

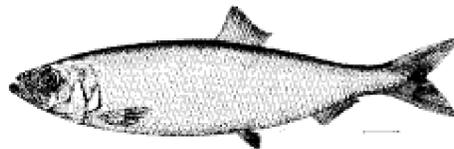
Summary of Public Scoping Comments

for

Amendment 8

to the

Atlantic Herring Fishery Management Plan



December 21, 2015

**Compiled by the
Herring Plan Development Team**

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1.0 INTRODUCTION

The New England Fishery Management Council (Council) has proposed developing Amendment 8 to the Atlantic Herring Fishery Management Plan (FMP) to consider long-term harvest strategies for herring, including an acceptable biological catch (ABC) control rule that addresses the biological needs of the herring resource and explicitly accounts for herring’s role in the ecosystem. The original public scoping period was February 26 ó April 30, 2015. During this time, oral and written comments were received at three in-person hearings and a webinar. Written comments were also submitted directly to the (Council). In June 2015, the Herring Committee and Council received a brief summary of public comments by the Plan Development Team (PDT) Chairman. Partially in response to concerns expressed through scoping about localized depletion of Atlantic herring, the Council then decided to expand the focus of Amendment 8 to consider this issue. A supplemental scoping period was held August 21 - September 30, 2015. Comments were received in writing and at one in-person hearing.

All of the written and oral comments are available for review by the Council and the public. This report provides a summary of the demographics of commenters and the key themes that emerged from the scoping periods. This report does not constitute a response to the comments; rather, it is intended to serve as a guide for Council members and the public as they review the comments and develop Amendment 8. It should not substitute for reading the comments directly. This summary was compiled by the Herring Plan Development Team, primarily Rachel Feeney

(Council staff) and Dr. Madeleine Hall-Arber (Massachusetts Institute of Technology Sea Grant).

2.0 PURPOSE OF SCOPING

2.1 ORIGINAL PURPOSE

Amendment 8 was initiated by the Council in November 2014 to consider control rules for the Atlantic herring fishery that account for herring's role as forage in the ecosystem. Through scoping, the Council sought public input on the following questions, though comments were not limited to these topics:

1. What alternatives for ABC control rules should the Council consider for Atlantic herring in Amendment 8?
2. How should the Council account for the role of Atlantic herring in the ecosystem when it develops the ABC control rule?
3. What specific issues are most important when evaluating the tradeoffs associated with managing the Atlantic herring fishery in an ecosystem context?

2.2 SUPPLEMENTAL SCOPING

In June 2015, upon preliminary review of scoping comments, the Council developed goals for Amendment 8 that expanded the scope of this action to include consideration of the spatial and temporal availability of Atlantic herring.

The goals of Amendment 8 are:

1. Account for the role of herring within the ecosystem, including its role as forage;
2. Stabilize the fishery at a level designed to achieve optimum yield; and
3. Address localized depletion in inshore waters.

The Council also recommended that an objective for Amendment 8 be to develop and implement an ABC control rule that manages herring within an ecosystem context and addresses the above goals. The supplemental scoping period solicited comments on Goal #3.

3.0 DESCRIPTION OF COMMENTERS

The demographic information available about the commenters is summarized here. Several commenters stated that they represent multiple stakeholder types. In those cases, a primary stakeholder type was assigned based on certain assumptions. For those who indicated that they fish both commercially and recreationally, the primary stakeholder type was assigned as commercial fisherman, since the person would presumably have greater financial stake in a commercial rather than recreational fishery. For those who submitted comments on behalf of themselves and a non-governmental organization (NGO), the primary stakeholder type was assigned as a NGO, since the NGO presumably represents a larger group of people. For those who represent a regional or national NGO as well as an NGO of other fishing interests, the primary stakeholder type assigned was regional/national NGO, since that, again, presumably represents a larger group of people. For simplicity, the comment themes were summarized by just primary stakeholder type.

3.1 ORAL COMMENTS

In total, the five public hearings were attended by about 115 stakeholders (duplicates possible), and 29 individuals provided oral comments (duplicates removed; Table 1). Oral comments were received from four commercial herring fishermen, 11 other commercial fishermen, four charter fishermen, and ten representatives of NGOs (Table 2). All but one of the oral comments was provided during the initial scoping period.

Table 1 - Public hearing attendance

Scoping Period	Location	Attendees ¹	Speakers
Initial	Rockland, ME	50	2
	Danvers, MA	30	20
	Mystic, CT	10	6
	webinar	10	2
Supp.	Boston, MA	15	1
	Total	115²	29³

¹ Approximate; excludes Council members or staff.
² Duplicates possible.
³ Duplicates removed.

Table 2 - Stakeholder type of speakers

Primary stakeholder type	Speakers (n,%)
Commercial fishery - herring	4 (14%)
Commercial fishery ó other ¹	11 (38%)
Charter fisherman	4 (14%)
NGO - Commercial	1 (3%)
NGO - Environmental local	2 (7%)
NGO - Env. national/regional	4 (14%)
NGO - Other fishing interests	3 (10%)
Total	29 (100%)

Note: Duplicates removed. Each speaker assigned here to their primary stakeholder type.
¹Includes groundfish, striped bass, tuna, and unknown.

