**SCIENTIFIC COUNCIL MEETING – 23 - 27 SEPTEMBER 2024**

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**REPORT OF SCIENTIFIC COUNCIL MEETING**

**23-27 September 2024**

Chair: Diana González Troncoso Rapporteur: Dayna Bell MacCallum

## I. PLENARY SESSIONS

The Scientific Council (SC) and its Standing Committees met at the Marriott Harbourfront Hotel, Halifax, Canada, with additional participants joining the meeting by Webex, from 23 to 26 September 2024 to consider the various matters in its agenda. Representatives attended from Canada, Denmark (in respect of the Faroes and Greenland), the European Union, France (in respect of Saint Pierre et Miquelon), Japan, Norway, the Russian Federation, Ukraine, the United Kingdom and the United States of America. The Executive Secretary, Senior Scientific Information Administrator and other members of the Secretariat were in attendance. Observers attended from FAO, the Sargasso Sea Commission, and the Marine Stewardship Council of Canada.

The Executive Committee met prior to the opening session of the Council to discuss the provisional agenda and plan of work.

The Council was called to order at 9:37 on 23 September 2024. The provisional agenda was **adopted** with minimal changes and the NAFO Secretariat was appointed as rapporteur.

The Scientific Council's considerations on the Standing Committee Reports and other matters addressed by the Council follow in Sections II-X.

The Agenda, List of Summary (SCS) Documents, and List of Representatives, Advisers and Experts, are given in Appendices III-V.

The final session was called to order at 09:00 on 26 September 2024. The Scientific Council considered and adopted the reports of the STACREC and STACFIS Standing Committees and agreed that the report of this meeting would be finalized by correspondence. The meeting was adjourned early at 18:00 on 26 September 2024.

## II. REVIEW OF SCIENTIFIC COUNCIL RECOMMENDATIONS

There were no Scientific Council recommendation requiring immediate attention at this meeting. A detailed review of recommendations was deferred to the June 2025 meeting.

## III. JOINT SESSION OF COMMISSION AND SCIENTIFIC COUNCIL

### 1. Implementation of 2018 Performance Review recommendations

The Commission Chair highlighted the summary of the status of the implementation of the recommendations of the 2018 Performance Review Panel in COM WP 24-07. The Commission Chair reflected on the progress made on each of the recommendations and noted that NAFO may need to start to consider initiating the process for the next performance review.

The United States of America and Canada presented a joint proposal to establish a virtual working group, to be Chaired by the Chair of STACFAD, with a goal of working intersessionally to discuss the scope and timelines for the next NAFO Performance Review, draft Terms of Reference and criteria for the review. The virtual working group will present the results of their work to the Commission at the 2026 Annual Meeting with a recommendation on whether to launch the next Performance Review of the Organization, if appropriate.

- The Commission adopted the proposal on the initiation of a Performance Review of NAFO presented by the United States of America and Canada in COM WP 24-21 now COM Doc. 24-20.

**2. Presentation of Scientific Advice by the Chair of the Scientific Council**

**a) Response of the Scientific Council to the Commission's request for scientific advice**

The Chair of the Scientific Council, Diana González Troncoso (European Union), provided a comprehensive presentation of the work of the Scientific Council, including the responses to the Commission requests for scientific advice on fish stocks and on other topics, outlined in detail in SCS Doc. 24/16 (Revised) and SCS Doc. 24/17. Contracting Parties expressed their deepest appreciation for the work of the Scientific Council and thanked the Scientific Council Chair for the presentation and for her leadership of the Scientific Council in the past year.

**b) Feedback to the Scientific Council regarding the advice and its work during this meeting**

The Commission provided one written submission for requests to the Scientific Council for additional information. The question from the European Union related to the frequency of advice for Division 3M cod, including making available the probabilities of growth of the spawning biomass in 2026 compared to 2024 for the considered projections [$P(SSB_{26} > SSB_{24})$]. The full response can be found in item VI.3.a of this report. The Commission thanked the Scientific Council for their work on responding to the question.

**c) Other issues as determined by the Chairs of the Commission and the Scientific Council**

The Commission Chair highlighted the voluntary contribution, from the United States of America, that has been put forward to facilitate Scientific Council work on climate change impacts. The details of the work were discussed in the Scientific Council during the meeting. The Commission Chair also highlighted the new vacancy announcement that has been posted for the Science Coordinator position in the NAFO Secretariat and encouraged interested individuals to apply.

**3. Presentation of the reports and recommendations of the joint Commission–Scientific Council Working Groups**

**a) Joint Commission–Scientific Council Working Group on Improving Efficiency of NAFO Working Group Process (E-WG), 2024**

The Commission Chair highlighted the meeting report from the E-WG in COM-SC Doc. 23-06, and the proposed meeting dates for consideration by the Commission. The E-WG proposed that for 2025 the following two-week periods be considered for NAFO intersessional meetings:

- 17-28 February 2025;
- 31 March - 11 April 2025; and
- 14-25 July 2025

    - The Commission adopted the proposed meeting dates of 17-28 February 2025; 31 March - 11 April 2025; and 14-25 July 2025 noting that Contracting Parties are not obliged to schedule meetings during these periods, but the dates may help in future planning of intersessional meetings.

**b) Joint Commission–Scientific Council Catch Estimation Strategy Advisory Group (CESAG), 2024**

The co-Chair of CESAG, Katherine Sosebee (United States of America) presented an update on the status of the work of CESAG in 2024. CESAG completed its work via correspondence for 2024, and the final estimates for the 2023 catch were circulated to the Scientific Council by the 01 May deadline, following the procedure outlined in the Terms of Reference (COM-SC Doc. 17-09).

**c) Joint Commission–Scientific Council Working Group on Risk-based Management Strategies (WG-RBMS), April and August 2024**

The co-Chairs, Fernando González-Costas (European Union) and Ray Walsh (Canada) presented the reports and recommendations from the April and August 2024 WG-RBMS meetings in COM-SC Doc. 24-01 and COM-SC Doc. 24-03. The co-Chairs presented an update on the work for the MSE process for 2+3KLMNO Greenland halibut and highlighted the WG-RBMS recommendation for the adoption of the candidate management procedure and exceptional circumstances protocol. It was also noted that the WG-RBMS recommended that the

Scientific Council use the new management procedure to provide advice on the total allowable catch for 2025 at the 2024 Annual Meeting. The WG-RBMS acknowledged that exceptional circumstances will be occurring, however, sensitivity analyses indicated that the application of the new management procedure was appropriate. Further discussion on the Greenland halibut MSE took place under agenda item 20.c. The co-Chairs also reported on the progress of the MSE for 3LN redfish, noting the revised workplan. Canada indicated that they are committing additional resources to the 3LN redfish MSE and hope to make addition progress on this be the end of the calendar year.

The co-Chairs also presented an update on the work toward the revision of the NAFO Precautionary Approach Framework (PAF) and presented the revised Framework to the Commission for adoption in COM-SC RBMS-WP 24-03 (Rev. 2). It was noted that the WG-RBMS also recommended a periodic full review of the Framework on a timeline to be determined at a later date by the Commission following the advice of WG-RBMS. The WG-RBMS also recommended that the Scientific Council give priority to the development of reference points, for stocks that currently do not have them, to facilitate implementation of the PAF.

The WG-RBMS co-Chairs also noted the discussions held relating to the Scientific Council workload, noting that there has been an increased push for MSE processes for RFMO fisheries to receive MSC certification, and as such, WG-RBMS recommended that the Commission send correspondence to the Marine Stewardship Council (MSC), and other certifying bodies as appropriate, highlighting the adoption of the Revised Precautionary Approach Framework and noting the concerns and challenges of requiring a Management Strategy Evaluation (MSE) for RFMO managed fisheries to receive certification.

Additionally, WG-RBMS recommended that the Commission and the Scientific Council endorse the revised Terms of Reference, outlined in COM-SC RBMS-WP 24-01 (Revised).

The Commission and Scientific Council adopted the reports of the WG-RBMS meetings (COM-SC Doc. 24-01 and COM-SC Doc. 24-03) as well as the recommendations as follows:

1. **In relation to the MSE process for 2+3KLMNO Greenland halibut, WG-RBMS recommends the adoption of the candidate management procedure and exceptional circumstances protocol.**
2. **In relation to the application of the 2+3KLMNO Greenland halibut Management Strategy,**
    a. **WG-RBMS recommends that the Scientific Council use the new management procedure to provide advice on the total allowable catch for 2025 at the 2024 Annual Meeting.**
    b. **WG-RBMS acknowledges that exceptional circumstances will be occurring due to recent gaps in the EU-Spain 3L series. However, sensitivity analyses presented at this meeting by the Scientific Council indicate that the application of the new HCR will still be appropriate.**
3. **WG-RBMS recommends that the Commission adopt the Revised Precautionary Approach Framework (COM-SC RBMS-WP 24-03 (Rev. 2) Annex 4 of COM-SC Doc. 24-03). Further, WG-RBMS recommends a periodic full review of the Framework on a timeline to be determined at a later date by the Commission following the advice of WG-RBMS.**
4. **WG-RBMS recommends that the Scientific Council gives priority to the development of reference points, to facilitate implementation of the PAF, for stocks that currently do not have them.**
5. **In relation to the Scientific Council workload, WG-RBMS recommends that the Commission send correspondence to the Marine Stewardship Council (MSC), and other certifying bodies as appropriate, highlighting the adoption of the Revised Precautionary Approach Framework and noting the concerns and challenges of requiring a Management Strategy Evaluation (MSE) for RFMO managed fisheries to receive certification.**
6. **In relation to the review of the Terms of Reference, WG-RBMS recommends that the Commission and the Scientific Council endorse the revised Terms of Reference, outlined in COM-SC RBMS-WP 24-01 (Revised) now COM-SC Doc. 24-05.**

**d) Joint Commission–Scientific Council Working Group on Ecosystems Approach Framework to Fisheries Management (WG-EAFFM), August 2024**

The co-Chair, Elizabethann Mencher (United States of America) in consultation with the co-Chair Mar Sacau Cuadrado (European Union) presented the report and recommendations from the August 2024 WG-EAFFM meeting in COM-SC Doc. 24-02. The presentation highlighted the work completed by the working group in relation to the VME and SAI assessments, the Other Effective Area-based Conservation Measures (OECMs), Scientific Council workload, bycatch issues related to the Action plan, Greenland shark, and directed fishing policy. In relation to the ecosystem roadmap, the co-Chairs highlighted that WG-EAFFM is undertaking to compile a summary description of the NAFO Roadmap for an Ecosystem Approach to Fisheries (Annex 4 of COM-SC Doc. 24-02), which is open for comments from Contracting Parties. Additionally, WG-EAFFM recommended that the Commission and the Scientific Council endorse the revised Terms of Reference, outlined in COM-SC EAFFM-WP 24-08 (Rev. 2).

The Commission and Scientific Council adopted the report of the WG-EAFFM meeting outlined in COM-SC Doc. 24-02 as well as the recommendations as follows:

1. **In relation to the update on reassessment of VMEs and impact of bottom fisheries on VMEs for 2026, the WG-EAFFM requests the Commission to recommend the Scientific Council to include potential management options in the reassessment of bottom fisheries, with the goal of supporting meaningful and effective discussions between scientists and managers at WG-EAFFM.**

2. **In relation to Other Effective Area-based Conservation Measures (OECMs), the WG-EAFFM recommends that the Commission request the Scientific Council to develop materials to inform a discussion on the potential of submitting NAFO coral bottom fishing closed areas as OECMs at the 2025 WG-EAFFM meeting.**

3. **In relation to Scientific Council workload, the WG-EAFFM recommends the Commission and/or the Scientific Council consider undertaking internal, or support external, assessments to inform the ongoing effort to address the Scientific Council workload. Such assessments could include how to optimize:**

    a) **the organization / structure and function of the Scientific Council, its standing committees and working groups,**

    b) **further development and implementation of the Scientific Council's workplan,**

    c) **the process to prioritize across requests to Scientific Council, and**

    d) **the process to consider the work of the Scientific Council in the NAFO budget.**

4. **In relation to the Action Plan in the Management and Minimization of Bycatch and Discards, the WG-EAFFM recommends the Commission requests the NAFO Secretariat, in collaboration with the Scientific Council as appropriate, compile a summary of the previous analyses completed under the action plan, as well as the relevant data sources associated with that work. The compilation will be shared with the WG-EAFFM, WG-RBMS, and STACTIC in 2025 for consideration.**

5. **In relation to Greenland shark bycatch, the WG-EAFFM recommends that the Commission requests that the Secretariat provide a summary and analysis of the observer data related to Greenland shark to WG-EAFFM at its 2025 meeting, with a view to identify trends, and any potential gaps, in that information.**

6. **In relation to the review of the Terms of Reference, the WG-EAFFM recommends that the Commission and the Scientific Council review and approve the revised Terms of Reference, outlined in COM-SC EAFFM-WP 24-08 (Rev. 2) now COM-SC Doc. 24-04.**

7. **In relation to the ecosystem roadmap, WG-EAFFM recommends the Commission to request the Scientific Council to develop a reference document detailing the ecosystem roadmap, for completion in the next 1-3 years.**

**e) Informal Group to reflect on the workload of the Scientific Council, April 2024**

The Chairs of the Commission and Scientific Council presented a summary of all the discussions that have taken place in relation to Scientific Council workload since the last Annual Meeting. The discussions focused on some concrete actions, including a workload assessment and review of scheduling of stock assessments, the potential for Contracting Parties to provide the resources for new proposals, cooperation with external organizations, an increase in scientific capacity within the NAFO Secretariat, recruitment and outreach, and additional internal support.

To further address the workload issues, the Scientific Council presented a proposal to the Commission to balance the number of full assessments in a given year by rescheduling the full assessment of Greenland halibut Division 1 inshore to 2025 and then assess on a two-year schedule after that if the coastal States agree. The Commission supported this proposal and requested that the coastal States take the proposal into consideration when submitting the annual coastal States requests to the Scientific Council. An additional proposal to alleviate workload would be to also reschedule the reassessment of SAI on VME to 2027. The Scientific Council Chair noted that while this would not alleviate the number of full assessments, however it would free up additional time in the Scientific Council 2026 June meeting to review the full assessments. The Commission supported this proposal, and modified accordingly, the Request 6.b to the Scientific Council for 2026.

**4. Formulation of Requests to the Scientific Council for Scientific Advice on the Management in 2025 and Beyond of Certain Stocks in Subareas 2, 3, 4, 6 and Other Matters**

In accordance with the procedure outlined in FC Doc. 12-26, draft of the requests outlined in COM WP 24-11 was developed by the steering committee and circulated in advance of the meeting. The committee consisted of representatives from Canada and European Union, with assistance from the NAFO Secretariat. The Commission and the Scientific Council reviewed the document, reflected on some of the discussions under other agenda items, and formulated the final requests in COM WP 24-11 (Rev. 3).

- The Commission adopted the request to the Scientific Council for scientific advice in COM WP 24-11 (Rev. 3) now COM Doc. 24-18.

## IV. RESEARCH COORDINATION

The Council adopted the Report of the Standing Committee on Research Coordination (STACREC) as presented by the Chair, Mark Simpson (Canada). The full report of STACREC is in Appendix I.

## V. FISHERIES SCIENCE

The Council adopted the Report of the Standing Committee on Fisheries Science (STACFIS) as presented by the Chair, Marta Krohn (Canada). The full report of STACFIS is at Appendix II.

