

REPORT OF SCIENCE BOARD

The Science Board met from 12:30–14:00 hours on October 15, 2006, to review the agenda and to discuss items relating to the upcoming PICES scientific sessions. An Open Forum on the next integrative science program, FUTURE (Forecasting and Understanding Trends, Uncertainty and Responses of the North Pacific Ecosystem) was convened on October 19 (17:00-18:00). Science Board met again on October 21 (9:00–18:00) to talk about the remainder of the agenda. Ms. Rosalie Rutka served as rapporteur for the Science Board and open forum meetings. (See *SB Endnote 1* for list of participants.)

October 15, 2006

Science Board Chairman, Dr. Kuh Kim, welcomed the members and called the meeting to order. The agenda was discussed and adopted as presented in *SB Endnote 2*.

Drs. Manuel Barange (Executive Director of GLOBEC International Project Office) and Francisco E. Werner (Chairman of GLOBEC Scientific Steering Committee) were invited to this session and met with Science Board to discuss the ongoing links between GLOBEC and PICES, via the Climate Change and Carrying Capacity (CCCC) Program, the context of the CCCC synthesis as part of the GLOBEC synthesis, the development of PICES-GLOBEC links through ESSAS (Ecosystem Studies of the Sub-Arctic Seas Program), and to acknowledge the work PICES and GLOBEC conduct in partnership.

Review of procedures for Best Presentation Awards and Closing Session (Agenda Item 3)

The Chairman, with assistance of Deputy Executive Secretary, Dr. Skip McKinnell, reviewed the criteria for Best Presentation Awards. One Best Presentation and one Best Poster Award will be given by each Committee and Program, regardless of the number of Topic/Contributed Paper Sessions sponsored, to

recipients who are early career scientists. The Science Board Symposium Best Presentation Award is open to all presenters, regardless of stage of career. Each Committee/Program Chairman/Co-Chairman would be responsible for selecting the award recipients. Dr. McKinnell proposed that the Science Board Symposium Best Presentation Award be renamed to the Ware Award, in honour of the memory and scientific excellence of the Science Board's first Chairman, Dr. Daniel Ware, but it was not unanimously supported.

The Closing Session will consist of a brief summary of PICES XV by the Science Board Chairman, followed by presentations of awards from each Committee and Program. Dr. John E. Stein will then review the next steps for the implementation of FUTURE.

Review of procedures for documentation of PICES scientific sessions (Agenda Item 4)

Documentation of scientific sessions and workshops is required by the PICES Secretariat for the Annual Report (*SB Endnote 3*). Science Board members were asked to be responsible for ensuring that the convenors for their sponsored session/workshop complete their reports by the end of PICES XV.

Election of the next Science Board Chairman (Agenda Item 5)

Dr. Stein was unanimously endorsed by Science Board to be Chairman-elect. This position will be for one year until the end of PICES XVI, and will allow for the continuity of Science Board business.

October 19, 2006

Open Forum on FUTURE

An Open Forum on the future integrative science program of PICES was led by Dr. Stein, who reviewed the draft outline for FUTURE prepared

following the inter-sessional Science Board/Governing Council meeting held in April 2006. The goal of the Open Forum was to increase the specificity of the key research activities of FUTURE, such as scientific understanding, forecasts, and communication. Dr. Stein invited each Committee/Program Chairman to present comments from their business meetings on themes and directions for FUTURE. Afterwards, audience members provided comments or expressed their views. Dr. Stein thanked everyone for their participation and emphasized that written comments to him or the Secretariat were still welcome.

The next steps in developing the FUTURE Science Plan are to (1) establish a Writing Team to draft the Plan, (2) hold a workshop in April 2007, to refine the draft Plan, (3) review the revised Plan within the PICES community, (4) hold a workshop at the next Annual Meeting to review and revise the Plan, and (5) seek outside peer reviews of the Science Plan.

October 21, 2006

The Chairman opened the second session of Science Board and welcomed the participation of Drs. Glen Jamieson (Chairman-elect of MEQ) and Michio J. Kishi (Co-Chairman-elect of CCCC-IP).

High priority projects (Agenda Item 6)

Timelines and preliminary details for a Science Plan for FUTURE were discussed. Participants for the proposed FISP Writing Team, external reviewers, and potential workshop attendees were considered and nominated by Science Board.

Completion of Science Board recommendations and Governing Council decisions from PICES XIV and the 2006 inter-sessional SB/GC meeting (Agenda Item 7)

Science Board accepted the report on decisions and recommendations from PICES XIV (*SB Endnote 4*) and the 2006 inter-sessional Science Board/Governing Council meeting that were of relevance, with minor changes occurring for

(1) the publication of the special issue of *Ecological Modelling* delayed from 2006 to early 2007.

Status of action items from the 2006 inter-sessional Science Board/Governing Council meeting (Agenda Item 8)

Mid-term updates (*Inter-sessional meeting Agenda Item 2*)

Dr. Jeffrey M. Napp, Chairman of MONITOR, reported that the Advisory Panel on *Continuous Plankton Recorder Survey in the North Pacific* (CPR-AP) was making progress in its program and strongly recommended the need to maintain it under MONITOR. He indicated that minor changes in CPR-AP's terms of reference may be proposed at the next inter-sessional Science Board meeting in 2007.

Science Board endorsed the establishment of a Section on *North Pacific Ecosystem Status Report* within MONITOR that would deliver three types of products for the next NPESR on a timely basis. Information would be made available annually in web format, synthesis and analysis on a less frequent basis (3 to 5 years), in the form of a hard copy report (and web), and a long-range outlook once every 5 to 10 years. Dr. Napp agreed to investigate costs and methods of producing the data.

