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New England Fishery Management Council

50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116

C. M. "Rip" Cunningham, Jr., *Chairman* | Paul J. Howard, *Executive Director*

To: Paul J. Howard, Executive Director
From: Scientific and Statistical Committee
Date: December 10, 2012

Subject: Herring ABC Control Rule Alternatives

The Scientific and Statistical Committee (SSC) met on November 19, 2012 to address herring acceptable biological catch (ABC) control rule alternatives for forage species.

The SSC was asked to:

1. Evaluate the ABC control rule alternatives suggested in the October 8, 2012 correspondence from Earth Justice (attachment) relative to the two alternatives previously endorsed by the SSC for the 2013-2015 herring fishery specifications (75% FMSY and Constant Catch). The two alternatives proposed by Earth Justice are: (1) the control rule based on the Lenfest Forage Fish Task Force Report and (2) a harvest control strategy for forage fish modeled after the Pacific Fishery Management Council's approach for Coastal Pelagic Species.

In order to meet these terms of reference, the SSC considered the following:

1. October 8, 2012 Correspondence from EarthJustice re. Atlantic Herring Fishery Specifications for FY 2013-2015
2. October 18, 2012 Herring PDT Report
3. Draft Discussion Document: 2013-2015 Atlantic Herring Fishery Specifications
4. September 2012 Scientific and Statistical Committee (SSC) Report (Herring)
5. November 7, 2012 Draft Herring Committee Meeting Summary
6. SAW 54 Assessment Summary Report (July 2012)
7. Presentation from Herring Plan Development Team

The SSC considered two different aspects relative to the terms of reference for this topic: 1) the short term catch advice, meaning the 2013-2015 specifications, and 2) development of long term control rules to address the issue of whether the increased natural mortality rate (M) in the assessment fully captured all the ecosystem needs (including humans) related to forage species. Regarding the short term catch advice, it is difficult to address the Pacific control rule because the specific values of the cutoff, buffer, and fraction have not been specified for Atlantic herring. The SSC considered that the previous catch advice we recommended is probably higher than the catch recommended by this control rule, but that the spawning stock biomass expected in 2015 under either of our previous recommendations is well above the targeted 40% unfished amount. Similarly, the two current ABC recommendations are broadly consistent with the biomass aspect of the LenFest control rule (75% unfished) at currently estimated stock sizes and associated reference points. Thus, **the SSC concluded that the previous ABC recommendations are broadly consistent with the intent of the two new control rules suggested by Earth Justice in terms of the 2013-2015 specifications.** Broad consistency between the SSC's recommendation and the

control rule options suggested by Earth Justice should not necessarily be interpreted as an endorsement of Earth Justice's suggestions. As discussed below, more analysis is needed.

Regarding the development of long term control rules, the SSC could not address this issue at this meeting due to a lack of information to evaluate the performance such rules. A number of issues were discussed relative to this topic which would need to be considered when conducting the analyses. For example, multispecies predator-prey models could be used to directly evaluate the trade-offs between catch of a forage species and its ability to provide nutrition to predators targeted by other fisheries. Indicators could be determined for when herring are not meeting their role of forage in the ecosystem. The logical problems of basing catch advice on maximum sustainable yield from a single species model when the species is being modeled as having a changing natural mortality rate due to changes in consumption would need to be addressed. There are possible unintended consequences relative to treating forage species differently than other managed species, such as the potential for a large population of herring to compete directly with whales for food or to eat the eggs of groundfish. Given all these considerations, the SSC agrees with the Plan Development Team that more analysis is needed before long term control rules can be implemented for this species. **The SSC recommends that control rules for forage species should be part of a broader national workshop that involves the community that advises the Council system.**

While the control rules suggested by Earth Justice could not be evaluated at this meeting, it was noted that the Pacific control rule had a feature that should be avoided in any control rule: a step function where a small change in biomass made a large and sudden change in the acceptable catch. Instead, a ramped change in catch as biomass changes would be more appropriate from both a biological and management perspective.