SEDAR

Southeast Data, Assessment, and Review

Center for Independent Experts (CIE) SEDAR 104 Atlantic Dolphinfish Management Strategy Evaluation Independent Peer Review

Peer Review Report

Prepared by:

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October 2026

Executive Summary

This report presents my independent peer review of the Atlantic Dolphinfish Management Strategy Evaluation (MSE), developed by the Southeast Fisheries Science Center in collaboration with the South Atlantic Fishery Management Council, the Southeast Regional Office, Blue Matter Science, and stakeholders under SEDAR 104. The MSE aims to identify empirical, indicator-based candidate management procedures for Atlantic dolphinfish that satisfy legal mandates and stakeholder objectives. My review addressed all seven Terms of Reference, focusing on the technical and scientific soundness of the MSE framework rather than on the preliminary results themselves, since the scientific team indicated it would develop an extended set of operating models and management procedures before final results are produced.

I recommend that the MSE be accepted for continued development, conditional on the revisions identified in this report and in the Review Workshop Report.

The MSE's overall structure is scientifically sound, it appropriately broadens uncertainty beyond conventional stock-assessment parameter uncertainty to include biological, observation, process, spatial, environmental, and fishery-related axes, and it correctly distinguishes reference operating models from robustness scenarios. However, several elements require further development. Key weaknesses include the independent simulation of natural mortality and growth parameters, an unresolved dependency of the spatial structure on the VAST model, an unconstrained gravity-model movement formulation that may permit biologically implausible redistribution, and ambiguity in the interpretation of environmental/availability scenarios such as the proposed "blue-blob" test. A recurring and central concern is that the candidate management procedures control only US-managed catches, while international catch, unreported catch, and discards may represent a substantial and unquantified share of total removals, raising doubts about whether procedures that perform well for US catches would perform adequately for the stock as a whole.

The review identified needed improvements to diagnostics, performance metrics, and communication of results. The operating-model conditioning appears reasonable but needs stronger diagnostics demonstrating that simulated data resemble what would actually be available for management, particularly for the VAST-based index. Performance metrics should be expanded and reported separately for US-managed versus unmanaged removal components. I also emphasize that reference points embedded in the operating models are model assumptions, not empirical estimates of stock status, and that the MSE team must communicate this distinction carefully to managers and stakeholders.

Background

The review concerned the Atlantic dolphinfish MSE developed by the Southeast Fisheries Science Center, in collaboration with the South Atlantic Fishery Management Council, the

Southeast Regional Office, Blue Matter Science, stakeholders, and other participants. The stated purpose of the MSE is to evaluate empirical, indicator-based candidate management procedures for dolphinfish in the US Atlantic and to identify procedures that can meet legally mandated and stakeholder-defined management objectives.

The review was conducted in accordance with the Performance Work Statement and the Terms of Reference for SEDAR 104. The review activities included examination of the MSE documentation and supporting materials, presentations by the MSE development team, clarification of methods and assumptions, discussion of operating-model structure and conditioning, consideration of candidate management procedures and performance metrics.

The results presented were preliminary and the task for the reviewers was focused on the technical and scientific validation of the approach used, and not the assessment of results obtained and the management of the stock based on those results.

As such it is my understanding that recommendations to the scientific team about the methodologies used to set up the MSE system would be much more useful than comments about specifics of the results and their application to manage the stock.

In fact, it was clear that the scientific team would have to follow up on this workshop by setting an extended set of operating models and management procedures before producing the final results.

ToRs were very detailed and it wasn't always possible to follow the exact questions asked.

A detailed evaluation of all the ToRs is presented in the Review Workshop Report, which I fully support. In this section below, I'll be brief and add extra elements I consider relevant.

The report below presents my independent assessment of each ToR.

Findings by ToR

ToR 1: Evaluate the types and ranges of uncertainty used in the MSE

The MSE appropriately recognizes that uncertainty in dolphinfish management extends beyond parameter uncertainty in a conventional stock assessment. The inclusion of biological, observation, process, spatial, environmental, and fishery-related uncertainties is conceptually appropriate. It is also appropriate to distinguish reference operating models from robustness scenarios, provided that the distinction is clearly defined and justified.

