PART E: MISCELLANEOUS

AGENDA I - SCIENTIFIC COUNCIL MEETING, 3-16 JUNE 2011

I. Opening (Scientific Council Chair: Ricardo Alpoim)
   1. Appointment of Rapporteur
   2 Presentation and Report of Proxy Votes (by Executive Secretary)
   3. Adoption of Agenda
   4. Attendance of Observers
   5. Appointment of Designated Experts
   6. Plan of Work
   7. Housekeeping issues

II. Review of Scientific Council Recommendations in 2010

III. Fisheries Environment (STACFEN Chair: Gary Maillet)
   1. Opening
   2. Appointment of Rapporteur
   3. Review of Recommendations in 2010
   4. Invited speaker
   5. Integrated Science Data Management (ISDM) Report for 2010
   6. Review of the physical, biological and chemical environment in the NAFO Convention Area during 2010
   7. Interdisciplinary studies
   8. An update of the on-line annual ocean climate status summary for the NAFO Convention Area
   9. Environmental indices and links to year-class strength
   10. Formulation of recommendations based on environmental conditions during 2010
   11. Review of Symposium on "Hydrobiological and ecosystem variability in the ICES and NAFO area during the first decade of the XXI century"
   12. National Representatives
   13. Other Matters
   14. Adjournment

IV. Publications (STACPUB Chair: Margaret Treble)
   1. Opening
   2. Appointment of Rapporteur
   3. Adoption of Agenda
   4. Review of Recommendations in 2010
   5. Review of Publications
      a) Annual Summary
         i) Journal of Northwest Atlantic Fishery Science (JNAFS)
         ii) Scientific Council Studies
         iii) Scientific Council Reports
         iv) Progress Report on Meeting Documentation CD
   6. Other Matters
      a) Review of roles for Editors (General, Associate and Guest)
      b) JNAFS General Editor
      c) Update on digitization of NAFO historical documents
      d) Search function for NAFO documents, including DOIs and ASFA
      e) American Fisheries Society recommendation on revised naming convention
      f) Facebook and Twitter on the NAFO website?
      g) Website Update
   7. Adjournment

V. Research Coordination (STACREC Chair: Carsten Hvingel)
   1. Opening
   2. Appointment of Rapporteur
   3. Review of Previous Recommendations
   4. Fishery Statistics
      a) Progress report on Secretariat activities in 2010/2011
         i) STATLANT 21A and 21B
         ii) Labelling of STATLANT catch figures in catch tables

iii) Information collected by the Secretariat
iv) Codes for invertebrates

5. Research Activities
   a) Biological sampling
      i) Report on activities in 2010/2011
      ii) Report by National Representatives on commercial sampling conducted
      iii) Report on data availability for stock assessments (by Designated Experts)
   b) Biological surveys
      i) Review of survey activities in 2010 (by National Representatives and Designated Experts)
      ii) Surveys planned for 2011 and early 2012
         - The international bottom survey (organized by EU-Spain)
         - Other surveys
   c) Tagging activities
   d) ICES GHL ageing workshop, Feb 2011
   e) Other research activities
6. Data Sharing Arrangements
7. Observer program
8. Use of VMS data
   a) Presentation of D-4 Science, FAO
9. Cooperation with other Organizations
   a) TXOTX
10. Review of SCR and SCS Documents
11. Other Matters
   a) Stock-by-stock Research Vessel Surveys Reported
12. Adjournment

VI. Fisheries Science (STACFIS Chair: Joanne Morgan)

1. Opening
2. General Review
   a) Review of Recommendations in 2010
   b) General Review of Catches and Fishing Activity
3. Stock Assessments
   a) Certain Stocks in Subareas 2, 3 and 4; as Requested by the Fisheries Commission with the Concurrence of the Coastal States (Annex 1)
      i) Thoroughly assessed stocks (Item 2, Annex 1):
         - American plaice in Div. 3LNO
         - Redfish in Div. 3M
         - Cod in Div. 3M
         - American plaice in Div. 3M
         - Witch flounder in Div. 3NO
         - Yellowtail flounder in Div. 3LNO
         - Capelin in Div. 3NO
         - White hake in Div. 3NO
      ii) Monitored stocks[4] (Item 2, Annex 1):
         - Cod in Div. 3NO
         - Redfish in Div. 3LN
         - Witch flounder in Div. 2J3KL
         - Redfish in Div. 3O
         - Thorny skate in Div. 3LNOPs
         - Northern shortfin squid in SA3+4
   b) Certain Stocks in Subareas 0 and 1, as Requested by Denmark (Greenland) (Annex 3):
      i) Thoroughly assessed stocks
         - Demersal redfish

[4] Monitored stocks to be provided in the agreed format (NAFO Sci. Coun. Rep., 2005, Part A, Appendix IV, 2.i)

- Greenland halibut in Div. 1A inshore
Other finfish (American plaice, Atlantic wolfish, spotted wolffish and thorny skate) in SA 1

Monitored stocks:

- Roundnose grenadier in SA0+1

c) Stocks Overlapping the Fishery Zones in Subareas 0 and 1, as Requested by Canada and by Denmark (Greenland) (Annexes 2 and 3 respectively):
   i) Thoroughly assessed stocks:
   - Greenland halibut in the offshore area of Divisions 0A+lAB and Divisions 0B+lC-F (Annex 2, Item 1-2; Annex 3, Item 3)

d) Other stocks:
   i) Monitored stocks:
   - Roughhead grenadier in SA 2+3

4. Stocks under a Management Strategy Evaluation (FC Item 6)
   a) Greenland halibut in SA 2 and Div. 3KLMNO
5. Other Matters
   a) FIRMS Classification for NAFO Stocks
   b) Other Business
6. Adjournment

VII. Management Advice and Responses to Special Requests

1. Fisheries Commission (Annex 1)
   a) Request for Advice on TACs and Other Management Measures for 2012 (Item 6)
      i) Greenland halibut in SA 2 and Div. 3KLMNO
   b) Request for Advice on TACs and Other Management Measures (Item 2, Annex 1))
   <u>For 2012</u>
   - Cod in Div. 3M
   <u>For 2012 and 2013</u>
   - American plaice in Div. 3LNO
   - Redfish in Div. 3M
   - Yellowtail flounder in Div. 3LNO
   - Capelin in Div. 3NO
   - White hake in Div. 3NO
   <u>For 2012, 2013 and 2014</u>
   - American plaice in Div. 3M
   - Witch flounder in Div. 3NO
   c) Monitoring of Stocks for which Multi-year Advice was provided in 2010 (Item 2)
   - Cod in Div. 3NO
   - Redfish in Div. 3LN
   - Witch flounder in Div. 2J3KL
   - Redfish in Div. 3O
   - Thorny skate in Div. 3LNOPs
   - Northern shortfin squid in SA3+4
   d) Special Requests for Management Advice
      i) Reference points for Div. 3LNO American plaice, Div. 3NO cod, and Div. 3LN redfish (Item 7)
      ii) S/R and B_{lim} for Div. 3NO cod (Item 8)
      iii) Capelin distribution in Div. 3L (Item 9)
      iv) Mid-water trawl mesh size for Div. 3LN redfish (Item 10)
      v) Management measures for blue whiting (Item 11)
      vi) Catch estimation for Div. 3LNO thorny skate (Item 12)
      vii) Protection of corals and sponges (Item 13)
      viii GIS framework and SASI model (Item 14)
      ix) Fishery impact assessments (Item 15)
      x) Reduction/elimination of scientific tasks of observers (Item [16])
2. Coastal States
   a) Request by Denmark (Greenland) for Advice on Management in 2012 (Annex 3A)

i) Roundnose grenadier in SA 0+1 (Item 1)
ii) Redfish and other finfish in SA 1 (Item 2)
iii) Greenland halibut in Div. 1A inshore (Item 4)
iv) West Greenland shrimp audit of management plan (Annex 3B: Item 1)
v) Additional information on the stock and management regarding the striped pink shrimp (*P. montagui*) in SA 0 and 1 in 2012 and years ahead (Annex 3C)

b) Request by Canada and Denmark (Greenland) for Advice on Management in 2011 (Annexes 2 and 3)
i) Greenland halibut in SA 0+1 (Annex 2: Item 1 and 2; Annex 3: Item 3)

3. Scientific Advice from Council on its own Accord
a) Oceanic (pelagic) redfish
b) Roughhead grenadier in SA2+3 (monitor)

VIII. Review of Future Meetings Arrangements
1. Scientific Council, Sep 2011
2. Scientific Council, Oct 2011
3. Scientific Council, Jun 2012
4. Scientific Council, Sep 2012
5. Scientific Council, Oct/Nov 2012
6. ICES/NAFO Joint Groups
a) NIPAG, 19-26 Oct 2011
b) NIPAG, Oct/Nov 2012
7. WGEAFM
8. WGRP
9. WGHARP
10. WGDEC

IX. Arrangements for Special Sessions
1. Topics for future Special Sessions

X. Meeting Reports
1. Working Group on EAFM, Dec 2010
2. Working Group on Reproductive Potential, Mar 2010
3. Report from WGDEC, Feb-Mar 2011 (including NAFO request)
4. Meetings attended by the Secretariat: PICES, FAO By-catch
5. ICES - SISAM (Brian Healey)
6. ICES - WGNARS

XI. Review of Scientific Council Working Procedures/Protocol
1. Election of Chairs
2. General Plan of Work for September 2011 Annual Meeting
3. Timing of Advice
4. Other Matters

XII. Other Matters
1. Designated Experts
2. Sponsorship of "PICES/ICES/IOC Climate Change symposium sponsorship", May 2012
3. Stock Assessment spreadsheets
4. Fisheries Managers and Scientists Working Groups
4. Meeting Highlights for NAFO Website
5. Scientific Merit Awards
6. Budget items
7. Other Business

XIII. Adoption of Committee Reports
1. STACFEN
2. STACREC
3. STACPUB
4. STACFIS

XIV. Scientific Council Recommendations to General Council and Fisheries Commission

XV. Adoption of Scientific Council Report

XVI. Adjournment

AGENDA II– SCIENTIFIC COUNCIL MEETING, 1-12 SEPTEMBER 2011

I) Opening (Chair: Ricardo Alpoim)
   1. Appointment of Rapporteur
   2. Adoption of Agenda
   3. Attendance of Observers
   4. Plan of Work

II) Fisheries Science (STACFIS Chair: Joanne Morgan)
   1. Opening
   2. Interim Monitoring Updates
      a) Northern Shrimp in Div. 3M
      b) Northern Shrimp in Div. 3LNO

III) Special Requests from the Fisheries Commission
   1. From September 2010
      a) Update on Advice for Northern Shrimp in Division 3M (Item 1)
      b) Update on Advice for Northern Shrimp in Divisions 3LNO (Item 1)
      c) Update on PA Reference points for shrimp in Div. 3LNO (Item 3)
      d) Update on Distribution of shrimp in Div. 3LNO (Item 4)
      e) Update on Effect of 5 000 t catch on shrimp abundance in Div. 3M (Item 5)

IV) Adoption of Reports
   1. Committee Report of STACFIS
   2. Report of Scientific Council

V) Adjournment

AGENDA III-SCIENTIFIC COUNCIL MEETING 19-23 SEPTEMBER

I. Opening (Chair: Ricardo Alpoim)
   1. Appointment of Rapporteur
   2. Adoption of Agenda
   3. Attendance of Observers
   4. Plan of Work

II. Review of Scientific Council Recommendations

III. Research Coordination (STACREC Chair: Carsten Hvingel)
   1. Opening
   2. Fisheries Statistics
      a) Progress of Secretariat activities
      b) Review of STATLANT 21
   3. Research Activities
      a) Surveys planned for 2011 and early 2012
   4. External Cooperation
      a) ICES Strategic Initiative on Stock Assessment Methods (SISAM)
   5. Review of Recommendations
   6. Other Matters
      a) Review of SCR and SCS Documents
      b) Other Business

IV. Fisheries Science (STACFIS Chair: Joanne Morgan)
   1. Opening
   2. Any matter outstanding from the WebEx SC Meeting, 1 - 12 September 2011
      a) Northern Shrimp in Div. 3M and Div. 3LNO
   3. Nomination of Designated Experts
   4. Other Matters
      a) Review of SCR and SCS Documents
      b) Other Business

V. Special Requests from the Fisheries Commission
   1. Ad hoc requests from current meeting

VI. Meeting Reports
   1. FC WGFMS-CPRS
   2. FC WGFMS-VME
   3. FC WGMSE
   4. ICES/NAFO WGHARP
   5. Meetings attended by the Secretariat
      a) ASFA Board Meeting
      b) Fifth International Symposium on GIS/Spatial Analyses in Fishery and Aquatic Sciences
      c) ICES SGVMS
      d) UN General Assembly Workshop on Implementaion of UNGA Resolutions 61/105 and 64/7
      e) NEAFC/OSPAR/CBD Workshop on Identification of Ecologically and Biologically Significant Areas

VII. Review of Future Meeting Arrangements
   1. Scientific Council, October 2011
   2. Scientific Council, June 2012
   3. Annual Meeting, September 2012
   4. Scientific Council, October 2012
   5. Scientific Council, June 2013
   6. Scientific Council Working Groups
      a) WGEAFM, December 2011
   7. ICES/NAFO Joint Groups
      a) NIPAG, October 2011
      b) WGDEC, March 2012
      c) NIPAG, October 2012

