

## REPORT OF SCIENCE BOARD

The Science Board met on October 2, 2005 (12:30-13:30), to review the agenda and discuss initial items relating to the upcoming PICES scientific sessions. On October 4 (19:00-20:00), a special meeting for the Study Group on *Future integrative scientific program(s)* was convened. Science Board met again on October 8 (08:30-17:30) to deal with the remainder of the agenda. Ms. Rosalie Rutka served as rapporteur for the Science Board and special meetings. (See *SB Endnote 1* for list of participants.)

### October 2, 2005

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

### **Review on procedures for Best Presentation Awards and Closing Session (Agenda Item 3)**

Dr. Kim reviewed the criteria for Best Presentation Awards and the procedure for the Closing Session, based on the procedures adopted for PICES X. It was re-stated that young scientists should be the recipients of all but the Science Board Award. Young scientists eligible for the award were identified from information they provided on their registration forms. Science Board used the procedure whereby each Committee nominated one member to serve on a Poster Award Committee to determine the Best Poster. The name of the winning poster was then submitted to Science Board. For PICES XIV, the Poster Award Committee consisted of Drs. Georgiy Moiseenko, Michael Schirripa, Darlene Smith, William J. Sydeman, Francisco E. Werner, Sinjae Yoo, and Yury I. Zuenko.

It was decided that the Closing Session would consist of an introduction by Dr. John E. Stein, Science Board Vice-Chairman, of themes proposed for the next major scientific program(s) of PICES, followed by a

presentation of the Best Presentation Awards and the PICES Service Award to retiring FIS Committee Chairman, Dr. Yukimasa Ishida, a look towards PICES activities in the coming year, including the theme of the upcoming Annual Meeting, and brief presentation by Dr. Hideki Nakano regarding preparations for PICES XV, and a few final words of thanks from the PICES Chairman.

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

Documentation of scientific sessions and workshops is required by session/workshop convenors (*SB Endnote 3*). Science Board members agreed to be responsible for relevant sessions and workshops, and to ensure that session convenors completed their descriptions prior to the conclusion of PICES XIV.

### **Completion of Science Board recommendations and Governing Council decisions from PICES XIII and the 2005 inter-sessional SB/GC meeting (Agenda Item 5)**

Science Board accepted the report on decisions and recommendations from PICES XIII and the 2005 inter-sessional SB/GC meeting, which were of relevance to Science Board (*SB Endnote 4*).

### October 4, 2005

### **Special meeting for the Study Group on *Future integrative scientific program(s)***

A special meeting of the Study Group on *Future integrative scientific program(s)* was convened by Science Board Chairman, Dr. Kuh Kim, on October 4, 2005 (19:00-21:00), to discuss the next major integrative program of PICES. The new Study Group included all Science Board members plus representatives from member nations and invited guests (see *FISP Endnote 1* located at the end of SB Endnotes). Six

proposals for potential themes from Study Group members and invited guests were presented, reviewed, and assessed. Keywords, goals, future directions, and timelines for program development were determined, which would then be presented by Dr. Stein, at the Closing Session on October 6, 2005. A formal presentation would then be given to Governing Council on Saturday, October 8. Upon acceptance by Council, the proposals would then be posted on the PICES website for comments and advice from the PICES community by December 1, 2005.

**October 8, 2005**

**Elections of new Committee Chairmen and Vice-Chairmen, and member-ship changes (Agenda Items 6, 7 and 9a)**

Dr. Gordon Kruse (U.S.A.) was elected as the new FIS Chairman, replacing Dr. Yukimasa Ishida (Japan). Dr. John Stein (MEQ Chairman) and Dr. Igor Shevchenko (TCODE Chairman) will continue for 1 additional year. Dr. Stein will also continue for 1 more year as Vice-Chairman of Science Board. Dr. Ishida noted that the nationalities of the current Committee Chairmen are strongly weighted on North America and that the balance of representation of Science Board and other Committee memberships should be considered in the future.

Drs. Hideki Nakata (Japan) and Ichiro Yasuda (Japan) were elected as MEQ Vice-Chairman and POC Vice-Chairman, respectively, for 1 year. Dr. Bernard A. Megrey was nominated as Vice-Chairman of TCODE. He accepted the proposal in principle, but needs permission from his head of laboratory.

CCCC-IP/EC proposed that Mr. Gordon (Sandy) A. McFarlane (Canada) succeed Dr. Harold Batchelder as North American Co-Chairman of the CCCC Program effective May 1, 2006. Science Board supported the replacement of Dr. Francisco E. Werner as MODEL Co-Chairman by Dr. Thomas C. Wainwright (U.S.A.).

**Analysis of performance of PICES Working Groups (Agenda Item 8)**

Dr. Michael Foreman (POC Chairman) presented a report on the analysis of performance/input from PICES Working Groups, dating from 1992 to the present. Questionnaires were sent to 63 former chairmen and 12 responses were obtained. A synthesis of replies indicated that the key ingredients for a successful Working Group were: (1) focus with a clear mandate, (2) resources (funding and time), (3) collaboration with outside organizations, (4) leadership, with the ability to delegate, (5) enthusiasm, (6) active and dedicated members, and (7) frequent communications. Dr. Foreman will use the results to draft a set of guidelines for future Working Groups, to be presented at the 2006 inter-sessional Science Board meeting.

**Reports of Committees and Program under Science Board (Agenda Item 9)**

**Existing and proposed new subsidiary bodies (Agenda Item 9b)**

Science Board recommends that:

- WG 16 on *Climate change, shifts in fish production and fisheries management* (under the direction of FIS) be disbanded. The final report is pending review, and its publication is expected in 2006 as a PICES Scientific Report;
- WG 17 on *Biogeochemical data integration and synthesis* (under the direction of POC) be 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 CO<sub>2</sub> measurements and data reporting" is still pending;
- Responsibility for the Advisory Panel on *Continuous Plankton Recorder (CPR) survey in the North Pacific* move from the CCCC Program to the MONITOR Technical Committee;
- Responsibility for the Advisory Panel on *Iron fertilization experiment in the subarctic Pacific Ocean* move from the CCCC Program to BIO.

