independently verifying the catch.

Table 3 Conversions from Volume to Weight Used at Different Times and Locations

		Volume		Weight		
	Unit	Cubic Meters	Bushels	Short Tons	Metric Tons	Pounds
State of Maine	Hogshead	0.62	17.50	0.61	0.56	1,225.00
European (Herring)	Herring Unit	100.00	28.38	90.39	82.00	180,780.00
European (Mackerel)	Makerel Unit	100.00	28.38	85.98	78.00	171,961.00
Southeast Science Center (Menhaden)	Standard Fish	0.36	10.23	0.34	0.30	670.00

Limited Access Category C vessels would be required to either certify the volume of their fish holds (as described above) or store herring catch in pre-measured containers on all fishing trips. A pre-measured container can be an insulated vat or tub, a fish tote, barrel, or other container which holds the herring. Each container would be required to be certified and either display a certification tag or sticker or have the proper certification paperwork, which could be presented to the party responsible for independently verifying the catch at the time of inspection. Other details TBD.

Comment [lls6]: Option for C vessels added at the September 1-2 Herring OS Meeting – details TBD

When possible, catch weighing or verification would be conducted by an independent third party (e.g. portside sampler, state agent, law enforcement). The third party may be incorporated into the portside sampling program; the intent, however, is that this be a standalone requirement to improve accuracy of landed catch throughout the fishery, including sectors of the fishery for which full portside sampling is limited or where coverage is less than optimal.

As required or necessary, vessels would contact the independent third party in order to allow enough time for the party to meet the vessel at the first point of landing. This could be incorporated into the existing pre-landing notification requirement, especially if a portside sampling program is developed that utilizes this requirement as well. The vessel would then submit to a "sounding" process, by which the independent third party could either drop a small weight connected to the end of a tape measure or similar device into the hold until it settles on top of the fish. The third party would provide the implement of measure. The third party would then check the measurement against a calibrated volume table, provided by NMFS but specific to the boat, and calculate the cubic volume of fish in the tank. This process would then be repeated on all the other tanks that contain fish and the total cubic volume would be calculated, which can then be converted into a weight. The data would be recorded by the third party and reported to NMFS in addition to the Captain and Dealer VTRs. All Category A, B, and C vessels, as well as carrier vessels, would be required to carry on-board calibrated volume tables for all of the fish holds on the vessel.

2.5.3 Option: Require Weighing or Certification of Dealer Trucks/Transport Vehicles

Comment [lls7]: August 2010 – Herring AP recommends eliminating all options that require weighing of trucks (Committee eliminated all but the first option in this section at its September 1-2 Meeting)

This measure would require that herring dealers certify the capacity of their trucks/transport vehicles to obtain a more accurate estimate of catch. The following options are under consideration at this time:

- **Option 1 (Weighing):** As a condition of possessing a Federal dealer permit for Atlantic herring, dealers would be required to weigh the trucks used to transport the herring before and after the truck is loaded at an existing, certified truck weighing facility which may need to be certified.

  Truck weight verification would be required both before the Atlantic herring are transferred into the vehicle and after the Atlantic herring have been deposited into the truck; the difference would be the estimate of the weight of the herring. If the truck is going to be hauling barrels or boxes full of fish, those items would be required to be placed on the truck before the initial weigh-in. It may also be possible for trucks to be weighed at the beginning of the fishing season, as the weight of the truck to subtract from the weight containing the fish from.

  A third party Licensed Weighmaster (which could be a portside sampler, state agent, law enforcement, etc.) would be required to be present in order to issue a certified measured weight for payment for another party, licensed to print the ticket and give both parties a gross weight. Only printed tickets stamped with an impression would be accepted by NMFS for certification of the capacity of the vehicles. This option could be altered so that dealers would only be required to weigh the trucks when the third party is present.

- **Option 2 (Sealing/Certification):** As a condition of possessing a Federal dealer permit for Atlantic herring, dealers would be required to contract the State Sealer of Weights and Measures, the State Sealer's designee, or a surveyor or architect to measure the capacity of transport vehicles. The dealer would pay a fee for the measuring and sealing as determined by the State Sealer of Weights and Measures or by the surveyor or architect, based on the capacity of the vehicle. The measurement would be in units that must be determined (*see previous section), and measured by a method TBD.

  After measuring the vehicles, the State Sealer of Weights and Measures or marine surveyor would certify to NMFS the name of the owner and the name and capacity of each vehicle. They would also provide a calibrated volume table, which NMFS would be responsible for providing to the party responsible for certifying the catch. The catch weighing would be conducted by an independent third party (e.g. portside sampler, state agent, law enforcement). The third party may be incorporated into the portside sampling program; the intent, however, is that this be a standalone requirement to improve accuracy of landed catch throughout the fishery, including sectors of the fishery for which full portside sampling is limited or where coverage is less than optimal.

  As required or necessary, vessels would contact the third party in order to allow enough time for the party to meet the vessel at the first point of landing. This could be incorporated into the existing pre-landing notification requirement, especially if a portside sampling program is developed that utilizes this requirement as well. Once filled with the entirety of the herring that the vehicle will be transporting, and all vessels or compartments have been drained *to the extent possible*, trucks would be required to submit to a "sounding" process, by which the third party would drop a small weight connected to the end of a tape measure or similar device into any and all beds, tanks or compartments which hold herring. The third party would provide the implement of measure. The third party would then check the measurement against a calibrated volume table, provided by NMFS (see above) but specific to the truck, and calculate the cubic volume of fish in all the individual beds, tanks or compartments, and then the total cubic volume for the truck would be calculated, which can then be converted into a weight. The data would be recorded by the third party and reported to NMFS in addition to the VTRs and dealer reports. All transport vehicles subject to these provisions would be required to carry the calibrated volume tables for beds, tanks and/or containers.

Comment [lls8]: Not likely to be possible for all transport vehicles… will have to specify which types of vehicles should be measured for capacity

Comment [lls9]: Time requirements should consider potential for fish spoilage

2.5.4 Option: Require Flow Scales on Herring Vessels

Comment [lls10]: August 2010 – Herring AP recommends eliminating this option from further consideration in Amendment 5

As a condition of possessing the limited access permit, Category A, B, and C vessels, as well as herring carrier vessels, would be required to carry flow scales or be required to use one portside while offloading. The readout from the electronic scale, an additive readout which could document either a tow by tow weight or an overall offload weight, would be submitted to NMFS for verification on a set time scale, either via electronic submission or manual delivery.

Comment [tlb11]: This would allow those vessels with limited space to not have to modify their deck space, but would require modification of the offloading process and the ports themselves

The tools, called flow scales, are specially designed to deliver an accurate weight for total landings in a fishery which pumps the fish from one place to another. Flow scales are used in conveyor systems where there is a continuous flow of material, such as herring. It is typically equipped with a weight sensor that the fish pass over as they move down the conveyor belt. The

computer attached to the sensors weighs the fish continuously and the resulting weight is a total of those measurements.

If this option is selected, then the following conditions would need to be met:

- Only scales and companies which have been approved by NMFS would be used for the purchase of the scales.
- Certain location specifications which could affect the efficacy of the weight determination, such as how the flow scale sits on the deck or how high and where the computer system is used, would be determined when the brand and type of scales that are certified have been specified by NMFS.
- Installation of the scale and computer system would need to be certified by NMFS within a specified time period after installation and before use at sea or on land.
- Annual inspections to certify maintenance and calibration would be required, and would be conducted by a NMFS official or other NMFS-certified entity.
- The vessel owner/operator must test the scale once daily and record specific information from the scale which is relevant to the test. The test itself should be outlined in the regulations once the types of scales certified by NMFS are available, as well was the type weights used to conduct the test. The vessel owner/operator must also perform regular maintenance and print reports daily. A list of required information, such as pounds measured in a specific timeframe and basic vessel information could also be specified once the certified scale list is available. The reports would need to be available for a specific time frame to NMFS and enforcement officials.
- Appropriate buffers for error and water in the use of the information acquired through the scales should also be determined.

Comment [tlb12]: The details of this should be determined with NMFS. Has already been done on the West Coast, and Marel is already approved as a vendor

Comment [tlb13]: TBD

Comment [tlb14]: TBD

2.5.5 Option: CMCP

This option would allow limited access herring vessels, specifically Category A, B, and C vessels, as well as herring carrier vessels, to specify how they will standardize/certify their herring catch through the Catch Monitoring and Control Plan (CMCP). See Section 2.10 of this document for options related to CMCP requirements.

Some methods that may provide certified actual weights include truck scales or certified volumetric estimates based on vessel fish hold surveys and calibrated measuring techniques. The industry will also choose from a range of options for providing a verifiable independent estimate of catch weight, including "sounding" a calibrated fish hold or truck (see below), and it will be up to them to choose their preferred techniques. Under this option, the approach will be specified in the CMCPs.

2.6 MEASURES TO ADDRESS MAXIMIZED RETENTION

The measures described in this section are intended to ensure maximized retention (MR) of catch on herring vessels, to the extent possible. If any of these options are selected, herring vessels would be required to land all fish that are caught during their fishing operations, subject to the provisions described below, and discarding of the species identified for maximized retention would be largely prohibited.

Comment [lls15]: May 2009 – Herring AP recommends moving all MR alternatives to the considered but rejected section of the document, consistent with Enforcement Committee recommendations re. safety

May 2009 – Herring AP recommends that the issue of full retention in NE fisheries be considered first in the Multispecies Committee before given further consideration by the Herring Committee

2.6.1 MR: No Action Alternative

Under the no action alternative, no provisions would be implemented in Amendment 5 to establish maximized retention in the herring fishery. Herring vessels would continue to operate under the regulations and possession limits for any fisheries for which they possess permits.

2.6.2 MR Alternative 1: Apply Maximized Retention Across the Herring Fishery (All Limited Access Permit Holders)

One alternative under consideration would establish a maximized retention program for the limited access herring fishery (Categories A, B, and C). If this alternative is selected, options must be chosen regarding the species to which the maximized retention program would apply, how non-permitted/unmarketable landings will be handled, how compliance with MR provisions will be verified, and whether or not the MR program will be phased-in to the fishery. The options under consideration for a MR alternative are described in the following subsections.

2.6.2.1 Options: Species to Which Maximized Retention Applies

2.6.2.1.1 Option: Maximized Retention of All Species

Under this option, the vast majority of catch of all species on vessels subject to MR provisions would be landed (exceptions described below), and discarding at-sea would be prohibited.

Two Categories of Prohibited Species (not to be landed):

- Species protected under the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA), or subject to similar prohibitions, would not be landed under any circumstances.
- Species for which vessels are not permitted to land or species that are subject to landings limits may be addressed through a series of options (see following subsections for a description of options to address non-permitted landings).

2.6.2.1.2 Option: Species-Based Maximized Retention

Under this option, the Council will select the species to which MR provisions will apply from the following list (discarding of the species selected for maximized retention would be largely prohibited):

- Atlantic Herring;
- Atlantic Mackerel;
- Haddock;
- Other Large-Mesh Regulated Groundfish - Atlantic cod, witch flounder, American plaice, yellowtail flounder, pollock, winter flounder, windowpane flounder, redfish, white hake;
- Small-Mesh Groundfish – silver hake (whiting), offshore hake, red hake;
- Loligo Squid;
- Illex Squid;
- River Herring (Blueback herring, Alewife);
- Shad (American shad and Hickory shad); and
- Menhaden.

Two Categories of Prohibited Species (not to be landed):

- Species protected under the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA), or subject to similar prohibitions, would not be landed under any circumstances.
- Species for which vessels are not permitted to land or species that are subject to landings limits may be addressed through a series of options (see Section 2.6.2.2 below for a description of options to address non-permitted landings).

2.6.2.2 Options for Addressing Non-Permitted and Unmarketable Landings

A MR program would likely require the landing of certain species for which herring vessels have landing limits or are not currently permitted to land at all, along with fish that may not be marketable. This section describes options under consideration to address this challenge, as well as some options to address the disposition of the non-permitted and unmarketable landings.

Under a MR program, non-permitted landings include:

- Species for which a vessel is not permitted or authorized to land;
- Landings for species that exceed trip limits or quotas; and/or
- Landings for species that are bigger/smaller than current size restrictions.

In addition to non-permitted catch, some fish that may be landed under a MR program may not be marketable due to size, quality or other factors. The following options are under consideration to address the handling of both non-permitted and unmarketable catch that would be landed under a maximized retention program.

Comment [lls16]: Unclear how to handle Atlantic herring?

2.6.2.2.1 Option: Amend Other FMPs and Regulations to Allow Landings

Under this option, a number of other Fishery Management Plans would be amended to modify limits or prohibitions which might affect herring vessels attempting to participate in a maximized retention program. For instance, the Multispecies FMP would need to be amended to change landings limits for all other groundfish species except haddock, which has a separate, fishery-wide cap. Jurisdictional overlap may occur for species managed by the Mid-Atlantic Fishery Management Council and Atlantic States Marine Fisheries Commission (ASMFC), and MAFMC and ASMFC plans might need to be amended.

2.6.2.2.2 Option: Haddock Catch Cap Provisions

Comment [lls17]: Does not address regulatory issues associated with landing species above trip limits/quotas and/or species for which the vessel is not permitted.

This option would require non-permitted/unmarketable catch to be treated in the same manner as haddock that is landed under the catch cap for the herring fishery, established in Framework 43 to the Multispecies FMP. The measures implemented in Framework 43 established a catch cap for haddock in the herring fishery as well as a 100-pound allowance for other regulated multispecies. Monitoring the haddock catch cap relies on observer coverage and reporting by vessels and dealers. The provisions for landing haddock under the cap include a prohibition for herring vessels from discarding haddock that has been brought on deck or pumped into the fish hold, a prohibition on herring vessels from selling haddock for human consumption, a prohibition for herring dealers from purchasing haddock from herring vessels for human consumption, and a requirement for herring processors to cull and report all haddock and to retain such haddock for 12 hours for inspection by enforcement officials.

Under this option, the following provisions would apply for herring vessels landing any prohibited/unmarketable species that are included in a MR program (excluding Atlantic herring and other species for which the vessel is permitted to land/sell):

- The sale of the species (or the landings above the possession limit/quota) caught by herring limited access vessels for *human consumption* would be prohibited. Atlantic herring dealers and processors would also be prohibited from purchasing these fish to be sold for human consumption. This does not apply to sale for use as bait because herring catches that are landed for sale as bait are generally offloaded by pumping the fish from the vessel hold into tanker trucks. It is not possible to require all such landings to be culled and sorted and would be inequitable to make downstream purchasers of such bait legally liable for the presence of these fish in their bait.
- Herring dealers and processors that sort herring as part of their operations would be required to separate, report, retain, and make available for inspection for 12 hours, all prohibited/non-marketable species in order to facilitate monitoring and enforcement of the maximized retention provisions. At-sea herring processors are required to retain all culled prohibited species for 12 hours after landing. The fish must be set aside and retained for inspection by enforcement officials, and the vessel that landed the fish must be clearly identified. The sale of the fish that are culled and set aside for *any* purpose would be prohibited. All dealers and processors would be required to comply with reporting requirements consistent with the provisions in this amendment.
- Law enforcement officials must be given access to inspect the culled/sorted catch. The pre-landing notification through VMS (Section 2.4.5) would provide notification to NMFS to

facilitate enforcement and monitoring of the catch by giving enforcement agents sufficient notice of landing to enable them to meet a fishing vessel at the dock to observe offloading or inspect the catch.

2.6.2.2.3 Option: Disposal of Non-Permitted Catch

This option would require that vessels landing non-permitted catch under a maximized retention program be responsible for disposing of that catch once it is landed and documented (through reporting, portside sampling, etc.)

- Herring dealers and processors that sort herring as part of their operations would be required to separate, report, retain, and make available for inspection for 12 hours, all prohibited/non-marketable species in order to facilitate monitoring and enforcement of the maximized retention provisions. At-sea herring processors are required to retain all culled prohibited species for 12 hours after landing. The fish must be set aside and retained for inspection by enforcement officials, and the vessel that landed the fish must be clearly identified. All dealers and processors would be required to comply with reporting requirements consistent with the provisions in this amendment.
- Law enforcement officials must be given access to inspect the culled/sorted catch. The pre-landing notification through VMS (Section 2.4.5) would provide notification to NMFS to facilitate enforcement and monitoring of the catch by giving enforcement agents sufficient notice of landing to enable them to meet a fishing vessel at the dock to observe offloading or inspect the catch.

Comment [lls18]: Does not address regulatory issues associated with landing species above trip limits/quotas and/or species for which the vessel is not permitted.

2.6.2.3 Options for Verifying Compliance with Maximized Retention Provisions

2.6.2.3.1 Option: Require Video-Based Electronic Monitoring (VBEM)

This option would require video-based electronic monitoring equipment to ensure compliance with MR provisions if such provisions are established in Amendment 5.

- Mandatory Verification of Compliance with Maximized Retention Requirements
  - At-sea component of vessel-designed Catch Monitoring and Control Plan (CMCP) will be required to outline procedures for the installation and operation of a Video-Based Electronic Monitoring (VBEM) system.
  - CMCP must include detailed procedures to demonstrate the absence of pre-sorting, including demonstration that the codend is empty after each haul and that no fish were slipped from the net while the net is in the water.

This option relates to both verifying compliance with maximized retention and ensuring the collection and availability of data on a real-time basis. Portside samplers will certify and report the weight and species composition of each landing within 24 hours of its conclusion, providing real time data. Analysts will compile, audit, and summarize the data produced under this program, quickly generating hard numbers on landed catch and bycatch of all species. VBEM data will be checked subsequently to reconcile landings against fishing activity to verify compliance with maximized retention requirements.

VBEM systems will require two distinct types of support service. While these two service categories may be handled by the same vendor, it is also possible that they would be handled separately. For instance, when CCCHFA pilot-tested VBEM solutions in New England and planning discussions were held pending potential operational implementation, a model was considered in which a local non-governmental organization (NGO) might handle field service and Archipelago would handle analysis.

- Field service
- Analysis service

Specification of Procedures for Centralized Analysis and Reporting

- Portside samplers would submit certified landings reports to relevant supervisory entity (state/Federal agency or certified vendor).
- Supervisory entity will submit landings summary reports to the Fisheries Statistics Office (FSO) at the NMFS Northeast Regional Office (NERO) and the VBEM analysis vendor.
- FSO undertakes the same tasks they currently perform, only with higher-quality and more timely data than they currently use. Specifically, FSO tallies landings reports, including reconciliation against Dealer Electronic Reporting (DER) and vessel reporting, and produces summarized landings reports for all species which are publicly available. For quota and bycatch cap monitoring purposes, landings are assumed to equal catch until and unless analysis of VBEM data shows that a discard event has occurred, at which point catch estimates would be revised. Existing vessel and dealer self-reporting and Northeast Fisheries Observer Program (NEFOP) data may be used as a backup until and unless they are discontinued if and when they are demonstrated to be unnecessary.
- VBEM field service vendor collects VBEM data from vessels, performs system operation checks to verify that no data gaps are evident, which might indicate non-compliance or mask a discard event, and provides data including imagery to VBEM analysis vendor.
- VBEM field service vendor also performs maintenance and outreach services to assist vessels in ensuring continuous high-quality VBEM system operation.
- VBEM analysis vendor reconciles VBEM dataset with landings summary reports to certify compliance with maximized retention and provides a summary report to FSO.

2.6.2.3.2 Option: VBEM/Observer Hybrid Option

Under this option, a combination of VBEM and monitoring by at-sea observers would be used to verify maximized retention. Potential sub-options could include allowing industry to choose which verification vector to employ. The vessels' plan would be described in the CMCP and approved by NMFS.

2.6.2.3.3 Option: <100% Verification Coverage

Under this option, verification of maximized retention would not occur 100% of the time, and self-reporting would be relied upon for assurances that landed weight is equal to catch.

2.6.2.3.4 Option: Maximized Retention Techniques Addressed Through CMCP

Under this option, vessels would have the flexibility to design their own plans for demonstrating compliance with maximized retention provisions. The vessels' plan would be described in the CMCP and approved by NMFS.

2.6.2.4 Maximized Retention: Phase-In Options

A number of options are under consideration to phase-in a MR program for limited access Atlantic herring vessels.

Comment [lls19]: NERO comment – the phase-in of these measures would need to be clearly described and hardwired into the Amendment. More detail is required.

2.6.2.4.1 Option: Temporal Phase-In

This option would implement a temporal phase-in of MR provisions over two to four years, which includes a gradual but steady reduction in the amount of at-sea discarding that is permitted.

2.6.2.4.2 Option: Spatial Phase-In

This option would implement a spatial phase-in of MR provisions in which bycatch "hotspots" (for example, areas with river herring bycatch or groundfish closed areas) would require maximized retention. Areas could be added/modified as additional data become available.

2.6.2.4.3 Option: VBEM Phase-In

This option would implement a gradual phase-in of Video Based Electronic Monitoring (VBEM) as the verification system for MR through pilot programs. It will be important to provide overlapping coverage with Federal observers on pilot fishing trips to ensure robust monitoring during the phase-in period while herring fishermen dial-in VBEM.

2.6.3 MR Alternative 2: Evaluate a Maximized Retention Program through the Annual Issuance of Exempted Fishing Permits

Under this alternative, a MR program would not be established for the entire herring fishery in Amendment 5. Instead, the experimental fishery process would be utilized to determine whether maximized retention is appropriate for the Atlantic herring fishery, and if so, which species should be part of the maximized retention program and which FMPs should be amended to allow for long-term implementation of the program.

Under this alternative, for four years following the implementation of Amendment 5, Category A, B, and C Atlantic herring vessels would be issued an Exempted Experimental Fishing Permit (EFP) by the Sustainable Fisheries Division (SFD) at NERO as part of the annual herring permit renewal process. The EFP would provide the regulatory relief necessary to allow the currently non-permitted landings to take place when the vessels are required to comply with maximized retention provisions. Vessels would be required to comply with maximized retention provisions on any trip with an observer on board (NEFOP or other NMFS-certified observer).

General Provisions

- For the first four years after implementation of Amendment 5, limited access Category A, B, and C vessels would be required to obtain an exempted experimental fishery permit (EFP) to fish for Atlantic herring in any management area(s). Conditions of the EFP include a requirement to retain all species identified for maximized retention on any trip with a NEFOP or NMFS-certified observer on board (discarding would be prohibited on observed trips).
- The EFP would allow the herring vessel to keep all catch of the species identified for the maximized retention program on observed trips only, including catch above trip limits/quotas for the maximized retention species. The sale of the non-permitted species (and landings above the possession limit/quota) caught by herring limited access vessels for *human consumption* would be prohibited on maximized retention trips. Atlantic herring dealers and processors would also be prohibited from purchasing these fish to be sold for human consumption. This does not apply to sale for use as bait because herring catches that are landed for sale as bait are generally offloaded by pumping the fish from the vessel hold into tanker trucks. It is not possible to require all such landings to be culled and sorted and would be inequitable to make downstream purchasers of such bait legally liable for the presence of these fish in their bait.
- All observed trips in the fishery would become maximized retention trips and would form a "study group" for the fishery. Catch/landings data would be collected and documented by observers, as well as by vessels based on the reporting and monitoring provisions associated with the vessels' permits and specified in this amendment.
- During Year 3, the Herring PDT would begin to analyze the data collected by observers through the maximized retention program and: evaluate the strengths/weaknesses and costs/benefits of a maximized retention program; determine the need for a long-term maximized retention program in the herring fishery; evaluate the appropriateness of each species selected for maximized retention; and develop recommendations for the Herring Committee/Council regarding future regulatory action. The technical review and ensuing discussion regarding the need for management action would likely be time-consuming and would occur throughout most of the third year of the program as data from the experimental program continued to be collected.
- During Year 4, the Council would receive input from the herring industry and advisors and would review the Herring PDT's recommendations to determine whether or not a long-term maximized retention program should be established for the Atlantic herring fishery. The experimental fishery for maximized retention and the EFP requirements and provisions would expire after four years regardless of the determination. Other catch monitoring and reporting requirements implemented in this amendment would continue to be effective.
- If the Council supports a long-term maximized retention program, then development of the corresponding management actions would begin during Year 4 of the experimental fishery program with the intention of implementing the program as soon as all regulatory mechanisms are in place. This includes an amendment to the Herring FMP to design the program and implement the specific requirements as well as amendments to all other relevant species FMPs in the Northeast Region (NEFMC, MAFMC, and ASMFC) to authorize the

Comment [LLS20]: Committee may also want to consider requirements for portside sampling as part of the maximized retention program

catch/landing of the species in the herring fishery (including allowances for landings above possession limits and/or quotas).

Options for Exemption to Maximized Retention Provisions

There may be instances that a vessel cannot pump all fish aboard. The Council could consider incorporating exemptions into the EFP provisions that allow a vessel to release some catch under certain circumstances, and possibly with specific consequences. Any or all of the following provisions could be incorporated into the EFP for maximized retention:

- Fish that have not been pumped aboard may be released if the vessel operator finds that:
  1. pumping the catch could compromise the safety of the vessel;
  2. mechanical failure precludes bringing some or all of the catch aboard the vessel; or
  3. spiny dogfish have clogged the pump and consequently prevent pumping of the rest of the catch.
- A Released Catch Affidavit would be required for slippage events on both trawl and purse seine vessels, to be signed by vessel operators under penalty of perjury. The Released Catch Affidavit would contain detailed information including (1) the reason for slippage; (2) an estimate of the quantity and species composition of the slipped fish; and (3) the location and time that the slippage event occurred. Since an observer will be present on the vessel when the maximized retention provisions apply, slippage events would require an affidavit and would be fully documented by the observer with photographs.
- ~~Safety or mechanical problems (exemptions #1 and #2 above) of sufficient magnitude to warrant slipping a codend would require termination of the fishing trip and the vessel's return to port.~~

Comment [lls21]: Eliminated by the Committee July 27-28, 2010

2.7 MEASURES TO MAXIMIZE SAMPLING AND ADDRESS NET SLIPPAGE

2.7.1 No Action Option

Under the no action option, no provisions would be implemented in Amendment 5 to maximize sampling or address net slippage.

2.7.2 Options to Maximize Sampling

The Council is considering the following options to maximize the sampling of catch by NMFS-approved observers on board limited access Atlantic herring vessels (Categories A, B, and C). Any one or any combination of the following options could be selected to improve at-sea catch sampling.

Option: Require vessel operators to provide accurate details to the observer why a net (purse seine or trawl) may be partially pumped and fish released

Vessel operators could be required to provide information about whether a net was partially/fully slipped, the reason for the slippage, and the estimated weight of fish that were released.

Option: Require vessel operators to provide observers notice when pumping may be starting and when to allow sampling of the catch, and when pumping is coming to an end

Option: When observers are deployed on herring trips involving more than one vessel, require observers on any vessel taking on fish where/when possible

Option: In pair trawl operations, require additional communication between the boats if fish are being pumped to both vessels with to keep the observer informed of catch

Option: Require a flow scale on a processing vessel since there is no other method to estimate volume of catch

Option: Requirement that observers be allowed to view the codend of a midwater trawl or pair trawl after pumping has ended, before the pump is removed

Option: Requirement for vessel operators to provide the observer with visual access to the net/codend and its contents after pumping has ended

Under this option, the vessel operator would be required to ensure that the observer has visual access to the codend (or purse seine net) and any of its contents after pumping has ended. This can be achieved in a number of ways. Ideally, on a trawl vessel, the codend and any remaining contents would be brought on board after pumping. If this is not possible, the vessel operator must work with the observer to ensure that the observer can see the codend and its contents as

clearly as possible. The observer will document this process and what he/she was able to see/sample in the observer log.

Option: Require that all fish must be at least pumped aboard the boat so that the entire catch can be sampled by an observer

This option is based on provisions for midwater trawl vessel access to Closed Area I, effective November 2, 2009 with an additional collection-of-information requirement effective on March 5, 2010. Under this option, the following provisions would apply to limited access herring vessels (all gear types) carrying an observer on board (for any trip with an observer):

1. Vessels would be required to pump aboard all fish from the net for inspection and sampling by the observer. Vessels would be prohibited from releasing fish unless specific conditions are met (see below).
2. Except as indicated below, vessels would be prohibited from discarding at-sea unless the fish have been brought aboard and made available for sampling by the observer.
3. Fish that have not been pumped aboard may be released if the vessel operator finds that (1) pumping the catch could compromise the safety of the vessel; (2) mechanical failure precludes bringing some or all of the catch aboard the vessel; or (3) spiny dogfish have clogged the pump and consequently prevent pumping of the rest of the catch.
4. If the net is released for any of the reasons stated above, the vessel operator must complete and sign a Midwater Trawl Released Codend Affidavit providing information about where, when, and why the net was released, as well as a good-faith estimate of the total weight of fish caught on the tow and weight of fish released. The Midwater Trawl Released Codend Affidavit must be submitted within 48 hours of completion of the fishing trip.

Option: Maximize Sampling through CMCP

This option would require vessel operators to specify how their operation will ensure maximized sampling of catch when observers are on board in their catch monitoring and control plan (CMCP, see Section 2.10).

2.7.3 Options to Address Net Slippage

For the purposes of the Amendment 5 options to address net slippage, ***slippage*** is defined as:

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 or 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. Management measures are under consideration in this amendment to address this issue and improve the observers' ability to inspect nets after pumping to document operational discards.

- Discards that occur at-sea after catch brought on board and sorted are also not considered slipped catch.

2.7.3.1 Option: Require Released Catch Affidavit for Slippage Events

This option requires that a Released Catch Affidavit be created for slippage events on both trawl and purse seine vessels with Category A, B, or C herring permits, to be signed by vessel operators under penalty of perjury. The Released Catch Affidavit will contain detailed information including (1) the reason for slippage; (2) an estimate of the quantity and species composition of the slipped fish; and (3) the location and time that the slippage event occurred. When an observer is present on the vessel during a slippage event, the event would be fully documented with photographs.

Discussion: The proposed affidavit would be required in addition to VTRs because VTRs do not include requirements to provide detailed information slippage events. The affidavit would facilitate the collection of more information about slippage events and would require captains to report the events individually when they occur (versus reporting total discards on VTRs at a trip-level).

2.7.3.2 Option: CMCP

This option would require vessel operators to specify how their operation will address and account for slippage events in their catch monitoring and control plan (CMCP).

2.8 MEASURES TO ADRESS OBSERVER COVERAGE AND PORTSIDE SAMPLING

2.8.1 At-Sea and Portside Sampling Program Objectives

The objective of the portside sampling program and at-sea monitoring program improvements would be to sample enough landings events to aid in accurate estimations of catch/bycatch in the herring fishery. In addition, samplers may collect important biological information and commercial catch samples in order to support stock assessments and other biological needs.

2.8.2 Proposed Requirements for Observer and Portside Sampling Program Service Providers

Comment [LLS22]: Should be expanded to include video monitoring and electronic monitoring service providers if such services are required in this amendment.

Multiple service providers will be allowed to participate in both the observer and/or the portside sampling program provided they meet the requirements described in this section.

The following standards would be used by NOAA Fisheries to evaluate service providers compliance with the observer and/or portside sampling requirements outlined in this section. NOAA Fisheries will certify/approve service providers and associated samplers as eligible to provide services based upon criteria specified below and can decertify/disapprove service providers and/or individual samplers if such criteria are no longer being met. NOAA Fisheries will publish a list of approved service providers consistent with the Administrative Procedures Act (APA). The following standards and criteria for approval can be further modified by a future Council action.

Both observer and portside sampling program service providers must apply for certification/approval from NOAA Fisheries. NOAA Fisheries shall approve or disapprove a service provider based upon the completeness of the application and a determination of the applicant's ability to perform the duties and responsibilities of an observer and/or portside monitoring service provider, as further defined below. As part of that application, potential service providers must include the following information:

- Identification of corporate structure, including the names and duties of controlling interests in the company such as owners, board members, authorized agents, and staff; and articles of incorporation, or a partnership agreement, as appropriate;
- Contact information for official correspondence and communication with any other office;
- A statement, signed under penalty of perjury, from each owner, board member, and officer that they are free from a conflict of interest with fishing-related parties including, but not limited to, vessels, dealers, shipping companies, sectors, sector managers, advocacy groups, or research institutions and will not accept, directly or indirectly, any gratuity, gift, favor, entertainment, loan, or anything of monetary value from such parties;
- A statement, signed under penalty of perjury, from each owner, board member, and officer describing any criminal convictions, Federal contracts they have had, and the performance

rating they received on the contract, and previous decertification action while working as a service provider;

- A description of any prior experience the applicant may have in placing individuals in remote field and/or marine work environments – this includes, but is not limited to, recruiting, hiring, deployment, and personnel administration;
- A description of the applicant's ability to carry out the responsibilities and duties of an observer and/or portside monitoring service provider and the arrangements to be used;
- Evidence of adequate insurance to cover injury, liability, and accidental death for samplers (including during training). Workers' Compensation and Maritime Employer's Liability insurance must be provided to cover the samplers; vessel owners; processors/dealers; and service provider. Service providers shall provide copies of the insurance policies to samplers to display to the vessel owner, operator, vessel manager, or dealer/plant manager, when requested.
- Service providers shall provide benefits and personnel services in accordance with the terms of each sampler's contract or employment status.
- Proof that the service provider's samplers have passed an adequate training course that is consistent with the curriculum used in the current Northeast Fisheries Observer Program (NEFOP) training course, unless otherwise specified by NOAA Fisheries;
- An Emergency Action Plan (EAP) describing the provider's response to an emergency with a sampler, including, but not limited to, personal injury, death, harassment, or intimidation; and
- Evidence that the company is in good financial standing.

