

REPORT OF GOVERNING COUNCIL



The Governing Council met from 9:00–18:30 hours on November 4, 2007 and from 9:00–14:30 hours on November 5, under the chairmanship of Dr. Tokio Wada. All Contracting Parties were represented at the meeting (*GC Endnote 1*). At the first session, the Chairman welcomed attendees, introduced the agenda and suggested the order in which to take up the various items. The agenda was adopted as presented (*GC Endnote 2*). This report summarizes the treatment of each agenda item during the course of the two sessions.

Report on Administration (Agenda Item 3)

The Executive Secretary summarized the activities of the Organization since PICES XV. Council reviewed and adopted the report (*GC Endnote 3*).

During the discussion, Japan brought up the issue of the name for the body of water surrounded by the Japanese Archipelago, coastal region of Russia, and the Korean Peninsula, which is currently in dispute between the countries concerned. Japan's position is that the only name "Sea of Japan" or "Japan Sea" should be used in the international arena, as this name is historically and geographically established (*GC Endnote 4*). Korea responded that their position is that the names "East Sea" and "Japan Sea (Sea of Japan)" should be used simultaneously, until a final resolution is agreed upon between the relevant countries (*GC Endnote 4*). The Chairman thanked both delegates for expressing their views and pointed out that PICES understands the different positions of both countries, but the Organization is in no position to make any judgment on this issue.

Report of 2007 Governing Council inter-sessional meeting (Agenda Item 4)

The practice of holding inter-sessional meetings of Science Board and Governing Council is only

5 years old, but it has already become an integral part of PICES management providing an essential opportunity for mid-term reviews of scientific activities and in-depth discussions on administrative issues of the Organization.

At the invitation of the Japanese National Delegate, Dr. Hideki Nakano, three consecutive events were held in April 2007, in Yokohama, Japan, with co-sponsorship from the Fisheries Research Agency. The fifth inter-sessional Science Board/Governing Council meeting was convened on April 19, preceded on April 16–18 by a workshop to develop a Science Plan for a new integrative scientific program of PICES, FUTURE (Forecasting and Understanding Trends, Uncertainty and Responses of North Pacific Ecosystems), and followed by a Governing Council meeting in the morning of April 20. The report of the 2007 inter-sessional Science Board can be found elsewhere in this Annual Report. A summary report of the inter-sessional Council meeting is appended as *GC Endnote 5*. An article entitled "*The 2007 inter-sessional Science Board and Governing Council meeting: A note from the Chairman*", that briefly summarizes the results from both meetings, was published by Dr. Wada and is in the latest issue of PICES Press (Vol. 15, No. 2).

Membership and observers from other countries (Agenda Item 5)

The Secretariat did not receive proposals from any country to accede to the PICES Convention.

The Chairman pointed out that expansion of involvement with PICES among Pacific Rim countries has been the subject of discussion in Council. Earlier, Council expressed a strong interest in encouraging Mexico to accede to the PICES Convention (an initial resolution was adopted at PICES VIII, Decision 99/A/5), and spent significant efforts in doing so. In 2005, Council also requested Dr. Vera Alexander,

former PICES Chairman, to make inquiries to four Pacific Rim countries that are currently affiliated members of ICES (Australia, Chile, New Zealand and Peru), to determine their interest in having a greater role in activities of PICES, or even joining membership if the Organization was at some point to expand its geographic scope (Decision 05/A/6). Details can be found in the 1999–2006 PICES Annual Reports.

Responses indicating an interest in taking up the dialogue were received from 3 leading scientific institutions: CSIRO Marine and Atmospheric Research (CSIRO, Australia), National Institute of Water and Atmospheric Research (NIWA, New Zealand) and Instituto del Mar del Perú (IMARPE, Peru). Observers from the two institutions, Drs. John Gunn (Deputy Chief, CSIRO) and Julie Hall (Biological Oceanography Program Leader, NIWA), attended PICES XV (October 2006, Yokohama, Japan) and gave presentations on the structure and activities of their organizations and potential areas for their cooperation with PICES at the first session of Council on October 17, 2006. IMARPE was unable to send an observer to this meeting, but an invitation was extended to PICES to visit IMARPE to inform scientists and authorities about activities of the Organization, and to discuss how PICES and IMARPE can work together in the future. This invitation was accepted by Council.

The Executive Secretary reported on contacts and activities that took place after PICES XV.

Mexico

Ways are being explored to use the Mexican Fisheries Society as a base to greater cooperation and interaction between marine scientists in Mexico and PICES. Dr. Salvador E. Lluch-Cota, President of the Mexican Fisheries Society and Mexican Chapter of the American Fisheries Society, became the main contact in this regard. After adopting its formal constitution in 2006, these two organizations held their first biannual meeting from May 2–4, 2007, in La Paz. The meeting provided an opportunity for PICES to inform Mexican scientists on the latest

developments within the Organization and to better understand their main interests. In a plenary talk given at the Opening Session, Dr. John E. Stein (PICES Science Board Chairman-elect) described the structure and general activities of the Organization, and highlighted the development of a new PICES integrative scientific program, FUTURE. In addition, a display of PICES publications was organized during this meeting. After the meeting all publications were donated to the library of CIBNOR (Centro de Investigaciones Biológicas del Noroeste). PICES also co-sponsored a 3-day training workshop on “*Techniques for building multi-trophic level marine ecosystem models, with special emphasis on NEMURO and NEMURO.FISH*” for Ph.D.-level Mexican scientists, held in conjunction with the meeting. The next biannual meeting of the Mexican Fisheries Society will take place in Ensenada in 2009, where strong participation of PICES scientists is anticipated. Five Mexican scientists attended PICES XVI.

Australia

An invitation was extended to CSIRO to be present as an observer to PICES XVI. Responses from Dr. David Smith (Acting Deputy Chief) and Dr. John Keesing (Senior Principal Research Scientist) indicated that CSIRO was unable to send a formal representative this time, but they are very keen to participate in the next PICES Annual Meeting to be held in October 2008, in Dalian, China. Three CSIRO scientists (experts on ecosystem-based management) attended PICES XVI.

New Zealand

An invitation was extended to NIWA to be present as an observer at PICES XVI. Dr. Julie Hall served again as their representative. Two more scientists from New Zealand (1 from NIWA and 1 from University of Otago) attended the meeting.

Peru

Dr. R. Ian Perry, PICES member of the Scientific Steering Committee for the conference

on “*The Humboldt Current system: Climate, ocean dynamics, ecosystem processes and fisheries*” hosted by IMARPE in Lima, in November 2006, met with Rear-Admiral Hector Soldi-Soldi (Chairman of the Board of IMARPE) and Dr. Renato Guevara-Carrasco (Scientific Director of IMARPE) to discuss potential areas and means for collaboration. It was noted in this discussion that IMARPE is not an academic institution, but focuses on providing advice to the government. Obvious topics of cross-interest with PICES include ecosystem-based approaches. Of particular interest to IMARPE is building scientific capacity and graduate training. An invitation was extended to IMARPE to be present as an observer at PICES XVI.

The Executive Secretary had a meeting with Rear-Admiral Soldi-Soldi and Dr. Guevara-Carrasco during the 2nd Global Conference on *Large Marine Ecosystems* (September 2007, Qingdao, China) to discuss the structure, procedures and activities of PICES and the latest developments within the Organization. At this meeting, Rear-Admiral Soldi-Soldi pointed out that the Board of IMARPE had expressed strong interest in working jointly with PICES on common research issues and sending an observer to PICES XVI. Dr. Francisco Chavez, member of the Board of IMARPE, attended the meeting as their representative and gave a presentation on the structure and activities of IMARPE and potential areas for cooperation with PICES at the first session of Council on November 4.

All observers and contact points requested to be informed on actions decided by PICES on an affiliated member status (see Agenda Item 6).

Report of the Study Group on *Scientific Cooperation between PICES and Non-member Countries* (Agenda Item 6)

At PICES XV, a Study Group on *Scientific Cooperation between PICES and Non-member Countries* (SG-SC) was established, under the direction of Council, to explore options on how scientific cooperation with other (non-member) countries could be best achieved (Decision

06/A/6). A draft SG-SC report was presented by its Chairman, Dr. Laura Richards, at the 2007 inter-sessional Science Board/Governing Council meeting, and a final report was given at the first session of Council. The report was adopted by Council (Decision 07/A/4), and is included elsewhere in this Annual Report.

The Study Group was unanimously negative to the idea of amending the PICES Convention to expand the “area concerned”. However, recognizing the scientific necessity and advantages of cooperating with non-member countries, SG-SC suggested that an affiliate member status be established by PICES, similar to the arrangement implemented some time ago by ICES. Following a request by Council at the 2007 inter-sessional meeting, a draft *Affiliate Member Policy* was developed and presented by Dr. Richards (*GC Endnote 6*). It was noted that if this document is approved, the *PICES Financial Regulations* would need to be amended to reflect financial obligations imposed with the granting of an affiliate status. The *PICES Rules of Procedure* would also need to be amended to allow scientists from affiliate organizations/institutes to participate as members of the Scientific and Technical Committees, Scientific Program and all temporary expert groups in addition to the existing provision for Advisory Panels. The specific privileges of participation would need to be resolved for each type of group, depending on the needs of the Organization. For Study Groups, the *Rules of Procedure* would also need to be amended to allow for Co-Chairman positions.

The proposed *Affiliate Member Policy* was reviewed, and major concerns expressed by Contracting Parties were: (1) policy and procedure for selecting an affiliate member, and (2) influence of the affiliate status system on the current practices of PICES. Council was unable to reach consensus on adoption of the document and agreed to further discuss this issue at next year’s Annual Meeting. Each Contracting Party was requested to send their comments on the draft policy to the Executive Secretary. If possible, the recommended changes will be embedded in the document, and the new draft will be circulated to Council prior to PICES XVII.

Relations with relevant organizations and programs (Agenda Item 7)

sent to organizations and programs on the agreed 2006–2007 *Standing List of International and Regional Organizations and Programs*, and the following sent their observers:

Letters of invitation to attend PICES XVI were

Asia-Pacific Economic Cooperation' WG on *Fisheries* (APEC-FWG)
Argo International Program
Bering Ecosystem Study (BEST)
Climate Variability and Predictability Program (CLIVAR)
Ecosystem Study of Sub-Arctic Seas (ESSAS)
Global Carbon Project (GCP)
Global Ocean Ecosystem Dynamics (GLOBEC)
Global Ocean Observing System (GOOS)
Integrated Marine Biogeochemistry and Ecosystem Research (IMBER)
Inter-American Tropical Tuna Commission (IATTC)
Intergovernmental Oceanographic Commission (IOC)
International Arctic Science Committee (IASC)
International Association of Marine Science Libraries (IAMSLIC)

International Council for the Exploration of the Sea (ICES)

International Ocean Carbon Coordinated Project (IOCCP)
International Pacific Halibut Commission (IPHC)

International Whaling Commission (IWC)
North Pacific Anadromous Fish Commission (NPAFC)

North Pacific Research Board (NPRB)

Northwest Association of Networked Ocean Observing Systems (NANOOS)
Pacific Coast Observing System (PaCOOS)
Scientific Committee on Oceanic Research (SCOR)
Surface Ocean Low Atmosphere Study (SOLAS)
IOC Sub-Commission for the Western Pacific (WESTPAC)
World Climate Research Programme (WCRP)
Western Pacific Fishery Management Council (WPFMC)

Mr. Robert Day
Dr. Howard J. Freeland
Dr. George L. Hunt, Jr.
Dr. William R. Crawford
Dr. Kenneth Drinkwater
Dr. Christopher L. Sabine
Dr. Francisco E. Werner
Dr. Henrik Enevoldsen
Dr. Julie Hall
Dr. Richard Deriso
Dr. Henrik Enevoldsen
Dr. Martin Bergmann
Mr. Brian Voss
Ms. Janet Webster
Dr. Gerd Hubold
Dr. Adolf Kellermann
Dr. Maria Hood
Dr. Steven Hare
Dr. Bruce Leaman
Dr. Hidehiro Kato
Dr. James Irvine
Dr. Shigehiko Urawa
Dr. Clarence Pautzke
Dr. Francis Wiese
Ms. Carrie Eischens
Dr. Jack Barth
Dr. Usha Varanasi
Dr. Bjørn Sundby
Dr. Shigenobu Takeda
Mr. Wenxi Zhu
Dr. William R. Crawford
Ms. Marcia Hamilton

The Executive Secretary provided a report on communication with the relevant international and national organizations and programs since last year's Annual Meeting (see *GC Endnote 3* for details). He also pointed out that this year:

- Drs. Francisco Werner (Chairman of GLOBEC SSC), Adolf Kellermann (Head of ICES Science Programme) and Bjørn Sundby (President of SCOR) were invited to attend the Science Board meeting (October 28) to discuss cooperation between their respective programs/organizations and PICES.

- Representatives of several others programs and organizations (APEC-FWG, Argo, BEST, CLIVAR, ESSAS, IMBER, IOC, IASC, IOCCP, IPHC, IWC, NANOOS, NPAFC, NPRB, PaCOOS and SOLAS) participated in the meetings of PICES Standing Committees or their subsidiary bodies and expressed their views on potential areas of collaboration with PICES.
- Some programs and organizations (Argo, BEST, ESSAS, IMBER, IPHC, NANOOS, NPAFC, NPRB, PaCOOS, SOLAS, WESTPAC and WPFMC) had posters on

display outlining general information about these programs and organizations and highlighting their scientific objectives and recent activities.

- Representatives of IAMSLIC gave a brief presentation at the F&A Committee meeting (October 31) on findings and recommendations from the review of the PICES Publication Program, with a focus on the option of a transition to electronic publishing.

At the first session of Council on November 4, time was reserved for Dr. Gerd Hubold (General Secretary of ICES) to address Council on the most recent developments concerning the ICES reforms and potential areas of collaboration between ICES and PICES. Among other issues, he strongly supported the idea of a joint ICES-PICES Annual Meeting, with shared science activities and separate business meetings (see also Agenda Item 11). His presentation was well received and raised many questions on similarities and differences in operations of the two Organizations. The Chairman thanked Dr. Hubold for attending and communicating his thoughts, and assured him that PICES will continue expanding its relationships with ICES, and that all proposals will be carefully considered by relevant Committees and Science Board.

At PICES XIV, Council pointed out the importance of establishing relations with the Asia Pacific Economic Cooperation (APEC), and suggested that potential areas of cooperation with APEC Working Groups on *Fisheries* (APEC-FWG) and *Marine Resources Conservation* (APEC-MRC) be developed. This year, APEC-FWC accepted an invitation and sent an observer to PICES XVI, who addressed the Fishery Science Committee.

Council reviewed the progress made in the integration and coordination of PICES activities with other international and national scientific organizations/programs of regional and global scale, and approved the revised *Standing List* (Decision 07/S/9) and agreed with identified priorities for interaction in 2007–2008, as recommended by Science Board.

Next integrative scientific program of PICES (Agenda Item 8)

Dr. John Stein (Science Board Chairman-elect) reported on the progress made in the development of a new PICES integrative scientific program, **FUTURE (Forecasting and Understanding Trends, Uncertainty and Responses of North Pacific Marine Ecosystems)**.

In November 2006, a work plan with associated timelines was prepared, taking into consideration the U.S. comments on the planning of FUTURE submitted in writing after PICES XV (*GC Endnote 5* in 2007 PICES Annual Report). According to the work plan, approved by Council in December 2006, the following steps in moving forward were made:

- A Writing Team (SP-WT) was established in January 2007, through Council approval process, with the responsibility of drafting the Science Plan for FUTURE. This Team includes 14 scientists representing all Contracting Parties.
- SP-WT held its first 2-day meeting on February 16–17, 2007, in Seattle (U.S.A.), to discuss the basic structure and key questions of the Science Plan. The meeting was attended by 11 of 14 members and several invitees.
- A 3-day workshop was held April 16–18, 2007, in Yokohama, Japan, in conjunction with the inter-sessional Science Board meeting, to: (1) review the goals, objectives, organization and key elements of the Science Plan for FUTURE; (2) define and prioritize the key questions to be answered; and (3) determine strategic approaches to answering the questions. At the workshop, consensus was reached on a set of key questions, an overall outline for the Science Plan was developed, and the next steps to complete a full draft of the Science Plan were identified. Participation by Science Board and Council members contributed greatly to the success of the workshop.
- A subset of SP-WT (those who were not on cruises or otherwise engaged) met from June 19–20, 2007, again in Seattle, to begin

developing a full draft of the Science Plan. The June version of the Science Plan was sent to all SP-WT members and then was revised according to their comments.

- The draft Science Plan was circulated to Council, Science Board, F&A Committee, SG-FISP and SP-WT on September 20 and was made available on the PICES website on October 1, for review and comments. All Committee Chairmen were requested to circulate the draft Science Plan to members of their Committees and relevant subsidiary groups to ensure comments and productive discussion at their Committee meetings during PICES XVI.
- Two special events to review the draft Science Plan for FUTURE were held at PICES XVI: an Open Forum on November 1 and a FISP workshop on November 3.

The Science Plan for FUTURE, revised based on comments received at these two gatherings, was approved in principle by Council (Decision 07/S/1), subject to minor modifications to be completed by the end of 2007. The final version is included as *GC Appendix C* and also posted on the PICES website.

Council endorsed both activities proposed by Science Board for 2008:

- A 2-day workshop to develop an Implementation Plan for FUTURE to be held in April 2008, in conjunction with an inter-sessional Science Board meeting; and
- A 1-day Science Board Symposium on “*Beyond observations to achieving understanding and forecasting in a changing North Pacific: Forward to the FUTURE*”, with most oral presentations invited, to be convened at PICES XVII.

At the recommendation of the F&A Committee, Council approved that \$40,000 from the encumbered funds designated for high-priority projects be earmarked for FUTURE (Decision 07/A/3(v)).

Capacity building activities (Agenda Item 9)

PICES’ strategy for capacity building was approved in 2003, and is available on the PICES

website at http://www.pices.int/about/capacity_strategy.pdf. At the 2005 inter-sessional Science Board/Governing Council meeting (April 2006, Seattle, U.S.A.), the following capacity building initiatives were identified as the most important:

- 2007 ICES/PICES Early Career Scientists Conference;
- PICES summer schools on marine sciences;
- travel support for early career scientists to attend PICES Annual Meetings;
- workshops on ecological modeling;
- international student exchange;
- PICES Intern Program.