Dr. Harold Batchelder, CCCC-IP Co-Chairman, informed Science Board that PICES XVI in Victoria, Canada, would be the last meeting in which the Program would sponsor scientific sessions. A strategy to wrap up the Program had not been put in place, but he and Dr. Kishi, would evaluate the progress of the new PICES integrative science program, before ending the CCCC Program. Future plans include preparing a PICES Scientific Report.

Action Plans (*Inter-sessional meeting Agenda Item 3*)

Science Board members had a short discussion on Action Plans and a suggestion was made to update the plans yearly, but no firm steps were taken to endorse it.

A sub-committee was formed under the auspices of the BIO Committee to revise and update the BIO Action Plan by the 2007 inter-sessional Science Board/ Governing Council meeting.

Interactions with other organizations (*Inter-sessional meeting Agenda Items 8 and 15*)

Invited guest, Dr. Adolf Kellermann, Head of the ICES Science Program, discussed plans for the restructuring of the ICES organization to facilitate better communication and flow of information, which would be presented to ICES Council for endorsement. He invited Science Board members to review and see if they wished to co-sponsor three theme sessions at the 2007 ICES Annual Science Conference in Helsinki, Finland, and a symposium on “*Herring: Linking biology, ecology and status of populations in the context of changing environments*” to be held in Galway, Ireland, in 2008.

Guidelines for future PICES Working Groups (*Inter-sessional meeting Agenda Item 16*)

Science Board thanked Dr. Michael G. Foreman, POC Committee Chairman, for his efforts in preparing a set of guidelines for future PICES Working Groups in place by PICES XV.

PICES communications (*Inter-sessional meeting Agenda Item 17*)

Dr. Batchelder suggested that the PICES website should be designed as a dynamic site rather than an archive, as it now stood, but that he did not have time to devote attention to this issue. Dr. Gordon H. Kruse, FIS Committee Chairman, recommended that Ms. Julia Yavzenko, PICES Web and Database Administrator, contact all the Committee/Program Chairmen to encourage feedback and suggestions. Dr. Sei-Ichi Saitoh, MONITOR Vice-Chairman, volunteered to be on the Web Committee.

Report of elections of new Committee/Group Chairmen (Agenda Item 9)

Science Board recommended the following changes which were presented to Governing Council for approval:

- Dr. Glen Jamieson to replace Dr. John Stein as MEQ Chairman;
- Dr. Hak-Gyoon Kim to be Vice-Chairman of MEQ;
- Dr. Michio Kishi to replace Dr. Suam Kim as Co-Chairman of the CCCC Program;
- Dr. Hao Wei to be the new MODEL Task Team Co-Chairman;
- Dr. Young-Shil Kang to be the new CFAME Task Team Co-Chairman.

Reports from Scientific and Technical Committees, CCCC IP and subsidiary bodies (Agenda Item 10b and 10c)

Science Board discussed reports from its Committees and Program. Specific details can be found in the individual reports of the Committees/Program elsewhere in this Annual Report.

Science Board recommended that:

- WG 18 on *Mariculture in the 21st century – The intersection between ecology, socio-economics and production* be disbanded for inadequate progress in achieving its tasks;
- PICES withdraw as a co-sponsor of the *North Pacific Data Buoy* Advisory Panel.

Science Board recommended establishing:

- A Section on the *North Pacific Ecosystem Status Report* under the direction of the MONITOR Technical Committee (terms of reference can be found in *MONITOR Endnote 3*);
- A Study Group on *Marine aquaculture and ranching in the PICES region*, under the direction of Science Board (terms of reference can be found in *GC Appendix B*).

High priority projects (Agenda Item 11)

Science Board recommended that Dr. Kishi defer proposing a 2008 PICES summer school until the 2007 inter-sessional Science Board/ Governing Council meeting.

Dr. Napp reported that SG-GOOS had almost fulfilled its terms of reference and recommended that PICES should not propose a North Pacific GOOS pilot project and instead, it should play a

strong role in coordination and facilitation of North Pacific regional projects by being active in the GOOS Regional Alliance (GRA) programs.

Items with financial implications (Agenda Item 12)

Inter-sessional meetings (Symposia; workshops; Working Group, Section, and CCCC Program meetings) proposed for 2006 and beyond (Agenda Item 12a)

The following inter-sessional meetings/workshops are to be convened/co-sponsored in 2006 and beyond (a List of Acronyms can be found at the end of the Annual Report):

- An international conference (co-sponsored by IMARPE, IRD, NASA, FAO, GLOBEC, ICES, PICES, IMBER) on “*The Humboldt Current system: Climate, ocean dynamics, ecosystem processes and fisheries*”, November 27–December 1, 2006, Lima, Peru;
- A 2-day meeting of the FISP Science Plan Writing Team, February 16–17, 2007, in Seattle, U.S.A.;
- A 2-day meeting of CREAMS-AP, March 2007, in Qingdao, China;
- A 3-day workshop to develop a Science Plan for future integrative scientific program of PICES and an inter-sessional Science Board meeting, April 16–19, 2007, in Yokohama, Japan;
- A display of PICES publications at the joint meeting of the Mexican Fisheries Society and the Mexican Chapter of the American Fisheries Society, May 2–4, 2007, in La Paz, Mexico
- A 3-day CFAME workshop on “*Linking climate-forcing mechanisms to indicators of species ecosystem-level changes: a comparative approach*”, May 2007, in Seattle, U.S.A., or June 2007, in Hakodate, Japan;
- A 3-day FIS workshop on “*Forecasting climate impacts on fish production*”, May 2007, in Seattle, U.S.A., or June 2007, in Hakodate, Japan;
- The 5th International Conference on “*Marine bioinvasions*” (co-sponsored by

