

NEFMC Discussion Document

**Adding River Herring and Shad as Stocks in the
Atlantic Herring Fishery:**

Updated Information

And

Discussion of Management and Legal Considerations

New England Fishery Management Council Discussion Document

DRAFT November 3-4, 2014

Herring Advisory Panel/Herring Committee Meetings

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ACRONYMS

ABC	Acceptable Biological Catch
ABC CR	Acceptable Biological Catch Control Rule
ACFCMA	Atlantic Coastal Fisheries Cooperative Management Act
ACL	Annual Catch Limit
AM	Accountability Measure
ASMFC	Atlantic States Marine Fisheries Commission or Commission
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FMP	Fishery Management Plan
FW	Framework
FY	Fishing Year
GARFO	Greater Atlantic Regional Fisheries Office
GB	Georges Bank
GOM	Gulf of Maine
MAFMC	Mid-Atlantic Fishery Management Council
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSB	Mackerel, Squid, Butterfish
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	Maximum Sustainable Yield
NEFMC	New England Fishery Management Council
NEFOP	Northeast Fisheries Observer Program
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service, NOAA Fisheries
NOAA	National Oceanic and Atmospheric Administration
NS	National Standard
NSGs	National Standard Guidelines
OFL	Overfishing Limit
OY	Optimum Yield
PDT	Plan Development Team
RH/S	River Herring/Shad
SOF	Stocks in the Fishery
SSC	Scientific and Statistical Committee
TEWG	Technical Expert Working Group

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1.0 INTRODUCTION AND BACKGROUND

This discussion document was prepared by the New England Fishery Management Council (NEFMC, Council) staff to support the Council's continued deliberations regarding whether it may be necessary and/or appropriate to include *river herring and shad* (RH/S) as stocks in the Atlantic herring fishery. Adding RH/S as stocks in the Atlantic herring fishery (SOF) would require an amendment to the Atlantic Herring Fishery Management Plan (FMP) and would initiate Federal management of the river herring and shad stocks and fisheries in a manner that is consistent with the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and other applicable Federal law. This discussion document summarizes and updates information about RH/S stocks/fisheries, outlines possible approaches for managing RH/S through a Federal FMP, and discusses important factors that will form the basis for the Council's rationale for determining how to move forward in the most appropriate manner to promote the conservation of RH/S and advance sustainable management of the Atlantic herring fishery.

Legal issues associated with adding RH/S as Federally-managed stocks in the Atlantic herring fishery relate primarily to the requirements of the Magnuson-Stevens Act, more specifically the National Standards (16 USC §1851) and required provisions for FMPs (16 USC §1853(a)). Consistent with a recent Court Order regarding Amendment 4 to the Atlantic Herring FMP (discussed below), other important considerations that the Council must factor into its decision-making process include the biological status of RH/S stocks, NMFS' 2013 (negative) listing determination for river herring under the Endangered Species Act (ESA), and new/ongoing conservation and management actions that have been taken to protect and rebuild RH/S stocks. To the extent possible, this discussion document updated information about all of these factors so the Council can make the most informed decision regarding how to proceed.

1.1 IMPORTANT REFERENCE DOCUMENTS

Since the Council began considering this issue, several documents prepared by the New England/Mid-Atlantic Councils and NMFS, as well as related materials (correspondence, etc.) have provided a significant amount of information related to adding RH/S as SOF. In particular, the Mid-Atlantic Fishery Management Council Staff White Paper (September 2013) was prepared for the Mid-Atlantic Council to consider adding RH/S as stocks in the Atlantic mackerel fishery; it includes extensive discussion of important legal considerations related to adding RH/S as SOF. The legal considerations discussed in the MAFMC White Paper apply in the same manner to consideration of adding RH/S as stocks in the Atlantic herring fishery. In addition, Framework 3 to the Atlantic Herring FMP was prepared during 2013 to establish provisions for specifying RH/S catch caps in the Atlantic herring fishery; it includes updated stock and fishery information about river herring and shad, including details about directed fisheries in State waters and interactions with non-directed fisheries (i.e., Atlantic herring and mackerel) in Federal waters. The documents listed below should be referenced as the Council further considers the issue of adding RH/S as SOF. To the extent possible, the information provided in these reference documents is not repeated in this discussion document.

*Mid-Atlantic Fishery Management Council (MAFMC). September 2013. *River Herring and Shad – Potential Management by the Mid-Atlantic Fishery Management Council*. Staff White Paper. 35 pp.

New England Fishery Management Council (NEFMC). March 2014. *Framework 3 to the Atlantic Herring FMP (Final Submission Environmental Assessment)*. 221 pp.

New England Fishery Management Council (NEFMC). March 2013. *Amendment 5 to the Atlantic Herring FMP (Final EIS)*. 652 pp.

NMFS. August 12, 2013. *Notice of Listing Determination for Alewife and Blueback Herring*. Federal Register. 52 pp.

NMFS. June 6, 2013 *Correspondence (Bullard) to MAFMC (Moore) re. Consideration of Federal Management for River Herring and Shad*. Several enclosures. 60 pp.

NMFS. August 31, 2012 *Correspondence (Bullard) to NEFMC (Cunningham) re. Amendment 4 Court Order*. Enclosures March 2012 opinion on summary judgment; August 2012 remedial order, letter to MAFMC regarding Amendment 14 to the MSB FMP). 99 pp.

1.2 TERMINOLOGY

For the purposes of this discussion document, the following terms are defined/clarified:

River Herring refers to the species of alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*). **Shad** refers to the species of American shad (*Alosa sapidissima*) and hickory shad (*Alosa mediocris*). Collectively, these four species are referred to throughout this document as **RH/S**.

Catch includes all harvest of a species, both landed and discarded.

Bycatch includes fish that are harvested, but are not retained (sold, transferred, or kept for personal use). In the MSA, bycatch refers to discards, including economic discards and regulatory discards. The MSA mandates the reduction of bycatch to the extent practicable (National Standard 9).

Incidental Catch includes non-targeted species that are harvested and retained (landed, sold, transferred, or kept for personal use) while fishing for another target species. Due to the high-volume nature of the Atlantic herring fishery, river herring/shad are generally retained once the fish are brought on board (incidental catch), except in cases where a net may be fully or partially slipped (bycatch). In contrast to bycatch, there is no statutory mandate to reduce incidental catch.

The terms *bycatch* and *incidental catch* are oftentimes used interchangeably when referring to RH/S catch in the directed fishery for Atlantic herring. Because of the depleted status of many RH/S stocks, the New England Fishery Management Council seeks to minimize *all catch* of RH/S in the Atlantic herring fishery to promote the conservation and restoration of these species.

1.3 THE QUESTION AT-HAND

The question that the Council must consider carefully is:

Do river herring and shad fisheries require additional conservation and management under a Federal Fishery Management Plan?

The MSA requires the Councils to prepare a Fishery Management Plan (FMP) *for each fishery under its authority that requires conservation and management* 16 U.S.C. §1852(h)(1). The MSA defines a *fishery* as –

- (A) one or more stocks of fish which can be treated as a unit for purposes of conservation and management and which are identified on the basis of geographical, scientific, technical, recreational, and economic characteristics; and
- (B) any fishing for such stocks.

Stock of fish is defined in the MSA as a species, subspecies, geographical grouping, or other category of fish capable of management as a unit.

The Council determines which target stocks (fish that are deliberately caught), and/or non-target stocks (fish that are incidentally caught), to include in the fishery. The Council must set annual catch limits (ACLs) and accountability measures (AMs) for all stocks in the fishery, as well as establish conservation and management measures to comply with the National Standards and other MSA requirements. NMFS reviews the Council's decisions for consistency with the MSA and other applicable law.

In the MSA, *conservation and management* refers to all of the rules, regulations, conditions, methods, and other measures:

- (A) which are required to rebuild, restore, or maintain, and which are useful in rebuilding, restoring, or maintaining, any fishery resource and the marine environment; and
- (B) which are designed to assure that –
 - (i) a supply of food and other products may be taken, and that recreational benefits may be obtained, on a continuing basis;
 - (ii) irreversible or long-term adverse effects on fishery resources and the marine environment are avoided; and
 - (iii) there will be a multiplicity of options available with respect to future uses of these resources.

With respect to the question-at-hand, i.e., whether RH/S should be included as stocks in the Atlantic herring fishery, the Council must decide (1) if additional conservation and management of these species through a Federal FMP is required; and (2) whether these species are capable of Federal management as a unit, and therefore should be managed together under the Atlantic Herring FMP (or a separate Federal FMP). These decisions entail consideration of several important questions that relate to the MSA requirements and National Standards:

- **Are RH/S stocks in need of additional conservation and management in Federal waters?**
- **How would RH/S stocks benefit from being included as stocks in the Atlantic herring fishery?**
- **Is it practicable to manage RH/S stocks as a unit and/or in close coordination throughout their range?**
- **Would conservation and management of RH/S stocks through a Federal FMP be unnecessarily duplicative?**

This paper provides information for the Council to consider when addressing the questions identified above.

1.4 BACKGROUND: RH/S STOCK AND FISHERY INFORMATION

There is little new information available about the status of the RH/S stocks/fisheries since the Council developed Framework 3 to the Herring FMP (March 2014); the Framework 3 document should be referenced for more detailed information about RH/S. Amendment 5 to the Atlantic Herring FMP as well as Amendment 14 to the MSB FMP (MAFMC 2012) and the MAFMC staff SOF white paper also include a substantial amount of related information, the majority of which is not repeated in this discussion document. Only some general biological information is provided below.