## VI. REQUESTS FROM THE COMMISSION

**1. Requests deferred from the June Meeting**

**a) Greenland halibut in Subarea 2 + Divisions 3KLMNO monitor, compute the TAC using the most recently agreed HCR and determine whether exceptional circumstances are occurring (request #2)**

The Commission requests the Scientific Council to monitor the status of Greenland halibut in Subarea 2 + Div 3KLMNO annually to compute the TAC using the most recently agreed HCR and determine whether Exceptional Circumstances are occurring. If Exceptional Circumstances are occurring, the Exceptional Circumstances protocol will provide guidance on what steps should be taken.

**Scientific Council responded:**

Exceptional Circumstances are occurring due to recent gaps in the EU-Spain 3L series. However, sensitivity analyses indicate that the application of the HCR (i.e., the Management Procedure [MP]) adopted in 2024 will still be appropriate. The TAC for 2025 derived from the MP is 14 791 t. This compares to the TAC for 2024 of 15 153 t, which was calculated using the MP adopted in 2017. The 2.4% reduction stems from two sources: 1) a downwards adjustment to the current MP formula to meet the long-term biomass target, and 2) the MP responding to a slight declining trend in the combined survey index.

A Management Procedure (MP) and Exceptional Circumstances Protocol for Greenland halibut in Subarea 2+Div. 3KLMNO have been adopted by the Commission in September 2024. The MP combines a "target based" and "slope based" rule, detailed below. Inputs normally include the five surveys presented in Table i.1; however, in terms of the Exceptional Circumstances protocol, there were insufficient observations from the EU-Spain 3L survey to utilize that series in the MP computations this year (**Table i.1**). Sensitivity analyses indicated minimal impact on the MP outputs (<6%; SCR Doc. 24/033). It was subsequently decided to exclude this survey from the MP computations in 2024 to provide TAC advice for 2025. Equations below are modified accordingly from those in the formal MP description, referring to four rather than to five surveys. The full set of control parameters for the adopted MP are shown in **Table i.2**. All data inputs used to calculate the TAC for 2025 are shown in **Table i.3**.

**Table i.1.** Survey indices available for use in the most recently adopted MP.

| | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|
| Canada Autumn 2J3K | ✓ | ✓ | ✓ | ✗ | ✓ |
| Canada Autumn 3LNO | ✓ | ✓ | ✗ | ✗ | ✓ |
| EU-Spain 3L | ✓ | ✗ | ✗ | ✗ | ✓ |
| EU-Spain 3NO | ✓ | ✗ | ✓ | ✓ | ✓ |
| EU 3M 0-1400m | ✓ | ✓ | ✓ | ✓ | ✓ |

*Target based (**t**)*

The target rule is:

$$\mathrm{TAC}_{y+1}^{target} = \mathrm{TAC}_y\left(1+\gamma\left(J_y-1\right)\right) \qquad (1)$$

where $\mathrm{TAC}_y$ is the TAC recommended for year $y$, $\gamma$ is the "response strength" tuning parameter, $J_y$ is a composite measure of the immediate past level in the mean weight per tow from surveys ($I_y^i$) that are available to use for calculations for year $y$; four survey series are used, with $i$ = 1, 2, 3 and 4 corresponding respectively to Canada Autumn 2J3K, Canada Autumn 3LNO, EU-Spain 3NO and EU 3M 0-1400m:

$$J_y = \sum_{i=1}^{4} \frac{1}{(\sigma^i)^2}\frac{J_{current,y}^i}{J_{target}^i} \Big/ \sum_{i=1}^{4} \frac{1}{(\sigma^i)^2} \qquad (2)$$

with $(\sigma^i)^2$ being the estimated variance for index $i$ (estimated in the SCAA model fitting procedure),

$$J_{current,y}^i = \frac{1}{q^i}\sum_{y'\in \mathrm{Q}^i} I_{y'}^i \qquad (3)$$

$$J_{target}^i = \alpha\frac{1}{5}\sum_{y'=2011}^{2015} I_{y'}^i \quad \text{(where } \alpha \text{ is a control/tuning parameter for the MP)} \qquad (4)$$

where $q^i$ indicates the number of years in $Q^i$, and $Q^i$ the years in the period $y' = y - 5$ to $y' = y - 1$ used to determine current status for survey series $i$ (i.e. missing survey values are treated as missing in the calculation using the rule, as was done in the MSE testing). Note the assumption that when a TAC is set in year *y* for year *y+1*, indices will not at that time yet be available for the current year *y*.

*Slope based (**s**)*

The slope rule is:

$$\mathrm{TAC}_{y+1}^{slope} = \mathrm{TAC}_y\left[1 + \lambda_{up/down}\left(s_y - X\right)\right] \qquad (5)$$

where $\lambda_{up/down}$ and $X$ are tuning parameters, $s_y^i$ is a measure of the immediate past trend in the survey-based mean weight per tow indices, computed by linearly regressing $lnI_{y'}^i$, vs year $y'$ for $y' \in Q^i$ for each survey series $i$ considered, with:

$$s_y = \sum_{i=1}^{4} \frac{1}{(\sigma^i)^2} s_y^i \Big/ \sum_{i=1}^{4} \frac{1}{(\sigma^i)^2} \qquad (6)$$

with the standard error of the residuals of the observed compared to model-predicted logarithm of survey index $i$ ($\sigma^i$) as estimated in the SCAA base case operating model. Missing survey values are treated as missing in the calculation using the rule, as was done in the MSE. In such cases, the slope for each index, $s_y^i$, in equation (6) is calculated from the available values within the last five years.

*Combination Target and Slope based (**s+t**)*

For the target and slope based combination:

1) $\mathrm{TAC}_{y+1}^{target}$ is computed from equation (1),
2) $\mathrm{TAC}_{y+1}^{slope}$ is computed from equation (5), and
3) $\mathrm{TAC}_{y+1} = \mu\left(\mathrm{TAC}_{y+1}^{target} + \mathrm{TAC}_{y+1}^{slope}\right)/2$, where $\mu$ is a tuning parameter.

Finally, constraints on the maximum allowable annual change in TAC are applied, viz.:

$$\text{if} \quad \mathrm{TAC}_{y+1} > \mathrm{TAC}_y\left(1 + \Delta_{up}\right) \quad \text{then} \quad \mathrm{TAC}_{y+1} = \mathrm{TAC}_y\left(1 + \Delta_{up}\right) \qquad (7)$$

and

$$\text{if} \quad \mathrm{TAC}_{y+1} < \mathrm{TAC}_y(1 - \Delta_{\mathrm{down}}) \quad \text{then} \quad \mathrm{TAC}_{y+1} = \mathrm{TAC}_y(1 - \Delta_{\mathrm{down}}) \qquad (8)$$

During the MSE process, this inter-annual constraint was set at 10%, for both TAC increases and decreases, and these constraints were adopted as part of the adopted MP.

Following the MP using the agreed survey data, the recommended TAC for 2025 is 14 791 t (**Table i.3**). This compares to the TAC for 2024 of 15 153 t, which was calculated using the MP adopted in 2017. The 2.4% reduction stems from two sources: 1) the application of the $\mu$ tuning parameter to the current MP to meet the long-term biomass target; and 2) the MP is responding to a slight declining trend in the combined index (**Figures i.2 and i.3**). **Figure i.4** compares this result to what had been predicted from the base case SCAA and SSM operating models; although these predictions showed medians which reflected a slight increase in the TAC from 2024 to 2025, the small decrease that has resulted is quite consistent with the statistical distributions shown there for the predicted TAC for 2025.

**Table i.2.** Control parameter values for the adopted MP. The parameters $\mu$, $\alpha$ and $X$ were adjusted to achieve a median biomass equal to $B_{msy}$ for the exploitable component of the resource biomass in 2044 for the Base Case SCAA Operating Model.

| | |
|---|---|
| $\mu$ | 0.963 |
| $\gamma$ | 0.15 |
| $q$ | 3 |
| $\alpha$ | 0.972 |
| $\lambda_{up}$ | 1 |
| $\lambda_{down}$ | 2 |
| $X$ | -0.0056 |
| $\Delta_{up}$ | 0.1 |
| $\Delta_{down}$ | 0.1 |

**Table i.3.** Data used in the calculation of the TAC for 2025. The weights given to each survey in obtaining composite indices of abundance (target rule) and composite trends (slope rule) are proportional to the inverses of the squared values of the survey error standard deviations $\sigma^i$ listed below.

| | **Canada Autumn 2J3K** | **Canada Autumn 3LNO** | **EU-Spain 3NO** | **EU 3M 0-1400m** |
|---|---|---|---|---|
| 2011 | 26.736 | 2.206 | 7.093 | 26.152 |
| 2012 | 23.504 | 1.712 | 7.373 | 19.198 |
| 2013 | 29.792 | 2.531 | 5.463 | 19.110 |
| 2014 | 33.336 | | 6.239 | 23.921 |
| 2015 | 22.290 | 0.869 | 9.486 | 47.517 |
| 2016 | 18.541 | 1.314 | 8.796 | 28.298 |
| 2017 | 15.104 | 1.246 | 16.627 | 42.665 |
| 2018 | 17.054 | 1.887 | 7.875 | 29.803 |
| 2019 | 16.285 | 1.872 | 8.824 | 16.887 |
| 2020 | 15.840 | 2.714 | | 13.230 |
| 2021 | 21.170 | | 8.090 | 16.310 |
| 2022 | | | 10.284 | 13.492 |
| 2023 | 19.972 | 1.736 | 10.926 | 27.457 |
| $s^i_{2024}$ | 0.0624 | -0.0488 | 0.0583 | 0.0992 |
| $J^i_{current,2024}$ | 20.571 | 1.736 | 9.767 | 19.087 |
| $J^i_{target}$ | 26.372 | 1.778 | 6.931 | 26.418 |
| $\sigma^i$ | 0.230 | 0.254 | 0.405 | 0.299 |
| $1/(\sigma^i)^2$ | 18.904 | 15.500 | 6.097 | 11.186 |
| | $\text{TAC}_{2024}$ | 15 153 t | $\text{TAC}^{target}_{2025}$ | 14 927 t |
| | $s_{2024}$ | 0.037 | $\text{TAC}^{slope}_{2025}$ | 15 791 t |
| | $J_{2024}$ | 0.901 | $\text{TAC}_{2025}$ | 14 791 t |

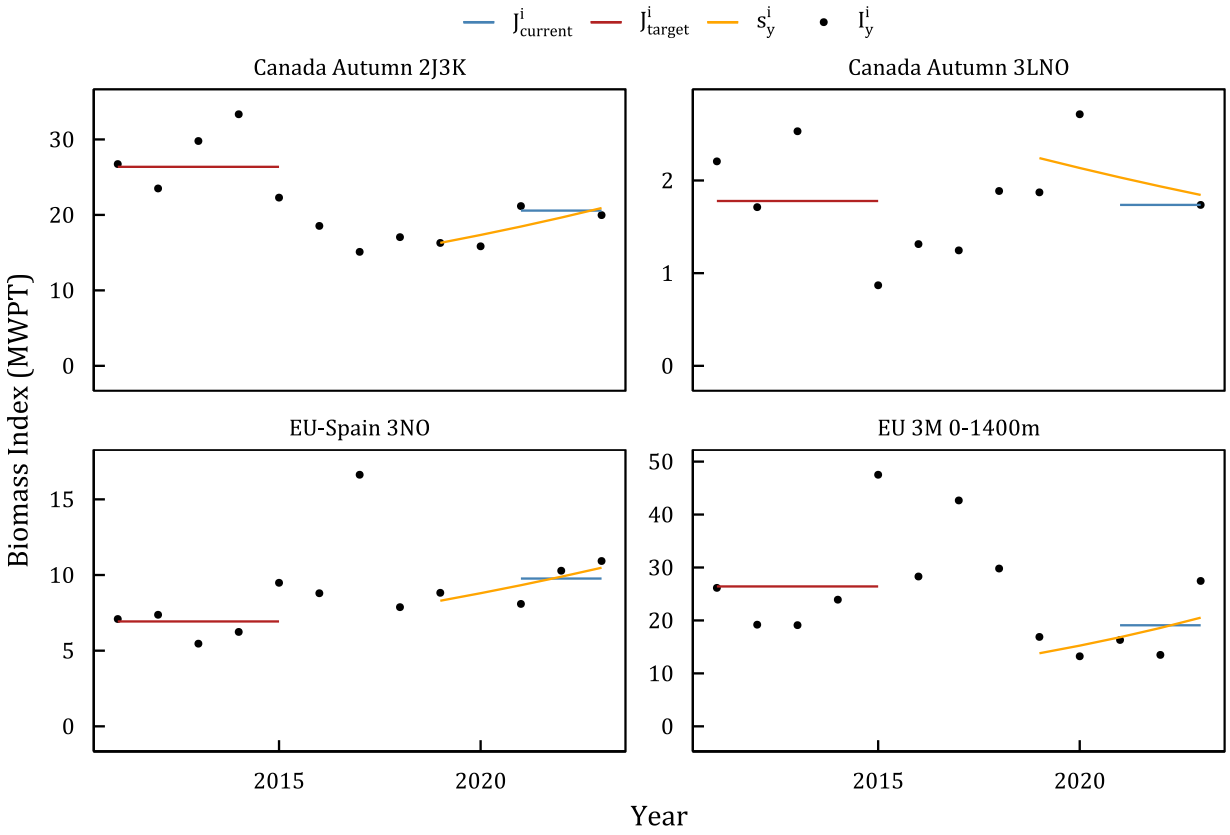


**Figure i.1.** Input for the Greenland Halibut in Subarea 2 + Divisions 3KLMNO MP along with visual representation of the target and slope based components of the rule. The red line represents the target (2011-2015 average; $J^i_{target}$), the blue line the current levels (2020-2023 average; $J^i_{current}$), and the orange line depicts recent log-linear trends (2018-2023 slope; $s^i_y$). Survey data are provided from Canadian Autumn surveys in Divisions 2J3K, Canadian Autumn surveys in Divisions 3LNO, EU-Spain surveys in 3NO and EU Flemish Cap surveys (to 1400m depth) in Division 3M. Missing values within the last five years are not used in the calculation of the TAC using the MP.

**Exceptional Circumstances**

In 2024, the Scientific Council evaluated each of the criteria indicated in the Exceptional Circumstances Protocol, as described below.

*The following criteria provide the basis to determine whether Exceptional Circumstances apply*:

*1. Missing survey data*:

- *More than two values missing, in a five-year period, from a survey used in the MP;*
- *Missing more than two of the five survey indices from the terminal year.*

There are Exceptional Circumstances occurring over the last five years, because there are three missing values from the EU-Spain 3L series. There are insufficient data from this series to utilize it in the MP. However, sensitivity tests indicate that applying the MP informed by the remaining survey data serves as a reasonable option for providing TAC advice for 2025, as historically there would have been minimal deviations from the

agreed MP if results from this survey had been excluded (<6%; SCR Doc. 24/033). Accordingly, it is recommended that the agreed formula could still be applied to calculate the TAC, with the exclusion of the EU-Spain 3L series.

*2. The composite survey index used in the MP, in a given year, is above or below the 90 percent probability envelopes projected by the base case operating models from SSM and SCAA under the MS;*

The composite survey index (excluding the EU-Spain 3L survey) for 2024 falls within the 90% probability envelopes from the base case SCAA and SSM operating model (**Figures i.2 and i.3**). Scientific Council concludes that this does not constitute Exceptional Circumstances.

*3. TACs are established that are not generated from the MP.*

The TAC established for 2024 was generated from the MP adopted in 2017. This TAC was assumed under the MSE simulations conducted in 2024. This does not constitute Exceptional Circumstances.

