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AGENDA I - SCIENTIFIC COUNCIL MEETING, 4-18 JUNE 2009

- I. Opening (Scientific Council Chair: Don Power)
 - 1. Appointment of Rapporteur
 - 2. Presentation and Report of Proxy Votes (by interim 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 2008
- III. Fisheries Environment (STACFEN Interim Chair: Manfred Stein)
 - 1. Opening
 - a) Introduction and Administrative Matters
 - b) Appointment of Rapporteur
 - 2. Invited speaker
 - 3. Integrated Science Data Management (ISDM) Report for 2008
 - 4. Review of the physical, biological and chemical environment in the NAFO Convention Area during 2008
 - 5. Interdisciplinary studies
 - 6. An update of the on-line annual ocean climate status summary for the NAFO Convention Area
 - 7. Environmental indices (implementation in the assessment process)
 - 8. Formulation of recommendations based on environmental conditions during 2008
 - 9. National Representatives
 - 10. Other Matters
 - a) Decadal Symposium
 - 11. Adjournment
- IV. Publications (STACPUB Chair: Manfred Stein)
 - 1. Opening
 - 2. Appointment of Rapporteur
 - 3. Adoption of Agenda
 - 4. Review of Recommendations in 2008
 - 5. Report on “pre-STACPUB” meeting, NAFO Headquarters, 3 June 2009
 - 6. Review of Publications,
 - 7. Editorial Matters Regarding JNAFS
 - a) General Editors Report
 - b) Review of Editorial Board
 - c) Publication initiatives
 - d) General discussion
 - 8. Other Matters
 - 9. Adjournment
- V. Research Coordination (STACREC Chair: Ricardo Alpoim)
 - 1. Opening
 - a) Appointment of Rapporteur
 - 2. Review of Previous Recommendations
 - 3. Fishery Statistics
 - a) Progress report on Secretariat activities in 2008/2009
 - i) Acquisition of STATLANT 21A and 21B reports for recent years
 - ii) Information collected by the Secretariat
 - 4. Research Activities
 - a) Biological sampling
 - i) Report on activities in 2008/2009
 - 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 2008
 - ii) Surveys planned for 2009 and early 2010

- c) Other Research Activities
- d) Stock assessment spreadsheets – update
 - i) Consideration of a revisited edition of the Manual of Groundfish Surveys
 - ii) Oceanic (pelagic) redfish catch data
 - iii) Sampling of commercial fisheries
 - iv) Other matters
 - v) Closing
- 5. Cooperation with other Organizations
 - a) CWP
 - b) FIRMS
- 6. Review of SCR and SCS Documents
- 7. Other Matters
 - a) Tagging activities
 - b) Other business
- VI. Fisheries Science (STACFIS Chair: Michael Kingsley)
 - 1. Opening
 - 2. General Review
 - a) Review of Recommendations in 2008
 - b) General Review of Catches and Fishing Activity
 - 3. Stock Assessments
 - a) Certain Stocks in SA 2, 3 and 4; as Requested by the Fisheries Commission with the Concurrence of the Coastal States (Annex 1)
 - i) Thoroughly assessed stocks (Annex 1: Items 1-6):
 - Redfish in Div. 3M
 - Cod in Div. 3M
 - American plaice in Div. 3LNO
 - Yellowtail flounder in Div. 3LNO
 - Greenland halibut in SA 2 and Div. 3KLMNO
 - Capelin in Div. 3NO
 - White hake in Div. 3NOPs
 - ii) Monitored stocks (Item 2). To be provided in the agreed format (NAFO Sci. Coun. Rep., 2005, Part A, Appendix IV, 2.i):
 - Cod in Div. 3NO
 - Redfish in Div. 3O
 - Redfish in Div. 3LN
 - Witch flounder in Div. 3NO
 - Thorny skate in Div. 3LNOPs
 - American plaice in Div. 3M
 - Witch flounder in Div. 2J+3KL
 - Northern shortfin squid in Area 3 & 4
 - b) Certain Stocks in SA 0 and 1, as Requested by Denmark (Greenland) (Annex 3):
 - i) Monitored stocks. To be provided in the agreed format (NAFO Sci. Coun. Rep., 2005, Part A, Appendix IV, 2.i):
 - Roundnose grenadier in SA 0 and 1 (Item 1)
 - Demersal redfish and other finfish (American plaice, Atlantic wolffish, spotted wolffish and thorny skate) in SA 1 (Item 2)
 - Greenland halibut in Div. 1A inshore (Item 4)
 - c) Stocks Overlapping the Fishery Zones in SA 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+IAB and Divisions 0B+IC-F (Annex 2, Item 1-2; Annex 3, Item 3)
 - d) Other stocks:
 - i) Monitored stocks. To be provided in the agreed format (NAFO Sci. Coun. Rep., 2005, Part A, Appendix IV, 2.i):
 - Roughhead grenadier in SA 2+3

4. Other Matters
 - a) FIRMS Classification for NAFO Stocks
 - b) Other Business
5. 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 the Year 2010 (Item 1-6)
 - i) Greenland halibut in SA 2 and Div. 3KLMNO
 - b) Request for Advice on TACs and Other Management Measures for the Years 2010 and 2011 (Item 2-6)
 - American plaice in Div. 3LNO
 - Yellowtail flounder in Div. 3LNO
 - Redfish in Div. 3M
 - Cod in Div. 3M
 - White hake in Div. 3NOPs
 - Capelin in Div. 3NO
 - c) Monitoring of Stocks for which Multi-year Advice was provided in 2007 or 2008 (Item 2)
 - Thorny skate in Div. 3LNOPs
 - Redfish in Div. 3LN
 - Redfish in Div. 3O
 - Cod in Div. 3NO
 - Witch flounder in Div. 2J+3KL
 - American Plaice in Div. 3M
 - Witch flounder in Div. 3NO
 - Northern shortfin squid in SA 3+4
 - d) Special Requests for Management Advice
 - i) The Precautionary Approach (Item 4-5)
 - ii) Evaluation of Rebuilding and Recovery Plans (Item 6)
 - iii) Review pelagic redfish distribution and stock-affinities (Item 7)
 - iv) 3NO Cod bycatch reduction measures (Item 8)
 - v) Protection of vulnerable marine ecosystem (Item 9)
 - vi) Evaluation of alternative assessment models for Greenland halibut in SA 2 + Div. 3KLMNO (Item 10)
 - vii) Specific Projections for recovering stocks (3M Cod, 3LNO American plaice) (Item 11)
 - viii) Assessment schedule change for Yellowtail Flounder in Div. 3LNO (Item 12)
 - ix) Consequences of mid-water trawl Mesh Size Reduction to 100mm or lower (Item 13)
 - x) Overview of role of seals in the marine ecosystem and impact on fish stocks (Item 14)
 - xi) Work arising via the NAFO Conservation and Enforcement Measures (CEM)
 2. Coastal States
 - a) Request by Canada for Advice on Management in 2010 (Annex 2)
 - i) Greenland halibut in SA 2 and Div. 3KLMNO: Separate TAC and Rebuilding Plan (Item 3.1 and 3.2)
 - ii) Alternative formulations of assessment models including fishery-based CPUE (Item 3.3)
 - b) Request by Denmark (Greenland) for Advice on Management in 2010 (Annex 3)
 - i) Roundnose grenadier in SA 0 and 1 (Item 1)
 - ii) Redfish and other finfish in SA 1 (Item 2)
 - iii) Greenland halibut in Div. 1A inshore (Item 4)
 - c) Request by Canada and Denmark (Greenland) for Advice on Management in 2010 (Annexes 2 and 3)
 - i) Greenland halibut in SA 0 and 1 (Annex 2: Item 1 and 2; Annex 3: Item 3)
 - d) Request by France (SPM) for Advice on management in 2010 of Certain Stocks in Div. 3LNOPs (Annex 4)
 - i) Thorny skate in Div. 3LNOPs
 - ii) White hake in Div. 3LNOPs
 3. Scientific Advice from Council on its own Accord
 - a) Oceanic (pelagic) redfish
 - b) Monitoring of Stocks for which Multi-year Advice was provided in 2007
 - Roughhead grenadier in SA 2 and 3
- VIII. Review of Future Meetings Arrangements
 1. Scientific Council and Special Session, September 2009
 2. Scientific Council, October/November 2009