Geographic Distribution/Species' Range

River herring and shad are anadromous fish that spend the majority of their adult lives at sea, only returning to freshwater in the spring to spawn. Historically, RH/S spawned in virtually every river and tributary along the coast. The oceanic ranges of all four species extend beyond the northern and southern latitudinal range of the NEFSC spring and fall surveys, which occur from the Gulf of Maine to Cape Hatteras, NC (35° 30' to 44° 30' N). The geographic range of blueback herring in the northwest Atlantic extends from Cape Breton, Nova Scotia, to the St. Johns River in FL (Figure 2), and the range of American shad extends from the Sand Hill River in Labrador to the St. John's River in FL (Page and Burr 1991). The geographic range of alewife extends from Red Bay, Labrador, to SC (Figure 1). Hickory shad have a narrower geographic range than these three species and is most abundant between Cape Cod, MA and the St. John's River in FL, but is also infrequently found in the Gulf of Maine (Munroe 2002).

Figure 1 Approximate Geographic Range of Alewife

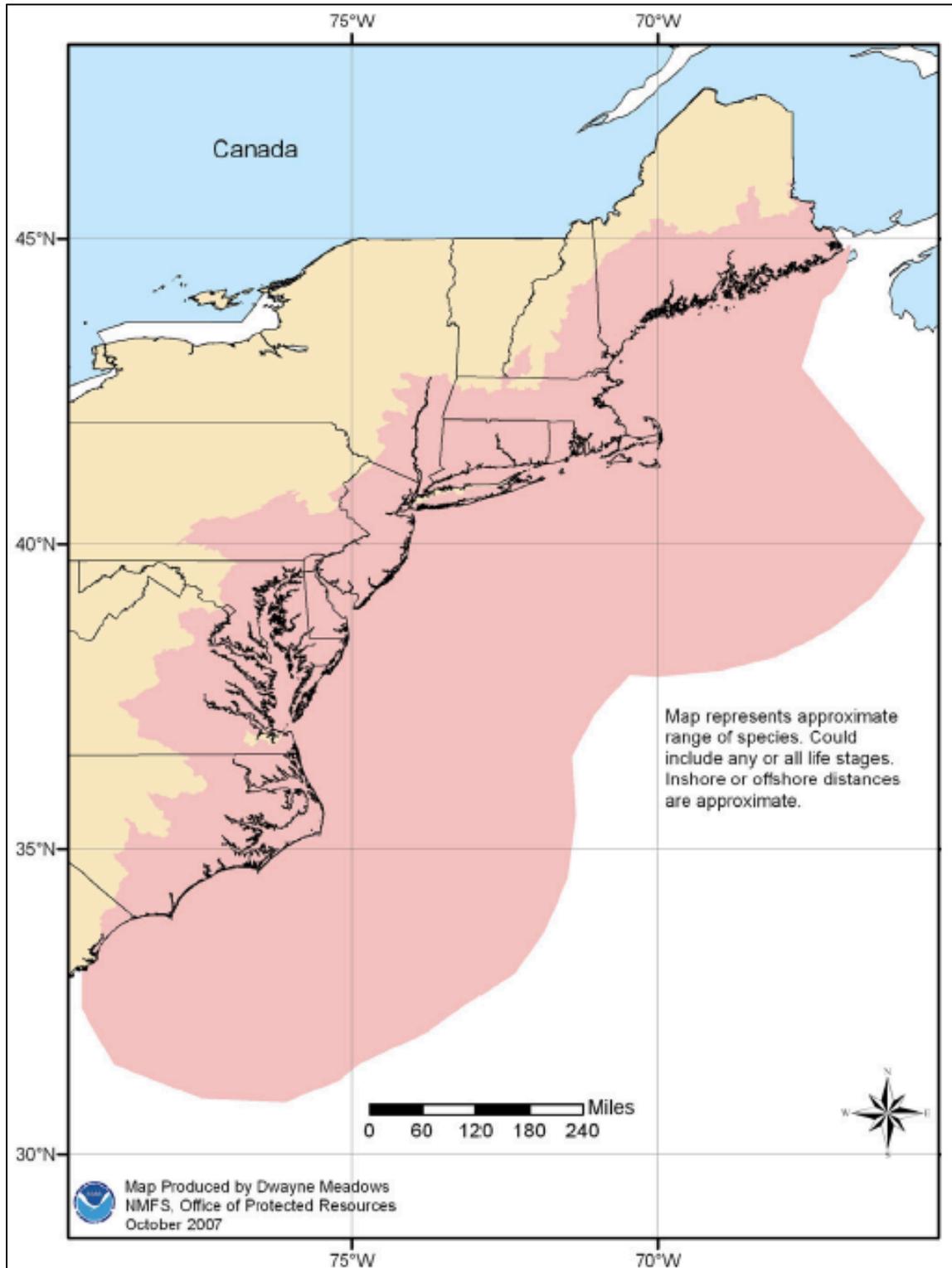
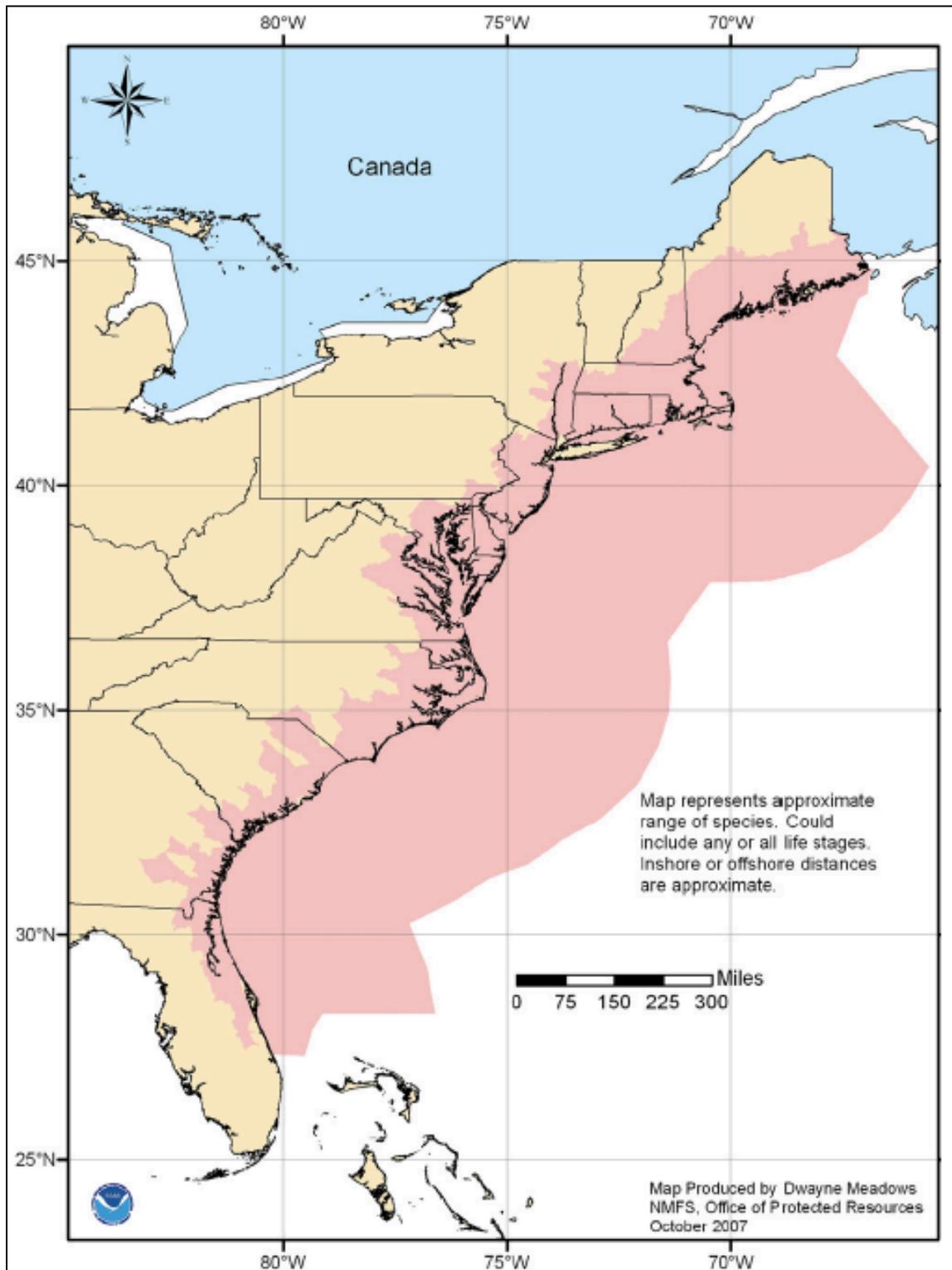


Figure 2 Approximate Geographic Range of Blueback Herring



River Herring Stock Status

The Atlantic States Marine Fisheries Commission (ASMFC, Commission) completed the river herring benchmark stock assessment and peer review in 2012, examining 52 stocks of alewife and blueback herring with available data in US waters. The stock assessment technical team examined indices from fishery-dependent (directed river herring landings and bycatch estimates in ocean fisheries) and fishery-independent (young-of-year indices, adult net and electrofishing indices, coastal waters trawl surveys, and run count indices) datasets. From this information, the status of 23 stocks was determined to be *depleted* relative to historic levels, and one stock was increasing. Statuses of the remaining 28 stocks could not be determined, citing times-series of available data being too short. “*Depleted*” was used, rather than “*overfished*” and “*overfishing*,” due to many factors (i.e., directed fishing, incidental fishing/bycatch, habitat loss, predation, and climate change) contributing to the decline of river herring populations. Furthermore, the stock assessment did not determine estimates of river herring abundance and fishing mortality due to lack of adequate data. For many of these reasons, the stock assessment team suggested reducing the full range of impacts on river herring populations.

