

Inter-sessional Science Board 2013 Report

Science Board met for two full days from May 20–21, 2013, in St. Petersburg, Russia, prior to the PICES/ICES Workshop on Global assessment of the implications of climate change on the spatial distribution of fish and fisheries”. Science Board Chairman, Dr. Sinjae Yoo, welcomed members and guests and introductions were made around the table (*ISB Endnote 1*). The agenda was reviewed and adopted without changes (*ISB Endnote 2*).



Science Board members and guests. Back (left to right) Igor Shevchenko (Science Board, representing Russia), Gongke Tan, Thomas Theriault (AP-AICE Chairman, Science Board Chairman-elect), Kyung-Il Chang (POC Chairman), Yusheng Zhang (China), Elizabeth Logerwell (FIS Chairman), Phillip Mundy (AP-SOFE Chairman), Alexander Bychkov (PICES Secretariat), Atsushi Tsuda (BIO Chairman), Chuanlin Huo (MEQ Chairman), Hiroyuki Shimada (Japan), Dongho Youm (Korea). Front (left to right) Hiroya Sugisaki (MONITOR Chairman), Hiroaki Saito (AP-COVE Chairman), Jinqiu Du (China), Robin Brown (Governing Council member, Canada), Laura Richards (PICES Chairman), Sinjae Yoo (Science Board Chairman), John Stein (Governing Council member, USA), Toru Suzuki (TCODE Chairman), Skip McKinnell (PICES Secretariat), Naesun Park (Korea), and Heejin Kim (Korea)

Monday, May 20, 2013

AGENDA ITEM 2

Interactions with other organizations, including NPAFC Study Group

A number of joint activities PICES conducts with other international organizations and programs were reviewed, and major highlights and recommendations given below.

ICES

ICES and PICES are the two major marine science organizations in the Northern Hemisphere, with each focusing on different oceans. Both organizations face many common marine scientific issues which has motivated them to establish a common framework for scientific cooperation (a report prepared by the joint P/ICES Study Group on *Developing a Framework for Scientific Cooperation in Northern Hemisphere Science* in 2011) to look at joint topics and activities of interest. Dr. Yoo mentioned that 3 years after the framework has been in place may be a good time to conduct a formal assessment of PICES/ICES cooperation.

SCOR

Science Board reviewed a proposal by SCOR for a joint SCOR/ICES/PICES working group on “Zooplankton Production Measurement Methodologies and their Application” and strongly agreed this was a worthwhile endeavour. However, ten other SCOR proposals were made available recently for consideration, and Dr. Yoo will email them to Science Board members for assessment. If the zooplankton working group is not one of the two annually selected by SCOR, it was suggested that this group could still be proposed by PICES and ICES at their respective Annual Meetings, with SCOR making a funding contribution.

Action: Dr. Yoo to send 10 SCOR proposals for working groups to Science Board with responses by end of July.

GEOHAB

GEOHAB completed its Phase I workshop on “*HABs in a changing world*” March 18–22, in Friday Harbor, USA, and presented its summary report. Phase II proposes a GEOHAB Open Science Meeting in 2014 or 2015.

Action: Science Board Chair to direct S-HAB to review and provide its opinion for Phase II at PICES-2013.

NOWPAP

NOWPAP is currently involved in capacity building activities (NOWPAP/PICES training course on “*Remote sensing data analysis*”, October 21–25, 2013, Qingdao, China) and MEQ-related issues with PICES. Historically, Japan has set up a trust fund for NOWPAP’s operation budget, but more money is needed to continue functioning.

Action: Dr. Gongke Tan to verify if China (SOA) is also setting up a trust fund to support NOWPAP.

CLIVAR

The main area of cooperation between the Climate Variability and Predictability Program and PICES is the impact of climate variability and change on marine ecosystems. By expanding its scope to include ecosystems, CLIVAR’s data will be valuable for PICES to use for its marine ecosystem/human dimension focus. CLIVAR co-sponsored a topic session with ICES at PICES-2012 in Hiroshima, Japan, and POC is co-sponsoring a theme session with CLIVAR at the 2nd International Symposium on “*Boundary current dynamics*” (July 8–13, 2013, Lijiang, China). Dr. Shoshiro Minobe, WG 27 member, and a CLIVAR member, will attend the session.

Action: POC Chairman to ask Dr. Minobe for feedback to report at PICES-2013.