3. Scientific Council Working Group on the Ecosystem Approach to Fisheries Management
4. Scientific Council, June 2010
5. Scientific Council, September 2010
6. Scientific Council, October/November 2010
7. ICES/NAFO Joint Groups
 - a) WGHARP, 24-28 August 2009
 - b) NIPAG, 21-29 October 2009, Dartmouth
 - c) WGDEC, 2010
 - d) NIPAG, October/November 2010
- IX. Arrangements for Special Sessions
 1. Special Session in 2009: Symposium on “Rebuilding Depleted Fish Stocks”
 2. Topics for future Special Sessions
- X. Meeting Reports
 1. Working Group on Reproductive Potential, Nov 2008
 2. Special Session in 2008: Marine Mammals Symposium, Dartmouth, Sep 2008
 3. *Ad hoc* Working Group of Fisheries Managers and Scientists on Vulnerable Marine Ecosystems March 2009
 4. Joint NAFO-ICES Joint Working Group on Deep Water Ecology, Copenhagen, March 2009
 5. NAFO SC WG EAFM, May 2009, by correspondence
 6. NAFO SC *ad hoc* Working Group on Assessment Methods for SA2+Div. 2J3KLMNO Greenland halibut, Dartmouth, June 2009
 7. Meetings attended by the Secretariat
 - a) CWP
 - b) FIRMS
- XI. Review of Scientific Council Working Procedures/Protocol
 1. Election of Chairs
 2. General Plan of Work for September 2009 Annual Meeting
 3. Review of Structure of Scientific Council
 4. Rules of Procedure
 - a) Harmonization of observers among NAFO bodies
 5. Other Matters
- XII. Other Matters
 1. Designated Experts
 2. Meeting Highlights for NAFO Website
 3. Sponsorship of symposia
 4. Information item on ICES WGOOFE
 5. Update on Executive Secretary position
 6. Greenland Halibut Management Strategy Evaluation
 7. Other Business
 - a) Scientific Merit Awards
 - b) TXOTX
 - c) Budget
- 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, 21–25 SEPTEMBER 2009

- I. Opening (Chair: Don Power)
 1. Appointment of Rapporteur
 2. Adoption of Agenda
 3. Attendance of Observers and Guest Experts
 4. Plan of Work
- II. Review of Scientific Council Recommendations
- III. Research Coordination (STACREC Chair: Ricardo Alpoim)
 1. Opening
 2. Fisheries Statistics
 - a) Progress Reports on Secretariat Activities
 - i) Review of STATLANT 21
 3. Research Activities
 - a) Surveys Planned for 2009 and Early-2010
 4. External Cooperation
 - a) Report of the Fisheries Resources Monitoring System (FIRMS) training session, July 2009
 - b) Guidance for upcoming CWP and FIRMS
 5. Other Matters
 - a) Review of SCR and SCS Documents
 - b) Other Business
- IV. Fisheries Science (STACFIS Chair: Michael Kingsley)
 1. Opening
 2. Interim Monitoring Updates
 - a) Northern Shrimp in Div. 3M
 - b) Northern Shrimp in 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. From September 2008
 - a) Update on Advice for Northern Shrimp in Division 3M
 - b) Update on Advice for Northern Shrimp in Divisions 3LNO
 2. Deferred from June 2009 Scientific Council meeting
 - a) Shrimp biomass distribution in 3LNO
 - b) Work arising via the NAFO Conservation and Enforcement Measures (CEM, Chapter 1bis)
 3. Ad hoc requests from current meeting
- VI. Meeting Reports
- VII. Review of Future Meeting Arrangements
 1. Scientific Council Meeting on Shrimp, October 2009
 2. Scientific Council Meeting, June 2010
 3. Annual Meeting, September 2010
 4. Scientific Council and NIPAG (Shrimp) Meetings, October-November 2010
 5. Working Group on the Ecosystem Approach to Fisheries Management
 6. Scientific Council Meeting, June 2011
- VIII. Future Special Sessions
 1. Workshop on new Assessment Methods, 2010
 2. Topics for Future Special Sessions
- IX. Scientific Council Working Procedures and Protocol
 1. Elections of Chairs
 2. Timetable and Frequency of Assessments
 3. Review of Structure of Scientific Council
- X. Other Matters
 1. Mesh size in the redfish fishery
 2. Other Business

- a) Merit Awards
 - b) Fisheries Science and Management Network for EU Fishing Areas (TXOTX) – an EU FP7 project
- XI. Adoption of Reports
 - 1. Committee Reports of STACREC and STACFIS
 - 2. Report of Scientific Council
- XII. Adjournment