Shad Stock Status

A stock assessment for American shad was completed in 1997 and submitted for peer review in early 1998 based on new information and the Board recommended terms of reference. The 1998 assessment estimated fishing mortality rates for nine shad stocks and general trends in abundance for 13 shad stocks. A coastwide American shad stock assessment was completed and accepted in 2007 and found that American shad stocks are currently at all-time lows and do not appear to be recovering. Recent declines of American shad were reported for Maine, New Hampshire, Rhode Island, and Georgia stocks, and for the Hudson (NY), Susquehanna (PA), James (VA), and Edisto (SC) rivers. Low and stable stock abundance was indicated for Massachusetts, Connecticut, Delaware, the Chesapeake Bay, the Rappahannock River (VA), and some South Carolina and Florida stocks. Stocks in the Potomac and York Rivers (VA) have shown some signs of recovery in recent years. There are no coastwide reference points for American shad. There is currently no stock assessment available for hickory shad.

The 2007 assessment of American shad identified primary causes for stock decline as a combination of overfishing, pollution, and habitat loss due to dam construction. In recent years, coastwide harvests have been on the order of 500-900 mt, nearly two orders of magnitude lower than in the late 19th century. Given these findings, the peer review panel recommended that current restoration actions need to be reviewed and new ones need to be identified and applied. The peer review panel suggested considering multiple approaches including a reduction in fishing mortality, enhancement of dam passage, mitigation of dam-related fish mortality, stocking, and habitat restoration.

1.5 BACKGROUND: CURRENT MANAGEMENT STRUCTURE

Directed fisheries for river herring and shad occur almost exclusively in State waters and are therefore managed by the Atlantic States Marine Fisheries Commission (ASMFC). Authorized under the terms of the Atlantic States Marine Fisheries Compact, as amended (Pub. L. 81-721), the purpose of the ASMFC is to promote the better utilization of the fisheries (marine, shell, and anadromous) of the Atlantic seaboard. The ASMFC manages river herring and shad stocks under the authority of section 803(b) of the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA - 16 U.S.C. 5101-5108). The Interstate Fishery Management Plan for Shad & River Herring, approved in 1985, was one of the very first FMPs developed by the ASMFC.

Amendment 2 to the ASMFC Interstate FMP for Shad and River Herring was approved in 2009 and implemented a precautionary approach to river herring management. Amendment 2 requires states or jurisdictions to close all state fisheries by January 1, 2012, with exceptions for systems with a sustainable fishery. A sustainable fishery is defined as one that demonstrates that the river herring stock can support a commercial and/or recreational fishery without diminishing future stock reproduction and recruitment. Under Amendment 2, river herring from any state waters fishery may not be landed without an approved plan requesting State fishery proposals must contain ‘sustainability targets’ that are subject to Shad and River Herring Technical Committee (TC) review and Shad & River Herring Management Board (Board) approval. States with approved plans are required to submit annual updates of the achievement and maintenance of sustainability targets. The TC has reviewed proposals from Maine, New Hampshire, New York, North Carolina and South Carolina, and the Board approved all plans.

In 2010, the Board approved Amendment 3, which revises American shad regulatory and monitoring programs in place under Amendment 1. The Amendment was developed in response to the 2007 American shad stock assessment, which found that most American shad stocks were at all-time lows and did not appear to be recovering. Amendment 3 is similar to the management program required for river herring. The Amendment prohibits state waters commercial and recreational fisheries beginning January 1, 2013, unless a state or jurisdiction has a sustainable management reviewed by the TC and approved by the Board. These management plans must be submitted to the TC for review by August 1, 2011. The Amendment defines a sustainable fishery as “a commercial and/or recreational fishery that will not diminish the potential future stock reproduction and recruitment.” Submitted plans must clearly demonstrate that the state’s or jurisdiction’s American shad fisheries meet this new definition of sustainability through the development of sustainability targets which must be achieved and maintained. The Amendment allows any river systems to maintain a catch and release recreational fishery. States and jurisdictions are also required to identify local significant threats to American shad critical habitat and develop a plan for mitigation and restoration.

2.0 UPDATED TIMELINE OF EVENTS

On August 2, 2012, the United States District Court for the District of Columbia issued a remedial order in the civil action Flaherty, et al. v. Blank, et al. to address deficiencies with respect to Amendment 4 to the Atlantic Herring FMP. A letter from NMFS was provided to the Council on August 31, 2012, describing the legal deficiencies identified by the Court:

1. NMFS did not satisfy its obligation to independently determine whether the Council's designation of "stocks in the fishery" complied with the Magnuson-Stevens Fisheries Conservation and Management Act (MSA);
2. NMFS did not adequately consider whether Amendment 4 complied with National Standard 9's requirement to minimize bycatch to the extent practicable; and
3. NMFS failed to consider the environmental impacts of alternatives to the acceptable biological catch (ABC) control rule and accountability measures (AMs).*

**Several elements of the Amendment 4 Court Order were addressed by the Council through the development of the 2013-2015 Atlantic herring fishery specifications package and Fw 2 to the Atlantic Herring FMP. This discussion document focuses on Item #1 above, i.e., designation of stocks in the Atlantic herring fishery.*

The August 31, 2012 letter from NMFS also explained applicable law and National Standard Guidelines relating to determining the stocks to be included in a fishery and recommended that the Council consider, in an amendment to the Atlantic Herring FMP, whether river herring and shad should be designated as a stock in the Atlantic herring fishery. The Council quickly responded to the Court Order and the letter from NMFS by including consideration of adding RH/S as stocks in the Atlantic herring fishery on the list of 2013 management priorities, along with a framework adjustment to further address RH/S catch in the Atlantic herring fishery (see additional discussion below).

Since the Amendment 4 Court Order, conservation and management efforts have continued at many levels, and new initiatives have developed. The most significant developments include the recent implementation of additional management measures (catch caps) to minimize RH/S catch in non-directed Federal fisheries, combined with an industry-based initiative to reduce RH/S interactions, as well as an extensive information-collection effort aimed towards developing a comprehensive long-term conservation and restoration program for river herring throughout its range. The most significant developments affecting river herring and shad conservation and management over the last two years are summarized in the following discussion. Table 1 on p. 16 of this discussion document provides a timeline of these developments, as well as milestones related to the Amendment 4 Court Order.

New England Council Action: Post-Amendment 4 Court Order

When the Amendment 4 Court Order was issued in August 2012, the Council had very recently completed Amendment 5 to the Atlantic Herring FMP (the Council selected final measures at the June 2012 Council meeting), which established a comprehensive catch monitoring program for the Atlantic herring fishery, included management measures to address river herring bycatch, established criteria for midwater trawl vessel access to groundfish closed areas, and adjusted other aspects of the fishery management program to keep the Atlantic Herring FMP in compliance with the MSA. Amendment 5 adopted a long-term strategy for monitoring and reducing river herring bycatch in the Atlantic herring through industry-based avoidance initiatives as well as provisions to allow catch caps for RH/S to be established through a framework adjustment to the Atlantic Herring FMP.

The Council included the development of a management action to consider adding RH/S as SOF on its list of 2013 management priorities, but it first prioritized the development of a framework adjustment to establish RH/S catch caps in the Atlantic herring fishery, consistent with the RH/S bycatch management strategy adopted in Amendment 5. Consequently, Framework 3 to the Atlantic Herring FMP was initiated by the Council in early 2013, and final measures were selected in September 2013. Framework 3 establishes area-specific and gear-specific catch caps for RH/S in the directed Atlantic herring fishery and also includes RH/S catch caps for the 2014 and 2015 fishing years. The Proposed Rule for Framework 3 was published on June 13, 2014, and the RH/S catch caps are expected to become effective very soon. Future catch caps for RH/S (2016-) will be specified through the Atlantic herring fishery specifications process.

The potential impacts of the management measures implemented in Amendment 5 and Framework 3 on RH/S were evaluated in the Amendment 5 FEIS and the Environmental Assessment for Framework 3; these documents should be referenced for more complete information. In general, the Amendment 5 and Framework 3 measures are expected to have a long-term positive impact on the river herring and shad species and should further reduce bycatch of these species in the directed Atlantic herring fishery. While data are not robust enough at this time to quantify the specific impacts of these measures on the RH/S stocks, the measures are intended to manage and minimize RH/S catch in the Atlantic herring fishery to the extent practicable. The catch of RH/S in the directed Atlantic herring fishery is likely to be less under the Amendment 5 and Framework 3 measures than if no action had been taken by the Council. Generally, lower catches should result in positive impacts on the stock(s). Moreover, the actions taken in Amendment 5 and Framework 3 should provide the Council with the ability to link RH/S catch in the Atlantic herring fishery to RH/S stock status and fishing mortality as better scientific information becomes available in the future.

As previously mentioned, part of the Amendment 5 river herring bycatch monitoring/avoidance approach is based on the continuing cooperative research project between the Sustainable Fisheries Coalition (SFC), the UMASS Dartmouth School of Marine Science and Technology (SMAST), and the Massachusetts Division of Marine Fisheries (MADMF). This project focuses on industry-based alosine bycatch avoidance (see the Final EIS for Amendment 5 as well as Section 3.6.4 of the Framework 3 document for detailed information about the bycatch avoidance project). The overall concept of the SFC/SMAST/MADMF project is to allow the Atlantic herring fishery to avoid areas with relatively high river herring encounters when river

herring have been encountered at a threshold level. This project provides information about bycatch from portside sampling and communicates this information to the fleet in a timely manner so that vessels can move out of river herring bycatch hotspots. When combined with the appropriate incentives (i.e., the RH/S catch caps established in Framework 3), the avoidance project is expected to allow herring vessels to continue to operate while effectively minimizing interactions with RH/S. The river herring bycatch avoidance project has been funded, in part, through the 2014 and 2015 Atlantic herring research set-asides (RSAs) established through the 2013-2015 Atlantic herring fishery specifications. The Council's Herring Advisory Panel and Herring Committee are scheduled to review updated information about the bycatch avoidance project at the November 2014 meetings. Consistent with Amendment 5, the results of this review will be reported to the Council for further consideration.