2007 ICES/PICES Conference for Early Career Scientists (ECS)

The ICES/PICES “*New frontiers in marine science*” conference for early career scientists (ECS) was held from June 26–29, 2007, near Baltimore, Maryland, U.S.A. The objective of the conference was to encourage new scientists to share knowledge and to begin to build networks across disciplines and international borders. The conference featured six theme sessions, and a total of 65 talks and 33 posters were presented by nearly 100 scientists from 20 nations. A brief summary of the conference was published in PICES Press (July 2007, Vol. 15, No. 2, 2007). A detailed report is included elsewhere in this Annual Report. Council concluded that the conference was a resounding success and that the most immediate and long-lasting benefit for most participants was the development of personal and institutional contacts that will persist for decades.

ICES provided US \$90,000 for the conference to cover the venue and local arrangements. PICES’ direct expenses were about \$74,000 to cover the contract for local organization of the conference, publication of the announcement, and travel costs for invited speakers and selected scientists. In addition, PICES’ in-kind contribution included: development of the conference website, compilation of the Book of Abstracts, and financial arrangements. Due to successful fund-raising (US \$15,000 from the North Pacific Research Board, US \$30,000 from the U.S. National Marine Fisheries Service, and US \$2,000 from the Korea Ocean Research &

Development Institute), only slightly above \$25,000 was used from the \$45,000 earmarked in PICES budget (from the encumbered funds designated for high-priority projects) for the conference.

PICES schools on marine sciences

The first PICES Summer School on “*Ocean circulation and ecosystem modeling*” (co-sponsored by the Seoul National University, the Korea Ocean Research & Development Institute, the Korean Ministry of Maritime Affairs and Fisheries, the National Fisheries Research and Development Institute, and the Brain Korea 21 (BK 21) Program of the Korean Ministry of Education and Human Resources) was held August 23–25, 2006, in Busan, Korea, in conjunction with the CREAMS/PICES workshop on “*Model-data inter-comparison for the Japan/East Sea*”. Thirty-seven students from 8 countries (including all six PICES member countries) attended the summer school: 1 from Canada, 1 from Chile, 2 from China, 2 from Indonesia, 10 from Japan, 13 from Korea, 4 from Russia, and 4 from U.S.A. The summary report of the school was published in PICES Press (January 2007, Vol. 15, No. 1).

Council supported a proposal submitted through the BIO Committee (*BIO Endnote 7*) to organize the second PICES Summer School on “*Biomass-based management and ecosystem approach*” to be held from August 23–26, 2008 (tentative dates), at Hokkaido University, in Hakodate, Japan. Potential co-sponsors include: the Japanese Society for the Promotion of Science, the Hokkaido University Sustainable Government Project and the Asia Pacific Network.

The third PICES Summer School on “*Recent methods of investigating red-tide organisms and controlling red tides*” has been planned for August 2009, in Busan, Korea. It is now possible that its theme will change to “*Satellite oceanography*” to be in line with a launch of a Korean satellite in 2009. The first PICES Winter School on “*Field survey of sea ice area*” was originally proposed for late February or early March 2008, in Vladivostok, Russia, but it will

be postponed for 1 year to resolve funding and logistical problems.

Travel support for early career scientists

In 2007, about \$33,000 from the Trust Fund were spent to support participation of early career scientists from all PICES member countries in PICES XVI, the 4th Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*” (May 2007, Hiroshima, Japan) and the SOLAS Open Science Meeting (March 2007, Xiamen, China). Applications received for this support and their dispositions were reported at the F&A Committee meeting. The amount above includes about \$10,000 provided by SCOR, GLOBEC and the U.S. National Science Foundation (NSF) for PICES XVI. Council expressed their thanks to these organizations for their continuing support.

Workshops on ecological modeling

It was recommended that PICES partner with other organizations/programs to broaden applications of the NEMURO and NEMURO.FISH models developed by the MODEL Task Team. In 2007, the main endeavor in this direction was a 3-day training workshop on “*Techniques for building multi-trophic level marine ecosystem models, with special emphasis on NEMURO and NEMURO.FISH*” for Ph.D.-level Mexican scientists. The workshop was held April 26–28, 2007, in La Paz, Mexico, and was co-sponsored by the International Fisheries Section of the American Fisheries Society, the Mexican Chapter of the Western Division of the American Fisheries Society, and the U.S. National Marine Fisheries Service. Council commended these organizations and also Drs. Bernard A. Megrey (U.S.A.) and Salvador Lluch-Cota (Mexico), who coordinated the project, for their efforts.

International student exchanges

Even though there is a provision (clause iv(c)) in the *PICES Trust Fund Guidelines* that allows using the resources in the Fund to support visits

by scientists to laboratories for collaboration or training related to scientific projects sponsored by the Organization, the Secretariat did not receive any requests for support. Dr. George Boehlert re-iterated his earlier proposal that for international student exchange, PICES should explore the possibility of matching funds with the U.S. Office of International Science and Engineering at NSF. So far, no action has been taken in this direction.

PICES Intern Program

The PICES Intern Program was approved in 1999 (Decision 99/A/7) and commenced in 2000. The Intern Program assists in the professional development of marine scientists and managers from PICES Contracting Parties, and increases the capacity of the PICES Secretariat to support the work of the Organization. From May 2000–October 2007, 8 scientists from three countries (3 from China, 3 from Korea and 2 from Russia) have worked as interns at the PICES Secretariat. The description of the Intern Program and the guidelines for application and selection of interns are posted on the PICES website (<http://www.pices.int/projects/intern.aspx>).

Mr. Xuewu Guo (Yellow Sea Fisheries Research Institute, Chinese Academy of Fisheries Sciences) is the 2007 PICES intern. His term started on February 1, 2007. The Executive Secretary reported that because of the excellent performance of Mr. Guo and additional funding received for the Intern Program, his originally-offered 8-month term was extended to 12 months. Council endorsed this decision.

In July 2007, Mr. Key-Seok Choe (Project Management Team, Planning Department, KORDI) was nominated and consequently approved as the 2008 PICES intern. His term is expected to start on February 1, 2008. At the meeting of the F&A Committee, Korea announced a voluntary contribution of US \$10,000 to the Trust Fund in 2008. This will allow the originally-offered 8 months to be extended to 12 months, assuming good performance by the intern.

Given that Mr. Choe's term will continue until January 31, 2009, Council extended the deadline of nominations for the 2009 PICES internship until the Governing Council meeting at PICES XVII (Decision 07/A/6(ii)).

The Intern Program has been financed solely by voluntary contributions. The Executive Secretary reported that in 2007, the U.S. National Marine Fisheries Service (NMFS) and Fisheries and Oceans Canada (DFO) contributed \$14,500 and \$10,000, respectively, to the Trust Fund for the Program. It was indicated that NMFS and DFO have been the most generous partners for this activity to date, providing for the period from 2000–2007 approximately \$135,000 and \$71,500, respectively, for the Program. Council thanked both organizations and KORDI for their support of the Intern Program, and instructed the Executive Secretary to invite all Contracting Parties to make voluntary contributions to maintain the Program in 2008 and beyond (Decision 07/A/6(i)).

Council confirmed that the stipend should be kept at the current level of \$2,000 per month. The nominating Contracting Party could consider supplementing this modest stipend, depending on the intern's personal circumstances (Decision 07/A/6(iii)).

Improvement of participation in PICES activities (Agenda Item 10)

The discussion focused again on two following unresolved issues:

- *Inter-agency coordination:* Within Contracting Parties, different agencies have the principal responsibility for interaction with PICES. The lead agencies often do not represent the interest of other agencies or coordinate PICES interactions with them. In fact, few countries have an effective inter-agency coordination mechanism. The problem of inter-agency cooperation and coordination is one that must be faced at the national level, and PICES can only urge that it be recognized and solved at that level (Decision 96/S/6). The formation of a national committee to enhance and coordinate involvement of scientists in

PICES activities, as recommended by the PICES Review Committee, might be the appropriate solution.

- *Appointed scientists:* The main activities of permanent Committees and temporary expert groups take place at meetings, especially during PICES Annual Meetings. While it is obviously important for appointed scientists to attend such meetings, and *Rule 1(iii)* of the PICES Rules of Procedure explicitly states that “*each Contracting Party shall bear the expenses of its own Delegation to all meetings authorized by the Council, held pursuant to this Convention*”, Contracting Parties often fail to support the attendance of their appointed members at Annual Meetings. The work of Committees and expert groups is thereby seriously impaired. The funding problem is not disconnected from the inter-agency problem. It is easier to support appointed members, if the costs of participation can be shared among interested agencies.

The Executive Secretary reported on the implementation of Council’s decisions to target improving the participation of scientists from Contracting Parties in the activities of the Standing Committees and their subsidiary bodies and presented background graphic material for the last 6 years (2002–2007) to better assess problems existing in various countries. Council requested that this information be circulated to Contracting Parties and updated prior to PICES XVII.

National membership lists

The Secretariat is updating membership lists on the PICES website as frequently as new information is provided by National Delegates (<http://www.pices.int/members/default.aspx>). Following Decisions 03/S/7(ii) and 04/S/7(ii), national membership lists have also been included as Appendices in the Annual Reports since 2003. This practice will continue to maintain a historical record of PICES membership, and to assist in improving participation in the activities of the Organization.

National membership review

National Delegates were requested to regularly review their national membership and make changes as appropriate (Decisions 03/S/7(ii) and 04/S/7(ii)). Nevertheless, all Contracting Parties have Committee or expert group members who never, or rarely, attend PICES Annual Meetings. The problem is most serious with the People’s Republic of China.

Review of temporary expert groups

At the request of Council (Decision 04/S/7(i)), Science Board performed a review of the temporary expert groups (Working Groups, Study Groups, Task Teams, Advisory Panels) established since the inception of the Organization. This evaluation was undertaken to get an idea of whether or not the current approach of the formation and financing of these groups is working. An assessment report prepared by Dr. Michael G. Foreman (POC Chairman) is included in this Annual Report.

PICES Handbook and Guidelines for Chairmen and Convenors

Council requested that relevant information be provided to National Delegates by the Secretariat to be used when selecting members for PICES Committees and temporary expert groups, and clarifying their responsibilities at the time of their appointment (Decision 03/S/7(iii)). The second edition of the PICES Handbook published and circulated in 2006 serves the purpose. This publication includes all basic documents regulating the functioning of the Organization, such as the PICES Convention, the Headquarters Agreement between PICES and the Government of Canada, the revised PICES Rules of Procedure, Financial Regulations and Trust Fund Guidelines, the PICES Strategic Plan, and the historical list of PICES officers. These documents can be also found at <http://www.pices.int/about/default.aspx>. National Delegates are encouraged to use the materials from the PICES Handbook as a guide when appointing members to various PICES Committees and expert groups.

The F&A Committee recommended approval of the document tentatively titled “*Roles and responsibilities of Chairmen and members of PICES groups*”, which is based on the revised *Guidelines for Chairmen and Convenors* (developed in 1999 and amended in 2001) and incorporates the most important elements of Dr. Foreman’s analysis – a summary of the conditions that make for productive and successful temporary groups. This document cannot be finalized until after the FUTURE Implementation Plan is completed, but could provide useful guidance over the next 1–2 years. Its publication on the PICES website was recommended.

Schedule and financing of future Annual Meetings (Agenda Item 11)

At the 2006 inter-sessional meeting (April 2006, Honolulu, U.S.A.), Council approved the proposal of China to host the PICES Seventeenth Annual Meeting in 2008, in Dalian, with the National Marine Environmental Monitoring Center (NMEMC) of the State Oceanic Administration (SOA) as the local organizer (Decision 06/A/7(ii)). PICES XVII will be held from October 23–November 2, 2008, under the theme “*Beyond observations to achieving understanding and forecasting in a changing North Pacific: Forward to the FUTURE*”. The description of the theme was developed by Science Board at PICES XVI and can be found in *SB Endnote 4*. Brief information on the status of preparations for the meeting was provided by the Chinese delegation and by the Executive Secretary, who visited Dalian in early September 2007. At the recommendation of the F&A Committee, Council agreed to provide \$40,000 to China to partially cover costs for the meeting (Decision 07/A/5(i)).

At the 2007 inter-sessional meeting (April 2007, Yokohama, Japan), Council accepted an invitation from Korea to host the PICES Eighteenth Annual Meeting in 2009. Council approved holding the meeting from October 23–November 1, 2009, in Busan, with the National Fisheries Research and Development Institute (NFRDI) as the local organizer (Decision

07/A/5(ii)). The proposed theme of the meeting, “*Understanding ecosystem dynamics, pursuing ecosystem approaches to management*”, was supported in principle, and the description of the theme will be finalized by Science Board at PICES XVII. Brief information on the status of preparations for the meeting was provided by the Korean delegation.

In keeping with the six-year rotation cycle (Decision 94/A/6), the United States of America was requested to consider the possibility of holding the PICES Nineteenth Annual Meeting in 2010. The U.S. delegation confirmed their willingness to host PICES XIX, and this invitation was accepted by Council (Decision 07/A/5(iii)). Interest was indicated in exploring the opportunity of a joint ICES-PICES Annual Meeting, with shared science activities and separate business meetings (Decision 07/A/5(iii)). This idea was strongly supported by Dr. Gerd Hubold (ICES General Secretary) who attended the meeting by the invitation of Council.

During the presentation of the Science Board report (Agenda Item 12), Dr. Stein pointed out that with the current structure of PICES Annual Meetings, Chairmen of Standing Committees do not have enough time to properly summarize proposals from their subsidiary bodies, and Science Board does not have enough time to review recommendations from the Committees and prepare a detailed report for Council. He suggested that some guidance is needed on what Council would like to see in the report, how it should be presented, and what are the criteria that Science Board should use to evaluate and rank proposals. It was agreed that an improved structure for communication from Science Board to Council should be developed. The PICES Chairman will work with the Science Board Chairman, the F&A Chairman and the Secretariat to prepare a proposal for discussion at the next Annual Meeting.

Council confirmed that the practice of charging a registration fee for future PICES Annual Meetings should continue, and accepted the same registration fee structure for 2008 as was maintained for 2004–2007 (Decision 07/A/5(iv)). It was noted that the proposal of introducing a

1-day registration fee and not charging a registration fee for invited observers was not supported by the F&A Committee. Fees will be collected by the Secretariat and credited to the Working Capital Fund to support high priority projects and the Intern Program, and to cover costs associated with Annual Meetings. The allocation among these three purposes should be flexible and decided by the Executive Secretary (Decision 04/A/5(iv)).

Council re-iterated its support for the concept of inter-sessional Science Board meetings with the participation of Council members, but stressed again that the need for such a meeting should be evaluated each year and that, given meeting costs (including time commitment of the members), an inter-sessional meeting should be held only if the agenda is substantive. Council thanked the Fisheries Research Agency of Japan for co-sponsoring the 2007 inter-sessional Science Board and Governing Council meetings.

Council approved an inter-sessional Science Board meeting to be held in conjunction with a workshop to develop an Implementation Plan for the new integrative scientific program of PICES, FUTURE, and accepted an offer from the United States to host both events in Seattle, in April 2008. Holding an inter-sessional Council meeting in 2008 was not supported (Decision 07/A/5(v)).

Report of Science Board (Agenda Item 12)

The Science Board met under the chairmanship of Dr. Kuh Kim. Dr. Kim and Stein attended the second session of Council on November 5 and presented the report to Council. Dr. Stein also summarized the outcome of the November FISP workshop, and recommendations on next steps in the development of FUTURE. The report was approved by Council, and is included elsewhere in this Annual Report. Some details are given in *GC Appendices A–D*.

In the presentation, a special emphasis was placed on the development of the next version of the North Pacific Ecosystem Status Report (NPESR). The final report of the Study Group on *Ecosystem Status Reporting* (SG-ESR) was

presented to Science Board at PICES XVI and is included elsewhere in this Annual Report. Science Board unanimously endorsed proceeding with the “incremental” improvement” version (Option 2) which builds on the experiences of the pilot report published in 2004. The timeline for completion of the next report is anticipated to be 2 years after initiation, and the estimated budget is about \$250,000. To facilitate better comparisons among regions and a more comprehensive synthesis, greater top-down control of the report was suggested. Dr. Skip McKinnell was endorsed by Science Board to lead the preparation and publication of the NPESR.

The Executive Secretary reminded that at the recommendation of the F&A Committee, Council approved that approximately \$103,000 from the encumbered funds designated for high-priority PICES projects be earmarked for the preparation of NPESR (Decision 07/A/3(v)). With an unused part of the first allotment (~\$22,900) of the NPRB grant received in 2005, the second allotment (\$53,100) of this grant and a voluntary contribution of US\$40,000 offered by Korea, both to be provided in 2008, the amount of accumulated funds (~\$219,000) is sufficient to start the project. At the same time, he noted that Dr. McKinnell could take on the responsibility as the leader of the project only after some adjustment to his present duties within the PICES Secretariat.

After intensive discussion, Council approved in principle the “incremental” improvement” approach to the development of the next NPESR and agreed to discuss this issue again at PICES XVII when a more detail workplan for the project is prepared.

At the 2007 inter-sessional meeting, Council approved the establishment of the PICES Ocean Monitoring Service Award (POMA) to recognize organizations, groups or individuals that have contributed significantly to the advancement of marine science in the North Pacific through long-term monitoring and/or management of data associated with ocean conditions and marine bio-resources (Decision 07/A/9). Council endorsed the description of (POMA) developed by Science Board at PICES XVI (*GC*

Appendix D). The first award will be given at the 2008 PICES Annual Meeting in Dalian, China.

Report of F&A Committee (Agenda Item 13)

The Finance and Administration Committee (F&A) met under the chairmanship of Dr. Laura Richards, who presented the report to Council on November 4. The report was approved by Council, and is included elsewhere in this Annual Report. Details are given in *GC Appendix A* (Decisions 07/A/1–07/A/6).

13.1 Audited accounts for fiscal year 2006

At the recommendation of F&A, Council accepted the audited accounts of *FY 2006* (*F&A Endnote 3*, Decision 07/A/1).

13.2 Annual contributions

Council reviewed the payment schedule of annual fees to the Organization (*F&A Endnote 4*), and noted that all Contracting Parties met their financial obligations for *FY 2007*. Even though only the Japanese contribution arrived prior to the due date (January 1, 2007), the timeliness of payment from other Contracting Parties is either stable or improved. By April 2007, annual contributions were received from five of six Contracting Parties. China's progress is notable, with the time of the payment moved from the fourth or late third quarter in 2000–2005 to early July in 2007.

