SECTION IV

(pages 179 to 188)

Report of the Working Group of Technical Experts on the Precautionary Approach (PA) 20-21 June 2002 Dartmouth, N.S., Canada

Report of the Working Group of Technical Experts on the Precautionary Approach

(FC Doc. 02/12)

20-21 June 2002
Dartmouth, N.S., Canada

1. Opening of the Meeting

The Working Group of Technical Experts on the Precautionary Approach (PA) was called to order by Mr. Dean Swanson (USA), Chair of the Fisheries Commission at 1000 hr, June 20, 2002 at the Ramada Plaza Hotel in Dartmouth, Nova Scotia. Representatives from Canada, the European Union, United States of America, Russian Federation, Iceland, Japan and Norway were present (Annex 1). The Chairman welcomed participants to Dartmouth.

2. Election of a Chairman

Mr. Jim Baird (Canada) was appointed as Chairman for the meeting. The Chair of the working group noted, upon the suggestion of the Chair of the Fisheries Commission, that the meeting would be held in an open and informal fashion to facilitate a frank and complete discussion of the many elements related to the precautionary approach.

3. Appointment of a Rapporteur

Judy Dwyer (Canada) was appointed Rapporteur for the meeting.

4. Adoption of the Agenda

The agenda (Annex 2) was adopted as modified.

5. Presentations on Precautionary Approach for Discussion

There were three presentations made which provided a basis for discussion under Agenda Item 6.

1) A Review which outlined the steps taken to date by NAFO in developing the Precautionary Approach.

   Material was presented outlining the history and evolution of the Precautionary Approach within NAFO. Work began in 1996 with a request from Fisheries Commission to Scientific Council to begin work in this area. Since then, there has been development of biological reference points for some stocks managed by Fisheries Commission as well as development, again by Scientific Council, of a proposed framework for application. A Fisheries Commission/Scientific Council WG was formed and discussions of the PA have taken place during three meetings of the WG during which the biological perspectives as well as other conservation measures were discussed. The specific roles of scientists and managers has been determined, and issues pertaining to harmonization of terminologies have been outlined.

2) An overview of the work done by ICES in developing the Precautionary Approach

The development of fisheries advice within the Precautionary Approach Framework was described. Precautionary Approach Limits were introduced into ICES advice in 1981 and further developed in 1986. The development of ICES Precautionary Approach framework for advice is described within four ICES Study Groups on the Precautionary Approach. The1997 Study Group described how reference points should be defined, and proposed the use of pre-agreed harvest control rules and recovery plans to maintain or restore stocks within safe biological limits. The 1998 Study Group estimated reference point values that were adopted by ACFM in giving advice and that are generally still in use, although some reference values have since been recalculated by individual assessment working groups. The 2001 Study Group provided a general overview of the current status of the PA in ICES, and reviewed the technical basis for the points currently in use.

The reference points proposed by ICES have been formally accepted for the management of fish stocks shared by Norway and the EU, which have adopted the PA reference points in the management agreement for herring, cod, haddock, saithe and plaice in the North Sea, and mackerel in western waters.

The ICES Precautionary Approach Study Group has noted that the present implementation in management has deficiencies. It is based on a single species concept, whereas many species are caught in mixed or multispecies fisheries, and the advice has no consideration for the side effects of the fisheries such as the impact on the ecosystem. F_{pa} was intended as the upper bound of the fishing mortality that can be applied to a fishery in order to have a high probability of maintaining a sustainable resource. Similarly B_{pa} was intended to be interpreted as the minimum required adult spawning biomass. It was expected that fishery managers would have set targets beyond the reference points taking into account biological, catch/revenue or employment objectives. In practice the management system has not been able to agree on such targets and the precautionary reference points are being used as targets. By managing the stocks so close to the F_{pa} and B_{pa} targets, however, there is a substantial probability that stocks will move above or below the target from year to year so that management action has to be taken frequently to change the stock trend.

ICES has recently begun the process of establishing a series of meetings that will review the current reference points for each stock this process is scheduled to be completed by the end of 2003.

3) Management Experience with the ICES Precautionary Approach Framework.

The group heard opinions that implementing the ICES PA framework had brought notable benefits, mostly that it had promoted general acceptance by managers and industry of a more cautious and longer-term approach to fisheries management. The clear framework for advice and assessments assists transparency and "good governance". Where the approach has been applied consistently, positive results are starting to show (e.g. North Sea herring).

