

PART D

Miscellaneous

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AGENDA I**SCIENTIFIC COUNCIL MEETING, 2-16 JUNE 2005**

- I. Opening (Scientific Council Chair: M. Joanne Morgan)
 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 2004 (see Appendix III)

- III. Fisheries Environment (STACFEN Chair: Eugene Colboume)
 1. Opening
 - a) Introduction and Administrative Matters
 - b) Appointment of Rapporteur
 2. Invited Speaker (Mariano Koen-Alonso, Northwest Atlantic Fisheries Centre, St. John's NL, "Multispecies Bioenergetic-allometric Models and Ecosystem-based Management: a Synoptic (personal and probably biased) View of the Lessons Learned and the Road Ahead")
 3. Marine Environmental Data Service (MEDS) Report for 2004
 4. Review of the Physical, Biological and Chemical Environment in the NAFO Convention Area during 2004
 5. Interdisciplinary Studies
 6. A review and Demonstration 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 2004
 9. National Representatives
 10. Other Matters
 11. Adjournment

- IV. Publications (STACPUB Chair: Manfred Stein)
 1. Opening
 - a) Appointment of Rapporteur
 2. Review of Recommendations in 2004
 3. Review of Publications
 - a) Journal of Northwest Atlantic Fishery Science: Print and e-Journal
 - b) NAFO Scientific Council Studies
 - c) NAFO Statistical Bulletin
 - d) NAFO Scientific Council Reports
 - e) Index and Lists of Titles
 - f) Other Reviews
 4. NAFO Website
 - a) Web statistics (with focus on e-Journal)
 - b) Presentation of new structure of NAFO Website
 5. Promotion and Distribution of Scientific Publications
 - a) Invitational papers
 - b) Scientific Citation Index (SCI)
 - c) CD-ROM versions of reports, documents
 - d) New initiatives for publications
 6. Editorial Matters Regarding Scientific Publications
 - c) Review of Editorial Board
 - d) Progress report of publication of 2002 Elasmobranch Symposium proceedings

- e) Progress report of publication of 2003 Workshop on "Mapping and Geostatistical Methods for Fisheries Stock Assessment"
 - f) Progress report of publication of Council Studies issue on "Yellowtail ageing manual"
 - g) Progress report of publication of 2004 Journal issue of Miscellaneous Papers
 - h) Progress report of publication of 2004 Symposium "The Ecosystem of the Flemish Cap"
7. Papers for Possible Publication
 8. Other Matters
- V. Research Coordination (STACREC Chair: Antonio Vazquez)
1. Opening
 - a) Appointment of Rapporteur
 2. Review of Previous Recommendations
 3. Fishery Statistics
 - a) Progress report on Secretariat activities in 2004/2005
 - i) Acquisition of STATLANT 21A and 21B reports for recent years
 - b) Report of the Coordination Working Party on Fishery Statistics (CWP) 21st Session, Copenhagen, 1-4 March 2004
 4. Research Activities
 - a) Biological Sampling
 - i) Report on activities in 2004/2005
 - 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 2004 (by National Representatives and Designated Experts)
 - ii) Surveys planned for 2005 and early-2006
 - c) Stock Assessment Database
 - d) Selectivity Studies
 5. FAO cooperation
 - a) Report of the Fisheries Resources Monitoring System (FIRMS) Steering Committee (FSC) Meeting, Copenhagen, 25-26 February 2005.
 - b) Report of the FAO Committee on Fisheries (COFI) Meeting, Rome, 7-11 March 2005
 - c) First look at the Ecosystem Approach to Fisheries (Invited speaker: M. Sinclair)
 6. NAFO Observer Program: data availability and accessibility to Scientific Council
 7. Review of SCR and SCS Documents
 8. Other Matters
 - a) Tagging Activities
 - b) Conversion of the EU Bottom-trawl Survey Series on Flemish Cap from RV *Cornide de Saavedra* to RV *Vizconde de Eza*
 - c) Research Activities
 - d) Other Business
- VI. Fisheries Science (STACFIS Chair: Hilario Murua)
1. Opening
 2. General Review
 - a) Review of Recommendations in 2004
 - b) General Review of Catches and Fishing Activity

3. Stock Assessments

- a) Stocks Within or Partly within the Regulatory Area, 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, 2005):
 - Cod (Div. 3NO; Div. 3M (monitor))
 - Redfish (Div. 3LN; Div. 3M; Div. 3O)
 - American plaice (Div. 3LNO; Div. 3M (monitor))
 - Witch flounder (Div. 2J and 3KL; Div. 3NO (monitor))
 - Yellowtail flounder (Div. 3LNO (monitor))
 - Northern shortfin squid in Subareas 3 and 4 (monitor)
 - Greenland halibut (Subareas 2 and 3)
 - Capelin (Div. 3NO)
 - Thorny skate (Div. 3LNO (monitor))
 - White hake (Div. 3NO)
- b) Stocks Within the 200-mile Fishery Zone in Subareas 0 to 4, as Requested by Canada (Annex 2)
 - Greenland halibut in Subareas 2 and 3 (Item 1)
- c) Request by Denmark (Greenland) (Annex 3)
 - Roundnose grenadier in Subareas 0 and 1 (Item 1)
 - Demersal redfish and other finfish in Subarea 1 (Item 2)
 - Greenland halibut in Div. 1A inshore (Item 3)
- d) Stocks Overlapping the Fishery Zones in Subareas 0 and 1 as Requested by Canada and by Denmark (Greenland) (Annexes 2 and 3)
 - Greenland halibut (Subareas 0 + Division 1A Offshore and Divisions 1B-1F) (Annex 2, Item 1; Annex 3, Item 3)
- e) Assessment of other stocks
 - Roughhead grenadier in Subareas 2 and 3

4. Other Matters

- a) Nomination of Designated Experts
- b) 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, 2005)
 - a) Request for Advice on TACs and Other Management Measures for the Year 2006
 - i) Greenland halibut in Subarea 2 and Div. 3KLMNO
 - b) Request for Advice on TACs and Other Management Measures for the Years 2006 and 2007
 - i) Cod in Div. 3NO
 - ii) American plaice in Div. 3LNO
 - iii) Witch flounder in Div. 2J3KL
 - iv) Redfish in Div. 3M
 - v) Redfish in Div. 3LN
 - vi) Redfish in Div. 3O
 - vii) Capelin in Div. 3NO
 - viii) White hake in Div. 3NO (see Item 4)
 - c) Special Requests for Management Advice
 - i) Greenland halibut in Subarea 2 and Div. 3KLMNO Rebuilding Strategy (Item 5)
 - ii) The precautionary approach (Items 7-9)
 - iii) Pelagic *S. mentella* (redfish) in Subareas 1-3 and adjacent ICES area (Item 10)
 - iv) Redfish in Div. 3LN and 3O (Item 11)

