

REPORT OF GOVERNING COUNCIL



The Governing Council met from 8:30-12:30 on October 4, from 8:30-17:30 on October 8, and from 8:30-12:00 on October 9, under the chairmanship of Dr. Vera Alexander. Dr. Alexander Bychkov served as rapporteur. All Contracting Parties were represented at the three sessions (*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 three sessions.

Report on Administration (Agenda Item 3)

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

Report of 2005 inter-sessional Science Board / Governing Council meeting (Agenda Item 4)

The third inter-sessional Science Board meeting, with the participation of Council members, was held from April 6-7, 2005, at NOAA's Sand Point facilities in Seattle, U.S.A., and hosted by the Alaska Fisheries Science Center and the Northwest Fisheries Science Center. These two organizations provided US \$10,000 to offset PICES expenses for the meeting. The report of this meeting is included elsewhere in this Annual Report. An article entitled "*PICES in transition: The 3rd inter-sessional Science Board and Governing Council meeting*" that briefly summarizes the results from the meeting was prepared by Dr. Kuh Kim, Science Board Chairman, and published in PICES Press in July 2005 (Vol. 13, No. 2).

A ½-day Governing Council meeting was convened in the morning of April 8. All Contracting Parties, except China, were represented at the meeting. The agenda and the

list of participants for the 2005 inter-sessional Council meeting are appended as *GC Endnote 4*.

The main focus of the meeting was on the report of the Study Group on *Rules of Procedure and Financial Regulations*, presented by Dr. Laura Richards (SG-RPFR Chairman). The proposed amendments to both documents were discussed at length by Council, and further revisions were made by the members present. The Executive Secretary was instructed to circulate the new drafts of the revised Rules of Procedure and Financial Regulations to Contracting Parties immediately after the meeting (implemented on April 14, 2005).

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

- To develop recommendations for one or more new integrative scientific program(s) to be undertaken by scientists in PICES member countries, a Study Group on *Future integrative scientific program(s)* has been established under the direction of Council (Decision 05/S/6), with terms of reference as listed in *GC Appendix B*. The Study Group membership should consist of Science Board members (as of April 2005) plus 1 additional member from Canada, Japan and Russia and up to 2 additional members from China.
- To ensure that the important basin-scale problems of carbon cycling in the North Pacific Ocean are adequately addressed, a Section on *Carbon and climate* has been formed under the direction of POC and BIO (Decision 05/S/6), with terms of reference as listed in *GC Appendix B*.
- Due to the unexpected outcome of the three meso-scale iron enrichment experiments encouraged by the Advisory Panel on *Iron fertilization experiment in the subarctic Pacific Ocean*, it was agreed that their existing terms of reference be expanded to

include the following item : “to synthesize, compare and contrast the results of SEEDS-I & II and SERIES, and to develop new experimental strategies and hypotheses to explain the different biogeochemical responses to iron enrichment”.

- Dr. Jeffrey M. Napp (U.S.A.) was appointed as the Chairman of the MONITOR Technical Committee, to replace Dr. Phillip R. Mundy (U.S.A.).

Other items of significance were:

- status of annual and voluntary contributions;
- schedule and financing of future Annual Meetings;
- PICES Intern Program.

Information on these issues can be found under relevant Agenda Items.

Membership and observers from other countries (Agenda Item 5)

The Secretariat did not receive proposals from any country to accede to the PICES Convention in 2005.

Earlier, Council expressed 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. Details can be found in the 1999-2004 PICES Annual Reports.

The Executive Secretary reminded Council that in the letter of July 29, 2004, addressed to Ing. Marco Polo Bernal-Yarahuan (Subsecretario, Subsecretaria de Educación e Investigación Tecnológicas), Dr. Vera Alexander encouraged continuing collaboration between Mexico and PICES regardless of formal membership, and indicated the importance of having an observer from the Government of Mexico to attend PICES Annual Meetings, as this will provide an opportunity for Mexico to become more familiar with the activities of the Organization. No response was received to Dr. Alexander’s letter, and Mexico was not represented as an observer at PICES XIII. On July 27, 2005, the Executive Secretary again sent a letter inviting Mexico to attend PICES XIV as an observer, but again no response was received.

It was indicated that Mexican scientists are still enthusiastic about their involvement in PICES activities. For example, a large group of scientists, led by Dr. Salvador Lluch-Cota, contributed a chapter on the Gulf of California to the North Pacific Ecosystem Status Report (PICES Special Publication, No. 1, 2004). Another group, led by Dr. Jaime Gomez-Gutierrez, provided important materials for the final WG 14 report on *Micronekton in the North Pacific* published as PICES Scientific Report No. 30 (2005). However, without financial support from their government and without travel grants from PICES, the number of Mexican scientists attending PICES Annual Meetings has started to decline: 18 scientists at PICES X (Victoria, Canada) in 2001, 6 scientists at PICES XI (Qingdao, China) in 2002, 2 scientists at PICES XII (Seoul, Korea) in 2003, 7 scientists at PICES XIII (Honolulu, U.S.A.) in 2004, and nobody at PICES XIV (Vladivostok, Russia) in 2005.

Council discussed at length possible expansion of PICES’ geographic scope to include member nations from the entire Pacific basin. It was pointed out that:

- much of our improved understanding of how the North Pacific works has been a direct result of the comparative approach where scientists examine forcing and outcomes among various marine ecosystems;
- some of PICES’ subsidiary bodies (Section on *Carbon and climate* and WG on *Evaluations of climate change projections*) have terms of reference that explicitly extend beyond the North Pacific, and some have become the *de facto* regional focus of global programs (Sections on *Ecology of harmful algal blooms in the North Pacific* and *Carbon and climate* are two prime examples);
- PICES has been dealing with disentangling the effects of fisheries from the effects of climate, and its most recently established Working Groups are focusing on the science and implementation of ecosystem-based management in marine ecosystems, the emerging issues associated with aquaculture in the ocean, and the growing problem of

invasive species; all topics which are receiving global attention.

Council agreed that there is merit for the Organization to consider the Pacific Ocean in its entirety. Although no formal decision has been taken, the PICES Chairman was requested to make private inquiries to 4 Pacific Rim countries that are currently affiliated members of ICES (Australia, Chile, New Zealand and Peru), to determine their interest in joining PICES if the Organization was to expand its area of scientific

Alaska Ocean Observing System (AOOS)
 Census of Marine Life (CoML)
 Global Ocean Ecosystem Dynamics (GLOBEC)
 Global Ocean Observing System (GOOS)
 Ecosystem Study of Subarctic Seas (ESSAS)
 International Council for the Exploration of the Sea (ICES)
 International Geosphere-Biosphere Program (IGBP)
 Integrated Marine Biogeochemistry and Ecosystem Research (IMBER)
 Intergovernmental Oceanographic Commission (IOC)
 Northwest Pacific Action Plan (NOWPAP)

North Pacific Anadromous Fish Commission (NPAFC)

North East Asian Regional GOOS (NEAR-GOOS)
 North Pacific Research Board (NPRB)
 Northwest Association of Networked Ocean Observing Systems (NANOOS)
 IOC Sub-Commission for the Western Pacific (WESTPAC)
 Yellow Sea Large Marine Ecosystem project (YSLME)

The Science Board Chairman and Executive Secretary reported on communication with the relevant organizations and programs since last year's Annual Meeting (see *GC Endnote 3* for details). Time was reserved at the 1st session of Council (October 4, a.m.) for representatives of several organizations/programs (CoML, ESSAS, ICES, IMBER, IOC, NANOOS, NPAFC, NPRB, WESTPAC) to express their views on potential areas of collaboration with PICES. These presentations can be found on-line at http://www.pices.int/publications/presentations/PICES_14/PICES_14_default.aspx. The International Ocean Carbon Coordinated Project (IOCCP) and the Scientific Committee on Oceanic Research (SCOR) were unable to send their representatives this year, but provided written reports reflecting their thoughts on

interest (Decision 05/A/6). It is expected that the responses from these countries will be considered at the 2006 inter-sessional Council meeting.

Relations with relevant organizations and programs (Agenda Item 6)

Letters of invitation to attend PICES XIV were sent to organizations and programs on the agreed 2004-2005 *Standing List* (with some additions), and the following sent observers:

Dr. Clarence Pautzke
 Dr. P. Robin Rigby
 Dr. Francisco E. Werner
 Dr. Henrik Enevoldsen
 Dr. George Hunt
 Dr. Adolf Kellermann
 Dr. Francisco E. Werner
 Dr. Hiroaki Saito
 Dr. Henrik Enevoldsen
 Dr. Alexander Tkalin
 Dr. Norio Baba
 Mr. Vladimir Fedorenko
 Dr. Vladimir Karpenko
 Dr. Vyacheslav Lobanov
 Dr. Clarence Pautzke
 Dr. Jack A. Barth
 Dr. Hyung-Tack Huh
 Dr. Sinjae Yoo

cooperation with PICES. Their reports are appended as *GC Endnote 5*.

Dr. Alexander thanked all representatives for attending and presenting their ideas, and assured them that PICES will continue expanding its relationships with relevant organizations and programs, especially those aligned with the PICES ecosystem research focus, and that their proposals will be carefully considered by relevant Committees and Science Board.

The Science Board annually examines and revises the *Standing List of International and Regional Organizations and Programs* (Decision 99/S/6). In addition, it selects a subset of organizations/programs that are considered to have the highest priority for PICES with respect

to scientific cooperation and facilitation in the coming year. This list is used in part to assist the Executive Secretary and Science Board in decisions regarding travel to meetings of other international organizations. Council reviewed and approved the *Standing List* for 2005-2006 as recommended by Science Board (*SB Endnote 7*), and agreed with the identified priorities for interaction (Decision 05/S/7). Council specifically discussed the importance of establishing relations with the Asia Pacific Economic Cooperation (APEC), and suggested that Science Board develop potential areas of cooperation with APEC Working Groups on *Fisheries* (APEC-FWG) and *Marine Resources Conservation* (APEC-MRC).

Report of the Study Group on *Rules of Procedure and Financial Regulations* (Agenda Item 7)

At PICES XIII, Council agreed with the recommendation of the F&A Committee that a thorough review of the PICES Rules of Procedure (RP) and Financial Regulations (FR) is warranted, and established a Study Group on *Rules of Procedure and Financial Regulations* (SG-RPFR), with terms of reference as listed in Decision 04/A/7.

The Study Group was led by the F&A Chairman, Dr. Laura Richards, and included representatives nominated by each Contracting Party and by Science Board. The Executive Secretary and Deputy Executive Secretary served as *ex-officio* members of the Study Group. The full SG-RPFR membership is listed below:

- Dr. Laura Richards (Chairman)
- Dr. R. Ian Perry (Canada)
- Mr. Qian-Fei Liu (China)
- Dr. Tokio Wada (Japan)
- Mr. Young-Hoon Chung (Korea) [replaced by Dr. Yeong-Jin Yeon in February 2005]
- Dr. Victor A. Nazarov (Russia)
- Dr. Richard J. Marasco (U.S.A.)
- Dr. John E. Stein (Science Board)
- Dr. Alexander Bychkov (Secretariat)
- Dr. Skip McKinnell (Secretariat)

At the 2005 inter-sessional Council meeting in Seattle (April 8, 2005), Dr. Laura Richards presented the draft report of the Study Group. The proposed amendments to both documents were discussed at length by Council, and further revisions were made by the members present. Recommended changes were incorporated, and drafts of the revised documents were circulated by e-mail to all Contracting Parties on April 14, 2005, and once more on August 2, 2005. Prior to the Annual Meeting, comments were provided by Science Board and all Contracting Parties, except China and Korea.

At PICES XIV (October 4, 2005), Council reviewed the proposed amendments to the Rules of Procedure again, and some concerns on the wording in Rules 3-5 were expressed by China and Korea. As for the Financial Regulations, China requested not only an amended version, but also a document that clearly showed the difference between the new and previous versions. Dr. Richards was asked to address these concerns and circulate new drafts by e-mail to all Contracting Parties to allow at least two months before the next discussion at the 2006 inter-sessional Council meeting. [According to Rule 20(ii) in the existing Rules of Procedure, “*no proposal involving changes in these Rules of Procedure or the Financial Regulations shall be considered at a meeting of the Council unless either: (a) two months’ notice of the proposal has been given to the Contracting Parties; or (b) the Council agrees by consensus.*”]

Report of the Study Group on *Future integrative scientific program(s)* (Agenda Item 8)

As discussed under Agenda Item 4, at the 2005 inter-sessional meeting, Council approved a Science Board recommendation to establish a Study Group to develop ideas for one or more new integrative scientific program(s) to be undertaken by scientists in PICES member countries (Decision 05/S/6), with terms of reference as listed in *GC Appendix B*. It was pointed out that: (1) PICES member countries must share common interests in the program(s); and (2) the program should be strategic and

provide an opportunity for PICES to become a world leader and gain international respect beyond the North Pacific.

