

Northwest Atlantic Fisheries Organization



**Report of the NAFO Joint Commission-Scientific Council Working Group on the
Ecosystem Approach Framework to Fisheries Management (WG-EAFFM) Meeting**

14–16 July 2021 and 20-21 July 2021
Via WebEx

NAFO
Halifax, Nova Scotia, Canada
2021

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1. Opening by the co-Chairs, Andrew Kenny (United Kingdom) and Elizabethann Mencher (USA)

The meeting was opened by the chairs, Andy Kenny (United Kingdom) and Elizabethann Mencher (USA), at 08:30 hours (Atlantic Daylight Time in Halifax, Nova Scotia) on Wednesday, 14 July 2021.

The co-Chairs welcomed the scientists and fisheries managers from Canada, European Union, Iceland, Japan, Norway, Russian Federation, Ukraine, the United Kingdom, and the United States of America. The Chair of the Scientific Council (SC) was present. Observers from FAO and Ecology Action Centre were also welcomed (Annex 1).

2. Appointment of Rapporteur

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

3. Adoption of Agenda

The provisional agenda as previously circulated was adopted with the following amendments (see Annex 2):

- Sub-items under agenda item 5 were re-ordered,
- Agenda item 8.a was inserted.

4. Review of the August 2020 recommendations (COM-SC Doc. 20-06)

WG-EAFFM reviewed the recommendations and the status of their implementation. The summary is presented in the table below.

Recommendations	Status
Roll over of all closures for one year (until 2021)	Adopted at the 2020 annual meeting
Inclusion of Black coral to the VME indicator list	Adopted at the 2020 annual meeting. Black corals were added to Annex I.E. Part VI of the CEM in 2021.
For 2021 re-assessment of bottom fishing and for VME fisheries closures, request SC to “provide input and analysis of potential management options	See agenda item 5a, part ii.
Insertion of a footnote in Annex II.N of the NCEM (Haul by haul report template) to clarify and match the definition of Start and End time of fishing in Annex II.M (Observer report template)	WG-EAFFM noted that STACTIC is still discussing start and stop times and the respective footnote, and will have further information during the 2021 Annual Meeting following CP’s consultation with the industry.
Regarding Roadmap, WG-EAFFM re-consider the recommendations to the 2020 AM at the 2021 meeting and develop options of how ecosystem advice could inform management decisions	See agenda items 5.d and 6.

Scientific Council to continue its work to develop models that support implementation of Tier 2 of the EAFM Roadmap	See agenda item 5c.
Regarding the Ecosystem Summary Sheets, CPs proactively provide any relevant research to inform the Scientific Council's work, as well as identify scientific and management experts in non-fisheries related sectors to participate in Scientific Council and WG-EAFFM discussions. Further, that the Secretariat and the Scientific Council work with other international organizations, such as the FAO and ICES, to bring in additional expertise to inform the Scientific Council's work.	See agenda item 5d.
STACTIC review the implementation of chapter 2, and suggest, as necessary, any revisions to WG-EAFFM. And that the Commission request the Scientific Council to also review the effectiveness of Chapter 2 from a scientific perspective and to report back at 2022 WG-EAFFM meeting. Update the CEM to reflect 2022 deadline for Chapter 2 review	See agenda item 7

5. Presentation and discussion of SC responses to Commission requests for advice (COM Doc. 20-16 and SCS Doc. 21-14) relevant to EAFFM

a. Commission Request # 6 – Re-assessment of NAFO bottom fisheries and analysis of potential management options (VME closures)

Dr. Andrew Kenny (co-Chair of this WG and co-Chair of the SC Working Group on Ecosystem Science and Assessment (WG-ESA)), and Pierre Pepin, (co-Chair of WG-ESA) on behalf of SC presented the response provided by SC in June 2021 based on work undertaken by WG-ESA in 2020 (SCS Doc. 21-14). The response comprised three parts: i) assessment of the risk of significant adverse impact (SAI) from bottom fishing activities on VMEs in the NRA, ii) potential management options in relation to VME closures, and iii) review of seamount closure boundaries

i) assessment of the risk of significant adverse impact (SAI) from bottom fishing activities on VMEs in the NRA

SC completed the assessment of the risk of Significant Adverse Impacts (SAIs) from bottom fishing activities on VMEs in the NRA. The assessment methodology was similar to that used in the previous assessment (in 2016) but with greater spatial resolution of updated survey trawl biomass and commercial fishing effort data. It was noted that the greater spatial resolution applied in the present assessment (from 5km to 1km) results in more precise and generally larger estimates of the biomass protected by the current VME closures, compared to the analysis conducted for the 2020 review of VME closures. This response also builds upon the outcome of the review of VMEs reported in 2020 which provided a more accurate and up-dated delineation of VME polygon boundaries.

The assessment included for the first time an evaluation of the ecological functions associated with VMEs and the application of a VME fragmentation index.

Assessment metrics considered within the assessment were:

- Area/Biomass protected (low risk of SAI)
- Area/Biomass impacted
- Area/Biomass unprotected (high risk of SAI)
- Proportion of overlapping VMEs in closures
- Index of VME sensitivity
- Index of fishing stability
- Index of VME fragmentation/ proximity
- Number of important functions in unprotected portions of VME

These assessment metrics were cross referenced against the six FAO SAI criteria in order to ensure all 6 metrics were assessed and also to inform an appropriate weighting of the metrics as applied in the overall assessment of SAI. The results indicated that the assessment metrics associated with the first two FAO criteria (*e.g.*, fishing intensity and fishing extent) are directly related to the fishing effort and are therefore manageable. These assessment metrics (*e.g.*, area/biomass protected, area/biomass impacted, area/biomass unprotected, index of fishing stability and index of VME fragmentation) were therefore given more weight in the overall SAI assessment and of these, the VME area/biomass protected was considered the most important.

Overall SAI scores for each VME type were assigned to three categories: good (low SAI risk, >60% of the VME biomass protected), limited (intermediate SAI risk, 30-60% of the VME biomass protected), and poor (high SAI risk, <30% of the VME biomass protected).

Results of the assessment indicated that small gorgonian, black coral, erect bryozoan and sea squirt VMEs have a high overall risk of SAI, whereas the large-sized sponges and large gorgonian coral VMEs have a low overall risk of SAI. The sea pen VME was assessed as having an intermediate risk of SAI.

WG-EAFFM thanked SC and acknowledged the work to be ground-breaking.

WG-EAFFM concurs with SC's conclusions. WG-EAFFM further **recommends** that the Commission direct the Secretariat to share its work on bottom fishing impacts along with any potential update of the SAI outcome (pending management action) with the UNGA VME review process in 2022.

ii) potential management options in relation to VME closures

Based upon the outcome of the SAI analysis, SC considered a number of options to improve VME protection, including move-on rules and buffer zones, however it was considered that these would have limited efficacy, and consequently an expert group was assembled to evaluate the benefits and consequences of extending existing closures as well as considering the addition of new closures. This group included fisheries specialists as well as experts in benthic ecology. The analysis considered both VME area and biomass values, connectivity between VMEs, distribution of fishing effort and inter-year fishing stability over a ten-year period. The overall aim was to improve the protection of VMEs, while limiting the impact and/or consequences in terms of access to fishing locations and overall catches.

This work was further developed by the Scientific Council at its June 2021 meeting, allowing input from a wider range of experts.

