

## PART D: MISCELLANEOUS

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**AGENDA I - SCIENTIFIC COUNCIL MEETING, 7-21 JUNE 2007****I. Opening (Scientific Council Chair: Antonio Vázquez)**

1. Appointment of Rapporteur
2. Adoption of Agenda
3. Attendance of Observers
4. Plan of Work
5. Report of Proxy Votes (by Executive Secretary)

**II. Review of Scientific Council Recommendations in 2006****III. Fisheries Environment (STACFEN Chair: Eugene Colbourne)**

1. Opening
  - a) Introduction and Administrative Matters
  - b) Appointment of Rapporteur
2. Invited speaker – "Integrated Assessment of the North Sea Ecosystem" by Dr Andrew Kenny, CEFAS, Lowestoft, U.K.
3. Marine Environmental Data Service (MEDS) Report for 2006
4. Review of the physical, biological and chemical environment in the NAFO Convention Area during 2006
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 2006
9. National Representatives
10. Other Matters
11. Adjournment

**IV. Publications (STACPUB Chair: Manfred Stein)**

1. Opening
2. Appointment of Rapporteur
3. Review of Recommendations in 2006
4. Review of Publications
5. Editorial Matters Regarding Scientific Publications
  - a) Review of Editorial Board
  - b) Progress report of publication of Vol. 37, Symposium "Flemish Cap Symposium"
  - c) Progress report of publication of Vol. 38, Journal issue of Miscellaneous Papers
  - d) Progress report of publication of Vol. 39, Symposium "Environmental and Ecosystem Histories in the Northwest Atlantic"
  - e) Progress report of publication of book by Michael P. Fahay on "Early Stages of Fishes in the Western North Atlantic Ocean North of 35°N and West of 40°W"
  - f) General discussion
6. Papers for Possible Publication
7. Other Matters

**V. Research Coordination (STACREC Chair: Konstantin Gorchinsky)**

1. Opening
  - a) Appointment of Rapporteur
2. Review of Previous Recommendations
3. Fishery Statistics
  - a) Progress report on Secretariat activities in 2006/2007
    - i) Acquisition of STATLANT 21A and 21B reports for recent years
  - b) Report of the Coordinating Working Party on Fishery Statistics (CWP) 22<sup>nd</sup> Session, Rome, Italy, 26 February - 02 March 2007
  - c) FAO/NAFO Discrepancies
4. Research Activities
  - a) Biological sampling
    - i) Report on activities in 2006/2007
    - 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 2006 (by National Representatives and Designated Experts)
  - ii) Surveys planned for 2007 and early-2008
- c) Stock assessment spreadsheets - update
- d) Selectivity studies
- e) Consideration of a revisited edition of the Manual of Groundfish Surveys in the Northwest Atlantic (Doubleday, 1981)
- 5. FAO Cooperation
  - a) Report of the Fisheries Resources Monitoring System (FIRMS) Steering Committee (FSC) 4<sup>th</sup> Session, Rome, Italy, 26 February - 02 March 2007
- 6. Review of SCR and SCS Documents
- 7. Other Matters
  - a) Tagging activities
  - b) Research activities
  - c) Efficiency of Shrimp Trawls (NIPAG Report 2006, Item 4)
  - d) Other business
- VI. Fisheries Science (STACFIS Chair: Don Power)
  - 1. Opening
  - 2. General Review
    - a) Review of Recommendations in 2006
    - 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) (Northern shrimp in Div. 3M and Div. 3LNO (Item 1) will be undertaken during Scientific Council Meeting October/November, 2007):
      - i) Thoroughly assessed stocks (Item 2):
        - Cod in Div. 3NO
        - Redfish in Div. 3LN; Div. 3M; Div. 3O
        - American plaice in Div. 3LNO
        - Witch flounder in Div. 2J and 3KL
        - Capelin in Div. 3NO
        - White hake in Div. 3NOPs
        - Greenland halibut (Subarea 2 and Div. 3KLMNO)
      - ii) Monitored stocks (Item 2). These should be provided in the format agreed in June 2005 (NAFO Sci. Coun. Rep., 2005, Part A, Appendix IV, 2.i):
        - Cod in Div. 3M
        - American plaice in Div. 3M
        - Witch flounder in Div. 3NO
        - Yellowtail flounder (Div. 3LNO)
        - Northern shortfin squid in Subareas 3 and 4
        - Thorny skate (Div. 3LNOPs)
    - b) Certain Stocks in Subareas 0 to 4, as Requested by Canada (Annex 2):
      - i) Thoroughly assessed stocks (Item 3):
        - Greenland halibut in Subarea 2 and Div. 3KLMNO
    - c) Certain Stocks in Subareas 0 and 1 as requested by Denmark (Greenland) (Annex 3) (Northern shrimp in Denmark Strait and east of southern Greenland will be undertaken during Scientific Council Meeting October/November, 2007):
      - i) Monitored stocks. These should be provided in the format agreed in June 2005 (NAFO Sci. Coun. Rep., 2005, Part A, Appendix IV, 2.i):
        - Roundnose grenadier in Subareas 0 and 1 (Item 1)
        - Demersal redfish and other finfish (American plaice (*Hippoglossoides platessoides*), Atlantic wolffish (*Anarhichas lupus*), spotted wolffish (*A. minor*) and thorny skate (*Raja radiata*)) in Subarea 1 (Item 2)
        - Greenland halibut in Div. 1A inshore (Item 4)
    - d) Stocks Overlapping the Fishery Zones in Subareas 0 and 1 as Requested by Canada and by Denmark (Greenland) (Annexes 2 and 3 respectively) (Northern shrimp in Subareas 0 and 1 (Annex 2, Item 1 and Annex 3, Item 5) will be undertaken during Scientific Council Meeting October/November, 2007):

