

## REPORT OF FISHERY SCIENCE COMMITTEE

The meeting of the Fishery Science Committee (FIS) was held from 08:30-15:30 hours on October 7, 2005. The Chairman, Dr. Yukimasa Ishida, called the meeting to order and welcomed the participants. The meeting was attended by 11 FIS members and 8 observers representing all PICES member countries except China (*FIS Endnote 1*). Dr. Elizabeth A. Logerwell served as rapporteur.

The Chairman reviewed the draft agenda (*FIS Endnote 2*), and all members agreed that the North Pacific Ecosystem Status Report and the Committee schedule during the Annual Meeting should be discussed under Agenda Item 13. The agenda was approved as presented.

### **Nominations and election of FIS Chairman (Agenda Item 3)**

Dr. Gordon H. Kruse (U.S.A.) was nominated and elected as the incoming FIS Chairman with a 3-year term of his appointment to begin immediately after the Annual Meeting. FIS noted that the nationalities of the current Committee Chairmen are strongly weighted on North America and recommends that the balance of the Science Board and other Committee memberships should be considered in the future. The Committee expressed its gratitude to Dr. Yukimasa Ishida for his leadership and valuable contribution to FIS activities over the years.

### **Implementation of PICES XIII decisions (Agenda Item 4)**

At PICES XIV, FIS co-sponsored a ½-day Topic Session (with CCCC) on “*Evidence of distributional shifts in demersal fish in relation to short- and long-term changes in oceanographic conditions*”, a ½-day Topic Session (with MEQ) on “*Current and emerging issues of marine and estuarine aquaculture in the Pacific region: Carrying capacity,*

*ecosystem function, and socioeconomics*”, a 1-day Topic Session (with MEQ) on “*Ecosystem indicators and models*”, and a 1-day FIS Contributed Paper Session. Summaries of the sessions are included elsewhere in this Annual Report. The Committee noted that the FIS Paper Session provides opportunities for young scientists to present their work. Another advantage is that scientists can participate even when Topic Sessions change from year to year. Also, it provides opportunities for scientists who must make a presentation as a condition of their attendance at the meeting. So FIS decided to continue the FIS Paper Session in the future.

### **Progress report of WG 16 on *Climate change and fisheries management* (Agenda Item 5a)**

Dr. Richard J. Beamish submitted both paper and electronic copies of the draft report to the FIS Chairman. WG 16 is awaiting final comments from the United States after which the report can be prepared for publication by PICES. Dr. Beamish proposed a 2-day workshop at PICES XV as a follow-up to WG 16 activities (*FIS Endnote 3*). The intent of the workshop would be to agree on key species to be studied and to identify the relationships between climate and fish production and distribution.

### **Progress report of WG 18 on *Mariculture in the 21<sup>st</sup> century* (Agenda Item 5b)**

The FIS/MEQ WG 18 met on October 1, 2005. The report of WG 18 can be found elsewhere in the Annual Report. The WG 18 Co-Chairman, Dr. Ik Kyo Chung, described the results of the meeting and a WG 18 workplan. Also, he outlined a possible related Topic Session for PICES XV (*WG 18 Endnote 4*).

### **Progress report of WG 19 on *Ecosystem-based management science* (Agenda Item 5c)**

The FIS/MEQ WG 19 met on September 28-30, 2005. The report of WG 19 can be found

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elsewhere in this Annual Report. The WG 19 Co-Chairman, Dr. Glen Jamieson, described the results of the meeting. The presentation concluded with a suggestion to convene a Topic Session at PICES XV, either half- or full-day, on “*Criteria relevant to the determination of unit eco-regions for ecosystem-based management in the PICES area*” (WG 19 Endnote 5).

### **Proposal for new Working Groups (Agenda Item 6)**

There were no proposals for new Working Groups by FIS, because currently FIS is co-sponsoring, jointly with MEQ, WG 18 and WG 19. FIS cautioned against having too many Working Groups, not only by FIS but also by other Committees.

### **Inter-sessional meetings (Agenda Item 7)**

No inter-sessional meetings are proposed between PICES XIV and PICES XV.

### **Proposed publications (Agenda Item 8)**

The final report of WG 16 will be published in the PICES Scientific Report Series in 2006. There is also an interest to publish a related brochure, based on the Executive Summary.

### **Requests for travel support (Agenda Item 9)**

FIS expects that funds (~CDN \$5,000) will be available for invited speakers of FIS-supported Topic Sessions at PICES XV. Travel support is not needed for workshops.