AGENDA III – SCIENTIFIC COUNCIL MEETING, 21–29 OCTOBER 2009

- I. Opening (Chair: Ricardo Alpoim)
 - 1. Appointment of Rapporteur
 - 2. Adoption of Agenda
 - 3. Attendance of Observers
 - 4. Plan of Work
- II. Review of Recommendations in 2008 and in 2009 (to include outcome of Scientific Council Meeting of 21-25 September 2009)
- III. NAFO/ICES *Pandalus* Assessment Group
- IV. Formulation of Advice (see Annexes 1, 2, 3 and 4)
 - 1. Request from Fisheries Commission (to include outcome of Annual Meeting of 21-25 September 2009)
 - a) Northern shrimp (Div. 3M)
 - b) Northern shrimp (Div. 3LNO)
 - c) PA Reference points for shrimp in Div. 3LNO (Item 10, 2009 FC request)
 - d) Seasonal biomass and catch of shrimp in Div. 3M (Item 11, 2009 FC request)
 - 2. Requests from Coastal States
 - a) Northern shrimp (Subareas 0 and 1)
 - b) Northern shrimp (in Denmark Strait and off East Greenland)
- V. Other Matters
 - 1. Effort analysis using VMS data
 - 2. Stock Classifications
 - 3. Coordination with ICES Working Groups on Shrimp Stock Assessments
 - 4. Meeting of October/November 2010
 - 5. Meeting of October/November 2011
 - 6. Topics for Future Special Sessions
 - 7. Other Business
- VI. Adoption of Scientific Council and NIPAG Reports
- VII. Adjournment

ANNEX 1A. FISHERIES COMMISSION'S REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 2010 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 the stocks below which occur within its jurisdiction, requests that the Scientific Council, at a meeting in advance of the 2009 Annual Meeting, provide advice on the scientific basis for the management of the following fish and invertebrate stocks or groups of stocks in 2010:

Northern shrimp in Div. 3M, 3LNO
Greenland halibut in SA 2 and Div. 3KLMNO

Noting that SC will meet in October of 2008, FC requests SC to update its advice for 2009, as well as to provide advice for 2010, for both shrimp stocks referenced above.

2. The Fisheries Commission with the concurrence of the Coastal State as regards the stocks below which occur within its jurisdiction, requests that the Scientific Council, at a meeting in advance of the 2009 Annual Meeting, provide advice on the scientific basis for the management of the following fish stocks according to the following assessment frequency:

Two year basis

American plaice in Div. 3LNO
Capelin in Div. 3NO
Redfish in Div. 3M
Thorny skate in Div. 3LNOPs
White hake in Div. 3NOPs
Yellowtail flounder in Div. 3LNO

Three year basis

American plaice in Div. 3M
Cod in Div. 3NO
Cod in Div. 3M
Northern shortfin squid in SA 3+4
Redfish in Div. 3LN
Redfish in Div. 3O
Witch flounder in Div. 2J+3KL
Witch flounder in Div. 3NO

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

In 2009, advice should be provided for 2010 and 2011 for American plaice in Div. 3LNO, yellowtail flounder in Div. 3LNO, redfish in Div. 3M, cod in Div. 3M, white hake in Div. 3NO and capelin in Div. 3NO.

- In 2007, advice was provided for 2008, 2009 and 2010 for redfish in Div. 3LN, redfish in Div. 3O, cod in Div. 3NO and witch flounder in Div. 2J+3KL. These stocks will be next assessed in 2010.
- In 2008, advice was provided for 2009 and 2010 for yellowtail flounder in Div. 3LNO, and thorny skate in Div. 3LNOPs. These stocks will be next assessed in 2010.
- In 2008, advice was provided for 2009, 2010 and 2011 for cod in Div. 3M, American plaice in Div. 3M, witch flounder in Div. 3NO, redfish in Div. 3LN and northern shortfin squid in SA 3+4. These stocks will be next assessed in 2011. For redfish in Div. 3LN, the Scientific Council conducted full assessments and provided advice in 2007 and 2008 for this stock.

The Fisheries Commission 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 by-catches in other fisheries, provide updated advice as appropriate.

3. The Commission and the Coastal State 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_{2008} in 2010 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. 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 2010 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.
- 4. Noting the Precautionary Approach Framework as endorsed by Fisheries Commission, the Fisheries Commission requests that the Scientific Council provide the following information for the 2009 Annual Meeting of the Fisheries Commission for all stocks under its responsibility requiring advice for 2010:
 - 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.

5. 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 proposed 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} .
6. Many of the stocks in the NAFO Regulatory Area are well below any reasonable level of B_{lim} or B_{buf} . For these stocks, the most important task for the Scientific Council is to inform on how to rebuild the stocks. In this context and building on previous work of the Scientific Council in this area, the Scientific Council is requested to evaluate various scenarios corresponding to recovery plans with timeframes of 5 to 10 years, or longer as appropriate. This evaluation should provide the information necessary for the Fisheries Commission to consider the balance between risks and yield levels, including information on the consequences and risks of no action at all.
 - a) information on the research and monitoring required to more fully evaluate and refine the reference points described in paragraphs 1 and 3 of Annex II of the Agreement; these research requirements should be set out in the order of priority considered appropriate by the Scientific Council;
 - b) any other aspect of Article 6 and Annex II of the Agreement which the Scientific Council considers useful for implementation of the Agreement's provisions regarding the precautionary approach to capture fisheries; and
 - c) propose criteria and harvest strategies for new and developing fisheries so as to ensure they are maintained within the Safe Zone.
7. Regarding pelagic *S. mentella* redfish in NAFO Subareas 1-3, the Scientific Council is requested to review the most recent information available on the distribution and abundance of this resource, as well as any new information on the affinity of this stock to the pelagic redfish resource found in the ICES Sub-area XII, parts of SA Va and XIV and to the shelf stocks of redfish found in ICES Sub-areas V, VI and XIV, and NAFO Subareas 1-3 for 2009.
8. Noting the FC Rebuilding Plan for 3NO cod adopted in September 2007, Fisheries Commission requests Scientific Council to advise, before September 2010, on possible measures the Commission may consider to ensure by-catch of cod is kept at the lowest possible level.
9. Recognizing the initiatives on vulnerable marine ecosystems (VME), and with a view to completing fishery impact assessments at the earliest possible date, Fisheries Commission requests the Scientific Council to:
 - a) Provide, as soon as possible in 2008, delineations, if any, of significant concentrations of corals in the NAFO Regulatory Area, by species, for the identification of VMEs. This should include the size and catch characteristics of corals obtained respectively from commercial fishing vessels and fisheries research vessels and the assessment of significant adverse impacts, with a particular focus on those species which involve interactions with commercial fisheries. The data should include absence/presence of corals as well as density.
 - b) Provide, by June 30, 2009, delineations, if any, of significant concentrations of sponges in the Regulatory Area by species, including the size and catch characteristics of sponges obtained respectively from commercial fishing vessels and fisheries research vessels, with a particular focus on those species which involve interactions with commercial fisheries. The data should include absence/presence of sponges as well as density.