It was agreed that the membership for the Study Group on *Future integrative scientific program(s)* (SG-FISP) should consist of Science Board members (as of April 2005) plus 1 additional member from Canada, Japan and Russia, and up to 2 additional members from China. Subsequently, Drs. Jake Rice (Canada), Hiroaki Saito (Japan) and Victor Nazarov (Russia) were appointed to the Study Group, but no additional nominations were received from China. The full SG-FISP membership is listed below:

Dr. Harold P. Batchelder (CCCC, U.S.A.)
 Dr. Michael J. Dagg (BIO, U.S.A.)
 Dr. Michael G. Foreman (POC, Canada)
 Dr. Yukimasa Ishida (FIS, Japan)
 Dr. Kuh Kim (Science Board Chairman, Korea)
 Dr. Suam Kim (CCCC, Korea)
 Dr. Jeffrey M. Napp (MONITOR, U.S.A.)
 Dr. Victor Nazarov (Russia)
 Dr. Fangli Qiao (Science Board, China)
 Dr. Jake Rice (Canada)
 Dr. Hiroaki Saito (Japan)
 Dr. Igor Shevchenko (TCODE, Russia)
 Dr. John E. Stein (MEQ, U.S.A.)

The following 6 themes have been submitted (with short 1-page descriptions) for the new PICES scientific program prior to PICES XIV:

- Ecosystem-based fisheries management and sustainable use;
- North Pacific marine ecosystem response to global change;
- North Pacific ocean sustainability;
- Status and trends in marine biodiversity;
- A new integrative scientific program built upon the foundations of the CCCC Program;
- Coastal ocean ecosystems – The human dimension and climate.

The proposed themes were presented, reviewed and assessed at a special meeting of the Study Group convened during PICES XIV (from 19:00-21:00 hours on October 4, 2005). Future directions and timelines for the program development were determined, and subsequently

presented by Dr. John Stein (Science Board Vice Chairman) at the PICES XIV Closing Session on October 6, and at the Council meeting on October 8.

Following the SG-FISP terms of reference, Council agreed that the proposed themes and their short descriptions, as well as a Study Group progress report (*e.g.*, PP presentation given by Dr. Stein at the Closing Session) should be posted on the PICES website for comments and advice from the scientific community. Council would also like to encourage scientists to develop new ideas for an integrative scientific program and share these with the Study Group, if the proposed themes do not encompass some important aspect of marine science. Council expects that recommendations on the selected theme(s) will be given at the 2006 inter-sessional Science Board/Governing Council meeting, and that an open forum presentation on the preferred theme(s) and the process of preparing Science and Implementation Plans will be made at the PICES XV.

Governing Council plans for implementing the Strategic Plan (Agenda Item 9)

The PICES Strategic Plan was approved at the 2004 inter-sessional Science Board/Governing Council meeting (Decision 04/A/6(i)), and can be found in the 2004 PICES Annual Report as *GC Endnote 5*, and on the PICES website at http://www.pices.int/about/PICES_strategy.pdf.

All Scientific and Technical Committees and the CCCC Program were requested to develop their own Action Plans for current and future activities that fit within the PICES Strategic Plan. At the 2005 inter-sessional Science Board/Governing Council meeting, it was agreed that these Action Plans should be prepared using a standard format agreed by Science Board, and should identify how the ideas contained in the PICES Strategic Plan on the short (annual) to medium (~5 years) time scales can be implemented. Council re-iterated that relevance to the PICES Strategic Plan should be indicated for all new activity proposals (Decision 04/A/6(iii)).

Draft Committee Action Plans were discussed at PICES XIV. They will be revised by Committee Chairmen, and upon review in early 2006, the Action Plans would either be endorsed or modified further at the 2006 inter-sessional Science Board/Governing Council Meeting.

During discussion, the Chairman of PICES suggested that Science Board and Standing Committees will meet many of the PICES Strategic Plan goals in their Action Plans, but there are also action items that Council and the Secretariat should consider, especially under Themes D and E.

PICES Intern Program (Agenda Item 10)

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 member countries, and increases the capacity of the PICES Secretariat to support the work of the Organization. From May 2000 - June 2005, 6 scientists from three countries (2 from China, 3 from Korea and 1 from Russia) have worked as interns at the PICES Secretariat. Reviewing the Intern Program at PICES XIV, Council confirmed again that PICES and member countries are benefiting from the Program, and that it should be continued.

The description of the Intern Program and the guidelines for application and selection of interns are posted on the PICES website at <http://www.pices.int/projects/intern.aspx>.

The Executive Secretary reminded Council that Mr. Pavel Vorobyov (TINRO-Center, Russia) was selected as the next PICES intern at PICES XIII, and his 8-month term is now expected to start in October 2005. This term could be extended to a maximum of 12 months, depending on the intern's performance, the workload in the Secretariat and availability of funds.

Applications, reviewed by national delegates, should normally be received by the Executive Secretary by the date of the first Governing Council session at the PICES Annual Meeting.

Considering that Mr. Vorobyov's term will be completed by July 2006 at the earliest, Council extended the deadline of nominations for the 2006-2007 PICES Internship until the 2006 inter-sessional Science Board/Governing Council meeting (Decision 05/A/7(iii)). China, in particular, was encouraged to nominate candidates for the 2006-2007 term.

The Intern Program has not been budgeted for, and over the years has been financed solely by voluntary contributions. In 2005, the Department of Fisheries and Oceans (DFO, Canada), the National Marine Fisheries Service (NMFS, U.S.A.) and the Pacific Scientific Research Fisheries Center (TINRO-Center, Russia) contributed \$14,000, US \$15,000 and US \$3,000, respectively, to the Trust Fund to finance the PICES Intern Program. DFO and NMFS are the most generous partners for this activity. From 2000-2005, DFO and NMFS had provided \$61,500 and \$92,330, respectively, to the PICES Trust Fund for the Intern Program. At the recommendation of the F&A Committee, Council requested the Executive Secretary to send a letter to both organizations to thank them for their continuing support of the Intern Program (Decision 05/A/7(i)).

Council also instructed the Executive Secretary to invite Contracting Parties to provide voluntary contributions to support the Program in 2006 and beyond (Decision 05/A/7(ii)). These contributions are crucial, as expenses for the Intern Program in *FY* 2006 are estimated at the level of \$30,000, whereas the amount of funds held for the Program is below \$20,000. In the absence of voluntary contributions, Council approved the use of registration fees collected from the Annual Meetings to finance the Program (Decision 01/A/4(iv)), but noted that this will limit the ability of the Organization to support other high-priority projects identified by Science Board.

Council confirmed that the stipend be kept at the current level of \$2,000 per month, and given the modest stipend, advised Contracting Parties to consider whether the personal circumstances of the intern warrant supplementation (Decision 05/A/7(iv)).

Capacity building activities (Agenda Item 11)

The main discussion was on the activities that were identified at the 2005 inter-sessional Science Board / Governing Council meeting as high-priority PICES capacity building projects. These include:

- PICES/ICES Young Scientists Conference in 2007;
- PICES summer school on marine sciences;
- Workshops on ecological modelling;
- Travel support for young scientists to attend meetings organized and co-sponsored by PICES;
- International student exchange; and
- PICES Intern Program.

Planning for the Young Scientists Conference is in progress. In terms of funding, ICES and PICES envisage that member countries or institutes will support their own young scientists, but some of the less wealthy countries may still need assistance. ICES identified about US \$90,000 in their budget that can be provided for the conference. At the recommendation of the F&A Committee, Council approved that \$25,000 from the encumbered funds (in the Working Capital Fund) designated for high-priority PICES projects be earmarked for the conference. The importance of fund-raising for this event was highlighted. Possibilities for co-funding include the Alexander von Humboldt Foundation (Germany), the Sloan Foundation and the National Science Foundation (U.S.A.), the Nippon Foundation (Japan) and the Brain Korea 21 Program of the Ministry of Education and Human Resources (Korea). Some of these potential sources were approached informally, and positive indications were received. Formal requests will follow.

A topic for the first PICES summer school on marine sciences, "*Circulation and ecosystem modelling*", was suggested by POC and supported by Science Board. Interest in co-sponsoring this project was expressed by several Korean agencies/institutes (SNU, MOMAF, NFRDI and KORDI), and the agreement was to organize this school in conjunction with the

CREAMS/PICES Workshop on "*Model-data inter-comparison for the Japan/East Sea*" to be held in Korea, in summer 2006.

PICES successfully partnered with other organizations and programs to broaden applications of the NEMURO.FISH model. The first workshop on "*Climate interactions and marine ecosystems*" (co-sponsored by the Asia Pacific Network for Global Change Research (APN) and PICES) was convened from October 10-13, 2004, in conjunction with PICES XIII in Honolulu, U.S.A. The second workshop on "*Global comparison of sardine, anchovy and other small pelagics: Building towards a multi-species model*" (co-sponsored by the Fisheries Research Agency of Japan, APN, Scientific Capacity Building Enhancement for Sustainable Development in Developing Countries Program (CAPABLE) and the Inter American Institute for Global Change Research (IAI), GLOBEC and PICES) was held November 14-17, 2005, in Tokyo, Japan. Both workshops from this ecological modelling workshop series incorporated substantial capacity building elements.

In the discussion on travel support for young scientists to attend PICES Annual Meetings and other symposia/workshops organized or co-sponsored by PICES, the importance of allocating matching funds from national sources was noted. The Executive Secretary pointed out that this approach worked well in 2004 for young Korean scientists who had matching funds from GLOBEC Korea, and this year for young Chinese scientists with matching funds from the State Oceanic Administration, and again for young Korean scientists with matching funds from GLOBEC Korea and KoPICES (a sub-Committee for PICES established under the Korea Oceanographic Commission).

For international student exchange, the suggestion was to explore a possibility for PICES to match funds with the Office of International Science and Engineering at the National Science Foundation.

Improvement of participation in PICES activities (Agenda Item 12)

At the last two Annual Meetings, several recommendations were made to target the improvement of participation and productivity of PICES Standing Committees and their subsidiary bodies (Decisions 03/S/7 and 04/S/7). The Executive Secretary reported on the implementation of these decisions.

Contracting Parties were requested to regularly review their national membership and make changes as appropriate. The Secretariat is updating membership lists on the PICES website (<http://www.pices.int/members/default.aspx>) as frequently as new information is provided. Following Council's decision, national membership lists were also included as Appendices in the last two Annual Reports (Decision 03/S/7(ii)). This practice will continue as it helps maintain a historical record of PICES membership, and may assist in improving participation in activities of the Organization (Decision 04/S/7(ii)).

At PICES XIII, Council consented that important lessons can be learned from the performance and experience of past temporary groups (Working Groups, Study Groups, Task Teams, Advisory Panels), and instructed Science Board to perform a review of all the groups established since the inception of the Organization (Decision 04/S/7(i)). The purpose of the review is not to evaluate the performance of any single group, but to get an idea of whether the current approach of the formation and financing of these groups is working.

At the 2005 inter-sessional Science Board / Governing Council meeting, it was agreed that a PICES Temporary Group Outline (this document was prepared by the Secretariat detailing terms of reference, activities and products for all temporary groups established since 1992) and responses from leaders of former temporary groups (they were asked to provide their opinions on the influence of their groups on the direction of the science that was the focus of the group, and how procedures in PICES could be improved) be used to perform

the assessment. Dr. Michael G. Foreman, POC Chairman, volunteered to carry out this task, and his report was presented to Science Board at PICES XIV (see *SB Report, Agenda Item 8*). Dr. Foreman was requested to use the results of his analysis to draft a set of guidelines for future PICES temporary groups for discussion at the 2006 inter-sessional meeting of Science Board and Governing Council.

The Korean delegation presented information on the structure and functions of KoPICES (a sub-Committee for PICES established under the Korea Oceanographic Commission). The goal of this sub-Committee is to enhance and coordinate involvement of Korean scientists in PICES. KoPICES includes 14 members from MOMAF, NFRDI, KORDI, MRI and several universities, and is chaired by Dr. Hak-Gyoon Kim (NFRDI). Starting FY 2005, MOMAF provided special funding to support activities of this sub-Committee. Council thanked Korea for setting an example.

Schedule and financing of future Annual Meetings (Agenda Item 13)

At PICES XIII, Council accepted the proposal of Japan to host the Fifteenth Annual Meeting in 2006 (Decision 04/A/5(i)). The meeting will be held from October 13-21, 2006, in Yokohama. The Japanese government requested that \$40,000 be provided by PICES to partially cover Annual Meeting costs, and this request was supported by the F&A Committee and approved by Council at PICES XIV. The theme for PICES XV will be "*Boundary current ecosystems*" (2004 SB Endnote 12), and the list of various scientific sessions and workshops to be convened at the meeting can be found in Decision 05/S/1.