Because of the need to immediately address other herring-related management priorities (i.e., Framework 4 – see following discussion) and due to ongoing State/Federal efforts directed towards RH/S conservation/management, the Council did not prioritize a SOF amendment to the Herring FMP in 2014. However, the Council continued to acknowledge the importance this issue by including the development of a Council staff white paper on the list of 2014 management priorities. This discussion paper addresses the Council's 2014 management priority and provides the basis for considering how to move forward in 2015 and years beyond.

In 2014, the Council developed Framework 4 to the Atlantic Herring FMP in response to NMFS' partial approval of Amendment 5 to the Atlantic Herring FMP. Framework 4 proposes management measures to further enhance catch monitoring and address net slippage on vessels participating in the directed Atlantic herring fishery. More specifically, the *Preferred Alternatives* proposed in Framework 4 would implement a third-party catch verification program for limited access Atlantic herring vessels, a requirement that herring vessel fish holds be empty of fish before leaving the dock, and a move-along rule for observed slippage events in the directed Atlantic herring fishery. To the extent that slippage is reduced and the amount/species composition of previously-slipped catch can be sampled and/or estimated, the Amendment 5 catch monitoring program should be enhanced by the Framework 4 measures. As slippage events in the Atlantic herring fishery are reduced/eliminated, bycatch can be further minimized to the extent practicable. Providing documentation of previously unrecorded catch of non-target species like RH/S may improve catch statistics and, consequently, assessment and management of these species over the long-term. Again, although they are not possible to quantify, the impacts of the Framework 4 measures on RH/S stocks should be positive. Framework 4 was submitted to NMFS in July 2014 and is currently under review.

Update: NMFS River Herring ESA Determination

On August 12, 2013, NMFS published its determination in the *Federal Register* regarding the 2011 petition to list alewife and blueback herring as threatened or endangered throughout all or a significant portion of their range under the Endangered Species Act (ESA). Based on the best scientific and commercial information available, NMFS determined that listing alewife and blueback herring as threatened or endangered under the ESA is not warranted at this time.

While neither species of river herring is currently considered endangered or threatened, both species are at low abundance compared to historical levels, and NMFS indicated that monitoring both species is warranted. Given the uncertainties and data deficiencies for both species, NMFS committed to revisiting both species of river herring in 3 – 5 years. During this 3- to 5-year period, NMFS is coordinating with ASMFC, the MAFMC, and the NEFMC on a strategy to develop a long-term and dynamic conservation plan (e.g., priority activities and areas) for river herring considering the full range of both species and with the goal of addressing many of the high priority data gaps for river herring (see TEWG below)

Development: River Herring Technical Expert Working Group (TEWG)

When NOAA Fisheries published the ESA listing decision for river herring in August 2013, NMFS indicated that it would partner with ASMFC to form a Technical Expert Working Group (TEWG). The TEWG is focused on developing a dynamic conservation plan to help restore river herring throughout their range from Canada to Florida, identifying and implementing important conservation efforts, and conducting research to fill in some of the critical data gaps for the river herring species. This will include the following:

- Identify threats to both species throughout their range
- Identify and create a priority list of conservation actions to address critical threats and associated costs
- Identify key data gaps
- Create a priority list of research projects and associated costs to fill existing data gaps
- Provide/compile information for NMFS/ASMFC to use in the development of a dynamic, long term conservation plan
- Track and monitor progress of conservation actions and research
- Revise actions as needed

The goal of the TEWG meetings will be information gathering, whereby individual expert opinion on data, ideas, or recommendations will be sought from all participants. The meetings are not consensus-driven.

Because of its comprehensive scope and extensive membership, the TEWG includes subgroups (by topic) to focus discussions, as well as an overarching committee comprised of chairs/co-chairs from the subgroups. The TEWG held its first meeting in March 2014 to discuss river herring conservation planning and the structure and process for TEWG participation. Additional meetings were held in June and September 2014, and subgroups are also meeting in between larger TEWG meetings. As this effort expands, NOAA Fisheries continues to coordinate with all of management partners including the Mid-Atlantic and the New England Councils to maximize

resources and identify ways to complement ongoing efforts to promote river herring restoration. The TEWG's work products, including recommendations for a comprehensive restoration plan, are anticipated to be completed sometime in the Spring of 2015.

Recent Mid-Atlantic Council Actions

The overlap between the New England Council's Atlantic herring fishery and the Mid-Atlantic Council's Atlantic mackerel fishery is important to consider with respect to adding stocks to either fishery, since many of the same vessels participate in both fisheries in the southern New England/Mid-Atlantic area. The Mid-Atlantic Fishery Management Council has been working to address similar issues related to river herring and shad interactions in the Atlantic mackerel fishery. Since the Amendment 4 Court Order was issued to the New England Council in August 2012, Amendment 14 to the MAFMC Mackerel Squid Butterfish (MSB) FMP was implemented. Amendment 14 was developed in coordination with Amendment 5 to the Atlantic Herring FMP and proposes a comprehensive catch monitoring system for the MSB fishery. Many of the actions contained with both amendments were developed to compliment and/or replicate each other to avoid conflicting overlaps of restrictions on vessels that participate in both the Atlantic herring and mackerel fisheries. Amendment 14 to the MSB FMP considered adding RH/S as stocks in the mackerel fishery but deferred further action on this issue to Amendment 15 (see below).

Amendment 14 included provisions to allow the MAFMC to set a catch cap for RH/S in the mackerel fishery through the annual fishery specifications. The 2014 RH/S catch cap for the Atlantic mackerel fishery was set at 236 mt. During the MSB specifications process (June 2014), the MAFMC voted to recommend a catch cap of 89-155 mt for the directed mackerel fishery for the 2015 fishing year (the amount will be scaled based on mackerel catch in the directed mackerel fishery during the fishing year). There will be opportunity for the two Councils to better align the RH/S catch caps in the overlapping southern New England/Mid-Atlantic area (SNE/MA, Area 2 Atlantic herring fishery) for the 2016 fishing year and beyond. This has been identified as an important objective by the MAFMC RH/S Committee (see below). The New England Council built flexibility into the RH/S catch cap process in Framework 3 to allow development of a joint herring/mackerel fishery RH/S catch cap for the SNE/MA area with the MAFMC.

As previously noted, Amendment 15 was initiated by the MAFMC in 2013 to consider measures for direct river herring and shad management. Preliminary development of Amendment 15 considered whether the current management framework for river herring and shad is sufficient for conservation and management of these species and whether Federal management under the MSA would address any deficiencies and/or inefficiencies. In August 2013, MAFMC staff presented a discussion document outlining management issues related to incorporating RH/S as stocks in the Atlantic mackerel fishery. The MAFMC determined additional conservation and management of river herring and shad in the MSB FMP was not warranted at that time. The MAFMC also agreed to form an oversight Committee to specifically monitor and evaluate the effectiveness of the RH/S catch caps and continue to work to reduce Federal fisheries' impacts on the RH/S stocks (see RH/S Committee below). Additionally, the MAFMC agreed to reconsider Federal management of RH/S in three years (October 2016).

In November 2013, the Anglers Conservation Network filed suit against NOAA/NMFS regarding “NMFS’s decision to terminate Amendment 15” and the lack of action by the Agency to develop the amendment to consider adding RH/S as stocks in the mackerel fishery. NMFS’ Motion to Dismiss this case was granted on September 30, 2014 because there is no basis for judicial review under the MSA or other applicable law for a decision that was not presented to the Secretary of Commerce for review/approval.

The MAFMC also recently selected final measures for inclusion in Framework 9 to the MSB FMP (early 2014). This action complements Framework 4 to the Atlantic Herring FMP; it will address the disapproved elements of MSB Amendment 14 related to management measures to address net slippage in the Atlantic mackerel fishery. At its June 2014 meeting, the MAFMC selected measures that are consistent with the Council’s *Preferred Alternative* to address net slippage in Framework 4. This improves consistency between the Atlantic herring and mackerel fishery regulations, reduces complexity, and should enhance the overall effectiveness of both fishery management programs. Implementation of Framework 9 to the MSB FMP is expected at the start of the 2015 fishing year.

MAFMC River Herring/Shad (RH/S) Committee

The Mid-Atlantic Fishery Management Council formed the RH/S Committee as part of a proactive coordinated effort to conserve RH/S stocks. Three members of the New England Fishery Management Council currently serve on the RH/S Committee. The RH/S Committee held its first meeting in April 2014. The following Terms of Reference (TOR) for the RH/S Committee were approved by the MAFMC at its April 8-10, 2014 Meeting:

- A. Develop approaches to setting RH/S catch caps that are based on and appropriate for the abundance and/or population dynamics of RH/S rather than historic catch rates of RH/S.
 - Part of understanding this question will likely involve investigating the relative effects of catch in federal fisheries on RH/S stock health compared to other sources of mortality (habitat issues, inshore catch, climate, predation, etc.)
 - The Council’s Scientific and Statistical Committee (SSC) will be engaged for this term of reference.
- B. Consider additional ways to cooperate with the New England Fishery Management Council on RH/S efforts by setting catch caps interdependently, for example potentially aligning RH/S catch caps for the Atlantic mackerel and Atlantic herring fisheries in Mid-Atlantic and southern New England waters so as to appropriately address overall RH/S catch.
- C. Regularly evaluate the overall operation of any Mid-Atlantic (or joint) RH/S catch caps including cap determination, monitoring, data needs, enforcement, data interpretation, etc.
- D. Evaluate additional ways to align MAFMC activities with NOAA Fisheries, the ASMFC, the TEWG, state, and non-governmental activities regarding RH/S.