- i) Thoroughly assessed stocks:
      - Greenland halibut in the offshore area of Divisions OA+IAB and Divisions OB+IC-F (Annex 2, Items 2; Annex 3, Item 3)
    - e) Other stocks:
      - i) Thoroughly assessed stocks:
        - Roughhead grenadier in Subareas 2 and 3
  - 4. Other Matters
    - a) Other Business
- VII. Management Advice and Responses to Special Requests
  - 1. Fisheries Commission (Annex 1, Northern shrimp in Div. 3M and Div. 3LNO (item 1) will be Undertaken During Scientific Council Meeting October/November, 2007)
    - a) Request for Advice on TACs and Other Management Measures for the Year 2008
      - i) Greenland halibut in SA 2 and Div. 3KLMNO
    - b) Request for Advice on TACs and Other Management Measures for the Years 2008 and 2009
      - American plaice in Div. 3LNO
      - Redfish in Div. 3M
      - White hake in Div. 3NOPs
      - Capelin in Div. 3NO
    - c) Request for Advice on TACs and Other Management Measures for the Years 2008, 2009 and 2010
      - Redfish in Div. 3LN
      - Redfish in Div. 3O
      - Cod in Div. 3NO
      - Witch flounder in Div. 2J+3KL
    - d) Special Requests for Management Advice
      - i) The Precautionary Approach (Item 4)
      - ii) Evaluation of Recovery Plans (Item 6)
      - iii) The role of seals in the marine ecosystem (Item 7)
      - iv) Management measures for Div. 3O redfish fishery (Item 8)
      - v) Information on Seamounts (Item 9)
    - e) Monitoring of Stocks for which Multi-year Advice was provided in 2006
      - Cod in Div. 3M
      - American plaice in Div. 3M
      - Witch flounder in Div. 3NO
      - Yellowtail flounder in Div. 3LNO
      - Thorny skate in Div. 3LNOPs
      - Northern shortfin squid in SA 3 + 4
  - 2. Coastal States
    - a) Request by Canada for Advice (Annex 2)
      - i) TAC for Greenland halibut in SA 2 and Div. 3K, and in Div. 3LMNO (Item 3)
      - ii) Status of Greenland halibut in relation to the Rebuilding Plan and Strategy (Item 3)
    - b) Request by Denmark (Greenland) for Advice (Annex 3)
      - i) Roundnose grenadier in SA 0 + 1 (2006-2008) (monitor) (Item 1)
      - ii) Redfish and other finfish in SA 1 (2006-2008) (monitor) (Item 2)
      - iii) Greenland halibut in Div. 1A inshore (monitor) (Item 4)
    - c) Request by Canada and Denmark (Greenland) for Advice on TACs and Other Management Measures (Annexes 2 and 3)
      - Greenland halibut in Div. 0A + 1AB
      - Greenland halibut in Div. 0B + 1C-F
  - 3. Scientific Advice from Council on its own Accord
    - a) Roughhead grenadier in SA 2+3
- VIII. Future Scientific Council Meetings 2007 and 2008
  - 1. Scientific Council Meeting, 24-28 September 2007, and Symposium, 1-3 October 2007, Lisbon, Portugal
  - 2. NAFO/ICES *Pandalus* Assessment Working Group (NIPAG) Meeting, October/November 2007 (assessment of shrimp stocks) Dartmouth, Canada
  - 3. Scientific Council Meeting, June 2008
  - 4. Scientific Council Meeting and Special Session, September 2008,

5. NIPAG Meeting, November 2008 (assessment of shrimp stocks)
- IX. Arrangements for Special Sessions
  1. Progress Report on Special Session in 2007: *Reproductive and Recruitment Processes in Exploited Marine Fish Stocks*
  2. Proposal for Special Session in 2008
  3. Topics for future Special Sessions
- X. Reports of Working Groups
  1. Working Group on Reproductive Potential (Chair: E. A. Trippel)
  2. Joint NAFO-ICES Working Group on Harp and Hooded Seals
- XI. Review of Scientific Council Working Procedures/Protocol
  1. Election of Chairs
  2. NAFO Scientific Council Observership at ICES ACFM Meetings
  3. General Plan of Work for Annual Meeting in September
  4. Other Matters
- XII. Other Matters
  1. Ecosystem Approach to Fisheries Study Group
  2. Meeting Highlights for NAFO Website
  3. NAFO reform
  4. Classification criteria for NAFO Stocks
  5. 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, 24-28 SEPTEMBER 2007**

- I. Opening (Chair: Antonio Vázquez)
  1. Appointment of Rapporteur
  2. Adoption of Agenda
  3. Attendance of Observers
  4. Plan of Work
- II. Review of Scientific Council Recommendations from June 2007
- III. Research Coordination (STACREC Chair: Konstantin Gorchinsky)
  1. Opening
  2. Fisheries Statistics
    - a) Progress Reports on Secretariat Activities
      - i) Review of STATLANT 21
  3. Research Activities
    - a) Surveys Planned for 2007 and Early-2008
    - b) Consideration of a revised edition of the Manual of Groundfish Surveys in the Northwest Atlantic (Doubleday, 1981)
  4. Stock Assessment Database
    - a) Evaluation of the Assessment Data Submission Procedure
  5. Other Matters
    - a) Review of SCR and SCS Documents
    - b) Other Business
- IV. Fisheries Science (STACFIS Chair: Don Power)
  1. Opening
  2. Nomination of Designated Experts
  3. Other Matters
    - a) Review of SCR and SCS Documents
    - b) Other Business
- V. Special Requests from the Fisheries Commission
- VI. Review of Future Meeting Arrangements
  1. Scientific Council Meeting on Shrimp, October/November 2007
  2. Scientific Council Meeting, June 2008
  3. Annual Meeting, September 2008
  4. Scientific Council Meeting and NIPAG(Shrimp), November 2008
  5. Scientific Council Meeting, June 2009
- VII. Future Special Sessions
  1. Progress Report on Special Session in 2008: Symposium on the role of Marine Mammals in the ecosystem.
  2. Topics for future Special Sessions
- VIII. Scientific Council Working Procedures and Protocol
  1. Timetable and Frequency of Assessments
  2. Revision of Rules of Procedure - Observer Application Process
- IX. Other Matters
  1. Working Group on Ecosystem Approach to Fisheries Management
  2. Study Group on rebuilding strategies for Greenland halibut
  3. Placement of SCR and SCS drafts on members page
  4. Cooperation with COST/FRESH
  5. ICES/NAFO Working Group WGDEC
  6. Other Business
- X. Adoption of Reports
  1. Committee Reports of STACREC and STACFIS
  2. Report of Scientific Council
- XI. Adjournment

**AGENDA III - SCIENTIFIC COUNCIL MEETING, 24 OCTOBER–1 NOVEMBER 2007**

- I. Opening (Chair: Don Power)
  - 1. Appointment of Rapporteur
  - 2. Adoption of Agenda
  - 3. Attendance of Observers
  - 4. Plan of Work
- II. Review of Recommendations in 2006 and in 2007
- III. NAFO/ICES *Pandalus* Assessment Group
- IV. Formulation of Advice (see Annexes 1, 2 and 3)
  - 1. Request from Fisheries Commission
    - a) Northern shrimp (Div. 3M)
    - b) Northern shrimp (Div. 3LNO)
  - 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. Meeting of October/November 2008
  - 2. Meeting of October/November 2009
  - 3. Coordination with ICES Working Groups on Shrimp Stock Assessments
  - 4. Progress on Northern Shrimp Working Group
  - 5. Effort analysis using VMS data
  - 6. Stock classification
  - 7. Other Business
- VI. Adoption of Scientific Council and NIPAG Reports
- VII. Adjournment

### **Annex 1. Fisheries Commission's Request for Scientific Advice on Management in 2008 of Certain Stocks in Subareas 2, 3 and 4**

