

South Atlantic Dolphinfish MSE

1. Overview

Context

Agenda

Materials



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1a. About the Process

Need:

- NOAA Fisheries is mandated by the Magnuson-Stevens Fishery Conservation and Management Act, Endangered Species Act, and Marine Mammal Protection Act to conserve, protect, and manage our nation's marine living resources based upon the best scientific information available (BSIA).
- A formal external process for independent expert reviews of the agency's scientific products and programs ensures the credibility of NOAA Fisheries science products.
- The Office of Management and Budget (OMB), authorized by the Information Quality Act, requires all federal agencies to conduct peer reviews of highly influential and controversial science before dissemination, and that peer reviewers must be deemed qualified based on the OMB Peer Review Bulletin standards.

Definition:

- Scientific peer review is defined as the organized review process where one or more qualified experts review scientific information to ensure quality and credibility.

Reviewer Requirements:

- Experts must:
 - conduct their peer review impartially, objectively, and without conflicts of interest.
 - be independent from the development of the science, without influence from any position that the agency or constituent groups may have.
 - peer reviewers must be deemed qualified based on the OMB Peer Review Bulletin standards.

1b. Aims and Objectives

Scope:

SEFSC in collaboration with SAFMC, SERO, Blue Matter Science, and others embarked on a full-stakeholder MSE for dolphinfish in the US Atlantic (FL - ME).

Objective:

Develop an empirical (indicator-based) management procedure (MP) for dolphinfish in the US Atlantic that: meets legally mandated and regionally-varying stakeholder-defined management objectives to achieve optimum yield.

Purpose:

Review scientific validity of the dolphin MSE to ensure consistent with best scientific information available.

1c. Participation

MSE Modelling Technical Team

Tom Carruthers, Adrian Hordyk, Quang Huynh (**Blue Matter Science**)

Cassidy Peterson, Mandy Karnauskas, Kyle Shertzer, John Walter (**SEFSC**)

Matt Damiano (**NCDMF**, previously NCSU & SEFSC), Jie Cao (**NCSU**)

Scientific & Stakeholder Science Team

Matt McPherson, Suzana Blake (**SEFSC**)

Julia Byrd, John Hadley (**SAFMC**)

Nikhil Mehta (**SERO**)

Wess Merten (**Beyond Our Shores Foundation**), Lela Schlenker (**Avangrid**)

Stakeholder Participants

Small stakeholder working group (appointed by SAFMC through application process): 19 stakeholders across regions (SFL, central FL - SC, NC, VA and north) and sectors (**commercial, private recreational, for hire recreational, seafood market, NGO**)

Feedback from **SAFMC** and **SSC**

1d. Tasks for Reviewers

- 1) Pre-review Background Documents: Review the following background materials and reports prior to the review:
 - Project overview and supporting information: <https://blue-matter.github.io/mahiMSE/>
 - Trial specifications document: <https://blue-matter.github.io/mahiMSE/tsd/TSD.html>
 - Github repositories:
 - DolphinMSE repository (private data processing, OM generation, etc.): <https://github.com/Blue-Matter/DolphinMSE>
 - mahiMSE repository (public-facing R package for dolphin MSE): <https://github.com/Blue-Matter/mahiMSE> | User manual: <https://blue-matter.github.io/mahiMSE/tsd/docs/mahiMSE.html>
 - Reference and robustness set of OMs: <https://github.com/Blue-Matter/mahiRefSet> | <https://github.com/Blue-Matter/mahiRobSet>
 - Shiny app: <https://shiny.bluematterscience.com/app/slick> | results object: <https://blue-matter.github.io/mahiMSE/tsd/data/Slick/mahiSlick.rda>
- 2) Attend and participate in an in-person review meeting. The meeting will consist of presentations by NOAA and other scientists, stock assessment authors and others to facilitate the review, to answer any questions from the reviewers, and to provide any additional information required by the reviewers.
- 3) After the review meeting, reviewers shall conduct an independent peer review report in accordance with the requirements specified in this PWS, OMB guidelines, and ToRs, in adherence with the required formatting and content guidelines. Reviewers are not required to reach a consensus.
- 4) Each reviewer shall assist the Chair of the meeting with contributions to the summary report.
- 5) Deliver their reports to the Government according to the specified milestones dates.