- E. Develop “success criteria” to evaluate MAFMC efforts regarding RH/S given the Council’s commitment to regularly evaluate progress (beginning in June of 2014) and to reconsider the overall decision whether or not to make RH/S “stocks in a fishery” under a MAFMC fishery management plan in October 2016. Full development of the “success criteria” is likely beyond the scope of this initial meeting, but would be a priority task and likely include consideration of factors such as:
- Are RH/S stocks improving? Has incidental catch in federal fisheries been limited and/or reduced? Has information about RH/S improved (natural history, abundance, etc.)? Has coordination between the entities that are involved in RH/S management improved?

Table 1 Timeline of Recent Developments Related to RH/S Conservation and Management

Management Event	Date
Amendment 4 (Herring FMP) approved by NMFS (ACLs, AMs)	November 9, 2010
Amendment 4 Lawsuit filed	April 1, 2011
River Herring ESA Listing Petition filed	August 5, 2011
ASMFC River Herring Benchmark Stock Assessment	March-April, 2012
MAFMC selects final Amendment 14 measures (MSB) *Measures to address river herring bycatch (mackerel fishery) *RH/S catch cap provisions for specs process MAFMC votes to consider adding RH/S as SOF (mackerel fishery) in Amendment 15	June 11-14, 2012
NEFMC selects final Amendment 5 measures *Measures to address river herring bycatch (herring fishery) *RH/S catch caps added to FWA process	June 19-21, 2012
Court Order Re. Amendment 4 Lawsuit	August 2, 2012
NMFS Letter to NEFMC re. Amendment 4 Court Order and SOF consideration	August 31, 2012
NEFMC includes consideration of RH/S as SOF as management priority	November 13-15, 2012
NEFMC initiates Framework 3 to develop RH/S catch caps for herring fishery	January 28-30, 2013
NMFS provides guidance to MAFMC re. RH/S SOF issue for Amendment 15 (mackerel)	June 6, 2013
MAFMC selects RH/S catch cap for 2014 mackerel fishery	June 11-13, 2013
NMFS RH ESA Listing Determination (not endangered)	August 12, 2013
NEFMC selects Fw 3 measures and RH/S catch caps for 2014/2015 herring fishery	September 24-26, 2013
MAFMC staff presents RH/S SOF White Paper (mackerel fishery)	September 30, 2013
MAFMC votes *not* to develop Am 15 to add RH/S as SOF (mackerel); MAFMC establishes RH/S Committee	October 7-10, 2013
MAFMC Amendment 15 decision challenged by lawsuit	November 7, 2013
NEFMC continues consideration of RH/S as SOF as management priority *Development of staff white paper added to 2014 priorities	December 16-18, 2013
Court opinion ruling that NMFS complied with Amendment 4 order	February 19, 2014
Amendment 5 (Herring FMP) management measures implemented	March 17, 2014
Amendment 14 (Mackerel FMP) management measures implemented	March 26, 2014
RH Technical Expert Working Group (TEWG) First Meeting	March 27, 2014
MAFMC RH/S Committee First Meeting	April 8, 2014
NEFMC selects final measures for Framework 4 to the Herring FMP (dealer weighing provisions, measures to address net slippage)	April 22-24, 2014
MAFMC selects final measures for Framework 9 to the MSB FMP (measures to address slippage)	June 11-12, 2014
Framework 3 (Herring) Proposed Rule published (RH/S catch caps)	June 13, 2014
MAFMC Amendment 15 lawsuit dismissed	September 30, 2014
NEFMC RH/S Stocks in Fishery (Herring) White Paper	October/November 2014

3.0 MOVING FORWARD: POSSIBLE APPROACHES FOR FEDERAL MANAGEMENT

This section outlines and discusses possible conservation/management approaches for the New England Fishery Management Council to consider with respect to Federal management of RH/S and, more specifically, inclusion of RH/S as stocks in the Atlantic herring fishery.

I. Maintain Current Management Approach

If the Council does not take action to formally add river herring/shad as stocks in the Atlantic herring fishery, the current approach for addressing the conservation and management of RH/S stocks/fisheries will be maintained.

- ASFMC will continue to address the management of directed fisheries for RH/S (State waters) through its Interstate FMP.
- The Councils (New England and Mid-Atlantic) will continue to manage/minimize RH/S catch in non-directed Federal fisheries like the Atlantic herring and mackerel fisheries, as well as other fisheries in the future as necessary.
- The MAFMC RH/S Committee will continue to work cooperatively with the New England Council monitor the effectiveness of the RH/S catch caps in the Atlantic herring and mackerel fisheries and will work to develop RH/S catch caps that are based on and are appropriate for the abundance and/or population dynamics of RH/S rather than historic catch rates of RH/S. The Committee also plans to develop “success criteria” to evaluate MAFMC efforts regarding RH/S given the Mid-Atlantic Council’s commitment to regularly evaluate progress (beginning in June of 2014) and to reconsider the overall decision whether or not to make RH/S “stocks in a fishery” under a MAFMC FMP in October 2016.
- The TEWG will continue its efforts to compile information that will be used by NMFS and ASMFC in the development of a comprehensive and holistic river herring conservation plan. The plan is intended to increase public awareness about river herring, stimulate cooperative research efforts, and inform efforts to conserve the species. TEWG work products and recommendations are expected to be available during the Spring of 2015.
- As previously noted, the MAFMC will revisit/reconsider the issue of Federal RH/S management in October 2016.

II. Federal Management of RH/S Stocks/Fisheries

There are several possible approaches that the Council could consider if it determines that management of RH/S fisheries through a Federal FMP is necessary/appropriate. Two approaches are described and discussed below: (1) Adding RH/S as stocks in the Atlantic Herring Fishery and (2) Managing RH/S through Separate Federal FMP. Many of the same considerations apply under either approach.

If the New England Council chooses to initiate an amendment to the Atlantic Herring FMP to consider adding RH/S as stocks in the Atlantic herring fishery, it would be very important to work closely with the Mid-Atlantic Fishery Management Council to develop a comprehensive management program. The geographic range of RH/S species is extensive (see Figure 1 and Figure 2), and both the Atlantic herring and MSB fisheries overlap and interact with river herring and shad (the Atlantic herring fishery overlaps with river herring much more so than the shad species). NMFS stated, in its June 5, 2012 correspondence to the Mid-Atlantic Fishery Management Council, that a long-term Federal management program for RH/S would need to include consideration of interactions across both the Atlantic Herring and MSB FMPs. In addition, there can only be one lead Council for Federal management of the river herring/shad species, and NMFS suggested that the recommendation as to which Council would take the lead on river herring/shad management should result from joint deliberations between the two Councils (see June 5, 2012 correspondence from (Morris to Robbins) re. Amendment 14 alternatives to add RH/S as stocks in the fishery). Moreover, the southern extent of the range of the shad species suggests that consultation and coordination with the South Atlantic Council would be necessary/appropriate as well.

New England Council Manages RH/S through SOF in Atlantic Herring FMP

Under the SOF approach:

- All conservation and management efforts described under the current management approach (above) would continue.
- RH/S would be added as stocks in the Atlantic herring fishery through the development of an amendment to the Atlantic Herring FMP.
- RH/S species (four species, unknown number of stocks) would become Federally-managed species, subject to all MSA requirements.
- Status determination criteria (overfishing definition, MSY/MSY proxy) and rebuilding programs, as well as EFH designations for RH/S species would be developed in the Atlantic Herring FMP.
- Annual catch limited (ACLs) and accountability measures (AMs) for RH/S fisheries would be established through the Atlantic Herring FMP.
- State regulations for RH/S fisheries would need to be reviewed/modified for compliance with Federal regulations.

- Management by the New England Fishery Management Council would require continued coordination with ASMFC for State fisheries management and Mid-Atlantic Fishery Management Council to address overlap with Atlantic mackerel fishery.

New England Council Manages RH/S through a separate RH/S FMP

Under a separate FMP approach:

- The New England Council would develop a separate Federal FMP for RH/S (under another approach, this could be a Joint FMP with Mid-Atlantic Council).
- All of the FMP elements identified under the above approach (adding RH/S as SOF) would be required under this approach.
- There may be an advantage to addressing the management of RH/S in a separate Federal FMP versus the Atlantic Herring FMP. This approach may allow for a more coordinated effort among all of the State and Federal entities engaged in efforts to conserve and restore RH/S stocks throughout their range.

If the Council determines that an FMP amendment to consider adding RH/S as stocks in the Atlantic herring fishery (or a RH/S FMP) should be developed, the timeline for this action is unclear, but it would likely be a multi-year amendment that starts with an extensive scoping process. The first steps of the amendment development process would likely involve a consultation process with the Mid-Atlantic Council (and perhaps the South Atlantic Council as well), ASMFC, and NMFS to reach agreement regarding Federal jurisdiction and how to develop a coordinated State-Federal Agency approach.

There are additional legal requirements that would apply if RH/S fisheries are managed under a Federal FMP. These additional requirements could enhance conservation and management of the RH/S species, provided that these requirements are determined by the Council to be necessary/effective and not duplicative. These are important considerations when determining whether to manage RH/S through a Federal FMP. There may be costs and benefits associated with addressing each of the FMP requirements identified below; many of the most significant costs relate to timing and resource (manpower/technical) limitations, which are extremely important to consider in the context of other conservation and management priorities in the Greater Atlantic Region.

The additional opportunities for conservation and management and/or data and information collection that may be afforded to the RH/S species by inclusion in a Federal FMP are discussed in Table 2 below.