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 2007 Annual Meeting, provide advice on the scientific basis for the management of the following fish and invertebrate stocks or groups of stocks in 2008:

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

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 2007 Annual Meeting, provide advice on the scientific basis for the management of the following fish stocks according to the following assessment frequency:

<p>Two year basis</p> <p>American plaice in Div. 3LNO</p> <p>Capelin in Div. 3NO</p> <p>Redfish in Div. 3M</p> <p>Thorny skate in Div. 3LNOPs</p> <p>White hake in Div. 3NOPs</p> <p>Yellowtail flounder in Div. 3LNO</p>	<p>Three year basis</p> <p>American plaice in Div. 3M</p> <p>Cod in Div. 3NO</p> <p>Cod in Div. 3M</p> <p>Northern shortfin squid in SA 3+4</p> <p>Redfish in Div. 3LN</p> <p>Redfish in Div. 3O</p> <p>Witch flounder in Div. 2J+3KL</p> <p>Witch flounder in Div. 3NO</p>
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- In 2006, advice was provided for 2007 and 2008 for cod in Div. 3M, American plaice in Div. 3M, yellowtail flounder in Div. 3LNO, witch flounder in Div. 3NO, thorny skate in Div. 3LNOPs and northern shortfin squid in SA 3+4.

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

- In 2007, advice will be provided for 2008 and 2009 for American plaice in Div. 3LNO, redfish in Div. 3M, white hake in Div. 3NO and capelin in Div. 3NO. These stocks will be next assessed in 2009.
- In 2007, advice will be 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 will be 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 will be provided for 2009, 2010 and 2011 for cod in Div. 3M, American plaice in Div. 3M, witch flounder in Div. 3NO, and northern shortfin squid in SA 3+4. These stocks will be next assessed in 2011.

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:
  - 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 management 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  $F_{2006}$  in 2008 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 management 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, management 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 TACs 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 2008 and subsequent years over a range of fishing mortality rates
    - (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 2007 Annual Meeting of the Fisheries Commission for all stocks under its responsibility requiring advice for 2008:
  - 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 to 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  $B_{lim}$ , and  $F_{lim}$  and target  $F$  reference points selected by managers.
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. 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 2007 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 work of other relevant organizations, including ICES and NAMMCO.
8. Whether the following measures on Redfish in Division 3O, if applied in the NAFO Regulatory Area, are effective, in particular, in regard to addressing bycatch of species such as American plaice and Cod as conservation and management measure:
  - 90 mm mesh size
  - Limiting the maximum permissible harvest of 15% (by number) of redfish 22cm or smaller, imposing 5% limit on the bycatch of any other groundfish species in the fishery
  - Closure of fishing for a minimum of 10 days after reaching or exceeding of either the small fish or bycatch levels
  - Re-opening of fishery through use of test fisheries
9. Regarding the precautionary closure to four seamount areas based on the ecosystem approach to fisheries (FC Doc. 06/5), using existing survey and commercial data from these seamount areas the Scientific Council is requested to provide the Fisheries Commission, at the 2007 Annual Meeting, recommendations on: 1) areas that could be fished on each seamount and, 2) a protocol for the collection of the data required to assess these seamounts, with a view to future recommendations on management measures for these areas.

## Annex 2. Canadian Request for Scientific Advice on Management in 2008 of Certain Stocks in Subareas 0 to 4

1. Canada requests that the Scientific Council, at its meeting in advance of the 2007 Annual Meeting of NAFO, subject to the concurrence of Denmark (on behalf of Greenland), provide advice on the scientific basis for management in 2008 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 asked 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 throughout its range and comment on its management in Subareas 0+1 for 2008, and to specifically:

- a) advise on appropriate TAC levels for 2008, separately, for Greenland halibut in the offshore area of Divisions OA+IAB and Divisions OB+IC-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) 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  $F_{2006}$  in 2008 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 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 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 2008 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 2008, 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+ Divs. 3KLMNO in relation to the Greenland Halibut Rebuilding Plan and Strategy, including commentary on progress in relation to the targets described in the Strategy

Yours sincerely,  
 David Bevan  
 Assistant Deputy Minister  
 Fisheries and Aquaculture Management  
 DFO  
 Ottawa, Canada

### **Annex 3. Denmark's (Greenland) request for Scientific Advice on Management in 2008 of Certain Stocks in Subareas 0 and 1**

1. In the Scientific Council report of 2006, scientific advice on management of Roundnose grenadier in Subarea 0+1 was given as a 3-year advice (for 2006, 2007 and 2008). 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 2006 given for 2006-2008. Denmark, on behalf of Greenland, requests the Scientific Council to continue to monitor the status of Redfish (*Sebastes* spp.) and other finfish 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.
3. Subject to the concurrence of Canada as regards Subarea 0, the Scientific Council is requested to provide advice on the scientific basis for the management of Greenland halibut in the offshore area in Subarea 0 +Division 1A Offshore and Division 1B-1F in 2008, and as many years forward as data allow.
4. Advice for Greenland halibut in Subarea 1A inshore was in 2006 given for 2006-2008. 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, Denmark, on behalf of Greenland, further requests the Scientific Council of NAFO before December 2007 to provide advice on the scientific basis for management of Northern shrimp (*Pandalus borealis*) in Subarea 0 and 1 in 2008, 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 2008, and as many years forward as data allow.

On behalf of  
 The Department of Fisheries, Hunting and Agriculture  
 Sincerely  
 Amalie Jessen  
 Deputy Minister (acting)

#### **Annex 4. Fisheries Commission's Request for Scientific Advice on Management in 2009 of Certain Stocks in Subareas 2, 3 and 4**

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 2008 Annual Meeting, provide advice on the scientific basis for the management of the following fish and invertebrate stocks or groups of stocks in 2009:

Northern shrimp in Div. 3M, 3LNO

Greenland halibut in SA 2 and Div. 3KLMNO

Noting that SC will meet in Oct-Nov of 2007, FC requests SC to update its advice for 2008, as well as to provide advice for 2009, 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 2008 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

- In 2007, advice was provided for 2008 and 2009 for American plaice in Div. 3LNO, redfish in Div. 3M, white hake in Div. 3NO and capelin in Div. 3NO. These stocks will be next assessed in 2009.
- 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.
- To continue this schedule of assessments, the Scientific Council is requested to conduct the assessment of these stocks as follows:
- In 2008, advice will be 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 will be 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.
- Despite the advice on redfish in Div. 3LN in 2007, the Fisheries Commission requests a full assessment and advice in 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:
  - 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 management 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<sub>0.1</sub> and F<sub>2007</sub> in 2009 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 management 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, management 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 TACs 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 2009 and subsequent years over a range of fishing mortality rates
    - (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 BMSY)
    - yield/biomass ratio as a proxy for fishing mortality (both absolute and relative to FMSY)
    - 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 2008 Annual Meeting of the Fisheries Commission for all stocks under its responsibility requiring advice for 2009:
  - 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 to 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 Blim, and Flim and target F reference points selected by managers.
6. Many of the stocks in the NAFO Regulatory Area are well below any reasonable level of Blim or Bbuf. 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.
8. With respect to porbeagle shark (*Lamna nasus*) in the NAFO Convention Area, the Fisheries Commission with the concurrence of the Coastal State requests Scientific Council, at a meeting in advance of the 2008 Annual Meeting, to provide the following:
  - a) Information on historical and current catches and bycatches of the species in the NAFO Convention Area and NRA, summarized by NAFO Subarea and fishery;
  - b) Information on the abundance and distribution of the species in the Convention Area and the NRA;
  - c) Identification and delineation of any fishery areas or exclusion zones which might reduce the incidental bycatch of this species in NAFO regulated fisheries.