Council instructed the Executive Secretary to send a letter to Contracting Parties commending them for their performance in submitting annual contributions for 2007, and describing the difficulties that late and partial payment causes the Organization (Decision 07/A/2(i)).

Council re-iterated that for the planning of their funding requests for annual contributions, Contracting Parties should continue to use the guideline generally accepted at PICES VIII (Decision 99/A/2(ii)), which states that “*the annual contributions will increase at the rate of inflation in Canada*” (Decision 07/A/2(ii)).

13.3 Fund-raising activities

As current funding constraints from an increase in annual contributions only at the rate of inflation in Canada can impede improvement and development of the Organization, fund-raising continues to be an important component of PICES activities. External funding and voluntary contributions received for the period since PICES XV for various activities of the Organization are reflected in *GC Endnote 3* and *F&A Endnote 5*. It was pointed out that the level of external funding for PICES activities has increased significantly over the last several years, and from 2004–2007, the amount of funds from voluntary contributions, grants and partnerships was about 30–50% of the total annual contribution by Contracting Parties. Most of the funding offers have specific product and service requirements and put additional burden on the Secretariat, the size and structure of which have remained unchanged since 1995. In order to help manage the extra workload and offset extra expenses of the Secretariat, an overhead is now being charged to some projects (where appropriate). The overhead funds can be used, if necessary, to hire contract help.

13.4 Budget

Estimated accounts for fiscal year 2007

The estimated accounts for *FY 2007* were reviewed by the F&A Committee and approved by Council (Decision 07/A/3(i)).

Relocation and Home Leave Fund

The status of the Relocation and Home Leave Fund was reviewed. At the end of *FY 2007*, the RHLF is estimated at less than \$2,000 below the currently required amount of \$110,000. At the recommendation of F&A, Council approved that the level of the Relocation and Home Leave Fund be allowed to vary between \$90,000 and \$110,000 to minimize the need for small transfers between funds (Decision 07/A/3(iii)).

Trust Fund

In *FY 2007*, more than \$60,000 from the Trust

Fund was used to finance the Intern Program, and to support participation of young scientists from all Contracting Parties and scientists from countries with “economies in transition” to scientific meetings organized and co-sponsored by PICES. These expenditures were only partly compensated for by interest earned by the Fund, the voluntary contributions for the Intern Program, and travel grants from SCOR. Council approved a transfer from the Working Capital Fund to the Trust Fund to recover the 2007 expenses, and to restore the Trust Fund to the level of \$110,000 by the end of the fiscal year (Decision 07/A/3(iv)).

Following the revised guidelines for operating the Trust Fund adopted last year (Decision 06/A/4(i)), the Executive Secretary provided a detail report on applications received for support from the Trust Fund and their disposition.

Working Capital Fund

After inter-fund transfers approved by Council (Decisions 07/A/3(ii) and 07/A/3(iv)), the amount of funds available in the Working Capital Fund is estimated at about \$290,660. This includes \$182,449 in encumbered funds held for special and high-priority PICES projects with completion in 2008–2010, and \$108,211 in “operating” funds. [Additional income and external funding for the period since PICES XVI brought the total amount of funds in the Working Capital Fund to the level of \$354,500 and the amount of encumbered funds to the level of \$215,500.]

Council decided that \$40,000 from the encumbered funds designated for high-priority PICES projects (about \$143,000) be earmarked for the development of FUTURE, and the remainder be earmarked for the North Pacific Ecosystem Status Report (Decision 07/A/3(v)).

Proposed budget for fiscal year 2008

Council approved the proposed *FY* 2008 budget of \$762,000 (*F&A Endnote 7*). The amount of \$96,000 will be transferred from the Working Capital Fund to balance the budget, setting the

total annual contribution at \$666,000, and the 2008 annual fee at \$111,000 per Contracting Party (Decision 07/A/3(ii)).

Forecast budget for fiscal year 2009

The *FY* 2009 forecast budget of \$778,000 was examined by the F&A Committee and presented to Council for information only. It was pointed out though that if the inflation rate in Canada stays near 2.5%, then the 2009 annual fee should be set at the level of \$113,800 per Contracting Party and a transfer of \$95,200 from the Working Capital Fund would be required to balance the budget. The *FY* 2009 budget will be further discussed at PICES XVII.

Executive Secretary position (Agenda Item 14)

Dr. Alexander Bychkov was appointed as the Executive Secretary of PICES for a 5-year term on June 1, 1999. In 2002, he was re-appointed for a second 5-year term, which started on June 1, 2004 and will expire on May 31, 2009. He has strongly supported the administration of PICES over the last more than ten years, including a 3-year term from May 1, 1996, to May 31, 1999, when he served as the Assistant Executive Secretary.

At the recommendation of the United States and in accordance with Financial Regulations 12(i), Council approved the establishment of an Executive Committee to complete an annual performance review of the Executive Secretary (Decision 07/A/7(i)). Terms of reference and membership of the Executive Committee are listed in *GC Appendix B*. It was also decided that at its first meeting, the Executive Committee will review achievements of the current Executive Secretary for the previous three years, in preparation for his possible re-appointment. As decision on re-appointment shall be made at least 12 months prior to the end of the term, Council agreed, in accordance with the Article VII of the Convention and Rule 4 of the Rules of Procedure, to vote on the results of the evaluation by correspondence before April 30, 2008 (Decision 07/A/7(ii)).

Deputy Executive Secretary position (Agenda Item 15)

Dr. Stewart (Skip) M. McKinnell was appointed as the Deputy (Assistant) Executive Secretary of PICES for a 3-year term on September 7, 1999. He was re-appointed in this position twice, and his third term of office will expire on September 6, 2008. Over eight years, Dr. McKinnell has been supporting the scientific activities of the Organization, with his distinguished ability in managing various scientific projects and publications of special issues of primary journals and valuable scientific reports (including the pilot North Pacific Ecosystem Status Report), as well as the preparation and operations of PICES Annual Meetings and conferences sponsored by PICES.

The Executive Secretary pointed out that Article VIII of the PICES Convention gives him the authority to appoint staff to the Secretariat and strongly argued to offer Dr. McKinnell another 3-year term to be started September 7, 2008. Council approved this recommendation (Decision 07/A/8).

Other business (Agenda Item 16)

- (a) Report on a project “*Development of the prevention systems for harmful organisms’ expansion in the Pacific Rim*” supported by the Japanese Trust Fund

At the 2007 inter-sessional Governing Council meeting, it was officially announced that the Ministry of Agriculture, Forestry and Fisheries (MAFF) of Japan, through the Fisheries Agency

(JFA), will provide a voluntary contribution to PICES for a project on “*Development of the prevention systems for harmful organisms’ expansion in the Pacific Rim*” (see *GC Endnote 5* for details). The Executive Secretary informed Council that the required set of documents was submitted to MAFF on June 20, 2007, and the amount of \$184,980 was transferred to PICES on July 26. He provided a brief report on activities within the project and the disposition of the fund for the period until October 31.

- (b) Study Group on *PICES Communications* (SG-COM)

Dr. Boehlert introduced a proposal to establish a Study Group on *PICES Communications* (SG-COM) under the direction of Council, and this proposal was approved (Decision 07/S/7(i)). Reasons for forming SG-COM are summarized in the Background section of the document appended as *GC Endnote 7*. The overall goal of the Study Group is to identify the target audiences for output from PICES activities and to propose mechanisms to communicate with them. The terms of reference for SG-COM are described in *GC Appendix B* and *GC Endnote 7*. A tentative schedule for the Study Group is also included in *GC Endnote 7*. Originally, two alternative schedules were suggested: an accelerated schedule with the final SG-COM report presented for approval at PICES XVII (Dalian, China) in October 2008, and a slower schedule with the final report submitted at PICES XVIII (Busan, Korea) in October 2009. At the recommendation of Canada, the slower schedule was adopted.

GC Endnote 1**Participation list**Canada

Serge Labonté
Laura Richards

Japan

Hideki Nakano (advisor)
Yuji Uozumi

People's Republic of China

Handi Guo (alternate delegate)
Yingren Li (advisor)
Shengzhi Sun (advisor)
Gongke Tan (advisor)
Dongmei Tang (alternate delegate)

Republic of Korea

Kyu-Kui Jung (advisor)
Jin-Yeong Kim (alternate delegate)
Kwang-Youl Park

Russia

Lev N. Bocharov
Oleg Katugin (advisor, November 4 only)
Igor Shevchenko (advisor, November 5 only)

U.S.A.

George W. Boehlert
Justin R. Grubich (advisor)
Patricia Livingston (advisor)
Samuel Pooley

Other

Vera Alexander (PICES Past-Chairman)
Alexander Bychkov (Executive Secretary)
Francisco Chavez (IMARPE, Peru, November 5 only)
Gerd Hubold (ICES General Secretary)
Kuh Kim (Science Board Chairman, November 5 only)
Skip McKinnell (Deputy Executive Secretary, November 5 only)
John E. Stein (Science Board Chairman-elect, November 5 only)
Tokio Wada (PICES Chairman)

GC Endnote 2**Governing Council meeting agenda**

1. Opening remarks
2. Adoption of agenda and meeting procedures
3. Report on administration
4. Report of 2007 inter-sessional Governing Council meeting
5. Membership and observers from other countries
6. Report of the Study Group on *Scientific Co-operation between PICES and Non-member Countries*
7. Relations with relevant international and regional organizations and programs
8. Next integrative scientific program of PICES
9. Capacity building activities
10. Improvement of participation in PICES activities
11. Schedule and financing of future Annual Meetings
12. Report and recommendations of Science Board
13. Report and recommendations of the Finance and Administration Committee
14. Executive Secretary position
15. Deputy Executive Secretary position
16. Other business
 - (a) Report on a project "*Development of the prevention systems for harmful organism's expansion in the Pacific Rim*" supported by the Japanese Trust Fund
 - (b) Proposal to form a Study Group on *PICES Communications*

GC Endnote 3

Report on Administration for 2007

I. Annual contributions

According to *Regulation 5* of the PICES Financial Regulations, all national contributions

to PICES are payable by the first day of the financial year (January 1) to which they relate. Dues for 2007 were paid as follows:

Japan-----	December 5, 2006
U.S.A. -----	January 10, 2007
Canada -----	January 23, 2007
Russian Federation -----	February 13, 2007
Republic of Korea -----	April 3, 2006
People's Republic of China -----	July 3, 2006

All Contracting Parties met their financial obligations for *FY* 2007. Even though only the Japanese contribution arrived prior to the due date, the timeliness of payment from other Contracting Parties is either stable or improved. China's progress is notable, with the time of the payment moved from the fourth or late third quarters in 2000–2005 to early July in 2007.

II. External and additional funding

Details on external funding and voluntary contributions received since PICES XV are included in *F&A Endnote 5*.

III. Inter-sessional meetings

Since PICES XV (October 2006), the following inter-sessional symposia/workshops/meetings were convened/sponsored, for which financial, travel and logistical arrangements were made:

- an International Conference on “*The Humboldt Current system: Climate, ocean dynamics, ecosystem processes and fisheries*” (co-sponsored by IMARPE, IRD, NASA, FAO, GLOBEC, ICES, PICES and IMBER), November 27–December 1, 2006, Lima, Peru;
- a 2-day meeting of the FISP Writing Team, February 16–17, 2007, Seattle, U.S.A.;
- a 2-day inter-sessional meeting of CREAMS-AP, April 11–12, Qingdao, China;
- a 3-day workshop to develop a Science Plan for a Future Integrative Scientific Program of PICES and an inter-sessional Science

Board/Governing Council meeting (co-sponsored by the Fisheries Research Agency of Japan), April 16–19, 2007, Yokohama, Japan;

- a 3-day training workshop on “*Techniques for building multi-trophic level marine ecosystem models, with special emphasis on NEMURO and NEMURO.FISH*” (co-sponsored by the American Fisheries Society, Mexican Fisheries Society, U.S. National Marine Fisheries Service and PICES), April 26–28, 2007, La Paz, Mexico;
- 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, La Paz, Mexico;
- a 3-day CFAME workshop on “*Linking climate-forcing mechanisms to indicators of species ecosystem-level changes: A comparative approach*”, May 21–23, 2007, Seattle, U.S.A.;
- a 5th International Conference on “*Marine bioinvasions*” (co-sponsored by ICES, PICES, the U.S. National Sea Grant College Program and the MIT Sea Grant College Program), May 21–24, 2007, Cambridge, U.S.A.;
- 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 and Other Ship Vectors*, May 25–26, 2007, in Cambridge, U.S.A.;
- a 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;
- 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, Hakodate, Japan;
 - an ICES/PICES Early Career Scientists Conference on “*New frontiers in marine science*”, June 26–29, 2007, Baltimore, U.S.A.;
 - a 2-day PICES/NPRB workshop on “*Forecasting climate impacts on future production of commercially exploited fish and shellfish*”, July 19–20, Seattle, 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, PICES and ICES), October 1–3, 2007, in Lisbon, Portugal.

The following workshops were convened in conjunction with PICES XVI in Victoria, Canada:

- a ½-day BIO (MIE-AP) workshop on “*Lessons learned during MIE-1 and MIE-2: Reconciling acoustics and trawl data*”;
- a 1-day FIS workshop on “*Methods for standardizing trawl surveys to ensure constant catchability*”;
- a 1-day FIS/MEQ workshop on “*Comparative analysis of frameworks to develop an ecosystem-based approach to management and research needed for implementation*”;
- a 1-day MEQ workshop on “*Review of selected harmful algae in the PICES region: III. Heterosigma akashiwo and other*

- harmful raphidophytes*”, preceded by a ½-day laboratory demonstration on *Heterosigma* cell and toxin detection;
- a ½-day MONITOR/BIO workshop on “*Measuring and monitoring primary productivity in the North Pacific*”;
- a 1½-day POC/CCCC workshop on “*Climate scenarios for ecosystem modeling*”;
- a ½-day FIS workshop on “*Forecasting climate impacts on future production of commercially exploited fish and shellfish*”, Phase II.

Preparations, arrangements or planning are in progress for:

- an International CLIOTOP Symposium on “*Climate impacts on oceanic top predators*” (co-sponsored by GLOBEC, IMBER, SCOR, PICES, EUR-OCEANS, NOAA, IRD, CLS, PFRP, CIBNOR and CICIMAR), December 3–7, 2007, La Paz, Mexico;
- an inter-sessional WG 21 meeting to evaluate the protocols and reach final agreement on standards, data elements and data entry templates for the MIS (Marine/Estuarine Invasive Species) Database for the PICES project on “*Development of the prevention systems for harmful organisms’ expansion in the Pacific Rim*”, late February or early March 2008, Seattle, U.S.A.;
- an International Symposium on “*Effects of climate change on the world’s oceans*” (co-sponsored by ICES, PICES, IOC, GLOBEC, SCOR, WCRP, DFO, NOAA, NASA), May 19–23, 2008, Gijón, Spain;
- an International Symposium on “*Coping with global change in marine social-ecological systems*” (co-sponsored by GLOBEC, EUR-OCEANS, FAO, IRD, SCOR, IMBER and PICES), July 8–11, 2008 in Rome, Italy;
- an International Symposium on “*Herring: Linking biology, ecology and status of populations in the context of changing environments*” (co-sponsored by ICES, PICES and GLOBEC), August 26–29, 2008, Galway, Ireland.

IV. Publications

Publications produced after PICES XV or still in progress include:

Primary journals

- Collection of papers on NEMURO and NEMURO.FISH in a special issue of *Ecological Modelling* on “*Modeling of North Pacific Marine Ecosystems*” (Guest Editors: M.J. Kishi, B.A. Megrey, S.-I. Ito and F.E. Werner) – published in March 2007, Vol. 202, Nos. 1-2;
- Selected papers from the Symposium on “*Time series of the Northeast Pacific: A symposium to mark the 50th anniversary of Line-P*” in a special issue of *Progress in Oceanography* (Guest Editors: M.A. Peña, S.J. Bograd and A. Bychkov) – published in November 2007, Vol. 75, No. 2;
- Selected papers from the GLOBEC/ESSAS Symposium in a special issue of *Deep-Sea Research II* on “*Climate variability and sub-arctic marine ecosystems*” (Guest Editors: G.L. Hunt, K. Drinkwater, S. McKinnell and D.L. Mackas) – expected to be published in December 2007, Vol. 54, Nos. 23-26.

Peer-review process is in progress for several special issues:

- Selected papers from the PICES XV Topic Session on “*The human dimension of jellyfish blooms*” in a special issue of *Plankton and Benthos Research* (Guest Editors: H. Iizumi and K. Ishii) – will be published in spring 2008;
- Selected papers from the Humboldt Current Ecosystem Conference in a special issue of *Progress in Oceanography* – expected to be published in 2008;
- Selected papers from the PICES/GLOBEC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*” in a special issue of *Progress in Oceanography* (Guest Editors: H. Batchelder and S. Kim) – expected to be published in 2008;
- Selected papers from the 2006 CREAMS/PICES Workshop on “*Model-data inter-comparison for the Japan/East Sea*” in a special issue of *Journal of Marine Systems* (Guest Editors: K.-I. Chang, C. Mooers, J.-H. Yoon and S.-I. Ito) – expected to be published in 2008;
- Selected papers from the 5th International Conference on “*Marine bioinvasions*” in a

special issue of *ICES Journal of Marine Science* (Guest Editors: J. Carlton and J. Pederson) – expected to be published in 2008;

- Selected papers from the 4th International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*” in a special issue of *ICES Journal of Marine Science* (Guest Editors: M. Dagg, R. Harris, L. Valdés and S.-I. Uye) – expected to be published in 2008;
- Selected papers on krill from the 4th International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*” in a special volume of *Deep-Sea Research II*, (Guest Editors: W. Peterson and S. Kawaguchi) – expected to be published in 2008;
- Selected papers from the ICES/PICES Early Career Scientists Conference on “*New frontiers in marine science*” as a section in a regular issue of *ICES Journal of Marine Science* (Guest Editors: F. Mueter, E. North) – expected to be published in 2008;
- Selected papers from the SEEDS-II experiment in a special issue of *Progress in Oceanography* or *Deep-Sea Research II* (Guest editors: A. Tsuda, M. Wells, M. Uematsu and H. Saito) – expected to be published in 2008.
- Selected papers from the International Symposium on “*Reproductive and recruitment processes of exploited marine fish stocks*” in a special issue of *Journal of Northwest Atlantic Fishery Science* (Guest Editors: R.D. Brodeur, M. Dickey-Collas and E. Trippel) – expected to be published in 2009;

PICES Special Publication

- Dickson, A.G., Sabine, C.L. and Christian, J.R. (Eds.). 2007. Guide to best practices for ocean CO₂ measurements. PICES Special Publication 3, 191 pp.

