

DRAFT Scoping Document
for AMENDMENT 15 to the
Atlantic Mackerel, Squid, and Butterfish
Fishery Management Plan

In the Plan...



Atlantic Mackerel



Longfin Squid



Illex Squid



Butterfish

Could be in the Plan...



Blueback Herring



Alewife



American Shad



Hickory Shad

Prepared by the
Mid-Atlantic Fishery Management Council (MAFMC),
in consultation with NOAA Fisheries (NMFS)

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**Schedule of Atlantic Mackerel, Squid, and Butterfish Amendment 15
Scoping Meetings**

TBD – Probably November 2012. The full timeline is on the following page.

In addition to providing information and comments at the above scoping meetings, you may submit written comments by **TBD, Eastern Standard Time, YYYY 2012** per the notice of intent and scoping, published in the Federal Register **here: .** Please submit comments to the following address:

Christopher M. Moore, Ph.D.
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Mid-Atlantic Fishery Management Council
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Dover, DE 19901

Telephone: (302) 674-2331
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Comments may also be sent via fax at the above fax number or by e-mail to info1@mafmc.org. Please note on any correspondence and in the subject line of e-mail comments the following identifier: "Scoping Comments on MSB 15"

***THIS IS A DRAFT – THERE IS
NOT A COMMENT PERIOD
OPEN CURRENTLY***

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Preliminary AM 15 Timeline - River Herrings/Shads as Stocks in the Fishery

June 2012	MAFMC initiates Amendment
Aug 2012	<u>Action Plan</u> Created, <u>FMAT</u> assigned
Sept 2012	<u>Workshop</u> with management partners & FMAT on potential management approaches for purposes of scoping document
Oct 2012	Staff completes <u>scoping document</u>
Nov 2012	Scoping <u>Comment</u> Period & <u>Scoping Hearings</u>
Dec 2012	<u>FMAT</u> develops alternatives, DEIS writing begins
Mar 2013	<u>FMAT</u> provides recommendations re: required alternatives.
April 2013	Joint <u>Committee & AP Meeting</u> to get input on alternatives; ASMFC Coordination
May-Jul 2013	DEIS Creation concluded, <u>FMAT Informal Review</u> , Edits
Aug 2013	MAFMC approves <u>DEIS for Submission to NMFS</u> , selects preferred alternatives
Sep 2013	Document perfection
Nov 2013	FR the DEIS, <u>Public hearings</u> for Am 15 with DEIS
Jan 2014	<u>MAFMC receives comments</u>
Feb 2014	<u>Committee</u> meets to select alternatives to recommend to MAFMC
April 2014	<u>MAFMC</u> selects preferred alternatives for submission
May 2014	Document Perfection w/ NMFS
July 2014	<u>Proposed Rule</u>
Sept 2014	Comment Period Closes
Dec 2014	<u>Final Rule</u>
Jan 2015	Final Rule <u>Effective</u>

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THE MID-ATLANTIC FISHERY MANAGEMENT COUNCIL (MAFMC)

SEEKS YOUR COMMENTS ON AMENDMENT 15 TO THE

ATLANTIC MACKEREL, SQUID, AND BUTTERFISH FISHERY MANAGEMENT PLAN

***Your
comments are
invited...***

The Mid-Atlantic Fishery Management Council (MAFMC) proposes to develop Amendment 15 to the Fishery Management Plan (FMP) for Atlantic mackerel, squid, and butterfish (MSB) under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) as currently amended. The MAFMC would like your input on the range of issues and information that should be considered during development of Amendment 15, which will consider adding river herrings (blueback and alewife) and shads (American and hickory) as Council-managed species. The MAFMC is seeking your comments on the specific issues identified in this document plus any other issues that might be of concern to you regarding the MSB fisheries and their management.

***Why your
comments are
important...***

This is the first and best opportunity for members of the public to raise concerns related to the scope of issues that will be considered in Amendment 15. The MAFMC needs your input both to identify management issues and develop effective alternatives. Your comments early in the amendment development process will help us address issues of public concern in a thorough and appropriate manner.

The measures outlined in this document are not a list of "preferred alternatives" or measures that the MAFMC will necessarily include in the amendment. No management measures have yet been analyzed for their effectiveness or impacts. Please comment on which management measures may or may not be useful or practical and explain your rationale. Please also comment on any other issues that should be addressed in Amendment 15. The list of relevant issues may be expanded as suggestions are offered during the scoping process.

***What actions
have already
been taken?***

The MSB FMP became effective in 1983 when the individual Atlantic mackerel, squid, and butterfish plans were merged. Over time the MSB FMP and the earlier individual FMPs have addressed a wide variety of issues including biological reference points, harvest control rules, overfishing definitions, elimination of foreign fisheries, limited access, dealer reporting, vessel reporting, bycatch reduction, and essential fish habitat. The history of this FMP and links to earlier FMP documents may be found at: <http://mafmc.org/fmp/history/smb-hist.htm>.

In June 2012, via Amendment 14 (currently in review by NMFS), the MAFMC voted to recommend implementation of a suite of measures designed to improve river herring and shad catch monitoring and also to implement incidental catch caps on the mackerel fishery for river herrings and shads via the specifications, to be

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effective in 2014. At the same meeting the MAFMC voted to begin development of Amendment 15. The specific motion language was: “the Council will begin Amendment 15 to add river herrings/shads as stocks in the fishery (with Essential Fish Habitat (EFH), Annual Catch Limits (ACLs) / Accountability Measures (AMs), etc.).” Amendment 14 itself originally contemplated adding river herring and shad as directly managed species but the Council ultimately decided to address the direct management question as a separate amendment so that the various requirements of the Magnuson Stevens Act could be addressed in greater detail than could be done within Amendment 14 without substantial delay.

What is the current nature of RH/S Management?

For the purposes of this action river herrings include alewife and blueback herring and shads include American and hickory shad and are referred to collectively as RH/S. RH/S are managed through an Interstate Fisheries Management Plan by the Atlantic States Marine Fisheries Commission (ASMFC). ASMFC’s current management measures are addressed in Amendments 2 and 3 of the Shad and River Herring Fishery Management Plan, which are available at: <http://www.asmfc.org/shadRiverHerring.htm>. As of January 1, 2013 all landings of RH/S will be prohibited in state waters for all states except those states that have approved sustainable management plans. This provision has been in effect for river herrings since January 1, 2012. ME, NH, NY, NC, and SC have approved river herring plans. RI is applying for approval of a river herring plan. There are approved shad plans for the Delaware River and Bay, the Potomac River, NC, SC, GA, and FL. MA is applying for approval of a shad plan. Only the Maine river herring plan allows for a continuation of recent harvest levels while the other plans strongly limit harvest through gear restrictions or river system closures. Some states allow incidental catches during commercial fishing (e.g. NJ and MA) while other states have complete possession bans (e.g. Virginia).

States work individually and cooperatively with each other and NOAA, the U.S. Fish and Wildlife Service, and non-governmental organizations to improve RH/S habitat in their waters. There are also a number of other habitat management activities that benefit RH/S such as consultations for other federally managed species that share RH/S habitat, consultations for hydropower licenses and license renewals, fish passage programs (federal, state, and non-governmental), and projects funded through Fish Habitat Partnerships established through the National Fish Habitat Action Plan.

As described above, Amendment 14 seeks to address the incidental catch of RH/S in the Atlantic mackerel fishery. Amendment 5 to the New England Fishery Management Council’s Atlantic Herring Fishery Management Plan does the same for incidental catch of RH/S in the Atlantic herring fishery. Together, the Atlantic mackerel and Atlantic herring fisheries (which sometimes overlap) account for most RH/S catch in federal waters and these amendments will allow the Councils to control catch to a predetermined level in the near future (the exact levels will be set in future actions) if implemented as expected.

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Also at the federal level, there are NMFS and USFWS representatives on the ASMFC's RH/S management board to assist with coordination. While not yet utilized for RH/S, under the Atlantic Coastal Fisheries Cooperative Management Act, the Department of Commerce has the authority to implement rules in the federal waters of the Exclusive Economic Zone (three to 200 miles from shore) to complement the ASMFC's fishery management plans, if there is no federal fishery management plan under the Magnuson-Stevens Act for the species of concern. Regulations are developed with the close cooperation of the ASMFC. Federal fisheries rules are implemented under the Magnuson Act.