- d) Monitoring of Stocks for which Multi-year Advice was Provided in 2003
 - i) Cod in Div. 3M
 - ii) American plaice in Div. 3M
 - iii) Yellowtail flounder in Div. 3LNO
 - iv) Witch flounder in Div. 3NO
 - v) Northern Shortfin Squid in SA 3+4
- 2. Coastal States
 - a) Request by Canada for Advice (Annex 2)
 - i) TAC for Greenland halibut in Subarea 2 and Div. 3K and in Div. 3LMNO (Item 1)
 - b) Request by Denmark (Greenland) for Advice (Annex 3)
 - i) Roundnose grenadier in Subareas 0 and 1 (2006-2008) (Item 1)
 - ii) Demersal redfish and other finfish in Subarea 1 (2006-2007) (Item 2)
 - iii) Greenland halibut in Div. 1A inshore (Item 3)
 - c) Request by Canada and Denmark (Greenland) for Advice on TACs and Other Management Measures (Annexes 2 and 3)
 - i) Greenland halibut in Divisions 0A + 1AB
 - ii) Greenland halibut in Divisions 0B + 1C-F
- 3. Scientific Advice from Council on its own Accord
 - i) Roughhead grenadier in Subarea 2+3
- VIII. Future Scientific Council Meetings 2005 and 2006
 - 1. Scientific Council Meeting, September 2005, Tallinn, Estonia
 - 2. Scientific Council Meeting, October/November 2005 (assessment of shrimp stocks) Dartmouth, Canada, including proposal for joint meeting with ICES WGPAND
 - 3. Scientific Council Meeting, June 2006
 - 4. Scientific Council Meeting and Special Session, September 2006
 - 5. Scientific Council Meeting, November 2006 (assessment of shrimp stocks)
- IX. Arrangements for Special Sessions
 - 1. Progress Report on Special Session in 2006: Environmental and Marine Resources Histories in the NAFO Convention Area.
 - 2. 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 (G. Stenson)
- 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. Facilities, Technological and General Secretariat Support
 - 5. Other
- XII. Other Matters
 - 1. Possible Study Group to Evaluate HCR in the Context of the PA Framework
 - 2. Report of 21st CWP Meeting, Copenhagen, Denmark
 - 3. Report from the FIRMS Steering Committee (FSC) Meeting of February 2005
 - 4. Report of the FAO Committee on Fisheries (COFI) Meeting, Rome, 7-11 March 2005
 - 5. The FSC and CWP Intersessional Meeting 2006
 - 6. Meeting Highlights for NAFO Website
 - 7. Other Business

XIII. Adoption of Committee Reports

1. STACFEN
2. STACREC
3. STACPUB
4. STACFIS

XIV. Scientific Council Recommendations to General Council and Fisheries Commission

XV. Adoption of Scientific Council Report

XVI. Adjournment

**ANNEX 1. FISHERIES COMMISSION'S REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT
IN 2006 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 2005 Annual Meeting, provide advice on the scientific basis for the management of the following fish and invertebrate stocks or groups of stocks in 2006:

Shrimp (Div. 3M, 3LNO)
Greenland halibut (Subarea 2 and Div. 3KLMNO)

2. The Fisheries Commission with the concurrence of the Coastal State as regards shrimp in Div. 3LNO requests Scientific Council, at its meeting of November, 2004 in review of the most recent data to provide advice concerning the scope for an adjustment to the TAC for 2005 from the currently advised level of 13,000 t.
3. 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 2005 Annual Meeting, provide advice on the scientific basis for the management of the following fish stocks on an alternating year basis:

Cod (Div. 3NO; Div. 3M)
Redfish (Div. 3M; Div. 3LN; Div. 3O)
Yellowtail flounder (Div. 3LNO)
American plaice (Div. 3LNO; Div. 3M)
Witch flounder (Div. 2J3KL; Div. 3NO)
Skates (Div. 3LNO)
Capelin (Div. 3NO)
Northern Shortfin Squid (Subareas 3 and 4)

- In 2004, advice was provided for 2005 and 2006 for cod in 3M, American plaice in 3M, yellowtail flounder in 3LNO, witch flounder in 3NO and northern shortfin squid in SA 3&4. These stocks will next be assessed in 2006.
- In 2005, advice will be provided for 2006 and 2007 for cod in 3NO, American plaice in 3LNO, witch flounder in 2J3KL, redfish in 3M, redfish in 3LN, redfish in 3O and capelin in 3NO. These stocks will next be assessed in 2007. For redfish in Div. 3O the Scientific Council is requested to also provide its advice in the context of the 3-year management plan.

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.

4. The Fisheries Commission with the concurrence of the Coastal State requests Scientific Council, at a meeting in advance of the 2005 Annual Meeting, to provide advice on the scientific basis for the management of white hake in Div. 3NO including recommendations regarding the most appropriate TAC for 2006 and 2007 in the context of the 3-year management plan. This stock will be assessed in alternate years thereafter.
5. The Fisheries Commission with the concurrence of the Coastal State requests Scientific Council, at a meeting in advance of the 2005 Annual Meeting, to provide information on the status of the Greenland halibut in SA 2+ Div. 3KLMNO in relation to the Rebuilding Strategy including commentary on progress in relation to targets described in the Strategy.
6. 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_{2004} in 2006 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 2006 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.

7. Noting the Precautionary Approach Framework as endorsed by Fisheries Commission, the Fisheries Commission requests that the Scientific Council provide the following information for the 2005 Annual Meeting of the Fisheries Commission for the following stocks under its responsibility requiring advice for 2006: yellowtail flounder in Div. 3LNO, Shrimp in Div. 3M
 - 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 proposed 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.

- d) A description of the advice using the Precautionary Framework differs from advice provided in the traditional manner.
8. The following elements should be taken into account by the Scientific Council when considering the Precautionary Approach Framework:
- References to “risk” and to “risk analyses” should refer to estimated probabilities of stock population parameters falling outside biological reference points.
 - 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.
 - 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.
 - 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.
 - 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.
8. 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.
- 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;
 - 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
 - propose criteria and harvest strategies for new and developing fisheries so as to ensure they are maintained within the Safe Zone.
9. Regarding pelagic *S. mentella* redfish in NAFO Subareas 1-3, the Scientific Council is requested to review the most recent information on the distribution of this resource, as well as 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.
10. Regarding redfish in Divisions 3L, 3N and 3O, Scientific Council is requested to review all available information and provide advice regarding whether the current management units (3LN and 3O) or any alternative may be the most appropriate.
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**ANNEX 2. CANADIAN REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 2006
OF CERTAIN STOCKS IN SUBAREAS 0 TO 4**

1. Canada requests that the Scientific Council, at its meeting in advance of the 2005 Annual Meeting of NAFO, subject to the concurrence of Denmark (on behalf of Greenland), provide advice on the scientific basis for management in 2006 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 2006, and to specifically:

- a) advise on appropriate TAC levels for 2006, 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.

The Council also is asked to advise on appropriate TAC levels separately – for Greenland halibut in SA 2+Division 3K and for Divisions 3LMNO.

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_{2004} in 2006 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 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 2006 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).

Yours sincerely,
 David Bevan
 Assistant Deputy Minister
 Fisheries and Aquaculture Management
 Department of Fisheries and Oceans
 Ottawa, Canada

**ANNEX 3. DENMARK (GREENLAND) REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT
 IN 2006 OF CERTAIN STOCKS IN SUBAREA 0 AND 1**

1. In the Scientific Council report of 2002, scientific advice on management of Roundnose grenadier in Subarea 0+1 was given as a 3-year advice (for 2003, 2004 and 2005). Denmark, on behalf of Greenland, requests the Scientific Council to provide a 3-year advice on the scientific basis for the management of Roundnose grenadier in Subarea 0+1 for 2006, 2007 and 2008 and to continue to monitor status of Roundnose grenadier in Subarea 0+1 annually. Should significant change in stock status be observed (e.g. from surveys), the Scientific Council is requested to provide updated advice as appropriate.
2. In 2003, advice for redfish (*Sebastes spp.*) and other finfish in Subarea 1 was given for 2004 and 2005. Denmark, on behalf of Greenland, requests the Scientific Council to provide a 2-year advice on the scientific basis for the management of red fish and other finfish in Subarea 1 for 2006 and 2007 and to continue to monitor the status of redfish and other finfish in Subarea 1. 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 of Divisions 0A+1AB and Divisions 0B+1C-F in 2006 and as many years ahead as data allow.

Further, for Subarea 1A inshore, the Council is asked to provide advice on allocation of TACs distributed in the areas of Illulissat, Uummannaq and Upernavik, respectively.