3.2 WRITTEN COMMENTS

For the initial comment period, there were 111 written comments (Table 3), not including the written comments read into the record at an oral hearing (counted as oral comments in Section 3.1). Written comments were received from 62 individuals or businesses, eight small groups of individuals (2-35 signers), 35 NGOs, and three government agencies. There were also three form letters from NGOs signed by about 28,000 people (duplicates possible). Of those, about 2,500 people included brief personal comments with their signature. For the supplemental comment period, there were 150 written comments received from: 130 individuals or businesses, nine small groups of individuals (6-37 signers), nine NGOs, and two government agencies. In total, there were 261 written comments submitted, not including the brief personal comments attached to the form letters.

Table 3 - Written comments received

	Initial	Supplemental	Total Comments
Individuals or businesses	62 (56%)	130 (87%)	192 (74%)
Small groups of individuals	8 (7%)	9 (6%)	17 (7%)
Non-governmental organizations	35 (32%)	9 (6%)	44 (17%)
Government agencies	3 (3%)	2 (1%)	5 (2%)
Large form letters ¹	3 (3%)	-	3 (1%)
Total	111 (100%)	150 (100%)	261 (100%)

¹The large form letters included about 2,500 brief personal comments.

3.3 ORAL AND WRITTEN COMMENTS COMBINED

Through the 290 comments (i.e., 29 oral and 261 written), 468 people gave input (duplicates removed) on Amendment 8, in addition to the 28,000 people (duplicates possible) who signed the three large form letters. However, many comments were given by people who represent businesses or organizations, and the total number of people those commenters represent cannot be determined. Of the 468 people, 13 people only submitted oral comments, 439 people only submitted written comments, and 15 people submitted both. Not including the three large form letters, 45 people signed between 2 and 5 letters each, and 408 people signed just one letter. Of the 468 people, 161 only commented during the initial period, 274 only commented during the supplemental period, and 33 commented during both periods. The 468 people submitting comments (i.e., not including the three large form letters) represent a variety of different interests: 422 represented themselves or a business, 37 represented a NGO, five represented a government agency, and four commented on behalf of themselves and a NGO.

The 468 people submitting comments represent a variety of stakeholder types (Table 4). Several commenters stated that they represent multiple stakeholder types, so a primary stakeholder type was assigned with some assumptions (as noted above). The majority (83%) of the 468 people submitting comments were fishermen (Table 4): seven herring fishermen, 95 other commercial fishermen (e.g., groundfish, tuna), 53 charter fishermen, 98 private anglers, and the precise type of fisherman could not be identified for 134, though based on the comments, are likely to not be herring fishermen. People representing NGOs (commercial, environmental (local, national/regional), other fishing interests) comprised 8% of the commenters. The specific organizations are listed in Appendix I. Other stakeholder types were state or local government (1%), scientist (2%), fishery support services (1%), whale watching industry (0.4%), and unknown (4%). In terms of stakeholder types of commenters, all of the NGOs with a local environmental focus commented in the initial period. The biggest difference percentage wise was in comments from private anglers, which comprised 5% of the initial commenters and 30% of the supplemental.

Home state could be identified for 79% of the 468 people who submitted comments (excluding the three large form letters (Table 5). The majority (72%) was from New England, primarily Massachusetts (49%). Commenters hailed from at least 15 states.

Due to time and information constraints, it was not possible to analyze the demographics of the over 28,000 people (duplicates possible) who signed the three large form letters, at least to the same degree as the other submissions. General characterizations were made:

- *Pew Environment Group form letter*: This letter had 12,381 signatories with 1,259 people adding brief personal comments. Signatories were primarily from the United States (95%), and hailed from all 50 states and the District of Columbia. About 8% were from New England states.
- *Earth Justice form letter*: This letter had 13,424 signatories with 1,072 people adding brief personal comments. Signatories were all from the United States, though more specifics could not be determined based on the format of the information.
- *Ocean River Institute form letter*: This letter had 2,443 signatories with many people adding brief personal comments. Signatories were from about 45 U.S. states and the District of Columbia. About 5% were from New England states.

Table 4 – Primary stakeholder type of commenters, n=468

Primary stakeholder type	Commenters (n, %)		
	Initial	Supplemental	Total ¹
Commercial fishery - herring	5 (3%)	2 (1%)	7 (1%)
Commercial fishery ó other ²	31 (16%)	74 (24%)	95 (20%)
Charter fisherman	30 (15%)	31 (10%)	53 (11%)
Private angler	10 (5%)	92 (30%)	98 (21%)
Fisherman ó type unknown ³	59 (30%)	80 (26%)	134 (29%)
State or local government	3 (2%)	2 (1%)	5 (1%)
NGO - Commercial	6 (3%)	1 (0.3%)	7 (1%)
NGO - Environmental local	17 (9%)	-	17 (4%)
NGO - Environmental national/regional	6 (3%)	2 (1%)	6 (1%)
NGO - Other fishing interests	9 (5%)	4 (1%)	11 (2%)
Scientist	5 (3%)	3 (1%)	8 (2%)
Fishery support services	1 (1%)	4 (1%)	5 (1%)
Whale watching industry	2 (1%)	1 (0.3%)	2 (0.4%)
Unknown	9 (5%)	11 (4%)	20 (4%)
Total	194 (100%)	307 (100%)	468 (100%)

Note: Those people signing the three large form letters are not included here. Each person assigned here to their primary stakeholder type.