Nevertheless, the treatment of several uncertainty axes requires further development.

Biological uncertainty

The joint simulation of natural mortality M and growth K considers the two parameters to be independent. This can produce combinations of life-history parameters that are internally inconsistent or poorly supported by empirical life-history relationships.

I recommend that the team:

- Reassess the plausible joint distribution of M and K.
- Avoid treating these parameters as independent unless independence is biologically justified.
- Use a meta-analysis, life-history relationship, or explicitly justified coefficient of variation to generate coherent combinations.

The current approach may give disproportionate weight to parameter combinations that are mathematically possible but biologically implausible.

Fishery coverage

A central issue is whether the candidate management procedures control a sufficiently large and representative fraction of total removals. The harvest control rule appears to apply primarily to US catches, while other removals may include international catch, unreported catch, and discards. If these components are substantial, the MSE should explicitly quantify their contribution to total removals and evaluate whether changes in those components can undermine the effectiveness of the US management procedure.

This is not merely a reporting issue. If a management procedure controls only a limited proportion of total fishing mortality, its apparent performance based on US catch may not represent its performance for the stock as a whole.

Environmental and availability uncertainty

The proposed 'blue-blob' scenario could be useful, but its biological interpretation must be clarified. It is not yet clear whether this scenario represents an increase in local abundance, a shift in vulnerability, or a combination of both. These alternatives have very different implications.

If the effect is an increase in abundance, the management procedure may respond by increasing catches. The relationship between abundance and observed catch or index values will stay constant.

If it is a change in vulnerability, the management procedure needs to control effort limits, since the same amount of effort will result in higher removals from the populations. While at the same time the procedure will have to cope with changes in the relationship between abundance and observed catch or index values.

A procedure that performs well under the first interpretation may perform poorly under the second, and vice versa.

At least one dedicated environmental robustness test should therefore be included. This test should alter the observation and/or availability processes in a way that is independent of the management procedure and should evaluate whether the procedure remains acceptable when the relationship between the stock and the observed index changes.

Reference and robustness sets

The classification of uncertainty axes into reference and robustness sets is understood and correctly used. There were several discussions during the workshop where additional tests were suggested. The workshop report will have a full list that merges the opinions of the reviewers in the room.

In particular, it is recommended that spatial redistribution, stock contraction, environmental change, and non-US removals scenarios are explored as robustness tests.

Also discussed was the lack of contrast in the viscosity parameter as being a major factor in the OMs reference set and the potential to drop it, or use much more extreme values, in order to free up time to develop more important OMs, like alternative spatial dynamics. In my opinion, this parameter should be dropped and more time should be spent in other aspects of the spatial model that can have more impact on the management decisions to be made.

ToR 2: Evaluate the strengths and weaknesses of methods used to simulate the stock

The general approach of using operating models to represent alternative hypotheses about stock and fishery dynamics is appropriate. The MSE also appears to provide a flexible framework for simulating population dynamics, observations, and management responses.

Spatial and age structure

The current formulation may be functionally close to a non-spatial model. As such, it should be investigated if the spatial model is needed at all. The complexity added by the spatial model may not be necessary to manage the fishery if that spatial model is based on a large number of assumptions kept constant over time about the stock spatial distribution.

Nevertheless, it's my understanding that the spatial model is being developed with the intention to be used in more complex spatial dynamics if information is made available, in which case it may be relevant to continue its development.

One concern though is the full dependency on the VAST model estimates to describe the spatial structure of the stock. The model is fitted to commercial data of the US fleet, and it

is my understanding that to estimate the spatial structure over the stock area there may be a non-trivial amount of statistical extrapolation.

I recommend adding alternative reference operating models with stronger spatial structure in age composition, and use different VAST model settings, e.g., anisotropy. As far as I understand, the model considers isotropy, and spatial correlation functions. As far as I understand, a Matérn function was used. These elements should be easy to change and assess how sensitive the results are to such assumptions.