NMFS is also currently evaluating whether river herrings (alewife and blueback) should be listed as endangered under the Endangered Species Act. A NMFS determination should be made soon but is not currently available. The impact of a listing is not entirely clear. One interpretation of a listing could be that such a listing would be a signal that Council involvement is necessary, while another interpretation could be that such a listing and the actions that would need to be taken as a result would preempt Council involvement and make Council involvement redundant. Once NMFS makes a listing determination then the ramifications of that determination will be evaluated.

NMFS has also published notice that they may revise the guidelines about what fishery stocks should be directly managed (National Standard 1 Guidelines) by Councils. This process is just beginning and any changes would be incorporated into the Amendment as appropriate.

MAFMC action and a recent lawsuit regarding Amendment 4 to the Atlantic Herring Fishery Management Plan appear likely to lead to some level of consideration by the New England Fishery Management Council of managing river herring stocks (and review of that consideration by NMFS), but the exact details and process are not entirely clear at this time.

Why is the Council proposing this action?

1. Given that past management of RH/S has not been successful in maintaining many RH/S stocks at high levels, the process of developing Amendment 15 will explore and seek to reveal whether the benefits of managing RH/S under the Magnuson Stevens Act and through the Council(s) justify the costs of doing so, in relation to the status quo management framework (summarized above) and the charge of the MSA to Councils to implement management plans for species in need of conservation and management (this charge is further detailed below).

2. In the most recent ASMFC river herring stock assessment, of the 24 river herring stocks for which sufficient data is available to make a conclusion, 23 were depleted relative to historic levels and one was increasing. The status of 28 additional stocks could not be determined because the time-series of available data was too short. Estimates of abundance and fishing mortality could not be developed because of the lack of adequate data. The "depleted" determination was used instead of "overfished" and "overfishing" because of the many factors that have contributed to

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the declining abundance of river herring, which include not just directed and incidental fishing, but likely also habitat issues (including dam passage), predation, and climate change. It is hard to decipher which factors may be driving river herring abundance trends but the assessment concluded that management actions to reduce total mortality are needed. There are no coast-wide reference points.

3. The most recent shad stock assessment report identified that shad stocks are highly depressed from historical levels. Of the 24 stocks of American and hickory shad for which sufficient information was available, 11 were depleted relative to historic levels, 2 were increasing, and 11 were stable (but still below historic levels). The status of 8 additional stocks could not be determined because the time-series of data was too short or analyses indicated conflicting trends. Taken in total, American shad stocks do not appear to be recovering. The assessment concluded that current restoration actions need to be reviewed and new ones need to be identified and applied. These include fishing rates, dam passage, stocking, and habitat restoration. There are no coast-wide reference points.

4. RH/S are caught incidentally in the directed MSB fisheries (mostly mackerel but somewhat also with longfin squid) and are sometimes retained and sometimes discarded. They are also caught in a variety of other state and federal, commercial and recreational fisheries, either as targeted species or incidentally. Amendment 14 estimated that the catch of shad and river herring by at-sea fisheries in 2009-2010 (the most recent years and of relatively good precision) probably totaled several million fish per year, which were mostly river herring and mostly caught with small mesh mid-water trawl gear (72%) but also with small mesh bottom trawl gear (24%). The mackerel and longfin squid fisheries use these gears and are known to interact with RH/S, though other fisheries do as well (e.g. Atlantic herring). Catches were roughly equal between Mid-Atlantic and New England waters. At-sea catches generally involve more juveniles than do in-river catches.

What actions are being considered by the Council?

1. MAFMC Management of RH/S

Council action could result in the stocks being managed under the Magnuson-Stevens Act (MSA), which governs the conservation and management of fish species within federal waters. The MAFMC could manage RH/S through a new RH/S FMP or by adding RH/S to the MSB FMP.

The MSA states the following regarding Council responsibilities: "...Each Council shall...for each fishery under its authority that requires conservation and management, prepare and submit to the Secretary (A) a fishery management plan..." Regarding Councils' authorities, MSA states: "The Mid-Atlantic Fishery Management Council shall consist of the States of New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia, and North Carolina and shall have authority over the fisheries in the Atlantic Ocean seaward of such States..." The MSA does contemplate Council management of anadromous species.

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If the Council directly managed RH/S under an FMP, then the required and discretionary provisions of the MSA would apply, as described below. These provisions could potentially assist in RH/S management and to the extent that execution of these provisions benefited RH/S populations, then this may argue for direct Council involvement. Higher RH/S populations could benefit commercial and recreational fishermen and associated communities if directed fishing is re-established, and could also provide additional ecosystem services (e.g. adding to the forage base). To the extent that these provisions are already being accomplished, then this may argue against Council involvement. Ultimately the Council will make a determination of whether RH/S require additional conservation and management that can be addressed through the provisions of the MSA.

Required MSA Provisions (paraphrased):

- contain the conservation and management measures necessary and appropriate for the conservation and management of the fishery to prevent overfishing and rebuild overfished stocks, and to protect, restore, and promote the long-term health and stability of the fishery*
- contain a description of the fishery;*
- specify the maximum sustainable yield and optimum yield from the fishery;*
- assess and specify domestic harvesting and processing capacities;*
- specify the pertinent fishery data which shall be submitted to NMFS;*
- consider and provide for temporary adjustments because of weather or other ocean conditions affecting the safe conduct of the fishery;*
- describe and identify essential fish habitat and minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat;*
- assess and specify the nature and extent of scientific data which is needed for effective implementation of the plan;*
- describe the likely effects of management measures on fishery participants and fishing communities;*
- specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished and also conservation and management measures to prevent overfishing or end overfishing and rebuild the fishery as appropriate;*
- assess the amount and type of bycatch occurring in the fishery and minimize bycatch to the extent practicable;*
- assess recreational release mortality and minimize such mortality to the extent practicable;*
- allocate any harvest restrictions or recovery benefits fairly and equitably among the commercial, recreational, and charter fishing sectors in the fishery; and*
- establish annual catch limits, and measures to ensure accountability.*

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Discretionary MSA Provisions (paraphrased):

- *require permits for vessels, operators, and processors;*
- *designate zones where, and periods when, fishing shall be limited;*
- *establish specified limitations which are necessary and appropriate for the conservation and management of the fishery on the-- (A) catch of fish (based on area, species, size, number, weight, sex, bycatch, total biomass, or other factors);(B) sale of fish; and (C) transshipment or transportation of fish ;*
- *establish gear or vessel restrictions;*
- *incorporate relevant fishery conservation and management measures of the coastal States nearest to the fishery and take into account the different circumstances affecting fisheries from different States and ports;*
- *establish limited access for the fishery or a limited access privilege system (catch share);*
- *require data submissions from fish processors;*
- *require that one or more observers be carried on board a vessel;*
- *assess and specify the effect which the conservation and management measures of the plan will have on the stocks of naturally spawning anadromous fish in the region;*
- *include harvest incentives for participants to lower bycatch;*
- *reserve a portion of catch for scientific research;*
- *include management measures in the plan to conserve target and non-target species and habitats, considering the variety of ecological factors affecting fishery populations; and*
- *prescribe such other measures as are determined to be necessary and appropriate for the conservation and management of the fishery.*

The Required and Discretionary Provisions for management plans in the MSA are aligned with the 10 National Standards for fishery management which state (paraphrased) that management shall generally : (1) Achieve optimum yield and prevent overfishing, (2) Be based on the best available scientific information, (3) Manage stocks as a unit (4) Make any allocations fair and equitable, (5) Consider efficiency but not have economic allocation as the sole purpose, (6) Allow for variations and contingencies, (7) Minimize costs and avoid duplication, (8) Consider fishing communities to provide for their sustained participation and to minimize adverse economic impacts, (9) Minimize bycatch, and bycatch mortality, and (10) Promote the safety of human life at sea.

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Management Coordination Approaches

Besides the mandatory and discretionary provisions of the MSA that would apply to MAFMC management, a critical question is what kind of coordination should occur between the Mid-Atlantic Fishery Management Council (MAFMC), the New England Fishery Management Council (NEFMC), the Atlantic States Marine Fisheries Commission (ASMFC) and its species management “Boards,” NMFS (the Northeast Regional Office and/or Northeast Fisheries Science Center), and/or any other potential management partners. The ASMFC currently holds the primary assessment and management responsibilities for RH/S and the MAFMC and NEFMC manage fisheries (especially Atlantic mackerel and herring) that interact with RH/S. Several existing coordination examples are described below.

JOINT MANAGEMENT BETWEEN MAFMC AND ASMFC

The four species below are jointly managed between the MAFMC and ASMFC in that the two entities or their committees meet together and there is a strong precedent in establishing matching management measures (though technically one entity is not legally bound to adopt the measures of the other). The stock assessment is conducted by NMFS for all four.

