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New England Fishery Management Council

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 John Pappalardo, *Chairman* | Paul J. Howard, *Executive Director*

MEMORANDUM

DATE: September 25, 2008
TO: Scientific and Statistical Committee (SSC)
FROM: Council
SUBJECT: Review of modified overfishing definition under consideration in Scallop Amendment 15

One issue the Council identified as a priority item to be considered in Scallop Amendment 15 is modifying the scallop overfishing definition. When area rotation was implemented under Amendment 10 the Council considered an overfishing definition that was more spatially based to better complement the rotational area management program proposed under Amendment 10. For a variety of reasons the Council did not recommend changing the overfishing definition in Amendment 10; however, several issues have come up in recent years to warrant re-examination of the current definition.

The modified overfishing definition achieves a time-averaged fishing mortality target of $F=0.20$ in all areas not under long-term closure. In general, the modified definition is the same as the current definition, except in three important ways. First, the modified overfishing definition would raise the biomass threshold from $\frac{1}{4}$ of the B_{msy} target to $\frac{1}{2}$ of that target. Second, the two definitions differ in how the fishing mortality rate is determined and judged against the fishing mortality reference points. The modified approach is designed to maximize yield from scallops that are or will be available to the fishery. Although the biomass level includes scallops that occur in long-term area closures, the fishing mortality rate is calculated from the proportion of exploitable scallops removed from areas available to the fishery. The fishing mortality target is set as a percent of the threshold to lessen risk of overfishing. Prior to Framework 19 that target was set at 80% of the threshold, but the Council recommended in Framework 19 that the target remain at $F=0.20$, although the threshold is now 0.29 based on the recent stock assessment. The modified overfishing definition does include a principle that when 20% or more of the total scallop biomass is within long-term closed areas, the fishing mortality target should increase from 80% of the threshold to 100% to recognize the conservative value of the closed areas. Lastly, the modified definition allows more flexibility for setting annual fishing mortality targets to meet area rotation objectives compared to the rigid threshold defined in the current overfishing definition ($F=0.29$ every year).

The PDT has been supportive of modifying the current overfishing definition to more appropriately address area rotation and protect against loss of yield due to excessive open area fishing. The time-averaging approach provides the ability to obtain yields higher than a constant Fmsy, while maintaining flexibility and consistency in catch and other environmental factors that may require some areas to be closed (i.e. EFH and finfish discard concerns).

The SSC reviewed the modified overfishing definition proposed in Amendment 10 and determined that the stock would not be protected from growth overfishing under the current definition, that is loss of yield due to excessive fishing mortality rates will occur in open areas. They recognized that permanently closed areas offer a way to keep the total biomass above minimum biomass thresholds but potentially restrict fishing opportunities. Overall the SSC recommended that the modified overfishing definition “provides an appropriate scheme for addressing area rotation and protects against the loss of yield due to excessive fishing in open areas. It allows management flexibility both in terms of which areas are opened and the time frame over which the stock is utilized.”

The Council is requesting that the SSC review the modified overfishing definition again for several reasons: minor adjustments have been made to the definition; several years have passed by since the definition was first considered and there are new SSC members and Council members; and since implementation of the new MSA there may be reasons to revisit how this definition is set up and what it can achieve.

For this discussion there are several background materials. Please review these in advance of the SSC meeting.

1. Presentation by Dr. Dvora Hart for October 6, 2008 SSC meeting
2. Yield- and biomass-per-recruit analysis for rotational fisheries, with an application to the Atlantic sea scallop (Hart, 2003)
3. Overfishing Definitions and Control Rules for the Sea Scallop Fishery Under Rotation Management (Honeig, 2002)
4. Individual-based yield-per-recruit analysis, with an application to the Atlantic sea scallop (Hart, 2001)

Overall, the SSC is being asked to review this approach and inform the Council if it should be considered in Amendment 15. In addition, identify if there are any modifications or alternatives that should be considered.