4. Subject to the concurrence of Canada as regards Subarea 0, Denmark, on behalf of Greenland, requests the Scientific Council of NAFO before December 2005 to provide advice on the scientific basis for management of Northern shrimp (*Pandalus borealis*) in Subarea 0 and 1 in 2006, and as many years ahead 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 the Denmark Strait and adjacent areas east of southern Greenland in 2006, and as many years forward as data allow.

Yours sincerely,
 Amalie Jessen
 Deputy Minister
 Greenland Home Rule
 The Department of Fisheries and Hunting

AGENDA II**SCIENTIFIC COUNCIL MEETING, 19-23 SEPTEMBER 2005**

- I. Opening (Chair: M. Joanne Morgan)
 1. Appointment of Rapporteur
 2. Adoption of Agenda
 3. Attendance of Observers
 4. Plan of Work

- II. Review of Scientific Council Recommendations from June 2005

- III. Fisheries Science (STACFIS Chair: Hilario Murua)
 1. Opening
 2. Nomination of Designated Experts
 3. Other Matters
 - a) Review of SCR and SCS Documents (if necessary)
 - b) Other Business

- IV. Research Coordination (STACREC Chair: Antonio Vázquez)
 1. Opening
 2. Fisheries Statistics
 - a) Progress Reports on Secretariat Activities
 - i) Acquisition of STATLANT 21 data
 - ii) Publication of statistical information
 - b) Revision of the North Atlantic Format (NAF) for position and catch reporting
 3. Research Activities
 - a) Surveys Planned for 2005 and Early 2006
 4. NAFO Observer Program
 - a) Digitization of available data
 5. Stock Assessment Database
 - a) Evaluation of the current procedures
 6. Other Matters
 - a) Review of SCR and SCS documents
 - b) Other Business

- V. Special Requests from Fisheries Commission
 1. Update on Advice for Northern Shrimp in Div. 3M (Item 1)
 2. Update on Advice for Northern Shrimp in Div. 3LNO (Item 1)

- VI. Working Group Reports
 1. Report of WGHARP

- VII. Review of Future Meeting Arrangements
 1. Scientific Council Meeting on Shrimp, October/November 2005
 2. Scientific Council Meeting, June 2006
 3. Annual Meeting, September 2006
 4. Scientific Council Meeting on Shrimp, 2006
 5. Scientific Council Meeting, June 2007

- VIII. Future Special Sessions
 1. Progress on Special Session for 2006
 2. Topics for Special Session in 2007

- IX. Scientific Council Working Procedures and Protocol
 - 1. Timetable and Frequency of Assessments
 - 2. Proposals to Shorten June Meeting
- X. The Ecosystem Approach to Fisheries Management
- XI. Other Matters
- XII. Adoption of Reports
 - 1. Committee Reports STACFIS, STACREC
 - 2. Report of Scientific Council
- XIII. Adjournment

AGENDA III**SCIENTIFIC COUNCIL MEETING, 26 OCTOBER-3 NOVEMBER 2005**

- I. Opening (Chair: Antonio Vázquez)
 1. Appointment of rapporteur
 2. Adoption of agenda
 3. Plan of work

- II. Fisheries Science (STACFIS Chair: Don Power)
 1. Review of Recommendations in 2004 and in 2005 (to include outcome of Scientific Council Meeting of 19-23 September 2005) (see Appendix 3)
 2. Review of Catches
 3. General environmental review
 4. Stock assessments (Annexes 1, 2, 3 and 4, to include request from 2005 Annual Meeting) from NAFO area
 - Northern shrimp (Div. 3M)
 - Northern Shrimp (Div. 3LNO)
 - Northern shrimp (Subareas 0 and 1)
 - Northern shrimp (in Denmark Strait and off East Greenland)
 5. Stock assessments from ICES area
 - Northern shrimp in Skagerrak and Norwegian Deep (ICES Divisions IIIa & IVa East)
 - Northern shrimp in Fladen Ground (ICES Division IVa)
 - Northern Shrimp in Barents Sea and Svalbard area (ICES Sub-areas I & II)
 6. Other Business

- III. Formulation of Advice (see Annexes 1, 2, 3 and 4)
 1. Advice for Northern Shrimp

Request from Fisheries Commission (to include outcome of Annual Meeting of 19-23 September 2005)

 - Northern shrimp (Div. 3M)
 - Northern shrimp (Div. 3LNO)
 2. Requests from Coastal States
 - Northern shrimp (Subareas 0 and 1)
 - Northern shrimp (in Denmark Strait and off East Greenland)

- IV. Other Matters
 1. Meeting of October/November 2006
 2. Meeting of October/November 2007
 3. Coordination with ICES Working Groups on Shrimp Stock Assessments
 4. Other Business

- V. Adoption of Scientific Council and STACFIS Reports

- VI. Adjournment

LIST OF RESEARCH AND SUMMARY DOCUMENTS, 2005

RESEARCH DOCUMENTS (SCR)

SCR No.	Ser. No.	Author(s) and Title
05/1 ¹	N5072	STEIN, M. North Atlantic subpolar gyre warming - impacts on Greenland offshore waters? (14 pages)
05/2 ¹	N5076	STEIN, M. Climatic conditions around Greenland – 2004. (19 pages)
05/3 ¹	N5077	MORGAN, M. J. An illustration of the implications for B_{lim} and stock projections of various indices of reproductive potential for Divisions 3LNO American plaice. (9 pages)
05/4 ¹	N5079	VASKOV, A. Reproduction of deepwater redfish <i>Sebastes mentella</i> on the Flemish Cap Bank. (10 pages)
05/5 ¹	N5080	PETRIE, B., R. G. PETTIPAS and W. M. PETRIE. An overview of meteorological, sea ice and sea-surface temperature conditions off eastern Canada during 2004. (32 pages)
05/6 ¹	N5081	PETRIE, B., R. G. PETTIPAS, W. M. PETRIE, and V. SOUKHOVTSEV. Physical oceanographic conditions on the Scotian Shelf and in the Gulf of Maine during 2004. (29 pages)
05/7 ¹	N5082	HENDRY, R. M. Environmental conditions in the Labrador Sea in 2004. (15 pages)
05/8 ¹	N5083	BRODIE, W. A description of the autumn multispecies surveys in SA 2 + Divisions 3KLMNO from 1995-2004. (21 pages)
05/9 ¹	N5087	MADDOCK PARSONS, D., and W. B. BRODIE. Cooperative surveys of yellowtail flounder in NAFO Divisions 3LNO, 1996-2004. (23 pages)
05/10 ¹	N5089	SHELTON, P. A. Does the rebuilding plan for Greenland halibut in Subarea 2 and Divisions 3KLMNO have a scientific basis and is it on track? (8 pages)
05/11 ¹	N5090	VASKOV, A. A. On maturation of Acadian red fish (<i>Sebastes fasciatus</i>) in Division 3O. (6 pages)
05/12 ¹	N5091	MAILLET, G. L., and P. PEPIN. Timing of plankton cycles on the Newfoundland Grand Banks: potential influence of climate change. (12 pages)
05/13 ¹	N5092	JØRGENSEN, O. A. Surveys for Greenland halibut in NAFO Divisions 1C-1D, 2004. (26 pages)
05/14 ¹	N5093	JØRGENSEN, O. A. Survey for Greenland halibut in the northern part of Baffin Bay, NAFO Division 1A, 2004. (12 pages)
05/15 ¹	N5094	GONZALEZ, F., and J. L. DEL RIO. Description of the Spanish pelagic fishery of oceanic red fish (<i>Sebastes mentella</i> Travin) in the North Atlantic (2000-2004). (11 pages)
05/16 ¹	N5097	CERVINO, S., J. GIL, and R. SANCHEZ. Changes in Flemish Cap cod distribution and its relationship with environmental changes. (12 pages)

¹ Scientific Council Meeting, 2-16 June 2005.