Bluefish – Managed with a joint FMP between MAFMC and ASMFC under Amendment 1. The ASMFC’s Board and MAFMC meet together annually in August to set specifications. The commercial quota is divided into state shares based on historical landings.

Summer Flounder – Managed with a joint FMP between MAFMC and ASMFC under Addendum XIX to Amendment 13. The Board and MAFMC meet annually in August and December for specifications and meet separately other times of the year as needed. Recreational measures are determined on an annual basis, since the early 2000 state-by-state measures have been set under conservation equivalency. The commercial quota is divided into state-by-state quotas.

Scup – Managed with a joint FMP between MAFMC and ASMFC under Amendment 14. The Board and MAFMC meet annually in August and December to set specifications and meet separately other times of the year as needed. Since 2004, the states of Massachusetts, Rhode Island, Connecticut, and New York have formed a northern region when setting their recreational regulations. This regional approach creates consistency between the states where fishermen from different states are often fishing alongside each other in the same waters. The Federal plan does not allow for conservation equivalency that the ASMFC plan allows.

Black Sea Bass – Managed with a joint FMP between MAFMC and ASMFC under Addendum XXI to Amendment 13. The Board and MAFMC meet annually in August and December to set specifications and meet separately other times of the year as needed. Recreational fishery management measures include the same combination of minimum size limits, bag limits, and fishing seasons set for the entire coast. For the last 2 years, states have implemented conservation equivalency for state waters only. The commercial quota is divided into state-by-state quotas annually under the ASMFC plan only. Specific management measures for the commercial fishery are set by each state.

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JOINT MAFMC/NEFMC AND COMPLEMENTARY WITH ASMFC

Spiny Dogfish – Managed with a joint FMP between the MAFMC (lead) and NEFMC for federal waters. There is a separate FMP for state waters through ASMFC, which tries to be complementary with the federal plans but has occasionally diverged. ASMFC and Council FMPs strive to promote stock rebuilding and management of the spiny dogfish fishery in a manner that is biologically, economically, socially, and ecologically sound. The Board and Councils do not meet typically together. NMFS implements one set of spiny dogfish regulations based on the two Councils' actions. The stock assessment is conducted by NMFS.

COMPLEMENTARY MANAGEMENT BETWEEN NMFS AND ASMFC

Coastal Sharks – Managed with a federal FMP by NMFS directly. ASMFC implemented a separate FMP to complement federal management actions. Prior to the ASMFC plan, shark management in state waters consisted of disjointed state-specific regulations. The ASMFC FMP also closed loopholes and allowed for joint specification setting throughout the entire Atlantic shark range.

What does the Council want to hear about?

Questions to Consider – The following are some of the issues the Council would like your input on:

- Is the existing management framework sufficient or insufficient? Why or why not?
- Could a Federal FMP improve or maintain the condition of RH/S stocks? Why or why not and how?
- Is the fishery 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
- Could an FMP resolve competing interests and conflicts among user groups?
- Are current Council efforts and planned measures (from Amendments 14 and 5 discussed above) sufficient or insufficient to address the incidental catch of RH/S in federal fisheries? If they are not sufficient, what other measures would appropriately address the issue?
- Can RH/S be effectively managed as a unit throughout its range in Federal waters or not, given that the scale of available information is on a river-by-river basis? If not then at what scale should management occur? How might the river run-by-river run variability of RH/S impact management?
- How would the current data limitations for RH/S impact management?

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- If the MAFMC ends up managing RH/S, are any of the following bases for management units appropriate?

- Biological - based on a stock(s) throughout its range.
- Geographic - based on an area.
- Economic - based on a fishery supplying specific product forms.
- Technical - based on a fishery utilizing specific gears or practices
- Social - based on fishermen as the unifying element
- Ecological - based on species/habitats that are associated in the ecosystem

-If the MAFMC ends up managing RH/S, management measures for RH/S may add management costs or may shift costs from one level of government to another, from one part of the private sector to another, or from the government to the private sector. Can you comment on any ways that costs of management may or should be redistributed or how they should be compared to any potential benefits?

-Are there specific approaches you believe should be taken in regards to how the MAFMC would implement the required provisions of the MSA if the MAFMC decides to directly manage RH/S stocks?

-Are there discretionary provisions of the MSA that you believe would be important or useful to include in terms of effective RH/S management if the MAFMC decides to directly manage RH/S stocks?

-If the MAFMC ends up managing RH/S, can the MAFMC and ASMFC fully accomplish management of RH/S throughout its range without doing a joint FMP with the NEFMC or not? Why or why not? How should the MAFMC coordinate management with other agencies?

What happens next?

The MAFMC will first gather information during the scoping period. If the MAFMC decides to move forward with Amendment 15, the MAFMC will develop a range of management alternatives to be considered and prepare an Environmental Impact Statement (EIS) to analyze the impacts of the management alternatives being considered as required by the National Environmental Policy Act (NEPA). The EIS would seek to analyze and answer the above questions in addition to other issues that arise during amendment development.

A draft EIS will be distributed for public review (see above timeline). During a 45-day public comment period which will include public hearings, the public may comment on any aspect of the draft EIS. Following a review of the comments, the MAFMC will then choose preferred management measures for submission with the Final EIS to the Secretary of Commerce for publishing of a proposed and then final rule, both of which have additional comment periods.

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***How do I
comment?***

For the purposes of scoping, you may attend any of the scoping meetings to provide oral comments, or you may submit written comments **by TBD**

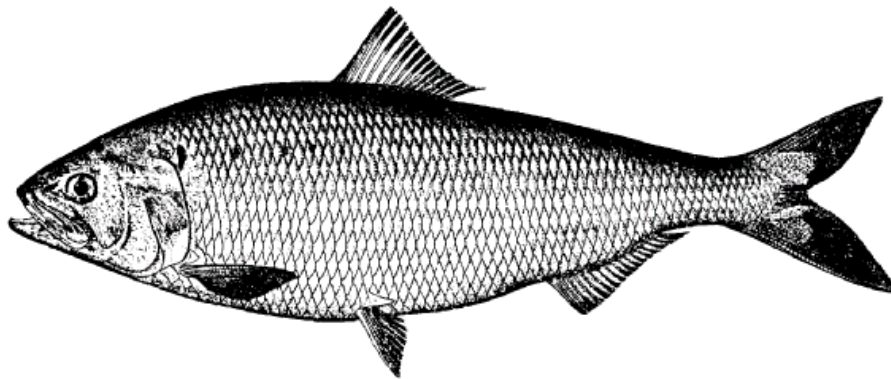
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Comments may also be sent via fax at the above fax number or by e-mail to info1@mafmc.org. Please note on any correspondence and in the subject line of e-mail comments the following identifier: "MSB Am15 Scoping Comments."

The public will be notified via the Federal Register of additional opportunities to comment later in the process, but again, this is the first and best opportunity for members of the public to raise concerns related to the scope of issues that will be considered via Amendment 15.

**REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR
SHAD AND RIVER HERRING (*Alosa spp.*)
2011**



October 2012

Shad & River Herring Plan Review Team

Kate Taylor, Atlantic States Marine Fisheries Commission (Chair)
Mike Hendricks, Pennsylvania Fish and Boat Commission
Cheri Patterson, New Hampshire Fish and Game Department
Karen Capossela, Maryland Department of Natural Resources
Corbett Norwood, South Carolina Department of Natural Resources

REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN FOR SHAD AND RIVER HERRING (*Alosa spp.*)

I. Status of the Fishery Management Plan

<u>Date of FMP Approval:</u>	October 1985
<u>Amendments:</u>	Amendment 1 (April 1999) Amendment 2 (August 2009) Amendment 3 (February 2010)
<u>Addenda:</u>	Technical Addendum #1 (February 2000) Addendum I (August 2002)
<u>Management Unit:</u>	Migratory stocks of American shad, hickory shad, alewife, and blueback herring from Maine through Florida
<u>States With Declared Interest:</u>	Maine through Florida, including the Potomac River Fisheries Commission and the District of Columbia
<u>Active Boards/Committees:</u>	Shad & River Herring Management Board, Advisory Panel, Technical Committee, Stock Assessment Subcommittee, Plan Review Team, Plan Development Team