### **Relations with other international programs and organizations (Agenda Item 10)**

Dr. Richard Beamish, NPAFC convenor for the joint NPAFC/PICES Symposium on “*The status of Pacific salmon and their role in North Pacific marine ecosystems*”, provided an update on the symposium planning. Included in his report was also information on salmon and ecosystem status. One key reason for the symposium was to use its success to establish an international program with funding from outside sources to understand how climate and ocean affect the

recruitment of salmon throughout their range. PICES and NPAFC have a Memorandum of Understanding that can facilitate such an approach. The NPAFC BASIS program is an example of successful international integration and cooperation, and follow-up will be important.

FIS reviewed a proposal for an ICES/PICES/IOC Symposium on “*Effect of climate change on the world’s ocean*” to be held in spring 2008, in Spain. FIS noted that the proposal is interesting but the scope is too big. Also, there is possible overlap with future PICES symposia (2007) and others being planned for the International Polar Year (2008). FIS does not strongly support this proposal at this time. FIS offers caution about making too many commitments without considering other proposals. FIS is interested to see how this proposal develops; the potential role of PICES should be clarified in the priority statement.

Dr. Robin Rigby provided information on a proposal for PICES and CoML to collaborate on an examination of North Pacific eco-regions.

Dr. George L. Hunt, representing a new GLOBEC regional program on *Ecosystem Study of Sub-Arctic Seas* (ESSAS), offered a proposal for a joint ESSAS/PICES Workshop comparing four sub-arctic marine ecosystems, to be held in June 2006, in Moscow or St. Petersburg, Russia. The purpose would be to develop recommendations for determining how climate variability impacts ecosystems, and to provide some feedback for strengthening of the next edition of the PICES North Pacific Ecosystem Status Report. Dr. Hunt requested moral support from FIS and travel funds for PICES members to attend the workshop. FIS does not strongly support this proposal at this time.

### **Planning for PICES XV (Agenda Item 11)**

The PICES XV Annual Meeting theme is “*Boundary current ecosystems*”. FIS considered the following sessions and workshops in association with the meeting:

(1) Dr. Richard Beamish presented a proposal for a 2-day FIS Workshop on “*Linking climate to trends in productivity of key commercial species in the subarctic Pacific*” as a follow-up to WG 16 activities (FIS Endnote 3). It was indicated that MONITOR supported this proposal.

FIS had some questions about how this related to activities of WG 19. It was noted that the focus is on key commercial species as opposed to ecosystem indicators. FIS suggested not limiting the topic to changes in climate, but to expand it to include oceanographic changes as well.

The planned products for this workshop would include an agreement on key commercial species of the North Pacific, and refinement of climate and oceanographic factors that affect productivity. The plan is to accumulate the existing information, not to conduct a modeling effort. If this effort is successful, it would be ideal to maintain the information so that it can be published in the PICES North Pacific Ecosystem Status Report.

(2) Dr. Ik Kyo Chung proposed a 1-day MEQ/FIS Topic Session on “*Aquaculture for sustainable management of marine environment and ecosystem*” (WG 18 Endnote 4). FIS noted the need for a Chinese convener, as well as the need to ensure China’s participation in WG 18 activities. Accordingly, the proposal should reflect needed input on aquaculture issues that are relevant to China.

FIS also recommended that the proposal should be revised so as to address both the opportunities of aquaculture in addition to the associated habitat impact issues.

(3) Dr. Glen Jamieson presented a proposal for a 1-day MEQ/FIS Topic Session on “*Criteria relevant to the determination of unit eco-regions for ecosystem-based management in the PICES area*” (WG 19 Endnote 5). FIS wants to provide the opportunity for WG 19 to be successful in their tasks, but concern was expressed that the proposed topic was too narrow for a scientific session. FIS feels that this task could be

accomplished either within the Working Group itself or during a workshop.

(4) A 1-day workshop on “*Ocean environmental change and jellyfish*” was proposed as a joint BIO/FIS/MEQ event (BIO Endnote 6a). Jellyfish are increasing in the western Pacific, causing problems for set net fisheries. Jellyfish increases had also been observed in the eastern Pacific. The goal of the workshop would be to bring together data and to share findings among the eastern and western Pacific.

FIS discussed this proposal and considered whether it would be more appropriate as a Topic Session. Last year’s meeting had a jellyfish Topic Session, so if there should be another one next year, it has to be more focused, e.g. “*The role of the jellyfish on fish production*”. Dr. Yukimasa Ishida agreed to work on this issue.

(5) CFAME proposed a 1-day CCCC/FIS Topic Session on “*Key recruitment processes and life history strategies: Bridging the temporal and spatial gap between models and data*” (CFAME Endnote 5). It was noted that this proposal was similar to the WG 16 proposal, except that this one focuses more on modeling efforts.

