

### *Highlights of scientific activities and publications*

Since our 2007 Annual Meeting in Victoria, Canada, the PICES community has been very active scientifically. We co-organized and participated in major international symposia, convened meetings of PICES expert groups and held joint theme sessions and workshops with other organizations and programs, such as the International Council for the Exploration of the Seas (ICES), Intergovernmental Oceanographic Commission (IOC) and GLOBEC regional program on Ecosystem Studies of Sub-Arctic Seas (ESSAS). Below, I highlight key events for 2008.

PICES was involved in several major international symposia during the spring and summer of 2008:

- In May, an International Symposium on “*Effects of climate change on the world’s oceans*” was organized in Gijón, Spain, with PICES, ICES and IOC as primary international sponsors;
- In July, PICES co-sponsored an International Symposium on “*Coping with global change in marine social-ecological systems*” in Rome, Italy (co-organized by GLOBEC, EUR-OCEANS and FAO);
- In August, a PICES/ICES/GLOBEC International Symposium on “*Herring: Linking biology, ecology and status of populations in the context of changing environments*” was held in Galway, Ireland.

Other joint events included:

- In April, an ICES/PICES workshop on “*Environmental interactions of mariculture*” held in Victoria, Canada, resulting in a proposal to establish a new PICES Working Group on *Environmental Interactions of Marine Aquaculture* (approved in 2008);

- In September, workshops on “*Model comparisons of the ESSAS regions*” and “*IPCC modeling and down-scaling atmosphere to advection*” co-convened at the ESSAS Annual Meeting in Halifax, Canada;
- In September, joint Theme Sessions on “*Coupled physical and biological models: Parameterization, validation, and applications*”, “*Marine spatial planning in support of integrated management – tools, methods, and approaches*”, and “*New methodology for tracking fish, mammals, and seabird behaviour and migrations*” held at the ICES Annual Science Conference in Halifax, Canada;
- In October, a PICES/ICES Theme Session on “*The effects of ocean acidification on fisheries and ecosystems*” convened at the International Symposium on “*The ocean in a high CO<sub>2</sub> world – II*” organized by SCOR, IOC, IAEA and IGBP in Monaco.

PICES expert groups also organized several workshops:

- In February, WG 19 on *Ecosystem-based Management Science and its Application to the North Pacific* met in Seattle, U.S.A., to discuss the structure and timelines of their final report;
- In March, WG 21 on *Non-indigenous Aquatic Species* held a workshop in Busan, Korea, to evaluate the protocols and reach final agreement on standards, data elements and data entry templates for the Marine Invasive Species Database;
- In April, CFAME had a workshop on “*Linking and visualizing climate forcing and marine ecosystem changes: A comparative approach*” in Honolulu, U.S.A.;
- Also in April, a workshop was convened in Seattle, (U.S.A.) to develop an Implementation Plan for the new PICES scientific program, FUTURE;
- In August, the 4<sup>th</sup> PICES Workshop on “*The Okhotsk Sea and adjacent waters*” was held in Abashiri, Japan.



Participants at the 2008 Science Board meeting in Dalian: (front row, left to right) – Sinjae Yoo (Vice-Chairman), Harold Batchelder (CCCC), John Stein (Chairman), Michio Kishi (CCCC) and Gordon Kruse (FIS); (back row, from left to right) – Hiroya Sugisaki (MONITOR), Fangli Qiao (China), Mikhail Stepanenko (FIS), Michael Foreman (POC), Michael Dagg (BIO), Glen Jamieson (MEQ), Bernard Megrey (TCODE) and Skip McKinnell (Secretariat).

It was another good year for publishing PICES science from our collaborative and coordinated research on the North Pacific and on key global issues. Selected papers were published from the:

- Topic Session on “*The human dimensions of jellyfish blooms*” at the 2006 PICES Annual Meeting as a special issue of *Plankton and Benthos Research* (Vol. 3, Supp.) in March 2008 (Guest Editors: Hitoshi Iizumi and Haruto Ishii);
- 4<sup>th</sup> International ICES/PICES/GLOBEC Zooplankton Production Symposium (2007) on “*Human and climate forcing of zooplankton populations*” as a special issue of *ICES Journal of Marine Science* (Vol. 65, No. 3) in April 2008 (Guest Editors: Michael J. Dagg, Roger Harris, Shin-ichi Uye and Luis Valdés);
- PICES/GLOBEC Symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*” (2006) in a special issue of *Progress in Oceanography* (Vol. 77, Nos. 2–3) in June 2008 (Guest Editors: Harold P. Batchelder and Suam Kim);
- 5<sup>th</sup> International Conference on “*Marine bioinvasions*” (2007) as a special issue of *ICES Journal of Marine Science* (Vol. 65, No. 5) in July 2008 (Guest Editors: Judith A. Pederson and A.M.H. Blakeslee);
- International Conference on “*The Humboldt Current system: Climate, ocean dynamics, ecosystem processes, and fisheries*” (2006) as a special issue of *Progress in Oceanography* (Vol. 79, Nos. 2–3) in December 2008 (Guest Editors: Arnaud Bertrand, Renato Guevara-Carrasco, Pierre Soler, Jorge Csirke and Francisco Chavez).