An alternative reference OM could be included to cope with spatial uncertainty.

Movement

The gravity-model movement formulation should be examined carefully. Very large movements may be mathematically allowed even if they are biologically implausible. Movement should be constrained so that the model does not generate unrealistic instantaneous redistribution. The assumed tendency for movement from south to north should also be represented explicitly if it is supported by available information.

An alternative reference OM could be included to cope with movement uncertainty.

Stock contraction and spatial redistribution

The MSE should include an exceptional-circumstances scenario involving stock contraction or a substantial change in spatial distribution. A management procedure may perform well under stable spatial conditions, but fail when the stock contracts into a subset of areas or becomes less available to the monitoring program.

This scenario should be evaluated both as a biological redistribution of abundance and, separately, as a change in vulnerability or catchability. The two mechanisms should not be conflated. See the section above about environmental uncertainty.

ToR 3: Evaluate operating model conditioning

The OM condition followed best practices and provided reasonable dynamics. However, these were preliminary and need more work (see ToR 2). In my opinion, there is work to be done on diagnostics to demonstrate that the simulated data resemble the data that would actually be available when management decisions are made. This is especially important for the VAST index, because the spatial index is a key component of the candidate management procedures.

A longer-term recommendation is to collect and organize the data needed to support a conventional stock assessment or another explicit stock-status estimation framework. Even if such an assessment is not immediately feasible, the MSE would benefit from a clearer plan for improving the monitoring system and periodically updating knowledge of stock status.

ToR 4: Evaluate MSE Projections

As stated above, there were not a lot of projections to evaluate. The exercise was focused on the validation and commentary about the MSE process, and in particular the feedback loop simulation algorithm.

There was a discussion about the need to introduce more mechanistic diagnostics. It is not sufficient to show that one management procedure has a higher average score than another, the analysis should explain why.

At minimum, diagnostics should examine the time series of recruitment, fishing mortality, stock abundance or biomass, the management index, catch, catch limits or fishing opportunities, and key MP indicators.

For example, interannual catch variability should be compared with the catch-constraint range embedded in the harvest control rule. Such diagnostics would reveal whether variability arises from the HCR itself, noisy indicators, implementation constraints, non-US removals, or underlying biological variability.

ToR 5: Evaluate performance metrics

The current framework appears to include relevant catch and conservation measures, but the presentation and interpretation of the metrics should be strengthened.

Conservation objectives

It's important to have in mind that reference points used within an operating model are assumptions of that model. They should not be presented as empirical estimates of stock status unless they are derived from an explicit stock-status estimation procedure. The reporting language should therefore distinguish clearly between the simulated status of the stock within an operating model, the reference points used to define performance metrics, and what the candidate management procedure would actually know in practice.

Managed and unmanaged removals

Catch, fishing mortality, and F/F_{MSY} should be reported separately for:

- US-managed catches;
- International catches;
- Unreported catches;
- Discards; and
- The combined total-removal component.

Where possible, the metrics should identify which components are directly affected by the candidate management procedure and which are outside its control. This would allow managers to assess whether a procedure that performs well for US catches also provides acceptable outcomes for the stock as a whole.

Stakeholder objectives and stability

The stakeholder signal that the fishery seeks greater stability should be reflected explicitly in the performance metrics. Relevant measures could include:

- Interannual catch variability;
- Frequency of large changes in fishing opportunities;
- Stability of catch rates;
- Season length or fishing opportunity;
- Frequency of restrictive management actions; and
- The probability of catch falling outside a stakeholder-defined acceptable range.

Stability should not be treated only as a qualitative consideration. It should be visible in the evaluation and used consistently when comparing candidate procedures.

ToR 6: Evaluate candidate management procedures

The candidate management procedures address relevant management controls and make use of indicators that could plausibly be available in practice. Nevertheless, some aspects require clarification before the procedures can be evaluated confidently.

Fleet coverage and non-controlled fisheries

The management procedure applies to US catches only. The treatment of fleets and removals outside that control must be clearly specified. If non-controlled fleets continue to remove fish independently of the US HCR, the MSE should show how those removals affect total fishing mortality and stock status.