Science Board recommends the following new subsidiary bodies:

- a Section on *Carbon and climate* under the direction of POC and BIO Committees (approved at the 2005 inter-sessional Governing Council meeting);
- a Working Group on *Evaluations of climate change projections* under the direction of POC (*POC Endnote 5*);
- a Working Group on *Non-indigenous aquatic species* under the direction of MEQ (*MEQ Endnote 3*);
- a Study Group to develop a strategy for GOOS under the direction of MONITOR (*MONITOR Endnote 4*).

Terms of reference for the proposed Section and Groups can be found in *GC Appendix B*.

Inter-sessional symposia, workshops; Working Group, Section and CCCC Program meetings proposed for 2005 and beyond (Agenda Item 9c)

The following inter-sessional meetings/workshops are to be convened/co-sponsored in 2005 and beyond (a List of Acronyms can be found at the end of the Annual Report):

- 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;
- an FRA/APN/IAI/PICES/GLOBEC Workshop to extend NEMURO.FISH to fish stocks in other geographic regions, November 14-17, 2005, Tokyo, Japan (approved in 2004);
- an International Repeat Hydrography Workshop (co-sponsored with JAMSTEC, CLIVAR and IOCCP) and a meeting of the PICES Carbon and Climate Section,

November 14-16, 2005, Shonan Village, Japan;

- 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 50<sup>th</sup> 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*”, and summer school on “*Circulation and ecosystem modeling*” August 21-25, 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 (title TBD) at the ICES Annual Science Conference, September 2006, Maastricht, The Netherlands;
- an International Conference on “*The Humboldt Current system: Climate, ocean dynamics, ecosystem processes and fisheries*” (co-sponsored with IMARPE,

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IRD, NASA, FAO, GLOBEC, ICES and IMBER), November 27-December 1, 2006, Lima, Peru (*SB Endnote 5*);

- a Symposium on “*Marine bioinvasions*” (co-sponsored with ICES and MBC), spring 2007, Washington, D.C., U.S.A. (approved in 2003)
- a 4<sup>th</sup> International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*” (co-sponsored by GLOBEC and ICES), May 28 - June 1, 2007, Hiroshima, Japan (approved in 2003);
- an ICES/PICES Young Scientists Conference, spring or summer 2007, location TBD (approved in 2003);
- an ICES/PICES/IOC Symposium on “*Effects of climate change on the world oceans*”, spring 2008, Gijón, Spain.

Proposed Scientific Sessions and Workshops for next Annual Meeting and draft schedule (Agenda Items 9d and 12)

The theme of PICES XV is “*Boundary current ecosystems*” (see description in *SB Endnote 6*). The following list of sessions and workshops to be convened at (or in conjunction with) PICES XV from October 16-20, 2006, was endorsed by GC (a List of Acronyms can be found at the end of the Annual Report):

Science Board Symposium (¾-day)  
*Boundary current ecosystems* (*SB Endnote 6*)

BIO/FIS Topic Session (1-day)  
*The human dimension of jellyfish blooms* (*BIO Endnote 6a*)

BIO/IMBER Topic Session (1-day)  
*Interactions between biogeochemical cycles and marine food webs in the North Pacific* (*BIO Endnote 6b*)

BIO (IFEP-AP) Topic Session (1-day)  
*Synthesis of in situ iron enrichment experiments in the eastern and western subarctic Pacific* (*IFEP-AP Endnote 6*)

BIO (MIE-AP) Topic Session (1-day)  
*Advances in epi- and meso-pelagic ecosystem research* (*MIE-AP Endnote 2*)

CCCC/MODEL Topic Session (½-day)  
*Modeling and historical data analysis of pelagic fish, with special focus on sardine and anchovy* (*MODEL Endnote 4*)

CCCC Contributed Paper Session (½-day)  
*Patterns and process of North Pacific ecosystem responses to physical forcing and climate change*

FIS Contributed Paper Session (1-day)

FIS/CCCC Topic Session (1-day)  
*Key recruitment processes and life history strategies: Bridging the temporal and spatial gap between models and data* (*CFAME Endnote 5*)

MEQ/ FIS Topic Session (1-day)  
*Aquaculture for sustainable management of the marine ecosystem* (*WG 18 Endnote 4*)

MEQ Topic Session (1-day)  
*Harmful algal blooms in the PICES region: New trends and potential links with anthropogenic influences* (*HAB Endnote 4*)

POC Contributed Paper Session (1-day)

POC/MONITOR/CCCC Topic Session (1-day)  
*Synchronous and asynchronous responses of North Pacific boundary current systems to climate variability* (*POC Endnote 7*)

TCODE E-Poster Session

The following workshops are to be convened from October 13-15 (a List of Acronyms can be found at the end of the Annual Report):

IFEP/MODEL Workshop (1-day)  
*Modeling iron biogeochemistry and ocean ecosystems* (*IFEP-AP Endnote 5*)

FIS Workshop (2-day)  
*Linking climate to trends in productivity of key commercial species in the subarctic Pacific* (*FIS Endnote 3*)

MEQ/FIS (WG 19) Workshop (1-day)  
Criteria relevant to the determination of unit eco-regions for ecosystem-based management in the PICES area (WG 19 Endnote 5)

MEQ (HAB-S) Workshop (1-day)  
Review of selected harmful algae in the PICES region: II. Dinophysis and Cochlodinium spp.

followed by a ½-day laboratory demonstration on DSP detection (HAB-S Endnote 3)

POC (WG 20) Workshop (1-day)  
Evaluation of climate change projection

MONITOR/TCODE Workshop (1-day)  
Data management, delivery and visualization of products (MONITOR Endnote 5)