- PICES, ICES and the U.S. National Sea Grant College Program), May 21–24, 2007, in Cambridge, U.S.A. (approved in 2003);
- A 2-day joint meeting of PICES WG 21 on *Non-indigenous aquatic species*, ICES WG on *Introductions and Transfers of Marine Organisms* and ICES/IOC/IMO WG on *Ballast Waters and Other Ship Vectors*, May 25–26, 2007, in Cambridge, U.S.A.;
- The 4th International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*” (co-sponsored by PICES, ICES and GLOBEC), May 28–June 1, 2007, Hiroshima, Japan (approved in 2003);
- ESSAS/PICES workshops on “*Evaluation of climate scenarios for subarctic regions*” (1 day) and “*The role of seasonal sea ice cover in marine ecosystems*” (2 days), June 4–6, 2007, in Hakodate, Japan;
- Conference for Early Career Scientists on “*New frontiers in marine science*”, (co-sponsored by ICES), June 26–29, 2007, in Baltimore, U.S.A.;
- ICES/PICES Theme Sessions on “*Integrating observations and models to improve predictions of ecosystem response to physical variability*”, on “*Comparative marine ecosystem structure and function: Descriptors and characteristics*” and on “*The ecosystem approach: What’s the impact on marine science, science based advice and management of marine ecosystems*” at the ICES Annual Science Conference, September 17–21, 2007, Helsinki, Finland;
- An International Symposium on “*Reproductive and recruitment processes in exploited marine fish stocks*” (co-sponsored by NAFO, ICES and PICES), October 1–3, 2007, in Lisbon, Portugal;
- An International Symposium on “*Effects of climate change on the world’s oceans*” (co-sponsored by ICES, PICES, IOC, GLOBEC, SCOR, and WCRP), May 19–23, 2008, in Gijón, Spain.

Travel requests for 2007 (Agenda Item 12b)

PICES XVI

- Invited speakers for Topic Sessions at the

Annual Meeting with the normal allocation of approximately \$5,000 per Committee (including Science Board) and CCCC Program; additional requests are subject to fund availability;

- 1 invited speaker for the BIO (MIE-AP) workshop on “*Lessons learned during MIE-1 and MIE-2: Reconciling acoustics and trawl data*”;
- 1 invited speaker for the FIS workshop on “*Methods for standardizing trawl surveys to ensure constant catchability*”;
- 1 invited speaker for the FIS/MEQ (WG 19) workshop on “*Comparative analysis of frameworks to develop ecosystem-based approach to management and research needed for implementation*”;
- 2 invited speakers for the MEQ (HAB-S) workshop on “*Review of selected harmful algae in the PICES region: III. Heterosigma akashiwo and other harmful raphidophytes*”.

Inter-sessional meetings

- PICES representative to participate in the 3rd Forum of GOOS Regional Alliances (November 14–17, 2006, Cape Town, South Africa);
- PICES representative to attend the GOOS Scientific Steering Committee meeting (March 13–17, 2007, in Seoul, Korea);
- PICES representative to present information on activities of the Organization at the joint meeting of the Mexican Fisheries Society and the Mexican Chapter of the American Fisheries Society (May 2–4, 2007, in La Paz, Mexico);
- 2 invited speakers for the FIS workshop on “*Forecasting climate impacts on fish production*” (May 2007, in Seattle, U.S.A., or June 2007, in Hakodate, Japan);
- 2 invited speakers for the CFAME workshop on “*Linking climate-forcing mechanisms to indicators of species ecosystem-level changes: a comparative approach*” (May 2007, in Seattle, U.S.A., or June 2007, in Hakodate, Japan);
- 2–3 Asian scientists to attend the 5th International Conference on “*Marine bioinvasions*” and the joint meeting of PICES WG 21, ICES WGITMO and

ICES/IOC/IMO WGBOSV (May 21–26, 2007, in Cambridge, U.S.A.);

- PICES SSC members for the 4th International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*” (May 28–June 1, 2007, in Hiroshima, Japan);
- 1 member of WG 20 to attend ESSAS/PICES workshops on “*Evaluation of climate scenarios for subarctic regions*” and “*The role of seasonal sea ice cover in marine ecosystems*” (June 4–6, 2007, in Hakodate, Japan);
- PICES representative to attend the IOC General Assembly (June 2007, in Paris, France);
- PICES representative to attend the SCOR Executive Committee meeting (August 2007, in Bergen, Norway);
- 3 PICES convenors to the joint ICES/PICES Theme Sessions at the ICES Annual Science Conference (September 17–21, 2007, in Helsinki, Finland);
- PICES representative to attend the NPAFC Fifteenth Annual Meeting (September 2007, in Vladivostok, Russia);
- PICES convenor and SSC member to attend the Symposium on “*Reproductive and recruitment processes in exploited marine fish stocks*” (October 1–3, 2007, in Lisbon, Portugal).

Science Board Chairman to attend:

- The workshop to develop a Science Plan for future integrative scientific program of PICES and an inter-sessional Science Board Meeting (April 2007, in Yokohama, Japan);
- PICES Sixteenth Annual Meeting (October 2007, in Victoria, Canada).