The 1985 Fishery Management Plan (FMP) for Shad and River Herring was one of the very first FMPs developed at the ASMFC. In 1994, the Management Board determined that the original 1985 FMP was no longer adequate for protecting or restoring the remaining shad and river herring stocks. As a result, Amendment 1 was adopted in October 1998. Amendment 1 required specific American shad monitoring programs, and also recommended member states and jurisdictions to initiate fishery-dependent and fisheries-independent monitoring programs for river herring and hickory shad, in order to improve stock assessment capabilities. Furthermore, Amendment 1 contains specific measures to control exploitation of American shad populations while maintaining the status quo in other alosine fisheries. The amended goal of the FMP is to protect, enhance, and restore East Coast migratory spawning stocks of American shad, hickory shad, and river herring (collectively alewife and blueback herring) in order to achieve stock restoration and maintain sustainable levels of spawning stock biomass. The Plan further specifies four (4) management objectives as follows:

- 1) Prevent overfishing of American shad stocks by constraining fishing mortality below F_{30}
- 2) Develop definitions of stock restoration, determine appropriate target mortality rates and specify rebuilding schedules for American shad populations within the management unit
- 3) Maintain existing or more conservative regulations for hickory shad and river herring fisheries until new stock assessments suggest changes are necessary
- 4) Promote improvements in degraded or historic alosine habitat throughout the species' range

In the fall of 1999, the Technical Committee reviewed both state annual reports and fishing recovery plans. After doing so, the Technical Committee compiled a report that identified a number of technical errors requiring correction and/or clarification in Tables 2 and 3 of Amendment 1. Upon review by the Shad and River Herring Management Board, the Board concurred with the Technical Committee's report and suggested that a technical addendum be

developed to address modifications to the states' fishery-dependent and independent monitoring program for American shad. The Board approved Technical Addendum #1 to Amendment 1 of the Interstate Fishery Management Plan for Shad and River Herring.

In February 2002, the Plan Review Team and the Technical Committee recommended several changes to both Amendment 1 and Technical Addendum #1. The Management Board approved the changes and directed the Commission staff to develop an addendum to both Amendment 1 and Technical Addendum #1. Addendum I does the following: changes the conditions for marking hatchery-reared alosines; clarifies the definition and intent of *de minimis* status for the American shad fishery; and modifies and clarifies the fishery-independent and dependent monitoring requirements of Tables 2 and 3 of Technical Addendum #1. These measures went into effect on January 1, 2003.

In August 2009, the Shad and River Herring Management Board approved Amendment 2, which deals only with river herring management. The Amendment prohibits state waters commercial and recreational fisheries beginning January 1, 2012, unless a state or jurisdiction has a sustainable management plan reviewed by the Technical Committee and approved by the Management Board. 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 river herring fisheries meet this new definition of sustainability through the development of sustainability targets which must be achieved and maintained. Amendment 2 required states to implement fisheries-dependent and independent monitoring programs similar to current requirements for American shad, and contains recommendations to member states and jurisdictions to conserve, restore, and protect critical river herring habitat. Sustainable fishery management plans have been approved by the Management Board for Maine, New Hampshire, New York, North Carolina and South Carolina. A plan from Rhode Island is under review by the Technical Committee and will be considered for approval by the Board in October 2012.

In February 2010, the Shad and River Herring Management Board approved Amendment 3, which revised American shad regulatory and monitoring programs. 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. The Amendment requires similar management and monitoring as developed in Amendment 2. Specifically, Amendment 3 prohibits state waters commercial and recreational fisheries beginning January 1, 2013, unless a state or jurisdiction has a sustainable management reviewed by the Technical Committee and approved by the Management Board. 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. Sustainable fishing plans have been approved by the Management Board for Florida, Georgia, South Carolina, North Carolina, the Potomac River Fisheries Commission, and the Delaware River Basin Fish and Wildlife Management Cooperative (on behalf of New York, Delaware, New Jersey, and Pennsylvania). Plans from Virginia, Connecticut, and Massachusetts are currently under review by the Technical Committee and will be considered for approval by the Board in October 2012. All states and jurisdictions are also required to identify local significant threats to American shad critical habitat and develop a plan for mitigation and restoration.

II. Status of the Stocks

While the FMP addresses four species including American shad, hickory shad, alewife, and blueback herring, lack of comprehensive and accurate commercial and recreational fishery data for the latter three species make it difficult to ascertain the status of these stocks. A stock assessment for American shad was completed in 1997 and submitted for peer review in early 1998 based on new information and Management 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 August 2007. The 2007 assessment 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. Data limitations and conflicting data precluded the report from indicating much about the current status or trend of many of the stocks from North or South Carolina.

The 2007 report 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 metric tons, 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 a reduction of fishing mortality, enhancement of dam passage and mitigation of dam-related fish mortality, stocking, and habitat restoration.

A river herring stock assessment was completed in 1990 and looked at 15 river specific stocks. It concluded that five of the stocks were overfished and recruitment failure was apparent, and another four stocks were not overfished but had declined in recent years. In 2008, a new river herring stock assessment was initiated by the Management Board in response to concern over population decline and the impact of ocean bycatch. The stock assessment report concluded that, of the 52 stocks of alewife and blueback herring for which data were available, 23 were depleted relative to historic levels, one stock was increasing, and the status of 28 stocks could not be determined because the time-series of available data was too short. Estimates of abundance and fishing mortality could not be developed because of the lack of adequate data. The “depleted” determination was used instead of “overfished” and “overfishing” because of the many factors that have contributed to the declining abundance of river herring, which include not just directed and incidental fishing, but also habitat loss, predation, and climate changes.

III. Status of the Fisheries

American shad, hickory shad, and river herring formerly supported important commercial and recreational fisheries throughout their range. Fisheries are executed in rivers (both freshwater and saltwater), estuaries, tributaries, and oceans. Although recreational harvest data are scarce, most harvest is believed to come from the commercial industry. Commercial landings for all these species have declined dramatically from historic highs. Following is a summary of fisheries by species:

AMERICAN SHAD:

Total combined river and ocean commercial landings decreased from a high of 2,364,263 pounds in 1985 to a low of 1,390,512 pounds in 1999, but increased in 2000 to 1,816,979 pounds. The closure of the ocean-intercept fishery has lowered the coastwide total landings of American shad. The 2011 total landings reported in Compliance Reports from individual states and jurisdictions in 2011 was 642,535 pounds, which is a 14% increase from landings in 2010 (563,209 pounds).

Landings from North Carolina and South Carolina accounted for 32% and 59% of the commercial harvest, respectively, in 2011. The remainder of the harvest came from Connecticut, New Jersey, Delaware, PRFC, and Virginia. In 2011 Maine, New Hampshire, Massachusetts, Rhode Island, Pennsylvania, Maryland, DC and Florida reported no directed shad harvest in their state Compliance Reports.

Table 1. American shad in-river commercial and ocean bycatch landings (in pounds) provided by states, jurisdictions and the National Marine Fisheries Service for 2011.

	American Shad	River Herring	Hickory Shad
Maine		1,151,395	
New Hampshire		4,094	
Massachusetts			
Rhode Island			3,573
Connecticut	32,183		103
New York*	2,606	7,264	
New Jersey**	12,167	1,855	
Pennsylvania			
Delaware	8,683	300	22
Maryland		41,059	
D.C.			
PRFC^	4,434	1,672	
Virginia	470	26,278	4,540
North Carolina	204,085	1,611	85,096
South Carolina	377,907		
Georgia^^			
Florida			
Total	642,535	1,235,528	93,334

*New York shad landings are from ocean bycatch

**Includes in-river and coastal harvest

^PRFC shad landings includes 2,015 pounds discarded

^^Georgia landings are confidential

Substantial shad sport fisheries occur on the Connecticut (CT and MA), the Hudson (NY), the Delaware (NY, PA and NJ), the Susquehanna (MD), the Santee and Cooper (SC), the Savannah (GA), and the St. Johns (FL) Rivers. Shad sport fisheries are also pursued on several other rivers

in Massachusetts, Virginia, North Carolina, South Carolina, and Georgia. In 2011, recreational creel limits ranged from zero to 10 fish per day. The exception to this is the Santee River (SC), which is permitted to have a 20 fish per day creel limit due to the approval of a conservation equivalency plan in 2000. Tens of thousands of shad are caught by hook and line from large East Coast Rivers each year, but detailed creel surveys are generally not available. Actual harvest (catch and removal) may amount to only about 20-40% of total catch, but hooking mortality could boost this “harvest” value substantially. Several comprehensive angler use and harvest surveys are planned or have been recently completed. In October 2006, the Management Board suspended the requirement to monitor the recreational fishery.