*The following elements will require application of expert judgment to determine whether Exceptional Circumstances are occurring:*

> *1. the five survey indices relative to the 80, 90, and 95 percent probability envelopes projected by the base case operating models (SSM and SCAA) for each survey;*
>
> Survey indices from 2023 are primarily within the 80% probability envelopes from both the SCAA and SSM base case operating models, and one exception to that remains within the 95% probability envelopes (**Figures i.2 and i.3**). SC concludes that this does not constitute occurrence of Exceptional Circumstances.
>
> *2. survey data at age four (the age before recruitment to the fishery) compared to its series mean to monitor the status of recruitment;*
>
> This Exceptional Circumstance is not occurring as recent recruitment indices are near or above average (**Figure i.5**).
>
> *3. discrepancies between catches and the TAC calculated using the MP.*
>
> The TAC for 2023 was 15 156 t. The catch in 2023 was 14 162 t (<7% difference). SC concludes that this does not constitute Exceptional Circumstances as catches have been closely tracking the MP outputs (**Figure i.4**).

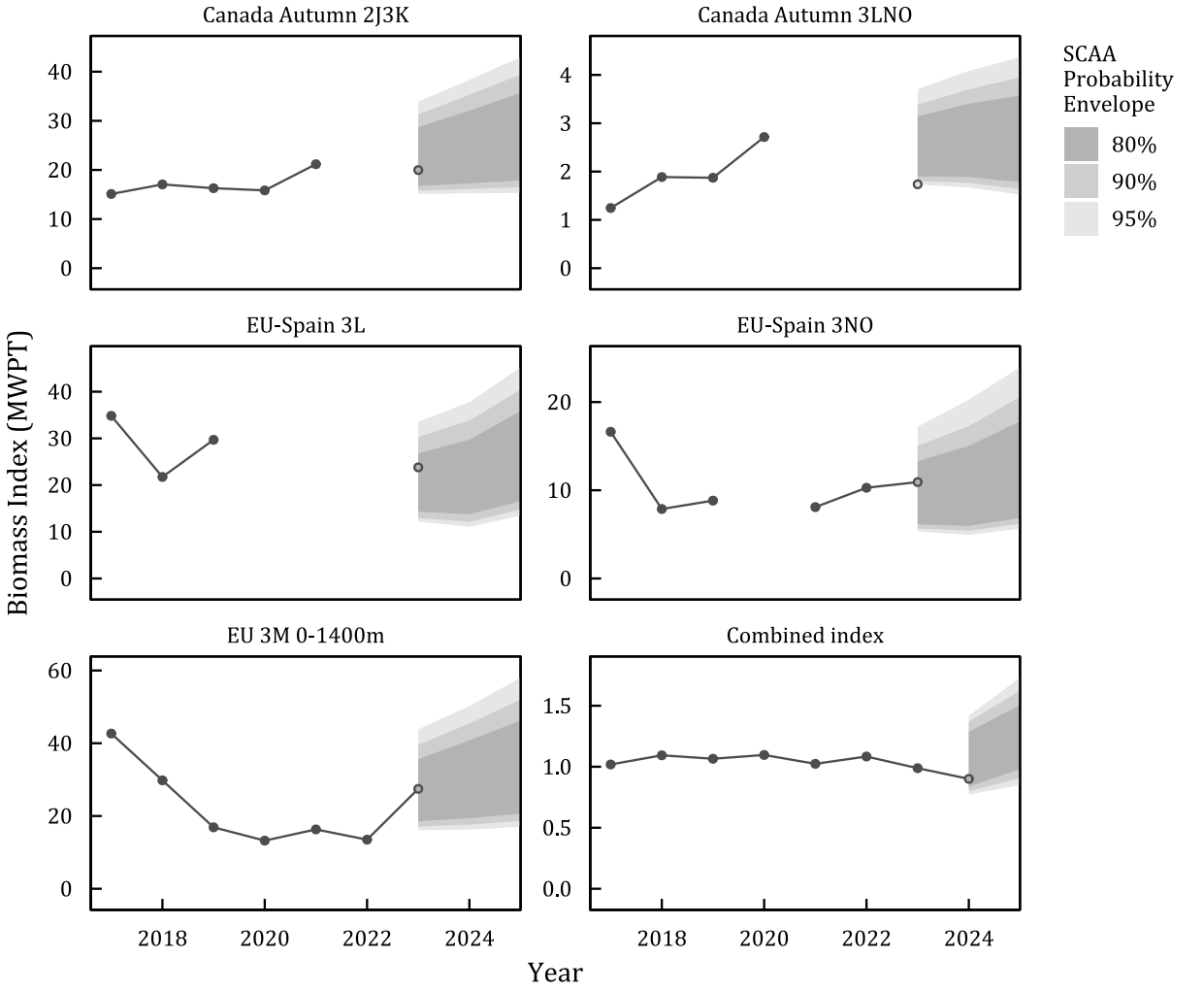


**Figure i.2.** Greenland Halibut in Subarea 2 + Divisions 3KLMNO. Mean weight per tow from Canadian Autumn surveys in Divisions 2J3K, Canadian Autumn surveys in Divisions 3LNO, EU-Spain surveys in 3L, EU-Spain surveys in 3NO and EU Flemish Cap surveys (to 1400m depth) in Division 3M. The figure also shows the combined index[1] used in the target based component of the MP. For the survey and combined indices, 80%, 90% and 95% probability envelopes from the **SCAA** base case simulation are shown. Index values observed from 2023 onward are shown using open circles.

[1] The probability envelopes for the combined index (shaded regions) includes the EU-Spain 3L series, however, the observed combined index (point) for 2024 excludes the EU-Spain 3L series.

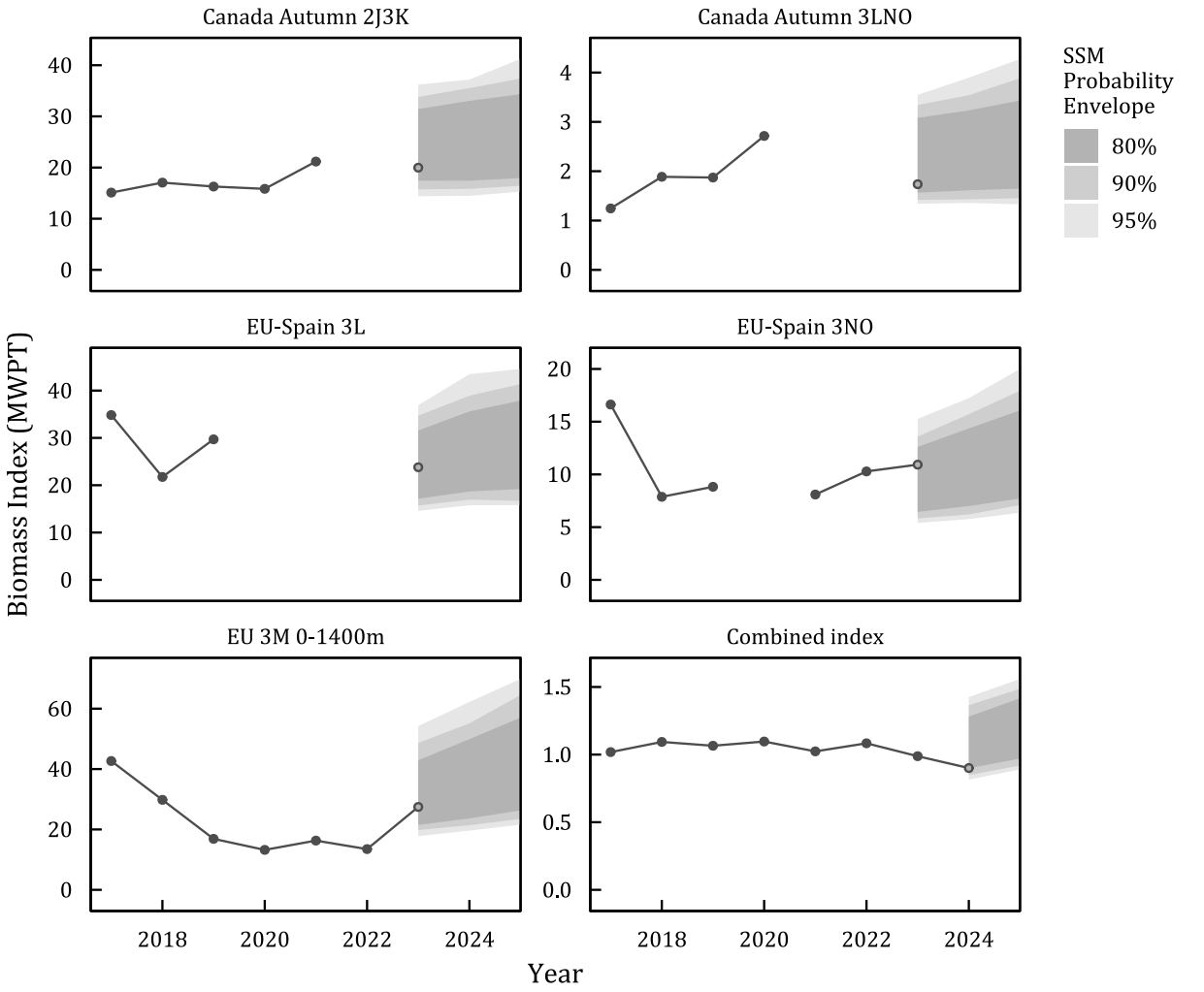


**Figure i.3.** Greenland Halibut in Subarea 2 + Divisions 3KLMNO. Mean weight per tow from Canadian Autumn surveys in Divisions 2J3K, Canadian Autumn surveys in Division 3LNO, EU-Spain surveys in 3L, EU-Spain surveys in 3NO and EU Flemish Cap surveys (to 1400m depth) in Division 3M. The figure also shows the combined index[1] used in the target based component of the MP. For the survey and combined indices, 80%, 90% and 95% probability envelopes from the **SSM** base case simulation are shown. Index values observed from 2023 onward are shown using open circles.

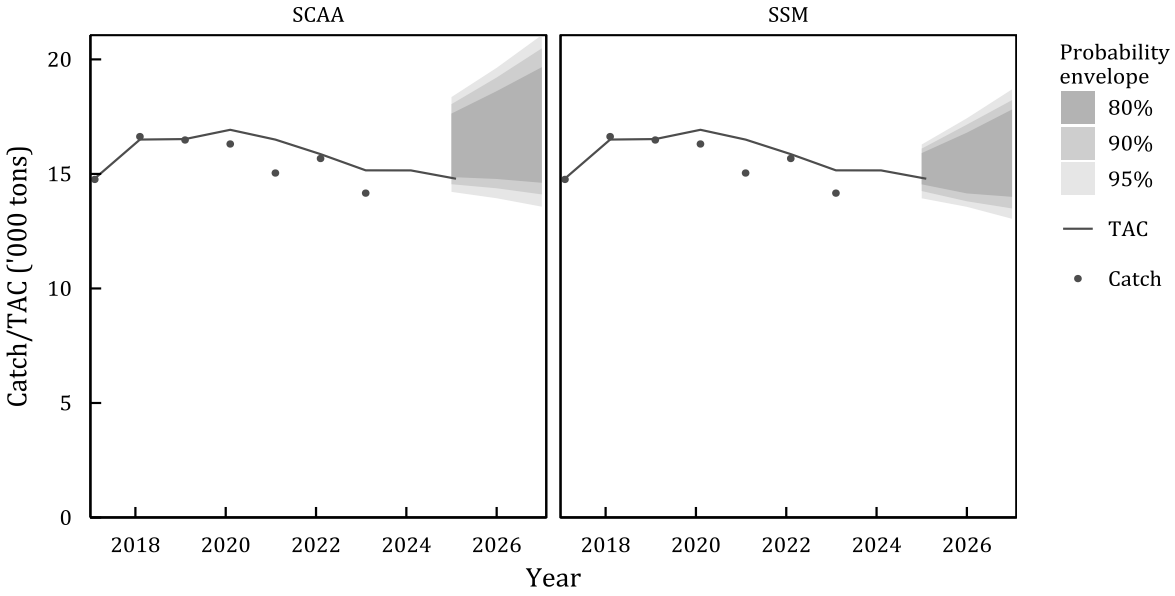


**Figure i.4.** Greenland Halibut in Subarea 2 + Divisions 3KLMNO: TACs and catches. The figure also shows 80%, 90% and 95% probability envelopes from the **SCAA** and **SSM** base case simulation projections of future TACs.

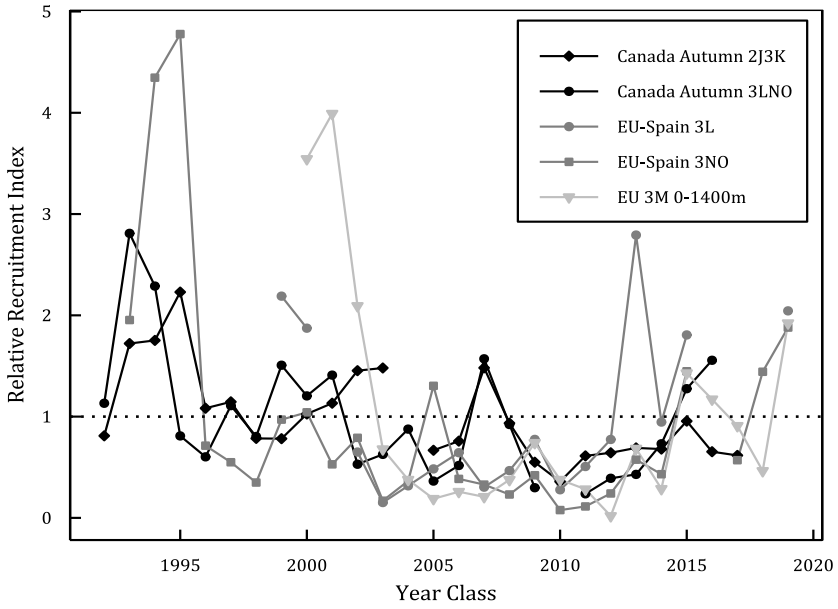


**Figure i.5.** Greenland Halibut in Subarea 2 + Divisions 3KLMNO. Relative recruitment (age 4) indices, shown in relation to year class, from Canadian autumn surveys in Divisions 2J3K, Canadian spring surveys in Divisions 3LNO, Canadian fall surveys in Divisions 3LNO, EU-Spain survey in 3NO and EU survey of Flemish Cap. Each series is scaled to its average, which then corresponds to the horizontal dotted line at 1.

**b) Include any new Canadian stock assessments for cod 2J3KL (Canada), witch flounder 2J3KL (Canada) as an annex to the SC's annual report (request #8).**

**Commission request 8:** *The Commission requests that any new Canadian stock assessments for Cod 2J3KL and Witch flounder 2J3KL, and any new ICES stock assessments for Pelagic Sebastes mentella (ICES Divisions V, XII and XIV; NAFO 1) be included as an annex to the Scientific Council's annual report.*

During its June Meeting, the Scientific Council indicated that the update on the cod in Divisions 2J3KL (Canada) had not been released at the time of the meeting. Since then, the following Northern cod (2J3KL Atlantic cod) framework and assessments have been published by Fisheries and Oceans Canada:

- Northern (2J3KL) Atlantic Cod Assessment Framework (Science Advisory Report 2024/046)
- NAFO Divisions 2J3KL Northern Cod (*Gadus morhua*) Stock Assessment to 2024 (Science Advisory Report 2024/049)

## 2. Requests arising from the Working Groups in 2024

### a) Precautionary Approach Framework risk table

During the joint Commission-Scientific Council Working Group on Risk-Based Management Strategies (WG-RBMS) in August 2024, a risk-based table was formulated to help inform the Commission's decisions when implementing the revised Precautionary Approach Framework. The table is meant to indicate risks/probabilities associated with the status of the stock and *F* levels. After the report was adopted by the Commission, it was noted that Scientific Council had minor changes to the risk table. The revised risk table was then incorporated into Annex A of the Commission requests to Scientific Council (COM Doc. 24-18).