Andrew Dickson, Christopher Sabine and James Christian served as editors of the “*Guide to best practices for ocean CO<sub>2</sub> measurements*”, which appeared as a PICES Special Publication No. 3 in December 2007. This joint effort with the International Ocean Carbon Coordinated Project (IOCCP) and the Carbon Dioxide Information Analysis Center (CDIAC) was the first update in 13 years of the manual published by the U.S. Department of Energy (DOE) when the international ocean carbon community mounted the Global CO<sub>2</sub> Survey as part of the World Ocean Circulation Experiment (WOCE) and the Joint Global Ocean Flux Study (JGOFS). Finding ways to make comparable measurements and consistent data sets based on many individual national programs has become one of the highest priorities, and the Guide is receiving worldwide distribution. To increase the use of the Guide, volunteers are being sought to assist with its translations to languages other than English. Prof. Liqi Chen (State Oceanic Administration, China) will be translating the Guide for the Chinese community.

Two more volumes were published in the PICES Scientific Report Series:

- Hollowed, A., Beamish, R., Okey, T. and Schirripa, M. (Eds.). 2008. *Forecasting Climate Impacts on Future Production of Commercially Exploited Fish and Shellfish*. PICES Sci. Rep. No. 34, 101 pp.

- Beamish, R. (Ed.). 2008. *Impacts of Climate and Climate Change on the Key Species in the Fisheries in the North Pacific*. PICES Sci. Rep. No. 35, 215 pp.

The PICES North Pacific Ecosystem Status Report (PICES Special Publication No. 1) was also acknowledged in 2008 with the Merit Award for the category “Books – Complete Design” from the Society of Graphic Designers of Canada.

### **2008 PICES Annual Meeting**

The Seventeenth Annual Meeting of PICES was held from October 23 to November 2, 2008, at the Kempinski Hotel in Dalian, People’s Republic of China. The meeting was hosted by the State Oceanic Administration (SOA), in coordination with the PICES Secretariat. Local arrangements made by the National Marine Environmental Monitoring Center (NMEMC) of SOA ensured the success of the meeting.

A total of 390 scientists from 15 countries attended 14 sessions, 5 workshops and 24 meetings of the committees and expert groups, and presented 262 talks and 159 posters. A Topic Session on “*End-to-end food webs: Impacts of a changing ocean*” was held in cooperation with IMBER (Integrated Marine Biogeochemistry and Ecosystem Research), and workshops on “*Status of marine ecosystems in the sub-arctic and arctic seas – Preliminary results of IPY field monitoring in 2007 and 2008*” and “*Marine ecosystem model inter-comparisons*” were organized jointly with ESSAS. Representatives from more than 20 international and regional organizations and programs were present as observers, and participated in scientific activities and business meetings to further our collaborative relationships.

There was also some sad news, unfortunately. During the meeting we learned that Dr. Warren Wooster, the principle founder and first Chairman of PICES, had passed away. At the Closing Ceremony, Dr. Tokio Wada, PICES Chairman, asked for a moment of silence for the “father of PICES”. Warren was an outstanding scientist, an energetic and persistent supporter of international science, and a mentor and inspiration to many scientists in PICES and around the world. His leadership, wisdom, and vision for PICES and marine science overall will be long remembered and greatly missed.

The theme of our Annual Meeting was “*Beyond Observations to Achieving Understanding and Forecasting in a Changing North Pacific: Forward to the FUTURE*”, which was intended to further build on and support development of our next integrative scientific program – FUTURE (Forecasting and Understanding Trends, Uncertainty and Responses of North Pacific Marine Ecosystems). The keynote lecture in the Science Board Symposium was given by Dr. Fangli Qiao (First Institute of Oceanography, SOA) on “*Wave-tide-circulation coupled model: To improve the forecasting capability of FUTURE*”. This talk highlighted the progress made recently to predict future

conditions of North Pacific marine ecosystems but also illustrated gaps in understanding that will require further research for forecasting future. The keynote lecture was followed by 6 invited presentations by Lawrence Hamilton (U.S.A.), Eitaro Wada (Japan), Icarus Allen (UK), Hiroaki Saito (Japan), George Sugihara (U.S.A.) and Paul Harrison (Canada/Hong Kong), interspersed with 7 contributed papers. The winner of the Science Board Award for the best presentation was Dr. Emanuele Di Lorenzo (U.S.A.) for his paper on “*North Pacific decadal variability in the future*”, co-authored by J. Furtado and N. Schneider.

