MID-ATLANTIC
FISHERY MANAGEMENT COUNCIL

Scoping Document for

Council Action on Unmanaged Forage Species

August 2015

What is Scoping?

Scoping is the process of identifying issues, potential impacts, and a reasonable range of alternatives associated with a management action being developed by the Council. **Scoping provides the first and best opportunity for the public to make suggestions and raise concerns about new Council actions.**

Your comments early in the development of this action will help the Council identify effective management alternatives and issues of concern.

The regulatory actions outlined in this document are not a list of preferred alternatives, nor are they measures that will necessarily be included in an action. No management measures have yet been analyzed for their effectiveness or impacts. All options will be considered by the Council at this early stage.

Please comment on which management measures may or may not be useful or practical (including measures not described in this document) and explain your reasoning. Please also comment on any other relevant issues the Council should consider as part of this proposed action.

Contents

List of Acronyms

ACL	Allowable Catch Limit
AM	Accountability Measure
ASMFC	Atlantic States Marine Fisheries Commission
B_{MSY}	Biomass at Maximum Sustainable Yield
EAFM	Ecosystem Approach to Fisheries Management
EC	Ecosystem Component
EFH	Essential Fish Habitat
EFP	Exempted Fishing Permit
FMP	Fishery Management Plan
MSY	Maximum Sustainable Yield
OY	Optimum Yield

1) Introduction

In December 2014 the Mid-Atlantic Fishery Management Council (the Council) voted to “initiate a regulatory action to prohibit the development of new, or expansion of existing, directed fisheries on unmanaged forage species until adequate scientific information is available to promote ecosystem sustainability". The Council has initiated a scoping process to solicit input from interested members of the public on the types of management measures which could effectively address this motion. The Council is seeking input on any relevant issues that should be considered as part of this action. Please see page 15 for instructions on how to provide oral or written comments on this action.

In December 2014, the Mid-Atlantic Fishery Management Council voted to “initiate a regulatory action to prohibit the development of new, or expansion of existing, directed fisheries on unmanaged forage species until adequate scientific information is available to promote ecosystem sustainability".

The Council is seeking public input on which types of management actions could most effectively address this motion.

Please see page 15 for instructions on how to provide comments.

The Council passed this motion with the intent of protecting the important ecological role that forage species play in the Mid-Atlantic. Forage species are small fish and invertebrates that are low on the food chain. They feed on smaller marine organisms such as plankton and are in turn eaten by many species of fish, sea birds, and marine mammals. Some forage species form dense aggregations and many have highly variable abundances over time. Forage species play an important role in sustaining the productivity and structure of marine ecosystems by facilitating the transfer of energy from the lowest levels of the food chain to higher levels. Recent scientific studies highlight the importance of forage species to marine ecosystems and suggest that these species warrant special considerations in fisheries management (e.g. Alder et al. 2008, Smith et al. 2011, Pikitch et al. 2012a, Pikitch et al. 2014).

The Council has identified forage species and their management as a key area of focus under its Ecosystem Approaches to Fisheries Management guidance document, which is currently in development (www.mafmc.org/eafm). The Council recognizes that an adequate biomass of forage species must be maintained to protect the structure and function of marine ecosystems, to

allow for abundant populations of Council-managed predators, and to support commercial and recreational fisheries.

Some forage species, including Atlantic herring, Atlantic menhaden, Atlantic mackerel, butterfish, longfin squid, and Illex squid, are the target of commercial and recreational fisheries in the Mid-Atlantic. These fisheries supply markets for human food, bait, and poultry and livestock feed. These fisheries are currently managed by the Mid-Atlantic Fishery Management Council, the New England Fishery Management Council, and the Atlantic States Marine Fisheries Commission (ASMFC) and will not be addressed by the management actions outlined in this document.

Many forage species are not currently subject to directed fisheries in the Mid-Atlantic region; however, increasing global demand for fishmeal, fish oil, and bait could encourage the development of new fisheries for these species. The Council is taking a proactive approach to protecting unmanaged forage species and the ecosystem services they provide. The Council has not yet determined which forage species it will address through this action; however, this action will not address species currently managed by the Mid-Atlantic, New England, or South Atlantic Fishery Management Councils or the ASMFC.

