



Mid-Atlantic Fishery Management Council
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MEMORANDUM

Date: October 5, 2015
To: Council
From: Julia Beaty
Subject: Revised Unmanaged Forage FMAT Recommendations

The Unmanaged Forage Fishery Management Action Team (FMAT) met on Friday October 2, 2015 over webinar to discuss the Council's action on unmanaged forage species. Key points from the discussion are summarized below.

List of Species

The FMAT supports the definition of forage species developed by the Ecosystems Subcommittee of the SSC and included in the forage fish white paper^a; however, a few FMAT members noted that this definition is biased towards small pelagic fish species. The FMAT agreed that, for the purposes of this action, the definition should be broadened to include invertebrates and benthic fish species that are important components of the prey base for Council-managed predators and other species.

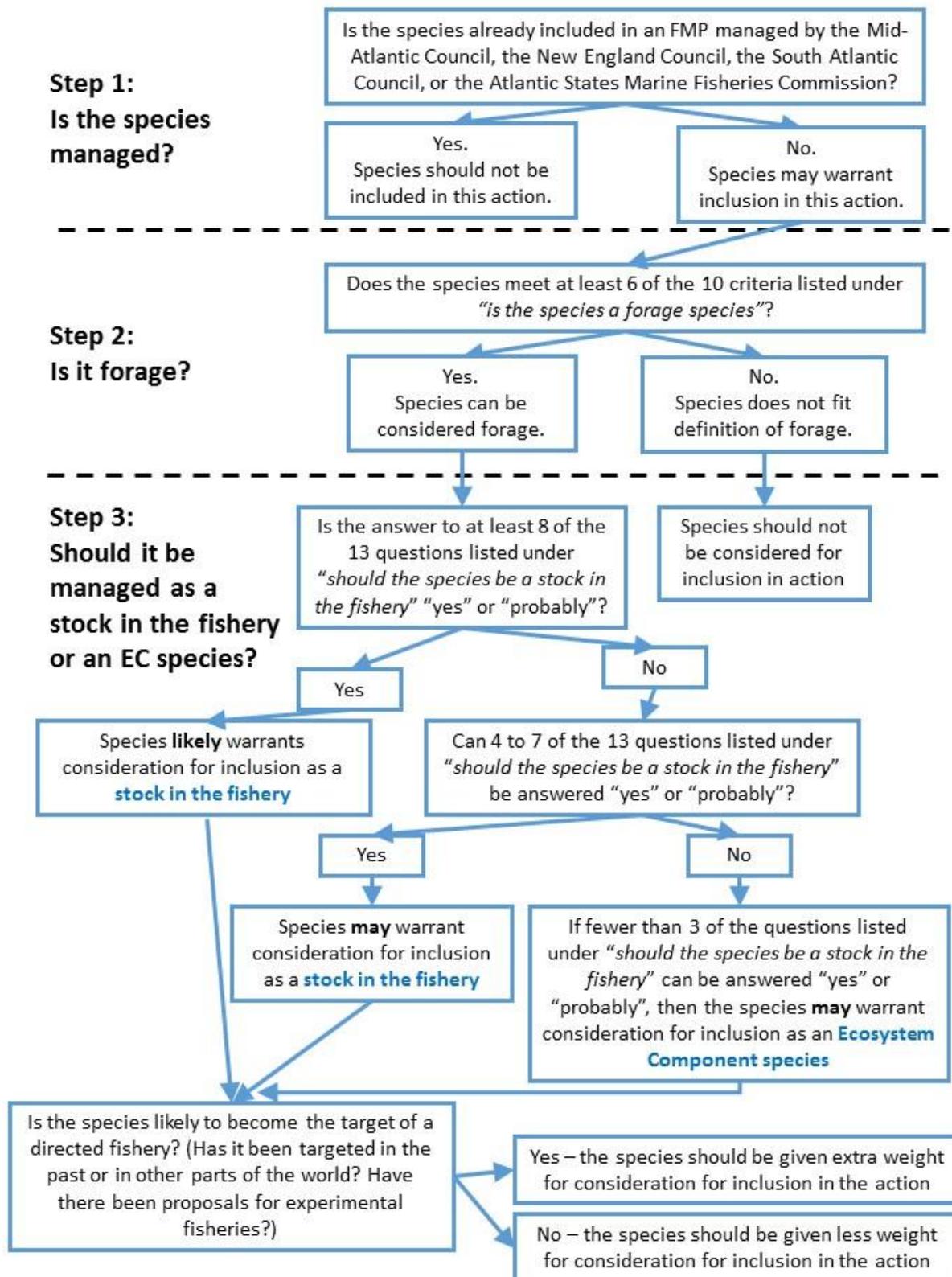
The FMAT is generating a list of all species/taxa which meet this definition of forage and which are not currently managed by the Mid-Atlantic, New England, or South Atlantic Fishery Management Councils or by the Atlantic States Marine Fisheries Commission. A finalized list is still in development. Included in this memo is a preliminary list of species/taxa (pages 5-6) that could be included in the final list if they 1) meet the SSC definition of a forage species, 2) fit the criteria for an Ecosystem Component species or a stock in the fishery, 3) are commonly found within the geographic scope of the action, and 4) have some potential to become the subject of new or expanded fisheries. A draft process for determining if a species meets these four points is also outlined in this document (pages 3-4).

