

DRAFT
(PROPOSED) RESTRUCTURED AMENDMENT 5
CATCH MONITORING ALTERNATIVES

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1.0 INTRODUCTION/BACKGROUND

1.1 PURPOSE AND NEED

The original Herring FMP and Amendment 1 represent important milestones in the Council's efforts to maintain a sustainably-managed Atlantic herring fishery throughout New England. Recently, concerns about the fishery have led the Council to determine that additional action is needed to further address issues related to the health of the herring resource throughout its range, how the resource is harvested, how catch/bycatch are accounted for, and the important role of herring as a forage fish in the Northeast region. These concerns are reflected in the unprecedented level of interest in managing this fishery by New England's commercial and recreational fishermen, eco-tourism and shoreside businesses, and the general public.

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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:

Comment [IIs1]: Committee should modify/approve the goals/objectives for Am. 5

GOAL (AMENDMENT 5)

To develop an amendment to the Herring FMP to improve catch monitoring and ensure compliance with the Magnuson-Stevens Reauthorization Act of 2006

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 new provisions of the MSRA;
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.

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), as well as improving vessel/dealer reporting and real-time quota (TAC) 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) **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 should focus on accurate and real-time accounting of landings and incidental catch – all fish are 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 TACs for the 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.

2.1.1 Relationship to Standardized Bycatch Reporting Methodology (SBRM)

Amendment 2 to the Atlantic Herring FMP was developed by NMFS to ensure that all FMPs of the Northeast Region comply with the Standardized Bycatch Reporting Methodology (SBRM) requirements of the Magnuson-Stevens Act. The purpose of the SBRM amendment was to: (1) explain the methods and processes by which bycatch is currently monitored and assessed for Northeast Region fisheries; (2) determine whether these methods and processes need to be modified and/or supplemented; (3) establish standards of precision for bycatch estimation for all Northeast Region fisheries; and (4) document the SBRMs established for all fisheries managed through the FMPs of the Northeast Region.

Generally, a SBRM can be viewed as a combination of sampling design, data collection procedures, and analyses used to estimate bycatch. The Northeast Region SBRM amendment provides a structured approach for evaluating the effectiveness of the allocation of fisheries observer effort across multiple fisheries to monitor a large number of species. Both precision

and accuracy are addressed in analyses conducted using observer data and to determine the appropriateness of the data for use in stock assessments and by fishery managers. A coefficient of variation (CV) of thirty percent (30%) was selected as a standard level of precision based upon the recommendation of the National Working Group on Bycatch.

The SBRM amendment, therefore, establishes a baseline and target levels of observer coverage for accurately monitoring bycatch across the Northeast Region's federally-managed fisheries. However, the Council acknowledges that recent developments in the herring fishery have contributed to the need for improved monitoring of catch in the fishery (landings and discards). For instance, increased concerns about the status of river herring and some groundfish stocks, as well as uncertainty regarding the nature and extent of river herring and groundfish bycatch in the Atlantic herring fishery illustrate the need for more and better bycatch information. Seasonal and annual TAC overages in some management areas, inconsistent and inadequate levels of observer coverage, and the emergence of U.S. at-sea processing operations also argue for a more thorough and accurate catch monitoring program in the fishery. For these reasons, the Council is considering management measures in this amendment to supplement the baseline established in the SBRM and enhance the collection of bycatch information in the Atlantic herring fishery.

2.1.2 Development of Specific Management Alternatives for Catch Monitoring in the Amendment 5 Draft EIS

The Herring Committee, in consultation with the Herring AP and PDT, has reviewed and discussed numerous detailed scoping comments regarding the establishment of catch monitoring measures 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 in the early stages of development, as the issues are quite complicated, and input regarding the kinds of approaches that should be considered has been extensive. Several management measures 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 will be "packages" that incorporate various measures/options described in the following 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 resource and the fishery.

2.2 GOALS AND OBJECTIVES (CATCH MONITORING)

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.

Staff Note: Where not already included, no action alternative and status quo alternative are assumed to also be included within each of the following categories of management measures (no action and status quo could be the same in some cases, different in others) – to be developed at a later date.

2.3 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 by the Herring Committee to improve real-time quota monitoring, reporting, and compliance. Some of these measures may ultimately be incorporated into the management alternatives for the Draft EIS, while others may be considered but rejected, based on available information/analysis and feedback from the industry, Herring Advisory Panel, and other interested stakeholders.

At the March 2008 Herring Committee Meeting, during the development of the Scoping Document for Amendment 4, NMFS Regional Office staff presented a summary to the Herring

Committee detailing the current program for monitoring landings in the Atlantic herring fishery and the process by which NMFS currently ensures compliance with the management area TACs. Several Herring Committee and audience members asked questions about how the TACs are monitored, and several individuals identified issues of concern and potential areas for improving the current process.

At the May 22, 2008 Herring Committee meeting, individuals from the NEFSC Northeast Fisheries Observer Program provided a detailed presentation on the structure of the current observer program and the data collected on observed vessels participating in the Atlantic herring fishery. Numerous individuals from the Observer Program attended the meeting with summary handouts and visual displays illustrating how observers work to collect data on fishing vessels. Following the observer presentation, a Herring PDT member provided an overview of portside bycatch sampling work in the herring fishery, which has been conducted by the ME Department of Marine Resources (see May 22, 2008 Meeting Summary for more detailed information and presentation slides).

At the July 30, 2008 Joint Committee/Advisory Panel Meeting, NMFS Regional Office presented a "permit holder letter" that was released on July 29, 2008 by NOAA Fisheries. The intent of the letter is to provide detailed examples and clarify the current notification and reporting requirements for vessels participating in the Atlantic herring fishery. NMFS staff answered a number of questions for the Committee and Advisory Panel members, as well as the audience. The Committee and Advisory Panel engaged in a general discussion with the Regional Office about current reporting and notification requirements.

The following management measures under consideration have been identified by the Herring Committee, Advisory Panel, and PDT during the discussions related to the current catch monitoring program; these measures would be intended to address some of the potential problems or inadequacies associated with the current catch monitoring program that have been identified by NMFS, the industry, and/or other stakeholders. As the Committee and Council continue to move forward with the development of the catch monitoring alternatives in Amendment 5, it will also be important to detail the strengths and weaknesses of the measures under consideration so that the catch monitoring alternative that is ultimately adopted in Amendment 5 is successful and efficient, and provides accurate and real-time data to the extent possible.

2.3.1 Modifications to the Interactive Voice Response (IVR) Reporting Requirements (Former Section 2.3.1.2, p.11)

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 through both IVRs and VTRs. Management area TACs represent total allowable catch, which includes landings and discards. Monitoring the TACs in a timely and 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 the IVR and counted toward TAC monitoring, in addition to being reported on VTRs. Efforts should be made in this amendment to improve IVR and VTR 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.

2.3.1.1 IVR Alternative 1: No Action (Former Section 2.3.1.2.1, p.13)

Under this alternative, provisions and requirements for IVR reporting would remain unchanged.

2.3.1.2 IVR Alternative 2: Trip-by-Trip IVR Reporting (Former Section 2.3.1.2.2, p.13)

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).
- **Option:** Limited access permit holders also would be required to report their 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 herring carrier/dealer vessels would be considered the same as offloading to a shoreside dealer for the purposes of IVR reporting.

Under this alternative, two options are under consideration for **Open Access Permit Holders (Category D)**.

2.3.1.2.1.1 Open Access 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.
- **Sub-Option:** Open access permit holders also would be required to report their 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 herring carrier/dealer vessels would be considered the same as offloading to a shoreside dealer for the purposes of IVR reporting.

2.3.1.2.1.2 Open Access 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 their 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.

2.3.1.3 Additional IVR Options and Outstanding Issues (Former Section 2.3.1.2.3, p.14)

2.3.1.3.1.1 Options for IVR Reporting Deadlines – Trip-Level

1. **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 offloading or prior to starting the next fishing trip, whichever is less. This option is based on the current provisions for IVR reporting in the Tilefish FMP:
 - (ii) *Tilefish vessel owners or operators.* The owner or operator of any vessel issued a limited access permit for tilefish must submit a tilefish catch report via the IVR system within 24 hours after returning to port and offloading as required by the Regional Administrator...

2. **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 offloading or prior to starting the next fishing trip, whichever is less.

2.3.1.3.1.2 Options for IVR Weekly Reporting Deadlines

1. **Option 1 – Status Quo (No Action)** – 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), the current reporting deadline would apply. 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.
2. **Option 2**– IVR reporting deadlines could 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.

2.3.2 Measures to Address VTR Reporting and VMS Provisions p. (Former Section 2.3.1.3, p.15)

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

2.3.2.1 Option: Require Vessel Trip Reports (VTRs) to be submitted on a weekly basis (versus the current monthly requirement)

This measure could facilitate timely cross-checking between VTRs and weekly dealer reports. NMFS made this suggestion during the development of Amendment 16 to the Multispecies (Groundfish) FMP, although the status of this measure with respect to Amendment 16 is unclear at this time.

2.3.2.2 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.

NMFS Office of Law Enforcement (OLE) strongly supports this measure to enhance the enforceability of TAC monitoring and other related regulations for the Atlantic herring fishery.

2.3.2.3 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 statistical area fished on a daily basis through their vessel monitoring systems (VMS) on any declared herring trip.

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 cod, haddock, yellowtail flounder, winter flounder, witch flounder, American plaice, and white hake kept; and total pounds of cod, haddock, yellowtail flounder, winter flounder, witch flounder, American plaice, and white hake discarded;

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

(C) Vessel Trip Report (VTR) serial number, as instructed by the Regional Administrator.

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- Require electronic daily VMS reporting for limited access vessels (Category A, B, & C) when engaged on a reported herring trip
- Sub-option 1: Require Atlantic herring carrier vessels to carry VMS and report daily

2.3.3 Measures to Address Carrier Vessels and Vessel-to-Vessel Transfers of Herring (Former Section 2.3.1.1, p.9)

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.