Changes to current VME protection (as recommended by SC) include ten extensions to existing closures, the creation of three new closures and modifications to Area 14 (See Annex 3):

- Extension of Area Closure 1 (Area 1a), to protect large-sized sponges;
- Establishment of two new closures (Areas 17 & 18) on the tail of the Grand Bank, to protect sea squirts;
- Establishment of a new closure (Area 16) on the tail of the Grand Bank, to protect erect bryozoans;

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- Creation of a new closure (Area 15a) to the northeast of the 30 Closure in the NRA, to protect important concentrations of small gorgonian coral, sea pens and large gorgonian coral;
- Westward extension of the Area 2 closure, in the form of the closure of the “*notch*” on the northwestern side of the Area 2, to better protect large gorgonian coral (Area 2a);
- Northward extension of Area 2, to protect significant concentrations of sea pens and black coral (Area 2b);
- Extension of closures between Area Closures 4 & 5 (Area 4a), to increase protection of large gorgonian coral and large-sized sponges;
- Eastward extension of Area Closure 7, to provide greater protection for sea pens and black coral (Area 7a);
- Extension to Area Closures 8 & 9 (linking with Area Closures 8, 9 & 12), to provide a more continuous closure to protect sea pens and black coral (Areas 8a & 9a) and improve connectivity;
- Westward extension to Area Closure 10, to provide combined protection for sea pens and large-sized sponges (Area 10a);
- Northeastward extension of Area Closure 11, to provide enhanced protection for sea pens (Area 11a);
- Re-establishment of a modified Area Closure 14 (Areas 14a & 14b), over areas of high sea pen concentrations in the eastern portion of the Flemish Cap.

Adoption of these recommended closures would substantially improve the protected status of VMEs in the NRA. In terms of biomass protected, the current VME closures result in 2 VME types having good protection, one of limited protection and four VME having poor protection. Under the new proposals (if adopted) six would be considered to have good status (*e.g.*, black coral, erect bryozoans, sea squirts, large sponges, large gorgonian coral, sea pen) and only one having limited status (small gorgonian coral) – there would be no VMEs classified as having poor protection or being at high-risk of SAI.

With respect to assessing what impact these proposals would have on the fishery, analysis of VME and fishing logbook data (haul by haul) indicated that the adoption of all the proposed changes would result in a less than 1% overall impact on current (2010–2019) catches and fishing activity.

During the WG-EAFFM meeting, the co-Chair of WG-ESA performed further analysis to break down the contribution that individual proposed changes would make to the protection of VMEs identified by SC as requiring essential management action owing to their high risk of SAI status: Black Coral, Erect Bryozoan, Sea Squirt and Small Gorgonian Coral. (See Annex 4)

Closure	Biomass protected
Black coral	
Existing Closures	25%
Proposal 7a	10%
Proposal 2b	5%
Proposal 9a	36%
Total Proposed Protection	76%
Erect Bryozoans	
Existing Closures	0%
Proposal 16	78%
Total Proposed Protection	78%
Sea Squirts (<i>Boltenia</i> sp.)	
Existing Closures	0%
Proposal 17	55%
Proposal 18	5%
Total Proposed Protection	60%
Small Gorgonian Corals	
Existing Closures	2%
Proposal 15a	29%
Total Proposed Protection	31%

WG-EAFFM acknowledged and thanked the SC for their efforts and noted the usefulness of having VME closure management options for its consideration. Several CPs noted the importance of balancing protection of VMEs with fishing effort and opportunities.

One CP noted the need for consideration of non-fishing impacts to the VMEs and possible implications concerning the effectiveness of the proposed closures with respect to the non-fishing activities. Other CPs noted that managing non-fishing impacts were outside the mandate of NAFO. Furthermore, CPs noted that chapter 2 specifically addresses fishing impacts to VMEs and not other activities.

The WG agreed the need for greater VME protections based on the SC's SAI analysis and recommendations.

The WG discussed a range of possible management options and a variety of views were expressed by CPs, including: 1) that particular attention should be allocated to VMEs most in need of increased protection from SAI as outlined in Table above; 2) that the WG should recommend all of the SC's proposed closures to the Commission; and 3) that they required additional time for consultations with scientists and other stakeholders

Accordingly, WG-EAFFM encourages that Contracting Parties to work together in the intersessional period before the Annual Meeting to consider and develop proposals for VME protection based on the SC advice.

Consequently, WG-EAFFM **recommends** that the Commission extend the current closures in Chapter 2 of the NAFO CEM for five (5) years and that additional VME protections are needed, and therefore,

WG-EAFFM **recommends** that the Commission consider the SC's advice regarding additional area-based management measures to protect VMEs from SAI, and consider adopting additional measures if proposed at the 2021 Annual Meeting.

iii) review of seamount closure boundaries

Dr. Andrew Kenny presented the SC advice on seamount closures.

In 2020, SC recommended the continued designation seamount as VME and the continuation of current closures (SCS Doc. 20/14), and proposed new boundaries for the Corner Rise Seamounts and Newfoundland

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Seamounts to maintain connectivity across the seamount chains and to improve the protection of vulnerable seamounts in the NRA. Given the availability of new bathymetric data towards the end of 2020, SC in 2021 undertook a more extensive review of the seamounts in the NAFO Areas Beyond National Jurisdiction (ABNJ).

As a result, SC recommended changes to the existing boundaries for the Fogo, Newfoundland and Corner Rise Seamount closures, as well as the implementation of seven new individual seamount closures in the NRA north of Orphan Knoll (see Annex 5). WG-EAFFM notes that current and proposed seamount closures have no impact on ongoing fishing activities as all Seamounts and current seamount closures fall outside the NAFO fishing footprint. There are no bottom-contacting fishing activities outside the NAFO fishing footprint, and any exploratory bottom fishing activity in this area is subject to the provisions of Chapter 2 of the NAFO CEM, including the prohibition of bottom-contact fishing within seamount closures.

WG-EAFFM welcomes the recommendation from the SC on the proposal on revision of boundaries of seamount closures and **recommends** the proposal be forwarded to the Commission for consideration, noting that some Contracting Parties required some additional time for consultation on the proposed boundary revisions with scientists and stakeholders.

WG-EAFFM discussed the timeframe for review/expiration of the seamount closures. For other VME closures, it has been suggested that future review should be linked to the five-year SAI analysis, however, since there is no ongoing fishing on the seamounts, it was agreed that linking such a review to the SAI assessment timetable would not be necessary or appropriate. It was therefore agreed that the review of the seamount closures should be linked to other international processes, such as the five-year UNGA review process, noting that the timing of the UNGA review is not fixed. The group agreed that the timeframe should be, in general, not more than five years and should be a review rather than expiration.

b. Commission Request # 7 – Taxa list in NAFO CEM Annex I.E. Part VI as reflected in COM-SC EAFFM-WP 18-01

WG-EAFFM considered the revised list of VME indicator species noting that the changes reflect recent taxonomic revisions and correction of various spelling errors in the current CEM annex I.E. The revised list of VME taxa is included in this report as Annex 6.

WG-EAFFM **recommends** that the Commission adopt the Scientific Council recommended changes to Annex I.E. Part VI “*List of VME Indicator Species*” of the NAFO CEM.

c. Commission Request # 5 – Ecosystem Road Map

While there has been no further scientific development of Tier 1-related work (*e.g.*, Fisheries Production Potential models, Total Catch Index (TCI)) in 2021, the SC reiterated the advice provided on this topic in 2020 (SCS Doc 20/14).

