

Report of the Scientific and Statistical Committee Meeting – April 19-21, 2016

The Scientific and Statistical Committee (SSC) of the Caribbean Fishery Management Council met April 19-21 with the following agenda.

- SEDAR 46 U.S. Caribbean Data Limited Species Review
- Island Based Fishery Management
- Review Goals and Objectives of the IBFMPs
- Review Action 1: Species Selection
- Action 2
 - Review Consolidated list of stocks and stock complexes
 - Species Complexes—SERO Update
 - Recommendations to CFMC
- Future Action 3: Reference Points
- ABC Control Rule
- 5 year CFMC Research Plan

SEDAR 46 U.S. Caribbean Data Limited Species Review

The SSC recognizes and commends the SEFSC, SERO and external partners for the massive and comprehensive work conducted during the SEDAR 46 assessment.

The DLM Toolkit and MSE framework was used to evaluate a suite of management procedures and data-poor analysis approaches. In general the SSC was pleased with the overall approach that was presented and is excited about its potential use for providing management advice. The SSC recognizes that additional work needs to be done refining the operating models and evaluating the data before the specific results can be used to derive or modify OFL and ABC recommendations.

The SSC would also like to point out that the Management Strategy Evaluation (MSE) simulation framework that has been utilized in SEDAR 46 could also be used to explore alternative management approaches. In this region, the developments and use of ACL's has been challenging due to the available data and there have been repeated recommendations to evaluate alternatives. The MSE simulation framework can be structured to simulate different states of nature (i.e. stock status) and recognize the existing uncertainty in available data streams. For example, the simulations could be structured to evaluate a species assuming different levels of exploitation. The existing output control management approach (i.e. ACL's and the use of average catch) and alternative approaches such as input controls (e.g. minimum sizes, seasonal closures, effort restrictions) can be simulated to determine which performs best given the known uncertainties. The SSC has repeatedly expressed its concern that the existing management mandates are not appropriate for the Caribbean fisheries and we recommend that as a future development these MSE tools be used to begin building the scientific justification for alternative reference points (e.g., target length) and alternative management strategies.

The SSC recommends research to identify (1) alternative management strategies and their reference points, and (2) data requirements to monitor stock dynamics.

The SSC recognizes that the DLM Tool Kit can provide useful management advice (e.g. OFL, ABC) for the U.S. Caribbean FMPs, and can also be used to provide advice for single species as well as species complexes. The DLM Tool Kit has identified three candidate methods that look promising, based on indices, catch and mean length.

The SSC supports the recommendations concerning Tor6 of the SEDAR 46 Panel Review (http://sedarweb.org/docs/sar/S46_final_SAR.pdf).

For the species analyzed in SEDAR 46, prior to the use of the results for management advice, the SSC recommends the following improvements to the SEDAR 46 data-limited procedures:

- 1) Review the life-history parameters. In particular:
 - a. The steepness parameter selected for the STX and STT spiny lobster.
 - b. The L_{inf} selected for PR hogfish
 - c. When direct values of M are not available, use Then et al. 2015 for natural mortality parameterization.
- 2) Improve the MSE by eliminating the biologically implausible parameter combinations (e.g., implausible combinations of the correlated growth parameters K and L_{inf}).
- 3) One or more metrics should be developed describing the short term consequences of the management strategies so that aspects of implementation, such as short-term pain and speed of recovery, can be considered.
- 4) Because multiple performance metrics can be computed for each management strategy, and the metrics have a correlation structure, there may be some value in performing a principal component analysis of the performance metrics to simplify the interpretation of the set of metrics. This should be considered in the future.

The SSC requests that the SEFSC come back to the SSC at the August 2016 Meeting for a final assessment of SEDAR 46.

The SSC also made recommendations to extend the efforts represented by SEDAR 46 as follows:

- Conduct a workshop(s) on life history parameters, ecological and economic indicators involving all stakeholders with the goal to get consensus on future model inputs. These could be done in the context of a separate 2017 SEDAR Data Workshop.
- Further improve the operating models (bias and uncertainty) potentially through a workshop of experts.
- Form a working group on the use of average catch to determine OFL with the participation of SSC, SEFSC, SERO, CFMC.
- Research focusing on life history parameters should remain a priority.
- Research focusing on catch validation should remain a priority.
- Research focusing on length frequency should remain a priority.
- Further identify and consider economic and ecological trends, and their inclusion in data-limited methods as practicable.

Future SEDAR Species

The SSC recommends to the CFMC regarding species to be assessed through the SEDAR process in 2017:

SEDAR scenarios:

Scenario 1: Workshop (recommended above) + Spiny lobster PR + Queen triggerfish STX/PR

Scenario 2 (number of potential species is a function of compilation work required):

Option A - New: Lane snapper PR

Option B - Building off previous SEDARs:

Queen snapper PR; redbtail parrotfish STX

Option C- Building off SEDAR 46

Spiny lobster PR; queen triggerfish (PR,STX); yellowtail snapper STT

Island Based Fishery Management

The SSC heard updates on this item, but felt no committee action was required.

Review Goals and Objectives of the IBFMPs

The SSC heard updates on this item, but since these were still under discussion by the Council, the SSC felt no committee action was required.

Review Action 1: Species Selection

The SSC saw no reason to revisit either the species selected or the process under which this was accomplished.

Action 2: Stock Complexes

The SSC was presented the results of new clustering analyses as requested. The committee agreed to retain the stock complexes/indicator species as identified in its previous meeting.

Future Action 3: Reference Points

The SSC was briefed on the need to develop reference points for stock analyses. The SSC made several recommendations regarding reference points that came out of its discussion of the SEDAR 4 6 results (see above).

ABC Control Rule

The SSC recognized that the development of ABC Control Rules would be dependent upon the nature of the stock complexes, and that a draft be prepared by a smaller working group. The SSC recommends the membership of the Ad Hoc ABC Control Rule Workgroup as follows: SSC Members: Richard Appeldoorn, Todd Gedamke, John Hoenig, Vance Vicente; SEFSC: Shannon Calay/Clay Porch; Nancie Cummings/Skyler Sagarese; SERO: Bill Arnold and CFMC: Carlos Farchette, Graciela Garcia Moliner.

Target timeframe

Cognizant of the need to maintain progress toward developing the Island Based Plans, the SSC developed a target timeframe for upcoming work, as follows:

Ad Hoc ABC Control Rule (AHABCCR) – Appointment – NOW

- SSC Members: Richard Appeldoorn, Todd Gedamke, John Hoenig, Vance Vicente
- SEFSC: Shannon Calay/Clay Porch; Nancie Cummings/Skyler Sagarese
- SERO: Bill Arnold
- CFMC: Carlos Farchette, Graciela Garcia Moliner

Electronic Meeting – May-June

June CFMC Meeting (24th)

July – 1- 15: 2nd Meeting AHABCCR

August SSC (15-19)

ABC Control Rule

Clusters and Indicators Spp.

SEDAR 46 – final review

August CFMC Meeting (22-25)

Ad hoc Average catch OFL work group – September-October

Membership: SSC, SEFSC, SERO, CFMC

SSC Meeting –

Average Catch OFL

Tier assignments

CFMC Meeting December 12-15 STT