Timing and implementation

The approximately nine-month to one-year lag between the index observation and the setting of fishing opportunities should be included explicitly in performance comparisons.

The possibility of using a rapid indicator to set preliminary fishing opportunities, followed by revision when more complete data become available, is worth examining. Another candidate could involve maintaining relatively constant catches until the index crosses a specified threshold, thereby emphasizing stability while retaining a response to substantial changes in stock conditions.

These alternatives should be evaluated with realistic implementation constraints and observation error.

Trip limits and binding controls

The current trip limit may not be binding under the simulated fleet dynamics. A non-binding control contributes little to the management procedure and may give the appearance of management regulation without materially affecting removals.

ToR 7: Provide or comment on recommendations to improve the MSE

The following improvements are recommended/suggested.

1. Add a more realistic spatial reference operating model, including variable age composition, constrained movement, alternative recruitment allocation, and spatial redistribution.
2. Rework the joint uncertainty treatment for M and K using biologically defensible relationships or a joint distribution.
3. Add robustness tests for environmental shifts, changing availability or catchability, stock contraction, and altered spatial distribution.
4. Quantify the proportion of total removals controlled by the US management procedure.
5. Report conservation and fishery performance metrics separately for US-managed and unmanaged removals.
6. Improve time-series diagnostics linking recruitment, fishing mortality, indices, catches, and management actions.
7. Clarify the timing of data availability, management decisions, and implementation.
8. Demonstrate whether the trip limit is binding and materially affects outcomes.
9. Include stability metrics reflecting stakeholder preferences for less variable fishing opportunities.
10. Clarify the distinction between simulated reference points and operational stock-status estimates.
11. Develop a data-collection and monitoring plan capable of supporting explicit stock-status estimation.
12. Establish a process for periodically updating the operating-model ensemble as new information on abundance, movement, recruitment, catchability, and fishery removals becomes available.

13. Define criteria for identifying exceptional circumstances after implementation.

Conclusions

I recommend that the MSE be accepted for continued development conditional on completion of the revisions identified in this report and in Review Workshop Report.

The MSE team must be careful about communicating results. Reference points embedded in operating models should not be presented as directly observed or empirically estimated stock-status quantities.

The MSE does not estimate stock status.

Appendix 1: Bibliography of materials provided for review

Spatiotemporal dynamics of dolphinfish (Coryphaena hippurus) in the western Atlantic Ocean. Matthew D. Damiano, Mandy Karnauskas, Wessley Merten Jie Cao. SEDAR104-RD02

Characterization of the for-hire fishery in the U.S. South Atlantic and regional policy implications. Mandy Karnauskas, Matthew McPherson, Anthony Mastitski, John Hadley, Julia Byrd. SEDAR104-RD03

Evidence for declining numbers of large Dolphinfish in the western North Atlantic. B. J. Runde, P. J. Rudershausen, and G. R. Stilson. SEDAR104-RD04

Age, growth, and reproduction of dolphinfish (Coryphaena hippurus) caught off the coast of North Carolina. Kara L. Schwenke and Jeffrey A. Buckel. SEDAR104-RD05

Estimating discard mortality using meta-analysis and fishery-dependent sampling. P.J. Rudershausen, S.J. Poland, J.H. Merrell, C.B. Pelletier, C.S. Mikles, J.A. Buckel. SEDAR104-RD06

A multiannual five-fleet generalized depletion model for the stock assessment of the Mediterranean dolphinfish (Coryphaena hippurus) fishery. Vicenç Moltó, Ignacio A. Catalán, Andrés Ospina-Álvarez, Pilar Hernández and Rubén H. Roa-Ureta

Appendix 2: Performance Work Statement (PWS)

National Oceanic and Atmospheric Administration (NOAA)

NOAA Fisheries

Center for Independent Experts (CIE) Program

External Independent Peer Review

SEDAR 104 Atlantic Dolphinfish Management Strategy Evaluation Review

July 28-31, 2026

Background

The 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). NOAA Fisheries science products, including scientific advice, are often controversial and may require timely scientific peer reviews that are strictly independent of all outside influences. A formal external process for independent expert reviews of the agency's scientific products and programs ensures their credibility. Therefore, external scientific peer reviews have been and continue to be essential to strengthening scientific quality assurance for fishery conservation and management actions.