At the 2005 inter-sessional meeting, Council approved the proposal of Canada to host the Sixteenth Annual Meeting in Victoria, in 2007 (Decision 05/A/5(i)). Booking of the meeting space was made at the Victoria Conference Center (the same venue as for PICES I and PICES X). It was agreed that the dates for the meeting would have to be decided by the end of 2005. Canada and the Secretariat are requested

to explore the possibility of changing the initially proposed dates (September 28 - October 7, 2007) for PICES XVI to avoid overlap with the extended national holidays in China in early October and with several international scientific meetings to be held at the end of September (including the 2006 ICES Annual Science Conference). The Canadian government indicated that they are not planning to ask PICES for any funds to cover Annual Meeting costs. The Science Board endorsed, with some changes to the proposed description, the theme “*The changing North Pacific: Previous patterns, future projections, and ecosystem impacts*” for PICES XVI suggested by Canada (SB Endnote 8).

Following the established rotation cycle (Decision 94/A/6), Council invited China to explore the feasibility of hosting the Seventeenth Annual Meeting in 2008, and inform the Secretariat on this matter by March 31, 2006 (Decision 05/A/5(ii)).

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 2006 as was agreed for 2004 at PICES XII (Decision 05/A/5(iii)). 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 (Decision 04/A/5(iv)).

Council strongly supported the concept of inter-sessional Science Board meetings with the participation of Council members, but confirmed that the need for such a meeting should be evaluated each year and, given meeting costs and time commitment of the members, an inter-sessional meeting should be held only if the agenda is substantive (Decision 05/A/5(v)).

Even though having inter-sessional Science Board/Governing Council meetings at the location of the Secretariat is the cheapest option for the Organization, the value of rotating the place for these meetings was clearly indicated during discussions at previous Annual Meetings.

Council agreed with this approach, but emphasized the importance to keep overall costs for the inter-sessional meeting to the minimum possible. In practice, it was implemented by obtaining financial support from the country hosting an inter-sessional meeting: the 2004 inter-sessional meeting in Jeju was co-sponsored by the Korean Ministry of Maritime Affairs and Fisheries (MOMAF) and the Korean Ocean Research and Development Institute (KORDI), and the 2005 inter-sessional meeting in Seattle was co-sponsored by the U.S. National Marine Fisheries Service (NMFS).

Three potential venues for the 2006 inter-sessional meeting were discussed: (1) at the location of the PICES Secretariat in Sidney/Victoria (Canada); (2) in St. Petersburg (Russia) by invitation of the Russian national delegate, Dr. Lev Bocharov; and (3) in Honolulu (U.S.A.), in conjunction with the PICES/GLOBEC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*” to be held April 19-21, 2006. Council approved the holding of the inter-sessional meeting in Honolulu, provided that costs are carefully controlled (Decision 05/A/5(iv)). The Pacific Islands Fisheries Science Center of NMFS committed financial support to offset PICES expenses for the meeting.

Report of Science Board (Agenda Item 14)

The Science Board met under the chairmanship of Dr. Kuh Kim, who presented the report to Council on October 9. The report was approved by Council, and is included elsewhere in this Annual Report. Details are given in *GC Appendix A* (Decisions 05/S/1 – 05/S/7).

Report of F&A Committee (Agenda Item 15)

The Finance and Administration Committee (F&A) met under the chairmanship of Dr. Laura Richards, who presented the report to Council on October 8. The report was approved by Council, and is included elsewhere in this Annual Report. Details are given in *GC Appendix A* (Decisions 05/A/1 – 05/A/8).

15.1 Audited accounts for fiscal year 2004

At the recommendation of the F&A Committee, Council accepted the audited accounts of *FY 2004* (Decision 05/A/1(i)).

Council retained *Flader & Hale* as the auditor for *FYs 2006-2008* (Decision 05/A/1(ii)).

15.2 Annual contributions

Council discussed the payment schedule of annual fees to the Organization (*F&A Endnote 4*), and following the F&A Committee's comments, pointed out that there has been an overall improvement in the timeliness of payment for all Contracting Parties but China. This year, five of six annual contributions were received within the first quarter. China was unable to submit their entire contribution in 2005, but indicated that all possible efforts will be made to pay the remainder (\$14,500) as soon as possible and not later than in conjunction with the annual fee for 2006.

Council instructed the Executive Secretary to send a letter to Contracting Parties commending them for improved performance in submitting annual contributions in 2005, and describing the difficulties late and partial payment causes the Organization (Decision 05/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 05/A/2(ii)).

15.3 Fund-raising activities

Grants and voluntary contributions received for activities in 2005 and beyond are reflected in *GC Endnote 3* and *F&A Endnote 5*.

In the discussion on fund-raising activities at PICES XIV, Council:

- re-iterated that 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, and therefore, fund-raising continues to be an important component of PICES activities;

- noted that the level of external funding for various activities initiated by PICES has increased significantly over the last several years, and about a third of the current operational budget is now supported by external contributions and partnerships;
- indicated that most of the funding offers have specific product and service requirements, and as partnerships expand, a strategy will be needed to manage the workload of the Secretariat, the size and structure of which have remained unchanged for the last 11 years;
- requested Science Board (Decision 05/A/4) to define the required activities for high-priority PICES projects/initiatives identified at the 2005 inter-sessional Science Board / Governing Council meeting as strong candidates for external funding. These include: (i) activities related to the development of future PICES integrative scientific program(s); (ii) the preparation of the next North Pacific Ecosystem Status Report; (iii) the PICES-ICES Young Scientists Conference; (iv) international exchange and capacity building; and (v) GOOS integration.

15.4 Budget

15.4a Estimated accounts for fiscal year 2005

The estimated accounts for *FY 2005* were reviewed by the F&A Committee and approved by Council (Decision 05/A/3(i)). It was pointed out that an additional transfer of \$14,500 from the Working Capital Fund to the 2005 General Fund might be required if the remainder of the 2005 Chinese annual contribution is not received by the end of the fiscal year.

15.4b Relocation and Home Leave Fund

The status of the Relocation and Home Leave Fund was reviewed. No expenses were charged to the Relocation and Home Leave Fund in 2005. Council approved a transfer of about

\$2,100 from the Relocation and Home Leave Fund to the Working Capital Fund to maintain the former at its required level of \$110,000 by the end of the fiscal year (Decision 05/A/3(iii)).

15.4c Trust Fund

In *FY 2005*, more than \$50,000 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 a travel grant from SCOR. Council approved a transfer (less than \$6,000) from the Working Capital Fund to the Trust Fund to recover the 2005 expenses, and to restore the Trust Fund to the level of \$110,000 by the end of the fiscal year (Decision 05/A/3(iii)).

Guidelines for operating the Trust Fund were approved at PICES III (Decision 94/A/4), and have remained unchanged since. The F&A Committee suggested that the Trust Fund guidelines be updated to reflect current practices, and presented for review and approval by Council at the 2006 inter-sessional meeting. This would allow the revised guidelines to be in place for decision making for PICES XV travel support.

15.4d Working Capital Fund

The balance in the Working Capital Fund is expected to be about \$379,800 at the end of *FY 2005*. Council approved a transfer of \$97,000 from the Working Capital Fund to the General Fund for 2006. Council also approved a transfer of less than \$6,000 to the Trust Fund to restore it to the level of \$110,000, and a transfer of about

\$2,100 from the Relocation and Home Leave Fund to the Working Capital Fund to maintain the former at its required level of \$110,000. After these inter-fund transfers, the Working Capital Fund will total approximately \$276,200 at the end of *FY 2005*. This amount includes \$175,200 in encumbered funds, leaving a balance in operating funds slightly above the required level of \$100,000.

The encumbered funds in the Working Capital Fund include funds held for the 2006 CCCC Symposium, the 2006 Line P Symposium, the remainder of the NPRB contribution for the development of the second NPESR, and funds designated for high-priority PICES projects. As discussed under Agenda Item 11, Council approved \$25,000 from these funds to be earmarked for the PICES/ICES Young Scientists Conference (Decision 05/A/8).

15.4e Proposed budget for fiscal year 2006

Council approved the proposed *FY 2006* budget of \$730,000 (*F&A Endnote 6*). The amount of \$97,000 will be transferred from the Working Capital Fund to the General Fund to reduce the total annual contribution to \$633,000, setting the 2006 annual fee at \$105,500 per Contracting Party (Decision 05/A/3(ii)).

15.4f Forecast budget for fiscal year 2007

The *FY 2007* forecast budget of \$740,000 was examined by the F&A Committee and presented to Council for information only. It will be further discussed at PICES XV.

Other business (Agenda Item 16)

No other business was identified by Council members.

GC Appendix A

2005 Governing Council Decisions

05/A/1: Auditor

- i. Council accepted the audited accounts for *FY* 2004.
- ii. Council retained *Flader & Hale* as the auditor for *FYs* 2006-2008.

05/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* 2005, 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 Eighth Annual Meeting (Decision 99/A/2(ii)), which states that the annual contributions will increase at the rate of inflation (about 3%) in Canada.

05/A/3: Budget

- i. Council approved an additional transfer of \$14,500 from the Working Capital Fund to the General Fund due to the partial payment of the 2005 annual contribution by China (if the remainder of their contribution is not received by the end of the fiscal year), and with this amendment accepted the estimated accounts for *FY* 2005.
- ii. Council approved the 2006 budget of \$730,000. The amount of \$97,000 will be transferred from the Working Capital Fund to reduce the total required contribution to \$633,000, setting the 2006 annual fee at \$105,500 per Contracting Party.
- iii. The following inter-fund transfers were approved:
 - A transfer of \$97,000 from the Working Capital Fund to the General Fund for *FY* 2006;
 - A transfer from the Working Capital Fund to the Trust Fund to recover the 2005 expenses, and to restore the Trust

Fund to the level of \$110,000 by the end of the fiscal year.

- A transfer of about \$2,100 from the Relocation and Home Leave Fund to the Working Capital Fund to maintain the Relocation and Home Leave Fund at its required level of \$110,000 by the end of the fiscal year.

05/A/4: Fund-raising

To assist in future budget planning, Council requested Science Board to define the required activities for high-priority PICES projects and initiatives identified at the 2005 inter-sessional Science Board/Governing Council meeting.

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

- i. Council approved the proposal of Canada to host the Sixteenth Annual Meeting in Victoria, Canada (approved at the 2005 inter-sessional Governing Council meeting). Dates will be decided by the end of 2005.
- ii. Following the established rotation cycle, Council requested China to explore the feasibility of hosting the Seventeenth Annual Meeting in 2008, and inform the Secretariat on this matter by March 31, 2006.
- iii. Council accepted the same registration fee structure for 2006 as was agreed for 2004 at PICES XII:

| Type | CDN \$ |
|---------------------------|--------|
| Registration fee | 225 |
| Early registration fee | 150 |
| Students registration fee | 50 |
| Spousal registration fee | 50 |

- iv. Council approved the holding of an inter-sessional Science Board/Governing Council meeting on April 17-18, immediately prior to the CCCC Symposium on "*Climate variability and ecosystem impacts on the*

North Pacific: A basin-scale synthesis" (April 19-21, 2006, Honolulu, Hawaii), provided that costs are carefully controlled.

- v. Council confirmed that the need for an inter-sessional Science Board/Governing Council meeting should be evaluated each year and, given meeting costs and time commitment of the members, an inter-sessional meeting should be held only if the agenda is substantive. Overall costs should be kept to the minimum possible.

05/A/6: Potential PICES membership

The Chairman will make private inquiries to four Pacific Rim countries that are currently affiliated members of ICES, to determine their interest in joining PICES if the Organization was to expand its area of scientific interest. Council will consider the responses from these countries at its 2006 inter-sessional meeting.

05/A/7: Intern Program

- i. Council requested the Executive Secretary to send a letter to the Department of Fisheries and Oceans (Canada) and the National Marine Fisheries Service (U.S.A.) to thank them for their continuing support of the Intern Program.
- ii. Council instructed the Executive Secretary to invite Contracting Parties to provide voluntary contributions to support the Intern Program in 2006 and beyond.
- iii. Council extended the deadline of nominations for the 2006-2007 PICES Internship until the 2006 inter-sessional Science Board/Governing Council meeting.
- iv. Council confirmed that the stipend be kept at the current level of \$2,000 per month, and given the modest stipend, advised Contracting Parties to consider whether the personal circumstances of the interns warrant supplementation.

05/A/8: Capacity building

Council approved that \$25,000 from the encumbered funds designated for high-priority PICES projects be earmarked for the PICES/ICES Young Scientist Conference.

