

Northwest Atlantic Fisheries Organization



**Report of the Fisheries Commission and Scientific Council
Working Group on the Ecosystem Approach Framework to Fisheries Management**

9-11 July 2014
Halifax, Nova Scotia, Canada

NAFO
Dartmouth, N.S., Canada
2014

Report of Fisheries Commission and Scientific Council Working Group on the Ecosystem Approach Framework to Fisheries Management

**9-11 July 2014
Halifax, NS, Canada**

1. Opening.....	4
2. Appointment of Rapporteur	4
3. Adoption of Agenda	4
4. Review of Terms of Reference	4
5. Engagement with Canada-Newfoundland and Labrador Offshore Petroleum Board	4
6. Consideration of Scientific Advice	5
a) Review of Vulnerable Marine Ecosystems (VMEs) and fishery closures.....	5
i. Summary of data available for identification of VMEs (Request 13a)	5
ii. Occurrence of sea pens around Areas 13 and 14 (Request 15)	5
iii. Extent of current closures and areas for prioritization (Request 13b)	6
iv. Consideration of removing candidate VME closures from survey design (Request 14)	7
b) Significant Adverse Impact (SAI) on VME elements	7
i. Risk assessment for SAI on VME elements and species (Request 12)	7
ii. Workplan towards the assessment of NAFO bottom fisheries by 2016.....	7
7. Review of the provisions of Chapter II: – Bottom Fisheries in the NAFO Regulatory Area --- of the NAFO Conservation and Enforcement Measures (NCEM) for the implementation of Article 24; and recommendations to the Fisheries Commission	7
8. Input and guidance on the development and application of Ecosystems Approach to Fisheries (EAF) Roadmap	8
a) Overview of the EAF Roadmap: purpose and goals	8
b) Operational expectations	8
c) Consideration of workplan and prioritization.....	8
9. Recommendations to forward to Fisheries Commission and Scientific Council.....	8
10. Other Matters	9
a) Corner Rise Seamount and the Alfonsino fisheries	9
b) Convention on Biological Diversity	9
c) Dr Enrique de Cardenas (Quique) Retirement.....	9
11. Adoption of Report	10
12. Adjournment.....	10
Annex 1. List of Participants	11
Annex 2. Agenda.....	13
Annex 3. Proposed Revised Terms of Reference – Joint Fisheries Commission-Scientific Council Working Group on Ecosystem Approach Framework to Fisheries Management (FC/SC EAFFM WP 14/03)	14

Annex 4. SC Presentation: The SC EAF Roadmap	16
Annex 5. Workplan and Prioritization of the EAF Roadmap.....	30
Annex 6. Working Maps in relation to Recommendations 6, 7, and 8 (FC/SC EAFFM WP 14/04).....	31
Agenda 7. Presentation by the Russian Federation: Corner Rise Seamount Splendid Alfonsino Fisheries	36
Annex 8. Presentation by Canada: CBD and EBSA in the Northwest Atlantic	38
Annex 9. Dr Enrique de Cardenas (Quique) Retirement.....	41

Report of Fisheries Commission and Scientific Council Working Group on the Ecosystem Approach Framework to Fisheries Management

**9-11 July 2014
Halifax, NS, Canada**

1. Opening

The working group (WG) met at the Lord Nelson, Halifax, Canada, during 9-11 July 2014. The meeting was attended by representatives from Canada, EU, Iceland, Japan, Norway, the Russian Federation and the United States of America. The NAFO Executive Secretary, Fisheries Commission (FC) Coordinator and Scientific Council (SC) Coordinator were in attendance. An observer from World Wildlife Fund was present. The meeting was co-chaired by Robert Day (Canada) and Andrew Kenny (EU) representing FC and SC, respectively (Annex 1).

The chairs opened the meeting at 0900 hrs on Wednesday, 9 July.

2. Appointment of Rapporteur

With the agreement of the WG, the FC Coordinator Ricardo Federizon and the SC Coordinator Neil Campbell were appointed as joint rapporteurs.

3. Adoption of Agenda

The previously circulated agenda was adopted with slight modification on the sequence of items: the old item 6.a.ii and 6.a.iii were reversed and item 8 was moved ahead of item 7. Russian Federation requested the opportunity to make a presentation on the splendid alfonsino fishery at the Corner Seamount. It was agreed it would be discussed under item 10. The adopted agenda is presented in Annex 2.

4. Review of Terms of Reference

The terms of reference of the WG as documented in FC Doc 13/19 were reviewed. The WG considered membership, work format, reporting procedures, observers and future meetings. Proposed revisions to the Terms of Reference (ToR) are presented in Annex 3. It incorporates the comments from SC during its June 2014 meeting and the recommendation recognizes the need to consider the Risk Based Management Strategies WG ToR to ensure coherence.

5. Engagement with Canada-Newfoundland and Labrador Offshore Petroleum Board

The FC co-chair provided an update on the NAFO submission (submission agreed to at the 2013 Annual Meeting) to the development of the Eastern Newfoundland Strategic Environment Assessment (SEA) which is being conducted by the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB). NAFO comments on the draft SEA were submitted in April 2014. The comments were drafted by the co-Chairs and endorsed by the General Council (GC).

The Secretariat informed participants that after the submission of the comments, additional fisheries information (previously published) were provided to C-NLOPB at their request.

The European Union noted that communication between their research vessel and C-NLOPB's seismic research company has occurred by exchanging details of planned surveys.

Japan noted the interaction between the seismic and fisheries surveys might have occurred in 2013, i.e. large noises by seismic surveys may have caused disruptions in the Greenland halibut surveys resulting in very low CPUE. Due to this low CPUE, SC in 2014 had declared “occurrence of exceptional circumstances” by following the Management Strategy Evaluation (MSE) protocol. Japan further noted that such potential detrimental influences should be monitored carefully.

The SEA is expected to be released in July and August. The WG will track the development of the SEA but will not itself engage directly in any future processes without direction from GC.

6. Consideration of Scientific Advice

a) Review of Vulnerable Marine Ecosystems (VMEs) and fishery closures

At the 2013 Annual Meeting, FC requested SC for scientific advice on VMEs. SC formulated the advice during its 2014 June Meeting (SCS Doc 14/17). The advice draws on the work of the SC WG on Ecosystem Science and Assessment which met in November 2013 (SCS Doc 13/24).

The SC co-chair presented the advice on behalf of SC.

i. Summary of data available for identification of VMEs (Request 13a)

The SC co-Chair presented the method of *kernel density analysis* and noted that currently the best approach in identifying VMEs is the application of this method on the data (the detailed metadata can be found in pages 36-38 of SCS Doc 14/17). This analysis identifies “hotspots” in the biomass distribution derived from research vessel trawl survey data, by looking at natural breaks in the spatial distribution associated with changes in local density. These natural breaks allow defining of significant area polygons. The method identifies potential areas of VMEs according to the definition, however has limited spatial resolution, in particular, the delineation of borders for the VME areas are uncertain. If to be used as a basis for making management decisions, e.g. on the closing or opening of areas, these results are to be regarded as a first step. It would be expected that depth contours, type of substrate, current and temperature fields, etc. will shape the fine scale boundary.

Significant discussion ensued on clarifying how the kernel density approach was used to identify hotspots within which it was probable that VMEs would occur but did not actually delineate the boundaries of VMEs.

ii. Occurrence of sea pens around Areas 13 and 14 (Request 15)

SC advice: *The available data, including information from the 2013 EU-Spain and Portugal Flemish Cap survey, indicates that areas 13 and 14 are located within the easternmost seapen VME unit of the seapen VME system. Within this unit, three high concentration locations have been identified, two corresponding to the candidate closures, and a third one located in between them, as well as several seapen observations of lower density. This seapen VME unit also encompasses locations of other VME indicator species (crinoids), as well as black corals.*

Details of this advice can be found in pages 52- 53 of the SCS Doc 14/17.

The WG noted that discussions on the candidate Areas 13 and 14 were initiated in the FC WG of Fishery Managers and Scientists on Vulnerable Marine Ecosystems (WGFMS-VME), the predecessor of this WG. The debate – whether the latest survey information and scientific advice warrant some VME protection management measures, e.g. closure, applied to candidate Areas 13 and 14 – remains unresolved. In this regard, the WG would recommend that FC and SC support the continuing analysis by this WG and that this does not preclude FC from considering possible closure if proposals are made at the Annual Meeting (see item 9).

iii. Extent of current closures and areas for prioritization (Request 13b)

The SC review of the current closures including seamounts is contained in pages 38 – 53 of SCS Doc 14/17. In the review new polygons were drawn indicating where the evidence of VMEs was located. It was emphasized that the polygons were not necessarily proposed closure boundaries but rather hot spots where VMEs could be located, as noted in 6.a.i.

Within the list comprising the current closures, a new area (Tail of the Grand Bank) and two candidate areas (Area 13 and 14), SC identified some high priority (Areas 3 and 4, candidate Areas 13 and 14, and the new area). The details of the existing closed area designation are described in Chapter II of the NAFO Conservation and Enforcement Measures (NCEM). Prioritization was based on multiple VME presence, approximate proportion of the VME that is protected, proximity to an existing area, proximity to high fishing activity, and areas with no current protection (page 50-51 of SCS Doc 14/17).

The WG noted significant protection of the identified VMEs has been achieved. Yet, some further work can be considered. The WG considered the SC priority list and took note of the presence of VME indicator species adjacent to the existing 30 closure. It was acknowledged area 30 and new area “Tail of the Grand Bank” in the list would entail considerable further work. As short term priorities, Areas 3 (Beothuk Knoll) and 4 (Eastern Flemish Cap) were recommended (see item 9).

Regarding the management recommendations on revised and new areas (Recommendation 6) and encounter thresholds (Recommendation 8), Japan noted: *Japan has some reservations and different views on these two issues (additional closed areas and threshold values), although Japan does not wish to block these recommendations. Japan basically prefers to apply “move-on rules with encounter thresholds” to protect SAI to VME for the following three reasons: (a) In NAFO Convention Area, there have been a number of sporadic and patchy closed areas, which make operations difficult. From recent meeting of the WG Bycatch, Discards and Selectivity, it was also anticipated that more fine scale time-area closed areas will be established to mitigate bycatch and discards in the near future. This may create further difficulty to conduct operations as vessels might mistakenly make operations in closed area. (b) At present, CCAMLR, SEAFO, NEAFC and NPFC (near future) effectively apply “move-on rules with encounter thresholds”, in addition to existing closed areas. Move-on rules are simple, i.e., vessels just keep away 2 nautical miles (NM) from the points where VME exceeding threshold values and then closed areas are instantaneously established and (c) Similar exercise has been also effectively in place in NAFO and Canada, i.e. 10 NM move-away-rule to avoid exploiting excess bycatch and discards.*

Regarding the seamount closures, it was noted the management regimes governing unfished bottom areas (as defined in Chapter II of the NCEM, outside of the fishing footprint) and fisheries in seamount areas are identical, i.e. both are subject to the exploratory bottom fishing protocol. As the fisheries associated with these areas might be different, consideration for different management regimes might be warranted.

In noting the SC advice on seamounts (see page 49-50 of SCS Doc 14/17), some debate has ensued as to whether management measures concerning fisheries stocks associated with seamounts may be warranted. The WG indicated that FC be mindful of the following points when considering the management of seamount fisheries:

- a. Some CPs proposed that all ongoing fisheries taking place on seamounts should require 100% observer coverage in light of the knowledge and information gaps of the use of midwater trawl on seamount. Some CPs noted that in practice this is currently the case,
- b. Some CPs proposed that any proposed new or expanded midwater trawl fishing activity on the NAFO seamounts outlined in Article 16.1, be subject to the exploratory fisheries protocol outlined in Article 18,
- c. Some CPs expressed a view that the splendid alfonsino fishery be subject to NAFO management.

iv. Consideration of removing candidate VME closures from survey design (Request 14)

SC reported limited progress on this issue. However, it has recognized the issue of scientific surveys potentially impacting VMEs. SC suggested some points for consideration in minimizing the risk of impacts (see page 52 of SCS Doc 14/17).