However, there were a number of drawbacks and problem areas.

- The system is based only on stock dynamics and risk, with no yield considerations. Managers are interested in questions of catch and harvesting rate, but are no longer being informed about, for example, current fishing mortality compared to F_{max};

- Risk acceptance is highly variable across different stocks in the ICES area;

- In the absence of defined fishing mortality values, the F_{pa} value which was intended to be a limiting value can become used as a target;

- There is no consideration of stability and assessment noise in the framework, and there is no consideration of when TAC changes are really useful or needed, or else are largely due to stochastic variability of fish stock assessments;

- Despite recent progress, the approach has not yet altered the perception that assessment revisions are "mistakes by scientists", rather than inescapable consequences of attempting to measure fish stocks with limited observations;

- Furthermore, such assessment "noise" means that stocks are unpredictably crossing the safe biological limits despite management actions to prevent this;

- A key issue for fish stock management is the appropriate regulation of fishing activities that result in several species being caught, some of which may require stronger conservation measures than others. The existing frameworks provide managers with very little assistance in this regard.

- While the creation of a formal and rigid advisory framework assists in good governance and transparency, it may arguably have the drawback that there is correspondingly less scope for inputs from knowledgeable experts and case-specifc adaptation.

- In the ICES framework, there is no definition of measures to apply in case of stocks below B_{pa}. In the event of stock depletion, managers need additional resources to develop case-specific recovery plans.

- Two more technical issues are that the the ICES PA framework recognises assessment noise but not structural uncertainty; furthermore, the PA reference point values are usually given as absolute values (e.g. "B_{pa} = 1.4 Million t") when they are model-conditioned and could better be expressed in model-independent terms ("B_{pa}=average spawning stock size in the years 1985 to 1990).

As an example of the implementation of precautionary concepts into a management instrument, the management arrangements agreed between the Community and Norway were presented and discussed. These arrangements are very concise documents under which commitments are made to:

- Make every effort to keep the stock biomass above B_{lim};

- Set TACs according to Fpa annually when conditions permit;

- Adapt fishing mortality in the light of scientific estimates of the conditions then prevailing , if stock biomass should fall under Bpa. Such adaptation should ensure safe and rapid recovery to above Bpa;

- Review the measures as appropriate according to the latest scientific advice.

Additionally, new proposals concerning the annual management of catches and effort under the proposed new Common Fisheries Policy were presented.

6. Matters to be considered by the Fisheries Commission regarding the Implementation of the Precautionary Approach in NAFO

It was noted that there were a number of common elements between the Precautionary Approach framework utilized by ICES and the framework developed by the Scientific Council of NAFO. These similarities are evident in the model formulation from both scientific organizations and also reflect concerns expressed by managers in implementation. These common elements include the establishment of limit reference points (Blim) and associated biomass buffer reference points (B_{buf} in NAFO and B_{pa} in ICES). The role of managers, on the basis of scientific advice and in consultation with stakeholders, is to establish reference points and in the event that stocks fall below the established reference points, to determine appropriate corrective action. The work of Scientific Council also includes the determination of associated risk, while managers should determine, in consultation with stakeholders, what level of risk may be acceptable.

Analysis of both frameworks raised similar concerns. These include:

- The frameworks were developed in the context of single species fisheries without consideration of multi-species situations
- No consideration of stability for TAC levels in comparison to assessment uncertainties

Additional concerns were identified by fisheries managers with the proposed Scientific Council PA framework. These include:

- Prescribed harvest control rules (no fishing) below B_{lim} or B_{buf}
- A fishing mortality limit at F_{MSY}
- The perception of a linear decrease in fishing mortality from the biomass target to the biomass buffer

Scientific Council representatives clarified that the linear decrease in fishing mortality between the biomass target and the buffer was for illustrative purposes only. The actual trajectory for fishing mortality in this zone should be determined by fisheries managers in consultation with stakeholders. SC representatives further clarified that Harvest Control Rules below B_{lim} or B_{buf} would not necessarily result in a cessation of fishing, and it was noted that it is also the role of mangers to determine corrective action when stocks fall below predetermined biological limits. With regard to using Fmsy as a fishing mortality limit, SC representatives indicated that this was one option, however some other fishing mortality levels could also be used (e.g. Fmax, F0.1, etc.).