PICES Scientific Report Series

- Kruse, G.H., Livingston, P., Overland, J.E., Jamieson, G.S., McKinnell, S. and Perry, R.I. (Eds.). 2006. Report of the PICES/NPRB workshop on “*Integration of ecological indicators of the North Pacific*”

with emphasis on the Bering Sea". PICES. Sci. Rep. No. 33, 109 pp.

The following reports are expected to be published by the end of 2007 or in 2008:

- Hollowed, A.B., Beamish, R.J and Schirripa, M.J. (Eds.). Report of FIS workshops on "*Forecasting climate impacts on fish production of commercially exploited fish and shellfish*";
- Beamish, R.J. and Yatsu, A. (Eds.). Final report of WG 16 on *Climate change, shifts in fish production, and fisheries management*.

PICES Technical Report Series

- Megrey, B.A., Macklin, S.A., Bahl, K. and Klawitter, P.D. (Eds.). 2006. TCODE report on "*Metadata federation of PICES member countries*". PICES Tech. Rep. No. 1 (electronic publication).

Other publications

- PICES 2006 Annual Report;
- 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 Early Career Scientists Conference on "*New frontiers in marine science*";
- Announcement, poster and Book of Abstracts for PICES XVI;
- Poster for PICES XVII;
- American Fisheries Society book on "*The ecology of juvenile salmon in the Northeast Pacific Ocean: Regional comparisons*" (Guest Editors: C. Grimes, R.D. Brodeur, L. Haldorson and S. McKinnell), 2007.

PICES Press – newsletters

- Two regular issues: Vol. 15, No. 1 (January 2007) and Vol. 15, No. 2 (July 2007).

A review of the PICES Publication Program, with a focus on the option of a transition to electronic publishing, was performed by the International Association of Aquatic and Marine Science Libraries and Information Centers (IAMSLIC). It was carried out by two members of IAMSLIC, Janet Webster (Oregon State University Libraries, Newport, OR) and Brian

Voss (NOAA Libraries, Seattle, WA), who worked closely with the PICES Secretariat throughout the review process. The review of the PICES Publication Program and the associated Action Plan were presented to the F&A Committee at PICES XVI.

V. Representation at other organization meetings and travel by PICES officers

- Dr. Alexander Bychkov (Executive Secretary) represented PICES at the NPAFC Fourteenth Annual Meeting (October 2006, Vancouver, Canada);
- Dr. R. Ian Perry represent PICES (as a member of the SSC) at the International Conference on "*The Humboldt Current system: Climate, ocean dynamics, ecosystem processes and fisheries*" and at the meeting with the Chairman of the Board and the Scientific Director of IMARPE (November 2006, Lima, Peru);
- Dr. Skip McKinnell (Deputy Executive Secretary) attended as an invited participant the workshop on "*Climate impacts on the California Current Ecosystems*" (November 2006, La Jolla, U.S.A.);
- Dr. Vyacheslav Lobanov (member of MONITOR) represented PICES at the 11th Session of IOC/WESTPAC Coordinating Committee for the North-East Asian Regional Global Ocean Observing System (January 2007, Bangkok, Thailand);
- Drs. Bychkov and McKinnell travelled in February 2007 to Seattle, U.S.A., to attend the Symposium on "*The future of fisheries science in North America*", meet with representatives of IAMSLIC on issues related to a review of the PICES Publication Program, and participate in the FISP Writing Team meeting;
- Dr. Phillip R. Mundy (SG-GOOS Chairman) represented PICES at the 10th GOOS Scientific Steering Committee meeting (March 2007, Seoul, Korea);
- Dr. McKinnell represented PICES (as a member of the SSC) at the workshop on "*Coastal salmon ocean ecosystem*" (March 2007, Newport, U.S.A.);
- Ms. Darlene Smith (WG 21 Co-Chairman) represented PICES at the meetings of the

- ICES/IOC/IMO Working Group on *Ballast and Other Ship Vectors* and the ICES Working Group on *Introductions and Transfers of Marine Organisms* (March 2007, Dubrovnik, Croatia);
- Dr. Kuh Kim (Science Board Chairman), Dr. Vera Alexander (PICES Past-Chairman) and members of the Secretariat travelled in April 2007, to Yokohama, Japan, for the workshop to develop a Science Plan for a Future Integrative Scientific Program of PICES and an inter-sessional Science Board/Governing Council meeting;
 - Dr. John E. Stein (Science Board Chairman-elect) represented PICES at the joint meeting of the Mexican Fisheries Society and the Mexican Chapter of the American Fisheries Society (May 2007, La Paz, Mexico);
 - Dr. Bychkov visited the Ministry of Maritime Affairs and Fisheries to discuss a complex of questions related to the participation of Korean scientists in activities of PICES (May 2007, Seoul, Korea);
 - Dr. McKinnell represented PICES at the PaCOOS Board Meeting (May 2007, Seattle, U.S.A.);
 - Drs. Harold P. Batchelder and Michio Kishi (CCCC Co-Chairmen) represented PICES at the GLOBEC Scientific Steering Committee meeting (May 2007, Hiroshima, Japan);
 - Members of the Secretariat travelled in May 2007, to Hiroshima, Japan, as organizers for the 4th International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*”;
 - Dr. McKinnell represented PICES at the 2nd ESSAS (Ecosystem Studies of Sub-Arctic Seas) Annual Meeting (June 2007, Hakodate, Japan);
 - Dr. Bychkov represented PICES at the 24th General Assembly of the Intergovernmental Oceanographic Commission (June 2007, Paris, France);
 - Dr. McKinnell, Ms. Julia Yazvenko (Database and Web Administrator) and Mr. Xuewu Guo (PICES Intern) travelled in June 2007 to Baltimore, U.S.A. as organizers for the ICES/PICES Early Career Scientists Conference on “*New frontiers in marine science*”;
 - Drs. Tokio Wada (PICES Chairman) and Bychkov and Ms. Christina Chiu (Deputy on Administration) visited China in September 2007, to discuss a complex of questions related to the participation of Chinese scientists in activities of PICES with representatives of the State Oceanic Administration, Ministry of Agriculture and Chinese Academy of Fishery Sciences, and to review preparations for the 2008 PICES Annual Meeting in Dalian;
 - Drs. McKinnell, Perry and Glen Jamieson served as PICES convenors to 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 2007, Helsinki, Finland);
 - Dr. McKinnell was an invited participant at the U.S. GLOBEC Pan-regional Synthesis Workshop (September 2007, Seattle, U.S.A.) and the Ocean Acidification Workshop (October 2007, La Jolla, U.S.A.);
 - Dr. Lev Bocharov (PICES Vice-Chairman) represented PICES at the NPAFC Fifteenth Annual Meeting (October 2007, Vladivostok, Russia);
 - Drs. Wada, Alexander and Kim travelled in October 2007, to Victoria, Canada, for PICES XVI;
 - Drs. Nathan Mantua and William Sydeman will serve as PICES plenary speakers at the international CLIOTOP symposium on “*Climate impacts on oceanic top predators*”, and Dr. McKinnell will represent PICES at the CLIOTOP SSC meeting (December 2007, La Paz, Mexico);
 - Dr. Bychkov will represent PICES at the 3rd Japan-China-Korea GLOBEC symposium (December 2007, Hakodate, Japan).

VI. Relations with international scientific organizations and programs

The following reflects relationships with international scientific organizations and programs of regional and global scale, and with regional

scientific and monitoring efforts in the North Pacific:

International Program for Deployment of profiling floats (Argo)

- Dr. Howard Freeland (Argo Science Team Co-Chairman) attended PICES XVI as an observer and addressed POC and MONITOR on potential areas for collaboration between Argo and PICES. Argo also had a poster at this meeting outlining general information and highlighting scientific objectives and recent activities of the project.

International Research Programme on Climate Variability and Predictability (CLIVAR)

- PICES Working Group 20 on *Evaluation of Climate Change Projections* is the appropriate avenue to enhance collaboration with CLIVAR through its Pacific Panel. Currently, Dr. William Crawford (Canada) serves as a liaison between two groups.

Ecosystem Studies of Sub-Arctic Seas (ESSAS)

- In May 2005, PICES co-sponsored and served as the local organizer for the GLOBEC Symposium on “*Climate variability and sub-arctic marine ecosystems*” held in Victoria, Canada. Selected papers from the symposium will be published in December 2007, in a special issue of *Deep-Sea Research II* (Guest Editors: G.L. Hunt, K. Drinkwater, S.M. McKinnell and D.L. Mackas).
- PICES co-sponsored workshops on “*Evaluation of climate scenarios for subarctic regions*” and “*The role of seasonal sea ice cover in marine ecosystems*” convened during the ESSAS Second Annual Meeting (June 4–9, 2007, Hakodate, Japan).
- Drs. Kenneth Drinkwater and George Hunt (ESSAS SSC Co-Chairmen) attended PICES XVI as observers and addressed several PICES Committees on potential areas of cooperation between ESSAS and its U.S. component for the Bering Sea (BEST) and PICES. ESSAS and BEST also had posters at this meeting outlining general information and highlighting scientific objectives and recent activities of both projects.

Global Ocean Ecosystem Dynamics project (GLOBEC)

- The PICES Climate Change and Carrying Capacity (CCCC) Program provides a mechanism for integrating national GLOBEC research programs in the North Pacific and is a regional component of the international GLOBEC effort.
- The PICES/GLOBEC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*” was held April 19–21, 2006, in Honolulu, U.S.A. A special issue of *Progress in Oceanography* from the symposium (Guest Editors: H. Batchelder and S. Kim), to be published in 2008, is considered as a part of GLOBEC synthesis efforts.
- PICES and GLOBEC worked together to organize the 4th International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*” (May 28–June 1, 2007, in Hiroshima, Japan). Two special issues resulting from the symposium, one in the *ICES Journal of Marine Science* (Guest Editors: M. Dagg, R. Harris, L. Valdés and S.-I. Uye) and another in *Deep-Sea Research II* (Guest Editors: W. Peterson and S. Kawaguchi), are expected to be published in 2008.
- GLOBEC allocated \$5,000 US to co-sponsor the CCCC/FIS Topic Session on “*Towards ecosystem-based management: Recent developments and successes in multi-species modeling*” at PICES XVI, by covering travel costs of one invited speaker and two early career scientists.
- PICES agreed to co-sponsor two symposia led by GLOBEC: on “*Climate impacts on oceanic top predators*” (December 3–7, 2007, La Paz, Mexico) and on “*Coping with global change in marine social-ecological systems*” (July 8–11, 2008, in Rome, Italy).
- GLOBEC agreed to co-sponsor the PICES/ICES/IOC Symposium on “*Effects of climate change on the world’s oceans*” (May 19–23, 2008, in Gijón, Spain).
- PICES was represented as an observer at the GLOBEC SSC meeting (May 2007,

Hiroshima, Japan). Drs. Francisco E. Werner (GLOBEC SSC Chairman) and Ian Perry (GLOBEC SSC Chairman-elect) attended PICES XVI as observers and briefed Science Board on GLOBEC's synthesis and integration efforts and discuss PICES' involvement in these activities.

Global Ocean Observing System (GOOS)

- At the 2005 inter-sessional Science Board/Governing Council meeting, GOOS integration was identified as high priority PICES activity. At PICES XIV, Council established a Study Group to develop a strategy for GOOS (SG-GOOS), under the direction of MONITOR. This Study Group recommended that PICES should focus on the coordination and facilitation of North Pacific regional projects by providing a forum for representatives of the existing North Pacific observing systems to develop international cross-GRA (GOOS Regional Alliance) observing projects, improve observing technologies, and compare data and information sharing protocols.
- PICES was represented as an observer at the 11th Session of IOC/WESTPAC Coordinating Committee for NEAR-GOOS (January 2007, Bangkok, Thailand), the 10th GOOS Scientific Steering Committee meeting (March 2007, Seoul, Korea) and the PaCOOS Board Meeting (May 2007, Seattle, U.S.A.). Dr. Henrik Enevoldsen attended PICES XVI as a GOOS observer.
- Two Topic Sessions highly relevant to GOOS were convened at PICES XVI: “Operational forecasts of oceans and ecosystems” and “Recent advancements in ocean observing systems: Scientific discoveries, technical developments and data management, analysis and delivery”, with commercial displays set up around the theme of ocean observatories.

International Council for the Exploration of the Sea (ICES)

- ICES and PICES worked with the U.S. National Sea Grant College Program and the MIT Sea Grant College Program to organize the 5th International Conference on “Marine bioinvasions” (May 21–24, 2007, in

Cambridge, U.S.A.). Selected papers from this conference are expected to be published in a special issue of *ICES Journal of Marine Science* (Guest Editors: J. Carlton and J. Pederson).

- Ms. Darlene Smith (WG 21 Co-Chairman) attended the annual meetings of the ICES/IOC/IMO Working Group on *Ballast and Other Ship Vectors* (WGBOSV) and the ICES Working Group on *Introductions and Transfers of Marine Organisms* (WGITMO) in March 2007, in Dubrovnik, Croatia, to discuss possible co-operation on marine bioinvasions. The first ever joint meeting of WG 21, WGBOSV and WGITMO was held immediately after the “Marine bioinvasions” Conference (May 25–26, 2007). Dr. Judith Pederson (Chairman of WGITMO) participated in the annual meeting of WG 21 at PICES XVI.
- ICES' experts on marine bioinvasions will be involved in the PICES project on “Development of the prevention systems for harmful organisms' expansion in the Pacific Rim” to be conducted from April 1, 2007 to March 31, 2012).
- ICES was one of the three main international sponsors (with PICES and GLOBEC) for the 4th International Zooplankton Production Symposium on “Human and climate forcing of zooplankton populations” (May 28–June 1, 2007, in Hiroshima, Japan).
- The ICES/PICES Early Career Scientists Conference on “New frontiers in marine science” was held June 26–29, 2007, in Baltimore, U.S.A. The goal of the conference was to encourage new scientists to share knowledge and to begin to build networks across disciplines and international borders. Selected papers from the conference are expected to be published in 2008, as a section in a regular issue of *ICES Journal of Marine Science* (Guest Editors: F. Mueter and E. North).
- ICES and PICES joined NAFO in organizing the International Symposium on “Reproductive and recruitment processes in exploited marine fish stocks” (October 1–3, 2007, in Lisbon, Portugal).

- PICES co-sponsored three Theme Sessions on “*Integrating observations and models to improve predictions of ecosystem response to physical variability*”, “*Comparative marine ecosystem structure and function: Descriptors and characteristics*” and “*The ecosystem approach: What’s the impact on marine science, science-based advice and management of marine ecosystems?*” at the 2007 ICES Annual Science Conference (September 17–21, 2007, Helsinki, Finland).
- ICES co-sponsored two Topic Sessions on “*Fisheries interactions and local ecology*” and “*Operational forecasts of oceans and ecosystems*” at PICES XVI.
- ICES and PICES initiated the organization of the International Symposium on “*Effects of climate change on the world’s oceans*” to be held May 19–23, 2008, Gijón, Spain.
- PICES is working with ICES and GLOBEC to convene the International Symposium on “*Herring: Linking biology, ecology and status of populations in the context of changing environments*” (August 26–29, 2008, Galway, Ireland).
- Dr. Gerd Hubold (ICES General Secretary) attended PICES XVI and address Council on the most recent developments concerning the ICES reforms and potential areas of collaboration for the two organizations. Dr. Adolf Kellermann (ICES Head of Science Program) participated in the Science Board meeting to discuss ongoing and future joint ICES/PICES activities.

Integrated Marine Biogeochemistry and Ecosystem Research (IMBER)

- Dr. Julie Hall (IMBER SSC Chairman) attended PICES XVI as an observer and addressed the BIO Committee on potential areas for cooperation between IMBER and PICES. IMBER also had a poster at this meeting outlining general information and highlighting scientific objectives and recent activities of the project.
- There is a strong interest in including issues of marine biogeochemistry and food webs that would link PICES with IMBER in a new integrative scientific program of PICES.

Intergovernmental Oceanographic Commission of UNESCO (IOC)

In 2002, IOC and PICES agreed to cooperate on four fronts: (i) monitoring (see under GOOS); (ii) ecosystem indicators (see under SCOR); (iii) CO₂ data integration and synthesis (see under IOCCP); and (iv) harmful algal blooms (see below).

- In June 2005, IOC and PICES signed a formal agreement to establish a partnership in systematically compiling, storing and presenting on-line, records on harmful algal events. Event records are to be compiled and stored annually in the format specified in the HAE-DAT database. HAE-DAT is hosted at the IOC server in Paris and is presented with equal credit to the partner organizations (PICES and ICES). Building a common data resource allows inter-comparison of HAB species composition and magnitude of environmental and economic impacts. Discussion on this joint work continued at PICES XVI.
- IOC experts on harmful algal blooms will be involved in the PICES project on “*Development of the prevention systems for harmful organisms’ expansion in the Pacific Rim*” to be conducted from April 1, 2007 to March 31, 2012).
- PICES was represented as an observer at the 24th General Assembly of IOC (June 2007, Paris, France), and Dr. Henrik Enevoldsen attended PICES XVI as an IOC observer.
- IOC joined ICES and PICES in organizing the International Symposium on “*Effects of climate change on the world’s oceans*” to be held May 19–23, 2008, Gijón, Spain.

International Ocean Carbon Coordinated Project (IOCCP)

- IOCCP is working on establishing international agreements on observation methods, best practices, data management, and data sharing that will lead to the joint development of global data products and synthesis activities documenting the ocean carbon cycle. PICES, through its Working Groups on CO₂ in the North Pacific (WG 13, 1998–2001) and *Biogeochemical Data Integration and Synthesis* (WG 17, 2002–

2005), and the Section on *Carbon and Climate* (2006–present), has been long acting as a regional coordinator for these activities. The Section on *Carbon and Climate* provides clear channels of communication to IOCCP, and to large-scale IGBP programs such as SOLAS and IMBER.