VIII. Future Special Sessions

1. Topics for future special sessions

IX. Other Matters
1. Review and comment on the scientific aspects of Annex 4 and Annex 5 of NAFO/FC Doc. 11/4 (Report of the Fisheries Commission Working Group of Fishery Managers and Scientists on Conservation Plans and Rebuilding Strategies (WGFMS-CPRS))
2. Matters arising from Fisheries Commission Working Group on Management Strategy Evaluation for Greenland Halibut
3. Coastal State request by Greenland on Harp seals (deferred from September 2010)
4. Future Research on Mesh Sizes for Redfish in Div. 3LN
5. FAO VME Database Meeting, December 2011
6. Items arising from the NAFO Performance Assessment report
7. Access to VMS data
8. Change in NAFO Representation at WGDEC
9. Presentation of Scientific Merit Award to Dr V. Rikhter
10. Awards to Outgoing Chairs

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

XI. Adjournment

AGENDA IV- SCIENTIFIC COUNCIL MEETING - 19–26 OCTOBER 2011

I. Opening (Chair: Carsten Hvingel)

1. Appointment of Rapporteur
2. Adoption of Agenda[1]
3. Attendance of Observers
4. Plan of Work

II. Review of Recommendations in 2010 and in 2011

III. NAFO/ICES *Pandalus* Assessment Group

IV. Formulation of Advice (see Annexes 1–3 of Appendix I)

1. Request from Fisheries Commission (Items 3, 4 and 5 of Annex I)
   a) Northern shrimp (Div. 3M)
   b) Northern shrimp (Div. 3LNO)
   c) PA Reference points for shrimp in Div. 3LNO

2. Requests from Coastal States (Items 1 and 2 of Annex II, item 5 of Annex IIIa, Annex IIIb and IIIc)
   a) Northern shrimp (Subareas 0 and 1)
   b) Northern shrimp (in Denmark Strait and off East Greenland)
   c) Audit of management plan for Northern Shrimp fishery to the west of Greenland
   d) Stock status of *P. montagui* in Subareas 0-1

V. Other Matters

1. Meeting of October–November 2012
2. Meeting of October–November 2013
3. Topics for Future Special Sessions
4. Items arising from the NAFO Performance Assessment
5. Other Business

VI. Adoption of Scientific Council and NIPAG Reports

VII. Adjournment

[1] Agenda to include relevant outcomes of the Scientific Council 1-13 Meeting and the NAFO Annual Meeting on 19–23 September 2011.

AGENDA V - NIPAG MEETING 19-26 OCTOBER 2011

I. Opening (Co-chairs: Jean-Claude Mahé and Carsten Hvingel)

1. Appointment of Rapporteur
2. Adoption of Agenda[1]
3. Plan of Work

II. General Review

1. Review of Recommendations in 2009 and in 2010
2. Review of Catches

III. Stock Assessments

- Northern shrimp (Division 3M)
- Northern Shrimp (Divisions 3LNO)
- Northern shrimp (Subareas 0 and 1)
- Northern shrimp (in Denmark Strait and off East Greenland)
- Northern shrimp in Skagerrak and Norwegian Deep (ICES Divisions IIIa and IVa East)
- Northern Shrimp in Barents Sea and Svalbard area (ICES Sub-areas I & II)
- Northern shrimp in Fladen Ground (ICES Division IVa)

IV. Other Business

V. Adjournment

[1] Agenda to include relevant outcomes of the Scientific Council 1–12 Meeting and the NAFO Annual Meeting on 19–23 September 2011.

Annex I. Fisheries Commission Requests for Scientific Advice on Management Options in 2012 and Beyond of Certain Stocks in Subareas 2, 3 and 4 and Other Matters

1. The Fisheries Commission with the concurrence of the Coastal State as regards to the stocks below which occur within its jurisdiction ("Fisheries Commission") requests that the Scientific Council provide advice in advance of the 2011 Annual Meeting, for the management of Northern shrimp in Div. 3M, 3LNO in 2012.

Noting that Scientific Council will meet in October of 2010 for 2012 TAC advice, Fisheries Commission requests the Scientific Council to update its advice on shrimp stocks in 2011 for 2012 TAC.

Fisheries Commission further requests that SC provide advice in accordance to Annex 1a.

2. Fisheries Commission requests that the Scientific Council provide advice for the management of the fish stocks below according to the following assessment frequency (unless Fisheries Commission requests additional assessments):

Two year basis	Three year basis
American plaice in Div. 3LNO	American plaice in Div. 3M
Capelin in Div. 3NO	Cod in Div. 3NO
Cod in Div. 3M	Northern shortfin squid in SA 3+4
Redfish in Div 3LN	Redfish in Div. 3O
Redfish in Div. 3M	Witch flounder in Div. 2J+3KL
Thorny skate in Div. 3LNOPs	Witch flounder in Div. 3NO
White hake in Div. 3NOPs	
Yellowtail flounder in Div. 3LNO	

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

In 2011, advice should be provided for 2012 and 2013 for American plaice in Div. 3LNO, yellowtail flounder in Div. 3LNO, redfish in Div. 3M, white hake in Div. 3NO and capelin in Div. 3NO and for 2012, 2013 and 2014 American plaice in Div. 3M and witch flounder in Div. 3NO.

In 2011, advice should be provided for 2012 for 3M cod.

Fisheries Commission requests that SC provide advice in accordance to Annex 1.

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

3. With respect to Northern shrimp (*Pandalus borealis*) in Div. 3LNO, noting the NAFO Framework for Precautionary Approach and recognizing the desire to demonstrate NAFO's commitment to applying the precautionary approach, Fisheries Commission requests the Scientific Council to:

identify F_{msy}
identify B_{msy}
provide advice on the appropriate selection of an upper reference point for biomass (e.g. B_{buf})

4. The Scientific Council is requested to provide updated information on the proportion of the 3LNO shrimp stock that occurs in 3NO.

5. With respect to 3M shrimp, the Scientific Council estimated in 2009 a proxy for B_{lim} as 85% decline from the maximum observed index levels, this is 2600 t of female biomass. In 2009 the Scientific Council estimated biomass to be below B_{lim} and recommended fishing mortality to be set as close to zero as possible.

In 2009 estimated catches reached 5000 t. The Fisheries Commission decided on a 50% effort reduction in 2010 and provisional estimated catches up to September 2010 reached 1000 t. In its 2010 advice, the Scientific Council estimated biomass to be above B_{lim}, but reiterated its previous advice to set fishing mortality as close to zero as possible. The Fisheries Commission requests the Scientific Council to evaluate if the current level of catches is compatible with stock recovery, given that improvements in biomass levels were observed through current level of catches.

6. The Fisheries Commission adopted in 2010 an MSE approach for Greenland halibut stock in Subarea 2 + Division 3KLMNO (FC Working Paper 10/7). This approach considers a survey based harvest control rule (HCR) to set a TAC for this stock on an annual basis for the next four year period. The Fisheries Commission requests the Scientific Council to:

a) annually monitor and update the survey slope and to compute the TAC according to HCR adopted by the Fisheries Commission according to Annex 1 of FC Working Paper 10/7.

b) provide guidance on what constitutes "exceptional circumstances".

c) provide advice on whether or not the "exceptional circumstances" provision should be applied.

7. Fisheries Commission requests the Scientific Council to identify $F_{msy,}$ identify B_{msy} and provide advice on the appropriate selection of an upper reference point for biomass (e.g. B_{buf}) for 3LNO American Plaice, 3NO cod and 3LN redfish.

8. Fisheries Commission requests the Scientific Council to review the stock recruit relationship for 3NO cod and the historical productivity regime used in setting the B_{lim} value of 60 000t.

9. Noting that distribution and historical catches of capelin have also occurred in 3L, the Scientific Council is requested to provide the Fisheries Commission with available information on the occurrence and distribution of capelin in 3L and to advise on further research requirements.

10. Fisheries Commission requests the Scientific Council to examine the consequences resulting from a decrease in mesh size in the mid-water trawl fishery for redfish in Div. 3LN to 90mm or lower.

11. Blue whiting (*Micromesistius poutassou*) is a widely distributed species, which can be found in the open ocean as a semi-pelagic species and in shallower waters close to the bottom. Blue whiting is largely fished in the North Eastern-Atlantic by pelagic trawls. The North East Atlantic Fisheries Commission (NEAFC) defined a minimum mesh size of 35mm when fishing for blue whiting with pelagic trawls in its regulatory area. Interest is increasing for developing fishing opportunities on this stock in the NAFO Regulatory Area, specifically in the boundary with the NEAFC RA, Division 1F, sub area 2 and Division 3K.

The Fisheries Commission requests the Scientific Council to give advice on the following measures to be adopted for the blue whiting:

a) Change in the classification of blue whiting in the species table (Annex II of NAFO CEM), from classification as a groundfish species to a pelagic species, consistent with the NEAFC classification.

b) In line with conservation and management measures in force in the NEAFC Regulatory Area, adoption of a minimum mesh size for pelagic and semi-pelagic trawls which would include in paragraph 1 of Article 13 – Gear Requirements the following:

- g) 35 mm for blue whiting in the fishery using pelagic trawls in Subarea 2 and Divisions 1F, 3K and 3M.

12. Catches of thorny skate in Div. 3LNO averaged 18 000 t between 1985 and 1991 and declined to 7 500 t in 1992-1995. Since 2000, estimated catches averaged 9 000 t. No analytical assessment has been performed and the current advice is based on the decline of the survey indices, which have been stable at low levels since 1996. However, relative fishing mortality has been relatively constant at around 17% between 1998 and 2004 and declined

to 5% from 2005. Scientific Council has recommended that catches in 2011 and 2012 should not exceed the last three years average catch (approximately 5 000 t).

The Fisheries Commission requests the Scientific Council to clarify the reason behind using the last three years period as the basis for the advice and to provide alternative options. In its examination, the Scientific Council should also take into account the relative stability of all survey indices since 1996 and furthermore consider the information that relative fishing mortality has declined to low levels.

13. Mindful of the NEREIDA mission, the international scientific effort led by Spain to survey the seafloor in the NAFO Regulatory Area.

Recognizing that the Coral and Sponge Protection Zones closed to bottom fishing activities for the protection of vulnerable marine ecosystems as defined in Chapter 1 Article 16 Paragraph 3 is in place until December 31, 2011.

Mindful of the call for review of the above measures based on advice from the Scientific Council.

Fisheries Commission requests that Scientific Council review any new scientific information on the areas defined in Chapter 1 Article 16 Paragraph 3 which may support or refute the designation of these areas as vulnerable marine ecosystems. In the event that new information is not available at the time of the Fisheries Commission meeting in September 2011, prepare an overview of the type of information that will be available and the timeline for completion.

14. Noting the response from the Scientific Council in June 2010 regarding simulation modeling in a GIS framework: "To apply this model to the NRA, an agreed upon set of gear descriptions and tow duration/lengths for each fishing fleet segment would need to be created. Further estimation of retention efficiencies of the different commercial gears and indirect effects of fishing will be needed to model effects of serious adverse impacts."

The Fisheries Commission requests that the Scientific Council: 1) acquire the requisite data and apply the model to the extent possible to the NRA, and 2) consider whether the SASI model used by the US New England Fisheries Council should be incorporated into the aforementioned GIS framework as a means of integrating significant adverse impacts into the approach.

15. Recognizing the initiatives on vulnerable marine ecosystems (VME) through the work of the WGFMS, and with a view to completing and updating fishery impact assessments, the Scientific Council is requested to provide the Fisheries Commission at its next annual meeting in 2011:

1) guidance on the timing and frequency of fishing plans/assessments for the purpose of evaluating significant adverse impacts on VMEs

2) a framework for developing gear/substrate impact assessments to facilitate reporting amongst the Contracting Parties.

ADDITIONAL REQUEST

[16]. Fisheries Commission requests the Scientific Council to evaluate any negative scientific impacts resulting from reduction.

Annex 1 – Additional guidance in regards to questions 1 and 2.

Mindful of the desire to move to a risk-based approach in the management of fish stocks, Fisheries Commission requests the Scientific Council to provide a range of management options as well as a risk analysis for each option as outlined in the provisions below, rather than a single TAC recommendation.

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

a) The preferred tool for the presentation of a synthetic view of the past dynamics of an exploited stock and its future development is a stock assessment model, whether age-based or age-aggregated.

b) For those stocks subject to analytical-type assessments, the status of the stocks should be reviewed and catch options evaluated in terms of their implications for fishable stock size in both the short and long term. As general reference points, the implications of fishing at $F_{0.1}$ and F_{2010} in 2012 and subsequent years should be evaluated. The present stock size and spawning stock size should be described in relation to those observed historically and those expected in the longer term under this range of options.

c) For those stocks subject to general production-type assessments, the time series of data should be updated, the status of the stock should be reviewed and catch options evaluated in the way described above to the extent possible. In this case, the level of fishing effort or fishing mortality (F) required to take two-thirds MSY catch in the long term should be calculated.