05/S/1: Fifteenth Annual Meeting (October 13-22, 2006, Yokohama, Japan)

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

- a 1-day IFEP/MODEL Workshop on "*Modeling iron biogeochemistry and ocean ecosystems*";
- a 2-day FIS Workshop on "*Linking climate to trends in productivity of key commercial species in the subarctic Pacific*";
- a 1-day MEQ/FIS (WG 19) Workshop on "*Criteria relevant to the determination of unit eco-regions for ecosystem-based management in the PICES area*";
- a 1-day MEQ (HAB-S) Workshop on "*Review of selected harmful algae in the PICES region: II. Dinophysis and Cochlodinium spp.*" and ½-day laboratory demonstration on DSP detection;
- a 1-day POC (WG 20) Workshop on "*Evaluation of climate change projections*";
- a 1-day MONITOR/TCODE Workshop on "*Data management, delivery and visualization of high-volume data products*".

The following scientific sessions are to be convened from October 16-20 (a List of Acronyms can be found at the end of the Annual Report):

- a ¾-day Science Board Symposium on "*Boundary current ecosystems*";
- a 1-day BIO/FIS Topic Session on "*The human dimension of jellyfish blooms*";
- a 1-day BIO Topic Session on "*Interactions between biogeochemical cycles and marine food webs in the North Pacific*";
- a 1-day BIO Topic Session on "*Synthesis of in situ iron enrichment experiments in the eastern and western subarctic Pacific*";
- a 1-day BIO Topic Session on "*Advances in epi- and meso-pelagic ecosystem research*";
- a ½-day CCCC Topic Session on "*Modeling and historical data analysis of pelagic fish, with special focus on sardine and anchovy*";
- a ½-day CCCC Contributed Paper Session;
- a 1-day FIS/CCCC Topic Session on "*Key recruitment processes and life history strategies: Bridging the temporal and spatial gap between models and data*";

GC-2005

- a 1-day FIS Contributed Paper Session;
- a 1-day MEQ/FIS Topic Session on “*Aquaculture for sustainable management of the marine ecosystem*”;
- a 1-day MEQ Topic Session on “*Harmful algal blooms in the PICES region: New trends and potential links with anthropogenic influences*”;
- a 1-day POC/MONITOR/CCCC Topic Session on “*Synchronous and asynchronous responses of North Pacific boundary current systems to climate variability*”;
- a 1-day POC Contributed Paper Session.

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

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

- a FRA/APN/IAI/PICES/GLOBEC Workshop on “*Global comparison of sardine, anchovy and other small pelagics – building towards a multi-species model*”, November 14-17, 2005, Tokyo, Japan (approved in 2004);
- an International Repeat Hydrography Workshop (co-sponsored by JAMSTEC, CLIVAR and IOCCP) and a meeting of the PICES Carbon and Climate Section, November 14-17, 2005, Shonan Village, Japan;
- a CCCC/CFAME Workshop on “*A comparison of regional mechanisms for fish production: Ecosystem perspectives*”, January 12-13, 2006, Tokyo, Japan;
- a panel discussion at the “*Marine Science in Alaska*” Symposium, January 25, 2006, Anchorage, U.S.A., and at the meeting of the North Pacific Fisheries Management Council, February 8, Seattle, U.S.A., to involve the Bering Sea and international communities in the development of a set of operational objectives;
- an inter-sessional Science Board/Governing Council meeting, April 17-18, 2006, Honolulu, U.S.A.;
- a PICES/GLOBEC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*”, April 19-21, 2006, Honolulu, U.S.A. (approved in 2003);
- a PICES/NPRB Workshop on “*Integration of ecological indicators for the North Pacific with emphasis on the Bering Sea*”, June 1-3, 2006, Seattle, U.S.A.;
- an ESSAS/PICES Workshop to develop comparative studies of the sub-Arctic seas, June 12-14, 2006, St. Petersburg, Russia;
- a Symposium entitled “*Time series of the Northeast Pacific Ocean: A symposium to mark the 50th anniversary of Line-P*” (co-sponsored by DFO), July 5-8, 2006, Victoria, Canada (approved in 2004);
- a CREAMS/PICES Workshop on “*Model-data inter-comparison for the Japan/East Sea*” and a summer school on “*Circulation and ecosystem modelling*”, August 2006, location TBD, Korea;
- ICES/PICES theme sessions on “*Large-scale changes in the migration of small pelagic fish and the factors modulating such changes*” and on Operational Oceanography (title TBD) at the ICES Annual Science Conference, September 2006, Maastricht, Netherlands;
- an International Conference on “*The Humboldt Current system: Climate, ocean dynamics, ecosystem processes and fisheries*” (co-sponsored by IMARPE, IRD, NASA, FAO, GLOBEC, ICES and IMBER), November 27-December 1, 2006, Lima, Peru;
- a symposium on “*Marine bioinvasions*” (co-sponsored by ICES and MBC), spring 2007, Washington, D.C., U.S.A. (approved in 2003);
- a 4th International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*” (co-sponsored by GLOBEC and ICES), May 28 - June 1, 2007, Hiroshima, Japan (approved in 2003);
- an ICES/PICES Young Scientists Conference, spring or summer 2007, location TBD (approved in 2003);
- An ICES/PICES/IOC Symposium on “*Effects of climate change on the world’s ocean*”, spring 2008, Gijón, Spain.

05/S/3: Travel support

PICES will provide travel support for:

PICES XV

- Invited speakers for Topic Sessions at the Annual Meeting with the normal allocation of approximately \$5,000 per Committee and CCC Program (additional requests are subject to fund availability);
- 1 invited speaker for the IFEP/MODEL Workshop on “*Modeling iron biogeochemistry and ocean ecosystems*”;
- 1 invited expert from Europe to the MEQ (HAB-S) Workshop on “*Review of selected harmful algae in the PICES region: II. Dinophysis and Cochlodinium spp.*”;
- 1 invited speaker to the MEQ/FIS (WG 19) Workshop on “*Criteria relevant to the determination of unit eco-regions for ecosystem-based management in the PICES area*”;
- 1 invited speaker to the POC (WG 20) Workshop on “*Evaluation of climate change projections*”.

Inter-sessional meetings

- PICES representative to attend the 2005 CalCOFI Conference and the PaCOOS Board meeting (December 2005, La Jolla, U.S.A.);
- PICES observer to participate in the NEAR-GOOS meeting (January 2006, Pusan, Korea; may or may not require travel support);
- 2 scientists (1 Russian and 1 Chinese) to attend the CCC/CFAME Workshop on “*A comparison of regional mechanisms for fish production: Ecosystem perspectives*” (January 2006, Tokyo, Japan);
- TCODE representative to attend the meeting of the ICES Working Group on *Marine Data Management* (dates and venue TBD);
- PICES representative to attend the meetings of the ICES/IOC/IMO Working Group on *Ballast Waters and Other Ship Vectors* and the ICES Working Group on *Introductions and Transfers of Marine Organisms* (March 2006, Oostende, Belgium);

- Dr. Kenneth A. Rose (U.S.A.) to present MODEL contribution to the April 2006 CCC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*”;
- 1 scientist to participate in the ESSAS/PICES Workshop to develop comparative studies of the sub-Arctic seas (June 2006, St. Petersburg, Russia);
- PICES representative to attend the IOC Executive Committee meeting (June 2005, Paris, France);
- 1 invited speaker to the CREAMS/PICES Workshop on “*Model-data inter-comparison for the Japan/East Sea*” and 1 lecturer to the summer school on “*Circulation and ecosystem modelling*” (August 2006, location TBD, Korea);
- PICES convenors to the joint ICES/PICES theme sessions at the ICES Annual Science Conference (September 2006, Maastricht, Netherlands);
- Dr. Sergej Olenin (co-funding with ICES) to attend the first meeting of the PICES Working Group on *Non-indigenous aquatic species* (October 2006, Yokohama, Japan), to discuss and demonstrate the Delivering Alien Invasive Species Inventories for Europe (DAISIE) database (EU project);
- PICES representative to attend the SCOR General meeting (October 2006, Concepción, Chile);
- PICES representative to attend the NPAFC Fourteenth Annual Meeting (October 2006, Vancouver, Canada).

Science Board Chairman to attend

- 2006 inter-sessional Science Board/Governing Council meeting (April 17-18, 2006, Honolulu, U.S.A.);
- PICES/GLOBEC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*” (April 19-21, 2006, Honolulu, U.S.A.);
- 2006 ICES Annual Science Conference (September 2006, Maastricht, Netherlands);
- PICES Fifteenth Annual Meeting (October 2006, Yokohama, Japan).

05/S/4: Publications

The following publications will be produced:

PICES Scientific Report Series, 2006

- Final report of WG 16 on *Climate change, shifts in fish production, and fisheries management* (approved in 2002 for publication in 2004, delayed till 2006, pending review by POC and CCCC; Editors: R. Beamish and A. Yatsu);
- Report of the 2005 OECOS (Oceanic Ecdynamics Comparison in the Subarctic Pacific) Workshop (Editors: T. Ikeda and C. Miller);
- Guide to best practices for oceanic CO₂ measurements and data reporting (approved in 2002 for publication in 2004, delayed till 2006; Editor: A. Dickson);
- Findings of the data-sharing project for federated meta-data on North Pacific ecosystems (approved in 2004; Editors: A. Macklin and B. Megrey);
- Report from the project on “*Integration of ecological indicators for the North Pacific with emphasis on the Bering Sea*” (Editors: S. McKinnell, A. Bychkov, G. Jamieson, G. Kruse, P. Livingston and J. Overland);
- Proceedings from the CREAMS/PICES Workshop on “*Model-data inter-comparison for the Japan/East Sea*” and the summer school on “*Circulation and ecosystem modelling*” (Editor: K.-I. Chang and TBD);
- WG 18 report based on the national reports on the current status and trends in aquaculture in PICES member countries (Editors: I.-K. Chung and C. Friedman);

Special issues of primary journals, 2006-2007

- *Progress in Oceanography* (2006; Guest Editors: G. Hunt and S. McKinnell) – selected papers from the PICES XIII Topic Session on “*Mechanisms that regulate North Pacific ecosystems: Bottom up, top down, or something else?*” (approved in 2004);
- *Deep-Sea Research II* (2006; Guest Editors: W. Sydeman, R. Brodeur, A. Bychkov, C. Grimes and S. McKinnell) – selected papers from the PICES XIII Topic Session on “*Hot spots and their use by migratory species and*

top predators in the North Pacific” (approved in 2004);

- *Ecological Modelling* (2006; Guest editors: M. Kishi, B. Megrey, S.-I. Ito and F. Werner) – selected papers on NEMURO and NEMURO.FISH models (approved in 2004);
- *Deep-Sea Research II* (2006; Guest Editors: P. Boyd and P. Harrison) – selected papers from the IFEP SERIES experiment;
- *Progress in Oceanography* (2007; Guest editors: K. Drinkwater, G. Hunt, D. Mackas and S. McKinnell) – selected papers from the ESSAS Symposium on “*Climate variability and sub-arctic marine ecosystems*”;
- *Progress in Oceanography* (2007; Guest editors: H. Batchelder and S. Kim) – selected papers from the CCCC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*”;
- *Progress in Oceanography* (2007; Guest editors: A. Peña and TBD) – selected papers from the symposium on “*Time series of the Northeast Pacific Ocean: A symposium to mark the 50th anniversary of Line-P*”.

Other publications, 2006

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

05/S/5: Future of current groups

- WG 16 on *Climate change, shifts in fish production and fisheries management* (under the direction of FIS) should be disbanded. The final report is pending review, and its publication is expected in 2006;
- WG 17 on *Biogeochemical data integration and synthesis* (under the direction of POC) should be disbanded and replaced by the Section on *Carbon and climate* (under the direction of BIO and POC). The completion of “*Guide to best practices for oceanic CO₂*

measurements and data reporting” is still pending;

- Responsibility for the Advisory Panel on *Continuous Plankton Recorder (CPR) survey in the North Pacific* should move from the CCCC Program to the MONITOR Technical Committee.
- Responsibility for the Advisory Panel on *Iron fertilization experiment in the subarctic Pacific Ocean* should move from the CCCC Program to BIO.

05/S/6: New PICES groups

- A Study Group on *Future integrative scientific program(s)* has been established under the direction of Governing Council, with terms of reference as listed in *GC Appendix B* (approved at the 2005 inter-sessional Governing Council meeting);
- A Section on *Carbon and climate* has been formed under the direction of POC and BIO, with terms of reference as listed in *GC*

Appendix B (approved at the 2005 inter-sessional Governing Council meeting);

- A Working Group on *Evaluations of climate change projections* has been established under the direction of POC, with terms of reference as described in *GC Appendix B*;
- A Working Group on *Non-indigenous aquatic species* has been formed under the direction of MEQ, with terms of reference as described in *GC Appendix B*;
- A Study Group to develop a strategy for GOOS has been established under the direction of MONITOR, with terms of reference as described in *GC Appendix B*.