The Council has not yet determined which forage species will be addressed by this action.

This action WILL NOT address forage species that are currently managed by the New England, Mid-Atlantic, or South Atlantic Fishery Management Councils, or the Atlantic States Marine Fisheries Commission.

This action WILL NOT address alewives, blueback herring, American shad, Atlantic menhaden, or Atlantic mackerel.

2) Why is this action being proposed?

This action stems from the Council's recent efforts to move towards an ecosystem approach to fisheries management (EAFM). The Council defines EAFM as a fishery management approach which recognizes the biological, economic, social, and physical interactions among the components of ecosystems and attempts to manage fisheries to achieve optimum yield while taking those interactions into account. The Council formed an EAFM working group, which identified forage species and their management as a key area of focus as the Council moves towards EAFM (Clay et al. 2014).

In 2011 and 2012 the Council undertook a visioning and strategic planning process, which included extensive outreach to key stakeholder groups and the general public. Surveys, roundtable sessions, and position letters collected as part of this process revealed that forage species management is a key concern for many Council constituents (MAFMC 2012).

Other regional fishery management councils have set precedents for this action by implementing management actions to proactively protected forage species. For example, the Pacific Fishery Management Council (the Pacific Council) prohibited commercial harvest of all krill species in federal waters off Washington, Oregon, and California. The Pacific Council took this action to protect the important role that krill play as a food source for many marine species (PFMC 2008). The Pacific Council is also currently in the process of finalizing an amendment to all of their fishery management plans to prohibit commercial fishing for a suite of forage species (PFMC 2014).

3) Issues for consideration

The Council would like public input on all aspects of this action. The Council and Council staff have identified eight issues for consideration. These issues include consideration of:

1) The most appropriate type of management action;
2) The most effective provisions of such an action;
3) Which forage species to address;
4) The types of fishing to address;
5) The most appropriate geographic scope of the action;
6) Effective ways to prohibit the expansion of existing fisheries;
7) An appropriate process for allowing new fisheries to develop;
8) The ability of current scientific data and models to inform the action.

Each of these issues are described in more detail in later sections of this document. This is not meant to be an exhaustive list of all issues that should be considered as part of this action.

<u>Please provide comments on the appropriateness and effectiveness of the options outlined in this document, as well as suggestions for other alternatives for this action.</u>

a. What type of management action is most appropriate?

Council staff have identified three types of actions which could fully or partially address the motion to protect unmanaged forage species. These actions are:

Action A: Amend one or more of the Council's existing FMPs to include provisions for unmanaged forage species;

Action B: Develop a new FMP with provisions for unmanaged forage species;

Action C: Update the list of approved fisheries and gear types in the Code of Federal Regulations and address new fisheries for unmanaged forage species as they arise.

Action A: Amend one or more of the Council's existing FMPs to include provisions for unmanaged forage species

The Council may decide to amend one or more existing fishery management plans (FMPs) to prohibit the development of new, or expansion of existing, fisheries for unmanaged forage species. The Council could do so by designating a list of forage species as ecosystem component species, as stocks "in the fishery", or as components of Essential Fish Habitat. Each of these provisions are described later in this document.

The possible geographic scope of an amendment is an important issue when considering which FMP(s) the Council might amend. The geographic scope of an amendment can match the management unit of the FMP (i.e. the area to which the FMP applies) or it could apply to a portion of that management unit. Each of the Council's existing FMPs have different management units. This issue is discussed in more detail on page 14.

Please provide comments on the likely effectiveness of the management options described in this document.

Action B: Develop a new FMP with provisions for unmanaged forage species

The Council may decide to develop a new FMP with provisions for unmanaged forage species. If the Council were to take such an action, it could prohibit the development of new, or expansion of existing, fisheries for unmanaged forage species by designating a list of forage species as ecosystem component species, as stocks "in the fishery", or as components of Essential Fish Habitat. Each of these provisions are described later in this document.