Proposed publications (PICES Scientific Report series and primary journals) for 2006 and beyond (Agenda Item 12c)

Special issues of primary journals (2007–2008)

- *Ecological Modelling* (February 2007; Guest Editors: M.J. Kishi, S.-I. Ito, B.A. Megrey and F.E. Werner) – selected papers on NEMURO and NEMURO.FISH models (approved in 2004);

- *Deep-Sea Research II* (2007; Guest Editors: K. Drinkwater, G. Hunt, D. Mackas and S. McKinnell) – selected papers from the ESSAS Symposium on “*Climate variability and sub-arctic marine ecosystems*” (approved in 2005);
- *Progress in Oceanography* (2007; Guest Editors: H. Batchelder and S. Kim) – selected papers from the PICES/GLOBEC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*” (approved in 2005);
- *Progress in Oceanography* (2007; Guest Editors: A. Peña, S. Bograd and A. Bychkov) – selected papers from the symposium on “*Time series of the Northeast Pacific: A symposium to mark the 50th anniversary of Line-P*” (approved in 2005);
- *Plankton and Benthos Research* (2007-2008; Guest Editors: H. Iizumi and TBD) – selected papers from the PICES XV Topic Session on “*The human dimension of jellyfish blooms*”;
- *Journal of Marine Systems* (2007–2008; Guest Editors: K.-I. Chang, S. McKinnell, C. Mooers and TBD) – selected papers from the 2006 CREAMS/PICES workshop on “*Model-data inter-comparison for the Japan/East Sea*”;
- *ICES Journal of Marine Science* (2008; Guest Editors: J. Carlton, J. Pederson and TBD) – selected papers from the 5th International Conference on “*Marine bioinvasions*”;
- *ICES Journal of Marine Science* (2008; Guest Editors: M. Dagg, R. Harris, L. Valdez and S.-I. Uye) – selected papers from the 4th International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*”;
- *Journal of Northwest Atlantic Fishery Science* (2008; Guest Editors: R. Brodeur, M. Dickey-Collas and E. Trippel) – selected papers from the NAFO/PICES/ICES Symposium on “*Reproductive and recruitment processes of exploited marine fish stocks*”.

PICES Scientific Report series (2007–2008)

- Final report of WG 16 on “*Climate change, shifts in fish production, and fisheries management*” (approved in 2002 for publication in 2004; delayed until 2007, pending review by FIS; Editors: R. Beamish and A. Yatsu);
- Guide to best practices for oceanic CO₂ measurements and data reporting (approved in 2002 for publication in 2004; delayed until 2007, pending review by CC-S; Editor: A. Dickson);
- Final report of WG 19 on “*Ecosystem-based management science and its application to the North Pacific*” (Editors: G. Jamieson, P. Livingston and C.-I. Zhang; in 2008).

PICES Technical Report series (2007)

- *Metadata federation of PICES member countries* (Editors: B.A. Megrey, S.A. Macklin, K. Bahl and P.D. Klawitter; withdrawn from the PICES Scientific Report series).

Other publications (2007–2008)

- American Fisheries Society book on “*The ecology of juvenile salmon in the Northeast Pacific Ocean: Regional comparisons*” (approved in 2005 for publication in 2006; delayed until 2007; Guest editors: R.D. Brodeur, C. Grimes, L. Haldorson and S. McKinnell);
- Book of Abstracts for the 4th International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*”;
- Book of Abstracts for the ICES/PICES Conference for Early Career Scientists on “*New frontiers in marine science*”;
- Announcement, poster and Book of Abstracts for PICES XVI;
- Two issues of *PICES Press* (newsletter);
- PICES 2007 Annual Report.

Recommendations for new working groups and other subsidiary bodies (Agenda Item 13)

This was discussed under Agenda Item 10.

Development of PICES XVI draft schedule of scientific sessions and workshops (Agenda Item 14)

Science Board determined that the theme for PICES XVI, to be held October 26 to November 4, 2007, in Victoria, Canada, should be “*The changing North Pacific: Previous patterns, future projections, and ecosystem impacts*” (SB Endnote 5). The following sessions and workshops, in order of Committee/Program, were recommended to be convened at PICES XVI:

1-day Science Board Symposium:
The changing North Pacific: Previous patterns, future projections, and ecosystem impacts (SB Endnote 4);

1-day BIO Contributed Paper Session;

½-day BIO workshop:
Lessons learned during MIE-1 and MIE-2: Reconciling acoustics and trawl data (MIE-AP Endnote 3);

1-day BIO/POC Topic Session:
Decadal changes in carbon biogeochemistry in the North Pacific (CC-S Endnote 3);

½-day BIO/FIS/POC Topic Session:
Phenology and climate change in the North Pacific: Implications of variability in the timing of zooplankton production to fish, seabirds, marine mammals and fisheries (humans) (BIO Endnote 4b);

1-day CCCC Contributed Paper Session;

1-day CCCC/FIS Topic Session:
Towards ecosystem-based management: Recent developments and successes in multi-species modeling (MODEL Endnote 3);

1-day FIS Contributed Paper Session;

1-day FIS Topic Session
Ecosystem approach to fisheries: Improvements on traditional management for declining and depleted stocks (FIS Endnote 3);

1-day FIS workshop:
Methods for standardizing bottom trawl surveys to ensure constant catchability (FIS Endnote 5);

1-day FIS/CCCC Topic Session:
Fisheries interactions and local ecology (FIS Endnote 4);