As of 2009, MRFSS data are no longer provided for American shad. This is a result of the unreliable design of MRFSS that focuses on active fishing sites along coastal and estuarine areas. In previous years the proportional standard error (PSE) has ranged from 0-100.1

HICKORY SHAD:

Coastwide hickory shad landings have averaged 120,684 pounds from 2002-2011. During that time period North Carolina has accounted for, on average, 76% of total coastwide landings. In 2011, Rhode Island, Connecticut, Delaware, Virginia, and North Carolina reported hickory shad commercial landings. The coastwide commercial landings were 93,334 pounds in 2011, a 27% decrease from 2010 landings (128,098 pounds) (Table 1).

As of 2009, MRFSS data are no longer provided for hickory shad. This is a result of the unreliable design of MRFSS that focuses on active fishing sites along coastal and estuarine areas. In previous years the proportional standard error (PSE) has ranged from 0-100.1

RIVER HERRING (BLUEBACK HERRING/ALEWIFE COMBINED):

Commercial landings of river herring declined 95% from over 13 million pounds in 1985 to about 700 thousand pounds in 2005. In 2011, river herring landings were reported from Maine, New Hampshire, New York, New Jersey, Delaware, Maryland, the Potomac River Fisheries Commission, Virginia, North Carolina, and South Carolina, totaling 1,235,528, a 40% decrease from 2010 (2,052,601 pounds). The majority of the landings (93%) were reported by the state of Maine (Table 1).

As of 2009, MRFSS data are no longer provided for river herring (alewife or blueback herring). This is a result of the unreliable design of MRFSS that focuses on active fishing sites along coastal and estuarine areas. In previous years the proportional standard error (PSE) has ranged from 0-100.1

IV. Status of Research and Monitoring

Under Amendment 2 (2009) and Amendment 3 (2010), fishery-independent and fishery-dependent monitoring programs are now mandatory for American shad and river herring. Juvenile abundance index (JAI) surveys, annual spawning stock surveys (Table 2), and hatchery evaluations are required for states and jurisdictions. All States are required to calculate mortality and/or survival estimates, and monitor and report data relative to landings, catch, effort, and bycatch. States must submit annual reports including all monitoring and management program requirements, on or before July 1 of each year.

Table 2. American shad and river herring passage counts at select rivers along the Atlantic Coast in 2011.

State/River	Shad	River Herring
Maine		
Androscoggin	0	54,886
Saco	3341	39,597
Kennebec	12	37,846
Sebasticook	54	2,751,473
St. Croix		25,124
New Hampshire		
Coheco		43,090
Oyster		4,755
Lamprey		50,447
Exeter		256
Taylor		59
Winnicut		72
Massachusetts		
Merrimack	13,835	
Rhode Island		
Gilbert Stuart		64,500
Nonquit		30,126
Buckeye Brook		50,517
Pennsylvania/Maryland/Delaware		
Susquehanna (Conowingo)	23,645	
Susquehanna (Holtwood)	21	
Lehigh (Easton)	558	
Schuykill	3366	
South Carolina		
St. Stephen Dam	262,961	
Total 2011	307,793	3,152,748
Total 2010	425,403	343,883

In addition to the mandatory monitoring requirements stipulated under Amendments 2 and 3, some states and jurisdictions continue important research initiatives for these species. For example, Maine, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, and USFWS are actively involved in shad restoration using hatchery-cultured fry and fingerlings. All hatchery fish are marked with oxytetracycline marks on otoliths to allow future distinction from wild fish. During 2010, several jurisdictions from Maine to North Carolina (including USFWS) reared American shad, hickory shad, and alewife, stocking a total of 12,462,571 American shad and 1,936,186 alewife (Table 3).

Table 3. Stocking of Cultured Alosines in State Waters, 2011.

State	American Shad	Alewife
Maine		
Androscoggin		46,644
Kennebec		1,737,667
Union River		151,875
Massachusetts		
Merrimack	1,000,000	
Charles River	900,000	
Pennsylvania		
Susquehanna	3,053,000	
Lehigh	473,366	
Schuykill	643,361	
Maryland		
Choptank	1,936,422	
North Carolina		
Roanoke River	4,457,149	
Total	12,462,571	1,936,186

V. Status of Management Measures

All state programs must implement commercial and recreational management measures or an alternative program approved by the Management Board. The current status of each state's compliance with these measures is provided in the PRT Report.

As noted in Section I, the Management Board determined that the original Plan and its lack of mandatory measures were insufficient for protecting and restoring alosine stocks along the East Coast. Accordingly, the 1985 fishery management plan was amended in 1999. The Plan Development Team developed Amendment 1 to expedite recovery of American shad populations and maintain current regulations in the hickory shad and river herring fisheries. In addition, the Management Board voted to phase out all ocean intercept fisheries for American shad within five years of Amendment 1 implementation. All states have closed their ocean-intercept fisheries as of January 1, 2005. For recreational fisheries, the states voted to implement a 10 fish combined daily creel limit for American and hickory shad. In October of 2000, the Board approved a 10 fish per day creel limit (combined American and hickory shad) for all waters of South Carolina except the Santee River, which will have a 20 fish, combined daily limit.

In 2009 the Board approved Amendment 2, which was initiated in response to concerns over river herring stock. The Amendment prohibits state waters commercial and recreational fisheries beginning January 1, 2012, unless a state or jurisdiction has a sustainable management plan reviewed by the Technical Committee and approved by the Management Board and requires states to implement fisheries-dependent and independent monitoring programs. The monitoring requirements in Amendment 2 go into effect January 1, 2010. Sustainable fishery management plans have been approved by the Management Board for Maine, New Hampshire, New York, North Carolina and South Carolina.

In 2010, the Board approved Amendment 3, which revised American shad regulatory and monitoring programs 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. The Amendment requires similar management and monitoring as developed in Amendment 2, specifically the development of a Sustainable Fishing Plan for any jurisdiction that will maintain a commercial or recreational fishery after January 1, 2013 (with the exception of catch and release recreational fisheries). The monitoring requirements under Amendment 3 go into effect January 1, 2011. Sustainable fishing plans have been approved by the Management Board for Florida, Georgia, South Carolina, North Carolina, the Potomac River Fisheries Commission, and the Delaware River Basin Fish and Wildlife Management Cooperative (on behalf of New York, Delaware, New Jersey, and Pennsylvania).

V. Prioritized Research Needs

High Priority

- Continue to assess current aging techniques for American shad and river herring, using known age fish, scales, otoliths, and spawning marks. Conduct biannual aging workshops to maintain consistency and accuracy of aging fish sampled in state programs.
- Determine and update biological benchmarks used in assessment modeling (fecundity at age, mean weight at age for both sexes, partial recruitment vector/maturity schedules) for American shad and river herring stocks in a variety of coastal river systems, including both semelparous and iteroparous stocks.
- Validate the different values of M for shad stocks through verification of shad aging techniques and repeat spawning information and develop methods for calculating M .
- Investigate the relation between juvenile production and subsequent year class strength in American shad with emphasis on the validity of juvenile abundance indices, rates and sources of immature mortality, migratory behavior of juveniles, natural history and ecology of juveniles, and essential nursery habitat in the first few years of life.
- Evaluate additional sources of mortality for shad, including bait and reduction fisheries.
- Conduct population assessments on river herrings—particularly needed in the south.
- Determine which stocks are impacted by mixed stock fisheries (including bycatch fisheries). Methods to be considered could include otolith microchemistry, oxy-tetracycline otolith marking, and/or tagging.
- Evaluate predation by striped bass as a factor of mortality for alosines.
- Evaluate fish passage efficiency at all fishways.
- Conduct studies to improve fish passage design criteria.
- Quantify fishing mortality (in-river, ocean bycatch, bait fisheries) for major river stocks after ocean closure of directed fisheries.

Medium Priority

- Identify ways to improve fish passage efficiency using hydroacoustics to repel alosines or pheromones or other chemical substances to attract them. Test commercially available acoustic equipment at existing fish passage facility to determine effectiveness. Develop methods to isolate/manufacture pheromones or other alosine attractants.
- Develop effective culture and marking techniques for river herring.
- Develop and implement techniques to determine shad and herring population targets for tributaries undergoing restoration (dam removals, fishways, supplemental stocking, etc.).