Existing Regulatory Definitions (Status Quo)

Section 648.2 Atlantic herring carrier means a fishing vessel that may receive and transport herring caught by another fishing vessel, provided the vessel has been issued a herring permit, does not have any gear on board capable of catching or processing herring, and has on board a letter of authorization from the Regional Administrator to transport herring caught by another fishing vessel.

Section 648.4(a)(10) (ii) currently specifies the following provisions for an Atlantic herring carrier:

An Atlantic herring carrier must have been issued and have on board a herring permit and a letter of authorization to receive and transport Atlantic herring caught by another permitted fishing vessel. The letter of authorization exempts such a vessel from the VMS and IVR vessel reporting requirements as specified in §648.7 and subpart K of this part, except as otherwise required by this part. An Atlantic herring carrier vessel must request and obtain a letter of authorization from the Regional Administrator, and must report all herring carried from each vessel on a given trip in its Fishing Vessel Trip Report. The Fishing Vessel Trip Report must include the vessel name. Carrier vessels under a letter of authorization may not conduct fishing activities except for purposes of transport or possess any fishing gear on board the vessel; must be used exclusively as an Atlantic herring carrier vessel; and must carry observers if required by NMFS. There is a minimum enrollment period of 7 calendar days. While operating under a valid LOA, such vessels are exempt from any herring possession limits associated with the herring vessel permit categories. Herring carrier vessels under an LOA may not possess, transfer, or land any species except for Atlantic herring, except that they may possess Northeast multispecies transferred by vessels issued either an All Areas Limited Access Herring Permit and/or an Areas 2 and 3 Limited Access Herring Permit, consistent with the applicable possession limits for such vessels.

Comment [Ils2]: The Observer Program does not currently assign observers to carrier vessels, but the LOA requires carriers to take observers if requested.

Section 648.2 Atlantic herring dealer means:

- (1) Any person who purchases or receives for a commercial purpose other than solely for transport or pumping operations any herring from a vessel issued a Federal Atlantic herring permit, whether offloaded directly from the vessel or from a shore-based pump, for any purpose other than for the purchaser's own use as bait; or
 - (2) Any person owning or operating a processing vessel that receives any Atlantic herring from a vessel issued a Federal Atlantic herring permit whether at sea or in port.
- This means that any Atlantic herring carriers that sell fish (i.e., "receive for commercial purpose other than solely for transport") are considered Atlantic herring dealers and are subject to dealer reporting requirements. This is an important clarification. ***To improve reporting, the Council may want to consider clearly distinguishing Atlantic herring carriers from Atlantic herring carrier/dealers in this amendment.***

Section 648.2 Atlantic herring processor means a person who receives unprocessed Atlantic herring from a fishing vessel issued a Federal Atlantic herring permit or from an Atlantic herring dealer for the purposes of processing; or the owner or operator of a fishing vessel that processes

Atlantic herring; or an Atlantic herring dealer who purchases Atlantic herring from a fishing vessel with a Federal Atlantic herring permit for resale as bait.

Section 648.2 Dealer means any person who receives, for a commercial purpose (other than solely for transport on land), from the owner or operator of a vessel issued a valid permit under this part, any species of fish, the harvest of which is managed by this part, unless otherwise exempted in this part.

Section 648.2 Processing, or to process, with respect to the Atlantic herring fishery, means the preparation of Atlantic herring to render it suitable for human consumption, bait, commercial uses, industrial uses, or long-term storage, including but not limited to cooking, canning, roe extraction, smoking, salting, drying, freezing, or rendering into meat or oil.

Section 648.2 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 Council may select any or all of the following options under consideration.

2.3.3.1 Measures to Address Carrier Vessels (Former Section 2.3.1.1.2, p.11)

This option would establish a new herring carrier/dealer permit that would be required for carrier vessels that sell Atlantic herring to any entity.

- This option would require the addition of a regulatory definition of “Atlantic herring carrier/dealer” in Section 648.2 (Definitions).
- The permit would require compliance with federal dealer reporting requirements at any time the vessel is in possession of a (new) carrier/dealer LOA. A “dealer identifier” would have to be developed for carrier/dealers for the purposes of reporting.
- This measure would also require the establishment of two LOAs for carrier vessels: one for vessels that only transport fish, and one for vessels that transport and sell fish.

ADDITIONAL LANGUAGE TBD

Option: Establish Regulatory Definition for Atlantic Herring Carrier/Dealer and a Corresponding Federal Permit (Alt #2 8/24 version – elements in previous option)

- *Are there other measures that should be considered for carrier vessels?*

2.3.3.2 Measures to Address Vessel-to-Vessel Transfers (Former Section 2.3.2, p.17, Measures to Address Transfers at Sea)

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.

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 example LOAs distributed at July 30, 2008 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.

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 in the following subsections. **The options described below are not necessarily independent of each other; Option 3 could be combined with another option described below, in order to address transfers to/from Category D vessels.**

- **Option: Establish a Regulatory Definition of Transfer at Sea (moved/inserted from p.11 Section 2.3.1.1.1)**

This option will 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.

SPECIFIC LANGUAGE TBD

- **Option 1: 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 Option 3), 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.

- **Option 2: 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.

- **Option 3: 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.

2.3.4 Measures to Address Trip Declaration and Notification Requirements (Former Section 2.3.3, p.19)

Duplicative/redundant reporting requirements is an issue that was identified by the herring industry during the scoping process for this amendment. Participants in the herring fishery are currently required to declare a herring trip via the Vessel Monitoring System (VMS), call-in to request an observer prior to leaving port, provide a pre-landing notification through VMS, call-in herring catch through the IVR reporting system, and submit vessel trip reports (VTRs, logbooks) and electronic dealer reports. While developing a comprehensive catch monitoring program in this amendment, there may be opportunities to streamline some of the reporting requirements and consequently reduce the burden on the industry as well as compliance, monitoring, and enforcement costs.

In addition, 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.

2.3.4.1 Option 1: Modify and Extend the Pre-Trip Call-in Requirement to All Limited Access Vessels

This measure 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 [IIs3]: Details to be developed with input from Observer Program

Discussion

The 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.

2.3.4.2 Option 2: 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 Option 1 to modify and extend the pre-trip call-in requirement, Option 2 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).

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 dockside monitoring/sampling program. This notification could facilitate the deployment of dockside samplers (the proposed dockside 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.

Notification to NMFS within six hours of landing of time and place of landing (current requirement for Category A & B vessels, would be a new requirement for Category C vessels, if included, and Atlantic herring carrier vessels). [Note: Options for altering pre-trip and pre-landing reporting requirements are found in **Alternative 2.3.3** in the Draft Amendment 5 document.] (Formerly from Alt #2 8/24/09 Version – elements above)

2.3.5 Other Measures to Address Catch Reporting, (formerly from Alt #2 8/24/09 version)

Alternative 1: Modified Current Reporting System.

Alternative 2: Primary Catch Reporting Duties By Vessel Landing Fish. Catcher vessels must report herring all transferred to (1) authorized carriers; (2) non-herring vessels; (3) at-sea herring processors; and/or (4) Canadian fish tenders; as well as any herring that it lands directly.

Staff Note – Not clear what these measures are or where they belong?

(Formerly Section 2.3.5, p. 29)

2.3.6 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.

2.3.6.1 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.

2.3.6.2 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.

2.3.7 Measures to Require Catch Monitoring and Control Plans (Former Section 2.7.6, p.55)

This component of this alternative 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. **Pelagic fishery vessels and dealers would be required to design and submit for approval a Catch Monitoring and Control Plan (CMCP) that would outline 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 to include the following: sorting and weighing all landings under the oversight of the shore-based observer (SBO), 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 SBO, and procedures to ensure that no unobserved pre-sorting occurs, including at-sea through the installation and operation of a VBEM system.

Under this alternative, catcher vessels are defined as first receivers and are responsible for CMCP design and submission. CMCP must cover all possible offload scenarios, including cod-end 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.

The Council will specify data collection standards that dockside monitoring (DSM) provider protocols must meet, including but not limited to the following:

- All catch will be sampled and/or sub-sampled for each landing event;
- Actual measured weights or certified volumetric estimates will be collected for all species;
- Landing estimates for all species will be produced for each landing event;
- A strictly census-style approach to catch sampling will not be permitted unless it is demonstrated that every fish is actually sorted and examined.

The Council will specify CMCP elements and design parameters:

- 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 VBEM system to be operated and its installation specifications.

Shoreside component of CMCP (see below) will be required to outline procedures for the following catch-handling elements upon landing:

- Procedures to ensure the presence of a shore-based observer for all landing events
- Certification standards for shore-based observers
- Minimum data collection standards and protocol guidelines for shore-based observers, including those employed by states (see Section 4.4.4- options for DSM providers)
- Verification that no pre-sorting takes place upstream of shore-based observers
- Procedures to provide a certified measurement of landed weight that is verifiable by the shore-based observer

NMFS will approve CMCP on an annual or semi-annual basis as part of fishery permit renewal procedures.

2.3.7.1 CMCP Options

Modifications to Catch Monitoring and Control Plan (CMCP) measures: CHOIR suggests that a series of options be developed and analyzed under which CMCP's would be required in the herring fishery for different fleet sectors (i.e. processors only, Category A and B vessels only, pump vessels only, vessels which utilize carriers, etc.)

2.3.8 Reporting/Analysis Requirements

This component of the catch monitoring program will ensure that the information generated through the program enters into the management system quickly and accurately. Shore-based

observers 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.

Specification of Procedures for Centralized Analysis and Reporting

- Shore-based observers will 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.

Staff Note – CMCP Options – see June 1 CHOIR Letter- Also see Sec 2.5.6.1 in this document

2.4 MEASURES TO STANDARDIZE/CERTIFY VOLUMETRIC MEASUREMENTS OF CATCH

This alternative will include management measures that require standardization and/or certification of volumetric measurements used to estimate catch. The measures under consideration are described below. (Formerly Section 2.5.2, p.32)

- As a condition of obtaining the limited access permit, limited access herring vessels (Category A/B and C?) would be required to contract a marine surveyor to certify the vessel's fish hold for volumetric capacity. Schematics and conversion charts for each fish hold would be submitted to NMFS at the time of renewal of the limited access permit. NMFS would provide the schematics and conversion charts (and calibration tables) to the dockside sampling service providers. Each vessel would retain on board a customized measuring stick for the fish hold for the dockside sampler to utilize to estimate the total

Comment [Ils4]: Need to determine to which vessels these requirements would apply

weight of the catch on board. With a known weight of fish per unit of volume, a relatively simple calculation can be performed to determine the amount of fish in the hold (using calibration tables).