1-day FIS/MEQ workshop:
Comparative analysis of frameworks to develop an ecosystem-based approach to management and research needed for implementation (WG 19 Endnote 3);

1-day MEQ Topic Session:
Non-Indigenous Species: Climate Change, Evolutionary Consequences and Ecological Impacts (WG 21 Endnote 3);

½-day MEQ Topic Session
The relative contributions of off-shore and in-shore sources to harmful algal bloom development and persistence in the PICES region (HAB-S Endnote 4);

1-day MEQ workshop:
Review of selected harmful algae in the PICES region: III. Heterosigma akashiwo and other harmful raphidophytes and ½-day laboratory demonstration on DSP detection (HAB-S Endnote 3);

1-day MEQ/FIS Topic Session:
Coldwater biogenic habitat in the North Pacific (MEQ Endnote 5);

1-day MONITOR Topic Session:
Recent advancements in ocean observing systems: Scientific discoveries and technical aspects (MONITOR Endnote 5);

½-day MONITOR/BIO workshop:
Measuring and monitoring primary productivity in the North Pacific (MONITOR Endnote 4);

1-day POC Contributed Paper Session;

1½-day POC/CCCC workshop:
Climate scenarios for ecosystem modeling (CFAME Endnote 4);

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1-day POC/MODEL/MONITOR Topic Session:
Operational forecasts of oceans and ecosystems
 (POC Endnote 5)

Pacific and the Arctic and its impacts (TCODE
 Endnote 4)

½-day TCODE Topic Session:
*Data management, data analysis and data
 delivery systems to support detection and
 prediction of ecosystem change in the North*

To implement Council’s request to have no
 more than three parallel sessions, adjustments in
 length for some sessions/workshops were made.
 A final draft schedule, below, and final session
 list (GC 06/S1) reflect these decisions.

Draft Schedule (January 30, 2007)

Time		Events					
Fri. Oct. 26	09:00-12:30	FIS/MEQ Workshop (W3)	BIO Workshop (W1)		POC/CCCC Workshop (W6)	WG 21 Meeting	SG-MAR Meeting
	14:00-18:00		MBM-AP Meeting				
Sat. Oct. 27	09:00-12:30	WG 19 Meeting	MEQ Workshop# (W4)	MONITOR/BIO Workshop (W5)	POC/CCCC Workshop (W6)		WG 21 Meeting
	14:00-18:00			CREAMS-AP Meeting	WG 20 Meeting	CFAME Meeting	
Sun. Oct. 28	09:00-12:30	WG 19 Meeting	HAB-S Meeting	FIS Workshop (W2)	CC-S Meeting		MODEL Meeting
	12:30-14:00	SB Lunch Meeting *					
	14:00-18:00	WG 19 Meeting	HAB-S Meeting	FIS Workshop (W2)	CC-S Meeting	CCCC IP/EC Meeting*	
	18:00-20:00	SG-GOOS Meeting			CPR-AP Meeting		
Mon. Oct. 29	09:00-10:30	Opening Session					
	11:00-18:00	Science Board Symposium (S1)					
Tues. Oct. 30	09:00-12:30	BIO/POC Topic Session (S2)		CCCC/FIS Topic Session (S3)		MEQ Topic Session (S6)	
	14:00-18:00					MEQ/FIS Topic Session (S7)	
Wed. Oct. 31	09:00-15:30	CCCC Paper Session	POC Paper Session	FIS/CCCC/BIO Topic Session (S5)		F&A Meeting *	
	16:00-19:30	BIO Meeting	FIS Meeting	MEQ Meeting	POC Meeting	TCODE Meeting	MONITOR Meeting
Thurs. Nov. 1	09:00-18:00	FIS Topic Session (S4)		MONITOR Topic Session (S8)		BIO Paper Session	
	18:00-20:30	Poster Session and E-Posters					
Fri. Nov. 2	09:00-12:30	POC/CCCC/MONITOR Topic Session (S9)		FIS Paper Session		BIO/FIS/POC Topic Session (S11)	
	14:00-17:30					TCODE Topic Session (S10)	
	17:30-18:30					Closing Session	
Sat. Nov. 3		FISP Workshop*					
Sun. Nov. 4	09:00-18:00	Science Board Meeting *			Governing Council Meeting *		
Mon. Nov. 5	09:00-18:00	Governing Council Meeting *					

Selection of PICES XVII theme and description (Agenda Item 15)

Science Board was unable to achieve consensus between “*Beyond observations to achieving understanding and forecasting in a changing North Pacific: Forward to the Future*” and “*Forward to the Future: Understanding and forecasting in a changing North Pacific*” for the preferred theme title for PICES XVII, to be held from October 23 to November 2, 2008, in Dalian, China, with the National Marine Environmental Monitoring Centre of the State Oceanic Administration as the local organizer. Both titles were submitted to Governing Council for review. The description for the theme will be discussed and finalized at the 2007 inter-sessional Science Board/Governing Council meeting.

Relations with other international programs/organizations (Agenda Item 16)

Science Board endorsed partial support for a 2007 ESSAS workshop on the “*Role of sea ice in marine ecosystems*”, co-sponsored by GLOBEC.

No additions were recommended by the Science Board for the existing Standing List of International Organizations and Programs (see the 2005 Annual Report *SB Endnote 7*).

Next inter-sessional Science Board meeting (Agenda Item 17)

The Chairman will contact Science Board members when a schedule has been set for the workshop to develop a Science Plan for FUTURE.