### Draft Schedule (Dec. 12, 2005)

Time		Events						
Fri. Oct. 13	09:00-12:30	FIS Workshop (W3)		IFEP Workshop (W1)	MIE-AP Meeting	WG 21 Meeting	WG 19 Meeting	
	14:00-18:00		HAB-S Lab. (W5)		MBM-AP Meeting			
Sat. Oct. 14	09:00-18:00	FIS Workshop (W2)	HAB-S Workshop (W4)	WG 20 Workshop (W5)	CC-S Meeting	WG 18 Meeting	WG 19 Meeting	
	18:00-20:00	CPR-AP Meeting						
Sun. Oct. 15	09:00-12:30	TCODE/MONITOR Workshop (W6)		HAB-S Meeting	CC-S Meeting	CFAME Meeting	WG 19 Workshop (W4)	
	12:30-14:00	SB Lunch Meeting *						
	14:00-18:00	TCODE/MONITOR Workshop (W6)		HAB-S Meeting	CC-S Meeting	MODEL Meeting	WG 19 Workshop (W4)	
	18:00-20:00	CCCC IP/EC Meeting*						
Mon. Oct. 16	09:00-10:30	Opening Session						
	11:00-18:00	Science Board Symposium (S1)						
Tues. Oct. 17	09:00-12:30	BIO Topic Session (S4)	MEQ Topic Session (S9)		CCCC Topic Session (S6)	Governing Council Meeting *		
	14:00-18:00				CCCC Paper Session			
	18:00-20:00	SG-GOOS Meeting						
Wed. Oct. 18	09:00-15:30	BIO Topic Session (S5)	FIS Paper Session		POC Paper Session	F&A Meeting *		
	16:00-19:30	BIO Meeting	FIS Meeting	MEQ Meeting	POC Meeting	TCODE Meeting	MONITOR Meeting	
Thurs. Oct. 19	09:00-18:00	BIO Topic Session (S3)		FIS/CCCC Topic Session (S7)		FIS/MEQ Topic Session (S8)		
	18:00-20:30	Poster Session and E-Posters				SG-FISP Meeting		
Fri. Oct. 20	09:00-17:30	BIO/FIS Topic Session (S2)			POC/MONITOR/CCCC Topic Session (S10)			
	17:30-18:30	Closing Session						
Sat. Oct. 21	09:00-18:00	Science Board Meeting *			Governing Council Meeting *			
Sun. Oct. 22	09:00-13:00	Governing Council Meeting *						

\* Closed Session

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### Travel support requests (Agenda Item 9e)

PICES will provide travel support for:

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- Invited speakers for Topic Sessions at the Annual Meeting with the normal allocation of approximately \$5,000 per Committee and Program (additional requests are subject to fund availability);
- 1 invited speaker for the joint IFEP/MODEL Workshop on “*Modeling iron biogeochemistry and ocean ecosystems*”;
- 1 invited speaker from Europe to the MEQ (HAB-S) workshop on “*Review of selected harmful algae in the PICES region: II. Dinophysis and Cochlodinium spp.*”;
- 1 invited speaker 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*”;
- 1 invited speaker 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);
- 2 scientists (1 Russian and 1 Chinese) to attend the CCCC/CFAME Workshop on “*A comparison of regional mechanisms for fish production: Ecosystem perspectives*” (January 12-13, 2006, Tokyo, Japan);
- 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);
- TCODE representative to attend the meeting of the ICES Working Group on *Marine Data Management* (dates and venue TBD);
- 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 12-14, 2006, St. Petersburg, Russia);
- PICES representative to the IOC Executive Committee meeting (June 2006, Paris, France);
- 1 invited speaker to the CREAMS/PICES Workshop on “*Model/data intercomparison for the Japan/East Sea*” and 1 lecturer to the CREAMS/PICES summer school on “*Ocean circulation and ecosystem modeling*” (August 21-25, 2006, Busan, Korea);
- PICES convenors to the joint ICES/PICES theme sessions at the ICES Annual Science Conference (September 2006, Maastricht, The Netherlands);
- Dr. Sergej Olenin (co-funding with ICES) to attend the first meeting of the PICES Working Group on *Non-indigenous aquatic species* (October 2006, Yokohama, Japan), to discuss and demonstrate Delivering Alien Invasive Species Inventories for Europe (DAISIE) database (EU project);
- PICES representative to attend the SCOR General Meeting (October 2006, Concepción, Chile);
- PICES representative to attend the NPAFC Fourteenth Annual Meeting (October 2006, Vancouver, Canada).

#### Science Board Chairman to attend:

- inter-sessional Science Board/Governing Council meeting (April 17-18, 2006, Honolulu, U.S.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.);
- 2006 ICES Annual Science Conference (September 2006, Maastricht, The Netherlands);
- PICES Fifteenth Annual Meeting (October 2006, Yokohama, Japan).

Proposed publications (Agenda Item 9f)

Special issues of primary journals, 2006-2007:

- *Progress in Oceanography* (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* (2006; Guest Editors: W. Sydeman, A. Bychkov, R. Brodeur, C. Grimes, H. Kato 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* (2006; Guest editors: M. Kishi, B.A. Megrey, S.-I. Ito, and F.E. 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;
- A leading international journal (2007) – on “Seabirds as Indicators”, including dietary analyses based on the 2003 and 2004 MBM-AP workshops on “Combining data sets on diet of marine birds and mammals” that was approved in 2004;
- *Progress in Oceanography* (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*”;
- *Progress in Oceanography* (2007; Guest editors: H. Batchelder and S. Kim) – selected papers from the CCCC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*”;
- *Progress in Oceanography* (2007; Guest editors: A. Peña and TBD) – selected papers from the symposium on “*Time series of the Northeast Pacific Ocean: A symposium to mark the 50<sup>th</sup> anniversary of Line-P*”.