Scientific peer review is defined as the organized review process where one or more qualified experts review scientific information to ensure quality and credibility. These expert(s) must conduct their peer review impartially, objectively, and without conflicts of interest. Each reviewer must also be independent from the development of the science, without influence from any position that the agency or constituent groups may have. Furthermore, 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[1].

[1] https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/memoranda/2005/m05-03.pdf

Scope

The Southeast Fisheries Science Center (SEFSC), in collaboration with the South Atlantic Fishery Management Council (SAFMC), the Southeast Regional Office (SERO), Blue Matter Science, and others, have developed a full-stakeholder management strategy evaluation (MSE) for dolphin (e.g., dolphinfish, mahi, dorado) in the US Atlantic. The objective of the MSE is to develop empirical (indicator-based) candidate management procedures (MPs) for dolphin in the US Atlantic that meet legally mandated (e.g., Magnuson-Stevens Fishery Conservation and Management Act) and regionally-varying stakeholder-defined management objectives, such that they may achieve optimum yield. Dolphin in the US Atlantic are managed by SAFMC. The MSE is intended to be used to inform dolphin management, such that top performing candidate MPs will be proposed for use as Amendment alternatives to the Dolphin Wahoo Fishery Management Plan and be voted on for implementation by the SAFMC.

Before an MP may be enacted, the MSE used to derive candidate MPs must be deemed best scientific information available. The review panel is requested to review the scientific validity of the dolphin MSE. Unlike stock assessments (designed to provide a best estimate of stock status and for which diagnostics are of increased importance), MSE operating models are discrete hypotheses designed to encompass plausible uncertainty and are conditioned to ensure projected data are simulated with realistic uncertainty and variability.

The specified format and contents of the individual peer review reports are found in **Annex 1**. The Terms of Reference (ToR) of the peer review are listed in **Annex 2**. The tentative agenda of the panel review meeting is attached in **Annex 3.**

Requirements

NOAA Fisheries requires 3 reviewers to conduct an impartial and independent peer review in accordance with the Performance Work Statement (PWS), OMB guidelines, and the ToRs below. The reviewers shall have expertise in management strategy evaluation, quantitative population dynamics, and fisheries simulation analyses.

The chair, who is in addition to the three reviewers, will not be provided by the CIE. Although the chair will be participating in this review, the chair's participation (e.g., labor and travel) is not covered by this contract.

Each reviewer will write an individual review report in accordance with the PWS, OMB Guidelines, and the TORs below. Modifications to the PWS and TORs cannot be made during the peer review, and any PWS or TORs modifications prior to the peer review shall be approved by the Contracting Officer's Representative (COR) and the CIE contractor. All TORs must be addressed in each reviewer's report.

Tasks for Reviewers

1. Pre-review Background Documents: Review the following background materials and reports prior to the review:

   Two weeks before the peer review, the NOAA Fisheries Project Contact will send by electronic mail or make available at an FTP site to the CIE reviewer all necessary background information and reports for the peer review. The CIE reviewer shall read all documents in preparation for the peer review, to include:

- Trial specifications document
- Github repository: https://github.com/Blue-Matter/DolphinMSE (note currently set to private, will be made public or shared with reviewers prior to review.)
- Shiny app: (html to be developed)

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.

Foreign National Security Clearance

When reviewers participate during a panel review meeting at a government facility, the NOAA Fisheries Project Contact is responsible for obtaining the Foreign National Security Clearance approval for reviewers who are non-US citizens. For this reason, the reviewers shall provide requested information (e.g., first and last name, contact information, gender, birth date, passport number, country of passport, travel dates, country of citizenship, country of current residence, and home country) to the Project Contact for the purpose of their security clearance, and this information shall be submitted at least 30 days in advance. For additional information, please see the following link: https://www.commerce.gov/osy/programs/foreign-access-management. The contractor is required to use all appropriate methods to safeguard Personally Identifiable Information (PII).

