

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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MEMORANDUM

DATE: March 31, 2011

TO: MSB Committee

FROM: Jason Didden

SUBJECT: April 2011 Meeting - MSB/Am 14

NOTE: A set of large, underlined page numbers has been added to the center-bottom of this memo to facilitate ease of reference.

The agenda for the April meeting includes the following items:

- Review AP Membership
- Review Amendment 14 analysis and direct FMAT as necessary
- Adjust Amendment 14 range of alternatives as appropriate

Review AP Membership

A summary of the Fishery Performance Report meeting of the SMB AP and the SSC Socio-Econ subcommittee is included in the executive director's report. One issue that arose during that meeting was: "May need additional AP representation - specifically recreational interest and smaller vessel and/or gillnet - Staff will review process for soliciting additional advisors and advise Council/ SMB Committee leadership."

The Council SOPPs state:

(1) Advisory Panel members shall be nominated for membership by the fishing community (vessel owners or operators, dealers, processors, associations, clubs, or themselves), be recommended by the appropriate Council committee, and be appointed by the Council Chair. Advisory panel members shall be appointed by the Chairman for a period of two years, and may be reappointed at the pleasure of the Chairman. Vacancy appointments shall be for the remainder of the unexpired term of the vacancy.

(SOPPs continued)

(2) Advisory Panels shall be composed of persons who are either actually engaged in the harvesting or processing of, or are knowledgeable and interested in the conservation and management of, the fisheries to be managed. Advisory Panels shall also reflect expertise and interest from the standpoint of geographical distribution, industry and other user groups, and the economic and social groups encompassed in the Council's geographical area of concern.

The current SMB advisors with their current primary affiliations are:

LAST	FIRST	AFFILIATION
Ascoli	Fred	Miss Chris Charters (NJ)
Axelsson	Lars	F/V Flicka (NJ)
Reichle	Jeff	Lund's Fisheries (NJ)
Calomo	Vito	U.S. Senator Scott Brown (MA)
Ellenton	Dave	Cape Seafoods Inc. (MA)
Moore	Peter	Northern Pelagic Group LLC (MA)
Kaelin	Jeff	Lund's Fisheries (NJ)
Lackner	Hank	F/V Jason & Danielle (NY)
Monsen	Geir	Seafreeze Ltd. (RI)

Fred Ascoli has become extremely busy with other endeavors and has indicated that a different party-boat operator that fishes (or has fished) for mackerel may be able to better represent the sector he currently represents. There was also discussion that additional small-boat mackerel representation could be good and since the AP meeting staff has received several additional inquires about SMB AP applications. Staff responded that applications are available on the Council website but that the issue would likely be discussed in general at the next Committee meeting (no applications have been received yet). Staff requests input from the Committee regarding its preference in this matter - Specifically if the Committee is interested in considering applications for additional AP members and if/how it would like to go about soliciting such applications.

Review Amendment 14 analysis and direct FMAT as necessary - Adjust Amendment 14 range of alternatives as appropriate

The FMAT has primarily been working on a core analysis of recent blueback herring, alewife, American shad, and hickory shad catch estimates for all gears in the New England and Mid-Atlantic areas. The FMAT has viewed this as a necessary starting point for most of the other related analyses. In addition, the FMAT has been working on spatial analysis of relevant databases, including NMFS Northeast Science Center trawl data, observer data, and vessel trip report effort data. The results of these analyses were not ready for mail-out but it is anticipated that some related analyses will be ready for presentation at the meeting.

A summary from the February meeting follows (Page 4). Staff's suggestion is to review the action items from that summary, and then proceed with discussions of the Alternative Sets that were not addressed at the last meeting. Also, many of the issues raised during the last meeting have been addressed in some fashion by New England's development of Amendment 5, and several related analyses are attached as well (pages 40-54) or have been pasted into the discussion document (e.g. 18-19, 23-25). These will form the basis of several discussions at the meeting to facilitate continued progress on Amendment development.

The briefing memo for the April 1 River Herring & Shad committee meeting has also been included to facilitate discussion of the "Stock in the Fishery" alternatives (pages 55-87) during the committee and/or by the Council during committee reports. A summary of the April 1 River Herring & Shad committee meeting will be distributed before the Council meeting.

February 2011 SMB Committee and River Herring/Shad Committee Summaries
New Bern, NC
February 8-10, 2011

Tuesday, February 08, 2011 - SMB Committee on Am 14

Staff reviewed the current structure of the document and the current suite of alternatives.

FORAGE PURPOSE/ALTERNATIVES

The first topic of substance was whether to include a purpose and/or alternative set that established a mechanism within the annual specifications that required the Council to consider a forage set-aside of MSB species (0-20%) above and beyond any natural mortality issues considered by the SSC when recommending an ABC. Inclusion of this purpose/alternative set would have required an additional written scoping period. After considerable discussion both pro and con, the committee decided not to add a provision for annual forage set-asides for mackerel, squids, and butterfish. Both during the committee and later at the Council during the SMB committee report, the Council noted that the recent Omnibus Annual Catch Limit Amendment already allows harvest reductions due to forage concerns (i.e. optimum yield considerations) and concluded that formal set-asides would be better considered after the Council develops ecosystem level goals and objectives that are informed by the ongoing work of the ecosystem subcommittee of the Scientific and Statistical Committee.

Alternative Set 1: Vessel Reporting Measures

The committee requested information on how Alt Set 1 would impact relevant vessels. Staff responded that FMAT will be providing analysis on costs and benefits of each alternative in all sets.

Committee noted that 1bm and 1bl do not yet specify if they apply to all permits or open access - Staff responded that FMAT will be providing related analysis (costs and benefits of requiring each). MB Tooley noted that NE Atl Her Am 5 has included open access vessels in analysis based on analysis that suggested that these vessels had higher river herring catch rates - but adds lots of work.

Adviser noted that vessels fishing for mackerel often declare into herring because of herring requirements and that herring boats would have to do the same vice versa and that FMAT/Council needs to think about how to make reporting by the pelagic fleets effective and efficient. Adviser also reported that consideration needs to be made for the mixed-target nature of mid-Atlantic fleet - vessels might leave dock intending to catch Loligo but run into mackerel - and being able to act opportunistically is part of how the fleet has managed to remain viable.

The committee agreed by consent to approve Alternative Set 1 for Vessel Reporting Measures for additional FMAT analysis.

Alternative Set 2 - Dealer Reporting Measures

Staff highlighted suggested changes to daily dealer reporting (48 and 72 hour options). Adviser noted that these options were important if the Council wants to go to a shorter reporting timeframe because of how it can take 24+ hours to unload and get final weights in high-volume fisheries.

Committee discussed the difference between 'sort and weigh' and 'weigh with sub-sampling' (sorting impossible in some operations). 'Weigh with sub-sampling' provisions added in.

Adviser noted timing issue is critical in terms of vessels providing dealers with counter-signatures to verify SAFIS entries (can't counter-sign before reporting, vessel may be back out at sea...)

V O'Shea questioned how the thresholds for various monitoring requirement were created. Staff and/or FMAT will clarify rationale in next iteration but generally it's an informal cost-benefit calculation seeking to get reporting on the bulk of the landings while impacting the fewest vessels/dealers possible. Often to get the last few percent of landings you add a high number of small trips that increases the reporting burden substantially.

There was also discussion about generally needing to know what kinds of trips are accounting for the bycatch. If small trips appear to be accounting for a substantial amount of bycatch then they need to be included in monitoring and/or bycatch reduction alternatives.

C. Zeeman asked if needed additional alternatives to make sure dealers are verifying what's in reports - FMAT will consider but 2d and 2e in current document should cover this concern.

The committee agreed by consent that Alternative Set 2 for Dealer Reporting Measures should move forward to include the addition of 2db. Staff incorporated this addition into the current 2d and 2e alternatives.

Alternative Set 3: At-Sea Observation Optimization Measures

Staff described the range of alternatives in Alt Set 3. MB Tooley noted exceptions to trip termination requirements that exist in Am5. Staff will cross check. MB Tooley also noted that certain combinations of alternatives may be operationally infeasible even if they look feasible independently.

Adviser noted that considering the Herring/Mackerel interlinkages are key for these kinds of alternatives, esp. in terms of how vessels interact with the observer program...

Public commented that there are alternatives in Am5 that relate to Alt Set 3 that are not included in this Alt Set yet and to consider those. Staff has looked at these to some degree (CCHFA letter) and will take another look w/FMAT.

Committee agreed by consent that Alternative Set 3 for At-Sea Observation Optimization Measures should be included for additional FMAT analysis.

Alternative Set 4 - 3rd Party/Dockside Reporting and Monitoring Measures

Staff reviewed the alternatives as currently described. NMFS noted cautions that increased resources are unlikely to be feasible for either at-sea observing and/or dockside and that even the data management of a federally organized dockside sampling program is unlikely to be feasible.

There was considerable discussion on the merits of portside sampling. Ultimately it was decided that because state-based sampling programs are in place via ME and MA that sample Herring and Mackerel landings ME-NJ, it was unnecessary to further consider port-side sampling in MSB Am14. Public comment - what about Loligo and benefits of a port-side monitoring program related to Loligo landings? Staff commented that the FMAT can consider and report back on any critical issues raised by removal of the port-side sampling alternatives if the Committee/Council removes them at this point, and they were removed.

Atl set 5 - At-Sea Observer Coverage Requirements

Staff reviewed the alternatives as currently described. There was substantial discussion regarding the rationale behind the proposed percentages. Ultimately the Committee moved to add 100% to the range of alternatives for Alternative Set 5 with the FMAT estimating the relationship between percent coverage and CV (deFur/Pate (10/2)). The FMAT might develop a graph that describes the expected CV for a given percentage of coverage so the costs and benefits of expanded coverage can be evaluated by the Council. C. Zeeman also requested the FMAT to consider if varying observer coverage requirements by vessel size could provide good estimates for at least the larger vessels (Pacific Example).

There was also general discussion that the Committee really wants a set of alternatives that can result in an effective monitoring program rather than just a "reasonable" range of alternatives that advances monitoring in some unquantifiable manner. The FMAT will attempt to address this concern in its next round of analysis.

The issue of interaction between the Herring and Mackerel fishery came up again in terms of whether there can be a "pelagic trip" that drives observer assignments. While since the fisheries are dealt with via separate FMPs it is unclear that anything done in one of the FMPs could absolutely compel action in the other fishery, but the FMAT will consult with the NE Am5 PDT on this issue to optimize coordination at the minimum.

MB Tooley then brought up the general problem of observer coverage funding. Hopes that Council considers and/or addresses the issue of having and/or implementing a program that industry can not afford. An adviser strongly requested that the costs of a mandatory observer program relative to the economics of the relevant fisheries be considered when making

decisions. The Council then moved to advance Alt Set 5 as amended for further analysis by the FMAT.

Alternative Set 6 - Mortality Caps

Staff reviewed the alternatives as currently described. There was considerable discussion that there is currently no way to base a cap amount on some amount of "acceptable" river herring and/or shad mortality. SSC or monitoring committee would likely come up with a range of alternatives for the Council in the specifications, possibly based on recent catches. Ascertaining impacts on river herring/shad would be very difficult, maybe impossible.

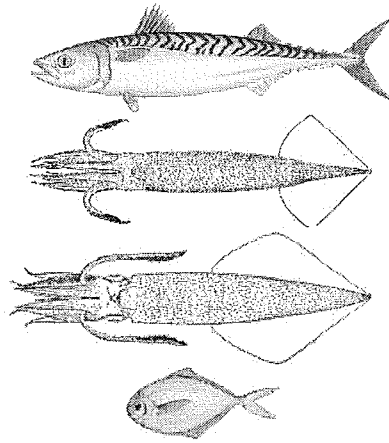
P. Pate requested consideration (FMAT or later by Council) if a cap should be staggered such that it would not go into effect until after improved monitoring program was in place. FMAT will consider this suggestion.

There was also discussion of whether a mechanism could be created via Am14 such that the Council could later implement a cap via specifications, specifically after an ASMFC assessment was completed. A similar motion has been included in NE Atl. Her. Am5. No relevant motions passed, but the FMAT will consider these concepts during upcoming discussions and how such a concept could be incorporated into alternatives in Amendment 14.

The committee then agreed by consent that alternative set 6-mortality caps move forward for further FMAT analysis. The committee also postponed further discussion of alternative sets 7, 8 & 9 due to a lack of time at the current meeting and because staff indicated the discussion may be more productive after additional FMAT analysis.

**AMENDMENT 14 TO THE
ATLANTIC MACKEREL, SQUID, AND BUTTERFISH (MSB)
FISHERY MANAGEMENT PLAN (FMP)**

Discussion Document



-----March 2011-----

**Mid Atlantic Fishery Management Council
in cooperation with
the National Marine Fisheries Service (NOAA Fisheries)**



1.0 EXECUTIVE SUMMARY

The primary purposes of Amendment 14 (Am14) to the Atlantic Mackerel, Squid, and Butterfish (MSB) Fishery Management Plan (FMP) are listed below. For the purposes of Am14, "river herring species" include blueback herring and alewife. "Shad species" include American shad and hickory shad. Together these four species are referred to as "RH/S" in this document, though management actions may be focused on just one species as will be noted.

Amendment Purposes:

A. **"Implement Effective RH/S Monitoring"** - Develop an effective monitoring program for the Mackerel and *Loligo* fisheries. For the purposes of Amendment 14 the primary concern is that the program is sensitive and robust to the spatial and temporal variability in RH/S incidental catch. Improved accounting of both targeted and incidental catch should result.

Amendment Goals: A1. **"Effectiveness"** - Evaluate how effective various alternatives would be in terms of improving the precision of catch estimates.

A2. **"Practicability"** - Evaluate the socioeconomic impact on the fisheries of various alternatives and the ability of management to implement them.

B. **"Reduce RH/S Bycatch and/or Catch"** - Consider alternatives to reduce bycatch of river herrings and shads in the mackerel and *Loligo* fisheries as appropriate per NS 9 and/or other measures to reduce total catch of RH/S per discretionary authority granted to Councils under the Magnuson Stevens Act (MSA) (SEC. 303(b)(12)).

Amendment Goals: B1. **"RH/S Bycatch"** - Evaluate bycatch (discards) of river herrings and shads in the mackerel and *Loligo* fisheries and if it has been minimized to the extent practicable (National Standard (NS) 9).

B2. **"RH/S Catch"** - Evaluate the incidental catch of river herrings and shads in the mackerel and *Loligo* fisheries.

B3. **"Effectiveness"** - Evaluate how effective various alternatives would be in reducing the bycatch/catch of RH/S.

B4. **"Practicability"** - Evaluate the socioeconomic impact on the fisheries of various alternatives and the ability of management to implement them.

C. "**Consider RH/S NS1 Stock Issues**" - Consider whether RH/S should be included as stocks in the fishery in the MSB FMP.

Amendment Goals: C1. "**Effectiveness**" - Evaluate how effective various alternatives would be in terms of improving RH/S management.

C2. "**Practicability**" - Evaluate the socioeconomic impact on the fisheries of various alternatives and the ability of management to implement them.

Throughout this document, each purpose will be referenced by the bolded phrases in quotes above. Each purpose is addressed by one or more related set of alternatives, summarized below and fully described and analyzed in this document.

Alternatives Related to Implementing Effective RH/S Monitoring

- **Alternative Set 1: Vessel Reporting Measures**
- **Alternative Set 2: Dealer Reporting Measures**
- **Alternative Set 3: At-Sea Observation Optimization Measures**
- **Alternative Set 4: 3rd Party Monitoring Measures**
- **Alternative Set 5: At-Sea Observer Coverage Requirements**

Alternatives Related to Reducing RH/S Bycatch and/or Catch

- **Alternative Set 6: Mortality Caps**
- **Alternative Set 7: Restrictions in areas of high RH/S catch**
- **Alternative Set 8: Mesh Requirements**

Alternatives Related to Considering RH/S NS1 Issues

- **Alternative Set 9: Add RH/S Stocks as "Stocks in the Fishery" within the MSB FMP.**

Approximate Timeline

Note: As the scope of alternatives and related analyses has become clearer it seems possible that the timeline (below) will need to be extended, especially if both mackerel and Loligo are considered for the various monitoring and management measures as is currently the case (but no adjustments have been made yet compared to the last version of the discussion document).

Apr 2011	– Committee reviews work on analysis, redirects staff/FMAT as necessary
Mid 2011	– Staff Writes DEIS (data through 2010), committee meeting to review work
Aug 2011	– Council approves DEIS for Submission to NMFS, selects preferred alternatives
Sept 2011	– Document perfection, FR the DEIS
Oct 2011	– Public hearings for Am 14 with DEIS

- Dec 2011 – Council receives comments, makes edits as appropriate, chooses alternatives
- Jan 2012 – Document perfection, replies to comments
- Feb 2012 – Council approves FEIS for Submission
- Mar 2012 – Document Perfection w/ NMFS
- May 2012 – Proposed Rule
- July 2012 – Comment Period Closes
- Sept 2012 – Final Rule
- Oct 2012 – Final Rule Effective

Wording conventions - All acronyms used in this document should be listed in **Section 2.0, List of Acronyms**. Several critical acronyms and/or abbreviations are noted below.

The Magnuson-Stevens Fishery Conservation and Management Act is the primary law governing marine fisheries management in United States federal waters. The Act was first enacted in 1976 and amended in 1996 (via the Sustainable Fisheries Act - "SFA") and in 2007 (via the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 - "MSRA"). In this document, the abbreviation "MSA" refers to the Magnuson-Stevens Fishery Conservation and Management Act as currently amended. Also, hereafter "mackerel" refers to "Atlantic mackerel," "Am11" refers to "Amendment 11 to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan" and "the Council" refers to "the Mid-Atlantic Fishery Management Council." "Bycatch" refers to discards. "Incidental catch" is the catch of one species while directing upon another regardless of whether the non-target species is retained or discarded.

The remaining sections of the Executive Summary:

- Introduce the purposes of Am11 and the strategies to achieve the purposes (1.1-1.5)
- Summarize the alternatives (1.6)
- Describe the effects of the alternatives (alone and in combination) as related to the purposes of this Amendment (1.7)
- Describe the initial areas of controversy (1.8)
- List actions considered but rejected (1.9)
- Discuss the regulatory basis for Amendment 11 to the MSB FMP (1.10)

1.1 PURPOSE A: Implement Effective RH/S Monitoring

From 2005-2009 approximately 8% of mackerel and 4% of *Loligo* landings were observed. These low levels of monitoring lead to high uncertainty about incidental catch. Additional monitoring is proposed that will improve quantification of both directed and incidental catch.

1.2 PURPOSE B: Reduce RH/S Bycatch and/or Catch

While it may end up being impossible to evaluate the impact on RH/S stocks of any RH/S catch reduction in the Mackerel/*Loligo* fisheries, MSA provides discretionary authority to Councils to "include management measures in the plan to conserve...non-target species...considering the variety of ecological factors affecting fishery populations." While some measures could theoretically be designed to only limit bycatch (discards) versus all catch (no-discard rules), in

general the measures that reduce catch are also going to reduce bycatch, and the overall goal of the Council is to reduce mortality on RH/S.

1.3 PURPOSE C: Consider RH/S NS1 Stock Issues

National Standard 1 (NS1) suggests that non-target species may be considered to be added as stocks in the fishery to existing FMPs. This essentially would bring RH/S into the plan as equals to the existing species in terms of Council management responsibilities and is considered as part of considering overall RH/S management approaches.

1.4 SUMMARY OF THE ALTERNATIVES AND THEIR IMPACTS

1.4.1 Alternative Set 1: Vessel Reporting Measures

1a. No Action

1bM. Institute weekly vessel trip reporting (VTR) for mackerel permits (All? Limited Access?) so as to facilitate quota monitoring (directed and/or incidental catch) and cross checking with other data sources.

1bL. Institute weekly vessel trip reporting (VTR) for *Loligo* permits (All? Limited Access?) so as to facilitate quota monitoring (directed and/or incidental catch) and cross checking with other data sources.

1c1. Require 48 hour pre-trip notification to retain more than 20,000 pounds of mackerel so as to facilitate observer placement.

1c2. Require 72 hour pre-trip notification to retain more than 20,000 pounds of mackerel so as to facilitate observer placement.

1dM. Require VMS for limited access mackerel vessels (see 1e and 1f below).

1dL. Require VMS for *Loligo*/butterfish moratorium vessels (see 1e and 1f below).

1eM. Require daily VMS reporting of catch by Tier 1 and Tier 2 mackerel vessels so as to facilitate quota monitoring (directed and/or incidental catch) and cross checking with other data sources.

1eL. Require daily VMS reporting of catch by *Loligo* moratorium permits so as to facilitate quota monitoring (directed and/or incidental catch) and cross checking with other data sources.

1fM. Require 6 hour pre-landing notification via VMS to land more than 20,000 pounds of mackerel so as to facilitate quota monitoring.

1fL. Require 6 hour pre-landing notification via VMS to land more than 2,500 pounds of *Loligo* so as to facilitate quota monitoring.

1gM. Require 6 hour pre-landing notification via phone to land more than 20,000 pounds of mackerel so as to facilitate quota monitoring.

1gL. Require 6 hour pre-landing notification via phone to land more than 2,500 pounds of *Loligo* so as to facilitate quota monitoring.

Statement of Problem/Need for Action:

The current suite of reporting and monitoring requirements are insufficient to precisely estimate RH/S incidental catch in the mackerel and *Loligo* fisheries.

Background:

The measures in this alternative set would (alone and/or in combination with other alternatives) increase reporting and/or monitoring with the overall goal of improving the precision of RH/S incidental catch estimates. While some of the focus may appear to be on mackerel and/or *Loligo* general reporting compared to just RH/S in those fisheries, given extrapolations are often made based on total landings, accurate monitoring of the target species can be as important as determining the encounter rates of RH/S.

Summary of Proposed Management Actions and Rationale

Summary of Biological Impact Analysis

Summary of Economic Impact Analysis

1.4.2 Alternative Set 2 - Dealer Reporting Measures

2a. No Action

2b1. Require daily electronic reporting by MSB-permitted dealers so as to facilitate quota monitoring (directed and/or incidental catch) and cross checking with other data sources.

2b2. Require 48 hour electronic reporting by MSB-permitted dealers so as to facilitate quota monitoring (directed and/or incidental catch) and cross checking with other data sources.