The following table is the revised NAFO Precautionary Approach Framework risk table:

*y* current year (year in which the assessment is made, data until year y-1)

| | Yield | | | $P(F>F_{lim})$ | | | $P(B<B_{lim})$ | | | | $P(F>F_{target})$ | | | $P(B<B_{trigger})$ | | | | $P(B_{y+3} > B_y)$ | $(B_{y+3}-B_y)/B_y$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F in y+1 and following years | Yield y (50%) | Yield y+1 (50%) | Yield y+2 (50%) | y | y+1 | y+2 | y | y+1 | y+2 | y+3 | y | y+1 | y+2 | y | y+1 | y+2 | y+3 | | |
| **Critical Zone** | | | | | | | | | | | | | | | | | | | |
| F=0 | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| F=X% current* | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| F current | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **Cautious Zone** | | | | | | | | | | | | | | | | | | | |
| F lower edge leaf | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| F midrib leaf | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| F upper edge leaf | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **Healthy Zone** | | | | | | | | | | | | | | | | | | | |
| F=0.75Fmsy | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| Ftarget=0.85Fmsy | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| Flim=Fmsy | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |

*X% may vary stock by stock. In the future, this framework may be modified to include F bycatch.
The number of years in the risk projections table will be the same as the years of advice.

### 3. Requests Received from the Commission during the Annual Meeting

#### a) From the European Union

The Commission specifically requested to Scientific Council (COM Doc. 23-09) that "*in 2024, advice should be provided for 2025: for Cod in Division 3M and Redfish in Div. 3LN*".

Noting that the alleged justification to propose the change in the frequency of the advice for 3M Cod ("since biological parameters and the stock status have remained quite stable in recent years") is not clearly supported by figures of the advice nor by the high variability in TAC advice in recent years, EU would like to ask the SC to provide the advice as requested, only for 2025, making available the probabilities of growth of the spawning biomass in 2026 compared to 2024 for the considered projections [P($SSB_{26}$ > $SSB_{24}$)].

**Scientific Council responded:**

Without reopening the advice, Scientific Council presents the risk table for consideration of the Commission. In the table, the risks associated with one year of projection P($SSB_{26}$>$SSB_{24}$), for the same *F* scenarios considered in June, are listed here.

| | Yield | | P(SSB < SSBlim) | | | P(F > Flim) | | |
|---|---|---|---|---|---|---|---|---|
| | 2024 | 2025 | 2024 | 2025 | 2026 | 2024 | 2025 | P($SSB_{26}$ > $SSB_{24}$) |
| F = 0 | 11708 | 0 | <1% | <1% | <1% | <1% | <1% | 100% |
| Fsq = 0.042 | 11708 | 5580 | <1% | <1% | <1% | <1% | <1% | 100% |
| 1/2Flim = 0.076 | 11708 | 9786 | <1% | <1% | <1% | <1% | <1% | 100% |
| 0.56 Flim= 0.086 | 11708 | 10913 | <1% | <1% | <1% | <1% | <1% | 100% |
| F2024 = 0.093 | 11708 | 11613 | <1% | <1% | <1% | <1% | <1% | 99% |
| 2/3Flim = 0.102 | 11708 | 12613 | <1% | <1% | <1% | <1% | <1% | 98% |
| 3/4Flim = 0.114 | 11708 | 13949 | <1% | <1% | <1% | <1% | 2% | 95% |
| Flim = 0.152 | 11708 | 17711 | <1% | <1% | <1% | <1% | 50% | 77% |

The results indicate that under all scenarios with $F_{bar} \leq 3/4F_{lim}$, total biomass during the projected years will increase, and the SSB is projected to increase in 2026 from 2024 with a probability of at least 77% under all scenarios. The probability of SSB being below $B_{lim}$ is very low (≤1%) in all the scenarios.

Under all scenarios, except $F_{lim}$, the probability of $F_{bar}$ exceeding $F_{lim}$ is less than or equal to 2% in 2025.

### 4. Further progress on items related to COM requests (in SCS Doc. 24/01)

#### a) 3-5 year work plan (Commission request #7 in SCS Doc. 24/01)

In response to Commission request #7, the Scientific Council reviewed its workplan in plenary. The plan was updated into a more streamlined version, focusing on each individual tier of the NAFO roadmap, the current MSE and Precautionary Approach tasks, and habitat impacts (VMEs). The workplan was also updated to include a compilation of all Scientific Council tasks into a 5-7-year plan, allowing Scientific Council to have a more comprehensive overview of its upcoming workload and requests. It was decided that the workplan will continue to be a living document with updates twice annually, at both the June and September meetings of the Scientific Council.

## VII. REVIEW OF FUTURE MEETING ARRANGEMENTS

### 1. WG-ESA, 12 - 21 November 2024

The Working Group on Ecosystem Science and Assessment will meet at the NAFO Secretariat in Halifax, Canada, 12 - 21 November 2024.

### 2. STACREC Survey Presentation Meeting, May 2025

One day virtual meeting.

**3. Scientific Council, June 2025**

The Scientific Council June meeting will be held in Halifax, Canada, 29 May - 12 June 2025. Following discussions from the June and September 2024 SC meetings, it was agreed to add an extra day at the beginning of the June 2025 SC meeting for a special session (see section VIII.1.b).

**4. Scientific Council and STACFIS Shrimp Assessment Meeting, 09 - 11 September 2025**

The Scientific Council September Shrimp 2025 meeting will be held in Halifax, Canada, 09 - 11 September 2025.

**5. Scientific Council, September 2025**

Scientific Council noted that the Annual Meeting will be held in Halifax, Canada, 15 - 19 September 2025.

**6. WG-ESA, November 2025**

Dates and location to be determined.

**7. NAFO/ICES Joint Groups**

**a) NIPAG, 2025**

Dates and location to be determined.

**b) ICES – NAFO Working Group on Deep-water Ecosystem (WG-DEC)**

Dates and location to be determined.

**c) ICES/NAFO/NAMMCO Working Group on Harp and Hooded Seals (WG-HARP)**

Dates and location to be determined.

**8. Commission- Scientific Council Joint Working Groups**

**a) WG-EAFFM**

The joint Commission - Scientific Council Working Group on the Ecosystem Approach Framework to Fisheries Management (WG-EAFFM), will take place in July 2025, location to be decided.

**b) WG-RBMS**

The joint Commission - Scientific Council Working Group on Risk Based Management Strategies (WG-RBMS) will take place in July 2025, location to be decided.

**c) CESAG**

The next meeting of the Catch Estimation Strategy Advisory Group (CESAG) will take place via correspondence in the Spring of 2025, unless a meeting is required.

## VIII. FUTURE SPECIAL SESSIONS

**1. Discussion of proposed topics**

**a) NAFO/ICES/FAO Symposium: Applying the Ecosystem Approach to Fisheries Management in ABNJ, 11 - 13 March 2025.**

The NAFO/ICES/FAO symposium, *Applying the Ecosystem Approach to Fisheries Management in ABNJ*, will take place at the FAO Headquarters in Rome, Italy, 11 - 13 March 2025. Eleven representatives from the Scientific Council will attend this meeting in person.

**b) Discussion about adding an additional day onto the 2025 June meeting to review the current Scientific Council structure and process for providing advice.**

Under the workload discussion of the Scientific Council, it was agreed to add an extra day to the June 2025 Scientific Council meeting. This additional day will be used to assess the organization of the Scientific Council and its Committees, with a specific focus on how the work of Scientific Council is done through the individual groups.

### c) Other proposed topics

There were no other topics proposed in this meeting.

## IX. OTHER MATTERS

### 1. Meeting Reports

There were no additional meeting reports reviewed at this meeting.

### 2. Results of the Scientific Council and STACFIS Shrimp Assessment Meeting, 17 - 19 September 2024

The Scientific Council Chair, Diana González Troncoso (European Union), provided an update on the Scientific Council and STACFIS Shrimp Assessment Meeting that took place at the NAFO Secretariat in Halifax, Canada from 17 - 19 September 2024. During the update, the advice for Division 3M shrimp was presented. The next Scientific Council and STACFIS Shrimp Assessment Meeting will be held prior to the Annual Meeting, 9 - 11 September 2025, at the NAFO Secretariat, in Halifax, Canada (SCS Doc. 24/18).

### 3. Update on the OECM submission

The Executive Secretary, Brynhildur Benediktsdóttir, provided an update on the current status of the NAFO Other Effective Area-based Conservation Measures (OECM) submission. As decided at the last Annual Meeting, it was agreed to submit the sponge bottom fishing closed areas 1 to 6 and the seamount closures as OECMs to the CBD Secretariat and to the UN Environment Programme World Conservation Monitoring Centre (UNEP WCMC) for inclusion in the World Database on OECMs. The documents will be submitted following the 2024 Annual Meeting.

### 4. Any other business

### a) Voluntary contribution from USA for Climate Change contract

During the September Annual meeting, the United States of America announced (NAFO/24-235) that they have made a voluntary contribution of US$45,000 to support a consultant to conduct work that will build on, and will be informed by, information contained in the FAO-funded climate change consultant's report. Given the capacity concerns that the Scientific Council noted in its June meeting report, this consultancy is meant to aid it in continuing to move forward on the objective of incorporating climate change-related advice in the NAFO stock assessment process.

The objective is to use two NAFO stock assessments as case studies with the goal of incorporating climate change covariates; the consultant's initial output should be available for the Scientific Council to consider at its June 2025 meeting.

Scope of Work: The consultant is expected to conduct work that will be informed by, and build on, information contained in the climate change report (NAFO SCR Doc. 24/009) that was presented at the 2024 June Scientific Council (SC) meeting. Specifically, the consultant shall address the following tasks:

1. Using two NAFO stocks as case studies selected by the Scientific Council, incorporate climate change indicators as covariates (e.g. environmental factors that impact recruitment, growth and maturation rates and distribution) in their assessments so that climate change can be considered to be incorporated in advice. The consultant shall provide the Scientific Council the annotated open source code used to accomplish this work, along with documentation of its use and outputs.
2. Identify potential additional approaches or tools to support NAFO effectively considering climate change impacts within the Scientific Council and Commission's decision-making processes.

The consultant will prepare a written report (i.e., an SCR Document) in time for its review by the Scientific Council at its 2025 June meeting, if possible. If not possible, the timetable will be revised during the Scientific Council 2025 June meeting. The consultant will also deliver a summary of the contents of the report via virtual presentation at the same meeting. Intersessionally, the Scientific Council can revise these Terms of Reference after reviewing this workplan together with the consultant.

The stocks to be used will be one from the Grand Banks (Divisions 3LNO) and one from the Flemish Cap (Division 3M). The final stocks to be used will be decided with the consultant once they are hired. A subgroup

of the Scientific Council will be set to inform and support the consultant in their work. This subgroup will be chaired by Katherine Sosebee (USA), and its participants will be confirmed by correspondence.

The NAFO Secretariat, in consultation with the Scientific Council Chair, will initiate the process to hire the consultant as soon as possible.

**b) Presentation by the DSF FAO Project on classification of stock status for the SOFIA Report**

The Deep Sea Fisheries (DSF) FAO project informed Scientific Council on the results of the SOFIA Report on status of global fisheries, and asked for feedback from Scientific Council towards the preliminary classification of NAFO stocks for the next edition of the SOFIA Report.

Scientific Council indicated that the terminology used in the report for classification of the stocks is misleading, as it equates status of the stocks with the sustainability of fisheries and the degree of exploitation of the stocks, essentially implying that fishing is the only driver of fish stock status, and the stock status is sufficient to evaluate fishing sustainability. These implicit assumptions are factually incorrect.

The DSF FAO project acknowledged the issues and will communicate the concerns to the technical team developing the SOFIA Report, but also indicated that any review of the terminology used in the SOFIA Report needs to be channeled through COFI, as FAO follows COFI directions on these matters.

Scientific Council agreed to raise this issue to Commission and look into the mechanisms through the NAFO Secretariat to raise these concerns at COFI.

Regarding the review of the classification of NAFO stocks for the next SOFIA Report, Scientific Council agreed to review the draft presented and provide feedback to the DSF FAO Project. This review can be informed by the FIRMS classification that Scientific Council updates every year. This feedback would be provided without endorsing the terminology used in the SOFIA Report nor its implications on the sustainability of fisheries. Scientific Council expects to make this revision during the June 2025 meeting.

**c) Scientific Council Budget**

At its 2024 June meeting, Scientific Council noted the need to increase the Scientific Council budget for assessment reviewers in 2025 to account for increases in travel costs, and the importance of Scientific Council members attending the EAFM Symposium in March 2025. It was also noted that in relation to the ongoing workload discussions, Scientific Council requested funding be made available to hire a dedicated analyst to contribute both to the Management Strategy Evaluation for 3LN redfish and other analytical work of the Scientific Council for one year (SCS Doc. 24/16REV).

During the September meeting of the NAFO Standing Committee on Finance and Administration (STACFAD), the additional budget requests were discussed. The committee supported the budget item to accommodate the additional 11 representatives identified by Scientific Council to attend the EAFM Symposium. However, it was noted that although STACFAD supports the objective of alleviating workload of Scientific Council, it could not support the addition request to fund a dedicated analyst. STACFAD also noted that any future requests for additional funding should include a reasonable level of detail on the specifics of the request (e.g., on the responsibilities of any consultant(s)) that might be proposed (COM Doc. 24-25).

**d) Scientific Council workload**

During the Joint Commission-Scientific Council Session the chairs of the Commission and the Scientific Council presented the recommendations from the *Informal Group to Reflect on the Workload of the Scientific Council* held in April 2024 as well as the subsequent discussion during the SC meeting in June 2024 and the WG-EAFFM and the WG-RBMS.

From this presentation, several items about the workload were discussed during this meeting.

**1. Schedule of the full assessments in the next years**

It was noted that the number of full assessments in the next years is not evenly distributed. In 2025, only four full assessment will be done, while in 2026 eight full assessments have to been carried out. In the uneven years, much lower number of assessments that in the even years are scheduled from 2025 to 2030, as it can be seen in table 1:

**Table 1.** Schedule of full assessments for the June Meeting (2024-2030)

| | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|---|---|---|---|---|---|---|
| **0+1** | Greenland halibut SA 0+1 offshore | | Greenland halibut SA 0+1 offshore | | Greenland halibut SA 0+1 offshore | | Greenland halibut SA 0+1 offshore |
| | Greenland halibut Div.1 inshore | | Greenland halibut Div.1 inshore | | Greenland halibut Div.1 inshore | | Greenland halibut Div.1 inshore |
| **3M** | Cod Div. 3M | Cod Div. 3M | Cod Div. 3M | Cod Div. 3M | Cod Div. 3M | Cod Div. 3M | Cod Div. 3M |
| | Redfish Div. 3M | | Redfish Div. 3M | | Redfish Div. 3M | | Redfish Div. 3M |
| | | | American plaice Div. 3M | | | American plaice Div. 3M | |
| **3LNO** | Redfish Divs. 3LN | | Redfish Divs. 3LN | | Redfish Divs. 3LN | | Redfish Divs. 3LN |
| | | | | Cod Divs. 3NO | | | Cod Divs. 3NO |
| | | | | American plaice Divs. 3LNO | | | American plaice Divs. 3LNO |
| | | Yellowtail flounder Divs. 3LNO | | Yellowtail flounder Divs. 3LNO | | Yellowtail flounder Divs. 3LNO | |
| | Witch flounder Divs. 3NO | | Witch flounder Divs. 3NO | | Witch flounder Divs. 3NO | | Witch flounder Divs. 3NO |
| | | Redfish Div. 3O | | | Redfish Div. 3O | | |
| | Thorny skate Divs. 3LNO and Subdiv. 3Ps | | Thorny skate Divs. 3LNO and Subdiv. 3Ps | | Thorny skate Divs. 3LNO and Subdiv. 3Ps | | Thorny skate Divs. 3LNO and Subdiv. 3Ps |
| | | White hake Divs. 3NO and Subdiv. 3Ps | | White hake Divs. 3NO and Subdiv. 3Ps | | White hake Divs. 3NO and Subdiv. 3Ps | |
| **Total** | **7** | **4** | **8** | **5** | **8** | **4** | **9** |

One way to balance the number of full assessments in each year is to move some of those assessment to another year. One proposal was to move the Greenland halibut Division 1 inshore to 2025 and then assess on a two-year schedule after that if the coastal States agree.