- IOCCP and PICES co-sponsored the preparation of the “*Guide to best practices for ocean CO₂ measurements*” to be published as PICES Special Publication 3 (Eds. A.G. Dickson, C.L. Sabine and J.R. Christian) in December 2007.
- Drs. Christopher Sabine (IOCCP SSC Chairman) and Maria Hood (IOCCP Coordinator) attended PICES XVI and addressed POC and BIO on potential areas for cooperation between IOCCP and PICES.

North Atlantic Fisheries Organization (NAFO)

- NAFO and PICES (with ICES as another sponsor) partnered to organize the International Symposium on “*Reproductive and recruitment processes in exploited marine fish stocks*” held October 1–3, 2007, in Lisbon, Portugal. Selected papers from this symposium are expected to be published in 2009, as a special issue of *Journal of Northwest Atlantic Fishery Science* (Guest Editors: R.D. Brodeur, M. Dickey-Collas and E. Trippel).

North Pacific Anadromous Fish Commission (NPAFC)

- The Bering Sea/Aleutian Island region is a focus of research for both NPAFC and PICES. NPAFC provided an opportunity to scientists involved in the PICES Micronekton Sampling Inter-calibration Experiment to use one their BASIS Program cruises (September 2007, on the NOAA research vessel, *Oscar Dyson*) to sample micronekton in the Bering Sea.
- Dr. Lev Bocharov (PICES Vice-Chairman) represented PICES at the NPAFC Fifteenth Annual Meeting (October 2007, Vladivostok, Russia). Drs. Shigehiko Urawa (Deputy Executive Director) and Jim Irvine (Co-Chairman of Working Group on *Stock Assessment*) were present as observers

at PICES XV. Dr. Urawa addressed FIS on potential areas for collaboration between the two organizations. Dr. Irvine presented information on the status of Pacific salmon in the North Pacific at the meeting of MONITOR as input to update the North Pacific Ecosystem Status Report. NPAFC also had a poster at this meeting outlining general information and highlighting scientific objectives and recent activities of the organization.

North Pacific Research Board (NPRB)

- The PICES project on “*Integration of ecological indicators for the North Pacific with emphasis on the Bering Sea*”, funded by NPRB (a grant of \$99,957 US), was successfully completed by publishing proceedings of the PICES/NPRB workshop as PICES Scientific Report No. 33 in December 2006.
- NPRB provided \$15,000 US for the ICES/PICES Early Career Scientists Conference on “*New frontiers in marine science*” (June 26–29, 2007, in Baltimore, U.S.A.), \$5,000 US for the 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, Hakodate, Japan), and \$10,000 US for the FIS workshop on “*Forecasting climate impacts on future production of commercially exploited fish and shellfish*” (July 19–20, 2007, Seattle, U.S.A.).
- Drs. Clarence Pautzke (Executive Director) and Francis Wiese (Science Director) represented NPRB at PICES XVI and addressed PICES Committees on their potential involvement in various initiatives supported by the Board. NPRB also had a poster at this meeting outlining general information and highlighting scientific projects and recent activities of the organization.

Scientific Committee on Oceanic Research (SCOR)

Relationships with GLOBEC, SOLAS, IMBER and IOCCP are reflected separately. Other collaborations between PICES and scientific

projects and groups established/co-sponsored by SCOR are listed below.

- PICES strongly supported the formation of the SCOR WG 125 on *Global Comparisons of Zooplankton Time Series* and agreed to provide funding for one additional member from the North Pacific (Dr. Harold Batchelder, Oregon State University, U.S.A.) to participate in its activities. The 2007 meeting of this Working Group was held in conjunction with the 4th Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*” (May 28–June 1, 2007, Hiroshima, Japan), and their 2008 workshop will be convened immediately prior to the PICES/ICES/IOC symposium on “*Effects of climate change on the world’s oceans*” (May 19–23, 2008, in Gijón, Spain).
- SCOR provided \$6,000 US for scientists from countries with “economies in transition” to participate in the 4th Zooplankton Production Symposium and \$5,000 US to attend SCOR-relevant sessions at PICES XVI. SCOR also committed \$7,500 US to the symposium on “*The effects of climate change on the world’s oceans*”.
- The International Advisory Hydrography Group (IAGH), sponsored by SCOR, met in conjunction with PICES XVI.
- Since 2005, the PICES HAB Section has convened an annual series of workshops to document existing knowledge on the eco-physiology of HAB species that impact all, or most, countries in the North Pacific. The SCOR GEOHAB Program is invited to play an active role in future workshops of this series.
- Dr. Bjørn Sundby (President of SCOR) attended PICES XVI as an observer to discuss ongoing and future collaborations between the two organizations.

Surface Ocean-Lower Atmosphere Study (SOLAS)

- PICES provided travel support for young Asian scientists to attend the SOLAS Open Science Meeting held in March 2007, in Xiamen (People’s Republic of China).
- Dr. Shigenobu Takeda (SOLAS SSC member) represented SOLAS at PICES XVI and addressed BIO on potential areas for

cooperation between the two organizations. SOLAS also had a poster at this meeting outlining general information and highlighting scientific objectives and recent activities of the project.

- Meso-scale iron enhancement experiments are an important part in the agenda of both SOLAS and PICES. The results of the first two international collaborative field projects in the subarctic Pacific, **Subarctic Pacific Iron Experiment for Ecosystem Dynamics Study (SEEDS-I)** and **Subarctic Ecosystem Response to Iron Enrichment Study (SERIES)**, organized under the umbrella of PICES, were published in special issues of *Progress in Oceanography* (2005, Vol. 64, Nos. 2-4, pp. 91–324) and *Deep-Sea Research II* (2006, Vol. 53, Nos. 20-22, pp. 2005–2454). Selected papers from the SEEDS-II experiment are expected to be published in 2008 in a special issue of *Progress in Oceanography* (Guest editors: A. Tsuda, M. Wells, M. Uematsu and H. Saito).

VII. PICES Intern Program

See GC Agenda Item 9 and F&A Agenda Item 8 for details.

VIII. PICES website/database

The most important changes to the website implemented after PICES XV include:

PICES website maintenance:

- Updating pages and posting new information on membership, publications, meetings, *etc.*;
- Developing the new “financial support on-line” page that allows on-line CV and financial support form submission and dynamic database update;
- Moving the site to a new PICES server and moving publications and Power Point presentations to the hosting server allowing for faster download (work in progress to be completed by the end of 2007).

Symposium/conference websites:

New websites were created and have been supported for the following meetings:

(1) ICES/PICES Early Career Scientists Conference on “*New frontiers in marine science*”; (2) 4th International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*”; (3) PICES Sixteenth Annual Meeting; and (4) International Symposium on “*Effects of climate change on the world’s oceans*”. This includes:

- art work;
- site development and support (*e.g.*, changes to schedules, scientific program, dynamic sub-pages with information about the registrants and submitted abstracts, *etc.*);
- database support;
- compiling and posting Book of Abstracts;
- formatting and posting Power Point presentations;
- development and Best Presentations pages;
- development of the customized, dynamic private pages for after-meeting manuscript

submissions (password-protected pages, allowing immediate manuscript uploading/downloading; providing editors control of the submissions and permitting them to make changes on-line without engaging a second party).

CPR project site and database (work in progress)

- Data presentation on this new site (with a new database) is dynamic, as opposed to the current static presentation on SAHFOS site, and allows user-database interaction. Information can be presented and withdrawn in the form of graphs and tables. Due to the capacity of the current PICES server and a new type of the database, the site will be open to the public only after the Annual Meeting, when PICES home page is moved to a new server.

GC Endnote 4

Statements on the naming of “the Sea in dispute”
(as submitted by presenters, with grammar corrected)

Statement by Dr. Yuji Uozumi (Delegate of Japan)

I would like to express the Japanese official position on the expression for the Sea of Japan in relation to the recent activities and publications in PICES. I found an inappropriate expression for the Sea of Japan such as for the CREAMS workshop held in Korea in 2006. Japan regrets this inappropriate expression. I do not want to explain the Japanese official position related to

the expression for Sea of Japan in detail now to avoid wasting time. But please understand the Japanese official position. Japan opposes the use of other expressions than the Sea of Japan in any occasion and publication, especially in PICES’ official documents. Japan really wishes PICES to make more effort to eliminate this kind of inappropriateness from now on.

Statement by Mr. Kwang-Youl Park (Delegate of Korea)

Our Japanese colleague raised the issue of the naming of the sea area located between the Korean Peninsula and the Japanese Archipelago. With regard to this issue, we all are aware that PICES has adopted the simultaneous use of “Japan Sea (Sea of Japan)” and “East Sea” from 1995 until now. This practice is in line with the resolution of the International Hydrographic Organization (IMO), and that of the UN Conference on the Standardization of Geographic Names. These resolutions endorse the principle of simultaneous use of different names for a

shared geographical feature when the countries concerned do not agree on a common name. In recent years, the cases of the dual use of “East Sea” and “Sea of Japan” have been increasing worldwide. Even the publication of the Japanese Ministry of Foreign Affairs shows that 20 percent of non-governmental cartographers used both names in 2005, which is a sharp increase from less than three percent in 2000. Korea, therefore, calls upon PICES to maintain its position of using both names in its publications until such time when Korea and Japan agree on a common name.

GC Endnote 5

Summary report of the 2007 inter-sessional Governing Council meeting

The 2007 inter-sessional Governing Council meeting was held on April 20, under the chairmanship of Dr. Tokio Wada. All Contracting Parties were represented at the meeting. The Chairman also invited Drs. Kuh Kim (Science Board Chairman) and John Stein (Science Board Chairman-elect) to attend. The agenda and the list of participants for the meeting are provided at the end of this section.

Report of the Study Group on *Scientific Cooperation between PICES and Non-member Countries*

At PICES XV (October 2006, Yokohama, Japan), a Study Group (SG-SC) on *Scientific Cooperation between PICES and Non-member Countries* was established, under the direction of Council, to identify options and propose mechanisms for such cooperation (Decision 06/A/6). The Study Group is chaired by the F&A Chairman, Dr. Laura Richards, and its membership includes one representative from each Contracting Party (unfortunately China did not nominate a member to SG-SC), plus a representative from Science Board and a representative from the Secretariat.

A draft SG-SC report was presented by Dr. Richards. The Study Group was unanimously negative to the idea of amending the PICES Convention to expand the “area concerned”. However, recognizing the scientific necessity and advantages of cooperating with non-member countries, SG-SC suggested that an affiliate member status be established, similar to the arrangement implemented some time ago by ICES. After intensive discussions, Council accepted this recommendation and requested that an affiliate policy document be developed for discussion at PICES XVI. China and Korea pointed out that more information is needed to make a decision on the affiliate status, especially on how such a system would influence the current structure and management of the Organization. Russia proposed that some statistical analysis of external participation be added to the final SG-GC report. The United

States asked that the document be reviewed by Science Board before submitting to Council for approval.

Report of the Study Group on *Ecosystem Status Reporting*

A Study Group on *Ecosystem Status Reporting* (SG-ESR) was established at PICES XV, under the direction of Science Board (Decision 06/S/6), to develop options and budgets for paper and electronic versions of the North Pacific Ecosystem Status Report (NPESR). The Study Group is chaired by Mr. Robin Brown (Canada), and its membership includes one representative from each Contracting Party and a representative from the Secretariat. At the inter-sessional Science Board meeting on April 19, Dr. Skip McKinnell presented a draft SG-ESR report which provided the following four options for consideration: (1) the report focussed on some subset of issues; (2) the “incremental” improvement” report; (3) the “strategic” North Pacific ecosystem assessment, tightly bound to the future integrative scientific program of PICES; and (4) the “integrated” ecosystem assessment. Science Board was able to narrow the options down to two: the “incremental” improvement” report (option 2) and the “integrated” ecosystem assessment (option 4). The Study Group was requested to finalize the report by PICES XVI and submit it to Council in order to determine what Contracting Parties consider the preferred option.

There was consensus at the Council meeting that the pilot NPESR was a flagship product of PICES, and that a strategy for the development of an updated version should take into consideration the amount of resources that the Organization can afford and the high expectations from Contracting Parties for a product. It was also pointed out that the draft SG-ESR report includes the costs associated with regional workshops and report production, but does not outline the costs borne by Contracting Parties. The Study Group was asked to estimate in their final report the “true”

costs in time and effort of producing a report based on option 2.

Recommendations from the 2007 inter-sessional Science Board meeting

Council reviewed several recommendations from the inter-sessional Science Board meeting, and the following decisions were made:

- Dr. Vasily Radashevsky (Russia) was appointed as the Co-Chairman of the Working Group 21 on *Non-indigenous Aquatic Species*. Ms. Darlene Smith (Canada) serves as the other Co-Chairman. This Working Group was established at PICES XIV (October 2005, Vladivostok, Russia), under the direction of MEQ (Decision 05/S/6).
- PICES sponsorship was approved for: (1) an International Symposium on “*Climate impacts on oceanic top predators*” (co-sponsored by GLOBEC, IMBER, SCOR, PICES, EUR-OCEANS, NOAA, IRD, CLS, PFRP, CIBNOR and CICIMAR), to be held December 3–7, 2007, La Paz, Mexico; (2) an International Symposium on “*Coping with global change in marine social-ecological systems*” (co-sponsored by GLOBEC, EUR-OCEANS, FAO, IRD, SCOR, IMBER and PICES), to be convened July 8–11, 2008 in Rome, Italy; and (3) an International Symposium on “*Herring: Linking biology, ecology and status of populations in the context of changing environments*” (co-sponsored by ICES, PICES and GLOBEC), to be held August 26–29, 2008, Galway, Ireland.
- The principles of a new PICES award for monitoring and data management activities were approved. This award will recognize organizations, groups or individuals that have contributed significantly to the advancement of marine science in the North Pacific through long-term monitoring and/or management of data associated with ocean conditions and marine bio-resources. Nominations are to be submitted to the PICES Secretariat. Recommendation for a recipient(s) will be made by the MONITOR and TCODE Technical Committees, with selection to be made by Science Board.

Science Board was requested to finalize the name and description of the award for approval PICES XVI. The first award will be given at PICES XVII.

Science Board report on the April 2007 FISP workshop

A workshop to develop a Science Plan for a Future Integrative Scientific Program (FISP) of PICES was held on April 16–18, 2007, immediately prior to the inter-sessional Science Board/Governing Council meeting. The purpose of the FISP workshop was to: (1) review the goals, objectives, organization and key elements of the Science Plan for the new program entitled FUTURE (Forecasting and Understanding Trends, Uncertainty and Responses of North Pacific Marine Ecosystems); (2) define and prioritize the key questions to be answered; and (3) determine strategic approaches to answering the questions. Participants of this workshop included members of the FISP Writing Team, FISP Study Group, Science Board and Governing Council, and several invitees.

Dr. John E. Stein (FISP Writing Team Leader) provided a brief report of the FISP workshop. He indicated that considerable progress was made at the workshop: (1) consensus was reached on a set of key questions; (2) an overall outline for the Science Plan was developed, and (3) the next steps to complete a full draft of the Science Plan were identified. These steps include:

- holding a meeting of the FISP Writing Team to begin developing a full draft of the Science Plan (June 2007);
- circulating the draft Science Plan to Council and Science Board, and posting it on the PICES website for comments from the scientific community (September 2007);
- organizing an Open Forum and a FISP workshop at PICES XVI to discuss the draft, review comments received, and revise the Science Plan, if required (November 2007);
- undertaking internal and external review of the revised Science Plan (February 2008);
- submitting the Science Plan for approval by Council at the April 2008 inter-sessional Science Board/ Governing Council meeting.

Future PICES Annual Meetings and inter-sessional Science Board/Governing Council meetings

Dr. Richards reviewed the status of preparations for the PICES Sixteenth Annual Meeting to be held from October 26–November 5, 2007, in Victoria, Canada. She re-iterated that the Canadian government is not planning to ask PICES for any funds to cover Annual Meeting costs.

Mr. Gongke Tan provided brief information on the status of preparations for the PICES Seventeenth Annual Meeting to be held from October 23–November 2, 2008, in Dalian, China.

Council approved the proposal of Korea to host the PICES Eighteenth Annual Meeting in 2009. It was agreed that Korea will suggest the venue and dates for this meeting by August 31, 2007.

Council deferred its decision on an inter-sessional Science Board/Governing Council meeting in 2008 until PICES XVI. Science Board has already indicated the importance of having such a meeting for the approval of a Science Plan for the new integrative scientific program of PICES (FUTURE) and suggested that this meeting be held in conjunction with a workshop to develop an Implementation Plan for FUTURE.

PICES Intern Program

The Executive Secretary reported that following Decision 06/A/8(ii), Contracting Parties were invited to support the PICES Intern Program in 2007 and beyond. In response to this request, the U.S. National Marine Fisheries Service (NMFS) and Fisheries and Oceans Canada (DFO) provided \$15,000 US and \$10,000 CND, respectively, to the Trust Fund for this activity. With these contributions, the amount of funds is now sufficient to maintain the Intern Program in 2007–2008. The Chairman thanked NMFS and DFO for their continuing support of the Intern Program.

The 2008 term of the Intern Program is expected to start on February 1, 2008. At PICES XV, Council extended the deadline of nominations for this term until the 2007 inter-sessional Governing Council meeting (Decision 06/A/8(iii)). No applications were received by that time. At the meeting, Korea, in particular, was encouraged to nominate candidates for the 2008 term by July 31, 2007.

Financial and administrative matters

The Executive Secretary reported on the 2007 annual fee payment dates, and provided information on extra-budgetary contributions received since PICES XV for various activities initiated/sponsored by PICES. The Chairman thanked the Contracting Parties for making voluntary contributions.

The Japanese delegate, Dr. Hideki Nakano, officially announced that the Ministry of Agriculture, Forestry and Fisheries (MAFF) of Japan, through the Fisheries Agency, will make a voluntary contribution to PICES for a project entitled “*Development of the prevention systems for harmful organisms’ expansion in the Pacific Rim*”. The anticipated duration of the project is 5 years (from April 1, 2007 to March 31, 2012), with a total funding of approximately \$924,900. The budget for the first year (April 1, 2007–March 31, 2008) is \$184,980. This contribution is from the Official Development Assistance (ODA) fund, and therefore, it is required to involve developing Pacific Rim countries in activities under this project. A set of documents for requesting a transfer of funds to PICES should be submitted to MAFF within 2 months (by June 20, 2007).

The Executive Secretary informed Council that in the preliminary discussion with representatives of the Fishery Agency it was agreed that:

- Project participants will include the Section on *Ecology of Harmful Algal Blooms in the North Pacific* (HAB Section) and Working Group on *Non-indigenous Aquatic Species* (WG 21). Each group will oversee a specific sub-project led by a Principle Investigator. Objectives of these sub-projects will be detailed in the Workplan.

