

## REPORT OF FISHERIES SCIENCE COMMITTEE

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The first meeting of the Fisheries Science Committee (FIS) was held from 1330-1430 on October 22, 2000, and the second from 0900-1300 on October 25, 2000. On both dates the Chairman, Dr. Douglas E. Hay, called the meeting to order and welcomed the participants. The first meeting was not well attended with only 3 FIS members present. As a consequence and because of the requirement to adopt an agenda, the discussion of several key items was postponed until the second meeting.

The second meeting was well attended with 9 FIS members and representation from all countries (see *FIS Endnote 1*) plus observers. The Chairman reviewed the original agenda and noted that several changes were required as FIS was asked to comment on the status of a draft WG 12 report, and to discuss items forwarded from the Chairman of the Science Board (*FIS Endnote 2*).

Only agenda items with substantive comments are included in this report.

### **Implementation of PICES VIII recommendations (Agenda Item 6)**

At PICES VIII, FIS recommended the formation of a Working Group on Climate Change, Shifts in Fish Production, and Fisheries Management. This Working Group (WG 16) held its first meeting at PICES IX. The FIS Topic Session on squids and short-lived fishes was convened at PICES IX.

### **Review and status of WG 12 on Crabs and Shrimps (Agenda Item 8)**

Dr. Robert S. Otto (WG 12 Co-Chairman) presented an updated draft report from the Working Group 12 on Crabs and Shrimps. Some of the difficulties in the completion of this report were explained to FIS. In subsequent discussion, concerns were expressed by the FIS Chairman and members regarding the delay in

receiving the final report, and mentioned that during the Eighth Annual Meeting, a final report was anticipated by April 2000. FIS noted that the draft report, as presented in October 2000, contained many valuable improvements over previous drafts, and FIS indicated the importance of this information to PICES. FIS recommends that WG 12 complete the final report by June 1, 2001. If the Working Group cannot finalize the report within this time, FIS will assign members of FIS to edit the interim report and submit it as the final report.

### **Progress report of WG 16 on Climate Change and Fisheries Management (Agenda Item 9)**

Dr. Tokio Wada (WG 16 Co-Chairman) presented a WG 16 progress report (*FIS Endnote 3*). The report was reviewed, discussed and the recommendations were accepted.

### **FIS Topic Session vs. FIS Paper Session (Agenda Item 14)**

On October 22, FIS discussed the format and relationship between the FIS Topic Session (two half-day sessions) and the FIS Paper Session (one half-day session). In previous PICES meetings the FIS Paper Session consisted of unsolicited papers on a broad range of topics from fish genetics and taxonomy to population dynamics. For 2000, the number of papers submitted as oral contributions to the Topic Session (squids and short-lived fishes) exceeded the time available in the Topic Session. Therefore, rather than make arbitrary decisions about which papers to accept for presentation, the FIS Topic papers were delegated for presentation in the FIS Paper Session. As a result, the Topic Session consisted of 3 half-day sessions. FIS agreed that this was a suitable procedure for paper selection and may be appropriate for future meetings.

### **Sessions at future Annual Meetings (Agenda Item 13)**

FIS reviewed suggestions for topic sessions in 2001. Proposals submitted from US members included topics of (i) migration of marine resources, including a variety of taxa species such as tuna, salmon, turtles, squid, pomfret, marine mammals, etc.; and (ii) effects of predation on marine fishes. Another topic suggested by China was on (iii) larval survival and early life of fishes. FIS concluded that the proposal from China should be considered in the next year, as a possible topic for consideration in 2002, when the PICES Eleventh Annual Meeting is held in China. Subsequent discussion favored the topic of "Migration of key ecological species in the North Pacific Ocean" (*FIS Endnote 4*), but some members wanted to see the inclusion of a predation component. FIS will leave the wording of the topic announcement to the conveners but requests that the topic should emphasize the results of migration (or tagging) studies and not the developing technology in this field. FIS recommends 4 conveners for this topic: 2 from North America and 2 from Asia. Tentative recommendations are: Drs. Vladimir A. Belayev (Russia), George W. Boehlert (U.S.A.), James Irvine (Canada), and Akihiko Yatsu (Japan).