Congratulations are also in order for the recipients of the best presentation awards given by the Standing Committees and the CCCC (Climate Change and Carrying Capacity) Program. The awards for best oral presentations are given to scientists early in their career, and the recipients were: BIO – Tomonori Isada (Japan), FIS – Anastasia M. Khrustaleva (Russia), MEQ – Shang Chen (China), MONITOR – Kohei Mizobata (Japan), POC – Chuanyu Liu (China), TCODE – Hao Ma (China) and CCCC – Xunqiang Yin (China). There are also awards for best posters which are open to all presenters, and were given to: BIO – Russell Bradley (U.S.A.), FIS – Chiyuki Sassa (Japan), MEQ – Yubo Liang (China), MONITOR – Hongli Fu (China), POC – Masatoshi Sato (Japan), TCODE – In-Seong Han (Korea) and CCCC – Yasumasa Miyazawa (Japan).

It is also important to acknowledge service to PICES and changes in leadership. At this Annual Meeting we thanked Dr. Gordon Kruse (U.S.A.) for his leadership of the Fishery Science Committee (FIS) since 2005, and welcomed Dr. Mikhail Stepanenko (Russia) as the next Chairman of FIS (see p. 44 of this newsletter for his brief biography). We also acknowledged the service of Drs. Harold Batchelder and Michio Kishi as Co-Chairmen of the CCCC Program, the first major science program of PICES. This had special significance because it was the last formal meeting of the CCCC Program.

For details on the Wooster Award and POMA recipients, refer to the 2008 PICES Awards article in this issue.

### ***FUTURE – progress and next steps***

A major focus at this Annual Meeting was further development and implementation of FUTURE. At the 2008 inter-sessional Science Board meeting in April, a Writing Team to develop the Implementation Plan for FUTURE was established, with James Overland (U.S.A.) and Hiroaki Saito (Japan) as Co-Chairmen. Between the inter-sessional meeting and the Annual Meeting, a first draft of the Implementation Plan was prepared and made available to the PICES community for their review and comments. In Dalian, the Writing Team and Science Board met in the evening of October 28 to discuss this draft. An Open Forum was also held at the Annual Meeting on October 30, where the Co-Chairmen presented their progress and comments were received. There was a

good and lively discussion with the broader PICES community. This type of meeting proved to be very useful for refining the scope and direction of implementation of FUTURE. Discussions revolved around issues such as: (1) what we mean by clients; (2) are we ready as an organization to take on operational forecasts, and how do we balance the work on developing forecasts; and (3) the need to improve our understanding of the physics to ecological interactions, and research to uncover the mechanisms in all of these areas that are essential if we are to develop and improve forecasts that have reduced uncertainty. In addition, it was pointed out that in FUTURE we have highlighted two areas for increased or new emphasis: coastal processes and the associated anthropogenic forcings, and the human dimension. We cannot lose sight of this objective and need to be explicit on these topics in the Implementation Plan. There were comments on the scope of FUTURE, and that while it is only one slice of the science of PICES and should be focused, it is also our next major scientific program and should be structured to be appealing to all of the science elements within the Organization. There was agreement that the Writing Team should look to a phased approach in implementing FUTURE, and that we will re-visit the Implementation Plan in 3–5 years to review the progress and make adjustments if needed. In summary, in the next draft of the Implementation Plan, the focus will be on clearly defining the terms we are using, providing much more detail on the specific tasks, highlighting that there is a major component in FUTURE intended to improve our understanding of processes and mechanisms, and defining the structure of FUTURE and the responsibilities of the Standing Committees in delivering the tasks. It is important that these Committees be fully engaged with this effort to help ensure that all of the scientific capabilities within the Organization are contributing. Determining how the Committees and Science Board are to be specifically involved in carrying out FUTURE will be a major consideration in developing the next draft.



*A well-attended FUTURE Open Forum in Dalian.*

The goal is to have a final draft of the Implementation Plan ready for approval by the Governing Council at their inter-sessional meeting in April 2009.

### ***North Pacific Ecosystem Status Report***

Another high priority project for PICES is the production of a second North Pacific Ecosystem Status Report (NPESR).