2b3. Require 72 hour electronic reporting by MSB-permitted dealers so as to facilitate quota monitoring (directed and/or incidental catch) and cross checking with other data sources.

2cM. Require federally permitted dealers to obtain vessel representative confirmation of SAFIS transaction records within 24 hours of submitting landings (see 2b1-2b3 above) for mackerel landings over 20,000 so as to minimize data entry errors at first point of sale.

2cL. Require federally permitted dealers to obtain vessel representative confirmation of SAFIS transaction records within 24 hours of submitting landings (see 2b1-2b3 above) for *Loligo* landings over 2,500 pounds so as to minimize data entry errors at first point of sale.

2d1. Require that federally permitted SMB dealers sort and weigh all species related to mackerel transactions over 20,000 pounds so as to facilitate quota monitoring (directed and/or incidental catch) and cross checking with other data sources.

2d2. Require that federally permitted SMB dealers weigh all catches related to mackerel transactions over 20,000 pounds so as to facilitate quota monitoring (directed and/or incidental catch) and cross checking with other data sources. If dealers do not sort by species, they would need to document how they estimated the relative composition of a mixed catch.

2e1. Require that federally permitted SMB dealers sort and weigh all species related to *Loligo* transactions over 2,500 pounds so as to facilitate quota monitoring (directed and/or incidental catch) and cross checking with other data sources.

2e2. Require that federally permitted SMB dealers weigh all species related to *Loligo* transactions over 2,500 pounds so as to facilitate quota monitoring (directed and/or incidental catch) and cross checking with other data sources. If dealers do not sort by species, they would need to document how they estimated the relative composition of a mixed catch.

Statement of Problem/Need for Action:

The current suite of reporting and monitoring requirements are insufficient to precisely estimate RH/S incidental catch.

Background:

The measures in this alternative set would (alone and/or in combination with other alternatives) increase reporting and/or monitoring with the overall goal of improving the precision of RH/S incidental catch estimates. While some of the focus may appear to be on mackerel and/or *Loligo* general reporting compared to just RH/S in those fisheries, given extrapolations are often made based on total landings, accurate monitoring of the target species can be as important as determining the encounter rates of RH/S.

Summary of Proposed Management Actions and Rationale

Summary of Biological Impact Analysis

Summary of Economic Impact Analysis

1.4.3 Alternative Set 3: At-Sea Observation Optimization Measures

All of these would apply to mackerel limited access and/or *Loligo* moratorium permits.

3a. No Action

3b. Require Reasonable Assistance (safe station, bycatch collection, basket sample collection assistance) so as to improve observer data.

3c. Require vessel operators to provide observers notice when pumping/haul-back occurs so as to improve observer data.

3d. Require observer program and/or vessels (as appropriate) to place observers on both vessels for pair trawl operations so as to improve observer data.

3e. Require slippage reports from captains on observed trips so as to better understand slippage events and/or facilitate enforcement of trip termination alternatives (see 3f-3i).

3f. Require trip termination following an "un-sampled" slipped haul during an observed trip. Approximately ¼ of haul would need to be pumped across deck to facilitate sampling to avoid a slipped haul being designated as "un-sampled." Goal is to minimize slippage events and/or get some information on slipped hauls.

3g. Require trip termination following 2 "un-sampled" slipped hauls during an observed trip. Approximately ¼ of haul would need to be pumped across deck to facilitate sampling to avoid a slipped haul being designated as "un-sampled." Goal is to minimize slippage events and/or get some information on slipped hauls.

3h. Require trip termination following 1 slipped haul on an observed trip so as to minimize slippage events. Goal is to minimize slippage events.

3i. Require trip termination following 2 slipped hauls on an observed trip so as to minimize slippage events. Goal is to minimize slippage events.

3j. Require trip termination following 3 slipped hauls on an observed trip so as to minimize slippage events. Goal is to minimize slippage events.

3k. Require cod-ends to be re-secured and brought aboard for sampling after pumping on every 4th haul on observed trips that typically do not bring nets aboard so as to get better information on contents of net after pumping.

3l. Require cod-ends to be re-secured and brought aboard for sampling after pumping on every 5th haul on observed trips that typically do not bring nets aboard so as to get better information on contents of net after pumping.

3m. Require cod-ends to be re-secured and brought aboard for sampling after pumping on every 6th haul on observed trips that typically do not bring nets aboard so as to get better information on contents of net after pumping.

3n. With the exceptions noted below, vessels would be required to pump aboard all fish from the net for inspection and sampling by the observer. Vessels that do not pump fish would be required to bring all fish aboard the vessel for inspection and sampling by the observer. Vessels would be prohibited from releasing fish from the net, transferring fish to another vessel (that is not carrying a NMFS-approved observer), or otherwise discarding fish at sea, unless the fish have first been brought aboard the vessel and made available for sampling and inspection by the observer.

Exceptions:

- 1) pumping the catch could compromise the safety of the vessel;**
- 2) mechanical failure precludes bringing some or all of the catch aboard the vessel; or**
- 3) spiny dogfish have clogged the pump and consequently prevent pumping of the rest of the catch.**

If the net is released for any of the reasons stated above, the vessel operator would be required to complete and sign a Released Catch Affidavit providing information about where, when, and why the net was released, as well as a good-faith estimate of the total weight of fish caught on the tow and weight of fish released. The Released Catch Affidavit must be submitted within 48 hours of completion of the fishing trip.

The NEFMC's Herring Amendment 4 document has a provision that if a net slippage event occurs then a 100,000 pound deduction is made against the Herring quota. Given that such deductions are counted against the entire fleet the marginal incentive effect on the slipping vessel itself is unlikely to provide a substantial deterrent effect. For this reason and other difficulties associated with such a provision (see Herring Am5 PDT analysis below from [http://www.nefmc.org/herring/pdt/FINAL%20Herring%20PDT%20Report%202%2024%2011.p](http://www.nefmc.org/herring/pdt/FINAL%20Herring%20PDT%20Report%202%2024%2011.pdf)df), MAFMC staff does not recommend such an option at this time.

Measures to Address Sampling/Slippage and Maximized Retention

....One option that the PDT expressed particular concern and raised some questions about is **Option 12 in Section 4.3.13 of the January 2011 Amendment 5 Discussion Document – Catch Deduction (and Possible Trip Termination) for Slippage Events:**

- This measure does not enhance catch monitoring. If this measure is intended to provide a disincentive for slipping catch (versus improving the sampling of slipped catch and the accuracy of catch data), then it will be important to account for the 100,000 pound catch

deductions in a way that separates this catch from fish that are landed/sold, to avoid further discrepancies in the datasets.

- If this measure is implemented, a separate code should be developed for the IVR/VMS/VTR data to identify the slipped catch, so that it remains separate from the other data. It also will be important to ensure that this catch is not included in the catch-at-age matrix.
- Available information (previously provided by the PDT) suggests that the estimated weight of slipped catch is less than 100,000 pounds. The PDT will review/update this information in the Amendment 5 document.
- Safety concerns related to the consequences of this measure were acknowledged by the Herring PDT. The PDT also reiterated concerns about placing observers in undesirable situation because of perceptions that this measure is punitive in nature.
- The PDT expressed some concerns about potential inequities associated with this measure. For example, the consequences of exceeding the 10-event slippage threshold (trip termination, ACL/sub-ACL overages, and/or accountability measures) could be significant particularly for the directed herring fishery participants, yet the consequences could be the result of the actions of non-directed vessels (i.e., Category C and/or D vessels). Furthermore, the measure provides a very weak incentive for individual vessels to avoid slippage until there are ten slippage events in an area. Once ten events are reached, the trip termination is an extremely strong incentive to avoid recorded slippage events, which may have impacts on vessel safety and observers (see above).
- The PDT emphasized the importance of focusing on management measures that will enhance the collection of accurate catch information in the Atlantic herring fishery. There are many other measures under consideration in Amendment 5 that address this objective. Council staff will develop a table/matrix for this section of the document (Measures to Maximize Sampling and Address Net Slippage) to better illustrate the combinations of options the Council should consider to achieve the goals and objectives of the catch monitoring program.

Statement of Problem/Need for Action:

The current suite of reporting and monitoring requirements are insufficient to precisely estimate RH/S incidental catch.

Background:

The measures in this alternative set would (alone and/or in combination with other alternatives) increase reporting and/or monitoring with the overall goal of improving the precision of RH/S incidental catch estimates. 3f-3j: Goal is to avoid slippage, especially where the net is not sampled at all. Council would have to make the policy call whether the economic and/or safety consequences of trip termination provisions are worth the potential data collection improvements. There are definite potential safety issues if 3f-3j caused vessels to try to pump in

dangerous conditions rather than terminate a trip. 3k-3m also involve safety issues as re-securing cod-end could be hazardous, and may not be feasible depending on vessel configuration.

Summary of Proposed Management Actions and Rationale

Summary of Biological Impact Analysis

Summary of Economic Impact Analysis

1.4.4 Alternative Set 4 - 3rd Party Monitoring Measures

4a. No Action

4bM. Require 3rd party landings weight verification for mackerel landings over 20,000 pounds so as to facilitate quota monitoring (directed and/or incidental catch) and cross checking with other data sources. Dealers would have to contract directly with NEFSC-accredited monitors.

4bL. Require 3rd party landings weight verification for *Loligo* landings over 2,500 pounds so as to facilitate quota monitoring (directed and/or incidental catch) and cross checking with other data sources. Dealers would have to contract directly with NEFSC-accredited monitors.

4cM. Require volumetric vessel-hold certification for Tier 3 Mackerel permits and specify volume to weight conversion. This alternative primarily facilitates 4bM but also could assist observer data hail weight estimates and vessel's VTR kept weight estimates.

4cL. Require volumetric vessel-hold certification for *Loligo* moratorium permits and specify volume to weight conversion. This alternative primarily facilitates 4bL but also could assist observer data hail weight estimates and vessel's VTR kept weight estimates.

Statement of Problem/Need for Action:

The current suite of reporting and monitoring requirements are insufficient to precisely estimate RH/S incidental catch.

Background:

The measures in this alternative set would (alone and/or in combination with other alternatives) increase reporting and/or monitoring with the overall goal of improving the precision of RH/S incidental catch estimates.

Summary of Proposed Management Actions and Rationale

Summary of Biological Impact Analysis

Summary of Economic Impact Analysis

1.4.5 Alternative Set 5 - At-Sea Observer Coverage Requirements

5a. No Action

5bM. Require 25% of mackerel trips by federal vessels intending to retain over 20,000 pounds of mackerel to carry observers so as to improve coverage from the very low levels currently occurring and improve incidental catch estimation. The NEFSC would assign coverage based on pre-trip notifications

5bL. Require 25% of *Loligo* trips by federal vessels intending to retain over 2,500 pounds *Loligo* to carry observers so as to improve coverage from the very low levels currently occurring and improve incidental catch estimation. The NEFSC would assign coverage based on pre-trip notifications

5cM. Require 50% of mackerel trips by federal vessels intending to retain over 20,000 pounds of mackerel to carry observers so as to improve coverage from the very low levels currently occurring and improve incidental catch estimation. The NEFSC would assign coverage based on pre-trip notifications .

5cL. Require 50% of *Loligo* trips by federal vessels intending to retain over 2,500 pounds *Loligo* to carry observers so as to improve coverage from the very low levels currently occurring and improve incidental catch estimation. The NEFSC would assign coverage based on pre-trip notifications .

5dM. Require 100% of mackerel trips by federal vessels intending to retain over 20,000 pounds of mackerel to carry observers so as to improve coverage from the very low levels currently occurring and improve incidental catch estimation. The NEFSC would assign coverage based on pre-trip notifications .

5dL. Require 100% of *Loligo* trips by federal vessels intending to retain over 2,500 pounds *Loligo* to carry observers so as to improve coverage from the very low levels currently occurring and improve incidental catch estimation. The NEFSC would assign coverage based on pre-trip notifications .

5e. Vessels would have to pay for monitoring when observer funds are not available (process already implemented in other fisheries). NEFSC would accredit monitors.

5f. Phase-in industry funding over 4 years such that to achieve the target coverage selected in 4b-4e above, NMFS would pay for 100%, 75%, 50%, then 25% of the at-sea portion of the specified observer coverage (NOTE: NMFS has indicated this does not appear feasible for a funding point of view).

5g. Require reevaluation of coverage requirement after 2 years to determine if bycatch rates justify continued expense of continued high coverage rates.

Statement of Problem/Need for Action:

The current suite of reporting and monitoring requirements are insufficient to precisely estimate RH/S incidental catch.

Background:

The measures in this alternative set would (alone and/or in combination with other alternatives) increase reporting and/or monitoring with the overall goal of improving the precision of RH/S incidental catch estimates. 100% coverage initially seems likely impracticable but 25%-50% may(?) be practicable and will be analyzed.

Summary of Proposed Management Actions and Rationale

Summary of Biological Impact Analysis

Summary of Economic Impact Analysis

NEFMC Herring Am 5 Analysis on Observer Coverage Levels:

4.2.4 Option 4: Observer Coverage Levels Based on Council Targets

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

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

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

An approach like SBRM can be used to accomplish the first step of setting a goal. As part of the development of the omnibus amendment to address standardized bycatch reporting methodology (SBRM), the National Working Group on Bycatch (NWGB) concluded that, *“for fishery resources, excluding protected species, caught as bycatch in a fishery, the recommended precision goal is a 20-30% CV for estimates of total discards (aggregated over all species) for the fishery; or if total catch cannot be*

divided into discards and retained catch then the goal is a 20-30% CV for estimates of total catch.” (NMFS 2004) As the NWGB pointed out, “Ideally, standards of precision would be based on the benefits and costs of increasing precision” (NMFS 2004). They also noted that under some circumstances, attaining the precision goal alone would not be an efficient use of the public resources. **The tradeoffs associated with increasing precision to meet a specified goal are very important to understand when developing an observer program.**

Background Information – Preliminary Analysis (Using 2009 Data)

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

Table 5 provides the results of the updated SBRM analysis using 2009 observer data. The results illustrate the levels of observer coverage that would be required for the midwater trawl (single and paired), purse seine, and bottom trawl sectors of the herring fishery (based on trips with 2,000 pounds or more herring kept) in various areas (Gulf of Maine, Georges Bank/East of Cape Cod, and southern New England) to achieve target levels of precision for river herring catch estimates (10%, 20%, and 30% CVs). In this example, observer records for midwater trawl (single and paired), purse seine, and bottom trawl vessels keeping 2,000 pounds or more Atlantic herring during 2009 were used to generate catch ratios for river herring. These ratios were used in formulas specified by the SBRM amendment to first calculate variance, and then determine, based on available information, how many sea days/observer trips would be necessary to achieve that level of precision. The output (#trips) has been translated to observer sea days using an average days per trip from vessel trip reports.

Darker cells in Table 5 represent strata (gear type and area) with no herring trips occurring in 2009. Lighter cells represent strata with trips occurring but no observer coverage. The lighter cells would likely be candidates for “pilot” levels of observer coverage, to establish a baseline and better determine appropriate levels of coverage in the future.

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

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

- The SBRM approach considers variability associated with observed trips, but does not consider variability associated with any strata where coverage has been limited or absent. It also does not consider the variability associated with sub-sampling and extrapolation, and portside versus at-sea coverage, all of which are important especially with respect to river herring.

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

Table 5 Example Approach to Determining Levels of Observer Coverage

Table 5 Example Approach to Determining Levels of Observer Coverage for Herring Vessels—Based on 2009 Observer Data for River Herring

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

1.4.6 Alternative Set 6 - Mortality Caps

6a. No Action

6b. Implement mortality cap for river herrings for the mackerel fishery whereby the mackerel fishery would close once it is determined that it created a certain level of river herring and/or shad mortality (that level would be determined annually by Council in specification process unless RH/S were added as stocks in the fishery in which case SSC would be involved in ABC setting for RH/S).

6c. Implement mortality cap for shads for the mackerel fishery whereby the mackerel fishery would close once it is determined that it created a certain level of river herring and/or shad mortality (that level would be determined annually by Council in specification process unless RH/S were added as stocks in the fishery in which case SSC would be involved in ABC setting for RH/S).

6d. Implement mortality cap for river herrings for the *Loligo* fishery whereby the *Loligo* fishery would close once it is determined that it created a certain level of river herring and/or shad mortality (that level would be determined annually by Council in specification process unless RH/S were added as stocks in the fishery in which case SSC would be involved in ABC setting for RH/S).

6e. Implement mortality cap for shads for the *Loligo* fishery whereby the *Loligo* fishery would close once it is determined that it created a certain level of river herring and/or shad mortality (that level would be determined annually by Council in specification process unless RH/S were added as stocks in the fishery in which case SSC would be involved in ABC setting for RH/S).

Statement of Problem/Need for Action:

There are currently no limits on incidental catch of RH/S in the mackerel and/or *Loligo* fisheries other than state landing requirements. The significance of any interactions will be analyzed within the amendment.

Background:

The alternatives would seek to directly limit the mortality of the relevant species. If mortality (catch) of the non-target RH/S species closes a directed fishery then in that directed fishery both incidental/non target catch and discards should be reduced as the fishery will either generally avoid the non-target RH/S species or the fishery will be closed earlier than would happen without a cap. In either case catch and/or discards would be reduced compared to the status quo, depending on how restrictive the cap is.

Precision would be quite low under the status quo observer/monitoring regime.

Summary of Proposed Management Actions and Rationale

Summary of Biological Impact Analysis

Summary of Economic Impact Analysis

1.4.7 Alternative Set 7 – Restrictions in areas of high RH/S catch

7a. No Action

7bM. Prohibit retention of more than 20,000 pounds of mackerel in designated areas of high RH/S catch (to be identified) for vessels with federal mackerel permits during certain time period.

7bL. Prohibit retention of more than 2,500 pounds *Loligo* in designated areas of high RH/S catch (to be identified) for vessels with federal *Loligo* moratorium permits during certain time period.

7cM. Require use of certain inch mesh (e.g. 3 inch?) in designated areas of high RH/S catch (to be identified) for vessels with federal mackerel permits to possess 20,000 pounds of mackerel.

7cL. Require use of certain inch mesh (e.g. 2.5 inch?) in designated areas of high RH/S catch (to be identified) for vessels with federal *Loligo* permits to possess 2,500 pounds of *Loligo*.

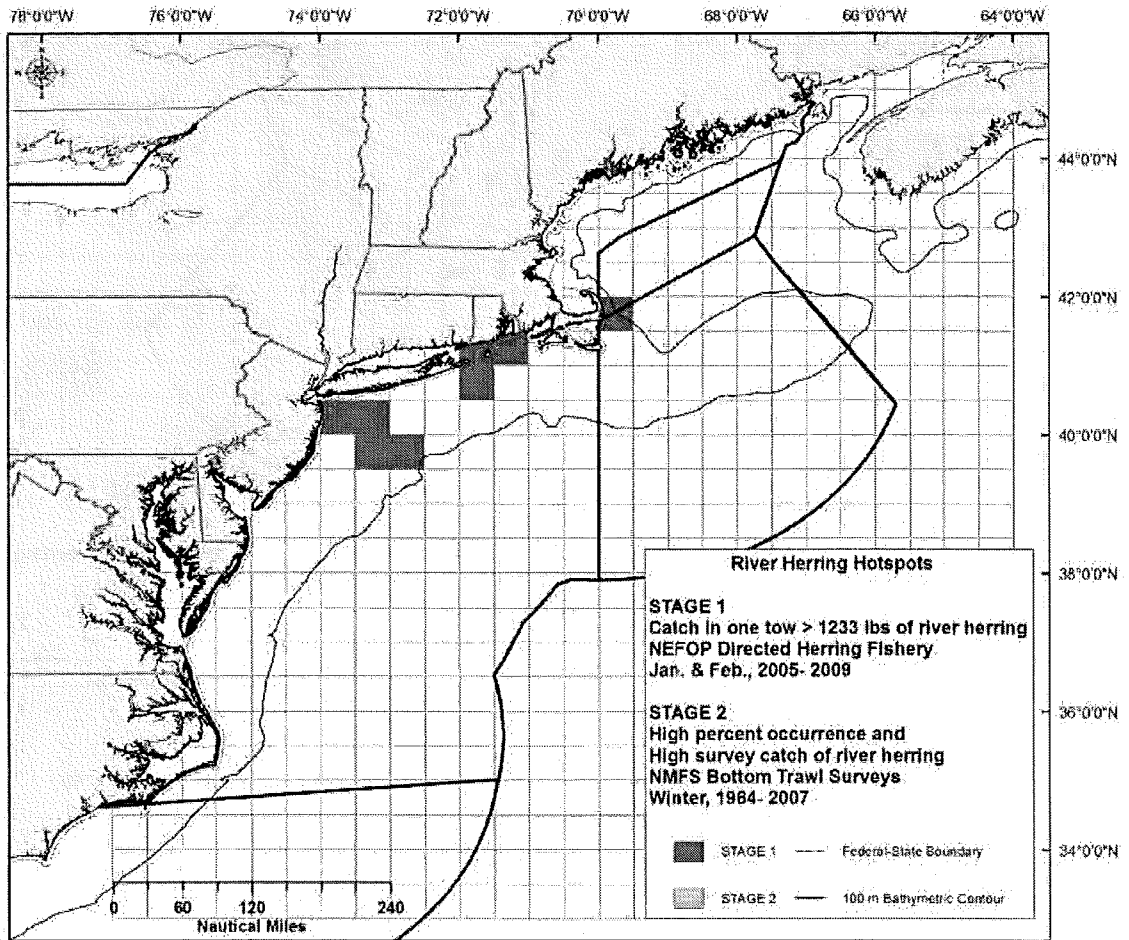
7dM. Require observers in designated areas of high RH/S catch (to be identified) for vessels with federal mackerel permits. Vessels would pay for observer coverage if a NMFS-funded observer is not otherwise available.