- c) With respect to corals and sponges in canyons denoted in the Scientific Council's response on the area denoted as "Southern Flemish Pass to Eastern Canyons", provide detailed information as soon as practicable or at least a report on progress by June 30, 2009, with a particular focus on those species which involve interactions with commercial fisheries.
10. With respect to Greenland halibut in SA 2 + Div. 3KLMNO, Fisheries Commission requests Scientific Council, in its 2009 assessment of this stock, in addition to the information requested above:
 - a) To complete an evaluation of alternate assessment models for this stock. This evaluation will enable the determination of the robustness of the assessment model currently used.
 - b) To advise Fisheries Commission, if catches of this stock are 16,000 tons in 2009 and in subsequent years, what is the biomass trajectory over these years, based on the most recent assessment?
 11. For stocks currently under moratorium, but showing recent increases as assessed by Scientific Council, such as 3M cod and 3LNO American plaice, Scientific Council is asked to provide catch, biomass, and fishing mortality projections where possible, for as many years as the data will allow, at the following levels of fishing mortality: $F=0$; $F_{0.1}$; and F_{2008} , in addition to any projections requested in the sections above.
 12. Noting that the Scientific Council assessments of American plaice and yellowtail in Div. 3LNO are currently scheduled to be done in alternate years, Fisheries Commission requests that Scientific Council provide full assessments of both these stocks in the same year. Noting the schedule of assessments currently followed, this would require an additional assessment of yellowtail flounder to be conducted in 2009.
 13. Fisheries Commission requests Scientific Council to examine the consequences resulting from a decrease in mesh size in the mid-water trawl fishery for redfish in Div. 3M, to 100 mm or lower.
 14. Noting the desire of NAFO to apply ecosystem considerations in the conservation and management of fish stocks in the NAFO area, the Scientific Council is requested to provide the Fisheries Commission at its next annual meeting in 2009 with an overview of present knowledge related to role of seals in the marine ecosystem of the Northwest Atlantic and their impact on fish stocks in the NAFO area, taking into account the proceedings at the September 29 – October 1, 2008 Symposium in Dartmouth.

ANNEX 1B. FISHERIES COMMISSION'S REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 2011 AND BEYOND OF CERTAIN STOCKS IN SUBAREAS 2, 3 AND 4 AND OTHER MATTERS

(Items 1, 10 and 11 are the only relevant Fisheries Commission request made in September 2009 to be addressed at this October 2009 Scientific Council meeting. Other requests are not included here and will be addressed at the 2010 Scientific Council meetings.)

Mindful of the desire to move to a risk-based approach in the management of fish stocks, Fisheries Commission with the concurrence of the Coastal State as regards to the stocks below which occur within its jurisdiction, requests the Scientific Council, in the provision of advice, 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 with the concurrence of the Coastal State as regards to the stocks below which occur within its jurisdiction, requests that the Scientific Council, at a meeting in advance of the 2010 Annual Meeting, provide advice on the scientific basis for the management of the following fish and invertebrate stocks or groups of stocks in 2011:

Northern shrimp in Div. 3M, 3LNO
Greenland halibut in SA 2 and Div. 3KLMNO

Noting that SC will meet in October of 2009, FC requests SC to update its advice for 2010, as well as to provide advice for 2011, for both shrimp stocks referenced above.

10. 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})

Fisheries Commission also requests the Scientific Council to provide information on the effect of the following catch levels in 2011 of 24,000t, 27,000t and 30,000t on the projected SSB and provide risk analyses where possible.

11. In considering the possible contribution of fishery catches to changes in stock size of 3M shrimp, it is noted that catches are summed by calendar year, but the surveys are executed in the summer. Is the temporal distribution of shrimp catches through the year well enough known to allow partial contribution of year's catches to stock-size changes to be calculated? On average, what fraction of the year's catches is taken before the execution of the survey?

ANNEX 2. CANADIAN REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 2010 OF CERTAIN STOCKS IN SUBAREAS 0 TO 4

1. Canada requests that the Scientific Council, at its meeting in advance of the 2009 Annual Meeting of NAFO, subject to the concurrence of Denmark (on behalf of Greenland), provide advice on the scientific basis for management in 2010 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 2010, and to specifically:

- a) advise on appropriate TAC levels for 2010, 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.
 - b) advise on the impact on the Greenland halibut in Subarea 0 and Divisions 1A (offshore) + 1B-F of increases in the catch in Divisions 0B+1C-F, in 2010, of 10%, 25%, and 50% above the 2009 TAC.
 - c) 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 $F_{0.1}$, and F_{2008} in 2010 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.

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.

- b) 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.
- c) 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.
- d) Presentation of the results should include the following:
 - I. 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 2010 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).

3. Regarding Greenland halibut in Subarea 2 + Divisions 3KLMNO, Canada requests the Scientific Council:
 - 1) to advise on appropriate TAC levels for 2010, based on biomass distribution, for Greenland halibut in these areas separately: SA 2+Division 3K and Divisions 3LMNO.
 - 2) to provide information on the status of Greenland halibut in SA 2+Divisions 3KLMNO in relation to the Greenland Halibut Rebuilding Plan and Strategy, including commentary on progress in relation to the targets described in the Strategy.
 - 3) Recognizing FC request 10 a) "To complete an evaluation of alternate assessment models for this stock. This evaluation will enable the determination of the robustness of the assessment model currently used", the Scientific Council is also requested to consider alternative formulations of any assessment models it evaluates that would include acceptable fishery-based CPUE indices.

Yours sincerely,

David Bevan
 Assistant Deputy Minister
 Fisheries and Aquaculture Management
 Fisheries and Oceans Canada
 Ottawa, Canada

ANNEX 3. DENMARK (GREENLAND) REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 2010 OF CERTAIN STOCKS IN SUBAREAS 0 AND 1

1. In the Scientific Council report of 2008, scientific advice on management of Roundnose grenadier in Subarea 0+1 was given as a 3-year advice (for 2009, 2010 and 2011). Denmark, on behalf of Greenland, requests the Scientific Council to continue to monitor the status of Roundnose grenadier in Subarea 0+1 annually and, should significant change in stock status be observed (e.g. from surveys), the Scientific Council is requested to provide updated advice as appropriate.
2. Advice for redfish (*Sebastes spp.*) and other finfish (American plaice (*Hippoglossoides platessoides*), Atlantic wolffish (*Anarhichas lupus*), spotted wolffish (*A. minor*) and thorny skate (*Raja radiata*)) in Subarea 1 was in 2008 given for 2009-2011. Denmark, on behalf of Greenland, requests the Scientific Council to continue to monitor the status of Redfish (*Sebastes spp.*) and other finfish in Subarea 1 annually and, should significant change in stock status be observed (e.g. from surveys), the Scientific Council is requested to provide updated advice as appropriate.
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 2010, 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. Scientific Council is also requested to provide advice on the impact on the Greenland halibut in Subarea 0 and Divisions 1A (offshore) + 1B-F of increases in the catch in Divisions 0B + 1C-F, in 2010, of 10%, 25%, and 50% above the 2009 TAC.
4. Advice for Greenland halibut in Subarea 1A inshore was in 2008 given for 2009-2010. 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 (e.g. from surveys), 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 2009 to provide advice on the scientific basis for management of Northern shrimp (*Pandalus borealis*) in Subarea 0 and 1 in 2010, and as many years forward as data allow.