PICES Scientific Report Series, 2005-2006

- Final report of WG 16 on *Climate change, shifts in fish production, and fisheries management* (approved in 2002 for publication in 2004, delayed till 2006, pending review by OC and CCCC; Editors: R. Beamish, and A. Yatsu);
- Guide to best practices for oceanic CO<sub>2</sub> measurements and data reporting (approved in 2002 for publication in 2004, delayed till 2006; Editor: A. Dickson);
- Findings of the data-sharing project for federated meta-data on North Pacific ecosystems (approved in 2004; Editors: A. Macklin and B. Megrey);
- Report of the 2005 OECOS (Oceanic Ecodynamics Comparison in the Subarctic Pacific) Workshop (Editors: T. Ikeda and C. Miller);
- Report from the project on “*Integration of ecological indicators for the North Pacific with emphasis on the Bering Sea*” (Editors: S. McKinnell, A. Bychkov, G. Jamieson, G. Kruse, P. Livingston and J. Overland);
- Proceedings from the CREAMS/PICES Workshop on “*Model/data intercomparison for the Japan/East Sea*” and the summer school on “*Circulation and ecosystem modeling*” (Editor: K.-I. Chang and TBD);
- WG 18 report based on the national reports on the current status and trends in aquaculture in PICES member countries (Editors: I.-K. Chung and C. Friedman).

Other publications, 2006–2007

- American Fisheries Society book on regional comparisons in the NE Pacific (formal title TBD). (Guest editors: R. Brodeur, C. Grimes, L. Haldorson and S. McKinnell);
- PICES Handbook and Handbook for Chairmen and Convenors.

Other items with financial implications (Agenda Item 9g)

- MEQ requested funding from PICES to purchase test kits for Russian scientists to help in HAB lab capacity building in Russia.

**High-priority projects (Agenda Item 10)**

The Executive Secretary reported that the Finance and Administration (F&A) Committee and Governing Council (GC) had questions regarding fund raising. The GC and F&A often do not know what the funding opportunities are within countries and requested SB to list high-priority projects that warranted support (*SB-IM Endnote 3*).

1. Study Group on *Future Integrative Scientific Program(s)*
2. North Pacific Ecosystem Status Report
3. Young Scientists Conference
4. International Exchange and Capacity Building
5. GOOS integration into PICES
6. Matching funds

Science Board agreed that the above ranking would still remain the same.

MEQ Chairman, Dr. Stein, indicated that he would make a proposal to the Asia Pacific Network for funding to supply monitoring test kits for Russian scientists to monitor events in the western Pacific in a HAB training workshop. (This item arose during discussion of Agenda Item 15, but is placed here for clarity.)

**Relations with other programs/organizations (Agenda Item 11)**

The Standing List of International Organizations and Programs facilitates PICES interactions with other programs and indicates high priority organizations/programs to whose meetings PICES should regularly send a representative (see *SB Endnote 7* for the revised list).

**Selection of PICES XVI theme and description (Agenda Item 13)**

Canada suggested a theme entitled "*The changing North Pacific: Previous patterns, future projections, and ecosystem impacts*" for the Sixteenth Annual Meeting to be held in Victoria in 2007. Science Board approved the theme after minor editorial changes (*SB Endnote 8*).

**Review of Committee Action Plans (Agenda Item 14)**

Science Board agreed that all Committee Action Plans should have a standardized format and would be placed on the PICES website for review and comparison by December 2005. Upon review in early 2006, the Plans would either be endorsed or modified further at the 2006 inter-sessional Science Board/Governing Council meeting.

**Discussion of PICES capacity building opportunities/PICES-ICES Young Scientist Conference (Agenda Item 15)**

Dr. Adolf Kellermann, Head of the ICES Science Program, and Dr. Skip McKinnell, PICES Deputy Executive Secretary, were to draft a letter by the end of October 2005 to the PICES/ICES Young Scientist Conference Steering Committee requesting the Committee to commence development of session topics, schedule, and venue by January 31, 2006.

**Inter-sessional Science Board meeting (Agenda Item 16)**

The third inter-sessional Science Board meeting, with the participation of Governing Council, took place April 6-7, 2005, at the NOAA Sand Point facilities in Seattle, U.S.A. The report from this meeting is provided elsewhere in this Annual Report.

Science Board agreed that a fourth inter-sessional meeting will be held in Honolulu, U.S.A. in 2006, in conjunction with the CCCC Symposium on "*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*". The main topics for further discussion will be:

- the further development of FISP;
- finalization of Action Plans.

**Other business (Agenda Item 17)**

No other business was brought forward.



### Best Presentation and Poster Awards

Dr. William Peterson (U.S.A.) received the Best Presentation Award at the Science Board Symposium for his presentation (co-authored with Rian Hooff and Robert Emmett) entitled, “*Extreme climate variability in the northern California Current: Can we explain the current anomalous warm state and its effects on the coastal upwelling ecosystem off Washington and Oregon?*”

The Best Poster Award went to Hanna Na for her poster (co-authored with Dr. Kuh Kim) entitled “*Temporal variation of the estimated volume transport through the Korea and Tsugaru Straits*”.

The term “young scientist” was clarified and several suggestions were made to expedite the judging of posters for the next Annual Meeting. SB Chairman, Dr. Kim, endorsed the suggestion to have a Best Poster for each Committee, which would be open to all ages, although each Committee could decide if the posters would be weighted towards young scientists. SB would also carry a Best Poster competition, eligible to all participants. Best Presentation from each committee would remain restricted to young scientists. The PICES Secretariat, in consultation with Science Board, will draft the rules for selecting best posters.

Awards given by Committees and Program can be found elsewhere in the Annual Report. The Science Board meeting concluded at 1730 h.