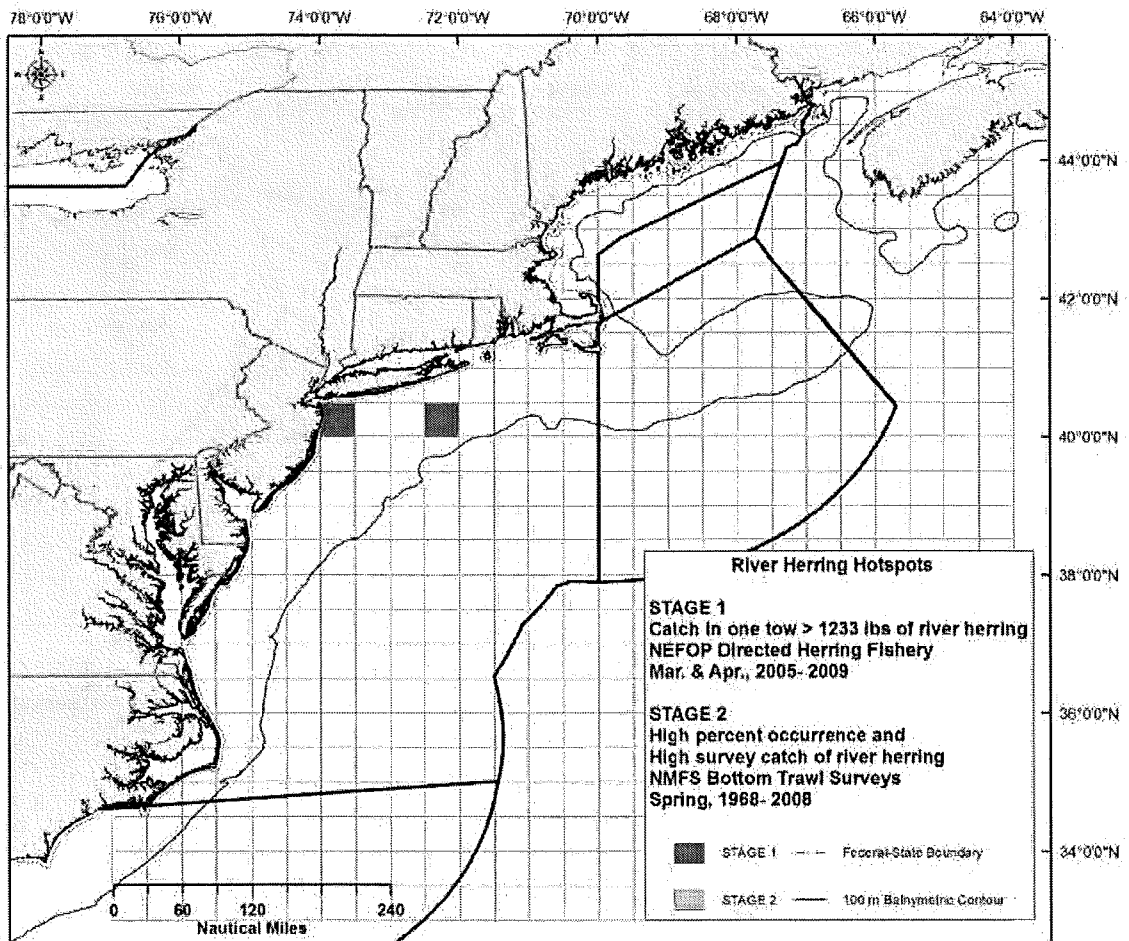
7dL. Require observers in designated areas of high RH/S catch (to be identified) for vessels with federal *Loligo* permits. Vessels would pay for observer coverage if a NMFS-funded observer is not otherwise available.

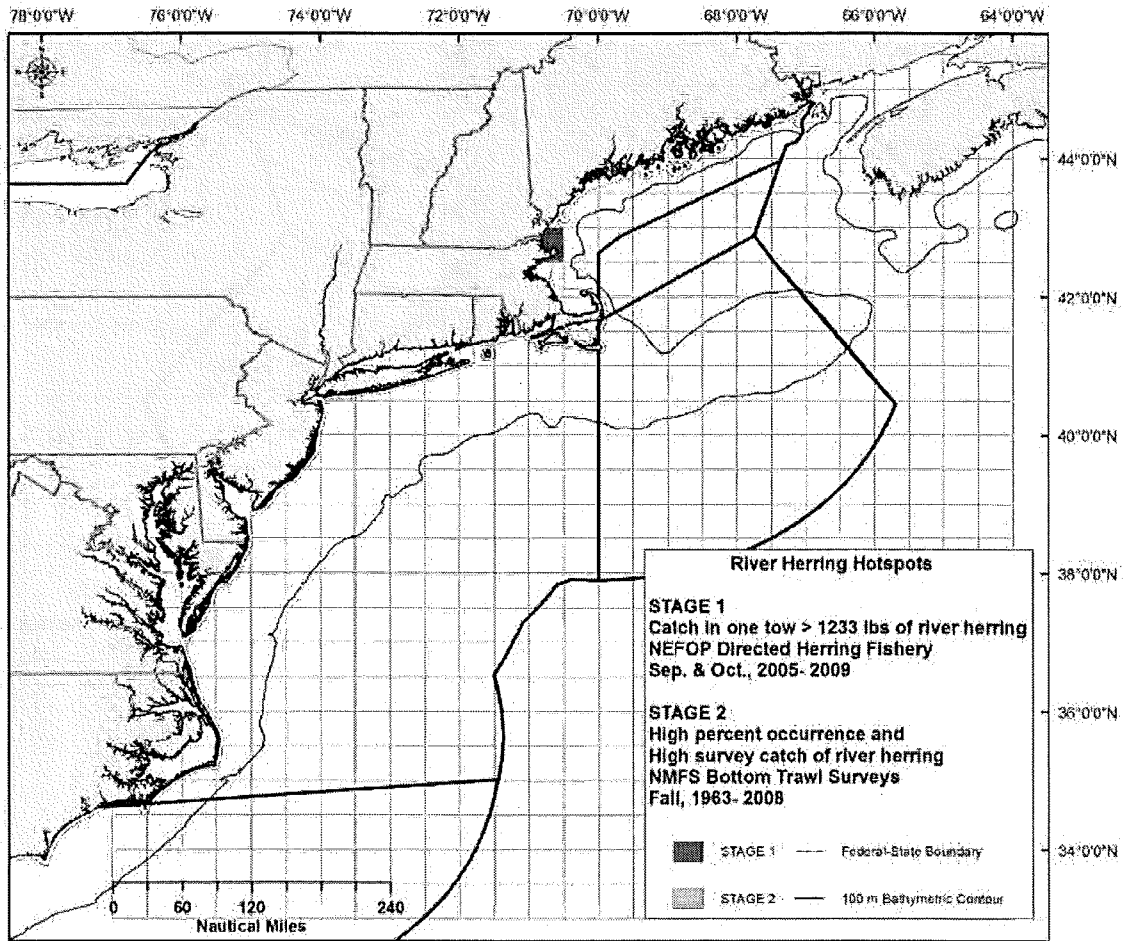
7e. Make above requirement(s) only in effect when a mortality "trigger" is reached

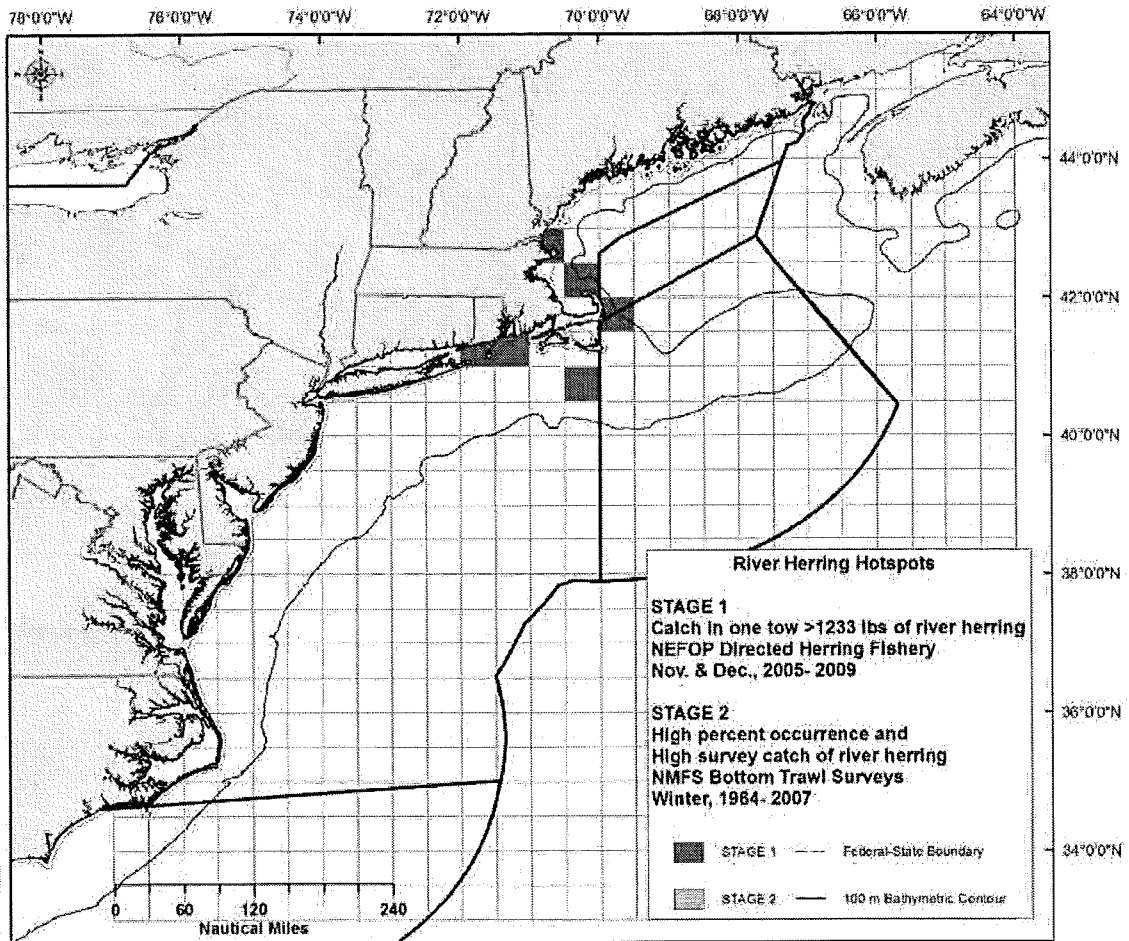
7f. Stipulate that the GRAs would be considered for updating every other year in specifications considering the most recent data available when specifications are developed.

7g. Apply the hotspot requirements of Herring Am5 to mackerel vessels:









Potential management options for these areas are:

- 100% observer coverage
- 100% observer coverage with mandatory pump-aboard rules (see 3n)
- Prohibit directed fishing with small mesh (<5.5in)

Statement of Problem/Need for Action:

There are currently no limits on incidental catch of RH/S in the mackerel and/or *Loligo* fisheries other than state landing requirements. The significance of any interactions will be analyzed within the amendment.

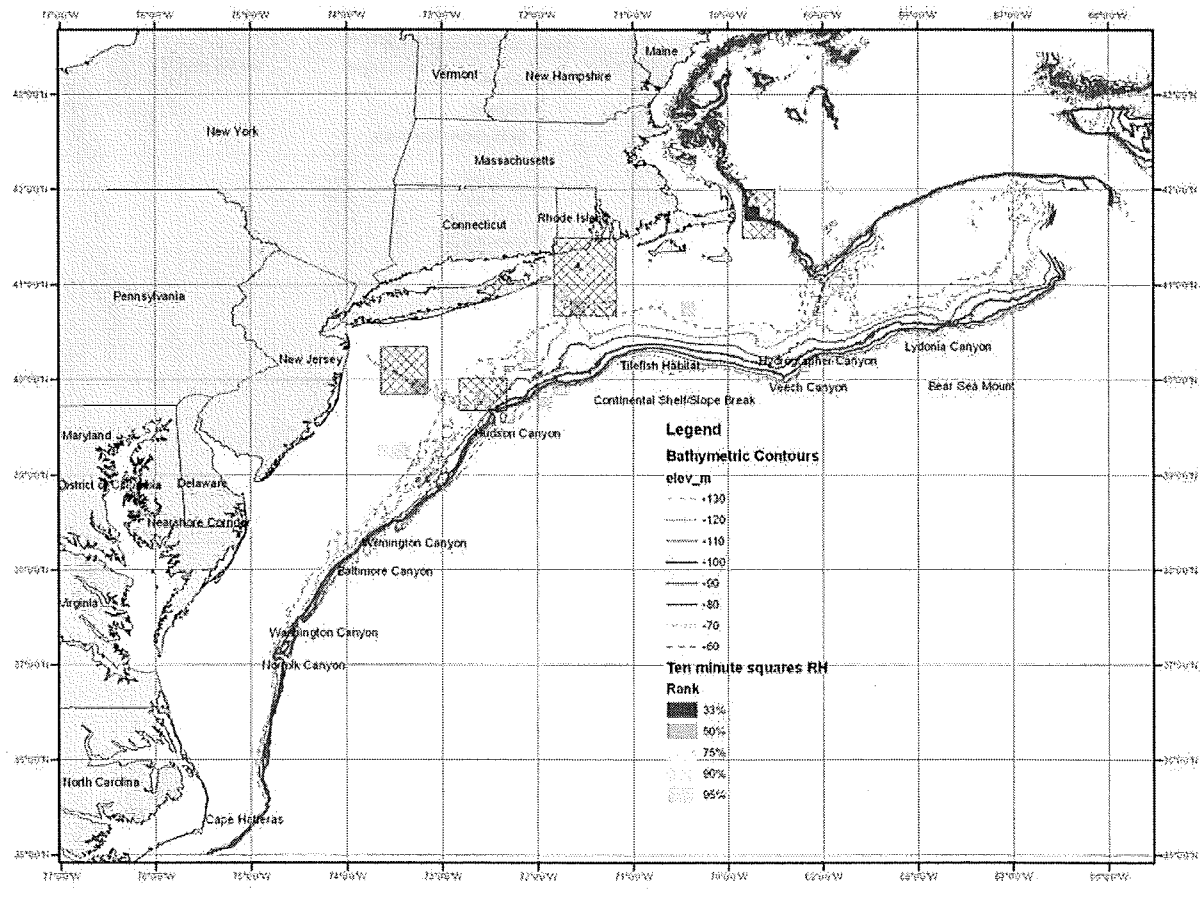
Background:

If fishing is restricted in areas that actually have higher encounter rates of RH/S then both bycatch (discards) and total catch of RH/S should be reduced.

The figures below illustrate density of catch (actual, not extrapolated) in observer data 2005-2009 of river herrings and then shads by ten-minute square (all gears, observed hauls). The FMAT will further analyze the catch of RH/S but the following figures provide some initial background. The 4 hatched areas were hand drawn around apparent clusters of river herring/shad bycatch and are carried through to 2 VTR catch figures just to give an idea of overlap with directed catch (and effort in as much as catch can be an indicator of effort). These areas are *not* currently proposed as restricted areas - rather they are just the product of staff starting to examine the data. They do suggest that area-based measures are worth further analysis, consistent with the findings of various NEFMC Atl. herring Amendment 5 analyses.

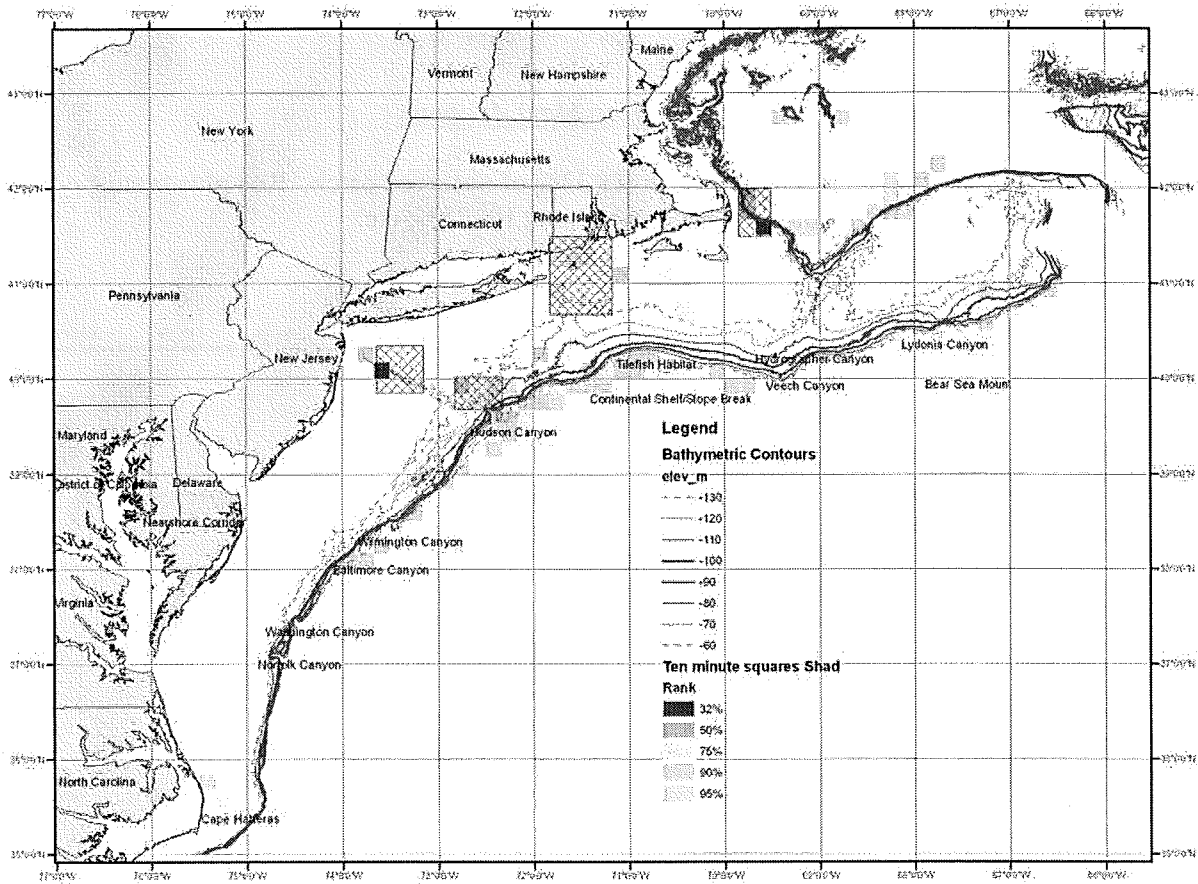
River Herring - Observer data 2005-2009 (Dec-May) All gears

Map interpretation: the red square accounts for 33% of observed catch. Red plus orange account for 50% of catch. Those plus yellow account for 75%, etc.



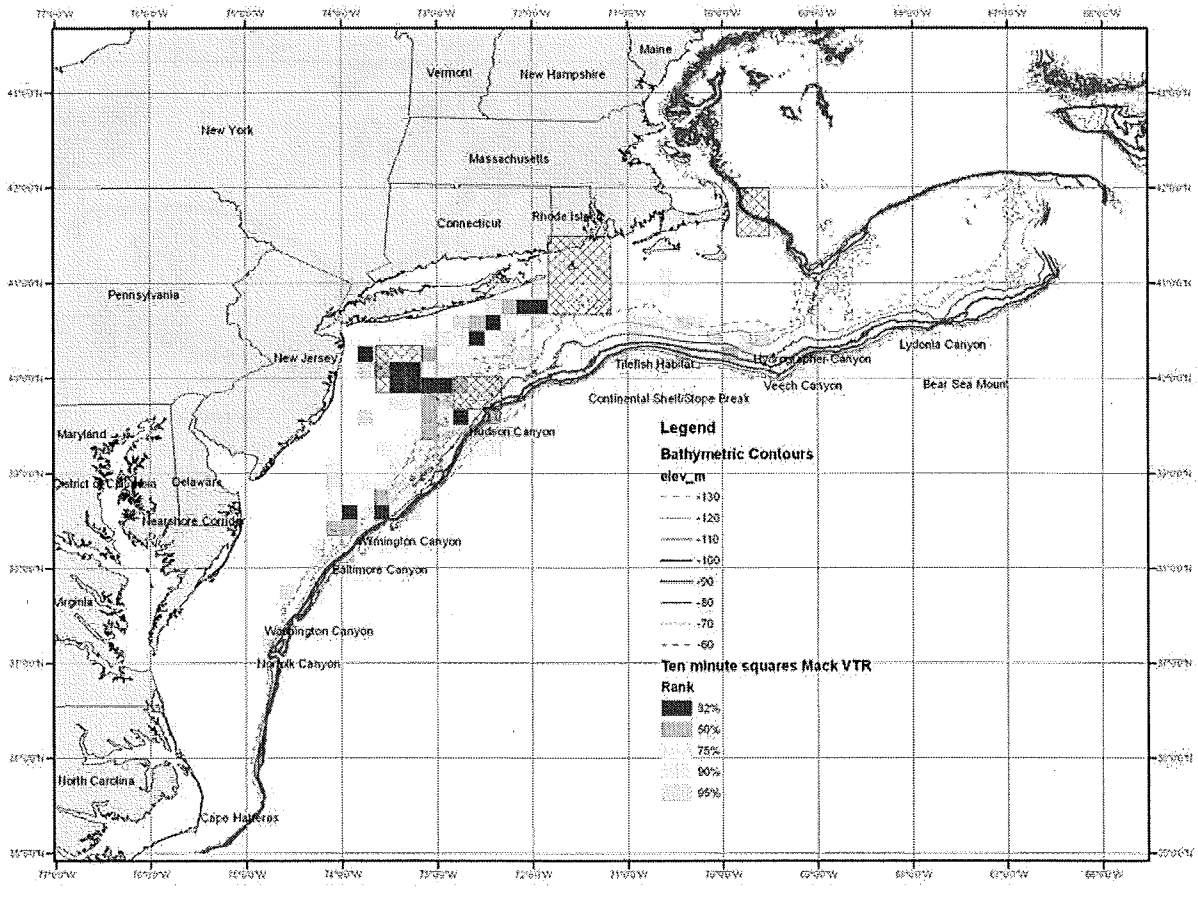
Shad - Observer data 2005-2009 (Dec-May) All gears

Map interpretation: the red squares accounts for 32% of observed catch. Red plus orange account for 50% of catch. Those plus yellow account for 75%, etc.