The WG noted that the pros and cons must be balanced: whereas repeated surveys might impact VMEs, the benefits of having long time-series scientific data should not be ignored. The WG encouraged SC to continue to explore measures to mitigate the risk of significant adverse impacts on VMEs from research surveys.

b) Significant Adverse Impact (SAI) on VME elements

i. Risk assessment for SAI on VME elements and species (Request 12)

The WG noted the following SC response to the FC request: *Scientific Council notes that work on significant adverse impacts on VME is on-going and that final results are not due until 2016, and indicates that good progress is been made. These analyses involved the production of fishery pressure layers based on VMS data, and VME biomass layers from RV surveys. Preliminary results indicated the important fractions of the recent effort are exerted in relatively small regions within the fishing footprint, and at least for some areas, this fishing effort seems to be concentrated in the near neighborhood of VMEs, suggesting a potential functional connection between some VMEs and commercially exploited fish species. This and other issues will continue to be explored as part of the process of developing the assessment of bottom fishing activities due in 2016. Specifically, the adopted approach has to be refined to take account of known and predicted VME habitat evaluated as part of the review of fishery closures* (see page 33 of the SCS Doc 14/17).

ii. Workplan towards the assessment of NAFO bottom fisheries by 2016

The WG noted the SC-developed workplan which can be found in page 32 of the SCS Doc 14/17. In the workplan, specific tasks, the relevant FAO criteria (the six factors to be addressed when determining the scale and SAI, as enumerated in paragraph 18 of the FAO *International Guidelines for the Management of Deep-Sea Fisheries in the High Seas*), approach, and the lead body (e.g. SC and its standing committees and working groups) are identified. This WG was identified as the lead in task 8 – proposed mitigation and management measures to be used to prevent SAI on VMEs.

The workplan was noted as being ambitious. SC clarified that many of the tasks identified in the table are in the various stages of accomplishment and that it can be considered that four or five criteria have already been fulfilled. The focus of SC work has been the review of VMEs and it is now moving into the SAI phase. The WG requested that SC continue to provide annual updates on progress of this review including the methods it is employing.

7. Review of the provisions of Chapter II: – Bottom Fisheries in the NAFO Regulatory Area --- of the NAFO Conservation and Enforcement Measures (NCEM) for the implementation of Article 24; and recommendations to the Fisheries Commission

The precursor of this WG, the FC WGFMS-VME, conducted a review and update on Chapter II provisions of the NCEM in 2012. STACTIC is also undertaking an editorial review of the provisions. The UN General Assembly will conduct a review of the implementations of Resolution 61/105 in 2015. In view of these, it was agreed that it would not be necessary at this time to conduct an in-depth review of the provisions that would entail substantive changes. Instead, the WG could focus on the time-sensitive provisions and determine whether they need to be updated accordingly. It was noted that the NCEM are updated on an annual basis to reflect decisions taken by FC at the annual meeting to update management measures. It was also noted that references in Chapter II of the NCEM to the precursor WG should be replaced with this WG.

Regarding STACTIC's editorial review of the provisions, Japan commented that the STACTIC proposed revision of Article 22.1.b and Article 22.2.b – concerning the SC's advice on the need for action, using the FAO *International Guidelines for the Management of Deep-Sea Fisheries in the High Seas* as a basis – weakens the role of the FAO

Guidelines. NAFO should follow the FAO Guidelines in defining and identifying VMEs as described in page 39 of the June 2014 SC Report. Japan suggested that this should be discussed in the forthcoming Annual Meeting at FC.

Recommendations 1-4 and 13-14 in item 9 relate to the considerations mentioned above.

8. Input and guidance on the development and application of Ecosystems Approach to Fisheries (EAF) Roadmap

a) Overview of the EAF Roadmap: purpose and goals

The FC Co-Chair highlighted sections in the amended NAFO convention, the FAO *Technical Guidelines for Responsible Fisheries: Fisheries Management-2. The Ecosystem Approach* and *2011 NAFO Performance Review Recommendations* which relate to EAF as a prelude to the SC's presentation of the EAF Roadmap.

A representative from SC presented the EAF Road Map (Annex 4).

b) Operational expectations

This sub-item was discussed together with sub-item a).

c) Consideration of workplan and prioritization

The WG noted the comprehensive coverage of the EAF Roadmap and of the workplan (see slides 8-17 in Annex 4). As a way forward, the WG noted that priorities need to be established to allow allocation of scarce resources. The intention was not to revise the road map but to identify areas for priority work to occur. In Annex 5, the recommended priority areas and their associated tasks were grouped into four headings and timelines were identified:

- External impacts on ecosystem productivity (medium term)
- VMEs and impact s of bottom fishing (ongoing to short term for VMEs, short term for SAI)
- Multispecies interactions (medium term)
- Bycatch and discards (short term, ongoing).

9. Recommendations to forward to Fisheries Commission and Scientific Council

Recognizing the ground-breaking work, significant achievements and ongoing efforts made by NAFO on the identification of VMEs and development of the ecosystem approach to fisheries management, the WG recommends:

1. That the FC maintains the delineated seamounts areas identified in Chapter II, Article 16.1 of the NCEM (Delete or amend "*Until 31 December 2014*").
2. That the FC maintains the Div. 30 closure identified in Chapter II, Article 16.4 of the NCEM (Delete or amend "*Until 31 December 2014*").
3. That the FC maintains the closures identified in Chapter II, Article 16.5 of the NCEM (Delete or amend "*Until 31 December 2014*").
4. That the FC considers deleting Article 16.6 recognizing that the NCEM are regularly updated and the ongoing review envisioned by Article 23.

5. That the FC considers deleting or amending Article 24 (Review) considering the ongoing review and update of the NCEM in general.
6. Recognizing that the scientific advice also noted some gaps in the protection of VMEs, that the FC considers adjustments to Area 4 (Southeastern Flemish Cap – sponge and large gorgonians), and new area 15 (Beothuk Knoll - large gorgonians) (see Annex 6 for maps).
7. That the FC and SC support continuing analysis by the WG of areas on the Tail of the Grand Bank (Div. 30 closure and related areas) (See Annex 6 for maps).
8. That the FC and SC support continuing analysis by the WG of areas 13 and 14 (Eastern Flemish Cap), and FC consider possible closed areas, if proposals are made at the Annual Meeting (see Annex 6 for maps).
9. That the FC further considers whether to withdraw the encounter thresholds within the fishing footprint, taking into account the scientific advice, the review of VME closures and the review of UNGA 61/105 in 2015.
10. That priority attention by FC and SC and their constituent bodies be given to the areas identified in Annex 5 that include external factors (e.g. climate change and oil and gas development), bycatch and discards, multispecies interactions, and VMEs including concluding the assessment of bottom fisheries for 2016.
11. That FC and SC consider the revised Terms of Reference at their September 2014 joint session and have FC and SC adopt the revisions in their respective meetings (see Annex 3). Consideration could also be given to making terms of reference consistent across all joint FC-SC working groups.
12. Request that the SC provide annual updates to the FC-SC Working Group on Ecosystem Approach Framework to Fisheries Management pertaining to the 2016 review of significant adverse impacts of NAFO bottom fisheries on VMEs in the NRA.
13. That the FC amend the text of the NCEM to reflect the replacement of the FC WG-VME with the Joint FC-SC WG-EAFFM,
14. Article 23.1 of the NCEM be rephrased such that the *“Fisheries Commission will request Scientific Council...”*.

10. Other Matters

a) Corner Rise Seamount and the Alfonsino fisheries

The Russian Federation made a presentation on Corner Rise Seamount and the alfonsino fisheries (Annex 7). The summary of the discussion arising from the presentation is also captured in item 6.a.iii.

b) Convention on Biological Diversity

At the request of WG participants, for information purposes, a Canadian representative presented the report of the Convention on Biological Diversity - Northwest Atlantic Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas which was held in Montreal Canada in March 2014 (Annex 8).

c) Dr Enrique de Cardenas (Quique) Retirement

It came to the attention of the WG that a colleague in the SC and in the NEREIDA project, Dr. Enrique de Cardenas, is about to retire. On behalf of the WG, Ricardo Alpoim, as well as the SC WG co-Chair and Ellen Kenchington, delivered

the best wishes greetings with the recognition of his significant contributions to the SC and the NEREIDA project (Annex 9).

11. Adoption of Report

This meeting report was adopted by correspondence.

12. Adjournment

The meeting adjourned at 1500 hrs on 11 July. The chairs thanked the participants for their cooperation and input and the Secretariat for its support. The participants in turn expressed their thanks to the Chairs for their leadership.

Annex 1. List of Participants**CANADA**

FC Co-Chair - Day, Robert, Director, International Fisheries Management and Bilateral Relation, Fisheries and Oceans
Canada, 200 Kent St., Ottawa, ON K1A 0E6
Phone: +613 991 6135 – Email: robert.day@dfo-mpo.gc.ca

Gilchrist, Brett, Senior International Fisheries Officer, International Fisheries Management and Bilateral Relation,
Fisheries and Oceans Canada, 200 Kent St., Ottawa, ON K1A 0E6
Phone: +1 613 991 0218 – Email: brett.gilchrist@dfo-mpo.gc.ca

Kenchington, Ellen, Fisheries and Oceans Canada, Bedford Institute of Oceanography (BIO), P. O. Box 1006, Dartmouth,
N.S. B2Y 4A2
Phone: +902-426-2030 – E-mail: ellen.kenchington@dfo-mpo.gc.ca

Koen-Alonso, Mariano, Science Br., Fisheries and Oceans Canada, P.O. Box 5667, St. John's, NL. A1C 5X1
Phone: +709-772-2047 – E-mail: mariano.koen-alonso@dfo-mpo.gc.ca

Walsh, Ray, Regional Manager, Fisheries Management, Fisheries and Oceans Canada, P.O. Box 5667, St. John's,
NL A1C 5X1
Phone: +709 772 4472 – Fax: +709 772 3628 – Email: ray.walsh@dfo-mpo.gc.ca

Chapman, Bruce, Executive Director, Groundfish Enterprise Allocation Council, 1362 Revell Drive, Manotick, Ontario
K4M 1K8 Phone: +613 692 8249 – Fax: +613 692 8250 – Email: bchapman@sympatico.ca

EUROPEAN UNION

Alpoim, Ricardo, Instituto Portugues do Mar e da Atmosfera, I.P. Av. de Brasilia, 1449-006 Lisbon, Portugal
Phone: +351 21 302 7000 – E-mail: ralpoim@ipma.pt

Batista, Emilia, Direcao-Geral de Recursos Naturais, Seguranca, Servicos Maritimos, Avenida
da Brasilia, 1449-030 Lisbon, Portugal
Phone: +351 742 3629 – Fax: +351 21 303 5922 – E-mail: ebatista@dgrm.mam.gov.pt

de Cardenas, Enrique, Secretariat General del Mar, Ministerio de Medio Ambiente y Medio Rural y Marino, Velázquez,
144, 28006 Madrid, Spain
Phone: +34 91 347 6110 – Fax: +34 91 347 6037 – Email: edecarde@magrama.es

Dross, Nicolas, International Relations Officer, International Affairs, Law of the Sea and Regional Fisheries
Organizations, European Commission, Directorate General for Fisheries and Maritime Affairs (DG MARE.B.1), Rue
Joseph II, 99, 1000 Brussels, Belgium
Phone: +32 2 298 0855 – Fax: +32 2 295 5700 – Email: nicolas.dross@ec.europa.eu

SC Co-Chair - Kenny, Andrew CEFAS, Lowestoft Laboratory, Pakefield Road, Lowestoft, Suffolk NR33 0HT, United
Kingdom
E-mail: andrew.kenny@cefasc.co.uk

Sacau-Cuadrado, Mar, Instituto Español de Oceanografía (IEO), E-36200 Vigo (Pontevedra)
Phone: +34 98 649 2111 – Fax: +34 98 649 86 26 – Email: mar.sacau@vi.ieo.es

Schuller, Herbert, European Commission, International Relations Officer, International Affairs, Law of the Sea and
Regional Fisheries Organisations Directorate General for Fisheries and Maritime Affairs Rue Joseph II, 99, 1049
Brussels, Belgium
Phone: +32 2 229 53892 – Fax: +32 2 229 55700 - Email: herbert.schuller@ec.europa.eu

Tuvi, Aare, Senior Officer, Fishery Resources Dept. Ministry of the Environment Ravala 8, 10143 Tallinn, Estonia
Phone: + (372) 6604 544 – Email: aare.tuvi@envir.ee

JAPAN

Nishida, Tsutomu (Tom), Assistant Researcher, National Research Institute of Far Seas Fisheries, Fisheries Research Agency, 5-7-1, Orido, Shimizu-Ward, Shizuoka-City, Shizuoka 424-8633
Phone/Fax : +81 54 336 6052 – Email : tnishida@affrc.go.jp

Okuda, Takehiro, Research Scientist, National Research Institute of Far Seas Fisheries, Fisheries Research Agency, 2-12-4, Fukuura, Kanazawa-ku, Yokohama, 236-8648, Japan
Phone/Fax : +81 45 788 7504 – Email : okudy@affrc.go.jp

ICELAND

Benediktsdóttir, Brynhildur, Special Adviser, Department of International Affairs, Ministry of Industry and Innovation, Skulagata 4, 150 Reykjavik
Phone: +354 545 8300 – Fax: +354 552 1160 – Email: brynhildur.benediktsdottir@anr.is

