



New England Fishery Management Council

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To: Deirdre Boelke, Chair, Scallop Plan Development Team
From: Dr. Steve Cadrin, Chair, Scientific and Statistical Committee
Date: April 7, 2009

Subject: Methods for economic and social impacts for Scallop Amendment 15

The SSC developed consensus recommendations for the Council on methods for economic and social impacts for Scallop Amendment 15. This technical feedback is provided with the intention of working with the habitat PDT to improve the analyses.

SSC Recommendations to the Council are:

- 1. Differences in fishing power among vessels should be considered in effort consolidation alternatives (e.g., permit stacking or leasing). The proposed fishing power adjustments are conditional on the recent and current suite of regulations that affect fishing power. If a reduction in fishing capacity is desired, fishing power adjustments should be re-estimated under alternative sets of regulations under consideration in Amendment 15.*
- 2. The positive relationship between catch rate and days-at-sea allocation should be further explored before incorporating the proposed 'increased returns' adjustment.*
- 3. The scope of the social impact assessment should address several general issues, including preservation of traditional and cultural values, cultural diversity, community stability, and the livelihood of fishermen; equity among user groups; diversity among recreational and commercial users; and the role of the fishing community in American culture and tradition.*

More detailed feedback is organized by topic.

- Fishing Power Adjustments
 - Coefficients for fishing power adjustment should be revised if regulations affecting fishing power (e.g., crew size, trip limits) are relaxed. Note that fishing power adjustments for stacking cannot be adjusted after the stacking occurs.
 - The proposed method to estimate fishing power adjustments among groups of vessels, by size and horsepower, was preferred over paired comparisons among all vessels in the fleet, because aggregate adjustment coefficients are a more efficient use of the data.
 - The positive relationship between LPUE and DAS allocation implied by the Cobb-Douglas production model is inconsistent with trends observed in other fisheries in which LPUE is greater at moderate allocations of days, presumably because fishermen cannot select the most efficient conditions when fishing full-time. The domed relationship implied by the translog model more accurately captures the increased efficiency from few days to a moderate allocation of days to maintain a regular operation as well as the diminishing returns associated as the allocation approaches full-time fishing. Therefore, a simple increasing returns adjustment may not be appropriate, and other variables that explain differences in productivity between vessels should be explored.

- Cost-Benefit Modeling
 - The low portion of explained variance in the fixed costs model ($R^2=0.31$) may result from data quality problems. The source of information (e.g., vessel owners survey or observer data) should be identified, and data quality issues should be investigated to use the data most appropriately and develop recommendations for collection of better fixed cost data.
 - Co-linearity of explanatory variables may be a problem for linear models that include multiple variables associated with vessel size (e.g., the fixed costs model includes both horsepower and length). For these models, revisions should be considered that either select the single vessel size variable that explains the most variance or uses composite variables.
- Social impact assessment methods
 - The social impact assessment should document the social context of the fishery prior to permit leasing and stacking as well as the expected social context of each alternative under consideration.
 - The approaches to assessing the social impacts can be both qualitative and quantitative.
 - Output from economic analysis is one tool to help guide the social impact assessment but should not be the primary approach to guide and inform the assessment for each management alternative. There may be a need for the collection of sociological data to adequately assess the social consequences of the social impact assessment.
 - Information from the recent community profiling project should be considered, but the nature of Amendment 15 may require a profile of fishing sectors as opposed to communities.
 - Examination of the public comments obtained from scoping meetings and public hearings should be used to identify and direct the literature review as well as the collection and analysis of secondary and primary data needed to complete the social impact assessment. The public comment and transcripts from hearings could be reviewed and coded using qualitative text analysis tools.
 - Primary and secondary impacts from shore side businesses that are directly and indirectly associated with the scallop fishery should be included in the analysis.
 - Several other relevant fisheries should be included in the literature review, in addition to those identified by the PDT:
 - Western Australia Rock Lobster.
 - Canadian Atlantic Herring
 - South Africa Rock Lobster
 - Australian southern Bluefin Tuna
 - Netherlands North Sea Flatfish, Round fish, Herring/Mackerel
 - Namibian hake
 - Chile

The SSC looks forward to working with the PDT in the refinement of socioeconomic methods. Please contact me, Dan Georgiana (the SSC lead for scallop economic analyses) or Rob Robertson (the SSC lead for social analyses) as these methods develop.