Other business (Agenda Item 17)

Dr. Tokio Wada, Japanese national delegate and Governing Council Vice-Chairman, proposed the establishment of a new PICES award certificate for organizations and groups that have made contributions to PICES activities and the progress of marine science in the North Pacific through long-term monitoring operations, and/or data management of various ocean conditions and marine bio-resources. Drs. Wada and Kim will discuss wording for the certificate, which will be circulated to the Science Board members for approval.

Dr. Suam Kim, CCCC Program Co-Chairman, informed Science Board that he had received comments from some participants during the Annual Meeting that room for e-posters had not been considered. Dr. Batchelder noted that some poster presentations were put up for only part of the day, providing little opportunity to assess them. He suggested establishing a set of guidelines for poster displays for the next Annual Meeting.

Because the majority of award recipients for Best Presentations at the Closing Session were not present, Dr. Dagg suggested that recipients for future Annual Meetings be encouraged to remain for the Closing Session.

Best Presentation and Poster Awards

Dr. Jack A. Barth (U.S.A.) received the Best Presentation Award at the Science Board Symposium for his paper (co-authored with John M. Bane) entitled “*Intra-seasonal wind oscillations and their influence on northern California Current coastal ecosystems*”.

Awards given by Committees and Program can be found elsewhere in the Annual Report.

The Science Board meeting concluded at 1730 hours.

SB Endnote 1

Participation list

Members

Harold P. Batchelder (Co-Chairman, CCCC-IP)
Michael G. Foreman (Chairman, POC)
Yukimasa Ishida (SB, representative of Japan)
Kuh Kim (Chairman, Science Board)
Suam Kim (Co-Chairman, CCCC-IP)
Gordon H. Kruse (Chairman, FIS)
Jeffrey M. Napp (Chairman, MONITOR)
Fangli Qiao (SB, representative of China)
Igor I. Shevchenko (Chairman, TCODE)
John E. Stein (Chairman, MEQ)

Invited Observers

Manuel Barange (Director, GLOBEC)
Glen Jamieson (Chairman-elect, MEQ)
Adolf Kellermann (Head, Science Programme,
ICES)
Michio J. Kishi (Co-Chairman-elect, CCCC-IP)
Stewart (Skip) M. McKinnell (Deputy Executive
Secretary, PICES)
Francisco E. Werner (SSC Chairman, GLOBEC)

SB Endnote 2

Science Board meeting agenda

October 15, 2006 (12:30–14:00)

1. Welcome and opening remarks
2. Adoption of agenda
3. Review of procedures for Best Presentation Awards and Closing Session
4. Review of procedures for documentation of PICES scientific sessions
5. Election of the next Science Board Chairman

October 16, 2006 (17:00–18:00)

Open forum on *FUTURE*

October 21, 2006 (09:00–17:30)

6. High Priority Projects
7. Completion of Science Board recommendations and Governing council decisions from PICES XIV and the 2006 inter-sessional SB/GC meeting
8. Status of action items from the 2006 inter-sessional Science Board/Governing Council meeting

9. Report of elections of new Committee Chairmen
10. Reports from Scientific and Technical Committees, CCCC IP and subsidiary bodies
11. High Priority Projects (Agenda Item 6, continued)
12. Items with financial implications
13. Recommendations for new working groups and other subsidiary bodies (Agenda Item 10, continued)
14. Development of PICES XVI draft schedule of scientific sessions and workshops
15. Selection of PICES XVII theme and description
16. Relations with other international programs/organizations
17. Next inter-sessional Science Board meeting
18. Other business

SB Endnote 3

Review of procedures to enhance documentation of PICES scientific sessions

(From: PICES Annual Review 2001, SB Endnote 11, p. 52)

For the last few years, PICES has only included information of the proposed Topic Sessions for

the upcoming year in its Annual Report, and has not provided details regarding the actual

scientific sessions after their conclusion, particularly with regard to any key discussions or recommendations that such sessions might have generated. It became clear to those who are preparing reviews of PICES scientific accomplishments over the last decade, that we have not well-documented the science contained in our Annual Meetings, with the exception of papers that were compiled later into PICES Scientific Reports or other publications.

If we are to better track the state of our knowledge and future needs for improvement, it seems we should have a better system for documenting our scientific sessions and the discussions and recommendations that come from those. One possible system would be that employed by ICES in their Annual Report. (See a copy of their latest annual report on the web at <http://www.ices.dk/products/AnnualRep/2001annualreport.pdf>). The section devoted to the Annual Science Meeting puts forth the following information:

- keynote lectures and abstracts
- science meeting agenda (session schedules)
- details of each scientific session

The last item, details of each scientific session, contains an organized description of each session that includes:

- purpose of the session (derived from the initial session description);
- details of the content of the papers presented in summary form;
- summary of the discussions and conclusions of the session with regard to: research gaps that need to be filled; recommendations for future sessions or groups, or work; recommendations for other actions; and
- list of the documents (author and title) presented.

PICES has struggled to enhance the discussions at our Topic Sessions, and if we ask convenors to document the sessions and the discussions, we may see a better organization of Topic Sessions in this regard. We would also have a more organized way to provide scientific recommendations for action to the parent Committee(s) that sponsored the session.

Recommendation: Session convenors be asked to provide a summary of their session that includes the four points listed above, and these summaries be included in the PICES Annual Report. This practice would begin with the PICES Eleventh Annual Meeting in 2002. Also, session convenors should be requested to include a fixed amount of discussion time at the end of their sessions (15 minutes) in order to provide for proper discussion of the papers and issues raised by the papers.

