

Northwest Atlantic Fisheries Organization



Report of the NAFO Joint Commission-Scientific Council Working Group on Risk-Based Management Strategies (WG-RBMS) Meeting

24-26 August 2021
via WebEx

NAFO
Halifax, Nova Scotia, Canada
2021

Report of WG-RBMS,
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1. Opening by co-Chairs, Fernando González-Costas (European Union) and Ray Walsh (Canada)

The meeting was opened by the co-Chairs Fernando González-Costas (European Union) and Ray Walsh (Canada) at 08:30 hours (Atlantic Daylight Time in Halifax, Nova Scotia) on Tuesday, 24 August 2021.

The co-Chairs welcomed the representatives from Canada, European Union, Japan, Norway, Russian Federation, United Kingdom and the United States of America. The Scientific Council (SC) Chair, SC Precautionary Approach Working Group (PA-WG) co-Chairs were also welcomed (Annex 1).

2. Appointment of Rapporteurs

The NAFO Secretariat (Ricardo Federizon, Senior Fisheries Management Coordinator and Tom Blasdale, Scientific Council Coordinator) were appointed co-Rapporteurs of this meeting.

3. Adoption of Agenda

The provisional agenda was adopted as previously circulated without amendment (Annex 2). As requested by Japan, a discussion item, on the Ecosystem Approach to inform WG-RBMS participants involvement in the upcoming WG-EAFFM Workshop 'Open Dialogue' meeting, was inserted in agenda item 9.

4. Greenland halibut Management Strategy Evaluation

In 2020, the Commission requested Scientific Council (SC) to monitor the status of Greenland halibut in Subarea 2+ Division 3KLMNO annually to compute the TAC using the agreed harvest Control Rule (HCR) and determine whether exceptional circumstances (EC) are occurring. If EC are occurring, the EC protocol will provide guidance on what steps should be taken (see Commission Request #2 in COM Doc. 20-16).

Carmen Fernández (Chair of the SC) presented the response to Commission Request #2 that the SC made at its 2021 June meeting (SCS Doc. 21-14). The main conclusions of the SC response are as follows:

It calculated the 2022 TAC for Greenland halibut in 2+3KLMNO to be 15 864 t, based on the Harvest Control Rule (HRC) being applied (SCS Doc. 21-14).

SC also advises that Exceptional Circumstances (EC) are not occurring in 2021.

It noted that the disruption of the 2021 Canadian Spring survey, in addition to the years 2020 and 2017, will trigger EC in 2022. In accordance with the Exceptional Circumstances Protocol outlined in Annex I.G of the NAFO Conservation and Enforcement Measures (CEM), SC conducted an initial evaluation of the severity of EC identified.

- Past TACs were recalculated using the HCR with and without the Canada Spring survey series and it showed minimal impact on the TACs (<3% difference),
- The impact is small because the Canada Spring survey has the lowest weight in the HCR TAC calculation,

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Assuming that no other reason for EC arises in 2022; SC proposed deriving the TAC for 2023 by adjusting the 2022 TAC using the HCR with only 4 survey indices: Canada Fall 2J3K, Canada Fall 3LNO, EU 3M, and EU-Spain 3NO.

Article 10 of NAFO CEM states that “*The current Management Strategy (MS) for Greenland halibut stock in Subarea 2 + Divs. 3KLMNO adopted by NAFO in 2017 shall be in force from 2018 to 2023 inclusive.*” Following this Rebuilding Program, a TAC for 2024 will need to be recommended using a revised MS developed before September 2023. In anticipation of this required review of the MS for Greenland halibut, SC has developed a coarse work plan outlining the time required to conduct this review. SC notes that this process is expected to take two years and its timing is conditional on decisions on the agenda item 7.

WG-RBMS **endorses** the SC’s calculation of 2022 TAC of 15 864 t in 2+3KLMNO based on the HCR.

In relation to the EC for Greenland halibut in 2022 (COM-SC RBMS-WP 21-02) and conditional on the absence of other reasons for EC arising, the WG **recommends** that Commission request the SC to calculate in 2022 the HCR adjusting the TAC advised for 2022 using four survey indices (Canadian fall 2J3K, Canadian fall 3LNO, EU 3M 0-1400m, and EU-Spain 3NO surveys) to provide TAC advice for 2023 (see agenda item 10).

WG-RBMS participants supported the general work plan for the review of the Management Strategy for Greenland halibut with further discussion on specific timelines deferred to agenda item 7.

5. Review/Evaluation of Risk-Based management Strategy for 3LN Redfish (Annex I.H of the NAFO CEM)

In 2014, the Commission adopted a management strategy/HCR which specified TACs until 2020. No review of the MS occurred in 2020 and the Commission, based on SC advice, extended the application of the HCR for another 2 years (COM-SC Doc. 20-04). The Commission requested SC to carry out a scoping exercise to provide guidance to WG-RBMS on the process of a full review/evaluation of the management strategy of Div. 3LN redfish (see Commission Request #11 in COM Doc. 20-16). Carmen Fernández (Chair of the SC) presented the SC response to this request.