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- The Marine Environmental Quality Committee (MEQ) will be responsible for the scientific implementation of the project. The MEQ Chairman will act as a Scientific Coordinator for the project, and will report annually to MEQ and Science Board.
- The Executive Secretary will be responsible for the management of the fund and annual reporting on its disposition to Council and to the Government of Japan, within 120 days following every fiscal year end.
- To support the objectives of the project and to ensure that its activities have a minimal impact on the workload of the existing staff of the PICES Secretariat, the Executive Secretary will contract additional staff (Project Assistant) as required. A 10% overhead on the annual budget will be retained to offset expenses related to the Secretariat's involvement in the project.
- A separate bank account will be established to deposit the remitted funds. Interest earned in the account will be credited to the project and used in consultation with MAFF. Any funds remaining after the completion of every fiscal year of the project will be reported and disposed of in consultation with MAFF.

Participation list of 2007 inter-sessional Governing Council meeting

Canada

Laura Richards

Japan

Ryoko Henna (advisor)

Tokimasa Kobayashi (advisor)

Hideki Nakano

Yuji Uozumi (advisor)

People's Republic of China

Gongke Tan (alternate delegate)

Republic of Korea

Jung-Hwa Choi (advisor)

Kyoung-Jin Kim (alternate delegate)

Ig-Chan Pang

Russia

Lev N. Bocharov

Anna Karulina (advisor)

Igor Shevchenko (advisor)

U.S.A.

Samuel Pooley (delegate)

Other

Tokio Wada (PICES Chairman)

Vera Alexander (PICES Past Chairman)

Kuh Kim (Science Board Chairman)

John E. Stein (Science Board Chairman-elect)

Alexander Bychkov (Executive Secretary)

Skip McKinnell (Deputy Executive Secretary)

2007 inter-sessional Governing Council meeting agenda

1. Welcome and introductions
2. Approval of agenda
3. Report of the Study Group on *Scientific Cooperation between PICES and Non-member Countries*
4. Report of the Study Group on *Ecosystem Status Reporting*
5. Recommendations from the 2007 inter-sessional Science Board meeting
6. Science Board report on the April 2007 FISP workshop
7. Future PICES Annual Meetings and inter-sessional Science Board/Governing Council meetings
8. PICES Intern Program
9. Financial and administrative matters
10. Other business

GC Endnote 6

**CRITERIA GOVERNING ACCEPTANCE OF AN AFFILIATE
OF THE NORTH PACIFIC MARINE SCIENCE ORGANIZATION**

1. Background

- 1.1 In accordance with Article XIV (clause 2) of the PICES Convention, only “*States desiring to accede to the Convention may so notify the Depository which shall notify the Contracting Parties.*” Thus, accession is the only method of application for membership.
- 1.2 Article II of the PICES Convention states “The area which the activities of the Organization concern shall be the temperate and sub-Arctic region of the North Pacific Ocean and its adjacent seas, especially northward from 30 degrees North Latitude, hereinafter referred to as the “area concerned”. Activities of the Organization, for scientific reasons, may extend farther southward in the North Pacific Ocean.”
- 1.3 It is widely accepted that the societal issues and research needs that motivate PICES are global in scope. Thus, PICES benefits from interactions with scientists and scientific organizations/institutions from around the world. As one of the world’s leading marine science organizations, PICES also recognises a responsibility to build scientific capacity.
- 1.4 Atmospheric and oceanic processes occurring in regions beyond the PICES area of concern are affecting North Pacific marine ecosystems and their dynamics. Furthermore, many of the issues addressed by PICES are not unique to the North Pacific. These realities led to a suggestion that expanded cooperation between PICES and scientific organizations/institutions in other regions of the Pacific Ocean might serve their mutual interests. It has also become increasingly evident that scientists from these regions have the background and expertise to contribute in a meaningful way to PICES activities.
- 1.5 At the 2006 PICES Annual Meeting, the Governing Council established the Study

Group on *Scientific Cooperation between PICES and Non-member Countries* (Decision 06/A/6) to recommend to the Council how this could be achieved.

- 1.6 The term “Affiliate” refers to research organizations/institutions that represent scientists in non-member countries, in accordance with the conditions described in this document.

2. Acquiring PICES Affiliate status

- 2.1 To further the interests of PICES and to support the needs of scientists of countries within the area concerned whose Governments have yet to accede to the PICES Convention, or of countries outside the current geographical scope of PICES, the Governing Council may grant, to a research organization/institution that represents scientists in a non-member country, status as a PICES Affiliate.
- 2.2 The granting of Affiliate status for a research organization/institution shall be considered in the light of Article III of the PICES Convention, which indicates that PICES is expected “(a) *to promote and coordinate marine scientific research in order to advance scientific knowledge of the area concerned and of its living resources, including but not necessarily limited to research with respect to the ocean environment and its interactions with land and atmosphere, its role in and response to global weather and climate change, its flora, fauna and ecosystems, its uses and resources, and impacts upon it from human activities; and (b) to promote the collection and exchange of information and data related to marine scientific research in the area concerned.*” The organizations/institutions considered for Affiliate status will be nationally or internationally respected scientific establishments engaged in research activities which fall within the range of the PICES Convention. These basic

criteria shall be essential prerequisites for the status of Affiliate; they do not convey, however, any right to claim that status.

- 2.3 To avoid multiple representations from any country in PICES, Affiliate status will normally be granted to only one research organization/institute per country. Affiliate status will normally, but not necessarily, be granted to the first research organization/institution which applies from a specific country, on condition that it meets the specific criteria defined in 2.2, and that it adheres to the rules governing the activities of an Affiliate.
- 2.4 The Governing Council reserves the right to select, from a number of applicants, the most appropriate one to be granted Affiliate status. The Council may, as it sees fit, consult with the competent authorities in the country concerned. Such consultations may be held at any time.
- 2.5 The status of Affiliate for an applicant shall be approved by a Decision of the Governing Council. After approving a research organization/institute as an Affiliate, no other application for Affiliate status from the same country will be considered, unless the first organization/institution ceases to be an Affiliate, or its Affiliate status is revoked (see below).
- 2.6 The Governing Council reserves the right to introduce a maximum number of Affiliates.
- 2.7 Affiliate status will end automatically if the country where the Affiliate is located accedes to the PICES Convention.
- 2.8 An organization/institution may withdraw from the status of Affiliate by informing the Governing Council in writing. A withdrawal will come into force by the end of the year in which the withdrawal has been declared. Affiliate status may be revoked by the Governing Council at any time.

3 Obligations imposed with the granting of Affiliate status

The granting of Affiliate status to a non-member country research organization/institution shall impose the following obligations:

- to recognise the basic aims and objectives of PICES and to support its work;
- to respect the scientific nature of discussions at all PICES meetings attended by its experts;
- to make a financial contribution to PICES prior to January 1 of the year to which the contribution applies, in an amount to be determined annually by the Governing Council through approval of its budget;
- to serve as the national contact/correspondent for PICES, making all necessary arrangements or agreements between different interested organizations/institutions at a national level, while allowing access to PICES activity and information by the entire scientific community relevant to PICES;
- to ensure that the expertise of their participants in PICES Scientific and Technical Committees and expert groups is appropriate to the terms of reference of such groups.

4. Privileges conferred by acceptance of Affiliate status

- 4.1 The affiliate organization/institute would make a financial contribution to PICES to support the operation of the Organization, but the contribution could be substantially less than the contribution of the Contracting Parties, approximately 10% of the current annual contribution per Contracting Party.
- 4.2 Scientists from affiliated organizations/institutes could be members of a Scientific (BIO, FIS, MEQ, POC) and Technical (TCODE, MONITOR) Committee, or a Scientific Program of PICES. They could not chair these Committees/Programs.
- 4.3 Scientists from affiliate organizations/institutes could be members of an expert group (Sections, Working Groups, Study Groups, Task Teams, and Advisory Panels) of PICES. They could also co-chair any of these groups. In the case of an Affiliate Co-Chairman, however, an arrangement would be required with one of the Co-Chairmen from a Contracting Party.

- 4.4 The PICES Rules of Procedure would need to be amended to allow scientists from affiliate organizations/institutes to participate as members of the Scientific and Technical Committees, Scientific Program and all expert groups in addition to the existing provision for Advisory Panels. The specific privileges of participation would need to be resolved for each type of group, depending on the needs of the Organization. For Study Groups, the PICES Rules of Procedure would also need to be amended to allow for Co-Chairmanship (*i.e.*, one Chairman is sufficient if that person is from a Contracting Party; otherwise a Co-Chairman should be chosen who meets the geographic balance requirements).
- 4.5 The PICES Financial Regulations would need to be amended to reflect financial obligations imposed with the granting of Affiliate status.
- 4.6 As per the current Trust Fund Guideline (iii), scientists from affiliate organizations/institutes would not be eligible to apply for financial support to participate in PICES

activities. The affiliate organization/institute would be expected to cover the costs of their scientists' participation.

5. Applying for Affiliate status

A research organization/institution from a non-member country seeking Affiliate status with PICES for the purposes of participating in activities of the Organization shall submit a written application to the Executive Secretary at least 3 months in advance of a PICES Annual Meeting, containing the following information:

- the name of the organization/institution with (tele)communication addresses of its headquarters;
- the national/international affiliation of the institute and its main mandate;
- the research fields and disciplines covered by the organization/institution or its subsidiaries;
- the structure and membership of the organization/institution, including the number of full-time employees;
- the size of its annual budget and source(s) of income.

GC Endnote 7

Study Group on *PICES Communication*

Background

All scientific organizations have a responsibility to communicate their results widely. In the PICES Strategic Plan, the mission calls for: i) synthesizing scientific information regarding the regions, and making the results widely available, and ii) informing interested parties and the public about marine ecosystem issues. The strategies to achieve this mission include Goal 8 (“Make the scientific products of PICES accessible”), which focuses on communicating the results of PICES scientific activities broadly, explicitly mentioning high quality publications, the PICES website, and production and dissemination of educational materials. The plan does not explicitly identify the audiences that should receive this information.

Scientific communication has many dimensions, and the approaches to be taken are dependent upon the audiences one hopes to reach. Audiences may include the scientific community, management agencies, governments, and the general public. Scientists traditionally involved in PICES lack the expertise and, often, the will, to communicate beyond the scientific community. The FUTURE Science Plan has identified the need to improve communications, particularly to science to policy makers and managers. A discussion of the FUTURE Science Plan concluded that the issues and communication challenges apply across the entire PICES community. In addition, a recent review of PICES Publication Program by representatives of the International Association of Marine Science Libraries and Information Centers

(IAMS LIC) made recommendations in certain areas of communication. Thus, it is timely to convene a Study Group, which will address communication in PICES and make recommendations for actions.

PICES is extremely strong in its core capacities, *i.e.*, exchange of ideas and collaboration among scientists in the North Pacific. The evidence for this is seen in the sustained high levels of participation in PICES meetings and expert groups. Publications by North Pacific scientists are reaching major international peer review journals, books and other media. Many of these publications show multiple authors from more than one country, demonstrating evidence of increasing collaboration and communication.

The communication of scientific information to policy makers, managers and society is an increasing priority for PICES because member countries are being asked to explain more about what is happening in the seas. Little is known, systematically, about how scientific information from PICES is delivered on a national and sub-national basis to policy makers and managers. Preliminary information indicates that the delivery pathways differ among PICES member countries. Relatively little attention is given to distributing PICES results to the general public.

An important area that PICES needs to understand is the different cultural views about marine ecosystems across the Pacific Basin. Different attitudes about the importance of marine ecosystems exist on opposite sides of the Pacific and perhaps within countries based on the specification of the objectives. We are at an early stage in the development of ecosystem-based management and can benefit from the pursuit of alternative approaches toward defining ecosystem-based management and national objectives. PICES communications should work to improve the understanding of those attitudes, furthering our ability to collaborate as scientists and as societies.

The overall goal of the Study Group is to identify the target audiences for outputs from PICES activities and to propose mechanisms to communicate with them.

Terms of reference

- To identify PICES objectives for communications consistent with the PICES Strategic Plan, Action Plans of Standing Committees, and the FUTURE Science Plan;
- To evaluate the principal audiences for scientific and other products in PICES;
- To evaluate the role that PICES should play in educating diverse audiences about the marine ecosystems of the North Pacific;
- To review options for PICES products and partnerships (including national member resources) that can accomplish the communication objectives for these audiences;
- To deliver a report on the overall goals of communications that PICES should undertake, with recommendations for how PICES should develop internal structure to accomplish them.

Membership

The Study Group should consist of members appointed by all member countries. Expertise in different aspects of communication (including outreach and public education) should be included.

Term and Schedule

- December 2007: Appoint members from all member countries by e-mail request from the Executive Secretary (action by Council);
- January 2008: Decide upon chairmanship (action by Council), and initiate e-mail communication to refine tasks and develop report outline (action by appointed Study Group Chairman);
- April 2008: Meeting (in person if possible, remotely if required) to develop a rough draft of the report for review and discussion; agree on writing and revision responsibilities among members;
- July 2008: Develop a full draft of the report;
- October 2008: Hold an Open Forum on PICES communications and a meeting of the Study Group at PICES XVII (Dalian, China);
- April 2009: Submit the final report to Governing Council for approval (by correspondence) to allow decisions on recommendations by the Study Group at PICES XVIII (Busan, Korea).

GC Appendix A

2007 Governing Council decisions

07/A/1: Auditor

Council accepted the *FY* 2006 audited accounts.

07/A/2: Annual contributions

- i. Council instructed the Executive Secretary to send a letter to Contracting Parties commending them for improved performance in submitting annual contributions for *FY* 2007, and describing the difficulties that late and/or partial payment causes the Organization.
- ii. For planning of their funding requests for annual contributions, Contracting Parties should continue to use the guideline generally accepted at the PICES Eighth Annual Meeting (Decision 99/A/2(ii)), which states that the annual contributions will increase at the rate of inflation in Canada.

07/A/3: Budget

- i. Council accepted the estimated accounts for *FY* 2007.
- ii. Council approved the 2008 budget of \$762,000. The amount of \$96,000 will be transferred from the Working Capital Fund to balance the budget, setting the total annual contribution at \$666,000, and the 2008 annual fee at \$111,000 per Contracting Party.
- iii. Council decided that the level of the Relocation and Home Leave Fund be allowed to vary between \$90,000 and \$110,000 to minimize the need for small transfers between funds.
- iv. Council approved a transfer from the Working Capital Fund to the Trust Fund to recover the 2007 expenses, and to restore the Trust Fund to the level of \$110,000 by the end of the fiscal year.
- v. Council approved that \$40,000 from the encumbered funds designated for high-priority projects be earmarked for the new PICES integrative scientific program (FUTURE) and the remainder (~\$103,000)

be earmarked for the North Pacific Ecosystem Status Report.

07/A/4: Scientific cooperation with non-member countries

Council adopted the final report of the Study Group on *Scientific Cooperation between PICES and Non-member Countries*.

07/A/5: Schedule and financing of future Annual Meetings and inter-sessional Science Board/Governing Council meetings

- i. Council agreed to provide \$40,000 to China to partially cover costs for the PICES Seventeenth Annual Meeting to be held October 23–November 2, 2008, in Dalian.
- ii. Council approved the proposal of Korea to host the PICES Eighteenth Annual Meeting from October 23–November 1, 2009, in Busan, with the National Fisheries Research and Development Institute (NFRDI) as the local organizer. The theme of the Annual Meeting will be “*Understanding ecosystem dynamics, pursuing ecosystem approaches to management*”.
- iii. Council accepted an invitation from the United States of America of holding the PICES Nineteenth Annual Meeting in 2010, in Seattle, U.S.A. Interest was indicated in exploring the possibility of a joint ICES-PICES Annual Meeting, with shared science activities and separate business meetings.
- iv. Council accepted the same registration fee structure for 2008 as was maintained for 2004–2007:

Type of registration fee	CDN \$
Regular	225
Early	150
Student	50
Spousal	50

- v. Council approved an inter-sessional Science Board meeting to be held in conjunction with a workshop to develop an Implementation Plan for the new integrative

scientific program of PICES, FUTURE, and accepted an offer from the United States to host both events in Seattle, in April 2008. Holding an inter-sessional Council meeting in 2008 was not supported.

07/A/6: Intern Program

- i. Council instructed the Executive Secretary to invite Contracting Parties to provide voluntary contributions to support the Intern Program in 2008 and beyond.
- ii. Council extended the deadline of nominations for the 2009 PICES Internship until the Governing Council meeting at PICES XVII.
- iii. Council confirmed that the stipend should be kept at the current level of \$2,000 per month. The nominating Contracting Party could consider supplementing this modest stipend, depending on the intern's personal circumstances.

07/A/7: Executive Committee of Council for evaluating the Executive Secretary performance

- i. In accordance with Financial Regulations 12(i), Council established an Executive Committee to complete annual performance review of the Executive Secretary. Terms of reference and membership of the Executive Committee are listed in *GC Appendix B*.
- ii. At its first meeting, the Executive Committee will review achievements of the current Executive Secretary for the previous three years, in preparation for his possible re-appointment. As decision on re-appointment shall be made at least 12 months prior to the end of the term, Council agreed, in accordance with the Article VII of the Convention and Rule 4 of the Rules of Procedure, to vote on the results of the evaluation by correspondence before April 30, 2008.

07/A/8: Deputy Executive Secretary position

Council approved re-appointment of Dr. Stewart (Skip) McKinnell, Deputy Executive Secretary, for a fourth 3-year term to be started September 7, 2008.

07/A/9: PICES Ocean Monitoring Service Award (POMA)

Council approved the establishment of the PICES Ocean Monitoring Service Award (POMA). This award will recognize organizations, groups or individuals that have contributed significantly to the advancement of marine science in the North Pacific through long-term monitoring and/or management of data associated with ocean conditions and marine bio-resources (see description of POMA in *GC Appendix D*). The first award will be given at the 2008 PICES Annual Meeting in Dalian, China.

07/S/1: New integrative scientific program of PICES, FUTURE

Council approved the Science Plan (*GC Appendix C*) for the new PICES integrative scientific program, FUTURE (Forecasting and Understanding Trends, Uncertainty and Responses of North Pacific Marine Ecosystems).