SB Endnote 4

Status of Science Board recommendations and Governing Council decisions from PICES XIV and the 2006 Inter-sessional SB/GC meeting

05/S/2: Inter-sessional meetings/workshops

The following inter-sessional meetings and workshops were convened or co-sponsored after PICES XIV:

- an FRA/APN/IAI/PICES/GLOBEC Workshop on “*Global comparison of sardine, anchovy and other small pelagics: Building towards a multi-species model*”, November 14–17, 2005, Tokyo, Japan (approved in 2004);
- an International Repeat Hydrography Workshop (co-sponsored by JAMSTEC,

CLIVAR and IOCCP) and a meeting of the PICES Carbon and Climate Section, November 14–16, 2005, Shonan Village, Japan;

- a SEEDS-II Experiment Workshop (co-sponsored by the Ocean Research Institute (University of Tokyo) and PICES) to synthesize results from the second *in situ* iron enrichment experiments in the western subarctic North Pacific (SEEDS II), and to discuss differences in magnitude, biology and export between SEEDS I and SEEDS II, October 17–18, 2005, Tokyo, Japan;

- a symposium, co-sponsored with NPAFC, on “*The status of Pacific salmon and their role in North Pacific marine ecosystems*”, October 30–November 1, 2005 (in conjunction with the NPAFC Annual Meeting), Jeju, Korea;
- a CCCC/CFAME Workshop on “*A comparison of regional mechanisms for fish production: Ecosystem perspectives*”, January 12–13, 2006, Tokyo, Japan;
- a panel discussion at the “*Marine Science in Alaska*” Symposium, January 25, 2006, Anchorage, U.S.A., and a session during the North Pacific Fisheries Management Council meeting, week of February 6, Seattle, U.S.A., to involve the Bering Sea and international communities in the development of a set of operational objectives;
- an inter-sessional Science Board/Governing Council meeting, April 17–18, 2006, Honolulu, U.S.A.;
- a PICES/GLOBEC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*”, April 19–21, 2006, Honolulu, U.S.A. (approved in 2003);
- a PICES/NPRB Workshop on “*Integration of ecological indicators for the North Pacific with emphasis on the Bering Sea*”, June 1–3, 2006, Seattle, U.S.A.;
- an ESSAS/PICES Workshop to develop comparative studies of the sub-Arctic seas, June 12–14, 2006, St. Petersburg, Russia;
- a Symposium entitled “*Time series of the Northeast Pacific Ocean: A symposium to mark the 50th anniversary of P-line*” (co-sponsored with DFO), July 5–8, 2006, Victoria, Canada (approved in 2004);
- a CREAMS/PICES Workshop on “*Model-data inter-comparison for the Japan/East Sea*”, August 21–22, 2006, and a PICES summer school on “*Circulation and ecosystem modeling*”, August 23–25, 2006, Busan, Korea;
- ICES/PICES theme sessions on “*Large-scale changes in the migration of small pelagic fish and the factors modulating such changes*” and on “*Operational Oceanography*” at the ICES Annual Science

Conference, September 2006, Maastricht, Netherlands.

The following were held in conjunction with PICES XV in Yokohama, Japan:

- A 1-day IFEP/MODEL workshop (co-sponsored by SOLAS) on “*Modeling iron biogeochemistry and ocean ecosystems*”, October 12, 2006;
- A 2-day FIS workshop on “*Linking climate to trends in productivity of key commercial species in the subarctic Pacific*”, October 13–14, 2006;
- A 1-day FIS/MEQ workshop on “*Criteria relevant for the determination of unit eco-regions for EBM in the PICES area*”, October 15, 2006;
- A 1-day MEQ workshop on “*Review of selected harmful algae in the PICES region: II. Dinophysis & Cochlodinium*”, October 14, 2006;
- A 1-day POC workshop on “*Evaluation of climate change projections*”, October 14, 2006;
- A 1-day MONITOR/TCODE workshop on “*Data management, delivery and visualization of products from Ocean Observing Systems in major boundary currents*” October 15, 2006;
- A 1-day CFAME workshop on “*Climate forcing and marine ecosystems*” October 13, 2006;
- A 1-day BIO/POC workshop on “*Responses of marine mammals and seabirds to large-scale and long-term climate change: Mechanisms of environmental forcing*” October 12, 2006.

05/S/3: Travel Support

Full or partial travel support was provided to:

PICES XV

- 1 invited expert from Europe (Patrick Gentien) to the MEQ (HAB-S) Workshop on “*Review of selected harmful algae in the PICES region: II. Dinophysis and Cochlodinium spp.*”;
- 1 invited speaker (Elizabeth Fulton) to the MEQ/FIS (WG 19) Workshop on “*Criteria*

relevant to the determination of unit eco-regions for ecosystem-based management in the PICES area”;

- 2 invited speakers (Curtis Covey, Keith Rogers) to the POC (WG 20) Workshop on “*Evaluation of climate change projections*”.