Comment [Ils5]: PDT Note – only effective if part of a dockside sampling program so that species composition of catch can be determined; should be used as a cross-check mechanism to verify the accuracy of self-reporting; need more information on conversion factors and how appropriate calibration tables would be developed

- As a condition of obtaining a Federal dealer permit for Atlantic herring, dealers would be required to contract a surveyor to certify bait/transport trucks that are used during offload operations. A truck is often estimated to hold about 40,000 lbs. (18 mt), but this can range from 25,000 lbs. to 60,000 lbs. Schematics and conversion charts, when necessary, would be submitted to NMFS at the time of renewal of the Federal dealer permit. NMFS would provide the schematics and conversion charts to each DSM service provider that is approved for this program. Only trucks that are certified for volumetric capacity could be used to offload and transport Atlantic herring.

Comment [Ils6]: PDT Note – may be very challenging for dealers/trucks; for example, not sure how carriers and secondary transport vehicles would be addressed

Background

All E.U. and Norwegian-registered fishing vessels that carry their catch in refrigerated sea water (RSW) tanks are required to carry on-board calibrated volume tables for all of the fish tanks on the vessel. Those calibration tables must be checked and stamped by the member state under whose flag the vessel operates. The calibration tables are normally produced by the marine architect when the vessel is in the final stages of building; this will then be certified by inspectors from the fishery control of that state. In the case of a second-hand or converted vessel coming into the fishery, all the fish tanks have to be measured separately and calibrated by a competent marine architect, and again verified by an inspector.

Comment [Ils7]: Advisory Panel also believes this to be problematic for trucks – Advisory Panel supports this measure for vessels.

Comment [Ils8]: Information provided by the herring industry

The calibration system works by measuring the entire volume of the tank to get its cubic capacity. The tank is then measured at 10 cm increments, and this is scaled from the floor up to the edge of the hatch.

To actually measure the volume of fish in the tank, the fishery officer drops a small, flat steel weight about six inches square, connected to the end of a regular tape. When the weight falls through the water and settles on the fish, the officer then checks off the measurement against the hatch top. With this measurement, the officer can go to the calibration book for the vessel and calculate the cubic volume of fish in the tank. This process is then repeated on all the other tanks that contain fish, and the total cubic volume is calculated.

Because a cubic meter of fish does not equal a ton of fish, it was agreed with all control agencies in Europe and Norway that the following volume calculation values should be used:

- Herring per cm² x 0.82 (i.e., 100 cm² = 82 tons of herring)
- Mackerel per cm² x 0.78 (i.e., 100 cm² = 78 tons of mackerel)

Comment [Ils9]: Need more information – not clear how these conversion factors were derived and if they are appropriate

This system has been in place for over 20 years and has been tried and tested many times, with total catches monitored and weighed in controlled conditions. It was always found to have an accuracy of between two and seven percent, depending on how accurate the person was when measuring. The vessels were originally allowed a discrepancy of 20% in what they declared and

what the final result was, but this was found to be unnecessary. The discrepancy is now reduced to 10%, and both fishermen and control agencies feel comfortable working with this level.

2.4.1 Measures to Ensure Actual Weight Measurements or Verifiable Volumetric Proxies (formerly Section 2.7.3, p.53)

The intent of this measure is to rely on independently-verifiable weights from certified scales (or an approved volumetric proxies) instead of estimates made by captains and dealers.

The tools, called flow scales or hopper scales, are specially designed to deliver an accurate weight for total landings in a fishery which pumps the fish from one place to another. These scales do not slow down or otherwise interfere with the offload process for the vessels or processors. Regulations mandating the installation, maintenance, and use of approved scales or other weighing techniques which can be verified by a shore-based observer for all pelagic fishery offloads forms the first key component of this measure.

Other methods which may also provide certified actual weights include truck scales or certified volumetric estimates based on vessel fish-hold surveys and calibrated measuring techniques. The industry will choose from a range of alternatives for providing a verifiable independent estimate of catch weight, including something as simple as “sticking” a calibrated fish hold or truck, and it will be up to them to choose their preferred techniques. This can be specified in their catch monitoring and control plan (CMCP, see [above](#)).

Deleted: below

2.4.2 Measures to Improve Catch Weighing (formerly Section 2.6.1, p.48)

The intent of these measures is to move towards as close to 100% catch weighing as practicable. Proposed measures include:

Comment [IIs10]: Catch weighing or improving catch estimates?

- Volumetric catch weighing program with a provision for alternative catch weighing plans to be developed and submitted by herring fishermen for approval by NMFS – calibration of fish holds by recognized certification agencies (American Bureau of Shipping, etc.) so that tanks can be measured by captain and crew to determine the amount of fish in the hold
- Captain and crew work with observers and shoreside samplers to confirm volume and weight of fish whenever possible, and VTRs cross-checked with dealer reports for accuracy
- To estimate total catch for monitoring TACs/ACLs, NMFS would develop a protocol for estimating weight and species composition of slipped catch (measures to improve observer program and utilization of new technologies, described below, can help to improve accuracy of data regarding slipped tows)

Comment [IIs11]: see Section 3.5.2 of this document for details.

Comment [IIs12]: Electronic logbooks could be utilized as well, if incorporated into this alternative

Proposal to Improve Accounting of Landed Catch (Alt #2 8/24/09 version)

A. Vessel-Based Requirements:

- i. **Certification of volumetric capacity of vessel holds on mid-water trawls, pair trawls, purse seiners, Atlantic herring carrier vessels, otter trawl vessels; or**
- ii. **NMFS-approved catch weighing alternative.**

This applies to all Category A and B herring permit holders and any registered herring carrier vessels. Any Category A or B vessel without hold capacity, or which chooses not to hold or land Atlantic herring during the course of the fishing year, may apply for a Letter of Exemption from the NMFS Regional Administrator.

Sub-Option: Apply requirement to all limited access vessels (Category A, B, & C).

[Details discussed below. The Letter of Exemption is proposed to accommodate purse seine vessels that do not carry or land any fish.]

B. Notification to NMFS within six hours of landing of time and place of landing (current requirement for Category A & B vessels, would be a new requirement for Category C vessels, if included, and Atlantic herring carrier vessels). [**Note:** Options for altering pre-trip and pre-landing reporting requirements are found in **Alternative 2.3.3** in the Draft Amendment 5 document.]

C. Verification of catch weights upon landing.

Vessels would utilize volumetric catch weights, or other authorized method, to report final landed weight in the VTR.

Sub-option: Independent verification of landed catch weights to meet a Council-established target level of precision for overall catch (e.g., a 90 or 95 percent confidence interval). Independent catch weighing would be conducted by:

- i. **Observers** (on observed trips);
- ii. **Port Agents/Sea Samplers** (in ports where NMFS agents are stationed)
- iii. **State agents** (such as state agents participating in dockside sampling programs)
- iv. **State or federal dockside monitors/samplers**

Note: If a dockside monitoring program is established, these dockside catch-weighing measures could be subsumed as part of that 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 dockside monitoring is limited or where coverage is less than optimal.

2.5 MEASURES TO ADDRESS MAXIMIZED RETENTION

(Formerly 2.5.1, p. 32)

This alternative will include management measures designed to ensure *maximized retention* of catch on all herring vessels, to the extent possible. Options under consideration for maximized retention under this alternative are described below.

This alternative would mandate maximized retention for the Atlantic herring fishery, targeting the landing of 99.5% of all catch. Herring vessels would be required to land all fish that are caught during their fishing operations, and discarding would be largely prohibited.

2.5.1 Option 1 – 99.5% of Catch

Mandatory Maximized Retention (target of 99.5% of all catch landed)

Option 1A:

- Two Categories of Prohibited Species (not to be landed)
 1. Species protected under the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA) or subject to similar prohibitions will not be landed under any circumstances.
 2. Species for which the vessel is not permitted or is subject to landings limits may be addressed through a series of sub-options (see Section XXX, Alternative 3, for description of sub-options to address non-permitted landings).

Option 1B:

(Formerly Section 2.7.1.1, p.51)

Herring vessels would be required to land *all fish* that are caught during their fishing operations, and discarding would be largely prohibited.

- Mandatory Maximized Retention (target of 99.5% of all catch landed)
 - Two Categories of Prohibited Species (not to be landed)
 1. Species protected under the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA) or subject to similar prohibitions will not be landed under any circumstances.
 2. Species for which the vessel is not permitted or is subject to landings limits may be addressed through a series of sub-options (see Section XXX for description of sub-options to address non-permitted landings).
- 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 XXX for a description of options to address slippage).

2.5.2 Option 2 – Species-Based Maximized Retention (Section 2.7.1.2, p.51)

Herring vessels would be required to land *all of the following species* (to be selected in any combination from the list below) caught during their fishing operations. Discarding of these species would be prohibited.

- Atlantic herring
- 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
- River herring
- Shad
- Dogfish
- Other ASMFC-managed species (???)

2.5.3 Options for Phase-In of Maximized Retention Provisions (p. 52 A5DD)

1. A temporal phase-in of maximized retention over two to four years which includes a gradual but steady reduction in the amount of at-sea discarding permitted as well as the dumping tonnage cap. Data from the US West coast hake fishery maximized retention program show a steady reduction in at-sea discarding as unnecessary discards and bad behavior are identified and eliminated.
2. A spatial phase-in of maximized retention in which bycatch hotspots, for instance the previously identified river herring hotspots or groundfish closed areas, require maximized retention.
3. A gradual phase-in of Video Based Electronic Monitoring (VBEM) as the verification system through pilot programs. This approach is briefly mentioned in Alternative 3 now, but warrants further attention. 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. Though a proven application of VBEM, maximized retention verification in trawl fisheries would be new to New England.