The North Pacific Fishery Management Council took a comparable action when it developed an FMP to protect Arctic marine ecosystems by prohibiting commercial fishing in the Arctic. The Arctic FMP included three species as stocks in the fishery and set OY for all three species to zero. The FMP designated all other species as ecosystem component species (described on pages 9-10) and prohibited commercial harvest of those species (NPFMC 2009).

Initial analysis by Council staff suggests that development of a new FMP would be less efficient and would likely provide few additional benefits compared to an amendment to one or more existing FMPs.

As previously stated, however, the Council has not yet ruled out any alternatives and would like public input on the efficiency and effectiveness of all potential management measures.

Action C: Update the list of approved fisheries and gear types in the Code of Federal Regulations and address new fisheries for unmanaged forage species as they arise

All federally authorized fisheries and gear types for the Mid-Atlantic region are listed in the Code of Federal Regulations (50 CFR 600.725). If an individual intends to pursue a fishery or use gear that is not on this list, he or she must first notify the Council of this intent in writing. If the Council believes the new fishery or the use of the new gear would be detrimental to conservation and management efforts, the Council may take action to prohibit the new development through an emergency action, an FMP amendment, or development of a new FMP (50 CFR 600.747).

This list of approved fisheries and gear types currently includes three general categories of fisheries which may allow individuals to pursue fisheries for unmanaged forage species without first notifying the Council of their intent to do so (table 1).

Table 1: The fisheries and authorized gear types listed in 50 CFR 600.725 which limit the Council's ability to address new fisheries for unmanaged forage species as they develop.

Fishery	Authorized gear type
16. Coastal Gillnet Fishery (Non-FMP)	Gillnet
17. Recreational Fishery (Non-FMP)	Rod and reel, handline, spear, hook and line, hand harvest, bandit gear, powerhead, gillnet, cast net.
27. Commercial Fishery (Non-FMP)	Trawl, pot, trap, gillnet, pound net, dredge, seine, handline, longline, hook and line, rod and reel, spear.

The Council could request that NMFS update the list of approved fisheries and gear types to remove one or more of these general categories, or to remove only those gear types which could be used to target unmanaged forage species. This would ensure that individuals intending to target currently unmanaged forage species in federal waters first notify the Council of their intent to do so and would enable the Council to address these new fisheries on a case-by-case basis. This would not directly prohibit new fisheries, but would ensure that the Council has the opportunity to review the fisheries as they arise and take action to restrict their development if necessary. This action would not allow the Council to prevent the expansion of existing fisheries, thus it could not address the full intent of the December 2014 motion. In order to fully address the motion, this action could be taken in conjunction with another action such as an FMP amendment or the development of a new FMP.

b. What type of management provisions would be most effective?

If the Council were to pursue an FMP amendment or a new FMP, it could prohibit the development of new, or expansion of existing, fisheries for unmanaged forage species through one of three different management provisions, listed below. These provisions have been considered by the Council in preliminary discussions of this issue. They are not meant to be a comprehensive list of all possible ways to address the motion. Please provide comments on the appropriateness and effectiveness of the provisions described in this document, as well as suggestions for other alternatives for this action.

Provision A: Identify forage species as ecosystem component species and prohibit their directed harvest

Provision B: Identify forage species as stocks "in the fishery" and prohibit their directed harvest

Provision C: Define forage species as components of Essential Fish Habitat for one or more Council-managed predators

Provision A: Identify forage species as ecosystem component species and prohibit their directed harvest

The National Standard Guidelines allow Councils to designate ecosystem component (EC) species in fishery management plans (FMPs) for data collection purposes, as considerations in the development of conservation and management measures in Council-managed fisheries, and to address other ecosystem issues. To be designated as an EC species, a species or stock should: 1) be a non-target species, 2) not be subject to overfishing, not be overfished or approaching overfished, 3) not be likely to become subject to overfishing or overfished in the absence of conservation and management measures, and 4) not generally be retained for sale or personal use (50 CFR 600.310).[1] Many unmanaged forage species in the Mid-Atlantic would fit these criteria. (Please see pages 11-13 for more information on which species may be included in this action.)