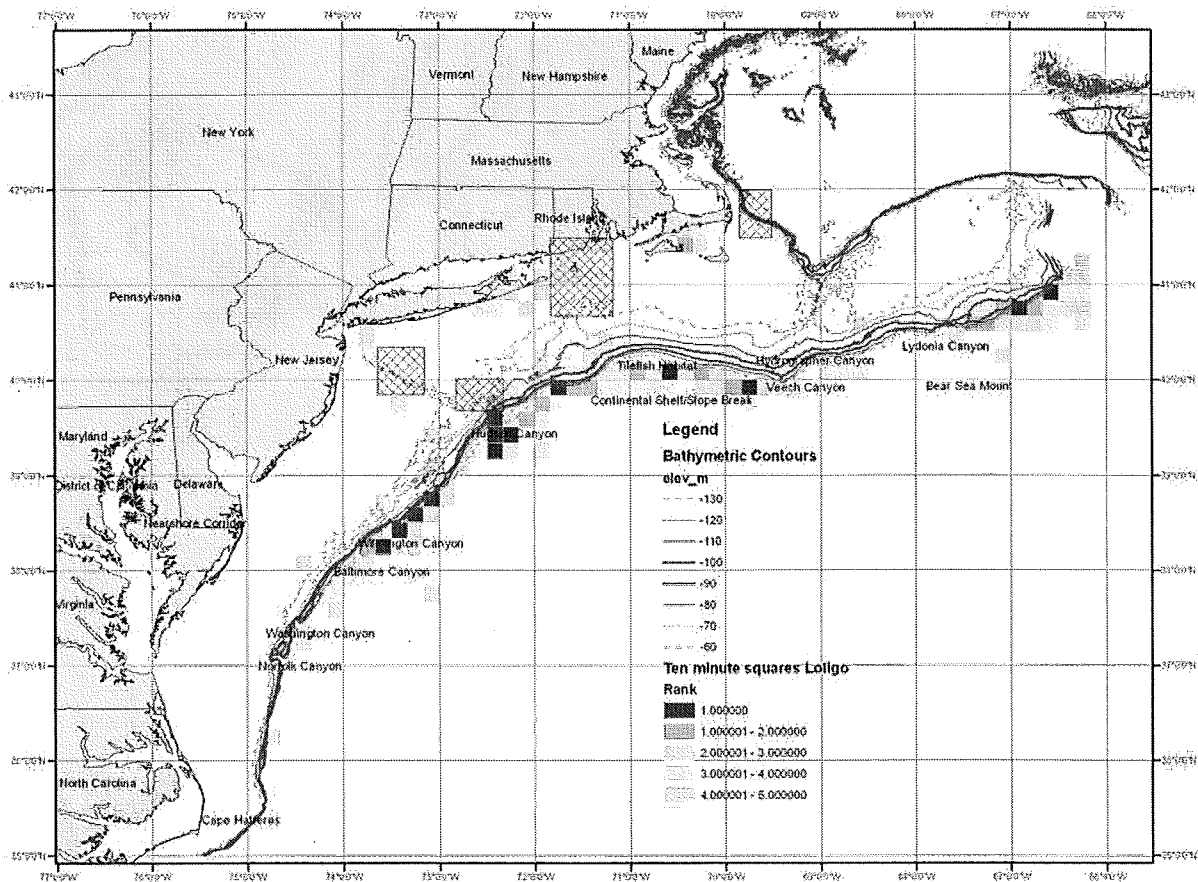
Mackerel - VTR data 2005-2009 All gears

Map interpretation: the red squares accounts for 32% of reported catch. Red plus orange account for 50% of catch. Those plus yellow account for 75%, etc.



Loligo - VTR data 2005-2009 (Dec-May) All gears

Map interpretation: the red squares accounts for 32% of reported catch. Red plus orange account for 50% of catch. Those plus yellow account for 75%, etc.



Summary of Proposed Management Actions and Rationale

Summary of Biological Impact Analysis

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1.4.8 Alternative Set 8 - Mesh / Gear Requirements

8a. No Action

8b. Require increased (e.g. 3-inch?) mesh for federally permitted vessels to possess 20,000 pounds or more of mackerel.

8c. Require increased (e.g. 2 1/2-inch?) mesh for federally permitted vessels to possess 2,500 pounds or more of *Loligo*.

8d. Make above requirement(s) only required when a mortality trigger hit

Statement of Problem/Need for Action:

There are currently no limits on incidental catch of RH/S in the mackerel and/or *Loligo* fisheries other than state landing requirements. The significance of any interactions will be analyzed within the amendment.

Background:

If gear modifications reduced the capture rates of RH/S more than the capture rates of the directed species, then both bycatch (discards) and total catch of RH/S should be reduced.

Staff is not currently aware of any trawl selectivity studies that would allow quantitative analysis of the impact of different meshes for river herrings and/or shads. Minimal information is available for impacts on mackerel and there is somewhat more information for *Loligo*:

Mackerel:

Casey 2004: An experimental codend of 60 mm polypropylene knotless square netting was attached to a 3700 Ijmuiden stores midwater trawl (Type No. P.101.B) used with superkrub doors. This experimental gear was fished against a similar trawl fitted with a codend constructed from 40 mm knotted nylon mesh rigged in the conventional diamond configuration. A total of 14 successful tows were made, nine using the trawl fitted with the experimental codend and five using the standard trawl. An estimated total catch of some 470 tonnes of mackerel was taken using both gears, and mackerel were caught on all tows except one. The size composition of the mackerel caught ranged from 18 to 37 cm, well within the expected selection range for the gear under test. A comparison of the length-frequency distributions indicated that there was no difference in the size composition, and hence selection, of fish taken by the two gears.

Kvalsvik et al 2001: Two sorting grid systems with three different bar spacings for size selecting mackerel in pelagic trawls have been tested during four surveys. In the mackerel fishery, the value of the catch depends on fish size; the largest mackerel are priced substantially higher than the smaller fish. Using a grid-selection system to improve size selection in this fishery would

therefore increase fishermen's income. Between 8 and 51% of each catch was sorted during 12 hauls, with catch weights ranging from less than 300 kg to more than 170,000 kg. There were significant differences in individual mean weight between mackerel that passed through the grid and mackerel retained in the codend in all hauls as a result of the reduction in the proportion of mackerel below 400 g, and an increase in the mackerel above 600 g. Using 1999 prices as the standard, grid selection increased the value of these hauls from 8 to 18%. Selectivity parameters are presented for all hauls and show that the sorting grid delivered a reasonably sharp size selection in all hauls. Four different models are presented to explore the selection data, and possible influence of catch size on selectivity parameters is tested. Data on grid angle and water flow through the grid are presented from four hauls.

Loligo:

Hendrickson 2010: A paired-tow study was conducted using a Loligo twin trawl to assess the effects of a codend mesh size increase, from 50 mm (~2in) to 65mm (~2.5in) (inside stretched mesh), on catch rates and size selection of the target and bycatch species...a 29% loss in the catch weight of the target species. However, the reduction in ex-vessel value of Loligo catch is probably not proportional to the percent loss in Loligo catch because most of the loss consisted of squid from the smallest market size categories which have the least value and are primarily discarded... Applying the Loligo selectivity curve from the study to the length composition of the 2004–2008 landings resulted in a theoretical loss, during September–October, of 37%, 39%, and 18% in Loligo catch weight for the <10cm, 10–12cm, 13–16cm market size categories, respectively... These three market size categories represented 3%, 14%, and 38%, respectively, of the total Loligo landings during September–October of 2004–2008...

Summary of Proposed Management Actions and Rationale

Summary of Biological Impact Analysis

Summary of Economic Impact Analysis

1.4.9 Alternative Set 9 - Add RH/S Stocks as "Stocks in the Fishery" within the MSB FMP

9a. No Action

9b. Add blueback herring as a stock in the MSB FMP.

9c. Add alewife as a stock in the MSB FMP.

9b. Add American shad as a stock in the MSB FMP.

9c. Add hickory shad as a stock in the MSB FMP.

Statement of Problem/Need for Action:

There may be a lack of clarity over which entities have primary responsibility for organizing RH/S recovery.

Background:

Adding RH/S species as stocks in the fishery would activate federal requirements for status determination, rebuilding, essential fish habitat (EFH) identification and conservation, etc.

Summary of Proposed Management Actions and Rationale

Summary of Biological Impact Analysis

Summary of Economic Impact Analysis

**The briefing document for the April 1 2011 River Herring-Shad committee is attached below. The results of that meeting will be discussed at the committee meeting and during committee reports.

#9



New England Fishery Management Council

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John Pappalardo, *Chairman* | Paul J. Howard, *Executive Director*

DRAFT MEMORANDUM

DATE: July 22, 2010
TO: Herring Committee Members
FROM: Lori Steele, Herring PDT Chair
SUBJECT: **Costs Associated with Catch Monitoring in the Atlantic Herring Fishery – Preliminary**

The purpose of this document is to begin to examine the costs of increasing monitoring in the Atlantic herring fishery, with specific focus on the costs associated with at-sea monitoring, or observer coverage. Operating costs and revenues are also presented to compare with and interpret the costs of observer coverage. Preliminary findings include:

- The full-cost of an observer day to the nation is \$1,200 per day.
- The costs of observer, relative to producer surplus are not known.
- Relative to median operating costs, the costs of monitoring would be large: 120% of the daily operating costs for purse seine vessels and 59% of the daily operating costs for trawl vessels.
- The cost of comprehensive monitoring through observer coverage would be approximately 10% of the revenue of the fishery.
- The benefits of monitoring to the herring fishery and other commercial fisheries are unknown, but expected to be positive.
- The benefits of monitoring to the ecosystem are unknown, but expected to be positive.

Table 1 Summary Table of Preliminary Cost Information

	Total Estimated Cost
100% Observer Coverage	Between \$1.88 Million and \$2.36 Million
Dockside Monitoring	\$127,000 for 50% of MA Landings \$106,000 for ME DMR Program
Electronic Monitoring	
Owning	\$8,950
Installation (per hour)	\$36
Renting (per day)	\$45
Daily Observer Coverage	\$1,200
Median Cost per Day for Fishing Vessels	
Trawl, 2009	\$2,525
Seine, 2009	\$1,137
Trawl, 2008	\$3,400
Trawl, 2008	\$1,845
Median Cost per Trip for Fishing Vessels	
Trawl, 2009	\$7,550
Seine, 2009	\$2,035
Trawl, 2008	\$9,400
Trawl, 2008	\$2,893

The Amendment 5 catch monitoring program will presumably apply to vessels with limited access Category A (all management areas) and B (Areas 2/3 only) permits, and possibly to some or all limited access Category C permits. Table 2 summarizes the number of limited access permits held in the fishery since the implementation of Amendment 1 during the 2007 fishing year. There are about 48 Category A/B vessels in the Atlantic herring fishery, about 60% of which were active in the fishery from 2007-2009 (*active* is defined for this document as landing 2,000 pounds or more Atlantic herring).

Table 2 Number of Limited Access Herring Permits and Number of Active Limited Access Herring Vessels by Permit Category 2007-2009

	Number of Permits		Number of Vessels with 2,000 Pounds or More Herring Landings	
	Cat A/B	Cat C	Cat A/B	Cat C
2007	44	41	29	9
2008	48	56	28	7
2009	48	52	28	11

Based on dealer weighout reports, herring revenues by permit category during the 2008 fishing year were:

- Category A - \$19.9 million;
- Category B – cannot report, less than three vessels;
- Category C - \$19,500;
- Category D - \$86,700.

A preliminary examination of 2009 dealer data suggests that the value of Atlantic herring landed by all permit holders during 2009 was approximately \$22.5 million.

Note that in 2008 and 2009, TACs for Atlantic herring were substantially higher than they are for 2010-2012.

Costs of at-Sea Monitoring

The cost of an observer-day to the National Marine Fisheries Service in the Northeast Region is approximately \$1,200. This includes marginal costs as well as an allocation of quasi-fixed costs associated with training observers, gear, data processing, and data storage.

Data provided by Maine DMR was used to calculate the total number of days fished by each limited access herring vessel. These were then aggregated by permit category. Results are presented in Table 3. Based on historical fishing patterns, 100% observer coverage on Category A/B vessels would cost between \$1.88M and \$2.36M per year. The herring fishing industry is likely to spend *fewer* days fishing in the future due to reductions in ACLs. Therefore, the cost of at-sea monitoring of the Category A and B vessels reported in this analysis may be interpreted as an *upper bound* of the cost of monitoring.

Category C vessels are only counted in Table 3 if they landed herring on a trip. The cost of observation should be regarded as a *lower bound* on the cost of monitoring the Category C vessels, when combined with Category A and B vessels. This analysis presumes that an observer would be placed to a Category C vessel only on trips that land more than 2,000 pounds of herring. The summary information presented in Table 4 suggests that costs could increase significantly if monitoring requirements are extended to Category C permit holders on all trips, not just herring trips.

Days fished and the costs of monitoring for the 2000-2006 period are presented in Table 3 for comparison purposes.

Table 3 Aggregate Days Fished and Implied Costs of At-Sea Monitoring for 2000-2009 by Herring Permit Category

	Category 1		Category 2		Category A/B		Category C	
	Days	Cost	Days	Cost	Days	Cost	Days	Cost
2000	1,765	\$2,118,000	236	\$283,200				
2001	2,676	\$3,211,200	46	\$55,200				
2002	2,178	\$2,613,600	49	\$58,800				
2003	2,302	\$2,762,400	246	\$295,200				
2004	2,019	\$2,422,800	135	\$162,000				
2005	2,077	\$2,492,400	108	\$129,600				
2006	2,025	\$2,430,000	116	\$139,200				
2007					1,700	\$2,040,000	151	\$181,200
2008					1,564	\$1,876,800	22	\$26,400
2009					1,969	\$2,362,800	96	\$115,200

Approximately 50 additional vessels possess limited access Category C permits (25 mt possession limit), but only about 20% (or less) of these vessels were active in the herring fishery from 2007-2009 (landed 2,000 pounds or more herring). Table 4 summarizes the **total** number of trips and days fished by Category C permit holders. The Herring Category-C permit holders were extracted from the Permit Databases, then cross-referenced with the Vessel Trip Report data for calendar years 2007, 2008, and 2009. Trips lasting a fraction of a day were rounded up to the next integer value. Both trips and days fished were then aggregated at the yearly level.

Table 4 Number of Trips and Days Fished By Category C Herring Permit Holders

Year	Trips	Days Fished
2007	2,832	5,252
2008	3,646	6,896
2009	3,407	6,605

Costs of Fishing

Variable cost data was extracted from NMFS datasets for observed trips which targeted herring using trawl and seine gear, and the cost-per-trip was calculated from the data. The data did not include the quasi-fixed of fishing such as wharfage, insurance, or capital (interest) costs. These costs also do not include gear/vessel damage costs. Fuel prices were imputed where missing. Seine vessels tend to fish for only one day, while trawl vessels tend to make multi-day trips. Cost-per-fishing day is presented in Table 5. Between 2003 and 2009, the median cost of a fishing day was \$2,030 for trawl vessels and \$1,000 for seine vessels.

Cost-per-trip is presented in Table 6. Between 2003 and 2009, the median cost of a fishing trip was \$3,908 for Trawl vessels and \$1,325 for Seine Vessels. Recently, costs are much higher due to the seasonal closure of Area 1A to trawl gear.

Benefits from Fishing

In 2007 and 2008, the herring fishery was worth approximately \$19-20M in dockside revenues. Revenues are not necessarily a good measure of the benefits to the nation from the herring fishery. For example, herring is a commonly used bait in the lobster fishery. Disruption of bait supply may have large negative impacts on that fishery in a substitute bait is not readily available.

Benefits of Monitoring

The benefits of at-sea monitoring *to the herring fishing industry* are *unknown*. Relative to the status quo, there are few, if any, benefits to at-sea monitoring for the herring fishery. However, there may be benefits to at-sea monitoring relative to other management strategies under consideration.

The benefit of at-sea monitoring *to other fisheries* is *unknown, but likely to be positive*. The magnitude of benefits for other commercially harvested species, particularly species which are frequent bycatch in the herring fishery are *unknown*. These benefits depend on the bycatch level and life history traits of those species. At-sea monitoring may alter behavior of fishing vessels, leading to lower bycatch of some species, thereby increasing the amount of fish available for those directed fisheries. The magnitude of this effect is unknown. The magnitude of benefits to *non-commercially harvested species* is *unknown, but is likely to be positive*.

At-sea monitoring should also produce better estimates of bycatch, which should increase the precision of stock assessments for those species. This may allow for higher ACLs, ACTs, or ABCs for those species; however, the magnitude of this effect is unknown.

Table 5 Median Costs Per Fishing Day, Grouped by Gear Type and Year (nominal dollars per day)

	Trawl		Seine	
	Cost per Day	Number of Vessels	Cost per Day	Number of Vessels
2003	\$1,140	(n=25)	--	--
2004	\$1,542	(96)	\$517	(n=26)
2005	\$2,065	(115)	\$970	(45)
2006	\$2,350	(36)	--	--
2007	\$2,425	(28)	\$1,350	(11)
2008	\$3,400	(57)	\$1,845	(28)
2009	\$2,525	(41)	\$1,137	(15)
Total	\$2,030	(438)	\$1,000	(125)

Costs of observer coverage (\$1,200 per day) are high relative to operating costs of fishing vessels. Costs of fishing have increased since 2003-2004 due to increased fuel prices and the seasonal closure of Area 1A to trawl vessels.

Table 6 Median Costs per Trip, Grouped by Gear and Year

	Trawl		Seine	
	Cost per Trip	Number of Vessels	Cost per Trip	Number of Vessels
2003	\$2,500	(n=25)	--	--
2004	\$1,820	(96)	\$518	(n=26)
2005	\$4,130	(115)	\$1,100	(45)
2006	\$2,590	(36)	--	--
2007	\$8,675	(28)	\$1,631	(11)
2008	\$9,400	(57)	\$2,893	(28)
2009	\$7,550	(41)	\$2,035	(15)
Total	\$3,908	(438)	\$1,325	(125)

Costs of observer coverage (\$1,200 per day) are high relative to operating costs of fishing vessels, especially for vessels that fish with purse seines. Costs of fishing have increased since 2003-2004 due to increased fuel prices and the seasonal closure of Area 1A to trawl vessels.

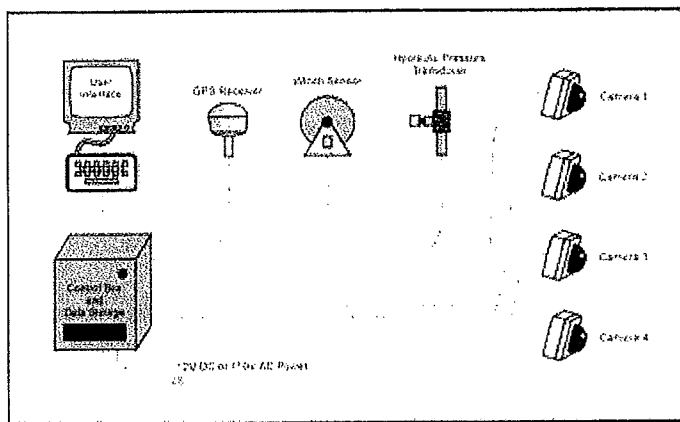
Costs of Dockside Monitoring

The costs of dockside monitoring of 50% of the herring catch in Massachusetts has been estimated at \$127,000 per year. The cost of monitoring a portion of the herring catch in Maine has been estimated at \$106,000 per year.

Costs of Electronic Monitoring – VBEM (Archipelago)

Below is a description of the most widely used third-party monitoring system, provided by Archipelago Marine Research Limited (Figure 1). The costs associated with this system are based on the Canadian Pacific Groundfish Fishery.

Figure 1 Common Design for Archipelago VBEM System



Rental and Purchasing Fees (Archipelago)

- \$55/day rental for entire custom design weather and tamper-proof system – includes keyboard, monitor, CPU, 2 cameras, hydraulic pressure transducer, winch sensor, and GPS receiver
- \$45/day rental for keyboard and CPU if vessel owner has purchased the peripherals (cameras, sensors, monitor - cost of \$2000)
- \$8950 to purchase entire system

Along with these various options for rental, there is also a rent to purchase plan where 95% of rental fee is applied against purchase price.

Installation and Analysis Fees (Archipelago)

- \$36/hr servicing fee for installation, removal and repairs (average installation is 2-3 hours, average removal is 1 hour)
- \$36/hr for analysis of logbook, imagery, and sensor data (analysis time ranges from 2 – 8 hours depending on trip length, # of sets and measurements, species diversity, and quality of data)

B.C. Groundfish Fishery – Monitoring Costs

In British Columbia, the groundfish fishery is managed through Individual Fishing Quotas (IFQs). The management system relies on 100% monitoring coverage to ensure up to date, accurate, and comprehensive accounting of catch for quota monitoring. Catch monitoring is achieved in three ways: first, there is 100% dockside monitoring by certified governmental observers; second, there are electronic monitoring systems that are strategically located on the vessels to monitor catch; and/or finally, there is the option to bring aboard an observer.

Dockside monitoring is achieved with 100% coverage by limiting the landing locations to 30 designated spots coast-wide. The landings are organized by species and the weighed on government-certified scales. After the catch has been sorted the dockside monitor records the numbers and the data is sent in along with the vessel-offloading log to the government for entry in to the Fishery Operation System (FOS).

- **Dockside Monitoring:** \$72 per hour charge out rate for monitoring trawl offloads, \$113 per hour for monitoring hook & line and trap offloads, and 15¢ per halibut tag
- **At-Sea Observers:** \$567/day for a government certified at-sea observer (divided 30/70, government pays \$202/day and the vessel pays \$365/day)
- **Electronic Monitoring:** The pricing structure for the electronic monitoring equipment has been divided into three categories to facilitate easy integration regardless of financial capability at the time of purchase.
 - \$55/day rental for entire custom design weather and tamper proof system – includes keyboard, monitor, CPU, 2 cameras, hydraulic pressure transducer, winch sensor, and GPS receiver
 - \$45/day rental for keyboard and CPU if vessel owner has purchased the peripherals (cameras, sensors, monitor - cost of \$2000)
 - \$8950 to purchase entire system
 - They also implemented a rent to purchase plan where 95% of rental fee is applied against purchase price to more readily facilitate ownership of the technology.
 - Installation and Analysis fees
 - \$36/hr servicing fee for installation, removal and repairs (average installation is 2-3 hours, average removal is 1 hour)
 - \$36/hr for analysis of logbook, imagery, and sensor data (analysis time ranges from 2 – 8 hours depending on trip length, # of sets and measurements, species diversity and quality of data)

The costs of the monitoring program are distributed amongst the industry and the government. Industry pays for 100% of the dockside monitoring cost, hauls, and 70% of the at-sea monitoring costs. The government is responsible for 100% of the fishery operations system (FOS) and 30% of the at sea monitoring costs. Industry costs are summarized in Table 7.