### SB Endnote 1

#### Participation list

##### Members

Harold P. Batchelder (Co-Chairman, CCCC-IP)  
 Michael G. Foreman (Chairman, POC)  
 Yukimasa Ishida (Chairman, FIS)  
 Kuh Kim (Chairman, Science Board)  
 Suam Kim (Co-Chairman, CCCC-IP)  
 David L. Mackas (acting for BIO Chairman,  
 Michael J. Dagg)  
 Jeffrey M. Napp (Chairman, MONITOR)  
 Fangli Qiao (SB, representative of China)  
 Igor I. Shevchenko (Chairman, TCODE)  
 John E. Stein (Chairman, MEQ)

##### Observers

Adolf Kellerman (Head, Science Programme,  
 ICES)  
 Stewart (Skip) M. McKinnell (Deputy Executive  
 Secretary, PICES)  
 Rosalie Rutka (PICES Administrative Assistant)

### SB Endnote 2

#### Science Board meeting agenda

##### **October 2, 2005 (12:30 – 13:30)**

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. Completion of Science Board recommendations and Governing Council

decisions from PICES XIII and the 2005 inter-sessional SB/GC meeting

##### **October 5, 2005 (19:00 – 21:00)**

Special Meeting for the Study Group on *Future Integrative Scientific Programs*

##### **October 8, 2005 (08:30 – 17:30)**

6. Elections of new Committee Chairmen

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7. Election of Science Board Vice Chairman
8. Analysis of performance/input from PICES Working Groups
9. Reports of Committees and Program under Science Board:
  - a) Brief summary report of the group's activities in the past year, including membership changes
  - b) Proposed list of any future groups along with Terms of Reference and a list of potential members
  - c) Inter-sessional meetings proposed for 2005 and beyond (symposia; workshops; Working Group, Section, and CCCC Program meetings)
  - d) Proposed titles for Scientific Sessions and Workshops for the next Annual Meeting, including draft session descriptions and proposed convenors
- e) Travel support requests
- f) Proposed publications (PICES Scientific Report Series and primary journals) for 2005 and beyond
- g) Other items with financial implications
10. High priority projects
11. Relations with other international programs/organizations
12. Develop PICES XV draft schedule of scientific sessions and workshops
13. Selection of PICES XVI theme and description
14. Review of Committee Action Plans
15. Discussion of PICES capacity building opportunities / PICES-ICES Young Scientist Conference
16. Inter-sessional Science Board meeting
17. 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 XIII and the 2005 inter-sessional SB/GC meeting

#### 04/S/1: Inter-sessional meetings/workshops

The following inter-sessional meetings were convened or co-sponsored:

- A 3-day Science Board/Governing Council meeting, April 6-7, 2005, Seattle, U.S.A.;
- A 2-day CREAMS/PICES Workshop on “*East Asian Seas Time-series (EAST-I)*” as part of the CREAMS/PICES project, April 21-22, 2005, Seoul, Korea (co-sponsored by PICES, Ministry of Maritime Affairs and Fisheries (Korea) and School of Earth and Environmental Sciences (BK21) of Seoul National University);
- A 2-day CCCC/CFAME workshop to develop a workplan for future CFAME (*Climate Forcing and Marine Ecosystem Response*) Task Team activities and hypothesis for CCCC synthesis, May 14-15, 2005, Victoria, B.C., Canada;
- A 5-day ESSAS Symposium on “*Climate variability and sub-Arctic marine ecosystems*” (Co-sponsored with GLOBEC and several other organizations), May 16-20, 2005, Victoria, Canada;
- A 2-day OECOS Workshop to plan “*An east-west comparative study of lower trophic level pelagic ecology in the subarctic Pacific Ocean*” (Co-sponsored by PICES and OSU), May 23-24, 2005, Corvallis, U.S.A.;
- A 1-day ICES/PICES Theme Session on “*Multidisciplinary approaches to the identification of stock structure of small pelagics: Implications for assessment and sustainable management*” at the ICES

Annual Science Conference, September 20-24, 2005, Aberdeen, Scotland;

- A 1-day ICES/PICES Theme Session on “*Regional ecosystem pilot projects, ecosystem forecasting, and operational oceanography: Comparing and contrasting scientific tools, strategies, outputs, and applications*” at the ICES Annual Science Conference, September 20-24, 2005, Aberdeen, Scotland.

The following were held in conjunction with PICES XIV in Vladivostok, Russia:

- A 2-day HAB/MEQ Workshop on “*Review of selected harmful algae in the PICES region: I. Pseudo-nitzschia and Alexandrium*”, September 29-30, 2005;
- A 1-day MONITOR Workshop on “*Filling the gaps in the PICES Ecosystem Status Report*”, October 1, 2005;
- A ½-day IFEP/MODEL Workshop on “*Modelling and iron biogeochemistry: How far apart are we?*”, October 2, 2005;
- A 2-day MEQ Workshop on “*Introduced species in the North Pacific*” (Co-sponsored with ICES), October 4-5, 2005.

#### 04/S/2: Travel Support

Full or partial travel support was provided to:

##### PICES XIV

- 3 invited speakers (Drs. Stephen Bates, Charles Trick, Satoshi Nagai) to the MEQ/HAB Workshop on “*Review of selected harmful algae in the PICES region*”;

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- 3 invited speakers (Drs. R. Ian Perry, Jacqueline Alder, Robin Rigby) to the MONITOR Workshop on “*Filling the gaps in the PICES Ecosystem Status Report*”;
- 2 invited speakers (Drs. Peter Croot, Naoki Yoshie) to the IFEP/MODEL Workshop on “*Modelling and iron biogeochemistry: How far apart are we?*”;
- 2 invited speakers (Drs. Helge Botnen, Sergei Olenin) to the PICES/ICES Workshop on “*Introduced species in the North Pacific*”;
- 11 other invited speakers of scientific sessions at PICES XIV;
- 15 Chinese, 3 Japanese, 1 Indian, 11 Korean, and 17 Russian (mostly registration fees) and 3 U.S. scientists to PICES XIV.