Councils are not required to assess maximum sustainable yield (MSY), optimum yield (OY), or essential fish habitat (EFH), nor are they required to define status determination criteria, annual catch limits (ACLs), or accountability measures (AMs) for EC species, all of which are required under section 303a of the Magnuson-Stevens Fishery Conservation and Management Act for stocks "in the fishery". Councils may develop management measures to conserve EC species under the discretionary provisions listed in section 303b of the Magnuson-Stevens Act.

[1] The National Marine Fisheries Service has proposed revisions to the National Standard Guidelines. These revisions include changes to the language describing EC species (USOFR 2015). If implemented, these revisions would still allow the Council to use the EC designation as described in this document.

The National Standard Guidelines state that Councils should monitor EC species to determine if they should be re-classified as stocks in the fishery. This would be necessary if the Council wished to allow directed harvest of those species or if the species were, or were likely to become, overfished or subject to overfishing.

The Pacific Fishery Management Council is finalizing an amendment to all of their FMPs which will use the EC designation to prohibit commercial harvest of a suite of forage species in federal waters off of Washington, Oregon, and California (PFMC 2014). A management action using the EC designation to proactively protect forage species is an attractive option for the Mid-Atlantic Council in large part because this option has been thoroughly vetted by the Pacific Council for legality and potential effectiveness.

The Council has not yet selected any preferred alternatives.

The management actions described in this document represent possible courses of action but are not an exhaustive list of all possibilities.

The Council welcomes suggestions of other alternatives to address the December 2014 motion to protect unmanaged forage species.

Provision B: Identify forage species as stocks "in the fishery" and prohibit their directed harvest

When the Council includes a species or stock in an FMP, that species or stock is considered to be "in the fishery" unless the Council specifically designates it as an ecosystem component species.

Section 303a of the Magnuson-Stevens Fishery Conservation and Management Act requires that Councils assess maximum sustainable yield (MSY), optimum yield (OY), and essential fish habitat (EFH), and also define status determination criteria, annual catch limits (ACLs), and accountability measures (AMs) for stocks in the fishery.

The Council could prohibit the development of new fisheries for a list of forage species by setting OY or the ACL for those species to zero. The Pacific Fishery Management Council took a similar action to prohibit commercial harvest of all krill species by adding them as stocks in the fishery and setting OY to zero (PFMC 2008). The Mid-Atlantic Council could allow existing fisheries to remain at their current levels by allowing specific exceptions for existing fisheries.

Provision C: Define forage species as components of Essential Fish Habitat for one or more Council-managed predators

The Magnuson-Stevens Fishery Conservation and Management Act requires that Councils describe and identify Essential Fish Habitat (EFH) for species identified as stocks in the fishery in FMPs. The Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity" (16 USC 1802) and requires that Councils "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" (16 USC 1853).

The Council has not yet determined which forage species will be addressed by this motion. A white paper written by members of the Council's Ecosystems Approach to Fisheries Management Working Group and the Science and Statistical Committee provides a starting point for such discussions (Clay et al. 2014).

The Council could take action to protect unmanaged forage species by amending one or more existing FMPs to designate forage species as a component of EFH for one or more Council-managed predators. The Council could then take action to prohibit fisheries for those species based on the rationale that such fisheries could negatively impact EFH.

c. *Which forage species should the Council include in the action?*

The Council has not yet determined which currently unmanaged forage species will be addressed by this action.

Please provide comments on which currently unmanaged forage species should (or should not) be addressed by this action.

The Council will likely decide on a list of forage species to address through initial implementation of the action and may decide to allow changes to this list through future framework adjustments.

The Council's Ecosystem Approach to Fisheries Management (EAFM) Working Group, in collaboration with the Council's Science and Statistical Committee (SSC) recently developed a white paper on forage fish in the Mid-Atlantic (Clay et al. 2014). The authors of the white paper used a definition of forage fish agreed upon by the Ecosystem Subcommittee of the SSC in March 2012 to identify forage fish species in the Mid-Atlantic (table 2). This list of species will serve as a starting point for discussions about which species to address through this

action. The unmanaged forage species identified in the white paper are: bay anchovy (*Anchoa mitchilli*), striped anchovy (*Anchoa hepsetus*), silver anchovy (*Engraulis eurystole*), round herring (*Etrumeus teres*), thread herring (*Opisthonema oglinum*), Spanish sardine (*Sardinella aurita*), sand lance (*Ammodytes americanus* and *A. dubius*), and Atlantic silverside (*Menidia menidia*; table 3). There are no biomass or abundance estimates for any of these species (Clay et al. 2014).

