

# Atlantic States Marine Fisheries Commission

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*Working towards healthy, self-sustaining populations for all Atlantic coast fish species, or successful restoration well in progress, by the year 2015*

## Memorandum

January 27, 2009

### Update on American Eel Stock Assessment

Technical Committee Report

John Clark, Chair

### Background

In 2005, the Atlantic States Marine Fisheries Commission updated *Stock Assessment Peer Review Process* to incorporate guidelines for conducting benchmark stock assessments. The term *benchmark stock assessment* refers to a stock assessment that goes through an external peer review. Benchmark assessments are prompted by new fishery management actions, a major change in stock assessment model or data, or a Commission or Fishery Management Council time-trigger. The Commission has employed a five-year trigger to prevent excessive time from elapsing between peer reviews of each species assessment used by management.

The purpose of the Benchmark Stock Assessment and Peer Review Process is to: (1) validate the credibility of the scientific basis for management; (2) improve the quality of Commission stock assessments; (3) ensure that stock assessments for all species managed by the Commission periodically undergo formal peer review; and (4) improve public understanding of fisheries stock assessments.

### Past American Eel Assessments

The most recent peer reviewed stock assessment was presented to the Commission's American Eel Management Board in February 2006. The stock assessment did not meet some of the terms of reference according to the Terms of Reference and Advisory Report to the American Eel Stock Assessment Peer Review (ASMFC 2006). In May 2006, the Board tasked the American Eel Stock Assessment Subcommittee (SASC) with following up on specific recommendations in the peer review report to improve the 2005 stock assessment. The SASC follow-up to the Terms of Reference and Advisory Report to the American Eel Stock Assessment Peer Review was presented to the Board in October 2006. This report was inconclusive regarding the status of the stock. In their follow-up report, the SASC used the General Linear Model (GLM) to combine several yellow eel datasets from the United States and Canada and create an Atlantic Coast index for American eel. The SASC's report included a suggestion that the coastwide yellow eel GLM index could be used as a management trigger and would be a means to monitor coastwide, yet act locally.

## **Recommended Terms of Reference**

1. Evaluate precision and accuracy of fishery-dependent and fishery-independent data used in the assessment, including the following but not limited to:
  - a. Discuss the effects of data strengths and weaknesses (e.g. temporal and spatial scale, gear selectivities, aging accuracy, sample size, standardization of indices) on model inputs and outputs.
  - b. Report standard errors of inputs and use them to inform the model if possible.
  - c. Justify weighting or elimination of available data sources.
2. Evaluate adequacy, appropriateness, application, and uncertainty of models or other analytical methods for use in the assessment of the species and estimating population benchmarks.
  - a. Did the model have difficulty finding a stable solution? Were sensitivity analyses for starting parameter values, priors, etc. and other model diagnostics performed?
  - b. Have the model strengths and limitations been clearly and thoroughly explained?
  - c. If using a new model, has it been tested using simulated data?
  - d. Has the model theory and framework been demonstrated and documented in the stock assessment literature?
  - e. State and evaluate assumptions made for all models and explain the likely effects of assumption violations on synthesis of input data and model outputs.
3. Recommend stock status as related to reference points (if available). For example:
  - a. Is the stock below the biomass threshold?
  - b. Is F above the threshold?
4. Develop detailed short and long-term prioritized lists of recommendations for future research, data collection, and assessment methodology. Highlight improvements to be made by next benchmark review.

## **Recommended Venue for Peer Review and Timeline for Completion**

The Technical Committee discussed the time requirements for undertaking an American eel assessment as well as the preferred venue for peer review through a conference call in January 2009. The Technical Committee's preferred venue for peer review is the Transboundary Resources Assessment Committee (TRAC). TRAC reviews stock assessments for shared resources across the USA-Canada border. If this option is selected the Technical Committee estimates completion of the stock assessment in early 2011. ASMFC Staff is currently looking into the feasibility of this option. The Technical Committees' second preferred option would be an ASMFC external peer review.