05/S/7: Relations with other organizations and programs

Council approved the revised *Standing List of International Organizations and Programs*, and agreed with the identified priorities for interaction in 2005-2006.

GC Appendix B

Terms of reference for the Study Group on *Future integrative scientific program(s)*

1. Solicit ideas (short 1-page descriptions) from PICES Committees, the CCCC Program, and more broadly as appropriate, concerning future major scientific endeavors for PICES;
2. Compile, review and assess the responses; develop themes of potential interest to all member countries, and present the results to Governing Council at PICES XIV, indicating preferences of the Study Group if more than one theme is recommended;
3. Disseminate findings and recommendations after meeting with Governing Council, and seek feedback from the PICES scientific community;
4. Present revised themes and recommendations for proceeding with the implementation of the selected theme(s) to Governing Council at its inter-sessional meeting in spring 2006;
5. Provide the final report to Governing Council and make an open forum presentation on the preferred theme(s) at PICES XV.

Terms of reference for the Section on *Carbon and climate*

1. Coordinate and encourage ongoing and planned national and international syntheses of carbon cycle research studies in the North Pacific and, where necessary and appropriate, for the larger Pacific basin;
2. Ensure effective two-way communication with other international scientific groups that have a responsibility for the coordination of ocean carbon studies, such as the International Ocean Carbon Coordination Project (IOCCP), and the SOLAS/IMBER implementation group for carbon research;
3. Review the existing biogeochemical information on carbon cycling within the North Pacific, identify gaps in our

- knowledge and make prioritized recommendations for future research;
4. Periodically review the status of the methodology of CO₂ measurements including the preparation of standards and reference materials, and advise on inter-calibration and quality control procedures;
 5. Identify suitable data sets on the oceanic CO₂ system in the Pacific region as they become available, and recommend the mechanisms of data and information exchange;
 6. Carry out and publish (in the refereed literature) basin-scale syntheses of carbon cycling in the North Pacific, including new data whenever appropriate, and encourage scientific interpretation of these evolving data sets;
 7. Organize symposia, workshops, or Annual Meeting sessions on carbon cycle and climate studies in the North Pacific.

Terms of reference for WG 20 on *Evaluations of climate change projections*

1. Analyse and evaluate climate change projections for the North Pacific and its marginal seas based on predictions from the latest global and regional models submitted to the Inter-governmental Panel on Climate Change (IPCC) for their 4th assessment report;
2. Facilitate analyses of climate effects on marine ecosystems and ecosystem feedbacks to climate by, for example computing an ensemble of the IPCC model projections for the North Pacific and making these projections available to other PICES groups such as CFAME;
3. Facilitate the development of higher-resolution regional ocean and coupled atmosphere-ocean models that are forced by, and take their boundary conditions from, IPCC global or regional models;
4. Facilitate the development of local and regional data sets (*e.g.*, SST, river flow, sea ice cover) by incorporating information from climate model projections as well as observations and historical re-analyses;
5. Ensure effective two-way communication with CLIVAR;
6. Convene workshops/sessions to evaluate and compare results;
7. Publish a final report summarizing results.

Terms of reference for WG 21 on *Non-indigenous aquatic species*

1. Complete an inventory of all non-indigenous aquatic species in all PICES member countries, together with compilation and definitions of terms and recommendations on use of terms. Summarize the situation on bioinvasions in the Pacific and compare and contrast to other regions (*e.g.*, Atlantic, Australia, *etc.*);
2. Complete inventory of scientific experts in all PICES member countries on non-indigenous aquatic species subject areas and of the relevant national research programs/projects underway;
3. Review and evaluate initiatives on mitigation measures (*e.g.*, ICES Code of Practice for the Introduction and Transfer of Marine Organisms; IMO Ballast Water Management Convention and others such as the Canadian Introductions and Transfers Code);
4. Summarize research related to best practices for ballast water management;
5. Coordinate activities of the PICES WG on non-indigenous aquatic species with related WGs in ICES through a joint back to back meeting of the PICES and ICES Working Groups on invasive species in 2007/8;
6. Develop and recommend an approach for formal linkages between PICES and ICES on non-indigenous aquatic species;
7. Publish final report summarizing results and recommendations.

Terms of reference for a Study Group to develop a strategy for GOOS

1. Identify and describe the major observing systems (present and proposed) in the PICES region. Descriptions should include general data types, contact information, and data transmission (real-time vs. delayed);
2. Provide a recommendation and justification to MONITOR on whether or not PICES should propose a North Pacific GOOS pilot project to IGOOS.

GC Endnote 1

Participation list

Canada

Serge Labonté
 Laura Richards
 Darlene Smith (advisor, October 8 only)

Japan

Tokimasa Kobayashi (advisor, October 4 only)
 Hideki Nakano (alternate delegate)
 Yoshihide Tsuda (advisor, October 8 and 9 only)

People's Republic of China

Zhi-Xin Chen (alternate delegate, October 4 only)
 Chuanlin Huo (advisor)
 Qian-Fei Liu (advisor)
 Fangli Qiao (advisor, October 4 and 9 only)
 Dongmei Tang (alternate delegate, October 8 and 9 only)

Republic of Korea

Haeng Nok Oh (alternate delegate)

Ig Chan Pang

Hak Yeol You (advisor)

Russia

Lev N. Bocharov
 Vladimir Radchenko (advisor, October 4 only)
 Pavel Vorobyov (advisor)

U.S.A.

George W. Boehlert
 Samuel Pooley
 Elizabeth J. Tirpak (advisor)

Other

Vera Alexander (Chairman, PICES)
 Alexander Bychkov (Executive Secretary)
 Hyung-Tack Huh (Past-Chairman, PICES)
 Kuh Kim (Chairman, Science Board, October 4 and 9 only)
 Skip McKinnell (Deputy Executive Secretary, October 9 only)
 John E. Stein (Vice-Chairman, Science Board, October 9 only)

GC Endnote 2

Governing Council meeting agenda

1. Opening remarks
2. Adoption of agenda and meeting procedures
3. Report on administration
4. Report of 2005 inter-sessional Science Board/Governing Council meeting
5. Membership and observers from other countries
6. Relations with relevant international and regional organizations
7. Report of the Study Group on *Rules of Procedure and Financial Regulations*
8. Report of the Study Group on *Future integrative scientific program(s)*
9. Governing Council plans for implementing the Strategic Plan
10. PICES Intern Program
11. Capacity Building activities
12. Improvement of participation in PICES activities
13. Schedule and financing of future Annual Meetings
14. Report and recommendations of Science Board
15. Report and recommendations of F&A Committee
16. Other business

GC Endnote 3

Preliminary Report on Administration for 2005

I. Annual contributions

According to Financial Regulation 5(ii), all national contributions to PICES are payable by

| | |
|---------------------------------|---|
| Canada ----- | December 24, 2004 |
| U.S.A.----- | January 10, 2005 |
| Japan ----- | March 2, 2005 |
| Republic of Korea----- | March 30, 2005 |
| Russian Federation----- | March 31, 2005 |
| People's Republic of China----- | September 22, 2005 (Partial payment \$88,000 or ~86%) |

the first day of the financial year (January 1) to which they relate. Dues for 2005 were paid as follows:

II. External and additional funding

Since the Thirteenth Annual Meeting (October 2004), efforts from the PICES scientific community, national delegates and F&A members, and the PICES Secretariat resulted in the following extra-budgetary contributions for various activities initiated/co-sponsored by PICES:

- The sample collection and analysis of the PICES Continuous Plankton Recorder (CPR) survey of the North Pacific and southern Bering Sea continues, utilizing funding provided in 2003, support for the east-west transect is by a grant from NPRB (US \$185,000 total, from July 2003 to June 2005), and for the north-south transect by a grant from EVOS (US \$120,000 per year, from 2004 to 2006).

Special projects

- The United States of America contributed \$110,000 to support high priority PICES projects.
- The North Pacific Research Board (NPRB, U.S.A.) approved a grant of US \$99,957 to support a PICES project entitled "*Integration of ecological indicators for the North Pacific with emphasis on the Bering Sea: A workshop approach*" (to be completed in 2006).
- The North Pacific Research Board (NPRB, U.S.A.) approved funding \$90,000 for the production of the next North Pacific Ecosystem Status Report (expected to be published in 2007).
- The PICES Advisory Panel on *Micronekton inter-calibration experiment* (Dr. Orio Yamamura) succeeded in securing a 7-day ship time aboard the research vessel *Hokko Maru* (Fisheries Research Agency of Japan) during September 25 – October 3, 2005, for a second experiment in the subarctic North Pacific to evaluate the efficiency of sampling gears and procedures employed by different agencies to sample micronekton.

Publications

- The National Science Foundation (NSF, U.S.A.) provided a grant of US \$15,000 for the publication of a book on the history of PICES by Dr. Sara Tjossem entitled "The journey to PICES: Scientific cooperation in the North Pacific" (previously NSF had supported the writing of the book through a grant to the University of Alaska Fairbanks). Funds for the project are managed by the Chairman of PICES, Dr. Vera Alexander. The Alaska Sea Grant College Program and the Alaska Fisheries Science Center committed additional monetary and "in-kind" support for this publication.

Meetings/symposia/workshops

- The *Exxon Valdez* Oil Spill Trustee Council (EVOS, U.S.A.) allocated US \$15,000 for PICES workshops consistent with goals and activities of the Gulf of Alaska Ecosystem Monitoring and Research Program (GEM) of EVOS.
- The Alaska Fisheries Science Center (AFSC, U.S.A.) and the Northwest Fisheries

Science Center (NWFSC, U.S.A.) provided US \$10,000 to offset PICES expenses for the 2005 inter-sessional SB/GC meeting (April 6-8, 2005, Seattle, U.S.A.).

- The North Pacific Research Board (NPRB, U.S.A.) and GLOBEC contributed US \$25,000 and \$11,300, respectively, to the 2005 ESSAS Symposium on “*Climate variability and sub-Arctic marine ecosystems*” (May 16-20, Victoria, Canada).
- The Ocean Research Institute (ORI, Japan) and SOLAS-Japan provided funding for a 2-day workshop (October 17-18, 2005, Tokyo, Japan) to synthesize results from the SEEDS-II iron enrichment experiment in the western subarctic Pacific. Funds for the project are managed by Dr. Atsushi Tsuda (member of the PICES IFEP-AP).
- The North Pacific Fisheries Management Council (NPFMC, U.S.A.) and the Pacific Islands Fisheries Science Center (PIFSC, U.S.A.) provided US \$5,000 and US \$10,000, respectively, for the 2006 CCCC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*” (April 19-21, 2006, Honolulu, Hawaii).
- The Department of Fisheries and Oceans (DFO, Canada) contributed \$10,000 for the 2006 Symposium to mark the 50th anniversary of Line-P (July 5-7, 2006, Victoria, Canada).

Capacity building

- The Department of Fisheries and Oceans (DFO, Canada), the National Marine Fisheries Service (NMFS, U.S.A.) and the Pacific Scientific Research Fisheries Center (TINRO-Center, Russia) contributed \$14,000, US \$15,000 and US \$3,000, respectively, to the Trust Fund to finance the PICES Intern Program.
- The Alaska Fisheries Science Center (AFSC, U.S.A.) contributed \$3,630 to the Trust Fund to support travel of young scientists to PICES meetings.
- The Scientific Committee on Oceanic Research (SCOR) provided a travel grant of US \$5,000 for scientists from countries with “economies in transition” to attend PICES XIV; SCOR also committed US \$7,500

each for travel of scientists from countries with “economies in transition” to PICES XV and the 2006 CCCC Symposium.

- The Fisheries Research Agency of Japan (FRA), the Asia Pacific Network (APN) and the Intra-American Institute (IAI) provided funding for a 4-day MODEL workshop (November 14-17, 2005, Tokyo, Japan) to extend the NEMURO.FISH model to fish stocks in other geographic regions. Funds for the project are managed by members of the PICES MODEL TT, Drs. Shin-ichi Ito (FRA), Michio Kishi (APN) and Francisco Werner (IAI).

PICES Secretariat

- Korea contributed \$19,200 to support a part-time position at the PICES Secretariat.