NORWAY

Bergstad, Odd Aksel, Principal Research Scientist, Institute of Marine Research Flødevigen, N-4817 His
Phone: +47 37 05 90 19 – Fax: +47 37 05 90 01 – Email: odd.aksel.bergstad@imr.no

Palmason, Snorri, Senior Adviser, Directorate of Fisheries, P. O. Box 2009 Nordnes, NO-5817 Bergen
Phone: +47 55 23 80 00 / 8394 – Fax: +47 55 23 80 90 – Email: snorri.palmason@fiskeridir.no

RUSSIAN FEDERATION

Fomin, Konstantin, Knipovich Polar Research Institute of Marine Fisheries and Oceanography (PINRO), 6 Knipovich St., Murmansk 183763
Phone: +7 8152 436 177 – E-mail: fomin@pinro.ru

Savchenko, Igor, Representative of the Federal Agency for Fisheries of the Russian Federation in Canada, 5885 Cunard Street, Apt. 1206, Halifax, NS, B3K 1E3
Email: pr-canada@fishcom.ru

USA

Moran, Patrick, Foreign Affairs Specialist, Office of International Affairs (F/IA), National Marine Fisheries Service, U.S. Dept. of Commerce, 1315 East-West Hwy., Silver Spring, MD 20910
Phone: 301-427-8370 – Fax: 301-713-2313 – Email: pat.moran@noaa.gov

Warner-Kramer, Deirdre, Senior Foreign Affairs Officer, Office of Marine Conservation (OES/OMC), Department of State, Washington, DC 20520
Phone +1 202 647 2883 – Fax: +1 202 736 7350 – Email: warner-kramerdm@state.gov

OBSERVERS

Diz, Daniela, Consultant, Conservation Approaches, WWF-Canada, Atlantic Region, 5251 Duke St. Suite 1202, Halifax, NS, Canada B3J 1P3
Phone: +902 482-1105 ext. 23 E-mail: ddiz@wwfcanada.org

NAFO SECRETARIAT

Kingston, Fred, Executive Secretary
Campbell, Neil, Scientific Council Coordinator
Federizon, Ricardo, Senior Fisheries Commission Coordinator
Lefort, Lisa, Executive Assistant to the Executive Secretary
Marshall, Barbara, Senior Information Officer
Murazzi, Mariel, NAFO Intern

fkingston@nafo.int
ncampbell@nafo.int
rfederizon@nafo.int
llefort@nafo.int
bmarshall@nafo.int

Annex 2. Agenda

1. Opening
2. Appointment of Rapporteur
3. Adoption of Agenda
4. Review of Terms of Reference
5. Engagement with Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB): Update and possible next steps
6. Consideration of Scientific Advice
 - a) Review of Vulnerable Marine Ecosystems (VMEs) and fishery closures
 - i. Summary of data available for identification of VMEs (Request 13a)
 - ii. Occurrence of sea pens around Areas 13 and 14 (Request 15)
 - iii. Extent of current closures and areas for prioritization (Request 13b) – Management responses to the available information
 - iv. Consideration of removing candidate VME closures from survey design (Request 14)
 - b) Significant Adverse Impact (SAI) on VME elements
 - i. Risk assessment for SAI on VME elements and species (Request 12)
 - ii. Workplan towards the assessment of NAFO bottom fisheries by 2016
7. Review of the provisions of Chapter II – Bottom Fisheries in the NAFO Regulatory Area --- of the NAFO Conservation and Enforcement Measures (NCEM) for the implementation of Article 24; and recommendations to the Fisheries Commission
8. Input and guidance on the development and application of Ecosystems Approach to Fisheries (EAF) Roadmap
 - a) Overview of the EAF Roadmap: purpose and goals
 - b) Operational expectations
 - c) Consideration of workplan and prioritization
9. Recommendations to forward to Fisheries Commission and Scientific Council
10. Other Matters
 - a) Corner Rise Seamount Splendid Alfonsino fisheries
 - b) Convention on Biological Diversity
 - c) Dr Enrique Cardenas Retirement
11. Adoption of Report
12. Adjournment

Annex 3. Proposed Revised Terms of Reference – Joint Fisheries Commission-Scientific Council Working Group on Ecosystem Approach Framework to Fisheries Management (FC/SC EAFFM WP 14/03)

Structure:

The Working Group on Ecosystem Approach Framework to Fisheries Management reports to both the Fisheries Commission and Scientific Council; considers the advice of Scientific Council; and provides recommendations to Fisheries Commission.

The Working Group shall be comprised of fishery managers and scientists from Contracting Parties supported by experts and advisors. The work form shall be an open forum/dialogue, unless the contracting parties, under the guidance of the co-chairs, decide to conduct sessions in a delegation format.

Recommendations to Fisheries Commission be developed through formal sessions of official delegations. If the Working Group breaks from plenary session and reverts to delegation for the purpose of drafting recommendations, individual scientists would remain as part of their delegations and SC as a whole would be represented by the SC Chair or a designated alternate.

The Co-Chairs shall be selected from participating fishery managers and scientists with both a fishery manager and a scientist represented in the two positions.

Accredited observers may attend meetings of the working group. Participation will be subject to the *NAFO Rules of Procedure*.

If a Contracting Party so requests, particular agenda items of the meeting, or parts thereof, shall be restricted to delegates representing Contracting Parties and Scientific Council. A total of up to two persons per non-governmental organizations that have been given the right to participate as observers shall be permitted.

Objective:

The main objective of the Working Group is to make recommendations to the Fisheries Commission and feedback to Scientific Council on the development and effective implementation of ecosystems approaches to fisheries management.

Specific Duties:

In responding to requests for advice and recommendations from the Fisheries Commission, considering the associated advice of Scientific Council, the Working Group shall:

- Provide input/ guidance on the development and application of the Ecosystems Approach to Fisheries (EAF) Roadmap, including defining objectives and establishing priorities.
 - Recommending appropriate ecosystem-based management areas,
 - Considering ecosystem status, functioning and dynamics of NAFO marine ecosystems, including species interactions,
 - Considering the effect of activities other than fishing that may impact the stocks and fisheries in the NAFO Area,
 - Analyzing the way other RFMOs address the need to conserve biodiversity and advise on a possible strategy for biodiversity.
- Make recommendations on mitigation strategies and measures to avoid significant adverse impacts ~~of bottom fishing activities~~ on vulnerable marine ecosystems, including the evaluation of associated risks.
- Review area closures and other measures outlined in the NAFO Conservation and Enforcement Measures (NCEMs) with specific timelines.
- Collaborate with Scientific Council on the assessment/ reassessment of NAFO bottom fisheries.

- Provide recommendations to Fisheries Commission in relation to requests to conduct exploratory bottom fishing and/ or evaluation of previously authorized exploratory fishing activities.
- Provide recommendations for updating the NCEMs in relation to EAF including the text in Chapter II (Bottom Fisheries in the NAFO Regulatory Area) and any associated Annexes (e.g. the Exploratory Protocol - Annex I.E), as necessary.

Meetings:

Meetings may be held at the request of the Chairs of Fisheries Commission and/or the Scientific Council, in consultation with Contracting Parties and the NAFO Secretariat.

Whenever possible, meetings of the Working Group—Timing should occur after the June Scientific Council meeting and prior to the NAFO annual meeting. ~~be decided on a case by case basis.~~

The working group shall communicate regularly through teleconferences and electronically, as required.

Reporting out

The Working Group will issue a written report (advice and any necessary follow-up such as areas for further advice from SC) to the Fisheries Commission and the Scientific Council.

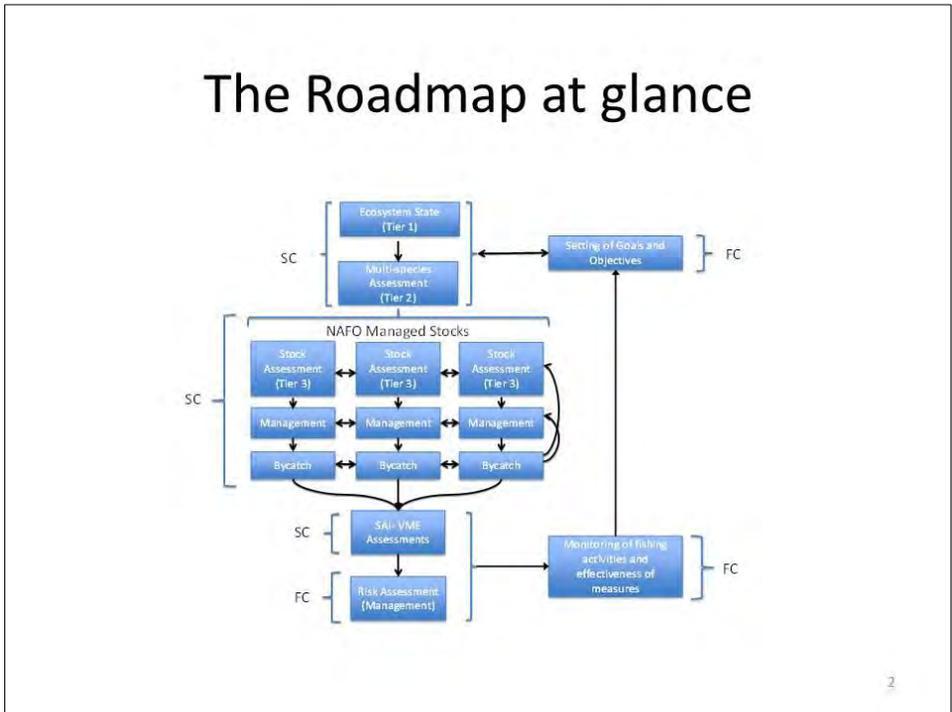
An oral update can be provided to both SC and FC during their~~the~~ annual meetings.

Annex 4. SC Presentation: The SC EAF Roadmap

Roadmap to EAF

FC-SC WGEAFFM
July 9-11, 2014

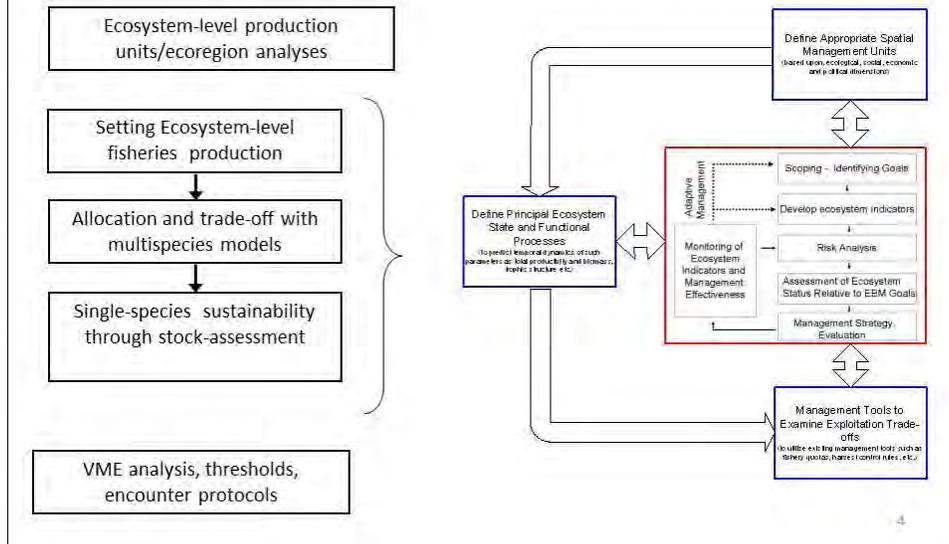
1

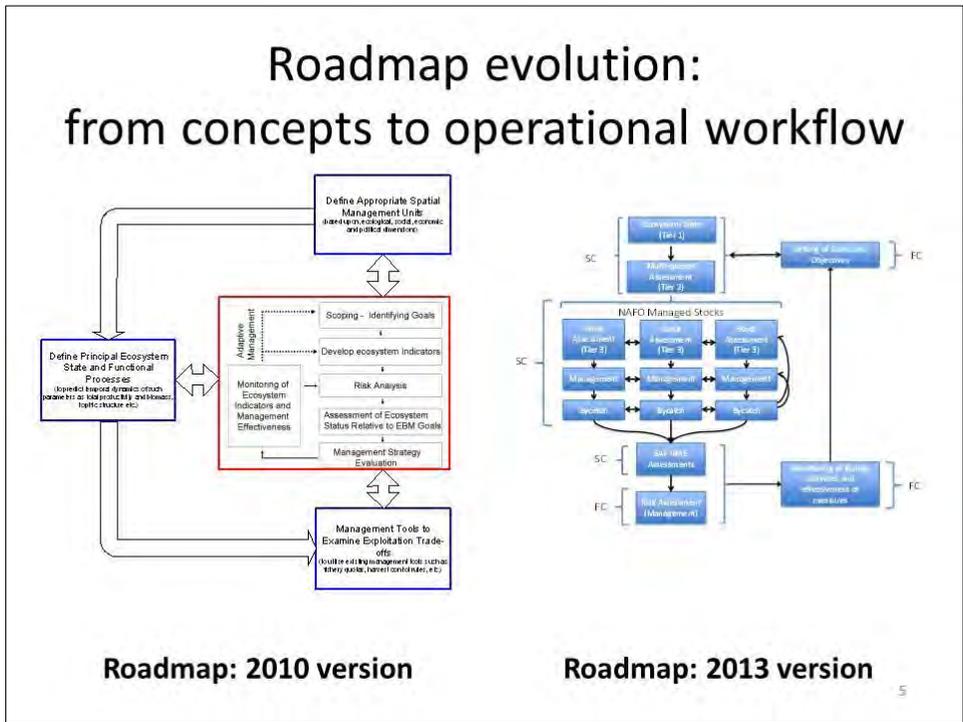


A bit of history

- Creation of SC WGEAFM in 2007
 - New convention and Ecosystem Approach
- First SC WGEAFM meeting in 2008
 - Original agenda replaced by VMEs as a priority
- VMEs took a focal role for SC WGEAFM, but EAF continues to be developed
- 2010 SC WGEAFM meeting in Vigo
 - First incarnation of the Roadmap
 - Endorsed by SC in June 2010
 - Based on the concept of Integrated Ecosystem Assessment (Levin et al. 2009)
- Work on Roadmap components is ongoing
- 2013 SC June meeting
 - Most recent incarnation of the Roadmap (described in the response to FC Request #13 in the SC June 2013 Report)