### Inter-sessional meetings

- PICES representative, Dr. Sei-Ichi Saitoh, to attend the NPAFC Twelfth Annual Meeting (November 2004, Sapporo, Japan);
- MONITOR Co-Chairman, Dr. Sei-Ichi Saitoh, to represent PICES at the NEAR-GOOS Coordinating Committee meeting (November 2004, Sendai, Japan);
- TCODE Chairman, Dr. Igor Shevchenko, to participate in the Ocean Biodiversity Data Symposium (November 2004, Shanghai, People’s Republic of China);
- PICES representative, Dr. Mark Wells, to attend the meeting of the ICES/IMO/IOC Working Group on *Ballast waters and other ship vectors*, (March 14-18, 2005, Arendal, Norway);
- PICES representative, Dr. Skip McKinnell (Deputy Executive Secretary) to attend the PaCOOS Governing Board (March 2005, Seattle, U.S.A.);
- 1 invited speaker, Dr. Yury Zuenko (Russia), to attend the CREAMS/PICES Workshop on “*East Asian Seas time series*” (April 2005, Seoul, Republic of Korea);
- PICES representative, Dr. Ian Perry, to attend the NPAFC CSRS (Committee on Scientific Research and Statistics) meeting (April 2005, Nanaimo, Canada);
- Co-Chairman, CCCC Program, Dr. Suam Kim to represent PICES at the GLOBEC SSC meeting (June 2005, Rome, Italy);
- Invited speaker, Dr. Kazuaki Tadokoro, Japan, to the 2005 CFAME inter-sessional workshop (May 2005, Victoria, Canada);
- PICES WG 16 Co-Chairman, Dr. Akihiko Yatsu, to work with Dr. Richard Beamish (WG 16 Co-Chairman) to finish the Working Group report (May 2005, Nanaimo, Canada);
- 1 invited speaker, Dr. Victor Lapko (Russia), and 2 young Korean scientists (from the Trust Fund) to the ESSAS Symposium on “*Climate variability and sub-Arctic marine ecosystems*” (May 16-20, 2005, Victoria, Canada);
- 13 scientists (6 from Japan and 7 from Canada and the U.S.A.) to attend the OECOS Workshop on “*An east-west comparative study of lower trophic level pelagic ecology in the subarctic Pacific Ocean*” (May 2005, Corvallis, U.S.A.);
- PICES representative, Dr. Skip McKinnell (Deputy Executive Secretary) to attend the meeting of the ICES-GOOS Steering Group (June 2005, Brest, France);
- PICES representative, Dr. Alexander Bychkov (Executive Secretary), to attend the GCP (Global Carbon Project) SSC meeting and the 23<sup>rd</sup> Assembly of the Intergovernmental Oceanographic Commission held consecutively in June 2005, Paris, France;
- FERRRS Chairman, Dr. Jacquelynne King, to present the FERRRS report of the Pacific Fishery Management Council (June 2005, San Francisco, U.S.A.);
- TCODE Chairman, Dr. Igor Shevchenko to attend Symposium on GIS in Fishery and Aquatic Sciences (August 2005, Shanghai, People’s Republic of China);
- PICES convenors, Drs. Douglas Hay and Stewart McKinnell) to the joint ICES/PICES Theme Sessions on “*Fisheries, ecology and life history of small pelagic fish*” and “*Comparing and constructing the scientific strategies and output of regional ecosystem projects*” at the 2005 ICES Annual Science Conference (September 2005, Aberdeen, Scotland);
- 1 Korean scientist and 2 U.S. scientists to participate in two meetings (September 2005, in Seattle, U.S.A.; and October 2005, in Pusan, Republic of Korea) of the “Federated metadata project”.

### 04/S/3: Publications

Publications produced after the Thirteenth Annual Meeting include:

#### Special issues of primary journals in 2005

- *ICES Journal of Marine Science* (Vol. 62(3), May 2005) – selected papers from the 2004 Symposium on “*Quantitative ecosystem indicators for fisheries management*” (Guest editor: Niels Daan), includes 40 papers by authors from Europe, South Africa, Australia, and North America;
- *Deep-Sea Research II* (Vol. 52(5–6), 2005) – selected papers from the 2003 PICES Workshop on “*Linkages between open and coastal systems*” (Guest editors: S. McKinnell and G. McFarlane).

#### PICES Scientific Report series

- PICES Scientific Report No. 27 (November 2004), Report of the MODEL Task Team *Second workshop to develop a marine ecosystem model of the North Pacific Ocean including pelagic fishes*, Kishi, M.J. (Ed.), 49 p.
- PICES Scientific Report No. 28 (January 2005), Report of the Study Group on *Fisheries and ecosystem responses to recent regime shifts*, King, J. (Ed.), 162 p.
- PICES Scientific Report No. 29 (January 2005), Report of the Study Group on *Ecosystem-Based Management Science and its application to the North Pacific*, Jamieson, G. and Zhang, C.I. (Eds.), 77 p.
- PICES Scientific Report No. 30 (May 2005), Final Report of PICES Working Group 14 on *Micronekton of the North Pacific*, Brodeur, R. and Yamamura, O. (Eds.), 115 p.

#### PICES Special publications

- Marine Ecosystems of the North Pacific, PICES Special Publication 1, 2004, 280 p.
- Marine life in the North Pacific Ocean: The known, unknown and unknowable, PICES Special Publication 2, 2005, 46 p.

#### Other publications

- Advisory Report on “*Fisheries and ecosystem responses to recent regime shifts in the North Pacific*”, PICES, 2005, 12 p. (brochure)
- “*The journey to PICES: Scientific cooperation in the North Pacific*”, Tjossem, S. 2005 (a book on the history of PICES)

#### PICES Press - Newsletters

- Two regular issues: Vol. 13, No. 1 (January 2005) and Vol. 13, No. 2 (September 2005).