SC advised that a full review/evaluation of the MSE for Div. 3LN redfish should include review of data and model inputs, followed by the identification of a suite of models to test the robustness of management procedures to alternative scenarios. A provisional workplan that reflects these requirements was provided to WG-RBMS for consideration:

1. SC Jun 2021: Scoping discussion providing possible direction for WG-RBMS on a full evaluation of the existing MS
2. WG-RBMS Aug 2021: discussion on scoping exercise and a possible calendar for developing the MSE, which is a 3-year process.
3. Year 1: SC must review the data to be used; consensus is required for Operating Model (OM) development to commence.
4. Year 2: SC must review the proposed OMs to be used; obtain consensus on Candidate Management Procedures (CMPs) and, with WG-RBMS, refine the Performance Statistics, including risk tolerances and constraints.
5. Year 3: SC must review and test CMPs; finalize the suite of CMPs to be used in the MSE; with WG-RBMS, evaluate Performance Statistics and make a final decision on the MS to propose to COM

SC noted that this process is expected to take 3 years and its timing is conditional on decisions on the overall SC 5-year workplan which was also developed on the request of the Commission (see Commission request #10

in COM Doc. 20-16 and the SC response in SCS Doc. 21-14). SC also noted that a stock assessment is scheduled for June 2022 to provide TAC advice for 2023 and 2024. WG-RBMS noted that the approach to be used as the basis for advice in 2022 has not been specified and recommended that the Commission should specify the approach in its request for advice.

The timing of the MSE revision engendered considerable discussions and this issue was further addressed under agenda item 7.

6. Progress on the Precautionary Approach Framework revision

Karen Dwyer (Chair of the SC- Precautionary Approach Working Group (PA-WG), on behalf of SC, provided an update on efforts to identify and select external experts to assist in steering and supporting the work of the Scientific Council in response to the Commission request to review the Precautionary Approach Framework (PAF) (SCS Doc. 21-14, pg. 94-95).

Initially CPs were requested to nominate qualified external experts from which the PA WG and WG-RBMS Co-Chairs selected the following three candidates in February 2021:

Dr. Jan Harbowy, National Marine Fisheries Resources Institute, Gdynia, Poland.
Dr. Daniel Howell, Institute of Marine Research, Bergen, Norway.
Dr. Steve Cadrin, School of Marine Science and Technology, Dartmouth, USA.

Dr. Cadrin was also identified as the coordinator of the external experts and co-chair of the PA WG.

The three chosen candidates have extensive experience in the assessment and management of marine resources in different international organizations.

She also provided a historical background on NAFO PAF revision and highlighted the status of the PA-WG Terms of Reference (ToR) which was originally outlined as the scope of the review of the PAF in FC Doc. 15/19:

1. To clarify the following elements:
 - a. To confirm/review the NAFO PA reference points definition in page 3 NAFO/FC Doc. 04/18.
 - b. To confirm/review the NAFO Management strategies and courses of action, including risk levels, on page 3 NAFO/FC Doc. 04/18
 - c. Distinction between MSY and limit/target related reference points.
 - d. Analysis in support of the development of other reference points (*e.g.*, targets, buffers).
 - e. To review the methods for the calculation and interpretation of risk and the quantification and qualification of uncertainties related to them.
 - f. For stocks where risk analyses are not possible, provide options on how to establish buffer reference points on a stock-by-stock basis.
 - g. Determine the conditions for when/if reference points should change and / or be re-evaluated.
2. Consider how a revised PA can fit within an Ecosystem Approach.
3. In reviewing the NAFO PAF the WG will also take into consideration other Precautionary Approach Frameworks with a focus in the North Atlantic.

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ToRs 1a and 1c have been completed by PA-WG and presented to SC during their June 2021 meeting (COM-SC RBMS-WP 21-08). As a result of delays in starting this project, PA-WG was unable to complete ToR 1.g in time for the June 2021 SC meeting. A meeting of PA-WG was held on 17 August 2021, where a working paper *Conditions for Re-evaluating Reference Points for the NAFO PA* in support of ToR 1g was presented and discussed (COM-SC RBMS-WP 21-09). It was agreed that this work should be presented to WG-RBMS as a “*work in progress*” prior to presentation to SC during the Annual meeting. Collectively, ToR 1 a, c, and g support the task *Mapping Objectives* in accordance with the PA-WG task- and timetable (COM-SC Doc. 20-04), and deliverable 1 will be therefore considered to be complete following presentation of ToR 1.g to SC in September.