¹ Duplicates removed.

² Includes groundfish, striped bass, tuna, and unknown.

³ Unknown if commercial other, private or party/charter.

Table 5 - Home state of commenters, n=468

State	Commenters (n, %)	State	Commenters (n, %)
ME	52 (11%)	VA	2 (0.4%)
NH	30 (6%)	DC	1 (0.2%)
MA	230 (49%)	FL	3 (1%)
RI	17 (4%)	TX	1 (0.2%)
CT	11 (2%)	CO	1 (0.2%)
NY	15 (3%)	CA	2 (0.4%)
NJ	4 (1%)	OR	1 (0.2%)
PA	1 (0.2%)	Unknown	66 (21%)
MD	1 (0.2%)	Total	468 (100%)

Note: Includes commenters from both scoping periods, duplicates removed, not including the people who signed the three large form letters.

4.0 COMMENT SUMMARY

All comments received during both public comment periods are summarized here. This includes the 261 written comments and summaries of each hearing that contain close (but not exact) transcriptions of the 29 oral comments. All comments were converted into text-searchable formats and imported into a *QSR NVivo 10* project for sorting and synthesis. Using this software, topics in the text were highlighted and assigned to a label or ñnode.ö Nodes were also created for each person who signed a letter. The comments were then queried to determine how many discussed each topic. Where an individual or NGO commented orally and in writing about a

topic, they are counted once in the “people commenting” column and twice in the “comments” column.

The three large form letters included brief personal comments from about 2,500 people. Due to time constraints, these comments were not coded in the software. A review of these personal comments confirmed that their themes are consistent with those of their associated form letter. The form letters themselves were included in the summarizing process described above.

It should be noted that some commenters focused on describing current problems versus desired outcomes or vice versa. Thus, there may be more commenters who would agree with particular points than the number of commenters who specifically discussed them.

4.1 GENERAL SUPPORT FOR AMENDMENT 8 GOALS

Most all of the comments supported addressing concerns about localized depletion and developing an approach for managing herring that explicitly accounts for its role in the ecosystem. Many thanked the Council for undertaking Amendment 8. Comments spoke of a need for precaution to ensure sufficient supply of herring as predators and prey in the ecosystem to, in part, benefit all fisheries that depend on herring (e.g., groundfish, tuna, as well as herring).

“It is critical that the Council and NOAA take the necessary steps to ensure the sustainability of the herring stock, and give this species special attention because of its unique role in the ecosystem.”

“It is very encouraging that this step is being taken. I feel like the biological perspective of herring has long been ignored.”

“Ultimately, we need a harvest policy that addresses some of the special and temporal concerns repeatedly raised by fishermen. We need to ensure there are enough herring when and where the predators need them.”

4.2 GENERAL CONCERNS WITH AMENDMENT 8 GOALS

Concerns about the goals of Amendment 8 were expressed by six members of the herring industry and two commercial NGOs via five written and four oral comments. Regarding the ABC control rule, commenters were concerned that accounting for herring as forage in the control rule may be “double-dipping,” indicating that accounting for it in the assessment is adequate. Some indicated that the focus should be on improving the assessment rather than the development of Amendment 8. A few noted that there is no mandate for accounting for herring as forage in the control rule and doing so may violate the National Standards if optimum yield is not achieved or if there is unnecessary duplication of management. One commenter specified that the Lenfest control rule is overly restrictive and would jeopardize optimum yield. A few commented that leaving more herring in the ocean does not necessarily improve the abundance of other species, that physical ocean conditions are the primary drivers of forage availability, and that less herring catch would negatively impact end users such as the lobster industry.

Regarding localized depletion, some noted that localized depletion has not been clearly defined despite efforts to do so elsewhere (e.g., ASMFC has attempted to address this topic with menhaden) and that there is no scientific consensus that localized depletion can be identified. Certain commenters said that Atlantic herring naturally migrates too much to be considered depleted on discrete spatial and/or temporal scales, and that more research would be needed to

identify Atlantic herring stock components. One commenter indicated that what is being called a “localized depletion” problem is actually a matter of gear conflicts, and that management should focus on resolving the gear conflicts.

“...enough of the herring biomass necessary to ensure the proper forage of these species has already been accounted for in the estimate of sustainable catch for the fishery. To duplicate this exercise in the form of a “forage fish” control rule would be to account for consumption estimates twice.”

“...we STRONGLY feel that any reclassification of herring into the forage stock will be yet, another devastating blow to the commercial lobster industry here in New England.”

“My experience fishing in Area 2 for herring – I don’t think you can have localized depletion in an area where you don’t have a resident population. That’s Area 2. There are no herring there now, and there won’t be until mid- December, and they will be gone by April. These are migrating fish that pass through there.”

4.3 PERCEPTIONS OF CURRENT PROBLEMS

Virtually all commenters articulated one or more issues that they perceive are current problems with herring management. Table 6 provides most of the topics describing current problems, indicating the number of individuals and NGOs and the number of comments received on each topic. The more commonly cited problems are described below.