Table 7 Summary of Costs Associated with B.C. Groundfish Fishery Monitoring Program

FISHERY	Average Cost per Unit					Average Cost per Landed Pound					% Fishery Value
	Cost/ Vessel	Cost/ Trip	DMP/ Trip	ASOP/ day	EMP/ day	BDC	DMP	ASOP	EM	Total	
BC Groundfish											
Hook and Line	\$10,655	\$1,618	\$425		\$154	\$0.0020	\$0.0240		\$0.0660	\$0.0910	3.05%
Bottom Trawl	\$64,058	\$3,897	\$490	\$558		\$0.0005	\$0.0050	\$0.3300		\$0.0380	7.58%
Midwater Trawl	\$13,173	\$589	\$340		\$107	\$-	\$0.0020		\$0.0010	\$0.0040	3.71%

Source: PFMI 2009.

*DMP represents dockside monitoring program; ASOP represents at-sea observer program; EMP represents electronic monitoring program.

**Approximately 300 vessels land a little more than 100,000 mt in the B.C. groundfish fishery.

NEW ENGLAND FISHERY MANAGEMENT COUNCIL

FINAL Herring Plan Development Team (PDT) Report

February 24, 2011

Parker River Refuge, Newburyport MA

The Herring Plan Development Team (PDT) met on February 24, 2011 in Newburyport, MA to:

- Review/discuss the Management Alternatives Under Consideration in Amendment 5; identify outstanding questions/unresolved issues and discuss the related analyses;
- Review/discuss a general outline of the Draft Environmental Impact Statement (EIS) and agree on the valued ecosystem components (VECs) to be used for the Affected Environment and Analysis of Impacts in the Amendment 5 Draft EIS; and
- Review a draft outline of the Affected Environment section of the Draft EIS and discuss/develop plans for completing work.

Meeting Attendance: Lori Steele, PDT Chairman; Talia Bigelow, NEFMC Staff; Matt Cieri, Jon Deroba, Carrie Nordeen, Tim Cardiasmenos, Steve Correia, Micah Dean, Min-Yang Lee (PDT Members); Mary Beth Tooley; Dave Ellenton (Cape Seafoods, Herring Advisory Panel Chairman); Ben Martens (CCCHFA), Steve Weiner (CHOIR).

After a round of introductions, Council staff summarized recent Council decisions related to the development of Amendment 5 and the anticipated timeline for completing the Draft EIS document (target September 2011 Council meeting). The PDT briefly reviewed an outline of the Draft EIS and discussed responsibilities related to completing various sections.

The majority of the Herring PDT meeting was spent discussing the Management Alternatives Under Consideration in Amendment 5, focusing on outstanding issues and possible ways to approach the analyses.

- The PDT discussed the importance of being able to track herring catch that is transferred to carrier vessels clearly from the catcher to the carrier and the dealer. Reporting requirements are complicated because fish can be transferred at sea using carriers and landed/sold to multiple dealers. The Amendment 5 document will clarify that carriers are required to provide a NMFS-specified trip identifier for the catcher vessel to the dealer even if the amendment eliminates VTR reporting requirements for carrier vessels themselves. The PDT will also provide additional information in the document about the utilization of observers on carrier vessels.

Proposed Requirement for Herring Dealers to Accurately Weigh All Fish

At its January meeting, the New England Fishery Management Council voted to include the following measure in Amendment 5:

This option would require federally-permitted Atlantic herring dealers to accurately weigh all fish. For those dealers who can demonstrate that it is unfeasible to weigh the fish, an exemption will be approved by the Council.

The discussion about this option at the Council meeting suggested that the provisions in Amendment 5 are intended to be very simple; no specific requirements for weighing the fish (ex., weighing standards, requirements for scales, procedure certification/approval process) and no process/standards for approving exemptions were identified by the Council or NMFS during the discussion.

The Herring PDT discussed this measure, considered the discussion at the Council meeting, and identified a number of questions/concerns. The issues, challenges, and complexities related to accurately weighing fish and sampling landings in the Atlantic herring fishery have been a primary focus of discussion by the Herring PDT, Herring Committee, Advisory Panel, and Council during the development of Amendment 5. Therefore, a simple requirement that dealers accurately weigh all fish is unclear and somewhat confusing. In July 2010, Council staff provided an extensive white paper regarding the potential applicability of various scales and weighing methods in the fishery (see *Potential Applicability of Flow Scales, Truck Scales, and Volumetric Measurement in the Atlantic Herring Fishery*). This paper generally describes several practices that are currently utilized by herring vessels, dealers, and processors to offload fish, determine the weight of fish that are bought/sold, and distribute it to various markets. The paper provides information about the types of scales that are used/could be used to weigh fish and some general information about the potential costs (financial and other) and benefits associated with them. It also provides information about methods to consider for improving volumetric-based weight estimations and/or confirming them through a third party. It identifies challenges, potential problems, and issues to address with respect to estimating catch in a high-volume fishery like the Atlantic herring fishery and considers approaches that are applied in other, similar fisheries. Many of the approaches were considered during the development of Amendment 5, but replaced with this proposed requirement for dealers to accurately weigh all fish.

- This measure is vague, and no additional direction was provided to clarify it. At this point in the development of Amendment 5, the Council should be aware of the nature and scale of this fishery, the details of various fishing practices, and the challenges associated with accurately weighing all fish. If the intent is for dealers to weigh all fish, then it seems that standards should be set to clarify how that requirement can be complied with by all herring dealers and how it can be enforced (i.e., how it can be verified that the fish are weighed and that the weights are accurate).
- It is not clear how this measure relates to the Goals and Objectives of Amendment 5. The second goal of the Amendment 5 catch monitoring program is *to 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*. One of the objectives related to that goal is *to eliminate reliance on self-reported catch estimates*. How does this measure enhance the catch monitoring program and improve the accuracy of catch and bycatch information in the herring fishery?
- What does the Council mean by “accurately weigh all fish”? Would scales be required to be utilized by all dealers? Would dealers (bait and food) be required to sort all fish by species prior to weighing them? For high-volume landings, would estimation of total landings from

a subsample be allowed? If so, what amount of precision is required by the term “accurately”?

- Analysis of this measure by the Herring PDT will be limited because there is no way to predict what dealers may do differently to comply with this measure, so there is no way to predict any potential costs or benefits. The Amendment 5 document will provide detailed information about herring dealers (number, location, markets, etc.) and can describe some approaches that may be utilized to weigh fish, but no specific analyses can be developed.
- The provision allowing the Council to approve exemptions for dealers who can demonstrate that it is infeasible to weigh the fish is unclear. NMFS staff in particular expressed concern about this measure. The language should suggest that the Council would consider exemptions, not approve them. There is currently no process for the Council to consider/approve exemptions, or standards by which to evaluate the need for an exemption. Without any standards for meeting this requirement, it is not possible to predict how many dealers would seek exemptions. Would exemptions be granted annually, prior to the start of a fishing year? Would this process involve a framework adjustment or rule-making? Would exemptions be permanent, or annual, with/without an expectation that the dealer would make efforts to meet some standards for accurately weighing fish in the future? These are administrative/policy issues that should be resolved by the Council and NMFS.

Options for Observer Coverage Levels

The Herring PDT discussed the options in Amendment 5 for observer coverage levels in the herring fishery. There was general agreement that currently, the options are vague and require further analysis/development. The PDT agreed to develop a comparative analysis of the options to more clearly illustrate what the coverage levels may be under each of the options, while considering how the options relate to the current (SBRM) approach and what the process would be for analyzing/determining coverage levels in the future. Particular attention will be focused on stratification of the data (precision versus accuracy) and ways to address/resolve variability in the datasets. This will be a very complicated analysis and a critical component of the Amendment 5 Draft EIS. The PDT agreed that the first step should focus on the statistical/technical analysis related to potential coverage levels. Then, additional work can address potential costs and fishery-related impacts.

Measures to Address Sampling/Slippage and Maximized Retention

The Herring PDT briefly discussed options in the document to increase sampling, measures to address net slippage, and an alternative to consider an experimental fishery to evaluate maximized retention. Many of the measures in this section will be revisited by the PDT once some of the preliminary analysis in the DEIS has been drafted. One option that the PDT expressed particular concern and raised some questions about is **Option 12 in Section 4.3.13 of the January 2011 Amendment 5 Discussion Document – Catch Deduction (and Possible Trip Termination) for Slippage Events:**

- This measure does not enhance catch monitoring. If this measure is intended to provide a disincentive for slipping catch (versus improving the sampling of slipped catch and the accuracy of catch data), then it will be important to account for the 100,000 pound catch

deductions in a way that separates this catch from fish that are landed/sold, to avoid further discrepancies in the datasets.

- If this measure is implemented, a separate code should be developed for the IVR/VMS/VTR data to identify the slipped catch, so that it remains separate from the other data. It also will be important to ensure that this catch is not included in the catch-at-age matrix.
- Available information (previously provided by the PDT) suggests that the estimated weight of slipped catch is less than 100,000 pounds. The PDT will review/update this information in the Amendment 5 document.
- Safety concerns related to the consequences of this measure were acknowledged by the Herring PDT. The PDT also reiterated concerns about placing observers in undesirable situation because of perceptions that this measure is punitive in nature.
- The PDT expressed some concerns about potential inequities associated with this measure. For example, the consequences of exceeding the 10-event slippage threshold (trip termination, ACL/sub-ACL overages, and/or accountability measures) could be significant particularly for the directed herring fishery participants, yet the consequences could be the result of the actions of non-directed vessels (i.e., Category C and/or D vessels). Furthermore, the measure provides a very weak incentive for individual vessels to avoid slippage until there are ten slippage events in an area. Once ten events are reached, the trip termination is an extremely strong incentive to avoid recorded slippage events, which may have impacts on vessel safety and observers (see above).
- The PDT emphasized the importance of focusing on management measures that will enhance the collection of accurate catch information in the Atlantic herring fishery. There are many other measures under consideration in Amendment 5 that address this objective. Council staff will develop a table/matrix for this section of the document (Measures to Maximize Sampling and Address Net Slippage) to better illustrate the combinations of options the Council should consider to achieve the goals and objectives of the catch monitoring program.

The PDT briefly discussed the alternative in the Amendment 5 document to evaluate maximized retention through a time-limited experimental fishery sponsored by NMFS. The PDT agreed that without a connection to a portside sampling program, there seems to be less justification to consider maximized retention in the fishery at this time. Many options in the document focus on improving catch reporting and increasing/enhancing sampling at sea. NMFS and Council staff identified some administrative details associated with this alternative that will require further discussion. The PDT will revisit this measure at a future meeting.

Measures to Address River Herring Bycatch

The Herring PDT reviewed the River Herring Monitoring/Avoidance and Protection alternatives under consideration in Amendment 5. Some clarifications were made, and some general analytical issues were discussed. Much of the discussion focused on developing the new **river herring catch trigger-based monitoring/avoidance and protection options proposed by the Council at its January 2011 meeting:**

- The PDT reiterated its concerns regarding the variability associated with the river herring catch estimates. Even when utilized as triggers, the numbers represent expansions from variable estimates that result in more variable estimates, that will then be used to monitor the

fishery (see Draft Herring PDT Discussion Paper: *Developing River Herring Catch Cap Options in the Directed Atlantic Herring Fishery* and December 2, 2010 Herring PDT Report). In addition, the proposed trigger options are based on expanded estimates of river herring catch from a discrete window of time: 2005-2009. If and when river herring abundance changes in the future, these triggers may no longer be appropriate and could result in initiating actions (i.e. increased monitoring, protection) much sooner or later than anticipated and/or necessary. Since a link between river herring abundance and a catch-based trigger is not available (and likely not possible), trigger-based management options could be ill-suited for achieving the specific goals and objectives identified in Amendment 5.

- Monitoring the catch triggers presumably should occur through estimation based on observer data (versus what is observed) because the triggers themselves are based on estimation based on from observer data. However, this issue needs further discussion, and perhaps some guidance from the Committee or Council. A methodology for estimating/monitoring river herring catch on a real-time basis should be developed, and time lags should be acknowledged. Other issues/details should be address (for example, how to account for trips that cross multiple catch areas).
- The PDT expressed some concerns about equity/fairness issues related to these measures. Because of the spatial distribution of potential closure areas, it is possible that the consequences of river herring bycatch will be borne by vessels which did not catch river herring. This should be discussed further.
- The PDT agreed that some flexibility should be incorporated into these measures so that the river herring areas (monitoring/avoidance/protection), as well as any catch triggers, are reviewed/updated regularly. Including this review during the specifications process (every three years) and allowing updates through framework adjustments would be appropriate.

Amendment 5 Affected Environment

The Herring PDT reviewed and discussed a general outline for the Amendment 5 Affected Environment (AE) and provided Council staff with suggestions for updating information that will be required in the document. The AE will update information from 2006-2010 (five years since the implementation of Amendment 1) and will focus on providing data that are related to the management measures under consideration and the evaluation of the impacts of those measures. The intent is to build from the Amendment 1 EIS and update all of the related stock and fishery information since the implementation of Amendment 1 in 2006. The Herring PDT agreed to focus on the following “valued ecosystem components” (VECs) in the Amendment 5 AE and analysis of impacts:

1. Atlantic Herring
2. Non-Target Species and Other Fisheries
3. Physical Environment and EFH
4. Protected Resources
5. Fishery-Related Businesses and Communities

“Non-target Species and Other Fisheries” will include a summary of available information about catch/bycatch of all species in the Atlantic herring fishery, with particular attention to and additional information about river herring, Atlantic mackerel, and multispecies (groundfish). The utilization of herring as bait and the importance of herring to the lobster, tuna, and recreational fisheries will be discussed as part of the “Fishery-Related Businesses and Communities.” The importance of herring to other non-consumptive users (whale watching, etc.) will be addressed in the background section regarding the importance of herring as a forage species (part of the Atlantic Herring VEC). The target completion date for drafting the AE section is May 2011, so that the analysis can build on the information in the AE. The PDT recognizes that some data for 2010 may not be available by May; placeholders will be left for these data so that the document eventually will be completely updated through 2010.

Other Issues

The Herring PDT discussed work priorities and timelines and agreed that the PDT working group to explore data issues and sampling variability should schedule a meeting and begin discussions soon. While there is no longer a portside element to the catch monitoring program proposed in Amendment 5, improving catch data involves addressing/resolving sampling variability. State portside sampling programs will continue to play a critical role in addressing sampling issues improving the accuracy of catch information. The working group will work informally prior to the next PDT meeting to develop analyses related to sampling issues, so that the full PDT can have a more informed discussion and focus on developing analyses and recommendations for the Council.

The PDT anticipates meeting again in April to review preliminary analysis and continue work on the Amendment 5 Draft EIS.

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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Christopher M. Moore, Ph.D.
Executive Director

MEMORANDUM

DATE: March 29, 2011

TO: River Herring and Shad Committee

FROM: Jason Didden

SUBJECT: April 1, 2011 Committee Meeting

Please find below an agenda for the April 1, 2011 meeting. Additional briefing materials follow. One other issue that Chris Zeman wanted staff to pass along was that the ASMFC has been asked to look at and is investigating issues regarding directed at-sea fishing of river herring by the Menhaden fishery as well as directed fishing in estuaries to supply a live-bait market.

Agenda (page numbers refer to large underlined numbers in bottom center)

1pm - Meeting opens. About 5 minutes will be allowed for technical webinar issues followed by introductory remarks by Chris Zeman. Contact J Didden (302-526-5254) if you have questions about the webinar connection.

(pages 2-5) Discussion of results of previous meeting (at Feb Council meeting)

(pages 6-11) Discussion of ASMFC meeting

(page 12) Discussion of NOAA GC communications

(pages 13-21) Discussion of ACL/AM flexibility issue -

(pages 22-33) Discussion of Council driving a voluntary coordination mechanism

Potential Tasks:

- Develop summary of current habitat consultation and protection measures. Describe activities of and interactions between states, NOAA, Commission, F&WS, etc. Develop range of roles for Council re: habitat.
- In terms of general recovery/rebuilding/conservation, develop details on range of possible Council activities.
- Develop proposal to formalize coordination between the Commission and the Councils. May include: the Commission including in its Annual Plan Reviews a section on issues beyond the Commission's authority; the Council(s?) reviewing the Annual Plan Review; and communicating back to the Commission on relevant Council actions/progress.
- Summarize what if any benefits could result in terms of stock assessment resources if RH&S had an FMP, or other ways to assist effective stock assessments.
- Develop a plan for creating a more central hub for RH&S information - ASMFC already has a lot of info on it's web site...may be as simple as directing people there?

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Vehicles ↓	Stock Assessments/Science Resources	Catch Reporting/Fishery Evaluation	Directed Fishing Mortality
ASMFC	ASMFC conducting stock assessments infrequently and dependent on states (once every 10-12 years). State resources are limited due to budget cuts in most states.	ASMFC Creates annual "FMP Reviews" that describe fishery- http://www.asmfc.org/shadRiverHerring.htm . Catch reporting is coordinated through SAFIS/ACCSP. States have to submit compliance reports to ASMFC that document state commercial and recreational landings.	Directed fishery in state waters is under state control and the ASMFC is proposing to implement moratoria on directed fishing unless states have accepted sustainability plans no later than 2012 for river herring and 2013 for shad.
Am 14	Unless A14 includes RH/S as stock in fishery, then no additional measures beyond ASMFC measures above. If RH/S stock in fishery, then FMP measures below apply.	There has been some increased at-sea observer and port sampling of relevant fisheries in recent years in response to public interest. Am 14 contains a variety of measures for catch reporting/monitoring/observing for the Mackerel and Loligo fisheries. Am 5 for Atl Herring has the same for that fishery. Amendments 5 and 14 also describe sources of fishing mortality.	Mortality presently not in control in federal waters and total mortality is unknown (~160,000 pounds for all RH/S species in dealer data in 2010 (preliminary). Am 14 and Am 5 do not include measures to directly control RH/S caught, landed, and sold.
FMP	Federal resources would contribute toward stock assessments probably to a greater degree than currently occurs. A monitoring committee would be established and the SSC would evaluate science for ABC purposes, make research recs, etc...	RH/S fishery would be described and all significant sources of mortality would be identified. Catch reporting methodology to account for mortality on an annual basis would be implemented.	An FMP would require ACLs/Ams and status determination criteria which would lead to control of fishing mortality at least in federal waters. Total control would be dependent on coordination with ASMFC
Other	Allocation of NMFS funding for RH/S is discretionary. NMFS currently plays a minor role in RH/S assessments. The frequency, success, and/or failure of ASMFC stock assessments hinges on the availability/participation of state biologists. Council could make a request for additional federal involvement through SEC. 402. INFORMATION COLLECTION MSA provisions.	Likely NA	TBD. If RH/S level reach jeopardy levels, then ESA protections would limit/control all sources of mortality. NOAA/MAFMC could implement complementary measures in federal waters.

Vehicles ↓	Incidental Catch Control	Habitat Conservation	MAFMC/ASMFC/NEFMC Coordination
ASMFC	Some bycatch controls (e.g. American shad). ASMFC generally looking to work cooperatively with Councils on bycatch issues. Part of sustainability plans includes documentation of bycatch and justification of why bycatch is sustainable.	Historical and new non-fishing impacts significant source of habitat degradation. ASMFC makes general recommendations to management partners and sometimes comments on FERC dam relicensing and dam removal projects. See http://www.asmfc.org/diadromousSpeciesDocument.htm that details habitat needs.	Coordination has improved in recent years, but challenging due to multiple agency involvement, overlapping legislative authority and jurisdictional issues.
Am 14	Through Am14 and Am5 the fisheries that account for most incidental catch of river herrings/shads can be addressed. Am14 can also consider adding river herrings/shads as a "stock in the fishery" which would then trigger status determination criteria, other reference points, ACL mechanisms and AMs (EC designation likely not applicable for RH/Ss).	If RH/S not a stock in the fishery, then no ability to designate EFH and no additional measures beyond ASMFC measures above. If RH/S is a stock in the fishery, EFH would trigger EFH designation and measures for FMP discussed below.	All management partners are participating in Amendment development.
FMP	If RH/S had an FMP then they would automatically be stocks in the fishery with requirements as described above. Could institute some indirect controls (e.g. GRAs) on other directed fisheries that incidentally catch RH/S but direct controls would likely still occur within those other FMPs.	EFH would be designated, triggering mandatory federal agency consultation requirement with NOAA for any activity that may impact EFH.	Coordination would be required.
Other	TBD. If RH/S level reach jeopardy levels, then ESA protections would limit/control all sources of mortality. NOAA/MAFMC could implement complementary measures in federal waters.	Council could get more involved in RH/S habitat issues through its Habitat Committee - authority restricted because no RH/S EFH designated. Since RH/S are prey species for Council-managed species, this tie might mean that RH/S are under Council's "authority" in some fashion and trigger 305(b)(3)(B): Each Council can comment on and make recommendations concerning activities that likely to substantially affect the habitat, including essential fish habitat, of an anadromous fishery resource under its authority. NMFS could take a more active role in RH/S consultation work under existing statutes (e.g. prey-EFH linkages, Fish and Wildlife Coordination Act, National Power Act (dam relicensing negotiations)).	RH/S Committee is Ad Hoc and intended to be temporary. Annual coordination reporting between MAFMC and ASMFC where ASMFC to provide RH/S stock status update and MAFMC to provide summary of federal fishery catch/discard estimates in the works. Commission and Council are also linking webpages to make information easier to find.

Wednesday, February 08, 2011 - River Herring and Shad Committee

Staff reviewed the table developed with C. Zeeman about different avenues for the Council to engage in River Herring and Shad conservation. See http://www.mafmc.org/fmp/msb_files/Am14/RH-Shad%20Tab.pdf.

There are 2 specific questions that will be addressed before April:

1) Is it possible to move forward with an FMP and/or stock in the fishery designation for river herring/shad in the context of them also having an ACL/AM exemption? This would be due to their unique life history and primary management by the states (would facilitate EFH designation, other FMP requirements(?)).