Observer and/or portside sampling service providers must be able to document compliance with the following criteria and requirements:

- A comprehensive plan to deploy NOAA Fisheries-certified samplers, according to a prescribed coverage level (or level of precision for catch estimation), as specified by NOAA Fisheries, including all of the necessary vessel reporting/notice requirements to facilitate such deployment, including the following requirements:
  - A service provider must be available to industry 24 hours per day, seven days per week, with the telephone system monitored a minimum of four times daily to ensure rapid response to industry requests;
  - A service provider must be able to deploy samplers to all ports in which service is required by this section;
  - A service provider must report samplers in a timely manner to determine whether the predetermined coverage levels are being achieved;
  - A service provider's sampler assignment must be representative of fishing activities must be able to monitor fishing activity throughout the fishing year;
- The service provider must ensure that samplers remain available to NOAA Fisheries, including NMFS Office for Law Enforcement, for debriefing for at least two weeks following any sampled trip/offload;

- The service provider must report possible sampler harassment; discrimination; injury; and any information, allegations, or reports regarding sampler conflict of interest or breach of the standards of behavior to NOAA Fisheries;
- Service providers must submit to NOAA Fisheries, if requested, a copy of each signed and valid contract (including all attachments, appendices, addendums, and exhibits incorporated into the contract) between the service provider and those entities requiring services and between the service provider and specific samplers;
- Service providers must submit to NOAA Fisheries, if requested, copies of any information developed and used by the service providers distributed to vessels, such as informational pamphlets, payment notification, description of duties, etc.;
- A service provider may refuse to deploy a sampler for any reason including, but not limited to, the following:
  - If the service provider does not have an available sampler prior to a vessel's intended date/time of landing
  - If the service provider is not given adequate notice of vessel departure or landing, as specified by the service provider
  - Any other reason, including failure to pay for previous deployments of samplers
- A service provider must not have a direct or indirect interest in a fishery managed under Federal regulations, including, but not limited to, fishing vessels, dealers, shipping companies, advocacy groups, or research institutions and may not solicit or accept, directly or indirectly, any gratuity, gift, favor, entertainment, loan, or anything of monetary value from anyone who conducts fishing or fishing-related activities that are regulated by NOAA Fisheries, or who has interests that may be substantially affected by the performance or nonperformance of the official duties of service providers. This does not apply to corporations providing reporting, portside, and/or at-sea monitoring services to participants of another fishery managed under Federal regulations.
- A system to record, retain, and distribute the following information for a period specified by NOAA Fisheries:
  - Observer and/or portside sampling levels, including the number of refusals and reasons for refusals
  - Incident/non-compliance reports (e.g., failure to offload catch)
  - Hail reports, landings records, and other associated communications with vessels
- A means to protect the confidentiality and privacy of data submitted by vessels, as required by the Magnuson-Stevens Act; and
- A service provider must be able to supply samplers with sufficient safety and data-gathering equipment, as specified by NOAA Fisheries.

For an individual to be certified as an observer or portside sampler, service provider must demonstrate that each potential monitor meets the following criteria:

- A high school diploma or legal equivalent;
- Successful completion of all NOAA Fisheries -required training and briefings before deployment;
- Physical capacity for carrying out the responsibilities of a sampler pursuant to standards established by NOAA Fisheries such as being certified by a physician to be physically fit to work as a sampler. The physician must understand the sampler's job and working conditions, for example the possibility that a sampler may be required to climb a ladder to inspect fish holds and/or trucks;
- Absence of fisheries-related convictions based upon a thorough background check; and
- Independence from fishing-related parties including, but not limited to, vessels, dealers, shipping companies, advocacy groups, or research institutions to prevent conflicts of interest.

2.8.3 Portside Sampling Program – Sampling Protocols

This measure would require NMFS, in cooperation with the States of Maine and Massachusetts, to establish a uniform and statistically-robust portside sampling protocol, including standard reporting forms, criteria for sampling (number of samples, methodology, etc), standards for species identification training and data archiving. This will ensure that all information collected is comparable and rigorous, regardless of whom it is collected by (State, Federal, or other samplers).

- NOAA Fisheries would be required to determine levels of coverage for portside sampling similar to the SBRM approach for at-sea monitoring, based on the Council's specified goals/objectives and the SBRM methodology, or based on a specific level of coverage identified by the Council (see below).
- Because multiple service providers can be used for portside sampling, NOAA Fisheries would be responsible for determining the distribution of portside coverage on an annual basis, including time/area/gear type. This information would be provided to portside sampling program service providers on an annual basis to assist them in developing plans for sampling and ensuring that portside samplers can be made available at the appropriate times/places.
- Herring limited access vessels would be required to call NOAA Fisheries and notify the agency of a landings event at least six hours prior to landing (see options for notification requirements in Section 2.4.5 of this document). The current pre-landing notification system could be used to provide ample notice to NOAA Fisheries prior to landing, in order to arrange for samplers when they may be available. The vessel must indicate when/where the boat will land, the approximate amount of the catch, and whether or not the offload will be to a processing facility, bait dealer, or truck. NOAA Fisheries will inform the vessel if the landings event requires sampling, and if so, the vessel must contact the portside sampling program service provider. Portside sampling program service providers will work with the vessels to ensure that trips that require portside sampling are met by a sampler.

Comment [LLS23]: Recommendations for changes to portside sampling protocols may come forward as the PDT investigates sampling issues and bycatch data in more detail throughout the development of the amendment.

On an annual basis, NOAA Fisheries will supply each approved portside sampling program service provider with the following:

- List of certified vessels and dealers subject to portside sampling program requirements;
- Summary of portside sampler duties;
- List of relevant NOAA Fisheries contacts;
- Protocols for complete sampling, sub-sampling, and calculating the weight of fish;
- Other relevant protocols and directives.

Sampling methodology will be consistent with NOAA Observer Program protocols, with some modifications to decrease variance in extrapolation of bycatch estimates and reduce potential sampling bias. Due to the large quantities of fish that are typically landed in the herring fishery, sub-sampling will likely be necessary for many offloading events. Sub-sampling is used when the volume of fish that the sampler is attempting to quantify is too large to obtain actual weights or if the amount of bycatch is too abundant. During sub-sampling, the sampler will collect smaller batches of fish, sort and weigh by species, and then extrapolate to the total catch.

In the Atlantic herring fishery, no offload points/events are the same. The methodology described in this section provides some general guidelines and examples for sampling landings events in the herring fishery. NOAA Fisheries should coordinate efforts with portside sampling program service providers to better determine the most appropriate sampling approaches given the logistical differences in offload points and other complicating factors.

The two fundamental elements necessary for a portside sampler to know in order to successfully sample a landings event are a volumetric estimate of the total landings and the species composition of the catch. Landings will be either sampled completely or sub-sampled to determine the species composition of the catch (see protocols for complete sampling and sub-sampling below). In most situations, sampling will be conducted over the entire offloading period to capture any stratification that may occur throughout the entire fishing activity (e.g. while being pumped aboard while out at sea, due to the difference in species size and composition between tows, settling in the vessel's holding tanks, etc.). Because the catch is not unloaded the same way at every dealer or plant, sampling techniques may vary (examples are provided below). Typically, samples will be collected systematically at set intervals with predetermined sample sizes. All samples will be sorted by species and actual weights will be taken. Lengths will be taken according to the NOAA Observer Program species priority list by statistical area, and commercial catch samples for assessment purposes will be collected using current protocols.

Complete Sampling Protocol (Processing Plants and Whenever Possible)

A complete sampling protocol can be utilized in cases where the entire offload can be observed and sampled, and all bycatch can be sorted and counted. Complete sampling is desirable for offload events that occur at processing plants. The samplers collect and quantify all landings from individual lots of fish (transported by trucks or vessels) that enter the processing facilities. Samplers position themselves at the point of entry into the facility along an assembly line or at the base of the hoppers where the fish are unloaded. Sampling is conducted before grading or

sorting of the catch occurs. All bycatch is removed from the assembly line or hopper and placed in bushel baskets or buckets specific to each species. The total weight of any observed bycatch is recorded along with species identification, total species weight, individual lengths and weights of all fish according to a NOAA Fisheries and ACCSP specified protocol. If there is a large amount of one incidental species, the total weight is recorded and then length frequencies and weight are gathered from a sub-sample of 50-100 individuals.

Sub-Sampling Protocol

A sub-sampling protocol can be utilized when sampling a very large volume of catch and/or when facilities at the offload point make complete sampling impossible. Instances where this is likely to occur include offload points where fish are pumped directly into trucks. Sub-sampling is also appropriate in instances when the volume of fish pumped is greater than the manpower available at the sampling point can observe with certainty. In these cases, it may not be possible to use the complete sampling protocol regardless of the amount inspected (< 80,000 lbs.). These situations are also likely to occur when vessels are fishing mixed groups of herring and mackerel, some of which can have a 50-50 composition.

Sub-samples are to be collected using bushel baskets at timed intervals during the pumping or unloading process following the NOAA Fisheries at-sea observer sampling protocol. To accomplish this type of sub-sampling, the portside monitor/sampler needs to know the total lot weight and the duration of time it will take to unload the catch. After sampling, the bushel baskets of fish should be sorted by species, and total weight of each species and length frequencies should be recorded (sub sample n=50, for length frequencies if more than fifty of any species occurs).

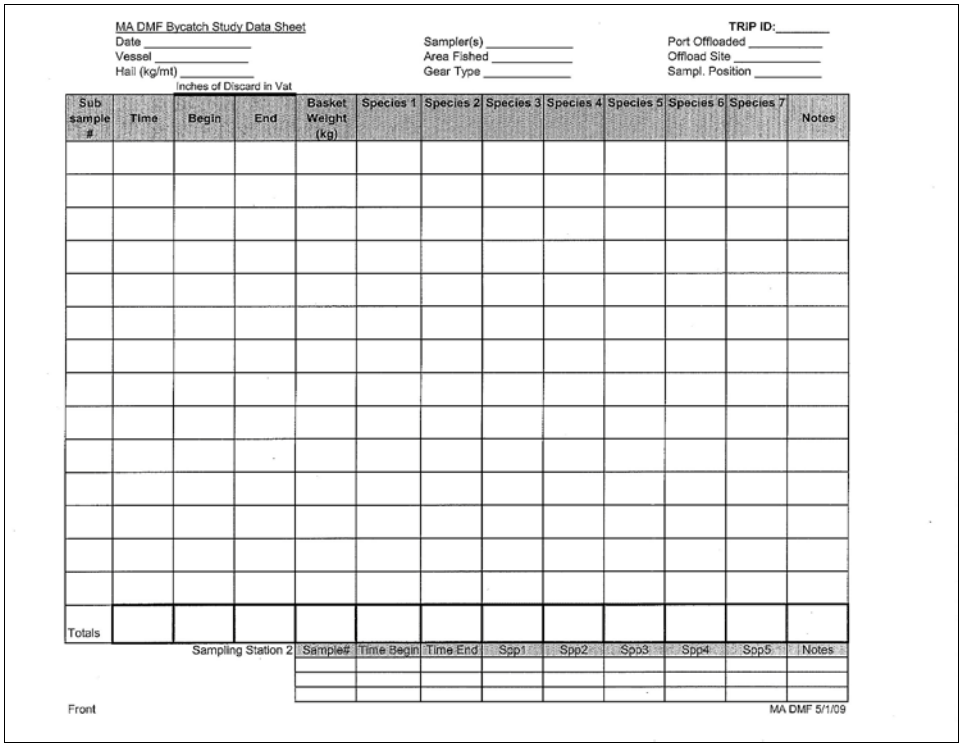
Sub-Sample Example (Trucks, Bait Dealers)

1. Lot size (determined by the sampler) = 120,000 lbs (3 Trucks)
2. Pumping or unloading time = 3 hours (180 minutes)
3. If a sample basket is to be collected for every 10,000 lbs of fish, then 12 sample baskets need to be collected over the entire pumping or unloading process.
   - 120,000 lbs/10,000 lbs = 12
4. If the entire pumping or unloading process takes an estimated 180 minutes, then a basket sample should be taken every 15 minutes
5. If the catch composition from the bushel baskets is 99% Atlantic Herring, then one can extrapolate that out of the 120,000 lbs unloaded, then 118,800 lbs is Atlantic Herring.
   - 99% Atlantic Herring = 120,000 lbs x 0.99 = 118,800 lbs of Atlantic Herring
6. If the remaining 1% of the catch composition is Atlantic Mackerel, then one can extrapolate that out of the 120,000 lbs unloaded, 1,200 lbs is Atlantic Mackerel.
   - 1% Atlantic Mackerel = 120,000 lbs x 0.01 = 1,200 lbs of Atlantic Mackerel

Data will be recorded on sheets consistent with ME DMR and MA DMF data collection sheets for the existing portside bycatch sampling programs (Figure 2 – Figure 4). The sampling sheet for the processing plant (Figure 2) is designed to collect and record all data needed to comprehensively quantify discards through the field “inches in vat.” Once the discard

composition is recorded, along with pump rate and data for "kept" catch, Excel worksheets are used to derive the composition of the landings. Sub-sampling data sheets (Figure 3) are used to sample baskets of unsorted catch at intervals set by the sampler based on the total volume of catch and pump rates.

Figure 2 Example Data Sheet for Processing Plant and Complete Sampling



MA DMF Bycatch Study Data Sheet

Date _____
Vessel _____
Hail (kg/mt) _____
Inches of Discard in Vat

Sampler(s) _____
Area Fished _____
Gear Type _____

TRIP ID:_____
Port Offloaded _____
Offload Site _____
Sampl. Position _____

Sub sample #	Time	Begin	End	Basket Weight (kg)	Species 1	Species 2	Species 3	Species 4	Species 5	Species 6	Species 7	Notes
Totals												

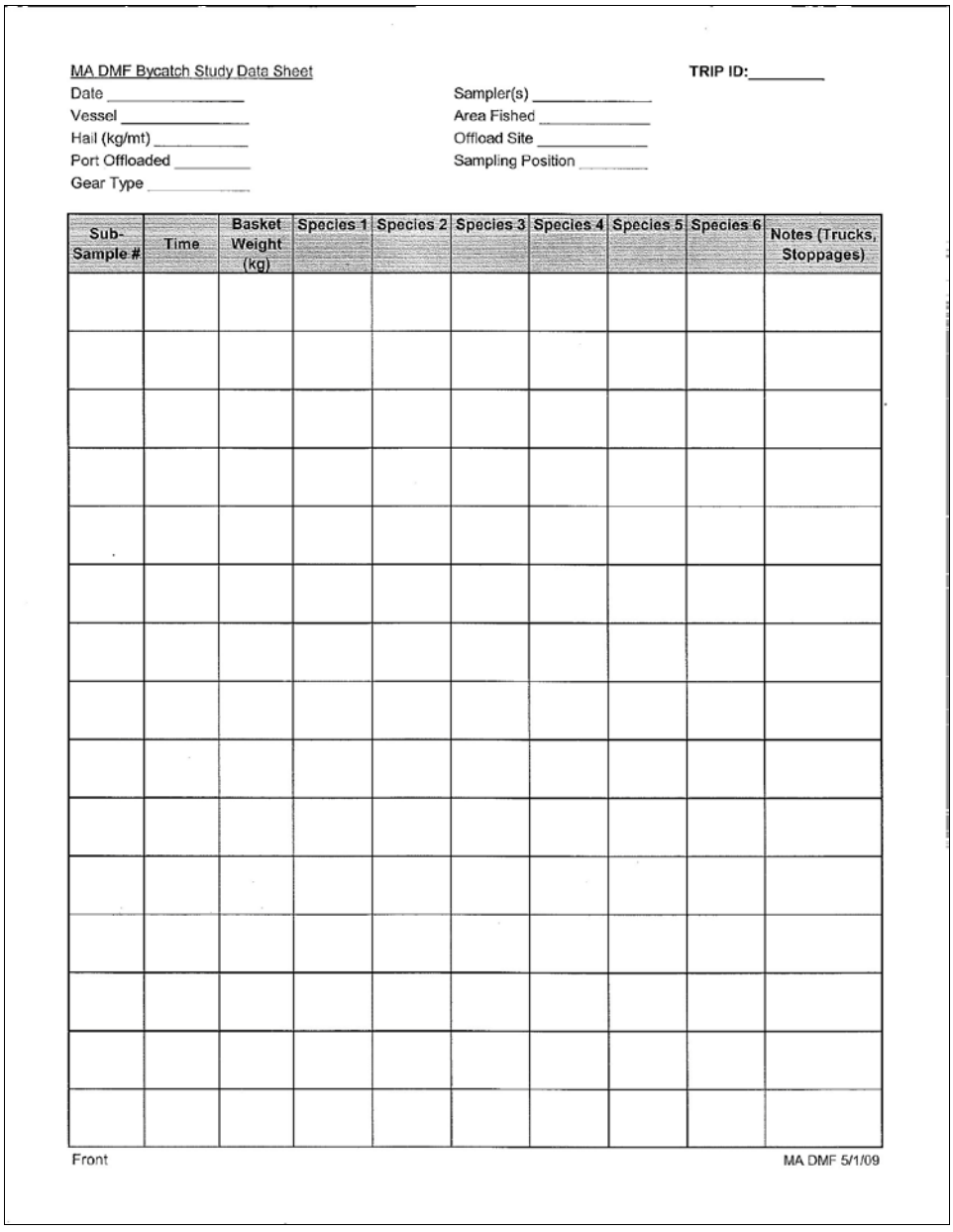
Sampling Station 2

Sample#	Time Begin	Time End	Spp1	Spp2	Spp3	Spp4	Spp5	Notes

Front

MA DMF 5/1/09

Figure 3 Example Data Sheet for Sub-Sampling



MA DMF Bycatch Study Data Sheet

TRIP ID:_____

Date _____ Sampler(s) _____

Vessel _____ Area Fished _____

Hail (kg/mt) _____ Offload Site _____

Port Offloaded _____ Sampling Position _____

Gear Type _____

Sub-Sample #	Time	Basket Weight (kg)	Species 1	Species 2	Species 3	Species 4	Species 5	Species 6	Notes (Trucks, Stoppages)

Front MA DMF 5/1/09

Figure 4 Example Length Frequency Data Collection Sheet

SMALL PELAGIC PORTSIDE BYCATCH SURVEY

YEAR _____ SPECIES _____ AREA _____ SAMPLERS _____ PAGE _____ OF _____

MONTH _____ LOT WT _____ SAMPLE NO. _____ DATA ENTRY COMPLETE ☐

Species			Species			Species			Species		
Tot Wt (kg)			Tot Wt (kg)			Tot Wt (kg)			Tot Wt (kg)		
Sub Wt (kg)			Sub Wt (kg)			Sub Wt (kg)			Sub Wt (kg)		
Lt (cm)	Frequency	Sub Wt (kg)	Lt (cm)	Frequency	Sub Wt (kg)	Lt (cm)	Frequency	Sub Wt (kg)	Lt (cm)	Frequency	Sub Wt (kg)
0			0			0			0		
1			1			1			1		
2			2			2			2		
3			3			3			3		
4			4			4			4		
5			5			5			5		
6			6			6			6		
7			7			7			7		
8			8			8			8		
9			9			9			9		
0			0			0			Species		
1			1			1			Tot Wt (kg)		
2			2			2			Sub Wt (kg)		
3			3			3					
4			4			4			Lt (cm)	Frequency	Sub Wt (kg)
5			5			5			0		
6			6			6			1		
7			7			7			2		
8			8			8			3		
9			9			9			4		
0		Notes	0		Notes	0		Notes	5		
1			1			1			6		
2			2			2			7		
3			3			3			8		
4			4			4			9		
5			5			5			COMMENTS		
6			6			6					
7			7			7					
8			8			8					
9			9			9					

Protocol for Collecting Commercial Catch Samples

As part of the portside sampling program, there would be a procedure in plan for collecting commercial catch samples for stock assessment purposes when sampling landings events. Currently, ME DMR collects commercial catch samples using the following protocol (provided here as an example):

1. Herring must have been caught in U.S. waters.
2. Two samples per week from each statistical area where the fish are being caught (see map section).
3. One sample per week from each type of fishing gear where possible (mid-water trawl, pair trawl, purse seine, stop seine, weir and gill net).
4. 50 herring are randomly selected from the load (plus a couple to allow for damaged fish). The fish are placed in DMR herring sample boxes.
5. The sample boxes are labeled and transported to DMR headquarters in W. Boothbay Harbor.
6. The following information should be recorded on the sample boxes:

a. Amount of herring landed (lbs or metric tons)
b. Date of catch
c. Catch location: NMFS Statistical Area # and Sub-Area #
d. Port landed
e. Fishing vessel
f. Location of where sample was collected (sometimes different than where fish were landed)
g. Name of collector
h. Under remarks note gear type (purse seine, midwater/pair trawl, stop seine, gillnet or weir)
i. Label number of boxes per sample (i.e. 1 of 2 and 2 of 2)

2.8.4 Options for Coverage Levels

2.8.4.1 At-Sea Monitoring Coverage

Comment [lls24]: May 2009 – Herring AP recommends that the Interspecies Committee task its technical staff to develop an observer allocation program to support Hard TAC-managed fisheries with appropriate levels of accuracy and precision

2.8.4.1.1 No Action Option

The no action option would retain observer coverage levels in the Atlantic herring fishery as they currently are. The process for setting coverage levels is based on the Standardized Bycatch Reporting Methodology (SBRM) amendment.

As established by the Standard Bycatch Reporting Methodology (SBRM) omnibus amendments (NEFMC 2007; NMFS 2008), the Councils and public are provided an opportunity to consider and provide input into decisions regarding prioritization of at-sea observer coverage allocations if the expected resources necessary may not be available to achieve CV-based performance goals. In any year in which external operational constraints would prevent NMFS from fully implementing the required at-sea observer coverage levels, the Regional Administrator and Science and Research Director will consult with the Councils to determine the most appropriate prioritization for how the available resources should be allocated. If re-prioritization is undertaken, the re-prioritized sea day allocations will be summarized in a subsequent document.

The analytical basis for allocation of future sea day coverage rests on a target level of precision (i.e., 30% CV) and an expectation that the pattern of fishing activity observed in the prior year will be similar to the next year. Fishing activity by fleets often changes in response to patterns of stock abundance, weather, and fishery regulations. The SBRM is designed to adapt to these changing circumstances. As specified in the SBRM Omnibus Amendment, when a shortfall occurs, a prioritized sea day allocation is made. This allocation uses a combination of statistical methods and ad-hoc methods to assign sea days while keeping within the funded constraints.

2.8.4.1.2 Option: 100% Observer Coverage

Under this option, at-sea observers would be required on every trip taken by limited access herring vessels unless they are declared out of the herring fishery.

2.8.4.1.3 Option: Require SBRM Observer Coverage Levels

This measure would require that observer coverage in the Atlantic herring fishery be allocated at levels required by the Standardized Bycatch Reporting Methodology (SBRM) amendment on an annual basis. The process for determining coverage levels using the SBRM methodology is described above, under the no action option. Under this option, however, SBRM levels would not be a target and would not be adjusted based on other priorities. At-sea monitoring for the herring fishery would be prioritized by NMFS in such a way that the necessary levels of coverage could be achieved for the Atlantic herring fishery every year regardless of other considerations.

2.8.4.1.4 Option: Observer Coverage Levels Based on Council Targets

This option would require that levels of observer coverage in the herring fishery be designed to achieve the target priorities identified by the New England Fishery Management Council: a **30% CV on catch/bycatch estimates for Atlantic herring and haddock, and a 20% CV on catch/bycatch estimates for river herring.**

The Council emphasized the need to be practical when determining an appropriate sampling design for at-sea monitoring, especially given available resources. When designing the sampling program, priority should be given to the species of greatest concern, from a biological perspective. It is acknowledged that all species will be sampled regardless of the priorities, and CVs of 30% or even less may be achieved for many of the other species. Atlantic herring, haddock, and river herring have all been identified by the Council as priority bycatch species within the herring fishery, however.

Under this option, an SBRM approach would be used to determine, on an annual basis, the level of coverage to target a 30% CV on bycatch estimates for herring and haddock, and a 20% CV on bycatch estimates for river herring. The Herring PDT has evaluated observer coverage levels and determined that it is not possible at this time to specify a level of coverage that can consistently achieve these CVs from year to year. The intent of this option, therefore, is to utilize these CVs as targets and annually evaluate the appropriate level of coverage to achieve these targets.

An approach like SBRM can be used to accomplish the first step of setting a goal. As part of the development of the omnibus amendment to address standardized bycatch reporting methodology (SBRM), the National Working Group on Bycatch (NWGB) concluded that, *"for fishery resources, excluding protected species, caught as bycatch in a fishery, the recommended precision goal is a 20-30% CV for estimates of total discards (aggregated over all species) for the fishery; or if total catch cannot be divided into discards and retained catch then the goal is a 20-30% CV for estimates of total catch."* (NMFS 2004) As the NWGB pointed out, "Ideally, standards of precision would be based on the benefits and costs of increasing precision" (NMFS 2004). They also noted that under some circumstances, attaining the precision goal alone would not be an efficient use of the public resources. **The tradeoffs associated with increasing precision to meet a specified goal are very important to understand when developing an observer program**.

Background Information – Preliminary Analysis (Using 2009 Data)

To begin to explore this issue in Amendment 5, the Herring PDT provided an *example approach* to determining levels of observer coverage necessary to meet a specific goal. This data was analyzed with the methodology and formulas specified by the SBRM amendment to calculate variance and to estimate the number of trips necessary to achieve certain levels of precision for **river herring** over a range of desired CVs (a similar exercise will be performed for haddock and Atlantic herring in the Draft EIS). This example helps to better illustrate the trade-offs associated with the choices that would need to be made, based on goals and priorities for observer coverage as well as available resources. This exercise also shows how the SBRM methodology can be used to develop a statistical approach to sampling the herring fishery to meet a specific goal under this option for observer coverage levels.

Table 4 provides the results of the updated SBRM analysis using 2009 observer data. The results illustrate the levels of observer coverage that would be required for the midwater trawl (single and paired), purse seine, and bottom trawl sectors of the herring fishery (based on trips with 2,000 pounds or more herring kept) in various areas (Gulf of Maine, Georges Bank/East of Cape Cod, and southern New England) to achieve target levels of precision for river herring catch estimates (10%, 20%, and 30% CVs). In this example, observer records for midwater trawl (single and paired), purse seine, and bottom trawl vessels keeping 2,000 pounds or more Atlantic herring during 2009 were used to generate catch ratios for river herring. These ratios were used in formulas specified by the SBRM amendment to first calculate variance, and then determine, based on available information, how many sea days/observer trips would be necessary to achieve that level of precision. The output (#trips) has been translated to observer sea days using an average days per trip from vessel trip reports.

Darker cells in Table 4 represent strata (gear type and area) with no herring trips occurring in 2009. Lighter cells represent strata with trips occurring but no observer coverage. The lighter cells would likely be candidates for "pilot" levels of observer coverage, to establish a baseline and better determine appropriate levels of coverage in the future.

This preliminary analysis/example highlights a few key points with respect to designing an observer program:

- The preliminary results suggest that, based on the SBRM approach, observer coverage should be increased in strata (gear type/area – purse seine, midwater trawl, otter trawl/GOM, GB, SNE) with high variability to reduce the CVs around catch/bycatch estimates. These are generally the strata with very limited observer coverage but high variability in estimates of river herring bycatch, but these may not be strata that one would expect to cover at higher rates.
- There are a few important caveats to consider when applying the SBRM approach to river herring – the assumptions about linearity and normality in the SBRM analysis may not hold for river herring because the distribution of the data is not normal (there is a high proportion of zeros), and there is a high degree of variability associated with the data. Seasonality (of the fishery and of river herring migrations/encounters) is also very important to consider.
- The SBRM approach considers variability associated with observed trips, but does not consider variability associated with any strata where coverage has been limited or absent. It

also does not consider the variability associated with sub-sampling and extrapolation, and portside versus at-sea coverage, all of which are important especially with respect to river herring.

- There are costs associated with increasing precision of bycatch estimates resulting from observer data. The lower the CV, the higher the precision, and the more sea days/observer trips are required to achieve that level of precision. When catch ratios are small but variability is high, observed bycatch events are rare, so capturing these events in the future will require more coverage. These tradeoffs must be thoroughly explored when designing an appropriate observer program and prioritizing available resources.

Table 4 Example Approach to Determining Levels of Observer Coverage for Herring Vessels–Based on 2009 Observer Data for River Herring

		10% CV			20% CV		30% CV	
		# days/trip	# Trips	#Sea Days	# Trips	#Sea Days	# Trips	#Sea Days
GB	**BT**							
	MW	3.0	119	357	113	339	105	314
	PS							
GOM	**BT**							
	MW	2.0	94	189	70	140	49	97
	PS	1.5	184	276	122	183	78	117
SNE	**BT**	1.0	100	100	54	54	31	31
	MW	4.0	141	563	87	349	53	214
	PS							
Total			639	**1,486**	447	**1,065**	316	**773**

2.8.4.1.5 Option: Observer Coverage Levels Based on Seasonal Stratification (River Herring)

Under this option, observer coverage levels in the Atlantic herring fishery would be determined based on an evaluation that utilizes a seasonal stratification of river herring observer data. This approach would be applied to improve the accuracy and precision of (river herring) bycatch estimates, overlaid on the SBRM approach to determine baseline levels of coverage in the herring fishery. For example, managers could choose strata with high river herring bycatch to have a higher level of coverage (beyond SBRM rates) to increase the accuracy of resulting bycatch estimates. This approach would require an annual evaluation of coverage levels in the fishery to determine the best way to improve CVs for river herring bycatch in the following year.

Details TBD, example to be provided in the Draft EIS

2.8.4.2 Portside Sampling Coverage

2.8.4.2.1 No Action Option (Status Quo)

Under the no action option, a portside sampling program for the herring fishery would not be established in Amendment 5. States may continue to conduct portside sampling programs as resources allow, but no Federally-administered program would be established.

ME DMR Portside Sampling Program

ME DMR's portside sampling program represents an opportunity to collect data in an inexpensive but efficient and accurate way. The program takes advantage of normal processing plant operations by quantifying bycatch that enters the facilities. Processing plants have to manually remove other species from the production line before the fish are sorted and cut or frozen. In normal operations, bycatch removed from the product is segregated into xactix bins or totes and removed from the processing floor at the end of each lot. Plants process one lot (fish caught by one vessel on a particular trip, delivered by truck or boat) at a time and then reset the plant in preparation for the next lot. Therefore, the bycatch removed from each lot can be documented and assigned to a catch location, gear type, date and a total lot amount. Additionally, the plants generally buy herring from vessels throughout the fishery and therefore cover multiple gear types, vessel sizes and individual fishing practices.

The bait industry has changed tremendously in the last five years resulting in a much more centralized distribution structure. Generally the herring used for bait goes through a large wholesale dealer to smaller dealers and lobster wharfs along the coast. The wholesale dealers generally have facilities where they sort, barrel, freeze and store bait for redistribution. It is at these sites where effective bycatch surveys can also be done, thereby including the bait sector in this study.

The sampling takes place at processing plants and bait dealers in Maine, New Hampshire, Massachusetts, Rhode Island and New Jersey. Sampling sites are selected by targeting Tier 1 locations first and then relying on Tier 2 locations to meet weekly goals. A sampling level of five percent of the entire herring fishery is targeted. The mackerel fishery will be sampled if the target levels for the herring fishery are being reached or when herring samples are not available. This scenario is most likely to occur in the winter months when many of the herring vessels switch to the mackerel fishery. The samplers quantify bycatch from individual lots that enter the processing and bait plants according to a NMFS specified protocol. The total weight of any observed bycatch are recorded along with species identification, total species weight, individual lengths and weights of all fish or a representative sub-sample.

MA DMF Portside Sampling Program

The goal of the MA DMF portside sampling program is to document landing activities and record and quantify catch composition, including size and age, of the fish landed by the Northwest Atlantic herring and mackerel pelagic fishery. The objectives are to:

- Sample fishermen's catches at sea and landings at the dock to acquire information on catch and landings and other biological aspects of fisheries with particular emphasis on the Atlantic herring and Atlantic mackerel fisheries;

- Collaborate with Maine Department of Marine Resources (ME DMR) to implement consistent dockside sampling protocols in the Atlantic herring and Atlantic mackerel fisheries in both port sampling studies and to enhance the quantity of information and trip sampling resolution being collected;
- Collect biological information and samples to assist stock assessments; and
- Supply data, information, and support for fisheries management purposes through accessing and analyzing state and federal landings and vessels trip reports, sea sampling, and port sampling.

Partial funding for the MA DMF program was created through a grant by the Atlantic Costal Fisheries Cooperative Management Act (ACFCMA). This grant encumbers funds for travel, supplies and salary for the field coordinator. In addition, MA DMF, has provided in-kind support by adding samplers based out of the New Bedford and Gloucester field stations. The term of the ACFAMA grant is for one year. Before the grant expires, MA DMF will pursue avenues to renew the grant and, if funding is not available from the same source, will seek additional funding to continue the program. Some additional funding for portside sampling by MA DMF has been provided by NFWF to support the Sustainable Fisheries Coalition (SFC) river herring bycatch avoidance program (see Section 3.1.3 for more information).

2.8.4.2.2 Option: 100% Portside Sampling

This measure requires rigorous sampling of the landed fish and certification of the offload weigh-outs (census of all landing events) by certified portside samplers. Under this option, there would be 100% coverage of offloads by certified portside samplers who execute a robust protocol to derive total species-level landings composition would be necessary as part of this option.

Participation in the 100% Portside Sampling Program would be mandated.

If CMCPs are established in Amendment 5 (see Section 2.10), the shoreside component of CMCP will be required to outline procedures for the following catch-handling elements upon landing:

- Procedures to ensure the presence of a portside sampler for all landing events;
- Certification standards for portside samplers;
- Minimum data collection standards and protocol guidelines for portside samplers, including those employed by states;
- Verification that no pre-sorting takes place upstream of portside samplers;
- Procedures to provide a certified measurement of landed weight that is verifiable by the portside sampler.