4.3.1 Atlantic Herring Resource

A common problem, articulated by 251 individuals and 26 NGOs through 17 oral and 109 written comments, is that declines in the Atlantic herring resource have negative impacts on other species that rely on herring as prey, and in turn, the associated industries that rely on predators (e.g., tuna, groundfish whale-watching). Some comments included attention to the potential movement of tuna, and therefore quota, south where menhaden is available as prey, or to Canada where herring is more plentiful. More generally, 51 individuals and three NGOs said in three oral and 24 written comments that Atlantic herring is less abundant today than in the past.

“...without herring, we don’t really have a fishery. It goes hand in hand with every other fishery – groundfish, stripers, and the recreational guys.”

“...the nation has lost out on a \$35 million a year commercial bluefin tuna industry; these highly migratory fish now pass along our shoreline and summer over in Canadian waters due to the lack of the abundance of very nutritious Atlantic sea herring in American waters!”

Likewise, 17 individuals and 14 NGOs in seven oral and 23 written comments, said that declines in other forage species (e.g., river herring, mackerel, menhaden) have resulted in more pressure to harvest Atlantic herring to, for example, supply bait markets. Herring is considered to be the last major bait source, one reason why people felt that explicitly considering its role in the ecosystem is important.

“Because of the loss of river herring and shad in my area, there is an increased focus on Atlantic herring as the most important forage fish in the region.”

Table 6 – Perceptions of current problems, as articulated in comments

Topic	People commenting (#)		Comments (#)	
	NGO	Other	Oral	Written
All current problems combined	37	414	24	241
<i>Atlantic herring resource</i>				
Herring is less abundant today than in the past	3	51	3	24
Herring declines negatively impact predators (e.g., smaller, less abundant)	26	251	17	109
Declines in other forage species has increased effort on Atlantic herring	14	17	7	23
Schooling behavior and migration in response to environmental conditions makes herring particularly vulnerable to overfishing	6	2	1	7
<i>Data and stock assessment shortcomings</i>				
Inaccurate Atlantic herring catch data	0	2	1	1
Insufficient data or models to account for herring as forage in the control rule	4	5	2	5
Insufficient commercial herring fishery bycatch data (e.g., river herring, groundfish)	1	11	1	11
General concerns about Atlantic herring stock assessment	7	45	7	17
<i>Management/fishery impacts on the herring resource/ecosystem</i>				
ACLs set too high	3	3	2	5
ACL or sub-ACL overages	2	2	1	2
Allowing the commercial herring industry to fish in groundfish closed areas	1	2	0	3
Insufficient precaution/accounting for herring as forage	17	114	7	51
Management has primarily benefited the directed fishery, not other users of the resource	9	8	4	13
Mobile gear:				
General concerns (e.g., bycatch, too much effort)	4	149	2	77
Spatial/temporal localized depletion from mobile pulse fishing	18	294	13	124
Gear conflicts	0	2	0	2
Unfair that fisheries for herring predators are restricted while herring fishery can flourish	4	83	1	31
Too much bycatch in the commercial herring fishery	0	26	0	26
“Shifting baselines syndrome” – Over time, perceptions change about what is considered a healthy herring resource	1	0	1	0
Single-species management inappropriate	7	0	3	5
<i>Other</i>				
Climate change	1	2	1	2
Herring more valuable to the ecosystem than the low-value food export market	1	2	0	3
Decline in river herring abundance	2	1	1	2
Ocean acidification	0	2	0	1
Public participation in Atlantic herring management has been difficult	0	2	0	2

Comments specified a number of (non-human) predators that the herring resource is important for (Table 7). Tuna, striped bass, and cod were the most frequently cited predators, noting that the terms used in public comment vary in the level of specificity (e.g., öminkeö vs. öwhalesö vs. ömammalsö).

Table 7 - Important predators of Atlantic herring, as articulated in comments

Descriptor	Frequency	Descriptor	Frequency
Tuna	114	Pollock	6
Striped bass	72	Sharks	6
Cod	57	Dogfish	6
Whales	56	Puffin	4
Seabirds	36	Dolphins	3
Groundfish	21	Terns	3
Mammals	14	Gannets	2
Bluefish	13	Tern	1
Haddock	13	Razorbill	1
Humpback	8	Cunner	1
Seals	7	Osprey	1
Minke	6	Sculpins	1
Porpoise	6		

Note: öfrequencyö is the number of times a predator was cited in the comments. Some terms are more general and encompass other terms.

“In July the arrival of herring turns Stellwagen Bank into Chuckwagen Bank. Feeding whales and plunge-diving gannets means happier whale watchers, resulting in better fed more robust local economies, From whales bubble-netting herring to net financial gains for area businesses.”

4.3.2 Data and Stock Assessment Shortcomings

There was a general concern stated by 45 individuals and seven NGOs through seven oral and 17 written comments about the accuracy with which the Atlantic herring stock assessments estimate biomass, including specific concerns with the retrospective pattern that reemerged in the 2015 Operational Update. Commenters urged managers to use caution when basing decisions off of assessment results, feeling that the assessment should be more robust to accurately account for all sources of natural mortality. One herring industry member felt that it would be prudent to not move forward with developing a control rule that accounts for herring’s role as forage until after an operational assessment has been completed and the retrospective pattern issue has been resolved. Others thought that developing a forage-based control rule would help mitigate assessment shortcomings. A few comments wanted improved data on herring catch and bycatch.