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

e) Spawning stock biomass levels considered necessary for maintenance of sustained recruitment should be recommended for each stock, defined in relation to both long-term productivity regimes, and current productivity regimes to the extent these may differ. In those cases where present spawning stock size is a matter of scientific concern in relation to the continuing reproductive potential of the stock, options should be offered that specifically respond to such concerns.

f) Information should be provided on stock size, spawning stock sizes, recruitment prospects, fishing mortality, catch rates and catches implied by these management strategies for the short and the long term in the following format:

I. For stocks for which analytical-type assessments are possible, graphs should be provided of all of the following for the longest time-period possible:

- historical yield and fishing mortality;
- spawning stock biomass and recruitment levels;
- catch options for the year 2012 and subsequent years over a range of fishing mortality rates (for as many years as the data allow)
- (F) at least from $F_{0.1}$ to F_{max};
- spawning stock biomass corresponding to each catch option;
- yield-per-recruit and spawning stock per recruit values for a range of fishing mortalities.

II. For stocks for which advice is based on general production models, the relevant graph of production as a function of fishing mortality rate or fishing effort should be provided. Age aggregated assessments should also provide graphs of all of the following for the longest time period possible:

- exploitable biomass (both absolute and relative to B_{MSY})
- yield/biomass ratio as a proxy for fishing mortality (both absolute and relative to F_{MSY})
- estimates of recruitment from surveys, if available.

III. Where analytical methods are not attempted, the following graphs should be presented, for one or several surveys, for the longest time-period possible:

- time trends of survey abundance estimates, over:
- an age or size range chosen to represent the spawning population
- an age or size-range chosen to represent the exploited population
- recruitment proxy or index for an age or size-range chosen to represent the recruiting population.
- fishing mortality proxy, such as the ratio of reported commercial catches to a measure of the exploited population.

For age-structured assessments, yield-per-recruit graphs and associated estimates of yield-per-recruit based reference points should be provided. In particular, the three reference points, actual F, $F_{0.1}$ and F_{max} should be shown.

2. Noting the Precautionary Approach Framework as endorsed by Fisheries Commission, the Fisheries Commission requests that the Scientific Council provide the following information for the 2011 Annual Meeting of the Fisheries Commission for all stocks under its responsibility requiring advice for 2012:

a) the limit and precautionary reference points as described in Annex II of the UN Fisheries Agreement indicating areas of uncertainty (for those stocks for which precautionary reference points cannot be determined directly, proxies should be provided);

b) the stock biomass and fishing mortality trajectory over time overlaid on a plot of the PA Framework (for those stocks where biomass and/or fishing mortality cannot be determined directly, proxies should be used);

c) information regarding the current Zone the stock is within as well as proposals regarding possible harvest strategies which would move the resource to (or maintain it in) the Safe Zone, including medium term considerations and associated risk or probabilities which will assist the Commission in developing the management strategies described in paragraphs 4 and 5 of Annex II in the Agreement.

3. The following elements should be taken into account by the Scientific Council when considering the Precautionary Approach Framework:

a) References to "risk" and to "risk analyses" should refer to estimated probabilities of stock population parameters falling outside biological reference points.

b) Where reference points are proposed by the Scientific Council as indicators of biological risk, they should be accompanied by a description of the nature of the risk associated with crossing the reference point such as recruitment overfishing, impaired recruitment, etc.

c) When a buffer reference point is identified in the absence of a risk evaluation in order to maintain a low probability that a stock, measured to be at the buffer reference point, may actually be at or beyond the limit reference point, the Scientific Council should explain the assumptions made about the uncertainty with which the stock is measured.

d) Wherever possible, short and medium term consequences should be identified for various exploitation rates (including no fishing) in terms of yield, stability in yield from year to year, and the risk or probability of maintaining the stock within, or moving it to, the Safe Zone. Whenever possible, this information should be cast in terms of risk assessments relating fishing mortality rates to the trends in biomass (or spawning biomass), the risks of stock collapse and recruitment overfishing, as well as the risks of growth overfishing, and the consequences in terms of both short and long term yields.

e) When providing risk estimates, it is very important that the time horizon be clearly spelled out. By way of consequence, risks should be expressed in timeframes of 5, 10 and 15 years (or more), or in terms of other appropriate year ranges depending on stock specific dynamics. Furthermore, in order to provide the Fisheries Commission with the information necessary to consider the balance between risks and yield levels, each harvesting strategy or risk scenario should include, for the selected year ranges, the risks and yields associated with various harvesting options in relation to B_{lim}.

Annex II. Fisheries Commission Requests for Scientific Advice on Management Options in 2013 and Beyond of Certain Stocks in Subareas 2, 3 and 4 and Other Matters

1. The Fisheries Commission with the concurrence of the Coastal State as regards to the stocks below which occur within its jurisdiction ("Fisheries Commission") requests that the Scientific Council provide advice in advance of the 2012 Annual Meeting, for the management of Northern shrimp in Div. 3M, 3LNO in 2013. The advice should be provided as a range of management options and a risk analysis for each option (rather than a single TAC recommendation).

   Noting that Scientific Council will meet in October of 2011 for 2013 TAC advice, Fisheries Commission requests the Scientific Council to update its advice on shrimp stocks in 2012 for 2013 TAC.

   Fisheries Commission further requests that SC provide advice in accordance to Annex 1.

2. Fisheries Commission requests that the Scientific Council provide advice for the management of the fish stocks below according to the following assessment frequency (unless Fisheries Commission requests additional assessments):

Two year basis	Three year basis
American plaice in Div. 3LNO	American plaice in Div. 3M
Capelin in Div. 3NO	Cod in Div. 3NO
Cod in Div. 3M	Northern shortfin squid in SA 3+4
Redfish in Div 3LN	Redfish in Div. 3O
Redfish in Div. 3M	Witch flounder in Div. 2J+3KL
Thorny skate in Div. 3LNOPs	Witch flounder in Div. 3NO
White hake in Div. 3NOPs	
Yellowtail flounder in Div. 3LNO	

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

   In 2012, advice should be provided for 2013 and 2014 for Redfish in Div. 3LN and Thorny skate in Div. 3LNOPs and for 2013, 2014 and 2015 Northern shortfin squid in SA 3+4.

   In addition, advice should be provided in 2012 for cod Div. 3M.

   The advice should be provided as a range of management options and a risk analysis for each option (rather than a single TAC recommendation). Additionally, Fisheries Commission requests that SC provide advice in accordance to Annex 1.

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

3. With respect to Northern shrimp (*Pandalus borealis*) in Div. 3LNO, noting the NAFO Framework for Precautionary Approach and recognizing the desire to demonstrate NAFO's commitment to applying the precautionary approach, Fisheries Commission requests the Scientific Council to:

   a) identify F_{msy}
   b) identify B_{msy}
   c) provide advice on the appropriate selection of an upper reference point for biomass (e.g. B_{buf})

4. The Fisheries Commission adopted in 2010 an MSE approach for Greenland halibut stock in Subarea 2 + Division 3KLMNO (FC Working Paper 10/7). This approach considers a survey based harvest control rule (HCR) to set a TAC for this stock on an annual basis for the next four year period. The Fisheries Commission requests the Scientific Council to:

a) Monitor and update the survey slope and to compute the TAC according to HCR adopted by the Fisheries Commission according to Annex 1 of FC Working Paper 10/7.
b) Advise on whether or not an exceptional circumstance is occurring.

5. Fisheries Commission requests the Scientific Council to examine the consequences resulting from a decrease in mesh size in the mid-water trawl fishery for redfish in Div. 3LN to 90mm or lower.

6. The Fisheries Commission adopted in September 2011, conservation plans and rebuilding strategies for 3NO cod and 3 LNO American plaice and "recognizing that further updates and development of the plans may be required to ensure that the long term objectives are met". The Fisheries Commission requests the Scientific Council to:
   a) Provide advice on the addition of a new intermediate reference point (i.e. B_{isr}) in the NAFO precautionary approach framework to delineate an additional zone between B_{lim} and B_{msy} as proposed by the proposed by the working group
   b) Taking into consideration the new reference point B_{isr}, provide advice on an updating NAFO PA framework and provide a description for each zone.
   c) Provide advice on an appropriate selection of the B_{isr} value for Div. 3NO cod and Div. 3 LNO American plaice.
   d) Review B_{msy} and F_{msy} provided in 2011 for both stocks and quantify uncertainty surrounding these estimates.

7. Fisheries Commission requests the Scientific Council to review the conservation and rebuilding plans of 3LNO American Plaice (NAFO/FC Doc. 11/4, Annex 4) and 3NO Cod (NAFO/FC Doc. 11/4, Annex 5). Through projections and a risk based approach, evaluate the performance of the present rebuilding plans in terms of expected time frames (5 / 10 / 15 years) and associated probabilities to reach indicated limit and target biomass levels and catches. Projections should assume appropriate levels of recruitment and the status quo fishing mortality (3-year average scaled and unscaled) until reaching biomass levels above Blim.

8. Fisheries Commission requests the Scientific Council to evaluate the Harvest Control Rule (HCR) indicated below as an alternative to the HCR of the 3LNO American Plaice (NAFO/FC Doc. 11/4, Annex 4, item 4) and 3NO Cod (NAFO/FC Doc. 11/4, Annex 5, item 4) Conservation Plans and Rebuilding Strategies. Through projections and a risk based approach, evaluate the performance of this HCR in terms probabilities associated with maintaining Biomass above Blim and ensuring continuous SSB growth. SC should provide SSB and associated catch trajectories for 5 / 10 / 15 years. Projections should assume appropriate levels of recruitment and the status quo fishing mortality (3-year average scaled and unscaled) until reaching biomass levels above Blim.

   Harvest Control Rule:

   a) When SSB is below Blim:

   i. no directed fishing, and
   ii. by-catch should be restricted to unavoidable by-catch in fisheries directing for other species

   b) When SSB is above Blim:

   If $P_{y+1} > 0.9$ Then $F_{y+1} = F0.1 * P_{y+1}$

   Else

   $F_{y+1} = 0$

   $TAC_{y+1} = B_{y+1} * F_{y+1}$

Where:
Fy+1 = Fishing mortality to project catches for the following year.
Py+1 = Probability of projected Spawning Stock Biomass to be above Blim.
B y+1 = Exploitable biomass projected for the following year.

9. The Fisheries Commission requests the Scientific Council to conduct a full assessment of 3LNO American Plaice and provide advice in accordance to the rebuilding plan currently in place.

10. On the Flemish Cap, there seems to be a connection between the most recent decline of the shrimp stock, the recovery of the cod stock and the reduction of the redfish stock. The Fisheries Commission requests the Scientific Council to provide an explanation on the possible connection between these phenomena. It is also requested that SC advises on the feasibility and the manner by which these three species are maintained at levels capable of producing a combined maximum sustainable yield, in line with the objectives of the NAFO Convention.

11. Fisheries Commission requests the Scientific Council to define B_{msy} for cod in Division 3M and to propose a Harvest Control Rule (HCR) consistent with the NAFO Precautionary Approach Framework. It also requests the Scientific Council to define the estimated timeframe to reach Bmsy under different scenarios, consistent with the proposed HCR.

12. Scientific Council is asked to provide, where available, qualitative and quantitative information including possible comparisons on by-catches of various species in directed fisheries on stocks under NAFO management.

13. For the cod stock in Divisions 2J+3KL, the Scientific Council is requested to comment on the trends in biomass and state of the stock in the most recent Science Advisory Report from the Canadian Science Advisory Secretariat.

14. Taking note that recent point estimates for 3NO Witch flounder of the Canadian Autumn survey are 2-3 times higher than in 1994 when the moratorium was first implemented and are among the highest in the times series , and while more variable the recent point estimates of the Canadian Spring survey are abut 50% higher than in 1994:

    a) What are the relative strengths and weaknesses of all the indices of abundance of witch?
    b) What are plausible reasons for different abundance trends in the spring and autumn surveys of the SAME STRATA, and what are the rationales to support either set of results over the other?
    c) How might the confidence intervals around the point estimates over the time series affect the interpretations of stock trend and current status?
    d) What evidence exists (if any) to indicate whether any changes in natural mortality have occurred since the early 1990's, e.g. condition of the fish?
    e) Is it plausible there may be a different survey catchability for younger/smaller fish relative to older/larger fish (applicable to witch flounder), and how might this affect our interpretation of stock trends and status?
    f) What might be reasonable options for reference point proxies, with associated rationale, including those based on one or a combination of survey indices?

15. As per the recommendation outlined in the report of the Working Group of Fishery Managers and Scientists on Vulnerable Marine Ecosystems adopted in September 2011, the Fisheries Commission requests the Scientific Council to produce a detailed list of VME indicator species and possibly other VME elements.

16. Given the progress made by Scientific Council on the development of the GIS model for the evaluation of bycatch thresholds for sponges as requested by Fisheries Commission in its 2010 Annual Meeting, and mindful of the need for further refining this modelling framework, as well as exploring its potential utility for its application to other VME-defining species, Fisheries Commission requests the Executive Secretary to provide to the Scientific Council anonymous VMS data in order to further develop the current sponge model as

requested by the Fisheries Commission in 2010 and to assess the feasibility of developing similar models for other VME-defining species(e.g. corals).

17. Fisheries Commission requests the Scientific Council to make recommendations for encounter thresholds and move on rules for groups of VME indicators including sea pens, small gorgonian corals, large gorgonian corals, sponge grounds and any other VME indicator species that meet the FAO Guidelines for VME and SAI. Consider thresholds for 1) inside the fishing footprint and outside of the closed areas and 2) outside the fishing footprint in the NRA, and 3) for the exploratory fishing area of seamounts if applicable.