Further, the Council is requested to advise, in co-operation with ICES, on the scientific basis for management of Northern shrimp (*Pandalus borealis*) in Denmark Strait and adjacent areas east of southern Greenland in 2010, and as many years forward as data allow.

On behalf of
The Agency of Fisheries, Hunting and Agriculture

Sincerely

Emanuel Rosing
Director-General

ANNEX 4. FRANCE (IN RESPECT OF SAINT-PIERRE ET MIQUELON) REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 2010 OF CERTAIN STOCKS IN DIVISIONS 3LNOPS

France (in respect of Saint-Pierre et Miquelon), in its capacity as Coastal State at the zone of regulation of the NAFO, asks the Scientific Council the formulation of an opinion on the management of certain stocks in 2010, in Divisions 3LNOPs (part of Division 3Ps being under French jurisdiction):

Thorny skate (*Amblyraja radiata*),
White hake (*Urophycis tenuis*).

François Gauthiez
Le Sous Directeur de Ressources Halieutiques
Direction des pêches maritimes et de l'aquaculture
Paris, France

LIST OF RESEARCH AND SUMMARY DOCUMENTS 2009

SCR Documents

Doc. No.	Serial No.	Author (s)	Title
SCR Doc. 09/1	N5619	Stein, M.	Climatic Conditions around Greenland - 2008
SCR Doc. 09/2	N5620	Stein, M.	Temperature Indices for Statistical Areas off East and West Greenland
SCR Doc. 09/3	N5621	Ribergaard, Mads Hvid	Oceanographic Investigations off West Greenland 2008
SCR Doc. 09/4	N5622	Paramonov, Valery V.	Comparative length-weight characteristics of beaked redfish <i>Sebastes mentella</i> in the different regions of fishing in the opened part of North Atlantic.
SCR Doc. 09/5	N5623	Rikhter, V.A. and P.A. Bukatin	Spawning biomass and recruitment relationships as additional indices of ocean fishes abundance dynamics and their possible application in fishery management strategy development
SCR Doc. 09/6	N5626	Kenchington, E., A. Cogswell, C. Lirette and F.J. Murillo-Perez	The Use of Density Analyses to Delineate Sponge Grounds and Other Benthic VMEs from Trawl Survey Data
SCR Doc. 09/7	N5632	E. Kenchington, M. Best, A. Cogswell, K. MacIsaac, F. J. Murillo-Perez, B. MacDonald, V. Wareham, S. D. Fuller, H. I. Ø. Jørgensbye Hansen, V. Sklyar and A. B. Thompson	Accurate Identification of Deep-water Coral Harvested in the NAFO Regulatory Area
SCR Doc. 09/8	N5634	Diana González-Troncoso, Esther Román and Xabier Paz	Results for Greenland halibut and American plaice of the Spanish survey in NAFO Div. 3NO for the period 1998-2008
SCR Doc. 09/9	N5635	D. González-Troncoso, C. Gonzalez and X. Paz	Atlantic cod and Yellowtail flounder indices from the Spanish Survey conducted in Divisions 3NO of the NAFO Regulatory Area
SCR Doc. 09/10	N5636	Diana González-Troncoso, C. Gonzalez 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 Doc. 09/11	N5637	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 1982-2008
SCR Doc. 09/12	N5639	B.P. Healey and W.B. Brodie	Brief notes on the execution of Canadian multi-species surveys in 2007 and 2008
SCR Doc. 09/13	N5641	Skryabin I.A., Fomin K.Yu., and Vinnichenko V.I.	Size-age and sex composition of Greenland halibut <i>Reinhardtius hippoglossoides</i> from commercial catches in the area off West Greenland in 2008
SCR Doc. 09/14	N5642	I.A. Skryabin, I.S. Tretiakov, S.E. Golovanov, K.V. Gorchinsky	Capelin Stock Assessment in NAFO Divisions 3NO Based on Data from Trawl Surveys
SCR Doc. 09/15	N5643	B. Petrie, R. G. Pettipas, W. M. Petrie and V. V. Soukhovtsev	Physical Oceanographic Conditions on the Scotian Shelf and in the eastern Gulf of Maine (NAFO areas 4V,W,X) during 2008

Doc. No.	Serial No.	Author (s)	Title
SCR Doc. 09/16	N5645	O.A. Jørgensen	Survey for Greenland Halibut in NAFO Divisions 1C-1D, 2008
SCR Doc. 09/17	N5649	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 2008
SCR Doc. 09/18	N5651	Bruce Bradshaw, Luc Bujold, Peter Yoon	Integrated Science Data Management NAFO Report 2008
SCR Doc. 09/19	N5653	José Miguel Casas and Diana González Troncoso	Results from Bottom Trawl Survey on Flemish Cap of June-July 2008
SCR Doc. 09/20	N5654	Nygaard, Sünksen and Jørgensen	Biomass and Abundance of Demersal Fish Stocks off West Greenland Estimated from the Greenland Shrimp Survey, 1988-2008
SCR Doc. 09/21	N5655	Fernando González-Costas	Roughhead Grenadier Subarea 2 and 3 XSA model configuration
SCR Doc. 09/22	N5657	F. González-Costas and D. González-Troncoso	Spanish 2006-2008 Fisheries Footprint , scientific Observers and surveys coverage and update of the Standardized CPUE Indices for Greenland Halibut
SCR Doc. 09/23	N5658	Esther Román, Concepción González-Iglesias, Ángeles Armesto and Diana González-Troncoso	Results for the Spanish Survey in the NAFO Regulatory Area of Division 3L for the period 2003-2008
SCR Doc. 09/24	N5659	Esther Román, Ángeles Armesto, Concepción González-Iglesias 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 2003-2008
SCR Doc. 09/25	N5660	L.N. Harris, M.A. Treble and M.J. Morgan	An Update of Maturity in Data for Greenland Halibut from Trawl Surveys of NAFO Subarea 0 with emphasis on Division 0A
SCR Doc. 09/26	N5661	M. A. Treble	Report on Greenland Halibut caught during the 2008 Trawl Surveys in NAFO Division 0A
SCR Doc. 09/27	N5662	R. M. Hendry	Environmental conditions in the Labrador Sea in 2008
SCR Doc. 09/28	N5663	M.R. Simpson and C.M. Miri	An Assessment of White Hake (<i>Urophycis tenuis</i> , Mitchell 1815) in NAFO Divisions 3NO, and Subdivision 3Ps
SCR Doc. 09/29	N5664	A. Ávila de Melo , F. Saborido-Rey, Diana González Troncoso, Ilya Skryabin and R. Alpoim	An Assessment of Beaked Redfish (<i>S. mentella</i> and <i>S. fasciatus</i>) in NAFO Division 3M Based on Revised 2005-2008 catches (Is a Retrospective Biased Assessment Necessarily Useless in Terms of Scientific Advice?)
SCR Doc. 09/30	N5665	O.A. Jørgensen	Assessment of the Greenland Halibut Stock Component in NAFO Subarea 0 + Division 1A Offshore + Divisions 1B-1F
SCR Doc. 09/31	N5666	D. Maddock Parsons	Divisions 3LNO Yellowtail Flounder (<i>Limanda ferruginea</i>) in the 2008 Canadian Stratified Bottom Trawl Survey
SCR Doc. 09/32	N5667	D. Maddock Parsons	Divisions 3LNO Yellowtail Flounder: Updated Survey and Catch Information for 2009 used in a Stock Production Model Incorporating Covariates (ASPIC)
SCR Doc. 09/33	N5669	B. P. Healey	Greenland halibut (<i>Reinhardtius hippoglossoides</i>) in NAFO Subarea 2 and Divisions 3KLMNO: Stock Trends based on annual Canadian Research Vessel survey results during 1978-2008