2.8.4.2.3 Option: <100% Portside Sampling Coverage with Extrapolation

Under this option, portside samplers would be present and sample at less than 100% of landing events, but the coverage would be statistically designed to allow for the extrapolation of observed landings, including bycatch and incidental catch rates, across the entire fleet such that unobserved landings had a bycatch rate applied.

Comment [lls25]: Appropriateness of expanding portside sampling data to generate (landed) bycatch estimates across the entire fishery needs to be explored by the Herring PDT further.

2.8.4.2.4 Portside Sampling Program – Coordination with ASMFC

At its September 1-2, 2010 meeting, the Herring Committee passed the following motion:

Request that States continue and expand their portside sampling programs provided funds are found for the program, in support of the Council's priority for portside sampling coverage and that the Herring PDT and Technical Committee jointly meet to review the States shoreside monitoring programs in order to address the goals and objectives of Amendment 5

DETAILS TBD

2.8.5 Options to Improve At-Sea Monitoring

Current regulations for vessels carrying NMFS-approved sea samplers/observers on board (Section 648.11(d)) specify that owners/operators of fishing vessels must:

1. Provide accommodations and food that are equivalent to those provided to the crew.
2. Allow the sea sampler/observer access to and use of the vessel's communications equipment and personnel upon request for the transmission and receipt of messages related to the sea sampler's/observer's duties.
3. Provide true vessel locations, by latitude and longitude or loran coordinates, as requested by the observer/sea sampler, and allow the sea sampler/observer access to and use of the vessel's navigation equipment and personnel upon request to determine the vessel's position.
4. Notify the sea sampler/observer in a timely fashion of when fishing operations are to begin and end.
5. Allow for the embarking and debarking of the sea sampler/observer, as specified by the Regional Administrator, ensuring that transfers of observers/sea samplers at sea are accomplished in a safe manner, via small boat or raft, during daylight hours as weather and sea conditions allow, and with the agreement of the sea samplers/ observers involved.
6. Allow the sea sampler/observer free and unobstructed access to the vessel's bridge, working decks, holding bins, weight scales, holds, and any other space used to hold, process, weigh, or store fish.
7. Allow the sea sampler/observer to inspect and copy any the vessel's log, communications log, and records associated with the catch and distribution of fish for that trip.

Additional management measures are being considered in Amendment 5 to enhance regulations pertaining to the current at-sea monitoring program.

2.8.5.1 No Action Option

Under this option, no additional management measures would be implemented to require a safe sampling station or provide at-sea observers with reasonable assistance to enable observers to carry out their duties (as described below).

2.8.5.2 Option: Requirements for a Safe Sampling Station

This measure would require that vessel operators provide at-sea observers with a safe sampling station adjacent to the fish deck– this may include a safety harness (if footing is compromised and grating systems are high above the deck), a safe method to obtain samples, and a storage space for baskets and sampling gear. Vessels must maintain safe conditions on the vessel for the protection of observers including adherence to all U.S. Coast Guard and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel.

2.8.5.3 Option: Requirements for "Reasonable Assistance"

This measure would require that vessel operators provide at-sea observers with reasonable assistance to enable observers to carry out their duties, including but not limited to obtaining samples and sorted discards.

"Reasonable assistance" could be defined as:

- Measuring decks, codends, and holding bins;
- Collecting bycatch when requested by the observers;
- Collecting and carrying baskets of fish when requested by the observers;

2.9 MEASURES TO REQUIRE ELECTRONIC MONITORING

2.9.1 No Action Option

Under the no action option, provisions to require electronic monitoring would not be implemented as part of the catch monitoring program in Amendment 5.

2.9.2 Option: Explore (and Possibly Implement) Net Sensor Technology Through "Study Fleet"

This option would establish a top priority for cooperative research (including use of future RSA funds) – to investigate the feasibility of using the study fleet technology in the Atlantic herring fishery and test applications of passive monitoring systems for midwater, bottom trawl, and purse seine vessels. Requirements for using such systems would be added to the list of items that can be implemented through a framework adjustment to the Herring FMP so that new technologies can be incorporated into the fishery management program as quickly as possible once their applicability and usefulness is tested.

Comment [lls26]: August 2010 – Herring AP recommends eliminating this section from further consideration in Amendment 5

The technology developed by Northeast Fisheries Science Center for the study fleet has significant potential for providing greatly improved monitoring of the herring fishery, including the goal of near real-time TAC-monitoring. As the Council is likely aware from prior briefings by the Science Center, the Study Fleet technology includes a computer, sensors, and software that can be integrated into a ship's systems and VMS, creating a combination of computerized reporting and passive collection of a wide variety of data. This technology can help identify conditions leading to higher rates of bycatch, improve the quality and timeliness of reporting, and, potentially even help measure the extent of slippage.

The industry has suggested that through testing, the technology may be developed to measure incidences of slipped hauls on unobserved trips and provide fine-scale effort data. It may be feasible to tie the computer system (which currently is designed and tested to collect, among other variables, GPS data, vessel speed, and depth/temperature data) into the winch and pump systems. If feasible, this could provide a means by which incidents of slippage – i.e., hauls that are not pumped. This could also help detect whether there is an "observer effect" – i.e., a difference in the incidence of slippage between observed and unobserved trips. The industry has encouraged the Council to identify the testing of this technology as a research priority for funding under the research set-aside program. If it can be successfully adapted to the herring fishery, this monitoring system can provide high quality information in a very cost effective manner. Following research and development, the requirements for using the technology can be applied to the entire fishery through a framework action.

2.9.3 Option: Explore (and Possibly Implement) Video Monitoring Through a Pilot Program

This option would establish a top priority for cooperative research (including use of future RSA funds) – to investigate the feasibility of video monitoring in the Atlantic herring fishery through a video monitoring pilot program. Requirements for using a video monitoring system in the herring fishery would be added to the list of items that can be implemented through a framework adjustment to the Herring FMP so that new technologies can be incorporated into the fishery management program as quickly as possible once their applicability and usefulness is tested.

Currently, a similar pilot program is underway in the northeast multispecies (groundfish) fishery, which could form the basis of a similar study in the herring fishery.

Background Information: NOAA Fisheries Groundfish Electronic Monitoring Pilot Study

During 2010, the Fisheries Sampling Brach (FSB) of the Northeast Fisheries Science Center is conducting a pilot program to investigate the applicability of electronic monitoring systems (EMS) to collect catch and fishing effort data aboard 10 groundfish vessels that use trawl gear, gillnets, and longlines. This is the largest-scale government-funded study of its kind and should generate a great deal of information about the potential applicability of EMS technology across all fisheries in the Northeast Region. The goal of the study is to evaluate the utility of EMS as a means to monitor catch on a real-time basis in the Northeast groundfish sector fleet. The main objective is to test the applicability of EMS technology to collect catch and effort data aboard

vessels incorporating catch estimation methods based on length approximations, and species identification through video data.

Groundfish sector members are required to have acceptable monitoring coverage under Amendment 16 of the Northeast Multispecies Fishery Management Plan. It is anticipated that at-sea monitors will be federally funded for the 2010 and 2011 fishing years. By year 2012, at-sea monitoring becomes a requirement of the sectors and the fishing industry may be responsible for the financing. EMS technology may provide a more cost effective alternative to human observers, if it is found to be a suitable surrogate. Initial costs for EM equipment are significant, but the daily cost over the lifespan of the equipment is generally low.

EMS technology is comprised of a control box, user interface (monitor and keyboard), up to four closed circuit television cameras, a GPS receiver, a hydraulic pressure transducer, and a drum rotation sensor. The control box, mounted in the wheelhouse, receives input from the sensors and logs digital video imagery. Cameras begin recording when the pressure transducer and drum sensor register activity (setting gear, retrieval). Cameras record activity on deck with a focus on discarded groundfish species. Cameras will be mounted in various locations based on these factors: size of vessel, type of fishery, hauling areas, discard chutes/conveyors/scuppers, stern/aft ramp and catch sorting areas.

Video footage will solely be the property of the U.S. government and will be treated as confidential observer data under the Magnuson-Stevens Act. Archipelago Marine Research Ltd. has been contracted to conduct the pilot program in conjunction with FSB. Widely recognized as the pioneer in video-based technology, Archipelago has participated in numerous EMS programs throughout the world. Archipelago will be responsible for detailing EMS installation specifications (including placement) and determining vessel suitability. While Archipelago has extensive experience with EMS, this study requires collection of an expanded amount of data and should take EMS technology a step farther.

Sector fisheries are required to have monitoring coverage to estimate discards at sea and estimate total catch as part of monitoring the collective quota effectively. On each participating vessel, discard areas will be designated (per gear type and vessel), and catch sorting will be conducted by the crew. At least one camera should be aimed at the discard area and one camera should include an overall view of the deck to ensure the EMS viewer does not miss any discarding. Species that will count toward the sector's ACE will be the focus of the EMS viewer (Atlantic cod, pollock, haddock, redfish, winter flounder, witch flounder, American plaice flounder, yellowtail flounder, Atlantic halibut, white hake, Atlantic wolfish, ocean pout, sand dab flounder) although additional discard species will also be quantified (ex. sculpins, sea ravens etc.). Species identification will focus on groundfish species along with skate and monkfish. *It is important to note that redfish and blackbelly rosefish may not be identified to species due to limitations in viewing video imagery*. Redfish, nk will be used to lump these species and to mimic NEFOP and ASM observer protocols. White hake and red hake may not be discernable from one another, especially in the 30-40 cm size class. For consistency purposes hake, nk will be utilized to characterize those species in the 30-40 cm size class.

On trawl vessels, catch sorting is imperative. A discard chute/area will be designated, preferably with a conveyor system or discard chute that has a measurement grid on it (5-10 cm increments recommended). Conveyor systems are the preferred method for estimation and identification of discards and may predict vessel participant selection. *For maximum productivity, fish should be placed on the conveyor in a single layer at a moderate pace.* Crew may want to sort discards (ACE targets) to the side and retain them until they have the time to send them through the designated discard chute. Outreach and education is critical to ensure this kind of catch sorting is maintained. Catch sorting responsibilities will be clearly defined in the study guidelines to ensure industry participation.

EMS viewers will review 30% of the events from collected video from each trip. Data analyses consist of: examining vessel sensor data to assess quality and completeness of the data set, identifying fishing episodes, estimation of total fishing effort and catch, speciating catch by disposition and identifying anomalous events in the data set that may warrant further investigation. Data processing at FSB should take no longer than 7 days from the trip landing, depending upon the quantity of data and frequency of hard drive collection (versus up to 90 days for observer data review/entry).

Analyzing data from EMS, ASMs, observers, dealers, dockside monitors and VTRs will be undertaken by Archipelago. Specific statistical methods are yet to be determined but FSB anticipates correlations or regressions to be run in addition to graphical methods. Through these comparisons, FSB staff and Archipelago will evaluate the effectiveness of EMS in sector fisheries and develop a set of regulating criteria. FSB staff will work with Archipelago to explore how EMS data collected could be integrated into sector reporting requirements. A final report will be written by Archipelago including: methodology for EMS set up on fishing vessels, inventory of all data, methodology used for analysis of EMS data sets, technical assessment of the EMS in a variety of conditions, instances where EMS may not be conducive to meeting monitoring objectives and suggested alternatives to correct these deficiencies, feedback from captain and crew, and recommended improvements to the EMS, and program design and analysis procedures that would better address the fishery monitoring issues.

The pilot study is currently underway (summer 2010), and data collection is expected to occur through May 2011. Data analysis will be conducted June-August 2011, and a final report with findings will be released during this time once all of the data are thoroughly analyzed.

2.9.4 Option: Electronic Monitoring – Require a Height or Bottom Contact Sensor

This option would require a height or bottom contact sensor on Category A, B, and C trawl vessels to determine the amount of bottom contact of trawls during each tow. Members of the midwater and pair trawl and purse seine sectors would be responsible for working with NMFS to develop and test systems that can monitor bottom contact and report this data, via VMS or otherwise. NMFS will certify placement of sensors and implement periodic inspections to ensure compliance with this part of the catch monitoring program.

Comment [lls27]: August 2010 – Herring AP recommends eliminating this section from further consideration in Amendment 5

Comment [lls28]: Not clear how the data would be collected, analyzed, etc. Need to describe the process.

NERO expressed concern about this measure.

Standard electronic sensors can be used for data acquisition. Data would be logged by the data logger (i.e., recorded on a secure hard drive). Net sensors could be used to:

- **Provide a record of the height of the foot rope above the bottom** (e.g., SIMRAD Systems *Simrad PI Height* or *e-sonar bottom contact* sensors) during each tow.

Simrad PI Height (from Simrad website)

With a built-in echo sounder, this new PI sensor is full of advanced technology. Wherever you place it, it will always tell you the exact distance to the bottom. The PI Height sensor measures the height over the bottom, that is the distance from the bottom and up to wherever the sensor is located. This provides you with a valuable range of applications for bottom and pelagic trawling. With a height sensor behind the footrope you will know at once if the trawl approaches the bottom. If you use a second sensor behind the headrope, the difference between the two measurements will give you the height of the trawl opening.

E-Sonar Bottom Contact Sensor (from E-Sonar website)

The Bottom Contact sensor is suspended vertically from the footrope of the trawl. When the trawl is off the bottom, the sensor hangs close to the vertical position, thus the bottom contact sensor will indicate approximately 90° showing that the trawl is not on the bottom. When the trawl is on the bottom, the sensor will be in a horizontal position and will indicate approximately 0°, showing that the trawl has touchdown.

Costs

Costs for net sensors are variable depending on how many sensors are required, the need for software, and other programming and maintenance support. In general, Simrad and e-sonar sensors cost about $4,000-$5,000 each. A Simrad display and central unit also costs about $4,000.

2.10 MEASURES TO REQUIRE CATCH MONITORING AND CONTROL PLANS

Comment [lls29]: Remains unclear whether the RO can support the development of the CMCP concept in Amendment 5.

As part of the Amendment 5 catch monitoring program, the Council may require the industry to design and submit catch monitoring and control plans (CMCPs) to NMFS. This component of the catch monitoring program is intended to assure that the industry retains control and flexibility over fishing, landing, and processing operations while still ensuring the delivery of a robust data collection program by outlining in detail how they will meet the catch monitoring and control standards set by the Council and NMFS.

The standards specified in this amendment would outline requirements for each CMCP and may include the following: sorting and weighing all landings under the oversight of a portside sampler, notification requirements in advance of a landing, use of approved scales or other weighing techniques, provision of safe and convenient access points and sampling locations for observers/monitors/samplers, and procedures to ensure that no unobserved pre-sorting occurs, possibly including details regarding the installation and operation of a video-based electronic monitoring (VBEM) system if one is required. CMCPs should cover all possible offload

scenarios, including net handling and pump-out procedures between pair trawl vessels, and may include cooperative arrangements with dealers and/or carriers and/or receivers of at-sea transfers (including USAP vessels if necessary and appropriate). Depending on the options that the Council considers in this amendment, management measures to address river herring bycatch could also be specified in the CMCP.

Individual vessels/entities or groups of vessels/entities can develop/submit CMCPs. NMFS would review/approve CMCPs with input from the Council on an annual or semi-annual basis as part of the fishery permit renewal procedures. CMCP options under consideration are described below.

2.10.1 No Action Option

Under the no action option, requirements for catch monitoring and control plans (CMCPs) would not be implemented in Amendment 5.

2.10.2 Option: Sectors of the Fishery to Which CMCP Requirements Apply

CMCP requirements could apply to:

- Limited Access herring vessels (Category A, B and/or C);
- Federally-permitted Atlantic herring dealers;
- Atlantic herring processors;
- Herring vessels that utilize a pump during harvesting operations; and/or
- Herring vessels that utilize carriers.

2.10.3 Option: Required Elements of CMCPs

If CMCPs requirements are established in Amendment 5, the Council may require that the following elements be included:

- All CMCPs must outline fish handling procedures in detail such that the absence of pre-sorting can be verified or the pre-sorted fish can be clearly demonstrated to be retained and provided to the shore-based observer;
- All CMCPs must provide an explanation of how a certified, independently verifiable weight or volumetric conversion will be attained for all species;
- All CMCP must provide an outline of the video-based electronic monitoring (VBEM) system to be operated and its installation specifications (if VBEM is a component of the catch monitoring program);
- Shoreside component of CMCP may be required to outline procedures for the following catch-handling elements upon landing:
    - Procedures to ensure the presence of a shore-based observer/dockside monitor/sampler for all landing events;
    - Certification standards for shore-based observers/dockside monitors/samplers;

  - Minimum data collection standards and protocol guidelines for shore-based observers/ dockside monitors/samplers, including those employed by States;
  - Verification that no pre-sorting takes place upstream of shore-based observers/dockside monitors/samplers; and
  - Procedures to provide a certified measurement of landed weight that is verifiable by the shore-based observer/dockside monitor/sampler.
- Mandatory Verification of Compliance with Maximized Retention Requirements
  - At-sea component of vessel-designed Catch Monitoring and Control Plan (CMCP, see below) will be required to outline procedures for the installation and operation of a Video-Based Electronic Monitoring (VBEM) system.
  - CMCP must include detailed procedures to demonstrate the absence of pre-sorting, including demonstration that the codend is empty after each haul and that no fish were slipped from the codend while the codend was in the water (see Section 2.7.3 for a description of options to address slippage).

2.10.4 CMCP Background Information

Catch Monitoring Plans are utilized on the west coast in the crab, rockfish, and pollock fisheries for processing facilities to demonstrate how all of the fish/crabs will be sorted and weighed by the plants. The Monitoring Plan requirements are for processing facilities only, however.

A Register Crab Receiver (RCR) must submit a Crab Monitoring Plan (CMP) for approval by NMFS. The CMP must be approved before receiving any Crab Rationalization crab deliveries. An inspection of the processing facility must be requested 10 working days before the requested inspection date. CMPs will be approved for one year. An owner or manager must notify NMFS in writing if changes are made in plant operations or layout. Regulations regarding the CMP performance standards can be found at 50 CFR 680.23(g).

A processor taking deliveries from vessels engaged in directed fishing for Pollock in the Bering Sea and Aleutian Islands Management area and the GOA Rockfish Pilot Program must operate under an approved Catch Monitoring and Control Plan (CMCP). A CMCP must be submitted to NMFS for approval prior to receiving any BSAI Pollock deliveries. An inspection of the processing facility must be requested 10 working days before the requested inspection date. CMCPs will be approved for one year. Regulations regarding the CMCP performance standards can be found in 50 CFR 679.28(g) and are summarized below:

Catch Monitoring and Control Standards (Summary)

- The CMCP must detail the amount and location of space for sorting catch, the number of staff assigned to catch sorting, and the maximum rate that catch will flow through the sorting area.
- The CMCP must identify by serial number each scale used to weigh groundfish and describe the rational for its use.
- For each scale identified in the CMCP, a detailed testing plan must be included.

- The owner and manager must ensure that the scale produces a complete and accurate printed record of the weight of each species in a delivery.
- Each CMCP must identify a single delivery point. The delivery point is the first location where fish removed from a delivering catcher vessel can be sorted or diverted to more than one location. If the catch is pumped from the hold of a catcher vessel or a codend, the delivery point normally will be the location where the pump first discharges the catch. If catch is removed from a vessel by brailing, the delivery point normally will be the bin or belt where the brailer discharges the catch.
- Each CMCP must designate an observation area that meets specific standards. The observation area is a location designated on the CMCP where an individual may monitor the flow of fish during a delivery.
- Each CMCP must identify and include an observer work station for the exclusive use of NMFS-certified observers. The work station must meet the specific criteria outlined in the regulations.
- The CMCP must describe what communication equipment such as radios, pagers or cellular phones, is used to facilitate communications within the plant. The plant owner must ensure that the plant manager provides the NMFS-certified observer with the same communications equipment used by plant staff.
- The CMCP must designate a plant liaison.
- The CMCP must be accompanied by a scale drawing of the plant showing:
    (A) The delivery point;
    (B) The observation area;
    (C) The observer work station;
    (D) The location of each scale used to weigh catch; and
    (E) Each location where catch is sorted.

A CMCP template is provided for additional information (see following).

DRAFT

Crab Catch Monitoring Plan (CMP) Template

All crab, including crab parts and crab that are dead or otherwise unmarketable, delivered to a Registered Crab Receiver (RCR) must be sorted and weighed to species. A CMP should detail how and where crab are sorted and weighed. This template may be used as a CMP. Another format may be used, but it must include all the required information found in 50 CFR 680.23 (g) (5). Additional pages may be submitted if needed.

RCR Name:	Date of Application:	Contact Number:	Fax Number:	Email Address:
Plant Liaison(s):		Signature of Applicant:		

Crab Sorting and Weighing Procedures Detail procedures for all locations where sorting and weighing can occur.
A. List all locations where crab can be offloaded:
B. Describe how crab are removed from the vessel:
C. Describe how and where crab are sorted:
D. Describe how crab are transported from the vessel to the scale:
E. Describe how crab are weighed on the scale. Include procedure for taring container for holding crab:
F. How are dead loss, crab parts or unmarketable crab sorted and weighed (if different than procedure described above):

G. Describe any other steps involved in sorting and weighing of crab:

Scales Identify each scale used for weighing crab and the reason for its use.				
Manufacturer	**Model**	**Serial Number**	**Type**	**Purpose**

Scale Test Procedures Describe how each scale used for weighing crab is tested. Include the maximum capacity of the scale. Refer to §680.23(f)(4) for more information on Inseason Scale Testing.	
Scale Serial Number	**Testing Procedure**

List all test weights:

Where are test weights stored?

List personnel responsible for conducting scale tests:

Observation Area Describe the location where an individual can monitor the entire offloading, sorting and weighing of crab. The observation area must; 1) be freely accessible at any time during an offload, 2) provide an unobstructed view of the entire offload between the 1st location where crab are offloaded and a location where all sorting and weighing of each species has taken place, 3) be sheltered from the weather and not exposed to unreasonable safety hazards.

Printed Record Include an example of a printed record of a delivery. The printout should include; 1) RCR Name, 2) total weight of crab in each landing, 3) date and time information is printed, 4) name and ADF&G # of each delivering vessel (may be handwritten).

Scale Drawing of Delivery Location Include a scale drawing that contains; 1) each location where crab are removed from a vessel, 2) observation area, 3) location of each scale used to weigh crab, 4) location where crab are sorted, 5) location of printer

For more information contact: Jennifer Watson (907)586-7537 Jennifer.Watson@noaa.gov; Alan Kinsolving (907)586-7237 Alan.Kinsolving@noaa.gov

Mail completed CMP, Printed Record and Drawing to: National Marine Fisheries Service, PO Box 21668, Juneau, AK 99802-1668

PUBLIC REPORTING BURDEN STATEMENT

Public reporting burden for this collection of information is estimated to average 16 hours per response, including the time for reviewing instructions, searching the existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Sue Salveson, Assistant Regional Administrator, Sustainable Fisheries Division, NOAA National Marine Fisheries Service, P.O. Box 21668, Juneau, AK 99802-1668 (Attn: Lori Durall).

ADDITIONAL INFORMATION

Before completing this form please note the following: 1) Notwithstanding any other provision of law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information, subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB control number; 2) This information is mandatory and is required to manage commercial fishing efforts under 50 CFR part 680, under section 402(a) of the Magnuson-Stevens Act (16 U.S.C. 1801, *et seq*.) and under 16 U.S.C. 1862(j); 3) Responses to this information request are confidential under section 104(b) of the Magnuson-Stevens Act (16 U.S.C. 1801, *et seq*.) They are also confidential under NOAA Administrative Order 216-100, which sets forth procedures to protect confidentiality of fishery statistics.

2.11 CATCH MONITORING – FUNDING OPTIONS

Comment [lls30]: August 2010 – Based on the options currently listed in this section, the Herring AP only supports the option to fund catch monitoring program from Federal funds.

2.11.1 Options for a Catch Monitoring Set-Aside

Under this option, the Council, in consultation with the ASMFC, would set-aside up to X% of the sub-ACL from any management area(s) or the total ACL for the herring fishery to support catch monitoring in the fishery. The Council would determine the specific percentages for the set-aside and the management area(s) to which they apply during the fishery specification process.

Background Information

According to the NMFS dealer weighout database, the average price per pound of Atlantic herring over the course of the 2009 fishing year was $0.10. The average price per metric ton, therefore, was about $220 in 2009. Table 5 utilizes this information to provide some perspective on the potential value of a catch monitoring set-aside.

Table 5 General Overview of Catch Monitoring Set-Aside Potential Value Based on 2010-2012 ACLs

		Set-Aside Approximate Amount (mt)/Approximate Value ($)		
2010-2012 ACLs (mt)		**1%**	**2%**	**3%**
Area 1A	26,546	265/$58,300	530/$116,600	795/$174,900
Area 1B	4,362	43/$9,460	86/$18,920	129/$28,380
Area 2	22,146	221/$48,620	442/$97,240	663/$145,860
Area 3	38,146	381/$83,820	762/$167,640	1,143/$251,460
Total	**91,200**	**912/$200,640**	**1,824/$401,280**	**2,736/$601,920**

Background – Herring RSA Utilization

The 2007-2009 herring specifications (72 FR 17807, April 10, 2007) allocated research set-aside (RSA) to each of the four herring management areas for 2008-2009 as follows: 1,350 mt to Area 1A, 300 mt to Area 1B, 900 mt to Area 2, and 1,800 mt to Area 3. In early 2008, NMFS received four research proposals in response to the 2008/2009 Herring RSA Program request for proposals. NMFS's Northeast Fisheries Science Center (NEFSC) selected one proposal to be funded through the 2008/2009 Herring RSA Program. The project, conducted by the Gulf of Maine Research Institute (GMRI), entitled "The Effects of Fishing on Herring Aggregations," requested and was awarded all of the RSA for Areas 1A and 1B (1,350 mt and 300 mt, respectively), but did not request RSA for Areas 2 and 3 (900 mt and 1,800 mt, respectively).

The regulations at § 648.207 stipulate that, in the event that the approved research projects do not make use of any or all of the RSA, the unutilized portion of the RSA shall be reallocated back to its respective management area(s). When multi-year TACs are specified and there is unutilized herring RSA available, NMFS, at the request of the New England Fishery Management Council (Council), could publish another request for funding proposals (RFP) for either the second or

third years of the 3-year specifications. The Council also may decide not to publish another RFP, in which case NMFS may release the unutilized portion of the set-aside back to its respective management area(s).

At its October 7-9, 2008, meeting, the Council discussed the unallocated 2008 and 2009 herring RSA in Areas 2 and 3. Because there was insufficient time between October and the end of the 2008 fishing year and/or the start of the 2009 fishing year to publish another RFP, evaluate the proposals, and award RSA, the Council requested that NMFS release the unallocated RSA for Areas 2 and 3 back to its respective management areas, such that it would be available for harvest by the commercial fishery. Therefore, on December 9, 2008, 900 mt of herring was restored to the Area 2 TAC and 1,800 mt of herring was restored to the Area 3 TAC for the 2008 and 2009 fishing years. The resulting 2008 and 2009 herring TACs were 30,000 mt for Area 2, and 60,000 mt for Area 3.

Ninety-seven percent of Area 1A RSA (1,322 mt) was harvested in 2008 and 71 percent of the Area 1A RSA (969 mt) was harvested in 2009. No RSA was harvested from Area 1B during 2008 or 2009. The GMRI project was originally scheduled to be a two-year study, but GMRI requested a one-year extension to continue work on the research. The results of GRMI's research are to be provided to the NEFSC by August 2011.

2.11.1.1 Catch Monitoring Set-Aside – Administrative Process

XXX

Comment [lls31]: NERO has expressed significant concerns about establishing an RSA-type process for funding a catch monitoring program. NERO concerns to be communicated to Committee on July 27-28, 2010 in separate memo.

Staff comment – Unclear if the process would be efficient for funding catch monitoring (a lot of administration for not a lot of funds)

2.11.1.2 Option: Eliminate the Research Set-Aside and Replace it with a Catch Monitoring Set-Aside

Under this option, the current research set-aside (RSA) for the herring fishery would be eliminated, and a catch monitoring set-aside would be established.

Currently, the herring fishery closes in a particular management area when it is projected that 95% of the area sub-ACL has been/will be caught. Five percent of the remaining sub-ACL is set-aside for incidental catch in other fisheries (under a 2,000-pound trip limit) after the directed fishery is closed. In some management areas, an additional 3% is currently set-aside to support herring-related cooperative research. Similar to the RSA, the catch monitoring set-aside is intended to be in addition to the current 5% set-aside for incidental catch once the directed fishery in a management area closes. Under this option, the RSA would be eliminated, and the herring fishery would close in a management area when it is projected that X% of the sub-ACL is reached in areas where a catch monitoring set-aside is allocated (100% minus the 5% incidental catch set-aside and the X% catch monitoring set-aside).

Sub-Option: Utilize the set-aside specifically to fund a portside sampling program (PSP)

2.11.1.3 Option: Establish Catch Monitoring Set-Aside in Addition to the RSA

Under this option, the current research set-aside (RSA) for the herring fishery would continue, and a catch monitoring set-aside would be established in addition to the RSA.

Currently, the herring fishery closes in a particular management area when it is projected that 95% of the area sub-ACL has been/will be caught. Five percent of the remaining sub-ACL is set-aside for incidental catch in other fisheries (under a 2,000-pound trip limit) after the directed fishery is closed. In some management areas, an additional 3% is currently set-aside to support herring-related cooperative research. Under this option, the herring fishery would close in a management area when it is projected that X% of the sub-ACL is reached in areas where a catch monitoring set-aside is allocated (100% minus the 5% incidental catch set-aside, the 3% RSA, and the X% catch monitoring set-aside).

Sub-Option: Utilize the set-aside specifically to fund a portside sampling program (PSP)

2.11.1.4 Option: Identify Catch Monitoring as Top Priority for RSA

Under this option, a separate catch monitoring set-aside would not be established. This option would retain the current RSA process, but the only priority for funding that would be identified by the Council would be catch monitoring.

2.11.2 Option: Fund Catch Monitoring from Federal Funds

This option would require that the catch monitoring program established in Amendment 5 be funded by Federal funds, as they can be made available.

Comment [lls32]: May 2009 – Herring AP encourages the Herring Committee/PDT to analyze the costs of monitoring programs asap so that these costs can be estimated for NMFS and Congress to consider

2.11.3 Option: Fund Catch Monitoring from Federally-Permitted Dealers

This option would require Federally-permitted dealers to fund the catch monitoring program established in Amendment 5.

Comment [lls33]: Unclear/not developed

XXX

3.0 MEASURES TO ADDRESS RIVER HERRING BYCATCH

In May 2010, the Herring Committee discussed the development of management alternatives to address river herring bycatch and passed the following two motions:

> To task the PDT with further review of river herring and shad observer data to identify gear-specific times and areas where Closed Area I bycatch regulations may be applied. Emphasis should be on identification of bycatch seasonal hotspots
>
> That the PDT further develop the move along concept to reduce river herring and shad bycatch similar to the approach to be undertaken by the Sustainable Fisheries Coalition bycatch avoidance proposal as one alternative to consider in Amendment 5

The management measures under consideration in Amendment 5 to address river herring bycatch will apply to a series of river herring "hotspots," which are also identified in this amendment. Several alternatives are under consideration for (1) identifying the river herring hotspots (seasonal times and areas, see Section 3.2); and (2) management measures that will apply in the river herring hotspots (Section 3.3). These alternatives are described in the following subsections.

3.1 BACKGROUND INFORMATION

3.1.1 Bering Sea Pollock Fishery – Voluntary Rolling Hotspot System

Amendment 84 addressed salmon bycatch in the Bering Sea pollock fishery. This action established the salmon bycatch inter-cooperative agreement (ICA), which allows vessels participating in directed fisheries for pollock in the Bering Sea to utilize their internal cooperative structure to reduce salmon bycatch using the "voluntary rolling hotspot system: (VRHS). In recommending Amendment 84, the North Pacific Fishery Management Council recognized that current regulatory measures (bycatch caps that triggered closures of fixed salmon savings areas) were not effective at reducing salmon bycatch.

The North Pacific Council found that the initial management action to address salmon bycatch was not effective. As area closures were triggered due to salmon bycatch, bycatch rates would increase in the remaining open areas, worsening bycatch problems in some cases. The impetus for this action came from the industry, which already included infrastructure to support real-time monitoring of bycatch data through an established working relationship with an independent company to collect/review data (Sea State Inc.).

The purpose of the salmon bycatch avoidance ICA is to use real-time salmon bycatch information to avoid areas of high chum and Chinook salmon bycatch rates. Parties to the ICA include the American Fisheries Act cooperatives, the six Western Alaska Community Development Quota (CDQ) groups, at least one third party group representing western Alaskans who depend on salmon and have an interest in salmon bycatch reduction, and at least one private firm retained to facilitate bycatch avoidance behavior and information sharing. The ICA utilizes a system of base bycatch rates, assignment of vessels to tiers based on bycatch rates relative to the base rate, a system of closures for vessels in certain tiers, and monitoring and enforcement

through private contractual arrangements. Vessels participating in the salmon bycatch ICA are exempted from closures of the Chinook and Chum Salmon Savings Areas in the Bering Sea. In addition, vessels participating in trawl fisheries for species other than pollock are exempt from Chum Salmon Savings Area closures.