07/S/2: PICES Sixteenth Annual Meeting

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

- A 1-day BIO workshop on “*Oceanic eco-dynamics comparison of subarctic Pacific*”;
- A 1-day MEQ workshop on “*Review of selected harmful algae in the PICES Region: IV. Karenia and Prorocentrum*” proceeded by a ½-day laboratory demonstration;
- A 1-day MONITOR/ESSAS workshop on “*Status of marine ecosystems in the sub-Arctic and Arctic seas – Preliminary results of IPY field monitoring in 2007 and 2008*”;
- A 1½-day CCCC/POC/FIS workshop on “*Climate scenarios for ecosystem modeling (II)*”;
- A 1-day CCCC/ESSAS workshop on “*Marine ecosystem model inter-comparisons*”.

The following scientific sessions are to be convened (a List of Acronyms can be found at the end of the Annual Report):

- A 1-day Science Board Symposium on “*Beyond observations to achieving*”

understanding and forecasting in a changing North Pacific: Forward to the FUTURE”;

- A ½-day BIO Contributed Paper Session;
 - A 1-day BIO Topic Session on “*End-to-end foodwebs: Impacts of a changing ocean*”;
 - A ½-day BIO/MEQ Topic Session on “*Seabirds and marine mammals as environmental indicators*”;
 - A 1-day FIS Contributed Paper Session;
 - A ¾-day FIS Topic Session on “*Institutions and ecosystem-based approaches for sustainable fisheries under fluctuating marine resources*”;
 - A ½-day FIS Topic Session on “*Effects of fisheries bycatch and discards on marine ecosystems and methods to mitigate the effects*”;
 - A ¾-day MEQ/FIS Topic Session on “*Mariculture technology and husbandry for alternate and developing culture species*”;
 - A ½-day MEQ Topic Session on “*Connecting the human and natural dimensions of marine ecosystems and marine management in the PICES context*”;
 - A 1-day MEQ Topic Session on “*Consequences of non-indigenous species introductions*”;
 - A ½-day MEQ Topic Session on “*Species succession and long-term data set analysis pertaining to harmful algal blooms*”;
 - A 1-day MONITOR/TCODE/BIO Topic Session on “*Linking biology, chemistry, and physics in our observational systems – present status and FUTURE needs*”;
 - A 1-day POC Contributed Paper Session
 - A ¾-day POC Topic Session on “*Coastal upwelling processes and their ecological effects*”;
 - A 1-day CCCC/POC Topic Session on “*Marine system forecast models: Moving forward to the FUTURE*”.
- 07/S/3: Inter-sessional meetings/workshops**
- The following inter-sessional meetings and workshops are to be convened/co-sponsored in 2008 and beyond (a List of Acronyms can be found at the end of the Annual Report):
- A 2-day inter-sessional meeting of WG 19 on *Ecosystem-based management science and its application to the North Pacific*, February 21–22, 2008, Seattle, U.S.A.;
 - A 3-day inter-sessional WG 21 meeting to evaluate the protocols and reach final agreement on standards, data elements and data entry templates for the Marine/Estuarine Invasive Species Database for the PICES project on “*Development of the prevention systems for harmful organisms’ expansion in the Pacific Rim*”, March 3–5, 2008, Busan, Korea;
 - A 2-day ICES/PICES workshop on “*Environmental interactions of mariculture*”, April 14–15, 2008, Victoria, Canada;
 - A 3-day CFAME workshop on “*Linking and visualizing climate forcing and marine ecosystem changes: A comparative approach*”, April 15–17, 2008, Honolulu, U.S.A.;
 - A 2-day workshop to develop an Implementation Plan for FUTURE in conjunction with a 1-day inter-sessional Science Board meeting, April 23–25, 2008, Seattle, U.S.A.;
 - 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, Gijón, Spain;
 - An International Symposium on “*Coping with global change in marine social-ecological systems*” (co-sponsored by GLOBEC, EUR-OCEANS, FAO, IRD, SCOR, IMBER and PICES), July 8–11, 2008 in Rome, Italy;
 - A 4-day 2nd PICES Summer School on “*Biomass-based management*”, August 22–25, 2008, Hakodate, Japan;
 - A 3-day 4th PICES workshop on “*The Okhotsk Sea and adjacent areas*”, August 27–29, 2008, Abashiri, Japan;
 - An International Symposium on “*Herring: Linking biology, ecology and status of populations in the context of changing environments*” (co-sponsored by ICES, PICES and GLOBEC), August 26–29, 2008, Galway, Ireland;

- ESSAS/PICES workshops at the ESSAS Annual Meeting, September 15–19, 2008, Halifax, Canada;
- ICES/PICES Theme Sessions on “*Coupled physical and biological models: Parameterization, validation, and applications*”, “*Marine spatial planning in support of integrated management – tools, methods, and approaches*”, and “*New methodology for tracking fish, mammal, and seabird behaviour and migrations*” at the ICES Annual Science Conference, September 22–26, 2008, Halifax, Canada;
- A PICES/ICES Theme Session on “*The effects of ocean acidification on fisheries and ecosystems*” at the International Symposium on “*The ocean in a high CO₂ world – II*” (co-sponsored by SCOR, IOC, IAEA and IGBP), October 6–8, 2008, Monaco;
- An ICES/PICES/GLOBEC workshop on “*Changes in distribution and abundance of clupeiform small pelagic fish in relation to climate variability and global change*”, November 3–7, 2008, Kiel, Germany;
- An International Symposium on “*Rebuilding depleted fish stocks: Biology, ecology, social science and management strategies*” (co-sponsored by ICES, PICES and UNCOVER), November 3–6, 2009, Warnemünde/Rostok, Germany;
- An International Symposium on “*Collection and interpretation of fishery-dependent data*” (co-sponsored by ICES, FAO and PICES), summer 2010, Galway, Ireland.

07/S/4: Travel support

PICES will provide travel support for:

PICES XVII

- Invited speakers for Topic Sessions at the Annual Meeting with the normal allocation of approximately \$5,000 per Committee and the CCCC Program; additional requests are subject to fund availability;
- Six invited speakers for the Science Board Symposium;
- An invited participant to attend the initial meeting of a Working Group on

Comparative Ecology of Krill in Coastal and Oceanic Waters around the Pacific Rim;

- Two invited speakers for the BIO workshop on “*Oceanic ecodynamics comparison of subarctic Pacific*”;
- Two invited speakers for the MEQ workshop on “*Review of selected harmful algae in the PICES region: IV. Karenia and Prorocentrum*”;
- An invited speaker for the MONITOR/ESSAS workshop on “*Status of marine ecosystems in the subarctic and arctic seas – Preliminary results of IPY field monitoring in 2007 and 2008*”;
- An invited speaker for the CCCC/ESSAS workshop on “*Marine ecosystem model inter-comparisons*”.

Inter-sessional meetings

- A representative of MONITOR to attend the Eleventh Session of the GOOS Scientific Steering Committee (GSSC-XI), April 7–10, Paris, France;
- Asian scientists (up to \$10,000) to participate in the ICES/PICES meeting on “*Environmental interactions of mariculture*”, April 14–15, 2008, Victoria, Canada;
- A Co-Chairman of WG 20 on *Evaluations of Climate Change Projections*, a Korean scientist (Yellow Sea/East China Sea fish expert) and a North American scientist (California Current fish or plankton expert) to attend the CFAME workshop on “*Linking and visualizing climate-forcing mechanisms and marine ecosystem changes: A comparative approach*”, April 15–17, 2008, Honolulu, U.S.A.;
- A PICES affiliate member of SCOR Working Group 125 on *Global Zooplankton Comparisons* to attend the Working Group meeting and the workshop on “*Zooplankton and climate: Response modes and linkages among regions, regimes, and trophic levels*”, May 15–18, 2008, Gijón, Spain;
- PICES convenor and members of the Scientific Steering Committee for the International Symposium on “*Effects of climate change on the world’s oceans*”, May 19–23, 2008, Gijón, Spain;

- A PICES representative to attend the 41st Session of the IOC Executive Council, June 24–July 1, 2008, Paris, France;
- A PICES member of the Discussion Panel for the International Symposium on “*Coping with global change in marine social-ecological systems*”, July 8–11, 2008, Rome, Italy;
- A guest lecturer and early career scientists from Asian to attend the 2nd PICES Summer School on “*Biomass-based management*”, August 22–25, 2008, Hakodate, Japan;
- An invited speaker and Russian scientists to participate in the 4th PICES workshop on “*The Okhotsk Sea and adjacent areas*”, August 27–29, 2008, Abashiri, Japan;
- PICES members of the Scientific Steering Committee for the International Symposium on “*Herring: Linking biology, ecology and status of populations in the context of changing environments*”, August 26–29, 2008, Galway, Ireland;
- A member of WG 20 and a representative of the CCC Program (an ecosystem modeler) to attend the ESSAS Annual Meeting, September 15–19, 2008, Halifax, Canada;
- PICES convenors for the joint ICES/PICES Theme Sessions at the ICES Annual Science Conference, September 22–26, 2008, Halifax, Canada;
- A PICES representative and 1 or 2 invited speakers to attend the International Symposium on “*The ocean in a high CO₂ world – II*”, October 6–8, 2008, Monaco;
- A PICES representative to attend the NPAFC Sixteenth Annual Meeting, November 17–21, 2008, Seattle, U.S.A.;
- A PICES convenor for the ICES/PICES workshop on “*Changes in distribution and abundance of clupeiform small pelagic fish in relation to climate variability and global change*”, November 2008, Kiel, Germany;
- A PICES convenor for the symposium on “*Rebuilding depleted fish stocks: Biology, ecology, social science and management strategies*”, November 2–5, 2009, Warnemünde/Rostok, Germany;
- A PICES convenor/speaker for the International Symposium on “*Collection and interpretation of fishery-dependent data*”, summer 2010, Galway, Ireland;
- A member of MIE-AP (Dr. Andrey Suntsov, Newport, U.S.A.) to visit University of British Columbia (Vancouver, Canada) to complete identification of fish collected during the MIE-1 cruise.

07/S/5: Publications

The following publications are to be produced:

Special issues of primary journals (2008–2009)

- *Plankton and Benthos Research* (spring 2008; Guest Editors: H. Iizumi and K. Ishii) – selected papers from the PICES XV Topic Session on “*The human dimension of jellyfish blooms*”;
- *Progress in Oceanography* (2008; 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*”;
- *Journal of Marine Systems* (2008; Guest Editors: K.-I. Chang, S.-I. Ito, C. Mooers and J.-H. Yoon) – 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: 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*”;
- *Deep-Sea Research II* (2008; Guest Editors: W. Peterson and S. Kawaguchi) – Selected papers on krill from the 4th International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*”;
- *ICES Journal of Marine Science* (2008; Guest Editors: F. Mueter and E. North) – Selected papers from the ICES/PICES Early Career Scientists Conference on “*New frontiers in marine science*” (it will be a section in a regular issue);
- *Deep-Sea Research II* (2008/09; Guest Editors: A. Tsuda, M. Wells, M. Uematsu and H. Saito) – Selected papers from the SEEDS-II experiment;

- *Journal of Oceanography* (2009; Guest Editors: T. Saino, J.R. Christian, K. Lee and TBA) – Selected papers from the PICES XV Topic Session on “*Decadal changes in carbon biogeochemistry in the North Pacific*” (it will be a section in a regular issue);
- *Journal of Northwest Atlantic Fishery Science* (2009; Guest Editors: R. Brodeur, M. Dickey-Collas and E. Trippel) – Selected papers from the International Symposium on “*Reproductive and recruitment processes of exploited marine fish stocks*”;
- *Fisheries Research* (2009; Guest Editors: G.H. Kruse, Y. Ishida, T. Perry, V.I. Radchenko and C.-I. Zhang) – Selected papers from the PICES XVI Topic Session on “*Ecosystem approach to fisheries: Improvements on traditional management for declining and depleted stocks*”;
- *Deep-Sea Research II* (2009; Guest Editors: W. Sydeman, S. McKinnell and S. Minobe) – selected papers on results of PICES XVI Topic Session on “*Phenology and climate change in the North Pacific: Implications of variability in timing of zooplankton production to fish, seabirds, marine mammals and fisheries (humans)*”;
- *Progress in Oceanography* (2009; Guest Editors: B.A. Megrey, J.S. Link and E. Moksness) – selected papers from the ICES/PICES Theme Session on “*Comparative marine ecosystem structure and function: Descriptors and characteristics*” at the 2007 ICES Annual Science Conference.

PICES Scientific Report series (2008–2010)

- Report of 2007 FIS workshops on “*Forecasting climate impacts on fish production*” (2008; Editors: A.B. Hollowed, R.J. Beamish and M.J. Schirripa);
- Final report of WG 16 on *Climate Change Shifts in Fish Production, and Fisheries Management* (approved in 2002 for publication in 2004; delayed until early 2008 pending review of third draft by FIS; Editors: R.J. Beamish and A. Yatsu);
- Results of annual MEQ workshops on “*Review of selected harmful algae in the PICES region*”: Alexandrium and Pseudo-nitzschia (2005), Cochlodinium and

Dinophysis (2006) and Heterosigma (2007) (2009/2010; Editors: TBD);

- Final report of WG19 on *Ecosystem-based management science and its application to the North Pacific* (early 2009; Editors: G. Jamieson, P. Livingston and C.-I. Zhang);
- Final report for the CCCC Program (2009; Editor: M. Kishi);
- A summary of the activities of the CFAME Task Team (may be merged with the final CCCC report).

PICES Technical Report series (2008)

- An updated version of the report on “*Metadata federation of PICES member countries*”.

07/S/6: Future of current groups

- i. The revised terms of reference for MONITOR were approved (*GC Appendix B*).
- ii. The following Study Groups completed their terms of reference and should be disbanded (final reports of these groups are included elsewhere in this Annual Report):
 - A Study Group on *Scientific Cooperation between PICES and Non-member Countries* (under the direction of Council);
 - A Study Group on *Ecosystem Status Reporting* (under the direction of Science Board);
 - A Study Group on *Marine Aquaculture and Ranching in the PICES Region* (under the direction of Science Board);
 - A Study Group to *Develop a Strategy for GOOS* (under the direction of MONITOR).

07/S/7: New PICES groups

- i. A Study Group on *PICES Communication* has been established under the direction of Council, with terms of references, membership and timeline as described in *GC Appendix B* and *GC Endnote 7*.
- ii. A Working Group (WG 22) on *Iron Supply and its Impact on Biogeochemistry and Ecosystems in the North Pacific Ocean* has been established under the direction of BIO, with 3-year duration and terms of reference

as described in *GC Appendix B*.

- iii. A Working Group (WG 23) on *Comparative Ecology of Krill in Coastal and Oceanic Waters around the Pacific Rim* has been established under the direction of BIO, with 3-year duration and terms of reference as described in *GC Appendix B*.

07/S/8: Chairmen and Vice-Chairmen for permanent Committees and expert groups

The following reflects changes and continuations in Chairmanship/Vice-Chairmanship for Scientific and Technical Committees and expert groups:

- Dr. John E. Stein (U.S.A.) to replace Dr. Kuh Kim (Korea) as Chairman of Science Board;
- Dr. Sinjae Yoo (Korea) to become Vice-Chairman of Science Board;
- Dr. Michael J. Dagg (U.S.A.) to serve a second 3-year term as BIO Chairman;
- Dr. Hiroya Sugisaki (Japan) to replace Dr. Jeffrey M. Napp (U.S.A.) as MONITOR Chairman;

- Dr. Phillip R. Mundy (U.S.A.) to replace Dr. Sei-Ichi Saitoh (Japan) as MONITOR Vice-Chairman;
- Dr. Michael G. Foreman to serve a second 3-year term as POC Chairman;
- Dr. Bernard A. Megrey (U.S.A.) to replace Dr. Igor Shevchenko (Russia) as TCODE Chairman;
- Dr. Kyu-Kui Jung (Korea) to replace Dr. Megrey as TCODE Vice-Chairman;
- Dr. Vasily Radashevsky (Russia) to serve as Co-Chairman of WG 21 on *Non-indigenous Aquatic Species*;
- Dr. Kerim Aydin (U.S.A.) to continue as Co-Chairman of CFAME up to, but not including, PICES XVII.

07/S/9: Relations with other organizations and programs

Council approved the revised *Standing List of International and Regional Organizations and Programs (SB Endnote 3)* and agreed with the identified priorities for interaction in 2007-2008.

GC Appendix B

Executive Committee of Council for evaluating the Executive Secretary performance

Terms of reference

1. The Executive Committee will complete an annual review of the Executive Secretary performance by April 1 each year, following the general guideline for executive positions in the Canadian public service, and will report to Council at each Annual Meeting.
2. The review will include a written description of achievements for the previous year and

tasks for the coming year, along with an overall evaluation of the achievements.

3. The evaluation will be used to set the level of performance pay, following the Canadian policy for executives.

Membership

The Executive Committee will be chaired by the PICES Chairman, with the Chairmen of Science Board and F&A Committee as members.

Study Group on PICES Communication

Terms of reference

1. To identify objectives for communications consistent with the PICES Strategic Plan, Action Plans of Standing Committees, and the FUTURE Science Plan;
2. To evaluate the principal audiences for scientific and other products in PICES;
3. To evaluate the role that PICES should play in educating diverse audiences about the marine ecosystems of the North Pacific;

4. To review options for PICES products and partnerships (including national member resources) that can accomplish the communication objectives for these audiences;
5. To deliver a report on the overall goals of communications that PICES should undertake, with recommendations for how PICES should develop internal structure to accomplish them.

Technical Committee on Monitoring (MONITOR)

Revised terms of reference

1. Identify principal monitoring needs of the PICES region, and develop approaches to meet these needs, including training and capacity building;
2. Serve as a forum for coordination and development of inter-regional and international components of the North Pacific Ocean Observing Systems, including the GLOBAL Ocean Observing System, GOOS. Facilitate method development and inter-comparison workshops to promote calibration, standardization and harmonization of data sets;
3. Serve as the senior editorial board of the North Pacific Ecosystem Status Report, reporting to Science Board; serve as senior

editorial board for PICES web pages on major monitoring efforts in the North Pacific, including the annual reporting of important time series;

4. Recommend interim meetings to address monitoring needs and PICES-GOOS activities;
5. Provide annual reports to Science Board and the Secretariat on monitoring activities in relation to PICES;
6. Interact with TCODE on management issues of monitoring data.

Note that TOR 3 may be further modified based on the decision of the Science Board on how to proceed with the writing and production of the Ecosystem Status Report.