9. Noting the FC Rebuilding Plan for 3NO cod adopted in September 2007, Fisheries Commission requests Scientific Council to advise, before September 2010, on a range of possible management measures to ensure by-catch of cod is kept at the lowest possible level.
10. Recognizing the initiatives on vulnerable marine ecosystems (VME) Fisheries Commission requests the Scientific Council to:
  - a) Develop initial methodologies for the identification of VME and assessment of individual fishing activities, drawing on relevant international information and objective standards and guidelines as may have been developed, as deemed appropriate for this work;
  - b) Assess, at least on a preliminary basis, using the best available scientific information and assessment methodology, whether individual bottom fishing activities would have significant adverse impacts on identified vulnerable marine ecosystems, with a view to reporting these findings to the Fisheries Commission and ensuring that additional conservation and management measures, where required, are recommended, through a Working Group of Fishery Managers and Scientists on Ecosystems Management, to the Fisheries Commission at its September 2008 meeting.
  - c) Develop appropriate scientific methods for the longer term monitoring of the health of VME.



# LIST OF RESEARCH AND SUMMARY DOCUMENTS, 2007

## Scientific Council Research Documents (SCR)

SCR No.	Serial No.	Author(s) and Title
07/1	N5339	Ribergaard, M.H. Oceanographic Investigations off West Greenland 2006
07/2	N5341	Paramonov, V. V. The Latvian Redfish Fishery in NAFO Regulatory area in 2006
07/3	N5343	Rikhter, V. A. On the dynamics and prospects of some commercial fish stocks recovery in NAFO area (the Northwestern Atlantic Ocean)
07/4	N5344	Paramonov, V. V. Migrations of adult beaked redfish ( <i>Sebastes mentella</i> ) in North Atlantic in periods of fishing
07/5	N5345	Stein, M. Climatic Conditions Around Greenland – 2006
07/6	N5347	NAFO Secretariat. Information on Fishing On and Around the Four Closed Seamount Areas in the NRA
07/7	N5348	Vaskov, A. On introduction of the new measures of redfish fishery regulation in Div. 3O
07/8	N5349	Branton, R., Lenore Bajona, Shelley Bond, Mary Kennedy, Daniel Ricard, Lou Van Guelpen. Methods for Standardizing, Validating and Enriching Taxonomic Metadata
07/9	N5351	Borovkov, V. V. Climatic structure of fields of near-bottom temperature, salinity and water density in the Northwest Atlantic
07/10	N5353	Casas, José Miguel and Diana González Troncoso. Results from Bottom Trawl Survey on Flemish Cap of June-July 2006
07/11	N5354	Gorchinsky, K. V. Distribution and Length of Roughhead Grenadier by depth in NAFO Divisions 3KLMNO Based on Data from Russian Surveys in 1981-2006
07/12	N5356	Golovanov, S.E., K.V. Gorchinsky. Capelin Stock Assessment in NAFO Divisions 3NO Based on Data from Trawl Surveys
07/13	N5360	Petrie, B., R. G. Pettipas and W. M. Petrie. Air Temperature, Sea Ice and Sea-Surface Temperature Conditions off Eastern Canada during 2006
07/14	N5361	Petrie, B., 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 2006
07/15	N5362	Maillet, G.L., P. Pepin, S. Fraser, D. Lane, T. Shears. Biological Oceanographic Conditions in NAFO Subareas 2 and 3 on the Newfoundland and Labrador Shelf During 2006
07/16	N5363	Schock, Cara. Integrated Science Data Management NAFO Report 2006
07/17	N5365	Fock, Heino, Hans-Joachim Rätz 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 1982-2006
07/18	N5366	Brodie, W. and D Stansbury. A Brief Description of Canadian Multispecies Surveys in SA2+ Divisions 3KLMNO from 1995-2006
07/19	N5370	Kenny, Andrew. Integrated Assessments in Support of Large Marine Ecosystem Science, Management & Advice: Beyond Quality Status Reporting
07/20	N5371	Colbourne, E. B., 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 2006
07/21	N5372	Han, G. and D. Kulka. Dispersion of eggs, larvae and pelagic juveniles of White Hake ( <i>Urophycis tenuis</i> , Mitchell 1815) on the Grand Banks of Newfoundland in relation to subsurface currents
07/22	N5373	Treble, M. A., T. Siferd and E. Colbourne. Oceanographic Data from NAFO Subarea 0 and Division 2G Collected during Fisheries Surveys Conducted in 2005 and 2006
07/23	N5374	Morgan, M. J. and R. M. Rideout. An update of maturity estimates for Greenland halibut in NAFO Div. 2J+3K
07/24	N5375	Morgan, M.J., E.B. Colbourne and P.A. Shelton. An examination of growth and condition of Div. 3NO cod at different environmental temperatures
07/25	N5376	Murua and Gonzalez. A review on roughhead grenadier ( <i>Macrourus berglax</i> ) biology and population structure on Flemish Cap (NAFO Division 3M) 1991-2006 based upon EU Flemish Cap bottom survey data
07/26	N5377	González-Costas, F. and Juan Vicente Lorenzo. Spanish fisheries information in Corner Rise Seamount Complex (NAFO Divisions 6GH)
07/27	N5378	Maddock Parsons, D. Witch Flounder Population Trends in NAFO Divisions 2J, 3K and 3L