A Topic Session on "The physics and biology of eddies, meanders and rings in the PICES region" was proposed as a joint POC/BIO/FIS session (see *POC Endnote 4*). This proposal was received on October 25, after the last FIS meeting, but all subsequent replies from FIS members supported this suggestion, so it was endorsed. FIS will nominate a co-convenor for this session.

### **Science Board issues (Agenda Item 15)**

The Science Board Chairman introduced a number of new topics at the Annual Meeting and requested FIS comments on: (i) a proposal for a North Pacific Ecosystem Status Report and Regional Analyses Center; (ii) a PICES X Anniversary Symposium and a PICES X Science Board Symposium; (iii) a series of Salmon and Climate workshops; (iv) PICES XI

theme and annual themes for future meetings; (v) proposed revisions to the Handbook for Chairmen and Convenors; (vi) PICES Wooster Award; (vii) an international workshop in March, 2001 on "Impact of climate variability on observation and pre-diction of ecosystem and biodiversity change in the North Pacific"; and (viii) a proposed joint NEAR-GOO/ODC Forecasting Workshop. Information about most of these topics was not available prior to the Annual Meeting.

- i. Most discussion concentrated on the proposal for a Study Group to examine the merits of an Ecosystem Status Report (ESR) and Regional Analyses Centers (RAC). Some FIS members felt that both concepts required more explanation. During the discussion it was noted that earlier proposals had considered ESRs and RACs separately. The ESR proposal was circulated prior to PICES IX (by email) and responses by FIS members to the concept of an ESR were positive. Therefore, some members felt that while the ESR concept may have merit and worthy of further examination by a Study Group, but they were not prepared to endorse the RAC concept without further information. In a vote, where the choices were for a Study Group to (a) examine both ESR and RAC, (b) ESR only, (c) RAC only, and (d) none of the above, the majority of FIS members endorsed (b) - for a Study Group to examine the concept of the ESR - but without reference to the RAC.
- ii. FIS expressed serious concern that two Science Board Symposia may lead to conflicts with other topic sessions, and supported the proposal that the PICES X Science Board Symposium will be designated as a PICES X Anniversary Symposium entitled "Ten Years of PICES science: Decadal-scale scientific progress and prognosis for a regime shift in scientific approach".
- iii. FIS endorsed the idea for a series of Salmon and Climate workshops, but suggested that

the wording should be changed to indicate that the workshops be developed cooperatively with the respective agencies.

- iv. FIS supported “Technological advances in marine scientific research” as a theme for PICES XI. With respect to the list of potential themes for future Annual Meetings, FIS suggests an additional theme: Implementation of the findings of the 3<sup>rd</sup> Assessment IPCC Report.
- v. FIS briefly noted the proposed changes in the Chairman's Handbook, and will comment later, after PICES IX.
- vi. FIS accepted the establishment of the annual PICES Wooster Award and recommended slow and cautious development, noting that there are 6 nations in PICES and the scientific achievement in all countries must be recognized.

#### **Requests for travel support (Agenda Item 4)**

FIS recommended that PICES support an Asian member of WG 16 to attend the Symposium on Climate and Aquatic Biological Resources to be sponsored by the American Fisheries Society (AFS) in Phoenix, Arizona, in August 2001. Attendance in this AFS meeting by an Asian member of WG 16 will provide a vital and important link between climate-change research activities in Asia and North America. The perspectives gained by participation in such a meeting will have direct benefits to the activities

and substance of WG 16 and the profile of PICES at the AFS meeting.

#### **New Working Groups (Agenda Item 12)**

As FIS currently has two active working groups, it is not likely that support could be raised to develop a new group in 2000.

#### **Best Presentation Award (Agenda Item 16)**

The FIS Best Presentation Award was given to Dr. Bambang Semedi for his paper entitled “An approach of DMSP/OLS satellite imagery and GIS technology to study the dynamics of Pacific saury migration” (co-authors with S.I. Saitoh, K. Yoneta, and H. Kiyofuji).