18. Noting Article 4bis - Assessment of bottom fishing of the NAFO Conservation and Enforcement measures. " The Scientific Council, with the co-operation of Contracting Parties, shall identify, on the basis of best available scientific information, vulnerable marine ecosystems in the Regulatory Area and map sites where these vulnerable marine ecosystem are known to occur or likely to occur and provide such data and information to the Executive Secretary for circulation to all Contracting Parties".

    The Fisheries Commission requests the Scientific Council to produce a comprehensive map of the location of VME indicator species and elements in the NRA as defined in the FAO International Guidelines for the Management of Deep Sea Fisheries in the High Seas. This includes canyon heads and spawning grounds and any other VME not protected by the current closures to protect coral and sponge. This will be used by Contracting Parties to complete impact assessments

19. As stated in the "Reassessment of the Impact of NAFO Managed Fisheries on known or Likely Vulnerable Marine Ecosystems" (NAFO FC WP 11/24), the Scientific Council in collaboration with the Working Group of Fishery Managers and Scientists on Vulnerable Marine Ecosystem will conduct a reassessment of NAFO bottom fisheries by 2016 and every 5 years thereafter. In preparation for reassessments, the Fisheries Commission requests the Scientific Council to develop a workplan for completing the initial reassessment and identifying the resources and information to do so.

Annex1 – Additional guidance in regards to questions 1 and 2.

Mindful of the desire to move to a risk-based approach in the management of fish stocks, Fisheries Commission requests the Scientific Council to provide a range of management options as well as a risk analysis for each option as outlined in the provisions below, rather than a single TAC recommendation.

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

    a) The preferred tool for the presentation of a synthetic view of the past dynamics of an exploited stock and its future development is a stock assessment model, whether age-based or age-aggregated.

    b) For those stocks subject to analytical-type assessments, the status of the stocks should be reviewed and catch options evaluated in terms of their implications for fishable stock size in both the short and long term. As general reference points, the implications of fishing at $F_{0.1}$ and F_{2011} in 2013 and subsequent years should be evaluated. The present stock size and spawning stock size should be described in relation to those observed historically and those expected in the longer term under this range of options.
    c) For those stocks subject to general production-type assessments, the time series of data should be updated, the status of the stock should be reviewed and catch options evaluated in the way described above to the extent possible. In this case, the level of fishing effort or fishing mortality (F) required to take two-thirds MSY catch in the long term should be calculated.

    d) For those resources for which only general biological and/or catch data are available, few standard criteria exist on which to base advice. The stock status should be evaluated in the context of management

requirements for long-term sustainability and the advice provided should be consistent with the precautionary approach.

e) Spawning stock biomass levels considered necessary for maintenance of sustained recruitment should be recommended for each stock, defined in relation to both long-term productivity regimes, and current productivity regimes to the extent these may differ. In those cases where present spawning stock size is a matter of scientific concern in relation to the continuing reproductive potential of the stock, options should be offered that specifically respond to such concerns.

f) Information should be provided on stock size, spawning stock sizes, recruitment prospects, fishing mortality, catch rates and catches implied by these management strategies for the short and the long term in the following format:

I. For stocks for which analytical-type assessments are possible, graphs should be provided of all of the following for the longest time-period possible:
- historical yield and fishing mortality;
- spawning stock biomass and recruitment levels;
- catch options for the year 2013 and subsequent years over a range of fishing mortality rates (for as many years as the data allow)
- (F) at least from $F_{0.1}$ to F_{max};
- spawning stock biomass corresponding to each catch option;
- yield-per-recruit and spawning stock per recruit values for a range of fishing mortalities.

II. For stocks for which advice is based on general production models, the relevant graph of production as a function of fishing mortality rate or fishing effort should be provided. Age aggregated assessments should also provide graphs of all of the following for the longest time period possible:
- exploitable biomass (both absolute and relative to B_{MSY})
- yield/biomass ratio as a proxy for fishing mortality (both absolute and relative to F_{MSY})
- estimates of recruitment from surveys, if available.

III. Where analytical methods are not attempted, the following graphs should be presented, for one or several surveys, for the longest time-period possible:
- time trends of survey abundance estimates, over:
- an age or size range chosen to represent the spawning population
- an age or size-range chosen to represent the exploited population
- recruitment proxy or index for an age or size-range chosen to represent the recruiting population.
- fishing mortality proxy, such as the ratio of reported commercial catches to a measure of the exploited population.

For age-structured assessments, yield-per-recruit graphs and associated estimates of yield-per-recruit based reference points should be provided. In particular, the three reference points, actual F, $F_{0.1}$ and F_{max} should be shown.

2. Noting the Precautionary Approach Framework as endorsed by Fisheries Commission, the Fisheries Commission requests that the Scientific Council provide the following information for the Annual Meeting of the Fisheries Commission for all stocks under its responsibility requiring advice:

a) the limit and precautionary reference points as described in Annex II of the UN Fisheries Agreement indicating areas of uncertainty (for those stocks for which precautionary reference points cannot be determined directly, proxies should be provided);
b) the stock biomass and fishing mortality trajectory over time overlaid on a plot of the PA Framework (for those stocks where biomass and/or fishing mortality cannot be determined directly, proxies should be used);
c) information regarding the current Zone the stock is within as well as proposals regarding possible harvest strategies which would move the resource to (or maintain it in) the Safe Zone, including medium term

considerations and associated risk or probabilities which will assist the Commission in developing the management strategies described in paragraphs 4 and 5 of Annex II in the Agreement.

3. The following elements should be taken into account by the Scientific Council when considering the Precautionary Approach Framework:

   a) References to "risk" and to "risk analyses" should refer to estimated probabilities of stock population parameters falling outside biological reference points.
   b) Where reference points are proposed by the Scientific Council as indicators of biological risk, they should be accompanied by a description of the nature of the risk associated with crossing the reference point such as recruitment overfishing, impaired recruitment, etc.
   c) When a buffer reference point is identified in the absence of a risk evaluation in order to maintain a low probability that a stock, measured to be at the buffer reference point, may actually be at or beyond the limit reference point, the Scientific Council should explain the assumptions made about the uncertainty with which the stock is measured.
   d) Wherever possible, short and medium term consequences should be identified for various exploitation rates (including no fishing) in terms of yield, stability in yield from year to year, and the risk or probability of maintaining the stock within, or moving it to, the Safe Zone. Whenever possible, this information should be cast in terms of risk assessments relating fishing mortality rates to the trends in biomass (or spawning biomass), the risks of stock collapse and recruitment overfishing, as well as the risks of growth overfishing, and the consequences in terms of both short and long term yields.
   e) When providing risk estimates, it is very important that the time horizon be clearly spelled out. By way of consequence, risks should be expressed in timeframes of 5, 10 and 15 years (or more), or in terms of other appropriate year ranges depending on stock specific dynamics. Furthermore, in order to provide the Fisheries Commission with the information necessary to consider the balance between risks and yield levels, each harvesting strategy or risk scenario should include, for the selected year ranges, the risks and yields associated with various harvesting options in relation to B_{lim}.

Annex III. Canadian Request for Scientific Advice on Management in 2012 of Certain Stocks in Subareas 0 to 4.

1. Canada requests that the Scientific Council, at its meeting in advance of the 2011 Annual Meeting of NAFO, subject to the concurrence of Denmark (on behalf of Greenland), provide advice on the scientific basis for management in 2012 of the following stocks

Shrimp (Subareas 0 and 1)

Greenland halibut (Subareas 0 and 1)

The Scientific Council has noted previously that there is no biological basis for conducting separate assessments for Greenland halibut throughout Subareas 0-3, but has advised that separate TACs be maintained for different areas of the distribution of Greenland halibut. The Council is therefore, subject to the concurrence of Denmark (on behalf of Greenland) as regards Subarea 1, to provide an overall assessment of status and trends in the total stock area throughout its range and comment on its management in Subareas 0+1 for 2012, and to specifically:

Advise on appropriate TAC levels for 2012, separately, for Greenland halibut in the offshore area of Divisions 0A+1AB and Divisions 0B+1C-F. The Scientific Council is also asked to advise on any other management measures it deems appropriate to ensure the sustainability of these resources.

With respect to shrimp, it is recognized that the Council may, at its discretion, delay providing advice until later in the year, taking into account data availability, predictive capability, and the logistics of additional meetings.

2. Canada requests the Scientific Council to consider the following options in assessing and projecting future stock levels for Shrimp and Greenland halibut in Subareas 0 and 1:

a) For those stocks subject to analytical-type assessments, the status of the stock should be reviewed and management options evaluated in terms of their implications for fishable stock size in both the short and long term. The implications of no fishing as well as fishing at F0.1, and F2010 in 2012 and subsequent years should be evaluated in relation to precautionary reference points of both fishing mortality and spawning stock biomass. The present stock size and spawning stock size should be described in relation to those observed historically and those to be expected in the longer term under this range of fishing mortalities, and any other options Scientific Council feels worthy of consideration under the NAFO Precautionary Approach Framework.

b) Opinions of the Scientific Council should be expressed in regard to stock size, spawning stock sizes, recruitment prospects, catch rates and catches implied by these management strategies for the short and long term. Values of F corresponding to the reference points should be given. Uncertainties in the assessment should be evaluated and presented in the form of risk analyses related to B_{lim} (B_{buf}), and F_{lim} (F_{buf}), as per the NAFO Precautionary Approach Framework.

c) For those stocks subject to general production-type assessments, the time series of data should be updated, the status of the stock should be reviewed and management options evaluated in the way described above to the extent possible. Management options should be within the NAFO Precautionary Approach Framework.

d) For those resources for which only general biological advice and/or catch data are available, few standard criteria exist on which to base advice. The stock status should be evaluated in the context of the management requirements for long-term sustainability and management options evaluated in the way described above to the extent possible. Management options should be within the NAFO Precautionary Approach Framework.

I. Presentation of the results should include the following:

- For stocks for which analytical-type assessments are possible:
- A graph of historical yield and fishing mortality for the longest time period possible;
- A graph of spawning stock biomass and recruitment levels for the longest time period possible. The biomass graph should indicate the stock trajectory compared to B_{lim};

- Graphs and tables of catch options for the year 2012 and subsequent years over a range of fishing mortality rates (F) at least from F=0 to $F_{0.1}$ including risk analyses;
- Graphs and tables showing spawning stock biomass corresponding to each catch option including risk analyses;
- Graphs showing the yield-per-recruit and spawning stock per recruit values for a range of fishing mortalities.

II. For stocks for which advice is based on general production models, the relevant graph of production on fishing mortality rate or fishing effort.

In all cases, the reference points, F=0, actual F, and $F_{0.1}$ should be shown. As well, Scientific Council should provide the limit and precautionary reference points as described in the NAFO Precautionary Approach Framework, indicating areas of uncertainty (when reference points cannot be determined directly, proxies should be provided).

Annex IVa. Denmark (Greenland) Request for Scientific Advice on Management in 2012 of Certain Stocks in Subarea 0 and 1

1. Advice for Roundnose grenadier in Subarea 0+1 was in 2008 given for 2009-2011. Denmark (on behalf of Greenland) requests the Scientific Council to provide advice on the scientific basis for the management of Roundnose grenadier in Subarea 0+1 for 2012-2014.

2. Advice for redfish (*Sebastes spp*.) and other finfish (American plaice (*Hippoglossoides platessoides*), Atlantic wolffish (*Anarhichas lupus*), spotted wolffish (*A. minor*) and thorny skate (*Amblyraja radiata*) in Subarea 1 was in 2008 given for 2009-2011. Denmark (on behalf of Greenland) requests the Scientific Council to provide advice for redfish (*Sebastes spp*.) and other finfish (American plaice (*Hippoglossoides platessoides*), Atlantic wolffish (*Anarhichas lupus*), spotted wolffish (*A. minor*) and thorny skate (*Amblyraja radiata*) on the scientific basis for the management of in Subarea 1A for 2012-2014.

3. Subject to the concurrence of Canada as regards Subarea 0+1, the Scientific Council is requested to provide advice on appropriate TAC levels for 2012 separately for Greenland halibut in 1) the offshore area of NAFO Subarea 0A+Divisions 1A Offshore + Divisions 1B and 2) NAFO Subarea 0B + Division 1C-1F. The Scientific Council is also asked to advice on any other management measures it deems appropriate to ensure the sustainability of these resources.

4. Advice for Greenland halibut in Subarea 1A inshore was in 2010 given for 2011-2012. Denmark (on behalf of Greenland), requests the Scientific Council to continue to monitor the status of Greenland halibut in Subarea 1A inshore annually, and should significant change in stock status be observed, the Scientific Council is requested to provide updated advice as appropriate.

5. Subject to the concurrence of Canada as regards Subarea 0+1, Denmark (on behalf of Greenland) further requests the Scientific Council of NAFO before December 2011 to provide advice on the scientific basis for management of Northern shrimp (*Pandalus borealis*) in Subarea 0 and 1 in 2012 for as many years ahead as data allows for.

Furthermore, the Council is in co-operation with ICES requested to provide advice on the scientific basis for management of Northern shrimp (*Pandalus borealis*) in Denmark Strait and adjacent waters east of southern Greenland in 2012 and as many years ahead as data allows for.