The Final Rule for Amendment 84 and the VRHS system include requirements and standards for ICAs, base rate calculations for bycatch, and general provisions for rolling closures. The rule addresses: *Who must file the salmon bycatch reduction ICA? With whom must the initial salmon bycatch reduction ICA be filed? What is the deadline for filing? How is the ICA approved by NMFS? What are the minimum information requirements for the ICA?* It also specifies general guidelines for the salmon savings area notices, which include move-along rules developed by the industry in cooperation with the entity that has been contracted to facilitate information sharing and bycatch reduction behavior. The provisions for savings area notices require:

- On January 30 of each year and each Thursday and Monday thereafter for the duration of the pollock ''A'' season, the entity retained to facilitate vessel bycatch avoidance behavior and information sharing must provide notice to the parties to the salmon bycatch reduction ICA and NMFS identifying one or more areas designated as ''ICA Chinook Savings Areas'' by a series of latitude and longitude coordinates. The Thursday notice of ICA Chinook savings area designations must be effective from 6 p.m. Alaska local time the following Friday through 6 p.m. Alaska local time the following Tuesday. The Monday notice must be effective from 6 p.m. Alaska local time the following Tuesday through 6 p.m. Alaska local time the following Friday. For any ICA salmon savings area notice, the maximum total area closed must be at least 1,000 square miles.
- On each Thursday and Monday after June 10 of each year for the duration of the pollock ''B'' season, the entity retained to facilitate vessel bycatch avoidance behavior and information sharing must provide notice to the parties to the salmon bycatch reduction ICA and NMFS identifying one or more areas designated as ''ICA Chinook Savings Areas'' and/or ''ICA Chum Savings Areas'' by a series of latitude and longitude coordinates. The Thursday notice of ICA Chinook savings area designations must be effective from 6 p.m. Alaska local time the following Friday through 6 p.m. Alaska local time the following Tuesday. The Monday notice must be effective from 6 p.m. Alaska local time the following Tuesday through 6 p.m. Alaska local time the following Friday. For any ICA salmon savings area notice, the maximum total area closed must be at least 3,000 square miles for ICA chum savings area closures, and 500 square miles for ICA Chinook savings area closures.

The industry participating in the Bering Sea pollock fishery is well-structured, well-organized, and well-established through an infrastructure of seven fishing cooperatives and one general oversight cooperative. The fishery is managed through catch shares, and the industry has been working with an independent company for a long time to collect, review, and disseminate data in a timely manner to the fleet for catch share management and bycatch avoidance. The infrastructure existed prior to the VRHS, so the industry developed/supported the VRHS as an alternative to the area closures and saw this program as beneficial for their operations. The fishery was operating with about 30% observer coverage when this system was developed, but recent/ongoing actions will increase coverage levels significantly. According to NMFS, the collection, analysis, and dissemination of bycatch data, and the development of area closure

notices to the fleet are all coordinated through an independent company working in cooperation with the industry and funded by the industry.

3.1.2 CCAMLR Move Along Rule

Background

A bycatch avoidance measure has been adopted by the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) that could be considered as an alternative for a "move along rule."

The CCAMLR move-along rule is provided below:

1. There shall be no directed fishing for any species other than *Dissostichus eleginoides* and *Champsocephalus gunnari* in Statistical Division 58.5.2 in the 2008/09 fishing season.
2. In directed fisheries in Statistical Division 58.5.2 in the 2008/09 season, the bycatch of *Channichthys rhinoceratus* shall not exceed 150 tonnes, the by-catch of *Lepidonotothen squamifrons* shall not exceed 80 tonnes, the bycatch of *Macrourus spp*. shall not exceed 360 tonnes and the by-catch of skates and rays shall not exceed 120 tonnes. For the purposes of this measure, '*Macrourus spp*.' and 'skates and rays' should each be counted as a single species.
3. The bycatch of any fish species not mentioned in paragraph 2, and for which there is no other catch limit in force, shall not exceed 50 tonnes in Statistical Division 58.5.2.
4. If, in the course of a directed fishery, the bycatch in any one haul of *Channichthys rhinoceratus, Lepidonotothen squamifrons, Macrourus spp., Somniosus spp*. or skates and rays is equal to, or greater than 2 tonnes, then the fishing vessel shall not fish using that method of fishing at any point within 5 n miles of the location where the bycatch exceeded 2 tonnes for a period of at least five days. The location where the bycatch exceeded 2 tonnes is defined as the path followed by the fishing vessel.
5. If, in the course of a directed fishery, the bycatch in any one haul of any other bycatch species for which bycatch limitations apply under this conservation measure is equal to, or greater than 1 tonne, then the fishing vessel shall not fish using that method of fishing at any point within 5 n miles of the location where the by-catch exceeded 1 tonne for a period of at least five days. The location where the by-catch exceeded 1 tonne is defined as the path followed by the fishing vessel.

This rule sets seasonal quotas on bycatch species of concern within a particular fishing area. It also establishes bycatch thresholds (on a tow-by-tow basis) that would trigger a "move-along" for the fleet. The bycatch triggers and move-along rules are relatively straight-forward – if bycatch in any tow exceeds the threshold for any of the species, the fleet is prohibited from fishing within 5 nautical miles of the path of that tow for five days.

For this kind of rule to be effective, there would presumably be adequate catch monitoring at-sea, real-time quota monitoring, fleet communication tools, and industry cooperation. While detailed information about the CCAMLR fishery is not available at this time, it is known that the move-along rules apply to new and exploratory fisheries in the Antarctic Territory (some of which is in the high seas). The fisheries are managed by TACs, and all members must

participate in a five-day catch and effort reporting scheme. CCAMLR Members are authorized to participate in these fisheries if they comply with a range of conservation measures that include a requirement to carry a CCAMLR-designated observer on board.

3.1.3 Sustainable Fisheries Coalition (SFC) River Herring Bycatch Avoidance Program

The Herring Committee is interested in exploring management alternatives for move-along rules and bycatch avoidance programs, based on the Sustainable Fisheries Coalition's river herring bycatch avoidance project. This project has been developed by the SFC in cooperation with Massachusetts Division of Marine Fisheries (MA DMF) and UMASS Dartmouth School of Marine Science and Technology (SMAST), and funded by the National Fish and Wildlife Foundation (NFWF).

The SFC project proposes to develop a bycatch avoidance incentive system based on finer scale details of bycatch encounters. Products will be: (1) a predictive model of where river herring are likely to occur in space and time; (2) a real-time bycatch avoidance intra-fleet communication system; (3) a complimentary bycatch avoidance incentive system; and (4) additional support for port sampling to continue informing the initiative.

To develop a model to identify, refine, and predict river herring hotspots, the project will compile observer data, examine tagging data and independent fisheries information, and plot the data using FVCOM, which is an ocean circulation model that will help identify the specific water masses associated with herring, mackerel, and river herring. The intent is ultimately to predict river herring hotspots amidst the distribution of Atlantic herring and mackerel, which could be avoided by vessels to reduce bycatch incidents.

The project will rely on real-time communication between fishing vessels and SMAST to circulate information regarding river herring hotspots and to relay this information to fishing captains before and during their trips. Captains and selected crew will be trained using the NEFOP observer protocols so that each tow can be sampled and river herring bycatch can be reported on a tow-by-tow basis. Communication will occur through BOATRACS (VMS), and the information will be correlated with port sampling at the end of the trip to check for consistency between the reported information and the portside observations from the same trip. SMAST will distribute maps of hotspots to captains when they are planning their fishing trips before they leave the dock. At sea, SMAST will send daily notices of hotspots compiled from the FVCOM model using the latest data reported by the fishing vessels. SMAST will work with the industry to establish a threshold for river herring bycatch, after which point vessels will be asked to move to areas of less bycatch.

According to the proposal, twelve vessels account for the majority of midwater trawl herring and mackerel landings, all of which belong to the Sustainable Fisheries Coalition and all of which have agreed to participate in the voluntary bycatch avoidance program. Because the project has not yet been funded, though, many of the details of the communication system and a fleet-adopted "move along" rule have not yet been developed. The SFC has developed an Industry Code of Conduct for its members, to ensure the sustainability of the Atlantic herring fishery and

Atlantic herring resource. Each participating captain and crew member operating in the Atlantic herring fishery who signs the Code of Conduct agrees, as part of the Code, that:

When operating in areas and at times when significant levels of non-target fish or non-fish species may occur, a test tow or test set will be employed. If significant levels of non-target species are in the area, the vessel will move a minimum distance from the fishing area for a minimum period of time. With midwater trawling, if the captain determines that bycatch levels are within acceptable limits to remain to fish, the time of the first tow in the area would also be limited to ensure that reasonable bycatch rates can be sustained in the fishing area of concern.

The SFC Code of Conduct acknowledges that areas of concern, test tow times and set limits, area-avoidance times and distances, and initial area-of-concern tow times, still remain to be determined by the industry. A Captain's meeting is anticipated during late 2010 to discuss these details.

3.1.4 Background – Summary of ASMFC/State Management of River Herring

Amendment II to the ASMFC Interstate Fisheries Management Plan for Shad and River implemented a highly precautionary approach to river herring management. Amendment II requires States to close all fisheries for shad & river herring by January 1, 2012, with exceptions for systems with a sustainable fishery. That is, States must demonstrate that their river herring stocks can support a commercial and/or recreational fishery without diminishing future stock reproduction and recruitment. State fishery proposals must contain 'sustainability targets' that are subject to Technical Committee (TC) review. Upon review, the TC presents a report to the Shad & River Herring Management Board (Board) who approves or denies the proposal. States with approved plans are required to submit annual updates of the achievement and maintenance of sustainability targets. The TC has reviewed some State proposals and will present a report to the Board on August 3, 2010. The Board approved the 2012 sustainability plan implementation data to allow States with a lengthy legislative process adequate time to develop and implement proposals. Table 6 shows current state regulations as of June 2010.

Table 6 Summary of Current State Management Measures for River Herring

Commercial	Season	Area Restrictions	Time Restriction	Gear Restrictions	Reporting	License / Permit	Effort Controls
ME		fixed locations only	3 days / week escapement period		mandatory	rights granted	Yes
NH	Coastal Areas - No; Squamscott R. - Apr 1 to Jun 30	closures due to fishway proximity	Coastal Areas - no harvest on Wednesday; Squamscott R. - Harvest on Monday and Saturday only	no mobile gear in state waters; restrictions on gill nets w/in inland waters	required	Harvest Permit required if taking by any form of netting	1 tote / day in Squamscott R.
MA	**Moratorium since 2005**						
RI	**Moratorium since 2006**						
CT	**Moratorium since 2002**						
NY	Mar 15 to Jun 15	no fishing in DE River; no fixed gear allowed in Hudson from Rkm 75 to100; no gill nets allowed Kingston Flats or between the I90 bridge to Troy	36 hour escapement period for gill nets in the main-stem Hudson River from Friday 6am to Saturday 6pm	gill net size limited 183m in length; mesh size limited to 3.8 - 8.8cm stretch	Mandatory reporting	Yes	
NJ		Yes	Yes	Yes	Mandatory logbooks		35 / day limit
PA	**CLOSED**						
DE		No fixed gill nets May-Sept in DE Bay	No drift nets Sat/Sun; No fixed gill nets Jan 1 - May 31st	No more than 200 feet of net for June-Sept in DE River		Yes	10 / day limit
MD	Jan 1 - Jun 5						
DC	**CLOSED**						

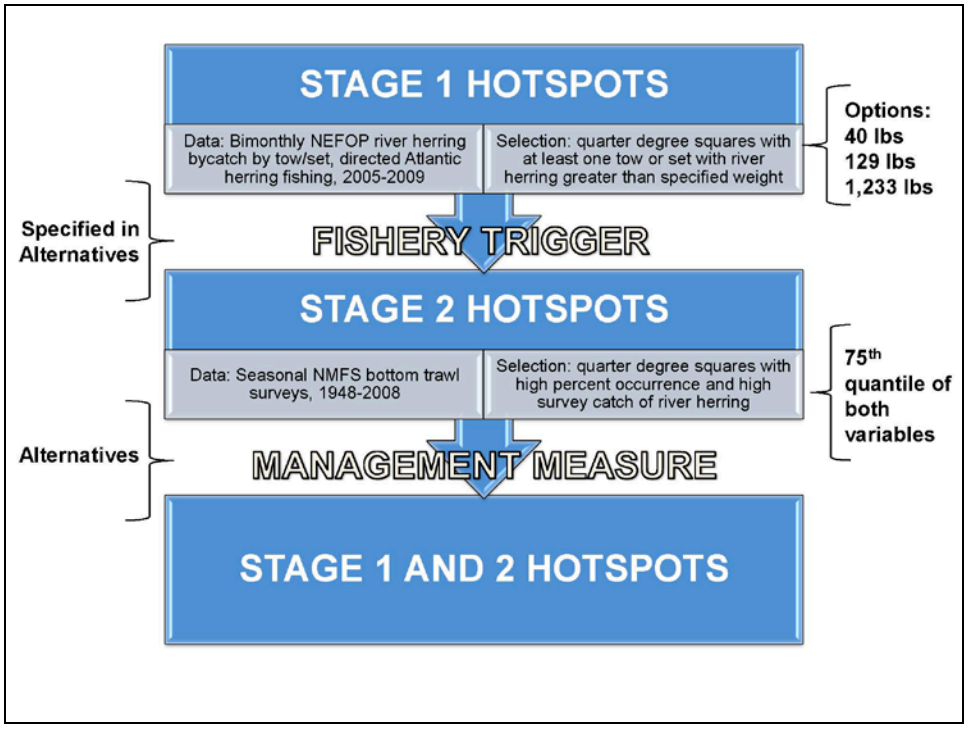
Table 6 continued - Summary of Current State Management Measures for River Herring

Commercial	Season	Area Restrictions	Time Restriction	Gear Restrictions	Reporting	License / Permit	Effort Controls
PRFC					Mandatory daily reporting	Yes	limited entry in pound net fishery
VA		for rivers flowing into NC no possession is allowed				Yes	
NC	**Moratorium since 2007; 7,500 pound research set-aside limit with license, catch and time restrictions in Chowan River**						
SC	For rivers draining into Winyah Bay: Feb 15 - Apr 15; Santee River: Feb 15 - May 1; Rediversion Canal and Tailrace Canal: Mar 1 - May 1.			Yes, varies by water body		Yes	For net fisheries in the Tailrace Canal: 10 US bushels per boat; the Santee-Cooper Lakes: 250 pounds per boat; Rediversion Canal: 10 US bushels per boat.
GA							
FL				Hook and Line only	Yes		

3.2 ALTERNATIVES TO IDENTIFY RIVER HERRING "HOTSPOTS"

Three alternatives to identify river herring hotspots were selected by the Herring Committee and the Council for further consideration in Amendment 5. All three alternatives utilize a step-wise approach to identifying hotspots, whereby a first group of hotspots (Stage 1) are identified **bimonthly** based on observer data from 2005-2009. Management measures to address river herring bycatch will apply to the Stage 1 hotspots unless a specified trigger is reached, whereby a second group of hotspots (Stage 2) would become effective. The Stage 2 hotspots are identified based on criteria applied to the entire time series of NMFS bottom trawl survey data. If the Stage 2 hotspots are triggered, the management measures to address river herring bycatch would apply to both Stage 1 and Stage 2 hotspots for the remainder of the fishing year. Figure 5 below illustrates how the alternatives for identifying hotspots are structured.

Figure 5 Schematic – Alternatives Under Consideration for Identifying River Herring Hotspots



3.2.1 Hotspot Alternative 1

Under this alternative:

Stage 1 Hotspots: Stage 1 hotspots will be identified bimonthly as quarter degree squares with at least one tow of river herring catch greater than 40 pounds, using 2005-2009 Northeast Fisheries Observer Program data from "directed herring trips" (greater than 2,000 pounds of kept Atlantic herring).

Stage 2 Hotspots: Stage 2 hotspots will be identified bimonthly based on quarter degree squares and the Herring PDT's analysis to identify candidate hotspots based on NMFS bottom trawl survey data. In this analysis, each quarter-degree square is assigned two measures of river herring catch: (1) the first measure is the probability of river herring occurrence in that square from the bottom trawl survey; (2) the second measure is a catch intensity measure, which is based on the 75^{th} percentile of survey catch in that square. A square becomes a Stage 2 hotspot if both measures are greater than the 75^{th} percentiles for the entire survey.

If this alternative is selected for identifying river herring hotspots, the Stage 1 hotspots will be established upon the implementation of Amendment 5, and management measures to address river herring bycatch (see alternatives in Section 3.3) will apply to the Stage 1 hotspots. The Stage 2 hotspots will be triggered if observer data document river herring catch greater than 40 pounds in any tow occurring in the Stage 1 hotspots. If the Stage 2 hotspots are triggered, Stage 1 hotspots will remain effective, and Stage 2 hotspots will be established as additional hotspots. The management measures to address river herring bycatch would then apply to both Stage 1 and Stage 2 hotspots for the remainder of the fishing year (see Figure 5).

Figure 6 – Figure 11 illustrate the bimonthly Stage 1 and Stage 2 hotspots that would be established under Hotspot Alternative 1.

Figure 6 Hotspot Alternative 1 – Stage 1 and Stage 2 River Herring Hotspots, January-February

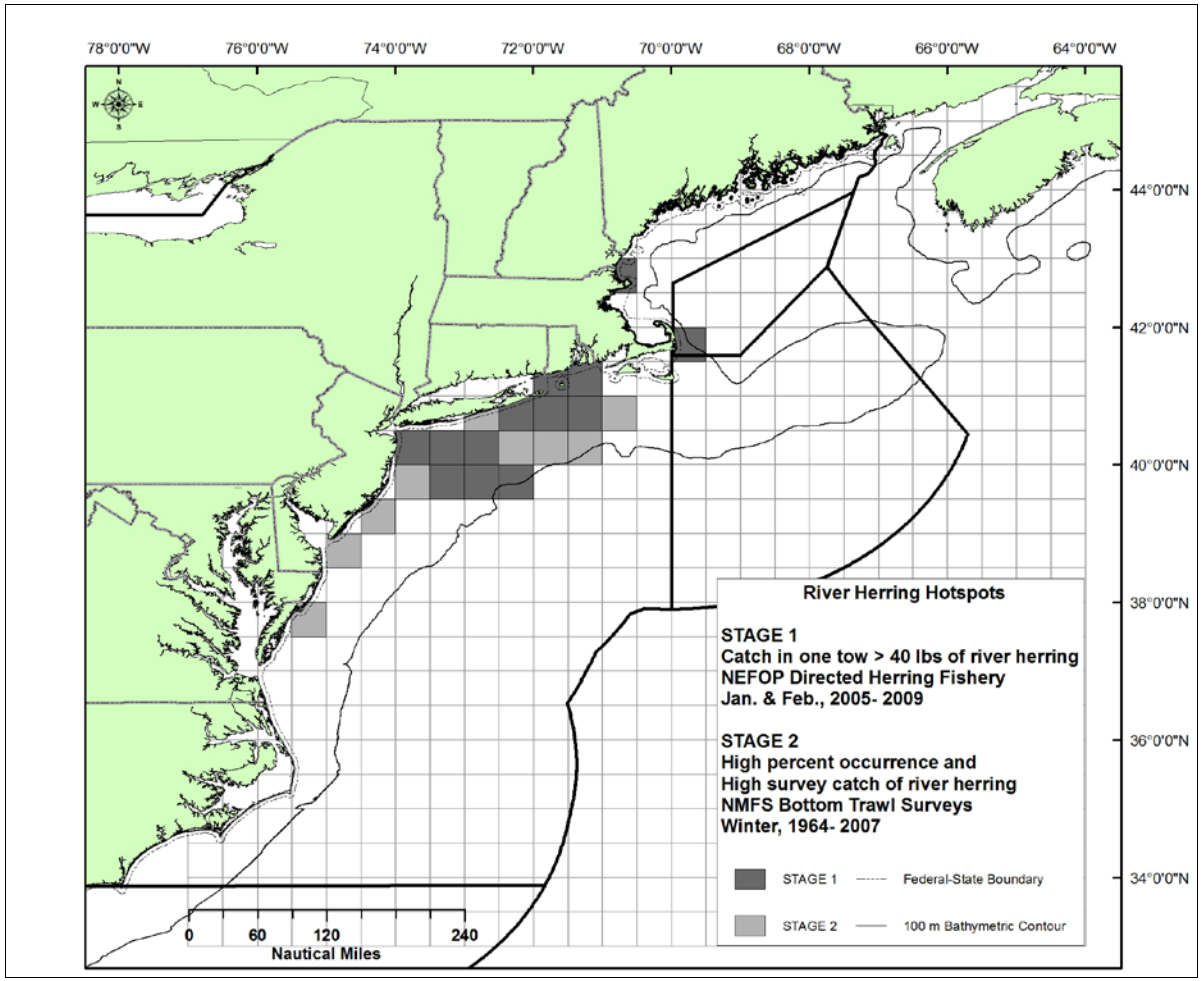


Figure 7 Hotspot Alternative 1 – Stage 1 and Stage 2 River Herring Hotspots, March-April

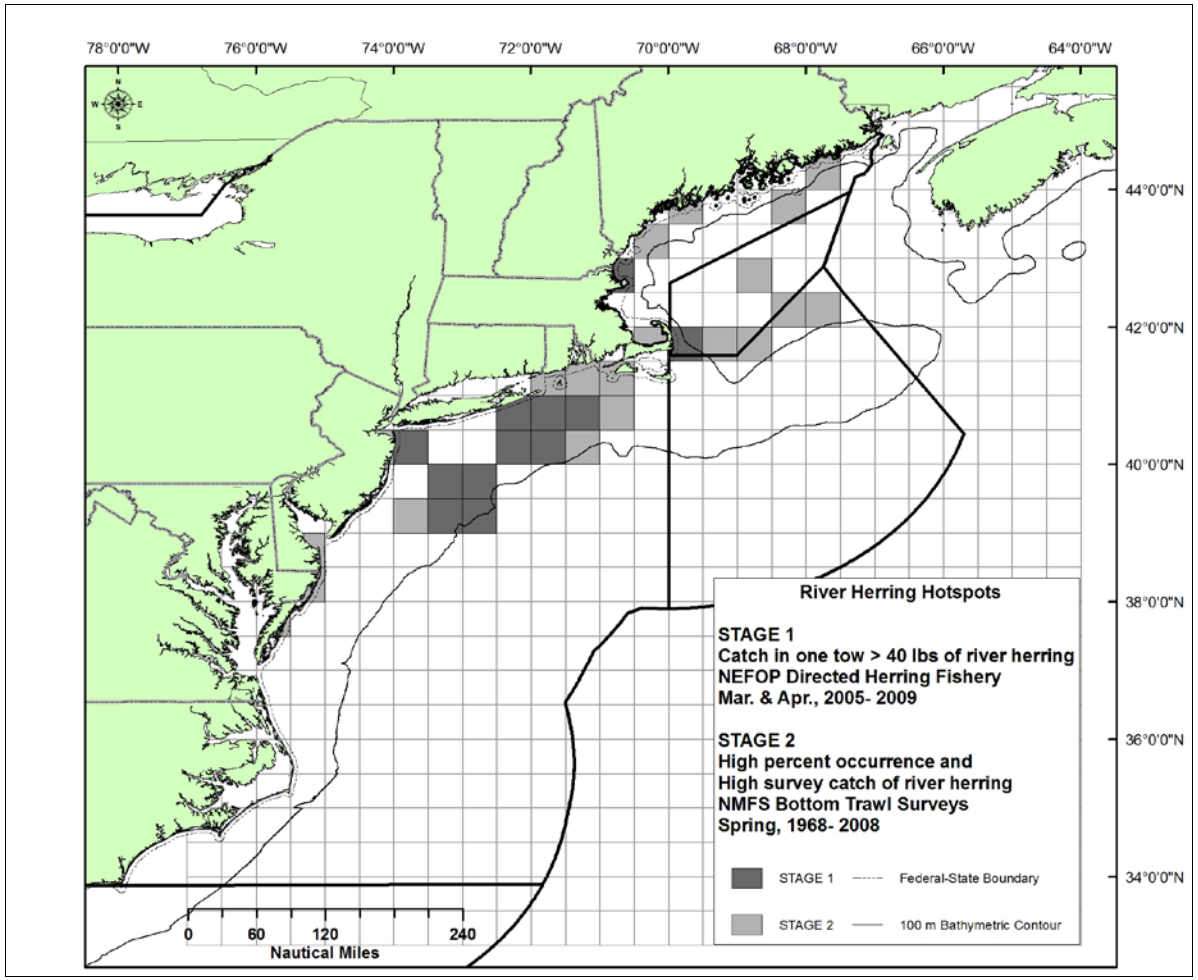


Figure 8 Hotspot Alternative 1 – Stage 1 and Stage 2 River Herring Hotspots, May-June

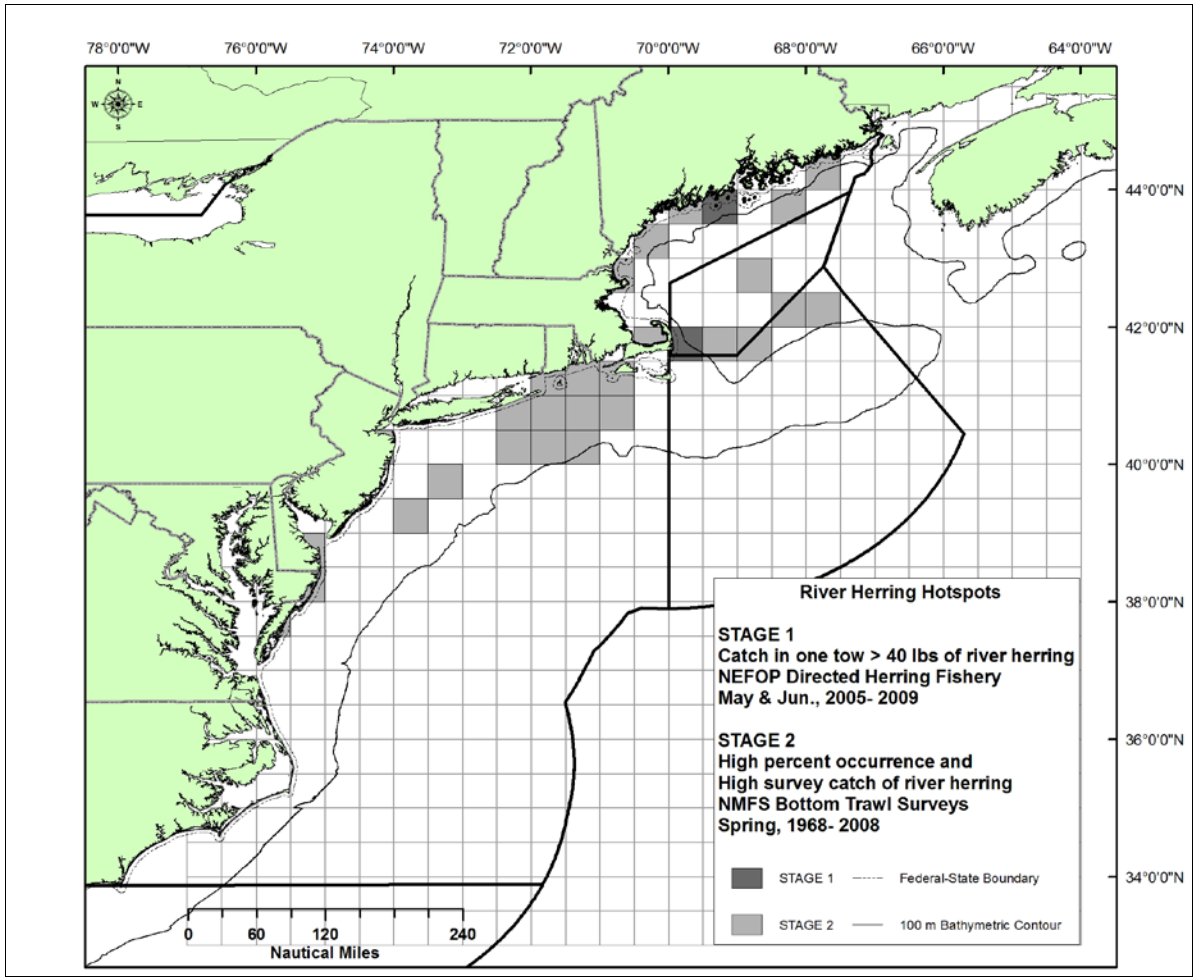


Figure 9 Hotspot Alternative 1 – Stage 1 and Stage 2 River Herring Hotspots, July-August

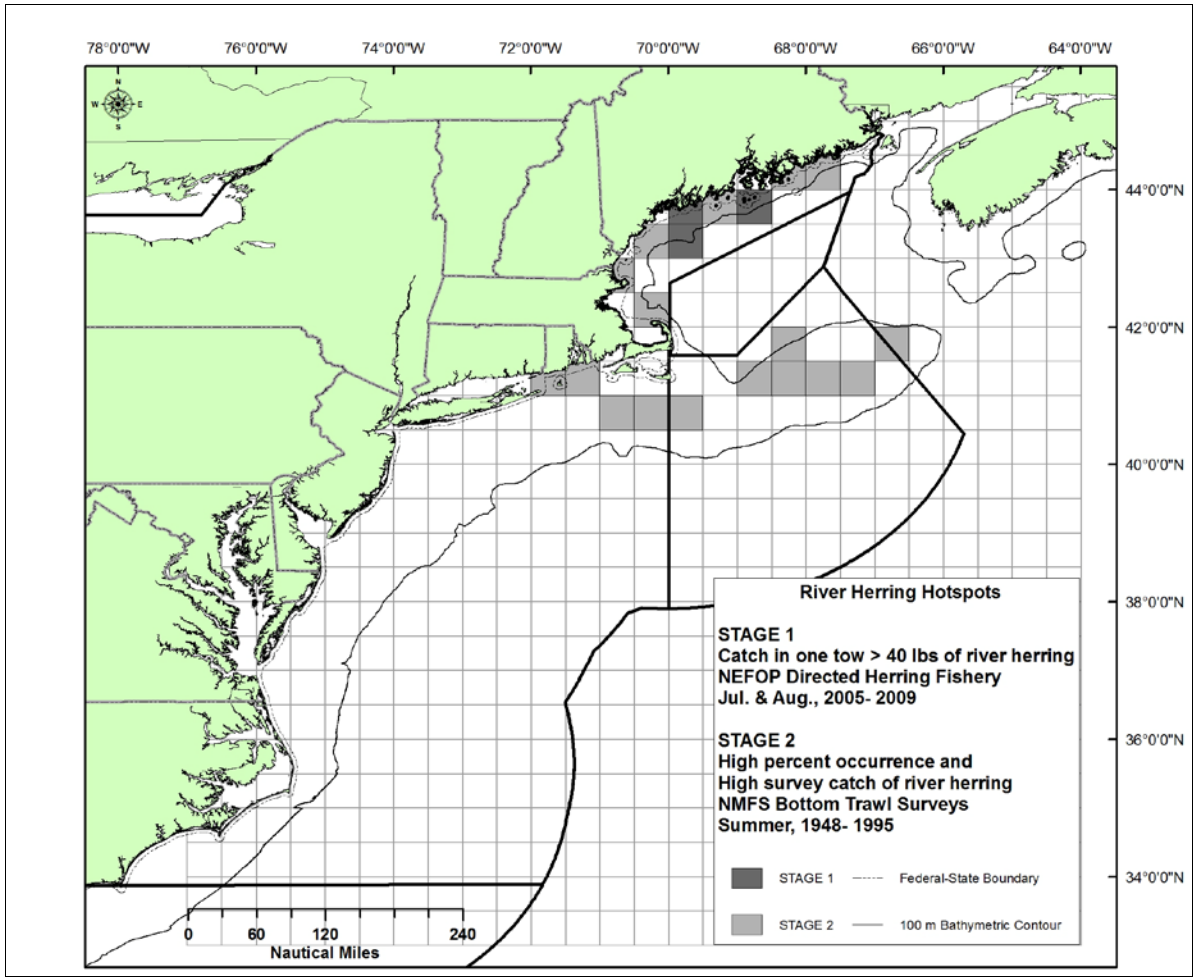


Figure 10 Hotspot Alternative 1 – Stage 1 and Stage 2 River Herring Hotspots, September-October