SCR No.	Serial No.	Author(s) and Title
07/28	N5380	Sünksen, Kaj and Ole A. Jørgensen. Biomass and Abundance of Demersal Fish Stocks off West Greenland Estimated from the Greenland Shrimp Survey, 1988-2006.
07/29	N5381	Jørgensen, O.A. Survey for Greenland Halibut in NAFO Divisions 1C-1D, 2006.
07/30	N5382	Gundersen, Agnes C. and Åge S. Høines. Landings and length distribution of Greenland halibut from the Norwegian fishery in West Greenland waters during 2006. (UPGRADED from WP 07/08)
07/31	N5383	Fernández, C., F. González and D. González Troncosos. Standardized CPUE Indices for Greenland Halibut in NAFO Regulatory Area of Divisions 3LMNO Based on Spanish Commercial Catch Rates.
07/32	N5384	Lisovsky, S., A.Pavlenko, S.Golovanov and A.Vaskov. On minimal trawl codend mesh size in redfish fishery in Div.3O of NAFO Regulatory Area.
07/33	N5385	Kulka, D.W., C.M. Miri, and M.R. Simpson. Update on the Status of Thorny Skate ( <i>Amblyraja radiata</i> Donovan, 1808) in NAFO Divisions 3L, 3N, 3O, and Subdivision 3Ps.
07/34	N5386	González-Costas, F. and H. Murua. An analytical assessment of NAFO roughhead grenadier Subareas 2 and 3 stock.
07/35	N5387	González-Troncoso, D., E. Román and X. Paz. Results for Greenland halibut and American plaice of the Spanish survey in NAFO Div. 3NO: biomass, length distribution and age distribution for the period 1997-2006.
07/36	N5388	González-Troncoso, D., F. González and X. Paz. Atlantic cod and Yellowtail flounder indices from the Spanish Survey conducted in Divisions 3NO of the NAFO Regulatory Area
07/37	N5389	González-Troncoso, Diana, Fernando 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
07/38	N5390	Ávila de Melo, A. M., R. Duarte, D. Power, and R. Alpoim. An ASPIC Based Assessment of Redfish in NAFO Divisions 3LN
07/39	N5391	Fernández, Carmen, Santiago Cerviño and Antonio Vázquez. A Survey-based Assessment of Cod in Division 3M
07/40	N5392	Morgan, M.J., E.F. Murphy, and J. Bratney . An Assessment of the Cod Stock in NAFO Divisions 3NO
07/41	N5393	Treble, M. A. Analysis of Data from the 2006 Trawl Surveys in NAFO Division 0A
07/42	N5394	Maillet, G., E. Colbourne. Variations in the Labrador Current Transport and Zooplankton Abundance on the NL Shelf
07/43	N5395	Walsh, S. J. and Eugene Colbourne. Investigating the effects of variation in surplus production, stock biomass, catch and climate on the Grand Bank yellowtail flounder population
07/44	N5396	Jørgensen, O.A. Assessment of the Greenland Halibut Stock Component in NAFO Subarea 0 + Division 1A Offshore + Divisions 1B-1F
07/45	N5397	Healey, B. P. Greenland halibut ( <i>Reinhardtius hippoglossoides</i> ) in NAFO Subarea 2 and Divisions 3KLMNO: Stock Trends based on annual Canadian Research Vessel survey results during 1978-2006
07/46	N5398	Hendry, R. Environmental conditions in the Labrador Sea in 2006.
07/47	N5399	Ávila de Melo, A., F. Saborido-Rey and R. Alpoim. An XSA Based Assessment of Beaked Redfish ( <i>S. mentella</i> and <i>S. fasciatus</i> ) in NAFO Division 3M
07/48	N5400	Campanis, G. VMS Data (upgraded from SC WP 07/07)
07/49	N5401	Stenson, G. B. Current Research on the Impact of Pinnipeds on Commercial Fish Stocks on the Northwest Atlantic
07/50	N5402	Brodie, W. B., D. Power and B. P. Healey. The Canadian fishery for Greenland halibut in SA2 + Div. 3KLMNO, with emphasis on 2006
07/51	N5403	Walsh, S. J., M. F. Veitch, E. B. Colbourne and W. B. Brodie. The 2007 interim monitoring report of yellowtail flounder stock status on the Grand Bank, NAFO Divisions 3LNO
07/52	N5404	Kulka, D. W. and C. M. Miri. The status of white hake ( <i>Urophycis tenuis</i> , Mitchell 1815) in NAFO Divisions 3L, 3N, 3O, and Subdivision 3Ps
07/53	N5405	Healey, B. P. and J.-C. Mahé. An assessment of Greenland halibut ( <i>Reinhardtius hippoglossoides</i> ) in NAFO Subarea 2 and Divisions 3KLMNO
07/54	N5406	González-Troncoso, D., M. Sacau and F. González-Costas. A study of Spanish commercial effort and CPUE in 3LMNO using GIS and a comparative with Spanish 3NO survey and EU survey catches