- Evaluate and ultimately validate large-scale hydroacoustic methods to quantify American shad escapement (spawning run numbers) in major river systems. Identify how shad respond (attract/repelled) by various hydroacoustic signals.
- Refine techniques for tank spawning of American shad. Secure adequate eggs for culture programs using native broodstock.
- Develop comprehensive angler use and harvest survey techniques for use by Atlantic states to assess recreational fisheries for American shad.
- Determine the effects of passage impediments on all life history stages of shad and river herring, conduct turbine mortality studies and downstream passage studies.
- Conduct studies on energetics of feeding and spawning migrations of shad on the Atlantic coast.
- Encourage university research on hickory shad.
- Conduct studies of egg and larval survival and development.
- Suggest hard limits and range levels for water quality deemed appropriate and defensible for all alosines.

Low Priority

- Review studies dealing with the effects of acid deposition on anadromous alosines.
- Characterize tributary habitat quality and quantity for Alosine reintroductions and fish passage development.
- Identify and quantify potential American shad spawning and rearing habitat not presently utilized and conduct an analysis of the cost of recovery.
- Conduct and evaluate historical characterization of socio-economic development (potential pollutant sources and habitat modification) of selected shad rivers along the east coast.
- Development of appropriate Habitat Suitability Index Models for alosine species in the fishery management plan. Possibly consider expansion of species of importance or go with the most protective criteria for the most susceptible species.

VII. Current State-by-State Implementation of Compliance Requirements

Upon review of the state annual reports, the PRT has determined that all states have fully implemented the required provisions of Amendments 2 and 3 to the Shad and River Herring Fishery Management Plan. The PRT notes, however, that some states were not able to complete the required fishery independent monitoring due to budgetary restrictions.

Maine, New Hampshire and Massachusetts have requested *de minimis* status for the 2011 American shad fisheries. These states continue to meet the standards for commercial *de minimis* as defined in Amendment 1 and clarified in Addendum I. Qualification for *de minimis* status was calculated by using the highest reported landings for 2011 based upon data from the 2012 State Compliance Reports. The following states had landings that were reported to be less than 1% of the coast-wide commercial landings for American shad: Maine, New Hampshire, Massachusetts, Rhode Island, New York, Pennsylvania, Maryland, PRFC, D.C., Virginia, and Florida.

VIII. Recommendations of Plan Review Team

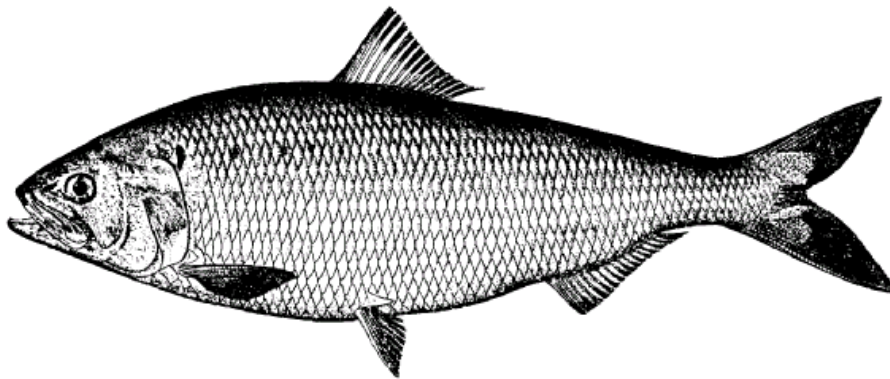
1. Several of the states did not report all of the monitoring requirements listed under Amendments 2 and 3. The states should take note of the required monitoring programs

that were not reported and make concerted effort to report all monitoring programs in forthcoming annual reports. The most common omissions were: variance, length frequency, age frequency and degree of repeat spawning.

2. The PRT requests that all states check with law enforcement agencies and their freshwater counterparts when reporting poaching, bycatch or other losses.
3. The PRT requests that for those states and jurisdictions that share monitoring should report who was responsible for the required monitoring in lieu of not including the information.
4. The PRT requests the Board task the TC with review of the following:
 - a. Provide a spreadsheet on how to accurately determine that variance.
 - b. A study on the CT sampling methods in order to determine if the sampling of the fishway does in fact yield equivalent results to sampling of the commercial fishery and also to propose a timeframe for future review of this method.
 - c. A study on the minimum sample size recommended in a survey design and calculation of mortality rates.
 - d. A consistent definition of a repeat spawner mark
 - e. Standardization of the length frequency reporting

Atlantic States Marine Fisheries Commission
Report to the American Shad and River Herring Management Board

**2012 REVIEW OF SHAD & RIVER HERRING
ANNUAL STATE COMPLIANCE REPORTS
FOR 2011 FISHING YEAR**



October 2012

Shad & River Herring Plan Review Team

Kate Taylor, Atlantic States Marine Fisheries Commission (Chair)
Mike Hendricks, Pennsylvania Fish and Boat Commission
Karen Capossela, Maryland Department of Natural Resources
Cheri Patterson, New Hampshire Fish and Game Department
Corbett Norwood, South Carolina Department of Natural Resource

REVIEW OF SHAD AND RIVER HERRING ANNUAL COMPLIANCE REPORTS

INTRODUCTION

In accordance with the Shad and River Herring Fishery Management Plan, the states are required to submit an annual compliance report by July 1st of each year. The Plan Review Team reviewed all state reports for compliance with the mandatory measures in Amendments 2 (River Herring) and 3 (American shad). The following report provides an evaluation of each state program.

STATE-BY-STATE REVIEW

MAINE

De minimis

- The state of Maine requests *de minimis* for the commercial fishing year 2012 in the American shad fishery.

Comments or trends highlighted in state report:

- American shad recreational catch estimates = 4,295 fish and 0 harvest (MRIP).
- VTR reports estimate 8,683 pounds of shad discarded (primarily from gillnets) as bycatch. Fishermen reporting indicate 536 pounds sold while dealer reporting lists 6 pounds bought.
- The highest CPUE for juvenile shad since 1979 was recorded in the Abagadsset River (more than 3x previous highest value). Above average CPUEs occurred in Eastern River, Cathance River, and Merrymeeting Bay.
- 1,151,395 pounds of river herring reported caught by towns. Fisheries dependant sampling not available.
- MRIP estimates for blueback herring = 2,212 caught/harvested and alewife = 13,368 caught and 5,922 harvested.
- JAI CPUE for alewife was below average for every river except Androscoggin and Abagadasset Rivers. No river had an above average BB JAI CPUE.
- River herring run counts were above average for Saco, Androscoggin and Sebasticock Rivers and below average in the Kennebec and St. Croix Rivers.

Unreported information / Compliance Issues:

- There are not enough shad to conduct reliable mortality estimate. The PRT recommends using Chapman-Robson, Heineken, or catch curve analysis to produce estimates for future years.
- River herring JAI variance was not reported and shad JAI variance was not reported.
- River herring repeat spawning were not reported. If not possible to determine mortality rate, specify.
- Need to update text with requirements of Amendments 2 and 3.

Sturgeon bycatch report:

- There was no known bycatch of Atlantic or shortnose sturgeon within the recreational fishery.

NEW HAMPSHIRE

De minimis:

- The state of New Hampshire requests *de minimis* for the commercial fishing year 2012 for the American shad fishery.

Comments or trends highlighted in state report:

- River herring SFMP target met for 2011 – exploitation rate <20% (13%) and returns >72,293 fish (99,338 fish).
- 4,094 pounds river herring estimated landed from federal fisheries (NMFS)
- Recreational harvest estimates for river herring were 4,083 pounds through the NHF&G harvest permit and 12,539 pounds through MRIP.
- A few tickets were issued for harvest of river herring on closed days.
- Since 2007 JAI for alewife and blueback herring have been declining.
- Returns on the Oyster River were lowest on record since 1985. Returns in the Cocheco River were the highest since 2004.

Unreported information / Compliance Issues:

- Degree of repeat spawning data for American shad and river herring was not reported.
- Not possible to determine mortality rate due to low numbers of shad.
- Mean length but not length frequency was reported for American shad and river herring.
- Did not report variance for river herring
- Need to update reporting requirements with Amendments 2 and 3

Sturgeon bycatch report:

- No protected species were reported taken as bycatch from New Hampshire’s coastal harvest program.

MASSACHUSETTS

De minimis:

- The Commonwealth of Massachusetts requests *de minimis* for the commercial fishing year 2011.