Dr. Pierre Pepin presented a recap of the work that has been done by SC up to 2020 on the development of Ecosystem Production Modeling and Total Catch Indices.

To facilitate discussion, Dr. Pepin presented a number of possible management actions that could be considered in relation to TCI advice. This is outlined in Annex 7. It was noted that these options were not part of the SC advice, but included as suggestions to illustrate the type of management decisions that could be considered by managers, for example during the planned dialogue meeting and WG-EAFFM workshop (see agenda item 6).

WG-EAFFM continued to express its appreciation of this ground-breaking work, and noted the need for managers and the Commission to consider how these provisions might be reflected in the Commission decision making processes.

One CP noted that current catches are well below 2 times TCI for all functional groups, and so it is unlikely that these management measures would be triggered in the imminent future; further discussion between fisheries managers would be needed before any decision could be taken on appropriate management options if these exceptional circumstances ever occur. The WG agreed that there are many options for the practical implementation of the Roadmap (including the existing Total Catch Index) and that managers need to give greater consideration to those options for practical application purposes, noting that while this work would add complexity to the work of the Commission it should not be a reason to not move forward.

One CP commented that, given the “*ground-breaking*” nature of this work, it be useful to have an independent review of the work. SC members pointed out that the NAFO performance review provided review of the process, but agreed technical review of the ecosystem production model would be beneficial. One CP suggested that ICES could be approached to perform such a review, while others noted that it may be useful to consider a panel of experts from various backgrounds and organizations. It was also noted that the type of modeling approach used here has been applied by other organizations and included in a number of primary publications.

Given the long-term importance and ground-breaking nature of this work, WG-EAFFM **recommends** that the Commission request Scientific Council, in consultation with WG-EAFFM, to engage an external independent scientific review of the NAFO Roadmap, perhaps as a function of the EAFFM workshop process. This review would include estimating fisheries production and total catches (Tier 1) whilst considering a full range of species interactions (Tier 2). The outcomes of this would be available in advance of the planned workshop in 2022.

d. Commission Request # 18 – 3M and 3LNO Ecosystem Summary Sheets

Dr. Pepin updated WG-EAFFM on progress related to the development of the Ecosystem Summary Sheets (EES).

Owing to demands to complete Commission Request #6, development of Ecosystem Summary Sheets for 3M could not be completed during the 2020 meeting of WG-ESA. The Ecosystem Summary Sheets for 3LNO was completed in 2019.

As a result of pandemic related limitations, and the need to establish ecosystem level objectives by the Commission, undertaking a joint Workshop with ICES on the subject of developing EES has been postponed until the situation improves.

6. Update on the WG-EAFFM Workshop (2022), including the Open Dialogue Meeting (September 2021)

At the 41st Annual Meeting (2019) it was agreed that WG-EAFFM would convene a workshop in 2020 to progress the implementation of all aspects of the NAFO Roadmap (COM-SC Doc 19-10).

- To advance the drafting of ecosystem level objectives.
- Identify elements for their application.
- Explore existing practice.
- Identify information needs for future development.

At the 2020 WG-EAFFM meeting it was agreed that a workshop planning sub-group should be convened to make preparations for the workshop. Due to the COVID-19 pandemic, the workshop was delayed until 2022.

Given the delay, in early 2021 the WG-EAFFM sub-group decided that in order to maintain the momentum in implementing the NAFO ecosystem roadmap and to initiate discussions ahead of the workshop in 2022, a half-day virtual ‘EAF open-dialogue’ meeting should be convened in 2021 (Correspondence NAFO/21-099, March 2021). This meeting date has been scheduled for 07 October 2021.

The purpose of the “*open dialogue*” meeting is to:

- understand the current state-of-play of the EAF Roadmap in NAFO
- Identify any concerns in progressing towards its operational implementation
- provide a foundation (defining the scope) for more detailed discussions at the NAFO ecosystem roadmap workshop in 2022.

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The provisional agenda of the “open dialogue” meeting is presented in the table below:

Item	Suggested Lead/Presentation
1. Introductions/Purpose/background	WG-EAFFM co-Chairs
2. Current state of play - an overview of the present NAFO EAF, Roadmap	WG-ESA co-Chair
3. EAF advice in ICES	ICES ACOM Chair
4. Managers’ perspectives on the opportunities and challenges for the development and implementation of the NAFO EAF Roadmap.	NAFO CPs
5. Summary and Conclusions - agreeing objectives for the WG-EAFFM workshop in 2022	WG-EAFFM co-Chairs

It was noted that, when originally planned, this was intended to be a joint workshop between WG-EAFFM and WG-RBMS. Several CPs commented that it would be very useful to include representatives from both WGs in the EAFFM workshop and the dialogue meetings, given the linkages between the PAF review and the Roadmap Process. It was also suggested that the workshop could be co-chaired by representatives of the two WGs and that representatives of other organisations, including NEAFC, could be invited to the workshop.

In regard to the 2022 workshop and 2021 Open Dialogue meetings, WG-EAFFM requests Contracting Parties develop specific questions/ideas about their concerns or thoughts they may have in moving the Roadmap from the conceptual elements (see agenda item 5.c) to practical considerations of how these (or other elements) would work in practice at the Commission level. Feedback from Contracting Parties on this matter will be an important part of the Open Dialogue meeting in October 2021 and subsequently at next year’s WG-EAFFM Workshop. These questions/ideas should be sent to the Secretariat soon to inform the open dialogue meeting.

WG-EAFFM **recommends** that the Commission strongly encourage participation by Contracting Parties and observers at both the open dialogue and subsequent WG-EAFFM Workshop meetings.

WG-EAFFM **recommends** that the Commission request the participation of WG-RBMS representatives and co-Chairs at both the open dialogue meeting and the subsequent WG-EAFFM Workshop, including potentially co-chairing the meetings, as many of these issues could overlap with its work, particularly the review of the PA Framework.

7. Review/Revision of NAFO CEM Chapter 2 Provisions

In 2020, WG-EAFFM recommended that STACTIC review the implementation of the NAFO CEM Chapter 2 provisions and suggest to WG-EAFFM, as necessary, any revisions to it with a view to improving the effectiveness of the management measures. It was also recommended that the Commission request the Scientific Council to also review the effectiveness of Chapter 2 from a scientific perspective and to report back at 2022 WG-EAFFM meeting.

This recommendation was not included in the Commission requests to SC for 2021 and consequently, WG-EAFFM **re-iterates its prior recommendation** that the Commission request the Scientific Council to review the effectiveness of the NAFO CEM Chapter 2 provisions from a scientific and technical perspective and to report back at 2022 WG-EAFFM meeting.

With regard to the STACTIC review, feedback was received from two CPs:

- At the STACTIC Intersessional Meeting, Denmark (in respect of the Faroe Islands and Greenland) highlighted that there is some difficulty in identifying VME species when they are brought onboard the vessels.

- In an effort to ensure real time compliance with VME closures, Canada suggests that the NAFO Secretariat could implement Geo-Fences around each closure to facilitate generation of an automated report (with the Vessel Name, Date, Time, Speed, Heading, VME Closure, Vessel's Geographic Location) whenever a vessel is within a boundary at a speed less than four knots. This report could then be automatically sent to the inspection presences within the area for further triage and necessary follow-up if required.