Annex IVb. Additional Request from Denmark (Greenland) for Audit of Management Plan for the Shrimp Fishery in West Greenland

Denmark, on behalf of Greenland, requests the Scientific Council to audit the shrimp management plan to be available simultaneous with, or preferably immediately before, the annual shrimp advice in November 2011 with a view to include recommendations in the determination of the shrimp TAC for 2012.

As the shrimp group in the Scientific Council has estimated that the current reference points in section 20 of the shrimp management plan are too conservative, the Scientific Council is furthermore requested, with reference to Section 20 in the management plan, *to recommend specific threshold values as the appropriate threshold reference points in relation to* B_{msy}, B_{lim} *and* Z_{msy} *as soon as the limits of the biomass is exceeded.*

Annex IVc. Additional Request from Denmark (Greenland) on Striped pink shrimp (*Pandalus montagui*).

Greenland is in the process of establishing the necessary documentation for obtaining MSC certification for its shrimp fishery in West Greenland and in that respect Greenland has been asked to provide additional information on the stock and management regarding the Striped pink shrimp *(P. montagui)* in Subarea 0 and 1 in 2012 and years ahead.

As P. montagui is the main retained bycatch species in the fishery for Northern shrimp (P. borealis), the Council is requested for advice on measures that might be applied in the fishery for P. borealis to maintain the stock of P. montagui within safe biological limits.

The Scientific Council is in other words asked for advice on whether the stock of the main retained bycatch species P. montagui is within safe biological limits and on measures that might be applied in the fishery for P. borealis to maintain the stock of the main retained bycatch species P. montagui within safe biological limits.

Annex V. ICES ToRs for NIPAG

From 2010 ACOM and ACOM Expert Group ToR's
(http://www.ices.dk/iceswork/recs/2010%20Resolutions/ACOM%20EG%20ToRs%202011.pdf)

Generic ToRs for Regional and Species Working Groups

The following ToRs apply to: AFWG, HAWG, NWWG, NIPAG, WGWIDE, WGBAST, WGBFAS, WGNSSK, WGCSE, WGDEEP, WGHMM, WGEF and WGANSA.

The working group should focus on:

ToRs a) to g) for stocks that will have advice,
ToRs b) to f) and h) for stocks with same advice as last year.
ToRs b) to c) and f) for stocks with no advice.

a) Produce a first draft of the advice on the fish stocks and fisheries under considerations according to ACOM guidelines and implementing recommendations from WKMSYREF.

b) Update, quality check and report relevant data for the working group:

i) Load fisheries data on effort and catches (landings, discards, bycatch, including estimates of misreporting when appropriate) in the INTERCATCH database by fisheries/fleets. Data should be provided to the data coordinators at deadlines specified in the ToRs of the individual groups. Data submitted after the deadlines can be incorporated in the assessments at the discretion of the Expert Group chair;
ii) Abundance survey results;
iii) Environmental drivers.
iv) Propose specific actions to be taken to improve the quality of the data (including improvements in data collection).

c) Produce an overview of the sampling activities on a national basis based on the INTERCATCH database and report the use of InterCatch;

d) In cooperation with the Secretariat, update the description of major regulatory changes (technical measures, TACs, effort control and management plans) and comment on the potential effects of such changes including the effects of newly agreed management and recovery plans.

e) For each stock update the assessment by applying the agreed assessment method (analytical, forecast or trends indicators) as described in the stock annex. If no stock annex is available this should be prepared prior to the meeting.

f) Produce a brief report of the work carried out by the Working Group. This report should summarise for the stocks and fisheries where the item is relevant:

i) Input data (including information from the fishing industry and NGO that is pertinent to the assessments and projections);
ii) Where misreporting of catches is significant, provide qualitative and where possible quantitative information and describe the methods used to obtain the information;
iii) Stock status and 2012 catch options;
iv) Historical performance of the assessment and brief description of quality issues with the assessment;
v) Mixed fisheries overview and considerations;
vi) Species interaction effects and ecosystem drivers;
vii) Ecosystem effects of fisheries;
viii) Effects of regulatory changes on the assessment or projections;

g) Where appropriate, check for the need to reopen the advice in autumn based on the new survey information and the guidelines in AGCREFA (2008 report).

h) For the stocks where the advice is marked 'collate data', available data should be collected and presented as far as possible. If information is available for more than or only part of the area, the header for the stock can be adapted (please discuss with the secretariat).

i) Identify elements of the EGs work that may help determine status for the 11 Descriptors set out in the Commission Decision (available at:

http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:232:0014:0024:EN:PDF;

j) Provide views on what good environmental status (GES) might be for those descriptors, including methods that could be used to determine status.

k) Take note of and comment on the Report of the Workshop on the Science for area based management: Coastal and Marine Spatial Planning in Practice (WKCMSP) http://www.ices.dk/reports/SSGHIE/2011/WKCMSP11.pdf

l) Provide information that could be used in setting pressure indicators that would complement biodiversity indicators currently being developed by the Strategic Initiative on Biodiversity Advice and Science (SIBAS). Particular consideration should be given to assessing the impacts of very large renewable energy plans with a view to identifying/predicting potentially catastrophic outcomes.

m) Identify spatially resolved data, for e.g. spawning grounds, fishery activity, habitats, etc. In the EG report please indicate how advice for this stock can be given in future; both what timing (data availibility over the year) and analytical / trends based assessment options are concerned.

A draft advice sheet should be produced that presents available information and informs about the status of the stock assessment possibilities.

LIST OF RESEARCH AND SUMMARY DOCUMENTS 2011

SCR Documents

Doc No.	Serial No	Author(s)	Title
SCR 11/001	N5876	Mads Hvid Ribergaard	Oceanographic Investigations off West Greenland 2010
SCR 11/002	N5877	Valery V. Paramonov	Depth of catch of redfish (*Sebastes mentella*) and dependence of CPUE and length-weight characteristics from the depth of catch in North Atlantic
SCR 11/003	N5878	V.A. Rikhter and P.A. Bukatin	Comparative analysis of year-classes strength of some commercial fishes in the Atlantic and Pacific Oceans and adjacent seas
SCR 11/004	N5882	Heino Fock and Christoph Stransky	Stock Abundance Indices and Length Compositions of Demersal Redfish and Other Finfish in NAFO Sub-area 1 and near bottom water temperature derived from the German bottom trawl survey 1982-2010
SCR 11/005	N5885	Diana González-Troncoso, Esther Román, Ana Gago and Xabier Paz	Results for Greenland halibut, American plaice and Atlantic cod of the Spanish survey in NAFO Div. 3NO for the period 1997-2010
SCR 11/006	N5886	Diana González-Troncoso, Concepción González and Xabier Paz	Yellowtail flounder, redfish (*Sebastes* spp) and Witch flounder indices from the Spanish Survey conducted in Divisions 3NO of the NAFO Regulatory Area
SCR 11/007	N5887	Diana González-Troncoso, Concepción González and Xabier Paz	Biomass and length distribution for Roughhead grenadier, Thorny skate and White hake from the surveys conducted by Spain in NAFO 3NO
SCR 11/008	N5888	Teodoro Patrocinio Ibarrola and Xabier Paz	Discards and by-catch in Spanish fleet targeting Greenland halibut (*Reinhardtius hippoglossoides*) in NAFO Divisions 3LMNO: 2008 and 2009.
SCR 11/009	N5889	O.A. Jørgensen	Survey for Greenland Halibut in NAFO Divisions 1C-1D, 2010
SCR 11/010	N5890	O.A. Jørgensen	Bottom trawl survey in Baffin Bay, NAFO Divisions 1A, 2010
SCR 11/011	N5893	I. Yashayaev and B.J.W. Greenan	Environmental conditions in the Labrador Sea in 2010
SCR 11/012	N5894	B. J. W. Greenan, I. Yashayaev, W. Li, Y. Geshelin, Z. Wang, J. W. Loder, E. J. H. Head, K. Azetsu-Scott and W. G. Harrison	Oceanographic Observations in Support of Defining Vulnerable Marine Ecosystems in the NAFO Regulatory Area
SCR 11/013	N5895	G. Maillet, P. Pepin , C. Johnson, G. Harrison, E. Head, J. Spry, K. Pauley, C. Caverhill, H. Maass, M. Kennedy, C. Porter, I. Yashayaeva, B. Casault, S. Fraser, T. Shears, G. Redmond	Biological and Chemical Oceanographic Conditions on the Newfoundland and Labrador Shelf, Grand Banks, Scotian Shelf, and the Gulf of Maine During 2010
SCR 11/014	N5896	B. Petrie, R. G. Pettipas and D. Hebert	Physical Oceanographic Conditions on the Scotian Shelf and in the eastern Gulf of Maine (NAFO areas 4V,W,X) during 2010
SCR 11/015	N5897	Bruce Bradshaw, Luc Bujold, Jenny Chiu and Matt Ohara	Integrated Science Data Management - NAFO Report 2010
SCR 11/016	N5898	E. B. Colbourne, J. Craig, C. Fitzpatrick, D. Senciall, P. Stead and W. Bailey	An Assessment of the Physical Oceanographic Environment on the Newfoundland and Labrador Shelf in NAFO Subareas 2 and 3 during 2010

SCR 11/017	N5900	M. A. Treble	Report on Greenland Halibut caught during the 2010 Trawl Survey in NAFO Division 0A
SCR 11/018	N5901	I.S. Tretyakov, I.A. Skryabin, S.A. Egorov	Capelin Stock Assessment in NAFO Divisions 3NO Based on Data from Trawl Surveys
SCR 11/019	N5902	Esther Román, Concepción González-Iglesias and Diana González-Troncoso	Results for the Spanish Survey in the NAFO Regulatory Area of Division 3L for the period 2003-2010
SCR 11/020	N5904	Esther Román, Ángeles Armesto and Diana González-Troncoso	Results for the Atlantic cod, roughhead grenadier, redfish, thorny skate and black dogfish of the Spanish Survey in the NAFO Div. 3L for the period 2003-2010
SCR 11/021	N5904	José Miguel Casas and Diana González-Troncoso	Results from Bottom Trawl Survey on Flemish Cap of June-July 2010
SCR 11/022	N5905	Simpson, Miri, and Mello	An Assessment of White Hake (*Urophycis tenuis*, Mitchill 1815) in NAFO Divisions 3N, 3O, and Subdivision 3Ps
SCR 11/023	N5906	Mónica Mandado Antonio Vázquez	On otoliths sampling
SCR 11/024	N5908	Rasmus Nygaard and Ole A. Jørgensen	Biomass and Abundance of Demersal Fish Stocks off West Greenland Estimated from the Greenland Shrimp Fish Survey, 1988-2010.
SCR 11/025	N5909	Rasmus Nygaard, Heino Fock and Christoph Stransky	Assessment of Other Finfish in NAFO Subarea 1
SCR 11/026	N5911	A. Ávila de Melo, F. Saborido-Rey, Diana González Troncoso, Maria Pochtar and R. Alpoim	An Assessment of Beaked Redfish (*S. mentella* and *S. fasciatus*) in NAFO Division 3M (With an Approach to the Likely Impact of Recent 3M Cod Growth on Redfish Natural Mortality)
SCR 11/027	N5912	O.A. Jørgensen	Assessment of the Greenland Halibut Stock Component in NAFO Subarea 0 + Division 1A Offshore + Divisions 1B-1F
SCR 11/028	N5913	Antonio Vázquez	Validation of Flemish Cap cod ageing
SCR 11/029	N5914	W. Brodie, D. Parsons, E. Murphy, and K. Dwyer	An assessment of the witch flounder resource in NAFO Divisions 3NO
SCR 11/030	N5915	A. Akimova	Hydrographic conditions off West Greenland in 2010 in context of interannual and long-term variability based on in situ and satellite observations
SCR 11/031	N5916	B. P. Healey	Greenland halibut (*Reinhardtius hippoglossoides*) in NAFO Subarea 2 and Divisions 3KLMNO: Stock Trends based on annual Canadian Research Vessel survey results during 1978-2010.
SCR 11/032	N5917	R.M. Rideout, M.J. Morgan, D. Maddock Parsons, W.B. Brodie, B.P. Healey, D. Power and K.S. Dwyer	An assessment of American plaice in NAFO Div. 3LNO
SCR 11/033	N5918	Dawn Maddock Parsons, Joanne Morgan, Bill Brodie and Don Power	Assessment of NAFO Div. 3LNO Yellowtail Flounder
SCR 11/034	N5919	D. Maddock Parsons	Divisions 3LNO Yellowtail Flounder (*Limanda ferruginea*) in the 2009 and 2010 - Canadian Stratified Bottom Trawl Surveys
SCR 11/035	N5920	J.-C. Mahé	Greenland Halibut in NAFO Sub-area 2 & Divisions 3KLMNO – An update of Statistical Catch at Age Formulation to assess the Resource
SCR 11/036	N5921	B.P. Healey	An Assessment of Greenland Halibut (*Reinhardtius hippoglossoides*) in NAFO Subarea 2 and Divisions 3KLMNO