Roadmap: 1st Iteration





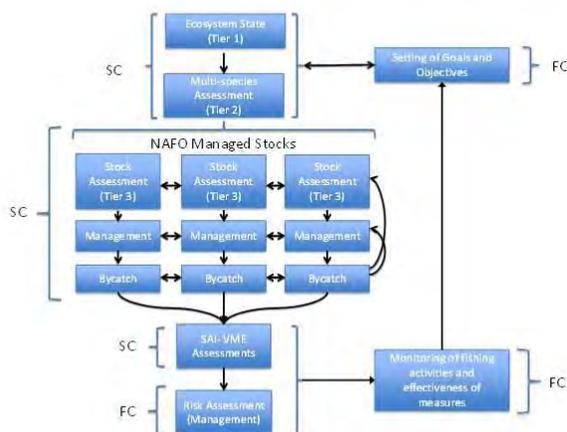
- ## Roadmap: what is and what is not
- The “Roadmap” lays out the organizing framework to develop an EAF for NAFO. It is not a fixed plan; as its name indicates, it is a guiding set of ideas whose details evolve as it is developed and implemented.
 - It is a framework that includes **both** Scientific Council and Fisheries Commission.
 - Scientific Council has made progress on many aspects of the Roadmap, although there are still **gaps** that need to be addressed (see Table 2 in 2013 SC June Report for details). Limited human resources and funding support impose limits to the pace at which many of the studies required to support the roadmap can be carried out.
 - Required inputs from Fisheries Commission include, among others, ‘**goal setting**’ (e.g. defining explicit ecosystem objectives, developing governance mechanisms to discuss/set multispecies objectives), and ‘**monitoring**’ (e.g. developing mechanisms to ensure the availability of catch information for both commercial and non-commercial species); ‘**risk assessment**’ would also require important input from Fisheries Commission.
- E

Main Roadmap features

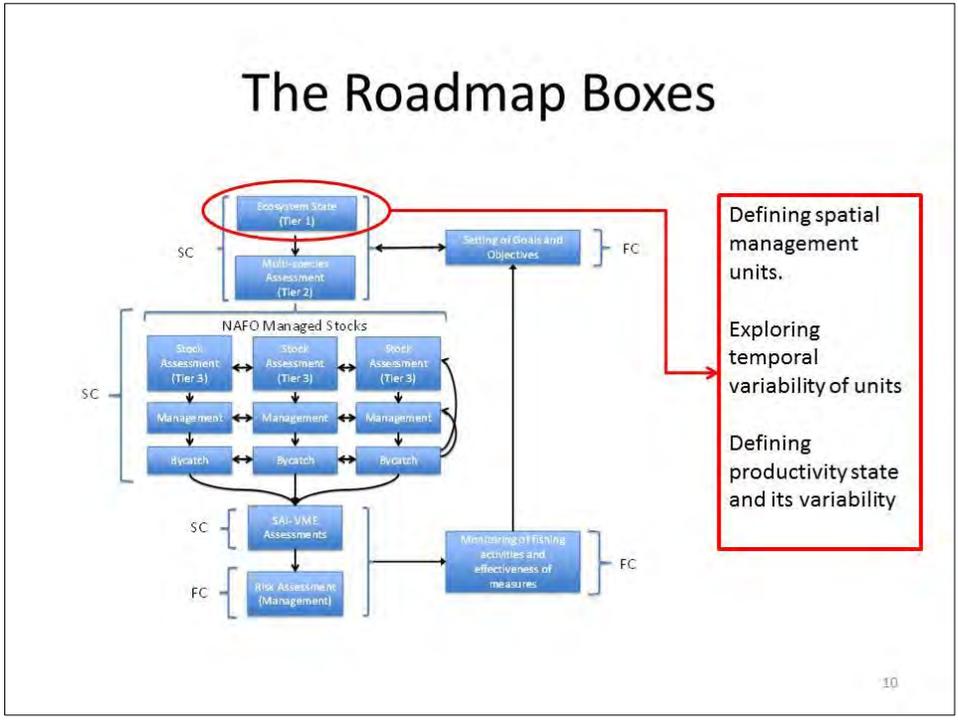
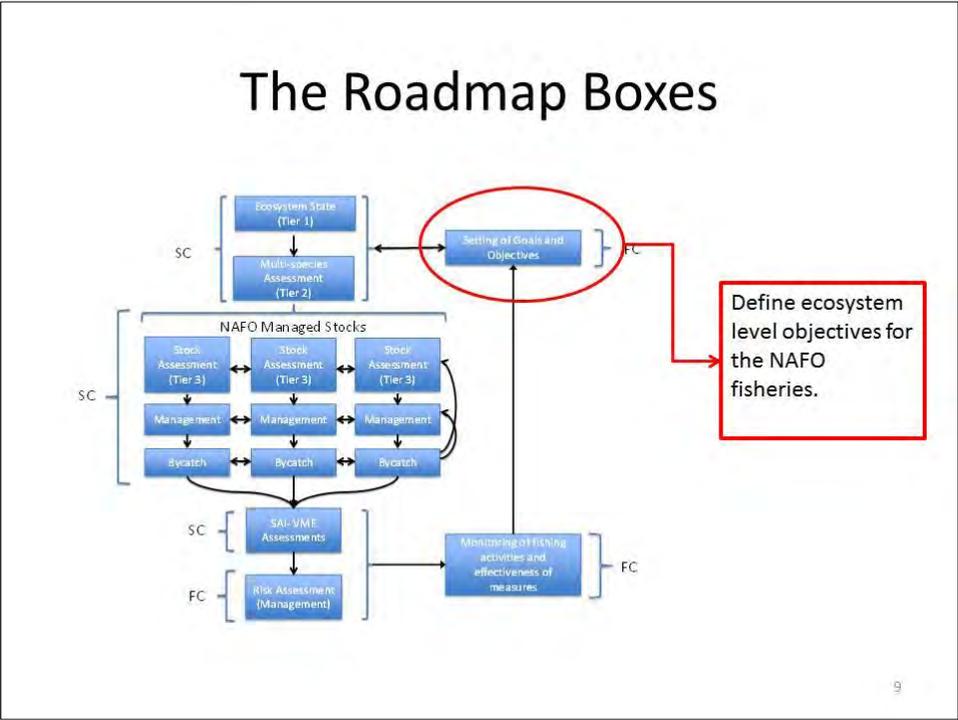
- Core Roadmap premises are:
 - a) the approach is objective-driven,
 - b) it considers long-term ecosystem sustainability,
 - c) it is a place-based framework, and
 - d) trade-offs are explicitly addressed.
- Sustainability of exploitation is achieved through a 3-tier hierarchy:
 - Tier 1- ecosystem sustainability (total fisheries production; "TAC" at ecosystem level)
 - Tier 2- multispecies sustainability (multispecies assessments; trade-offs among fisheries)
 - Tier 3- stock sustainability (single species stock assessments; ensures that exploitation rates derived from Tiers 1 and 2 are consistent with stock characteristics).
- Integration of impacts of fisheries on benthic communities (e.g. VMEs)
 - Assessment of Significant Adverse Impact (SAIs) on VMEs by bottom fishing activities.
 - Analysis of fishing impacts on benthic ecosystems.

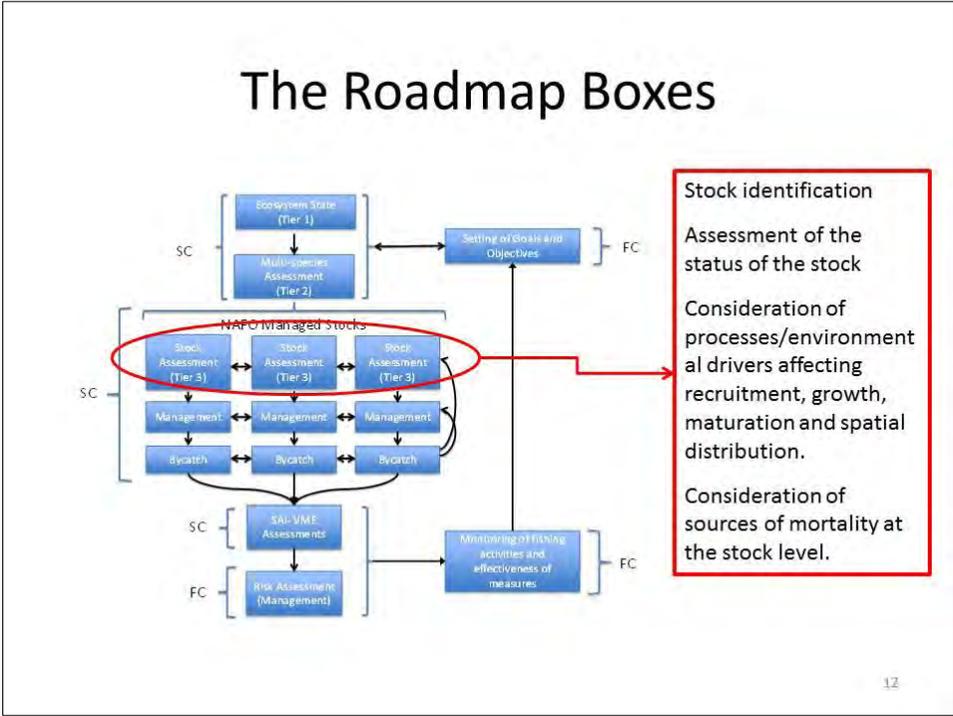
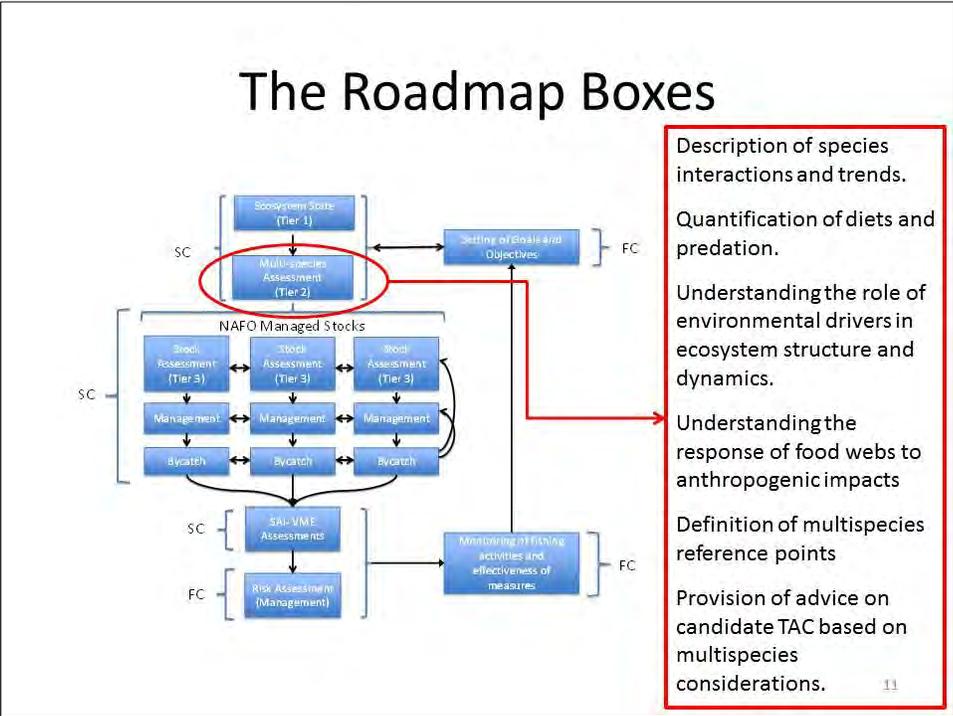
7