Regarding the difficulty experienced by observers in identifying VME species at sea, it was noted that SC has never received any feedback regarding the use of the existing VME identification handbook by observers, which could potentially be used as a basis for their improvement. WG-EAFFM **recommends** that the Commission request STACTIC and the Secretariat to work with the NAFO fishery observers to determine if, and how, the current VME identification guides can be improved to assist in the identification of VME species.

It was noted that the Secretariat is developing a smart phone app for data entry by observers, and WG-EAFFM reaffirm the request to include features that would assist the identification of the VMEs in the smart phone app for observers where possible.

Regarding geo-fencing of fishing vessel activity in VME closed areas, the Senior Fisheries Management Coordinator noted that this point is partially addressed by the Secretariat's monitoring of VMS transmissions. The Secretariat has set up a system to send an automated alert when a vessel enters a closed area. Secretariat staff then determine from VMS whether it is moving at speed consistent with transiting or fishing. So far, there have been infrequent occurrences of detection of steaming vessel. No vessel has been detected fishing in the closed area. At present, the Secretariat does not inform Contracting Parties with an inspection presence when vessels are detected operating in VME closed areas. WG-EAFFM therefore **recommends** that the Commission request STACTIC, for WG-EAFFM's 2022 meeting, develop CEM text requiring the Secretariat to inform those Contracting Parties with an inspection presence when vessels are operating in closed areas at speeds indicating fishing may be occurring.

At its next WG-EAFFM meeting, the Chairs will develop a revised Chapter 2 text, to better reflect the requested language from STACTIC, as well as revising Art 17 in order to refer to all VME types and not just sponge and corals, and to update the relevant annex with a new field reporting the vessel location when it encounters a VME, and its subsequent move-on position 2 nm away.

8. Implementation of 2018 Performance Review Panel recommendations

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

In alignment with the 2018 Performance Review Panel Recommendations and their implementation, *the Ad Hoc virtual NAFO Website Re-design Working Group: Data Classification* at the 2020 Annual Meeting of NAFO was tasked with development of a formal policy regarding the posting and distribution of meeting documentations. In this regard, feedback from the WG-EAFFM was sought on whether working papers and other meeting working documents be made available to the public by posting them in the NAFO public website.

The WG expressed that in principle, there ought to be greater transparency. However, there are situations where some documents can not be made public for confidentiality reasons, *e.g.*, survey data, memos, papers as a basis for discussion or negotiation.

9. Other Matters

a. Proposed Memorandum of Understanding (MoU) with the Sargasso Sea Commission

The Executive Secretary reported that the NAFO Secretariat has been approached by the Secretariat of the Sargasso Sea Commission (SSSC) about the possibility of signing a Memorandum of Understanding (MOU) between the two Secretariats. An updated draft text of the MOU was presented to the Working Group (COM-SC EAFFM 21-02).

The draft MOU was reviewed. WG-EAFFM **recommends** the Commission support the development of an MOU between the Sargasso Sea Commission Secretariat and NAFO Secretariat.

It was agreed that WG-EAFFM will invite a representative of the Sargasso Sea Commission to give a presentation on its work at the 2022 WG-EAFFM meeting.

b. Update on the possible renewal of the ABNJ Deep-Seas Fisheries Project

Tony Thompson (FAO) provided an update of the development of the *ABNJ Deep-sea Fisheries (DSF) Project* (COM-SC EAFFM-WP 21-01). Dr. Thompson reported that the DSF Project's Concept Note was accepted by GEF on 1 June 2020 and that the Inception workshop was held on 24 August 2020. The Theory of Change has been finalised and the in-kind partnership activities to support the project's objectives have been identified. Those aspects of the project most relevant to NAFO were briefly presented, and include work on data-limited stocks, deepwater sharks, VMEs, and cross-sectoral interactions with deep-sea fisheries. The DSF Project document is currently being drafted by FAO and drafts will be shared with partners at the project's Validation Workshop in August 2021. The next steps by NAFO will be to review the co-financing support letter confirming commitment to the project.

WG-EAFFM noted that the recently completed ABNJ deep sea fisheries project has been informative and beneficial to the work of WG-EAFFM and NAFO generally, and that the work of WG-EAFFM has also been informative to the deep sea fisheries project. It expressed its support to NAFO's role in becoming a partner to the DSF Project.

WG-EAFFM **recommends** the Commission support the ABNJ deep sea fisheries project, including offering in-kind support from NAFO.

c. Joint ICES/IUCN workshop on OECMs – NAFO sponge VMED case study

In March 2021, NAFO scientists participated in a joint ICES/IUCN-CEM FEG workshop on testing OECM (Other Effective area-based Conservation Measures) practices and strategies in relation to several different types of spatial fishery management measures (*e.g.*, VME fishery closures). Included as case studies were the NAFO large sponge VME and NAFO Corner Rise Seamount which were both positively evaluated against the OECM criteria (ICES, 2021)

The WG requested that the Secretariat work with CBD to inform the WG on the OECM process for closed area nomination by RFMOs, including what role, if any, RFMOs have had to date.

The WG agree to form an informal group of managers and scientists. This group's purpose is two-fold: 1) to evaluate current NAFO VME closures and other relevant management measures against the OECM criteria, and 2) to consider the implications of presenting NAFO's VME closures and any other relevant management measures to the CBD as possible classification as OECMs. The group will present their results at the WG-EAFFMs 2022 meeting with a goal of reporting to the Commission at the 2022 Annual Meeting.

Contracting Parties are encouraged to send names of participants to the Secretariat by **30 September 2021**.

d. Other International relations

There were no further developments regarding a possible establishment of possible informal consultation mechanisms with the International Seabed Authority (ISA), however the Executive Secretary attended virtually an ISA Workshop on the Development of a Regional Environmental Management Plan for the Area of the Northern Mid-Atlantic Ridge (23 November–04 December 2020) and gave a presentation about area-based management tools used by NAFO.

10. Recommendations

The WG-EAFFM:

In regards to SAI work,

- 1. Recommends that the Commission direct the Secretariat to share its work on bottom fishing impacts along with any potential up-date of the SAI outcome with the UNGA VME review in 2022.**

In regards to Seamounts,

- 2. Welcomes the recommendation from the SC on the proposal on revision boundaries of seamount closures and recommend the proposal be forwarded to the Commission for consideration, noting that some Contracting Parties need additional time for consultation on the revision with scientists and stakeholders.**

In regards to Taxa Changes,

3. Recommends that the Commission adopt the Scientific Council recommended changes to Annex I.E.6 “*VME Indicator Species*” of the NAFO CEM (Annex 6).

In regards to Roadmap/Workshop

4. Recommends, given the long-term importance and ground-breaking nature of this work, that the Commission request Scientific Council, in consultation with WG-EAFFM, engage an external independent panel to conduct a scientific review of the NAFO Roadmap as it applies to estimating fisheries production and total catches (Tier 1) whilst considering a full range of species interactions (Tier 2). The outcomes of this would be available in advance of the planned workshop in 2022.
5. Recommends that the Commission strongly encourage participation by Contracting Parties and observers at both the open dialogue meeting and the subsequent WG-EAFFM Workshop.
6. Recommends that the Commission request the participation of WG-RBMS representatives and co-Chairs at both the open dialogue meeting and the subsequent WG-EAFFM Workshop, including potentially co-chairing the meetings, as many of these issues could overlap with its work, particularly the review of the PA Framework.