III. Inter-sessional meetings

Since PICES XIII (October 2004), the following inter-sessional meetings were convened/co-sponsored, for which financial, travel and logistical arrangements were made:

- Third inter-sessional Science Board/Governing Council meeting, April 6-8, 2005, Seattle, U.S.A.;
- CREAMS/PICES Workshop on “*East Asian Seas Time-series*”, April 21-22, 2005, Seoul, Korea;
- Workshop to develop a CFAME work plan, May 14-15, 2005, Victoria, Canada;
- GLOBEC Symposium on “*Climate variability and sub-Arctic marine ecosystem*”, May 16-20, 2005, Victoria, Canada (PICES was a co-sponsor and local host for the symposium);
- OECOS Workshop to plan “*An east-west comparative study of lower trophic level pelagic ecology in the subarctic Pacific Ocean*”, May 23-24, 2005, Corvallis, U.S.A.;
- ICES/PICES theme sessions on “*Fisheries, ecology and life history of small pelagic fish*” and on “*Comparing and constructing the scientific strategies and output of regional ecosystem projects*” at the ICES Annual Science Conference, September 2005, Aberdeen, Scotland;

GC-2005

- ORI/PICES Workshop to synthesize results from the second *in situ* iron enrichment experiments in the western subarctic North Pacific (SEEDS-II), October 17-18, 2005, Tokyo, Japan;
- NPAFC/PICES Symposium on “*The status of Pacific salmon and their role in North Pacific marine ecosystems*”, October 30-November 1, 2005, Jeju, Korea;
- FRA/APN/IAI/GLOBEC/PICES workshop to extend NEMURO.FISH to fish stocks in other geographic regions, November 14-17, 2005, Tokyo, Japan.

The following workshops are to be convened in conjunction with PICES XIV in Vladivostok, Russia:

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

Preparations, arrangements or planning are in progress for:

- PICES/GLOBEC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*”, April 19-21, 2006, Honolulu, U.S.A.;
- PICES/NPRB Workshop on “*Integration of ecological indicators for the North Pacific with emphasis on the Bering Sea*”, May 24-26 or May 31-June 2, 2006, Seattle, U.S.A.;
- Symposium on “*Time series of the Northeast Pacific Ocean: A symposium to mark the 50th anniversary of Line-P*” (co-sponsored by DFO and PICES), July 5-7, 2006, Victoria, Canada;
- ICES/PICES/MBIC Symposium on “*Marine bioinvasions*”, May 2007, Washington, DC, U.S.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;

- ICES/PICES Young Scientists Conference, summer 2007, venue TBD.

IV. Publications

Publications produced after PICES XIII or still in progress include:

Primary journals, 2005-2006

- Linkages between open and coastal systems (Guest Editors: S. McKinnell and G. McFarlane) - *Deep-Sea Research II*. 2005. Vol. 52, Nos. 5-6, pp. 665-843 (special issue from the 2003 CCCC workshop at PICES XII);
- Quantitative ecosystem indicators for fisheries management (Guest Editor: N. Daan) - *ICES J. Mar. Res.* 2005. Vol. 62, No. 3, pp.307-613 (special issue from the 2004 Ecosystem Indicators Symposium).

Peer-review process is in progress for three special issues with publication in mid-2006:

- Selected papers on NEMURO and NEMURO.FISH models (Guest Editors: M. Kishi, B. Megrey, S.I. Ito and F. Werner) - *Ecological Modelling*;
- Mechanisms that regulate North Pacific ecosystems: Bottom up, top down, or something else? (Guest Editors: G. Hunt and S. McKinnell) - *Progress in Oceanography* (special issue from the 2004 Topic Session at PICES XIII);
- Hot spots and their use by migratory species and top predators in the North Pacific (Guest Editors: W. Sydeman, A. Bychkov, R. Brodeur, C. Grimes and S. McKinnell) - *Deep-Sea Research II* (special issue from the 2004 Topic Session at PICES XIII).

PICES Special Publications 2004-2005

- Marine ecosystems of the North Pacific. 2004. PICES Spec. Publ. No. 1, 280 p.
- Perry, R.I. and McKinnell, S.M. (Eds.) 2005. Marine life in the North Pacific Ocean: The known, unknown and unknowable. PICES Spec. Publ. No. 2, 46 p.

PICES Scientific Report Series

- Kishi, M.J. (Ed.) 2004. Report of the MODEL Task Team Second Workshop to Develop a Marine Ecosystem Model of the North Pacific Ocean including Pelagic Fishes. PICES Sci. Rep. No. 27, 49 p.
- King, J. (Ed.) 2005. Report of the Study Group on Fisheries and Ecosystem Responses to Recent Regime Shifts. PICES Sci. Rep. No. 28, 162 p.
- Jamieson, G. and Zhang, C.I. (Eds.) 2005. Report of the Study Group on Ecosystem-Based Management. PICES Sci. Rep. No. 29, 72 p.
- Brodeur, R. and Yamamura, O. (Eds.) 2005. Micronekton of the North Pacific (Working Group 14 Final Report). PICES Sci. Rep. No. 30, 115 p.
- Takeda, S. and Wong, C.S. (Eds.) 2005 (publication is expected in November). Proceedings of the 2004 Workshop on *In Situ* Iron Enrichment Experiments in the Eastern and Western Subarctic Pacific. PICES Sci. Rep. No. 31.

Other publications, 2005

- PICES Advisory Report on Fisheries and ecosystem responses to recent regime shifts in the North Pacific. 2005, 12 p.
- Tjossem, S. 2005. The journey to PICES: Scientific cooperation in the North Pacific (book on the history of PICES)
- PICES 2004 Annual Report
- Final announcement, poster and book of abstracts for PICES XIV

PICES Press - Newsletters

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

V. Travel and representation at other organization meetings

- Drs. Vera Alexander (PICES Chairman) and Kuh Kim (Science Board Chairman) and members of the Secretariat travelled in April 2005, to Seattle, U.S.A., for the 3rd inter-sessional Science Board/Governing Council meeting; and in October 2005 to Vladivostok, for PICES XIV;

- Full travel support was provided for 1 invited speaker (Dr. Yury Zuenko, Russia) to the CREAMS/PICES Workshop on “*East Asian Time-series*” (April 2005, Seoul, Republic of Korea); travel support for other invited speakers was provided by the School of Earth & Environmental Sciences of SNU and the Ministry of Maritime Affairs and Fisheries;
- Full travel support was provided for 1 invited speaker (Dr. Kazuaki Tadokoro, Japan) to the CCCC Workshop to develop a CFAME work plan (May 2005, Victoria, Canada);
- Full travel support was provided for Dr. Akihiko Yatsu (WG 16 Co-Chairman) to work with Dr. Richards Beamish (WG 16 Co-Chairman) to complete the Working Group report (May 2005, Nanaimo, Canada);
- Full travel support was provided for 1 invited speaker (Dr. Victor Lapko, Russia) and two young Korean scientists (from the Trust Fund) to attend the ESSAS Symposium on “*Climate variability and sub-arctic marine ecosystems*” (May 2005, Victoria, Canada);
- Partial travel support was provided to 13 scientists from Canada, Japan and U.S.A. to attend the OECOS workshop on “*An east-west comparative study of lower trophic level pelagic ecology in the subarctic Pacific Ocean*” (May 2005, Corvallis, U.S.A.);
- Full travel support was provided to Dr. Jacquelynn R. King (FERRRS Chairman) to present the FERRRS report at the meeting of the Pacific Fishery Management Council (June 2005, San-Francisco, U.S.A.);
- Partial travel support was provided to Dr. Igor Shevchenko (TCODE Chairman) to attend the Symposium on “*GIS in Fishery and Aquatic Sciences*” (August 2005, Shanghai, People’s Republic of China);
- Full or partial travel support was provided to 1 Korean scientist and 2 U.S. scientists to participate in two meetings (September 2005, in Seattle, U.S.A. and October 2005, in Pusan, Republic of Korea) of the “*Federated metadata project*”;
- Full travel support was provide to PICES convenors (Drs. Douglas Hay and Skip

- McKinnell) to the joint ICES/PICES theme sessions on “*Fisheries, ecology and life history of small pelagic fish*” and “*Comparing and constructing the scientific strategies and output of regional ecosystem projects*” at the ICES Annual Science Conference (September 2005, Aberdeen, Scotland); partial travel support is provided to 1 invited speaker (Dr. Robin Waples, U.S.A.) to the first of these sessions;
- Full or partial travel support was provided for 3 invited speakers (Drs. Stephan Bates, Charles Trick and Satoshi Nagai) to the MEQ Workshop on “*Review of selected harmful algae in the PICES region: I. Pseudo-nitzschia and Alexandrium*”, 1 invited speakers (Naoko Yoshie) to the IFEP/MODEL Workshop on “*Modeling and iron biogeochemistry: How far apart are we?*”, 2 invited speakers (Drs. Helge Botnen and Sergej Olenin) to the PICES/ICES Workshop on “*Introduced species in the North Pacific*”, and 3 invited speakers (Drs. R. Ian Perry, Jacqueline Alder and Robin Rigby) to the MONITOR workshop on “*Filling the gaps in the PICES North Pacific Ecosystem Status Report*” at PICES XIV;
 - Full or partial travel support was provided to 11 invited speakers of scientific sessions at PICES XIV;
 - Partial travel support was provided to 15 Chinese, 3 Japanese, 1 Indian, 11 Korean, 17 Russian (mostly registration fees) and 3 US scientists to attend PICES XIV. The majority of these scientists are younger than 35 years of age;
 - Full travel support was provided to Mrs. Madeleine Ware (widow of Dr. Daniel Ware, the recipient of the 2005 Wooster Award) to attend PICES XIV;
 - Partial travel support was provided to Dr. Hyung-Tack Huh (Past-Chairman of PICES) to attend PICES XIV;
 - Full travel support was provided to 1 invited speaker (Dr. Maurice Levasseur, Canada) to the ORI/PICES Workshop to synthesize results from the second *in situ* iron enrichment experiments in the western subarctic North Pacific (October 2005, Tokyo, Japan);
 - Full travel support will be provided to 2 invited speakers and PICES convenor of the NPAFC/PICES Symposium on “*The status of Pacific salmon and their role in North Pacific marine ecosystems*”, October 30-November 1, 2005, Jeju, Korea;
 - Full or partial travel support will be provided to two scientists (Drs. Salvador Lluch-Cota, Mexico, and Francisco Chavez, U.S.A.) to participate in the FRA/APN/IAI/GLOBEC/PICES Workshop to extend NEMURO.FISH to fish stocks in other geographic regions (November 2005, Tokyo, Japan).
 - Dr. Sei-ichi Saitoh (Co-Chairman, MONITOR Task Team) represented PICES at the 12th NPAFC Annual Meeting (October 2004, Sapporo, Japan); and at the 9th NEAR-GOOS Coordinating Committee meeting (November 2004, Sendai, Japan);
 - Dr. Mark Wells (HAB Section member) represented PICES at the meetings of the ICES/IOC/IMO Working Group on *Ballast and Other Ship Vectors* (March 2005, Arendal, Norway);
 - Dr. Ian Perry represented PICES at the NPAFC CSRS (Committee on Scientific Research and Statistics) meeting (April 2005, Nanaimo, Canada);
 - Dr. Skip McKinnell (Deputy Executive Secretary) represented PICES at the meeting of the PaCOOS Governing Board (March 2005, Seattle, U.S.A.) and at the meeting of the ICES-GOOS Steering Group (June 2005, Brest, France); it is expected that he will also represent PICES at the PaCOOS Governing Board meeting to be held in December, in La Jolla, U.S.A.;
 - Dr. Suam Kim (Co-Chairman, CCCC Program) represented PICES at the GLOBEC SSC meeting (June 2005, in Rome, Italy); it is expected that he will also represent PICES at the 13th NPAFC Annual Meeting to be held in October 2005, in Jeju, Republic of Korea;
 - Dr. Alexander Bychkov (Executive Secretary) represented PICES at the GCP (Global Carbon Project) SSC meeting and at the 23rd Assembly of the Intergovernmental Oceanographic Commission held consecutively in June 2005, in Paris, France.

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:

Argo - International Program for Deployment of profiling floats

- A 1-day joint PICES/Argo Topic Session on “*Application of Global Observing Systems to physics, fisheries, and ecosystems*” was held on October 19, 2004, at PICES XIII.

International Research Programme on Climate Variability and Predictability (CLIVAR)

- A 2-day joint PICES-CLIVAR workshop on “*Scale interactions of climate and marine ecosystems*” was held October 23-24, 2004, in conjunction with PICES XIII.
- PICES is in the process of creating a new POC Working Group on *Evaluation of Climate Change Projections*, which should enhance future collaboration with CLIVAR via its Pacific Panel. If the working group and its membership are formally established in early 2006, CLIVAR will be invited to co-host a topic session or workshop at PICES XV in Yokohama.

Census of Marine Life program (CoML)

- A baseline CoML report entitled “Marine life in the North Pacific Ocean: The known, unknown and unknowable” was published in the PICES Special Publication Series (Perry, R.I. and McKinnell, S.M. (Eds.) 2005. PICES Spec. Publ. No. 2, 46 p.). An interactive fully searchable version of the report (the core report and 8 additional supporting files) was placed on the PICES website.

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.