The Council may decide to include invertebrates, as well as fish, in this action. Many invertebrate species (e.g. krill, shrimp, marine worms, comb jellies, and amphipods) are important prey items for predatory fish, marine mammals, and/or seabirds in the Mid-Atlantic (Clay et al. 2014).

Table 2: Definition of forage fish developed by the Ecosystems Subcommittee of the Mid-Atlantic Fishery Management Council's Scientific and Statistical Committee (Clay et al. 2014).

Forage is defined as a species that:

- Is small to moderate in size (average length of ~5-25 cm) throughout its lifespan, especially including adult stages;
- Is subject to extensive predation by other fishes, marine mammals, and birds throughout its lifespan;
- Comprises a considerable portion of the diet of other predators in the ecosystem in which it resides throughout its lifespan (usually >5% diet composition for > 5 yrs.);
- Has or is strongly suspected to have mortality with a major element due to consumptive removals;
- Is typically a lower to mid trophic level (TL) species; itself consumes food usually no higher than TL 2-2.5 (typically zooplankton and or small benthic invertebrates);
- Has a high number of trophic linkages as predator and prey; serves as an important (as measurable by several methods) conduit of energy/biomass flow from lower to upper TL;
- Often exhibits notable (pelagic) schooling behavior;
- Often exhibits high variation in inter-annual recruitments; and
- Relative to primary production and primary producers, has a ratio of production and biomass, respectively, to those producers not smaller than on the order of 10^{-3} to 10^{-4}

Table 3: Forage fish species present but not managed in the Mid-Atlantic, as identified by the Mid-Atlantic Fishery Management Council's Ecosystem Approaches to Fisheries Management Working Group and Science and Statistical Committee. Adapted from Clay et al. 2014.

Common name	Scientific name	Existing directed fisheries in western North Atlantic?	Average annual landings (mt), 2008-2012	Notable bycatch in fisheries managed by the Council?
Bay anchovy	*Anchoa mitchilli*	None known		No
Striped anchovy	*Anchoa hepsetus*	None known		No
Silver anchovy	*Engraulis eurystole*	None known		No
Round herring	*Etrumeus teres*	None in western North Atlantic, but have been targeted off Japan and South Africa (Houde 1977)		Unknown
Thread herring	*Opisthonema oglinum*	Commercial and recreational bait fisheries in South Atlantic and Gulf of Mexico (FL FWCC 2010a)	524 (Clay et al. 2014)	Yes, relatively small amounts
Spanish sardine	*Sardinella aurita*	Directed bait fisheries in South Atlantic and Gulf of Mexico (FL FWCC 2010b); major fisheries in eastern Atlantic (Clay et al. 2014)	596 (Clay et al. 2014)	Yes, relatively small amounts
Sand lance	*Ammodytes americanus* and *A. dubius*	None in western North Atlantic, but small bait fisheries once existed in New England and major directed fisheries have taken place in Europe (Clay et al. 2014)	0	No
Atlantic silverside	*Menidia menidia*	Small bait and food fisheries have existed in Rhode Island, and likely in other states as well (Bigelow and Shroeder 1953, Fay et al. 1983).	6.4 (Clay et al. 2014)	No

d. What type of fishing should the action regulate?

The Council may decide to address all types of directed fishing, including both small and large scale commercial, recreational, and subsistence fisheries. Alternatively, the Council may decide to limit the action to specified types of directed fishing. For example, the Council may decide that the action should apply only to commercial fishing, or that it should apply only to commercial and/or recreational catches above a certain level. The Council has not yet discussed biomass goals or acceptable levels of catch, including bycatch, of unmanaged forage species.

e. Over what geographic area should the action apply?