“I don’t have a significant issue with considering herring as a forage fish. I just wish that we were doing a concrete operational or benchmark assessment for herring, so that I wasn’t looking at a situation where our quota could conceivably be half of what is now without the information about what the biomass is.”

“...fish and mammal behavior evolves and changes with time and climate change, rules and gear types labeled as historic may not be sustainable in our quest for a futuristic healthy marine ecosystem. We all have to step outside of the box now

and then, take an overall view of the current conditions, weigh in on the risk and reward outcome, and have the courage to make changes if need be, to maintain a healthy ecosystem for the future generations.”

4.3.1 Management/Fishery Impacts on the Herring Resource/Ecosystem

While many commenters were concerned with the current approach to Atlantic herring management, 114 individuals and 17 NGOs through seven oral and 51 written comments specifically expressed that there has been insufficient precaution or accounting for herring as forage. To them, the role of herring as forage has not been appropriately accounted for in the herring specifications. Some described factors such as a substantial natural variability in the herring population, the number of predators, and vulnerability to overharvest due to schooling behavior.

“...the overall management scheme is too optimistic already. It needs to be much more conservative and assume that there isn’t anything else out there for a lot of these species to eat.”

The most commonly cited problem, by 294 individuals and 18 NGOs through 13 oral and 124 written comments, was that the current regulations allow for concentrations of fishing effort by mobile gear, primarily midwater trawls, on the Atlantic herring resource in certain times and locations. These commenters were concerned that the herring fishery has been causing localized herring depletion, particularly of the inshore resource. They urged that there should be enough herring in the times and places that predators need them. There were also more general concerns about mobile gear, that there is too much bycatch and/or fishing effort to be sustainable. A common opinion was that allowing the herring fishery to flourish has hampered rebuilding of predators such as groundfish, which has been detrimental to fisheries that depend on predators.

“We had a great fishery last year in October right off southern Jeffreys. It all got wiped out in two nights by the midwater boats. We need to keep the herring going. They were spawning there, and that was a great fishery.”

“...anywhere from Hyannis to Monomoy, we have a robust fishery in the spring. It begins with squid and krill, and then the herring comes in, and the striped bass fishery is busy. We book two trips a day up until the herring fleet goes to work. At that corner where 1B, 2, and 3 meet – when the fleet comes in and works that corner – when the fleet is done fishing, our striped bass move up past P-Town or down to Block Island. We lose them because our forage has been broken up”

“I am very concerned with the effects of the mid-water trawlers on the herring population and subsequent game fish they feed on them. Striped bass in the spring and then bluefin tuna key later on in the summer key on these baitfish. The benefits to local economies of protecting and increasing the population of these baitfish is obvious.”

4.4 DESIRED OUTCOMES OF AMENDMENT 8

Virtually all commenters articulated desired outcomes of Amendment 8. Table 8 provides most of the desired outcomes, indicating the number of individuals and NGOs and the number of comments received on each topic. The more commonly desired outcomes are described below.

Table 8 - Desired outcomes, as articulated in comments

Topic	People commenting (#)		Comments (#)	
	NGO	Other	Oral	Written
All desired outcomes combined	42	422	27	235
<i>Improve Atlantic herring resource</i>				
Maintain wide size and age distribution of herring	5	4	2	7
Leave more herring in the ocean	9	32	8	34
Protect spatial and temporal availability of herring	18	270	9	98
<i>Improve data and stock assessment</i>				
Improve fishery catch monitoring	0	1	1	0
Improve stock assessment	5	13	10	6
<i>Reduce management/fishery impacts on the herring resource/ecosystem</i>				
Adopt an EBFM approach to managing herring	35	151	23	95
Entire ecosystem benefits from more herring	2	10	1	10
Use more precaution in control rule	25	94	13	50
Improve policy on forage fish	9	6	4	13
Meet management objectives	2	6	1	6
Pave the way for EBFM in other fisheries	5	2	1	5
Use risk policy	1	0	1	1
<i>Other</i>				
Improve abundance and economic value of predators	9	143	2	86
Protect essential fish habitat	2	4	0	6
Reduce bycatch	1	19	0	20
Improve river herring abundance	4	6	1	9
Better respond to climate change	1	1	2	0

4.4.1 Improve Atlantic Herring Resource

With localized depletion viewed by many commenters as one of the most compelling current problems in herring management, it is not surprising that 270 individuals and 18 NGOs through nine oral and 98 written comments noted that it is important to protect spatial and temporal availability of herring for forage, such as southern Jeffreyø Ledge, Stellwagen Bank and on the backside of Cape Cod (where Management Areas 1B, 2 and 3 meet). Commenters also wanted more Atlantic herring left in the ocean, with a few commenting that there should be a wide age and size distribution within the population.

“It is also very important that the Council considers ways to take spatial concerns into consideration when designing the new control rule. No one area should have to bear the burden of too high a percentage of the overall catch. This would protect discreet spawning stocks as well as localized dependency on herring.”

“Amendment 8 should provide the Council with tools to make spatial and temporal adjustments in catch patterns in order to safeguard feeding grounds of herring predators.”

“Amendment 8 should include alternatives that explicitly aim to keep Atlantic herring present in sufficient quantities when and where they are needed most by predators.”