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07/55	N5407	Maddock Parsons, D. and D. Power. An assessment of the status of the redfish in NAFO Division 3O
07/56	N5408	Dwyer, K.S., M.J. Morgan, D. Maddock Parsons, W.B. Brodie, and B.P. Healey. An assessment of American plaice in NAFO Div. 3LNO
07/57	N5409	Walsh, S. Sensitivity Analysis and Alternate Model Formulation of Survey Biomass Indices used to Tuned ASPIC Surplus Production Model for Grand Bank Yellowtail Flounder
07/58	N5410	Miller, David C. M., Peter A. Shelton, Brian P. Healey, M. Joanne Morgan and William B. Brodie. Management strategy evaluation for SA 2+3LMNO Greenland halibut
07/59	N5411	Miller, D. and P. Shelton. A non-parametric bootstrap of the 2006 XSA assessment for Greenland Halibut ( <i>Reinhardtius hippoglossoides</i> ) in NAFO Subarea 2 + Divisions 3KLMNO using Fisheries Libraries in R (FLR)
07/60	N5413	Power, D. and D. Maddock Parsons. Information relevant to the Fisheries Commission request to the Scientific Council with respect to the redfish stock in Division 3O
07/61	N5414	Kulka, D., N. Templeman, J. Janes, A. Power, W.Brodie. Information on seamounts in the NAFO Convention Area
07/62	N5416	K.S. Dwyer, B. P. Healey and M. J. Morgan. Part I of American Plaice Div. 3LNO Research Recommendations: Data Explorations with ADAPT Analyses
07/63	N5423	C. González, Josefina Teruel, Eduardo López and Xabier Paz. Feeding Habits and Biological Features of Deep-Sea Species of the Northwest Atlantic: Large-eyed Rabbitfish ( <i>Hydrolagus mirabilis</i> ), Narrownose Chimaera ( <i>Harriotta raleighana</i> ) and Black Dogfish ( <i>Centroscyllium fabricii</i> )
07/64	N5427	D.C. Orr, P.J. Veitch and D.J. Sullivan. Divisions 3LNO Northern shrimp ( <i>Pandalus borealis</i> ) – Interim Monitoring Update
07/65	N5428	Diana González-Troncoso and Xabier Paz. Some Ecological Indices in Flemish Cap derived from the surveys conducted by EU between 1988 and 2006.
07/66	N5451	Kingsley, M. C. S. Catches of Northern Shrimp ( <i>Pandalus borealis</i> ) off West Greenland, 1999–2006.
07/67	N5452	Kingsley, M. C. S. Effect of Changing the Cod Series on a Bayesian Production Model for West Greenland Shrimp.
07/68	N5454	Siegstad, H. An assessment of the shrimp stock in Denmark Strait/off East Greenland – 2007.
07/69	N5455	Kingsley, M. C. S. The Fishery for Northern Shrimp ( <i>Pandalus borealis</i> ) off West Greenland, 1970-2007.
07/70	N5456	Kingsley, M. C. S. A Provisional Assessment of the Shrimp Stock off West Greenland in 2007.
07/71	N5457	Bergstöm, B. Results of the Greenland Bottom Trawl Survey for Northern shrimp ( <i>Pandalus borealis</i> ) off West Greenland (NAFO Sub area 1 and Division 0A), 1988-2007.
07/72	N5458	Skúladóttir, U. Revised CPUE in Icelandic Shrimp Fishery at Flemish Cap in 2004-2006
07/73	N5459	Sünksen, K. A preliminary estimate of Atlantic cod ( <i>Gadus morhua</i> ) biomass in West Greenland offshore waters (NAFO Subarea 1) for 2007 and recent changes in the spatial overlap with Northern shrimp ( <i>Pandalus borealis</i> ).
07/74	N5460	Hvingel, C., and T. Thangstad. The Norwegian fishery for northern shrimp ( <i>Pandalus borealis</i> ) in the Barents Sea.
07/75	N5461	Hvingel, C., and T. Thangstad. Research survey information regarding northern shrimp ( <i>Pandalus borealis</i> ) in the Barents Sea.
07/76	N5462	Hvingel, C. An assessment of the shrimp ( <i>Pandalus borealis</i> ) stock in the Barents Sea.
07/77	N5463	Casas, J. M. The Spanish Shrimp Fishery on Flemish Cap (Division 3M) and Division 3L in 2006.
07/78	N5464	Casas, J. M. Northern Shrimp ( <i>Pandalus borealis</i> ) on Flemish Cap Surveys 2007.
07/79	N5465	Casas, J. M. Northern Shrimp ( <i>Pandalus borealis</i> , Krøyer) from Spanish Bottom Trawl Survey 2006 in NAFO Divisions 3LNO.
07/80	N5466	Johannesen, E., C. Hvingel, M. Aschan, and B. Bogstad. Survey based estimation of consumption: spatial and seasonal aspects of cod predation on shrimp.
07/81	N5467	Munch-Petersen, S., O. Eigaard, G. Søvik, and M. Ulmestrand. The <i>Pandalus</i> Stock in Skagerrak and the Norwegian Deep (Divisions IIIa and IVa East).
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07/84	N5470	Eigaard, O. R., and S. Munch-Petersen. LPUE standardisation of The Danish <i>Pandalus</i> fishery in Skagerrak and the Norwegian Deep.
07/85	N5471	Ajiad, A., A. Aglen, and K. Nedreaas. Bycatch Estimates of Redfish ( <i>Sebastes</i> spp.) in the Norwegian Barents Sea Shrimp Fisheries during 1983-2002
07/86	N5472	Ajiad, A., A. Aglen, K. Nedreaas, and C. Kvamme. Cod bycatches in the Barents Sea shrimp fishery during 1983-2005.
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07/88	N5474	Sünksen, K. Discarded by-catch in shrimp fisheries in Greenlandic offshore waters 2006-2007.
07/89	N5475	Casas, J. M. Assessment of the International Fishery for Shrimp ( <i>Pandalus borealis</i> ) in Division 3M (Flemish Cap), 1993-2007.
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07/91	N5482	Orr, D.C., P.J. Veitch and D.J. Sullivan. An update of information pertaining to Northern Shrimp ( <i>Pandalus borealis</i> , Kroyer) and Groundfish in NAFO Divisions 3LNO

### Scientific Council Summary Documents (SCS)

SCS No.	Serial No.	Author(s) and Title
07/1	N5337	Fisheries Commission. Request for Scientific Advice on management in 2008 of Certain Stocks in Subareas 2,3 and 4
07/2	N5338	Denmark (Greenland). Request for Scientific Advice on management in 2008 of Certain Stocks in Subareas 0 and 1
07/3	N5340	Canada. Request for Scientific Advice on management in 2008 of Certain Stocks in Subareas 0 to 4
07/4	N5342	NAFO Secretariat. Tagging Activities Reported for the Northwest Atlantic in 2006 and Early-2007
07/5	N5346	NAFO Secretariat. Provisional Index and List of Titles of Research and Summary Documents of 2006
07/6	N5350	Vaskov, A.A., K.V. Gorchinsky, S.F. Lisovsky, M.V. Pochtar, I.K. Sigaev and V.A. Rikhter. Russian Research Report for 2006
07/7	N5352	Sosebee, K. A. USA Research Report for 2006
07/8	N5355	González, F., J. L. del Río, A. Vázquez, E. Román , M. Casas and G. Ramilo. Spanish Research Report for 2006
07/9	N5357	Vargas, J., R. Alpoim, E. Santos and A. M. Ávila de Melo. Portuguese Research Report for 2006
07/10	N5358	NAFO Secretariat. List of Biological Sampling in 2006
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07/12	N5368	Wells, Nadine, Margaret Treble, Tim Siferd, Bill Brodie and Pierre Richard. Canadian Research Report for 2006
07/13	N5369	NAFO Secretariat. Notes on Publications and Editorial Matters, June 2006-June 2007
07/14	N5368	NAFO Scientific Council Working Group on Reproductive Potential
07/15	N5379	Siegstad, H. Denmark/Greenland Research Report for 2006
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07/18	N5419	NAFO Secretariat. Proposed Format Changes to the NAFO Meeting Reports and SC Redbook
07/16	N5417	NAFO Secretariat. Historical Nominal Catches
07/19	N5420	NAFO. Report of Scientific Council Meeting, 7-21 June 2007
07/20	N5426	NAFO Secretariat. A Compilation of Research Vessel Surveys on a Stock-by-stock Basis
07/21	N5429	Update on STATLANT21
07/23	N5431	NAFO. Report of the September Meeting
07/24	N5476	NAFO. Report of the Scientific Council, 24 October – 1 November 2007
07/25	N5477	NAFO/ICES. Report of the NAFO/ICES <i>Pandalus</i> Assessment Group.