Table 2 Discussion of Additional Conservation/Management Requirements Under a Federal FMP

Development of Science-Based ACLs and AMs
<p>Potential Benefit: <i>RH/S may be further protected from overfishing through the development of science-based annual catch limits (ACLs) and accountability measures (AMs) in a Federal FMP</i></p>
<p>Related Considerations:</p> <ul style="list-style-type: none"> • Science available to establish ACLs and AMs for RH/S stocks is limited and lacking/insufficient in most cases. The quality and availability of data to inform stock assessments is not likely to change significantly with the inclusion of these species in a Federal FMP. • Current lack of information hampers ability to link catch to fishing mortality rate and/or quantify impact of catch on stock status. This problem is reflected in the Framework 3 RH/S catch caps and related analysis. • Catch in directed RH/S is limited through Amendments 2 and 3 to the ASMFC Shad and River Herring FMP, and under the State plans that have been approved by ASMFC. • Managing and reducing RH/S catch in Federal fisheries does not require the establishment of ACLs and AMs. RH/S catch in non-directed fisheries can be monitored, controlled, reduced, etc. through the establishment of catch caps in existing FMPs (i.e., herring and mackerel fisheries), which include fishery closures or other accountability measures to ensure that the caps are not exceeded.
Development of Status Determination Criteria, Rebuilding Plans, Etc.
<p>Potential Benefit: <i>RH/S would be incorporated into SAW/SARC process and evaluated through benchmark stock assessment to develop status determination criteria and biological reference points</i></p>
<p>Related Considerations:</p> <ul style="list-style-type: none"> • Science available to conduct benchmark assessment is still lacking; science to develop status determination criteria and biological reference points is lacking. Stock structure would also be a significant source of uncertainty. • Law allows for proxies and interim reference points when data are lacking; consideration could be given to approaches used for other data poor stocks. • Unclear how to develop MSY/MSY proxies for a Federal FMP to manage a stock with no directed fishery in Federal waters; consideration could be given to approaches used for other data poor stocks. • State/Federal assessment issues would need to be resolved. Currently, RH/S are assessed through the ASMFC assessment process. It is not clear if/how this would transition to a Federal assessment process. Federal requirements for status determination criteria and MSY-based reference points are different than State requirements, and the process for developing reference points through a stock assessment would need to be resolved. • If RH/S are incorporated into the SAW/SARC process, the resources and time to conduct the stock assessments would be allocated with consideration of the resources/time needed for assessment of all other Federally-managed species. The same limited resources will be available to conduct all stock assessments in the Region. • Since the fisheries are in State waters, almost all of the catch data needed to conduct the assessment resides with the States.

Development of Status Determination Criteria, Rebuilding Plans, Etc. (cont.)

- The most recent stock assessment (ASMFC 2007) concluded that the definition of overfishing in Amendment 1 to the ASMFC Shad and River Herring FMP that focused only on directed fishing mortality (F) was no longer valid for American shad stocks because shad are affected by several sources of human-induced mortality, including directed fishing, fish passage mortality at dams, mortality from pollution, and bycatch and discard mortality in non-directed fisheries.

Identification of EFH for RH/S Species

Potential Benefit: Identifying essential fish habitat (EFH) may provide opportunity for additional conservation as well as input on land-based projects that affect RH/S

Related Considerations:

- EFH identifications would consider all types of aquatic (marine, estuarine, and freshwater) habitats where RH/S species spawn, breed, feed, or grow to maturity. EFH for RH/S may likely be predominantly in State waters. It may be worthwhile to explore if/how EFH designated for Atlantic herring, Atlantic mackerel, and other overlapping species may include important habitat for RH/S in Federal waters.
- Adding RH/S as SOF and identifying Federal EFH may bring focus to non-fishery impacts in Federal waters and provide opportunity to address habitat issues that may be outside of the jurisdiction of the ASMFC. Any federal action, including any action receiving federal funding, that occurs within the designated EFH would be required to consider its impact to RH/S stocks, such as in-river dredging, water withdrawals, and federal hydropower licensing.
- Providing input on land-based projects that affect RH/S does not require EFH designations in a Federal FMP.
- Amendments 2 and 3 to the ASMFC River Herring and Shad FMP already require States to identify, categorize and prioritize important existing and historic RH/S habitat within its area of jurisdiction, establish periodic monitoring to ensure the long-term health and viability of the habitat, and develop plans to restore access to rivers.

Increased Opportunities for Data Collection and Identification of Data/Research Needs

Potential Benefit: Opportunity to collect more data about the biological status of RH/S to inform management (sea sampling) by incorporating RH/S into a Federal FMP

Related Considerations:

- There are no directed fisheries for RH/S in Federal waters, so it is unclear how inclusion in a Federal FMP will generate additional data/information.
- Sea samplers (observers) already collect information about RH/S encountered on all trips that are observed in all Greater Atlantic Region fisheries.
- The listing of river herring as a “species of concern” and the formation of the TEWG has generated a significant opportunity to identify data/research needs in a comprehensive and holistic manner.
- Current research needs were identified in Amendments 2 and 3 to the River Herring and Shad Commission Plan, and the most recent assessments for river herring and shad.

Inclusion of RH/S in SBRM Formulas to Allocate Observer Days for Bycatch Accounting

Potential Benefit: Managed species included in SBRM formulas and drive the allocation of observer days to achieve CVs on bycatch estimates

Related Considerations:

- RH/S could be added to the SBRM methodology and included in the formulas to allocate observer days through an adjustment to the SBRM methodology, without RH/S being added as SOF.
- Adding RH/S to SBRM allocations may increase observer coverage in some fisheries, but possibly not the herring midwater trawl fishery, given the nature of RH/S interactions (also, midwater trawl vessels do not discard much RH/S, and the SBRM focus is on discards). This would affect observer allocations across all fisheries.

Enhance Coordination with Other Agencies

Potential Benefit: Improved coordination with State Agencies, enhanced inter-Agency approach through Federal FMP management

Related Considerations:

- State/Federal coordination may become more complicated with two FMPs; timing issues (State vs. Federal regulatory process) may be problematic for making management adjustments.
- State-Federal coordination regarding the stock assessments for these species would need to be resolved.
- Current conservation and management efforts are relatively well-coordinated through an inter-Agency approach; it is not clear that a NE Council FMP would enhance coordination with other Agencies regarding the conservation and restoration of RH/S species.
- Need to coordinate management with MAFMC may further complicate Federal management process.

4.0 ADDITIONAL DISCUSSION OF MSA CONSIDERATIONS

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) is the primary law governing marine fisheries management in Federal waters. The MSA was first enacted in 1976 and amended in 1996 and 2006. The 1996 amendment focused on rebuilding overfished fisheries, protecting Essential Fish Habitat (EFH), and reducing bycatch. The 2006 amendment mandated the use of Annual Catch Limits (ACL) and Accountability Measures (AM) to end overfishing, provided for widespread market-based fishery management through limited access privilege programs, and called for increased international cooperation. As discussed in the previous section, some of the key MSA provisions related to adding RH/S as SOF are the requirements for ACLs and AMs, EFH, and bycatch accounting. In addition, the MSA requires that Federal FMPs contain conservation and management measures that are consistent with the ten National Standards.

MSA National Standards

In general, the ten National Standards in the MSA relate to the conservation and management measures that may be implemented through a Federal FMP, not the issue itself of whether a stock/fishery should be managed under a Federal FMP. However, the decision about managing a stock/fishery under a FMP requires careful consideration of the implications of the National Standards and other required provisions of the MSA. Without such consideration, it is not possible to determine whether RH/S stocks would benefit from additional conservation and management, or whether management through a Federal FMP results in efficient and non-duplicative utilization of resources. Most relevant to this issue are National Standards 1 (prevent overfishing, achieve OY), 3 (manage as a unit), and 7 (minimize costs, avoid unnecessary duplication). The MSFMC White Paper includes comprehensive discussion of the issues related to these National Standards; this document should be referenced for further information, as much of the discussion is not repeated below (see Section 3.0 and 4.0 of the MAFMC White Paper).

In its June 6, 2013 correspondence to the MAFMC, NMFS again emphasized that the focus of the Council's deliberations regarding whether to include RH/S as SOF should be on National Standards 3 and 7. The most recent assessments for river herring and shad were not able to estimate stock abundance and fishing mortality because of the lack of adequate data. Moreover, because many factors contribute to the declining abundance of river herring and shad, the assessments used the terms "depleted" and "depressed" to describe declines in size for some of the stocks, rather than the terms "overfished" or "overfishing." These factors are not limited to directed and incidental fishing, and include water passage, water quality, predation and climate change. Because the assessments do not indicate that these stocks are overfished according to the National Standard 1 Guidelines definition, NMFS indicated in its June 2013 correspondence to the MAFMC that Federal management is not required under 16 U.S.C. § 1853(a)(1)(A).

Consideration of NS1 is important, however, as it relates to the implications of managing the RH/S stocks under a Federal FMP. The most important considerations may be related to the challenges that the Council would face developing conservation and management measures for RH/S that are consistent with the requirements of National Standard 1.

National Standard 1 states that:

(1) Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

NS1 Guidelines: The NS1 Guidelines specify that each conservation and management plan should contain objective and measurable criteria to determine when a stock is overfished and when overfishing is occurring. In addition, each FMP must contain an estimate of maximum sustainable yield (MSY) for the stocks and stock complexes in the fishery. The MSA defines both “overfishing” and “overfished” to mean a rate or level of fishing mortality that jeopardizes the capacity of a fishery to produce the MSY on a continuing basis. Data limitations, scientific uncertainty, and the scope of fisheries for RH/S are all important issues related to the ability of conservation and management measures to be developed in a manner that is consistent with National Standard 1. When developing the RH/S catch caps in Framework 3, the analyses of the catch caps acknowledged that there is currently no ability to specify a catch cap that is linked to stock condition or fishing mortality, nor can the impacts of the catch caps on RH/S stocks be quantified, given current data limitations. Therefore, it is likely that there would be significant challenges associated with developing conservation and management measures for RH/S that are consistent with NS1.