- PICES co-sponsored and served as the local organizer for the GLOBEC Symposium on “*Climate variability and sub-arctic marine ecosystems*” held May 16 - 20, 2005, in Victoria, Canada. The symposium brought together 230 scientists from 12 countries (including all six PICES member countries) to present current knowledge of the structure and function of sub-arctic marine ecosystems and to discuss, at two special workshops, the Implementation Plans of a new GLOBEC regional program on *Ecosystem Studies of Sub-Arctic Seas* (ESSAS) and of the U.S. national program on the *Bering Ecosystem Study* (BEST). PICES is prepared to actively support future ESSAS activities, e.g., comparative regional workshops.
- Several theme sessions of scientific interest to GLOBEC will be convened at PICES XIV to be held September 28 - October 9, 2005, in Vladivostok, Russia. Examples include: “*Mechanisms of human and climate impacts on ecosystems in marginal seas and shelf regions*” (S1), “*The comparative responses of different life history strategists to climate shifts*” (S4), and “*Modeling climate and fishing impacts on fish recruitment*” (S5).
- PICES and GLOBEC are both involved in organizing a FRA/APN/IAI/GLOBEC/PICES workshop to extend NEMURO.FISH to fish stocks in other geographic regions, to be held November 14-17, 2005, in Tokyo, Japan.
- GLOBEC will co-sponsor the CCCC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*” to be held April 19-21, 2006, in Honolulu, U.S.A. The primary scientific objective of this symposium is to present a synthesis of the effects of seasonal to multi-decadal variability on the structure and function of the North Pacific that goes beyond the analysis and understanding developed from studies of a single trophic level, process or region—a True Synthesis. The symposium will be a part of GLOBEC synthesis efforts, and the GLOBEC SSC is

GC-2005

planning to meet in conjunction with this event.

- PICES and GLOBEC are working together to organize the 4th International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*” to be held May 28 - June 1, 2007, in Hiroshima, Japan (other sponsors/organizers are ICES, the Plankton Society of Japan and the Japanese Society of Fisheries Oceanography).

Global Ocean Observing System (GOOS)

- PICES carries on a few projects of direct relevance to GOOS: North Pacific Ecosystem Status Report, Continuous Plankton Recorder (CPR) survey of the North Pacific, inter-calibration of micronekton sampling gears and procedures, etc.
- At the 2005 inter-sessional Science Board/Governing Council meeting, GOOS integration was identified as a high priority PICES activity.
- PICES is actively communicating with regional monitoring efforts in the eastern North Pacific to develop options for international coordination of observing resources of the California Current, Gulf of Alaska and the Bering Sea.
- PICES is working with NEAR-GOOS (North-East Asian Regional GOOS) and participating in NEAR-GOOS meetings, with the idea of broadening the program to an ecosystem-based effort.

International Council for the Exploration of the Sea (ICES)

- PICES co-sponsored two Topic Sessions on “*Fisheries, ecology and life history of small pelagic fish*” and on “*Comparing and constructing the scientific strategies and output of regional ecosystem projects*” held at the 2005 ICES Annual Science Conference (Aberdeen, Scotland). Drs. Douglas E. Hay and Stewart M. (Skip) McKinnell served as PICES co-convenors for these sessions.
- ICES accepted PICES’ invitation to co-sponsor a workshop on “*Introduced species in the North Pacific*” at PICES XIV

(October 4-5, 2005, Vladivostok, Russia). Dr. Stephan Gollasch served as the ICES co-convenor for this workshop.

- A joint ICES/PICES/MBIC Symposium on “*Marine bioinvasions*” will be held in May 2007, in Washington, DC, U.S.A. Dr. Yasuwo Fukuyo (Japan) will serve as the PICES co-convenor and a member of the Scientific Program Committee for the Symposium.
- ICES is one of the co-sponsors (with PICES, GLOBEC, the Plankton Society of Japan and the Japanese Society of Fisheries Oceanography) for the 4th International Zooplankton Production Symposium on “*Human and climate forcing of zooplankton populations*” to be held May 28 - June 1, 2007, in Hiroshima, Japan.
- Planning is in progress for a joint ICES/PICES Young Scientist Conference on Marine Sciences in 2007. This conference is intended to bring together “early career” scientists from around the globe.
- To discuss/initiate possible co-operation in specific areas, PICES representatives attended annual meetings of the following ICES Groups:
 - Dr. Mark Wells (PICES HAB Section) attended the meeting of the ICES/IOC/IMO *Working Group on Ballast and Other Ship Vectors* held in March 2005, in Arendal, Norway.
 - Dr. Skip McKinnell (PICES Secretariat) attended the meeting of the ICES-GOOS Steering Group held in June 2005, in Brest, France.

Integrated Marine Biogeochemistry and Ecosystem Research (IMBER)

- Dr. Julie Hall (IMBER SSC Chairman) attended PICES XIII and presented an overview of this project to the PICES scientific community (at the session on “*The impacts of large-scale climate change on North Pacific marine ecosystems*”) and to Governing Council. Council accepted the recommendation of Science Board that PICES should assist in the implementation of IMBER in the North Pacific.
- A brief proposal entitled “North Pacific Marine Ecosystem Response to Global

Change” has been submitted for PICES to consider issues of marine biogeochemistry and food webs that would link with IMBER as a potential topic for a new PICES scientific integrative program.

- A joint Topic Session focused on IMBER-aligned science is proposed to be held at PICES XV in Yokohama, Japan.

Intergovernmental Oceanographic Commission (IOC)

- In 2002, IOC and PICES agreed to cooperate on four fronts: (i) monitoring (PICES - GOOS cooperation, see under GOOS); (ii) ecosystem indicators (PICES - SCOR/IOC WG 119, see under SCOR); (iii) CO₂ data integration and synthesis (see under IOCCP); and (iv) harmful algal blooms (see below).
- IOC and PICES agreed (a formal agreement was signed in June 2005) to establish a partnership in systematically compiling, storing and presenting on-line, records on harmful algal events. Event records will 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 will be presented with equal credit to the partner organizations. ICES is acknowledged as an equal partner in HAE-DAT. The HAE-DAT partnership is open to other appropriate and complementary regional organizations as to achieve global coverage of HAE-DAT. Building a common data resource will allow inter-comparison of HAB species composition and the magnitude of environmental and economic impacts.

International Ocean Carbon Coordinated Project (IOCCP)

- IOCCP is designed to interface with existing regional-scale research and observation groups that have an interest in ocean carbon. 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), has been long acting as a regional coordinator for these activities. It is expected that a new PICES Section on *Carbon and climate* will provide clear channels of communication to IOCCP, and to large-scale IGBP programs such as SOLAS and IMBER.

- A joint PICES/IOCCP Topic Session on “*The impacts of climate change on the carbon cycle in the North Pacific*” was convened October 20-21, 2004, at PICES XIII. The session comprised of 18 oral presentations together with a number of posters. Special time was allocated at the session to present the main findings from the joint NOAA/GCP/PICES workshop on “*Understanding North Pacific carbon-cycle changes: Data synthesis and modeling*” (June 2-4, 2004, in Seattle, U.S.A.).
- IOCCP and PICES are co-sponsoring the preparation of the “*Guide to best practices for oceanic CO₂ measurements and data reporting*” to be published in the PICES Scientific Report Series in 2006.

North Pacific Anadromous Fish Commission (NPAFC)

- NPAFC accepted PICES’ invitation for the Chairman of NPAFC’s Committee on Scientific Research and Statistics (CSRS) to present annual updates on the status of Pacific salmon in the North Pacific to the MONITOR Technical Committee. Every third year, the CSRS Chairman will make a more complete presentation on the status of Pacific salmon in the North Pacific as input to update the North Pacific Ecosystem Status Report. A representative of PICES will present the North Pacific Ecosystem Status Report to NPAFC Annual Meetings.
- A 3-day NPAFC/PICES Symposium on “*The status of Pacific salmon and their role in North Pacific marine ecosystems*” will be held October 30-November 1, 2005, in Jeju, Republic of Korea. PICES’ convenor for the symposium is Dr. V. Radchenko; and PICES members of the Scientific Steering Committee are Y. Ishida, S. Kim, I. Perry

and J. Stein. Selected papers from the symposium will be published in a special issue of *Fisheries Research* and/or, alternatively, in the NPAFC Bulletin.

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.

- Collaboration with SCOR-IOC Working Group 119 started with PICES' involvement in planning and organizing the International Symposium on "*Quantitative ecosystem indicators for fisheries management*" (March 31-April 3, 2004, in Paris, France). The project was completed this year by the publication of a special issue (Guest Editor: N. Daan) in *ICES J. Mar. Res.*, Vol. 62, No. 3, pp.307-613.
- In October 2004, PICES established a new Working Group on *Ecosystem-based management science and its application to the North Pacific*. This Working Group will definitely benefit from activities of SCOR-IOC WG 119. One of the terms of reference for PICES WG 19 directly states "Evaluate the indicators from the 2004 Symposium on "*Quantitative ecosystem indicators for fisheries management*" for usefulness and application to the North Pacific".
- In December 2004, PICES published its first North Pacific Ecosystem Status Report (PICES Special Publication No. 1). The report contains not just descriptive summaries of physical and biological conditions in the North Pacific, but also quantitative indices of ecosystem status and trends. This effort is seen as a work-in-progress, and publication of the second version is planned for 2007. The report opens new opportunity for cooperation with SCOR-IOC WG 119 that could assist in identifying what should be addressed in the North Pacific Ecosystem Status Report, using relevance to management decisions as selection criteria.
- A workshop on "*Climate variability, zooplankton abundance and distribution –*

comparative opportunities from the world's oceans" convened during the 3rd PICES/ICES/GLOBEC Zooplankton Production Symposium (May 2003, Gijón, Spain) led to a proposal submitted to SCOR for a Working Group on *Global Comparisons of Zooplankton Time Series*. This proposal was approved at the 27th SCOR General Meeting in September 2004. PICES strongly supported the formation of this Working Group and agreed to provide funding for one additional member from the North Pacific (Dr. Harold P. Batchelder, Oregon State University, U.S.A.) to participate in its activities. Some future meetings of this SCOR WG 125 are planned to be held in conjunction with symposia organized by PICES: the symposium on "*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*" (April 2006) and the 4th International Zooplankton Production Symposium on "*Human and climate forcing of zooplankton populations*" (May 2007).

- Starting in 2005, the PICES HAB Section will convene an annual series of workshops to document the existing knowledge on the eco-physiology of HAB species that impact all, or most, countries in the North Pacific. A 1-day workshop at PICES XIV will focus on two genera, *Pseudo-nitzschia* and *Alexandrium*. The SCOR GEOHAB Program is invited to co-sponsor future workshops of this series.
- SCOR provided a travel grant of US \$5,000 to support participation of scientists from countries with "economies in transition" to attend sessions/workshops of PICES XIV; SCOR also committed US \$7,500 each for travel of scientists from countries with "economies in transition" to PICES XV and the 2006 CCCC Symposium.

Surface Ocean-Lower Atmosphere Study (SOLAS)

- Meso-scale iron enhancement experiments are an important part in the agenda of both SOLAS and PICES. Three international collaborative field projects were developed under the umbrella of PICES, through its Advisory Panel on the *Iron Fertilization*

Experiment in the Subarctic Pacific Ocean (IFEP) established in 2000. SERIES (Subarctic Ecosystem Response to Iron Enrichment Study) was performed in the eastern subarctic Pacific in summer of 2002, and SEEDS-I and SEEDS-II (Subarctic Pacific Iron Experiment for Ecosystem Dynamics Study) were conducted in the western subarctic Pacific in the summers of 2001 and 2004, respectively. Important new findings from the first two experiments were published recently in *Science* (SEEDS-I: Tsuda *et al.* 2003, 300: 958-961) and *Nature* (SERIES: Boyd *et al.* 2004, 428: 549-553). More detailed results from these experiments can be found in special issues of *Progress in Oceanography* (SEEDS-I) and *Deep-Sea Research II* (SERIES) to be published in 2005. SEEDS-II was completed in August 2004, and results are underway.

- Proceedings of the 2004 PICES Workshop on “*In Situ* iron enrichment experiments in the eastern and western subarctic Pacific” will be published as PICES Sci. Rep. No. 31 in late 2005.
- A 1-day workshop on “*Modeling and iron biogeochemistry: How far apart are we?*” will be held October 2, 2005, at PICES XIV. The goal of this workshop is to examine the structure of iron biochemical models with respect to what is known about iron biogeochemistry. It is expected that this workshop will enhance communication between experimentalists and modelers, and establish a framework for organizing a 2-3 day workshop (hopefully, jointly with SOLAS) that will address this problem in detail and compare ecological models that describe how plankton ecosystem respond to meso-scale iron enrichment in the high-nutrient, low-chlorophyll waters of the subarctic Pacific.
- A 2-day workshop on SEEDS-II, co-sponsored by the Ocean Research Institute (University of Tokyo), SOLAS-Japan and PICES, will be held October 17 - 18, 2005, in Tokyo, Japan. The goals of this workshop are: (1) to synthesize results from the second *in situ* iron enrichment experiments in the western subarctic North

Pacific (SEEDS-II); and (2) to discuss differences in magnitude, biology and export between SEEDS-I and SEEDS-II.