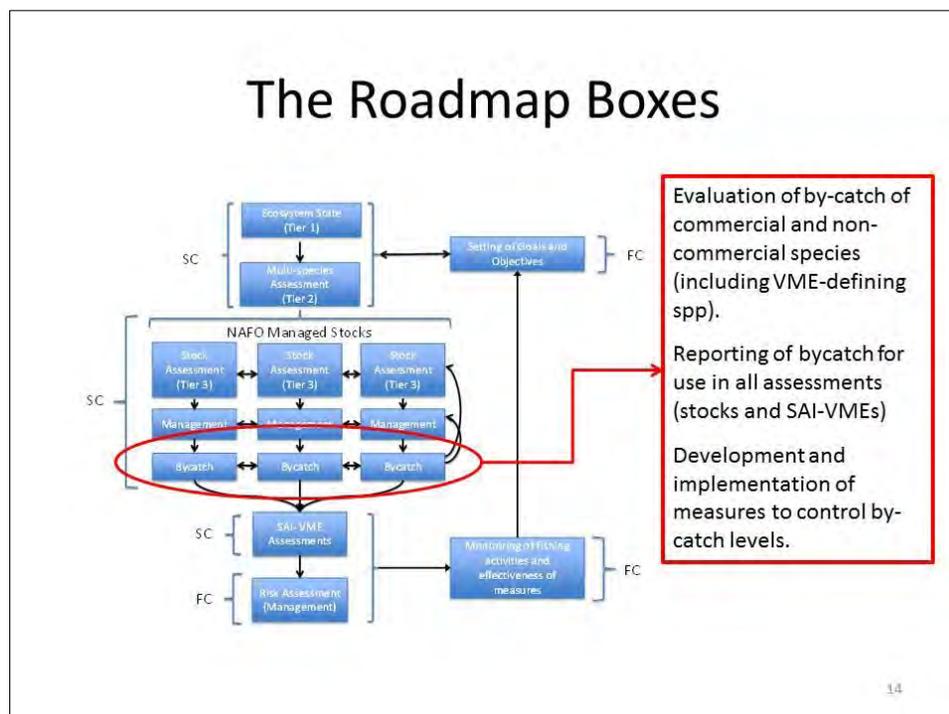
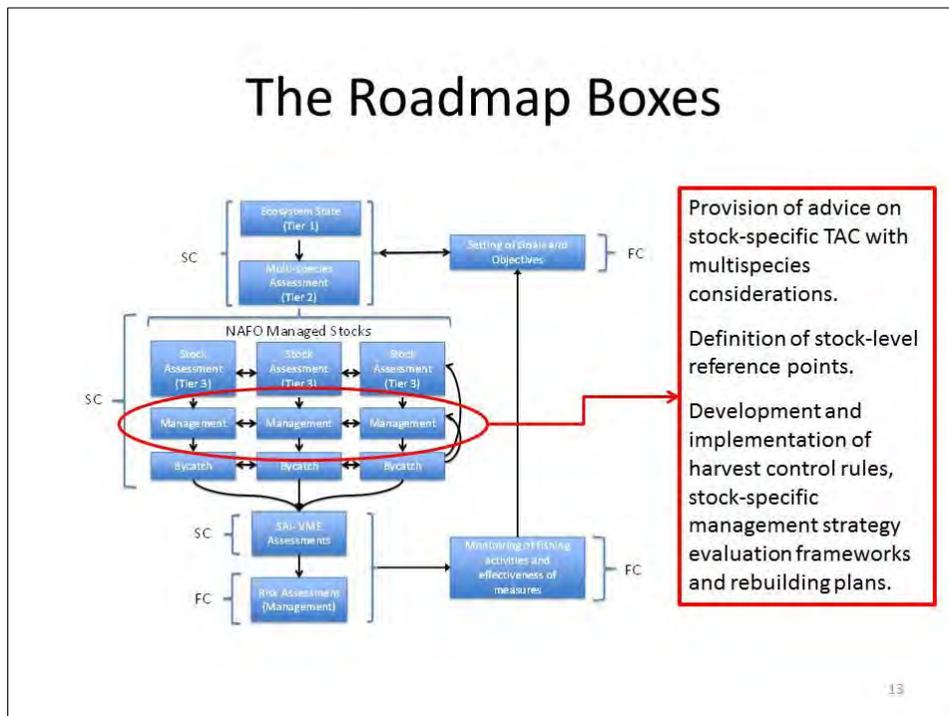
The Roadmap Boxes

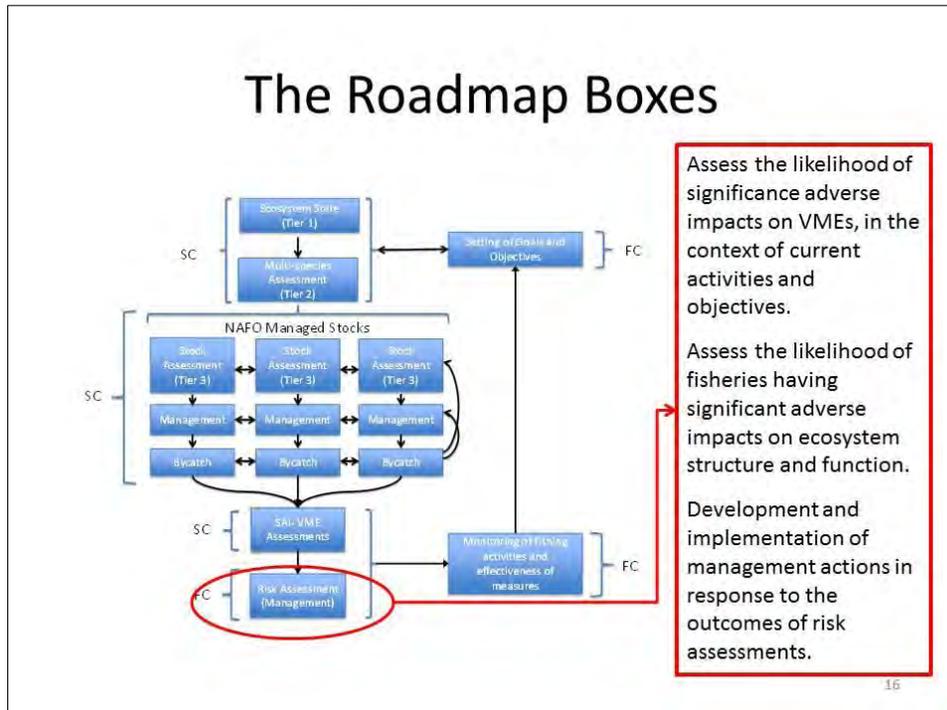
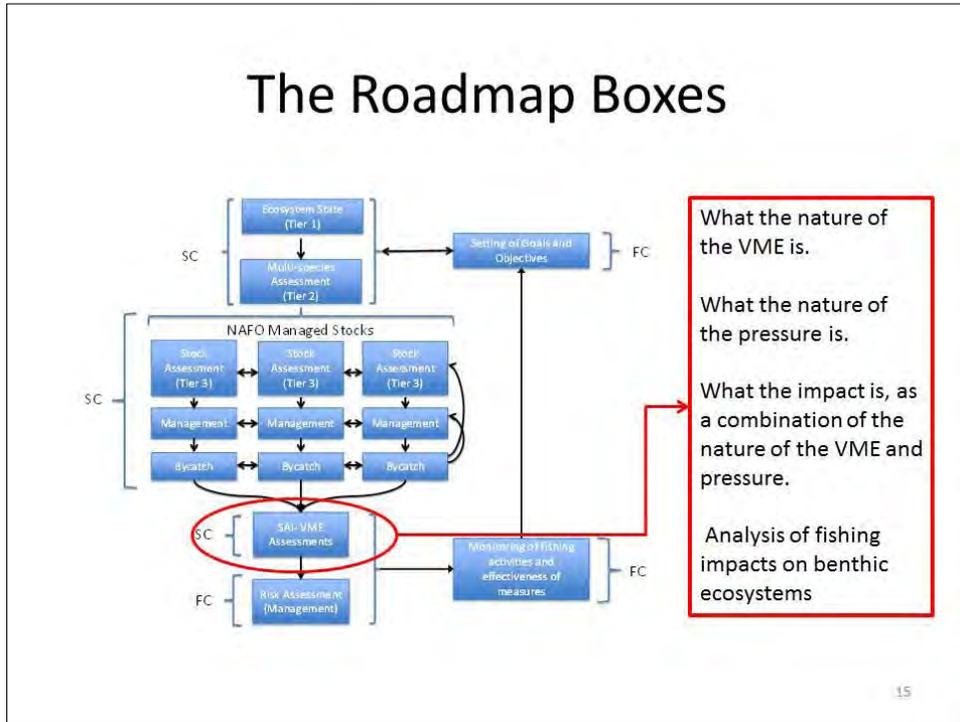


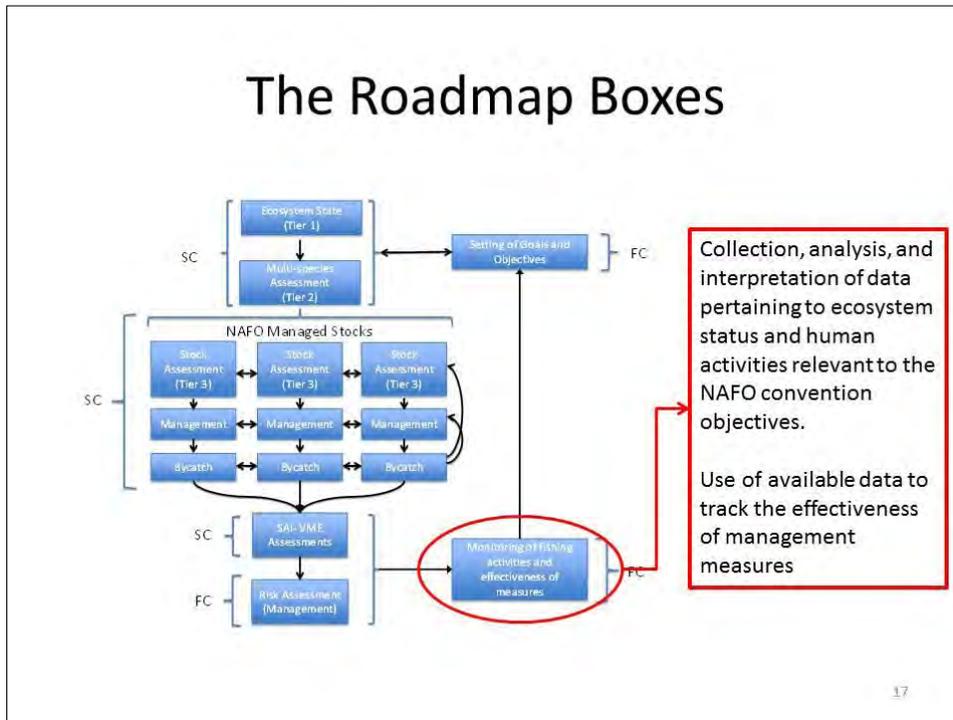
8











Roadmap Progress

Box	Done	To Be Done	Critical Gaps
Goal setting			
Define ecosystem level objectives for the NAFO fisheries.	Initial discussions on the implications of species interactions in setting TAC for species in the Flemish Cap. Acknowledgement of the role of trophic interactions in the context of management of fisheries directed to these spp. [more to be added by FC, and SC-FC WGs]	Development of governance mechanisms to discuss and set multispecies objectives. [more to be added by FC, and SC-FC WGs]	Lack of explicit objectives. [more to be added by FC, and SC-FC WGs]

18

Roadmap Progress

Box	Done	To Be Done	Critical Gaps
Ecosystem State			
Defining spatial management units.	Ecoregion analyses for Newfoundland and Labrador, Flemish Cap, Atlantic US, and partially on Scotian shelf.	Integrate ecoregion analysis across NAFO convention area.	Consideration of the broader set of climate change impacts
Exploring temporal variability of units	Some candidate ecosystem-level management units identified.	Correspondence between stock boundaries and candidate ecosystem management units.	Better integration of environmental and oceanographic information (e.g. STACFEN work).
Defining productivity state and its variability	Preliminary Fisheries Production Potential models for Newfoundland and Labrador, Flemish Cap, and Scotian Shelf; studies on this topic are also available for the Atlantic US.	Consideration of different scales and how to integrate them	Incorporation of northern NAFO divisions (0 and 1)