A concern was also identified that whereas the Scientific Council framework provides specifically for target biomass and/or fishing mortality when the resource is within safe biological limits, the ICES framework is not as explicit on this issue such that B_{pa} is often used as a target and variability and uncertainty cause stocks to move in and out of safe biological limits.

7. Development of Recommendations for future work of the Fisheries Commission/Scientific Council Working Group

It was agreed that further progress on the above issues as well as overall implementation of the PA within NAFO, would benefit by addressing specific cases and problems. As such, the Group **recommends** that *Fisheries Commission determine an appropriate example(s) then instruct the Joint FC/SC Working Group on the Precautionary Approach to meet intersessionally to address the points above as they apply to the example(s).*

The Group suggests that Fisheries Commission consider steps to develop proposals for long-term plans for the management of different fleet sectors of the fisheries. These plans should include but not necessarily be limited to the following characteristics:

1. They should be concise and binding, in that they specify the objectives for management and the main actions to be taken in pre-defined circumstances;

2. They should cover fisheries fleet sectors, and the impact of these fleet sectors on the stocks or groups of stocks which they fish;

3. Re-opening criteria and actions should be addressed for stocks under moratoria;

4. They should include review clauses to correspond to the acquisition of new scientific information;

5. They should include a suite of technical measures usually assumed to be part of routine management methods, however additional technical measures should not be pre-specified..

8. Other Matters

There were no other matters discussed.

9. Adjournment of the Meeting

The meeting was adjourned at 1230 hrs on June 21, 2002.

Annex 1. List of Participants

CANADA

D. B. Atkinson, Regional Director, Science, Oceans and Environment, DFO Newfoundland Region, P. O. Box 5667, St. John's, Newfoundland A1C 5X1
Phone: +709 772 2027 - Fax: +709 772 6100 - E-mail: atkinsonb@dfo-mpo.gc.ca
J. W. Baird, Regional Director, Fisheries Management, Dept. of Fisheries and Oceans, P. O. Box 5667, St. John's, Newfoundland A1C 5X1
Phone: +709 772 4543 - Fax: +709 772 2046 - E:mail: bairdj@dfo-mpo.gc.ca
D. Bevan, Director General, Resource Management, Dept. of Fisheries and Oceans, 200 Kent Street, Ottawa, Ontario K1A 0E6
Phone: +613 990 6794 – Fax +613 954 1407 – E-mail: bevand@dfo-mpo.gc.ca
J. Dwyer, Special Projects, Fisheries Management Br., Dept. of Fisheries and Oceans, P. O. Box 5667, St. John's, Newfoundland A1C 5X1
Phone: +709 772 - Fax: +709 772 2046 - E-mail: dwyerji@dfo-mpo.gc.ca
M. Short, Special Advisor, NAFO, Dept. of Fisheries and Oceans, P. O. Box 5667, St. John's, Newfoundland A1C 5X1
Phone: +709 772 6369, Cell +709 682 5110 – E-mail: shortm@dfo-mpo.gc.ca
R. Steinbock, Senior Advisor, International Affairs Directorate, Dept. of Fisheries and Oceans, 200 Kent St., Ottawa, Ontario K1A 0E6
Phone: +613 993 1836 - Fax: +613 993 5995 - E-mail: steinbob@dfo-mpo.gc.ca

EUROPEAN UNION

S. Ekwall, Administrator, European Commission, Directorate General for Fisheries, External Policy and Markets, International and Regional Arrangements, Rue de la Loi/Wetstraat 200, B-1049 Brussels, Belgium
Phone: +32 2 299 6907 - Fax: +32 2 295 5700 - E-mail: Staffan.Ekwall@cec.eu.int
K. Patterson, European Commission, DG Fish, Office 6/39, J-99, B-1040 Brussels, Belgium
Phone: +322 29 98227 – Fax: +322 295 5621 – E-mail: kenneth.patterson@cec.eu.int
F. Gonzalez, Instituto Espanol de Oceanografia, Aptdo 1552, E-36280 Vigo (Pontevedra), Spain
Phone: +34 9 86 49 2111- Fax: +34 9 86 49 2351 – E-mail: fernando.gonzalez@vi.ico.es
C. Darby, Centre for Fisheries & Aquaculture Science (CEFAS), Lowestoft Laboratory, Pakefield Rd., Lowestoft (Suffolk), England NR33 OHT, United Kingdom
Phone: +44 1502 524 329 – Fax: +44 1502 513 865 – E-mail: c.d.darby@cefas.co.uk

