



New England Fishery Management Council

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**To:** Paul J. Howard, Executive Director  
**From:** Dr. Steve Cadrin, Chairman, Scientific and Statistical Committee  
**Date:** September 23, 2009

**Subject: Scallop Fishery Management Plan Acceptable Biological Catch (ABC) in Amendment 15 and Framework Adjustment 21**

The Scientific and Statistical Committee (SSC) was asked to 1) review updated analyses of uncertainty in catch associated with the overfishing limit (OFL) and to 2) recommend ABC for the 2010 fishing year. On August 11 2009, the SSC reviewed several sources of information and associated presentations by the Scallop Plan Development Team (PDT):

1. SSC memo to Scallop PDT, February 18, 2009
2. Excerpt from Scallop Amendment 15 DEIS 6 Description of ACL-related alternatives only
3. Summary document on quantitative estimate of uncertainty of OFL
4. Estimate of ABC for fishing year 2010 for Framework Adjustment 21 to the Scallop Fishery Management Plan

In April 2009, the SSC recommended that:

- *Managing the current scallop fishery so that fishing mortality is less than  $F_{max}$  complies with National Standard 1 (preventing overfishing while achieving the optimum yield on a continuing basis).*
- *At this time, no analysis has been provided to demonstrate that the proposed ABC complies with National Standard 1 Guidelines. Uncertainty in the estimate of OFL has not been quantified, and performance of alternative ABC methods with respect to preventing overfishing has not been evaluated. Therefore, a method to derive ABC will be recommended at a later date.*

The Scallop PDT presented an updated analysis of uncertainty of OFL based on a previous SSC recommendation to finalize a scallop ABC recommendation for fishing year 2010. The stochastic estimate of  $F_{max}$  (which considers uncertainty in natural mortality, growth, meat yield, selectivity, discard mortality and non-capture mortality) is 0.37. The stochastic estimate is somewhat greater than the previous estimate of  $F_{max}$  from deterministic calculations (i.e., assuming no uncertainty in component processes).

The PDT examined the consequences of a range of fishing scenarios, the associated probability of overfishing (i.e., probability that 2010  $F$  is greater than  $F_{max}$ ) and the projected loss in yield relative to  $F_{max}$ . Based on the results of these analyses, the SSC endorses the proposal by the Scallop PDT and other conventions of risk-based harvest rules that ABC be based on 25% probability of overfishing. Analyses of uncertainty indicate that a 25% risk of overfishing is associated with less than 1% loss in yield relative to  $F_{max}$ .

Choosing the optimal degree of risk and probability of overfishing is a management option to be determined by the Council, with input from the Scallop PDT and the SSC on scientific consequences of alternative degrees of risk. For illustration purposes, the following table presents alternative projections of fishing mortality and yield at alternative probabilities of overfishing.

Probability of Overfishing	2010 Fishing Mortality	2010 Yield
20%	0.27	28,500
<b>25%</b>	<b>0.29</b>	<b>29,500</b>
30%	0.30	30,500

The SSC recommends that Acceptable Biological Catch of scallops in 2010 should be 29,578 mt for the overall fishery, which includes landings plus discard and incidental mortality.