Roadmap Progress

Box	Done	To Be Done	Critical Gaps
Ecosystem State (continuation)			
	Preliminary Aggregate Biomass Production models for Newfoundland and Labrador, Flemish Cap; studies on this topic are also available for Scotian Shelf and Atlantic US.	Identification of ranges of variability in the past compared to present.	Incorporation of oceanic waters (i.e. open ocean ecosystems)
	Initial studies linking elements of productivity and environmental drivers in Newfoundland and Labrador, and Flemish Cap; studies on this topic are also available for Scotian Shelf and Atlantic US.	Improved Fisheries Production Potential and Aggregate Biomass models.	More comprehensive consideration of top predators (seabirds, sharks, seals, and cetaceans).
		Integrate environmental drivers into models of ecosystem productivity.	Developing more specific/functional connections and collaborations with ICES Working Group on the Northwest Atlantic Regional Sea (WGNARS)

Roadmap Progress

Box	Done	To Be Done	Critical Gaps
Multispecies assessment			
Description of species interactions and trends.	Studies of food habits in Flemish Cap and Newfoundland and Labrador; studies on this topic are also available for Scotian Shelf and Atlantic US.	Improving multispecies modelling for Flemish Cap.	Considerations of environmental drivers and species interactions on reproductive potential (e.g. integration of the NAFO SC WGRP work)
Quantification of diets and predation.	Preliminary modelling of key species in the Flemish Cap.	Developing preliminary multispecies models for Newfoundland and Labrador.	Enhanced participation and incorporation of information from Scotian Shelf and US
Understanding the role of environmental drivers in ecosystem structure and dynamics	Testing specific hypothesis of bottom-up and top-down regulation in Newfoundland and Labrador	Improved characterization of diets and its variability in space and time	Developing more specific/functional connections and collaborations with ICES Working Group on the Northwest Atlantic Regional Sea (WGNARS)

Roadmap Progress

Box	Done	To Be Done	Critical Gaps
Multispecies assessment (continuation)			
Understanding the response of food webs to anthropogenic impacts	Studies of common trends among multiple stocks in Flemish Cap, and Newfoundland and Labrador; studies on this topic are also available for Scotian Shelf and Atlantic US	Improved/additional estimation of consumption/predation for key stocks	
Definition of multispecies reference points	Estimation of consumption/predation for some stocks	Improved understanding of the linkage between lower trophic level characteristics and dynamics and fish production.	
Provision of advice on candidate TAC based on multispecies considerations.		Study the role of environmental drivers in the regulation and structure of food webs.	

Roadmap Progress

Box	Done	To Be Done	Critical Gaps
Stock Assessment			
Stock identification	Current single-species assessments	Development and/or improvement of assessment models.	Reliable estimates of fishery catches and stock indicators for their use in stock and ecosystem assessments.
Assessment of the status of the stock	Some shrimp assessments include predation	Inclusion of predation in more assessments	Improve integration between stock-assessments and ecosystem analyses.
Consideration of processes/environmental drivers affecting recruitment, growth, maturation and spatial distribution.	Redfish assessment has considered the impact of predation in setting natural mortality.		
Consideration of sources of mortality at the stock level			

Roadmap Progress

Box	Done	To Be Done	Critical Gaps
Management			
Provision of advice on stock-specific TAC with multispecies considerations.	Provision of current TAC advice on NAFO stocks	Development of rebuilding plans for more stocks.	Definition of explicit management objectives for each stock.
Definition of stock-level reference points.	Precautionary Approach framework and reference points for some stocks	-Further development of reference points. Revision of the precautionary approach framework	Consideration of stock specific management objectives in the context of ecosystem objectives
Development and implementation of harvest control rules, stock-specific management strategy evaluation frameworks and rebuilding plans	Management strategy evaluation approach for Greenland halibut. Rebuilding plans for some stocks are under development	Complete rebuilding plans (including harvest control rules) Develop mechanisms to link and evaluate TAC from multispecies candidates.	
	[more to be added by FC, and SC-FC wgs]	[more to be added by FC, and SC-FC wgs]	[more to be added by FC, and SC-FC wgs]

Roadmap Progress (a): general description of progress to date

Box	Done	To Be Done	Critical Gaps
By-catch			
Evaluation of by-catch of commercial and non-commercial species (including VME-defining spp).	Compilation of available information of bycatch by fishery for commercial spp.	Incorporation of non-commercial spp (including VME-defining spp)	Lack of full catch information for both commercial and non-commercial spp, including VME-defining spp, on a tow-by-tow basis
Reporting of bycatch for use in all assessments (stocks and SAI-VMEs)	Suite of management measures associated with by-catch (e.g. limits of spp under moratoria in directed fisheries)	Improve reliability of catch information. Link tow position with catch information (e.g. full use of VMS data for scientific analysis)	
Development and implementation of measures to control by-catch levels.	Adoption of the catch reporting tow-by-tow	Develop comprehensive approach to report bycatch across fisheries and make available to NAFO bodies for their inclusion in analyses.	
	[more to be added by FC, and SC-FC wgs]	[more to be added by FC, and SC-FC wgs]	[more to be added by FC, and SC-FC wgs]

25

Roadmap Progress

Box	Done	To Be Done	Critical Gaps
Assessment of Significant Adverse Impacts (SAI) on VMEs	Identification and mapping of VME elements and indicator species.	Assess VME resilience	Lack of full catch information for both commercial and non-commercial spp, including VME-defining spp, on a tow-by-tow basis
What the nature of the VME is.	Identification and review of impacts on seabed.	Integration of macro and megafauna data layers	
What the nature of the pressure is.	Assessment of distribution and intensity of fishing activity (including initial evaluation of cumulative pressure from fishing), taking into account the type of fishery, gear employed, etc.	Determine the status of VMEs as essential fish habitats.	Understanding the functional relationships between VMEs and fisheries yields.
What the impact is, as a combination of the nature of the VME and pressure.		Assessment of current closures for the protection of high concentrations of VME-indicator spp by 2014.	Determining what proportion of VMEs is optimal in a given fishery (i.e. how much VME we need to protect)
Analysis of fishing impacts on benthic ecosystems	Modelling VME indicator sp by-catch. Modelling VME presence.	Fisheries assessments regarding their impacts on VMEs (i.e. first assessments by 2016)	How VME closures relate to other human activities, and how these interactions may affect fisheries and fisheries resources.
	Evaluating criteria for VME indicator spp.		

26

Roadmap Progress

Box	Done	To Be Done	Critical Gaps
Risk Assessment			
Assess the likelihood of significance adverse impacts on VMEs, in the context of current activities and objectives.	Development of selected VME-indicator spp maps, showing the risk of bottom fishing impacts.	Continue the development and implementation of management measures to minimize or prevent SAI on VMEs	Develop, design, and implement a strategy to assess risk at the ecosystem level.
Assess the likelihood of fisheries having significant adverse impacts on ecosystem structure and function.	Implementation of closed areas for the protection of high concentration of selected VME-indicator spp.	Develop guideline to ensure consistent application of risk assessment criteria in the context of current activities and objectives.	Ensure full interaction between all NAFO bodies to define risks in a manner that is acceptable and properly understood by all.
Development and implementation of management actions in response to the outcomes of risk assessments	Implementation of closed areas for the protection of physical VME elements. Implementation of encounter protocols for selected VME-indicator spp		
	[more to be added by FC, and SC-FC wgs]	[more to be added by FC, and SC-FC wgs]	[more to be added by FC, and SC-FC wgs]

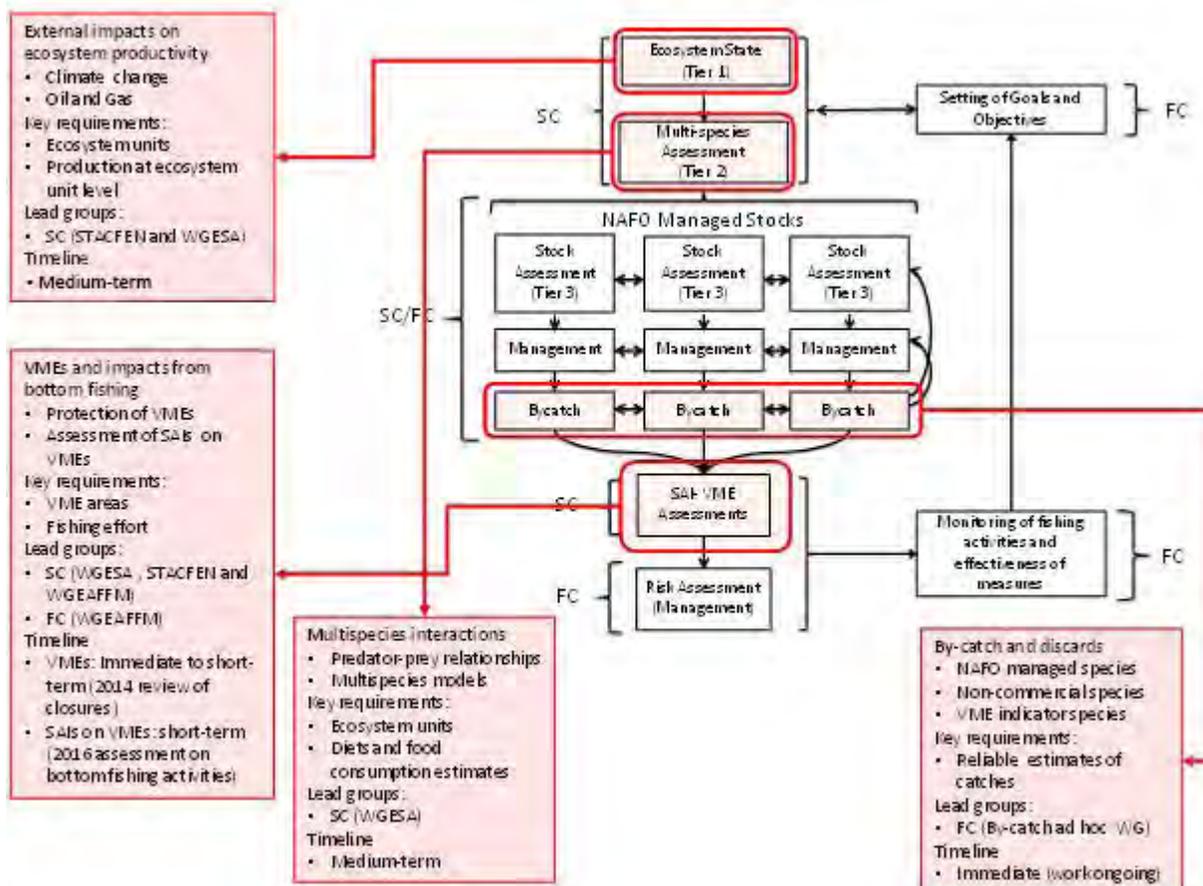
27

Roadmap Progress

Box	Done	To Be Done	Critical Gaps
Monitoring			
Collection, analysis, and interpretation of data pertaining to ecosystem status and human activities relevant to the NAFO convention objectives.	RV surveys (stock status, ecosystem interactions, etc) VMS (fishing footprint, intensity of fishing, compliance of management regulations)	Improve/enhance collection of scientific information on non-commercial spp in RV surveys Improve reliability of catch information from commercial fleets	Lack of full catch information for both commercial and non-commercial spp, including VME-defining spp, on a tow-by-tow basis Basic scientific information lacking in some areas (e.g. seamounts, northern areas)
Use of available data to track the effectiveness of management measures	NAFO and scientific observer programs	Link tow position with catch information (e.g. full use of VMS data for scientific analysis) Develop and integrated way to summarize and track fleet composition and activities.	Basic scientific data are very limited for some ecosystem components (e.g. epipelagic and bathypelagic zones).
	[more to be added by FC, and SC-FC wgs]	[more to be added by FC, and SC-FC wgs]	[more to be added by FC, and SC-FC wgs]

28

Annex 5. Workplan and Prioritization of the EAF Roadmap



Annex 6. Working Maps in relation to Recommendations 6, 7, and 8
(FC/SC EAFFM WP 14/04)

The following is a compilation of working maps that were circulated during the meeting. The compilation includes SC maps showing Areas 3 and 4 and Candidate Areas 13 and 14 derived from kernel density analysis. The compilation may expand in further consideration of the recommendations.