ICELAND

T. Sigurdsson, Marine Research Institute, Skulagata 4, 101 Reykjavik
Phone: +354 5520240 - Fax: +354 5623790 - E-mail: steini@hafro.is

JAPAN

T. Ichii, National Research Institute of Far Seas Fisheries, Fish. Res. Agency, 5-7-1 Orido, Shimizu 424-8633
Phone: +81 543 36 6056 – Fax: +81 543 35 9642 – E-mail: ichii@affrc.go.jp

NORWAY

A. Aglen, Institute of Marine Research, P. O. Box 1870 Nordnes, N-5024 Bergen
Phone: +47 55 23 8680 – Fax: +47 55 238687 – E-mail: asgeir@imr.no

RUSSIAN FEDERATION

V. Agalakov, Murmanrybvod, Kominterna 5, Murmansk 183672
Phone: +7 8152 453562 – Fax: +7 8152 456028 – E-mail: mrv@an.ru
V. K. Babayan, Head of Laboratory for System Analysis of Fishery Resources, VNIRO, 17, V. Krasnoselskaya, Moscow 107140
Phone: +7 095 264 6983 – Fax: +7 095 264 9187– E-mail: vbabayan@vniro.ru
K. V. Gorchinsky, Knipovich Polar Research Institute of Marine Fisheries and Oceanography (PINRO), 6 Knipovich St., Murmansk
Phone: + 7 8152 47 2532 – Fax: + 7 8152 47 3331 – E-mail: inter@pinro.murmansk.ru
A. Okhanov, Russian Representative on Fisheries in Canada, 47 Oceanview Drive, Bedford, Nova Scotia, Canada B4A 4C4
Phone: +902 832 9225 – Fax: +902 832 9608 – E-mail: rusfish@ns.sympatico.ca
V. N. Shibanov, Knipovich Polar Research Institute of Marine Fisheries and Oceanography (PINRO), 6 Knipovich Street,Murmansk 183763
Phone: +7 8152 47 26 14 – Fax: +7 8152 47 33 31 – E-mail: inter@pinro.murmansk.ru

UNITED STATES OF AMERICA

J. Dunnigan, Director, Office of Sustainable Fisheries, U.S. Dept. of Commerce, NOAA, National Marine Fisheries Service, 1315 East West Highway, Silver Spring, MD 20910
Phone: +301 713 2334 - Fax: +301 713 0596 - E-mail: jack.dunnigan@noaa.gov
R. Mayo, Northeast Fisheries Science Center, NMFS, 166 Water St., Woods Hole, MA 02543
Phone: +508 495 2310 - Fax: +508 495 2393 - E-mail: ralph.mayo@noaa.gov
F. M. Serchuk, Chief, Resource Evaluation and Assessment Division, Northeast Fisheries Science Center, NMFS, 166 Water St., Woods Hole, MA 02543-1097
Phone: +508 495 2245 - Fax: +508 495 2258 - E-mail: fred.serchuk@noaa.gov
D. E. Swanson, Chief, International Fisheries Div., F/SF4, National Marine Fisheries Service, U.S. Dept. of Commerce, 1315 East-West Highway, Silver Spring, MD 20910
Phone: +301 713 2276 - Fax: +301 713 2313 - E-mail: dean.swanson@noaa.gov

NAFO SECRETARIAT

L. I. Chepel, Executive Secretary
T. Amaratunga, Assistant Executive Secretary
F. D. Keating, Administrative Assistant
B. J. Cruikshank, Senior Secretary

Annex 2. Agenda

1. Opening of the Meeting

2. Election of a Chairman

3. Appointment of Rapporteur

4. Adoption of Agenda

5. Presentations on PA for Discussion
   - 5.1 Summary of Discussions to Date
   - 5.2 Recent Experiences with the PA Within ICES
   - 5.3 Management Experience with the ICES Precautionary Approach Framework

6. Matters to be considered by the Fisheries Commission regarding the Implementation of the Precautionary Approach in NAFO

7. Development of Recommendations for future work of the Fisheries Commission/Scientific Council Working Group

8. Other Matters

9. Adjournment of the Meeting