NPAFC

The North Pacific Anadromous Fish Commission and PICES have been working on problems of mutual interest in the North Pacific for several years. NPAFC has the same contracting parties, except for China, as PICES. Science Board reviewed and agreed to support a proposal for a joint Study Group on *Scientific Cooperation in the North Pacific Ocean* which will develop a framework of enhance collaboration between the two organizations to better understand and/or have more rapid understanding of natural and anthropogenic variability in marine ecosystems. NPAFC has already reviewed the proposal and supported it. Science Board recommended Dr. Elizabeth Logerwell to co-chair the Study Group. Governing Council will finalize the PICES Chair and membership by correspondence.

Recommendation: Science Board recommends Dr. Logerwell as Co-Chair of the proposed Study Group.

Convention on Biological Diversity

Dr. Thomas Therriault represented PICES at a regional North Pacific workshop to “*Facilitate the description of ecologically or biologically significant marine areas*” February 25–March 1, 2013, in Moscow, Russia. The workshop was run by the United Nations Conference of Parties to the Convention on Biological Diversity. In his overview of PICES’ mandate and activities, Dr. Therriault had the opportunity to showcase the North Pacific Ecosystem Status Report which could be of value to the CBD process. As this is the first round in a series of events for CBD, Dr. Therriault recommended having a package of EBSA information prepared for the next iteration at the next CBD meeting. PICES already has experience in identifying and describing ecologically and biologically important areas in the North Pacific, but the mechanism to carry this out has not yet been established. It could entail forming a 1-year Study Group two years in advance to pull information together to have in place for the next UN procedure. Dr. Therriault suggested either the Secretariat maintain communication with the CBD Secretariat to anticipate the next iteration process or do the activity now and have it ready; in the meantime the information would be useful for PICES. It was also suggested that Council look at this as a UN Process to see what role PICES will play in it. PICES Chairman, Dr. Laura Richards, and Dr. Therriault offered to write a proposal to establish a means of identifying and describing EBSAs which Science Board will review.

Action: Drs. Richards and Therriault to prepare a proposal for gathering EBSA information to be reviewed by Council one month before PICES-2013 before being given to Science Board for comments at PICES-2013.

UNRP

A brief announcement by F&A member, Ms. Elizabeth Tirpak, at the UNRP meeting in New York in April that a PICES workshop focusing on the human dimension aspect of marine ecosystems in the North Pacific will take place June 13–15, 2013 in Honolulu was well received, as one aspect of WOA is human dimensions. A number of experts from the PICES-MAFF project on “Marine ecosystem health and well-being” meeting in Honolulu (June 10–12, 2013) has agreed to stay on to attend the human dimensions workshop. The output from the workshop will be a valuable contribution to the next version of the North Pacific Marine Ecosystem Status Report as well as benefitting the WOA of the UN Regular Process.

AGENDA ITEM 3

Status of planning for PICES-2013

Executive Secretary, Dr. Alexander Bychkov, informed Science Board that local arrangements for the next PICES Annual Meeting in Nanaimo, Canada, were in hand and that Canada did not require any funds from PICES to host the meeting. Visa applications were needed for China and Russia, and Dr. Bychkov urged those delegations to determine their prospective participants so they could start applying for visas as soon as possible, as Canada’s policies for visa requirements were changing. Deputy Executive Secretary, Dr. Skip McKinnell, announced a field for invited speakers for proposed topic sessions and workshops had been added to the on-line submission system.

AGENDA ITEM 4

Report from Study Group on *Radionuclide Science and Environmental Quality of Radiation in the North Pacific*

SG-RS Chairman, Dr. Yusheng Zhang, presented a report on the Study Group’s workshop on “*Radionuclide science and environmental quality of radiation in the North Pacific*” held March 14–15, 2013, in Xiamen, China. He stated that the widespread application of nuclear science and technology can potentially lead, and has led (in the case of a recent nuclear power plant accident), to increasing amounts of radionuclides being released directly or indirectly into the ocean. Therefore, it was important to monitor radiation exposure levels and to take action in case negative effects are produced in marine ecosystems in the North Pacific. To do this, SG-RS actively discussed and refined the terms of reference, including relevance to FUTURE, and formulated a 3-year work plan for a proposed working group on “Assessment of Marine Environmental Quality of Radiation around the North Pacific”.

AGENDA ITEM 5

Proposal for the establishment of a Section on “Emerging Topics in Marine Pollution”

MEQ Chairman, Mr. Chuanlin Huo, reported that the Committee had not seen the final report from Study Group on *Marine Pollution* (SG-MP) so there was no chance to assess it or to link its proposed expert group with that of radionuclide science. Science Board agreed that over recent years there has been a strong desire to deal with marine pollution, but now there is a push from many directions for MEQ deal with the issue, and suggested that the Board help MEQ by providing guidance so that the future of the two groups is not prolonged. There was also agreement that the terms of reference for a proposed section were very broad, and less advanced than those for radionuclide science. Whereas SG-RS has accomplished a lot in a very short time since its establishment by planning a workshop to refine terms of reference and developing a work plan for its proposed expert group, SG-MP has not had a workshop to scope out the issues. Science Board was unanimous in recommending that the proposal from SG-RS should move forward and that a decision on SG-MP’s proposal should be postponed until its terms of reference for an expert group could be developed further.