In regards to the review of NAFO CEM Chapter 2,

7. Re-iterates its prior recommendation that the Commission request the Scientific Council to review the effectiveness of NAFO CEM, Chapter 2 from a scientific and technical perspective and to report back at 2022 WG-EAFFM meeting.
8. Recommends that the Commission request STACTIC and the Secretariat to work with NAFO fishery observers to determine if, and how, the current VME identification guides can be improved to assist in VME species identification.
9. Recommends that the Commission request STACTIC, for WG-EAFFM’s 2022 meeting, to develop NAFO CEM text requiring the Secretariat to inform those Contracting Parties with an inspection presence when vessels are operating in closed areas at speeds indicating fishing may be occurring.

In regards to VMEs,

10. Recommends that the Commission extend the current closures in Chapter 2 of the NAFO CEM for five (5) years. Consequently,
 - a. Article 17.1 of the NAFO CEM should read: Until 31 December 2024 2026, no vessel shall engage in bottom fishing activities in any of the areas illustrated in Figure 3 and defined by connecting the following coordinates specified in Table 5 in numerical order and back to coordinate 1.
 - b. Article 17.2 of the NAFO CEM should read: Until 31 December 2024 2026, no vessel shall engage in bottom fishing activities in the area of Division 3O illustrated in Figure 4 and defined by connecting the coordinates specified in Table 6 in numerical order and back to coordinate 1.
 - c. Article 17.3 of the NAFO CEM should read: Until 31 December 2024 2026, no vessel shall engage in bottom fishing activities in the areas 1-13 illustrated in Figure 5 and defined by connecting the coordinates specified in Table 7 in numerical order and back to coordinate 1.
11. Additional VME protections are needed, therefore, recommends that the Commission consider the SC’s advice regarding additional area-based management measures to protect VMEs from SAI, and consider adopting additional measures if proposed at the 2021 Annual Meeting.

In regards to ABNJ Deep Sea Fisheries Project,

12. Recommends the Commission support the ABNJ Deep Sea Fisheries Project, including offering in-kind support from NAFO.

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In regards to Sargasso Sea Commission,

13. Recommends the Commission support the development of an MOU between the Sargasso Sea Commission Secretariat and NAFO Secretariat.

11. Adoption of the report

The report was adopted via correspondence.

12. Adjournment

The meeting was adjourned at 12:30 (Atlantic Daylight Time in Halifax, Nova Scotia) on 20 July 2021.

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Annex 2. Agenda

1. Opening by the co-Chairs, Andrew Kenny (United Kingdom) and Elizabethann Mencher (USA)
2. Appointment of Rapporteur
3. Adoption of Agenda
4. Review of the August 2020 recommendations (COM-SC Doc. 20-06)
5. Presentation and discussion of SC responses to Commission requests for advice (COM Doc. 20-16 and SCS Doc. 21-14) relevant to EAFFM
 - a. Commission Request # 6 – Re-assessment of NAFO bottom fisheries and analysis of potential management options (VME closures)
 - b. Commission Request # 7 – Taxa list in NAFO CEM Annex I.E. Part VI as reflected in COMSC EAFFM-WP 18-01
 - c. Commission Request # 5 – Ecosystem Road Map
 - d. Commission Request # 18 – 3M and 3LNO Ecosystem Summary Sheets
6. Update on the WG-EAFFM Workshop (2022), including the Open Dialogue Meeting (September 2021)
7. Review/Revision of NAFO CEM Chapter 2 Provisions
8. Implementation of 2018 Performance Review Panel recommendations
 - a. Input regarding data classification and access rights of the NAFO websites
9. Other Matters
 - a. Proposed Memorandum of Understanding (MoU) with the Sargasso Sea Commission
 - b. Update on the possible renewal of the ABNJ Deep-Seas Fisheries Project
 - c. Joint ICES/IUCN workshop on OECMs – NAFO sponge VMED case study
 - d. Other International Relations
10. Recommendations
11. Adoption of the Report
12. Adjournment

Annex 3. Location of existing VME closures, extensions and new closures and removals as proposed by SC

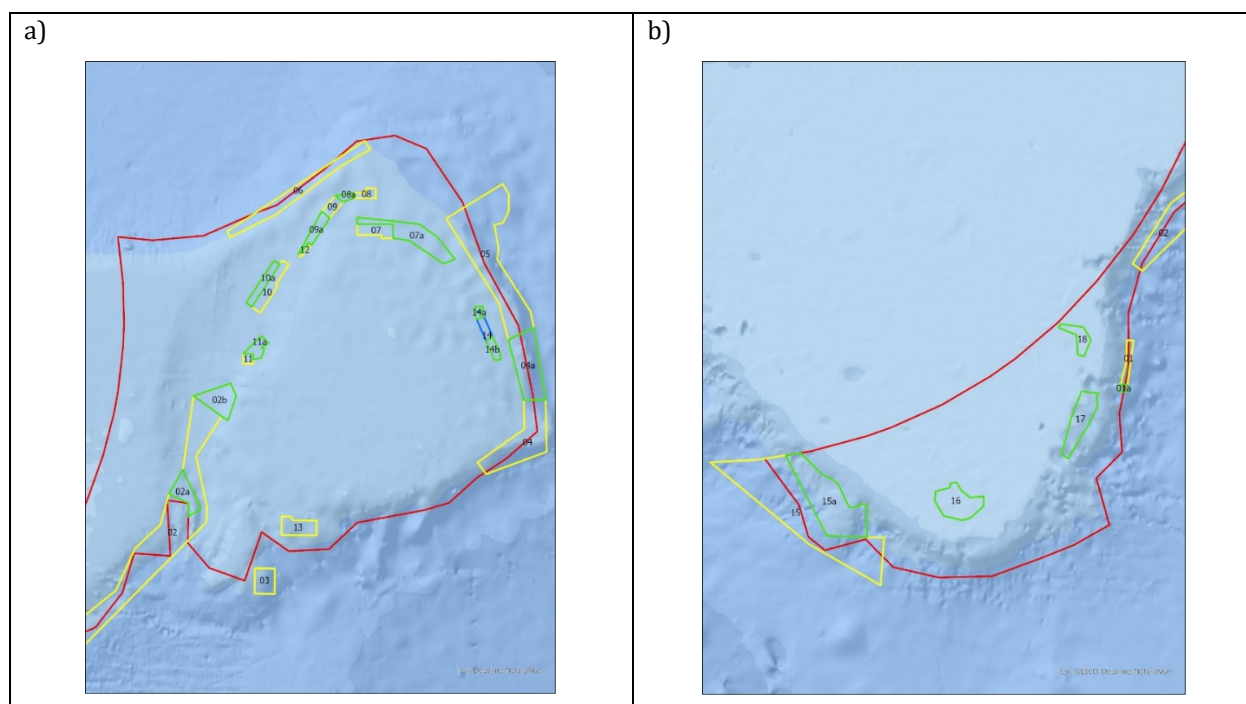


Figure 1. Location of existing closures (in yellow) proposed extensions and new closures (in green), and removals (in blue) in a) the northern, and b) the southern portions of the NRA. The fishing footprint is indicated in red. Numerals represent existing or proposed new closures; number-letter combinations represent extensions or modifications to existing closures. (Source: SCS Doc 21-14)