The Council has not yet determined a preferred geographic scope for this action. The Council may decide that this action should apply to as extensive of an area as possible to provide the most comprehensive protection for unmanaged forage species and the ecosystem services they provide. The Council could achieve the widest geographic coverage of by pursuing either a new FMP or an amendment to the Bluefish FMP. The Bluefish FMP has the broadest management unit of the Council's existing FMPs and includes state and federal waters from Maine to Florida. Any action which applies to state waters would require coordination with the Atlantic States Marine Fisheries Commission (ASMFC). If the Council were to pursue an action that applies to either New England or South Atlantic waters, coordination with the New England and/or South Atlantic Fishery Management Council would be desirable.

The Council may decide to limit the scope of this action to federal waters off the Mid-Atlantic. This would not require coordination with the ASMFC, the New England Council, or the South Atlantic Council. This may be efficient; however, it may not be as ecologically beneficial as an action which applies to a broader area. For example, estuaries in state waters provide important habitats for many of the forage species that may be considered as part of this action (Clay et al. 2014).

f. How should the Council prohibit the expansion of existing fisheries?

The Council wishes to prevent expansion of existing fisheries for unmanaged forage species. Very little is known about the extent of existing fisheries for unmanaged forage species in the Mid-Atlantic. This will pose difficulties for determining if existing fisheries are expanding. The Council and Council staff have not yet identified potential ways of preventing existing fisheries for unmanaged forage species from expanding.

g. How should the Council allow new fisheries to develop?

The Council does not wish to prohibit directed fisheries for unmanaged forage species indefinitely, but only until enough scientific information is available to promote ecosystem sustainability.

The Pacific Council's recent action on unmanaged forage species has a similar goal and will allow exempted fishing permits (EFPs) as a preliminary step towards allowing new fisheries to develop while simultaneously collecting data (PFMC 2014). The Mid-Atlantic Council may consider adopting a similar process.

h. What scientific data and models are available to inform the action?

The Council has formed a Fisheries Management Action Team (FMAT) to research and analyze many aspects of this action. The FMAT will work with the Science and Statistical Committee, the Ecosystems Approach to Fisheries Management Working Group, and the Council evaluate the ability of existing scientific data and models to inform various aspects of this action. This will include evaluation of what data are currently available to assess the ecological and economic implications of the actions considered.

4. Public Comment Opportunities and Instructions

You are encouraged to submit comments on a wide range of issues that may be addressed by this action. You may provide written comments using the instructions listed below. You may also provide comments in person at one of the upcoming scoping hearings listed on the following page.

Written comments must be received by 11:59 pm Eastern Standard Time on Friday October 2, 2015.

Written comments may be sent by any of the following methods:

1) **Online** at www.mafmc.org/comments/unmanaged-forage

2) **Email** to the following address: jbeaty@mafmc.org

3) **Mail or Fax** to:

Dr. Chris Moore, Executive Director

Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201
Dover, DE 19901

FAX: 302-674-5399

Please include "Unmanaged Forage Scoping Comments" in the subject line if using email or fax or on the outside of the envelope if submitting written comments.

The Council is in the early stages of developing this action. You will have other opportunities to provide comments; however, now is the best time to provide input and raise concerns.

The Council will publish announcements about future opportunities for public comment in the Federal Register and at www.mafmc.org.

For information and updates, please visit: www.mafmc.org/actions/unmanaged-forage.

If you have any questions, please contact Julia Beaty, Assistant FMP Coordinator, Mid-Atlantic Fishery Management Council, jbeaty@mafmc.org, 302-526-5250.