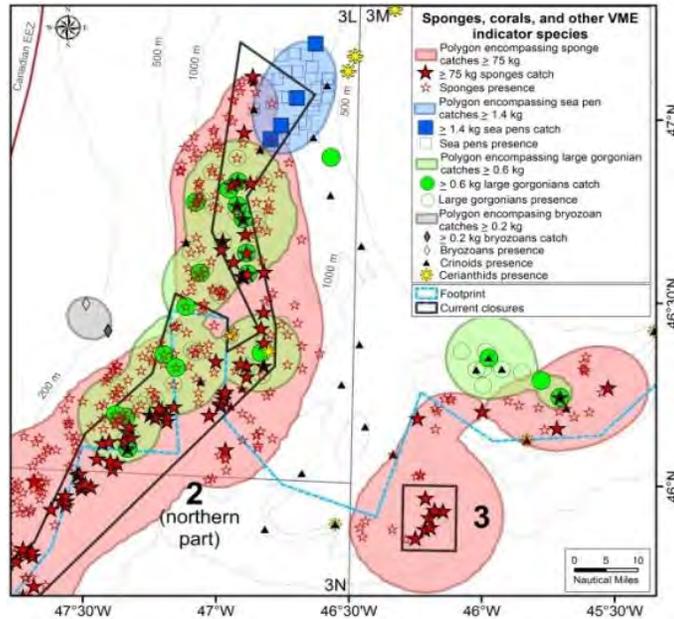


Fig. 1. Area 2 northern portion and Area 3 Beothuk Knoll. VMEs and VME indicator species from kernel analysis.

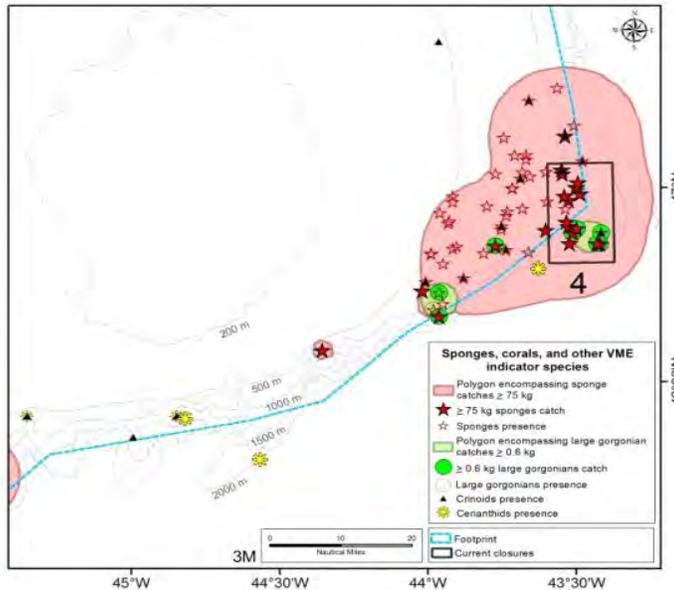


Fig. 2. Area 4 Eastern Flemish Cap. VMEs and VME indicator species from kernel analysis

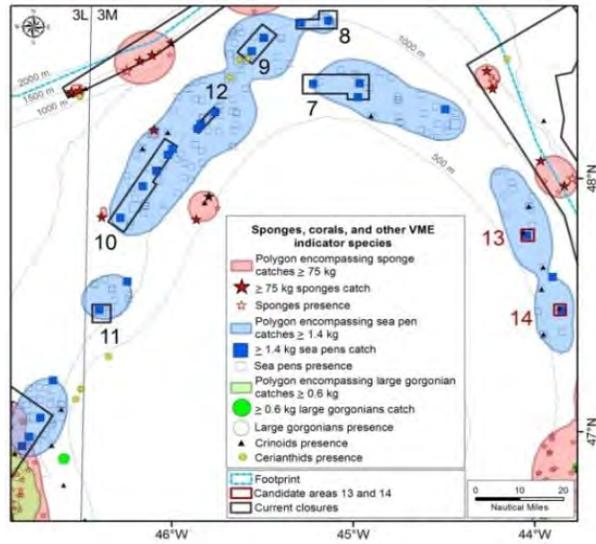


Fig.3. Areas 7-12 and candidate 13 and 14 Northern and Northwestern Flemish Cap Including Candidate Areas 13, 14. VMEs and VME indicator species from kernel analysis

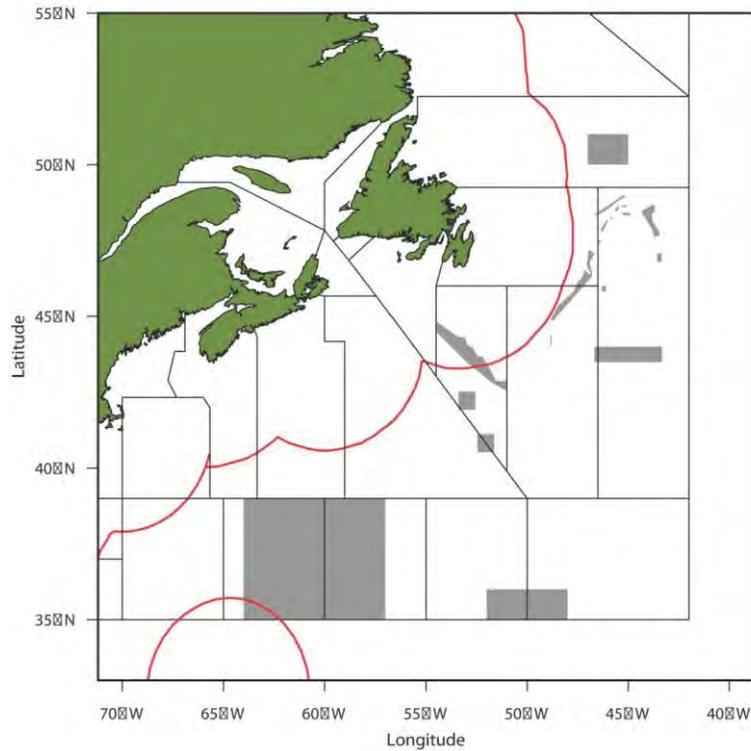


Fig. 4. Existing closed areas in the NRA.

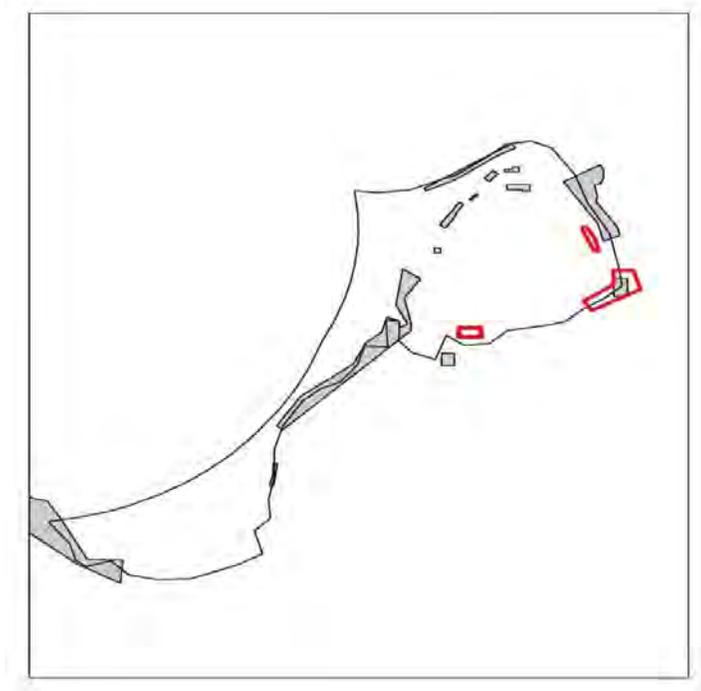


Fig. 5. Three new areas for consideration.

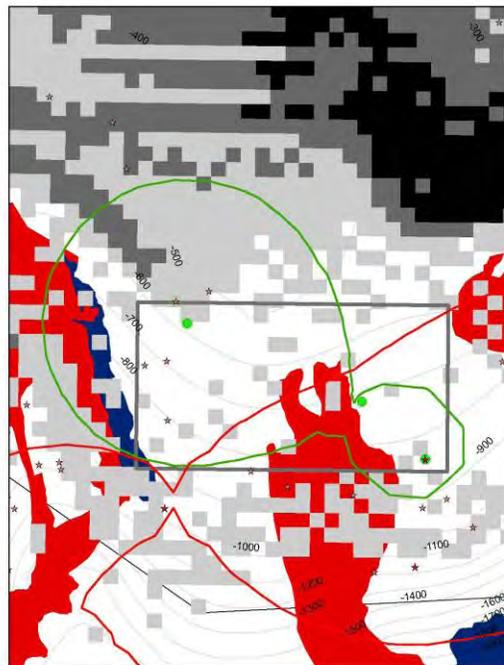


Fig. 6. Beothuk Grid



Fig. 7. Candidate Areas 13 and 14 (area of seapen concentration)

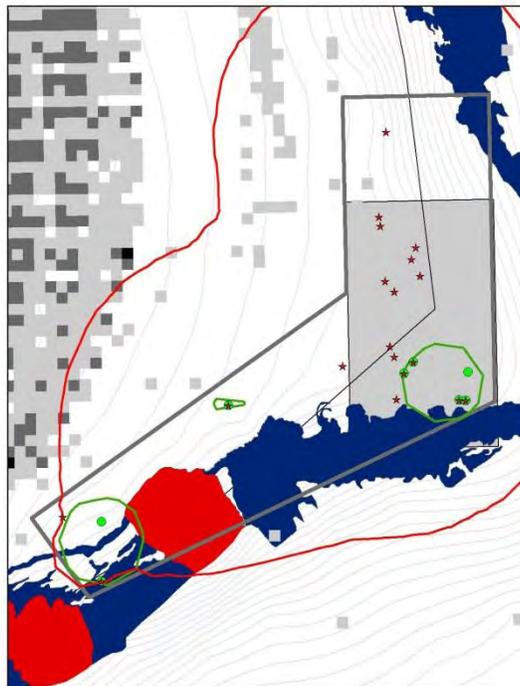


Fig 8. Tail of the Grand Bank

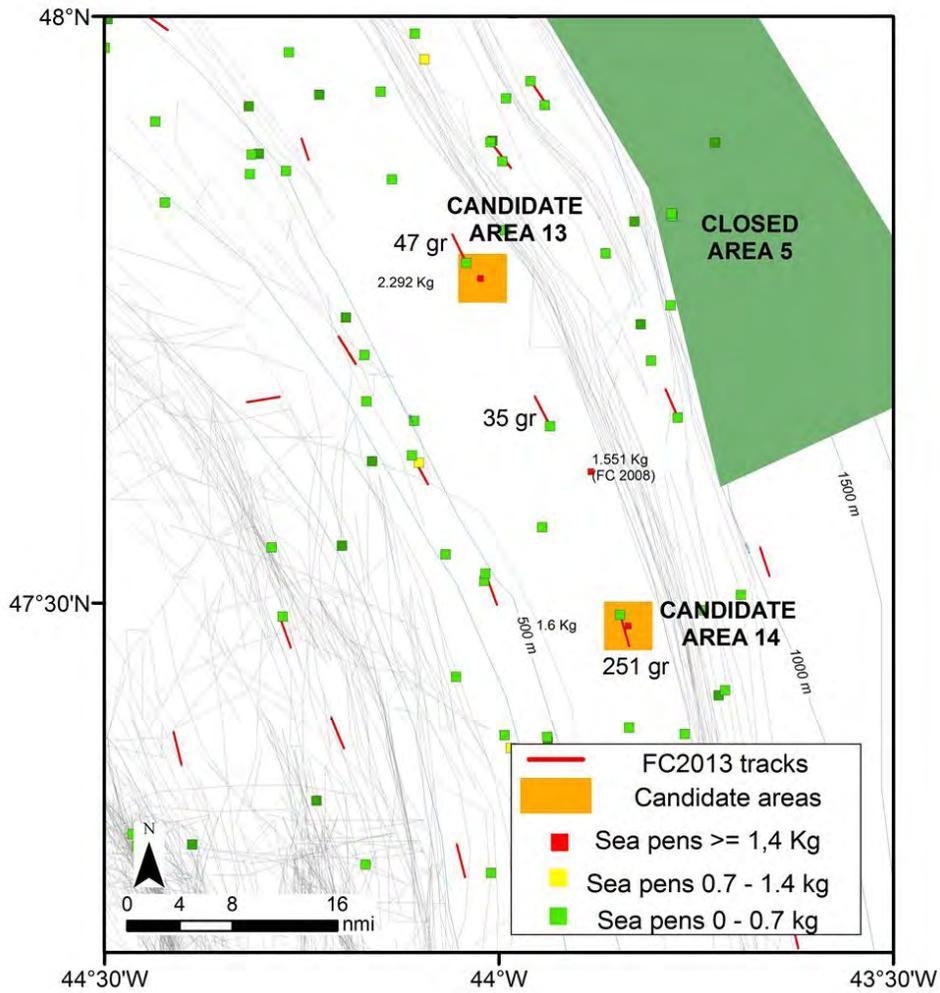


Fig. 9. Candidate Areas 13 and 14

Agenda 7. Presentation by the Russian Federation: Corner Rise Seamount Splendid Alfonsino Fisheries

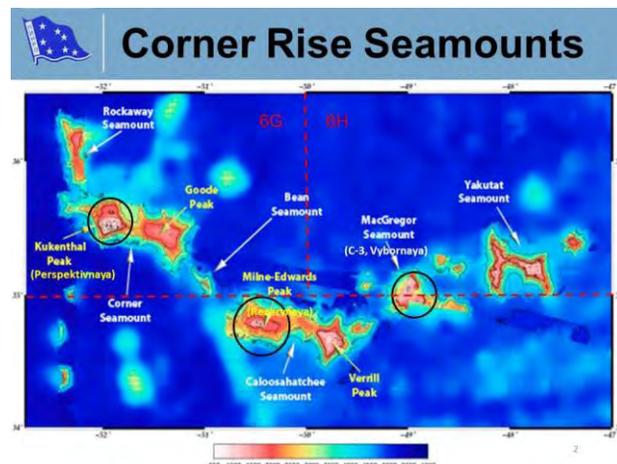

NAFO FC-SC Working Group
 on Ecosystem Approaches to Fisheries Management

On the stock size and fishery management of splendid alfonsino *Beryx splendens* on the Corner Rise Seamounts



V. I. WINNICHENKO


PINRO
 Knipovich Polar Research Institute of Marine Fisheries and Oceanography




Materials and Methods

- Cruise reports of Russian EVs, RVs and FVs in 1976-2009
- Russian and other countries' publications
- Personal communications of masters of fishing vessels and scientists
- SC response to the FC's request for advice on the Corner Rise.