Inter-sessional meetings

- PICES representative to attend the 2005 CalCOFI Conference and the PaCOOS Board meeting (December 2005, La Jolla, U.S.A.);
- PICES observer to participate in the NEAR-GOOS meeting (January 2006, Pusan, Korea; may or may not require travel support);
- 1 scientist to attend the CCCC/CFAME Workshop on “*A comparison of regional mechanisms for fish production: Ecosystem perspectives*” (January 2006, Tokyo, Japan);
- TCODE representative to attend the meeting of the ICES Working Group on *Marine Data Management* (dates and venue TBD);
- PICES representative to attend the meetings of the ICES/IOC/IMO Working Group on *Ballast Waters and Other Ship Vectors* and the ICES Working Group on *Introductions and Transfers of Marine Organisms* (March 2006, Oostende, Belgium);
- Dr. Kenneth A. Rose (U.S.A.) to present MODEL contribution to the April 2006 CCCC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*”;
- 1 scientist to participate in the ESSAS/PICES Workshop to develop comparative studies of the sub-Arctic seas (June 2006, St. Petersburg, Russia);
- PICES representative to attend the IOC Executive Committee meeting (June 2005, Paris, France);
- 1 invited speaker to the CREAMS/PICES Workshop on “*Model-data inter-comparison for the Japan/East Sea*” and 1 lecturer to the summer school on “*Circulation and ecosystem modelling*” (August 2006, Busan, Korea);
- 1 PICES convenor to the joint ICES/PICES theme sessions at the ICES Annual Science Conference (September 2006, Maastricht, Netherlands);

- PICES representative to attend the NPAFC Fourteenth Annual Meeting (October 2006, Vancouver, Canada).

05/S/4: Publications

Publications produced after the PICES XIV include:

Special issues of primary journals in 2006

- *Progress in Oceanography*, Vol. 68(2-4), 2006 (Guest Editors: G. Hunt and S. McKinnell) – selected papers from the PICES XIII Topic Session on “*Mechanisms that regulate North Pacific ecosystems: Bottom up, top down, or something else?*” (approved in 2004);
- *Deep-Sea Research II*, Vol. 53(3-4), 2006 (Guest Editors: W. Sydeman, R. Brodeur, A. Bychkov, C. Grimes and S. McKinnell) – selected papers from the PICES XIII Topic Session on “*Hot spots and their use by migratory species and top predators in the North Pacific*” (approved in 2004);
- *Ecological Modelling* (2007; Guest editors: M. Kishi, B. Megrey, S.-I. Ito and F. Werner) – selected papers on NEMURO and NEMURO.FISH models (approved in 2004);
- *Deep-Sea Research II* (2006; Guest Editors: P. Boyd and P. Harrison) – selected papers from the IFEP SERIES experiment.

PICES Scientific Report Series

- Report of the 2004 Workshop on “*In situ iron enrichment experiments in the eastern and western subarctic Pacific*” (Report No. 31), S. Takeda and C.S. Wong (Eds.), 207 pp.
- Report of the 2005 Workshop on “*Oceanic ecodynamics comparison in the subarctic Pacific*” (Report No. 32), C.B. Miller and T. Ikeda (Eds.), 105 pp.

Other publications

- PICES Handbook and Handbook for Chairmen and Convenors.

PICES Press - Newsletter

- Two regular issues: Vol. 14, No. 1 (January 2006) and Vol. 14, No. 2 (July 2006).

05/S/5: Future of current groups

- WG 16 on *Climate change, shifts in fish production and fisheries management* (under the direction of FIS) should be disbanded;
- WG 17 on *Biogeochemical data integration and synthesis* (under the direction of POC) was disbanded and replaced by the Section on *Carbon and climate* (under the direction of BIO and POC); The completion of “Guide to best practices for oceanic CO₂ measurements and data reporting” is in progress;
- Responsibility for the Advisory Panel on *Continuous Plankton Recorder (CPR) survey in the North Pacific* moved from the CCCC Program to the MONITOR Technical Committee;
- Responsibility for the Advisory Panel on *Iron fertilization experiment in the subarctic Pacific Ocean* moved from the CCCC Program to BIO.

05/S/6: New PICES groups

- A Study Group on *Future integrative scientific program(s)* was established under the direction of Governing Council, (approved at the 2005 inter-sessional Governing Council meeting);
- A Section on *Carbon and climate* was formed under the direction of POC and BIO, (approved at the 2005 inter-sessional Governing Council meeting);
- A Working Group on *Evaluations of climate change projections* was established under the direction of POC;
- A Working Group on *Non-indigenous aquatic species* was formed under the direction of MEQ;
- A Study Group to develop a strategy for GOOS was established under the direction of MONITOR.

SB Endnote 5**Theme for PICES XVI (Victoria, Canada)****“The changing North Pacific: Previous patterns, future projections, and ecosystem impacts”**

The PICES Special Publication, “Marine Ecosystems of the North Pacific”, concluded that “during the past five years profound changes have occurred in the North Pacific climate system, in the composition, abundance and distribution of its living marine resources, and in the human societies that depend on the North Pacific Ocean and its resources”. The Science Board Symposium at PICES XVI will build on studies of climate variability and other anthropogenic impacts in the North Pacific and its marginal seas, the latest North Pacific climate projections (whose results have been summarized in the Fourth Assessment Report of the Inter-governmental Panel for Climate Change), future scenarios for direct human forcing by population growth and fishing, and the combined impacts that these changes have

already had, and can be expected to have, on North Pacific ecosystems. This theme will address issues such as: 1) trends versus variability; 2) synergisms between climate and direct human forcing; 3) ecosystem indicators and their applicability in the future; 4) impacts arising from regional changes (*e.g.*, less ice-cover in the Bering Sea and Sea of Okhotsk, aquatic bioinvasions); 5) the effects of terrestrial climate change (*e.g.*, river discharge); 6) how projected global change and anthropogenic impacts may alter sustainability of the North Pacific; and 7) what should be the key messages for policy makers regarding sustainability of the North Pacific. Talks describing links with climate change in the Arctic and the International Polar Year Projects are also welcome.