Another way to alleviate immediate workload would be to reschedule the reassessment of SAI on VME to 2027. The action may have implications on current management measures by the Commission.

**2. Assessments to inform the ongoing effort to address the Scientific Council workload**

During the 2024 June Scientific Council meeting, it was proposed to add an additional day onto the June meeting as a special session to review the current Scientific Council structure and process for providing advice. In addition, the Commission requests the Scientific Council, for June 2025, *consider undertaking internal, or support external, assessments to inform the ongoing effort to address the Scientific Council workload*.

For addressing this issue, Scientific Council agrees than an additional day is added to the 2025 June SC meeting, and so that meeting will start on 29 May 2025 instead of 30 May 2025. The schedule of the meeting will be updated in the section VII of this report about Future Meeting Arrangements.

**3. Lack of Designated Experts and chairs**

Currently, the position of Designate Experts for squid, yellowtail flounder Divisions 3LNO and witch flounder Divisions 3LNO are vacant, as well as the position of Ecosystem Designated Expert for the EPU 3LNO. Additionally, the Ecosystem Designated Expert for the EPU 3M is interim.

At the September 2025 Annual meeting, Scientific Council will nominate the future chair and vice-chair of Scientific Council and the chair of the Standing Committee on Fisheries Science (STACFIS). The tradition has been to have different Contracting Parties hold the chair and Vice-chair of Scientific Council. Due to no other Contracting Party providing a STACFIS chair in 2024, Canada provided an interim STACFIS chair despite holding the Vice-chair position. It is unclear if the current STACFIS chair will be able to stand as Vice-chair and then Chair of Scientific Council. In the last 10 years appointing a chair has been a recurring problem.

Therefore, it is required of Contracting Parties other than Canada to provide a nominee for Vice-chair of Scientific Council, or at a minimum a STACFIS chair.

The Scientific Council chair will submit a letter to the Commission reflecting the lack of DEs, EDEs, and (potentially) chairs of SC and its Standings Committees.

**e) Reference Points**

The Commission approved a new Precautionary Approach Framework in September 2024 and the Scientific Council notes that the Terms of Reference (ToRs) of the current PA-WG have been completed. Scientific Council decided to continue with the working group, adopting new ToRs focused on the implementation of the new Precautionary Approach Framework (PAF).

The main objective in the short to medium term is to estimate reference points required by the new PAF.

The Scientific Council decided the PA-WG to have a meeting before the June 2025 Scientific Council Meeting. This meeting should review the current situation of the stocks in terms of data availability and the current status of their reference points, and explore options for defining reference points, including available information on past Scientific Council reference points estimates (NAFO SCS Doc. 04/12, PA-WG and WG-RBMS documents). The results of this work will be presented at the Scientific Council in June 2025.

<u>New ToRs for the PA-WG</u>

- Assist the Scientific Council in all matters related to the implementation and development of the new Precautionary Approach, in particular the estimation of the reference points.
- Propose future refinements to improve the PA Framework that should be channelled through the WG-RBMS.

**f) A tribute to Jorge Vargas**

Our colleague Jorge Vargas is gone. Friend of his friends, Jorge touched everyone who crossed paths with him, through his affection, his frank laughter and his fine sense of humor. An insatiable devotee of cinema, he was curious about everything related to the Human Condition: from Thought to Art, from Religion to Politics, the book was always open for debate. He loved writing as much as he loved talking.

Jorge joined the IPIMAR - Research Institute of Fisheries and Sea (actual IPMA - Portuguese Institute of the Sea and Atmosphere) in 1998 at the Documentation Center. In 1999, he integrated the team studying Portuguese long distant fisheries in the North Atlantic. Until the end, he contributed to numerous works related to NAFO (Northwest Atlantic Fisheries Organization) and NEAFC (North East Atlantic Fisheries Commission), namely he was author and co-author of Portuguese Research Reports.

His life was a permanent challenge, which he faced with courage and good stubbornness. His illness never stopped him from enjoying the joy of good times. An aneurysm took him on July 5th 2024. He left without warning, but without suffering. He is now in peace.

### 5. Nomination of Designated Experts (DE)

There were no nominations for new Designated Experts at this meeting. However, the Scientific Council noted that were a few vacancies in the Designated Expert list that need to be filled.

## X. ADOPTION OF REPORTS

### 1. Committee Reports of STACFIS and STACREC

The reports of STACFIS and STACREC were adopted on 26 September 2024 subject to editorial revision following this meeting.

### 2. Report of Scientific Council

The Scientific Council report was adopted on 26 September 2024 subject to editorial revision following this meeting.

## XI. ADJOURNMENT

The meeting was adjourned at 18:00 on 26 September 2024.

## APPENDIX I. REPORT OF STANDING COMMITTEE ON RESEARCH COORDINATION (STACREC)

Chair: Mark Simpson Rapporteur: Dayna Bell MacCallum

### 1. Opening

STACREC met at the Marriott Harbourfront Hotel, Halifax, Canada, with additional participants joining the meeting by Webex, on 24 September 2024. The meeting opened at 11:00. Representatives attended from Canada, Denmark (in respect of the Faroes and Greenland), the European Union, France (in respect of Saint Pierre et Miquelon), Japan, the Russian Federation, the United Kingdom and the United States of America. An observer attended from the Sargasso Sea Commission. Another session of this Committee took place on 25 September.

### 2. Appointment of Rapporteur

The NAFO Secretariat was appointed as rapporteur.

### 3. Fisheries Statistics

### a) Progress Reports on Secretariat Activities

There were no new items to report at this meeting.

### b) Review of STATLANT21 Data

The following table updates the situation with the submission of STATLANT.

**Table 1.** Dates of receipt of STATLANT 21A reports for 2021-2023 and 21B reports for 2021-2023 received prior to 31 August 2024.

| Country/ component | STATLANT 21A (deadline, 1 May) | | | STATLANT 21B (deadline, 31 August) | | |
|---|---|---|---|---|---|---|
| | 2021 | 2022 | 2023 | 2021 | 2022 | 2023 |
| CAN-CA | 14 Jul 22 | 28 May 24 | 28 May 24 | | | |
| CAN-SF | 6 Jun 22 | 24 Apr 23 | 03 May 24 | | | |
| CAN-G | 27 May 22 | 26 Apr 23 | 10 May 24 | 6 Sep 22 | 28 Aug 23 | 30 Aug 24 |
| CAN-NL | 26 May 22 | 28 Apr 23 | 30 Apr 24 | | 31 Aug 23 | 09 Sep 24 |
| CAN-Q | | | | | | |
| CUB | | | | | | |
| E/BUL | | | | | | |
| E/EST | 28 Apr 22 | 21 Apr 23 | 29 Apr 24 | 26 Aug 22 | | 26 Aug 24 |
| E/DNK | 30 Mar 22 | 9 Jun 23 | 30 Apr 24 | 15 Aug 22 | | 13 Aug 24 |
| E/FRA | | | | | | |
| E/DEU | 7 Apr 22 | 9 Jun 23 | 30 Apr 24 | 25 Aug 22 | | 15 Aug 24 |
| E/LVA | 21 Apr 22 | 5 Apr 23 | 30 Apr 24 | | | |
| E/LTU | 31 May 22 | 9 Jun 23 | 23 Apr 24 | | | 31 May 24 |
| EU/POL | 24 Jun 22 | | | | | |
| E/PRT | 19 Apr 22 | | | 30 Sep 22 | | |
| E/ESP | 14 Jun 22 | 9 Jun 23 | 24 Apr 24 | 15 Jun 22 | | 23 Aug 24 |
| GBR | | | | | | |
| FRO | 6 Apr 22 | 5 Jun 23 | 30 Apr 24 | 6 Apr 22 | 07 Jun 23 | 30 Apr 24 |
| GRL | 6 May 22 | 1 May 23 | 01 May 24 | 25 Aug 22 | 22 Aug 23 | 30 Aug 24 |
| ISL | | | | | | |
| JPN | 27 Apr 22 | 28 Apr 23 | 24 Apr 24 | 30 Aug 22 | 30 Aug 23 | 29 Aug 24 |
| KOR | | | | | | |
| NOR | 22 Apr 22 | 9 Jun 23 | 29 May 24 updated: 8 Aug 24 | 2 Sep 22 | | 23 Aug 24 |
| RUS | 27 Apr 22 | 28 Apr 23 | 23 Apr 24 | 25 Aug 22 | 8 Sep 23 | 13 Sep 24 |
| USA | 25 May 22 updated: 7 May 24 | 31 May 23 updated: 7 May 24 | 7 May 24 | | | |
| FRA-SP | 26 Apr 22 | 27 Apr 23 | 26 Apr 24 | 25 Aug 22 | | |
| UKR | | | | | | |

## 4. Research Activities

### a) Surveys Planned for 2025 and 2026

The SCS survey documents will be finalized by the Secretariat.

### b) Development of the Faroese Longline Survey Protocol in Division 3M (SCR Doc. 24/062)

The revised protocol of the Faroese longline survey in NAFO Division 3M (SCR Doc. 24/062) was again presented at the SC Annual meeting in September. The presentation addressed adjustments and considerations to the protocol following the initial presentation, discussion and suggestions from the STACREC meeting in May. The main adjustments in the revised protocol are changes in survey coverage, sampling procedures and gear standardizations which all aim to minimizing survey catches as well as maximizing statistical robustness

of collected survey data. These include e.g. reducing hook number to 1000 per set; standardizing soak time to 6-10 hours; standardizing the bait type to consist of squid only; limiting timing of survey to be conducted within a three-week window between mid-May to mid-June as well as not allowing to alternate between survey and commercial fishing sets.

Extensive considerations have been made to the survey coverage. This has resulted in a survey design comprising 62 randomized longline stations dispersed over Division 3M using the stratification of Doubleday adopted in 1981. The revised survey includes strata 1-20, 24 and 28. The number of stations in each stratum is fixed and distributed proportionally to the area of the stratum with a minimum of two stations in each stratum. Furthermore, revised protocol stipulates requirements of an independent observer to undertake survey sampling and oversee the navigational aspect of the survey as well as requirements of sampling by-catch species. The revised protocol allows for one to three vessels to conduct the survey in any given year provided that each vessel carries an independent observer.

Two improvements to the survey were indicated by SC, first to ensure that biological sampling (for weight/otoliths) is distributed throughout the length distribution of cod captured in the survey consistent with sampling in the 3M trawl survey (XX fish per YY length bin), and that this is coordinated between vessels participating in the Faroese longline survey each year. Second, that the survey sampling be conducted in such a way as to be evenly distributed during the day in a consistent manner. These improvements were included in the final protocol.

Scientific Council (SC) reviewed the protocols employed by the Faroese longline survey in NAFO Division 3M over 2021-2023 and the revised protocol that was presented at the May STACREC meeting of SC. Scientific Council acknowledges the major advancements that the protocol has undergone to meet the objectives of a survey, as opposed to a commercial fishery. Scientific Council **recognizes** the final protocol as a valid longline survey protocol that can augment the information on Atlantic cod on the Flemish Cap.

## 5. Other Matters

### a) Review of SCR and SCS Documents

SCR Doc. 24/062, *The revised protocol of the Faroese longline survey in NAFO Division 3M*, was presented in draft form at this meeting. Scientific Council was asked to review the document and provide comments to the authors.

### b) Other Business

#### *i) Reviewers for June 2025: Invited Expert*

During the June 2024 meeting it was recommended that an expert (from ICES WK-LIFE or other relevant organization) be invited to Scientific Council to provide a seminar focused on the provision of advice for survey-based assessments or other survey-based management issues such as provision of proxy limit reference points that are relevant to the NAFO Precautionary Approach. An invitation has been made to José De Oliveira (United Kingdom) to provide the seminar during the June 2025 meeting.

#### *ii) Data availability (submission of data)*

Scientific Council noted that it is important to have the submitted data as well as assessment code stored by the Secretariat to ensure continuity if the Designated Expert is not available for any reason. Scientific Council and Designated Experts are reminded to submit all data to the Secretariat for storage.

## 6. Adjournment

The STACREC meeting closed on 25 September at 12:15.

## APPENDIX II. REPORT OF STANDING COMMITTEE ON FISHERIES SCIENCE (STACFIS)

Chair: Martha Krohn Rapporteur: Dayna Bell MacCallum

### I. OPENING

The Committee met at the Marriott Harbourfront Hotel, Halifax, Canada, with additional participants joining the meeting by Webex, from 23 to 26 September 2024 to consider the various matters in its agenda. Representatives attended from Canada, Denmark (in respect of the Faroes and Greenland), the European Union, France (in respect of Saint Pierre et Miquelon), Japan, Norway, the Russian Federation, the United Kingdom and the United States of America. Members of the NAFO Secretariat were in attendance. An observer attended from the Sargasso Sea Commission. The Chair, Martha Krohn (Canada), opened the meeting by welcoming participants. The agenda was reviewed, and a plan of work developed for the meeting in accordance with the Scientific Council plan of work. The provisional agenda was adopted.

### II. ASSESSMENTS DEFERRED FROM THE JUNE MEETING

#### 21. Northern Shortfin Squid (*Illex illecebrosus*) in Subareas 3+4

Interim Monitoring Report (SCR Doc. 98/59, 75; 06/45; 16/21, 34REV; 19/42REV; 20/02, 10REV, 11; 23/02, 03; 24/05, 07; SCS Doc. 21/05, 06, 16)

#### a) Introduction

*Illex illecebrosus*, Northern shortfin squid, is semelparous with a lifespan of less than one year. Spawning occurs year-round with two peaks that result in summer- and winter-hatched intra-annual cohorts. This transboundary resource comprises a single stock throughout its range of exploitation in Subareas 3-6 (with minor catches from Div. 2J in some years) and spawning solely occurs in USA. waters. However, the Northern (Subareas 3+4) and Southern (Subareas 5+6) Stock Components are assessed and managed separately, primarily using TACs, by NAFO and the USA, respectively. The next full assessment of the Northern Stock Component, which occurs every three years, will be in 2025. Catches from the Subarea 3 jig fishery that occur off inshore Newfoundland have been the dominant source of Subareas 3+4 catches since 1999. However, there are no separate catch or effort quotas and no stock assessments for *Illex illecebrosus* (hereafter *Illex*) fisheries that occur within the Subareas 3+4 Exclusive Economic Zones (EEZs) of either Canada or France. The stock assessment is data-poor and in-season stock assessments and annual biomass projections are not currently possible. Therefore, as of 2019, the SA 3+4 assessments have been conducted during the September Scientific Council (SC) meeting in order to incorporate the current year's biomass and mean body weight indices from the Canadian July Div. 4VWX survey.