Ecosystem Component Species

The National Standard 1 Guidelines state that stocks can be classified as Ecosystem Component Species (EC) under certain conditions. EC species may, but are not required to, be included in an FMP or FMP amendment for any of the following reasons: data collection purposes; for ecosystem considerations related to specification of OY for the associated fishery; as considerations in the development of conservation and management measures for the associated fishery; and/or to address other ecosystem issues. While EC species are not considered to be stocks in the fishery, a Council should consider measures for the fishery to minimize bycatch and bycatch mortality of EC species consistent with National Standard 9, and to protect their associated role in the ecosystem. EC species do not require specification of reference points but should be monitored to the extent that any new pertinent scientific information becomes available (e.g., catch trends, vulnerability, etc.) to determine changes in their status or their vulnerability to the fishery. If necessary, they should be reclassified as stocks in the fishery.

It does not appear that RH/S would qualify as EC based on the conditions identified in the NSGs. According to the NS1 Guidelines, to be considered for possible classification as an EC species, the species should:

- (A) Be a non-target species or non-target stock;
- (B) Not be determined to be subject to overfishing, approaching overfished, or overfished;
- (C) Not be likely to become subject to overfishing or overfished, according to the best available information, in the absence of conservation and management measures; and
- (D) Not generally be retained for sale or personal use.

There are also important considerations related to National Standard 3. National Standard 3 states:

(3) To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

NS3 Guidelines: The NS3 Guidelines provide guidance on structuring appropriate management units for stocks and stock complexes. The NS3 Guidelines further instruct that the choice of a management unit “depends on the focus of the FMP’s objectives, and may be organized around biological, geographic, economic, technical, social, or ecological perspectives” 50 CFR 600.320(d)(1). A management unit that is less than the range of the stock may be justified if complementary management exists; or if it is planned for a separate geographic area or a distinct use of the stocks; or if the unmanaged portion of the resource is immaterial to proper management.

The MAFMC staff white paper addresses considerations related to National Standard 3 and should be referenced for more complete discussion. Consideration of managing RH/S stocks/fisheries as a unit throughout their range is particularly challenging. If the New England Council moves forward with Federal management, it would be necessary to first engage the ASMFC, the South Atlantic Fishery Management Council, the Mid-Atlantic Fishery Management Council, and NMFS to determine the optimal way to devise a coordinated management approach that addresses National Standard 3.

National Standard 7 states that:

(7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

NS7 Guidelines: According to the NS7 Guidelines, not every fishery requires management through a Federal FMP. The NS7G’s provide the criteria that should be considered when determining whether a fishery is in need of conservation and management through regulations implementing a Federal FMP.

- (i) The importance of the fishery to the Nation and to the regional economy.
- (ii) The condition of the stock or stocks of fish and whether an FMP can improve or maintain that condition.
- (iii) The extent to which the fishery could be or is already adequately managed by states, by state/Federal programs, by Federal regulations pursuant to FMPs or international commissions, or by industry self-regulation, consistent with the policies and standards of the MSA.
- (iv) The need to resolve competing interests and conflicts among user groups and whether an FMP can further that resolution.
- (v) The economic condition of a fishery and whether an FMP can produce more efficient utilization.
- (vi) The needs of a developing fishery, and whether an FMP can foster orderly growth.
- (vii) The costs associated with an FMP, balanced against the benefits.

The importance of the fishery to the Nation and to the regional economy.

The importance of river herring and shad to the Nation and the regional economy can be considered by examining revenues associated with commercial and recreational RH/S fisheries. The ecological, existence, and cultural value of RH/S fisheries is very challenging to quantify but should be acknowledged. The MAFMC SOF white paper evaluates the importance of RH/S fisheries to the Nation and concludes that while healthier RH/S runs and fisheries would likely constitute a substantial value to the Nation, it is beyond the scope of the paper to estimate that value. The paper generally estimates that sustainable commercial RH/S fisheries could generate about \$12 million per year and acknowledges that the value of RH/S to recreational fisheries is significant but not quantified at this time.

Framework 3 to the Atlantic Herring FMP includes comprehensive information regarding the catch of river herring and shad in commercial fisheries (see Section 3.2.4 of the Framework 3 Environmental Assessment). The Atlantic Coastal Cooperative Statistics Program (ACCSP) ACCSP is a cooperative state-federal program established in 1995 that designs, implements, and conducts marine fisheries statistics data collection programs and integrates those data into a single data management system that will meet the needs of fishery managers, scientists, and fishermen. The ACCSP Data Warehouse provides information about RH/S landings and revenues since the directed fisheries for these species occur in State waters. From 2007-2012, total landings of RH/S throughout New England and Mid-Atlantic States averaged 1,539,600 pounds (698 mt). Alewife represents the vast majority of these landings. While the directed river herring fishery occurs primarily in New England States, the directed fishery for shad occurs primarily in Mid-Atlantic and South Atlantic States. According to the information provided by ACCSP and ASMFC, it appears that about another 500,000-600,000 pounds of American shad are landed in state waters fisheries in NC and SC (South Atlantic). On average, the additional shad landings bring the annual total landings from directed RH/S fisheries to around 2-2.1 million pounds (900-950 mt).

Other important points to consider:

- There is no directed or targeted fishing for river herring or shad in Federal waters. There are no vessels that leave the dock to fish in Federal waters intending to target RH/S at any time during the year. It is unclear how the fishery participants would be defined for the purposes of considering some of the MSA requirements.

It is possible that benefits to the Nation could accrue in the future if adding these species as Federally-managed species assisted in conserving these stocks and potentially redeveloping directed fisheries (which is uncertain). While historical high levels of landings may have been unsustainably high, RH/S fisheries had combined landings in the 20,000 mt to 30,000 mt range throughout the 1950s and 1960s ranging from Maine to South Carolina. While there are some issues (climate, stream flow, non-point run-off, etc.) that the Council may have minimal impact upon, to the degree that enhanced conservation efforts can assist recovery, then positive human community impacts are possible in terms of both additional commercial and additional recreational fishing opportunities that could result from rebuilt RH/S stocks. Recreational benefits could be direct (catching RH/S) or indirect in that RH/S are forage species for higher trophic level predators such as striped bass.

River Herring and Shad runs also are or have been important culturally for communities and even recently have supported some subsistence fishing (e.g. Mashpee Wampanoag Indian Tribe on Cape Cod, Massachusetts (ASMFC 2011)). There also are other non-market existence values (i.e. value gained by the public related to the knowledge that these species are being conserved successfully) that could increase in value from successful management. Public interest in this amendment demonstrates that the general public holds a certain value for the knowledge that these fisheries are being sustainably managed, and even if each individual's value is small the total public value may be quite large.

The condition of the stock or stocks of fish and whether an FMP can improve or maintain that condition.

Coastwide absolute RH/S abundance estimates are not available, so overfished/overfishing determinations are not possible. With a few exceptions, current river-specific absolute river herring and shad abundance estimates are also not available. As described below, these species are generally considered “depleted” due to a variety of factors, only one of which is fishing mortality.

The ASMFC completed the river herring benchmark stock assessment and peer review in 2012, examining 52 stocks of alewife and blueback herring with available data in US waters. The stock assessment technical team examined indices from fishery-dependent (directed river herring landings and bycatch estimates in ocean fisheries) and fishery-independent (young-of-year indices, adult net and electrofishing indices, coastal waters trawl surveys, and run count indices) datasets. From this information, the status of 23 river herring stocks was determined to be *depleted* relative to historic levels, and one stock was increasing. Statuses of the remaining 28 river herring stocks could not be determined, citing times-series of available data being too short. “*Depleted*” was used, rather than “*overfished*” and “*overfishing*,” due to many factors contributing to the decline of river herring populations (i.e., directed fishing, incidental fishing/bycatch, habitat loss, predation, and climate change). Furthermore, the stock assessment did not determine estimates of river herring abundance and fishing mortality due to lack of adequate data. For many of these reasons, the stock assessment team suggested reducing the full range of impacts on river herring populations. There are no coastwide reference points for either of the river herring species.

A stock assessment for American shad was completed in 1997 and submitted for peer review in early 1998 based on new information and the ASMFC RH/S Board recommended terms of reference. The 1998 assessment estimated fishing mortality rates for nine shad stocks and general trends in abundance for 13 shad stocks. A coastwide American shad stock assessment was completed and accepted in 2007 and found that American shad stocks are currently at all-time lows and do not appear to be recovering. Recent declines of American shad were reported for Maine, New Hampshire, Rhode Island, and Georgia stocks, and for the Hudson (NY), Susquehanna (PA), James (VA), and Edisto (SC) rivers. Low and stable stock abundance was indicated for Massachusetts, Connecticut, Delaware, the Chesapeake Bay, the Rappahannock River (VA), and some South Carolina and Florida stocks. Stocks in the Potomac and York Rivers (VA) have shown some signs of recovery in recent years. There are no coastwide

reference points for American shad. There is currently no stock assessment available for hickory shad.

The 2007 assessment of American shad identified primary causes for stock decline as a combination of overfishing, pollution, and habitat loss due to dam construction. In recent years, coastwide harvests have been on the order of 500-900 mt, nearly two orders of magnitude lower than in the late 19th century. Given these findings, the peer review panel recommended that current restoration actions need to be reviewed and new ones need to be identified and applied. The peer review panel suggested considering multiple approaches including a reduction in fishing mortality, enhancement of dam passage, mitigation of dam-related fish mortality, stocking, and habitat restoration.