Members and observers also discussed the selection of the “Best Paper Award” from all papers presented by young scientists participating in the FIS Topic and Paper Sessions in 2000. A procedural problem in Hakodate is the selection of the best paper by mid-afternoon on Friday, October 27. The FIS Paper Session concludes at 1300 and the winner of the best paper will be announced during the Closing Session that begins shortly thereafter. With the short interval between sessions, the winner must be chosen. To be fair, the selection committee should consist of people who had attended presentation of all papers. No FIS members or observers present were able to make that commitment. Therefore, it was agreed that for year 2000 this responsibility should be passed on to the conveners of the Topic Session.

#### **FIS Endnote 1**

#### **Participation List**

##### Canada

Richard J. Beamish  
Laura Richards

##### Japan

Kohji Iida  
Takashi Minami

##### People's Republic of China

##### Republic of Korea

Suam Kim  
Chang-Ik Zhang

##### Russian Federation

### U.S.A.

Gordon Kruse  
Richard D. Brodeur (for George Boehlert)

### Observers

Vladimir Belyaev (Russia)  
Xuewu Guo (China)  
Yukimasa Ishida (Japan)  
Shizuo Iwata (Japan)  
Cheolsu Kim (Korea)  
Jin-Yeong Kim (Korea)

Patricia Livingston (SB Chairman)  
Gordon A. McFarlane (Canada)  
David Meerburg (Canada)  
Yoshikazu Nakamura (Japan)  
Vadim Savinykh (Russia)  
Go Takayama (Japan)  
Ling Tong (China)  
Victor Tsiger (Japan)  
Tokio Wada (Japan)  
Akihiko Yatsu (Japan)  
Hideo Yoshida (Japan)

## **FIS Endnote 2**

### **Agenda**

1. Welcome and introduction of members.
2. Discussion and approval or revision of agenda.
3. Discussion of financial implications of proposed inter-sessional meetings (workshops, working groups and other).
4. Travel support and cost implications.
5. Publications of reports and cost implications.
6. Review of the implementation of PICES VIII decisions.
7. Review of the FIS Strategic plan: accomplishments and changes.
8. Review the status and draft report of WG 12 on Crabs and shrimps.
9. Progress report of the WG 16 on Climate Change and Fisheries Management.
10. Co-sponsored meetings and relations with other organizations, fisheries organizations or commissions and PICES program.
11. Scientific items of interest - member reports.
12. New Working Groups.
13. Proposals/topics/issues for the session topic for PICES X (October 2001).
14. FIS TOPIC sessions (solicited papers on specific topic) AND FIS PAPER sessions (unsolicited papers on fisheries topics). What selection criteria do we use when we receive more abstracts that we can support in the PICES program?
15. Review of items forwarded from Science Board.
16. Discussion of Best Presentation Award.
17. Discussion of any other arising issues.
18. Draft of report and summary of FIS recommendations to Science Board.

## **FIS Endnote 3**

### **Report of WG 16 on Implications of Climate Change to Fisheries Management**

The Working Group 16 met in the morning of October 22, 2000. The eight members from Canada, Japan, Korea and U.S.A., and some participants from REX and BASS Task Teams attended the meeting (*WG 16 Annex 1*). After welcoming remarks and briefing of the background of the Working Group by Dr.

Richard J. Beamish, all participants introduced themselves.

The Working Group reviewed the following accomplishments before the Ninth Annual Meeting: (i) summary of the personal background and interests into WG activities for each member, and (ii) providing short reports on

the fisheries and species which will be affected by climate changes. Dr. Beamish reported that the American Fisheries Society plans a symposium on Climate and Aquatic Biological Resources in August 2001. He also mentioned that the 3<sup>rd</sup> global warming report would be released in June 2001 by IPCC.

Based on the summary reports, the Working Group listed up over 20 species as candidates that should be examined, and then discussed the criteria for choosing the target species. WG members agreed to choose the commercially important species that are appropriate for detecting climate impacts, as well as the species that are common and ecologically important.