#### b) Data and Results

**Catches**

Since 1999, Subareas 3+4 catches have been predominantly from the Subarea 3 inshore jig fishery. The exceptions occurred during 2013-2015, when catches were reported as zero for Subarea 3. During 1999-2011, Subareas 3+4 catches were low during most years, ranging between about 57 t in 2001 to 6 981 t in 2006 and averaging 1 077 t, compared to the period of peak catches during 1976-1981 that averaged 80 645 t (Figure 21.1). During 2012-2015, catches were the lowest and averaged only 27 t, but gradually increased to 10 567 t in 2021; the highest catch since 1997 and well-above the 1982-2016 low productivity period average. However, catches in Subareas 3+4 plummeted to 37 t in 2022 and remained low (112 t) in 2023. Catches in SA 3 were highly correlated ($r$ = 0.88) with fishing effort in this Subarea (i.e., number of active squid licenses) during 1998-2022. The large decrease in catch between 2021 and 2022 was due to the largest decrease in fishing effort in Subarea 3 since 2015 (Figure 21.2). During 2000-2022, only 4% of the 34 000 t TAC for Subareas 3+4 was harvested on average, with a peak of 31% in 2021.

Recent catches and TACs ('000 t) are as follows:

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|
| **TAC SA 3+4** | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| **STATLANT 21 SA 3+4** | 0.1[1] | <0.1[1] | <0.1[1] | 0.4[1] | 1.4[1] | 2.8[1] | 3.9[1] | 10.7[1] | <0.1[1] | 0.1[1] |
| **STATLANT 21 SA 5+6[2]** | 8.8 | 2.4 | 6.7 | 22.5 | 24.1 | 27.2 | 28.4 | 30.9 | 5.7 | 5.3 |
| **STACFIS SA 3+4** | <0.1 | <0.1 | 0.2 | 0.4 | 1.5 | 2.9 | 3.9 | 10.5 | <0.1 | 0.1 |
| **STACFIS SA 5+6[2]** | 8.8 | 2.4 | 6.7 | 22.5 | 24.1 | 27.2 | 28.4 | 30.9 | 5.7 | 5.4 |
| **STACFIS Total SA 3-6[3]** | 8.8 | 2.4 | 6.9 | 22.9 | 25.6 | 30.1 | 32.3 | 41.4 | 5.7 | 5.5 |

[1] Includes catches (<0.1 t to 56 t during 2013-2023) reported as 'Unspecified Squid' from Subarea 4 because they were likely *lllex* based on the geographic distribution of this species versus *Doryteuthis pealeii*.

[2] Catches from Subareas 5+6 are included because there is no basis for considering separate stocks in Subareas 3+4 and Subareas 5+6.

[3] STACFIS Total SA 3-6 catches were computed as catches harvested in the NAFO Convention Area (2013-2017 from the STALANT 21 database; 2018 onward from NAFO CESAG database for SA 3+4 and USA landings database for SA 5+6).

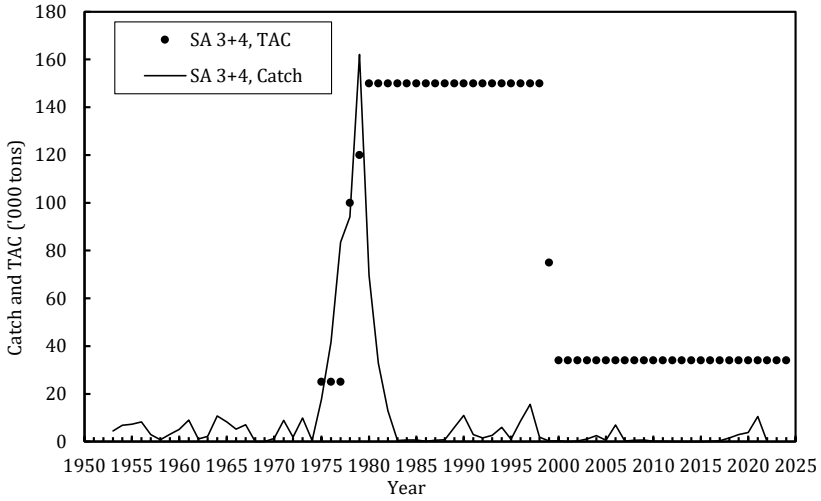


**Figure 21.1.** Northern shortfin squid in Subareas 3+4: nominal catches and TACs.

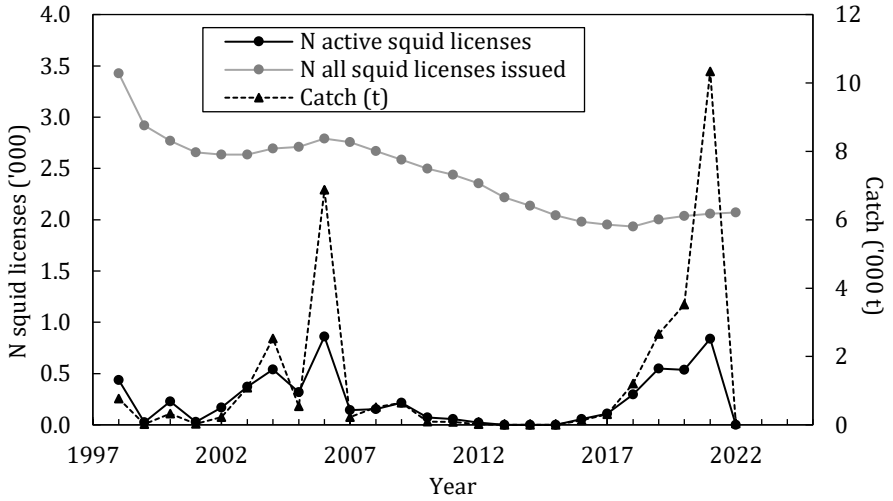


**Figure 21.2.** Northern shortfin squid in Subareas 3+4: Subarea 3 Catches and number of squid licenses issued versus active.

**Survey Indices**

The July Divisions 4VWX survey is the most representative indicator of relative biomass levels in SA 3+4. Like most squid species, the biomass indices from this survey show high interannual variability, but exhibited distinct high and low productivity periods. Biomass indices averaged 13.2 kg per tow during the high productivity period (1976-1981) and 2.6 kg per tow during the low productivity period (1982-2016). The indices fluctuated widely after 2003 (Figure 21.3), but generally declined between 2004 and 2013, from a level near the high productivity period mean to the lowest level on record, respectively. The index increased in 2017 (16.1 kg per tow) and was greater than the high productivity period mean. The 2018 index was not computed due to inadequate survey sampling coverage, but in 2019 the biomass index was twice as high (32.1 kg per tow) as the 2017 index and was the second highest value in the time series. After 2019, only the 2020 and 2023 Divisions 4VWX biomass indices were available and showed a large decrease to 8.2 kg per tow in 2020 and 0.58 kg per tow in 2023. The *CCGS Teleost* was replaced in 2021 with a new vessel, the *CCGS Capt. Jacques Cartier*, the latter which fished with a different bottom trawl and towing protocol. Catch conversion factors for *Illex* were estimated using data from comparative fishing experiments conducted during the 2022 and 2023 July Divisions 4VWX surveys. The length-disaggregated conversion factors became available in 2024 and were applied to the 2023 index. However, the 2021 and 2022 biomass indices were not computed because the survey sampling coverage of *Illex* habitat was inadequate.

Biomass indices were available for two other summer surveys during the years for which they were not available for Divisions 4VWX surveys (i.e., 2018, 2021-2022 and 2024); the EU-Spain surveys conducted in Divisions 3NO during June and the EU-Spain and Portugal surveys conducted in Division 3M during July. The overall trends in the biomass indices for both of these surveys were generally similar to those of the Division 4VWX surveys. Biomass indices for the June Divisions 3NO surveys increased between 2017 and 2019, reaching the second highest and highest values of the time series during 2018 (22 040 t) and 2019 (28 000 t), respectively. The survey was not conducted during the 2020 COVID pandemic. During 2021-2024, biomass indices returned to low levels of less than 124 t and the 2024 index was only 23 t in 2024. Biomass indices for the July Division 3M surveys increased to their third highest level in 2017 (2 350 t), but then returned to low levels of less than 364 t and the 2024 index was only 2 t.

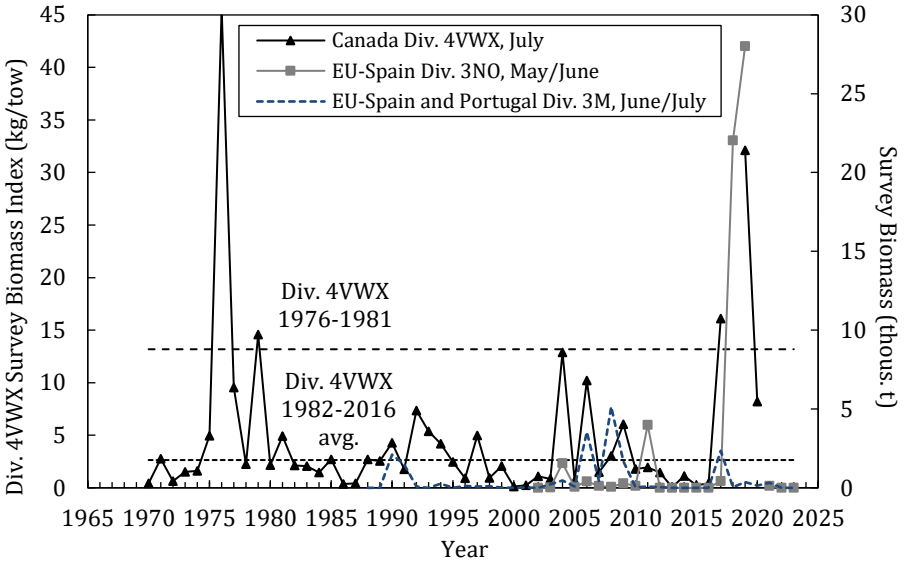


**Figure 21.3.** Northern shortfin squid in Subareas 3+4: biomass indices from summer surveys conducted in Divisions 4VWX (left axis), 3M and 3NO (right axis).

The mean body weight of squid caught during the July Divisions 4VWX surveys averaged 150 g during the 1976-1981 high productivity period and 80 g during the low productivity period (1982-2016). Mean body weight increased from the lowest level of the time series in 1983 (27 g) to 121 g; midway between the low and high productivity period means in 1999 (Figure 21.4). Between 2000 and 2006, mean body weight gradually

increased from 32 g to 137 g (similar to 1981), but then gradually declined to 42 g in 2013. Following wide fluctuations around the low productivity average during 2014-2016, mean body weight increased from 134 g in 2017 to 164 g in 2019; above the high productivity period average for the first time since 1979. However, this increase was short-lived and mean body weight decreased from 123 g in 2020 to below the low productivity period mean in 2023 (69 g). For the reasons explained in the biomass section, mean body weights were not computed for 2018 or 2021 and 2022.

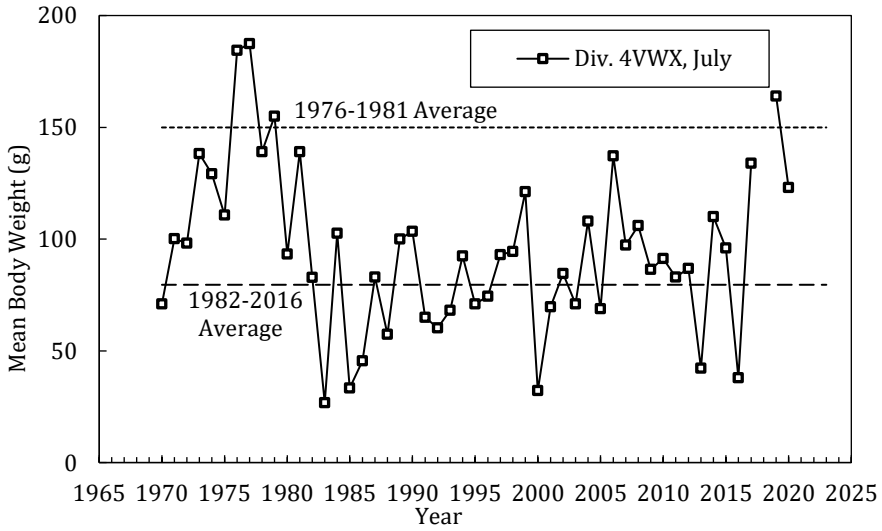


**Figure 21.4.** Northern shortfin squid in Subareas 3+4: mean body weights of squid from the July survey in Divisions 4VWX.

Catch/biomass ratios (SA 3+4 nominal catch/Divisions 4VWX July survey biomass index) / 10 000) were well below the 1982-2016 mean (0.12) during 2004-2020 and remained very low (0.02) in 2023 (Figure 21.5). Catch/biomass ratios cannot be computed for 2021 and 2022 because the Divisions 4VWX biomass indices were not computed for the reasons explained above. In addition, the ratios cannot be estimated for the current year because catch data are not available until May 1 of the subsequent year.

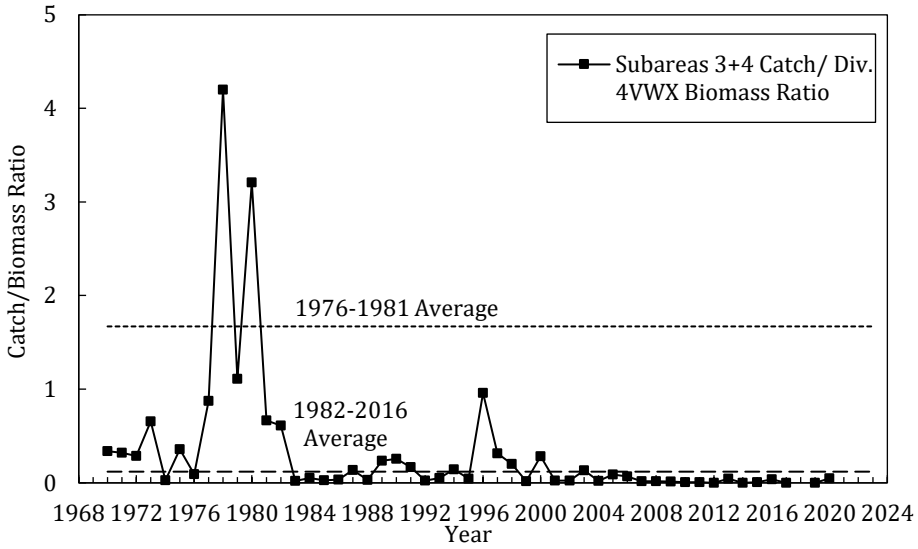


**Figure 21.5.** Northern shortfin squid in Subareas 3+4: catch/biomass ratios ((SA 3+4 nominal catch/Divisions 4VWX July survey biomass index) / 10 000).

### c) Conclusion

Large decreases occurred in the July Divisions 4VWX biomass and mean body weight indices in recent years. Both time series showed decreases from above the high productivity period averages in 2019 to below them in 2020, followed by a third decrease to below the low productivity period average in 2023. Two other summer surveys, the Divisions 3LNO and Division 3M surveys, also returned to low biomass levels after 2019 and remained low in 2024. In addition, relative exploitation rates in Subareas 3+4 remained very low during this period. The 2022 catch advice for 2023-2025 of 19 000 - 34 000 t is unchanged.

The next full assessment will occur in 2025.

### d) Research Recommendation

In 2013, STACFIS **recommended** that *gear/vessel conversion factors be computed to standardize the 1970-2003 relative abundance and biomass indices from the July Divisions 4VWX surveys.*

STATUS: No progress has been made.

## III. OTHER MATTERS

### 1. Nomination of Designated Experts (DEs)

Scientific Council reviewed the current Designated Expert list and noted the vacancies on the list.