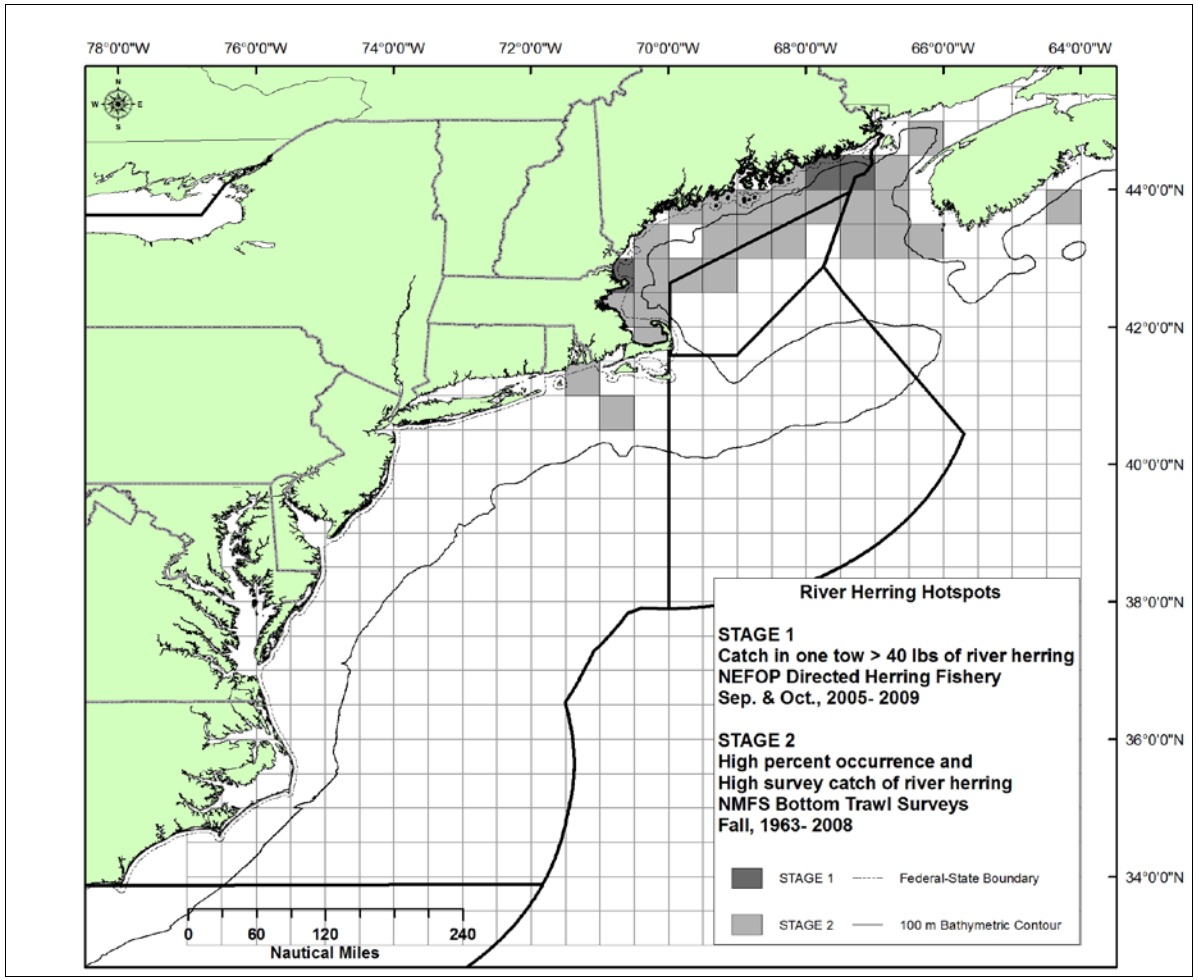
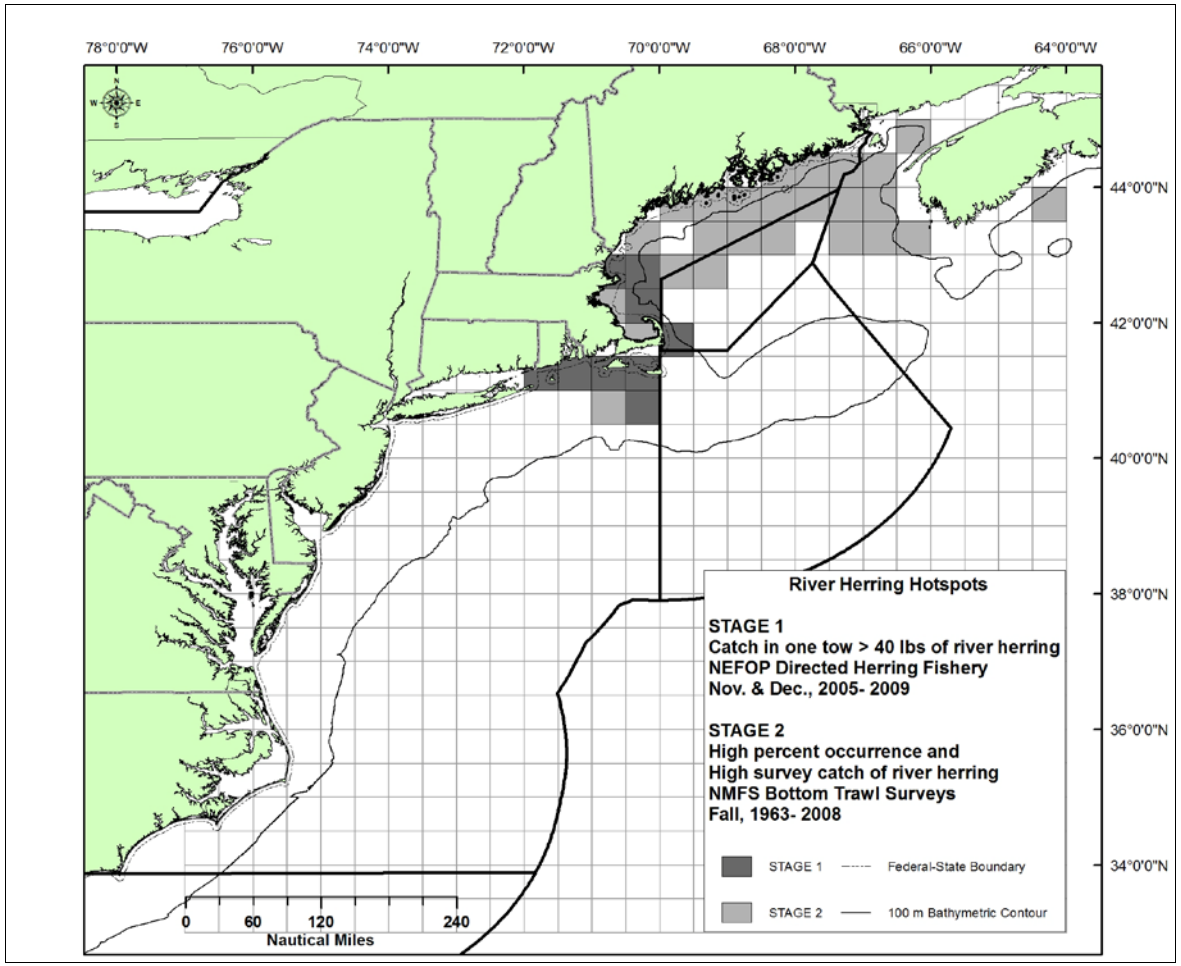


Figure 11 Hotspot Alternative 1 – Stage 1 and Stage 2 River Herring Hotspots, November-December



3.2.2 Hotspot Alternative 2

Under this alternative:

Stage 1 Hotspots: Stage 1 hotspots will be identified bimonthly as quarter degree squares with at least one tow of river herring catch greater than 129 pounds, using 2005-2009 Northeast Fisheries Observer Program data from "directed herring trips" (greater than 2,000 pounds of kept Atlantic herring).

Stage 2 Hotspots: Stage 2 hotspots will be identified bimonthly based on quarter degree squares and the Herring PDT's analysis to identify candidate hotspots based on NMFS bottom trawl survey data. In this analysis, each quarter-degree square is assigned two measures of river herring catch: (1) the first measure is the probability of river herring occurrence in that square from the bottom trawl survey; (2) the second measure is a catch intensity measure, which is based on the 75^{th} percentile of survey catch in that square. A square becomes a Stage 2 hotspot if both measures are greater than the 75^{th} percentiles for the entire survey.

If this alternative is selected for identifying river herring hotspots, the Stage 1 hotspots will be established upon the implementation of Amendment 5, and management measures to address river herring bycatch (see alternatives in Section 3.3) will apply to the Stage 1 hotspots. The Stage 2 hotspots will be triggered if observer data document river herring catch greater than 129 pounds in any tow occurring in the Stage 1 hotspots. If the Stage 2 hotspots are triggered, Stage 1 hotspots will remain effective, and Stage 2 hotspots will be established as additional hotspots. The management measures to address river herring bycatch would then apply to both Stage 1 and Stage 2 hotspots for the remainder of the fishing year (see Figure 5).

Figure 12 – Figure 17 illustrate the bimonthly Stage 1 and Stage 2 hotspots that would be established under Hotspot Alternative 2.

Figure 12 Hotspot Alternative 2 – Stage 1 and Stage 2 River Herring Hotspots, January-February

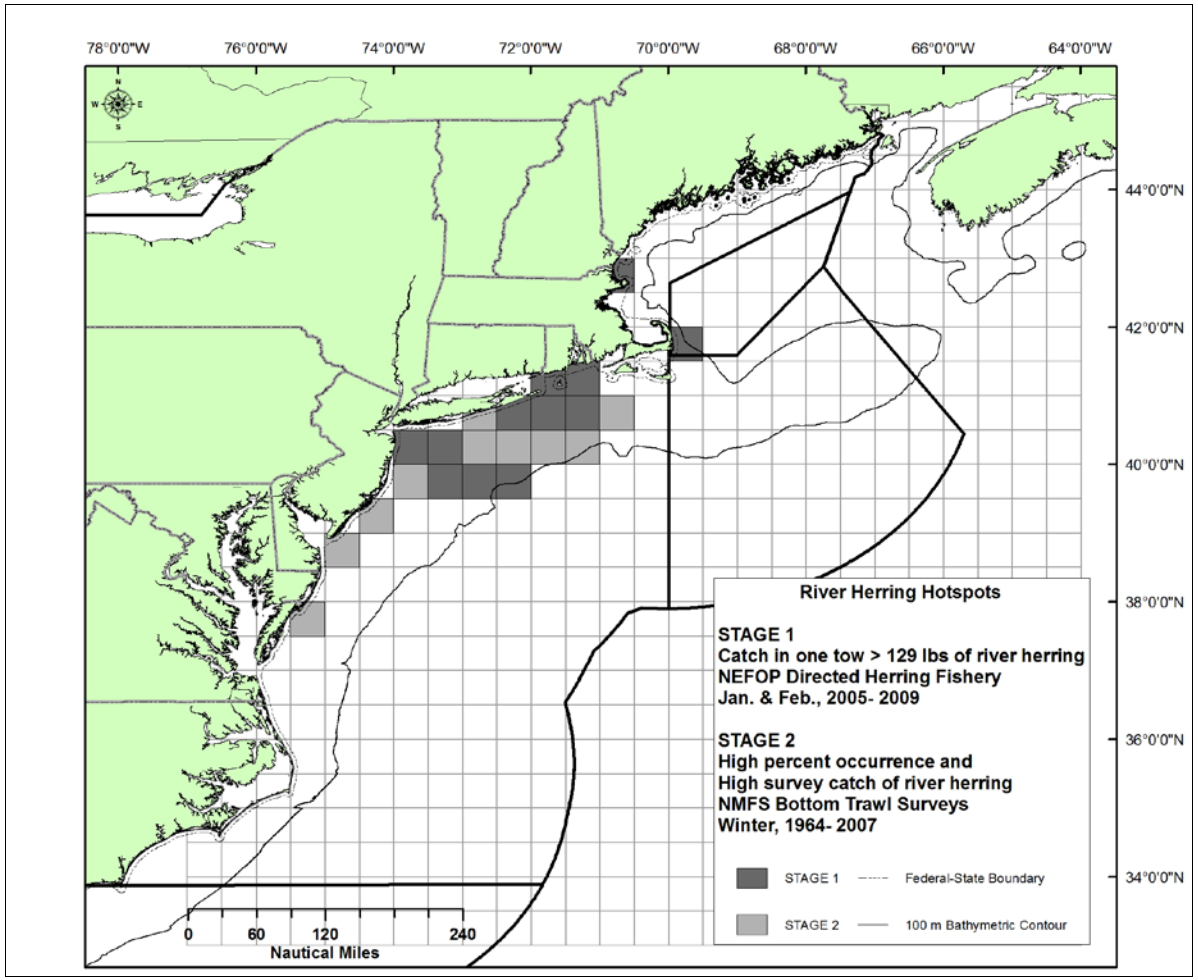


Figure 13 Hotspot Alternative 2 – Stage 1 and Stage 2 River Herring Hotspots, March-April

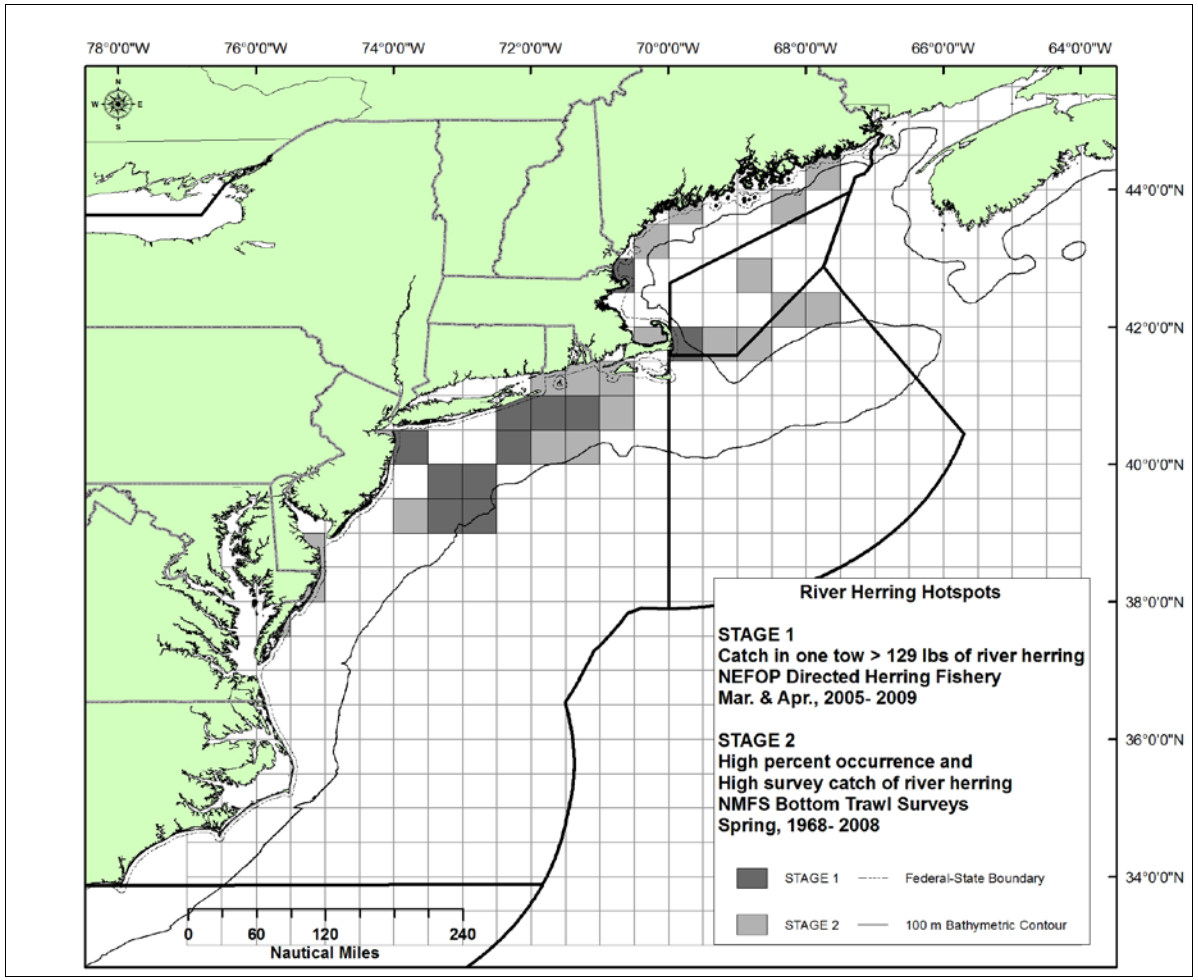


Figure 14 Hotspot Alternative 2 – Stage 1 and Stage 2 River Herring Hotspots, May-June

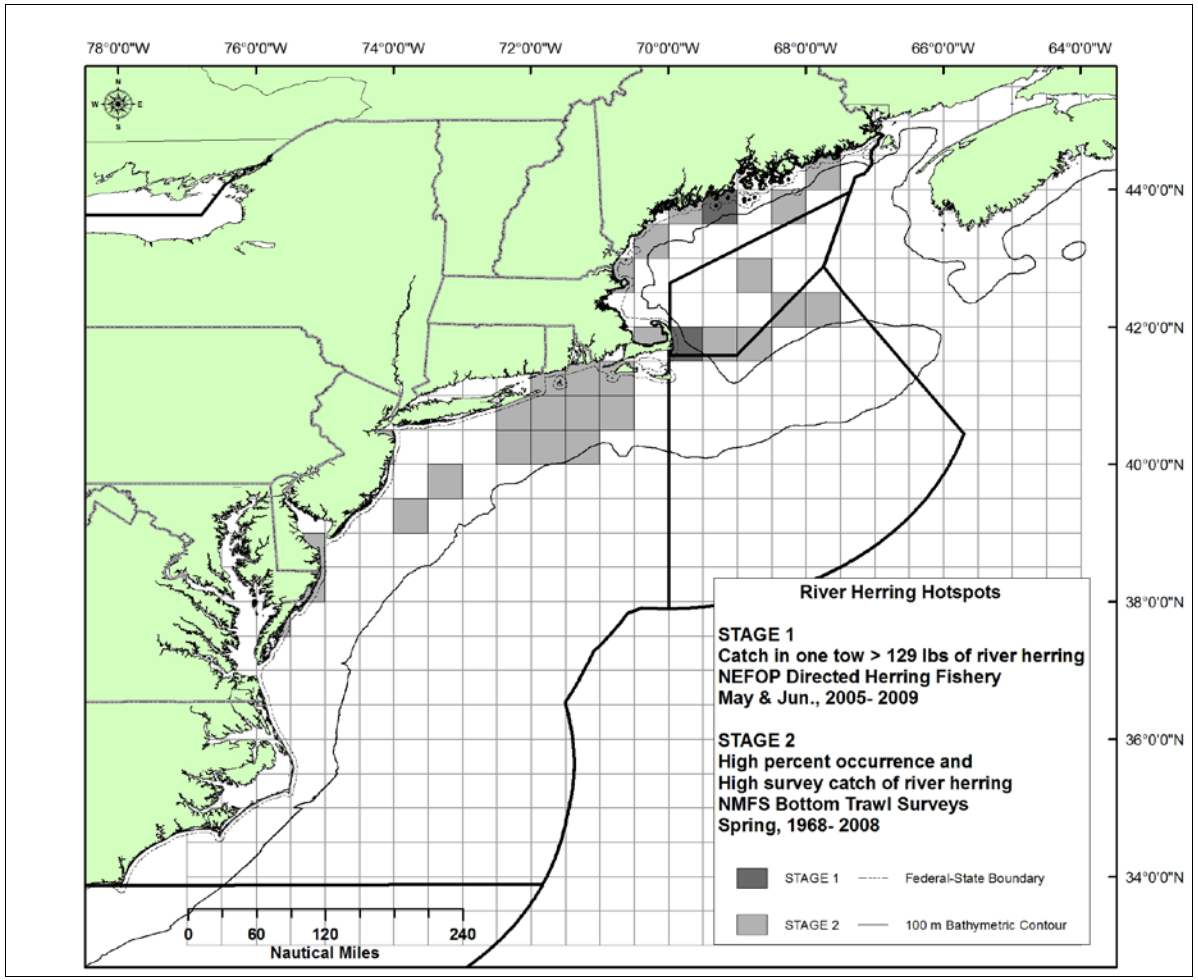


Figure 15 Hotspot Alternative 2 – Stage 1 and Stage 2 River Herring Hotspots, July-August

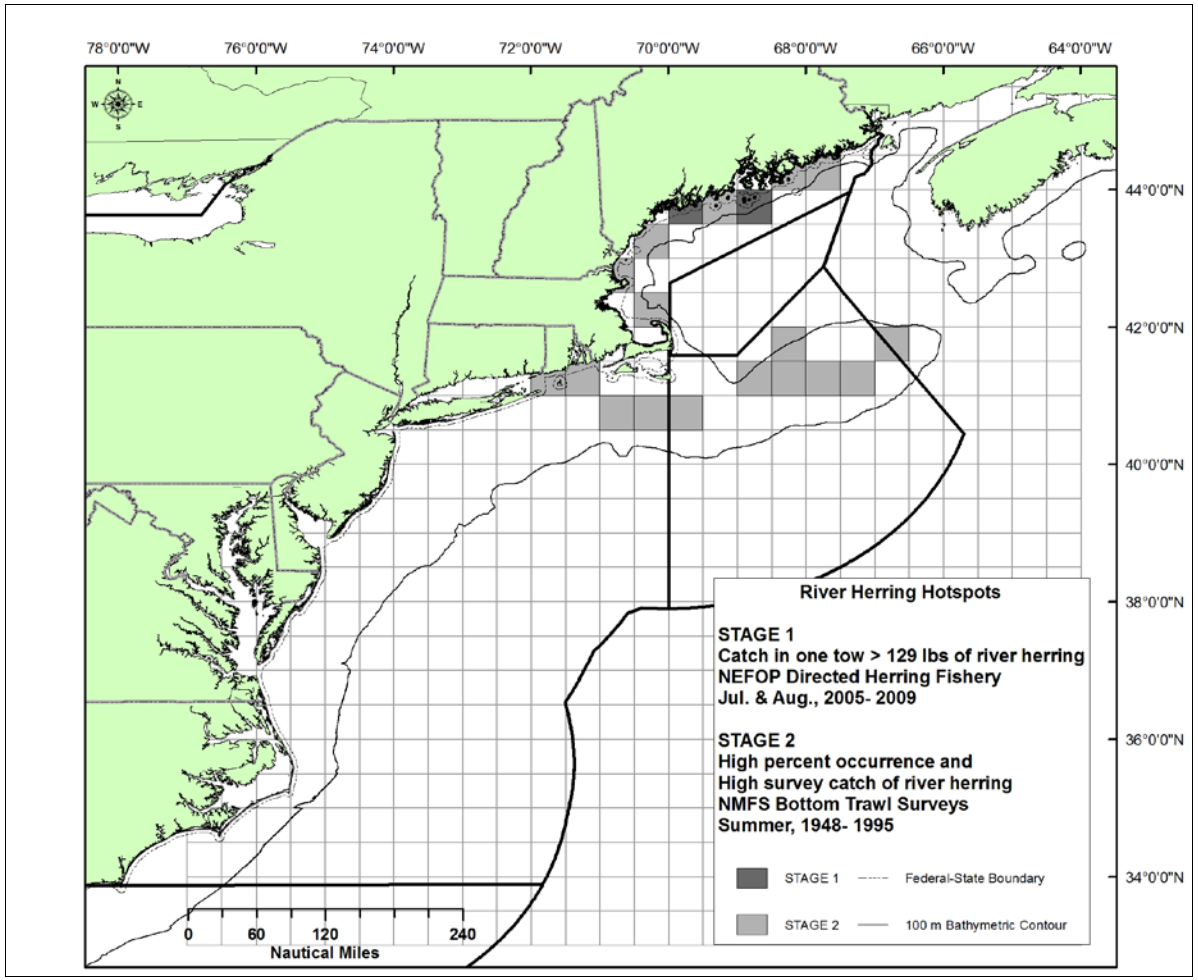


Figure 16 Hotspot Alternative 2 – Stage 1 and Stage 2 River Herring Hotspots, September-October

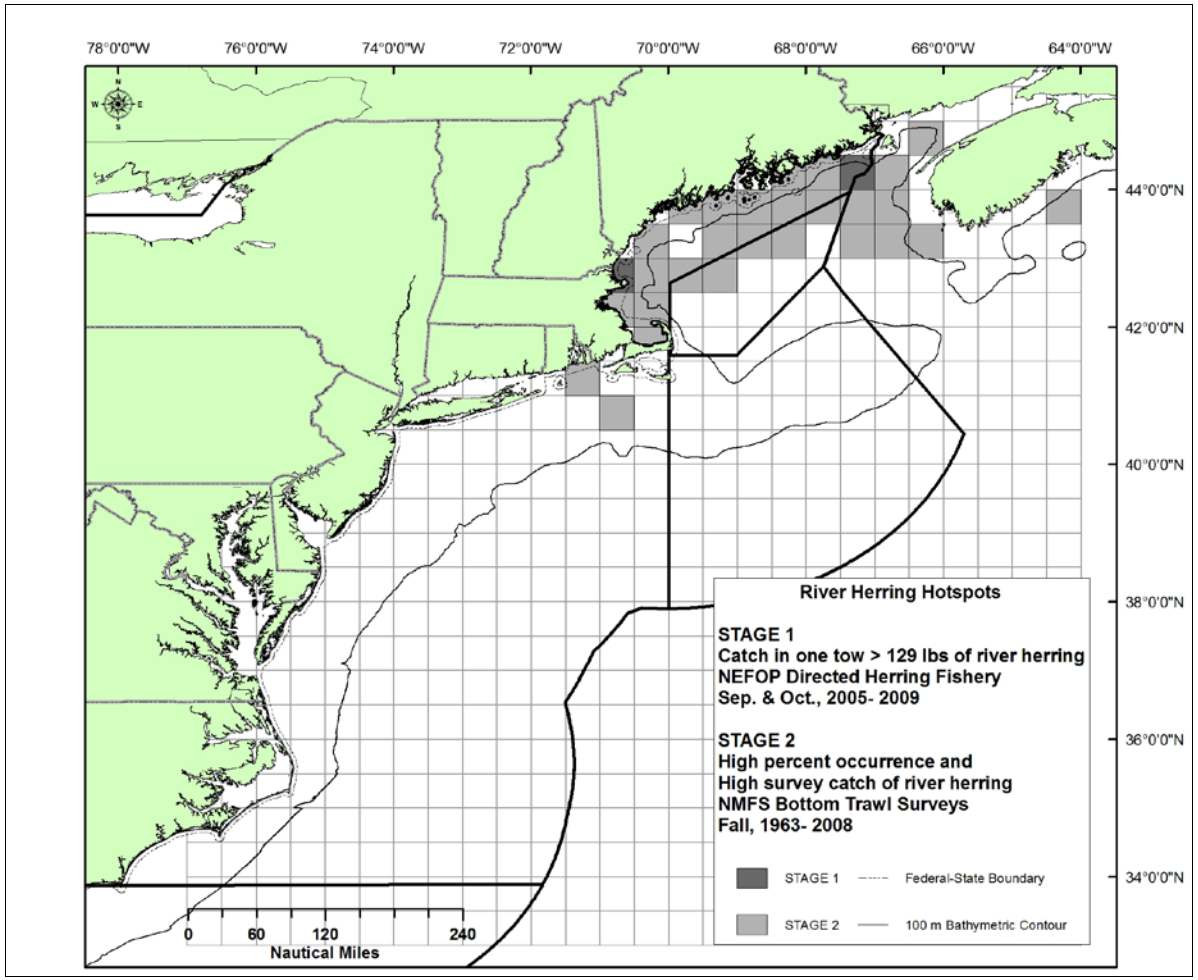
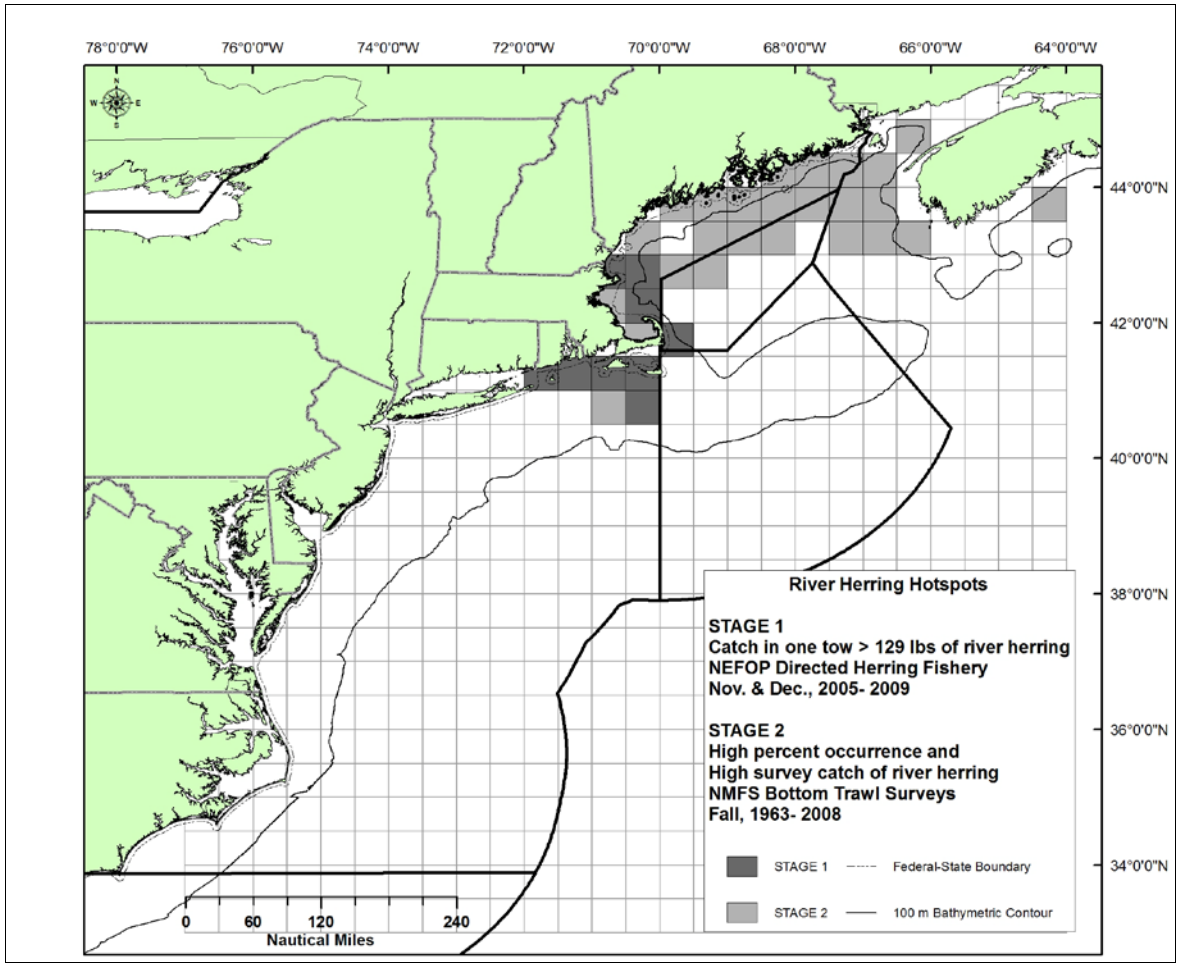


Figure 17 Hotspot Alternative 2 – Stage 1 and Stage 2 River Herring Hotspots, November-December



3.2.3 Hotspot Alternative 3

Under this alternative:

Stage 1 Hotspots: Stage 1 hotspots will be identified bimonthly as quarter degree squares with at least one tow of river herring catch greater than 1,233 pounds, using 2005-2009 Northeast Fisheries Observer Program data from "directed herring trips" (greater than 2,000 pounds of kept Atlantic herring).

Stage 2 Hotspots: Stage 2 hotspots will be identified bimonthly based on quarter degree squares and the Herring PDT's analysis to identify candidate hotspots based on NMFS bottom trawl survey data. In this analysis, each quarter-degree square is assigned two measures of river herring catch: (1) the first measure is the probability of river herring occurrence in that square from the bottom trawl survey; (2) the second measure is a catch intensity measure, which is based on the 75th percentile of survey catch in that square. A square becomes a Stage 2 hotspot if both measures are greater than the 75th percentiles for the entire survey.

If this alternative is selected for identifying river herring hotspots, the Stage 1 hotspots will be established upon the implementation of Amendment 5, and management measures to address river herring bycatch (see alternatives in Section 3.3) will apply to the Stage 1 hotspots. The Stage 2 hotspots will be triggered if observer data document river herring catch greater than 1,233 pounds in any tow occurring in the Stage 1 hotspots. If the Stage 2 hotspots are triggered, Stage 1 hotspots will remain effective, and Stage 2 hotspots will be established as additional hotspots. The management measures to address river herring bycatch would then apply to both Stage 1 and Stage 2 hotspots for the remainder of the fishing year (see Figure 5).

Figure 18 – Figure 21 illustrate the bimonthly Stage 1 and Stage 2 hotspots that would be established under Hotspot Alternative 3. Note that no hotspots are identified for May-June or July-August under this alternative because there were no observed tows with greater than 1,233 pounds of river herring from 2005-2009 during those months.