Can a Federal FMP improve the condition of the RH/S species?

The impacts of managing RH/S through a Federal FMP are difficult to predict, making this important question challenging to answer. Lack of information precludes quantitative assessment of these species or the impacts of management measures on fishing mortality. The influence of other factors (water quality, fish passage, environmental factors, predation, etc.) on the health of these species significantly complicates this issue.

The extent to which the fishery could be or is already adequately managed by States, by state/Federal programs, by Federal regulations pursuant to FMPs or international commissions, or by industry self-regulation, consistent with the policies and standards of the MSA.

The recent negative ESA Determination by NMFS describes the existing management measures being taken for river herring and is utilized here (see link at: <http://www.nero.noaa.gov/stories/2013/riverherring.html>). As wide-ranging anadromous species, river herring and shad are subject to numerous Federal (U.S. and Canadian), state and provincial, Tribal, and inter-jurisdictional laws, regulations, and agency activities. These regulatory mechanisms are described in detail in the MAFMC White Paper (September 2013).

State/ASMFC Management Authority

Given management authority in 1993 under the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA - 16 U.S.C. 5101-5108), the ASMFC manages river herring and shad stocks under the authority of section 803(b) of the ACFCMA (16 U.S.C. 5101 et seq.), which States, in the absence of an approved and implemented FMP under the Magnuson-Stevens Act (16 U.S.C. 1801 et seq.) and, after consultation with the appropriate Fishery Management Council(s), the Secretary of Commerce may implement regulations to govern fishing in the Exclusive Economic Zone (EEZ), i.e., from 3 to 200 nautical mi (nm) offshore. The regulations must be: (1) compatible with the effective implementation of an Interstate FMP (Commission Plan) for American Shad and River Herring developed by the Commission; and (2) consistent with the National Standards set forth in Section 301 of the MSA.

It has been stated in recent documents (for example, the Mid-Atlantic Council white paper) that the MSA precludes federal regulation of a fishery in state waters unless the fishery occurs predominantly in federal waters (16 U.S.C. §1856). However, this interpretation of the MSA is not entirely clear from the language in the statute; this warrants further investigation, perhaps in consultation with NOAA General Counsel.

As previously noted, the States, through the ASMFC and its Interstate FMP for Shad and River Herring, manage the directed harvest of river herrings and shads in State waters. The Commission also has a stock assessment process in place that effectively integrates data from the States, though there are a variety of data gaps. The Commission peer-reviewed stock assessment process integrates data from both the States' and Federal waters and the stock assessment committee has both NMFS and U.S. Fish and Wildlife Service representatives. All river herring and American shad state fisheries that have not been designated by the Commission as sustainable were closed by January 1, 2013. The ASMFC has communicated to the Mid-Atlantic Council (Dec 5, 2012 correspondence) that it will take 3-5 years to determine the effect of these measures. In the same letter, the Commission encouraged exploration of the concept of Council management but also indicated a preference that the Commission would retain authority to manage in-river state-water fisheries. The Council would not have the authority to manage in-river State-water fisheries.

Table 2 on p. 22 of the MAFMC White Paper lists the MSA-Required Provisions for FMPs and provides information about how those provisions may already be addressed using existing management authority (State, Federal, other). This is interesting information to consider in the context of this criterion (see Table 2, p. 22 MAFMC SOF White Paper).

The need to resolve competing interests and conflicts among user groups and whether an FMP can further that resolution.

The MAFMC White Paper addresses this consideration with respect to adding RH/S as SOF. In general, establishing Federal management of RH/S does not seem likely to immediately resolve conflicts among user groups, especially because of the lack of abundance estimates for RH/S stocks. If additional assessment information and additional monitoring can be obtained as a result of Federal management, then the conflict might be partially resolved.

The economic condition of a fishery and whether an FMP can produce more efficient utilization.

Most of the fishery operations that used to target RH/S species in Federal waters either no longer exist or have moved on to other species. Since the only remaining directed fisheries for RH/S occur in State waters, this criterion is difficult to evaluate. In contrast, most Atlantic herring are caught in Federal waters.

The needs of a developing fishery, and whether an FMP can foster orderly growth.

Since there is no developing fishery for river herring and/or shad in Federal waters, and since harvest primarily occurs in State waters, this criterion is not likely to be a strong factor.

The costs associated with an FMP, balanced against the benefits.

One critical question raised through the NS7G's is whether the present or future benefits of regulating RH/S through a Federal FMP would justify and/or outweigh the costs of developing and implementing the FMP. The National Standard Guidelines state:

The supporting analyses for FMPs should demonstrate that the benefits of fishery regulation are real and substantial relative to the added research, administrative, and enforcement costs, as well as costs to the industry of compliance. In determining the benefits and costs of management measures, each management strategy considered and its impacts on different user groups in the fishery should be evaluated. This requirement need not produce an elaborate, formalistic cost/benefit analysis. Rather, an evaluation of effects and costs, especially of differences among workable alternatives, including the status quo, is adequate. If quantitative estimates are not possible, qualitative estimates will suffice.

Some important considerations related to costs and benefits of this action are discussed in Table 2 on p. 20 of this document and should be considered carefully by the Council.

5.0 SUMMARY/CONCLUSIONS

There is not really much debate concerning the question of whether RH/S are in need of conservation and management. This question has been answered affirmatively, and efforts of multiple Agencies and entities to promote the conservation and restoration of these species, especially over the last 2-3 years, reflect the increasing importance of this issue (Table 1, p. 16). The question of whether RH/S are in need of conservation and management through a Federal FMP, and the related question of whether or not the New England Fishery Management Council is the appropriate entity to take the lead role on Federal management of RH/S, are separate and more difficult questions to answer.

If there was currently no management of RH/S fisheries by any State or Federal entity, it would seem clear that some Council action (New England and/or Mid-Atlantic) would be appropriate and necessary. However, as discussed in Section 2.0 of this document, there have been a series of recent management actions and related events focused on RH/S conservation and management. The current framework in which to evaluate the need for additional management through a Federal FMP consists of (1) management measures for directed RH/S fisheries that have been effective for a long time (ASMFC); (2) management measures for non-directed fisheries (i.e., herring and mackerel) that have been implemented very recently; (3) management measures for non-directed fisheries that are likely to be implemented in the near future (i.e., RH/S catch caps in the herring fishery Framework 9 to the MSB FMP, Framework 4 to the Herring FMP); and (4) inter-agency management and information collection efforts to address long-term conservation of river herring and shad (MAFMC RH/S Committee, TEWG). This framework makes it very difficult to evaluate if conservation and management of RH/S under a Federal FMP is necessary or required at this time, and/or how RH/S stocks may benefit more from management under a Federal FMP (versus maintaining the current conservation/management approach).

The MAFMC staff white paper concluded that given: (a) the ongoing RH/S conservation efforts at various levels as coordinated by the Commission and NMFS; (b) the recently-increased control of State landings through the ASMFC; (c) recent/pending mortality caps for RH/S in the Atlantic mackerel and herring fisheries; (d) NMFS's finding that river herrings are not endangered or threatened; and (e) NMFS's commitment to be engaged in river herring conservation, it is possible that RH/S may not require conservation and management *by a Council FMP* at this time. The paper concluded that the existing management authorities may be sufficient to recover RH/S from their depleted status. In fact, the Commission has implemented actions to successfully rebuild anadromous stocks that were in poor condition in the past (i.e. striped bass). It is also uncertain if Council management through an FMP *could* substantially improve the status of RH/S beyond what would be expected with other ongoing conservation and management efforts. As such, it is difficult to say if the costs of management would be offset by increased and additional benefits to the nation given the uncertainty related to the various threats facing RH/S stocks, and the unknown impacts of recent actions by the Council and other management partners on their recovery.

Important considerations related to costs and benefits of taking action to include RH/S as stocks in the Atlantic herring fishery are discussed in Table 2 on p. 20 of this document and should be considered carefully by the Council. If there was assurance that Federal management of RH/S would substantially contribute to the recovery of river herring and shad populations throughout their range, the benefits of Federal management would likely be determined to outweigh the costs. However, the challenge facing the Council is identifying the linkage between Federal/Council management and the additional conservation benefits that would result beyond the benefits resulting from current conservation and management efforts. As noted in this document, many of the conservation/management efforts that would occur through a Federal FMP are already occurring or could be further addressed through action taken by the Council(s) without including RH/S as SOF, or through actions by other entities (local, state, regional, federal, non-governmental). Also, some important issues that significantly affect RH/S conservation and management (i.e., dams, water quality, predation) are largely out of the scope of the Council's ability to affect. Therefore, the impact of the Council's additional involvement through a Federal FMP is difficult to quantify, which makes evaluating the costs and benefits largely qualitative.

The Herring PDT discussed this issue and agreed that there is no technical basis to conclude that managing RH/S through designation as stocks in the fishery in the Atlantic Herring FMP would improve the conservation and management of these species. Directed RH/S fisheries occur in State waters, managed by the ASMFC. Incidental catch in Federal waters is addressed through the existing management structure. The Herring PDT cannot identify a problem that clearly could be resolved by adding RH/S as stocks in the Atlantic herring fishery. The most significant problems at this time relate to: (1) the lack of adequate scientific information to properly assess the RH/S stocks and (2) the influence of factors other than fishing mortality. Adding RH/S as stocks in the Atlantic herring fishery would not automatically result in additional funds to support the conservation and management of these species, but would more likely result in a re-allocation of the existing funds for all Federally-managed species. The tradeoffs associated with time and resources that are allocated to the management of all fisheries in Federal waters in the Greater Atlantic Region should be evaluated carefully when making this decision.