SCR 11/037	N5922	D. Maddock Parsons	Witch Flounder, American Plaice and Yellowtail Flounder in Canadian Spring and Autumn Surveys: Time Series Stock Distribution Maps
SCR 11/038	N5923	Diana González-Troncoso and Antonio Vázquez	Assessment of the Cod Stock in NAFO Division 3M
SCR 11/039	N5924	Peter A. Shelton and M. Joanne Morgan	Further considerations regarding reference points, harvest control rules and rebuilding strategies for 3LNO American plaice and 3NO cod
SCR 11/040	N5925	Rasmus Nygaard, Heino Fock and Christoph Stransky	Assessment of Demersal Redfish in NAFO Subarea 1
SCR 11/041	N5926	R. Alpoim and A. M. Ávila de Melo	An Assessment of American Plaice (*Hippoglossoides platessoides*) in NAFO Division 3M
SCR 11/042	N5927	Peter Shelton	Evolution and implementation of a management strategy for NAFO Subarea 2 and Divs. 3KLMNO Greenland halibut fishery
SCR 11/043	N5928	Rasmus Nygaard and Jesper Boje	Standardized logbooks from the inshore longline fishery on Greenland halibut in the inshore part of Div. 1A
SCR 11/044	N5929	Power	The Canadian fishery for Greenland halibut in SA 2 + Div. 3KLMNO, with emphasis on 2010
SCR 11/045	N5934	J.M. Casas Sánchez	Division 3M Northern shrimp (*Pandalus borealis*) – Interim Monitoring Update
SCR 11/046	N5935	D.C. Orr and D.J. Sullivan	Divisions 3LNO Northern Shrimp (*Pandalus borealis*) – Interim Monitoring Update
SCR 11/047	N5941	Diana González-Troncoso and Fernando González-Costas	New projections from the assessment of the Cod Stock in NAFO Division 3M
SCR 11/048	N5973	D S Butterworth and R A Rademeyer	On "Exceptional Circumstances" Provisions for the Management Strategy for the Greenland Halibut Stock in Subarea 2 + Divisions 3KLMNO based especially on Survey Results occurring Outside the Range Simulated
SCR 11/049	N5974	D.C. Orr and D.J. Sullivan	The 2011 assessment of the Northern Shrimp (*Pandalus borealis*, Kroyer) resource in NAFO Divisions 3LNO
SCR 11/050	N5975	Anja Retzel	A preliminary estimate of Atlantic cod (*Gadus morhua*) biomass in West Greenland offshore waters (NAFO Subarea 1) for 2011 and recent changes in the spatial overlap with Northern shrimp (*Pandalus borealis*)
SCR 11/051	N5976	Michael C.S. Kingsley	Catch Table Update for the West Greenland Shrimp Fishery
SCR 11/052	N5977	Michael C.S. Kingsley	The Fishery for Northern Shrimp (*Pandalus borealis*) off West Greenland, 1970–2011
SCR 11/053	N5978	Michael C.S. Kingsley	Pandalus montagui in the West Greenland shrimp fishery, 2001–2010.
SCR 11/054	N5979	Helle Siegstad	The Fishery for Northern Shrimp (*Pandalus borealis*) in Denmark Strait / off East Greenland – 2011
SCR 11/055	N5980	Kingsley, M.C.S, Helle Siegstad and Kai Wieland	The West Greenland trawl survey for *Pandalus borealis*, 2011, with reference to earlier results

SCR 11/056	N5981	Helle Siegstad	Results of the Greenland Bottom Trawl Survey for Northern shrimp (*Pandalus borealis*) Off East Greenland (ICES Subarea XIV b), 2008-2011
SCR 11/057	N5982	Michael C.S. Kingsley	Bycatch rates in the West Greenland shrimp fishery, 1975–2010
SCR 11/058	N5983	Michael C. S. Kingsley	A Provisional Assessment of the Shrimp Stock off West Greenland in 2011
SCR 11/059	N5984	J. M. Casas	The Spanish Shrimp Fishery on Flemish Cap (Division 3M) and Division 3L in 2010
SCR 11/060	N5985	J. M. Casas	Northern Shrimp (*Pandalus borealis*) on Flemish Cap Surveys 2011
SCR 11/061	N5986	J. M. Casas, E. Román, J. Teruel, E. Marull and G. Ramilo	Northern Shrimp (*Pandalus borealis*, Krøyer) from Spanish Bottom Trawl Survey 2011 in NAFO Div. 3LNO
SCR 11/062	N5987	J. M. Casas	Assessment of the International Fishery for Shrimp (*Pandalus borealis*) in Division 3M (Flemish Cap), 1993-2011
SCR 11/063	N5988	Bakanev S. V., Lubin P.A. and Zakharov D.V.	Results of Russian investigations of the northern shrimp in the Barents Sea in 2004-2011
SCR 11/064	N5989	G. Søvik and T. Thangstad	Results of the Norwegian Bottom Trawl Survey for Northern Shrimp (*Pandalus borealis*) in Skagerrak and the Norwegian Deep (ICES Divisions IIIa and IVa east) in 2011
SCR 11/065	N5991	C. Hvingel, T. Thangstad and P. Lyubin	Research survey information regarding northern shrimp (*Pandalus borealis*) in the Barents Sea and Svalbard area 2004-2011
SCR 11/066	N5992	Carsten Hvingel and Trude Thangstad	The Norwegian fishery for northern shrimp (*Pandalus borealis*) in the Barents Sea and round Svalbard 1970-2011
SCR 11/067	N5993	Sten Munch-Petersen, Mats Ulmestrand, Guldborg Søvik and Ole Eigaard	Discarding in the shrimp fisheries in Skagerrak and the Norwegian Deep (ICES Divs. IIIa and IVa east)
SCR 11/068	N5994	G. Søvik and T. Thangstad	The Norwegian Fishery for Northern Shrimp (*Pandalus borealis*) in Skagerrak and the Norwegian Deep (ICES Divisions IIIa and IVa east), 1970-2011
SCR 11/069	N5995	S. Munch-Petersen, O. Eigaard, G. Søvik and M. Ulmestrand	The Northern shrimp (*Pandalus borealis*) Stock in Skagerrak and the Norwegian Deep (ICES Divisions IIIa and IVa East) (ICES Divisions IIIa and IVa East)
SCR 11/070	N5996	H. Siegstad and N. Hammeken Arboe	Occurrence of Pandalus montagui in Trawl Survey Samples from NAFO Subareas 0+1.
SCR 11/071	N5997	Carsten Hvingel	Shrimp (*Pandalus borealis*) in the Barents Sea – stock assessment 2011
SCR 11/072	N6002	A. Cogswell, E. Kenchington, C. Lirette, J. Murillo Perez, G. Campanis, N. Campbell, N. Ollerhead	Layers Utilized by an ArcGIS model to Approximate Commercial Coral and Sponge Bycatch in the NAFO Regulatory Area

SCR 11/073	N6003	F.J. Murillo, E. Kenchington, M. Sacau, D.J.W. Piper, V. Wareham, A. Muñoz	New VME indicator species (excluding corals and sponges) and some potential VME elements of the NAFO Regulatory Area
SCR 11/074	N6004	F.J. Murillo, V. Wareham, M. Sacau, E. Román	New data on deep-water corals and large sponges from Spanish/EU and Canadian bottom trawl groundfish surveys in the NAFO Regulatory Area (Divs. 3LMNO): 2008-2010 period
SCR 11/075	N6005	E. Kenchington, F. J. Murillo, A. Cogswell, C. Lirette	Development of Encounter Protocols and Assessment of Significant Adverse Impact by Bottom Trawling for Sponge Grounds and Sea Pen Fields in the NAFO Regulatory Area
SCR 11/076	N6008	Peter Shelton and Brian Healey	Evaluating exceptional circumstances in the context of the Greenland halibut management strategy evaluation basedon the 2011 stock assessment
SCR 11/077	N60098	Perez, A.	Changes in feeding habits of the Flemish Cap demersal community

SCS Documents

SCS Doc. 11-01	N5873		FC Request for Advice
SCS Doc. 11-02	N5874		Greenland Request for Advice
SCS Doc. 11-03	N5875		Canada Request for Advice
SCS Doc. 11-04	N5880	R Statkus	Lithuania Research Report for 2010
SCS Doc. 11-05	N5881	J. Vargas, R. Alpoim, E. Santos and A. M. Ávila de Melo	Portuguese Research Report for 2010
SCS Doc. 11-06	N5883	H. O. Fock and A. Akimova	German Research Report for 2010
SCS Doc. 11-07	N5884	F. González-Costas, D. González-Troncoso, G. Ramilo, E. Román, J. Lorenzo, M. Casas, C. Gonzalez, A. Vázquez, and M. Sacau	Spanish Research Report for 2010
SCS Doc. 11-08	N5891	K.A. Sosebee	United States Research Report for 2010
SCS Doc. 11-09	N5899	D. Richards	Canadian Research Report for 2010 Newfoundland and Labrador Region
SCS Doc. 11-10	N5901	Greenland Institute of Natural Resources	Denmark/Greenland Research Report for 2010
SCS Doc. 11-11	N5902	I.A. Skryabin and M.V. Pochtar	Russian Research Report for 2010

SCS Doc. 11-12	N5903	NAFO Secretariat	Tagging
SCS Doc. 11-13	N5904	S.Sirp	Estonian Research Report for 2010
SCS Doc. 11-14	N5907	E.A. Trippel and M.J. Morgan	Report of the NAFO Scientific Council Working Group on Reproductive Potential
SCS Doc. 11-15	N5910	NAFO Secretariat	Inventory of Biological Sampling
SCS Doc. 11-16	N5930	NAFO	Report of the June Scientific Council Meeting
SCS Doc. 11/17	N5937	NAFO	Report of the Scientific Council, 1-12 September 2011
SCS Doc. 11-19	N5942	NAFO	Report of the Scientific Council, 19-23 September 2011
SCS Doc. 11/20	N5998	NAFO	NIPAG Report
SCS Doc. 11/21	N5999	NAFO	SC Report
SCS Doc. 11/22	N6006	NAFO	WGEAFM Report
SCS Doc. 11/23	N5939	NAFO Secretariat	Available Data from the Commercial Fisheries Related to Stock Assessment (2010) and Inventory of Biological Surveys
SCS Doc. 11/24	N6007	NAFO Secretariat	A Compilation of Research Vessel Surveys on a Stock-by-stock Basis

LIST OF REPRESENTATIVES, ADVISERS, EXPERTS AND OBSERVERS, 2011

A = SC Meeting 3-16 June 2011
B = SC Meeting 1-12 Sep 2011
C = SC Meeting 19-23 Sep 2011
D = SC and NIPAG Meeting 19-26 Oct 2011

CANADA

Representative:					
Brodie, W. B.	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone: +709-772-3288 – E-mail: bill.brodie@dfo-mpo.gc.ca	A	B	C	D
Morgan, M.J. (STACFIS Chair)	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone +709 772 2261 Email: joanne.morgan@dfo-mpo.gc.ca		B	C	
Advisers/Experts:					
Colbourne, Eugene	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone: +709-772-6106 – E-mail: eugene.colbourne@dfo-mpo.gc.ca	A			
Couture, Estelle	Fish Population Science, Fisheries and Oceans Canada, 200 Kent Street (Stn. 12S45), Ottawa, ON K1A 0E6 Phone: +613 990 0259 - E-mail: couturee@dfo-mpo.gc.ca			C	
Healey, Brian .	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone: +709-772-8674 – E-mail: brian.healey@dfo-mpo.gc.ca	A			
Kenchington, Ellen	Dept. of Fisheries & Oceans, BIO, P. O. Box 1006, Dartmouth, NS B2Y 4A2 Phone: +902-426-2030 - E-mail: ellen.kenchington@dfo-mpo.gc.ca			C	
Koen-Alonso, Mariano	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone: +709-772-2047 – E-mail: mariano.koen-alonso@dfo-mpo.gc.ca	A		C	
Maddock Parsons, Dawn	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone: +709-772-2495 – E-mail: dawn.parsons@dfo-mpo.gc.ca	A			
Maillet, Gary	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone +709-772-7675 - E-mail: gary.maillet@dfo-mpo.gc.ca	A			
Mowbray, Fran	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone: +709-772-5542 – E-mail: fran.mowbray@dfo-mpo.gc.ca	A			
Power, Don	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone: +709-772-4935 – E-mail: don.power@dfo-mpo.gc.ca	A			
Orr, D.	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone: +709-772-7343 – E-mail: david.orr@dfo-mpo.gc.ca		B	C	D
Rideout, Rick	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone: +709-772-6975 – E-mail: rick.rideout@dfo-mpo.gc.ca	A			
Simpson, Mark	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone: +709-772-4841 – E-mail: mark.r.simpson@dfo-mpo.gc.ca	A			
Shelton, Peter	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone +709 772 4148 – Email: peter.shelton@dfo-mpo.gc.ca				D
Siferd, Tim	Dept. of Fisheries & Oceans, Freshwater Institute, 501 University Cres. Winnipeg, MB, R3T 2N6 Email: tim.siferd@dfo.mpo.gc.ca				D
Stansbury, Don	Science Br., DFO Newfoundland & Labrador, P.O. Box 5667, St. John's, NL A1C 5X1 Phone: +709-772-0559 – E-mail: don.stansbury@dfo-mpo.gc.ca		B	C	D
Treble, Margaret.	Dept. of Fisheries & Oceans, Freshwater Inst., 501 University Cres., Winnipeg, MB R3T 2N6 Phone: +204-984-0985 – E-mail: margaret.treble@dfo-mpo.gc.ca	A			