Recommendation: Science Board recommends the establishment of a working group on radionuclide science.

Action:

- Science Board to provide TOR comments by end of first week in June;
- National delegates to nominate candidates by end of July;
- Science Board to nominate co-chairs by mid-August;
- Table discussion on SG-MP for PICES-2013.

AGENDA ITEM 6

Current status of the FUTURE APs and AP chair rotations

AP-AICE Chairman, Dr. Therriault, will be stepping down after PICES-2013 to take up his position as Science Board Chairman. A couple of candidates to succeed him are under consideration and will be decided during elections at PICES-2013. Participation by email was still a problem even with changes/additions in membership, so it was difficult to provide advice based on review of *e.g.*, Committee Actions Plans where only one comment was received. Almost all AP-COVE members support Dr. Hiroaki Saito to remain Chairman for another term but he requested Science Board to wait for a final decision on COVE chairmanship by September. COVE participation was healthy and all members have reviewed the Action Plans and made comments. Dr. Phillip Mundy, who replaced Mr. Robin Brown as Chairman of AP-SOFE at PICES-2012, reported that member participation was good, and although some members never attend the meetings, he had a good core to work with. It was suggested that it might be time for Science Board to review how the Advisory Panel structure model for FUTURE is providing results, and perhaps look for options, based on its setup.

AGENDA ITEMS 7 AND 8

Status of FUTURE OSM 2014 and venue and date for ISB-2014

An announcement advertising a 4-day FUTURE Open Science Meeting in 2014 in Kohala Coast, Hawaii, was sent to the PICES community in April. Topics, times and expert groups to convene sessions are in place, but topic session abstracts and names of convenors to chair the sessions have been very slow to arrive. Science Board reviewed the following submissions and made the adjustments to fit the session framework:

(1) ½-day Topic Session on “*Natural and Anthropogenic Drivers of Jellyfish Blooms in Coastal Ecosystems: Correlation, Causation, and Prediction*” to be integrate into (2) WG 28 ½-day Workshop on “*Communicating and Presenting Indicators of Ecosystem Responses to Multiple Stressors in North Pacific Marine Systems*”.

Move (2) and (3) ½-day Workshop on “*Top predators as indicators of climate change: statistical techniques, challenges and opportunities*” to Day 3

(4) 1-day Workshop on “*Bridging the divide between models and decision-making: The role of uncertainty in the uptake of forecasts by decision makers*” standalone.

(5) 1-day S-CCME/FIS Workshop on “*Climate change and ecosystem-based management of living marine resources: Appraising and advancing key modeling tools*”

(6) 1-day Topic Session on “*Interactions of ecosystem status and fishery policy and management*” – encourage to work with (4)

(7) Topic Session on “*How do natural and human perturbations cascade through ecosystems?*”

(8) Topic Session on “*How are biological communities responding to stressors?*”

The Secretariat was tasked by Governing Council to send letters to Contracting parties informing them on planned activities for FUTURE and asking them for contributions, especially for the FUTURE OSM. So far, China is the only country to commit money. China also requested that Dr. Fangli Qiao (POC, WG 29 member) be added to the OSM Scientific Steering Committee, as it is hoped that this will encourage more Chinese scientists to be involved in FUTURE. Dr. Igor Shevchenko will request his government to provide a Russian representative on the SSC, and will also encourage more Russian participation in general. Since there will be eight or nine sessions, with an equal number of invited speakers, the Secretariat can allocate 5k for full support of one speaker, or 5k to the session with the convenor deciding on full support for one speaker or partial support for two speakers.

Action:

- Science Board to add Dr. Fangli Qiao (China) to the FUTURE SSC,
- Dr. Shevchenko to provide a Russian nomination to the FUTURE SSC.

AGENDA ITEM 8

Venue and date for ISB-2014

ISB-2014 will be held in conjunction with the FUTURE OSM. It will take place after the OSM, on Kohala Coast, from April 19–20, and will be followed by an OSM Evaluation Team meeting. Science Board agreed that the Team should be composed of both external and internal experts. Ideally, it should be made up of people who are familiar with PICES, but are at arm’s length from the Organization. Science Board’s selection consisted of: two FUTURE Advisory Panel Chairs (Phillip Mundy, SOFE; Hiroaki Saito, COVE), two members of the FUTURE Implementation Plan Writing Team (James, Overland; Vyacheslav Lobanov) and two externals, to be decided. Several names were suggested, and Dr. Yoo will contact them.