Annex 4. Biomass protection levels with the proposed changes in the VME closures**Biomass Protected**

Existing Closures = 25%

All Proposal Areas = 77%

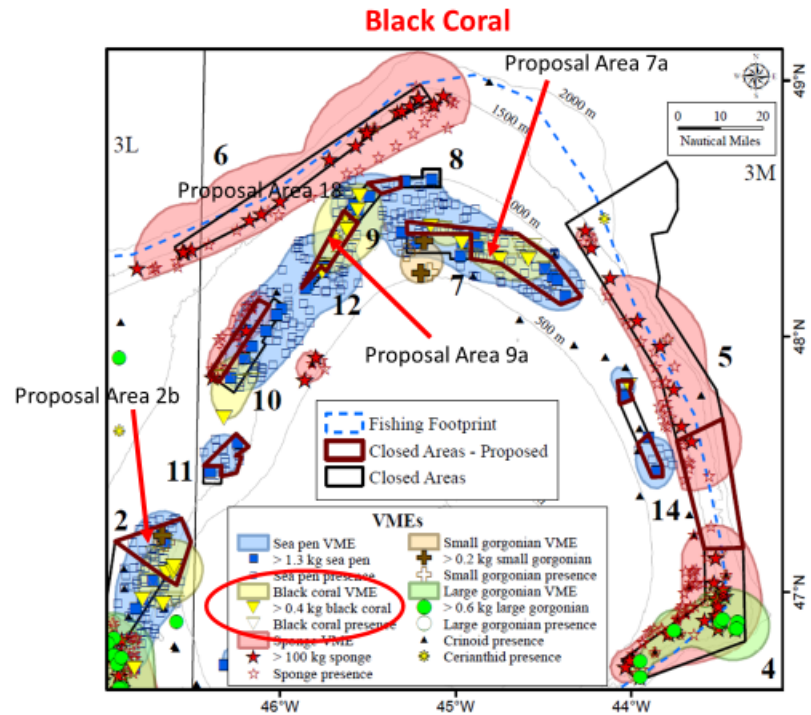
Proposal 7a = 10%

Proposal 2b = 5%

Proposal 9a = 36%

Total
Protection with
7a, 9a and 2b = 77%

Low Risk

**Erect Bryozoans****Biomass Protected**

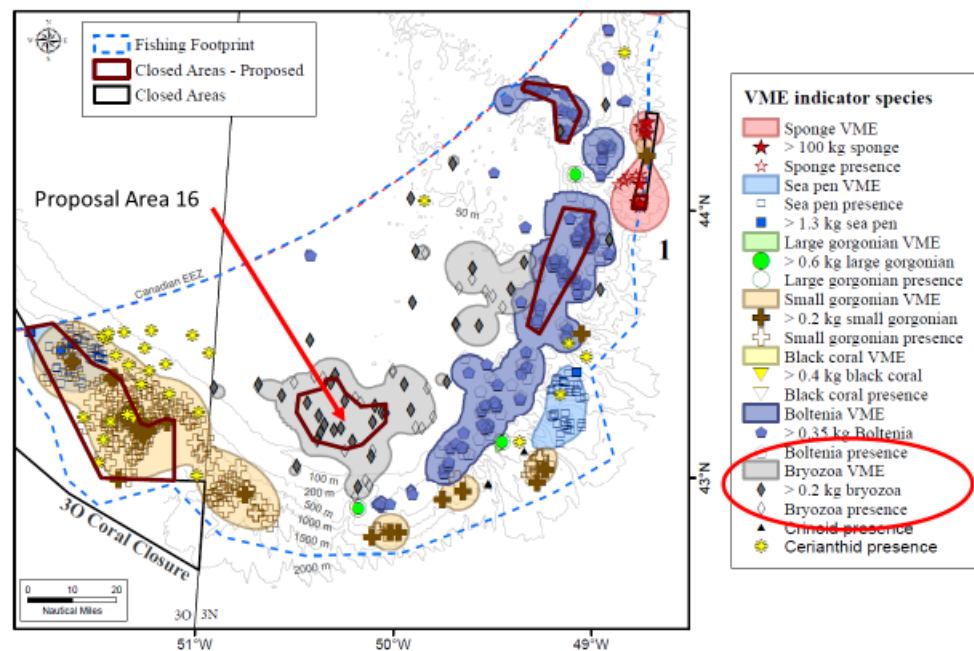
Existing Closures = 0%

All Proposal Areas = 78%

Proposal 16 = 78%

Total
Protection with
16 = 78%

Low Risk



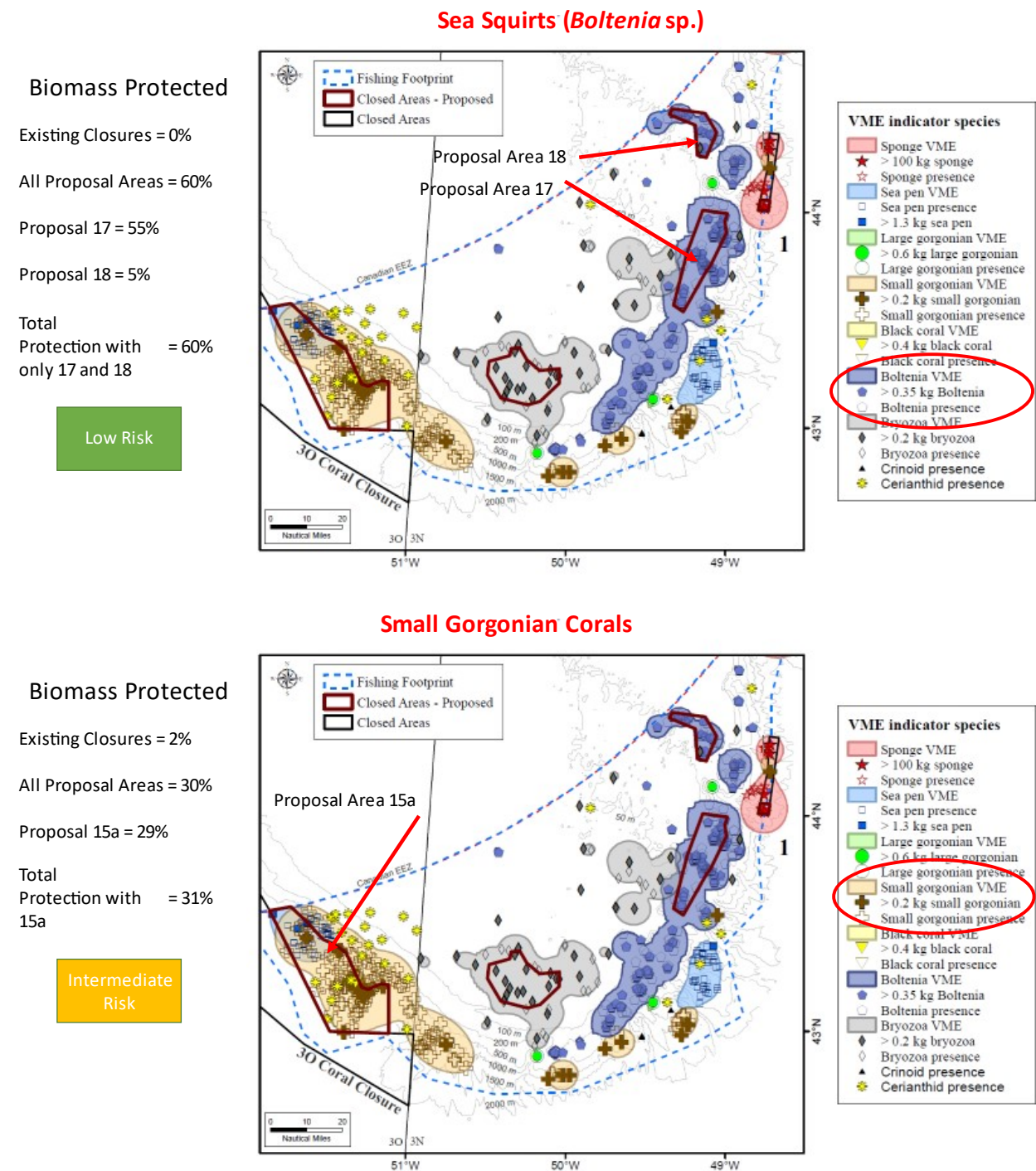


Figure 2. Biomass protection levels of black coral, erect bryozoans, sea squirts, and small gorgonians with the proposed changes in the VME closures.