Exxon Valdez Oil Spill Trustee Council (EVOS)

- The sample collection and analysis for the north-south transect of the PICES Continuous Plankton Recorder (CPR) survey of the North Pacific is supported by a grant from EVOS (US \$120,000 per year, from 2004 to 2006).
- In 2002-2004, EVOS provided US \$42,800 for the development of the North Pacific Ecosystem Status Report.
- EVOS allocated US \$15,000 for PICES workshops (to be convened during the time period October 1, 2004 – September 30, 2005) consistent with goals and activities of the Gulf of Alaska Ecosystem Monitoring and Research Program (GEM).

North Pacific Research Board (NPRB)

- The sample collection and analysis for the east-west transect of the PICES Continuous Plankton Recorder (CPR) survey of the North Pacific is supported by a grant from NPRB (US \$185,000, from July 2003 to June 2005).
- NPRB provided US \$25,000 for the ESSAS Symposium on “*Climate variability and sub-arctic marine ecosystems*” held May 16-20, 2005, in Victoria, Canada. PICES was a co-sponsor and a local organizer for this symposium.
- NPRB approved a grant of \$90,000 for the production of the next North Pacific Ecosystem Status Report (expected to be published in 2007).
- A PICES proposal entitled “*Integration of ecological indicators for the North Pacific with emphasis on the Bering Sea*” was funded by NPRB (a grant of US \$99,957). The 3-day Bering Indicator Workshop of intermediate scope is envisioned as the major component of this proposal. The goal of the workshop, to be held in late spring or early summer of 2006, is to provide a report on the merits and recommendations for use of various classes of ecosystem indicators, through the application of selection criteria and their correspondence to operational

GC-2005

objectives developed before and during the workshop.

Pacific Coastal Ocean Observing System (PaCOOS)

- An international alliance for monitoring the California Current's natural resources and ecosystems is needed to coordinate existing observing activities in the EEZs of the three countries (Canada, U.S.A. and Mexico) and international waters, integrate new

initiatives as they arise, and provide early warning of ocean ecosystem change for all dependent coastal communities. Upon a request from PaCOOS, PICES developed options for such an alliance and presented them to the PaCOOS Governing Board meeting for consideration.

VII. PICES Intern Program

See GC Agenda item 10.

GC Endnote 4

Participation list of the 2005 inter-sessional Governing Council meeting

Canada

Robin Brown (alternate delegate)
Laura Richards (delegate)

Japan

Yukimasa Ishida (advisor)
Tokio Wada (delegate)

People's Republic of China

not represented

Republic of Korea

Chul Park (delegate)
Dong-Sil Park (alternate delegate)
Jae-Soo Park (advisor)

Russia

Lev N. Bocharov
Igor Shevchenko (advisor)

U.S.A.

George Boehlert (delegate)
Patricia Livingston (advisor)
Samuel Pooley (delegate)

Other

Vera Alexander (Chairman, PICES)
Alexander Bychkov (Executive Secretary)
Kuh Kim (Chairman, Science Board)
Skip McKinnell (Deputy Executive Secretary)

2005 inter-sessional Governing Council meeting agenda

1. Report of Study Group on *PICES Rules of Procedure and Financial Regulations*
2. Financial and administrative matters
 - 2.1 Auditor's report for FY 2004
 - 2.2 Status of annual and voluntary contributions
 - 2.3 Administrative matters
3. Schedule and financing of future Annual Meetings
4. PICES Intern Program
5. Approval of the recommendations from the interim Science Board meeting
6. Other business

GC Endnote 5

Report to PICES from the Scientific Committee on Oceanic Research (SCOR) (by Dr. Edward Urban, Executive Director of SCOR)

SCOR has been working since 1957 to bring together international groups of ocean scientists to plan new research projects and to work together to overcome barriers to ocean science and highlight new research areas. According to SCOR's parent, the International Council for Science (ICSU), "...every oceanographer is familiar with at least some of SCOR's impressive list of accomplishments. This

organization has a rich history of successes with working groups that have vetted methods of sample collection and analysis, and brainstormed topics for future research. Well known is the reputation of SCOR for its extensive outreach to scientists, laboratories, and research organizations in the developing world. Over the last 45 years, many developed country oceanographers made their first contacts with developing country scientists through SCOR meetings and reports. Prior to its first major programmatic accomplishment - the Indian Ocean Expedition in the early 1960s - major oceanographic expeditions were largely the works of individual nations or individual laboratories. SCOR, more than any other organization, is responsible for the widespread international cooperation that is characteristic of modern ocean science.”

In the past year, SCOR-related projects have produced the following publications of interest to PICES:

- From Basin-Scale Meeting funded through IOC: de Young, B., M. Heath, F. Werner, F. Chai, B. Megrey, and P. Monfray. 2004. Challenges of modeling ocean basin ecosystems. *Science* 304: 1463-1466.
- From IGBP/SCOR Global Iron Cycle Fast-Track Initiative: Jickells, T.D. et al. 2005. Global iron connections between desert dust, ocean biogeochemistry, and climate. *Science* 308: 67-71.
- From SCOR/IOC WG 119 on Quantitative Ecosystem Indicators for Fisheries Management: Daan et al. (eds.). 2005. Quantitative Ecosystem Indicators for Fisheries Management. *ICES Journal of Marine Science* 62: 307-614.
- From SCOR/IMAGES WG 113 on Evolution of the Asian Monsoon in Marine Records: Comparison Between Indian and East Indian Subsystems: Wang, P. et al. 2005. Evolution and variability of the Asian monsoon system: State of the art and outstanding issues. *Quaternary Science Reviews* 24: 595-629.
- Two publications resulted from the symposium on The Oceans in a High-CO₂ World: Cicerone et al. 2004. The Ocean in a High-CO₂ World. *Oceanography Magazine* 17(3): 72-78 and Cicerone et al. 2004. The Ocean in a High CO₂ World. *EOS* 85: 351, 353.
- From the Global Ocean Ecosystem Dynamics (GLOBEC) project: Hunt, G.L., Jr and K.F. Drinkwater (Eds.). 2005. *Ecosystem Studies of Sub-Arctic Seas (ESSAS) Science Plan*. GLOBEC Report No.19 and Maury, O. and P. Lehodey (Eds.). 2005. *Climate Impacts on Oceanic TOP Predators (CLIOTOP)*. *Science Plan and Implementation Strategy*. GLOBEC Report No.18.
- From the Global Ecology and Oceanography of Harmful Algal Blooms (GEOHAB) program: GEOHAB. 2005. *Research Plan on HABs in Upwelling Systems*. IOC, Paris.

Other recent news from SCOR is given in SCOR Newsletter #3. SCOR will hold its 37th Executive Committee Meeting in Cairns, Queensland, Australia on August 29-September 1, 2005. The meeting will review all ongoing SCOR activities and will also select two new working groups to begin supporting in 2006, out of 6 groups proposed. The 2006 SCOR General Meeting will be held in Concepción, Chile.

SCOR appreciates that continued regional support that PICES contributes to help implement SCOR activities in the North Pacific region. PICES is a major regional participant in the Global Ocean Ecosystem Dynamics (GLOBEC) project, through the PICES/GLOBEC Climate Change and Carrying Capacity (CCCC) Program. PICES also contributes to other SCOR-sponsored international research projects, including the Surface Ocean-Lower Atmosphere Study (SOLAS), the Integrated Marine Biogeochemistry and Ecosystem Research (IMBER), and the Global Ecology and Oceanography of Harmful Algal Blooms Program (GEOHAB).

The International Ocean Carbon Coordinated Project (IOCCP), co-sponsored by SCOR and IOC, is designed to interface with existing regional-scale research and observation groups that have an interest in ocean carbon. IOCCP is working to establish 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), has been long acting as a regional coordinator for these activities. PICES established (in 2005) a Section on *Carbon and Climate*, which should provide clear channels of communication to IOCCP, and to SOLAS and IMBER.

PICES has also helped SCOR with recent SCOR working groups. PICES collaboration with SCOR-IOC Working Group 119 on *Quantitative Ecosystem Indicators for Fisheries Management* started with PICES' involvement in planning and organizing the International Symposium on "Quantitative ecosystem indicators for fisheries management" (March 31-April 3, 2003, in Paris, France). In October 2004, PICES established a new Working Group (WG 19) on *Ecosystem-based management science and its application to the North Pacific*. This Working Group will definitely benefit from activities of SCOR-IOC WG 119. One of the terms of reference for PICES WG 19 directly states "Evaluate the indicators from the 2004 Symposium on "Quantitative Ecosystem Indicators for Fisheries Management" for usefulness and application to the North Pacific.

A workshop on "Climate variability, zooplankton abundance and distribution – comparative opportunities from the world's oceans" convened during the 3rd PICES/ICES/GLOBEC Zooplankton Production Symposium (May 2003, Gijón, Spain) led to a proposal submitted to SCOR for a Working Group on *Global Comparisons of Zooplankton Time Series*. This proposal was approved at the 27th SCOR General Meeting in September 2004. PICES strongly supported formation of this Working Group and agreed to provide funding for one additional member from the North Pacific (Dr. Harold P. Batchelder, Oregon State University, U.S.A.) to participate in its activities. Some future meetings of this Working Group are planned to be held in conjunction with symposia organized by PICES: the symposium on "Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis" (April 2006) and the 4th International Zooplankton Production Symposium on "Human and climate forcing of zooplankton populations" (May 2007).



International Ocean Carbon Coordination Project

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Dear Dr. Bychkov,

The IOCCP would like to congratulate PICES on its decision to create a permanent section on *Carbon and Climate*. The IOCCP was established as a pilot project in 2003 out of the recognized necessity for international coordination of ocean carbon observations, and since its inception, has looked to PICES for regional leadership in the Pacific. The establishment of a *Carbon and Climate* section will strengthen the interactions between our two activities and provide the IOCCP with a solid and sustained partner in the Pacific for global coordination of ocean carbon observations and research.

Over the last 2 years, the IOCCP has had several successful partnerships with PICES:

- Co-sponsorship of an international workshop on "Ocean Surface pCO₂: Data Integration and Database Development, (Tsukuba, 2004), which brought together 44 participants from 12 countries,

and resulted in the development of recommended formats for oceanic pCO₂ data and metadata, and recommended practices for data integration;

- Co-sponsorship of the PICES WG 17 project to develop a Guide of Best Practices on Oceanic CO₂ Measurement and Data Reporting; and,
- Agreements between the PICES PICNIC database, the CDIAC Ocean CO₂ Project, and the WDC-MARE data center to work together to provide a globally coordinated data services for ocean carbon.

Beginning in July 2005, the IOCCP will be operating under revised Terms of Reference (see next page) that broaden its mandate to include coordination and communication services for ocean carbon research as well as observations, and to deal with the full range of ocean carbon rather than only focusing on inorganic carbon. The IOCCP will also be working closely with the global research programs, SOLAS and IMBER, to provide coordination services as needed for process study implementation, data synthesis activities, and integration with activities of national and regional programs. To meet these challenges, the IOCCP has established a Scientific Steering Group to guide its activities. Several of these SSG members participate directly in PICES carbon and climate activities. In addition, the project office will benefit from an additional staff member (post-doctoral fellow) beginning in September to help implement this expanded range of activities.

As you will see from the Terms of Reference, the IOCCP will continue to emphasize its role in standardization, facilitation of data set development and coordinated data management practices, and observation program coordination. These are areas in which PICES' Working Groups have played a leading role, both regionally and internationally, and we would like to express our desire to continue our partnership with PICES and its new carbon and climate section.

In November of this year, the IOCCP will jointly host a repeat hydrography data management workshop with CLIVAR in Shonan Village, Japan. The issues we will be discussing are very relevant to PICES and the new section on *Carbon and Climate*. We would like to invite PICES to contribute to this workshop by sponsoring two relevant international scientists from the PICES member nations to participate in the workshop. Since we anticipate that many of the section members will be attending the repeat hydrography workshop it might also be a good opportunity for PICES to host the first meeting of the new section. The section meeting could be run as a one day add-on to the repeat hydrography workshop. Please let us know if you are interested in pursuing this.

We look forward to the development and implementation of this new section, and to our continued partnership with PICES.

Yours sincerely,



Dr. Christopher L. Sabine, Chair
International Ocean Carbon Coordination Project

GC-2005