2) Outside of FMP and/or ESA management, is there a way that the Council could organize (in a discretionary fashion) a proactive approach to coordinate the various relevant management partners. The Atlantic Salmon Recovery Framework was proposed as a model (http://www.nero.noaa.gov/prot_res/altsalmon/FrameworkWorkingDraft081110-1.pdf).

J. Didden will work with C. Zeman on the above points of investigation.

MAFMC Staff Summary of ASMFC's March 22 discussion on River Herring/Shad

-ASMFC received several letters/handouts/testimony requesting ASMFC tell MAFMC that MAFMC should keep "Stock in the Fishery" options in Amendment 14. Two examples follow this page...

-J Didden noted that at April Council meeting MAFMC may decide something about creating a new FMP for River Herring/Shad but that "Stock in the Fishery" options will almost certainly remain in Amendment 14, and that the end result is essentially the same. The same requirements exist if river herring/shad have own FMP or are a stock in the fishery in MSB FMP...adding river herring/shad (RHS) to the MSB FMP essentially would make it the MSBRHS FMP.

-J Didden noted that the next Am14 decision point on the stock in the fishery issue will likely be August at the earliest - At that point if DEIS is ready Council could indicate current preference for alternatives related to adding RH/S as a stock in the fishery.

-ASMFC decided to wait to indicate its preference given it will meet in early August, before the MAFMC may take action on this issue. ASMFC staff was also asked to draft a white paper on pros and cons of federal/Council management of river herring/shad.



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March 18, 2011

Via electronic mail

Dr. Malcolm Rhodes, Chairman
Shad and River Herring Board
Atlantic State Marine Fisheries Commission
1050 North Highland Street - Suite 200A-N
Arlington, VA 22201

Dear Dr. Rhodes and Members of the Shad & River Herring Management Board:

I am writing on behalf of the Herring Alliance¹ to urge the ASMFC to support further development of alternatives in Amendment 14 to the Atlantic Mackerel, Squid and Butterfish Fishery Management Plan (MSB FMP) that identify river herring and shad as “non-target stocks in the fishery.” Mid-Atlantic Fishery Management Council (MAFMC) management of river herring and shad as stocks in the MSB plan could significantly benefit the ASMFC’s efforts to rebuild and manage river herring and shad without compromising ASMFC’s management leadership in this fishery.

As you are likely aware, the Magnuson-Stevens Act requires that Federal FMPs describe the fish stocks involved in a fishery, and NMFS and the Councils are required to manage those stocks in need of conservation and management, such as river herring and shad.² This management can occur directly through a federal FMP or by implementing regulations compatible with an Interstate Fishery Management Plan (IFMP), and consistent with the Magnuson-Stevens Act’s National Standards.³ Consistent with these requirements, the revised National Standard 1 Guidelines recommend that federal fishery management councils identify stocks in a fishery, including non-targeted stocks that require conservation and management.⁴ The transition to ecosystem-based fishery management approaches requires fishery managers to

¹ The Herring Alliance includes 34 member organizations and represents nearly 2 million individual members. See membership at: www.herringalliance.org/alliance-members.

² 16 U.S.C. §§ 1853(a)(2); 1852(h)(1).

³ *Id.*; 16 U.S.C. § 5103(b)(1). This provision of the Atlantic Coastal Fishery Management Act provides that in the absence of an approved and implemented federal FMP, after consulting the appropriate council(s) NMFS can implement regulation for federal waters that are both compatible with the IFMP and consistent with the national standards. Regulations to implement an approved federal FMP prepared by the appropriate council would supersede any regulation issued by the Secretary. *Id.*

⁴ “Non-target stocks” are fish “caught incidentally during the pursuit of target stocks in a fishery, including ‘regulatory discards’ as defined under Magnuson-Stevens Act section 3(38). They may or may not be retained for sale or personal use” 50 C.F.R. § 600.310(d)(4)



recognize species that are impacted by fishing even if those species are not directly targeted by the fishery.⁵

We understand there is concern that identifying river herring and shad as stocks in the MSB fisheries would trigger federal annual catch limit (ACL) requirements and the standard approach to setting ACLs contained in the National Standard 1 Guidelines.⁶ Specifically, there is concern that this could either burden the MAFMC or threaten river herring and shad management leadership by the ASMFC. It is important to understand however that the law, as reflected in the National Standard 1 Guidelines, allows for flexibility in meeting National Standard 1 requirements under some circumstances.⁷ It is our view that with successful completion of certain actions currently under development by the ASMFC, including the river herring stock assessment, the ASMFC's river herring and shad plan could be looked to by the MAFMC to help it meet its National Standard 1 legal obligations for the MSB FMP. Designating river herring and shad as stocks in the MSB fishery would be a foundational piece for such an alternative to the standard approach to specifying reference points and related management measures, as described in the National Standard 1 Guidelines.⁸

The MAFMC Shad & River Herring Ad-Hoc Committee will have a meeting via webinar on April 1st to finalize its recommendations about how the MAFMC should address river herring and shad management in federal waters. The MAFMC meets April 12-14 in Annapolis, MD and will likely take up the question of whether to leave the stocks in the fishery alternatives in Amendment 14. State and ASMFC support for further development of these alternatives prior to these two important meetings will be important in keeping them as part of Amendment 14. It would be unfortunate if these alternatives were removed at this time because federal stock designation could not only help federal regulators comply with the law, but would substantively address a number of important ASMFC management priorities.

Thank you for considering the Herring Alliance's request that the ASMFC support further development of the "stocks in a fishery" alternative set in MSB FMP Amendment 14. We regret the late submission of this letter, but only recently learned of Mr. Zeman's request to present at the March 22 meeting for the purpose of asking the Board to formalize its position

⁵ "The classifications in the NS1 guidelines are intended to reflect how FMPs have described "fisheries," and to provide a helpful framework for thinking about how FMPs have incorporated and may continue to incorporate ecosystem considerations." 74 Fed. Reg. 11 at 3179 (January 16, 2009).

⁶ 74 Fed. Reg. 11, 3178-213 (January 16, 2009).

⁷ See 50 C.F.R. § 600.310(h)(3).

⁸ Id. Note that in the North Pacific Fishery Management Council's Salmon FMP, there are detailed descriptions of the roles of the various agencies involved in salmon management. The Salmon FMP explicitly delegates authority for setting harvest limits to the State of Alaska. North Pacific Fishery Management Council. 1990. Fishery Management Plan for the Salmon Fisheries in the EEZ off the Coast of Alaska; <http://www.fakr.noaa.gov/npfmc/fmp/salmon/SalmonFMP.pdf>.



EARTHJUSTICE

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INTERNATIONAL JUNEAU, ALASKA OAKLAND, CALIFORNIA
SEATTLE, WASHINGTON TALLAHASSEE, FLORIDA WASHINGTON, D.C.

regarding federal management options for shad and river herring.⁹ In view of this, we ask that you give these comments your full consideration.

Please contact me should you have questions or wish to discuss this matter further.

Sincerely yours,

/s/ Roger Fleming
Roger Fleming
Attorney

Cc Vince O'Shea, ASMFC Executive Director
 Robert Beal, ISFMP Director
 Kate Taylor, ASMFC Fishery Management Plan Coordinator
 Rick Robins, Chair, MAFMC
 Chris Zeman, Chair, MAFMC Ad hoc River Herring/Shad Committee
 Chris Moore, MAFMC Executive Director
 Jason Didden, MAFMC Fishery Management Specialist
 Joel MacDonald, Regional Counsel, NMFS

⁹ See ASMFC Winter-Spring Meeting Final Agenda & Meeting Materials, Shad & River Herring Management Board, Supplemental Material,
<http://www.asmfc.org/meetings/winterSpring2011/ShadAndRiverHerringBoardSupplemental.pdf>.

Herring Alliance Handout at ASMFC

BENEFITS TO RIVER HERRING AND SHAD MANAGEMENT FROM FEDERAL STOCK DESIGNATION

The ASMFC should support further development of the “stocks in a fishery” alternative set in Amendment 14 to the Atlantic Mackerel, Squid and Butterfish Fishery Management Plan (MSB FMP). Management of river herring and shad as “stocks in a fishery” could significantly benefit the ASMFC’s efforts to manage these species without compromising ASMFC’s management leadership.

Federal FMPs must describe the species of fish involved in a fishery, and NMFS and the Councils are required to manage those stocks in need of conservation and management, such as river herring and shad.¹ This management can occur directly through a federal FMP or by implementing regulations consistent with an IFMP and the Magnuson-Stevens Act’s National Standards.² Consistent with these requirements, the revised National Standard 1 (NS1) Guidelines recommend that federal fishery management councils classify “stocks in a fishery,” including non-targeted stocks that require conservation and management.³ Stock classification is a “framework for thinking about how FMPs have incorporated and may continue to incorporate ecosystem considerations.”⁴

Issue	Problem	Benefit of Federal Stock Designation
MINIMIZING INCIDENTAL CATCH	The Magnuson Act narrowly defines bycatch as discards. Because most river herring and shad caught in federal fisheries are retained for sale, regulatory authority to reduce bycatch under National Standard 9 does not afford these species adequate protection.	Federal stock designation would require that all catch is accounted for and maintained at sustainable levels.
ASMFC INPUT IN FEDERAL CATCH LIMITS	Incidental catch in federal fisheries is a major source of fishing mortality over which the states have little control, forcing states to compensate for ocean fishing mortality by reducing directed in-river fishing mortality.	A framework would be established for the Mid-Atlantic Council to implement ASMFC recommendations to set catch limits to prevent overfishing and contribute to stock rebuilding.
EFH IMPACT CONSULTATION	Federal councils cannot designate essential fish habitat (EFH) for river herring or shad unless they are included in a federal FMP.	EFH designation would ensure federal agency consultation with NOAA on projects that could impact these important river herring and shad habitats.
STOCK ASSESSMENT RESOURCES	State resources for stock assessment are extremely limited resulting in infrequent stock assessments. Stock assessments that are decades old are not useful for management purposes.	NMFS could allocate resources to aid with the stock assessment, including participation of the Northeast Fisheries Science Center. Assessment needs would likely dictate that river herring and shad be given higher priority in NMFS data collection programs (e.g., recording lengths and weights from trawl surveys, collecting otoliths for aging, genetic studies).
FEDERAL CATCH REPORTING	There is no standard methodology for documenting catch of river herring and shad in federal waters.	Catch reporting methodology to account for mortality on an annual basis would be implemented.
INCORPORATING NEW INFORMATION	There is currently no framework for regularly incorporating new information about river herring and shad populations and fisheries into federal management actions.	The status of river herring and shad fisheries and stocks would be reviewed annually in conjunction with catch specifications for mackerel, squid, and butterfish. All significant sources of mortality would be identified and accounted for.
CANADIAN DATA	The need for Canadian river herring and shad data has been identified as a priority by stock assessment teams, however there is currently no agreement or understanding with Canada to share this information.	If designated as federally managed species, the U.S. would be better positioned to negotiate resource sharing agreements with Canada.

¹ 16 U.S.C. §§ 1853(a)(2); 1852(h)(1).

² Id.; 16 U.S.C. § 5103(b)(1).

³ The Magnuson-Stevens Act (MSA) defines ‘non-target stocks’ as fish that are “caught incidentally during the pursuit of target stocks in a fishery, including “regulatory discards” as defined under Magnuson-Stevens Act section 3(38). They may or may not be retained for sale or personal use” 50 C.F.R. § 600.310(d)(4)

⁴ 74 Fed. Reg. 11 at 3179 (January 16, 2009) .

Inclusion of river herring and shad as non-target stocks in the federal MSB fisheries would not supersede the ASMFC's IFMP and could help the MAFMC satisfy its NS1 requirements for river herring and shad without triggering standard federal catch limit requirements that would control state waters catch. It would simply provide a means of addressing the fishing mortality known to be occurring in the federal fisheries outside the ASMFC's jurisdiction.

- The MAFMC's Squid, Mackerel, and Butterfish Committee, in cooperation with the ASMFC, should develop a "stocks in the fishery" alternative set in Amendment 14, which would complement the ASMFC's IFMP for river herring and shad.
- Designating river herring and shad as non-target stocks in the MSB FMP would complement state management to the extent that federal fishery managers address their impacts on the stocks in federal waters through the requirements of the Magnuson-Stevens Act.
- The alternative set should clarify the roles of the ASMFC and the MAFMC in managing river herring and shad stocks, ensuring that ASMFC retains lead management authority. For example, the North Pacific Fishery Management Council's Salmon FMP includes detailed descriptions of the roles of the various agencies involved in salmon management. The Salmon FMP explicitly delegates authority for setting harvest limits to the State of Alaska.⁵
- The ASMFC's IFMP for Shad and River Herring could help the Mid-Atlantic Council satisfy its NS1 obligations by providing alternative approaches to meet federal requirements.⁶
- This formalized cooperative framework between the ASMFC and the MAFMC would give shad and river herring critical resources not currently afforded to them because they are not included in the federal management scheme (Please refer to table above).

⁵ North Pacific Fishery Management Council. 1990. Fishery Management Plan for the Salmon Fisheries in the EEZ off the Coast of Alaska; <http://www.fakr.noaa.gov/npfmc/fmp/salmon/SalmonFMP.pdf>

⁶ Councils are allowed, in limited circumstances, to propose alternative approaches for satisfying the NS1 requirements. These circumstances include stocks with unique life histories which cannot be adequately accounted for in standard NS1 approaches. See 50 C.F.R. § 600.310(h)(3).

Summary of Discussions with NOAA GC

- North Pacific salmon situation is still developing. It seems that the NPFMC is trying to use the flexibility provision in the NS 1 guidelines, but it remains to be effectuated...It appears that the state's program of openings and closures may be better suited as a management for this type of species.
- Question here appears to be if the states S-RH management plans can be used as a proxy for ACLs. Whether this will be acceptable depends on what the state management plans espouse and how that will operate with respect to ending or preventing overfishing of S-RH, and any cooperative management between ASMFC & Council.
- However, this is complicated since we do not appear to be able to identify SDCs for these species. Preventing or ending overfishing is the the main goal of an ACL. If you can establish that unique characteristics of S-RH don't lend themselves to ACL management, and the state management programs will prevent overfishing then you might have a defensible argument to underlie the use of the flexibility provisions...That remains to be seen, particularly since the NP salmon situation has not come to a final conclusion.
- Also concerned that labeling these species as stocks in the fishery will be problematic from a scientific information perspective...This calls into question whether we could come up with specifications of MSY and ABC, for example, or their proxies, that are defensible.
- The use of a "prohibited species" measure with respect to S-RH must rest upon a rationale that is linked to the S-RH fishery...cannot base a prohibition on presumed significant bycatch problem...The imposition of a possession prohibition could turn the mackerel and herring fisheries on their respective ears because those using pumping operations would have to greatly modify or abandon this practice or risk being found in violation when these fish are culled out [if they ever are] at the dealer level. A prohibition could increase discarding of herring and mackerel if nets are dumped before being brought on board because there are S-RH in the net. This would be inconsistent with NS 9.

Preliminary Review of the Fishery Management Plan for the Salmon Fisheries in the EEZ off the Coast of Alaska

Prepared for the
North Pacific Fishery Management Council

March 2011

if landed concurrently with a legal landing of salmon [50 CFR 679.5(l)(1)(iv)(A)]. Halibut taken incidentally during the troll fishery shall be reported on an ADF&G fish ticket using the CFEC salmon permit. For information on regulations and landing requirements for the federal IFQ halibut fishery contact the National Marine Fisheries Service.

Trollers are allowed to longline for groundfish and troll for salmon on the same trip as long as fish are not onboard the vessel in an area closed to commercial fishing or closed to retention of that species and the fisher has both a commercial salmon permit and the appropriate commercial longline permit.

A vessel may not participate in a directed fishery for groundfish with dinglebar troll or mechanical jig gear if they have commercial caught salmon on board. A vessel fishing for groundfish with dinglebar troll gear must display the letter "D" and a vessel fishing for groundfish with mechanical jigging machines must display the letter "M" at all times when fishing with or transporting fish taken with dinglebar troll gear or mechanical jigging machines [5AAC 28.135 (a)(4)]. A person may not operate a vessel that is displaying one of these letters when the vessel is being used to fish for salmon [5AAC 28.135 (c)].

3.3 Annual Catch Limits and Accountability Measures

Compliance with the MSA requires the Council to establish mechanisms for specifying ACLs to prevent overfishing and include accountability measures (AMs) to prevent ACLs from being exceeded and to correct overages of the ACL if they do occur.²¹ The Council's December 2010 motion provided the following direction for addressing the ACL and AM requirement:

ACL/AM options (not mutually exclusive):

- Option 1:** Use the NS1 Guidelines exception for stocks managed under an international fishery agreement with regard to ACL/AM requirements for Chinook salmon harvests under the Pacific Salmon Treaty.
- Option 2:** Use the State's salmon management program as an alternative approach to satisfy MSA requirements.

Amendment 6 to the FMP (2002) implemented overfishing definitions that translate the overfishing policies of the State into the framework of the NS1 Guidelines, to enable NMFS to determine whether or not salmon stocks targeted by FMP fisheries are overfished or overfishing is occurring. The FMP overfishing definitions separate the salmon stocks caught in the SEAK EEZ into three tiers. Tier 1 stocks are Chinook salmon stocks covered by the Pacific Salmon Treaty.²² Tier 2 and tier 3 are salmon stocks managed by the Board and ADF&G. Tier 2 are coho salmon stocks. Tier 3 stocks are coho, pink, chum, and sockeye salmon stocks managed as mixed-species complexes, with coho salmon stocks as indicator stocks. The overfishing definitions for Tiers 2 and 3 are based on the State's MSY escapement goal policies. These present policies and status determination criteria prevent overfishing and provide for rebuilding of overfished stocks in the manner and timeframe required by the Magnuson-Stevens Act. In creating these overfishing definitions, NMFS determined that State salmon management, which is based

²¹ MSA §303(a)(15) "Establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability."

²² Chapter 3 of Annex IV of the Pacific Salmon Treaty, as amended May 21, 2008 (also referred to as the US/Canada bilateral agreement for the Southeast Alaska all-gear Chinook catch).

on salmon biology and the best scientific and fishery information available, achieves the intent of NS1 (NMFS 2001).

The FMP establishes an MSY control rule, a maximum fishing mortality threshold, and a minimum stock size threshold for each tier. If a stock or stock complex is declared overfished or if overfishing is occurring, the Council will notify the State and request that the State conduct a formal assessment of the primary factors leading to the decline in abundance and report to the Council the management measures the State will implement for rebuilding the fishery. The Council will assess these rebuilding measures for compliance with the Magnuson-Stevens Act, including the NS1 Guidelines. The State rebuilding program may be adopted without an FMP amendment to assure timely implementation.

3.3.1 The International Agreement exception and Chinook salmon

In recognition that applying ACL/AMs requirements to stocks covered by an international fishery agreement may unfairly impact the US component of these fisheries, the MSA provides an exception for those stocks.²³ The NS1 Guidelines generally require that FMPs establish ACL/AMs for all stocks and stock complexes in the fishery, but recognize the statutory exception from the requirement for stocks or stock complexes that are managed under an international fisheries agreement in which the US participates. Under MSA § 3(24), an international fishery agreement is “any bilateral or multilateral treaty, convention, or agreement which relates to fishing and to which the [US] is a party.”

The Pacific Salmon Treaty clearly meets the criteria related to international fishery agreements. The Pacific Salmon Treaty is a bilateral treaty between the US and Canada established an international management regime to address the conservation and harvest of salmon originating in one country that contribute to fisheries in the other. Terms and provisions of the Pacific Salmon Treaty are negotiated through the Pacific Salmon Commission (Commission). Chinook salmon harvested in SEAK predominately originate from streams in the Pacific Salmon Treaty area, which stretches from central Oregon, northwest through Canada, to Cape Suckling. All Chinook harvested in the SEAK, other than certain production from Alaska hatchery facilities, are subject to catch limit provisions of the Pacific Salmon Treaty.

The overfishing definition for Chinook salmon is based on a harvest based on a relationship between a pre-season relative abundance index generated by the Commission’s Chinook Technical Committee and a harvest control rule specified in the Pacific Salmon Treaty. The Pacific Salmon Treaty also provides for an inseason adjustment to the harvest level based on an assessment of inseason data. In addition, decreases in the allowable catch are triggered by conservation concerns regarding specific stock groups. This abundance-based system reduces the risk of overharvest at low stock abundance while allowing increases in harvest with increases in abundance, as with the management of the other salmon species in the southeast Alaska salmon fishery. The permitted salmon harvest is allocated to fisheries and stakeholders in accordance with regulations adopted by the Board.²⁴

3.3.2 State Salmon Management as an Alternative Approach

The NS1 Guidelines contemplate limited circumstances where the standard approaches to specification of reference points and management measures detailed in the guidelines may not be appropriate. The NS1

²³ MSA §303(note); 50 CFR 600.310(h)(2)(ii).

²⁴ The Chinook winter troll fishery is managed so as not to exceed 45,000 fish under the Pacific Salmon Treaty. Any Treaty Chinook not harvested in the winter fishery are available for the spring and summer fisheries. See ADF&G Report to the NPFMC, June 2010. See also 5 AAC 29.080, the Board’s winter troll management plan.

Guidelines specifically cite Pacific salmon as an example of stocks that may require an alternative approach.²⁵ Under this flexibility within the guidelines, the Council may propose an alternative approach for satisfying the requirements of NS1 other than those set forth in the guidelines. The guidelines require that the Council document its rationale for proposing an alternative approach in an FMP amendment and document its consistency with the MSA.

Additionally, MSA §302(h)(6) requires each Council to develop annual catch limits for each of its managed fisheries that may not exceed the fishing level recommendations of its SSC or the peer review process established under subsection (g). As part of the alternative approach, the Council may consider a peer review process that utilizes the State's existing salmon expertise and processes for developing escapement goals for the purposes of developing fishing level recommendations.

The primary function of an annual catch limit and related requirements is to ensure that a scientifically-based approach is used for controlling catch to maintain stock abundance at the level necessary to produce maximum sustainable yield by ensuring that overfishing does not occur in the fishery. Therefore, an alternative approach that is consistent with the MSA should document how the management measures used to control catch are scientifically-based and how they achieve the biomass level necessary to produce maximum sustainable yield. If the Council and NMFS determine that the State's management represents an alternative approach that satisfies the requirements of the MSA, then implementing ACLs and AMs in the manner described within the NS1 Guidelines would not be necessary. The State's response describes how its salmon management program represents a scientifically-based approach to prevent overfishing while achieving OY.