Place of Performance

The place of performance shall be in Charleston, SC.

Period of Performance

Each reviewer's duties shall not exceed **14** days to complete all required tasks.

Schedule of Milestones and Deliverables: The contractor shall complete the tasks and deliverables in accordance with the following schedule.

Schedule	**Milestones and Deliverables**
Within 2 weeks of award	Contractor selects and confirms reviewers
Approximately 2 weeks prior to the review	Contractor provides the pre-review documents to the reviewers
July 28-31, 2026	Panel review meeting
Approximately 2 weeks later	Contractor receives draft reports
Within 3 weeks of receiving draft reports	Contractor submits final reports to the Government

* The Peer Review Summary Report will not be submitted to, reviewed, or approved by the Contractor.

Applicable Performance Standards

The acceptance of the contract deliverables shall be based on three performance standards:

(1) The reports shall be completed in accordance with the required formatting and content (2) The reports shall address each ToR as specified (3) The reports shall be delivered as specified in the schedule of milestones and deliverables.

Confidentiality and Data Privacy

This contract may require that services contractors have access to Privacy Information. Services contractors are responsible for maintaining the confidentiality of all subjects and materials and may be required to sign and adhere to a Non-disclosure Agreement (NDA).

Travel

All travel expenses shall be reimbursable in accordance with Federal Travel Regulations (Travel resources | GSA), and all contractor travel must be approved by the COR prior to the actual travel. Any travel conducted prior to the receipt of proper written authorization from the COR will be done at the Contractor's own risk and expense. International travel is authorized for this contract. Travel is not to exceed $14,000.

NOAA Fisheries Project Contact

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Annex 1: Peer Review Report Requirements

1. The independent Peer Reviewer report shall be prefaced with an Executive Summary providing a concise summary of whether they accept or reject the work that they reviewed, with an explanation of their decision (strengths, weaknesses of the analyses, etc.).

2. The report must contain a background section, description of the individual reviewers' roles in the review activities, summary of findings for each ToR in which the weaknesses and strengths are described, and conclusions and recommendations in accordance with the TORs.
    a. Reviewers must describe in their own words the review activities completed during the panel review meeting, including a brief summary of findings, of the science, conclusions, and recommendations.
    b. Reviewers should discuss their independent views on each ToR even if these were consistent with those of other panelists, but especially where there were divergent views.
    c. Reviewers should elaborate on any points raised in the summary report that they believe might require further clarification.
    d. Reviewers shall provide a critique of the agency review process, including suggestions for improvements of both process and products.
    e. The report shall be a stand-alone document for others to understand the weaknesses and strengths of the science reviewed, regardless of whether or not they read the summary report. The report shall represent the peer review of each ToR, and shall not simply repeat the contents of the summary report.

3. The report shall include the following appendices:

Appendix 1: Bibliography of materials provided for review

Appendix 2: A copy of this Performance Work Statement

Appendix 3: Panel membership or other pertinent information from the panel review meeting.

Annex 2: Terms of Reference for the Peer Review

SEDAR 104 Atlantic Dolphinfish Management Strategy Evaluation Review

July 28-31, 2026

CIE reviewers are contracted to complete their independent peer review based on the ToRs. Therefore, the CIE-NOAA Fisheries review and approval process is based on whether the CIE independent reports addressed each ToRs.

- 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.
    - Were selected axes of uncertainty relevant to the stock and fishery and appropriately characterized? If relevant, were uncertainties highlighted by managers and stakeholders included?
    - Did levels of uncertainty for each axis meaningfully and reasonably encompass plausible uncertainty?
    - Were uncertainties appropriately classified into reference (primary) or robustness (secondary) set and sufficiently explained?
- Evaluate the strengths and weaknesses of methods used to simulate the stock.
    - Are methods to generate operating models scientifically sound?
    - Did methods meet the needs of stakeholders and/or research questions (i.e., appropriate spatial resolution, time-step, ability to measure key performance statistics)?
    - 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?
    - Was plausibility weighting of reference operating models appropriate and sufficiently justified?
    - Does the robustness of the operating model grid allow the management procedure to fail?