WG discussed on the work plan in 2001 and 2002 (*WG 16 Annex 2*). It was approved that the Co-Chairmen meet in Canada, in March 2001, to begin assembling the data and carrying out a preliminary analysis. This initial report will be circulated to participants and members with specific requests for their input.

WG recognized that its representatives should attend the symposium on Climate and Aquatic Biological Resources to present the preliminary products and exchange the information on the mechanisms linking climate changes to changes in the populations dynamics. WG recommended that PICES support the travel cost for an Asian member to attend the symposium (*WG 16 Annex 3*).

WG agreed to have a half-day workshop and a half-day meeting just prior to PICES X. WG should present the actual climate impacts and hypothesized mechanisms for each target species in the workshop, and should summarize the workshop results and discuss on the contents of the final WG report in the meeting. WG further considered that an intersectional meeting should be held in April to May 2002 in Asian side to follow up the workshop and initiate drafting the WG report.

## **WG 16 Annex 1**

### **Participation List**

#### Canada

Richard J. Beamish (Co-Chairman)  
James Irvine  
Jacquelynn R. King

#### Japan

Muneharu Tokimura  
Tokio Wada (Co-Chairman)  
Akihiko Yatsu

#### People's Republic of China

#### Republic of Korea

Suam Kim

#### Russian Federation

#### U.S.A.

Steven R. Hare

#### Observers

Vladimir Belyaev (Russia)  
Douglas E. Hay (FIS Chairman)  
Gordon A. McFarlane (Canada)  
Yukimasa Ishida (Japan)  
Masahide Kaeriyama (Japan)  
Takashi Minami (Japan)  
Sukyung Kang (Korea)  
Thomas R. Loughlin (U.S.A.)

## **WG 16 Annex 2**

### **Work Plan in 2001 and 2002**

**Nov. 2000** WG choose target species by electronic communication;

**Mar. 2001** Co-Chairmen meet in Canada to assemble the data and carry out a preliminary analysis;

**June 2001** Preliminary report sent to members for comment and input;

**Aug. 2001** Members input to be incorporated into preliminary report;

**Aug. 2001** WG representatives attend the symposium on Climate and Aquatic Biological Resources to present the preliminary products and exchange the information on the mechanisms linking climate changes to changes in the populations dynamics;

**Sept. 2001** Revised preliminary report returned to members;

**Oct. 2001** WG hold a half-day workshop and a half-day meeting in PICES X to present actual climate impacts and hypothesized mechanisms for each target species, and to summarize the workshop results and discuss on the contents of the final WG report;

**May 2002** Interim WG meeting in Asian side to follow up the workshop at PICES X and to initiate drafting the WG report.

### **Annex 3**

#### **Recommendations to FIS Committee**

1. Provide travel support for an Asian member to attend the symposium on Climate and Aquatic Biological Resources organized by the American Fisheries Society in August 2001.
2. Help to arrange a half-day workshop and a half-day meeting at PICES X, in October 2001, to present actual climate impacts and hypothesized mechanisms for each target species in the workshop, and to summarize the workshop results and discuss on the contents of the final WG report.

### **FIS Endnote 4**

#### **PICES X Topic Session**

*Migrations of key ecological species in the North Pacific Ocean.* Convenors: Vladimir .A. Belayev (Russia), George W. Boehlert (U.S.A.), James Irvine (Canada) and Akihiko Yatsu (Japan)

Migrations of marine organisms in the North Pacific occur on a variety of spatial and temporal scales, from diel vertical migrations to annual (or longer) foraging or reproductive migrations. Over the past decade, a great deal of new information has come to light on the dynamics of migration, in part due to new technologies such as electronic tags. This session will examine migrations of key

ecological species important to fisheries in the North Pacific. Migrations of exploited species -- for example bluefin tuna, albacore, salmon, squid, saury, mackerel and pomfret -- may be compared with movements of the lower trophic level organisms on which they prey. What role do migrations of protected species such as turtles, marine mammals, and seabirds play in the interactions with fisheries? Papers and posters in this full-day session will cover the most recent information on what is known about these migrations -- their pathways, seasonal and interannual dynamics, and relationship to physical forcing -- as well as new tools available to study migrations.