Doc. No.	Serial No.	Author (s)	Title
SCR Doc. 09/34	N5670	Diana González-Troncoso and Carmen Fernández	Assessment of the Cod Stock in NAFO Division 3M
SCR Doc. 09/35	N5671	K.S. Dwyer, M.J. Morgan, D. Maddock Parsons, W.B. Brodie, and B.P. Healey	An assessment of American plaice in NAFO Div. 3LNO
SCR Doc. 09/36	N5672	M. Joanne Morgan and Peter A. Shelton	The effect of choice of stock recruit model and partial recruitment on reference points in Div. 3LNO American plaice
SCR Doc. 09/37	N5673	Peter A. Shelton and David C.M. Miller	Robust management strategies for rebuilding and sustaining the NAFO Subarea 2 and Div. 3KLMNO Greenland halibut fishery
SCR Doc. 09/38	N5674	W. B. Brodie, D. Power, and B.P. Healey	The Canadian fishery for Greenland halibut in SA 2 + Div. 3KLMNO, with emphasis on 2008
SCR Doc. 09/39	N5675	Brian P. Healey and Jean-Claude Mahé	An assessment of Greenland Halibut in Sub-Area 2 and Divisions 3KLMNO
SCR Doc. 09/40	N5677	G. B. Stenson, M. Koen-Alonso and A. D. Buren	Recent Advances on the Role of Seals in the Northwest Atlantic Ecosystem
SCR Doc. 09-041	N5680	A. Brandão, R. Rademeyer and D. Butterworth	GLM standardisation of recent commercial CPUE data for Greenland halibut for Canada, Portugal and Spain which allows for finer spatial stratification.
SCR Doc. 09-042	N5681	D. Butterworth and R. Rademeyer	Further CPUE-based Assessments of the Greenland Halibut Resource using SCAA
SCR Doc. 09-043	N5682	D. Butterworth and R. Rademeyer	Extensions to SCAA Applications Reported in: "Further Applications of Statistical Catch-at-Age Assessment Methodology to the 2J3K-O Greenland Halibut Resource
SCR Doc. 09-044	N5683	B. Healey and M. J. Morgan	Population estimates of Greenland Halibut in NAFO Sub-area 2 & Divisions 3KLMNO using ADAPT
SCR Doc. 09-045	N5684	B. Healey	A chronology of analytical assessments for Greenland Halibut in NAFO sub-area 2 & Divisions 3KLMNO
SCR Doc. 09-046	N5685	J.-C. Mahé	Greenland Halibut in NAFO Sub-area 2 & Divisions 3KLMNO: sensitivity to different ADAPT formulations
SCR Doc. 09-047	N5686	M. J. Morgan and P. Shelton	FLEDA and SURBA analysis of the 2+3KLMNO Greenland halibut data
SCR Doc. 09-048	N5687	D. Maddock Parsons and B. Healey	A Stock Production Model Incorporating Covariates (ASPIC) for Greenland halibut (<i>Reinhardtius hippoglossoides</i>) including sensitivity and retrospective analyses.
SCR Doc. 09-049	N5688	A. Vázquez, R. Piñeiro and M. Mandado	Inquiry into ADAPT's performance.
SCR Doc. 09/050	N5694	J.M. Casas Sánchez	Division 3M Northern shrimp (<i>Pandalus borealis</i>) – Interim Monitoring Update
SCR Doc. 09/051	N5695	D.C. Orr, P.J. Veitch and D.J. Sullivan	Divisions 3LNO Northern shrimp (<i>Pandalus borealis</i>) – Interim Monitoring Update
SCR Doc. 09-052	N5696	A. A. Pavlenko	Optimum Mesh Size in Redfish Fisheries in the North Atlantic
SCR Doc. 09-053	N5714	Michael C. S. Kingsley	A Provisional Assessment of the Shrimp Stock off West Greenland in 2009
SCR Doc. 09-054	N5715	J. M. Casas	Northern Shrimp (<i>Pandalus borealis</i>) on Flemish Cap Surveys 2009
SCR Doc. 09-055	N5716	J. M. Casas, C. González, E. Marull and J. Teruel	Northern Shrimp (<i>Pandalus borealis</i> , Krøyer) from Spanish Bottom Trawl Survey 2009 in NAFO Div. 3LNO
SCR Doc. 09-056	N5717	J. M. Casas	Assessment of the International Fishery for Shrimp (<i>Pandalus borealis</i>) in Division 3M (Flemish Cap), 1993-2009