2.5.4 Trip Termination Option

This measure would require a vessel to terminate its trip and return to port in the event that slippage occurs.

(Needs more discussion/development – which section should this measure be included in?)

2.5.5 Options to Address Non-Permitted Landings by Herring Vessels (Formerly Section 2.7.8, p.58)

This alternative may present a regulatory obstacle in that maximized retention provisions will likely require the landing of certain species for which herring vessels have landing limits or are not currently permitted to land at all. This section describes a series of options to potentially address this obstacle, as well as sub-options to address the disposition of the non-permitted landings.

2.5.5.1 Option 1 – 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 Atlantic States Marine Fisheries Commission (ASMFC), and ASMFC plans might need to be amended.

In order to be effective in a timely fashion, work on these amendments would likely need to begin concurrent to the development of Amendment 5. Thus a necessary precursor to this option might need to be a very early Council decision to pursue development of a maximized retention program so that the cross-fishery regulatory infrastructure could be built. Impact on these other species would clearly need to be capped at biologically and economically appropriate levels, thus there is a preferred sub-option for this option which would set bycatch caps on all species for the herring fishery.

Several sub-options are under consideration relative to this measure and the treatment of non-permitted or non-authorized catch. Additional sub-options address whether or not such fish landed outside current regulations could be sold, and, if so, how the revenues could be utilized.

Sub-option 1A: Allow landing of non-permitted catch, including in excess of current trip limits, with such landings subject to appropriate caps (~~Preferred~~);

Sub-option 1B: Allow landing of non-permitted catch, including in excess of current trip limits, without caps (~~Non-Preferred~~).

~~**Sub-option 2A:** Allow sale of catch landed outside of current regulatory allowances with revenues returned to NMFS for use in management of fishery targeting species in question;~~

~~**Sub-option 2B:** Mandate that catch landed outside of current regulatory allowances is donated to food banks;~~

~~**Sub-option 2C:** Mandate that catch landed outside of current regulatory allowances must be destroyed.~~

2.5.5.2 Option 2 – Annual Issuance of Exempted Fishing Permits

Under this option, the maximized retention program would operate under an Exempted Fishing Permit (EFP) issued by the Sustainable Fisheries Division (SFD) at NERO on an annual basis.

Vessels would apply annually and NMFS would issue EFPs provided all program participation requirements were met and program elements were in place. The EFP would provide the regulatory relief necessary to allow the currently non-permitted landings to take place.

All of the Sub-options described above under Option 1 (Section XXX) would be applicable under Option 2 and would need to be considered by the Council if Option 2 is selected.

Discussion

The maximized retention program in the Pacific Council's shore-based hake fishery currently operates under an EFP, as it has for approximately seven years, although this fishery is fairly far along in the process of transitioning to a fully-approved program without annual EFPs.

2.5.5.3 Option 3 – 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.

Comment [Ils13]: Observer Program comment – unsure whether this is feasible for all herring vessels

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.

2.6 MEASURES TO ENSURE MAXIMIZED SAMPLING AND ADDRESS NET SLIPPAGE

2.6.1 Measures to Ensure Maximized Sampling

MOVE MEASURES FROM OTHER SECTIONS

2.6.2 Measures to Address Net Slippage

This alternative may present a challenge in that rigorous protocols may have to be developed to address slippage (the dumping of catch directly from the codend without it being brought on board). Accommodation should be made to allow this practice for legitimate safety reasons, so the challenge is therefore to minimize and mitigate it. A further challenge will be to devise net-handling techniques to assure that slippage does not occur and demonstrate this fact adequately such that the VBEM can verify the absence/minimization of slippage.

Finally, particular attention should be paid to a subset of slippage events which are relatively low in volume on a tow-by-tow basis, but probably fairly significant overall given the number of

tows in a fishing year. This would be the “operational discards,” a term used to describe the fish that are left in the net at the conclusion of pumping. It is possible that these operational discards are not representative of what was pumped, so they must be sampled carefully. By its nature, slippage occurs underwater, and thus devising techniques to document it will be difficult.

The proposed requirement for a CMCP can address this. While this section will briefly outline (as sub-options) a series of suggested net handling techniques, the preferred alternative will be to place the burden on the herring industry to devise and document techniques to demonstrate that slippage has not occurred and secure approval for those techniques through the CMCP.

2.6.2.1 Option 1 – 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.

2.6.2.2 Option 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.

Sub-Options

Sub-option 2A – Interruption Prohibition: Under this sub-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-purged before being placed back in the water.

Sub-option 2B Codend Lifting: Under this sub-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.

Sub-option 2C Bring Codend Aboard: Under this sub-option, the vessel would be required to bring the codend aboard the vessel to visibly demonstrate that it is empty or that the catch remaining in the net was removed to the deck and either retained or visibly discarded.

2.6.2.3 Option 3 – Unobservable Fishery

~~Under this option, if no techniques to ensure that slippage does not occur or that slipped fish are measurable and identifiable are possible, the Council would declare the herring fishery “unobservable,” and the fishery would be suspended indefinitely until appropriate techniques could be developed to observe all of the catch.~~

2.6.2.4 Sub-Options to Address Non-Compliance with Maximized Retention

Sub-options 1 and 2: Suggestions for penalties/accountability measures specific to maximized retention non-compliance including failure to visibly demonstrate maximized retention compliance

Sub-option 1A: Apply **assumed** slippage event tonnage against at-sea discard cap

Under this sub-option, an assumed tonnage for each detected or suspected/inferred slippage event would be applied against an overall tonnage cap on at-sea discards in the fishery. The assumed amount would be set at the current best estimate for the average tow in the fishery (approximately 65 tons). Since the goal of the maximized retention program is to land 99.5 % of the catch, the total at-sea discard cap would be set at 0.5% of the TAC in the fishery (approximately 500 tons at current TAC levels).

Sub-option 1B: Apply **estimated** slippage event tonnage against slippage cap

Under this sub-option, an estimated tonnage for each detected slippage event would be applied against an overall tonnage cap on at-sea discards 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 sub-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. Since the goal of the maximized retention program is to land 99.5 % of the catch, the total at-sea discard cap would be set at 0.5% of the TAC in the fishery (approximately 500 tons at current TAC levels). Suspected/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.

Sub-option 2A: Apply **assumed** slippage event tonnage against species specific bycatch caps (**preferred**)

Under this sub-option, an assumed tonnage for each detected or suspected/inferred slippage event would be applied against all target species quotas and against individual tonnage caps on all bycatch species in the fishery. The assumed amount would be set at the current best estimate for the average tow in the fishery. Individual species quotas would be set at biologically-appropriate levels for each species and in consideration of economic and other concerns of all other fisheries targeting those species. The multiple-jeopardy nature of this approach could be severe, but desirable in that it will have a strong likelihood of success at achieving the desired result of eliminating slippage and undetected at-sea discard events.

Sub-option 2B: Apply **estimated** slippage event tonnage against species specific bycatch caps

Under this sub-option, an estimated tonnage for each detected slippage event would be applied against all target species quotas and against individual tonnage caps on all bycatch species in the fishery. The estimated amount would be based on some independent measure of the total weight of the slipped discards. Captain's estimates would not be accepted. Therefore, this sub-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. Individual species

quotas would be set at biologically-appropriate levels for each species and in consideration of economic and other concerns of all other fisheries targeting those species. The multiple-jeopardy nature of this approach could be severe, but desirable in that it will have a strong likelihood of success at achieving the desired result of eliminating slippage and undetected at-sea discard events. Suspected/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.

Sub-Option 3: Consequences of Quota or Bycatch Cap Overages

Under this sub-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.

Discussion

In addition to the schedule of penalties and violations that are specific to a failure to adequately demonstrate that no catch was slipped on every haul (i.e. demonstrate compliance with maximized retention requirements, described above), a schedule of general penalties should be created to discourage non-compliance with the overall catch monitoring program, including such violations as failure to adhere to the provisions of a CMCP, fishing without an operational VBEM system, failure to cooperate with a shore-based observer, etc..

Specification of Measures to Address Non-Compliance with Program Requirements

- Non-compliance with any or all of the following program elements must be considered a serious violation and strict measures must be in place to both punish violators and deter future infractions:
 - Failure to adhere to provisions of an approved CMCP;
 - Failure to adhere to maximized retention requirements; and
 - Deliberate interference with VBEM system operation.
- Accountability measures should be established to account for monitoring and/or quota/bycatch cap accounting errors caused by such non-compliance.

2.6.2.5 Trip Termination Option

This option would require a vessel to terminate a trip if a slippage event occurs.

(Needs more discussion/development – which section does this fit in this alternative?)

2.6.2.6 Options to Require Affidavit

- **Option: Requirement for vessel operators to complete an affidavit providing details on any slippage event (Formerly Section 2.3.1.4.1, p.16)**

This measure requires that an affidavit be created for slippage/dumping events, to be signed by vessel operators under penalty of perjury. The 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).

- **Option: Require vessel operators to complete an affidavit providing details on a released haul** (Amendment 5, Section 2.3.1.4.1 and Alt #2 8/24 version).

The sworn report will include:

- Reason for release
- Whether or not the haul or set was made for determining species composition or marketability (*i.e.*, whether it was a “test tow”)
- Estimate of the quantity and species composition of the released haul
- Location and time of the event
- Methodology for determining volume

When observers are present, the observer and authorized vessel personnel will work in cooperation to identify these elements. NMFS should provide guidance for completing the required elements of the affidavit appropriate to each major type of gear used in the fishery.

2.7 AT-SEA MONITORING PROGRAM

2.7.1 Background (Formerly Section 2.3.4.1, p.20)

One of the most important elements of an at-sea monitoring program, and one of the initial decisions that must be made, concerns the goals and objectives of the program – specifically:

- What are the observers going to measure? (catch/bycatch, species, gear types, etc.)
- What are the priorities?
- Should observer data be used to estimate bycatch of species x across the entire fishery or gear type? If so, what is the level of precision that should be achieved by using observer data to estimate bycatch?