**From the Science Branch, Northwest Atlantic Fisheries Centre, Department of Fisheries and Oceans, St. John's, Newfoundland & Labrador, Canada**

| | | |
|---|---|---|
| Cod in Div. 3NO | Rick Rideout | rick.rideout@dfo-mpo.gc.ca |
| Redfish Div. 3O | Laura Wheeland | laura.wheeland@dfo-mpo.gc.ca |
| Redfish Div. 3LN | Andrea Perreault | andrea.perreault@dfo-mpo.gc.ca |
| American Plaice in Div. 3LNO | Laura Wheeland | laura.wheeland@dfo-mpo.gc.ca |
| Witch flounder in Div. 3NO | VACANT | |
| Yellowtail flounder in Div. 3LNO | VACANT | |
| Greenland halibut in SA 2+3KLMNO | Paul Regular | paul.regular@dfo-mpo.gc.ca |
| Northern shrimp in Div. 3LNO | Nicolas Le Corre | nicolas.lecorre@dfo-mpo.gc.ca |
| Ecosystem Designated Expert 3LNO | VACANT | |

**From the Instituto Español de Oceanografía, Vigo (Pontevedra), Spain**

| | | |
|---|---|---|
| Roughhead grenadier in SA 2+3 | Fernando González-Costas | fernando.gonzalez@ieo.csic.es |
| Splendid alfonsino in Subarea 6 | Fernando González-Costas | fernando.gonzalez@ieo.csic.es |
| Cod in Div. 3M | Irene Garrido Fernández | irene.garrido@ieo.csic.es |
| Northern Shrimp in Div. 3M | José Miguel Casas Sánchez | mikel.casas@ieo.csic.es |
| Ecosystem Designated Expert 3M | Diana González Troncoso (interim) | diana.gonzalez@ieo.csic.es |

**From the Instituto Nacional de Recursos Biológicos (INRB/IPMA), Lisbon, Portugal**

| | | |
|---|---|---|
| American plaice in Div. 3M | Ricardo Alpoim | ralpoim@ipma.pt |
| Golden redfish in Div. 3M | Ricardo Alpoim | ralpoim@ipma.pt |
| Redfish in Div. 3M | Ricardo Alpoim | ralpoim@ipma.pt |

**From the Greenland Institute of Natural Resources, Nuuk, Greenland**

| | | |
|---|---|---|
| Greenland halibut in SA 0+1 (offshore) | Kevin Hedges | Kevin.hedges@dfo-mpo.gc.ca |
| Demersal Redfish in SA1 | Rasmus Nygaard | rany@natur.gl |
| Wolfish in SA1 | Rasmus Nygaard | rany@natur.gl |
| Greenland halibut in Div. 1 inshore | Rasmus Nygaard | rany@natur.gl |
| Northern shrimp in SA 0+1 | AnnDorte Burmeister | anndorte@natur.gl |
| Northern shrimp in Denmark Strait | Tanja B. Buch | TaBb@natur.gl |

**From Knipovich Polar Research Institute of Marine Fisheries and Oceanography (PINRO), Russian Federation**

| | | |
|---|---|---|
| Capelin in Div. 3NO | Konstantin Fomin | fomin@pinro.ru |

**From National Marine Fisheries Service, NEFSC, Woods Hole, Massachusetts, United States of America**

| | | |
|---|---|---|
| Northern Shortfin Squid in SA 3 & 4 | VACANT | |
| Thorny skate in Div. 3LNO | Katherine Sosebee | katherine.sosebee@noaa.gov |
| White hake in Div. 3NO | Katherine Sosebee | katherine.sosebee@noaa.gov |

### 2. Other Matters

### a) Review of SCR and SCS Documents

There were no SCRs for review during STACFIS.

### b) Review of FIRMS classification of NAFO stocks

Scientific Council reiterates that the Stock Classification system is not intended as a means to convey the scientific advice to the Commission and should not be used as such. Its purpose is to respond to a request by FIRMS to provide such a classification for their purposes. The category choices do not fully describe the status of some stocks. Scientific advice to the Commission is to be found in the Scientific Council report in the summary sheet for each stock.

| Stock Size (incl. structure) | Fishing Mortality | | | |
|---|---|---|---|---|
| | **None–Low** | **Moderate** | **High** | **Unknown** |
| **Virgin–Large** | | 3LNO Yellowtail Flounder | | |
| **Intermediate** | | 3M Redfish[1]<br>SA2+3KLMNO Greenland halibut<br>3M cod<br>SA 0+1 (Offshore) Greenland halibut | SA0+1 Northern shrimp East Greenland Northern shrimp | SA1 American Plaice<br>SA1 Spotted Wolffish |
| **Small** | 3NOPs White hake<br>3NO Witch flounder<br>3LN Redfish | 3O Redfish | | |
| **Depleted** | 3M American plaice<br>3LNO American plaice<br>3NO Cod<br>3LNO Northern shrimp<br>3M Northern shrimp[1]<br>6G Alfonsino | | | SA1 Redfish<br>SA1 Atlantic Wolffish |
| **Unknown** | SA2+3 Roughhead grenadier<br>3NO Capelin | 1B-C Greenland halibut Inshore | 1D Greenland halibut Inshore<br>1E-F Greenland halibut Inshore | SA3+4 Northern shortfin squid<br>3LNOPs Thorny skate<br>Greenland halibut in Uummannaq<br>Greenland halibut in Disko Bay<br>Greenland halibut in Upernavik |

[1] Fishing mortality may not be the main driver of biomass for this stock.
For many stocks, lack of surveys in recent years has impacted assessments.

### 3. Other Business

There was no other business.

## IV. ADJOURNMENT

The meeting adjourned at 17:00 on 24 September 2024.

## APPENDIX III. AGENDA

46th Annual Meeting of NAFO
23–27 September 2024
Halifax, Canada

### Scientific Council Provisional Agenda

**I. Plenary Session (Scientific Council Chair: Diana González-Troncoso)**

1. Opening
2. Appointment of Rapporteur
3. Adoption of Agenda
4. Plan of Work

**II. Review of Scientific Council Recommendations**

**III. Joint Session of Commission and Scientific Council**

1. Implementation of 2018 Performance Review Panel recommendations
2. Presentation of scientific advice by the Chair of the Scientific Council
   a. Response of the Scientific Council to the Commission's request for scientific advice
   b. Feedback to the Scientific Council regarding the advice and its work during this meeting
   c. Other issues as determined by the Chair of the Commission and of the Scientific Council
3. Meeting Reports and Recommendations of the Joint Commission–Scientific Council Working Groups
   a. Working Group on Improving Efficiency of NAFO Working Group Process (E-WG), 2024
   b. Joint Commission–Scientific Council Catch Estimation Strategy Advisory Group (CESAG), 2024
   c. Joint Commission–Scientific Council Working Group on Risk-based Management Strategies (WG-RBMS), April and August 2024
   d. Joint Commission–Scientific Council Working Group on Ecosystems Approach Framework to Fisheries Management (WG-EAFFM), August 2024
4. Formulation of Request to the Scientific Council for Scientific Advice on Management in 2026 and beyond of Certain Stocks in Subareas 2, 3 and 4 and Other Matters

**IV. Research Coordination (STACREC Chair: Mark Simpson)**

1. Opening
2. Appointment of Rapporteur
3. Fisheries Statistics
   a. Progress Reports on Secretariat Activities
   b. Review of STATLANT21Research Activities
4. Research Activities
   a. Surveys Planned for 2025 and 2026
   b. Faroese long line survey for 3M cod

5. Other Matters
    a. Review of SCR and SCS Documents
    b. Other Business
        i) Reviewers for June 2025: topics
        ii) Data availability and submission of data
6. Adjournment

## V. Fisheries Science (STACFIS Chair: Martha Krohn)

I. Opening

II. Assessments deferred from the June meeting

1. Northern shortfin squid in SA 3+4 (interim monitoring)

III. Other Matters

1. Nomination of Designated Experts (DEs)
2. Other Business
    a. Review of SCR and SCS Documents
    b. Review of FIRMS classification of NAFO stocks
    c. Other matters

IV. Adjournment

## VI. Requests from the Commission

1. Requests/advice deferred from the June Meeting
    a. Greenland halibut in Subarea 2 + Divisions 3KLMNO monitor, compute the TAC using the most recently agreed HCR and determine whether exceptional circumstances are occurring (request #2)
    b. Include any new Canadian stock assessments for cod 2J3KL (Canada), witch flounder 2J3KL (Canada) as an annex to the SC's annual report (request #8).
2. Requests arising from Working Groups in 2024
    a. WG-RBMS risk table
3. *Ad hoc* Requests from Current Meeting
4. Further progress on items related to COM requests (in SCS Doc. 24/01)

## VII. Review of Future Meeting Arrangements

## VIII. Future Special Sessions

1. Discussion of proposed topics
    a. Flatfish symposium 2024
    b. FAO/NAO Ecosystem workshop 2025
    c. Discussion about adding an additional day onto the 2025 June meeting to review the current Scientific Council structure and process for providing advice
    d. Other proposed topics

**IX. Other Matters**

1. Meeting reports
2. Results of the Scientific Council/STACFIS shrimp meeting, 17-19 September 2024
3. Update of the OECM submission
4. Any other business
    a. Climate Change Proposal by the United States of America
    b. Presentation by the DSF Project from FAO
    c. Scientific Council budget
    d. Scientific Council workload
    e. Reference Points
    f. A tribute to Jorge Vargas

**X. Adoption of Reports**

1. Committee Reports of STACFIS and STACREC
2. Report of Scientific Council

**XI. Adjournment**

## ANNEX 1. THE COMMISSION'S REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 2025 AND BEYOND OF CERTAIN STOCKS IN SUBAREAS 2, 3 AND 4 AND OTHER MATTERS

(From SCS Doc. 24/01)

Following a request from the Scientific Council, the Commission agreed that items 1, 2, 3 and 7 should be the priority for the June 2024 Scientific Council meeting subject to resources.

1. The Commission requests that the Scientific Council provide advice for the management of the fish stocks below according to the assessment frequency presented below. In keeping with the NAFO Precautionary Approach Framework (FC Doc. 04/18), the advice should be provided as a range of management options and a risk analysis for each option without a single TAC recommendation. The Commission will decide upon the acceptable risk level in the context of the entirety of the SC advice for each stock guided and as foreseen by the Precautionary Approach.

| Yearly basis | Two-year basis | Three-year basis | Interim Monitoring Only |
|---|---|---|---|
| Cod in Div. 3M | Redfish in Div. 3M<br>Thorny skate in Div. 3LNO<br>Witch flounder in Div. 3NO<br>Redfish in Div. 3LN<br>White hake in Div. 3NO<br>Yellowtail flounder in Div. 3LNO<br>Northern shrimp 3LNO<br>Northern shrimp in Div. 3M | American plaice in Div. 3LNO<br>American plaice in Div. 3M<br>Northern shortfin squid in SA 3+4<br>Redfish in Div. 3O<br>Cod in Div 3NO | SA 6 Alfonsino<br>SA 2-3 Roughhead Grenadier<br>Capelin in 3NO |

Advice should be provided using the guidance provided in **Annexes A or B as appropriate**, or using the predetermined Harvest Control Rules in the cases where they exist (currently Greenland halibut 2+3KLMNO). For 3M shrimp supplementary advice in terms of fishing-days could also be considered as appropriate.

To implement this schedule of assessments, the Scientific Council is requested to conduct a full assessment of these stocks as follows:

- In 2024, advice should be provided for 2025 for: Cod in Div. 3M and Redfish in Div. 3LN.
- In 2024, advice should be provided for 2025 and 2026 for: Redfish in Div. 3M, Thorny skate in Div. 3LNO, Witch flounder in Div. 3NO, and Northern shrimp in 3M.
    - With respect to Northern shrimp in Div. 3M, Scientific Council is requested to provide its advice to the Commission prior to the 2024 Annual Meeting based on the survey data up to and including 2024.
- In 2024, advice should be provided for 2025, 2026 and 2027 for: American plaice in Div. 3LNO.

The Commission also requests the Scientific Council to continue to monitor the status of all other stocks annually and, should a significant change be observed in stock status (e.g. from surveys) or in bycatch in other fisheries, provide updated advice as appropriate.

2. The Commission requests the Scientific Council to monitor the status of Greenland halibut in Subarea 2 + Div 3KLMNO annually to compute the TAC using the most recently agreed HCR and determine whether exceptional circumstances are occurring. If exceptional circumstances are occurring, the exceptional circumstances protocol will provide guidance on what steps should be taken.

3. The Commission requests that Scientific Council continue to advance work on the 2+3KLMNO Greenland halibut and 3LN redfish MSE processes during 2023-2024, as per the approved 2024 workplan [COM-SC RBMS-WP 23-06 (Rev. 3)]:
    a. For the Greenland Halibut MSE: test Candidate Management Procedures (CMP) performance against established management objectives and initial discussions on exceptional circumstances protocol.
    b. For the 3LN Redfish MSE: (1) review and finalize Operating Models, (2) review any further work on performance statistics; (3) select the CMP(s) for RBMS consideration and potential testing against established management objectives.

4. The Commission requests that the Scientific Council continue to work on tiers 1 and 2 of the Roadmap, specifically to:
    a. Annually provide catch information in relation to 2TCI, including recent cumulative catch levels and a scoping of expected cumulative catch levels;
    b. As practicable and taking into account Scientific Council capacity constraints, develop stock summary sheets for NAFO managed stocks that are evaluated using HCR or MSE processes.

5. In relation to the habitat impact assessment component of the Roadmap (VME and SAI analyses), the Commission requests that Scientific Council:
    a. Support the Secretariat in developing a centralized data repository using ArcGIS online to host the data and data-products for scientific advice;
    b. Continue working with WG-EAFFM towards developing operational objectives for the protection of VMEs and biodiversity in the NRA; and
    c. Work towards the reassessment of VMEs and impact of bottom fisheries on VMEs for 2026.

6. The Commission requests Scientific Council to continue progression on the review of the NAFO PA Framework in accordance to the PAF review work plan approved in 2020 and revised in 2023 (NAFO COM-SC RBMS-WP 23-19 (Revised)), specifically to undertake testing of the Provisional Draft PA Framework (COM-SC RBMS-WP 23-20 (Revised)).

7. The Commission requests Scientific Council to update the 3-5 year work plan, which reflects requests arising from the 2023 Annual Meeting, other multi-year stock assessments and other scientific inquiries already planned for the near future. The work plan should identify what resources are necessary to successfully address these issues, gaps in current resources to meet those needs and proposed prioritization by the Scientific Council of upcoming work based on those gaps.

8. The Commission requests that any new Canadian stock assessments for Cod 2J3KL and Witch flounder 2J3KL, and any new ICES stock assessments for Pelagic *Sebastes mentella* (ICES Divisions V, XII and XIV; NAFO 1) be included as an annex to the Scientific Council's annual report.

9. The Commission requestions the SC to monitor and provide regular updates on relevant research related to the potential impacts of activities other than fishing in the Convention Area, subject to the capacity of the Scientific Council.

10. The Commission requests that the Scientific Council at its 2024 meeting: summarize the information it currently has available regarding the current and future impacts of climate change on NAFO-managed stocks, non-target species, and associated ecosystems; and identify any consequential data gaps, research needs and opportunities for productive research.

**ANNEX A: Guidance for providing advice on Stocks Assessed with an Analytical Model**

The Commission request the Scientific Council to consider the following in assessing and projecting future stock levels for those stocks listed above. These evaluations should provide the information necessary for the Fisheries Commission to consider the balance between risks and yield levels, in determining its management of these stocks:

1. For stocks assessed with a production model, the advice should include updated time series of:

- Catch and TAC of recent years
- Catch to relative biomass
- Relative Biomass
- Relative Fishing mortality
- Stock trajectory against reference points
- And any information the Scientific Council deems appropriate.