SCR No.	Ser. No.	Author(s) and Title
05/17 ¹	N5098	GORCHINSKY, K. V., and S. E. GOLOVANOV. State of capelin stock in the NAFO Divisions 3NO based on data from trawl surveys. (9 pages)
05/18 ¹	N5099	LISOVSKY, S. F., Yu A. KONDRATYUK, A. A. PAVLENKO, and A. A. VASKOV. On the minimal trawl codend mesh size in the fishery of red fish species in Division 3O of the NAFO Regulatory Area. (15 pages)
05/19 ¹	N5100	RIBERGAARD, M. H., and E. BUCH. Oceanographic investigations off West Greenland, 2004. (20 pages)
05/20 ¹	N5101	RATZ, H-J., and C. STRANSKY. Stock abundance indices and length compositions of demersal red fish and other finfish in NAFO Subarea 1 and near bottom water temperature derived from the German bottom trawl survey, 1982-2004. (24 pages)
05/21 ¹	N5103	GORCHINSKY, K.V., and G. A. MAKEENKO. Preliminary results from Russian surveys and fishery of white hake, <i>Urophycis tenuis</i> , in Divisions 3NO in 2000-2004. (8 pages)
05/22 ¹	N5106	MAILLET, G. L., P. PEPIN, S. FRASER, and D. LANE. Biological oceanographic conditions in NAFO Subareas 2 and 3 on the Newfoundland and Labrador Shelf during 2004. (17 pages)
05/23 ¹	N5107	COLBOURNE, E. B., C. FITZPATRICK, D. SENCIAL, P. STEAD, J. CRAIG, and W. BAILY. An assessment of the physical oceanographic environment on the Newfoundland and Labrador Shelf in NAFO Subareas 2 and 3 during 2004. (31 pages)
05/24 ¹	N5108	TOMLINSON, S. Marine Environmental Data Service Report for 2004. (51 pages)
05/25 ¹	N5110	GONZÁLEZ TRONCOSO, D., C. GONZÁLEZ and X. PAZ. American plaice and yellowtail flounder indices from the Spanish survey conducted in Divisions 3NO of the NAFO Regulatory Area. (27 pages)
05/26 ¹	N5112	GONZÁLEZ TRONCOSO, D., and X. PAZ. Biomass and length distribution for Atlantic cod, thorny skate and white hake from the surveys conducted by Spain in NAFO Divisions 3NO. (29 pages)
05/27 ¹	N5113	GONZÁLEZ TRONCOSO, D., E. ROMÁN, and X. PAZ. Results for Greenland halibut of the Spanish survey in NAFO Divisions 3NO: biomass, length distribution and age distribution for the period 1997-2004. (18 pages)
05/28 ¹	N5114	GONZÁLEZ TRONCOSO, D., X. PAZ, and F. GONZÁLEZ. Results for the roughhead grenadier from the Spanish surveys conducted in the NAFO Regulatory Area of Divisions 3NO, 1997-2004. (17 pages)
05/29 ¹	N5115	GONZÁLEZ TRONCOSO, D., and J. M. CASAS. Calculation of the calibration factors from the comparative experience between the R/V <i>Cornide de Saavedra</i> and the R/V <i>Vizconde de Eza</i> in Flemish Cap in 2003 and 2004. (8 pages)

¹ Scientific Council Meeting, 2-16 June 2005.

SCR No.	Ser. No.	Author(s) and Title
05/30 ¹	N5118	GONZALEZ, C., and X. PAZ. Distribution of American plaice (<i>Hippoglossoides platessoides</i>) on the Grand Bank (NAFO Divisions 3NO), 1995-2004. (16 pages)
05/31 ¹	N5119	IGASHOV, T. M., S. E. GOLOVANOV, and S. E. LOBODENKO. The relationship between water temperature and distribution of Greenland halibut on the Flemish Cap in 1988-2002. (9 pages)
05/32 ¹	N5095	DURAN MUNOZ, P., M. MANDADO, A. GAGO, C. GOMEZ, and G. FERNANDEZ. Brief results of a trawl experimental survey at NW Atlantic. (4 pages)
05/33 ¹	N5104	DEL RIO, J. L., C. GONZALEZ, A. GAGO, and F. GONZALEZ. Results of the 2004 Spanish experimental fishing in NAFO Subarea 1. (9 pages)
05/34 ¹	N5117	HEALEY, B. P., and K. S. DWYER. A simple examination of Canadian autumn survey trends in NAFO Divisions 3LNO for Greenland halibut and American plaice: the impact of incomplete coverage of this survey in 2004. (28 pages)
05/35 ¹	N5121	CASAS, J. M., and D. GONZÁLEZ TRONCOSO. Results from bottom trawl survey on Flemish Cap of July 2004. (35 pages)
05/36 ¹	N5122	MURUA, H., F. GONZÁLEZ, and M. CASAS. A review on roughhead grenadier (<i>Macrourus berglax</i>) biology and population structure on Flemish Cap (NAFO Division 3M) 1991-2004 based upon EU Flemish Cap bottom survey data. (18 pages)
05/37 ¹	N5123	GONZÁLEZ-CASTOS, F., and D. GONZÁLEZ. Quality of tuning series in the assessment of Greenland halibut in Subarea 2 and Divisions 3KLMNO. (17 pages)
05/38 ¹	N5124	VÁZQUEZ, A., and S. CERVIÑO. A review of the status of the cod stock in NAFO Division 3M. (7 pages)
05/39 ¹	N5125	STORR-PAULSEN, M., and O. A. JØRGENSEN. Biomass and abundance of demersal fish stocks off West Greenland estimated from the Greenland shrimp surveys, 1988-2004. (27 pages)
05/40 ¹	N5126	SIEGSTAD, H., H.-J. RÄTZ, and C. STRANSKY. Assessment of demersal redfish in NAFO Subarea 1. (9 pages)
05/41 ¹	N5127	SIEGSTAD, H.-J. RÄTZ and C. STRANSKY. Assessment of other finfish in NAFO Subarea 1. (6 pages)
05/42 ¹	N5128	KOEN-ALONSO, M. Multispecies bioenergetic-allometric models and ecosystem-based management: a synoptic (personal and probably biased) view of the lessons learned and the road ahead. (3 pages)
05/43 ¹	N5129	TREBLE, M. A., S. E. CAMPANA, R. J. WASTLE, C. M. JONES, and J. BOJE. An assessment of age determination methods, with age validation of Greenland halibut from the Northwest Atlantic. (22 pages)
05/44 ¹	N5130	TREBLE, M. A., and B. VAN HARDENBERG. Oceanographic data from Baffin Bay collected during surveys conducted in Division 0A in 2004. (6 pages)

¹ Scientific Council Meeting, 2-16 June 2005.