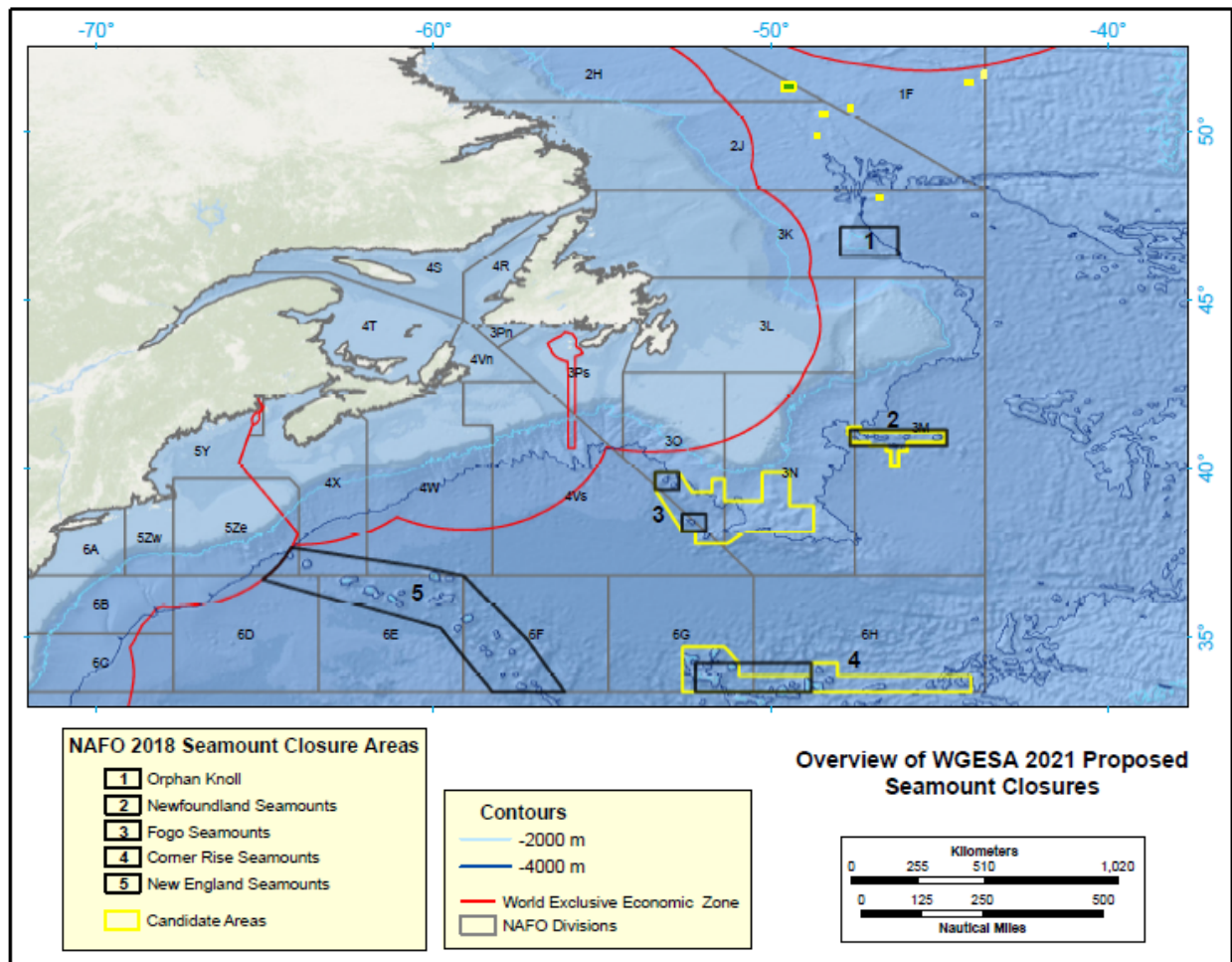
Annex 5. Location of existing seamount closures and proposed changes

Figure 3. Location of the seamount areas in the NAFO Regulatory Area with current closures indicated in black outline (SCS Doc. 20/14). Proposed changes and new closures are indicated by yellow lines.

Annex 6. Updated List of VME Indicator Species for inclusion in Part. VI, Annex I.E of the NCEM

List of VME Indicator Species

Common Name and FAO ASFIS 3- ALPHA CODE	Taxon	Family	FAO ASFIS 3-ALPHA CODE
Large-Sized Sponges (PFR - Porifera)	<i>Asconema foliatum</i>	Rossellidae	ZBA
	<i>Aphrocallistes beatrice</i>	Aphrocallistidae	
	<i>Asbestopluma (Asbestopluma) ruetzleri</i>	Cladorhizidae	ZAB (Asbestopluma)
	<i>Axinella</i> sp.	Axinellidae	
	<i>Chondrocladia grandis</i>	Cladorhizidae	ZHD (Chondrocladia)
	<i>Cladorhiza abyssicola</i>	Cladorhizidae	ZCH (Cladorhiza)
	<i>Cladorhiza kenchingtonae</i>	Cladorhizidae	ZCH (Cladorhiza)
	<i>Craniella</i> spp.	Tetillidae	ZCS (Craniella spp.)
	<i>Dictyaulus romani</i>	Euplectellidae	ZDY (Dictyaulus)
	<i>Esperiopsis villosa</i>	Esperiopsidae	ZEW
	<i>Forcepia</i> spp.	Coelosphaeridae	ZFR
	<i>Geodia barretti</i>	Geodiidae	
	<i>Geodia macandrewii</i>	Geodiidae	
	<i>Geodia parva</i>	Geodiidae	
	<i>Geodia phlegraei</i>	Geodiidae	
	<i>Haliclona</i> sp.	Chalinidae	ZHL
	<i>Iophon piceum</i>	Acarinidae	WJP
	<i>Isodictya palmata</i>	Isodictyidae	
	<i>Lissodendoryx (Lissodendoryx) complicata</i>	Coelosphaeridae	ZDD
	<i>Mycale (Mycale) lingua</i>	Mycalidae	YHL (Mycale lingua)
	<i>Mycale (Mycale) loveni</i>	Mycalidae	
	<i>Phakellia</i> sp.	Axinellidae	
	<i>Polymastia</i> spp.	Polymastiidae	ZPY
	<i>Stelletta normani</i>	Ancorinidae	WSX (Stelletta)
	<i>Stelletta tuberosa</i>	Ancorinidae	WSX (Stelletta)
	<i>Stryphnus fortis</i>	Ancorinidae	WPH
	<i>Thenea muricata</i>	Pachastrellidae	ZTH (Thenea)