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SCR Doc. 09-057	N5718	J. M. Casas	Comparison of Northern Shrimp Age composition calculated from Length distributions in the EU Survey and from Commercial Samples in 3M Division
SCR Doc. 09-058	N5719	G. Søvik and T. Thangstad	Results of the Norwegian Bottom Trawl Survey for Northern Shrimp (<i>Pandalus borealis</i>) in Skagerrak and the Norwegian Deep (ICES Divisions IIIa and IVa east) in 2009
SCR Doc. 09-059	N5720	D.C. Orr, P.J. Veitch and D.J. Sullivan	The 2009 assessment of the Northern Shrimp (<i>Pandalus borealis</i> , Kroyer) resource in NAFO Divisions 3LNO
SCR Doc. 09-060	N5721	Michael C. S. Kingsley	Precisions for biomass-index series in fitting a stock-production model of the dynamics of the West Greenland shrimp stock by Bayesian methods.
SCR Doc. 09-061	N5722	C. Hvingel, T. Thangstad and P. Lyubin	Research survey information regarding northern shrimp (<i>Pandalus borealis</i>) in the Barents Sea and Svalbard area 2004-2009
SCR Doc. 09-062	N5723	Carsten Hvingel and Trond Thangstad	The Norwegian fishery for northern shrimp (<i>Pandalus borealis</i>) in the Barents Sea and round Svalbard
SCR Doc. 09-063	N5724	C. Hvingel	An assessment of the shrimp (<i>Pandalus borealis</i>) stock in the Barents Sea 2009
SCR Doc. 09-064	N5725	N. Hammeken Arboe and M. C. S. Kingsley	Catch Table Update for the West Greenland Shrimp Fishery
SCR Doc. 09-065	N5726	Kaj Sünksen and Nikoline Ziemer	A preliminary estimate of Atlantic cod (<i>Gadus morhua</i>) biomass in West Greenland offshore waters (NAFO Subarea 1) for 2009 and recent changes in the spatial overlap with Northern shrimp (<i>Pandalus borealis</i>)
SCR Doc. 09-066	N5727	Nanette Hammeken Arboe and Michael C.S. Kingsley	The Fishery for Northern Shrimp (<i>Pandalus borealis</i>) off West Greenland, 1970-2009
SCR Doc. 09-067	N5728	Nikoline Ziemer and Helle Siegstad.	Results of the Greenland Bottom Trawl Survey for Northern shrimp (<i>Pandalus borealis</i>) Off West Greenland (NAFO Subarea 1 and Division 0A), 1988-2009
SCR Doc. 09-068	N5729	T. Thangstad and G. Søvik	The Norwegian Fishery for Northern Shrimp (<i>Pandalus borealis</i>) in Skagerrak and the Norwegian Deep (ICES Divisions IIIa and IVa east), 1970-2009
SCR Doc. 09-069	N5730	S. Munch-Petersen, O. Eigaard, G. Søvik and M. Ulmestrand	The Northern shrimp (<i>Pandalus borealis</i>) Stock in Skagerrak and the Norwegian Deep (ICES Divisions IIIa and IVa East)
SCR Doc. 09-070	N5736	Hammeken Arboe, N. and Helle Siegstad	An assessment of the shrimp stock in Denmark Strait/ off East Greenland - 2009

SCS Documents

Doc No.	Serial No	Author	Title
SCS 09/1	N5615	Fisheries Commission	Fisheries Commission Request for Scientific Advice on Management in 2010 and beyond of Certain Stocks in Subareas 2, 3 and 4 and Other Matters
SCS 09/2	N5616	Canada	Canadian Request for Scientific Advice
SCS 09/3	N5617	Denmark (Greenland)	Greenland Request for Scientific Advice
SCS 09/4	N5618	France (St. Pierre et Miquelon)	France St. Pierre Request for Scientific Advice
SCS 09/5	N5624	Vargas, J. , R. Alpoim, E. Santos and A. M. Ávila de Melo	Portuguese Research Report
SCS 09/6	N5627	WGEAFM	Report of the Working Group on the Ecosystem Approach to Fisheries Management (WGEAFM)
SCS 09/7	N5629	WGDEC	2009 Meeting of the Joint ICES-NAFO Working Group on Deepwater Ecology [WGDEC]
SCS 09/8	N5630	NAFO Secretariat	Tagging Activities Reported for the Northwest Atlantic in 2008 and Early-2009
SCS 09/9	N5631	González, F., D. González , A. Vázquez, E. Román , M. Casas and G. Ramilo	Spanish Research Report
SCS 09/10	N5633	M.Plikshs and E.Kruze	Latvian Research Report for 2008
SCS 09/11	N5638	M. Stein and H. Fock	German Research Report for 2008
SCS 09/12	N5640	I.A. Skryabin, M.V. Pochtar, K.Yu. Fomin, V.I. Vinnichenko	Russian Research Report for 2008
SCS 09/13	N5644	V. Sutton-Pande	Canadian Research Report for 2008 - Newfoundland and Labrador Region
SCS 09/14	N5646	S.Sirp and T. Saat	Estonian Research Report for 2008
SCS 09/15	N5647	NAFO Secretariat	List of Sampling Data for 2008
SCS 09/16	N5648	NAFO Secretariat	Historical Catches
SCS 09/17	N5650	B. Lyberth	Denmark/Greenland Research Report for 2008
SCS 09/18	N5652	K.A. Sosebee	United States Research Report for 2008
SCS 09/19	N5656	NAFO Secretariat	Provisional Index and List of Titles of Research and Summary Documents of 2008
SCS 09/20	N5668	R. Statkus	Lithuanian Research Report for 2008
SCS 09/21	N5676	NAFO Secretariat	Delineation of Existing Bottom Fishing Areas in the NAFO Regulatory Area
SCS 09/22	N5678	NAFO Secretariat	Proposed Rules of Procedure for Observers at NAFO Meetings
SCS 09/23	N5679	NAFO	Report of the Scientific Council - June Report
SCS 09/24	N5692	NAFO Secretariat	Available data from the commercial fisheries related to stock assessment (2008) and inventory of biological surveys conducted in the NAFO Area in 2008 and biological surveys planned for 2008 and early-2009
SCS 09/25	N5697	NAFO	Report of the <i>ad hoc</i> Working Group on Assessment Methods for SA2 + Div. 3KLMNO Greenland Halibut, 1-3 June 2009
SCS 09/26	N5698	NAFO	Report of the Scientific Council - September meeting
SCS 09/27	N5731	NIPAG	Report of the NAFO/ICES <i>Pandalus</i> Assessment Group – October 2009
SCS 09/28	N5732	NAFO	Report of the Scientific Council – October Meeting

LIST OF REPRESENTATIVES, ADVISERS, EXPERTS AND OBSERVERS, 2009

Meeting * A = 4-18 June 2009
 B – 21-25 September 2009
 C = 21-29 October 2009

CANADA			Meeting*
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LIST OF RECOMMENDATIONS IN 2009
SCIENTIFIC COUNCIL MEETING 3-18 JUN 2009

III. FISHERIES ENVIRONMENT

STACFEN noted that in recent years good year classes have been observed in a number of populations in the northwest Atlantic. STACFEN therefore **recommended** that *the appearance of good year classes be explored in relation to environmental conditions*.

NAFO usually convenes a symposium on environmental issues every 10 years, and as the last one was held in 2002, E. B. Colbourne (Canada, DFO) suggested that the forthcoming ICES Symposium could take the place of the next NAFO symposium. STACFEN therefore **recommended** *Scientific Council to support participation and possible co-sponsorship in ICES Symposium – “Hydrobiological and ecosystem variability in the ICES area during the first decade of the XXI century”*.

IV. PUBLICATIONS

STACPUB **recommended** that *a coral guide be published in the NAFO Scientific Council Studies series in a waterproof format as well as an electronic format that would be available on the website*.

V. RESEARCH COORDINATION

STACREC **recommended** that *Contracting Parties make greater efforts to ensure that sampling of commercial fisheries is representative for all stocks, whether taken in directed fisheries or as bycatch*.

VI. FISHERIES SCIENCE

A **recommendation** made by STACFIS for the work of the Scientific Council as endorsed by the Council, is as follows: *all Contracting Parties take measures to improve the accuracy of their catch estimates and present them in advance of future June Meetings*.