1e. Terms of Reference

1. Evaluate the types and ranges of uncertainty used in the MSE. Explicitly consider uncertainty in data, life history, process error, nonstationarity (i.e., environmental variability and oceanographic changes), and if appropriate, fishery dynamics.
 - a. Were selected axes of uncertainty relevant to the stock and fishery and appropriately characterized? If relevant, were uncertainties highlighted by managers and stakeholders included?
 - b. Did levels of uncertainty for each axis meaningfully and reasonably encompass plausible uncertainty?
 - c. Were uncertainties appropriately classified into reference (primary) or robustness (secondary) set and sufficiently explained?
2. Evaluate the strengths and weaknesses of methods used to simulate the stock.
 - a. Are methods to generate operating models scientifically sound?
 - b. Did methods meet the needs of stakeholders and/or research questions (i.e., appropriate spatial resolution, time-step, ability to measure key performance statistics)?
 - c. If data were unavailable to parameterize the model, were the assumptions used to overcome this limitation reasonable and/or multiple assumptions included as an axis of uncertainty?
 - d. Was plausibility weighting of reference operating models appropriate and sufficiently justified?
 - e. Does the robustness of the operating model grid allow the management procedure to fail?

1e. Terms of Reference

3. Evaluate operating model conditioning.
 - a. Did conditioning the operating model on available data result in simulated data with reasonable statistical properties relative to what would be available to the management procedure?
4. Evaluate MSE projections.
 - a. Did the operating models project data that would be available to the management procedure?
 - b. Were projection assumptions reasonable and appropriate for the stock (e.g., decisions about future parameter estimates and uncertainty; resampling approaches to generate future data; future nonstationarity, productivity, etc.)?
5. Evaluate performance metrics.
 - a. Do performance metrics include all legally mandated management objectives as outlined in the Magnuson-Stevens Fishery Conservation and Management Act (i.e., to include status determination criteria with suitable risk tolerance to measure probability of overfishing and overfished status; and rebuild overfished stock in accordance with rebuilding requirements)?
 - b. Did performance metrics sufficiently capture additional manager and/or stakeholder objectives to achieve optimum yield, if relevant (i.e., to include desired management objectives such as: total catch, catch rate, catch size, fishing opportunity/season length, etc.)?

1e. Terms of Reference

6. Evaluate candidate management procedures.
 - a. Did the candidate management procedures only utilize data available for the stock in practice?
 - b. Did the management procedure explore management tools and controls that are applicable to the stock (e.g., appropriate management procedure archetype)?
 - c. Were top-performing management procedures tuned to minimally achieve all satisficing criteria?
 - d. If empirical management procedure, does the MSE include a mechanism to periodically update stock status?
7. Provide or comment on recommendations to improve the MSE.
8. Prepare a Review Workshop Summary Report describing the Panel's evaluation of the MSE and addressing each TOR.

1f. Agenda

2. Introduction

- a. Biology and Ecology
- b. Fishery
- c. Management Questions
- d. Why MSE?
- e. MSE Roadmap
- f. Software, Documentation and Other Resources.

3. Model Inputs

- a. Fishery Data
- b. Biological Data and Parameters
- c. VAST Index

4. OM Conditioning Approach

- a. Spatially Aggregated RCM OM Conditioning
- b. Characterising Movement Implied by Spatial Indices (VAST)
- c. Imposing Spatial Structure and Solving for Spatial Exploitation Rate
- d. Characterizing and Projecting Seasonal Recruitment

Agenda cont.

5. Operating Models

- a. Reference Grid
- b. Reference Case
- c. Robustness Set

6. Data Simulation

- a. Indices
- b. Catches
- b. Lags

7. Management Procedures

- a. The mahiMP
- b. Status quo management
- c. Management regulations (trip limits, size limits)
- d. Empirical MPs
- e. MP tuning

8. MP Performance Summary

- a. Performance Metrics (reference point calculation)
- b. Performance Comparisons (projections, trade-offs, quilt plots)