Figure 18 Hotspot Alternative 3 – Stage 1 and Stage 2 River Herring Hotspots, January-February

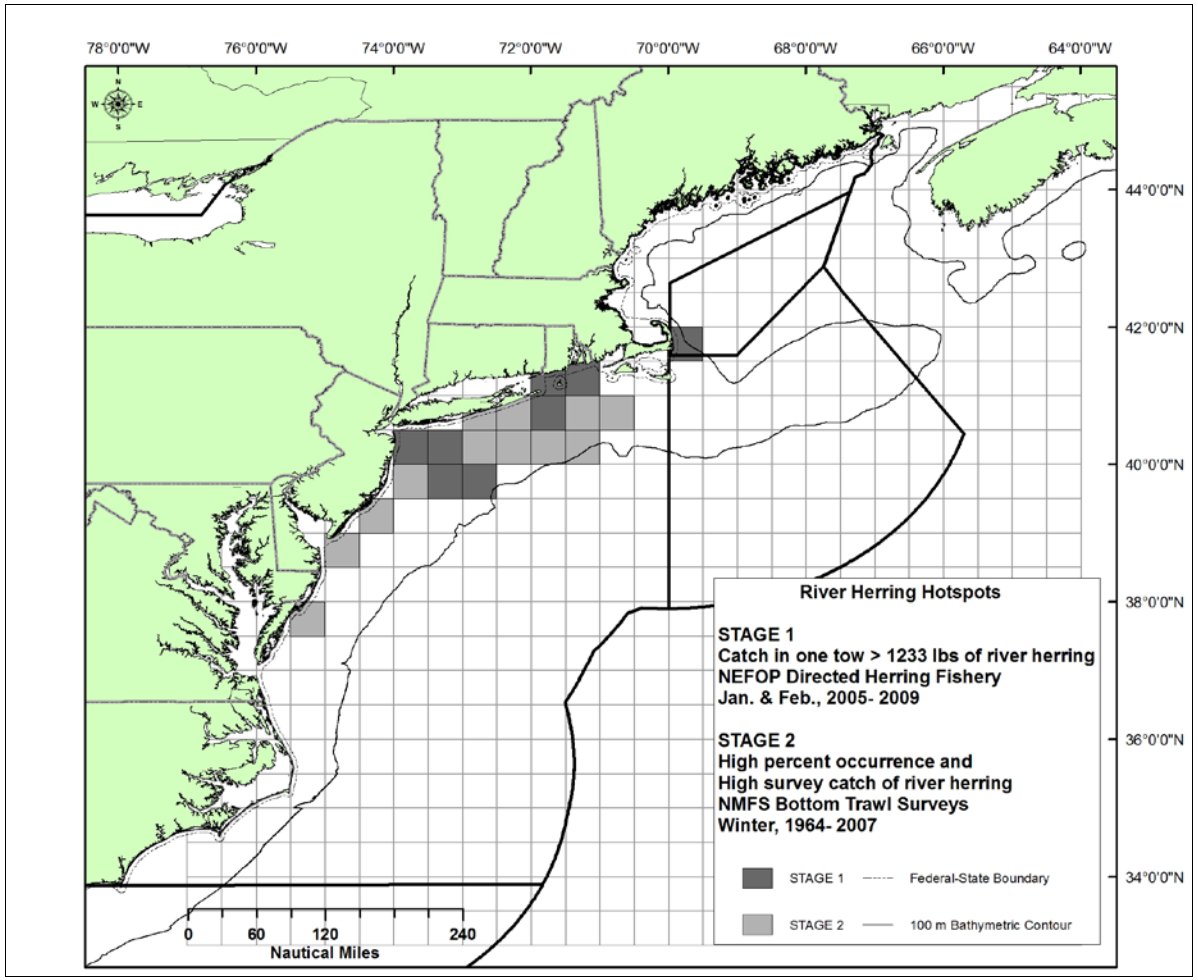


Figure 19 Hotspot Alternative 3 – Stage 1 and Stage 2 River Herring Hotspots, March-April

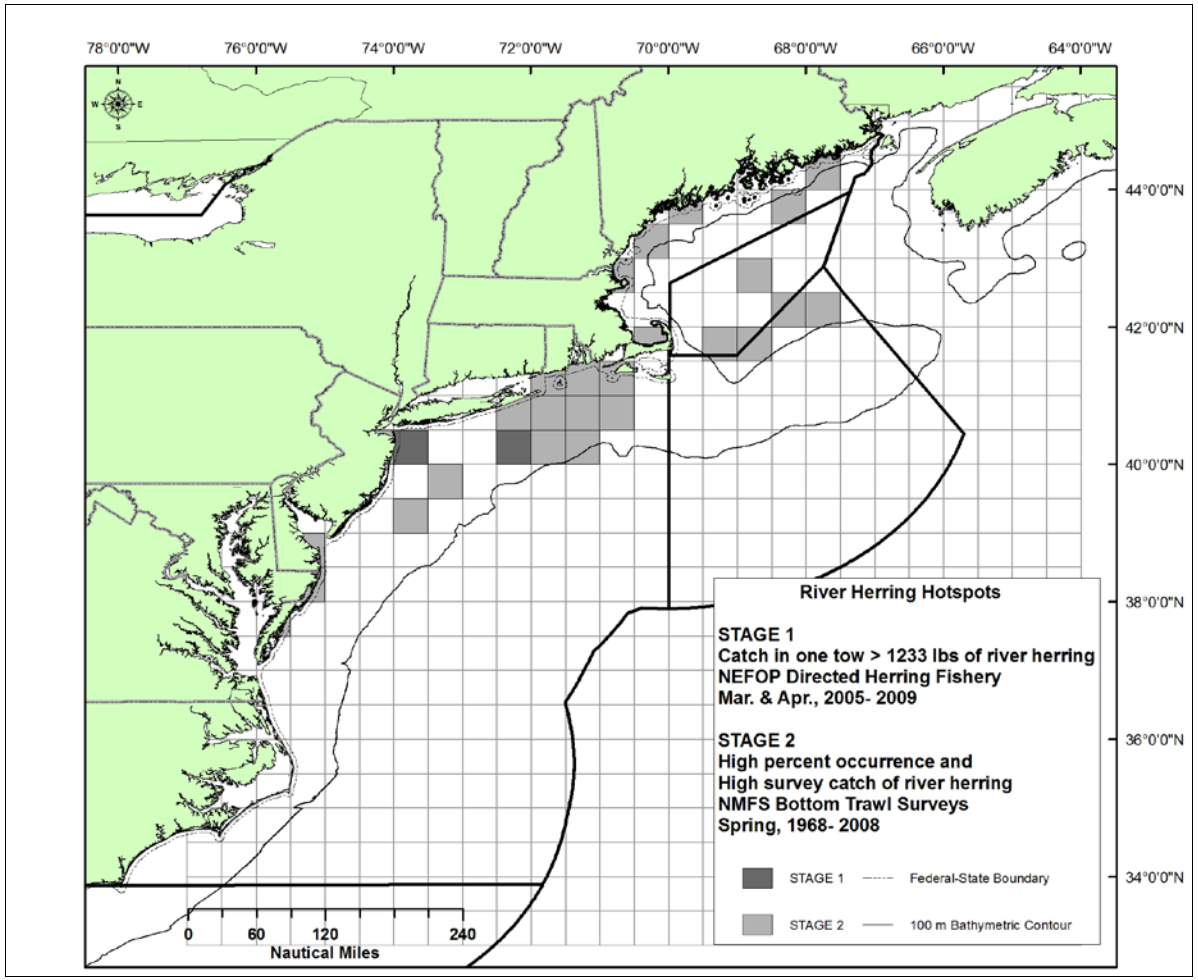


Figure 20 Hotspot Alternative 3 – Stage 1 and Stage 2 River Herring Hotspots, September-October

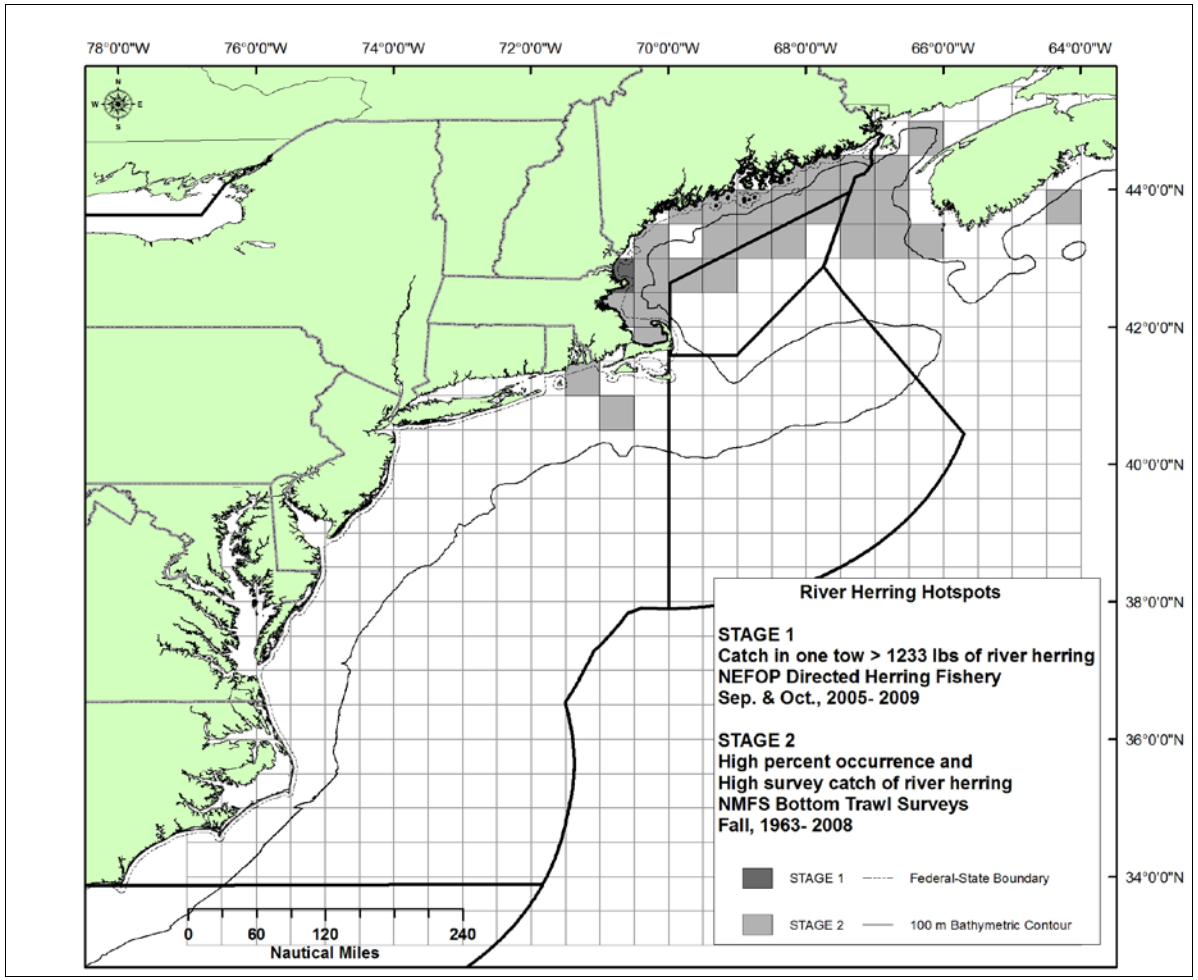
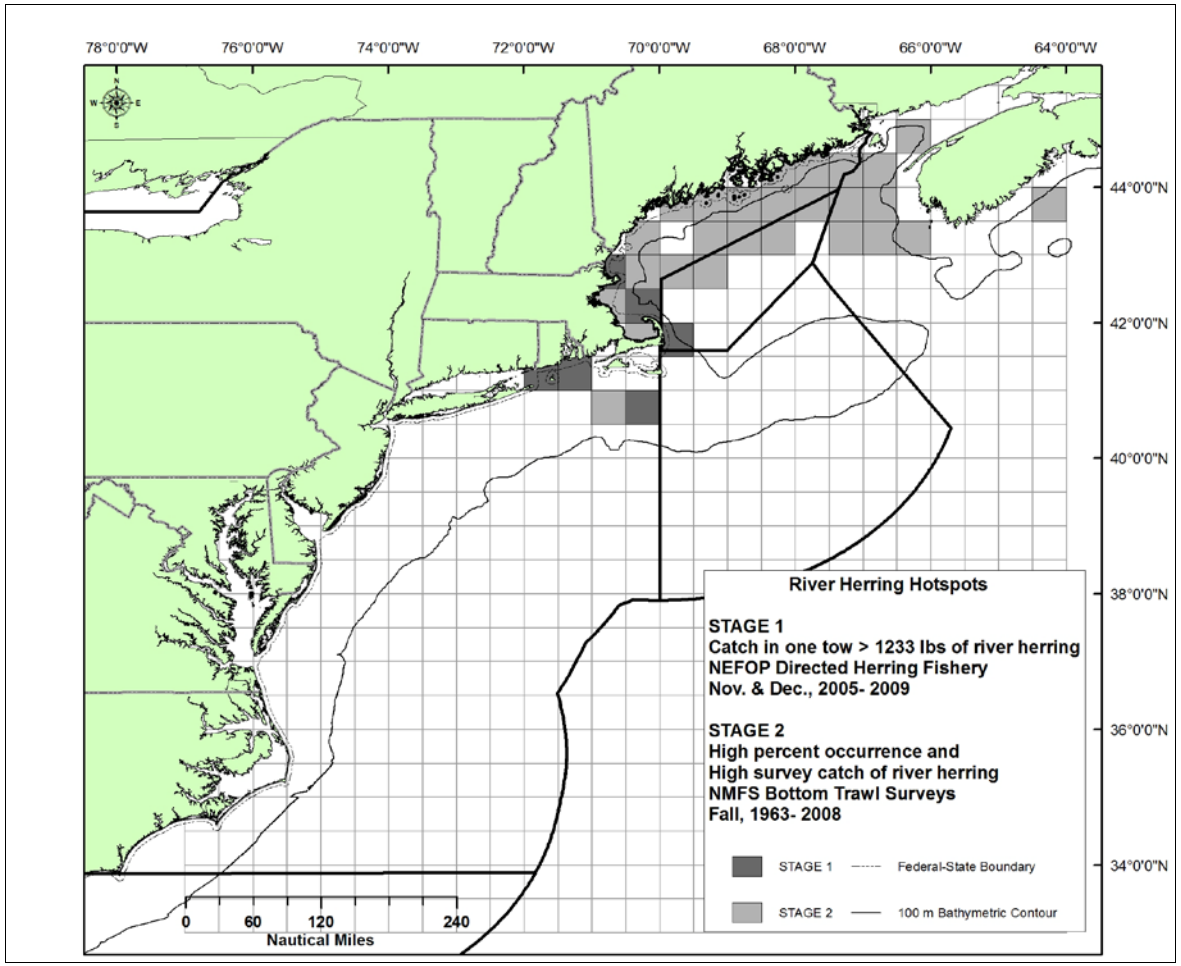


Figure 21 Hotspot Alternative 3 – Stage 1 and Stage 2 River Herring Hotspots, November-December



3.3 MANAGEMENT ALTERNATIVES UNDER CONSIDERATION TO APPLY TO RIVER HERRING HOTSPOTS

Several alternatives are under consideration regarding management measures that would apply in the river herring hotspots that are identified in Amendment 5. The following provisions would also apply:

- With the exception of RH Alternative 8 (closed areas), all management measures to address river herring bycatch that are established in Amendment 5 would apply to:
  - **Option 1: Limited Access Category A, B, and C vessels when on a declared herring trip, or**
  - **Option 2: All herring vessels – Categories A, B, C, and D.**
- Transfers at sea would be prohibited on any trip in a river herring hotspot.
- Modifications to management measures established in Amendment 5 to address river herring bycatch can be implemented in the future through a framework adjustment to the Atlantic Herring FMP.

Comment [lls34]: August 2010 – Herring AP recommends that all measures to address river herring bycatch apply to Category A, B, C, and D vessels

The measures proposed in this section would apply to the Stage 1 hotspots upon the implementation of Amendment 5, and to the Stage 1 and Stage 2 hotspots during any fishing year that the Stage 2 hotspot trigger is reached (see Hotspot Alternatives described in previous section).

3.3.1 RH Alternative 1 – Catch Monitoring (No Action)

This alternative essentially represents the "no action" alternative for the river herring hotspots. Action would presumably be taken in this amendment to establish a catch monitoring program for the herring fishery, but no additional management measures would be implemented in the river herring hotspots if hotspots are identified.

Under this alternative, management measures in Amendment 5 would be focused on collecting more/better information and would be incorporated into the catch monitoring program. Measures to address river herring bycatch may include but are not limited to:

- Observer coverage;
- Measures to maximize sampling and address net slippage;
- Maximized retention; and
- Portside sampling program.

3.3.2 RH Alternative 2 – Apply Closed Area 1 Final Rule Provisions

This alternative would apply management measures in river herring hotspots similar to those for herring vessel access to Closed Area 1 based on the Final Rule for the Closed Area 1 provisions, published on November 2, 2009. Under this alternative, the following provisions would apply to herring vessels fishing in the river herring hotspots:

- Vessels would be required to carry a NMFS-approved observer on any trip where fishing may occur in the river herring hotspots. Vessels would be required to indicate their intention to fish in the river herring hotspots when scheduling an observer through the pre-trip call-in notification system. To ensure 100% coverage, vessels would be prohibited from fishing in the hotspots without an observer on board.
- Vessels would be required to pump aboard all fish from the net for inspection and sampling by the observer. Vessels that do not pump fish would be required to bring all fish aboard the vessel for inspection and sampling by the observer. Unless specific conditions are met (see below), vessels would be prohibited from releasing fish from the net, transferring fish to another vessel that is not carrying a NMFS-approved observer, or otherwise discarding fish at sea, unless the fish have first been brought aboard the vessel and made available for sampling and inspection by the observer.
- Vessels may make short test tows in the area to check the abundance of target and bycatch species without pumping the fish on board if the net is reset without releasing the contents of the test tow. In this circumstance, catch from the test tow would remain in the net and would be available to the observer to sample when the subsequent tow is pumped out.
- The above prohibition on releasing fish/discarding would not extend to fish that cannot be pumped and that remain in the net at the end of pumping operations. Observer protocols include documenting fish that remain in the net before they are released, and existing regulations require vessel operators to assist the observer in this process. Additional measures are being considered in this amendment to improve this process (see Section 2.7.2 of this document).
- Fish that have not been pumped aboard may be released if the vessel operator finds that:
  1. pumping the catch could compromise the safety of the vessel;
  2. mechanical failure precludes bringing some or all of the catch aboard the vessel; or
  3. spiny dogfish have clogged the pump and consequently prevent pumping of the rest of the catch.
- If the net is released for any of the reasons stated above, the vessel operator would be required to complete and sign a Released Catch Affidavit providing information about where, when, and why the net was released, as well as a good-faith estimate of the total weight of fish caught on the tow and weight of fish released. The Released Catch Affidavit must be submitted within 48 hours of completion of the fishing trip.
- Following the release of the net for one of the three exemptions specified above, the vessel would be required to exit the river herring hotspot. The vessel may continue to fish but may not fish in the hotspots for the remainder of the trip.

Comment [lls35]: Unclear how this applies to purse seine vessels

Comment [lls36]: Would require D permit holders to use pre-trip call-in notification system?

3.3.3 RH Alternative 3 – Apply Closed Area 1 Final Rule Provisions with Less than 100% Observer Coverage

This alternative would apply management measures in river herring hotspots similar to those for herring vessel access to Closed Area 1 based on the Final Rule for the Closed Area 1 provisions, published on November 2, 2009, with the exception of the requirement for 100% observer coverage in the areas. Under this alternative, the following provisions would apply to herring vessels fishing in the river herring hotspots only on trips when a NMFS-approved observer is on board the vessel:

- Vessels would be required to indicate their intention to fish in the river herring hotspots when scheduling an observer through the pre-trip call-in notification system but would not be prohibited from fishing in the hotspots if an observer is not deployed.
- On trips when an observer is deployed, vessels would be required to pump aboard all fish from the net for inspection and sampling by the observer. On trips with an observer on board, vessels that do not pump fish would be required to bring all fish aboard the vessel for inspection and sampling by the observer. Unless specific conditions are met (see below), vessels would be prohibited from releasing fish from the net, transferring fish to another vessel that is not carrying a NMFS-approved observer, or otherwise discarding fish at sea, unless the fish have first been brought aboard the vessel and made available for sampling and inspection by the observer.
- Vessels may make short test tows in the area to check the abundance of target and bycatch species without pumping the fish on board if the net is reset without releasing the contents of the test tow. In this circumstance, catch from the test tow would remain in the net and would be available to the observer to sample when the subsequent tow is pumped out.
- The above prohibition on releasing fish/discarding would not extend to fish that cannot be pumped and that remain in the net at the end of pumping operations. Observer protocols include documenting fish that remain in the net before they are released, and existing regulations require vessel operators to assist the observer in this process. Additional measures are being considered in this amendment to improve this process (see Section 2.7.2 of this document).
- Fish that have not been pumped aboard may be released if the vessel operator finds that:
  1. pumping the catch could compromise the safety of the vessel;
  2. mechanical failure precludes bringing some or all of the catch aboard the vessel; or
  3. spiny dogfish have clogged the pump and consequently prevent pumping of the rest of the catch.
- If the net is released for any of the reasons stated above, the vessel operator would be required to complete and sign a Released Catch Affidavit providing information about where, when, and why the net was released, as well as a good-faith estimate of the total weight of fish caught on the tow and weight of fish released. The Released Catch Affidavit must be submitted within 48 hours of completion of the fishing trip.
- Following the release of the net for one of the three exemptions specified above, the vessel would be required to exit the river herring hotspot. The vessel may continue to fish but may not fish in the hotspots for the remainder of the trip.

Comment [lls37]: Unclear how this applies to purse seine vessels

Comment [lls38]: Would require D permit holders to use pre-trip call-in notification system?

3.3.4 RH Alternative 4 – Move Along Rule with 100% Observer Coverage

This alternative would be based on the "move-along" elements of the CCAMLR rule, with a requirement for 100% observer coverage (NEFOP or other NMFS-approved observers) in the hotspots to monitor river herring catch. A trip-level threshold for river herring catch (kept and discarded) would be established (see options below). Following each fishing trip that occurs in a river herring hotspot, the observer would calculate river herring catch and would communicate that information to NMFS. If NMFS determines that the threshold has been exceeded, NMFS would notify the herring vessels through VMS/email that the move-along rule has been triggered. In addition, if the move-along rule is triggered and the hotspot area closes, vessel operators would be alerted about the closure when calling the pre-trip notification system to indicate their intention to fish in the hotspot on their upcoming trip.

1. Vessels would be required to carry a NMFS-approved observer on any trip where fishing may occur in the river herring hotspots. Vessels would be required to indicate their intention to fish in the river herring hotspots when scheduling an observer through the pre-trip call-in notification system. To ensure 100% coverage, herring vessels would be prohibited from fishing in the hotspots without an observer on board.
2. If, on any observed trip in the river herring hotspot, the bycatch of *river herring (blueback herring and alewife)* is equal to, or greater than XXX pounds (see options in Table 7), then all herring permit holders subject to this rule shall not fish in the hotspot for a period of at least XXX days (see options in Table 7). The hotspot to be closed will be defined by the quarter degree squares where the trigger was reached. All herring fishing operations must cease in the closed hotspot(s) on the date/time established by NMFS.
3. Notification of a move-along from the river herring hotspot will be provided by NMFS through VMS to all herring vessels subject to this rule. Enforcement will utilize VMS data to track herring vessel activity.

Comment [lls39]: Would require D permit holders to use pre-trip call-in notification system?

Comment [lls40]: Council should consider whether American shad and hickory shad should be included as well

Comment [lls41]: Notification process in the move along rules not clear for D vessels that may not have VMS on board and are not currently included in the pre-trip notification program

Table 7 Move-Along Options Under Consideration

Options for River Herring Trip-Level Thresholds	Options for Move-Along (Closure) Time Periods
50 pounds/trip	Seven days (one week)
500 pounds/trip	Fourteen days (two weeks)
2,000 pounds/trip	

3.3.5 RH Alternative 5 – Move Along Rule with Less Than 100% Observer Coverage

This alternative would be based on the "move-along" elements of the CCAMLR rule, *without* a requirement for 100% observer coverage in the hotspots to monitor river herring catch. Vessels would be required to indicate their intention to fish in the river herring hotspots when scheduling an observer through the pre-trip call-in notification system but would not be prohibited from fishing in the hotspots if an observer is not deployed on a particular trip. Priority would be placed, to the extent possible, on deploying (NEFOP or other NMFS-approved) observers on trips that may fish in the river herring hotspots.

A trip-level threshold for river herring catch (kept and discarded) would be established. The threshold would only apply on trips with observers on board. (If the threshold triggers a move-along rule, the move-along rule would apply to the entire fleet.) Following each observed trip that occurs in a river herring hotspot, the observer would calculate river herring catch and would communicate that information to NMFS. If NMFS determines that the threshold has been exceeded, NMFS would notify the herring vessels through VMS/email that the move-along rule has been triggered. In addition, if the move-along rule is triggered and the hotspot area closes, vessel operators would be alerted about the closure when calling the pre-trip notification system to indicate their intention to fish in the hotspot on their upcoming trip.

1. Vessels would be required to indicate their intention to fish in the river herring hotspots when scheduling an observer through the pre-trip call-in notification system but would not be prohibited from fishing in the hotspots if an observer is not deployed.
2. If, on any observed trip in the river herring hotspot, the bycatch of *river herring (blueback herring and alewife)* is equal to, or greater than XXX pounds (see options in Table 8), then all herring permit holders subject to this rule shall not fish in the hotspot for a period of at least XXX days (see options in Table 8). The hotspot to be closed will be defined by the quarter degree squares where the trigger was reached. All herring fishing operations must cease in the closed hotspot(s) on the date/time established by NMFS.
3. Notification of a move-along from the river herring hotspot will be provided by NMFS through VMS to all herring vessels subject to this rule. Enforcement will utilize VMS data to track herring vessel activity.

Comment [lls42]: Would require D permit holders to use pre-trip call-in notification system?

Comment [lls43]: Council should consider whether American shad and hickory shad should be included as well

Comment [lls44]: Notification process in the move along rules not clear for D vessels that may not have VMS on board and are not currently included in the pre-trip notification program

Table 8 Move-Along Options Under Consideration

Options for River Herring Trip-Level Thresholds	Options for Move-Along (Closure) Time Periods
50 pounds/trip	Seven days (one week)
500 pounds/trip	Fourteen days (two weeks)
2,000 pounds/trip	

3.3.6 RH Alternative 6 – Implement SFC-Based Program through a Framework Adjustment

This alternative would implement a river herring bycatch avoidance program in the future through a framework adjustment to the Atlantic Herring FMP. The program would be based on information provided by the SFC Bycatch Avoidance Program and would consider the recommendations of the industry and researchers involved in this cooperative project. The intent would be to begin developing the framework adjustment as soon as possible after completion of the SFC research program. Elements that could be specified in the management action include:

- The mechanism and process for tracking fleet activity, reporting bycatch events, compiling data, and notifying the fleet of changes to the hotspot area(s);
- The definition/duration of "test tows," if test tows would be utilized to determine the extent of river herring bycatch in a particular area(s);
- The threshold for river herring bycatch that would trigger the need for vessels to be alerted and move out of the area(s);
- The distance that vessels would be required to move from the area(s); and
- The time that vessels would be required to remain out of the area(s).

The SFC proposal has received funding, and the project is scheduled to begin as soon as possible, with the interactive communication program with the fishery working through the fall/winter 2010 and into spring 2011. A second round of work is anticipated during the fall/winter 2011, with a final report and program summary scheduled to be completed in April 2012. Individuals involved in the development of the project anticipate that members of the herring industry will meet during the fall of 2010 to agree on elements of the bycatch avoidance program. It is also acknowledged that the elements of the program are likely to change throughout the course of the project, as more information becomes available and the fleet adapts their fishing practices to the new program.

3.3.7 RH Alternative 7 – Based on River Herring Bycatch Avoidance through CMCP

This alternative would close the river herring hotspot areas to directed herring fishing unless vessels can demonstrate river herring bycatch avoidance through catch monitoring and control plans (CMCP). Individual vessels or groups of vessels can develop/submit CMCPs. NMFS would review/approve CMCPs with input from the Council on an annual or semi-annual basis as part of the fishery permit renewal procedures.

A trip-level threshold for river herring catch (kept and discarded) would be established, and vessels would be required to show compliance with this threshold through a CMCP in order to retain access to the hotspots. NMFS would approve the river herring bycatch avoidance elements of the CMCPs and grant vessels exemptions to the closed hotspot areas based on the following standards:

- Vessels would be required to provide third-party verification of entire catch (at-sea and/or portside, with necessary components to demonstrate compliance);

- Vessels would be required to demonstrate how they will stay below the trip-level threshold for river herring catch (for example, they may agree to move out of the area at a lower threshold, they may propose to conduct test tows before fishing in the area, etc.);
- Vessels would be required to describe how trip-level river herring catch information will be communicated to NMFS. If the river herring catch threshold is exceeded on any trip in the hotspot(s), the vessel(s) will be prohibited from fishing in the hotspot(s) for the duration of the closure.

3.3.8 RH Alternative 8 – River Herring Closed Areas

This alternative would prohibit directed fishing for herring in the areas/times that are identified as Stage 1 River Herring Hotspots. Only Stage 1 hotspots would apply under this alternative because there would not be any fishing for herring in the hotspots, so Stage 2 hotspots could not be triggered.

Under this alternative, all herring permit holders (Category A, B, C, and D) would be prohibited from fishing for, possessing, catching, transferring, or landing herring from the river herring hotspots on all fishing trips. Vessels that possess A, B, C, or D herring permits and are fishing with mesh greater than 5.5 inches (and with no small mesh on board) would be exempt from the closed area provisions.

As of April, 2009, the following information is available about vessel permitting:

Table 9 Amendment 1 Limited Access Permits Issued as of April 2009

2009 Permits Issued (LA = limited access)			
Category A (LA All Areas)	Category B (LA Areas 2/3)	Category C (LA Incidental)	Category D (Open Access)
41	4	54	2,272

4.0 MEASURES TO ESTABLISH CRITERIA FOR MIDWATER TRAWL VESSEL ACCESS TO GROUNDFISH CLOSED AREAS

At the November 18-20, 2008 New England Fishery Management Council meeting, the Council approved the following motion:

> "To include criteria for midwater trawler access to groundfish closed areas in the list of 2009 herring management actions."

The Herring Committee discussion on December 16, 2008, was general and preliminary, and focused primarily on the alternatives that may be considered in Amendment 5 to establish criteria for midwater trawl access to groundfish closed areas. The Herring Committee discussed the Council's motion and provided additional details and guidance so that more specific measures can be developed.

The Committee developed a general approach to be included in at least one alternative for consideration in this amendment. In addition, two alternatives have been proposed by the Herring Alliance and included by the Committee for further discussion/development. Under both alternatives proposed by the Herring Alliance (described in the subsections below), access to closed areas by midwater trawl vessels (single or paired) would be prohibited except with an experimental fishing permit (EFP) meeting specific requirements. Future access without an EFP along with minimum criteria for access may be reconsidered and established through a framework action after consideration of the data obtained through any EFPs.

4.1 GF ALTERNATIVE 1 – STATUS QUO (NO ACTION)

Under the no action alternative, current criteria for midwater trawl vessel access to the groundfish closed areas would be maintained. This includes access to the closed areas, with additional provisions for observer coverage and increased sampling in Closed Area I.

XXX

4.2 GF ALTERNATIVE 2 – PRE-CLOSED AREA I PROVISIONS

Under this alternative, criteria for midwater trawl vessel access to the groundfish closed areas would be based on provisions prior to the implementation of the Closed Area I rule.

XXX

4.3 GF ALTERNATIVE 3 – 100% OBSERVER COVERAGE

This option would require herring vessels to carry an observer on board on any trip in the groundfish year-round closed areas.

4.4 GF ALTERNATIVE 4 – APPLY CLOSED AREA I PROVISIONS TO ALL YEAR-ROUND GROUNDFISH CLOSED AREAS

This alternative would apply the current provisions for herring vessels in Closed Area I to all of the groundfish year-round closed areas.

- Vessels would be required to carry a NMFS-approved observer on any trip where fishing may occur in the year-round groundfish closed areas. Vessels would be required to indicate their intention to fish in the year-round groundfish closed areas when scheduling an observer through the pre-trip call-in notification system. To ensure 100% coverage, vessels would be prohibited from fishing in the year-round groundfish closed areas without an observer on board.
- Vessels would be required to pump aboard all fish from the net for inspection and sampling by the observer. Unless specific conditions are met (see below), vessels would be prohibited from releasing fish from the net, transferring fish to another vessel that is not carrying a NMFS-approved observer, or otherwise discarding fish at sea, unless the fish have first been brought aboard the vessel and made available for sampling and inspection by the observer.
- Vessels may make short test tows in the area to check the abundance of target and bycatch species without pumping the fish on board if the net is reset without releasing the contents of the test tow. In this circumstance, catch from the test tow would remain in the net and would be available to the observer to sample when the subsequent tow is pumped out.
- The above prohibition on releasing fish/discarding would not extend to fish that cannot be pumped and that remain in the net at the end of pumping operations. Observer protocols include documenting fish that remain in the net before they are released, and existing regulations require vessel operators to assist the observer in this process. Additional measures are being considered in this amendment to improve this process (see Section 2.7 of this document).
- Fish that have not been pumped aboard may be released if the vessel operator finds that:
  1. pumping the catch could compromise the safety of the vessel;
  2. mechanical failure precludes bringing some or all of the catch aboard the vessel; or
  3. spiny dogfish have clogged the pump and consequently prevent pumping of the rest of the catch.
- If the net is released for any of the reasons stated above, the vessel operator would be required to complete and sign a Released Catch Affidavit providing information about where, when, and why the net was released, as well as a good-faith estimate of the total weight of fish caught on the tow and weight of fish released. The Released Catch Affidavit must be submitted within 48 hours of completion of the fishing trip.
- Following the release of the net for one of the three exemptions specified above, the vessel would be required to exit the river herring hotspot. The vessel may continue to fish but may not fish in the hotspots for the remainder of the trip.

4.5 GF ALTERNATIVE 5

At its December 16, 2008 meeting, the Herring Committee passed the following motion, which will form the basis of at least one alternative developed in Amendment 5 to address this issue (the Committee agreed that additional alternatives may be developed):

> That if, on any given trip, a vessel targeting herring in a groundfish closed area has regulated groundfish exceeding 1% of the catch of herring, that vessel will be required to have 100% observer coverage for one year as a condition to gain further access to the closed areas. If the 1% bycatch allowance is exceeded again, that vessel would be denied access for one year.

Comment [lls45]: See comments below.

Comment [lls46]: NERO comment – Due diligence is an issue. If the vessel is able to show that it used reasonable care to prevent the offense from occurring, then access cannot be denied.

Additional comments/questions to consider:

The first part of the motion is vague – "*That if, on any given trip, a vessel targeting herring in a groundfish closed area has regulated groundfish exceeding 1% of the catch of herring*"

- How would the amount of regulated groundfish catch versus herring catch be determined for any given trip? (Landings? Total catch? How are discards counted? Would discarding regulated groundfish be prohibited?) There are no requirements for observer coverage until the threshold has been exceeded, so how would the determination be made on a trip-by-trip basis whether the threshold has been exceeded?
- What about vessels that fish inside and outside a closed area during the same trip?

4.6 GF ALTERNATIVE 6

Under this alternative, access to groundfish closed areas by midwater trawl vessels (single or paired) would be prohibited except with an experimental fishing permit (EFP).