5. Schedule of Public Scoping Hearings

Date	Time	Location	Address	Phone Number
Sept. 15, 2015	6:30-8:30 pm	NC DMF Washington Regional Office Hearing Room	943 Washington Street, Washington, NC, 27889	252-946-6481
Sept. 16, 2015	6:00-8:00 pm	Virginia Marine Resources Commission 4th Floor Meeting Room	2600 Washington Avenue, Newport News, VA, 23607	757-247-2200
Sept. 17, 2015	6:30-8:30 pm	Congress Hall Hotel	200 Congress Place, Cape May, NJ, 08204	844-264-5030
Sept. 21, 2015	6:30-8:30 pm	Kingsborough Community College, Building T-3	2001 Oriental Boulevard, Brooklyn, NY, 11235	718-368-5000
Sept. 28, 2015	6:30-8:30 pm	University of Rhode Island Bay Campus Corless Auditorium	215 South Ferry Rd, Narragansett, RI, 02882	401-874-6222
Sept. 29, 2015	6:30-8:31 pm	NY DEC Bureau of Marine Resources Hearing Room	205 North Belle Mead Road, Suite 1, East Setauket, NY, 11733	631-444-0430
Sept. 30, 2015	6:30-8:30 pm	Worcester County Library Ocean Pines Branch	11107 Cathell Rd, Berlin, MD, 21811	410-208-4014
Oct. 1, 2015	6:30-8:30 pm	Webinar	Online. Connection information available at: mafmc.org/council-events/	302-674-2331

Learn more

You can learn more about this action by visiting www.mafmc.org/actions/unmanaged-forage. Relevant documents, presentations, and meeting recordings will be uploaded to this website.

Please contact Julia Beaty, Assistant Fishery Plan Coordinator, with any questions, comments or concerns (302-526-5250, jbeaty@mafmc.org).

Please see the next few pages for instructions on how to submit formal comments on this action.

6. Draft Timeline for Development, Review, and Implementation of Action

Date	*Action*	*Location*
December 11, 2014	Council passes motion to protect unmanaged forage species	Council meeting Baltimore, MD
May 2015	Fisheries Management Action Team (FMAT) formed	---
Summer-fall 2015	FMAT develops alternatives	---
September/October 2015	Public scoping hearings	8 locations from Rhode Island to North Carolina
October 2015	Presentation on and consideration of public comments received at scoping hearings and in writing	Council meeting Philadelphia, PA
Fall 2015 (subject to change)	SSC's Ecosystems and Ocean Planning Committee reviews alternatives developed by FMAT	TBD
Fall 2015 (subject to change)	Ecosystem and Ocean Planning Committee and other relevant committees review alternatives developed by FMAT	TBD
December 2015 (subject to change)	Reports from FMAT and relevant committees	Council meeting Annapolis, MD
Spring 2016 (subject to change)	Council selects preferred alternatives	TBD
Spring/summer 2016 (subject to change)	Council considers public comments and takes final action	Council meeting New Bern, NC
Summer 2016 (subject to change)	Staff submits relevant documents to NMFS for secretarial approval	---
Summer/fall 2016 (subject to change)	Final rule effective	---

Note: more information on upcoming Council meetings, including dates, locations, and topics of discussion can be found at: www.mafmc.org/meetings/

7. References

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Clay, P. M., G. DePiper, S. Gaichas, J. Hare, E. Houde, and R. Seagraves. 2014. Managing forage fishes in the Mid-Atlantic Region: a white paper to inform the Mid-Atlantic Fishery Management Council. Available at: www.mafmc.org/actions/unmanaged-forage. 40 pp.

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FL FWCC (Florida Fish and Wildlife Conservation Commission). 2010a. Spansih sardine, *Sardinella aurita* (Valenciennes, 1847). Available at: http://myfwc.com/media/195536/spanish_sardine.pdf

FL FWCC (Florida Fish and Wildlife Conservation Commission). 2010b. Atlantic thread herring, *Opisthonema oglinum* (Lesueur, 1871). Available at: http://myfwc.com/media/194720/atlantic_thread_herring.pdf

Houde, E. D. 1877. Abundance and potential yield of the round herring, *Etrumeus teres*, and aspects of its early life history in the eastern Gulf of Mexico. *Fishery Bulletin*. 75(1): 61-89.

MAFMC (Mid-Atlantic Fishery Management Council). 2012. Vision and strategic planning project stakeholder input report, appendix A: survey results. Available at: www.mafmc.org/strategic-plan/. 59 pp.

NPFMC (North Pacific Fishery Management Council). 2009. Fishery management plan for fish resources of the Arctic Management Area. 158 pp.

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