SCR No.	Ser. No.	Author(s) and Title
05/45 ¹	N5131	HENDRICKSON, L. C. Interim monitoring report for the assessment of northern shortfin squid (<i>Illex illecebrosus</i>) in Subareas 3+4 during 2004. (9 pages)
05/46 ¹	N5132	GONZÁLEZ, F., and H. MURUA Roughhead grenadier NAFO Subarea 2 and 3 age disaggregate data (1992-2003). (16 pages)
05/47 ¹	N5133	ÁVILA DE MILO, A., R. ALPIOM, and F. SABORIDO-REY. A revised assessment of beaked redfish (<i>Sebastes mentella</i> and <i>Sebastes fasciatus</i>) in NAFO Division 3M using the original EU survey indices converted to the new RV <i>Vizconde de Eza</i> units. (40 pages)
05/48 ¹	N5134	WALSH, S. J. Conversion of the Canadian juvenile (Yankee trawl) groundfish survey time series for yellowtail flounder on the Grand Bank, NAFO Divisions 3LNO, into Campelen trawl units. (11 pages)
05/49 ¹	N5135	SIMPSON, M. R., and D. W. KULKA Development of Canadian research trawl gear conversion factors for thorny skate on the Grand Banks based on comparative tows. (13 pages)
05/50 ¹	N5136	VALENTIN, A., J.-M. SÉVIGNY, D. POWER, J.-P. CHANUT and X. PENIN. Population structure of <i>Sebastes mentella</i> and <i>Sebastes fasciatus</i> in NAFO Divisions 3LNO based on microsatellite genetic markers and geometric morphometrics data. (14 pages)
05/51 ¹	N5137	JØRGENSEN, O. Assessment of the Greenland halibut stock component in NAFO Subarea 0 + Division 1A Offshore + Divisions 1B-1F. (21 pages)
05/52 ¹	N5138	ÁVILA DE MELO, A. M., D. POWER, and R. ALPOIM. An assessment of the status of the redfish in NAFO Divisions 3LN. (19 pages)
05/53 ¹	N5139	MADDOCK PARSONS, D. Witch flounder population trends in NAFO Divisions 2J, 3K and 3L. (22 pages)
05/54 ¹	N5140	GONZÁLEZ COSTAS, F., and H. MURUA. Assessment of roughhead grenadier, <i>Macrourus berglax</i> , in NAFO Subareas 2 and 3. (18 pages)
05/55 ¹	N5141	WALSH, S. J., M. F. VEITCH, K. S. DWYER, and W. B. BRODIE. 2005 Interim monitoring of yellowtail flounder stock status on the Grand Bank, NAFO Divisions 3LNO. (15 pages)
05/56 ¹	N5142	TREBLE, M. Analysis of data from the 2004 trawl surveys in NAFO Division 0A. (24 pages)
05/57 ¹	N5143	BOJE, J., and B. LYBERTH. Survey calibration for Greenland halibut in Division 1A inshore. (8 pages)
05/58 ¹	N5144	LYBERTH, B., and J. BOJE. An assessment of the Greenland halibut stock component in NAFO Division 1A inshore. (23 pages)
05/59 ¹	N5145	POWER, D. An assessment of the status of the redfish in NAFO Division 3O. (19 pages)

¹ Scientific Council Meeting, 2-16 June 2005.

SCR No.	Ser. No.	Author(s) and Title
05/60 ¹	N5146	KULKA, D. W., C. M. MIRI, and M.R. SIMPSON. Distribution and aspects of life history of white hake (<i>Urophycis tenuis</i> , Mitchill 1815) on the Grand Banks of Newfoundland. (39 pages)
05/61 ¹	N5147	DWYER, K. S., M. J. MORGAN, D. MADDOCK PARSONS, W. B. BRODIE, B. P. HEALEY, P. A. SHELTON, and H. MURUA. An assessment of American plaice in NAFO Divisions 3LNO. (79 pages)
05/62 ¹	N5148	BRODIE, W. B., and D. POWER. The Canadian fishery for Greenland halibut in SA 2 + Divisions 3KLMNO, with emphasis on 2004. (16 pages)
05/63 ¹	N5149	HEALEY, B. P., and J.-C. MAHÉ. An assessment of Greenland halibut in Subarea 2 + Divisions 3KLMNO, with projections under the Fisheries Commission rebuilding plan. (54 pages)
05/64 ¹	N5150	DWYER, K. S., and 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 1978-2004. (57 pages)
05/65 ¹	N5151	HEALEY, B. P., and K. S. DWYER. Greenland halibut (<i>Reinhardtius hippoglossoides</i>) in Subarea 2 and Divisions 3KLMNO: trends in recruitment based upon research vessel survey data. (16 pages)
05/66 ¹	N5153	KULKA, D. W., C. M. MIRI, and M. R. SIMPSON. The status of white hake (<i>Urophycis tenuis</i> , Mitchill 1815) in NAFO Divisions 3L, 3N, 3O and Subdivision 3Ps. (55 pages)
05/67 ¹	N5154	POWER, D., B. P. HEALEY, E. F. MURPHY, J. BRATTEY, and K. DWYER. An assessment of the cod stock in NAFO Divisions 3NO. (40 pages)
05/68 ²	N5160	ORR, D. C., P. J. VEITCH, and D. J. SULLIVAN. Divisions 3LNO northern shrimp (<i>Pandalus borealis</i>) – interim monitoring update. (13 pages)
05/69 ²	N5161	SKÚLADÓTTIR, U. The Icelandic shrimp fishery (<i>Pandalus borealis</i> Kr.) at Flemish Cap in 1993-2005. (7 pages)
05/70 ²	N5162	SKÚLADÓTTIR, U. The by-catch in the shrimp fishery of Iceland at Flemish Cap in 1996-2005. (9 pages)
05/71 ²	N5165	SHELTON, P. A. A PA-compliant rebuilding plan for Subarea 2 + Divisions 3KLMNO Greenland halibut based on the 2005 NAFO assessment. (6 pages)
05/72 ²	N5166	SKÚLADÓTTIR, U. A provisional assessment of the international fishery for shrimp (<i>Pandalus borealis</i>) in Division 3M (Flemish Cap), 1993-2005. (7 pages)
05/73 ³	N5178	STORR-PAULSEN, M., and K. WIELAND. A Preliminary estimate of cod (<i>Gadus morhua</i>) biomass in West Greenland offshore waters (NAFO Subarea 1) in 2005. (7 pages)

¹ Scientific Council Meeting, 2-16 June 2005.

² Scientific Council Meeting, 19-23 September 2005.

³ Scientific Council Meeting, 26 October-3 November 2005

SCR No.	Ser. No.	Author(s) and Title
05/74 ³	N5179	WIELAND, K., and B. BERGSTRÖM. Results of the Greenland bottom trawl survey for northern shrimp (<i>Pandalus borealis</i>) off West Greenland (NAFO Subarea 1 and Division 0A), 1988-2005. (36 pages)
05/75 ³	N5180	WIELAND, K. Conversion of northern shrimp (<i>Pandalus borealis</i>) biomass, recruitment and mean size from previous years (1988-2004) to the new standard trawl used in the Greenland bottom trawl survey at West Greenland in 2005. (6 pages)
05/76 ³	N5181	SIEGSTAD, H. The Greenland fishery for northern shrimp (<i>Pandalus borealis</i>) in NAFO Divisions 3M and 3L 2003-2005. (3 pages)
05/77 ³	N5182	CASAS, J. M., and J. TERUEL. Northern shrimp (<i>Pandalus borealis</i> , Krøyer) in Spanish bottom trawl survey 2004 and 2005 in NAFO Divisions 3LNO. (10 pages)
05/78 ³	N5183	CASAS, J. M., J. L. DEL RIO, J. TERUEL, and A. ALONSO. Northern shrimp (<i>Pandalus borealis</i>) on Flemish Cap surveys 2005 (27 pages)
05/79 ³	N5184	CASAS, J. M., and J. L. DEL RIO. The Spanish shrimp fishery on Flemish Cap (Division 3M) and Division 3L in 2004. (4 pages)
05/80 ³	N5185	HVINGEL, C. The Norwegian fishery for northern shrimp (<i>Pandalus borealis</i>) in the North Sea and Skagerrak (ICES Divisions IVa east and IIIa), 1970-2004. (7 pages)
05/81 ³	N5186	SUNNANÁ, K. A note on a possible concept for a length based biomass model for assessment of North-east Arctic stock of northern shrimp (<i>Pandalus borealis</i>). (15 pages)
05/82 ³	N5187	HVINGEL, C. 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) in 2004-2005. (8 pages)
05/83 ³	N5188	KINGSLEY, M. C. S., and C. HVINGEL. The fishery for northern shrimp (<i>Pandalus borealis</i>) off West Greenland, 1970-2005. (19 pages)
05/84 ³	N5189	HVINGEL, C. Deriving quantitative biological advice for the shrimp fishery in Skagerrak and Norwegian Deep (ICES Divisions IVa east and IIIa). (9 pages)
05/85 ³	N5190	KINGSLEY, M. C. S., and C. HVINGEL. A provisional assessment of the shrimp stock off West Greenland, updated 2005. (13 pages)
05/86 ³	N5191	BAKANEV, S., and P. LUBIN. Results of the Russian stratified-random trawl survey for northern shrimp (<i>Pandalus borealis</i>) in the Barents Sea and Spitzbergen, 1984-2005. (13 pages)
05/87 ³	N5192	COLBOURNE, E. Oceanographic conditions on the Flemish Cap in NAFO Division 3M during the summer of 2005. (14 pages)
05/88 ³	N5193	ORR, D. C., P. J. VEITCH, and D. J. SULLIVAN. An update of information pertaining to northern shrimp (<i>Pandalus borealis</i> , Krøyer) and groundfish in NAFO Divisions 3LNO. (59 pages)