Example Approach – Preliminary Analysis

A statistical approach to determining the appropriate level of observer coverage in a fishery would to (1) set a goal (usually based on precision and expressed as a *coefficient of variation*, CV) and then (2) use existing information to determine the level of coverage needed to achieve the goal. A CV is a normalized measure of dispersion of a probability distribution. The CV is generally defined as the ratio of the standard deviation to the mean.

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 can not 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.**

To begin to explore this issue relative to catch monitoring in Amendment 5, the Herring PDT provided a *example approach* to determining levels of observer coverage necessary to meet a specific goal. The following exercise was conducted by the Herring PDT using existing observer data for two years during which there was more observer coverage of these two gear types (2004 and 2005), combined 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.

Table 1 and Table 2 illustrate how the SBRM methodology can be used to develop a statistical approach to sampling the herring fishery to meet a specific goal – in this example, the goal is estimating river herring bycatch on midwater trawl and pair trawl vessels with a certain level of precision (as expressed by the CV). Observer records for midwater trawl and pair trawl vessels during 2004 and 2005 were used to generate discard/kept ratios of river herring/total 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. This exercise highlights a few key points with respect to designing an observer program:

- 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 discard/kept ratios are small (see 2004 single midwater trawl D/K ratio in Table 2, for example), 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.
- The D/K ratios, and therefore the target number of sea days and percent coverage, will vary by species and by gear type. The example provided in Table 1 and Table 2 characterizes the

Comment [IIs14]: Some concern has been expressed about applying D/K ratios to determine coverage levels for a high volume/low discard fishery.

statistical approach that can be taken to evaluate levels of coverage and identify priorities, but the specific formulas must be applied to each species and gear type individually when designing a program. Ultimately, a statistically-sound program should be developed based on both the top priorities for coverage and the resources that will be available to support it.

Table 1 Example Approach to Determining Appropriate Levels of Observer Coverage – Based on 2005 Bycatch Data for River Herring

PAIR TRAWL (2005) D/K = 0.031787			
Target Coefficient of Variation (CV)	Target No. Trips	Target No. Sea Days	Target % Coverage (of total trips)
10%	91.82	137.73	35.18
20%	31.18	46.77	11.95
30%	14.84	22.27	5.69
40%	8.56	12.84	3.28
50%	5.55	8.32	2.12
MIDWATER TRAWL (2005) D/K = 0.074375			
Target Coefficient of Variation (CV)	Target No. Trips	Target No. Sea Days	Target % Coverage (of total trips)
10%	159.00	238.51	30.52
20%	51.55	77.33	9.89
30%	24.24	36.37	4.65
40%	13.92	20.88	2.67
50%	9.00	13.49	1.73

Table 2 Example Approach to Determining Appropriate Levels of Observer Coverage – Based on 2004 Bycatch Data for River Herring

PAIR TRAWL (2004)			
D/K = 0.0343432			
Target Coefficient of Variation (CV)	Target No. Trips	Target No. Sea Days	Target % Coverage (of total trips)
10%	112.73	169.09	12.64
20%	31.13	46.70	3.49
30%	14.11	21.17	1.58
40%	7.99	11.99	0.90
50%	5.13	7.70	0.58
MIDWATER TRAWL (2004)			
D/K = 0.000016933			
Target Coefficient of Variation (CV)	Target No. Trips	Target No. Sea Days	Target % Coverage (of total trips)
10%	153.69	230.53	67.41
20%	77.71	116.56	34.08
30%	42.60	63.90	18.69
40%	26.10	39.15	11.45
50%	17.42	26.13	7.64

Follow-up – Establishing Priorities

At its October 7-9, 2008 meeting, the Council reviewed the preliminary analysis of observer coverage levels and the example approach provided by the Herring PDT (above) and passed the following motion:

To request that the Herring PDT develop a range of alternatives for an at-sea monitoring program (onboard observer and electronic) with a CV of 20%, that focuses upon Atlantic herring, river herring species and haddock.

At its February 9-11, 2009 meeting, the Council reconsidered this recommendation and passed the following motion:

to reconsider the recommendation for a 20% CV on Atlantic herring, river herring, and haddock, and instead **recommend using a 30% CV on the stocks that are not overfished (herring, haddock) and 20% on the stocks of concern (river herring).**

The above motion therefore reflects the Council’s intent with respect to designing a sampling program for at-sea monitoring and determining the levels of coverage that may be needed to achieve the desired result. The Council agreed that the justification for identifying priority species be linked to the status of the stock. Achieving a 20% CV for Atlantic herring and haddock may be an unrealistic target, especially since these stocks are not considered overfished and are thought to be healthy. 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.

Rather than conduct an analysis based solely on achieving a 20% CV for these species, the Herring PDT re-ran the example above for all three species over a range of desired CVs. This 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. Table 3 and Table 4 summarize the results of this analysis for midwater trawl and pair trawl vessels respectively. The analysis is based on 2005 observer data because 2005 was the year with the most sea sampling (coverage, intensity) in recent years for these gear types. Observer coverage during the 2005 fishing year sampled close to 20% of the herring fishery.

This analysis is intended to give managers an understanding of the level of observer coverage that would likely be necessary to achieve the desired CV for estimating bycatch of herring, river herring, and haddock on midwater trawl and pair trawl vessels. The output (#trips) has been translated to observer sea days using an assumption of 1.5 days per trip. This should help in terms of designing a sampling program that can meet specific goals. Once goals are identified and the number of required sea days is estimated, the next step would be to design a sampling schedule for the fishing year based on current patterns of fishing effort.

The results illustrate the costs that would be associated with covering the fishery to sample “rare” bycatch events adequately enough to estimate bycatch with a CV of 20%. Based on available data, bycatch (discards) of Atlantic herring appear to be somewhat rare in the fishery and would therefore require a very high level of coverage (over 300 sea days) in order to sample enough to estimate the total bycatch with a 20% CV. A similar result is seen for estimating haddock bycatch on pair trawl vessels. The observed discard/kept ratios are low, which means that a high level of sea days would be required to achieve a CV of 20%. Likewise, when a sea day is allocated for the purposes of estimating river herring bycatch, available information suggests that no river herring will be encountered about 75% of the time.

While this exercise helps to illustrate tradeoffs and identify priorities for sampling, it really only provides some background and context for managers to consider what level of coverage may be necessary to achieve certain goals. It serves as a guideline and supplements the information and analysis provided in the SBRM amendment. **(ADD MORE ABOUT SBRM AMENDMENT)**

Because this analysis serves as a guideline for decision-making with respect to at-sea monitoring, it is important to remember that the results are dependent on observed discard/kept (D/K) ratios and how the variance around those ratios is estimated. Variance most likely does not carry forward from year to year, especially if management measures affect effort and/or fishing patterns. Also, this approach does not consider the magnitude of mortality of the species in question. The biological impact of bycatch that is occurring in the herring fishery is an important factor to consider when identifying priorities for at-sea monitoring.

Table 3 Designing an Observer Program for Midwater Trawl Vessels– Based on 2005 Bycatch Data for River Herring, Haddock, and Atlantic Herring

Single Midwater Trawl (2005)			
River Herring			
CV	# trips	# sea days	% Coverage (trips)
0.1	159	239	31
0.2	52	77	10
0.3	24	36	5
0.4	14	21	3
0.5	9	13	2
Haddock			
CV	# trips	# sea days	% Coverage (trips)
0.1	157	236	30
0.2	51	76	10
0.3	24	36	5
0.4	14	21	3
0.5	9	13	2
Atlantic Herring			
CV	# trips	# sea days	% Coverage (trips)
0.1	384	575	74
0.2	214	321	41
0.3	123	185	24
0.4	77	116	15
0.5	52	79	10

Table 4 Designing an Observer Program for Pair Trawl Vessels– Based on 2005 Bycatch Data for River Herring, Haddock, and Atlantic Herring

Pair Trawl (2005)			
River Herring			
CV	# trips	# sea days	% Coverage (trips)
0.1	92	138	35
0.2	31	47	12
0.3	15	22	6
0.4	9	13	3
0.5	6	8	2
Haddock			
CV	# trips	# sea days	% Coverage (trips)
0.1	242	364	93
0.2	200	299	76
0.3	154	231	59
0.4	117	176	45
0.5	89	134	34
Atlantic Herring			
CV	# trips	# sea days	% Coverage (trips)
0.1	242	364	93
0.2	200	300	77
0.3	155	232	59
0.4	118	176	45
0.5	90	135	34

2.7.2 Measures to Address Observer Coverage Levels

(Formerly Section 2.5.6, p. 47) At-sea monitoring in this alternative will be based on a sampling design that is intended to achieve a 20% CV for estimating bycatch of Atlantic herring, river herring, and haddock in the herring fishery. Based on available resources, observer days will be allocated to the herring fishery based on the sampling design that is ultimately adopted in this amendment (see Section **Error! Reference source not found.** of this document for a detailed description of the sampling design – still under development, final details TBD). This amendment encourages and requires the maximum amount of observer coverage that available resources can support, within the bounds of the sampling program described in Section **Error! Reference source not found.**

Management measures to improve at-sea monitoring are described in Section XXX of this document. The measures that are ultimately adopted by the Council to address/improve at-sea monitoring will be incorporated into this alternative.

2.7.2.1 Increase Observer Coverage to SBRM Levels (Alt #2 Streamlined 8/24 Version)

Observer coverage for all Category A & B vessels to achieve a 20 percent cv for estimations of stocks of concern (river herring), and 30 percent cv for stocks that are not overfished (herring and haddock) (Amendment 5, Section 2.3.4). [Note: Current

analysis only reflects levels necessary to meet these objectives for mid-water and pair trawls. Needs to be supplemented to reflect levels necessary to achieve these levels for other major gear types (purse seine, otter trawls, and, perhaps, stop seines and weirs).]

Sub-option 1: Include this requirement for all limited access vessels, including Category C vessels.

Preferred Sub-option 2: Achieve target levels of precision for species of concern using combination of at-sea and dockside sampling.

This measure would require NMFS to increase observer coverage in the Atlantic herring fishery to levels required by the Standardized Bycatch Reporting Methodology (SBRM) amendment. 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.