Stochastic short-term projections (3 years) should be performed with the following constant fishing mortality levels as appropriate:

- For stocks opened to direct fishing: 2/3 $F_{msy}$, 3/4 $F_{msy}$, 85% $F_{msy}$, 90% $F_{msy}$,95% $F_{msy}$, $F_{msy}$ 0.75 X $F_{status\ quo}$, $F_{status\ qu}$,1.25 X Status quo, F=0; TAC Status quo, 85% TAC Status quo, 90% TAC Status quo, 95% TAC Status quo
- For stocks under a moratorium to direct fishing: $F_{status\ quo}$, F = 0.

The first year of the projection should assume a catch equal to the agreed TAC for that year. In instances where Scientific Council expects catches to be significantly different from the agreed TAC, an additional projection could be provided based on the best available catch estimation.

Results from stochastic short-term projection should include:

- The 10%, 50% and 90% percentiles of the yield, total biomass, spawning stock biomass and exploitable biomass for each year of the projections
- The risks of stock population parameters increasing above or falling below available biomass and fishing mortality reference points. The table indicated below should guide the Scientific Council in presenting the short-term projections.

| | | | | Limit reference points | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $P(F>F_{lim})$ | | | $P(B<B_{lim})$ | | | | $P(F>F_{msy})$ | | | $P(B<B_{msy})$ | | | | $P(B2026 > B2024)$ |
| F in 2025 and following years | Yield 2024 (50%) | Yield 2025 (50%) | Yield 2026 (50%) | 2024 | 2025 | 2026 | 2024 | 2025 | 2026 | | 2024 | 2025 | 2026 | 2024 | 2025 | 2026 | | |
| 2/3 Fmsy | t | t | t | % | % | % | % | % | % | | % | % | % | % | % | % | | % |
| 3/4 Fmsy | t | t | t | % | % | % | % | % | % | | % | % | % | % | % | % | | % |
| 85% Fmsy | t | t | t | % | % | % | % | % | % | | % | % | % | % | % | % | | % |
| 90% Fmsy | t | t | t | | | | | | | | | | | | | | | |
| 95% Fmsy | t | t | t | | | | | | | | | | | | | | | |
| Fmsy | t | t | t | % | % | % | % | % | % | | % | % | % | % | % | % | | % |
| 0.75 X Fstatus quo | t | t | t | % | % | % | % | % | % | | % | % | % | % | % | % | | % |
| Fstatus quo | t | t | t | % | % | % | % | % | % | | % | % | % | % | % | % | | % |
| 1.25 X Status quo | t | t | t | % | % | % | % | % | % | | % | % | % | % | % | % | | % |
| F=0 | t | t | t | % | % | % | % | % | % | | % | % | % | % | % | % | | % |
| TAC Status quo | | | | | | | | | | | | | | | | | | |
| 85% TAC Status quo | | | | | | | | | | | | | | | | | | |
| 90% TAC Status quo | | | | | | | | | | | | | | | | | | |
| 95% TAC Status quo | | | | | | | | | | | | | | | | | | |

2. For stock assessed with an age-structured model, information should be provided on stock size, spawning stock sizes, recruitment prospects, historical fishing mortality. Graphs and/or tables should be provided for all of the following for the longest time-period possible:

- historical yield and fishing mortality;
- spawning stock biomass and recruitment levels;
- Stock trajectory against reference points

And any information the Scientific Council deems appropriate

Stochastic short-term projections (3 years) should be performed with the following constant fishing mortality levels as appropriate:

- For stocks opened to direct fishing: $F_{0.1}$, $F_{max}$, 2/3 $F_{max}$, 3/4 $F_{max}$, 85% $F_{max}$, 75% $F_{status\ quo}$, $F_{status\ quo}$, 125% $F_{status\ quo}$,
- For stocks under a moratorium to direct fishing: $F_{status\ quo}$, F = 0.
  The first year of the projection should assume a catch equal to the agreed TAC for that year.

Results from stochastic short-term projection should include:

- The 10%, 50% and 90% percentiles of the yield, total biomass, spawning stock biomass and exploitable biomass for each year of the projections
- The risks of stock population parameters increasing above or falling below available biomass and fishing mortality reference points. The table indicated below should guide the Scientific Council in presenting the short-term projections.

| | | | | Limit reference points | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P(F>$F_{lim}$) | | | P(B<$B_{lim}$) | | | P(F>F0.1) | | | P(F>$F_{max}$) | | | | P(B2026> B2024) |
| F in 2025 and following years* | Yield 2024 | Yield 2025 | Yield 2026 | 2024 | 2025 | 2026 | 2024 | 2025 | 2026 | 2024 | 2025 | 2026 | 2024 | 2025 | 2026 | | |
| F0.1 | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | | % |
| $F_{max}$ | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | | % |
| 66% $F_{max}$ | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | | % |
| 75% $F_{max}$ | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | | % |
| 85% $F_{max}$ | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | | % |
| 0.75 X $F_{2018}$ | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | | % |
| $F_{2018}$ | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | | % |
| 1.25 X $F_{2018}$ | t | t | t | % | % | % | % | % | % | % | % | % | % | % | % | | % |

**ANNEX B. Guidance for providing advice on Stocks Assessed without a Population Model**

For those resources for which only general biological and/or catch data are available, few standard criteria exist on which to base advice. The stock status should be evaluated in the context of management requirements for long-term sustainability and the advice provided should be consistent with the precautionary approach.

The following graphs should be presented, for one or several surveys, for the longest time-period possible:

a. time trends of survey abundance estimates
b. an age or size range chosen to represent the spawning population
c. an age or size-range chosen to represent the exploited population
d. recruitment proxy or index for an age or size-range chosen to represent the recruiting population.
e. fishing mortality proxy, such as the ratio of reported commercial catches to a measure of the exploited population.
f. Stock trajectory against reference points

And any information the Scientific Council deems appropriate.

## ANNEX 2. DESIGNATED EXPERTS IN 2024

### From the Science Branch, Northwest Atlantic Fisheries Centre, Department of Fisheries and Oceans, St. John's, Newfoundland & Labrador, Canada

| | | |
|---|---|---|
| Cod in Div. 3NO | Rick Rideout | rick.rideout@dfo-mpo.gc.ca |
| Redfish Div. 3O | Laura Wheeland | laura.wheeland@dfo-mpo.gc.ca |
| Redfish 3LN | Andrea Perreault | andrea.perreault@dfo-mpo.gc.ca |
| American Plaice in Div. 3LNO | Laura Wheeland | laura.wheeland@dfo-mpo.gc.ca |
| Witch flounder in Div. 3NO | Dawn Maddock Parsons | dawn.parsons@dfo-mpo.gc.ca |
| Yellowtail flounder in Div. 3LNO | Dawn Maddock Parsons | dawn.parsons@dfo-mpo.gc.ca |
| Greenland halibut in SA 2+3KLMNO | Paul Regular | paul.regular@dfo-mpo.gc.ca |
| Northern shrimp in Div. 3LNO | Nicolas Le Corre | nicolas.lecorre@dfo-mpo.gc.ca |
| Ecosystem Designated Expert 3LNO | Vacant | |

### From the Instituto Español de Oceanografía, Vigo (Pontevedra), Spain

| | | |
|---|---|---|
| Roughhead grenadier in SA 2+3 | Fernando Gonzalez-Costas | fernando.gonzalez@ieo.csic.es |
| Splendid alfonsino in Subarea 6 | Fernando Gonzalez-Costas | fernando.gonzalez@ieo.csic.es |
| Cod in Div. 3M | Irene Garrido Fernández | irene.garrido@ieo.csic.es |
| Shrimp in Div. 3M | Jose Miguel Casas Sanchez | mikel.casas@ieo.csic.es |
| Ecosystem Designated Expert 3M | Diana Gonzalez-Troncoso | diana.gonzalez@ieo.csic.es |

### From the Instituto Nacional de Recursos Biológicos (INRB/IPMA), Lisbon, Portugal

| | | |
|---|---|---|
| American plaice in Div. 3M | Ricardo Alpoim | ralpoim@ipma.pt |
| Golden redfish in Div. 3M | Ricardo Alpoim | ralpoim@ipma.pt |
| Redfish in Div. 3M | Ricardo Alpoim | ralpoim@ipma.pt |

### From the Greenland Institute of Natural Resources, Nuuk, Greenland

| | | |
|---|---|---|
| Demersal Redfish in SA1 | Rasmus Nygaard | rany@natur.gl |
| Wolfish in SA1 | Rasmus Nygaard | rany@natur.gl |
| Greenland halibut in Div. 1 inshore | Rasmus Nygaard | rany@natur.gl |
| Greenland halibut in SA 0+1 (offshore) | Adriana Nogueira | adno@natur.gl |
| Northern shrimp in SA 0+1 | AnnDorte Burmeister | anndorte@natur.gl |
| Northern shrimp in Denmark Strait | Tanja Buch | TaBb@natur.gl |

### From Knipovich Polar Research Institute of Marine Fisheries and Oceanography (PINRO), Russian Federation

| | | |
|---|---|---|
| Capelin in Div. 3NO | Konstantin Fomin | fomin@pinro.ru |

### From National Marine Fisheries Service, NEFSC, Woods Hole, Massachusetts, United States of America

| | | |
|---|---|---|
| Northern Shortfin Squid in SA 3 & 4 | Lisa Hendrickson | lisa.hendrickson@noaa.gov |
| Thorny skate in Div. 3LNO | Katherine Sosebee | katherine.sosebee@noaa.gov |
| White hake in Div. 3NO | Katherine Sosebee | katherine.sosebee@noaa.gov |

## ANNEX 3. DENMARK (ON BEHALF OF GREENLAND) REQUESTS FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 2025 AND BEYOND OF CERTAIN STOCKS IN SUBAREA 0 AND 1

(from SCS Doc. 24/03)

### Denmark (on behalf of Greenland) Coastal State Request for Scientific Advice – 2025

Denmark (on behalf of Greenland) hereby requests for scientific advice on management in 2025 of certain stocks in NAFO Subareas 0 and 1. Denmark (on behalf of Greenland) requests the Scientific Council for advice on the following species:

**1. Golden Redfish and Demersal Deep-Sea Redfish**

Advice on Golden redfish (*Sebastes marinus*) and demersal deep-sea redfish (*Sebastes mentella*) in Subarea 1 was in June 2023 given for 2024-2026. The Scientific Council is requested to continue its monitoring of the above stocks and provide updated advice as appropriate in the event of significant changes in stock levels.

**2. Atlantic Wolffish and Spotted Wolffish**

Advice on Atlantic Wolffish (*Anarhichas lupus*) and Spotted Wolffish (*Anarhichas minor*) in Subarea 1 was in June 2023 given for 2024-2026. The Scientific Council is requested to continue its monitoring of the above stocks and provide updated advice as appropriate in the event of significant changes in stock levels.

**3. Greenland Halibut, Offshore**

Advice on Greenland Halibut, Offshore in Subareas 0 and 1 was in 2022 given for 2023 and 2024. Denmark (on behalf of Greenland) requests the Scientific Council to provide updated advice on appropriate TAC levels for 2025 to 2026.

**4. Greenland Halibut, Inshore, West Greenland**

Advice on the inshore stocks of Greenland Halibut in Subarea 1 was in 2022 given for 2023-2024. Denmark (on behalf of Greenland) requests the Scientific Council to provide advice on appropriate TAC levels for 2025 to 2026. If appropriate, Denmark (on behalf of Greenland) would request the Scientific Council to use an MSY-approach.

**5. Northern Shrimp, West Greenland**

Subject to the concurrence of Canada as regards to Subareas 0 and 1, Denmark (on behalf of Greenland) requests the Scientific Council before December 2024 to provide advice on the scientific basis for management of Northern Shrimp (Pandalus borealis) in Subareas 0 and 1 in 2025 in line with Greenland's stated management objective of maintaining a mortality risk of no more than 35% in the first year prediction and to provide a catch option table ranging with 5,000 t increments. Future catch options should be provided for as many years as data allows for.

**6. Northern Shrimp, East Greenland**

Furthermore, the Scientific Council is in cooperation with ICES requested to provide advice on the scientific basis for management of Northern Shrimp (*Pandalus borealis*) in Denmark Strait and adjacent waters east of southern Greenland in 2025 and for as many years ahead as data allows for.

## V. ANNEX 4. REQUESTS FROM CANADA FOR COASTAL STATE ADVICE IN 2025

(from SCS Doc. 24/04)

Canada would like to submit its request to the Scientific Council for advice on the following species:

### 1. Greenland halibut (Subarea 0 + 1 (offshore))

The Scientific Council is requested to provide an overall assessment of status and trends in the total stock area throughout its range and to specifically advise on TAC levels for 2025 and 2026. The stock status should be evaluated in the context of management requirements for long-term sustainability and the advice provided should be consistent with NAFO's Precautionary Approach Framework.

It is noted that at this time only general biological advice and/or catch data are available, and few standard criteria exist on which to base advice. Canada encourages the Scientific Council to continue to explore a model-based approach to bridge survey time series (i.e. data from the RV Paamiut and RV Tarajoq), and opportunities to develop risk-based advice in the future, noting that data conditions do not allow for such advice at this time.

### 2. Northern shrimp (Subarea 1 and Division 0A)

Canada requests that the Scientific Council consider the following options in assessing and projecting future stock levels for Northern shrimp (*Pandalus borealis*) in Subarea 1 and Division 0A:

The status of the stock should be determined and risk-based advice provided for catch options corresponding to $Z_{msy}$ in 5,000t increments with forecasts for 2025 to 2027 (inclusive). These options should be evaluated in relation to Canada's Harvest Strategy (2022 revised version attached) and NAFO's Precautionary Approach Framework.

Presentation of the results should include graphs and/or tables related to the following:

- Historical and current yield, biomass relative to $B_{msy}$, total mortality relative to $Z_{msy}$, and recruitment (or proxy) levels for the longest time period possible;
- Total mortality (Z) and fishable biomass for a range of projected catch options (as noted above) for the years 2025 to 2027. Projections should include both catch options and a range of effective cod predation biomass levels considered appropriate by the Scientific Council. Results should include risk analyses of falling below: $B_{msy}$, 80% $B_{msy}$ and $B_{lim}$ (30% $B_{msy}$), and of being above $Z_{msy}$ based on the 3-year projections, consistent with the Harvest Decision Rules in Canada's Harvest Strategy; and
- Total area fished for the longest time period possible.

Please provide the advice relative to Canada's Harvest Strategy as part of the formal advice (i.e., grey box in the advice summary sheet).

## VI. APPENDIX IV. LIST OF RESEARCH (SCR) AND SUMMARY (SCS) DOCUMENTS

### Research Documents (SCR)

| SCR Doc. No. | Serial No. | Author(s) | Title |
|---|---|---|---|
| SCR Doc. 24/062 | N7575 | Hannipoula Olsen, Luis Ridao Cruz, Eydna í Homrum and Petur Steingrund | Protocol of the Faroese longline survey of Flemish Cap (Div. 3M) |

### Summary Documents (SCS)

| SCS Doc. No. | Serial No. | Author(s) | Title |
|---|---|---|---|
| SCS Doc. 24/19 | N7598 | NAFO | Report of the Scientific Council Meeting, 23-27 September, 2024 |

## APPENDIX V. LIST OF PARTICIPANTS, SEPTEMBER 2024

| | |
|---|---|
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