4.4.2 Improve Data and Stock Assessment

A small number of comments identified improved stock assessments as a desired outcome, 13 individuals and five NGOs through ten oral and six written comments. Most of these commenters wished for improved accounting for natural mortality (e.g., predator needs), whether in the assessment or in the control rule used to set Acceptable Biological Catch. Some viewed improving the assessment as an issue outside the Council process and the development of Amendment 8. Some pointed out that the sources of uncertainty need to be accounted for (including forage) and directly affect herring fishermen and other stakeholders.

“Currently, the operational herring assessment update is undergoing review and encountering difficulty. It would not be prudent to establish a control rule until the operational update itself has been completed/fixed.”

“The Council, scientists, and managers in charge of our incredible and diverse marine resources need better models. We also need models that can provide real-time information and don't accept the "2-3 year lag period" that pervades fisheries science.”

4.4.3 Reduce Management/Fishery Impacts on the Herring Resource/Ecosystem

Comments on the desired outcomes for management and the fishery through Amendment 8 focused on the adoption of an ecosystem-based approach to herring management, as noted by 151 individuals and 35 NGOs in 23 oral and 95 written comments. Herring as an essential forage component of the ecosystem was frequently mentioned, and 94 individuals and 25 NGOs through 13 oral and 50 written comments wished for more precaution to account for predator needs in the control rule. The more specific comments suggested that the control rule should ensure that: the herring population be well above Maximum Sustainable Yield, allowable catch be reduced when a certain threshold of biomass is reached, and that sufficient herring be left in the water so there is some of the right size and age in the right place and time for the predators. These comments noted the importance of attaining a spread of year classes. Another point of view was that the control rule should be based on the ability to meet management objectives of a high, stable and long-term yield. One person explained that a conservative biomass target and modest harvest rate would likely make the fishery more stable, accounting for the known volatility of forage abundance and scientific uncertainty.

“Herring is probably the largest biomass of prey material out there other than plankton and that sort of thing. I think it's very important to show how all of the components work together so that all the fisheries that have something to do with herring get their fair share out of it.”

“The harvest policy for this stock should have the capacity to generate multiple components of the ABC, in order to support sub-regional and or temporal specification of catch levels to meet ecological goals for forage fish embodied in the amended FMP”

4.4.4 Other Desired Outcomes

With improvements in the Atlantic herring resource, 142 individuals and nine NGOs, through two oral and 85 written comments wished to see benefits to the predator fish resources (e.g., groundfish, tuna) and the fisheries (recreational, charter, commercial) that rely on them. Comments emphasized the economic value to the communities with businesses that rely on herring as prey. Through shifting herring fishing effort offshore, other commenters hoped that essential fish habitat for juvenile fish would be better protected (e.g., in the Inshore Juvenile Cod Habitat Area of Particular Concern), bycatch of juvenile groundfish would be reduced, and river herring abundance would be improved.

“I urge the Council to explicitly analyze the value of all the fisheries that rely on having a healthy herring resource when developing the amendment. This number will dwarf the value of this species to the directed herring fishery.”

“. . . abundance of forage food and how it supports the commercial fishermen in the groundfish fishery and in the charterboat business, the most important fact is the economic benefits for the surrounding communities that feed on these businesses.”

4.5 SPECIFIC IDEAS FOR AMENDMENT 8

4.5.1 Goals and Objectives

Two individuals and 11 NGOs through two oral and 13 written comments offered ideas for Amendment 8 goals and objectives, many of which align with the goals and objectives that the Council identified in June 2015:

- Design and implement a strategy for managing Atlantic herring in an ecosystem context that accounts for and protects its ecological role as forage.
- Establish a control rule that protects the role of Atlantic herring in the ecosystem while providing for the biological needs of the herring resource and sustainable levels of fishing.
- Prevent localized depletion of population components (spawning sub-groups) to protect the spatial and temporal availability of prey.
- Establish ecological reference points, targets and thresholds, that maintain herring biomass significantly above B_{MSY} , in accordance with a consensus that has emerged from the scientific community and consistent with the National Standard 1 guidance referenced in the scoping document.
- Facilitate the use of climate science to create a strategy that is robust and responsive to changing climate conditions.
- Ensure that the harvest policy allows for a size and age distribution in the population throughout their natural range that does not suffer from truncation- providing a full size and age spectrum for predators (feeding strategies, migratory routes, seasonal timing) and for reproduction of herring (i.e., older animals).

4.5.2 Alternatives

Specific ideas for Amendment 8 alternatives were suggested by 305 individuals and 25 NGOs through ten oral and 186 written comments. Table 9 provides most of the specific ideas for alternatives, indicating the number of individuals and NGOs and the number of comments received on each topic. The more commonly desired approaches are described below. Ideas primarily concern the development of a control rule that accounts for herring's role in the ecosystem and for limiting herring fishery effort inshore.