- Evaluate operating model conditioning.
    - 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?
- Evaluate MSE projections.
    - Did the operating models project data that would be available to the management procedure?
    - 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.)?
- Evaluate performance metrics.
    - 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)?
    - 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.)?
- Evaluate candidate management procedures.
    - Did the candidate management procedures only utilize data available for the stock in practice?
    - Did the management procedure explore management tools and controls that are applicable to the stock (e.g., appropriate management procedure archetype)?
    - Were top-performing management procedures tuned to minimally achieve all satisficing criteria?

    - If empirical management procedure, does the MSE include a mechanism to periodically update stock status?

- Provide or comment on recommendations to improve the MSE.
- Prepare a Review Workshop Summary Report describing the Panel's evaluation of the MSE and addressing each TOR.

Annex 3: Tentative Agenda

SEDAR 104 Atlantic Dolphinfish Management Strategy Evaluation Review Workshop

July 28-31, 2026

Charleston, SC

Tuesday

8:30 am – 12:00 pm	**Introductions and Opening Remarks**	**Coordinator**
	- Agenda Review, TOR, Task Assignments	
	Project Presentations	**MSE Team**
	- *Clarifying questions*	
12:00 pm – 1:30 pm	**Lunch Break**	
1:30 pm – 5:00 pm	**Project Presentations (continued)**	**MSE Team**
	- *Clarifying questions*	
5:00 pm – 5:30 pm	**Public Comment**	**Chair**

Tuesday Goals: Part of initial presentations completed, requests for additional analysis identified.

Wednesday

8:30 am – 12:00 pm	**Project Presentations**	**MSE Team**
	- *Clarifying questions*	
12:00 pm – 1:30 pm	**Lunch Break**	
1:30 pm – 5:00 pm	**Panel Discussions**	**Chair**
	- MSE Team and Review Panel	
5:00 pm – 5:30 pm	**Public Comment**	**Chair**

***Wednesday Goals*:** Initial presentations completed. Summary report drafts begun.

Thursday

8:30 am – 12:00 pm	**Project Presentations**	**MSE Team**
	- *Clarifying questions*	

12:00 pm – 1:30 pm	**Lunch Break**	
1:30 pm – 5:00 pm	**Panel Discussions**	**Chair**
	- MSE Team and Review Panel	
5:00 pm – 5:30 pm	**Public Comment**	**Chair**

***Thursday Goals*:** Presentations completed, Summary report drafts continued.

Friday

8:30 am – 12:00 pm	**Panel Deliberations or Work Session**	**Chair**
	- *Recommendations and comments.*	
	- *Report writing*	

***Friday Goals*:** Finalize discussions, draft summary report reviewed.

Appendix 3: Panel membership or other pertinent information from the panel review meeting.

Review:
SEDAR 104 Atlantic Dolphinfish Management Strategy Evaluation Review

Dates:
July 28–31, 2026

Location:
Charleston, South Carolina

Review organization:
NOAA Fisheries Center for Independent Experts Program

Management context:
Atlantic dolphinfish managed by the South Atlantic Fishery Management Council under the Dolphin Wahoo Fishery Management Plan

Reviewer role:
Independent external peer reviewer assessing the MSE against the Terms of Reference, with particular attention to uncertainty characterization, operating-model structure and conditioning, projections, performance metrics, candidate management procedures, and recommendations for improvement.

Review Panel

Daniel Howell - Institute of Marine Research/ CIE Reviewer

Ernesto Jardim - CIE Reviewer

Gary Melvin - CIE Reviewer

Jeffrey Buckel - NCSU/ SAFMC SSC

Kelsey Roberts - UMass Dartmouth/SAFMC SSC

Matt Damiano (Chair) - NC DMF/ SAFMC SSC