To that end, Council staff requested ADF&G provide input on how State salmon management could be an alternative approach for meeting the MSA requirements. In a July 31, 2010 letter, Council staff requested that ADF&G provide it with assistance in evaluating the State's salmon management program by describing in detail how the State's escapement goal- and abundance-based salmon management program could serve as an "alternative approach" and satisfy the requirements of the MSA. ADF&G provided a description of the State's salmon management program in response to the Council's request.²⁶

Attachment 1.

In addition, in a January 28, 2011 letter, Council staff requested NMFS to (1) consider issuing clarifying rulemaking to remove Alaska salmon from the MSA's ACL requirement and (2) provide clear direction on the applicability to the Salmon FMP of an alternative approach for satisfying the ACL and NS1 requirements of the MSA. NMFS responded in a March 15, 2011 letter that explained that clarifying rulemaking to remove Alaska salmon from the Magnuson-Stevens Act's ACL requirement was not possible for two related reasons. First, the ACL requirement is applicable to any fishery management plan that is prepared by any Council, and the Magnuson-Stevens Act does not exempt any fishery management plans from the required provisions in section 303(a). Each FMP must comply with these requirements, respective of the degree to which the plan defers management to the State. Second, NMFS

²⁵ 50 CFR 600.310(h)(3), Flexibility in application of NS1 guidelines ("There are limited circumstances that may not fit the standard approaches to specification of reference points and management measures set forth in these guidelines. These include ... stocks with unusual life history characteristics (*e.g.*, *Pacific salmon, where the spawning potential for a stock is spread over a multi-year period*). In these circumstances, Councils may propose alternative approaches for satisfying the NS1 requirements of the [MSA] other than those set forth in these guidelines. Councils must document their rationale for any alternative approaches for these limited circumstances in an FMP or FMP amendment, which will be reviewed for consistency with the [MSA]") (emphasis added).

²⁶ Also referenced in the State's response are the State's policies for the Management of Sustainable Salmon Fisheries (5 AAC 39.222) and for Statewide Salmon Escapement Goals (5 AAC 39.223).

cannot create an exemption beyond those set forth in the statute (i.e., for stocks with 1-year life cycle or unless otherwise provided for under an international agreement to which the United States is party) **Attachment 2.**

In this letter, NMFS agreed with the Council's assessment that the standard approaches set forth in the NS1 Guidelines may not be appropriate to apply to the Alaska salmon fisheries, given salmon life history characteristics and the existing escapement goal management. NMFS also agreed with the Council's assessment that an alternative approach may be appropriate for the Salmon FMP. The letter explained that the State's August 31, 2010, letter appears to provide the Council with the rationale to support a proposal to utilize the State's salmon management as an alternative approach. The next step would be for the Council to develop and analyze an FMP amendment that explains how the State's salmon management is an appropriate alternative approach for satisfying the NS1 requirements of the MSA.

NMFS also committed to working with Council and State staff in developing the alternative approach and in identifying and resolving the specific issues that need to be addressed in the FMP amendment and analysis. At this stage, NMFS has identified two issues that should be addressed in the analysis: (1) How is scientific uncertainty addressed in escapement goal management? and (2) What is the process for scientific review of salmon stock assessments, escapement goal ranges, and levels of concern?

The remainder of this section summarizes information provided by the State to address this issue.

An alternative approach is necessary for Alaska salmon fisheries because developing a catch quota-based management system based on preseason forecasts in order to implement ACLs, as prescribed in the NS1 Guidelines, could result in greater risks of overfishing and levels of un-harvested stocks which may prevent the achievement of OY on a continuing basis. According to the State's response, specifying a catch quota based on pre-season abundance forecasts is not as appropriate as salmon management based on monitoring inseason abundance for achievement of escapement goals. With the exceptions of the SEAK troll fishery for Chinook salmon and Area M June net fisheries, catch quota-based fishery management has not been used in State salmon fishery management.²⁷ ADF&G gives the following reasons in support of using the State's salmon management program as an alternative approach for complying with the MSA:

1. Salmon are semelparous, reproducing once during their life cycle;²⁸
2. The harvestable surplus of salmon consists of new recruits and the catch is comprised of mature salmon;
3. The productivity of each year class cannot be improved by limiting the catch amount in subsequent years;
4. Foregone catch cannot be recaptured in subsequent years; and
5. Salmon abundance cannot be estimated effectively in advance.

²⁷ Catch quotas for Area M were discontinued in June, 2003; Treaty Chinook salmon are allocated through the Pacific Salmon Treaty.

²⁸ A species is considered semelparous if it reproduces a single time in its lifetime; iteroparous if it has many reproductive cycles over the course of its lifetime.

Thus, the State concludes that its program of inseason abundance estimates using contemporaneous data, with appropriate monitoring for achievement of escapement goals, is the most effective way to prevent overfishing while achieving OY on a continuing basis. ADF&G expressly states that its salmon management system has been and is a successful and appropriate system for meeting the requirements of the MSA and NS1 Guidelines to prevent overfishing while achieving on a continuing basis the OY from each salmon fishery for the fishing industry.

The State's salmon management program is based on scientifically defensible escapement goals and inseason management measures to avoid overfishing. Escapement is defined as the annual estimated size of the spawning salmon stock. Quality of the escapement may be determined not only by numbers of spawners, but also by factors such as sex ratio, age composition, temporal entry into the system, and spatial distribution within salmon spawning habitat (5 AAC 39.222(f)(10)). Scientifically defensible salmon escapement goals are a central tenet of fisheries management in Alaska. It is the responsibility of ADF&G to document, establish, and review escapement goals, prepare scientific analyses in support of goals, notify the public when goals are established or modified, and notify the Board of allocative implications associated with escapement goals.

The State has developed spawning escapement goals, harvest guidelines, and other management strategies that reflect and integrate the large number of factors affecting salmon productivity (e.g., annual changes in the number of salmon produced because of fluctuations in the salmon's marine and freshwater environments, annual changes in fishing patterns, management imprecision, annual changes in salmon migration routes, annual differences in relative abundance of various stocks in an area, etc.). Escapement goal ranges together with real-time escapement enumeration (i.e. visual counts from towers, weir counts, aerial survey counts, sonar counts) and intensive fishery monitoring programs, have been established for most of Alaska's major salmon stocks. In cases where the salmon runs have been below forecast levels, the State closes the fishery to achieve its escapement goals, thus preventing overfishing.

Alaska's salmon fisheries are managed to maintain escapement within levels that provide for MSY, escapements are assessed on an annual basis, all appropriate reference points are couched in terms of escapement level, and status determinations are made based on the stock's level of escapement. For salmon, MSY is achieved by controlling fishing to maintain the spawning escapement at levels that provide potential to maximize surplus production. Escapement goals are based on direct assessments of MSY escapement levels from stock recruit analysis or a reasonably proxy. Escapement goals are specified as a range, lower bound, or a threshold. In general escapement goal ranges are specified to produce 90% to 100% of MSY. Escapement goal ranges give managers the flexibility to moderate fishing to protect stocks of weak runs that are commonly exploited in mixed stock fisheries. Scientifically-based biological reference points for salmon populations are estimated based on long-term, stock specific assessment of recruits from parent escapement or long-term assessment of escapement. The salmon stock assessment programs employed by ADF&G are designed to monitor stock and age-specific catch and escapements. Comprehensive implementation of the ADF&G salmon stock assessment programs, over time, provides stock-recruitment data necessary for developing MSY based escapement goals. Since the catch and escapement monitoring program are conducted in real-time, they provide in-season assessments of run strength necessary for managers to implement ADF&G's escapement based harvest policies.

The key definitions contained in the SSFP with regard to scientifically defensible escapement goals and resulting management actions are: biological escapement goal, optimal escapement goal, sustainable escapement goal, and sustained escapement threshold. Biological escapement goal (BEG) means the escapement that provides the greatest potential for maximum sustained yield. BEG will be the primary

management objective for the escapement unless an optimal escapement or inriver run goal has been adopted. BEG will be developed from the best available biological information and should be scientifically defensible on the basis of available biological information. BEG will be determined by ADF&G and will be expressed as a range based on factors such as salmon stock productivity and data uncertainty (5 AAC 39.222(f)(3)).

Optimal escapement goal (OEG) means a specific management objective for salmon escapement that considers biological and allocative factors and may differ from the SEG or BEG. An OEG will be sustainable and may be expressed as a range with the lower bound above the level of SET (5 AAC 39.222(f)(25)).

Sustainable escapement goal (SEG) means a level of escapement, indicated by an index or an escapement estimate, that is known to provide for sustained yield over a five to ten year period, used in situations where a BEG cannot be estimated or managed for; the SEG is the primary management objective for the escapement, unless an optimal escapement or inriver run goal has been adopted by the Board; the SEG will be developed from the best available biological information and should be scientifically defensible on the basis of that information; the SEG will be determined by ADF&G and will take into account data uncertainty and be stated as either a "SEG range" or "lower bound SEG"; ADF&G will seek to maintain escapements within the bounds of the SEG range or above the level of a lower bound SEG (5 AAC 39.222(f)(36)).

Sustained escapement threshold (SET) means a threshold level of escapement, below which the ability of the salmon stock to sustain itself is jeopardized. In practice, SET can be estimated based on lower ranges of historical escapement levels, for which the salmon stock has consistently demonstrated the ability to sustain itself. The SET is lower than the lower bound of the BEG and also lower than the lower bound of the SEG. The SET is established by ADF&G in consultation with the board for salmon stocks of management or conservation concern (5 AAC 39.222(f)(39)).

Overfishing is defined as a level of fishing that results in a management or conservation concern. A management concern results from a continuing or anticipated inability to maintain escapements within the escapement goal range or above the lower bound or threshold. With the determination of a management concern, ADF&G and the Board of Fisheries are required to develop an action plan to address the concern.

In certain fisheries, where it is not cost effective to manage for escapement goal ranges, because the magnitude of the resource is low, the rate of fishing is low, or it is difficult or impossible to enumerate escapement, fishing is limited to weekly fishing periods. These fishing periods are set to provide ample windows of time for salmon to move through the fishery, and reflect the level of fishing that has provided a sustainable level of catch based on the historical performance of the fishery. For these fisheries, fishing periods may be shortened or lengthened depending on qualitative indicators of run strength such as catch-per-unit-of-effort in directed or test fisheries. The fishing-period strategy is reviewed annually on the basis of postseason evaluations of escapement levels and fishery performance. The fishing-period strategy results in lower sustained yields than the escapement goal harvest strategy.

The State of Alaska manages salmon stocks according to the best scientific information available to achieve sustainable yield. Salmon are targeted throughout their adult life by a variety of fisheries from mixed stock troll fisheries to terminal net fisheries, sport fisheries, and personal use fisheries. Escapement-based management, with real-time monitoring of run strength, inherently accounts for total catch and all sources of natural mortality. The State monitors catch in all of the salmon fisheries and

manages salmon holistically by incorporating all the sources of fishing mortality on a particular stock or stock complex in calculating the escapement goal range. As explained above, overfishing is prevented by inseason monitoring and data collection that indicates when an escapement goal is not being met. When the data indicate low run strength due to natural fluctuations in salmon abundance, ADF&G closes the fishery to ensure the escapement goal range is reached. This may result in low catches for the target fisheries, but it prevents overfishing and ensures sustained yield over the long term.

3.4 Review of Salmon FMP Provisions

This section provides a discussion of the provisions in the existing Salmon FMP and whether some action (update, revise, or remove) should be considered by the Council. In general, the MSA requires that an FMP: (1) include conservation and management measures to ensure sustainable harvest and prevent overfishing, (2) describe the fishery and its potential yield; (3) describe the economic consequences of the conservation and management measures; (4) assess and minimize bycatch; (5) protect the safety of human life at sea; (6) identify Essential Fish Habitat, and (7) fairly and equitably allocate the fishery resources among participants. The NS Guidelines provide guidance on how the MSA provisions should be addressed and implemented within an FMP, and should be closely considered when developing options for meeting the MSA requirements or determining which requirements are satisfied in the current FMP.²⁹ Additionally, federal regulations contain a number of regulatory provisions that implement the Salmon FMP.³⁰

Table 2 provides a review of the FMP provisions, associated MSA requirements or federal regulations, and preliminary options for consideration. In general, the FMP has provisions to address most of the MSA requirements, but the text should be updated. A number of provisions should be extensively revised to reflect current management, but most likely would not require a change in the nature of the provision. For example, some sections should be modified to include the Pacific Salmon Treaty or the North Pacific Anadromous Stocks Act of 1992.

However, the following are a few provisions that the Council may want to remove or replace with a new provision.

Sport Fishery Management: The FMP includes the sport fishery in the FMU and defers management of the sport fishery to the State. The Council should consider whether it wants to maintain federal management of the sport fishery. To the extent available, the initial analysis will provide information on why the sport fishery is included in the FMP.

Management Objectives: The FMP's FMU should reflect the Council's management objectives and the management objectives influence the FMU. The Council should review the management objectives and determine whether to modify existing objectives or add new objectives. For example, if the Council wants to continue management of the West area, objectives should be developed for continuing that management. The Council could consider adding objectives for prohibiting fishing in the West Area. Also, to address NS9, the Council may want to add an objective that reflects that management measures should minimize bycatch to the extent practicable and minimize the mortality of unavoidable bycatch.

²⁹50 CFR part 600, Subpart D.

³⁰50 CFR part 679.

Salmon Plan Team: The FMP states that the Council will maintain its salmon plan team; however, the salmon plan team has not met since 1990. The Council may want to either reconstitute a salmon plan team or remove the salmon plan team from the FMP. Whether there is a salmon plan team is directly related to the preparation of a Stock Assessment and Fishery Evaluation (SAFE) Report and related requirements for reviewing and providing fishery and scientific information to the Council. If the Council decides to remove the salmon plan team, it should specify how it wants to receive information in the future on the salmon fisheries included in the FMP. One option would be for the State to annually prepare a stock assessment report using the best available scientific information and provide that to the Council. This would tie into how the Council implements the alternative approach for ACLs and whether the Council utilizes existing State salmon expertise and review processes as a peer review process for the purposes of developing fishing level recommendations and providing scientific information to the Council.³¹

Federal Salmon Limited Entry Permits: According to the 1979 FMP, the federal salmon permit was established as a compliment to the state limited entry permit, in order to limit capacity in the EEZ (i.e., so that persons who did not receive a state limited entry permit would not simply shift their fishing efforts into federal waters and fishermen from Washington would not invade the Alaskan EEZ). The 1979 FMP explains that there was an interest in ensuring that the half-dozen or so vessels that had fished in the EEZ but not landed their catch in Alaska could continue to have access to the EEZ, even if they were not eligible for a state limited entry permit. In 1979 or 1980, NMFS issued 2 Federal limited entry permits. These permits were not transferrable and upon retirement for any reason, that permit was retired from the fishery.³² NMFS has no records for these permits and assumes that they have been retired.

The problem identified in the 1979 FMP was addressed by this federal permit system, however the Council may determine that federal permits are no longer necessary because all current participants have state limited entry permits. As long as the FMP retains the requirement to have a state limited entry permit to fish in the EEZ, pursuant to authority delegated to the state by the FMP, capacity is limited in the EEZ. Therefore, the Council could consider removing the federal limited entry permit from the FMP and federal regulations.

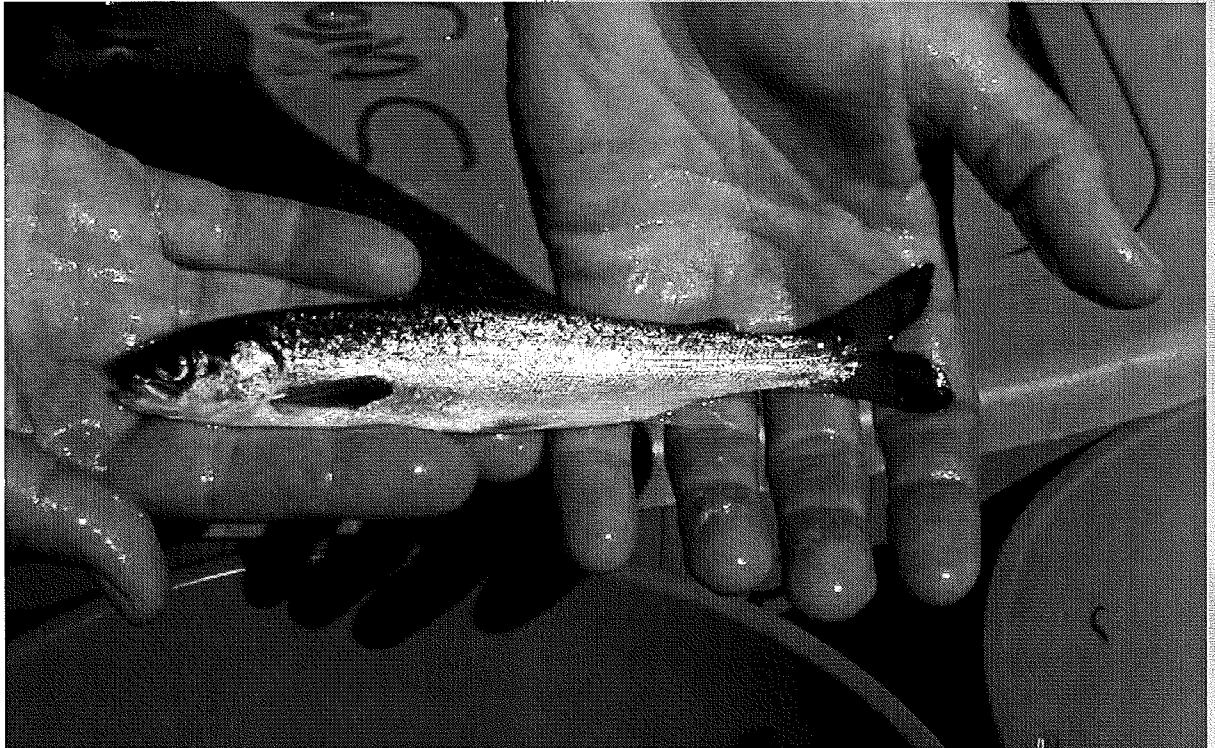
Process for Review and Appeal: This process enables members of the public to request that the Secretary review State salmon management actions. Secretarial review is limited to whether the State statute or regulation is consistent with the FMP, MSA, or other applicable federal law. In 2008, NMFS received the first appeal under the FMP appeals process. The Council may want to revise FMP language in Chapter 9 to more clearly explain the procedures for appeal and Secretarial review of State regulations and inseason actions.

³¹ MSA §302(g)(1)(E) “The Secretary and each Council may establish a peer review process for that Council for scientific information used to advise the Council about the conservation and management of the fishery.”

MSA §302(h)(6) [Each Council shall] “develop annual catch limits for each of its managed fisheries that may not exceed the fishing level recommendations of its scientific and statistical committee or the peer review process established under subsection (g).”

³² 1979 FMP Sec. 8.3.1.3 (44 FR 33269, June 8, 1979).

**August
2010 DRAFT**



Atlantic Salmon Recovery Framework

National Marine Fisheries Service
Maine Department of Marine Resources
U.S. Fish and Wildlife Service
Penobscot Indian Nation

Background and Justification

The life history of an anadromous species poses challenges for management requiring action in freshwater, adjacent riparian habitat, estuaries and marine waters near and offshore. Joint responsibility for the species between two federal agencies adds additional layers of complexity. Added to this has been a strained and, at times, litigious relationship with the State and affected industries. It is for all of these reasons that enhanced coordination, deliberate and advance planning, and monitoring is essential to the future of this species.

The State of Maine, U.S. Fish and Wildlife Service (USFWS) and NOAA's National Marine Fisheries Service (NMFS) have a long history of working together for the conservation and recovery of Atlantic salmon. In the early 1990s, the three entities worked together on a pre-listing recovery plan for the species and initiated the river-specific stocking program. The Gulf of Maine Distinct Population Segment of Atlantic salmon was listed under the Endangered Species Act (ESA) in 2000, and this listing was expanded in 2009 to include a broader geographic range within the State of Maine.

In 2004, the Services published a draft recovery plan for the species and finalized that plan in 2005. The National Research Council also undertook a review of Atlantic Salmon in Maine and recommended that recovery planning for the species adopt a systematic, structured approach to making management decisions, focused on understanding critical uncertainties and on developing strategies that address key sources of ecological risk. In 2004 and 2005, the agencies collaborated to develop joint priorities with the goal of providing an internal and external focus to agency efforts on behalf of Atlantic salmon. The three focus areas were as follows: (1) investigate possible causes and magnitude of early marine survival; (2) operate and evaluate conservation hatchery programs for the DPS and Penobscot River; and (3) Habitat (including physical habitat, water quality and quantity and biological communities). The joint priority document is attached (Attachment One).

Also in 2005, the agencies also began to collaborate to obtain an independent review of the role of the hatchery program in recovery. Both in drafting and in implementing the recovery plan, observations were made that the list of activities was too long and unfocused and that there was a lack of integration across tasks and a need for a more structured prioritization process.

The hatchery peer review conducted by Sustainable Ecosystems Institute confirmed many of the experiences of those working within the salmon program. Key recommendations of their review are as follows:

- The current recovery program lacks a clear conceptual framework. Such a framework should include the basis for understanding the species, system and is the foundation for setting clear goals and for management decisions.
- Increased integration of key elements of the recovery program (i.e. monitoring, assessment, hatchery production schedules, and research) is absolutely essential to the recovery of Atlantic salmon.