¹ Scientific Council Meeting, 2-16 June 2005.

³ Scientific Council Meeting, 26 October-3 November 2005

SCR #	Serial #	Author(s) and Title
05/89 ³	N5194	SKÚLADÓTTIR, U., and G. PÉTURSSON. Assessment of the international fishery for shrimp (<i>Pandalus borealis</i>) in Division 3M (Flemish Cap), 1993-2005. (21 pages)
05/90 ³	N5195	ASCHAN, M., and S. BAKANEV. The <i>Pandalus</i> stock in the Barents Sea and Svalbard area. (13 pages)
05/91 ³	N5196	COLBOURNE, E. B., and D. C. ORR. The distribution and abundance of northern shrimp (<i>Pandalus borealis</i>) in relation to bottom temperatures in NAFO Divisions 3LNO based on multi-species surveys from 1995-2005. (24 pages)
05/92 ³	N5197	ROSING, M., and K. WIELAND. Preliminary results from shrimp trawl calibration experiments off West Greenland (2004, 2005) with notes on encountered experiment design/analyses problems. (6 pages)
05/93 ³	N5198	SIEGSTAD, H., and C. HVINGEL. An assessment of the shrimp stock in Denmark Strait/off East Greenland – 2005. (19 pages)
05/94 ³	N5199	SKULADOTTIR, U. Icelandic shrimp fishery (<i>Pandalus borealis</i> Kr.) at Flemish Cap in 1993-2004. (23 pages)
05/95 ³	N5201	SKANES, K. R., and G. T. EVANS. Testing OGMAP as a tool for estimating biomass and abundance of northern shrimp. (3 pages)
05/96 ³	N5202	CASAS, J. M. The Spanish NE Arctic shrimp fishery in 2004. (4 pages)
05/97 ³	N5203	JOHANNESSEN, E., and M. ASCHAN. How much shrimp does the cod really eat? – five years later. (12 pages)

SUMMARY DOCUMENTS (SCS)

SCS No.	Ser. No.	Author(s) and Title
05/1 ¹	N5073	FISHERIES COMMISSION. Fisheries Commission's request for scientific advice on management in 2006 of certain stocks in Subareas 2, 3 and 4. (4 pages)
05/2 ¹	N5074	BEVAN, DAVID. Canadian request for scientific advice on management in 2006 of certain stocks in Subareas 0 to 4. (2 pages)
05/3 ¹	N5075	JESSEN, AMALIE. Denmark (Greenland) request for scientific advice on management in 2006 on certain stocks in Subarea 0 and 1. (1 page)
05/4 ¹	N5084	NAFO SECRETARIAT (Barb Marshall). Provisional index and list of titles of research and summary documents of 2004. (1 page + Excel file)
05/5 ¹	N5085	VASKOV, A. A., K. V. GORCHINSKY, T. M. IGASHOV, S. P. MELNIKOV, S. F. LISOVSKY, I. K. SIGAEV, and V. A. RIKHTER. Russian Research Report for 2004. (22 pages)

¹ Scientific Council Meeting, 2-16 June 2005.

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SCS No.	Ser. No.	Author(s) and Title
05/6 ¹	N5086	VARGAS, J., R. ALPOIM, E. SANTOS, and A. M. AVILA DE MELO. Portuguese Research Report for 2004. (55 pages)
05/7 ¹	N5120	SOSEBEE, K. A. United States Research Report for 2004. (22 pages)
05/8 ¹	N5096	GONZÁLEZ, F., J. L. DEL RIO, A. VÁZQUEZ, H. MURUA, E. ROMÁN, M. CASAS, P. DURAN, and G. RAMILO. Spanish Research Report for 2004. (26 pages)
05/9 ¹	N5102	RATZ, H.-J., C. STRANSKY, and M. STEIN. German Research Report for 2004. (7 pages)
05/10 ¹	N5155	NAFO. Report of Scientific Council Meeting, 2-16 June 2005. (214 pages)
05/11 ¹	N5105	NAFO SECRETARIAT (Cindy Kerr). List of Biological Sampling Data for 2004. (1 page + Excel file)
05/12 ¹	N5109	OSBORNE, D. R., M. TREBLE, L. DUECK, and S. COSENS. Canadian Research Report for 2004. (33 pages)
05/13 ¹	N5111	NAFO SECRETARIAT (Dorothy Auby). Tagging activities for the Northwest Atlantic in 2004 and early 2005. (6 pages)
05/14 ¹	N5116	SIEGSTAD, H. Denmark/Greenland Research for 2004. (9 pages)
05/15 ¹	N5152	ROMANOV, E. V., S. T. REBIK, and Yu. V. KORZUN. Ukrainian Research Report for 2004. (1 page)
05/16 ²	N5157	NAFO. Available data from the commercial fisheries related to stock assessment (2004) and inventory of biological surveys conducted in the NAFO area in 2004 and biological surveys planned for 2005 and early-2006. (5 pages)
05/17 ²	N5163	ICES/NAFO WG. Report of the Joint ICES/NAFO Working Group on Harp and Hooded Seals. (30 pages)
05/18 ²	N5164	NAFO. Report of Scientific Council Meeting, 19-23 September 2005. (26 pages)
05/19 ³	N5200	NAFO. Report of Scientific Council Meeting, 26 October-3 November 2005. (118 pages)
05/20 ³	N5208	NAFO SECRETARIAT. A compilation of research vessel surveys on a stock-by-stock basis. (Revised, 26 pages)

¹ Scientific Council Meeting, 2-16 June 2005.

² Scientific Council Meeting, 19-23 September 2005.

³ Scientific Council Meeting, 26 October-3 November 2005

APPENDIX VII. LIST OF REPRESENTATIVES AND ADVISERS/EXPERTS, 2005

Meetings*

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Meetings*

- A Scientific Council Meeting, 2-16 June 2005.
- B Scientific Council Annual Meeting, 19-23 September 2005.
- C Scientific Council Meeting, 26 October-3 November 2005.

Meetings*

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- A Scientific Council Meeting, 2-16 June 2005.
- B Scientific Council Annual Meeting, 19-23 September 2005.
- C Scientific Council Meeting, 26 October-3 November 2005.

Meetings*

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Meetings*

- A Scientific Council Meeting, 2-16 June 2005.
- B Scientific Council Annual Meeting, 19-23 September 2005.
- C Scientific Council Meeting, 26 October-3 November 2005.