Table 9 – Specific ideas for alternatives, as articulated in comments

Topic	People commenting (#)		Comments (#)	
	NGO	Other	Oral	Written
All ideas for alternatives combined	25	305	10	186
<i>ABC control rule and other reference points</i>				
Revise biomass target	10	1	2	10
Revise fishing mortality rate	13	5	3	16
Create biomass cut-off	5	0	0	5
Consider forage needs on a sub-regional basis	4	3	1	4
Create rules for data-poor situations	4	0	1	4
Maintain stability of catch when stock conditions are normal	1	0	0	1
<i>Herring fishery effort</i>				
Midwater trawl restrictions				
Expand Area 1A closure to year-round	7	82	0	42
Make inshore closure year-round throughout New England	3	242	0	98
Create new buffer off Cape Cod and RI	7	116	0	56
Ban midwater trawls	1	15	0	16
Other area restrictions	2	2	0	4
Lower Annual Catch Limits	0	4	0	4
Promote use of fixed gear	1	0	0	1
Ban commercial herring fishing	0	1	0	2
Create day or trip limits inshore	1	0	0	1
Limit capacity of seiners/carryer vessels	1	1	0	2
<i>Other ideas</i>				
Revise observer coverage requirements	0	2	0	2
Allocate a set-aside of herring for predators	1	1	1	1
Create socioeconomic guidelines for the SSC to consider	1	0	0	1

4.5.2.1 ABC Control Rule and Other Reference Points

Commenters, primarily environmental NGOs, offered specific ideas for revising the ABC control rule to account for ecosystem needs. The most specific comment about how to do so suggested that multiple components of the ABC be generated, so that sub-regional or temporal specifications of catch levels could be included, with attention to both forage needs aspects and spawning aggregations.

Ideas for the biomass target (B) include:

- Keep it above B_{MSY} to enhance and protect the marine ecosystem.
- Make it at least 75% of virgin biomass (B_0).

Ideas for the fishing mortality rate (F) include:

- Set F proportional to B (reduce fishing as biomass declines).

- Recalibrate F annually based on B size.
- Set F at 50% of F_{MSY} or 50% of natural mortality (that is, the smaller of the two).
- Halt fishing (i.e., create biomass cut off) if $B < 40\% B_0$.
- Set the probability of overfishing to under 50% (<30% suggested a few times), applied stock-wide and to the individual sub-areas.

Other comments included that there should be a data poor control rule as a backstop if there is no acceptable assessment. An example was given that F may not exceed 0.2 when neither total mortality nor F_{MSY} can be reliably estimated. Another was to set catch at the median catch for the most recent time period (3 or 10 years suggested). However, the data poor control rule should be considered temporary, only to be used for up to three years to allow time for a new benchmark assessment.

One herring industry NGO supported allowing herring catch to remain stable (e.g., the current constant quota approach) when the reference points are within a normal range of conditions (e.g., not overfished).

“Evaluation and selection of a final control rule should be based on a suite of pre-established performance metrics such as average and mean biomass, mean and average catch, percent of years with no catch and variability in year-to-year catch.”

“[Estimating natural mortality] cannot ensure predator needs are satisfied adequately, nor can they tell you if herring is available to predators in the times and places they need it. Defining “forage adequacy” based on achievable criteria should be a centerpiece of the control rule.”

4.5.2.2 Herring Fishery Effort

Most of the comments with specific ideas for alternatives regarded limiting effort in the Atlantic herring fishery. These ideas stemmed from concerns about inshore localized depletion of Atlantic herring, bycatch, and the impacts of harvesting what is perceived to be a large volume of herring per tow by midwater trawl vessels.

Ideas for limiting fishery effort include:

- Extend the current five month closure of Area 1A (January-May) to a year-round closure.
- Create a year-round closure for midwater trawl vessels:
 - For 30 up to 50 miles from shore throughout the Northeast.
 - For 30 up to 50 miles off Cape Cod and Rhode Island.
- Ban the use of midwater trawls in the Atlantic herring fishery.
- Ban the directed fishery for Atlantic herring inshore by any gear type.
- Create in-season closures should herring fishery effort concentrate into small areas.
- Ban fishing for Atlantic herring in groundfish closed areas.
- Lower Annual Catch Limits.
- Promote use of fixed gear.
- Ban commercial herring fishing all together.
- Create day or trip limits to constrain effort inshore.
- Limit the capacity of carrier vessels used by purse seine vessels to constrain effort.

4.5.2.3 Other Ideas

Other ideas for measures were proposed, though some may be outside the scope of the Council's Amendment 8 goals:

- Observers:
 - Require 100% observer coverage for midwater trawl vessels.
 - Require midwater trawl vessels to pay 100% of observer costs.
 - Require 100% industry-funded observer coverage when fishing in Area 1A.
- Create an ACL set-aside to account for the needs of marine predators rather than in an uncertainty buffer.
- Create guidelines for the Science and Statistical Committee to consider the socioeconomic implications of reference points.

4.5.3 Scientific Studies Referenced

An exhaustive review of the scientific studies cited by nine individuals and 19 NGOs through 26 written and six oral comments is beyond the scope of this memo. There were citations to support specific measures recommended (Section 4.5.2). Several stakeholders mentioned an "emerging scientific consensus" that fishing mortality rate (F) should not exceed 75% of the unfished biomass (maximum spawning potential).

On the other hand, those stakeholders wary of considering herring as forage in the control rule cited scientific studies to support their perspective. They emphasized international studies that show that the stock size of forage species is determined by long-term environmental factors (especially climate and temperature), not fishing pressure. Furthermore, one stakeholder commented that recommendations of some of the cited literature are based on maximization of conservation values rather than the multi-faceted objectives of the Magnuson-Stevens Act.

"The Antarctic Krill policy, sometimes called the 'predator criterion', is consistent with the fact that low trophic level forage species, or prey species with high predation rates, are less resilient to intensive fishing mortality than higher trophic levels and thus merit more precaution."