### 04/S/4: Future of current Working Groups and Scientific Programs

- CCCC *Basin Scale Studies* (BASS) and *Regional Experiment* (REX) Task Teams and *Nemuro Experimental Planning Team* (NEXT) completed their tasks and were disbanded (approved at the 2004 inter-sessional Science Board/Governing Council meeting).
- Study Group on *PICES Strategic Issues* (under Governing Council) completed its terms of reference and was dissolved.
- Study Group on *Fisheries and ecosystems responses to recent regime shifts* (under Science Board) completed its report and was disbanded.
- Study Group on *Ecosystem-based management science and its application to the North Pacific* (under MEQ and FIS) submitted its report and was disbanded.
- WG 14 on *Effective sampling of micronekton* (under BIO) completed its report and was disbanded.
- WG 16 on *Climate change, shifts in fish production and fisheries management* (under FIS) has submitted a final report which is in review. The group was disbanded.
- Accomplishments of the Advisory Panel on *Marine birds and mammals* (under BIO) were reviewed and rated highly by the parent committee, and the Panel will continue for another 5-year term.
- Advisory Panel on *Continuous Plankton Recorder survey in the North Pacific* (CPR-AP) was moved outside the CCCC Program and is under the direction of the MONITOR Technical Committee.

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- Due to disbanding BASS, the Advisory Panel on *Iron fertilization experiment in the subarctic Pacific Ocean* will report directly to the BIO Committee.

### 04/S/5: New PICES Groups

- The MONITOR Task Team was moved outside the CCCC Program to become a Technical Committee directly under Science Board (approved at the 2004 inter-sessional Science Board/Governing Council meeting).

- A Task Team on *Climate Forcing and Marine Ecosystem Response* (CFAME) was established under the CCCC Program (approved at the 2004 inter-sessional Science Board/Governing Council meeting).
- A Working Group on *Ecosystem-based management science and its application to the North Pacific* was formed under the direction of FIS and MEQ.
- An Advisory Panel for a *CREAMS/PICES Program in East Asian Marginal Seas* was established under POC.

## SB Endnote 5

### “The Humboldt Current system: Climate, ocean dynamics, ecosystem processes and fisheries”

**Date:** November 27 –December 1, 2006

**Conveners:** Arnaud Bertrand (IRD), Renato Guevara Carrasco (IMARPE), Pierre Soler (IRD)

**Venue:** Lima, Peru

**Sponsored by:** IMARPE, IRD, NASA, FAO, GLOBEC, ICES, PICES, IMBER

### Scope of the Conference

The ocean off the west coast of South America is notable for several reasons. First, it produces more fish per unit area than any other region in the world oceans. Second, it is an area of low oxygen and intense denitrification contributing significantly to global budgets. Third, it is intimately linked to the ocean-atmosphere coupling over the tropical Pacific, and therefore subject to large year-to-year and decade-to-decade fluctuations in regional ocean climate. Finally, these processes have combined to preserve a detailed ecosystem history in the sediments over the past millennium and beyond.

An outstanding synthesis on the dynamics of the Peruvian Upwelling System was produced by IMARPE in conjunction with ICLARM (now World Fish Center) and the Deutsche Gesellschaft für Technische Zusammenarbeit during the mid 1980s and published as conference proceedings in 1987 and 1989. These efforts continue to serve as major references for the Humboldt Current System (HCS).

Since the 1980s, important technical and conceptual advances have transformed many areas of marine science. These changes provide a new background to re-examine the question surrounding the linkages between climate, ocean circulation, biogeochemical cycles and fish production. New observing capabilities, data synthesis and analysis, and improved ocean mapping and modelling tools can now provide a view of the dynamics of the HCS ecosystem within a multidisciplinary context.

Operational fisheries management is also evolving away from a monospecific to an “Ecosystem-Based” paradigm. This new approach appears to be particularly appropriate for the HCS, where the uncertainty associated with decadal variability and regime shifts represent major challenges for Ecology and Fisheries research.

There is clearly a need, and an opportunity now, to undertake a new integration and synthesis to advance our understanding of the Humboldt Current System. The challenges include synthesis of available data, application of improved numerical models and integration across disciplines and habitats.

The objectives of this Conference are to initiate this new regional integration and synthesis and to foster exchanges among regional and international experts. Contributions that update

the early synthesis with work done in the region during the last two decades are especially encouraged as are modelling and integrative efforts. Similar syntheses from other eastern

boundary systems are invited, especially if they are carried out within a comparative framework. New observations and conceptual models are also encouraged.

**SB Endnote 6**

**PICES XV Theme (Yokohama, Japan)  
“Boundary current ecosystems”**

The North Pacific is surrounded by boundary currents (*e.g.*, Kuroshio, Tsushima, Oyashio, California, Alaska, Bering Slope) that support a diversity of ecosystems. These ecosystems are highly variable in space and time due to combinations of climate change, decadal “regime” shifts, ENSO and other interannual variability, seasonal and event mesoscale dynamics. This variability has led to dramatic changes at both low and high trophic levels, including productivity, range extensions, and species dominance. This theme will provide opportunities to address questions such as 1) How will climate variation and projected climate change influence the dynamics and variability of

boundary currents? 2) How will boundary current ecosystems respond to these physical property and transport changes? 3) How does human activity (*e.g.*, fishing, hatcheries) alter the sensitivity of boundary current ecosystems to natural environmental forcing?, and 4) What are appropriate management strategies to maintain healthy, sustainable living marine resources in boundary current systems that experience large environmental variations? Presentations that describe, compare and/or contrast biology, fisheries, physics, geochemistry of boundary currents and the ecosystems they support are encouraged.