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Meetings*

- A Scientific Council Meeting, 2-16 June 2005.
- B Scientific Council Annual Meeting, 19-23 September 2005.
- C Scientific Council Meeting, 26 October-3 November 2005.

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Meetings*

- A Scientific Council Meeting, 2-16 June 2005.
- B Scientific Council Annual Meeting, 19-23 September 2005.
- C Scientific Council Meeting, 26 October-3 November 2005.

LIST OF RECOMMENDATIONS IN 2005

The following are the specific **recommendations made by the Scientific Council** at its meetings through 2005 besides those made with respect to scientific advice on stocks considered. The recommendations with respect to stock advice appear in the stock-by-stock Summary Sheets presented in this publication. Recommendations listed under the Standing Committees were **endorsed** by the Scientific Council.

All recommendations listed here were **adopted** by the Scientific Council and are presented as they appear in this publication under the relevant sections and pages mentioned.

Scientific Council Meeting, 2-16 June 2005

SCIENTIFIC COUNCIL

NOTE: All 2-15 June 2004 recommendations pertaining to the work of the Scientific Council, except those related to stocks under STACFIS, were listed in Part A, Sections III, IV, V and VI. These and other recommendations pertaining to all Constituent Bodies of NAFO are presented below under the relevant section and subject headings.

X. REPORTS OF WORKING GROUPS (see also Section XIV of Scientific Council Report)

2. Joint NAFO-ICES Working Group on Harp and Hooded Seals (page 47)

The Joint NAFO-ICES Working Group on Harp and Hooded Seals (WGHARP) will meet in St. John's during 30 August to 3 September 2005. Scientific Council **recommended** that *the WGHARP review the recent assessment of the status of Harp seals conducted by Canada and report its findings to the Annual Meeting of Scientific Council during 19-23 September 2005*. Scientific Council also **recommended** that *the WGHARP provide to the September 2005 Annual Meeting of Scientific Council the results of studies that are carried out regarding harp and/or hooded seals in the Northwest Atlantic, in particular any available results from tagging studies using satellite telemetry tracking*.

XIV. SCIENTIFIC COUNCIL RECOMMENDATIONS TO GENERAL COUNCIL AND FISHERIES COMMISSION (page 50)

Recognizing the importance of reliable catch estimates to stock assessments and the considerable efforts of some Contracting Parties to produce more accurate catch estimates, Scientific Council **recommended** that *all Contracting Parties take measures to improve the accuracy of their catch estimates*.

FISHERIES ENVIRONMENT (STACFEN)

STACFEN made no formal recommendations during this 2005 meeting.

PUBLICATIONS (STACPUB)

NAFO Website

Web Statistics (with focus on the Journal) (page 69)

STACPUB **recommended** that all papers available in full text form be listed together on the first Journal web page. "Hot Topic" links could be used to showcase the latest Journals.

STACPUB **recommended** that *the copyright/disclaimer from Biodiversity Informatics be used on an interim basis and that the Secretariat should seek expert legal opinion in drafting text appropriate for the NAFO Journal*.

STACPUB **recommended** that *we continue to publish Journal papers on-line under the name Journal of Northwest Atlantic Fisheries Science and the printed journal be given up. However, the Committee recognized the importance of the opinion of the Associate Editors of the Journal. The status quo will continue until the chair of STACPUB confers with the Associate Editors, and if any of them have strong concerns this decision will be revisited by June 2006 Meeting.*

STACPUB **recommended** that *all participants who attend a Symposium receive a bound copy of the Symposium papers.*

Other Matters

Consider Becoming a Member of the Aquatic Sciences and Fisheries Abstracts (ASFA) (page 71)

STACPUB **recommended** that *all efforts should be taken to ensure the continuation of the input to the database on national and international levels, and that NAFO through the Secretariat becomes an international partner of ASFA.*

Proposal to Publish a Book on "Early Stages of Fishes in the Western North Atlantic Ocean North of 35°N and West of 40°W" (page 71)

STACPUB **recommended** that *the proposal to publish the book "Early Stages of Fishes in the Western North Atlantic Ocean North of 35°N and West of 40°W" be accepted and that Scientific Council and the Secretariat draft a letter to be sent to the author (M. P. Fahay).*

Instructions for Authors Submitting Papers to the Journal (page 71)

STACPUB **recommended** that *the revised "Instructions for Authors Submitting Papers to the Journal" be accepted.*

RESEARCH COORDINATION (STACREC)

The recommendations made by STACREC for the work of the Scientific Council as **endorsed** by the Council, are as follows:

Fisheries Statistics

Progress Report on Secretariat Activities in 2004/2005

Acquisition of STATLANT 21A and 21B reports for recent years (page 74)

STACREC noted a continued widespread lack of respect of the deadlines for STATLANT data submissions. As a result, STACREC **recommended**, once again, that *the Fisheries Commission be informed of those countries for which STATLANT data are missing and be reminded about the importance of these data to the work of the Scientific Council.*

Report of the Coordination Working Party on Fishery Statistics (CWP) 21st Session, Copenhagen, 1-4 March 2004 (page 76)

STACREC **recommended** that *NAF be submitted to Scientific Council for consideration.*

Stock assessment database (page 79)

Recognizing the importance of reliable catch estimates to stock assessments and the considerable efforts of some Contracting Parties to produce more accurate catch estimates, STACREC **recommended** that *all Contracting Parties take measures to improve the accuracy of their catch estimates.*

Other Business

Gear codes: (page 83)

STACREC noted the importance of NAFO participation in the gear review process, particularly with respect to gear used in NAFO Area. Accordingly, STACREC **recommended** that *Stephen Walsh (Canada) represent the NAFO Scientific Council in the review and revision process of the FAO International Standard Statistical Classification of Fishing Gear (ISSCFG) by the ICES/FAO Working Group on Fishing Technology and Fish Behaviour.*

FISHERIES SCIENCE (STACFIS)

General Review of Catches and Fishing Activity (page 89)

Recognizing the importance of reliable catch estimates to stock assessments and the considerable efforts of some Contracting Parties to produce more accurate catch estimates, STACFIS **recommended** that *all Contracting Parties take measures to improve the accuracy of their catch estimates and present them in advance of future June Meetings.*

Greenland Halibut (*Reinhardtius hippoglossoides*) in Subarea 0 and Division 1A Offshore and Divisions 1B-1F (page 97)

STACFIS **recommended** that *the investigations of the by-catch 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 2005.*

STACFIS **recommended** that *the CPUE series and catch-at-age for Greenland halibut from SA0 should be updated and the location and distribution of the catches be provided.*

STACFIS **recommended** that *the reason for the discrepancies in ageing of Greenland halibut between different laboratories should be investigated further.*

Greenland Halibut (*Reinhardtius hippoglossoides*) in Division 1A Inshore (page 103)

STACFIS **recommended** that *the study to calibrate the gill net survey should be continued in order to allow use of the whole time series for Greenland halibut in Disko Bay.*

STACFIS **recommended** that *investigations of by-catch 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.*

Demersal Redfish (*Sebastes spp.*) in Subarea 1 (page 110)

STACFIS **recommended** that *the species composition and quantity of redfish discarded in the shrimp fishery in Subarea 1 be quantified.*

Other Finfish in Subarea 1 (page 113)

STACFIS **recommended** that *the species composition and quantity of other finfish discarded in the shrimp - fishery in Subarea 1 be quantified.*

Redfish (*Sebastes mentella* and *Sebastes fasciatus*) in Divisions 3M (page 121)

STACFIS **recommended** that *information on the distribution on shrimp and small redfish (<12 cm) in Div. 3M be compiled for review during the June 2006 Meeting of Scientific Council.*