Discussion

The Council should insure that the full measure of observer coverage necessary to meet the standards in the SBRM is achieved. However, even if the provisions for at-sea monitoring target a 30% coefficient of variation (CV) for bycatch estimates, the Council could achieve higher levels of precision by utilizing an expanded shore-based sampling program, as proposed (see above).

2.7.2.2 Other Options (Formerly in Alternative 3, p.63)

- **Option 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.

- **Option 2 – 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 include allowing industry to choose which verification vector to employ.

- **Option 3 – <100% Verification Coverage**

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

2.7.3 Measures to Improve At-Sea Monitoring (Formerly Section 2.3.4.2, p.26)

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. This should improve the vessel owner/operator's understanding regarding expectations and the collection of information by observers during a fishing trip, and ensure safe working conditions for observers on all fishing vessels. The Herring PDT supports inclusion of the management measures to ensure observer safety in Amendment 5, but recognizes that some of the measures to ensure accurate and complete collection of catch data may be problematic from an enforcement or compliance perspective. However, further discussion of all possible management measures is warranted at this time. The Council's Enforcement Committee will review the proposed management measures and provide feedback in May 2009, and the Herring Advisory Panel may also be able to provide substantive feedback regarding some of these measures.

Moreover, the Council may want to consider requiring an outreach program and/or working with the fishing industry to develop a clear Code of Conduct for trips carrying a fisheries observer. This approach may be particularly helpful to address issues that cannot be resolved through regulatory change and to reach some sort of agreement regarding any of the measures below that are eliminated from consideration due to enforcement, compliance, and/or practicability problems.

Comment [IIs15]: Several modifications to the proposed measures have been made (see below), based on recommendations from the Observer Program and discussion at the June 4/5, 2009 Herring Committee meeting.

2.7.3.1 Proposed Measures to Improve Observer Safety

- A. *Providing the observer 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.

B. Providing 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;

2.7.3.2 Proposed Measures to Ensure the Accurate and Complete Collection of Catch Data

C. Requirement to provide accurate details to the observer regarding why a bag may be partially pumped and fish released

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

Comment [IIs16]: Observer program can add these information requirements to observer logs.

D. Provide observer notice when pumping may be starting and when to allow sampling of the catch, and when pumping coming to an end;

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

F. 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

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

- No at-sea processors are engaged in the herring fishery at this time; potential for future at-sea processing vessels in the fishery may not be significant

H. All fish must be at least pumped aboard the boat so that the entire catch can be sampled by an observer.

Comment [IIs17]: Additional potential challenges applying this provision to the entire fishery (ex., purse seine vessels and utilization of carriers)

- At its April 9-11, 2009 meeting, the Council passed a motion regarding herring vessel access to Closed Area I, suggesting that there be 100% observer coverage on herring trips in Closed Area I and a prohibition on slipped cod ends so that all fish would at least be pumped aboard the boat so it can be sampled by an observer. The Council may want to consider adding a requirement for all fish to be pumped on board so they can be sampled by an observer to the measures under consideration in this amendment.

Comment [IIs18]: Enforcement Committee concerned about this measure and recommends consultation with NOAA GC to develop provisions to address vessel safety.

Comment [IIs19]: Committee/Council could consider applying this measure throughout the fishery – summer/fall 2009 application in Closed Area I may provide more information about potential challenges, etc.

I. Requirement that observers be allowed to view the codend after pumping has ended, before the pump is removed

Comment [IIs20]: Motion regarding this measure was tabled by the Herring Committee June 4/5, 2009

J. 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.

Comment [Ils21]: Details of this measure TBD; measure to be added to options to improve at-sea monitoring

2.7.3.3 Measures to Improve At-Sea Monitoring and Observer Safety (Formerly in Alternative 2 8/24/09 version)

Include all measures A-J with the following exceptions or modifications:

- Eliminate sub-option requirement to bring all fish aboard the vessel for sampling).
- Option 1: Eliminate sub-option which states: “Requirement that observers be allowed to view the codend after pumping, prior to pump removal.”
- Option 2: Modify sub-option which establishes protocols to allow, to the extent possible and practicable, observers to view the codend or bunt after pumping, before removal of the pump.
- Modify Sub-option stating: “Determine (and apply) minimum portion of a slipped catch that would be required to be pumped on board a vessel to ensure complete sampling”).

2.8 DOCKSIDE MONITORING PROGRAM

2.8.1 Dockside Monitoring Objectives and Sampling Protocols

2.8.1.1 Dockside Sampling Program (DSP) Objectives (Formerly Section 2.5.3.4, p.35)

Based on Herring Committee discussion and recommendations, this alternative for a dockside sampling program (DSP) is intended to achieve the following objectives:

1. Sample enough landings events to accurately estimate catch/bycatch in the herring fishery (in combination with at-sea monitoring/observer coverage);
2. Confirm the accuracy of self-reporting of herring landings.

In addition, samplers may collect important biological information and commercial catch samples necessary to support stock assessments and other biological needs.

To achieve these objectives, this dockside sampling program (DSP) would be designed similarly to the current portside bycatch sampling programs managed by ME DMR and MA DMF with increased sampling coverage to ensure that extrapolations of landings and landed bycatch estimates can be made with some specified degree of precision (expressed as a coefficient of variation, CV). The sampling design and coverage levels for this program (distribution of sampling events across space and time) would be determined by NOAA Fisheries similarly to

how the NEFSC allocates sea days for observer coverage in the fishery, depending on the priority species and target CVs that are identified by the Council (see below).

Staff Note – need to be consistent with terms. Is the goal a dockside monitoring program (DMP, for example, to ensure compliance and ACL counting/monitoring), or is the goal a dockside sampling program (DSP, for example, for bycatch estimation and extrapolation to cross-check quota counting)? Should both be considered? Try to be consistent with definitions and terminology.

2.8.1.2 DSP – Responsibilities, Notification Requirements, and Sampling Design

- NOAA Fisheries would be required to determine levels of coverage for dockside sampling similar to the SBRM approach for at-sea monitoring, based on the Council’s specified goals/objectives and the SBRM methodology (see below).
- Because multiple service providers can be used for dockside sampling, NOAA Fisheries would be responsible for determining levels of coverage on an annual basis, including time/area/gear type. This information would be provided to DSP service providers on an annual basis to assist them in developing plans for sampling and ensuring that dockside 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. 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 DSP service provider. DSP service providers will work with the vessels to ensure that trips that require dockside sampling are met by a sampler.

Comment [IIs22]: Need to determine which vessels (Category A/B and C?)

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

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

Sampling Design for Estimating (Landed) Bycatch – Objective #1

The overall objective of the sampling program is to be able to derive reasonable estimates of species-specific bycatch rates across gear types, seasons, and areas. The sampling design for the DSP will be based on the same approach utilized in the SBRM for determining target levels of observer coverage to generate estimates of bycatch based on specified levels of precision. A statistical approach to determining the appropriate level of coverage or sampling in a fishery

would to (1) set a goal (usually based on precision and expressed as a *coefficient of variation*, CV) and then (2) use existing information to determine the level of coverage needed to achieve the goal. A CV is a normalized measure of dispersion of a probability distribution. The CV is generally defined as the ratio of the standard deviation to the mean.

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 can not 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 a sampling program, whether dockside or at-sea.

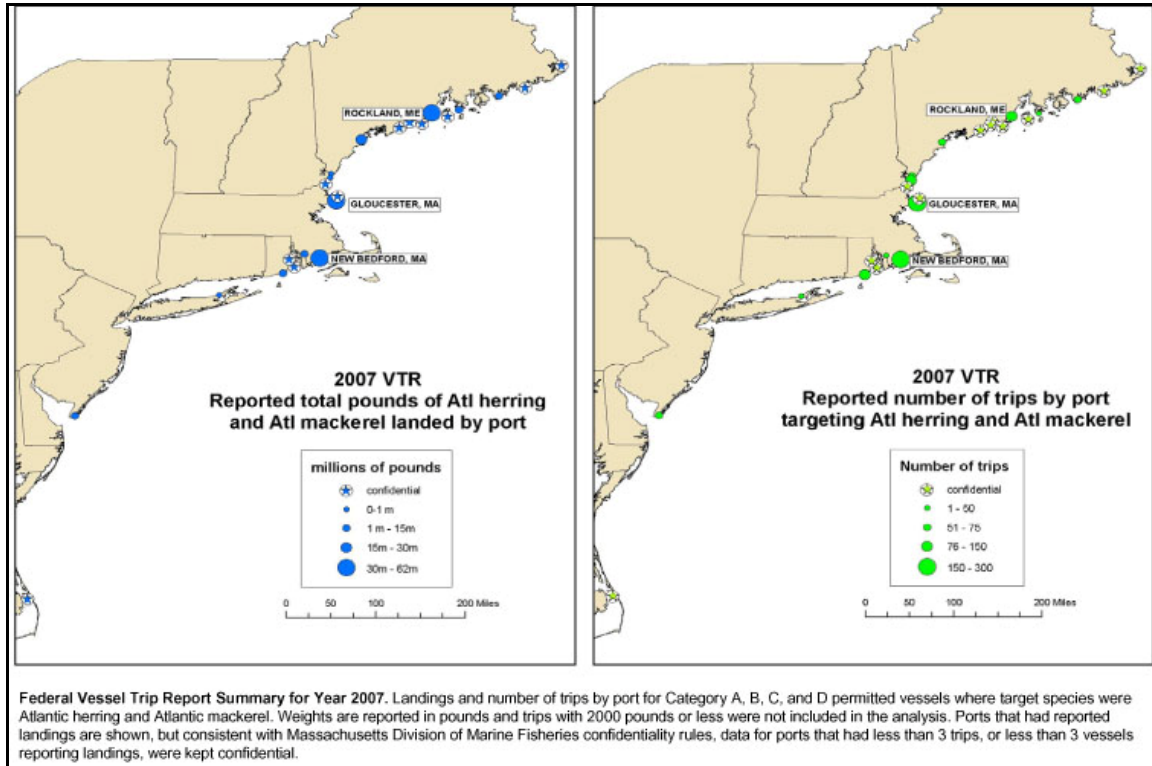
At its February 9-11, 2009 meeting, the Council reviewed preliminary analysis of at-sea coverage levels, the example approach provided by the Herring PDT, and Herring Committee recommendations, and passed a motion to **construct a program for sampling/observer coverage that is intended to achieve a 20% CV on river herring catch and a 30% CV on Atlantic herring and haddock catch as the priority species.** CVs are likely to be near these levels for all other species that are sampled as well.