VII. MANAGEMENT ADVICE AND RESPONSES TO SPECIAL REQUESTS

1. Fisheries Commission

A **recommendation** made by STACFIS for the work of the Scientific Council as **endorsed** by the Council, is as follows: *all Contracting Parties take measures to improve the accuracy of their catch estimates and present them in advance of future June Meetings*.

STACFIS

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

f) Research Recommendation

STACFIS **recommended** that *catch rates in the gill net fisheries in Div. 0A and 0B should be made available before the assessment in 2010*.

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

c) Conclusion

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

5. Other finfish in SA 1

d) Research Recommendation

STACFIS reiterated the **recommendation** that *the species composition and quantity of other finfish discarded in the shrimp fishery in Subarea 1 be further investigated.*

STACFIS reiterated the **recommendation** 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 bycatch.*

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

h) Research Recommendations

Seeing that the biomass of Div. 3M cod is increasing and the distribution of redfish fishery appears to be changing, STACFIS **recommended** that *cod bycatch should be more thoroughly investigated and the levels of commercial sampling increase.*

STACFIS noted that the short term development of this stock will be dependent on recent year-classes and therefore it **recommended** that *the stock be fully assessed in 2010.*

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

f) Research Recommendations

STACFIS reiterated its **recommendation** that *an update of the Div. 3M redfish bycatch 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

d) Research Recommendations

Average F in recent years has been very low relative to M . Therefore STACFIS reiterates its **recommendation** that *the utility of the XSA must be re-evaluated and the use of alternative methods (e.g. Survey-based models or stock production models) be attempted in the next full assessment of Div. 3M American plaice.*

Because ages below 3 are not well selected in the EU survey series STACFIS also reiterates its **recommendation** that *exploratory runs of the XSA should be done with the input data starting at age 3 or 4.*

10. Redfish (*Sebastes mentella* and *Sebastes fasciatus*) in Div. 3LN

c) Conclusions

STACFIS **recommended** that *an update of the Div. 3L redfish bycatch 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.*

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.*

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

e) Research Recommendations

STACFIS **recommended** that *the genetic analyses in 2003 of Div. 3NO versus Subdiv. 3Ps samples be continued; in order to help determine whether Div. 3NOPs white hake comprise a single breeding population.*

STACFIS **recommended** that *the collection of information on commercial catches of white hake be continued and now include sampling for age, sex and maturity to determine if this is a recruitment fishery.*

STACFIS **recommended** that *age determination should be conducted on otolith samples collected during annual Canadian surveys (1972-2005+); thereby allowing age-based analyses of this population.*

18. Roughhead grenadier (*Macrourus berglax*) in SA 2+3

d) Research Recommendation

STACFIS **recommended** to *explore the use the production models in this stock.*

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

f) Research Recommendations

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

Previous survey experiments have noted that the depth distribution of Greenland halibut extends beyond 1 500 m, 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.*

STACFIS **recommended** that *the choice of assessment model be investigated in further assessment workshops that would first quantitatively analyze the impacts of data characteristics and model structure and formulation on the estimation of state variables of interest, and secondly evaluate qualitatively the relative merits of model assumptions once their effects were known.*

SCIENTIFIC COUNCIL MEETING, SEPTEMBER 21-25 2009

X. OTHER MATTERS

1. Mesh size in the redfish fishery

Scientific Council reviewed a document (SCR Doc. 09/52) relevant to the Fisheries Commission request (Annex 1, Item 13) as well as a review of information from previous Council reports on issues of mesh size in redfish fisheries.

Scientific Council discussed the selectivity results presented in the research document and continue to be concerned that there appears to be little difference in the size-ranges of redfish retained by meshes of different sizes over the 90-130 mm mesh range. In addition, details on the configurations and hanging ratios of the cod-end mesh used in the research trials and those of commercial vessels were lacking. Scientific Council **recommended** that *further at-sea*

trials be conducted using square and diamond shaped meshes in the cod-end and that greater detail of the exact specifications of the research and commercial gears in use be documented. Scientists from the Russian Federation recorded that they expect to be able to conduct such trails and to provide a report back to Scientific Council in 2010.

It was noted that a cod-end containing redfish rapidly rises to the surface due to hydrostatic pressures and rather special conditions develop within the cod-end that results in the tension being taken off the meshes, thus allow them to open up and cause fish loss. It was therefore felt that the change of mesh size alone may not be a solution to the problem, and that some other gear modification may be more effective. Therefore, Scientific Council **recommended** that *the loss of redfish by mid-water and bottom trawls, during the later stages of hauling when the net comes to the surface, be referred to ICES for possible submission as a TOR to the ICES-FAO Working Group on Fishing Technology and Fish Behaviour (WGFTFB) to investigate possible technical measures that could reduce the loss of redfish at the surface due to their developed buoyancy.*

NIPAG MEETING, 21–29 OCTOBER 2009

1. Northern Shrimp on Flemish Cap (NAFO Div. 3M) – NAFO Stock

e) Research Recommendations

NIPAG **recommended** that, for shrimp in Div. 3M:

- *biological and CPUE data from all fleets fishing for shrimp in the area, be submitted to Designated Experts by 1 September 2010.*
- *the catch and effort data from other sources, for example VMS and/or Observer data, continue to be investigated to validate commercial data obtained from summarized logbooks or STATLANT data.*
- *the relationship between the recruitment indices and fishable biomass be investigated further.*
- *Collaborative efforts should be made to standardize a means of predicting recruitment to the fishable stock.*

2. Northern Shrimp on Flemish Cap (NAFO Div. 3M) – NAFO Stock

e) Research Recommendations

NIPAG **recommended** that 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 2010.*
- *Further exploration of the use of catch rate data as an index of biomass.*
- *Investigation of a production model for this stock. This would provide estimations of B_{msy} and F_{msy} .*

Collaborative efforts should be made to standardize a means of predicting recruitment to the fishable stock.

3. Northern shrimp (Subareas 0 and 1) – NAFO Stock

e) Research Recommendations

NIPAG **recommended** that, for shrimp off West Greenland (NAFO Subareas 0 and 1):

- *collaborative efforts should be made to standardise a means of predicting recruitment to the fishable stock;*
- *the adjustment of CPUE index series to take account of changes in the area of distribution of the fishery should be investigated;*
- *methods of ‘modal analysis’ for estimating age-class numbers should be further developed;*

- *improvements in the estimation of weight-length relationships, and their use in estimating sex-specific biomasses, should be investigated;*
- *downweighting of older data in the assessment model should be investigated.*

4. Northern shrimp (in Denmark Strait and off East Greenland) – NAFO Stock

d) Research Recommendations

NIPAG **recommended** that, for shrimp in Denmark Strait and off East Greenland:

collaborative efforts should be made to standardize a means of predicting recruitment to the fishable stock.