Comments or trends highlighted in state report:

- Dealer reporting = 215 pounds of shad landed by otter trawl.
- MRIP estimates = 3,648 shad caught with 0 harvest.
- 6 violations were issued in 2011 for river herring illegal possession.
- Since the implementation of this project on October 1, 2010 *Marine Fisheries* has sampled 11 of the 13 vessels that have landed in Massachusetts ports, and approximately 160 out of 298 trips. Monthly coverage rates have varied between 36% and 81%, with a maximum of 28 trips sampled in the most active fishing month, January 2012. Two months with low effort (one and two trips landed) were sampled at 100%. In November 2011, a group of small mesh bottom trawl herring fishermen from Rhode Island reached out to *Marine Fisheries* and SMAST, seeking inclusion into the river herring bycatch avoidance project.

Unreported information / Compliance Issues:

- **JAI survey information was not available/completed for shad or river herring.**
- Degree of repeat spawning was not given for river herring.
- Need to update reporting requirements with Amendments 2 and 3.
- Mean length and age were reported instead of length and age frequency.
- Did not follow the specified format.

Sturgeon bycatch report:

- No sturgeon interactions were reported in 2011.

RHODE ISLAND

Comments or trends highlighted in state report:

- 50,517 river herring were counted at the Buckeye Brook fishway, the highest number ever recorded.
- River herring recruitment failure since 2008 on the Pawcatuck River.

Unreported information / Compliance Issues:

- Sex was not available for shad or river herring due to changes in sampling staff which has been corrected in 2012.
- Needs to follow format as specified in Amendments 2 and 3.
- Need to update reporting requirements with Amendments 2 and 3.

Sturgeon bycatch report:

- During the trawl and gillnet surveys 15 Atlantic sturgeon were caught and released.

CONNECTICUT

Comments or trends highlighted in state report:

- The preliminary 2011 landings are 32,183 pounds (6,725 fish) of American shad from drift gillnets through fishermen catch reporting.
- Number of shad lifted at Holyoke was highest number since 2003 (244,000).
- CT River population estimated at 387,000 American shad.
- Spawning stock 70/30 male:female, dominated by 4 year olds.

Unreported information / Compliance Issues:

- 17,000 pounds reported recreationally caught in Table 1, but not referenced in text?
- 255 pounds reported for research losses but not reported in text.
- Need to update reporting requirements with Amendments 2 and 3.
- Unable to assess river herring spawning stock due to lack of samples.
- River herring JAI variance not reported.
- River herring scales have been pressed but have not been aged yet.
- Length range provided but not frequency for both shad and river herring.

Sturgeon bycatch report:

- A total of 16 sturgeons (species unclassified) were reported as caught and released by shad fishermen in 2011.

NEW YORK

Comments and trends highlighted in state report:

- Commercial and recreational shad fishery closed in 2010. A total of 2,606 pounds were reported as landed bycatch.
- Shad mortality rates increasing since 2007.
- High water from Hurricane Irene and Lee “redistributed fish” in Hudson River
- Mandatory reporting of river herring harvest = 7,264 pounds landed in Hudson River.
- 6,125 pounds bycatch of river herring reported through ACCSP.

- River herring spawning stock survey – 51:49 male:female alewife and 42:58 male:female blueback herring.

Unreported Information / Compliance Issues:

- The 2011 shad scale samples are being aged; Did not report repeat spawning; NY repeatedly reports information will be presented when aging is completed, but does not do so.
- Creel survey not conducted in 2011.
- No herring have been aged.
- River herring mortality rate not provided.
- Provided mean length (fisheries dependent) but not length frequency for river herring

Sturgeon bycatch report:

- No data collected due to fishery closure.

NEW JERSEY

Comments or trends highlighted in state report:

- 113 pounds shad reported landed through mandatory commercial logbooks. This was the lowest of the time series. Virtually no effort since directed fishery in coastal waters was closed.
- 30 pounds shad estimated landed from ocean bycatch.
- 42 pounds shad estimated landed via trawl (illegal).
- Hatchery contribution for Lehigh River adult shad was 56%, the lowest recorded in the series. It is clear that successful shad restoration will not be possible on the Lehigh River unless fish passage can be significantly improved.

Unreported Information / Compliance Issues:

- No recreational information provided for river herring.
- Need to include more information on river herring.

Sturgeon bycatch report:

- None (see Delaware Cooperative).

PENNSYLVANIA

Comments or trends highlighted in state report:

- Maintenance problems with Holtwood Dam and passage at Conowingo terminated on May 20th – passage numbers are low and considered unreliable.
- 40% hatchery contribution for shad in Susquehanna River.
- No commercial fishery for shad or river herring on Susquehanna; Recreational fishery prohibited in 2011 for river herring; no recreational fishery for shad in Susquehanna.

Unreported Information / Compliance Issues:

- River herring spawning stock not sampled due to low numbers.
- Refer to all tables in the text and briefly discuss.

DELAWARE BASIN F&W COOPERATIVE

Comments or trends highlighted in state report:

- Commercial landings of American shad in the Delaware Estuary and Bay as reported to New Jersey in their directed fishery (12,054 pounds) decreased to the lowest level since initiation of mandatory reporting in 2000. Landings have dropped off considerably since 2008, but increased

in 2011 for both the Upper Bay/River and the Lower Bay. Effort has also dropped in recent years with the 2011 total effort 76% less than in 2005.

- Landings of American shad as bycatch in their striped bass fishery reported to Delaware increased in 2011 (8,682.7 pounds) compared to the previous year (2,276 pounds).
- Catch-per-unit-of-effort was highest for American shad anchored gill nets in the Delaware Bay and lowest for drift gill nets in the Delaware River.
- The trend in the trawl YOY shad relative abundance continued to increase to levels last observed in the mid-1990's. Estimation of YOY shad relative abundance in New Jersey's beach seine for American shad in 2001 was 8.18 (geometric mean), which was the 7th highest value of the time series (1980-2011).
- The 2011 Lewis Haul Seine river herring adult index (2.00) drastically decreased since 2010 and was well below the time series mean of 9.75.
- Adult American shad abundance in the Delaware River appeared to increase in 2011, based on gill net CPUE (14.4 shad/foot-hr) at Smithfield Beach (RM 218). The Smithfield Beach CPUE value was the 5th highest value of the time series (1990 – 2011).
- Commercial catches of river herring were 1,855 pounds and 300 pounds in New Jersey and Delaware, respectively. This represents an increase from the previous year.
- The abundance (geometric mean) of for YOY alewife (0.63) during the Delaware's trawl survey has been trending upward since 2008 (0.01); whereas, Age 1 alewife abundances (2011: 0.04) vary without any trend. Production of juvenile blueback herring and alewife recruitment (geometric means) in New Jersey's beach seining for 2011 remained below long-term (1980 - 2011) averages.
- (7.97) ranked 15th in the 32-year time series and remained below average (10.18) for the tenth year in a row. The index shows a serious decline in the overall health of the blueback herring stock within the river and tributaries. Alewife recruitment for 2011 (0.19) was also below the time series average (0.37) and ranked 16th in the time series. Despite being the highest index in four years, the low number remains a cause of concern.
- Recreational creel regulations for American shad in the Lehigh and Schuylkill rivers however are expected to become catch and release only by January 1, 2013.
- A tidal benchmark was developed based on data from 1987-2010 and is defined as an annual geometric mean JAI value of 2.83 (i.e., the 25th percentile where 75% of values are higher). Three consecutive years with a JAI lower than the benchmark will trigger management action. The 2011 tidal JAI was estimated at 8.18, which is above the benchmark.
- The Smithfield beach benchmark was developed based on data from 1990-2011 and is defined as an annual mean of 34.79 (i.e., the 25th percentile where 75% of values are higher). Three consecutive years with values lower than the benchmark will trigger management action. In 2011, the Smithfield Beach CPUE was estimated at 72.08 shad/net-hr*10,000, which is well above the benchmark. Estimates of the 2011 CPUE rank as the fifth highest since the inception of collections in 1990.
- A Ratio Commercial Harvest to Smithfield Beach benchmark was developed based on data from 1990-2010 and is defined as a value of 27.79 (i.e., the 85th percentile where 15% of values are higher). Three consecutive years with values higher than the benchmark will trigger management action. The 2011, the ratio was estimated at 1.75, which is well below the benchmark.
- One interesting obstacle in passing river herring is the strong presence of flathead catfish in the fishway chambers, predated on river herring as they enter the fishway.

Unreported information / Compliance Issues:

- JAI variance was not reported for American shad.

Sturgeon bycatch report:

- According to voluntary logbooks collected from New Jersey commercial shad fishers there was one Atlantic sturgeon caught as bycatch, released alive, during 2011 in Delaware Bay. This number is an underestimate of the total interactions with commercial shad gill netters throughout the state.