Common Name and FAO ASFIS 3- ALPHA CODE	Taxon	Family	FAO ASFIS 3-ALPHA CODE
	<i>Thena valdiviae</i>	Pachastrellidae	ZTH (Thenia)
	<i>Weberella bursa</i>	Polymastiidae	ZWB (Weberella spp.)
Stony Corals (CSS - Scleractinia)	<i>Enallopsammia rostrata</i>	Dendrophylliidae	FEY
	<i>Lophelia pertusa</i>	Caryophylliidae	LWS
	<i>Madrepora oculata</i>	Oculinidae	MVI
	<i>Solenosmilia variabilis</i>	Caryophylliidae	RZT
	<i>Stichopathes</i> sp.	Antipathidae	QYX
Black corals (AQZ- Antipatharia)	<i>Leiopathes</i> cf. <i>expansa</i>	Leiopathidae	
	<i>Leiopathes</i> sp.	Leiopathidae	
	<i>Plumapathes</i> sp.	Myriopathidae	
	<i>Bathypathes</i> cf. <i>patula</i>	Schizopathidae	
	<i>Parantipathes</i> sp.	Schizopathidae	
	<i>Stauropathes arctica</i>	Schizopathidae	SQW
	<i>Stauropathes</i> cf. <i>punctata</i>	Schizopathidae	
	<i>Telopathes magnus</i>	Schizopathidae	
Small Gorgonians (GGW)	<i>Acanella arbuscula</i>	Isididae	KQL (Acanella)
	<i>Anthothela grandiflora</i>	Anthothelidae	WAG
	<i>Chrysogorgia</i> sp.	Chrysogorgiidae	FHX
	<i>Metallogorgia melanotrichos</i>	Chrysogorgiidae	QFY (Chrysogorgiidae)
	<i>Narella laxa</i>	Primnoidae	QON (Primnoidae)
	<i>Radicipes gracilis</i>	Chrysogorgiidae	CZN
	<i>Swiftia</i> sp.	Plexauridae	
Large Gorgonians (GGW)	<i>Acanthogorgia armata</i>	Acanthogorgiidae	AZC
	<i>Calyptraphora</i> sp.	Primnoidae	QON (Primnoidae)
	<i>Hemicorallium bathyrubrum</i>	Coralliidae	COR (Corallium)
	<i>Hemicorallium bayer</i>	Coralliidae	COR (Corallium)
	<i>Iridogorgia</i> sp.	Chrysogorgiidae	QFY (Chrysogorgiidae)

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Common Name and FAO ASFIS 3- ALPHA CODE	Taxon	Family	FAO ASFIS 3-ALPHA CODE
	<i>Keratoisis</i>	cf. Isididae	IQO (Isididae)
	<i>siemensii</i>		
	<i>Keratoisis grayi</i>	Isididae	IQO (Isididae)
	<i>Lepidisis</i> sp.	Isididae	QFX (Lepidisis)
	<i>Paragorgia arborea</i>	Paragorgiidae	BFU
	<i>Paragorgia</i>	Paragorgiidae	BFV
	<i>johnsoni</i>		
	<i>Paramuricea</i>	Plexauridae	PZL (Paramuricea)
	<i>grandis</i>		
	<i>Paramuricea</i>	Plexauridae	PZL (Paramuricea)
	<i>placomus</i>		
	<i>Paramuricea</i> spp.	Plexauridae	PZL (Paramuricea)
	<i>Parastenella</i>	Primnoidae	QON (Primnoidae)
	<i>atlantica</i>		
	<i>Placogorgia</i> sp.	Plexauridae	
	<i>Placogorgia</i>	Plexauridae	
	<i>terceira</i>		
	<i>Primnoa</i>	Primnoidae	QOE
	<i>resedaeformis</i>		
	<i>Thouarella</i>	Primnoidae	QON (Primnoidae)
	<i>(Euthouarella)</i>		
	<i>grasshoffi</i>		
	<i>Anthoptilum</i>	Anthoptilidae	AJG (Anthoptilum)
	<i>grandiflorum</i>		
	<i>Distichoptilum</i>	Protoptilidae	WDG
	<i>gracile</i>		
	<i>Funiculina</i>	Funiculinidae	FQJ
	<i>quadrangularis</i>		
	<i>Halipteris</i> cf. <i>christii</i>	Halipteridae	ZHX (Halipteris)
	<i>Halipteris</i>	Halipteridae	HFM
	<i>finmarchica</i>		
Sea Pens (NTW – Pennatulacea)	<i>Halipteris</i> sp.	Halipteridae	ZHX (Halipteris)
	<i>Kophobelemnnon</i>	Kophobelemnidae	KVF
	<i>stelliferum</i>		
	<i>Pennatula aculeata</i>	Pennatulidae	QAC
	<i>Ptilella</i> spp.	Pennatulidae	
	<i>Pennatula</i> sp.	Pennatulidae	
	<i>Protoptilum</i>	Protoptilidae	
	<i>carpenteri</i>		
	<i>Umbellula lindahli</i>	Umbellulidae	OJZ (Umbellula spp)
	<i>Virgularia mirabilis</i>	Virgulariidae	
Tube-Dwelling Anemones	<i>Pachycerianthus</i>	Cerianthidae	WQB
	<i>borealis</i>		

Common Name and FAO ASFIS 3- ALPHA CODE	Taxon	Family	FAO ASFIS 3-ALPHA CODE
Erect Bryozoans (BZN – Bryozoa)	<i>Eucratea loricata</i>	Eucrateidae	WEL
	<i>Conocrinus lofotensis</i>	Bourgueticrinidae	WCF
Sea Lilies (CWD – Crinoidea)	<i>Gephyrocrinus grimaldii</i>	Hyocrinidae	
	<i>Trichometra cubensis</i>	Antedonidae	
Sea Squirts (SSX – Asciacea)	<i>Boltenia ovifera</i>	Pyuridae	WBO
	<i>Halocynthia aurantium</i>	Pyuridae	
Unlikely to be observed in trawls; <i>in situ</i> observations only:			
Large xenophyophores	<i>Syringamina</i> sp.	Syringamminidae	

Annex 7. Discussion Points in relation to Total Catch Indices and Possible Management Actions

- TCIs (and Ecosystem Summary Sheets) are *strategic* – link to **2-3 year assessment cycle**
- TACs for multiple stocks involve trade-offs among CPs through allocation tables
- Some possible operational solutions (looking for more from managers)
 1. When functional group is approaching 2TCI (Σ TACs) during assessment cycle
 - a. Change probabilities of exceeding Limit Reference Points (LRPs) in single species assessment projections to reduce risk of exceeding 2TCI
 - b. Apply to all stocks in functional group during assessment cycle (2-3 y)
 2. When exceeding 2TCI during assessment cycle
 - a. Apply penalty (2TCI/ Σ TACs) to all projected TACs for stocks in functional group during assessment cycle (2-3 y)
 - b. Consider historical TACs/biomass from Ecosystem Summary Sheets
 3. Use multispecies models to evaluate interaction among stock and consequences to TACs – prioritize model development