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A = June 2007

B = September 2007

C = November 2007

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## LIST OF RECOMMENDATIONS IN 2007

### Scientific Council Meeting, 7-21 June 2007

#### VII. Management Advice and Responses to Special Requests

##### 1. Fisheries Commission (Appendix V, Annex 1)

##### d) Special Requests for Management Advice

##### ii) *Evaluation of Recovery Plans* (Item 6)

Scientific Council **recommended** that *rebuilding or recovery plans for these stocks be considered, which should incorporate specific measures to reduce bycatch.*

Scientific Council also strongly **recommended** that *Fisheries Commission take steps to ensure that any bycatches taken during existing directed fisheries are true and unavoidable bycatches.*

##### v) *Information on Seamounts* (Item 9)

Scientific Council **recommended** that *any research survey in the closed areas should be reviewed first by Scientific Council before proceeding. Priority should be given to develop surveys that undertake bathymetric data collection, multi-beam surveys, taxonomic studies, and gear-mounted camera systems for habitat mapping.*

Scientific Council also **recommended** that *the boundaries of the seamount areas be modified to include any peaks close to the current boundaries, and that General Council discuss with WECAFC the issue of seamounts which straddle or are adjacent to the southern boundary of the NAFO Convention Area.*

#### XII. Other Matters

##### 4. Classification Criteria for NAFO Stocks

Scientific Council **recommended** that *the stock classification is included in the summary sheets and that clarification be added to the classification table to record if the stock has references points.*

##### 5. Other Business

##### a) VMS data

Scientific Council **recommended** that *position be reported at shorter intervals than the current 2 hours, and the NAF fields for speed (code SP) and course (code CO) be added to the POS reports transmitted to the Secretariat.*

#### Fisheries Environment (STACFEN)

STACFEN made no formal recommendations during this 2007 meeting.

#### Publications (STACPUB)

##### 3. Review of Publications

##### c) NAFO Statistical Bulletin

STACPUB **recommended** that *catch data only be referred to as provisional in Scientific Council reports when STATLANT 21A data have not been received with respect to any particular stock and year, and, that the Secretariat ensure that updates and changes to the STATLANT 21 databases are documented.*

STACPUB **recommended** that *the Secretariat work to improve the internet accessibility of the STATLANT 21 database and provide a report at the next June meeting.*

## 5. Editorial Matters Regarding Scientific Publications

STACPUB discussed the term “Miscellaneous Papers” of JNAFS. It was generally felt that this formulation might have a negative meaning for the papers contained in such a JNAFS volume. STACPUB therefore **recommended** *not to use this classification of volumes in future, and instead discriminate between Symposium editions and editions of JNAFS.*

### Research Coordination (STACREC)

## 4. Research Activities

### c) Stock Assessment Spreadsheets – Update

Almost nothing has changed since the last meeting with only 10 of 26 stocks having completed spreadsheets. This is still considered to be an important source of information for Scientific Council. STACREC reiterates the importance of maintaining a database of data used in stock assessments and **recommended** that *Designated Experts be reminded by the Secretariat following each June Scientific Council meeting to fill in the assessment data spreadsheets.*

## 7. Other Matters

### c) Efficiency of Shrimp Trawls (NIPAG Report 2006, Item 4)

During the NIPAG assessments in 2006 there was a discussion of the use of double trawls in the shrimp fishery and how best to represent the effort of these trials. They may not exert twice the effort as a single trawl. STACREC noted the importance of this issue and encouraged Contracting Parties to study the efficiency of twin shrimp trawls. STACREC noted that for bottom trawls one factor in standardizing effort is to count the number of meshes in the circumference of the trawl opening. Given the importance of estimates of effort to shrimp assessments STACREC **recommended** that *the appropriate method to estimate effort from twin trawls (bottom and midwater) be referred to the ICES Fishing Technology Working Group.*

### e) Other Business

#### ii) Presentation of Survey Indices in Council Reports

In 2002 STACFIS made a recommendation that survey indices be presented as means per tow. For some stocks abundance and biomass estimates are more appropriate if survey coverage changes. Therefore, STACREC **recommended** that *survey indices be presented in the most appropriate form for each stock, rather than in a standard manner for all stocks.*

### Fisheries Science (STACFIS)

## II. General Review

### 2. General Review of Catches and Fishing Activity

STACFIS noted the advances made by the ad hoc working group on catch estimates by conducting pre-meeting deliberations, thereby enabling several finfish stock catch estimates to be available a few days before the meeting commenced. In order to expedite the work of the Scientific Council, STACFIS **recommended** that *all Contracting Parties take measures to improve the accuracy of their catch estimates and present them as far in advance of future June Meeting as possible.*

#### 1. Greenland Halibut (*Reinhardtius hippoglossoides*) in Subarea 0, Division 1A Offshore and Divisions 1B-1F

##### f) Research Recommendation

STACFIS **recommended** that *the investigations of the bycatch of Greenland halibut in the shrimp fishery in Subareas 0 and 1 should be continued and the results should be made available before the assessment in 2008.*

## 2. Greenland halibut (*Reinhardtius hippoglossoides*) in Division 1A inshore

### d) Research Recommendations

It was noted that in 2001 an annual gillnet survey with small mesh net was started in the Disko Bay in order to estimate relative year-class strength of pre-recruits to the fishery. STACFIS **recommended** that *the study to calibrate the gillnet surveys, in relation to previous year's longline surveys, should be continued in order to allow use of the whole time series for Greenland halibut in Disko Bay.*

STACFIS **recommended** that *investigations of bycatch of juvenile Greenland halibut in the commercial shrimp fishery in Subareas 0+1 be continued.*

STACFIS **recommended** that *the discard rate of 'small Greenland halibut' in Div. 1A be investigated.*

## 6. Cod (*Gadus morhua*) in Division 3M

### e) Research recommendations

STACFIS **recommended** to *further develop and explore the potential of the Bayesian model for the assessment of this stock in 2008. This should include comparisons with standard XSA and the survey-based method.*

STACFIS **recommended** to *revisit candidates for Blim, as the current value is based on estimates of SSB and recruitment obtained from standard XSA, which is not the method currently being used to assess the status of this stock.*

Given the increase in catch in 2006, STACFIS **recommended** that *efforts be made to conduct commercial sampling for this stock.*

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

### f) Research Recommendations

STACFIS **recommended** 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 Division 3M

### d) Research Recommendations

Average fishing mortality (F) in recent years has been very low relative to natural mortality (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, stock production models) be attempted for the next assessment of Div. 3M American plaice.*

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

### d) Assessment Results

Therefore, STACFIS **recommended** that *a revised ASPIC model utilizing (1) the original values of CPUE and survey indices and (2) incorporating additional Canadian Div. 3L summer and Russian Div. 3LN survey series be evaluated during the interim assessment of redfish in Div. 3LN at the June 2008 Scientific Council meeting.*

## 11. American Plaice (*Hippoglossoides platessoides*) in Divisions 3L, 3N and 3O

### g) Research Recommendations

$F_{lim} = F_{msy}$  was suggested as a possible reference point for this stock by the Limit Reference Point Study Group (SCS Doc. 04/12). However, STACFIS noted that an estimate of  $F_{msy}$  greatly depends on exploitation pattern (PR),

stock recruitment model and natural mortality rate to be used in the computation. As the stock is under moratorium, the actual PR may not be appropriate as it differs considerably from the PR observed in the former period when the fishery was open. Natural mortality was previously estimated to have changed from the assumed 0.2 figure to a value of 0.53 over the period 1989 to 1996 (NAFO Sci. Coun. Rep., 2001, pg. 141). For the stock recruitment model, if a smoother is used, assumptions have to be made for recruitment when SSB values fall outside the observed data. Therefore, before adopting a  $F_{lim}$  value based on  $F_{msy}$ , STACFIS **recommended** that *investigation of the sensitivity of the estimation of  $F_{msy}$  to these parameters should be conducted.*