FIS indicated the need to include other countries as conveners. For instance, Korea has interest in this topic and could provide another convener. It was also pointed out that this proposal was very similar to proposal (6) below, so FIS recommended merging (6) into (5), and requested Dr. Paul Spencer, who proposed Topic Session (6), to work with Topic Session (5) conveners to incorporate his ideas into this session.

(6) Dr. Paul Spencer proposed a Topic Session on “*Modeling the responses of life-history strategies of higher trophic levels to oceanic variability*”. Like Topic Session (5), this proposal involves simulation modeling and theoretical analyses, as opposed to descriptive comparisons. The proposal goes beyond recruitment and would strive to quantify recommendations, such as “preserve age structure”.

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FIS noted that the topic “life history” is very broad and needs to be focused. For instance, perhaps it would focus on longevity and effects on total biomass over time. FIS did not support this proposal, but instead encourages collaboration with conveners of proposal (5).

(7) A Topic Session on “*Cold and deep sea corals: Their role in fisheries ecology and fisheries management*” was proposed by Drs. M.E. Clark (U.S.A.) and T.N. Molodtsova (Russia). The proposal suggests the need for an overview of the ecology of corals, impact of bottom trawling on habitat-forming corals and mapping of coral areas. Japan seems an appropriate venue. This proposal did not specify the length, but FIS indicated that a ½-day session may be appropriate. FIS also discussed the potential for joint sponsorship with MEQ, particularly with respect to identification of sensitive areas.

FIS expressed concern that the topic does not embrace shallow corals of interest to other PICES member countries. Expansion of the topic to contrast deep and shallow water corals might require a 1-day session. Given that there is a symposium on corals this fall in the United States, there was some concern that there will be enough interest for the session.

In an overview, FIS established the following priorities. FIS supports both workshops (1) and (4), and suggests that proposal (3) should be a workshop or WG 19 activity, and not a session, as was proposed. Regarding sessions – FIS gives the highest priority to a full-day FIS Contributed Paper Session and Topic Session (5), high priority to Topic Session (2) (although note requirements for changes to proposal with respect to Chinese participation), and lower priority to Topic Session (7).

### **Theme for PICES XVI (Agenda Item 12)**

Dr. Laura Richards presented a proposal for the theme for PICES XVI: *The changing North Pacific: Previous patterns, future projections, and ecosystem impacts*. Dr. Richards explained that there was an opportunity to link the North Pacific with the Arctic in the context of the

International Polar Year. There is a need to understand structure and process from primary producers to top-level consumers, including fisheries. FIS feels that this theme is sufficiently broad for an Annual Meeting and supported it.

### **FIS Action Plan (Agenda Item 13)**

PICES requires an Action Plan from each Committee. The FIS Action Plan should identify how FIS intends to achieve the goals of the PICES Strategic Plan, including, for instance, future workshops and sessions sponsored by FIS at Annual Meetings. At the FIS meeting, a deadline was proposed for June 1, 2006, for the first draft. Also, at the Science Board meeting, it was suggested that Committee Action Plans should follow the template used by MEQ. So, new FIS Chairman, Dr. Gordon Kruse, agreed to put the draft FIS Action Plan into the proposed format and send it for review to FIS members. As time will be short, it is important that FIS members review the Action Plan as soon as possible.

### **Potential topics towards next major PICES scientific program(s) (Agenda Item 14)**

After the special meeting for the Study Group on *Future integrative scientific program(s)* on October 5, a brief report on a possible theme for a new integrated PICES scientific program was presented during the Closing Session. The proposed themes will be posted on the PICES website. Individual scientists are encouraged to provide their comments by December 15, 2005.

### **PICES website: Contributions from FIS (Agenda Item 15)**

Dr. Gordon Kruse is the FIS representative on the *ad-hoc* PICES website publishing/oversight committee. FIS received his report in which he suggested to FIS that the overall design, web links, and FIS contact information is good. Improvements that were identified include: updating news items, deletion of notification of changes in membership that are more than one year old, and adding other newsworthy events. News could include “news from the Chairman” and perhaps FIS-related items, such as reports of

unusual observations of warm-water species in Alaska. Dr. Kruse also recommended the posting of announcements of other international fishery meetings with links to those meeting websites.

**Other business (Agenda Item 16)**

North Pacific Ecosystem Status Report

FIS briefly reviewed the North Pacific Ecosystem Status Report and recommended that Committees be asked to provide suggestions for improvements when the next report is drafted.