MARYLAND

Comments or trends highlighted in state report:

- Bycatch of 2 fish/day of day shad allowed from pound/fyke net perch catfish fishery in upper Chesapeake Bay; no sale permitted and no reporting mechanism.
- Catch and release mortality estimated at 144 shad.
- No trend in Nanticoke and Patuxent Rivers shad JAI; increasing in Upper CB and Potomac River.
- Choptank River 96% hatchery origin.
- Susquehanna River population estimated at 103,500 shad.
- 41,059 pounds river herring estimated landed.
- Alewife JAI CPUE decreased and remains low; Blueback JAI CPUE increasing and high in some systems.
- Of the 135 adult American shad otoliths collected from the WFL at Conowingo Dam in 2011, 61.5% were classified as non-hatchery fish. Of the scales sent to Delaware from the Maryland portion of the Nanticoke River 84.2% were non-hatchery fish. In the Choptank River, 96% of juvenile American shad were hatchery fish.

Unreported / Compliance Issues:

- No spawning stock data for river herring collected in 2011; program currently being developed. Pilot study conducted in 2012, will continue for 2013.

Sturgeon bycatch report:

- The Atlantic sturgeon bycatch for Maryland's American shad ocean intercept fishery was zero since this fishery was closed in 2005.

DISTRICT OF COLUMBIA

Comments or trends highlighted in state report:

- River herring recreational catch limited to dip net only in 2011; fishery closed in 2012.
- Number of blueback herring YOY collected was highest on record (105k – double previous year).
- Third highest CPUE for adult alewife and highest since 2003.
- Second lowest adult CPUE for blueback herring.
- Alewife – 87% male and 13% female; blueback herring – 6% male and 34% female.

Unreported information / Compliance Issues:

- No ageing has been done for American shad or river herring, thus age frequency, degree of repeat spawning and mortality estimates have not been reported.
- **Did not include information on shad spawning stock survey?**
- Need to update with requirements for Amendments 2 and 3.

Sturgeon bycatch report:

- There were no documented sturgeon captures reported in the District of Columbia during 2011.

POTOMAC RIVER FISHERIES COMMISSION

Comments or trends highlighted in state report:

- The PRFC established a moratorium on river herring for recreational and charter fishing.
- In 2011, it became mandatory for pound netters to properly install six PRFC approved fish cull panels in the sides of their pound nets. Studies have shown that small fish are released alive when the fish cull panels are used.
- The commercial harvest of river herring (blueback herring and alewife) was closed to all gear except pound nets, which were allowed a bycatch of 50-pounds per day.
- The commercial fishery landed 1,672 pounds of river herring; 8% alewife and 92% blueback herring; Effort = 23 pound net fishing days.
- The commercial fishery landed 2,419 pounds of shad and discarded 2,015 pounds as reported through the mandatory reporting system; 90% row shad and 10% buck shad; Effort = 77 pound net fishing days.
- There has been a significant decline in effort in 2011.
- USFWS collected 368 shad, 409 shad collected by ICPRB (stocked back 488,000 fry) and MDNR collected 1,156 shad from the Potomac River.
- Alewife and Blueback JAIs increased from 2010.
- Shad JAI increased from 2010.
- Shad $z = 0.96$.

Unreported information / Compliance Issues:

- JAI variance was not reported. JAI graphs were not updated with 2011 numbers.

Sturgeon bycatch report:

- In 2010, there were nine live Atlantic sturgeon caught by commercial fishermen in the Potomac River and reported to the USFWS. All of the fish were kept by Maryland DNR.

VIRGINIA**Comments or trends highlighted in state report:**

- 470 pounds shad bycatch reported through mandatory reporting database; Tribal shad harvest occurring by the Mattiponi and Pamunkey tribes.
- 26,278 pounds river herring reported through mandatory reporting database (59% alewife, 1% blueback and 40% unclassified herring) for 283 trips (84% gillnet and 16% pound net).
- Second highest shad JAI on the Rappahannock (seine survey); Seine survey on the James River shows measurable recruitment in recent (2006 – 2011) years.
- 2011 JAI alewife below 2010 JAI for all rivers; In James and York it was the lowest since 2006 and in Rappahannock it was the lowest since 1995. JAI for blueback were lower than in 2010 on all three rivers; on James and Rappahannock lowest since 2003 and on the York it was the lowest since 2007.
- Shad age and lengths slightly lower in all rivers than observed in 2010.
- York River shad catch index has been trending downward in close to all time lows.
- James River second highest catch index in 14 years time series but still below peak catches in 1980s.
- Current reductions in stocking will continue to occur due to funding issues.
- Shad hatchery evaluation (percent hatchery fish) – James: 39%, York 32% and Rappahannock 2%.

Unreported information / Compliance Issues:

- Due to lack of available funding, the annual spawning stock survey, biological sampling, and resulting calculation of mortality and/or survival estimates were not performed in 2011 for river herring. This is expected to continue through 2012.

Sturgeon bycatch report:

- Sturgeon is taken as bycatch in the staked gill nets used to monitor abundance of adult American shad in three rivers: the James, York and Rappahannock. The number of Atlantic sturgeon captured in the James River in 2009 was nine, the number from the Rappahannock River was one. All interactions occurred in the staked gill net fishery.

NORTH CAROLINA**Comments and trends highlighted in state report:**

- 204,085 pounds of shad were reported landed (\$182,844) through the trip ticket program primarily from gill nets (95%+).
- 20,604 pounds shad were reported landed through the recreational fishery.
- Juvenile shad catches have been consistently low since 1972.
- 1,611 pounds river herring reported through limited permit program.
- Blueback JAI remained low and declining; 4th lowest in time series (1972 – 2011).
- Alewife JAI remained low.

Unreported information / Compliance Issues:

- JAI variance was not reported for river herring and American shad.
- Repeat spawning and mortality rate calculation are not available.
- Need to update reporting requirements with Amendments 2 and 3.
- Sampling information from hook and line fishery referenced but not provided? (page 11)
- Hickory shad data was not included.

Sturgeon bycatch report:

- Did not provide information.

SOUTH CAROLINA**Comments and trends highlighted in state report:**

- 377,017 pounds shad reported through NMFS (100% in-river); Table 1 reports 282,009 pound?
- Limited lift operations at St. Stephen Dam in 2011 passed 262,961 adult shad
- 9,204 pounds shad reported landed through recreational fishery.
- Fishermen not returning shad tags due to perception that returned tags = closed fishery.

Unreported information / Compliance Issues:

- Age frequency and annual mortality estimates not completed for river herring or American shad.
- Need to update reporting requirements with Amendments 2 and 3.
- Mean age for shad and river herring presented but not frequency.

Sturgeon bycatch report:

- Atlantics – 181 total with 95% from Santee and 5% from Savannah. Shortnose – 21 total with 3 from the Santee and 18 from Savannah. [Note: FD data only, from mandatory shad reports.]

GEORGIA**Comments and trends highlighted in state report:**

- In 2011 American shad commercial landing were confidential.
- A creel survey was not conducted in 2011.
- The population of American shad in the Altamaha River in 2011 was 277,824 shad and 144% increase from 2010 (estimated at 113,492 shad).
- Blueback herring remains low in comparison to American shad in the Altamaha and Savannah Rivers.

Unreported information / Compliance Issues:

- Need to update requirements for Amendment 3
- Need to report variance for JAI .
- Length frequency for spawning stock assessment not reported.

Sturgeon bycatch report:

- Atlantic and shortnose sturgeon are caught in gill nets. In drift nets, essentially 100% of the sturgeon can be released unharmed. During 16 field days of tagging adult shad in 2011, 12 Atlantic and 1 shortnose sturgeon were captured in drift gill nets. All sturgeon were released alive.

FLORIDA

Comments and trends highlighted in state report:

- Creel survey conducted for shad in 2011; 4,728 angler hours estimated with 5,022 fish caught including 198 fish which were released (included shad both targeted and caught as bycatch in the black crappie fishery).
- The JAI of shad increased through July in the upstream reach and remained low throughout the survey in the downstream reach indicating slow downstream movement. This pattern contrasted 2010 when the JAI CPUE for shad dropped to zero by July in the upstream index area and was high in the downstream in August.
- Hickory shad and blueback herring were present in the spawning stock survey but not abundant.

Unreported information / Compliance Issues:

- Required river herring monitoring (Annual spawning stock survey and representative sampling for biological data, Calculation of mortality and/or survival estimates, JAI: Juvenile Abundance Index) was not reported.

Sturgeon bycatch report:

- No netting is allowed for shad, so sturgeon bycatch is probably zero.