## 12. Yellowtail flounder (*Limanda ferruginea*) in NAFO Divisions 3LNO

### e) Research recommendations

Based on the results of the sensitivity analysis and the alternate model formulation in the input data used in the ASPIC surplus production model for yellowtail flounder in Div. 3LNO, STACFIS **recommended** that:

- 1) *a sensitivity analysis of parameter estimates for the surplus production model (ASPIC) be routinely completed;*
- 2) *further investigations be conducted on the effect of excluding the Russian spring time series, 1971-1991 from the standard formulation, as well as including the Canadian juvenile time series (1985-1994);*
- 3) *a comparative evaluation of the parameter estimates, levels of precision, model fits and diagnostics derived from ASPIC versions 3.81, used in past assessments, with those derived from the latest version (5.0 or higher) be conducted;*
- 4) *other sources of survey and fishery data for the time period before 1971 be explored to gather information on the state of the stock which could affect the choice of model formulation that best describes the time period 1965-1970;*
- 5) *in future assessments, the risk of the stock being below  $B_{lim} = 30\% B_{msy}$  be expressed.*

## 14. Capelin (*Mallotus villosus*) in Divisions 3N and 3O

### f) Research Recommendations

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

STACFIS **recommended** that *for capelin in Div. 3NO investigations be undertaken to incorporate survey sets which do not contain capelin, including analyses of capelin distribution.*

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

### f) Research Recommendations

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 models to this stock.*

## 17. White hake (*Urophycis tenuis*) in Divisions 3N, 3O and Subdivision 3Ps

### d) 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 hakes comprise a single breeding population.*

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 Subareas 2 and 3

### e) Research Recommendations

STACFIS **recommended** to *explore the XSA model configuration of the analytical assessment presented (definition of the plus group, catchability model and the shrinkage options), as well as the incorporation of new survey information into the model.*

## 19. Witch Flounder (*Glyptocephalus cynoglossus*) in Divisions 2J, 3K and 3L

### e) Research Recommendation

STACFIS noted that slightly increasing trends in survey biomass and mean weight (kg) per tow indices for the stock area as a whole were not seen in abundance indices, suggesting increasing trends are due to growth and not recruitment. To further investigate recruitment status, STACFIS **recommended** that *length frequency data from the survey be examined.*

## 20. Greenland Halibut (*Reinhardtius hippoglossoides*) in Subarea 2 and Divisions 3KLMNO

### h) Research Recommendations

STACFIS **recommended** that *all available information on bycatch and discards of Greenland halibut in Subarea 2 and Divisions 3KLMNO be presented for consideration in future assessments.*

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

There is concern that the application of maturity ogives to the exploitable 5+ biomass at age will not adequately reflect changes in the population spawning stock biomass (SSB), and its use as a predictor of recruitment is unclear. STACFIS **recommended** that *stock-recruit relationships using an index of SSB derived from estimates of maturity at age and exploitable 5+ biomass at age be explored.*

Previous survey experiments have noted that the depth distribution of Greenland halibut extends beyond 1500 m, the maximum depth of the survey information currently available to assess this stock. In addition, fisheries for Greenland halibut have at times fished at depths beyond 1500 m. Therefore, STACFIS **recommended** that *exploratory deep-water surveys for Greenland Halibut in Subarea 2 and Divisions 3KLMNO be conducted using gears other than bottom trawls to compliment existing survey data.*

## Scientific Council Annual Meeting, 24-28 September 2007

### Scientific Council

### V. Special Requests from the Fisheries Commission

Therefore, in order to provide complete and timely advice, Scientific Council **recommended** that *for the Annual Meeting the Fisheries Commission submits, whenever possible, its questions for Scientific Council well in advance of the meeting.* Scientific Council asks that the Secretariat includes this recommendation in the circulation of the Annual Meeting agenda.

### 4. Special Request from the Fisheries Commission on Ecosystem Proposals

Regarding the protection of corals, Scientific Council was asked:

- identify any historical fishing activity in the proposed zone over the last five years;

Scientific Council **recommended** that *appropriate observer and VMS data be made available.*

## IX. Other Matters

### 6. Other Business

#### a) Oceanic (Pelagic) Redfish

It was noted that this is a straddling stock between NAFO and NEAFC areas, that is currently assessed by ICES and managed by NEAFC. A catch allocation is granted to NAFO Contracting Parties under a management agreement with NEAFC. Scientific Council **recommended** that *Scientific Council reviews the ICES evaluation of stock status and scientific advice on oceanic redfish, and provides its advice to Fisheries Commission as appropriate.*

#### Scientific Council Meeting, 24 October – 1 November

##### Scientific Council

There were no recommendations made by Scientific Council during this meeting.

#### NAFO/ICES Pandalus Assessment Group, 24 October – 1 November 2007

Research Recommendations pertaining to NAFO stocks

#### 1) Northern shrimp (Division 3M) – NAFO Assessed

##### 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 2008.*
- *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.*

#### 2) Northern Shrimp (Divisions 3LNO) – NAFO Assessed

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 2008.*
- *there be exploration of methods to incorporate areal expansion/ contraction, of the commercial fishery, into future CPUE models; this will require that positional data on catch and effort be available to the investigation.*

#### 3) Northern shrimp (Subareas 0 and 1) – NAFO Assessed

##### e) Research Recommendations

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

- *onboard sampling of commercial catches — essential for assessing age, size, sex composition, fecundity and frequency of spawning of the stock — should be re-established in Subarea 1.*
- *methods of incorporating weighted CPUE indices into the assessment model should be explored.*
- *the impact of other predators on the stock should also be considered for inclusion in the assessment model.*

- *recruitment indices and their relationship to subsequent fishable biomass should be considered for inclusion in the shrimp assessment model.*
- *update the model accepted in the 2006 assessment with the data available in the 2008 assessment and investigate the impact of the alternative treatment of the various input series.*

#### **4) Northern shrimp (in Denmark Strait and off East Greenland) – NAFO Assessed**

##### **d) Research Recommendations**

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

- *a survey be conducted to provide fishery independent data of the stock.*
- *the sampling of catches by observers be re-established. This is essential for assessing age, size, sex composition, fecundity and frequency of spawning of the stock.*
- *the availability and usefulness of size data from commercial landings be investigated as a source of information on stock structure.*
- *the existence and availability of survey data from Norwegian sources be investigated.*