The analysis provided in Section Error! Reference source not found. of this document represents an example of how a dockside and/or at-sea sampling program could be constructed to achieve the desired objectives (see Section Error! Reference source not found., p. Error! Bookmark not defined.). It is intended to give managers an understanding of the level of coverage/sampling that would likely be necessary to achieve the desired CV for estimating bycatch of herring, river herring, and haddock on midwater trawl and pair trawl vessels. This should help in terms of designing a sampling program that can meet specific goals. Once goals are identified and the number of required sea days is estimated, the next step would be to design a sampling schedule for the fishing year based on current patterns of fishing effort in a stratified random design. Recent patterns of fishing effort (time and space) and landings events would be examined to determine the appropriate sampling design for the dockside sampling program (see Figure 1).

The estimates of coverage shown in the following tables are for the purposes of providing an example and should be considered **minimum estimates** of coverage that would be needed to achieve the desired CVs for the midwater trawl and pair trawl fleet. Sampling in the fishery has been relatively low and inconsistent in recent years, so variability is high and, in some cases, has not been adequately characterized. Higher levels of sampling would likely be required in the beginning years to better understand variability and achieve the goals of the program. As sampling increases, data improve, and the program evolves, the sampling design and coverage levels will change; the sampling program must be an iterative process with regular review/analyses of previous years to determine the best course of action for future years. The

Council should continue to specify the goals/objectives of the sampling program, and NOAA Fisheries scientists should determine the appropriate sampling design to achieve these goals. The Herring PDT will evaluate the sampling program (dockside and at-sea) regularly as part of the herring SAFE Report and specifications process.

Figure 1 2007 Landings and Number of Trips by Port for Vessels Targeting Herring and Mackerel (VTR Data)



2.8.1.3 DSP Sampling Methodology/Protocols

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 DSP 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 dockside 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 dockside 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.
 - o $120,000 \text{ lbs} / 10,000 \text{ lbs} = 12$
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.
 - o $99\% \text{ Atlantic Herring} = 120,000 \text{ lbs} \times 0.99 = 118,800 \text{ lbs of Atlantic Herring}$
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.
 - o $1\% \text{ Atlantic Mackerel} = 120,000 \text{ lbs} \times 0.01 = 1,200 \text{ lbs of Atlantic Mackerel}$

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

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		<input type="checkbox"/>	
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			Lt (cm)		
4			4			4			Frequency		
5			5			5			Sub Wt (kg)		
6			6			6			0		
7			7			7			1		
8			8			8			2		
9			9			9			3		
0		Notes	0		Notes	0		Notes	4		
1			1			1			5		
2			2			2			6		
3			3			3			7		
4			4			4			8		
5			5			5			9		
6			6			6			COMMENTS		
7			7			7					
8			8			8					
9			9			9					

Protocol for Collecting Commercial Catch Samples

As part of this alternative, 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)

2.8.1.4 Objective #2 – Estimating Total Catch and Verifying the Accuracy of Self-Reporting

The objective to confirm the accuracy of self-reporting could be accomplished by extending the current role of dockside samplers to include the verification of landings because the samplers need this information anyway to determine how to best sample the offload.

- When sub-sampling, dockside samplers would use the certified volumetric capacity estimates to derive the total volume of the offload, which can then be converted to weight and used to determine the time intervals for sub-sampling. See Section **Error! Reference source not found.** of this document for additional information.
- For every landings event that is sampled by a dockside sampler, there would be several estimates of herring landings: IVR reports (captains' hail weights), VTRs, dealer reports, and dockside sampler estimates. These data sources can be cross-checked by NOAA Fisheries to confirm the accuracy of self-reporting.

This program will utilize independent private contractor(s) to coordinate dockside sampler deployment and summarize, enter, and review data associated with the program. Data will be recorded by dockside samplers and submitted to NOAA Fisheries (see example data forms). NOAA Fisheries will cross-check the DSP data with dealer and VTR reports to confirm the accuracy of self-reporting, and bycatch estimates will be compared to those derived through at-sea monitoring.

2.8.2 Dockside Monitoring Program Alternatives

2.8.2.1 Option (Formerly Section 2.6.3.1, p. 49)

This measure would require NMFS, in cooperation with the States of Maine and Massachusetts, to establish a uniform and statistically-robust shore-based catch 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).

This measure also would mandate the establishment of a shore-based sampling program – direct NMFS to use some existing resources to collect catch/bycatch information at the first point of landing or production, subject to the normal operation of the fishing company.

Discussion

NMFS, the States, and the herring industry should work jointly to establish the most effective and efficient means for gathering samples, develop a uniform methodology for collecting such samples, and establish provisions for working space that do not interfere with offload and processing operations, in addition to other operational details. The current call-in system would be used to provide ample notice to NMFS prior to landing, in order to arrange for port samplers when they may be available.

Dockside Catch Sampling Program Alternatives: (Alt #2 8/24/09 version)

- i. Create Standardized Dockside Monitoring (DSM) Protocols and Reporting Forms.** Intent is to include applicable elements from the Objectives, Responsibilities, Notification Requirements, and Sampling Design analysis as set forth in **Sections 2.5.3.4 and 2.5.3.5** of Draft Amendment 5. That is, a DSM sampling design would be established to provide accurate estimations of catch and bycatch (in combination with at-sea observation) for all major elements of the fishery. NMFS would determine levels of coverage similar to the SBRM approach. 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 mid-water and pair trawls.
- ii. Establish a DSM Program as an Integrated State/Federal Program.** The current state port sampling program will continue under a common set of protocols and reporting forms, as specified in paragraph (i) above. NMFS would utilize observers to conduct dockside sampling on observed trips. In addition, NMFS would have the option to transfer observers from at-sea to port sampling, so long as at-sea coverage levels can be set to achieve an overall level of precision and accuracy of at least 30 percent cv, and a combined at-sea and dockside level of 20 percent cv for species of concern (river herring).

2.8.2.2 Measures to Achieve at Least 20% CV for Bycatch Estimates in the Fishery from a Combination of At-Sea and Shoreside Sampling

This measure would require NMFS to increase observer coverage in the Atlantic herring fishery to levels required by the Standardized Bycatch Reporting Methodology (SBRM) amendment. 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. (Formerly Section 2.6.3.2)

Discussion

The Council should insure that the full measure of observer coverage necessary to meet the standards in the SBRM is achieved. However, even if the provisions for at-sea monitoring target a 30% coefficient of variation (CV) for bycatch estimates, the Council could achieve higher levels of precision by utilizing an expanded shore-based sampling program, as proposed (see above).

2.8.2.3 Measures to Ensure 100% Dockside Monitoring (DSM) (Formerly Section 2.7.4, p.53)

Rigorous sampling of the landed fish and certification of the offload weigh-outs (census of all landing events) by certified shore-based observers forms another critical component of this alternative. 100% coverage of offloads by certified shore-based fishery observers (SBOs) who execute a robust protocol to derive total species-level landings composition would be necessary in this alternative.

Participation in the 100% Dockside Monitoring Program would be mandated.

- Shoreside component of CMCP (see below) will be required to outline procedures for the following catch-handling elements upon landing:
 - Procedures to ensure the presence of a shore-based observer for all landing events;
 - Certification standards for shore-based observers;
 - Minimum data collection standards and protocol guidelines for shore-based observers, including those employed by states (see Section XXX for a description of options for DSM providers);
 - Verification that no pre-sorting takes place upstream of shore-based observers;
 - Procedures to provide a certified measurement of landed weight that is verifiable by the shore-based observer.

2.8.3 Dockside Monitoring Set-Aside Options (Formerly section 2.5.3, p.34)

Under this alternative, the Council, in consultation with the ASMFC, would set-aside up to 3% of the TAC from any management area(s) or the total TAC for the herring fishery to support dockside monitoring and commercial catch sampling of herring landings. The Council would determine the specific percentages for the DSM set-aside and the management area(s) to which they apply during the fishery specification process.

Comment [Ils23]: Not much support for a set-aside; Council may want to consider eliminating options for a set-aside and instead identify this as a priority for the current research set-aside

2.8.3.1 Set-Aside Option 1 – Eliminate the Research Set-Aside and Replace it with a DSM Set-Aside

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

Currently, the herring fishery closes in a particular management area when it is projected that 95% of the area TAC has been/will be caught. Five percent of the remaining TAC 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 DSM 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 92% of the TAC is reached in areas where a DSM set-aside is allocated (100% minus the 5% incidental catch set-aside and the 3% DSM set-aside).

2.8.3.2 Set-Aside Option 2 – Establish DSM Set-Aside in Addition to the RSA

Under this option, the current research set-aside (RSA) for the herring fishery would continue, and a DSM 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 TAC has been/will be caught. Five percent of the remaining TAC 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 89% of the TAC is reached in areas where a DSM set-aside is allocated (100% minus the 5% incidental catch set-aside, the 3% RSA, and the 3% DSM set-aside).

2.8.3.3 Set-Aside Option 3 – Identify DSM as Top Priority for RSA

This option would retain the current RSA process, but the only priority for funding that would be identified by the Council would be dockside monitoring.

2.8.4 Options for Dockside Monitoring Service Providers

2.8.4.1 DSP Service Providers – Requirements and Standards (Formerly Section 2.5.3.8, p.44)

These requirements/standards can apply to at-sea monitors as well, if at-sea monitoring is contracted out to private service providers.

The following standards would be used by NOAA Fisheries to evaluate service providers to comply with the dockside sampling requirements outlined in this section. NOAA Fisheries will certify/approve service providers and associated dockside 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.

Dockside 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 a dockside sampling 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 DSP 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 a DSP service provider and the arrangements to be used;
- Evidence of adequate insurance to cover injury, liability, and accidental death for dockside samplers (including during training). Workers' Compensation and Maritime Employer's Liability insurance must be provided to cover the dockside samplers; vessel owners; processors/dealers; and service provider. Service providers shall provide copies of the insurance policies to dockside 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 dockside 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 dockside samplers, including, but not limited to, personal injury, death, harassment, or intimidation; and
- Evidence that the company is in good financial standing.