Geographic Scope of Action

The FMAT recommended that this action apply to the Mid-Atlantic region only. Defining the geographic scope of the action at this early stage will help guide decisions such as which forage species to include and which type of action to develop. The FMAT recognizes that an action which applies to federal and state waters will be more complex than an action which applies only to federal waters; however, given that state waters are important for many forage species, the FMAT recommends that the Council continue to assess the feasibility of developing an action that would apply to both state and federal waters.

Type of Action

FMAT did not believe it was appropriate to recommend a type of action such as an amendment or a new fishery management plan (FMP) at this time, stating that this decision was better left to the Council. One FMAT member noted that the type of action is not as important as the provisions that are part of that action. The FMAT agreed that it will be easier to determine which type of action is most appropriate after deciding on the geographic scope of the action and determining if any species should be included as stocks in the fishery, as opposed to Ecosystem Components. A few FMAT members cautioned against moving forward with a bluefish plan amendment at this early stage. If any forage species are to be included as a stock in the fishery, a bluefish plan amendment might not be the appropriate mechanism.



Is the species a forage species? ^a

- Is the species small to moderate in size (average length of ~5-25 cm) throughout its lifespan, especially including adult stages?
- Is the species subject to extensive predation by other fishes, marine mammals, and/or birds throughout its lifespan?
- Does the species comprise 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)?
- Are consumptive removals thought to be a major element of mortality for this species?
- Is this species a lower to mid trophic level (TL) species and does it consume food usually no higher than TL 2-2.5 (typically zooplankton and small benthic invertebrates)?
- Does this species have a high number of trophic linkages as predator and prey?
- Does this species serve as an important (as measurable by several methods) conduit of energy/biomass flow from lower to upper TL?
- Does this species exhibit notable pelagic schooling behavior?
- Does this species often exhibit high inter-annual variation in recruitment?
- Relative to primary production and primary producers, does this species have a ratio of production and biomass, respectively, to those producers not smaller than on the order of 10^{-3} to 10^{-4} ?

Should the species be a stock in the fishery?

- Is the stock overfished or subject to overfishing? ^b
- Is the stock likely to become overfished or subject to overfishing in the absence of conservation and management measures? ^b
- Can inclusion in an FMP improve or maintain the condition of the stock? ^{c,d}
- Is the species an important component of the marine environment? ^d
- Is the species subject to a targeted fishery? ^{b,d}
- When caught incidentally, is the species commonly retained for sale or personal use? ^b
- Is the stock important to commercial, recreational, or subsistence users? ^d
- Does the species support a fishery that is important to the Nation and/or regional economy? ^{c,d}
- Are there competing interests and/or conflicts among user groups that could be ameliorated by an FMP? ^{c,d}
- Could an FMP promote more economically efficient utilization of the species? ^{c,d}
- If there is a developing fishery for this species, could an FMP foster orderly growth of that fishery? ^{c,d}
- If there is a fishery for this species, is it lacking adequate management (when compared to the policies and standards of the Magnuson-Stevens Act) by states, by federal regulations, or by industry self-regulation? ^{c,d}
- Would the benefits of including this species in an FMP as a stock in the fishery outweigh the costs? ^c