**SB Endnote 7**

**Revised Standing List of International Organizations and Programs**

PICES is expanding its relationships with international scientific organizations of regional and global scale, and with regional scientific and monitoring efforts in the North Pacific that are aligned with the PICES ecosystem research focus. These regional programs may involve several PICES member countries and cover international areas of high ecological importance. Annually, the Science Board examines and revises the *Standing List of International and Regional Organizations and Programs*. Additionally, it selects a subset of organizations and programs that are considered to have the highest priority (marked by \*) for PICES with respect to scientific cooperation and facilitation in the coming year.

The 2005 additions to the list, below, are: Ecosystem Studies of Sub-Arctic Seas (ESSAS)\*, International Maritime Organization (IMO), Bering Ecosystem Study (BEST)\*, North Pacific Fishery Management Council (NPFM), Northwest Association of Networked Ocean Observing Systems – Integrated Ocean Observing System (NANOOS-IOOS) which replaces Pacific Northwest Integrated Ocean Observing System (PNW-IOOS), and Global Earth Observing System (GEOS). This list will be used, in part, to assist the Executive Secretary and Science Board in decisions regarding travel to meetings of other international organizations.

- |        |   |
|--------|---|
| ACIA   | Arctic Climate Impact Assessment Program (ACIA of AMAP)             |
| AFSCAR | American Fisheries Society Program on Climate and Aquatic Resources |
| AMAP   | Arctic Monitoring and Assessment Program                            |
| AOOS*  | Alaska Ocean Observing System                                       |

**SB-2005**

APEC-MRC*	Marine Resources Conservation WG, Asia Pacific Economic Cooperation
APEC-FWG*	Fisheries Working Group, Asia Pacific Economic Cooperation
APFIC	Asia-Pacific Fisheries Commission
APN	Asia-Pacific Network for Global Change Research
Argo*	International Program for deployment of profiling floats (linked with GOOS)
BEST*	Bering Ecosystem Study
CLIVAR*	Climate Variability and Predictability Program
CoML*	Census of Marine Life
CREAMS*	Circulation Research in the East Asian Marginal Seas
DBCP	Data Buoy Cooperation Panel
ECOR	Engineering Committee on Oceanic Resources
ESSAS*	Ecosystem Studies of Sub-Arctic Seas
FAO	Food and Agriculture Organization
GCOS*	Global Climate Observing System
GEM*	Gulf of Alaska Ecosystem Monitoring and Research Program of <i>Exxon Valdez</i> Oil Spill Trustee Council (EVOS)
GEOS	Global Earth Observing System
GESAMP	Group of Experts on Scientific Aspects of Marine Pollution
GIPME	Global Investigation of Pollution in the Marine Environment
GLOBEC*	Global Ocean Ecosystem Dynamics
GOOS*	Global Ocean Observing System
IAMSLIC	International Association of Marine Science Libraries
IASC	International Arctic Science Committee
IATTC	Inter-American Tropical Tuna Commission
ICES*	International Council for the Exploration of the Sea
ICSU	International Council of Scientific Unions
IGBP*	International Geosphere-Biosphere Program
IGOSS	Integrated Global Ocean Services System
IMBER*	Integrated Marine Biogeochemistry and Ecosystems Research (former OCEANS)
IMO	International Maritime Organization
IOC*	Intergovernmental Oceanographic Commission
IODE	International Oceanographic Data and Information Exchange
IPCC*	Intergovernmental Panel on Climate Change
IPHC	International Pacific Halibut Commission
IWC	International Whaling Commission
NAFO	Northwest Atlantic Fisheries Organization
NANOOS-IOOS	Northwest Association of Networked Ocean Observing Systems – Integrated Ocean Observing System
NASCO	North Atlantic Salmon Conservation Organization
NEAR-GOOS*	North East Asian Regional GOOS
NOWPAP*	Northwest Pacific Action Plan
NPAFC*	North Pacific Anadromous Fish Commission
NPFM	North Pacific Fishery Management Council
NPRB*	North Pacific Research Board
PaCOOS*	Pacific Coast Observing System
PORSEC	Pacific Ocean Remote Sensing Conference
PSA	Pacific Science Association
PSC	Pacific Salmon Commission
PSG	Pacific Seabird Group
SAHFOS*	Sir Alister Hardy Foundation for Ocean Science
SCOPE	Scientific Committee on Problems of the Environment



SCOR*	Scientific Committee on Oceanic Research
SOLAS*	Surface Ocean Low Atmosphere Study
SPC	South Pacific Commission
SPREP	South Pacific Regional Environmental Program
START	South Asian Regional Committee for the System for Analysis, Research and Training
UNEP	United Nations Environment Program
WCRP	World Climate Research Program
WESTPAC*	Cooperative Study of the Western Pacific, IOC Sub Committee for the Western Pacific
WMO	World Meteorological Organization

## SB Endnote 8

### Theme for PICES XVI (Victoria, Canada, 2007)

#### “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”. This session 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.

## FISP Endnote 1

### Study Group on *Future integrative scientific program(s)* meeting participation list

#### Members

Harold P. Batchelder (CCCC/U.S.A.)  
 Michael G. Foreman (POC/Canada)  
 Yukimasa Ishida (FIS/Japan)  
 Kuh Kim (SB/Korea)  
 Suam Kim (CCCC/Korea)  
 Serge Labonté (acting for Dr. Jake Rice, Canada)  
 David L. Mackas (acting SGFISP member for Michael J. Dagg (BIO/U.S.A.))  
 Jeffrey M. Napp (MONITOR/U.S.A.)  
 Fangli Qiao (SB/China)

Hiroaki Saito (Japan)  
 John E. Stein (MEQ/U.S.A.)  
 Igor I. Shevchenko (TCODE/Russia)

#### Observers

George W. Boehlert (GC/U.S.A.)  
 Stewart (Skip) M. McKinnell (Deputy Executive Secretary, PICES)  
 William Peterson (CCCC/U.S.A.)  
 Samuel Pooley (GC/U.S.A.)  
 Rosalie Rutka (PICES Administrative Assistant)