Dr. Cadrin, coordinator of the external experts and co-Chair of the PA-WG elaborated on progress of these ToRs and presented the conclusions arising from the work:

PA-WG considered the PA in the context of the NAFO convention and concluded that many of the objectives and general principles of the NAFO Convention can be represented in the Precautionary Approach Framework.

On ToR 1.a – Confirm/review reference points,

The PA Framework should include limit reference points for fishing mortality and stock biomass as well as either buffer reference points or other risk-based management procedures to achieve sustainability and optimum yield in the context of uncertainty.

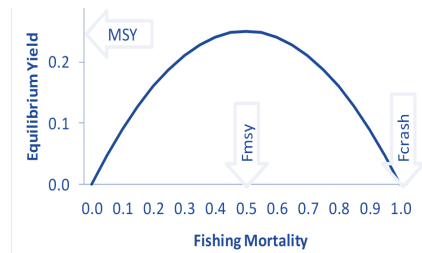
- There are valid options for defining F_{lim}
 - F_{MSY}
 - the F associated with B_{lim}
 - the F associated with very low risk of $B < B_{lim}$.
- There are valid options for defining B_{lim}
 - stock-recruit threshold
 - B_{loss}
 - $0.3 B_0$
- There are valid options for a precautionary approach:
 - buffer reference points (*i.e.*, based on low probability of exceeding a limits)
 - proxy targets (*e.g.*, 75% F_{lim})
 - Management Strategy Evaluation to confirm low probability of exceeding limits

On ToR 1.c – Distinction of MSY, limits and targets,

In the context of uncertainty and natural variability, MSY can be approximately achieved by a variety of alternative management procedures that define limit and target reference points differently.

- UN (1995) has been interpreted in various ways to justify F_{MSY} as a limit or a target reference point.
- The NAFO Convention does not necessarily prescribe F_{MSY} as a limit.

- There are other valid options for defining the limit reference point (*e.g.*, F_{lim} associated B_{lim} or with very low risk of $B < B_{lim}$) that are potentially greater than F_{MSY} .



On ToR 1.g -Revising Reference Points (This item was noted to be a work in progress)

1. The decision to estimate either MSY reference points or proxies should be reconsidered when the content and quality of information substantially changes.
2. Reference points should be re-evaluated when there is strong evidence of a shift in productivity regime, the mechanism of the shift is understood, the current productivity has persisted, the current productivity is expected to continue, the stock would be viable if managed with the revised reference points, and there is sufficient information to estimate revised reference points.
 - evidence that current reference points are unsustainable is sufficient to revise reference points
 - operational stock assessments should routinely test for a shift back to greater productivity.
3. Reference points can be revised when new information indicates that management procedures based on current reference points do not perform well for meeting NAFO Convention objectives, and alternative management procedures are expected to perform better.

Preliminary General Conclusions

- All options for the NAFO PA framework, including the existing framework (NAFO 2004) require full implementation to achieve objectives.
 - The current Precautionary Approach Framework could perform well for achieving the NAFO objective and principles
 - It would need to be fully implemented and performance tested for a range of specific stock conditions, including the possibility of environmental regime shifts.
- Flexibility will be needed in the PA framework to achieve NAFO's objectives and conform to principles for all NAFO stocks.
 - Management procedures expected to perform well for longer-lived stocks may not perform well for short-lived stocks, like squid and capelin.
 - Several NAFO stocks are data-moderate to data-rich, but stock assessments are complicated by important environmental factors that influence PA reference points.

Preliminary Specific Conclusions

- All options considered for a revised NAFO PA framework should be performance tested with respect to whether management measures set in accordance with the framework could achieve the following objectives:
 - Achieve very low risk of stock depletion (*i.e.*, $B < B_{lim}$)
 - Rebuild stocks to B_{MSY}
 - Maintain stocks above B_{MSY} more often than not
 - Maintain approximately MSY in the long-term.

WG-RBMS reviewed the progress report on Mapping Objectives on the Precautionary Approach Framework revision and supported the work done so far. WG-RBMS shares the interpretation that the PA WG and SC have made of how to implement the General Objectives of the NAFO Convention within the PAF and its preliminary conclusions. WG-RBMS notes that the MSY related objectives are readily applicable to most stocks but there may need to be flexible in applying some objectives to shorter-lived stocks or stocks that experience episodic recruitment. It recommends the work to continue according to the schedule approved last year.

7. Discussion on the SC short-term tasks pertaining to Risk-Based Management Strategies

Carmen Fernández (Chair of the SC) presented the response to Commission Request 10 about the 3-5 year SC work plan. SC updated the 5-year work plan including the identification of priorities and required resources, noting this is an iterative discussion between the Commission and SC.