Dockside sampling service providers must be able to document compliance with the following criteria and requirements:

- A comprehensive plan to deploy NOAA Fisheries -certified dockside 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 dockside samplers to all ports in which service is required by this section;
 - A service provider must report dockside samplers in a timely manner to determine whether the predetermined coverage levels are being achieved;
 - A service provider's dockside 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 dockside 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 dockside sampler harassment; discrimination; injury; and any information, allegations, or reports regarding dockside 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 dockside 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 dockside sampler for any reason including, but not limited to, the following:
 - If the service provider does not have an available dockside 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 dockside 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, dockside, 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:
 - Dockside 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 dockside samplers with sufficient safety and data-gathering equipment, as specified by NOAA Fisheries.

For an individual to be certified as a dockside sampler, the service provider must demonstrate that each potential sampler 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 dockside sampler pursuant to standards established by NOAA Fisheries such as being certified by a physician to be physically fit to work as a dockside sampler. The physician must understand the sampler's job and working conditions, including 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.

(This section describes a series of options for the provision of DSM services. It also lays out a framework whereby this alternative would maximize available resources by establishing innovative data-sharing agreements and cooperative standardization of protocols amongst existing government sampling efforts (State and Federal) and the anticipated private DSM vendors and NMFS) - Introduction from Alt #3, p.54 A5DD.

2.8.4.2 Option 1 – Standardize existing state port sampling programs and incorporate them into the proposed action by certifying them as approved DSM vendors (Formerly section 2.7.5.1, p. 54)

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.

Maine DMR Program

The State of Maine, through the Division of Marine Resources (DMR), has conducted a port sampling program in the herring fishery for several years. Historically, funding for the program, which employs one full-time port sampler and for which DMR contributes supervisory and analysis services, has come from the Atlantic Coastal Cooperative Statistics Program (ACCSP). The program has undeniable value, but would likely be more effective if sampling protocols were changed somewhat.

Under this alternative, the DMR port sampler(s) would implement a standardized sampling protocol that would allow them to certify a landings report for any landing they observed that included landed weights for all species. DMR port sampler(s) would also benefit from other requirements of the program including the requirement to provide a certifiable actual weight or approved proxy and the requirement to demonstrate the absence of pre-sorting.

Massachusetts DMF Program

Few details on the size, scope and sampling strategy of the DMF program are available at this time, in part because the program is quite new, but it is believed to consist of one full-time port sampler. It is also believed to be modeled on the DMR program and is, like that one, voluntary for vessels. It is not known whether the DMF sampler works outside Massachusetts.

Resources are currently available to support an expansion of this program. The Cape Cod Commercial Hook Fishermen's Association (CCCHFA) has recently assisted Massachusetts' fishery managers and state legislators in the development of progressive legislation that will enable the Division of Marine Fisheries (DMF) to build and implement a groundbreaking dockside monitoring system for the pelagic fishing industry. Specifically, a piece of state legislation, H5054, also known as the Energy and Environmental Bond Bill (EEBB) was signed into law by the Governor in August 2008. The EEBB specifies that the Commonwealth will create a rigorous DSM program with verifiable landings weights and 100% sampling of landing, and also contains a provision to authorize the Governor to appropriate \$750,000 to support such a program.

2.8.4.3 Option 2 – 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, 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 (see Option 6 in Section XXX below for more information).

2.8.4.4 Option 3 – Implement a single-service provider plan for DSM operations which cannot be covered by shore-based observers employed by state or Federal agencies

2.8.4.5 Option 4 – Implement a multi-service provider plan for DSM operations which cannot be covered by shore-based observers employed by state or Federal agencies

2.8.4.6 Option 5 – <100% Dockside Monitoring Coverage With Extrapolation (Formerly Section 2.7.10.4, p.63)

Under this option, shore-based observers 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.

2.8.4.7 Option 6 – <100% Dockside Monitoring Coverage Without Extrapolation (Formerly Section 2.7.10.4, p.63)

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.

2.8.4.8 Option 7 – Phased-In Approach (Formerly section 2.7.10.4, p.63)

Under this option, the proposed action would be implemented as proposed, but instead of full implementation of the maximized retention/VBEM/DSM program effective immediately with the implementation of Amendment 5, the program would be phased in. Full implementation of the proposed action presumes that program infrastructure will have been sufficiently developed concurrent to the development of final Amendment 5 measures. This may not be possible, and if so, under this option, the primary source of catch information would continue to be the current observer program and the existing State DSM programs during the phase-in period. As a result, the Council would mandate, and NMFS would implement provisions to ensure that during the phase-in period, sea sampling and/or state port sampling data are subject to fleet-wide extrapolation to provide total catch estimates for the fishery.

2.9 MEASURES TO REQUIRE ELECTRONIC MONITORING

2.9.1 Measures to Encourage Utilization of New Technology to Improve Information Collection (Formerly section 2.6.2, p.48)

Top priority for the current RSA to investigate the feasibility of using the study fleet technology in the Atlantic herring fishery – electronic monitors, net sensors measuring trawl depth, temperature, and other data, and GPS integrated into a vessel’s major systems to collect information and transmit electronically – technology can be used to measure incidences of slipped hauls on unobserved trips and provide fine-scale effort data

Discussion

The amount and quality of the information collected can help managers and the industry to better assess conditions that may lead to higher levels of bycatch, thereby improving the ability of fishermen to avoid it. Ultimately, this technology may also prove to be a much more cost-effective means of monitoring the fishery than either additional at-sea observers or video monitors. This technology can also provide a tool for better enforcement.

Electronic Vessels Monitoring (Alt #2 8/24/09 version)

- I. Alternative 1: Require, on a phased-in schedule the use of passive vessel monitoring systems that can, at a minimum, measure the instance of released tows (on trawl vessels) or sets (on purse seine vessels) on unobserved vessels, unless the Regional Administrator determines that the technology is either not sufficient or impracticable.

Systems to be monitored in order to achieve the objective of measuring incidences of released tows:

- o Net reels (deployment and retrieval) for mid-water trawlers, winches on purse seine vessels Pumps
 - o Codend or seine release mechanism
 - o GPS
- II. Alternative 2: Establish a new priority for use of the research set-aside to test applications of passive monitoring systems for mid-water, bottom trawl, and purse seine vessels.

2.9.2 Video-Based Electronic Monitoring (Formerly Section 2.7.2, p.52)

This alternative will require video-based electronic monitoring equipment to ensure compliance with maximized retention provisions.

(This section needs further discussion/development.)

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

2.9.3 Video Monitoring Pilot Program (Formerly Section 2.5.7, p.47)

This alternative will establish a pilot program to collect information and determine the most appropriate applications for video monitoring in the Atlantic herring fishery.

- Details TBD
- Could be tested with maximized retention to ensure compliance
- Incentives to participate? Cost recovery?

2.10 OTHER MEASURES TO ADDRESS CATCH MONITORING

Other recommended measures to improve monitoring program and catch accounting.

A. Take estimated herring discards “off the top” in setting annual TAC setting process, subtract estimated discards from the Annual Catch Limits based on the best available information of discard rates, such that the Annual Catch Limit is equivalent to a total allowable landings.

B. NMFS would work with the industry to develop a protocol for estimating weight and species composition of any catch released at sea.

C. Encourage the development of a Code of Conduct by/for the herring fishing industry for the purse seine, midwater, and pair trawl sectors.

Are there other odds and ends that need to be incorporated into the outline?

- **XXX**
- **XXX**
- **XXX**

2.11 POSSIBLE SOURCES OF FUNDING

(Formerly section 2.7.11, p. 64)

Table 5 Preliminary List of Potential Funding Sources

Source	Potential Contribution
Maine DMR Program (ACCSP)	\$100,000
Mass DMF Program (existing)	\$100,000
Mass DMF Program (EEBB)	\$750,000
Congressional MSRA research appropriation	\$2,000,000
Herring RSA dedication (3% of 75,000 mt annual landings @ \$.10 per pound)	\$496,000
New quota set-aside program (1.5% of 75,000 mt annual landings @ \$.10 per pound)	\$248,000
Landings surcharge (\$0.01 per pound)	\$1,600,000
Industry cash payments (3% of average per trip ex vessel revenue)	\$600,000
Potential Total	\$5,894,000

The preliminary analysis in Table 5 does not assume any contribution from NMFS except an in-kind contribution of the following services:

- FSO will continue to act as the centralized processing entity for summarized catch, discard, and landings information and also make this information publicly available.
- NMFS will certify CMCP plans as designed and submitted by first receivers (vessels).
- NEFOP would continue to cover the fishery in some manner, including ongoing at-sea coverage, but possible also including shore-based coverage at some future point, and also possible including at-sea coverage during testing and/or phase-in periods for VBEM/MR/DSM when a control is needed in the form of at-sea observers.

The potential funding sources above represent a suggested array of mix and match options to draw from in order to finance the proposed monitoring program. Of the sources, two are one-time possibilities: the Massachusetts funding under the EEBB and the potential Congressional appropriation of funds authorized under the MSRA. The latter were written into the MSRA for the purpose of funding ecosystem research in the herring fishery.

All the other sources are annualized possibilities and could be mixed, matched or modified. The proposal assumes that Maine and Massachusetts continue their port sampling programs and fold them into the Amendment 5 monitoring program in an official capacity. The existing Research Set-Aside (RSA) could be prioritized towards monitoring and/or an additional RSA program could be created. A per-pound landings fee could be assessed.

Finally, assuming an average trip in the Category A and B herring fishery of 100 mt (based on data in the Amendment 5 Draft Discussion Document), and assuming an average ex-vessel price of \$.10 per pound, average per trip revenues are assumed to be about \$22,000 dollars. At a 3% cash contribution to monitoring for 1,000 trips per year in the fishery (taken from data presented to the Herring Committee by NEFOP on 5/22/08), approximately \$600,000 per year would be available for funding this program.