"Simply feeding a species more does not mean that it will increase in numbers."

4.5.4 Examples of how other Fisheries are Managed

Several examples were noted by five individuals and 11 NGOs through 13 written and six oral comments of other fisheries that have implemented measures similar to those envisioned for Amendment 8. It was noted that the Pacific, North Pacific and Mid-Atlantic Councils have models that recognize the importance of protecting forage fish when setting ABC. Examples included Antarctic krill, Alaska herring, and Pacific sardine and mackerel. Commenters noted that these fish are managed such that fishing ceases if the stock abundance declines below 40% the virgin biomass (or higher in some cases). Krill has been managed since 1991 by the Commission for the Conservation of Antarctic Marine Living Resources to account for the requirements of predators. Canada's Policy on Fisheries for Forage Species states that harvest should not be concentrated such that localized depletion occurs.

4.6 TRADEOFFS

About 33 NGOs and 150 individuals through 17 oral and 120 written comments articulated tradeoffs that the Council should consider when developing Amendment 8. Fairness and equity echoed in these comments.

4.6.1 Value of Herring to Ecosystem

The importance of herring to the ecosystem was commented on by 25 individuals and 16 NGOs. Comments focused on herring as a cornerstone species in the ecosystem. More specifically, herring's role as a predator was commented on by five individuals and seven NGOs.

“When you take an ecosystem approach, you consider herring’s role as forage, as a predator, as a competitor in a system. I think that is something that should be equally-balanced.”

4.6.2 Value of Herring to Herring and Lobster Fisheries

The importance of herring to the herring and lobster fisheries was commented on by 13 individuals and seven NGOs. The value of the lobster fishery to New England and local communities was emphasized in a variety of comments. A fear of jeopardizing optimum yield and the herring industry was also expressed.

“Many of the small villages that make up the iconic coast of New England would financially collapse if not for lobstering.”

“...Amendment 8, an action that can have potentially significant impacts on the herring industry and already hard-hit fishing communities like Gloucester.”

“...we STRONGLY feel that any reclassification of herring into the forage stock will be yet another devastating blow to the commercial lobster industry here in New England.”

4.6.3 Value of Herring to Other Fisheries and Stakeholders

The importance of herring to other fisheries (e.g., groundfish, striped bass, tuna) and stakeholders (e.g., whale watching businesses) was commented on by 139 individuals and 25 NGOs. The comments noted that herring had value beyond fisheries, including as noted above, affecting whale and bird-watching. There were reminders that the economic value of predators should be included in the analyses of management measures, including the value of whale and bird watching, recreational fisheries, and commercial fisheries.

“The Council should also include a full analysis on herring's value to our region as a food source in the water.”

“But when you have 60-70 guys in a 5-6 mile area fishing, getting a little fish to make a living. And then all of a sudden, all the herring is being caught. And then there is no bait, and with no bait, there is no fish, no money, no living. I think there should be a little more emphasis or consideration for all of the fishermen in one area so that everyone can make money.”

5.0 STAKEHOLDER NETWORKS

In addition to the form letters signed by multiple people, about 60 of the written comments signed by over 200 people used similar text, indicating collaboration and networking among stakeholders in developing comments. There were six to eight versions of text, and many people opted to personalize the letters. For example, there were 19 letters that included a phrase like “any fisherman can tell you that herring plays a critical role as a forage source.” These duplicate or quasi-duplicate letters may have been written by an organization(s) as a template and then distributed. These letters were submitted primarily by fishermen other than herring fishermen. A few letters from stakeholders with commercial herring interests opted to say that they agree with a particular letter rather repeat specific comments.

Appendix I - Non-governmental Organizations that Commented

Commercial interests	Ad Hoc Pelagics Coalition
	American Bluefin Tuna Association
	Cape Cod Commercial Fishermen’s Alliance
	Massachusetts Lobstermen’s Association
	Maine Coast Fishermen’s Association
	Sustainable Fisheries Coalition
Environmental & state/local focus	Audubon Society of Rhode Island
	CT Fund for the Environment, Save the Sound
	Global Awareness Local Action
	Gotham Whale
	Great Egg Harbor Watershed Assoc. & Council
	Greater Boston Chapter, Trout Unlimited, Inc.
	Ipswich River Watershed Association
	Mystic River Watershed Association
	Nantucket Land Council, Inc.
	New Hampshire Animal Rights League
	New Hampshire Audubon
	Parker River Clean Water Association
	Red Lily Pond Project Association
	Save the Bay
	Seacoast Science Center
Wood-Pawcatuck Watershed Association	
Environmental & National/regional focus	Conservation Law Foundation
	Earth Justice
	Ocean River Institute
	Pew Charitable Trusts
	Wild Oceans
Other fishing interests	Coalition for the Atlantic Herring Fishery’s Orderly, Informed and Responsible Long Term Development
	Coastal Conservation Association of NH
	CT-RI Coastal Fly Fishermen
	Delaware River Shad Fishermen’s Association
	Herring Alliance (103 member organizations)
	ME Association of Charterboat Captains
	Northeast Charterboat Captains’ Association
	Penobscot East Resource Center
	Recreational Fishing Alliance
	Rhode Island Saltwater Angler’s Association
Stellwagen Charter Boat Association	