The SC presented the preliminary calendars for the review of the Redfish 3LN and Greenland halibut Subarea 2 + 3KLMNO MSE. The SC noted that the revision of the Management Strategies for 3LN Redfish and 2+3KLMNO GHL, as well as the PAF review are all required. Given the complexity of these tasks and the resources required, the SC strongly recommended against performing all three tasks concurrently (see also SCS Doc. 21-14, pg. 99-101). The PAF review is already underway so that SC recommends that the Commission prioritize one of the MSEs to commence first. SC consequently recommended postponing one of the MSE processes.

WG-RBMS could not reach a consensus on prioritization among the two MSEs and the PAF review, and indeed whether any postponement is necessary, during this meeting. In order to inform a decision on work planning, the parties agreed that additional information should be provided to the Commission and SC for consideration during the 2021 Annual Meeting. In this regard:

- Canada noted that it had allocated funding for a position dedicated to the 3LN redfish MSE review, and considers that this will ease the workload on SC allowing both MSEs to proceed simultaneously, while recognizing that some trade-offs may be necessary later in the process. Canada agreed to identify tasks and/or deliverables that could be made available for SC and RBMS review/ consideration during 2022.
- Expanding on the existing coarse workplans for GHL and 3LN Redfish; SC will prepare a detailed schedule and timeline outlining what is required for each of these tasks, as well as, a scenario which includes both reviews proceeding simultaneously.

8. Implementation of 2018 Performance Review Panel recommendations

a. Input regarding data classification and access rights of the NAFO websites

In alignment with the 2018 Performance Review Panel Recommendations and their implementation, *the Ad Hoc virtual NAFO Website Re-design Working Group: Data Classification* at the 2020 Annual Meeting of NAFO

was tasked with development of a formal policy regarding the posting and distribution of meeting documentations. In this regard, feedback from WG-RBMS was sought whether working papers and other meeting working documents be made available to the public by posting them in the NAFO public website.

The WG expressed general support for ongoing efforts to enhance transparency. However, it was noted that there are situations where it may not be appropriate to share documents publicly, in particular for confidentiality reasons, *e.g.*, catch data.

9. Other Matters

Japan brought an external paper (COM-SC RBMS-WP 21-01) on the implementation of Ecosystem Based Fisheries Management (EBFM) to the attention of WG-RBMS.

WG-RBMS noted the potential linkage between NAFO's efforts to implement an ecosystems approach and the review of the PA Framework. RBMS members were encouraged to participate in the Ecosystem Approach Framework (EAF) Open Dialogue meeting (Oct 7/2021) and ecosystem roadmap workshop (2022).

10. Recommendations

In regard to Greenland halibut Management Strategy Evaluation,

1. **WG-RBMS endorses the continued application of the HCR to derive the TAC for 2022.**
2. **Regarding the Exceptional Circumstances for Greenland halibut in 2022 (COM-SC RBMS-WP 21-02) and conditional on the absence of other reasons for Exceptional Circumstances arising; WG-RBMS recommends that the Commission request the SC to calculate in 2022 the HCR adjusting the TAC advised for 2022 using four survey indices (Canadian fall 2J3K, Canadian fall 3LNO, EU 3M 0-1400m, and EU-Spain 3NO surveys) to provide TAC advice for 2023.**

In regard to 3LN Redfish,

3. **Noting that a review and update of the existing Management Strategy is required; WG-RBMS recommends that the Commission request SC, at its meeting in June 2022, to provide a full assessment and advice (based on an approach to be determined by the Commission in September 2021) on a TAC for 3LN Redfish for the years 2023 and 2024.**

In regard to Precautionary Approach Framework (PAF),

4. **WG-RBMS shares the interpretation that the SC/PA-WG has made of how to implement the General Objectives of the NAFO Convention within the PAF and its preliminary conclusions and recommends the work to continue according to the schedule approved last year.**

11. Adoption of the Report

The report was adopted via correspondence.

12. Adjournment

The meeting was adjourned at 11:00 hours (Atlantic Daylight Time in Halifax, Nova Scotia) on 26 August 2021.

Annex 1. List of Participants

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Annex 2. Agenda

1. Opening by co-Chairs, Fernando Gonzáles-Costas (European Union) and Ray Walsh (Canada)
2. Appointment of Rapporteurs
3. Adoption of Agenda
4. Greenland halibut Management Strategy Evaluation
5. Review/Evaluation of Risk-Based management Strategy for 3LN Redfish (Annex I.H of the NAFO CEM)
6. Progress on the Precautionary Approach Framework revision
7. Discussion on the SC short-term tasks pertaining to Risk-Based Management Strategies
8. Implementation of 2018 Performance Review Panel recommendations
 - a. Input regarding data classification and access rights of the NAFO websites
9. Other Matters
10. Recommendations
11. Adoption of Report
12. Adjournment