Historical Review of Fishery

Russian fishery

- 1976 – over 10,000 t
- 1977 – about 800 t
- 1978-1986 – 2,000 t by EVs and RVs
- 1987 – about 2,800 t (with EVs)
- 1994-2000 – varied from 600 to 4,700 t
- 2003 – unsuccessful attempt at fishery
- 50-70% of catch was taken at “Perspektivnaya” bank
- Main gear – pelagic trawl


Historical Review of Fishery

Spanish fishery

- Performed since 2004
- Peak catch in 2005 – about 1,200 t
- In subsequent years, catch varied between 52-479 t
- Most catch probably taken at “Perspektivnaya” bank
- Main gear – pelagic trawl, sometimes bottom trawl


Biological characteristics

- $L_{min} = 17$ cm
- $L_{max} = 60$ cm
- $L_{avg} = 34-43$ cm
- $W_{avg} = 1.2-1.7$ kg
- $L_{matmin} = 18$ cm
- $Age_{matmin} = 2$ years
- $Age_{matfull} = 6$ years
- $L_{matfull} = 25-30$ cm
- Spawning in 10-12 portions
- Fecundity - up to 2 mil. eggs

Alfonsino distribution

Fry: 0-600 m
 Juveniles: uncertain, hypothetical: 250-400 m
 Matures: 300-950 m
 Fishery: 600-1000 m



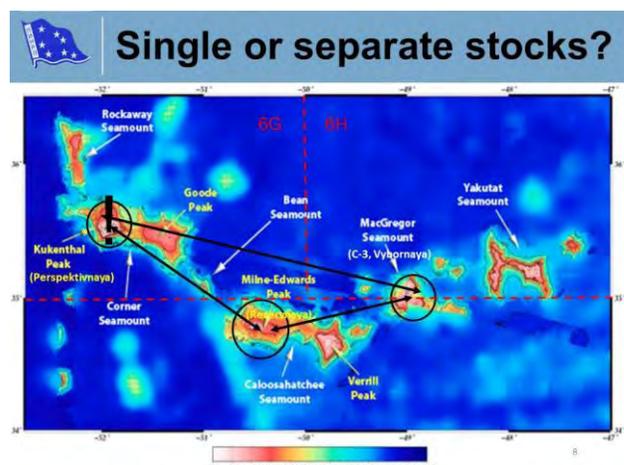
Biomass by surveys

Seamount	Period		Vessel	Biomass, thousand t	
	Year	Month			
"Perspektivnaya"	1980	September	EV "Pavel Kalkov"	6,8 (22,0)	
	1981	March	EV "Kapitan Demidov"	6,5	
	1987	May	RV "Kapitan Shaitanov"	0,2	
	2001	January	RV "Atlantida"	0 (no concentrations)	
	2009	June	RV "Atlantida"	1,9	
"Vybornaya"	2009	December	RV "Atlantida"	0 (no concentrations)	
	"Rezervnaya"	1981	March	EV "Kapitan Demidov"	5,7
		1984	September	EV «Nikolay Kuropatkin »	4,1 (13,8)
		1987	May	RV "Kapitan Shaitanov"	0,13
		1995	June	FV "Petr Petrov"	1,7 (5,5)
"Rezervnaya"	2001	January	RV "Atlantida"	0 (no concentrations)	
	1981	March	EV "Kapitan Demidov"	0,7	
	1985	May	EV "Menzelinsk"	4,4 (14,6)	
	1987	May	RV "Kapitan Shaitanov"	0,12	
	2001	January	RV "Atlantida"	0 (no concentrations)	
2009	December	RV "Atlantida"	0 (no concentrations)		

Note: the biomass values calculated using the catchability coefficient of 0.3 are given in brackets
In 1970s-1990s, stock biomass reached 11000-12000 t

Suggestions

- $F = 0,1$
- Reliable statistical data on fishery
- Integrated researches including the studies of biology, intraspecific structure and habitat
- Stock assessments on the regular basis
- Development of scientifically grounded measures for fishery management



Complications in fishery

- Variability in alfonsino distribution and density
- Hard ground conditions
- Partitioned bottom topography of the banks
- Small parameters of alfonsino schools
- Unsteady water circulation above the seamounts

Suggestions

Temporary management measures:

- TAC of 400 t for each fishable bank
- No bottom gear usage
- No pelagic trawling at the depths less than 600 m
- Presence of observers at all the fishing vessels
- Limitation of fishing efforts as an additional measure if required

Annex 8. Presentation by Canada: CBD and EBSA in the Northwest Atlantic



Canada's oceans
A natural resource, a national treasure

NORTH-WEST ATLANTIC REGIONAL WORKSHOP TO FACILITATE THE DESCRIPTION OF ECOLOGICALLY OR BIOLOGICALLY SIGNIFICANT MARINE AREAS

Montreal, 24-28 March 2014
Presented by
E. Kenchington, Invited Canadian Representative at the Workshop




Some Terms

- **Convention on Biological Diversity (CBD)**
 - Signed by 150 government leaders at the 1992 Rio Earth Summit, the CBD is dedicated to promoting sustainable development. There are 194 parties.
- **Conference of Parties (COP)**
 - The Conference of the Parties is the governing body of the Convention, and advances implementation of the Convention through the decisions.
- **Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA)**
 - provides the Conference of the Parties (COP) and, as appropriate, its other subsidiary bodies, with timely advice relating to the implementation of the Convention



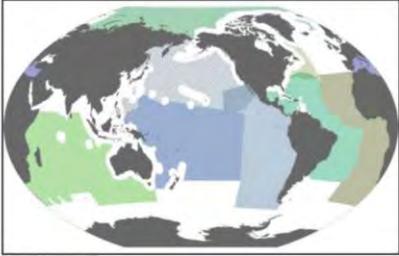
CBD Criteria

CBD (2009)

- Uniqueness or rarity
- Special importance for life-history stages of species
- Importance for threatened, endangered or declining species and/or habitats
- Vulnerability, fragility, sensitivity, or slow recovery
- Biological productivity
- Biological diversity
- Naturalness



CBD Regional Workshops




Area Considered by the NW Atlantic Workshop




7 EBSAs Described

1. Labrador Sea Deep Convection Area (dynamic pelagic feature)
2. Seabird Foraging Zone in the Southern Labrador Sea (dynamic pelagic)
3. Orphan Knoll (benthic)
4. Slopes of the Flemish Cap and Grand Bank (benthic and water column)
5. Southeast Shoal and Adjacent Areas on the Tail of the Grand Bank (benthic and water column)
6. New England and Corner Rise Seamounts (benthic)
7. Hydrothermal Vent Fields (benthic)



CBD Template

Template for Submission of Scientific Information to Describe Areas Meeting Scientific Criteria for Ecologically or Biologically Significant Marine Areas

Title/Name of the area:

Presented by (names, affiliations, title, contact details)

Abstract (in less than 150 words)

Introduction

(To include feature type(s) presented, geographic description, depth range, oceanography, general information data reported, availability of mobility)

Location

(Indicate the geographic location of the area/feature. This should include a location map. It should state if the area is within or outside national jurisdiction, or straddling both.)

Feature description of the proposed area

Feature condition and future outlook of the proposed area

(Description of the current condition of the area – is this static, declining, improving, what are the particular vulnerabilities? Any planned research programmes/investigations?)

Canada's oceans
A natural resource, a national treasure

CBD Template

Assessment of the area against CBD EBSA Criteria

(Discuss the area in relation to each of the CBD criteria and relate the best available science. Note that a proposed area for EBSA description may qualify on the basis of one or more of the criteria, and that the polygons of the EBSA need not be defined with exact precision. And modeling may be used to estimate the presence of EBSA attributes. Please note where there are significant information gaps)

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an 'X')			
		No information	Low	Medium	High
Uniqueness or rarity					
Explanation for ranking					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.				
Explanation for ranking					

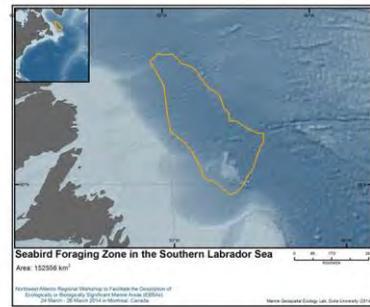
Canada's oceans
A natural resource, a national treasure

Labrador Sea Deep Convection Area



Canada's oceans
A natural resource, a national treasure

Seabird Foraging Zone in the Southern Labrador Sea



Canada's oceans
A natural resource, a national treasure

Orphan Knoll



Canada's oceans
A natural resource, a national treasure

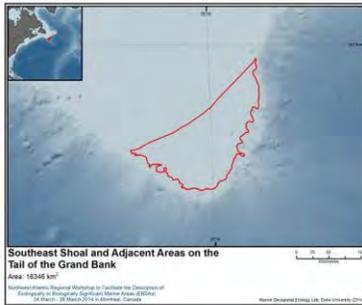
Slopes of the Flemish Cap and Grand Bank



Canada's oceans
A natural resource, a national treasure



Southeast Shoal and Adjacent Areas on the Tail of the Grand Bank



Canada's oceans
Écosystèmes océaniques, un patrimoine national

New England and Corner Rise Seamounts



Canada's oceans
Écosystèmes océaniques, un patrimoine national

Hydrothermal Vent Fields



Canada's oceans
Écosystèmes océaniques, un patrimoine national

Location of all 7 EBSAs



Canada's oceans
Écosystèmes océaniques, un patrimoine national

Next Steps

- Results were included in the information documents provided to SBSTTA 18 in Montreal, June 23-28
- Approved EBSA proforma will go forward to the **COP 12** -Twelfth meeting of the Conference of the Parties to the Convention on Biological Diversity Pyeongchang, Republic of Korea, 6 - 17 October 2014
- Voted on individually

Canada's oceans
Écosystèmes océaniques, un patrimoine national

How EBSAs may be used

- EBSAs may be considered in a broad range of oceans management and planning processes
 - Environmental assessment,
 - Environmental emergency response,
 - Integrated ecosystem based management,
 - MPA network planning
- "Profile" and risk assessment to be completed for each EBSA to identify potential management needs



Canada's oceans
Écosystèmes océaniques, un patrimoine national

Annex 9. Dr Enrique de Cardenas (Quique) Retirement



Dr Enrique de Cardenas (Quique) started to work in the NAFO Scientific Council in 1989, where he was a member for 25 years. During that time, Quique produced several Scientific Documents, was stock coordinator and leader or co-leader of several scientific projects (such as The Flemish Cap Survey). Even after he left the NAFO SC for the Spanish Administration, Quique never stopped pursuing the best science for NAFO, and for example was one of the leaders, if not the responsible person behind the genesis of the NEREIDA project.

Personally, and I think I can speak on behalf of Scientific Council, we would like to thank Quique for the quality of all his work (a life time work) that was extremely important to improve the scientific knowledge of the NAFO area.

We will miss your friendship and we all desire the best wishes in your retirement.

Thank you Quique.