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

Cod (*Gadus morhua*) in Divisions 3N and 3O

Reference Points (page 128)

In April 2003 the Scientific Council re-iterated that 60 000 tons is the current best estimate of B_{lim} (Fig. 9.7). In the recent period of low productivity (since 1982), there is an indication of even further reduction in recruitment at about half the B_{lim} level. In view of the difficulty in determining if the current low productivity will persist in the immediate future, it was **recommended** that *for cod in Div. 3NO the Scientific Council review in detail the biological reference points in the context of the PA framework when the SSB has reached half the current estimate of B_{lim} . The current estimate of SSB is 5 500 tons which is 9% of B_{lim} .*

Recommendations (page 130)

STACFIS noted the poor model fit in the SPA to the Canadian juvenile survey series and considered that an improvement may be realized by excluding the index from the ADAPT, accordingly, STACFIS **recommended** that *a sensitivity analysis be conducted to investigate the impact of excluding the Canadian juvenile survey index from the SPA.*

STACFIS noted the availability of the converted Spanish spring survey data from the NRA area of Div. 3NO and **recommended** that *the utility of the converted mean per tow at length data from the spring survey series conducted by EU-Spain in the NRA of 3NO since 1997 be explored as an additional index in the SPA calibration.*

American Plaice (*Hippoglossoides platessoides*) in Divisions 3L, 3N and 3O (page 143)

STACFIS **recommended** that *a number of ADAPT formulations be explored for Div. 3LNO American plaice, including shortening or splitting the tuning indices in conjunction with varying natural mortality that is included in the current model.*

STACFIS **recommended** that *investigation be carried on the sensitivity of the estimation of F_{msy} to these parameters.*

Capelin (*Mallotus villosus*) in Divisions 3N and 3O (page 149)

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.*

Redfish (*Sebastes mentella* and *Sebastes fasciatus*) in Division 3O (page 154)

STACFIS noted estimates of size at maturity from various recent studies was not precise because species mixtures could be a confounding factor, accordingly, due to the importance of size at maturity for assessment purposes, STACFIS **recommended** that *future studies should be continued and be analyzed by species.*

White hake (*Urophycis tenuis*) in Divisions 3N, 3O and Subdivision 3Ps (page 163)

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 *the collection of information on commercial catches of white hake be continued; and now include sampling for age and sex.*

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.*

Greenland Halibut (*Reinhardtius hippoglossoides*) in Subarea 2 and Divisions 3KLMNO (page 188)

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

STACFIS **recommended** that *age-readers of Greenland Halibut in Subarea 2 and Divisions 3KLMNO participate in a 2006 workshop to reach agreement upon common age reading practices and eliminate biases in age interpretation.*

Scientific Council Annual Meeting, 19-23 September 2005

SCIENTIFIC COUNCIL

IX. SCIENTIFIC COUNCIL WORKING PROCEDURES AND PROTOCOL

Timetable and Frequency of Assessments

Proposals to Shorten June Meeting (page 201)

In order to enhance Scientific Council's ability to produce catch estimates in advance of the June meeting, Scientific Council **recommends** that *the deadline for submission of STATLANT 21A data be set at 1 May in each year starting in 2006.*

XI. OTHER MATTERS

Fahay Monograph (page 202)

Council discussed the most appropriate format of this book and decided that a 2 volume hard cover version was the best. Scientific Council **recommends** that *the Monograph by M. Fahay entitled 'Early Stages of Fishes in the Western North Atlantic Ocean North of 35°N and West of 40°W' be published in 2 volumes and be in hard cover.*

Editorial Board (page 202)

In June 2005 STACPUB **recommends** that *we continue to publish Journal papers on-line under the name Journal of Northwest Atlantic Fisheries Science and the printed Journal be given up. However, the Committee recognized the importance of the opinion of the Associate Editors of the Journal. The status quo will continue until the Chair of STACPUB confers with the Associate Editors, and if any of them have strong concerns this decision will be revisited by June 2006 Meeting.*

Provision of Monthly Catch Statistics by Secretariat (page 203)

Noting that data for provisional letters are submitted pursuant to Conservation and Enforcement Measures, Scientific Council **recommends** that *Fisheries Commission revise the Conservation and Enforcement Measures to require submission of data by country for the monthly letters on provisional catch statistics.*

Many people are still not clear about the reporting of catch under charter or quota transfer arrangement. Therefore, Scientific Council **recommends** that *the Secretariat provide a clear explanation of the reporting of catch statistics under charter and quota transfer arrangements.* It was noted that the Excel spreadsheet designed by the Secretariat and available on the website was useful and Scientific Council **recommends** that *the spreadsheet of catch statistics be updated to expedite access to these data by Designated Experts.*

Questions from the Fisheries Commission (page 203)

Scientific Council reiterates its recommendation from the September 2004 Meeting that Contracting Parties provide all available data on by-catch and discards of Greenland halibut in Subarea 2 and Divisions 3KLMNO shrimp fishery for consideration in future assessments. Scientific Council further **recommends** that *data collected by Contracting Parties on species taken as by-catch in or discarded from the shrimp fishery be made available for consideration in future assessments.*

RESEARCH COORDINATION**NAFO Observer Program****Digitization of Available Data** (page 210)

It was noted that Scientific Council members generally have access to NAFO observer data from their own country, and if NAFO digitizes these observer reports, this would allow sharing with other Scientific Council members. There was no objection to this proposal, and STACREC **recommends** that *the digitization of observer data be carried out and that these data then be made available to Scientific Council.*

Scientific Council Meeting, 26 October-3 November 2005**SCIENTIFIC COUNCIL****Other Business****New Possibilities to Improve Catch Information Available** (page 224)

The Scientific Council **recommends** that *approval be sought from the Fisheries Commission to obtain catch information from VMS to be used in assessments.*

Proposal for Shrimp Working Group (page 225)

Scientific Council expressed their best wishes for the group and **recommends** that *the Working Group submits their progress report to the Council regularly.*

FISHERIES SCIENCE (STACFIS)**Research Recommendations** (page 235)

STACFIS **recommends** that, for Northern Shrimp in Division 3M

- *biological and CPUE data from all fleets fishing for shrimp in the area, be submitted to Designated Experts by 1 September 2006.*
- *indices of female stock size be presented with error bars where possible.*
- *the relationship between the recruitment index and fishable biomass be investigated further.*

Research Recommendations (page 244)

STACFIS **recommends** that, for Northern Shrimp in Divisions 3LNO

- *Ogmap should be reviewed further to determine whether it is an appropriate method to determine Div. 3LNO shrimp biomass/abundance indices from stratified random surveys.*

- *biological and CPUE data from all fleets fishing for shrimp in the area, be submitted to the Designated Expert, in the standardized format, by 1 September 2006.*

Research Recommendations (page 257)

STACFIS **recommends** that, for Northern Shrimp in Subareas 0 and 1

- *sampling of catches by observers - essential for assessing age, size, sex composition, fecundity and frequency of spawning of the stock - should be re-established in Subarea 1.*
- *ways to include the exploration of the effects of future trajectories of the cod stock on assessment predictions should be investigated and presented in 2006.*
- *the impact of other predators on the stock should also be considered for inclusion in the assessment model.*
- *the age-2 abundance index and its link to subsequent fishable biomass should be considered for inclusion in the shrimp assessment model.*

Research Recommendations (page 261)

STACFIS **recommends** that, for Northern Shrimp in Denmark Strait and off East Greenland

- *a survey be conducted, to provide fishery independent data of the stock throughout its range*
- *as a minimum requirement: sampling of catches by observers is required - essential for assessing age, size, sex composition, fecundity and frequency of spawning of the stock - and be re-established in the Greenland EEZ and improved in the Icelandic EEZ.*