DENMARK (in respect of Faroe Islands and Greenland)

GREENLAND					
Representative:					
Jørgensen, Ole	DTU-AQUA Technical University of Denmark, Charlottenlund Slot, DK-2920 Charlottenlund, Denmark Phone: +45 33 96 3300 - E-mail: olj@aqua.dtu.dk	A			

Adviser/Expert:					
Kingsley, Michael C.S.	Rue Principal, Cortiça, Apartado No. 3, 3300-357 São Martinho da Cortiça, Portugal Phone +351 23 945 8224 - Email: mcskingsley@gmail.com				D
Nygaard, Rasmus	Greenland Institute of Natural Resources, P.O. Box 570, DK-3900 Nuuk, Greenland Phone: +299 361200 – E-mail: rany@natur.gl	A			
Siegstad, Helle	Greenland Institute of Natural Resources, P.O. Box 570, GL-3900 Nuuk, Greenland Phone +299 36 1200 - Email: HeSi@natur.gl				D

EUROPEAN UNION (EU)

Representative:					
Vázquez, Antonio	Instituto de Investigaciones Marinas, Eduardo Cabello 6, 36208 Vigo Phone: +34 9 86 23 1930 –E-mail: avazquez@iim.csic.es	A		C	
Advisers/Experts					
Akimova, Anna	Instituto Nacional dos Recursos Biológicos, I.P. INRB/IPIMAR, Av. de Brasilia, 1449-006 Lisbon, Portugal Phone: +351 21 302 7000 – E-mail: ralpoim@ipimar.pt	A			
Alpoim, Ricardo	Instituto Nacional dos Recursos Biológicos, I.P. INRB/IPIMAR, Av. de Brasilia, 1449-006 Lisbon, Portugal Phone: +351 21 302 7000 – E-mail: ralpoim@ipimar.pt	A	B	C	
Avila de Melo, Antonio	Instituto Nacional dos Recursos Biológicos, I.P. INRB/IPIMAR, Av. de Brasilia, 1449-006 Lisbon, Portugal Phone: +351 21 302 7000 – E-mail: amelo@ipimar.pt	A	B	C	
Casas Sanchez, Jose Miguel	Instituto Espanol de Oceanografia, Centro Oceanografico de Vigo, P.O. Box 1552, E-3600, Vigo (Pontevedra), Spain. Phone +34 986 492 111 – Email mikel.casas@vi.ieo.es		B		D
De Cardenas, Enrique	Secretariat General del Mar, Ministerio de Medio Ambiiente y Medio Rural y Marino, Velázquez, 144, 28006 Madrid, Spain Phone: +34 91 347 6110 - Email: edecarde@mapya.es			C	
Duarte, Rafael	European Commission, Directorate General for Fisheries and Maritime Affairs, Rue Joseph II, 79 (02/217), Brussels, Belgium Phone: +32 2 299 0955 – E-mail: rafael.duarte@ec.europa.eu	A	B		
Fock, Heino	Institut fur Seefischerei, Palmaille 9, D-22767 Hamburg, Federal Republic of Germany Phone: +49 40 38905 169 – E-mail: heino.fock@vti-bund.de	A			
Gonzalez-Troncoso, Diana	Instituto Español de Oceanografia, Aptdo 1552, E-36280 Vigo (Pontevedra), Spain Phone: +34 9 86 49 2111 – E-mail: diana.gonzalez@vi.ieo.es	A		C	
Gonzalez-Costas, Fernando	Instituto Español de Oceanografia, Aptdo 1552, E-36280 Vigo (Pontevedra), Spain Phone: +34 9 86 49 2111 – E-mail: fernando.gonzalez@vi.ieo.es	A		C	
Mahé, Jean-Claude	IFREMER, Station de Lorient, 8, Rue François Toullec, 56100 Lorient, France Phone: +33 2 9787 3818 – E-mail: jcmahe@ifremer.fr	A		C	D
Sacau, Mar	Instituto Español de Oceanografia, Aptdo 1552, E-36280 Vigo (Pontevedra), Spain Phone: +34 9 86 49 2111 – E-mail: mar.sacau@vi.ieo.es	A		C	
Sirp, Silver	Estonian Marine Institute, 10ª Mäealuse Street, EE-12618 Talllinn, Estonia Phone +372529 5396 – Email Silver.Sirp@ut.ee		B	C	D
Statkus, Romas	Fishery Service, Division of the Fishery Research and Science, P.O. Box 108, LT-91001, Klaipeda, Lithuania Phone: +370 689 12393 – E-mail : romas.statkus@zuv.lt	A			

FRANCE (SPM)

Representative:					
Goraguer, Herlé	IFREMER, Station de Lorient, 8, rue Francois Toullec, 56100 Lorient, France E-mail: h.goraguer@ifremer.fr			C	

JAPAN

Representative:

Nishida, Tom	National Research Institute of Far Seas Fisheries, 5-7-1, Orido, Shimizu-ward, Shizuoka City, 424-8633 Phone: +81 54 336-6052 – E-mail: tnishida@affrc.go.jp	A			

NORWAY

Representative:

Hvingel, Carsten	Institute of Marine Research, P.O. Box 1870, N-5817 Bergen, Norway Phone: +47 77609750 – E-mail: carsten.hvingel@imr.no	A	B	C	D
Guldborg Søvik	Institute of Marine Research, P.O. Box 1870, N-5817 Bergen Phone +47 5523 5348 – Email: guldborg.soevik@imr.no				D

RUSSIAN FEDERATION

Representative:

Babayan, Vladimir	Russian Federal Research Institute of Fisheries & Oceanography (VNIRO), K. 17, V. Krasnoselskaya, Moscow, 107140 Phone: +499 264 9078 – E-mail: vbabayan@vniro.ru	A		C	

Advisers/Experts:

Bakanev, Sergey	Knipovich Polar Research Institute of Marine Fisheries and Oceanography (PINRO), 6 Knipovitch Street, RU-183763 Murmansk Phone +47 78910518 – Email: bakanev@pinro.ru				D
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	A		C	
Rikhter, Vladimir A.	Senior Scientist, Atlantic Scientific Research Institute of Marine Fisheries and Oceanography (AtlantNIRO), 5 Dmitry Donskoy Street, Kaliningrad 23600			C	
Skryabin, Ilya	Knipovich Polar Research Institute of Marine Fisheries and Oceanography (PINRO), 6 Knipovich St., Murmansk 183763 Phone: +7 8152 45 0568 – E-mail: skryabin@pinro.ru	A		C	
Tretiakov, Ivan	Knipovich Polar Research Institute of Marine Fisheries and Oceanography (PINRO), 6 Knipovich St., Murmansk 183763 Phone: +7 8152 47 2469 – E-mail: tis@pinro.ru	A		C	

UNITED STATES OF AMERICA (USA)

Representative:

Sosebee, Kathy	National Marine Fisheries Service, NEFSC, 166 Water St., Woods Hole, MA 02543 Phone: +508-495-2372 – E-mail: katherine.sosebee@noaa.gov	A		C	

INVITED EXPERTS

Möllmann, Christian	Institute for Hydrobiology and Fisheries Science, University of Hamburg, KlimaCampus, Grosse Elbstrasse 133, D-22767 Hamburg, Germany. Tel. +49 40 42838 6621, E-mail: christian.moellmann@uni-hamburg.de	A			
Ellenbroeck, Anton	Food and Agriculture Organization, FAO, FIPS-F201, Viale delle Terme di Caracalla, 00153, Rome, Italy Phone: + 39 570 54029 - E-mail: anton.ellenbroeck@fao.org	A			

OBSERVERS FROM ICES

DENMARK

Munch-Petersen, Sten	The National Institute of Aquatic Resources, Department of Sea Fisheries, Charlottenlund Slot, Jægersborg Alle 1, DK-2920 Charlottenlund Phone + 25 88 3390 - Email: smp@aqua.dtu.dk				D

SWEDEN

Ulmestrand, Mats	Swedish University of Agricultural Sciences (SLU), Department of Aquatic Resources, Institute of Marine Research, P.O Box 4, S- 453 21 Lysekil Phone +46 10 478 4048 - Email: mats.ulmestrand@slu.se				D

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			C	
Ryan, Janice	Fisheries Advisor, WWF-Canada, Atlantic Region , Newfoundland and Labrador Office, Suite 305, 140 Water St., St. John's, NL Canada A1C 6H6 Phone: +709 722 9453 ext. 2224 – E-mail: jryan@wwfcanada.org			C	
Saier, Bettina	Director, Oceans, WWF-Canada, Atlantic Region, 5251 Duke St., Suite 1202, Halifax, NS, Canada B3J 1P3 Phone: +902 482 1105 ext. 24 – Fax: +902 482 1107 – E-mail: bsaier@wwfcanada.org			C	

NAFO SECRETARIAT

Vladimir Shibanov	Executive Secretary	vshibanov@nafo.int
Neil Campbell	Scientific Council Coordinator	ncampbell@nafo.int
Barbara Marshall	Information Officer	bmarshall@nafo.int
George Campanis	IT Manager	gcampanis@nafo.int
Alexis Pacey	Publications Manager	apacey@nafo.int
Lesley Torbacioglu	Interim Office Manager	ltorbacioglu@nafo.int
Stan Goodick	Deputy Executive Secretary and Senior Finance and Administrative Officer	sgoodick@nafo.int
Ricardo Federizon	Fisheries Commission Coordinator	rfederizon@nafo.int
Bev McLoon	Personal Assistant	bmcloon@nafo.int
Cindy Kerr	Fisheries Information Manager	ckerr@nafo.int

SCIENTIFIC COUNCIL MERIT AWARDS

Year	Recipient	Institute
2009	Ralph Mayo	NMFS, Woods Hole, MA, USA
2010	Dr Manfred Stein	Institut fur Seefischerei, Hamburg, Germany
2011	Dr. Vladimir Rikhter	AtlantNIRO, Kaliningrad, Russian Federation

LIST OF RECOMMENDATIONS IN 2011

Scientific Council 3-16 Jun 2011

VII. Management Advice and Responses to Special Requests

1. Fisheries Commission

v) Management measures for blue whiting(Item 11)

Based on in blue whiting ecology, distribution and fishery it seems reasonable to change the NAFO classification of the blue whiting to a pelagic species as it is in NEAFC Scheme of Control and Enforcement (NEAFC 2010. Scheme of Control and Enforcement)

b) In line with conservation and management measures in force in the NEAFC Regulatory Area, adoption of a minimum mesh size for pelagic and semi-pelagic trawls which would include in paragraph 1 of Article 13 – Gear Requirements the following:

- g) 35 mm for blue whiting in the fishery using pelagic trawls in Subarea 2 and Divisions 1F, 3K and 3M.

The Scientific Council responded:

Besides the introduction (first paragraph) of the Fisheries Commission request 11 refers to NRA Division 1F, subarea 2 and Division 3K, item b) of the request refers to Subarea 2 and Divisions 1F, 3K and 3M. Scientific Council **recommended** that *Division 3M should not be considered for a possible mesh size change.*

STACFEN

10. The Formulation of Recommendations Based on Environmental Conditions

STACFEN **recommended** *input from Scientific Council for development of new time series and data products for future use and any additional species that could be evaluated in relation to the environment.*

STACFEN **recommended** that *consideration of support for one invited speaker to address emerging issues and concerns for the NAFO Convention Area during the June Meeting.*

STACFEN **recommended** *development of annual environmental composite indices to complement environmental information provided to STACFIS for the Subareas of interest (SA 0-1, SA3-Div. 3M, SA3 and Div. 3LNO, widely distributed stocks SA 2-4).*

STACFEN **recommended** that *the appearance of good year-classes in 2010 be explored in relation to environmental conditions.*

STACPUB

STACPUB **recommended** that *a Scientific Merit Award list be included at the back of future publications of the Scientific Council Report.*

6) Other Matters

b) JNAFS General Editor

STACPUB **recommended** that *the Scientific Council Coordinator be the General Editor. In future this should be included as part of the SC Coordinator's position.*

c) Update on digitization of NAFO historical documents and publications, and the ability to search

The next phase of the project is to digitize the rest of the NAFO publications. This includes all Scientific Council Reports, Meeting Proceedings of the General Council and Fisheries Commission and Annual Reports. This will be completed over the next year.

As well, plans are being made to begin digitizing the ICNAF documents and publications. This will be done in a phased approach and files will be uploaded to the website as they are completed. These files will be text-searchable.

STACPUB **recommended** that *a CD be created to include all historical documents.*

STACREC

3. Review of Previous Recommendations

To facilitate the compilation of overviews of research and data needs for NAFO stocks, STACREC **recommended** that *DEs compile this information for their stocks and forward to the Secretariat for inclusion in a future SCS document/working paper.*

STATUS: Nothing to report and this recommendation is reiterated.

d) ICES GHL ageing workshop, February 2011

STACREC expressed concern about the possible inaccuracy of Greenland halibut age determination and therefore, STACREC **recommended** that *research be conducted to determine maximum ages and to improve age determination methods.*

6. Data Sharing Arrangements

The NAFO Secretariat prepared a working paper giving some background to data sharing issues in NAFO. It was noted that while the situation had resolved itself since last year especially in light of the informal data sharing arrangements that had been made for the data used by the WGEAFM in December of 2010, there were still some issues. It was generally felt that while *ad hoc*, informal sharing does go on quite frequently between some scientists/countries it might be nice to have a more blanket and semi-formal arrangement. There were some discussions about central database repository for scientific information but it was felt that this may conflict with some country's arrangements. The process was seen as a two step approach, with the first step being the sharing of data. In the future, if required, database need and costs could be assessed.