This report will focus on the status and trends in marine ecosystems of the North Pacific and its marginal seas for the period 2003–2008. Co-editors of the report, Drs. Skip McKinnell (PICES Secretariat) and Michael Dagg (BIO Chairman), lead authors and disciplinary advisors (an Advisory Group has been established to provide disciplinary oversight of the report's development) met in Dalian to review what was learned in developing the first NPESR (2004), and how improvements and enhancements could be made. Discussion focused on revisions to the structure of the report, the time period of interest for this edition, tasks and responsibilities of lead authors and advisors, and a future 3-day workshop to develop a synthesis chapter of the report. Publication of the report for a scientific audience and a brochure for policy makers, managers, and other interested members of society is expected in the first half of 2010. This report is a major product of PICES and, if you are asked to participate in developing a chapter or to provide data, I encourage you to give the request the attention it deserves, as we want the second NPESR to build on the success of the inaugural edition.

### ***Capacity building***

Building capacity in the PICES member countries and in other Pacific Rim countries is a key strategic objective for the Organization. In August 2008 in Hakodate (Japan), we held the second PICES Summer School on marine sciences on “*Ecosystem-based management and ecosystem approach*” that was a great success. This year, we also provided travel support for early career scientists to attend the PICES Annual Meeting and other PICES-sponsored symposia to give them the opportunity to present their science at international meetings and begin to build international connections with early career scientists from other nations.

A new area of capacity building for PICES is the enhancement of monitoring programs that may mitigate the expansion of harmful organisms and will establish a free exchange of information about harmful algal blooms (HABs) in the Pacific Rim. Recent increases in HAB events have caused damage to fisheries and disturbance of ecosystems in the North Pacific and areas to the south. In order to minimize the impact and expansion of harmful organisms and lower the occurrence of damage to fisheries, a first step is building capacity in developing nations through focused training. In this effort, which is funded by the Ministry of Agriculture, Forestry and Fisheries of Japan, through the Fisheries Agency of Japan, PICES has partnered with IOC to determine which countries have the greatest need and a strong interest in improving HAB monitoring and testing, and a commitment to sustainability. Site visits to labs in Vietnam and the Philippines, as well as participation in the 2<sup>nd</sup> Asian GEOHAB (Global Ecology and Oceanography of Harmful Algal Blooms) conference in January 2008 (Nha Trang, Vietnam), and the 7<sup>th</sup> WESTPAC Scientific Symposium in May 2008 (Sabah, Malaysia), facilitated country selection. The initial training

course will occur in January 2009 and will focus on assisting the Bureau of Fisheries and Aquatic Resources (BFAR), which is the agency that manages HAB events in the Philippines. This project is being led by our Section on *Harmful Algal Blooms*.

### ***Looking ahead***

The next year is looking to be scientifically as fruitful and productive as 2008. PICES will be expanding co-operation with other international organizations, such as ICES, IOC, IMBER and NOWPAP. The areas of partnership include joint scientific sessions and working group activities, and a common database. To highlight such activities, PICES will be one of the co-sponsors for the 3<sup>rd</sup> GLOBEC Open Science Meeting (June 22–26, 2009, in Victoria, Canada). PICES will also co-sponsor the 6<sup>th</sup> International Conference on “*Marine Bioinvasions*” (August 24–27, 2009, in Portland, Oregon, U.S.A.), with ICES, the U.S. Sea Grant, Pacific States Marine Fisheries Commission, and Portland State University, and the international symposium on “*Rebuilding depleted fish stocks: Biology, ecology, social science and management strategies*” (November 3–6, 2009, in Warnemünde, Germany), with ICES and UNCOVER. To continue capacity building, a 3<sup>rd</sup> PICES Summer School on “*Satellite oceanography*” is scheduled for August 2009, in Seoul Korea. This school will coincide with the launch by Korea of the first geostationary ocean color satellite.

Our next Annual Meeting, PICES–2009, will be held from October 23 to November 1, on beautiful Jeju Island, Korea, under the theme “*Understanding ecosystem dynamics and pursuing ecosystem approaches to management*”. Science Board has selected and approved many sessions and workshops that should be of great interest to PICES and the broader scientific community. Planning was also initiated for PICES–2010 to be held in the United States, under the theme “*North Pacific ecosystems today, and challenges in understanding and forecasting change*”.

To close, it has been a busy and productive first year for me as the Chairman of the PICES Science Board, and I enjoyed working with, and meeting even more of, my fellow ‘PICESians’. I look forward to much success in 2009, as together, in the collaborative spirit of PICES, we work to complete the Implementation Plan and launch FUTURE, make good progress on the second NPESR, and continue to do our part to help train and mentor the next generation of marine scientists active in the North Pacific.



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