The Council would strongly endorse experimental fisheries in the groundfish closed areas that include the following provisions:

- Full observer coverage (one or more observers per vessel, as necessary to ensure that every haul is observed)
- Electronic monitoring systems to augment observer data
  - Tow characteristics (i.e., total catch, GPS, height of foot-rope)
  - Video record of catch pre-sorted on deck for observer analysis
- Additional requirements and criteria for access to groundfish closed areas
  - Pair trawling in closed areas prohibited
  - No more than 20 midwater trawl trips per closed area per fishing year
  - Fishing with net foot-rope less than 20 feet off the bottom prohibited
  - Monitoring protocols including mandatory reporting of vessel electronics information and shoreside gear inspections to determine the depth fished by midwater trawl gear and whether contact with the bottom has occurred
  - Groundfish bycatch triggers exclude vessels from access to the closed areas

- Groundfish bycatch is detected in an amount greater than 100 pounds for any vessel trip – all midwater trawling in such closed area suspended for a minimum of 48 hours
- Overfished stock – Regional Administrator determines bycatch to be 0.1% of TAC for stock – one year exclusion
- Other groundfish – Regional Administrator determines bycatch to be 0.5% of TAC for stock – one year exclusion

4.7 GF ALTERNATIVE 7

Under this alternative, access to groundfish closed areas by midwater trawl vessels (single or paired) would be prohibited except with an experimental fishing permit (EFP).

The Council would strongly endorse experimental fisheries in the groundfish closed areas that include the following provisions:

- Full observer coverage (one or more observers per vessel, as necessary to ensure that every haul is observed)
- Electronic monitoring systems to augment observer data
  - Tow characteristics (total catch, GPS, height of foot-rope)
  - Video record of catch pre-sorted on deck for observer analysis
- Monitoring protocols including mandatory reporting of vessel electronics information and shoreside gear inspections to determine depth fished by midwater trawl gear and whether contact with the bottom has occurred

5.0 MEASURES TO ADDRESS INTERACTIONS WITH THE ATLANTIC MACKEREL FISHERY

The limited access permit program implemented in Amendment 1 to the Herring FMP established three types of herring limited access permits: (1) a limited access directed fishery permit that allows access to all management areas with no possession limit (Category A); (2) a limited access directed fishery permit that allows access to Areas 2/3 only with no possession limit (Category B); and (3) a limited access incidental catch permit that allows access to all management areas with a possession limit of 25 mt (55,000 pounds) and a restriction of one landing per calendar day (Category C). The limited access Category C incidental catch permit was developed primarily to address the incidental catch of herring by mackerel vessels that do not qualify for a directed fishery permit in any of the management areas. Qualification criteria for the limited access incidental catch permit were less restrictive and spanned a longer qualifying time period (15 mt in any calendar year from 1988 – 2003).

Amendment 1 also established an open access incidental catch permit for vessels that do not qualify for either of the limited access permits (Category D). The possession limit associated with the open access incidental catch Category D permit is 3 mt per trip in all management areas, with a restriction of one landing per calendar day.

As of August, 2008, the following information is available about vessel permitting:

Table 10 Amendment 1 Limited Access Permits Issued as of August 2008

2008 Permits Issued (LA = limited access)			
Category A (LA All Areas)	Category B (LA Areas 2/3)	Category C (LA Incidental)	Category D (Open Access)
41	4	42	2,219

As of April, 2009, the following information is available about vessel permitting:

Table 11 Amendment 1 Limited Access Permits Issued as of April 2009

2009 Permits Issued (LA = limited access)			
Category A (LA All Areas)	Category B (LA Areas 2/3)	Category C (LA Incidental)	Category D (Open Access)
41	4	54	2,272

Since the implementation of Amendment 1, concerns have been raised about vessels participating in the Atlantic mackerel fishery that do not qualify for any of the limited access herring permits, either because they do not have adequate herring landings history between 1988 and 2003, or because they are new participants in the mackerel fishery. These vessels are currently required to fish with the open access incidental catch permit to retain any herring, and they may encounter herring in amounts larger than 3 mt on some fishing trips. Without a permit that allows them to retain an adequate amount of herring, these vessels may be forced to discard any herring they catch incidentally. As the mackerel fishery continues to grow, a herring bycatch problem could become an increasing concern.

At its April 30, 2008 meeting, the Herring Advisory Panel briefly discussed issues raised in the Amendment 4 Scoping Document regarding the interaction of the Atlantic herring and mackerel fisheries and the potential for herring bycatch on mackerel vessels that may not possess a limited access permit for herring. One advisor described the issue and suggested that there may be about 12 vessels in the southern New England/Mid-Atlantic region that may receive limited access mackerel permits but do not have a limited access herring permit and would therefore continue to be limited to 3 mt of herring per trip. The concern about herring bycatch on mackerel vessels appears to be primarily in Areas 2 and 3 where the herring TACs are not yet fully utilized, so the advisors agreed that there may be an opportunity to allow the vessels in these areas to retain additional amounts of herring.

HERRING AP MOTION (April 30, 2008): Jeff Reichle/Vito Calomo

To recommend that any vessels issued a limited access mackerel permit that do not have a limited access herring permit be allowed to retain up to 25 mt of herring as incidental catch in the mackerel fishery (Motion carried 9-0-3).

At its July 30, 2008 joint meeting with the Herring Advisory Panel, the Herring Committee discussed this issue and passed the following motion, directing the Herring PDT to draft management alternatives for consideration and provide additional information:

HERRING COMMITTEE MOTION (July 30, 2008): MIKE LEARY/DANA RICE

> As an alternative in Amendment 4, that Area 2/3 Category D Incidental Limit be Raised to 25 mt (Motion carried unanimously).

Additional Discussion on the Motion: One advisor suggested that the Committee may want to consider limiting this measure to only vessels with mackerel permits. The mackerel fishery is an open access fishery now, but the Mid-Atlantic Council is in the process of developing a limited access program in an amendment. Another advisor asked about whether this could apply to vessels fishing for whiting in Area 1, but the Committee agreed that the intent of the motion is to consider increasing the trip limit only in Areas 2 and 3 because the Area 1A TAC is already fully utilized. The Committee also agreed that the PDT could develop options that incorporate the suggestion regarding possession of a mackerel permit.

5.1 PROPOSED MANAGEMENT ALTERNATIVES

The management alternatives currently under consideration in Amendment 5 to address this issue were developed by the Herring PDT based on Herring Committee and Advisory Panel guidance (see above) and are described below. Herring PDT comments/recommendations are included below for the Herring Committee's consideration as the alternatives are further refined. Background information and analysis used to develop the proposed measures are provided by the Herring PDT in Section 5.2 of this document.

Herring PDT Comments/Recommendations

The Herring PDT provides the following comments and recommendations at this time regarding the development of management alternatives to address this issue in Amendment 5:

- Available fishery data do not indicate that the current 3 mt possession limit of herring for open access permit holders is problematic at this time; it does not appear to be resulting in bycatch/regulatory discards for vessels fishing in any of the management areas and reporting their herring landings and discards through the logbooks.
- The overlap between the Atlantic herring and mackerel fisheries is universally recognized as an important fishery management issue that the Council has always intended to accommodate in the most appropriate manner. If the Category D vessels have not been targeting mackerel or taking trips where they may encounter a mix of herring and mackerel (and/or other species) more recently (for a variety of reasons), VTR records may not reflect a bycatch problem at this time and may not fully characterize the potential for this problem to exist in the future. The industry has stated that these vessels have not been fishing for mackerel as much in recent years because (1) they are smaller vessels, and the mackerel fishery shifted into offshore areas; and (2) concerns about encountering herring in quantities larger than 3 mt on "mixed" trips and consequently being in violation of the herring possession limit have influenced their decisions about taking these trips at all.

- Because the data do not indicate that a bycatch problem exists at this time, the Herring PDT expressed concern with increasing the open access incidental catch possession limit in Areas 2 and 3 to as much as 25 mt (55,000 pounds) at this time. This is the same amount of herring that is allowed under the current Category C limited access incidental catch possession limit, so increasing the limit for the open access permit to this amount essentially negates the benefit/effect of having a limited access incidental catch permit in Areas 2 and 3.
- Although the TACs are not fully utilized in Areas 2 and 3 at this time, the Herring PDT is concerned that increasing the open access possession limit to 25 mt, especially in Area 2, may create additional opportunities for vessels to target herring directly under the open access permit. This outcome could very well be likely given the (low) levels of landings that have been documented by open access permit holders in recent years. Increasing the possession limit for open access permit holders to 25 mt could create a "loophole" that is inconsistent with the intent of the herring limited access program, as well as the open access permit, implemented in Amendment 1. The Council created the open access possession limit permit in Amendment 1 to minimize the potential for directed herring fisheries to develop while still providing controlled opportunities for vessels in other fisheries to catch small amounts of herring and minimize their bycatch. Decisions regarding increased opportunities in these areas should be made with adequate consideration of overall fleet capacity and the long-term effects of over-capacity.
- Moreover, if additional opportunities for directed fishing in Areas 2/3 result from an increase in the open access possession limit, new vessels could create fishing history in these areas. This is a **very** important consideration if quota allocation programs are going to be developed for the herring fishery. Increasing the open access possession limit to a level that allows for directed fishing and the establishment of any substantial amount of fishing history could increase the number of participants to be considered in a sector allocation or individual quota allocation program, should the Council choose to develop one in the future.
- **Based on the concerns about increasing opportunities for directed fishing in Areas 2/3, the Herring PDT recommends the following:**
  - An additional alternative that proposes an increase in the open access possession limit for Areas 2/3 less than 25 mt (10,000 pounds is proposed, see Alternative 4, Section 5.1.4); an alternative like this would help to bound the range of alternatives under consideration in this amendment and would provide the Council with greater flexibility when selecting final measures;
  - The possession limit associated with the open access herring permits could be added to the list of measures that can be implemented through a framework adjustment to the Herring FMP. This will provide a mechanism to modify the open access possession limit (increase or decrease) in a more timely manner in the future.
- The Herring PDT seeks guidance from the Committee regarding the current draft alternatives (described below) as well as any additional alternatives that should be developed for further consideration. It is unclear at this time whether the Herring Committee is interested in exploring options for incidental catch in Areas 2/3 based on a percentage of total catch, a ratio of herring/mackerel landings, and/or TAC set-asides to address these issues. However, these approaches could be more complicated to administer and enforce than the current alternatives under consideration.

5.1.1 Mackerel Alternative 1 – No Action

Under this alternative, no action would be taken in Amendment 5 to address herring/mackerel fishery interactions and concerns about the potential for herring bycatch in the directed mackerel fishery.

- The open access incidental catch permit for herring (Category D) would continue to apply to all management areas.
- Vessels that obtain the open access incidental catch herring permit would continue to be restricted by a possession limit of 3 mt of herring per trip (6,600 pounds) in all management areas and limited to one landing per calendar day up to the 3 mt possession limit.
- When the TAC in a management area is projected to be reached and the directed fishery closes, incidental catch in the area would be limited to 2,000 pounds per trip, as it is currently.
- Open access permit holders catching more than 2,000 pounds of herring per week would continue to be required to report their catches on a weekly basis through the IVR reporting program.

5.1.2 Mackerel Alternative 2 – Increase the Open Access Possession Limit to 25 mt in Areas 2/3 Only

Under this alternative, two open access permits for herring would be created, one for Area 1 and one for Areas 2/3:

1. The current provisions for the Category D permit, including the 3 mt possession limit, reporting requirements, and landings restrictions, would apply to an open access permit for Area 1 (1A and 1B), as described in the no action alternative;
2. An open access incidental catch permit would be created to apply to Areas 2/3 only; this permit would be associated with a **25 mt (55,000 pounds)** possession limit for herring; all other provisions currently associated with the current open access Category D permit would apply:
    - Vessels that obtain the open access incidental catch herring permit for Areas 2/3 only would be restricted by a **possession limit of 25 mt** of herring and limited to **one landing per calendar day** up to the 25 mt possession limit.
    - When the TAC in a management area is projected to be reached and the directed fishery closes, incidental catch in the area would be limited to 2,000 pounds per trip, as it is currently.
    - Open access permit holders catching more than 2,000 pounds of herring per week would continue to be required to report their catches on a weekly basis through the IVR reporting program.

5.1.3 Mackerel Alternative 3 – Increase the Open Access Possession Limit to 20,000 Pounds in Areas 2/3 for Vessels that also Possess a Federal Limited Access Mackerel Permit

Comment [lls47]: May 2009 – Herring AP recommends that this be the preferred alternative

Sept 2010 – Herring Committee modifies alternative by reducing possession limit from 25 mt to 20,000 pounds

Under this alternative, two open access permits for herring would be created, one for all areas and one for mackerel fishery participants in Areas 2/3 only:

1. The current provisions for the Category D permit, including the 3 mt possession limit, reporting requirements, and landings restrictions, would apply to an open access permit for all management areas, as described in the no action alternative;
2. **A new open access incidental catch permit would be created for limited access mackerel fishery participants in Areas 2/3 only that do not have a limited access herring permit**; this permit would be associated with a **20,000 pound** possession limit for herring; all other provisions currently associated with the current open access Category D permit would apply:
    - Vessels that do not qualify for a limited access herring permit and possess a federal limited access permit for Atlantic mackerel would be eligible for this herring permit. *(The Atlantic mackerel fishery is currently an open access fishery, but it is assumed that once a limited access program is implemented for the mackerel fishery, this alternative would require possession of a federal limited access mackerel permit.)*
    - **Vessels that obtain the open access incidental catch herring permit for mackerel fishery participants in Areas 2/3 would be restricted to fishing for herring in Areas 2/3 only, under a possession limit of 25 mt (55,000 pounds) of herring and limited to one landing per calendar day up to the 25 mt possession limit.**
    - When the TAC in a management area is projected to be reached and the directed fishery closes, incidental catch in the area would be limited to 2,000 pounds per trip, as it is currently.
    - Open access permit holders catching more than 2,000 pounds of herring per week would continue to be required to report their catches on a weekly basis through the IVR reporting program.

Additional Discussion – Mackerel Limited Access Program

Alternatives under consideration for the limited access program for the Atlantic mackerel fishery are based on a multi-tiered approach to a limited access permit structure, with each tier specifying different criteria for limited access qualification. Proposed qualification for a "Tier 3" mackerel permit, for example, include poundage thresholds for herring and/or possession of a herring limited access permit in order to address the overlap between the two fisheries and minimize problems that may result if herring vessels do not receive limited access permits for mackerel. Additional information will be made available as the Mid-Atlantic Council finalizes the limited access alternatives under consideration in Amendment 11.

5.1.4 Mackerel Alternative 4 – Increase the Open Access Possession Limit to 10,000 Pounds in Areas 2/3 Only

Under this alternative, two open access permits for herring would be created, one for Area 1 and one for Areas 2/3:

1. The current provisions for the Category D permit, including the 3 mt possession limit, reporting requirements, and landings restrictions, would apply to an open access permit for Area 1 (1A and 1B), as described in the no action alternative;
2. An open access incidental catch permit would be created to apply to Areas 2/3 only; this permit would be associated with a **10,000 pound** possession limit for herring; all other provisions currently associated with the current open access Category D permit would apply:
   - Vessels that obtain the open access incidental catch herring permit for Areas 2/3 only would be restricted by a **possession limit of 10,000 pounds** of herring and limited to **one landing per calendar day** up to the 10,000 pound possession limit.
   - When the TAC in a management area is projected to be reached and the directed fishery closes, incidental catch in the area would be limited to 2,000 pounds per trip, as it is currently.
   - Open access permit holders catching more than 2,000 pounds of herring per week would continue to be required to report their catches on a weekly basis through the IVR reporting program.

5.2 BACKGROUND INFORMATION/ANALYSIS

5.2.1 Trends in the Atlantic Mackerel Fishery

The Atlantic mackerel fishery continues to evolve. U.S. commercial landings of Atlantic mackerel from 1982 to 2006 and annual quotas (1994-2006) are summarized in Table 12 and Figure 22. U.S. commercial landings of Atlantic mackerel increased gradually from less than 3,000 mt in the early 1980s to around 10,000 mt in 1990. In the 1990s, U.S. management policy eliminated the directed foreign Atlantic mackerel fishery in the EEZ. Atlantic mackerel landings by U.S. vessels in the 1990s ranged from 4,700 mt in 1993 to 15,500 mt in 1996 and 1997. U.S. landings were approximately 12,500 mt in 1999 and declined to 5,600 mt in 2000. After 2000, Atlantic mackerel landings increased markedly from 12,300 mt in 2001 to 59,000 mt in 2006. **Preliminary information suggests that mackerel landings dropped significantly in 2007 to about 25,545 mt valued at about $6.6 million.**

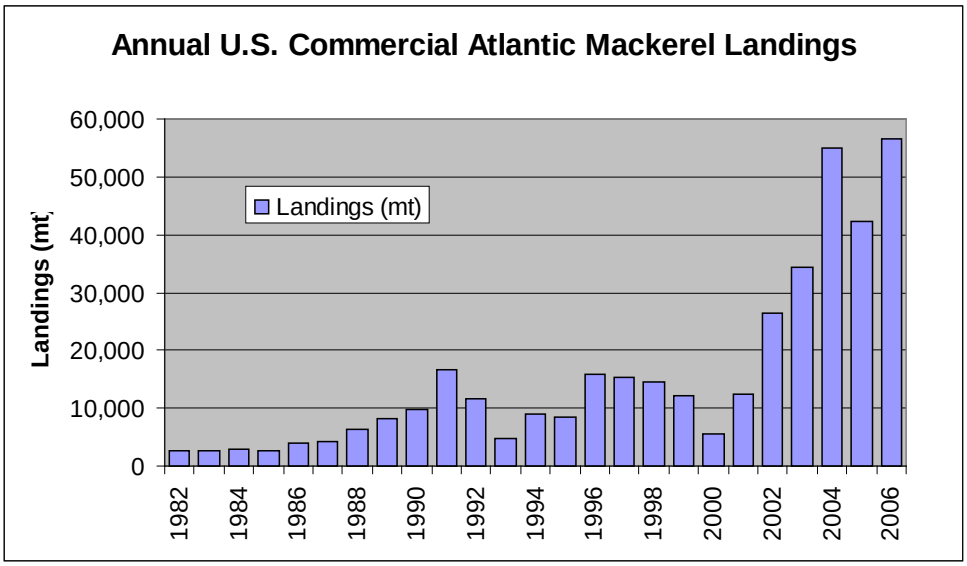
Based on data from the Northeast Region Dealer Weighout database, the vast majority of commercial Atlantic mackerel landings are taken by trawl gear (Table 12). Among trawl types, midwater otter trawls and paired midwater otter trawls have become increasingly important in recent years. From 2002-2006, paired midwater trawls comprised 38% of commercial Atlantic mackerel landings, while unspecified midwater trawls also accounted for 40% of the landings, and bottom otter trawls comprised only 14% of the landings. By comparison, from 1996-2000, paired midwater trawls landings comprised only 2% of the total commercial Atlantic mackerel landings, while unspecified midwater trawls accounted for 22% of the landings, and bottom otter trawls accounted for 71% of the landings.

Table 12 U.S. Commercial Atlantic Mackerel Landings (mt) 1982 – 2006, by Major Gear Type and Recent Quota Specifications

YEAR	BOTTOM TRAWL	MIDWATER TRAWL	PAIR TRAWL	ALL OTHERS	TOTAL	INITIAL OY (IOY)	% of IOY LANDED
1982	1,908		19	744	2,671		
1983	890		410	1,342	2,642		
1984	1,235	118	396	1,045	2,795		
1985	1,481		249	905	2,635		
1986	3,436		2	514	3,951		
1987	3,690		0	649	4,339		
1988	5,770		0	562	6,332		
1989	7,655		0	589	8,245		
1990	8,847		0	1,031	9,878		
1991	15,514	564	223	285	16,585		
1992	11,302		1	458	11,761		
1993	3,762	479		412	4,653		
1994	8,366	1		551	8,917	120,000	7%
1995	7,920	50		499	8,468	100,000	8%
1996	13,345	1,295		1,088	15,728	105,500	15%
1997	13,927	628		847	15,403	90,000	17%
1998	12,095	571	1,363	495	14,525	80,000	18%
1999	11,181	99		752	12,031	75,000	16%
2000	4,551	736		362	5,649	75,000	8%
2001	584	11,396		360	12,340	85,000	15%
2002	4,008	11,669	10,477	376	26,530	85,000	31%
2003	5,291	17,212	11,572	222	34,298	175,000	20%
2004	5,884	23,170	20,499	5,440	54,993	170,000	32%
2005	5,437	8,410	18,894	9,468	42,209	115,000	37%
2006	10,349	24,413	19,360	2,519	56,640	115,000	49%

Source: Unpublished NMFS dealer weighout data.

Figure 22 Annual U.S. Commercial Atlantic Mackerel Landings (mt) 1982-2006



Source: Unpublished NMFS dealer weighout data.

5.2.2 2007 Fishery Data

To begin to evaluate the extent to which there may be a problem with herring bycatch on non-permitted mackerel vessels, permit data were queried for all vessels that reported landings of Atlantic mackerel in logbooks during the 2007 fishing year. 2007 was the year during which Amendment 1 to the Herring FMP was implemented, including the limited access permit program. However, it should be noted that Amendment 1 did not become effective until June 1, 2007, after the majority of the 2007 mackerel fishery season had already occurred (Jan-April).

Table 13 summarizes the Amendment 1 (herring) permit category and the average herring landings for vessels that participated in the mackerel fishery during 2007, based on vessel trip reports (VTRs). Note that since Amendment 1 to the Herring FMP was not implemented until June 1, 2007, there are three vessels with no herring permits in 2007 (they possessed open access permits for herring prior to the implementation of the Amendment 1 limited access permit program). Herring landings were insignificant and mackerel landings were less than 1,000 mt for these vessels during 2007.

According to Table 13, every vessel that landed more than 1,000 mt of Atlantic mackerel during 2007 qualified for and obtained a limited access directed fishery permit to fish in all management areas for herring (Category A). These vessels are therefore allowed to fish for and land herring in unrestricted amounts until a TAC is reached in a management area and the area closes. All other vessels with mackerel landings (71) reported less than 1,000 mt total for the fishing year.

Thirteen of these vessels qualified for an unrestricted herring limited access permit for all areas (Category A), two qualified for unrestricted limited access permits in Areas 2/3 only (Category B), and two qualified for limited access incidental catch permits with a 25 mt possession limit restriction. There were 51 vessels that reported mackerel landings in 2007 that did not qualify for a limited access permit but obtained the open access incidental catch permit with an associated herring possession limit of 3 mt. These 51 vessels averaged 17 mt of herring landings total during the 2007 fishing year. It is important to keep in mind that this analysis considers activity during the 2007 fishing year only, and 2007 saw a substantial reduction in the Atlantic mackerel fishery (see Section II of this document for additional information).

Table 13 Amendment 1 Permit Category for Vessels with Reported Mackerel Landings in 2007

2007 Mackerel Landings		Herring Permit Category					
		A	B	C	D	None	Total
< 1,000 mt	Number of Vessels	13	2	2	51	3	**71**
	Avg 2007 Herring Landings (mt)	2,043	Cannot report	Cannot report	17	0	**401**
1,000 - 2,000 mt	Number of Vessels	8					**8**
	Avg 2007 Herring Landings (mt)	2,119					**2,119**
2,000 - 4,000 mt	Number of Vessels	5					**5**
	Avg 2007 Herring Landings (mt)	3,395					**3,395**
Total number of vessels		26	2	2	51	3	**84**
Overall Avg 2007 Herring Landings (mt)		2,326	Cannot report	Cannot report	17	0	**743**

The Amendment 1 limited access permit program was implemented on June 1, 2007.

Herring permit data were also queried to characterize the location of the vessels that reported Atlantic mackerel landings in their logbooks during 2007 (Table 14). Table 14 describes the same set of vessels that are described above in Table 13. The majority of Category A mackerel vessels (limited access herring permits for all management areas) are homeported in Massachusetts, New Jersey, and Rhode Island. The majority of Category D mackerel vessels (open access herring permit for 3 mt) are homeported in New Jersey, New York, and Rhode Island, which is consistent with trends in participation and activity in the Atlantic mackerel fishery. It is likely that the Category D vessels from NY, NJ, and RI are some of the vessels for which there may be concern about potential herring bycatch, especially if their activity in the mackerel fishery increases.

Table 14 Amendment 1 Permit Category and Home Port State for Vessels with Reported Mackerel Landings in 2007

Home Port State	Herring Permit Category					
	A	B	C	D	None	Total
CT				3		**3**
MA	12			6	1	**19**
ME	1			2		**3**
NC	1			2		**3**
NE	1					**1**
NH	2				1	**3**
NJ	5			7		**12**
NY				17	1	**18**
RI	4	2	2	14		**22**
Total	**26**	**2**	**2**	**51**	**3**	**84**

The Amendment 1 limited access permit program was implemented on June 1, 2007.

Observer data from 2007 also were queried to see the extent to which vessels fishing without a limited access herring permit may be discarding herring (primarily Atlantic mackerel vessels). Of all the observed trips which landed and/or discarded herring or mackerel, there were only two trips by vessels without a limited access herring permit in 2007. In neither case were herring discards larger than a couple hundred pounds. However, with so few observations, little can be drawn in the way of conclusions from this data set.

2007 Landings from Bottom Trawls in Area 2

During the 2007 fishing year, a total of 19,535 metric tons of Atlantic herring were landed from Area 2. Table 15 characterizes the Area 2 landings by gear type. In 2007, bottom trawl gear accounted for 36% of the herring landings from Area 2 (7,009 mt). This is a significant increase over 2005 and 2006 levels, which were approximately 1,500 metric tons. However, it is important to note that about one half of the 7,009 metric tons Area 2 bottom trawl landings are from one vessel. For data confidentiality reasons, details about this vessel cannot be reported.

Table 16 characterizes the 2007 Area 2 bottom trawl landings by the remaining 60 bottom trawl vessels, which landed 3,415 mt, based on vessel trip report (VTR) data. Table 16 breaks out the number of vessels that landed less than 10 mt of herring and those that landed greater than 50 mt of herring by State landed. Included in the count of vessels that landed greater than 50 mt of herring are seven (7) vessels that landed greater than 100 mt of herring during 2007. The majority of the bottom trawl vessels are landing small quantities of herring (less than 10 mt total in 2007), suggesting that the herring may be incidental catch while fishing in Area 2 for other species.

The majority of Area 2 herring landings from bottom trawl trips occur in New Jersey and Rhode Island. While some vessels land in more than one port (this is why the total vessel count in Table 16 is 63 versus the overall vessel count of 60), the vessel counts of 19 for New Jersey and 10 for Rhode Island are unique to these ports.

Of the 3,429 metric tons of herring landed by the bottom trawl vessels described in Table 16, 2,763 mt (81%) were landed by seven vessels with Category A limited access permits and two vessels with Category B limited access permits. Three Category C limited access vessels landed a total of 357 metric tons, but two of these vessels landed less than 5 mt each. Of the Category D (open access) permit holders, 38 accounted for the remaining 124 mt of Area 2 bottom trawl landings of herring during the 2007 fishing year. Nearly all of the Category D landings from this group appear to be incidental catch, since the amount landed per vessel was less than 10 metric tons. Landings by 11 vessels with no herring permit totaled 185 metric tons. Two of these vessels landed greater than 50 metric tons during 2007, while the remaining vessels landed less than 10 mt each.

With the exception of one vessel, all of the seven Category A bottom trawl vessels with Area 2 landings landed greater than 50 mt during the 2007 fishing year and appear to have been directing on Atlantic herring. Landings by four of these vessels range from 250 mt to 1,000 mt, with one vessel landing greater than 3,500 mt (as mentioned above). Two of these vessels also had significant Area 2 landings using midwater trawl gear, so it is unclear whether or not they were actually fishing for herring with bottom trawls. One of these two vessels also had significant landings from Area 1A using purse seine gear.

The majority of trips on which Atlantic herring is landed by Category A and B bottom trawl gear fishing in Area 2 are considered directed herring trips. Atlantic mackerel are landed on some of these trips, and loligo squid was landed on some of the other trips.

Table 15 2007 Area 2 Landings by Gear Type

Gear Type	Herring Landed (mt)
Midwater Trawl	2,589
Paired Midwater Trawl	9,934
Bottom Trawl	7,009
Other	3
Total	**19,535**

Table 16 2007 Area 2 Bottom Trawl Herring Landings by State Landed (one vessel with > 3,500 mt landings excluded)

State Landed	Herring Landed (mt)	Number of Vessels Landing Herring	Number of Vessels Landing < 10 Metric Tons	Number of Vessels Landing > 50 Metric Tons
CT	13	3	3	0
MA	79	4	3	1
MD	cannot report	1	cannot report	cannot report
NC	cannot report	1	cannot report	cannot report
NJ	1,369	19	15	4
State UNK	5	6	6	0
NY	89	19	18	1
RI	1,861	10	5	5
VA	cannot report	1	cannot report	cannot report
Total	**3,429**	**63**		

Source: Vessel Trip Reports.

5.2.3 2008 Fishery Data

The industry has suggested that the 2007 mackerel fishery was different than previous years in that the mackerel were located offshore, and opportunities were consequently reduced for smaller and mid-sized boats, which are the boats of particular concern with respect to potential herring bycatch. Preliminary 2007 landings data do suggest that activity in the mackerel fishery was substantially lower than previous years. The industry maintains that the shift in the distribution of mackerel to offshore areas precluded smaller vessels from participating in the mackerel fishery. Some of these smaller boats did not qualify for a limited access herring permit; without a permit that allows them to retain any herring they may catch and with reduced opportunities inshore, many of these vessels did not fish for mackerel during the 2007 fishing year. It was noted during several Herring Committee/Advisory Panel discussions of this issue that many vessels are so concerned about being found in violation of the possession limit that they are not taking the risk and fishing for mackerel. Some industry members suggested that the fishery has shifted again during 2008 and that available information for the 2008 fishing year should be investigated to better characterize mixing and overlap between the two fisheries.

5.2.3.1 Permit and Monthly/Annual-Level Data for 2008

To begin to evaluate the extent to which there may be a problem with herring bycatch on mackerel vessels, permit data were queried for all vessels that reported landings of Atlantic mackerel in logbooks during the 2008 fishing year. Since Amendment 1 was implemented on June 1, 2007 and the Atlantic mackerel fishery occurs primarily from December through April, 2008 is the first year in which a full mackerel season occurred while under Amendment 1 regulations. This year is used to provide some perspective on recent activity in the Atlantic

mackerel fishery, including activity by vessels that may not have qualified for herring limited access permits.

The 2008 data are preliminary, so all trips may not have been entered into the database, and fishing activity during December has obviously not occurred. Table 17 reports the total landings of herring and mackerel by month through July 2008.

Table 17 2008 Monthly Landings of Atlantic Herring and Mackerel Through July 2008

January 2008	Herring landed (mt)	7,105
	Mackerel landed (mt)	11,539
February 2008	Herring landed (mt)	7,897
	Mackerel landed (mt)	2,442
March 2008	Herring landed (mt)	3,441
	Mackerel landed (mt)	2,513
April 2008	Herring landed (mt)	2,922
	Mackerel landed (mt)	5,511
May 2008	Herring landed (mt)	4,179
	Mackerel landed (mt)	27
June 2008	Herring landed (mt)	5,473
	Mackerel landed (mt)	13
July 2008	Herring landed (mt)	6,143
	Mackerel landed (mt)	1
Total	**Herring landed (mt)**	**37,160**
	Mackerel landed (mt)	**22,047**

Table 18 summarizes the 2008 herring permit category and the average herring landings for vessels that participated in the mackerel fishery during 2008, based on vessel trip reports (VTRs). According to Table 18, every vessel that landed more than 1,000 mt of Atlantic mackerel during 2008 qualified for and obtained a limited access directed fishery permit to fish in all management areas for herring (Category A). These vessels are therefore allowed to fish for and land herring in unrestricted amounts until a TAC is reached in a management area and the area closes. All other vessels with mackerel landings (183) reported less than 1,000 mt total for the fishing year. Nine of these vessels qualified for an unrestricted herring limited access permit for all areas (Category A), three qualified for unrestricted limited access permits in Areas 2/3 only (Category B), and 10 vessels qualified for limited access incidental catch permits with a 25 mt possession limit restriction.

There were 128 Category D vessels that reported mackerel landings during the 2008 fishing year to date; these vessels did not qualify for a limited access permit but obtained the open access incidental catch permit with an associated herring possession limit of 3 mt. While it is possible that some individual trips may have encountered larger amounts of herring, the Category D vessels landed one (1) metric ton of herring, on average, in 2008. It is important to keep in mind

that this analysis considers activity during the 2008 fishing year through July 2008 only, and there is likely to be additional fishing activity in the mackerel fishery towards the end of the year (December).

Table 18 Amendment 1 Permit Category for Vessels with Reported Mackerel Landings in 2008

2008 Mackerel Landings		2008 Herring Permit Category					
		A	B	C	D	None	Total
< 1,000 mt	Number of Vessels	9	3	10	128	33	183
	Avg 2007 Herring Landings (mt)	2,166	266	0	1	0	398
1,000 - 2,000 mt	Number of Vessels	7					7
	Avg 2007 Herring Landings (mt)	989					989
2,000 - 4,000 mt	Number of Vessels	3					3
	Avg 2007 Herring Landings (mt)	1,163					1,163
Total number of vessels		19	3	10	128	33	193
Overall Avg 2007 Herring Landings (mt)		1,541	266	0	1	0	515

NMFS permit data were queried to characterize the location and average length of all vessels with herring permits (Table 19). The average length of category C vessels (62 feet) and Category D vessels (47 feet) is quite a bit smaller than the vessels with limited access directed fishery permits. This is consistent with the industry's claims that the open access permit holders are dominated by smaller and mid-sized vessels; if the mackerel did in fact move offshore during 2007, these vessels may have experienced reductions in their fishing opportunities. The 2008 data summarized in Sections 5.2.3.1 and 5.2.3.2 of this document (below) do not suggest that mackerel fishing activity by this group of vessels has increased substantially during the 2008 fishing year.