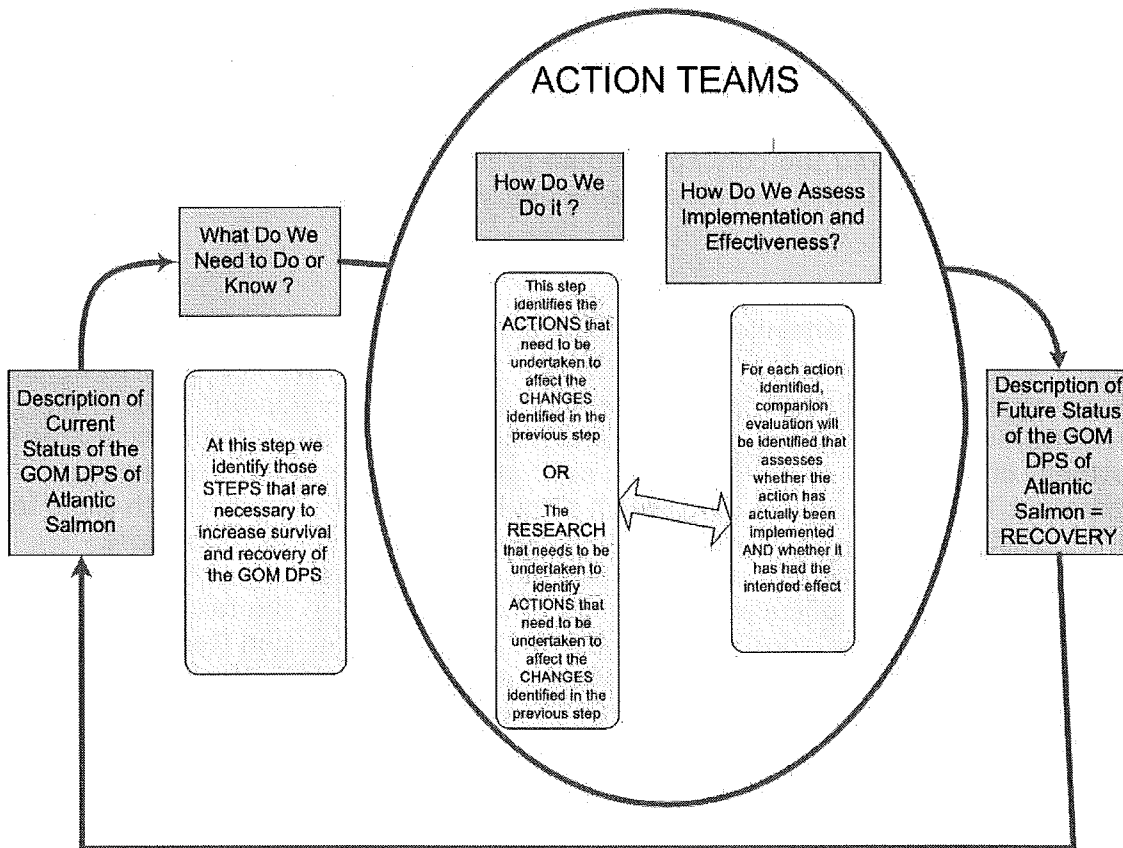
- Recovery goals should be the main driver in management decisions. Hatcheries are one of the tools of recovery and their use should be set by recovery goals. Hatchery supplementation should follow, not drive, recovery planning.
- Assessments and scientific advice should be formally reported out each year to provide informed management decisions based upon best available science. Periodically, this assessment should receive review by outside experts.

Having two independent third parties reaffirm these program shortcomings provided the impetus the agencies needed to reexamine the Atlantic salmon conservation and recovery program. During the winter of 2006/2007, NMFS began developing a conceptual Atlantic salmon recovery framework that was driven by the biological goals and needs of the species. That draft framework was shared with the USFWS and the State of Maine. While there were no fundamental objections to the end product, there was a desire for the three agencies to work more collaboratively to develop a recovery framework using structured decision making.

In May 2007, staff at NMFS and the Maine Atlantic Salmon Commission made a joint presentation to the Signatories¹ at the Maine Technical Advisory Committee meeting. The development of a new Atlantic salmon recovery framework and governance structure was proposed. The framework was intended to have clear goals and objectives, identify key limiting factors, and include adaptive management actions and associated assessment to address limiting factors. The goal for the governance structure was to minimize layers of review to improve efficiency.

The following simplified structure of the framework was presented to the signatories in May 2007.

¹ The Signatories are the Regional leadership of the 3 agencies: The NMFS Regional Administrator, USFWS Regional Director and MDMR Commissioner.



The following benefits of a clear salmon recovery framework were identified:

- Single plan for the 3 resource agencies to implement
- Clear identification of priority actions and research (and by default those not included in the framework are of lower priority)
- Increased transparency to other federal agencies, state agencies, academics and local organizations who want to assist in salmon recovery
- increased accountability of the 3 resource agencies
- increased understanding and ownership for those working within the salmon recovery program as the role each person plays as well as how it relates to the actions and programs of others is clearly articulated
- Is based on an adaptive management framework with integration of management and research and provides constant feedback with the ability to adapt as necessary

The following goals were established for the new governance structure:

- Simple and action oriented
- Minimize layers between those taking actions and monitoring response and those in decision-making positions within the agencies
- Establishes a single process for highlighting issues and resolving differences to reduce delays in decisions
- Action Teams
 - Members chosen for expertise (managers and researchers)

- Each team will function as an adaptive management team first identifying a hypothesis and a plan to address that hypothesis, then implementing and assessing the specific action.

The Signatories approved the conceptual plan presented and charged staff within the three agencies to further develop the recovery framework and the new governance structure.

Development of the Framework and new Governance

Through the summer and early fall of 2007, the agencies worked together to define goals and objectives and explore different approaches for developing the salmon recovery framework and to redefine the governance structure. USFWS and Maine Department of Marine Resources (MDMR) staff attended training at the National Conservation Training Center during which they became more familiar with tools to assist in decision making. Following this training, they advocated for a more structured approach to the development process. It was recognized that additional expertise may assist the agencies in tackling this effort, and in the fall of 2007, the services of Robin Gregory from Value Scope Research and Decision Research and Graham Long of Compass Resource Management were obtained. Nearly monthly meetings were held through the rest of 2007 to define and advance the planning process.

During the winter of 2007/2008 through the spring of 2009, agency staff collaborated to define overall biological objectives, agree on categories of actions (action teams) that could be implemented to achieve the objectives, establish a common set of criteria or descriptors for each action, and ultimately to establish goals for different portfolios of actions that would emphasize different areas of the salmon program. Through this process, we were forced to examine our existing baseline programs and explicitly assign resources to those activities and score them against the same criteria used for new initiatives.

During the early phases, we struggled with activities defined as non-discretionary, due diligence, mandatory or status quo. Some argued that these activities needed to be funded off the top and that we should only be discussing allocation of the balance, truly discretionary funds. However, it became clear that the decision as to whether an activity was discretionary was subjective, and it was also clear that there were not sufficient resources to fully fund those activities the group considered non-discretionary. Therefore, there was no balance of discretionary funds to allocate, but instead a deficit needed to fund non-discretionary activities. With this realization, the group decided that the most equitable way to proceed was to have all actions compared against each other.

The group also debated as to how to address assessment and research needs and funding. When the baseline exercise was conducted, it was determined that approximately 22% of the combined agency resources were being dedicated to assessment and research activities. Given that one of the goals of the new framework was to better integrate assessment into activities and to ensure that any

action undertaken was done in an adaptive manner, the agencies decided to integrate assessment activities and costs into the other action teams. The only assessment to be kept separate (task and costs) were those that focused on adult census or were independent of any particular project or activity. It was recognized that there could be some inefficiencies initially by incorporating assessment costs into each individual activity. However, once a suite of actions, or portfolio, was developed then a core group of assessment/research biologists would work with the action teams to develop a coordinated assessment plan that avoided duplication and sought out efficiencies.

Finally, the group also struggled with education and outreach activities. Like assessment, it was thought that education and outreach activities should not be isolated into a group separate from the other actions but instead should be integrated into the recovery actions. It was also acknowledged that there are a great number and diversity of outreach and education needs – those that directly support the framework by making others aware of the activities being undertaken by the agencies; those that are intended to change the behavior of an individual or industry to minimize impacts on salmon and their habitat; or to encourage collaboration by other agencies, academia, conservation organizations or other interested parties.

The new Atlantic Salmon Recovery Framework

The new Atlantic salmon recovery framework is built on a foundation of an agreement on the biological needs of the species, identification of objectives or a shared goal, and actions to achieve that goal.

Statement of the Problem

Biological Problem: The Gulf of Maine Distinct Population Segment of Atlantic salmon is listed under the Endangered Species Act and is at critically low levels. There is a strong public desire and legal mandate to recover this species which will result in benefits to the ecosystem and to the general public. Efforts to date have not successfully recovered the species. Given limited resources and competing priorities, there is a need to ensure that state and federal resource agencies coordinate closely to agree on a collective strategy to identify and implement the highest priority management actions and scientific studies that have the greatest potential to further our recovery objectives.

Governance Problem: The MDMR, USFWS and NMFS share responsibility for Atlantic salmon. The Passamaquoddy Tribe and the Penobscot Nation also have certain management and regulatory responsibilities regarding sustenance fishing within their respective tribal reservations. This provides benefits for the additional expertise and resources brought to bear on the species, which is particularly important given the significant obstacles that exist to achieve recovery. However, differences in legal authorities, agency procedures and protocols, and expertise have lead to confusion, delays in decision making and disagreements. There is a need for a clearer governance structure with well articulated roles and

responsibilities as well as a pre-agreed procedure and timeline for making decisions in order to avoid such problems in the future.

Objectives

The MDMR, USFWS and the NMFS agree that the fundamental objective of our efforts on behalf of Atlantic salmon is to achieve recovery of the species. We considered recovery, the desired end state, to have two fundamental components: abundance and distribution. We considered genetic diversity and ecosystem function not to be separate independent outcomes, but to be means to accomplish the desired increase in abundance and distribution. However, as is explained below, at various points during the development of the framework we considered genetic diversity and ecosystem function to be separate objectives. In the end, we determined that they were supporting objectives that were necessary to achieve the overall objectives of distribution and abundance.

Abundance: A recovered Atlantic salmon species will be at a higher abundance level than that currently existing in the U.S. Numbers of fish alone, however, do not describe a recovered Atlantic salmon species. In order to achieve recovery for the Atlantic salmon population, it is necessary to demonstrate that the majority of fish are of wild origin. While there may still be some hatchery program in operation, the wild component of the population must be self-sustaining and independent of a hatchery program, if one is still operating for other purposes. These essential characteristics are descriptive of a population that has stabilized at a robust level which provides confidence in the ability of that population to contend with natural variability.

Distribution: While sufficient numbers of wild-origin fish are essential to recovery, it is equally critical that these fish be distributed across a wide geographic area and in a diversity of habitats. Any population that is well distributed across a wide geographic area necessarily has lower risks of extirpation due to environmental variability; thus, distribution essentially spreads risk and provides security. If Atlantic salmon are present in more places, then the potential for a specific threat or catastrophic event to affect the species is minimized. Thus, this objective seeks to increase distribution of Atlantic salmon both within rivers as well as across rivers across the full geographic range of the Gulf of Maine DPS as described in the final listing rule (74 FR 29344).

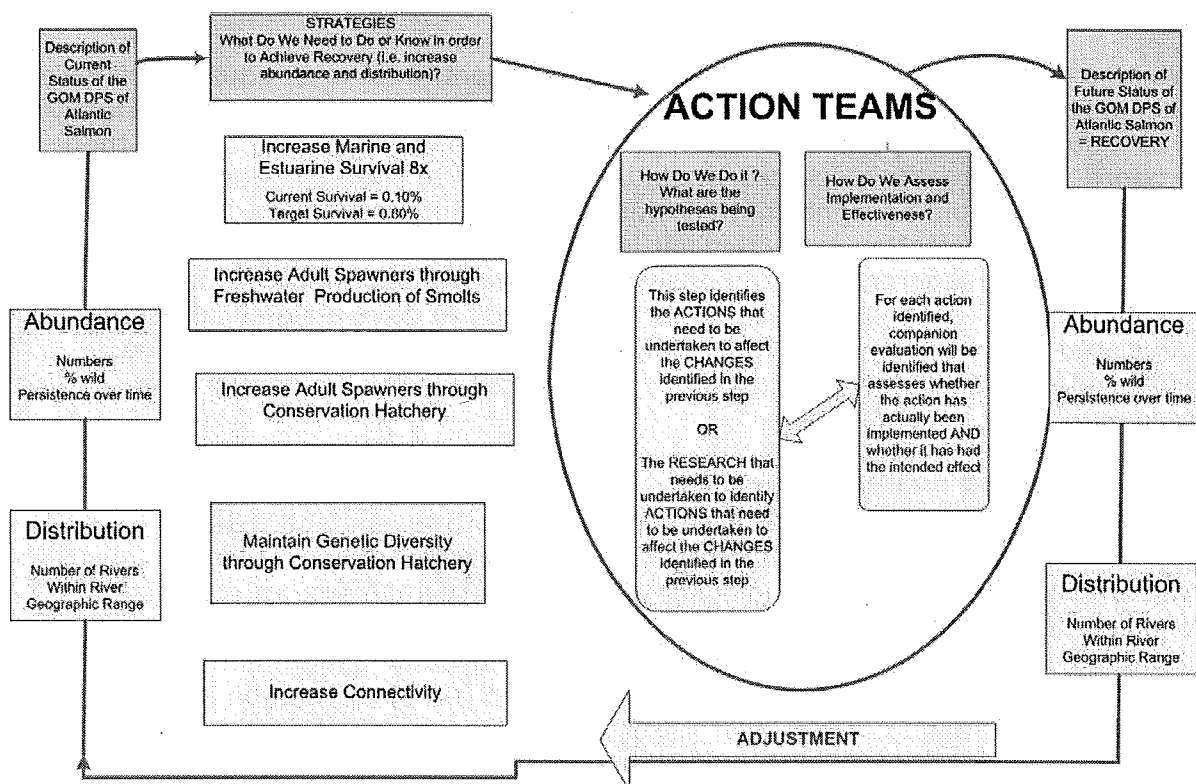
Ecosystem Function and Diversity:

As indicated above, a recovered Atlantic salmon species is one with abundance and distribution significantly increased from the current state. These two objectives cannot be achieved, however, without having functioning ecosystems. The purpose of the Endangered Species Act is to recover the ecosystems upon which listed species depend. The ESA, therefore, recognizes that one cannot achieve recovery of depleted species without having recovered the abiotic and biotic components of the system as well as the interactions of the components. We are still accumulating information on the relative contributions of elements in a functioning ecosystem that can sustain the Atlantic salmon populations in Maine. We believe that species interactions, abiotic variability (such as climate, topography, and

hydrology), patterns of past and present land use, natural disturbance and succession dynamics are important. These factors influence habitat complexity, habitat connectivity, nutrient cycling, biological community diversity, and temperature regimes critical to the successful completion of Atlantic salmon's life history.

In addition, sustainable, persistent populations of Atlantic salmon spread over a wide and diverse geographical range will not be achieved unless the species is sufficiently diverse. Diversity includes, but is not limited to genetic diversity, diversity in life history characteristics including age distribution and run timing, and diversity in morphological features. Sufficient diversity levels provide a mechanism for species to respond to and withstand natural variability and catastrophic events. Species lacking sufficient diversity levels are prone to extinction.

In summary, the agreed goal is to recover Atlantic salmon, and we describe and define a recovered species as one with significantly increased abundance of wild Atlantic salmon persisting over time and distributed over a wide geographic range. Inherent in achieving recovery is establishing functioning ecosystems and preserving genetic, life history, and morphological diversity.



The Strategies

There are a wide range of alternative strategies that can be implemented to achieve the fundamental objectives of increasing abundance (productivity) and distribution. We have identified the following 5 strategies for achieving these objectives:

- Strategy A: Increase Marine and Estuarine Survival
- Strategy B: Increase Connectivity
- Strategy C: Maintain Genetic Diversity through the Conservation Hatchery
- Strategy D: Increase Adult Spawners through the Conservation Hatchery
- Strategy E: Increase Adult Spawners through the Freshwater Production of Smolts

Short Term (Preventing Extinction) versus Long Term Recovery Strategies

In our discussions, it became apparent that individuals placed differing levels of importance on efforts in the near term necessary to prevent extinction and investments in longer term actions necessary to achieve recovery. There was complete agreement that an Atlantic salmon recovery program needed to have both elements. It was also agreed that one could not define "short" term versus "long" term as the appropriate investment strategy would not be driven by predefined time limits, but on progress being made toward the biological objectives.

We also discussed that a particular action might contribute less, equally, or more to decreasing the probability of extinction than to facilitating recovery. In general, it was thought that as population size became stable and began to increase, then proportionally greater resources would be dedicated to recovery. Because the risk of extinction would be significantly lower at that point, less emphasis would need to be placed on preventing extinction. It is not possible to place a specific timeframe on the shift of resources and emphasis from preventing extinction to facilitating recovery. It is recognized that the plan now needs to have a significant component dedicated to preventing extinction, but that our goal of recovery will not be achieved unless we dedicate resources also to address the impediments to recovery.

The Action Teams and Actions

An Action Team was formed for each of the five strategies identified above. Each Action Team was charged with developing a list of actions that could be implemented to achieve the biological objectives. Teams were asked to rank ongoing and proposed new actions using the same standard set of criteria. The number and scope of actions proposed by each individual action team was limited by a total dollar amount (expressed as a % of the combined salmon budget). Once each individual team created their list of actions, they worked across and among teams to eliminate any duplicative actions and seek opportunities for maximizing benefits through linked actions.

There is overlap among the strategies/Action Teams and this is expected. The strategies/Action Teams are intended to work cooperatively and collaboratively to further salmon recovery and therefore connections between and among them are

encouraged. The complex life history of Atlantic salmon requires a complex management regime where attention is focused in freshwater, estuaries and marine environments. Factors that affect salmon in freshwater may not manifest themselves until outmigration or during marine migration and vice versa. A comprehensive strategy for recovery of Atlantic salmon must address all portions of its life cycle and acknowledge the connections between the different habitats. While the overall strategy is comprehensive and holistic, for ease of management and implementation, we have broken the program up into manageable pieces. Integration across the pieces is critical.

Monitoring Implementation and Progress towards Recovery

There are multiple types of monitoring that are critical to the success of the Salmon Recovery Framework. Basic monitoring and reporting is required to verify that the planned activities have been implemented. More critical reporting on each action is necessary to verify whether the desired effect was achieved and to determine whether to continue with implementation as planned or modify future actions. Overall, species and ecosystem monitoring is also required to track progress toward achieving the objectives identified in the Framework (increased abundance (e.g., productivity), and increased distribution. Inherent in these objectives is the maintenance of genetic diversity and improved ecosystem function. It is important to realize that individual actions may be implemented and achieve their desired outcome without a detectable improvement in either of the two overall objectives. Also, there may be detected improvements in the two biological objectives, and we may or may not be able to link any of all of those to particular actions we have undertaken. The actions, of course, are designed and intended to improve those biological objectives and move us toward recovery, but the cause and effect relationship to individual or suites of actions is not always obvious or demonstrable.

The overall Framework is adaptive, in that the information collected from individual actions as well as monitoring of the objectives will be examined annually to determine whether to maintain the plan as is or if changes are indicated. The current salmon management program has had success in preventing further declines, but progress toward recovery has been limited. To achieve recovery, more experimental and innovative projects, which are less predictable than the status quo, are needed. Such projects must be implemented with full monitoring and evaluation to determine their contribution to recovery and allow decisions about their role in future recovery efforts.

Governance

Goal: Recovery of the Gulf of Maine DPS as defined in the final listing rule (74 FR 29344).

Objectives: The objective is to significantly increase the abundance of wild Atlantic salmon persisting over time distributed over a wide geographic range. Inherent in achieving recovery is the establishment of properly functioning ecosystems and the preservation of genetic and life history diversity.

Statement of the Problems:

Biological Problem: The Gulf of Maine Distinct Population Segment of Atlantic salmon is listed as endangered under the Endangered Species Act.

Governance Problem: The MDMR, USFWS and NMFS share responsibility for Atlantic salmon. The Passamaquoddy Tribe and the Penobscot National also have certain management and regulatory responsibilities regarding sustenance fishing within their respective tribal reservations. This provides benefits for the additional expertise and resources brought to bear on recovery efforts. However, differences in legal authorities, agency procedures, agency protocols, and expertise have led to confusion, delays in decision making, and disagreements. The Hatchery Review (SEI 2007) highlighted these difficulties and recommended that the agencies develop a new governance structure with clear roles and responsibilities and a pre-agreed procedure/timeline for making decisions to avoid duplicating past problems.

Purpose:

The purpose of the revised Governance Structure is to: 1) ensure that recovery of the Gulf of Maine DPS as defined in the final listing rule is achieved in accordance with the framework²; 2) ensure that the best available science is being integrated into the framework ; 3) ensure that resources are made available to implement those actions or measures agreed to in any given cycle; 4) serve as dispute resolution and continuity of operations throughout the operational year; 5) ensure horizontal and vertical communication amongst the agencies and the various organization levels within the agencies; and (6) ensure that the trust responsibilities of the federal fisheries agencies to federally recognized tribes are appropriately exercised.

Proposal for a revised Governance Structure:

The Atlantic Salmon Recovery Program governance structure entails three basic levels; a policy level, an operational management level, and the implementation level. These will be referred to as the Policy Board (Signatories), the Management Board, and Action Teams respectively.

² Framework refers to the collection group of approved research and management actions developed by Action Teams which are integrated to form a coordinated plan for Atlantic salmon recovery.

Policy Board

- Purpose: (1) Set broad policy direction
(2) Annually reaffirm priorities
(3) Commit resources for implementation
- Members: NMFS RA
USFWS RD
MDMR Commissioner

Management Board

- Purpose: (1) Set recovery priorities
(2) Develop decision making framework
(3) Provide detailed direction
(4) Commit resources in a transparent manner
- Members: NMFS ARA for Protected Resources
USFWS ARD for Fisheries
MDMR Chief, Bureau of Sea Run Fisheries & Habitat
Tribal Representative

Action Teams

- Purpose: (1) Develop and receive approval for list of actions
(2) Develop 5 year implementation plan
(3) Oversee, implement and monitor actions
(4) Coordinate across action teams to increase efficiency
(5) Identify and resolve areas of policy or scientific disagreement
(6) Receive and review proposals
- Members: Each Team will be composed of 3-5 individuals from the agencies, they may bring in additional expertise as needed

Marine and Estuarine Action Team
Connectivity Action Team
Genetic Diversity Action Team
Conservation Hatchery Action Team
Freshwater Action Team
Education and Outreach Action Team