Working Group on *Iron Supply and its Impact on Biogeochemistry and Ecosystems in the North Pacific Ocean*

Terms of reference:

1. Compile and synthesize available iron biogeochemistry data in the North Pacific;
2. Review the past and ongoing laboratory, field and modeling studies on iron biogeochemistry and its impact on biological productivity and marine ecosystems in the North Pacific Ocean;
3. Determine the natural supplies of iron to the North Pacific, which includes atmospheric dust transport and movement of iron-enriched waters, and examine linkages between iron supply and ecosystem responses;
4. Identify gaps and issues related to experimental and modeling activities, encourage and plan national and international scientific programs on iron biogeochemistry and its impact on marine ecosystems in the North Pacific;
5. Elucidate the role of iron as a potential regulator of harmful algal bloom (HAB) in coastal ecosystems of the North Pacific.

Working Group on *Comparative Ecology of Krill in Coastal and Oceanic Waters around the Pacific Rim*

Terms of reference:

1. Assemble lists of existing data (including metadata) that contribute to an analysis of the comparative ecology of *Euphausia pacifica* and *Thysanoessa* species. Identify gaps in our understanding of krill ecology, life history and population dynamics.
2. Prepare a research plan to help fill gaps in our understanding, and aid regional collaborative research efforts. Explore ways and means of facilitating exchange of scientists between laboratories and on research cruises.
3. Convene “hands-on” practical workshops with krill biologists (including students and established scientists) from PICES member countries to help them initiate and carry out krill research programs. These workshops could be convened before each PICES meeting, or at other times as appropriate. Protocols for experimental work have been already published on the PICES website at: <http://www.pices.int/projects/Euphausiid/PICES%20Protocols%20COMPLETE.pdf>.
4. Initiate euphausiid research programs in PICES member countries which will include sampling on a regular basis (biweekly-monthly) to determine seasonal cycles of spawning and growth, and incubations of live animals for measurement of brood size and molting rates.
5. Work with modelers to better parameterize euphausiids in the NEMURO and other models so as to explore their role in coastal and oceanic food chains.
6. Convene a krill workshop at the GLOBEC Open Science Meeting (June 2009).
7. Organize a Krill Symposium or a Topic Session at PICES XX in 2011, and submit a set of krill synthesis papers for a special issue of a scientific peer-reviewed journal.

GC Appendix C

A New Science Program for PICES: FUTURE

FUTURE (**F**orecasting and **U**nderstanding Trends, **U**ncertainty and **R**esponses of North Pacific Marine **E**cosystems) is an integrative Science Program undertaken by the member nations and affiliates of PICES to understand how marine ecosystems in the North Pacific respond to climate change and human activities, to forecast ecosystem status based on a contemporary understanding of how nature functions, and to communicate new insights to its members, governments, stakeholders and the public.

FUTURE will make advances by:

- Investigating the mechanisms underlying ecosystem response to natural and anthropogenic forcings;
- Improving forecasting capabilities and providing estimates of the uncertainty associated with these forecasts; and
- Developing more effective ways to convey knowledge and predictions.

FUTURE will build upon the Climate Change and Carrying Capacity (CCCC) Program that PICES initiated in cooperation with GLOBEC in the mid-1990s. The CCCC Program contributed significantly in stimulating and facilitating research on the links between climate variability, more than global warming, and marine ecosystem responses and dynamics with an emphasis on understanding how climate might alter the carrying capacity for a few species of fish. It then evolved into a program with much broader interests providing the first systematic, North Pacific-wide attempt to understand and document the physical and ecological processes that link large, low-frequency signals with population and ecosystem dynamics, which led to significant improvements in biophysical modeling and coupled climate–ocean modeling. Because of CCCC we know far more about the role of iron in oceanic systems, about direct and indirect effects of climate on marine organisms, populations and ecosystems, and about what processes are likely the most important—meaning we have improved understanding of the mechanisms. The CCCC Program emphasized climate change and impacts only, whereas FUTURE will place greater emphasis on societal concerns that arise from three potential threats to North Pacific ecosystems:

- Irreparable damage to non-renewable resources and the loss of resilience and productivity of natural environmental capital and services such as renewable resources and habitats;
- Loss of socioeconomic opportunities due to natural and anthropogenic change in marine ecosystems; and
- Increased challenges faced by managers and policy makers from unpredictable ecosystem responses to climate change and human activities.

These issues are driving a need to increase basic scientific understanding of ecosystem processes, to reduce predictive uncertainty of the ecological consequences of these threats, and to translate the information for use in decision making. FUTURE will build on improved understanding of marine ecosystem structure and function that has been gained during the past decade through diverse monitoring, observation, and retrospective studies and modeling activities conducted by PICES countries.

The success of FUTURE will require that our improved understanding of processes and mechanisms leads to an increased forecasting capability and to increased societal awareness of the status of the North Pacific ecosystems. The linkages between climate, ecosystems and societies will be explored to clarify both how human activities will alter the ecosystems of the North Pacific and how options for human use of these ecosystems will change.

Scientific Priorities

- The effects of climate and climate change on physical, geochemical and biological processes at geographical scales ranging from the North Pacific basin and its marginal seas to the coastal regions of interest to PICES member countries;
- Marine ecosystem responses on seasonal to decadal time scales and the consequences of these responses to ecosystem goods and services (*e.g.*, provisioning of foods, regulation of carbon and nutrient cycles, cultural and recreational benefits);
- Ecological interactions and connections between estuarine, coastal and offshore waters, the western and eastern Pacific, and the northern and equatorial Pacific;
- Direct and indirect effects of human activities, such as fishing, aquaculture, introduced species, habitat alteration, pollution, and greenhouse gas emissions and their consequences for member countries;
- Cumulative effects of multiple ecosystem stresses on biological diversity and ecosystem resilience and productivity with a better understanding of thresholds, buffers and amplifiers of change;
- Risk-based ecological assessments within a policy/management framework to communicate future states of nature, their implications, and uncertainties to decision-makers and the public.

Scientific Imperative

The Intergovernmental Panel on Climate Change (IPCC) concluded, in its fourth assessment report in 2007, that the evidence for global warming of the climate system is unequivocal:

- Globally averaged air and ocean temperatures are increasing, accompanied by widespread melting of snow and ice raising the globally averaged sea level. Average northern hemisphere air temperatures during the second half of the 20th century were very likely higher than during any other 50-year period in the last 500 years and likely the highest in at least the past 1300 years.
- Observational evidence from all continents and most oceans shows that many natural systems are being affected by regional climate changes, particularly temperature increases.
- Anthropogenic warming could lead to some impacts that are abrupt, irreversible and severe, depending upon the rate and magnitude of the climate change.

It is against this backdrop of change that PICES is embarking on its next major Scientific Program. It is clear that increasing concentrations of greenhouse gases have launched the world onto a trajectory of change without a clear sense of the ultimate consequences. What is not so clear, and this must be a focus of FUTURE, is the manner and degree to which these global or hemispheric changes are manifested in the North Pacific Ocean and at a regional scale on land and in coastal seas. Both changing climate and increasing human activities are causing changes in North Pacific ecosystems. These changes are affecting ecosystem composition, structure and function in ways that are incompletely understood and possibly unprecedented. There is uncertainty of the magnitude and extent of the change that is occurring because large parts of the North Pacific Ocean and its marginal seas are not monitored or observed regularly. To improve our understanding we must increase observations of the North Pacific and study the mechanisms that underlie an ecosystem's response to the various pressures.

The North Pacific Ocean and its marginal seas are often characterized by strong contrasts among its sub-regions, cross-basin inverse correlations of sea surface temperature being foremost among these. The area of concern to PICES is so large that warming in one area is often accompanied by cooling in another. Understanding how these contrasts are likely to change, if at all, will be an important element of FUTURE. But global warming and its consequences are not the only issue. Natural and anthropogenic pressures are causing the oceans to acidify, while pollution, extirpations, invasive species, anoxia, habitat loss, and exploitation affect the coastal zones. Many species have not yet recovered from past or current

over-exploitation, and there is ongoing damage to non-renewable resources. Plant and animal abundance and distribution, productivity of exploited and unexploited species, food-webs, biodiversity and general ecological resilience are all affected by these pressures.

While the trajectory of some of the major changes is now generally known, there is a great deal of uncertainty about their local magnitudes, their potential interactions and their impacts on North Pacific ecosystems. This uncertainty is caused by a lack of understanding of how the major drivers will individually, collectively and interactively affect ecosystem composition, structure and function and insufficient knowledge of the linkages between oceanic, coastal and terrestrial ecosystems. These major uncertainties hamper the ability of the scientific community to provide reliable estimates of the future status of ecosystems. FUTURE will improve these estimates and communicate them effectively so that science can better support policy. This view has led to the identification of an overarching question for FUTURE.

“What is the future of the North Pacific given current and expected pressures?”

Research Themes

FUTURE is organized around three research themes that are best characterized as key questions. Each of the key questions has a list of more specific questions that define an approach to address a research theme.

1. What determines an ecosystem’s intrinsic resilience and vulnerability to natural and anthropogenic forcing?
 - 1.1. What are the important physical, chemical and biological processes that underlie the structure and function of ecosystems?
 - 1.2. How might changing physical, chemical and biological processes cause alterations to ecosystem structure and function?
 - 1.3. How do changes in ecosystem structure¹ affect the relationships between ecosystem components²?
 - 1.4. How might changes in ecosystem structure and function affect an ecosystem’s resilience or vulnerability to natural and anthropogenic forcing?
 - 1.5. What thresholds, buffers and amplifiers are associated with maintaining ecosystem resilience?
 - 1.6. What do the answers to the above sub-questions imply about the ability to predict future states of ecosystems and how they might respond to natural and anthropogenic forcing?
2. How do ecosystems respond to natural and anthropogenic forcing, and how might they change in the future?
 - 2.1. How has the important physical, chemical and biological processes changed, how are they changing, and how might they change as a result of climate change and human activities?
 - 2.2. What factors might be mediating changes in the physical, chemical and biological processes?
 - 2.3. How does physical forcing, including climate variability and climate change, affect the processes underlying ecosystem structure and function?
 - 2.4. How do human uses of marine resources affect the processes underlying ecosystem structure and function?
 - 2.5. How are human uses of marine resources affected by changes in ecosystem structure and function?

¹ Such as species composition, population structure and dynamics, *etc.*

² Such as species interactions, habitat usage, biological rates and biological diversity.

- 2.6. How can understanding of these ecosystem processes and relationships, as addressed in the preceding sub-questions, be used to forecast ecosystem response?
 - 2.7. What are the consequences of projected climate changes for the ecosystems and their goods and services?
3. How do human activities affect coastal ecosystems and how are societies affected by changes in these ecosystems?
 - 3.1. What are the dominant anthropogenic pressures in coastal marine ecosystems and how are they changing?
 - 3.2. How are these anthropogenic pressures and climate forcings, including sea level rise, affecting nearshore and coastal ecosystems and their interactions with offshore and terrestrial systems?
 - 3.3. How do multiple anthropogenic stressors interact to alter the structure and function of the systems, and what are the cumulative effects?
 - 3.4. What will be the consequences of projected coastal ecosystem changes and what is the predictability and uncertainty of forecasted changes?
 - 3.5. How can we effectively use our understanding of coastal ecosystem processes and mechanisms to identify the nature and causes of ecosystem changes and to develop strategies for sustainable use?

Related to all three research themes is the goal of improving our capability to convey in a clear and effective way how societies will be affected by a changing North Pacific marine environment. The following question captures the goal of improved communication of the science from FUTURE.

“How can forecasts, uncertainty and consequences of ecosystem change be communicated effectively to society?”

Scientific Strategies

Scientific strategies for FUTURE will be fully developed in the FUTURE Implementation Plan. These strategies will include data compilation and retrospective studies, monitoring, mathematical modeling and process studies, all done with the FUTURE perspectives of understanding, forecasting and communicating.

Data compilation and retrospective studies will be used to identify the key physical, chemical and biological processes that are at highest risk from climate change and other anthropogenic stresses. Recommendations will be developed on future monitoring of the North Pacific so that ecosystem change of societal importance can be detected and understood. Monitoring will also provide the data needed for mathematical model development that will range from fine-scale models for coastal areas to whole ecosystem models of multiple trophic levels, including humans and top-predators. Improved understanding of mechanisms will be essential to understand how human uses of the ecosystem and climate change may interact, as well as to improve the capacity for forecasting ecosystem response and consequences of climate change for ecosystem goods and services.

As forecasting is a central element of FUTURE, it is important to note that specific forecasting strategies vary according to temporal and spatial scales. Seasonal forecasts of ecosystems rely on observations and seasonal forecasts of physical and chemical conditions which often depend on the output of operational mid-range weather forecasts. Regional forecasts will require accurate downscaling of global climate models/projections and, at times, linkage of oceanic models to hydrographic models of watersheds to capture the dynamics of coastal ecosystems influenced by large rivers. Only very recently have efforts been underway to downscale global climate projections for use at local scales. Due to their relatively coarse spatial resolution, existing climate models can be more readily used for basin-scale forecasts.

Forecasts of the state of marine ecosystems on decadal time scales require knowledge of the linkages and relationships within the present system, understanding of how these linkages might change with changing climate, and a good comprehension of future environmental conditions. Currently, efforts are being devoted to the latter. During the course of FUTURE, reasonable forecasts of the physical environment will be anticipated and used as they emerge. On multi-decadal time scales, the global warming signature may dominate internal climate variability and this will allow projections for marine ecosystems from global warming scenarios for the North Pacific. While forecasts of the future of North Pacific ecosystems will be a focus of FUTURE, nowcasts of the current state of ecosystems will provide an important context for predictions of future states.

Improving the understanding of mechanisms and increasing forecasting capability will require improved coordination of data accessibility and dissemination, evaluation and application of new technologies from molecular and genetic techniques to remote sensing. Finally, informational tools (*e.g.*, synthesis documents, websites and translations of the science for non-scientific audiences) that are specifically designed to work for each member country will be needed to effectively deliver the science from FUTURE to the public and governments of PICES member countries.

Anticipated Benefits

The scientific research, communication and outreach that occur during the 10-year life of FUTURE will increase understanding of the processes and mechanisms regulating ecosystems of the North Pacific and provide a sound scientific basis for developing scenarios of ecosystem response to climate change and other human-use influences. The anticipated benefits and products will include:

- Increased understanding of physical, chemical and biological linkages and ecosystem responses to anthropogenic and climate forcings;
- Coordinated monitoring and descriptions of the current state of ecosystems;
- Forecasts of future states of North Pacific marine ecosystems and their associated uncertainty;
- Better quantitative and qualitative forecasts, with specified uncertainty, of ecosystem responses to climate change and increasing human influence;
- IPCC-like reports on responses of North Pacific ecosystems to climate change;
- An improved scientific basis for managing coastal ecosystems to sustain ecosystem services and to mitigate various environmental problems;
- Quantification of the benefits and risks associated with different management strategies;
- Region-specific assessments of topical issues (*e.g.*, harmful algal blooms, eutrophication, native and alien species range changes, anoxia, and ocean acidification);
- Increased data sharing, access and dissemination with a focus on coordination and metadata;
- Increased marine science capabilities in PICES member countries;
- Increased participation in PICES of younger scientists and a greater role for social and economic scientists;
- Increased public awareness of the ecosystem changes in the North Pacific.

FUTURE will improve understanding of the North Pacific Ocean, including its climate, biological processes and human communities, and will enhance wise use of this information by governments and society at large.

GC Appendix D**PICES Ocean Monitoring Service Award (POMA)****Background**

Progress in many aspects of marine science is based on ocean observations, monitoring, and the management and dissemination of the data provided by these activities. Long-term monitoring observations are particularly critical to detecting and understanding ecosystem changes. It is widely recognized that these fundamental activities often lack the glamour and respect that typically accompany scientific achievements that rely on monitoring and observation. Unfortunately, the consequences are that monitoring activities are often taken for granted or even targeted for budget cuts when PICES member countries experience financial constraints. With this in mind, it was proposed at the 2006 Annual Meeting in Yokohama, Japan, that a new PICES award be established to acknowledge monitoring and data management activities that contribute to the progress of marine science in the North Pacific. The principles of the award were approved at the 2007 inter-sessional Science Board/Governing Council meeting, also in Yokohama, and the name and description of the award were finalized at the 2007 Annual Meeting in Victoria, Canada.

Aims

The PICES Ocean Monitoring Service Award (POMA) aims to recognize organizations, groups and outstanding individuals that have contributed significantly to the advancement of marine science in the North Pacific through long-term ocean monitoring and data management. The award also strives to enlighten the public on the importance of those activities as fundamental to marine science. It draws attention to an important aspect of the PICES Convention that is not so much in the limelight: *“to promote the collection and exchange of information and data related to marine scientific research in the area concerned.”*

Eligibility

The award is given for significant contributions to the progress of marine science in the North

Pacific through long-term monitoring operations, management of data associated with ocean conditions and marine bio-resources in the region, or both categories. Recipients may include, for example, research vessels, research or administrative institutes or portions thereof, or technical groups involved in monitoring, data management and dissemination, or a combination of these activities. Outstanding individual efforts may also be recognized.

Nomination and selection

Nominations from individuals or groups from PICES member countries should be sent with supporting documentation to the Executive Secretary by the deadline specified in the *Call for Nominations* at the PICES website. The Technical Committee on Monitoring (MONITOR) and Technical Committee on Data Exchange (TCODE) will evaluate independently the documents submitted with each nomination, and recommend some or all of the nominations for consideration by Science Board. Evaluations will include the relevance, duration and balance of activities (ocean observations, resource monitoring, data management, *etc.*). If more than one nomination is considered worthy of recognition by MONITOR or TCODE, rank preferences will be provided to Science Board by each Technical Committee. A maximum of one award will be given each year. To keep a large pool of potential candidates, Science Board will reserve any surplus of recommendations for review in subsequent years. Those nominated but not recommended by a Technical Committee must be re-submitted if they are to be considered for the next year.

Award and presentation

The award consists of a certificate signed by the PICES Chairman and the PICES Science Board Chairman, which will be presented to the recipients (or their representative) at the Opening Session of the PICES Annual Meeting. No financial support from PICES will be provided to the recipient to attend the Annual Meeting where

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the award is given. Should any representative be unable to attend the Annual Meeting, a Delegate

of the recipient's country will be asked to accept the award on behalf of the recipient.