Table 20 reports the average length and principal port state of the vessels which landed mackerel in 2008. The majority of Category A mackerel vessels (limited access herring permits for all management areas) have principal ports in Massachusetts, and New Jersey. The majority of Category D mackerel vessels (open access herring permit for 3 mt) have principal ports in New Jersey, New York, and Rhode Island, which is consistent with trends in participation and activity in the Atlantic mackerel fishery. It is likely that the Category D vessels from NY, NJ, and RI are some of the vessels for which there may be concern about potential herring bycatch, especially if their activity in the mackerel fishery increases in the future.

Table 19 2008 Herring Permit Category and Principal Port State

		2008 Herring Permit Category				
Principal Port State		**A**	**B**	**C**	**D**	**Total**
AK	Number of vessels				2	**2**
	Average length				139	**139**
CT	Number of vessels			2	41	**43**
	Average length			83	53	**54**
DE	Number of vessels				20	**20**
	Average length				41	**41**
FL	Number of vessels				13	**13**
	Average length				50	**50**
GA	Number of vessels				2	**2**
	Average length				68	**68**
LA	Number of vessels				1	**1**
	Average length				75	**75**
MA	Number of vessels	17		6	816	**839**
	Average length	111		67	46	**47**
MD	Number of vessels				34	**34**
	Average length				55	**55**
ME	Number of vessels	10		9	307	**326**
	Average length	78		48	37	**38**
NC	Number of vessels			3	82	**85**
	Average length			75	64	**65**
NH	Number of vessels	2		6	111	**119**
	Average length	122		46	36	**38**
NJ	Number of vessels	6		7	341	**354**
	Average length	91		75	54	**55**
NY	Number of vessels			2	213	**215**
	Average length			72	44	**44**
PA	Number of vessels				2	**2**
	Average length				55	**55**
RI	Number of vessels	5	4	7	145	**161**
	Average length	96	70	61	51	**53**
SC	Number of vessels				1	**1**
	Average length				33	**33**
TX	Number of vessels				2	**2**
	Average length				64	**64**
VA	Number of vessels	1			86	**87**
	Average length	80			64	**65**
Total	**Number of vessels**	**41**	**4**	**42**	**2,219**	**2,306**
	Average length	**98**	**70**	**62**	**47**	**48**

Table 20 2008 Herring Permit Category and Principal Port State (Vessels with Mackerel Landings)

		2008 Herring Permit Category					
Principal Port State		**None**	**A**	**B**	**C**	**D**	**Total**
CT	Number of vessels					4	**4**
	Average length					87	**87**
MA	Number of vessels	4	8		1	20	**33**
	Average length	43	126		57	44	**64**
MD	Number of vessels	1					**1**
	Average length	44					**44**
ME	Number of vessels	6	2			3	**11**
	Average length	35	105			30	**46**
NC	Number of vessels					2	**2**
	Average length					66	**66**
NH	Number of vessels	5	2			2	**9**
	Average length	53	122			49	**67**
NJ	Number of vessels	4	4		1	29	**38**
	Average length	52	102		75	56	**61**
NY	Number of vessels	2			3	37	**42**
	Average length	33			73	59	**59**
RI	Number of vessels	3	3	3	5	30	**44**
	Average length	40	114	68	62	64	**66**
VA	Number of vessels	1				1	**2**
	Average length	40				74	**57**
No Federal Permit	Number of vessels	7					**7**
	Average length						
Total	Number of vessels	33	19	3	10	128	**193**
	Average length	43	116	68	66	58	**62**

5.2.3.2 Trip-Level Data for 2008

Since vessels with any type of herring permit (including Category C and D) are required to submit vessel trip reports (which should include the reporting of discards), logbook data were queried to find all trips where either herring or mackerel was reported as landed or discarded in 2008. Table 21 summarizes the 2008 logbook data by categorizing trips according to mackerel landings and permit type. The reason for creating the mackerel landings categories in Table 21 is to characterize the proportion of current trips that may be approaching the trip limits specified by the Category C and D herring permits. Information for Categories A and B is shown for purposes of comparison.

As shown in Table 21, all of the trips greater than 100 metric tons of mackerel were landed by vessels with Category A herring permits. Vessels with Category B, C, or D permits landed less than 100 metric tons – many with no mackerel landings. Of the 35 Category C trips in the less than 100 metric ton mackerel landing category, the average amount of herring landed is very small, and the average herring discards are zero. A similar scenario holds for the 530 Category

D trips and the 154 trips by vessels with no herring permit. This indicates that the Category C and D vessels did not encounter large amounts of herring while fishing for mackerel (or encountering both herring and mackerel while fishing for something else) during the 2008 fishing year (to date). Had the average herring landings on the Category C trips been at the 25 metric ton level, or the herring landings on the Category D trips been at the 3 metric ton level, and/or high levels of herring discards, this would have provided clear evidence that these vessels were reaching their respective trip limits.

However, as indicated by industry representatives, some vessels may have chosen not to make a mackerel trip at all because they thought it would be difficult to remain under the trip limit. This type of information would not be revealed by an examination of the logbook data. An indication that this may be occurring is shown through the decrease in Atlantic mackerel landings by Category C and D vessels relative to the overall recent decline in mackerel landings. Category C and D mackerel landings dropped by 85% between 2006 and 2008, whereas overall mackerel landings dropped by 63.5%.

Table 22 reflects the same data that is embedded in Table 21 but it is displayed by categories of herring landings rather than categories of mackerel landings. The relevant landings range to consider for Category C permit holders is 30,000 to 55,000 pounds. The data in Table 22 show that there have been no trips reported in that range during the 2008 fishing year. If there had been many trips with average landings approaching 55,000 pounds and high herring discards reported, this would have indicated that Category C vessels were reaching the possession limit and being forced to discard.

For open access permit holders (Category D, 3 mt), there has only been one trip reported in the 3,300-6,600 pound range and one trip in the 6,600 to 30,000 pound range during 2008 (which exceeded the 3 mt trip limit). This suggests that at least for trips taken by Category D vessels, very few have reported landings of herring greater than 50% of the current possession limit. For the 748 trips with herring landings that were less than 50% of the 3 mt trip limit (0 to 3,300 pounds), the average herring landings reported by these vessels are only 50 pounds, and average herring discards reported are only 22 pounds.

Table 21 2008 Herring Landings and Discards by Permit Category and Mackerel Landings Category (All Logbook Trips with Herring or Mackerel Catch)

Mackerel Landings Category		2008 Herring Permit					
		A	B	C	D	None	Total
No landings	Number of trips	233	27	34	220	51	565
	Average herring landed (mt)	119	17	0.148	0.055	1	50
	Average herring discarded (mt)	0	17	0.003	0.061	0.008	1
	Maximum herring discarded (mt)	0	446	0.017	6.250	0.179	446
Less than 100 mt	Number of trips	85	4	35	530	154	808
	Average herring landed (mt)	80	13	0.005	0.025	0.005	8
	Average herring discarded (mt)	0	0	0	0	0.0001	0.011
	Maximum herring discarded (mt)	4	0	0	0	0.0112	4.464
100 to 200 mt	Number of trips	30					30
	Average herring landed (mt)	55					55
	Average herring discarded (mt)	0					0
	Maximum herring discarded (mt)	0					0
200 to 300 mt	Number of trips	17					17
	Average herring landed (mt)	5					5
	Average herring discarded (mt)	0					0
	Maximum herring discarded (mt)	0					0
300 to 400 mt	Number of trips	15					15
	Average herring landed (mt)	20					20
	Average herring discarded (mt)	2					2
	Maximum herring discarded (mt)	18					18
400 to 500 mt	Number of trips	11					11
	Average herring landed (mt)	3					3
	Average herring discarded (mt)	0					0
	Maximum herring discarded (mt)	0					0
Total	Number of trips	391	31	69	750	205	1,446
	Average herring landed (mt)	93	17	0.076	0.033	0.314	26
	Average herring discarded (mt)	0.108	14	0.001	0.018	0.002	0.348
	Maximum herring discarded (mt)	18	446	0.017	6	0.179	446

Table 22 2008 Herring Landings and Discards by Herring Landing Category

Herring Landings Category		2008 Herring Permit					
		A	B	C	D	None	Total
0 to 3,300 lbs	Number of trips	96	3	69	748	204	1,120
	Average herring landed (lbs)	52	0	169	50	21	52
	Average herring discarded (lbs)	531	333,333	3	22	5	954
	Maximum herring discarded (lbs)	35,000	1,000,000	38	10,000	400	1,000,000
	Average mackerel landed (lbs)	342,565	84	174	922	136	30,014
3,300 to 6,600 lbs	Number of trips	1	1		1		3
	Average herring landed (lbs)	6,000	5,000		5,000		5,333
	Average herring discarded (lbs)	0	0		0		0
	Maximum herring discarded (lbs)	0	0		0		0
	Average mackerel landed (lbs)	420,000	0		400		140,133
6,600 to 30,000 lbs	Number of trips	11	8		1		20
	Average herring landed (lbs)	18,884	14,500		14,000		16,886
	Average herring discarded (lbs)	0	0		14,000		700
	Maximum herring discarded (lbs)	0	0		14,000		14,000
	Average mackerel landed (lbs)	199,327	0		0		109,630
30,000 to 55,000 lbs	Number of trips	25	11				36
	Average herring landed (lbs)	45,859	42,636				44,874
	Average herring discarded (lbs)	0	0				0
	Maximum herring discarded (lbs)	0	0				0
	Average mackerel landed (lbs)	148,536	182				103,205
55,000 to 75,000 lbs	Number of trips	10	5				15
	Average herring landed (lbs)	64,300	66,400				65,000
	Average herring discarded (lbs)	0	0				0
	Maximum herring discarded (lbs)	0	0				0
	Average mackerel landed (lbs)	0	0				0
75,000+	Number of trips	248	3			1	252
	Average herring landed (lbs)	321,964	83,333			140,000	318,402
	Average herring discarded (lbs)	177	0			0	175
	Maximum herring discarded (lbs)	40,000	0			0	40,000
	Average mackerel landed (lbs)	38,064	400			0	37,464
Total	Number of trips	391	31	69	750	205	1,446
	Average herring landed (lbs)	209,349	37,806	169	75	704	57,565
	Average herring discarded (lbs)	243	32,258	3	40	5	779
	Maximum herring discarded (lbs)	40,000	1,000,000	38	14,000	400	1,000,000
	Average mackerel landed (lbs)	124,430	111	174	920	135	34,153

5.2.4 Fishery Information Considered in Amendment 1 to the Herring FMP

During the development of the limited access alternatives in Amendment 1, the Herring PDT examined vessel logbook data from 2000 to 2002 to show how many trips may be affected by trip limits of 15 and 25 metric tons, which were considered as part of the incidental catch permit options. The following information is useful to illustrate the overlap between the herring fishery and other small mesh (whiting) and pelagic fisheries (squid, mackerel) occurring throughout the region. This information provides a somewhat more historical perspective on the nature and degree of overlap between the herring fishery and other small mesh fisheries.

In Table 23 – Table 25, incidental herring landings are summarized for directed mackerel, squid (loligo and illex combined), and whiting trips. In the following analysis, a ***directed*** trip is defined as one in which 50% or more of the landings consisted of the species in question. For the Atlantic mackerel trips, only trips with more than 1 metric ton were included in the analysis.

Table 23 shows that in 2002, nine (9) of the 254 directed mackerel trips greater than 1 mt had greater than 25 mt of herring landed on the same trip. No directed mackerel trips landed between 15 and 25 metric tons of herring, and six (6) trips landed between 0 and 15 mt of incidental herring landings during 2002. In 2001, nearly all directed mackerel trips landed no herring with the exception of three (3) trips that landed between 0 and 1 mt of herring. In 2000, three (3) of the 95 directed mackerel trips greater than 1 mt landed greater than 25 mt of herring on the same trip. No directed mackerel trips landed between 15 and 25 mt of herring, and two (2) trips had between 0 and 15 mt of incidental herring landings during 2000. Therefore, at the time this analysis was conducted, the incidental catch of herring on directed mackerel trips appeared to be low. It was noted that this issue may become more of a concern if/when the Atlantic mackerel fishery expands beyond levels observed in the early 2000s.

Table 24 shows that for the directed squid trips, there were only three (3) trips in 2000 in which more than 25 mt of herring was landed. The rest of the directed squid trips during that year as well as all directed squid trips in 2001 and 2002 landed less than 15 mt of herring. Most directed squid trips landed no amount of herring. The trips that did land herring landed less than 600 pounds of herring.

Table 25 shows that all for all the directed whiting trips in 2000 to 2002, none had greater than 15 metric tons of incidental herring landings. Most directed whiting trips had no herring landings. The trips that did land herring landed less than 1.4 mt of herring.

Table 23 Incidental Catch of Herring on Directed Mackerel Trips

	2000	2001	2002
Number of directed trips with greater than 1 mt of mackerel	95	122	254
Number of trips with herring catch > 0 and < 15 mt	2	3 (maximum of 1 mt of herring)	6
Number of trips with herring catch between 15 and 25 mt	0	0	0
Number of trips with herring catch > 25	3 (maximum of 120 mt of herring)	0	9 (maximum of 109 mt of herring)

Table 24 Incidental Catch of Herring on Directed Squid (Loligo and Illex Combined) Trips

	2000	2001	2002
Number of directed trips	5,624	3,394	3,377
Number of trips with herring catch > 0 and < 15 mt	32 (maximum of 400 LBS)	26 (maximum of 500 LBS)	8 (maximum of 600 LBS)
Number of trips with herring catch between 15 and 25 mt	0	0	0
Number of trips with herring catch > = 25	3 (maximum of 36 mt)	0	0

Table 25 Incidental Catch of Herring on Directed Whiting Trips

	2000	2001	2002
Number of directed trips	1,777	1,933	1,131
Number of trips with herring catch > 0 and < 15 mt	52 (maximum of 1 mt)	76 (maximum of 625 LBS)	68 (maximum of 1.4 mt)
Number of trips with herring catch between 15 and 25 mt	0	0	0
Number of trips with herring catch > = 25	0	0	0

6.0 MEASURES TO PROTECT SPAWNING FISH

TBD

7.0 AMENDMENT 5 MEASURES CONSIDERED BUT REJECTED

The management alternatives under consideration in Amendment 5 have been developed by the Council, Herring Committee, Herring Advisory Panel, and Herring PDT from June 2008 (after scoping) until September 2010, when the Council approved the management alternatives for inclusion in the Draft EIS. Many different approaches were considered during this process, and the Council reviewed ideas and proposals developed by the AP, herring industry participants, and other interested members of the public. Development of the management alternatives proposed in this amendment was an iterative public process, during which several measures were eliminated from further consideration at this time. Those that were eliminated from further consideration are discussed below, along with the Council's rationale for eliminating them at this time.

It is important to note that although the measures described in this section have been eliminated from further consideration in Amendment 5, the Council may reconsider any of them in a future action for Atlantic herring. In some cases, details and preliminary analyses have already been conducted, making reconsideration of these measures in the future less burdensome prospect.

7.1 MEASURES TO ADDRESS VTR/VMS REPORTING AND RELATED PROVISIONS (CONSIDERED BUT REJECTED)

The following measures were considered in Amendment 5 to address provisions related to VTR/VMS reporting.

7.1.1 Require VMS Reporting for Every Offload and Transfer

This measure would require that limited access herring vessels (Category A, B, and C) report Atlantic herring catch and discards, and management area fished through their vessel monitoring systems (VMS) on any declared herring trip at any time an offload and/or transfer at sea event occurs. Offloads are defined under the option proposed in Section 2.4.2 of this document. Transfers at sea are defined under the option proposed in Section 2.4.4 of this document.

> *The operator of a limited access herring vessel must submit reports via VMS, in accordance with instructions provided by the Regional Administrator, for each offload and/or transfer at sea event when declared into the herring fishery. The reports must be submitted within XXX, or as instructed by the Regional Administrator. The reports must include at least the following information:*
>
> *(A) Total pounds of Atlantic herring kept and discarded;*
>
> *(B) Date fish were caught and management area in which fish were caught; and*

(C) NMFS-specified trip identifier (ex., VTR serial number), as instructed by the Regional Administrator

(D) Identification of dealer/vessel involved in the offload and/or transfer at sea.

The above option was considered to be unnecessarily burdensome/complicated. At this time, options remain under consideration in the document for either daily reporting or trip-level reporting.

7.1.2 Require VMS on All Carrier Vessels for Declaration Purposes

This measure would require all Atlantic herring carrier vessels greater than XXX feet in length to utilize a VMS for the purposes of declaring when they may be engaged in herring carrying activities. Declarations that may be required through VMS are described in Section 2.4.5 of this document.

Information presented by the PDT, as well as the other options under consideration, suggests that this measure may not be necessary. A "dual option" was created to address this issue; the dual option would allow carriers to operate under status quo requirements (LOA) or use VMS to declare their activities and exempt themselves from the restrictions in the LOA.

7.2 MEASURES TO ADDRESS VESSEL-TO-VESSEL TRANSFERS OF ATLANTIC HERRING (CONSIDERED BUT REJECTED)

7.2.1 Transfer At Sea Provisions for Category D (Open Access) Vessels

This measure would allow vessels with open access Category D permits to transfer herring at sea provided:

- The transferring vessel has a LOA issued by the Regional Administrator on board; and
- The transferring vessel identifies on its VTR the name of the vessel and the pounds of Atlantic herring transferred for each receiving vessel on a trip.
- Herring carrier vessels operating under a Carrier LOA would be exempt from this requirement.

This option could be combined with one of the above two options to address transfers of Atlantic herring at sea.

The measure was rejected because the intent was not clear, nor was it clear how possession limits could be enforced. It was also considered to be status quo for the vessels under consideration.

7.2.2 Restrict Transfers at Sea to Trips with an At-Sea Monitor/Observer

Under this option, transfers at sea (as defined in this amendment) would only be allowed on trips with an at-sea observer or other fisheries monitor on board. This option was proposed by NOAA Fisheries as a possible way to reduce and better monitor transfers of Atlantic herring at-sea.

This measure was initially proposed by the NERO staff and was not supported by the Herring Committee.

7.3 MEASURES TO CONFIRM THE ACCURACY OF SELF-REPORTING (CONSIDERED BUT REJECTED)

7.3.1 Install Truck Scales In All Ports

As a condition of obtaining a Federal dealer permit for Atlantic herring, dealers would be required to install and use a fixed or portable truck scale at all ports where Atlantic herring are landed.

This measure was considered infeasible due to the need for land, manipulation of lands, and structures needed to install the truck scale, as well as the financial implications.

7.3.2 Install Truck Scales In Specified Ports

As a condition of obtaining a Federal dealer permit for Atlantic herring, dealers would be required to install and use a fixed or portable truck scale at specific ports where Atlantic herring are landed.

This measure was considered infeasible due to the need for land, manipulation of lands, and structures needed to install the truck scale, as well as the financial implications.

7.4 MEASURES TO ADDRESS MAXIMIZED RETENTION (CONSIDERED BUT REJECTED)

During the development of Amendment 5, the Committee/Council considered several different approaches to developing a maximized retention program for the herring fishery. The following options were eliminated from further consideration during the development of the Amendment 5 catch monitoring program.

7.4.1 Options for Addressing Non-Permitted Catch Under Maximized Retention

7.4.1.1 Modified Maximized Retention: Use VBEM to Monitor Minimal At-Sea Discards

Under this option, modifications to the at-sea components of a CMCP would specify that any at-sea discards must be disposed of through a designated discard chute with monitoring through an additional camera close enough in range to distinguish species. The wide-angle deck-wide and rail-area cameras would essentially identify pre-sorting as they would under the maximized retention measures, and imagery analysis would be conducted to confirm that the pre-sorted piece count observed matched the piece count sent through the discard chute one at a time. Additional imagery analysis would be conducted to identify each discarded animal to its species and estimate its size and weight based on the high-quality look at it the closed circuit television (CCTV) cameras will be afforded as the animal passes through the discard chute. This option could potentially be applied for specific species for which no regulatory relief is possible. It may

also be necessary to implement this option for certain prohibited species, for instance marine mammals or birds.

Two concerns were raised with this measure. The first concern was that current technology may not be able to accomplish the objectives of the measure, as it has not been tested in the fishery. The second was vessels would discard the non-permitted species if the electronic monitoring technology was on board. It was therefore considered not feasible at the time of the amendment.

7.4.1.2 Landings Caps

This option would allow the landing of non-permitted catch (for species to which maximized retention applies), including in excess of current trip limits, with such landings subject to appropriate **landings caps**.

Landings caps for each species subject to maximized retention provisions would be set annually by the Council based on:

Sub-Option 1: Available observer and portside sampling data documenting bycatch of the species in question by herring vessels subject to maximized retention would be expanded upwards to account for expected effort in the fishery during the upcoming fishing year.

Sub-Option 2: TBD

Once landed, the fish are counted against the landings cap and:
Sub-Option 1: Haddock catch cap provisions apply to the sale of the catch that counts towards a landings cap (see Section 2.6.2.2.2 of this document for a description of the haddock catch cap provisions)

Sub-Option 2: The vessel may sell the fish to any dealer with a federal permit for the species in question

Sub-Option 3: TBD

When the first species-based landings cap is reached, the directed fishery for Atlantic herring would close, and all vessels would be limited to a possession limit of 2,000 pounds in all management areas.

Both NERO and NEFMC staff expressed concerns that the measures above do not address regulatory issues associated with landing non-permitted species. The capping of landings and closing the fishery when the cap is reached also seemed somewhat inconsistent with the intent of a maximized retention program.

7.4.2 Options for Verifying Compliance with Maximized Retention

7.4.2.1 100% Verification by At-Sea Observers

Under this option, maximized retention would be verified by at-sea observers at a rate of 100%. At-sea observers would certify compliance with maximized retention requirements and sample any at-sea discards that did take place, but the vast majority of catch sampling would be done dockside, as would the certified weighing or certified volumetric estimation of landed weight.

XXX

7.4.2.2 Maximized Retention Techniques Developed in Amendment 5

Under this option, the Council would develop standards and management measures to ensure compliance with maximized retention provisions. These standards would be implemented in Amendment 5 and would apply to all Category A and B vessels.

The above measure was carried over from one of the stakeholder proposals and is redundant, given the other options under consideration in the document.

7.5 OPTIONS TO MAXIMIZE SAMPLING (CONSIDERED BUT REJECTED)

During the development of the Amendment 5 catch monitoring program, several additional options were considered to maximize sampling by at-sea observers. The options that were eliminated from further consideration are described below.

7.5.1 Interruption Prohibition

Under this option, removal of the pump from the codend once pumping has been initiated would be prohibited unless the vessel was able to lift the net from the water and demonstrate in a visible way that the codend was either empty or was re-pursed before being placed back in the water.

The above measure was deemed to be infeasible for many operations.

7.5.2 Codend Lifting

Under this option, the vessel would be required to lift the codend from the water to visibly demonstrate that it was empty prior to re-setting the net.

The above measure was deemed to be infeasible for many operations.

7.5.3 Determine (and apply) minimum portion of a slipped catch that would be required to be pumped on board a vessel to ensure complete sampling

This measure requires that a minimum portion of a slipped catch be determined to ensure that observers obtain statistically-valid samples to characterize the catch composition (species and amounts) of slipped tows. The Herring PDT will work with the Observer Program and NEFSC

scientists to develop the details of this measure. If a minimum portion/threshold can be determined, this measure will require sampling at that level for any slipped tows.

The Herring PDT did not think this measure feasible because it was not clear how a percentage could be determined to ensure complete sampling from a slipped catch without further research and investigation, and the measure was not clear in its intentions. The PDT advised that fish may stratify in the net if it sits for any length of time, and that a study was needed to determine the appropriate percentages.

7.6 MEASURES TO ADDRESS NET SLIPPAGE (CONSIDERED BUT REJECTED)

7.6.1 Options to Establish Slippage Caps

Comment [LLS48]: Herring PDT does not support the development of slippage caps at this time (see July 15, 2010 PDT Report).

The Council is considering options to establish slippage caps to better account for and minimize slippage events. Slippage caps would be set annually for the entire fishery, and deductions would be made based on slippage events documented by either a NMFS-approved observer or an adequate monitoring mechanism (VBEM, for example).

When the slippage cap is reached, the directed herring fishery in all management areas would close, and all vessels would be limited to 2,000 pounds of herring.

Sub-Options for Setting Slippage Caps

The total slippage cap would be set annually by the Council based on available information about slippage events in the fishery in recent years.

Sub-Option: Available information about slippage from observer data would be expanded upwards to account for expected effort in the fishery during the upcoming fishing year.

Sub-Option: Available information about slippage from observer data would be expanded upwards to account for expected effort in the fishery during the upcoming fishing year. The cap would then be adjusted downwards based on the expected level of observer coverage for the upcoming fishing year (similar to the Framework 43 approach for setting the haddock catch cap).

Sub-Option: Available information about slippage would be used to estimate the number of slippage events that may be expected to occur across the fishery in the upcoming fishing year. An average estimate of slipped catch (based on observations in recent years) would be applied to the number of slippage events to generate a total slippage cap.

***Sub-Option (applies to all sub-options above)*:** To encourage the industry to minimize slippage, the Council is considering a sub-option that would gradually reduce the slippage cap over time under any of the approaches described above for setting the cap.

Sub-Options for Deducting Slippage from the Cap

A deduction from the slippage cap would occur every time a slippage event is documented by either a NMFS-approved observer or an adequate monitoring mechanism (VBEM, for example). When the slippage cap is reached, the directed herring fishery in all management areas would close, and all vessels would be limited to 2,000 pounds of herring.

Sub-Option: Apply assumed slippage event tonnage against slippage cap

Under this option, an assumed tonnage for each slippage event would be applied against an overall cap on slippage in the fishery. The assumed amount deducted for each slippage event would be set at the current best estimate for the average tow in the fishery (approximately 65 mt). When the slippage cap is reached, the directed herring fishery in all management areas would close, and all vessels would be limited to 2,000 pounds of herring.

Sub-Option: Apply estimated slippage event tonnage against slippage cap

Under this option, an estimated tonnage for each detected slippage event would be applied against an overall tonnage cap on slippage in the fishery. The estimated amount would be based on an independent measure of the total weight of the slipped discards. Captain's estimates would not be accepted. Therefore, this option would only be practical in cases in which the VBEM dataset provides a clear and acceptable estimate of weight, or in which the vessel had additional EM technology such as catch-weight sensors in the CMCP, or in which an at-sea observer happened to be aboard.

Under this option, slippage events for which additional information to estimate slipped catch is not available from a third party would still be subject to the assumed tonnage application described in the option above. When the slippage cap is reached, the directed herring fishery in all management areas would close, and all vessels would be limited to 2,000 pounds of herring.

In general the Herring PDT does not support the establishment of slippage caps at this time and recommends that the measures be implemented through a framework adjustment in the future, as no statistically valid approach is currently in existence for estimating slippage or a slippage cap. See July 15, 2010 Herring PDT Report for more information.

Options for Species-Specific Slippage Caps

Option: Apply assumed slippage event tonnage against species-specific slippage caps

Under this option, individual species-specific slippage caps would be set annually by the Council for each species identified for maximized retention. The individual species slippage caps would be set at biologically-appropriate levels with consideration of economic and other concerns of all other fisheries targeting those species.

When a slippage event occurs, an assumed tonnage would be applied against the herring sub-ACL for the management area in which the event occurs, *and* against each species-specific slippage cap. *The assumed amount would be set based on the current best estimate for the average tow in the fishery.* When the first species-specific slippage cap is reached, the directed herring fishery in all management areas would close, and all vessels would be limited to 2,000 pounds of herring.

After further consideration this option was considered unrealistic based on time and resource restraints, it was recommended that this option be eliminated.

Option: Apply estimated slippage event tonnage against species-specific slippage caps

Under this option, individual species-specific slippage caps would be set annually by the Council for each species identified for maximized retention. The individual species slippage caps would

be set at biologically-appropriate levels with consideration of economic and other concerns of all other fisheries targeting those species.

When a slippage event occurs, an estimated tonnage would be applied against the herring sub-ACL for the management area in which the event occurs, *and* against each species-specific slippage cap. The estimated amount would be based on some independent measure of the total weight of the slipped catch by species. Captain's estimates would not be accepted. Therefore, this option would only be practical in cases in which the VBEM dataset provided a clear and acceptable estimate of weight, or in which the vessel had additional EM technology such as catch-weight sensors in the CMCP, or in which an at-sea observer happened to be aboard. When the first species-specific slippage cap is reached, the directed herring fishery in all management areas would close, and all vessels would be limited to 2,000 pounds of herring.

This option was moved to the considered but rejected section because suspected or inferred slippage or discard events would still be subject to the assumed tonnage application because by definition, no actual data would exist for these events.

7.6.2 Consequences of Quota or Bycatch Cap Overages

Under this option, if an at-sea discard caused an overage, or an at-sea discard event is suspected/inferred based on VBEM data or absence of data, and the event is known or suspected to have caused resulted in a quota or bycatch cap overage, the offending vessel would be suspended from the herring fishery for the following fishing year, and all other vessels would be forced to pay back the overage. The offending vessel also would be forced to carry an at-sea observer at its own expense, in addition to participating in the maximized retention and dockside monitoring program under the proposed action, for an additional probationary year.

This option is problematic from a legal perspective.

7.6.3 Trip Termination

This option would require a vessel to terminate its trip and return to port in the event that slippage event occurs due to the potential to compromise vessel safety and/or a mechanical failure. This option would apply on trips where slippage events can be documented with certainty (i.e., trips with either a NMFS-approved observer on board or other adequate monitoring mechanism like video technology). The measures proposed in this option are based on the provisions in the Proposed Rule for Closed Area 1 (*Note: the trip termination aspect of the Closed Area 1 measures was not implemented in the Final Rule*).

Under this option, slippage events that would necessitate trip termination when an observer is on board include instances where the vessel operator finds that:

1. Pumping the catch could compromise the safety of the vessel; or
2. Mechanical failure precludes bringing some or all of the catch aboard the vessel.

The Committee considered this measure to be punitive, and it was not expected to provide incentive to minimize slippage. The Committee was also concerned about the measure's

potential to compromise safety when catch is brought on board in unsafe conditions in order to avoid trip termination.

7.7 MEASURES TO ADDRESS AT-SEA MONITORING AND PORTSIDE SAMPLING (CONSIDERED BUT REJECTED)

7.7.1 Option: Achieve Council-identified Priority Target Levels of Precision Using a Combination of At-sea and Dockside Sampling

This option is unclear. Different approaches should be used to determine coverage levels for at-sea monitoring and portside sampling based on the objectives of both programs.

7.7.2 Portside Sampling Program – Options for Coverage Levels

Option: <100% Dockside Monitoring Coverage Without Extrapolation

Under this option, shore-based observers would be present and sample at less than 100% of landing events, but the coverage rate and coverage design would not allow for the extrapolation of observed landings, including bycatch and incidental catch rates, across the entire fleet such that unobserved landings had a bycatch rate applied.

Option: Dockside Monitoring Coverage at a Level Equal to SBRM Coverage

This measure would require NMFS to increase coverage in the dockside monitoring program for the Atlantic herring fishery to levels equal to those required by the Standardized Bycatch Reporting Methodology (SBRM) amendment for at-sea monitoring.

Option: Portside Sampling Coverage at a Level to Meet Council Priorities

Under this option, a portside sampling program sampling design would be established to provide additional information to accurately estimate catch and bycatch for all major elements of the fishery based on the priorities and target precision levels identified by the Council: a **30% CV on catch/bycatch estimates for Atlantic herring and haddock, and a 20% CV on catch/bycatch estimates for river herring.** NMFS would determine levels of coverage for portside sampling based on the level of observer coverage and the expected CVs that would result from the observer estimates. Portside sampling data would supplement the observer data. Analysis would have to include, at a minimum, coverage of purse seine vessels, bottom trawl vessels, and other major gear types comparable to that included for midwater and pair trawls.

The above option was considered in the context of developing a combination portside/at-sea sampling program. Further analysis by the Herring PDT indicated that the two programs could not be combined at this time and that the data generated by the two programs are not additive. Different approaches should be used to determine coverage levels for at-sea monitoring and portside sampling based on the objectives of both programs.

7.7.3 Options for Determining Qualified Service Providers for Portside (or At-Sea) Sampling

Option: Standardize Existing State Port Sampling Programs and Incorporate Them Into the Proposed Action by Certifying Them as Approved DSM Vendors

Under this option, the existing port sampling programs run by the States of Maine and Massachusetts would be incorporated into the new catch monitoring program, ensuring that the data they produce is utilized. Their protocols would be standardized and adjusted to meet the required data elements of the proposed action, and State port samplers would only monitor offloads for vessels with an approved CMCP in place. State port sampling data would be converted to landings reports which would in turn be submitted to NMFS-NERO-FSO.

Option: Implement An Immediate or Phased-In Use of NEFOP Observers as Shore-Based Observers for the Proposed Action, Essentially Certifying the NEFOP as a DSM Vendor

Under this option, Northeast Fisheries Observer Program (NEFOP) observers, at currently projected staffing levels or perhaps under a future expansion, would be able to operate as shore-based observers and provide DSM services under the proposed program. While the NEFOP could simply continue to operate as it does now in terms of observing the herring fishery, even once the proposed program were implemented (if chosen by the Council), this option would allow for a more efficient use of resources on all fronts, provided NMFS was satisfied that the proposed program was adequate and therefore supportive of shifting NEFOP personnel from vessel to shore.

There would also be an option for NEFOP to employ a diverse approach to placing Federal observers into this fishery- sometimes on the vessels, sometimes on shore, depending upon data needs and resource availability. This option might allow for a highly efficient use of NEFOP personnel otherwise on "stand-by" for various reasons and thus unable to go to sea to observe the herring fishery.

Option: Implement a Single-Service Provider Plan for DSM Operations Which Cannot be Covered by Shore-Based Observers Employed by State or Federal Agencies

Option: Implement a Multi-Service Provider Plan for DSM Operations Which Cannot be Covered by Shore-Based Observers Employed by State or Federal Agencies