Draft list of species/taxa that may warrant consideration for inclusion in this action

This list is for discussion purposes only. The FMAT intends to add more species to this list and will use the process outlined on the previous two pages to determine if each species warrants consideration for inclusion in this action.

FISH

GADIDS (BENTHIC)

Spotted hake	<i>Urophycis regia</i>
Tomcod	<i>Microgadus tomcod</i>

FLOUNDERS (BENTHIC)

Blackcheek tonguefish	<i>Symphurus palgiusa</i>
Hogchoker	<i>Trinectes maculatus</i>
Fourspot flounder	<i>Paralichthys oblongus</i>
Smallmouth flounder	<i>Etropus microstomus</i>

HERRING AND HERRINGLIKE FISHES (PELAGIC)

Striped anchovy	<i>Anchoa hepsetus</i>
Bay anchovy	<i>Anchoa mitchilli</i>
Silver anchovy	<i>Engraulis eurystole</i>
Scaled herring	<i>Harengula jaguana</i>
Round herring	<i>Etrumeus teres</i>
Thread herring	<i>Opistonema oglinum</i>
Spanish sardine	<i>Sardinella aurita</i>

JACKS (PELAGIC)

Round scad	<i>Decapterus punctatus</i>
Round scad	<i>Decapterus punctatus</i>
Bigeye scad	<i>Selar crumenophthalmus</i>
Rough scad	<i>Trachurus lathami</i>

MACKERELS (PELAGIC)

Chub mackerel	<i>Scomber colias</i>
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FLYING FISH AND ALLIES (OFFSHORE/PELAGIC)

Flying fish	<i>Exocoetus volitans</i>
Meek's Halfbeak	<i>Hyporamphus meeki</i>
Halfbeaks	<i>Hemiramphus balao</i>

SAND LANCE (BENTHIC)

Sand lance	<i>Ammodytes americanus</i>
Sand lance	<i>Ammodytes dubius</i>

Draft list of species/taxa that may warrant consideration for inclusion in this action (continued)

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FISH, continued

SCULPINS (BENTHIC)

Grubby *Myoxocephalus aeneus*

SILVERSIDES (INSHORE/PELAGIC)

Inland silverside *Menidia beryllina*

Atlantic silverside *Menidia menidia*

SMALL, DEEP WATER PELAGIC FISHES

Striated argentine *Argentina striata*

Greater Argentine *Argentina silus*

Lanternfishes *Myctophidae*
Chlorophthalmus

Shortnose greeneye *agassizi*

Longnose greeneye *Parasudis truculenta*

Weitzmans pearlsides *Maurolucus weitzmani*

Antenna codlet *Bregmaceros atlanticus*

STICKLEBACKS, KILLIFISH (ESTUARIES/MARSHES)

Threespine stickleback *Gasterosteus aculeatus*

Blackspotted stickleback *Gasterosteus wheatlandi*

Killifish *Fundulus spp.*

INVERTEBRATES

"Krill" or euphausiids

Un-managed species of squid

Sand shrimp *Palaemonetes sp.*

Crabs Lady crabs, etc

Smaller crustaceans Many species

Marine worms Many species

Mussels, small infaunal species

Bivalves species

Other shrimp eg Mysids

Echinoderms Brittle stars, urchins, etc

References

^a 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.

^b National Standard Guidelines, section 600.310 (d)(5) National Standard 1 - Classifying stocks in an FMP – ecosystem component (EC) species

^c National Standard Guidelines, section 600.340 (b)(2) National Standard 7 – Necessity of federal management - criteria

^d Proposed revisions to National Standard Guidelines, section 600.305(c)(1) Stocks that require conservation and management