STACREC **recommended** that *General Council seek approval from all Contracting Parties for sharing of survey data among members of Scientific Council for research aimed at addressing requests from Fisheries Commission.*

STACFIS

2. General Review of Catches and Fishing Activity

As in previous years STACFIS conducted a general review of catches in the NAFO SA 0–4 in 2010. STACFIS noted that an *ad hoc* working group had deliberated on catch estimates before the meeting, thereby enabling finfish catch estimates by stock, Division and Contracting Party to be available before the meeting commenced. This working group considered various sources of information including reported catches. Reported catches were updated with all available on 3 June 2011 as compiled from STATLANT 21 reports. Despite the fact that catch figures are fundamental to providing the best scientific advice, meeting the deadline of 1 May for the submission of STATLANT 21A data to the Secretariat continues to be a problem and the accuracy of officially reported provisional statistics remains questionable.

All catch estimates in this report are based on data available on 3 June 2011. These may be updated in future assessments if more data become available.

In order to expedite the work of the Scientific Council, STACFIS **recommended** that *all Contracting Parties take measures to improve the accuracy of their reported nominal catches and present them as far in advance of future June Meeting as possible.*

STACFIS **recommended** that *catch estimate, including discards, from national sampling programs be provided.*

1. Greenland Halibut (*Reinhardtius hippoglossoides*) in SA 0, Div. 1A offshore and Div. 1B-F

f) Research Recommendation

For Greenland halibut in Subareas 0+1 (excluding Div. 1A inshore), in 2010 STACFIS **recommended** that *catch rates in the gill net fisheries in Div. 0A and 0B and trawl fishery from Div. 0A from 2009 and 2010 should be made available before the assessment in 2011*. Trawl data from Div. 0A from 2009 and 2010 have been acquired and was presented in 2011.

For Greenland halibut in Subareas 0+1 (excluding Div. 1A inshore), STACFIS **recommended** that *catch rates in the gill net fisheries in Div. 0A and 0B from 2009, 2010 and 2011 should be made available before the assessment in 2012.*

4. Demersal Redfish (*Sebastes* spp.) in SA 1

f) Research recommendations

For redfish in Subarea 1, STACFIS **recommended** that *the GLM procedure applied to the EU-Germany survey data for redfish ≥17 cm should also be investigated for the pre recruits <17 cm.*

For redfish in Subarea 1, STACFIS reiterated the **recommendation** that *the species composition and quantity of redfish discarded in the shrimp fishery in SA 1 be further investigated.*

5. Other Finfish in SA 1

f) Research Recommendation

For other finfish in SA 1, STACFIS **recommended** that *the species composition and quantity of other finfish discarded in the shrimp fishery in SA1 be further investigated.*

For other finfish in SA 1,STACFIS **recommended** that *the distribution of these species in relation to the main shrimp-fishing grounds in SA1 be investigated, in order to further discover means of reducing the amount of discarded by-catch.*

6. Cod (*Gadus morhua*) in Div. 3M

i) Research recommendations

For cod in Div. 3M, STACFIS **recommended** that *an age reader comparison exercise be conducted.*

7. Redfish (*Sebastes mentella* and *Sebastes fasciatus*) in Div. 3M

f) Research Recommendations

STACFIS **recommended** that, *in order to confirm the most likely redfish depletion by cod on Flemish Cap, and be able to have an assessment independent approach to the magnitude of such impact and to the size structure of the redfish most affected by cod predation, the existing feeding data from the past EU surveys be analyzed and made available.* STACFIS also **recommended** that *this important line of ecosystem research based on the feeding sampling routine of the EU survey catch be done on an annual basis.*

STACFIS reiterated its **recommendation** that *an update of the Div. 3M redfish by-catch information be compiled on an annual basis, including the estimated weights and numbers of redfish caught annually in the Div. 3M shrimp fishery as well as tables showing their size distribution.*

8. American Plaice (*Hippoglossoides platessoides*) in Div. 3M

g) Research Recommendations

Average F in recent years has been very low relative to *M*. Efforts were made to apply to this stock a VPA-type Bayesian model, but so far this task need to be completed. At this moment the use of other methods than XSA is not expected to change the perception of the Div. 3M American plaice stock due to its very poor condition. Nevertheless STACFIS reiterates this research recommendation.

Therefore STACFIS **recommended** that *the utility of the XSA must be re-evaluated and the use of alternative methods (for e.g. survey based models stock production models) continue to be attempted in the next assessment of Div. 3M American plaice.*

For Div. 3M American plaice, some common ages in the catch are outside of the *Fbar* range, therefore STACFIS **recommended** that *other ranges of ages in F_{bar} be explored.*

For Div. 3M American plaice, due to the recent good recruitment at low SSB, STACFIS **recommended** *to explore the Stock/Recruitment relationship and B_{lim}.*

10. Redfish (*Sebastes mentella* and *Sebastes fasciatus*) in Divisions 3L and 3N

d) Conclusions

STACFIS **recommended** that *an update of the Div. 3L redfish by-catch information from the shrimp fishery be compiled on an annual basis, including the estimated weights and numbers of redfish caught annually as well as their size distribution.*

11. American Plaice (*Hippoglossoides platessoides*) in Div. 3LNO

g) Research Recommendations

For American plaice in Div. 3LNO, STACFIS **recommended** that *ADAPT model formulations that estimate the F ratio between the plus group and the last true age be investigated and that model fit and resulting retrospective patterns be compared to the current formulation that has an F ratio constraint of 1.*

For American plaice in Div. 3LNO, STACFIS **recommended** that *investigations be undertaken to compare ages obtained by current and former Canadian age readers.*

13. Witch Flounder (*Glyptocephalus cynoglossus*) in Div. 3NO

d) Research Recommendations

STACFIS **recommended** *further investigation of recruitment trends for witch flounder in Div. 3NO.* This should include analysis of trends in abundance in the survey series, as well as examination of areal distribution of small witch flounder, particularly in years where deeper strata are covered by surveys. STACFIS noted that analyses of recruitment will rely on length frequency data, as no ageing has been conducted on this stock since the early 1990s.

14. Capelin (*Mallotus villosus*) in Div. 3NO

f) Research Recommendations

STACFIS reiterates its **recommendation** that *initial investigations to evaluate the status of capelin in Div. 3NO should utilize trawl acoustic surveys to allow comparison with the historical time series.*

15. Redfish (*Sebastes mentella* and *Sebastes fasciatus*) in Div. 3O

d) Recommendations

For redfish in Div. 3O, STACFIS noted that although previous attempts at applying surplus production models to this stock were unsuccessful, additional data may improve model fits. STACFIS **recommended** that *additional work be undertaken to explore the application of surplus production model to this stock.*

16. Thorny skate (*Amblyraja radiata*) in Div. 3LNO and Subdiv. 3Ps

d) Research Recommendations

For thorny skate in Div. 3LNOPs, STACFIS **recommended** that *further work be conducted on development of a quantitative stock model. Exploration of Bayesian surplus production models has been initiated.*

For thorny skate in Div. 3LNOPs, STACFIS **recommended** that *due to the divergence in EU-Spain and Canadian spring surveys that analysis of the Canadian and EU-Spain indices be conducted for consistency and variation in relationship to spatial extent.*

17. White Hake (*Urophycis tenuis*) in Div. 3NO and Subdiv. 3Ps

e) Research Recommendations

For white hake in Div. 3NO and Subdiv. 3Ps, STACFIS **recommended** that *the maturity time series be analyzed to investigate any potential annual changes in maturity.*

18. Roughhead Grenadier (*Macrourus berglax*) in Subareas 2 and 3

d) Research Recommendation

For roughhead grenadier in SA 2+3, STACFIS **recommended** to *study the possibility of including in future assessments all surveys series for roughhead grenadier before 1995.*

19. Witch Flounder (*Glyptocephalus cynoglossus*) in Div. 2J+3KL

d) Research Recommendations

Witch flounder catch reported as taken in NAFO Div. 3M has the potential to belong to the Div. 2J3KL witch flounder stock, therefore STACFIS **recommended** that *the origin of the catch of witch flounder reported as caught in NAFO Div. 3M be explored.*

For witch flounder in Div. 2J, 3K and 3L, STACFIS **recommended** that *methods to improve the estimates of abundance and biomass from the Canadian autumn surveys be explored (for example excluding strata from the estimate where witch flounder are known not to occur).*

20. Greenland Halibut (*Reinhardtius hippoglossoides*) in SA 2 + Div. 3KLMNO

h) Research Recommendations

For Greenland halibut in Subarea 2 + Div. 3KLMNO, STACFIS **recommended** *ongoing investigations into the assessment methods used*. This should include further explorations with the statistical catch at age model.

For Greenland halibut in Subarea 2 + Div. 3KLMNO, STACFIS **recommended** that *research continue on age determination for Greenland halibut in Subarea 2 and Div. 3KLMNO to improve accuracy and precision.*

Previous survey experiments have noted that the depth distribution of Greenland Halibut extends beyond 1500m, the maximum depth of the survey information currently available to assess this stock. Considering that very few age 10+ fish are captured in either commercial fisheries or in trawl surveys, STACFIS reiterated its **recommendation**

that *exploratory deep-water surveys for Greenland Halibut in Subarea 2 and Divisions 3KLMNO be conducted using gears other than bottom trawls to complement existing survey data.*

Tagging experiments could provide information on movement, growth rates and validate the current aging methods. STACFIS **recommended** that *tagging experiments of Greenland Halibut in Subarea 2 and Divisions 3KLMNO be conducted*.

Recognizing that the available survey series, taken individually or in combination, do not cover the entire range of this stock, STACFIS **recommended** *that a synoptic survey of Greenland Halibut in Subarea 2 and Divisions 3KLMNO be conducted* over a series of years, to the maximum depth possible.

Scientific Council 1-12 Sep 2011

STACFIS

b) Northern Shrimp (*Pandalus borealis*) in Div. 3LNO

e) Research Recommendations

STACFIS **recommended** that *the biomass of Northern shrimp in Div. 3LNO be examined in relation to biomass of other species in the same area.*

Scientific Council 19-23 Sep 2011

IX. OTHER MATTERS

6. Access to VMS data

Data access issues were brought forward to Scientific Council by the WGEAFM co-chair. These issues arose when WGEAFM scientists requested access to VMS data held at the NAFO Secretariat. Even though NAFO Secretariat staff and WGEAFM scientists achieved an agreement on how the data should be handled to prevent any disclosure of confidential information to the scientific team, the constraints imposed by the current CEM provisions pertaining VMS data requires that any data released by the Secretariat should be linked to an explicit request by Fisheries Commission, and can only be provided in a summary form.

Modern technologies, like VMS, have emerged as powerful tools for improving management and enforcement practices, but they also provide an important source of information that, as recent work by WGEAFM and Scientific Council has shown, can be used for scientific analyses that can improve the advice that Scientific Council gives to Fisheries Commission. In this context, and in full consideration of the privacy and confidentiality requirements associated with the use of VMS and other types of data that may be available via the NAFO Secretariat, Scientific Council **recommended** *Fisheries Commission to modify the language contained in the current CEM so to allow the NAFO Secretariat to release these types of data to Scientific Council, with the provision that the data must be completely anonymized before its release to Scientific Council, and that it should only be used for analyses pertaining questions posed by NAFO constituent bodies.*

NIPAG 19-26 Oct 2011

2. Northern Shrimp (Div. 3LNO)

e) Review of Research Recommendations

2010 NIPAG recommendations for research pertaining to Northern shrimp in Div. 3LNO:

- *biological and CPUE data from all fleets fishing for shrimp in the area be submitted to the Designated Expert, in the standard format, by 1 September 2011.*

STATUS: NIPAG drew attention to the late and inadequate submission of this information by a number of Contracting Parties, and reiterated its recommendations for improvements.

NIPAG recommendations for Northern shrimp in Div. 3LNO:

- *biological and CPUE data from all fleets fishing for shrimp in the area be submitted to the Designated Expert, in the standard format, by 1 September 2012.*

- *NIPAG recommended that research continue into fitting production models to data for northern shrimp in Div. 3LNO including studies of stock structure and continued investigation of stock assessment models for Pandalus borealis in NAFO Div. 3LNO. This may help provide estimations of B_{MSY} and F_{MSY}.*

5. Northern shrimp in Skagerrak and Norwegian Deep (ICES Div. IIIa and IVa East) – ICES Stock

e) Management Recommendations

NIPAG **recommended** that, *for shrimp in Skagerrak and Norwegian Deep:*

- *sorting grids or other means of facilitating the escape of fish should be implemented in this fishery.*

- *all Norwegian vessels should be required to complete and provide log books.*

f) Research Recommendations

NIPAG **recommended** that, *for shrimp in Skagerrak and Norwegian Deep:*

- *The Norwegian survey time series indices from 1984 - 2003 should be recalculated in order to provide confidence intervals and length frequency distributions.*