Committee meetings

FIS discussed the fact that this year’s FIS Committee meeting was held at the end of the Annual Meeting. Previously, the Committee meetings were ½-day meetings held during the week, whereas this year it was a full-day. An alternative is for two ½-day meetings during the Annual Meetings. FIS did not provide strong advice, but noted some concerns about holding

the Committee meetings at the conclusion of the Annual Meeting: (1) Committee members are unable to provide comment on the draft FIS report before it is presented to the Science Board; (2) attendance may suffer if the FIS meeting is held at the end of the Annual Meeting; and (3) more observers may attend committee meetings when they are held mid-week during the Annual Meeting.

FIS Best Presentation Award and Poster Award Committee

Following practices of previous years, the convenors of the FIS-sponsored sessions were asked to make the selection. The 2005 FIS Best Presentation Award went to Eun Jung Kim for her paper on “The vertical and horizontal distribution of bigeye (*Thunnus obesus*) and yellowfin tuna (*Thunnus albacares*) related to ocean structure” (co-authored with Suam Kim, Dae-Yeon Moon and Jeong-Rack Koh).

The Committee thanks Dr. Michael Schirripa, who served as a member of the Best Poster Award Committee.

**FIS Endnote 1**

**Participation list**

Members

Richard J. Beamish (Canada)  
 Elena P. Dulepova (Russia)  
 Toyomitsu Horii (Japan)  
 Yukimasa Ishida (Japan, Chairman)  
 Jin Yeong Kim (Korea)  
 Gordon H. Kruse (U.S.A.)  
 Elizabeth A. Logerwell (U.S.A., Rapporteur)  
 Toshikuni Nakatani (Japan)  
 Laura Richards (Canada)  
 Michael Schirripa (U.S.A.)  
 Hyoun-Chul Shin (Korea)

Observers

Vera Alexander (PICES Chairman)  
 Alexander Bychkov (PICES Executive Secretary)  
 George W. Boehlert (U.S.A.)  
 Tokimasa Kobayashi (Japan)  
 R. Ian Perry (Canada)  
 Paul Spencer (U.S.A.)  
 Mikhail Stepanenko (Russia)  
 William J. Sydeman (U.S.A.)

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### FIS Endnote 2

#### FIS meeting agenda

1. Welcome, introductions, and nomination of rapporteur
2. Adoption of agenda
3. Election of FIS Chairman
4. Implementation of PICES XIII decisions
5. Report of the existing Working Group's activities in the past year
  - a. WG 16 on *Climate change, shift in fish production, and fisheries management*
  - b. WG 18 on *Mariculture in the 21<sup>st</sup> century*
  - c. WG 19 on *Ecosystem-based management science and its application to the North Pacific*
6. Proposals for new Working Groups
7. Inter-sessional meetings proposed for 2005 and beyond
8. Publications proposed for 2005 and beyond
9. Travel support requests
10. Relations with other international programs and organizations
11. Planning for PICES XV
12. Theme for PICES XVI
13. FIS Action Plan
14. Potential topics towards next major PICES scientific program(s)
15. PICES website: Contributions from FIS
16. Other business
17. Adoption of FIS report and recommendations to Science Board

### FIS Endnote 3

#### Proposal for a 2-day FIS Workshop at PICES XV on

#### *“Linking climate to trends in productivity of key commercial species in the subarctic Pacific”*

Working Group 16 has completed its report on the impacts of climate and climate change on the key commercial species in subarctic Pacific. An important conclusion was that climate is a major factor affecting the productivity of virtually all key species. The mode of climate variability varied among species, but it was clear that climate-related trends in production were common. It was also apparent that a relatively small number of species made up a large percentage of all commercial landings. Assessing the impacts of climate and climate change on commercial fisheries was one of the main reasons that PICES was established. As a follow-up to the Working Group 16 report, FIS could focus on these key commercial species and make substantial progress on this original objective of PICES. FIS could hold a workshop that will further identify the specific linkages between climate and trends in production. An objective of this workshop could be to achieve consensus on a list of 12 -15 of the most important commercial species. After this

agreement is achieved and there is further clarification of the effects of climate variability, the key species would then become an index of climate-related impacts. With time, this could become an important forecasting tool for industry and governments. Linking annual trends in key species production with climate and ocean indices would also introduce a dimension to the PICES North Pacific Ecosystem Status Report, which will add a meaning to the report and attract a more general audience, including the popular press. It is interesting that several PICES activities are converging on this general approach of using key species to monitor climate impacts. FIS could cooperate with groups such as MONITOR, CFAME, POC, BIO and others when organizing the workshop for 2006.

Recommended convenors: Richard J. Beamish (Canada), Anne B. Hollowed (U.S.A.), Masahide Kaeriyama (Japan), Suam Kim (Korea) and Vladimir Radchenko (Russia).