Action: Dr. Yoo to contact external reviewers recommended by Science Board.

AGENDA ITEM 9

Status of Special Session at IMBER OSM 2014

Dr. Therriault informed Science Board that PICES’ contribution of a Topic Session on “*The impacts of ecosystem responses to multiple stressors and climate variability: how will human societies respond and adapt?*” to the IMBER OSM to take place June 23–27, 2014, in Bergen, Norway, was accepted by the IMBER SSC [but was later merged with IMBER’s HD WG session to become a joint IMBER/PICES session renamed as “*Responses of society to marine and global changes as a core mandate for IMBER: ways forward*”]. PICES will provide travel support for one convenor (Dr. Therriault) and one invited speaker from the North Pacific.

Action: Dr. Therriault to confirm an invited speaker from the North Pacific by PICES-2013 (tentatively).

Tuesday, May 21, 2013

AGENDA ITEM 10

Climate Change Symposium in 2015

Co-convenors are in place for the other two major co-sponsors, ICES and IOC. Science Board selected Dr. Jacquelynn King to represent PICES as convenor at the 3rd international symposium on the “*Effects of climate change on the world’s oceans*” to take place March 23–27, 2015 in Santos City, Brazil. From a short list of potential SSC members, Science Board recommended two western Pacific scientists, Drs. Shoshiro Minobe, Fangli Qiao (physical oceanography) and one eastern Pacific scientist, Dr. Angelica Peña (biological oceanography) to represent PICES. Once the selected SSC nominations agree to be part of the Committee, the Secretariat will check with ICES and IOC to ensure there is balanced representation.

Action: Secretariat to contact Drs. King, Minobe, Qiao and Peña.

AGENDA ITEM 11

PICES-sponsored conference/symposia in 2014 and beyond

The United States will be unable to host the PICES/ICES 6th International Zooplankton Production Symposium to take place in 2016, as had been suggested at the last Symposium in Pucón, Chile (March 14–18, 2011). PICES and ICES suggested the venue revert to Europe, and Norway (Institute of Marine Research, Bergen) has agreed to be the next host, upon approval by Science Board.

Decision: Science Board approves Norway hosting the next Zooplankton Production Symposium.

AGENDA ITEM 13

Status of PICES-2014

Dr. Naesun Park (invited guest, KIOST) announced that Korea’s federal departments have just undergone restructuring, and that the new Minister of Oceans and Fisheries confirmed May 17 that Korea is prepared to host PICES-2014, but is waiting for China to confirm its intentions. If Korea is to move forward, a venue and theme will need to be determined. The Korean government would prefer to hold the meeting in Yeosu, to take advantage of the infrastructure built for Expo-2012, but would consider Gyeongju, north of Busan. Dr. Kyung-II Chang is preparing a theme, but is also open to ideas/key words from Science Board. A formal letter from the Korean government has been sent to PICES confirming it will be prepared to act as host.

Action:

- Dr. Chang to circulate theme draft to Science Board for review by June 10.
- Science Board to finalize theme by June 28.

AGENDA ITEM 12

Wooster and POMA awards

Science Board met *in camera* to select a recipient for the 2013 Wooster Award and PICES Ocean Monitoring Service Award (POMA). Each award had two nominations, with one each rolled over from 2012. Science Board agreed to do away with rollovers in the future but encouraged the unselected nominations to be resubmitted. In addition, Science Board discussed the need to broaden the definition of “long-term monitoring” for POMA to sustain the award since there is a finite source of long-term candidates.

Action: Secretariat to revise the Wooster Award description and Drs. Yoo, Therriault, and MONITOR to revise the POMA description for review at PICES-2013.

AGENDA ITEM 14

Capacity building/plan for PICES summer schools*Early Career Scientist Conference*

The next PICES/ICES Early Career Scientist Conference will be held in 2017. Interest was expressed by Japan and Korea, but nothing firm has been established. Dr. Yoo noted the timeline for determining the host is 2½ years from present, so a firm commitment must be made by PICES-2014, but it would be useful to know before then, *i.e.*, at ISB-2014 so preparations can start before the Annual Meeting. Dr. Gongke Tan (alternate national delegate, China) offered to discuss the conference with his government. Regarding a question on costs to the host country to organize such a conference, Dr. Skip McKinnell (PICES Deputy Executive Secretary) explained that, based on the last two conferences, 60% is budgeted for by PICES and ICES, with the rest being taken care of through funding raising. Any contributions from the host would be minor, and the local organizers would also take care of local arrangements.

Action: Science Board to discuss progress on venue for ECS Conference at PICES-2013.

Summer Schools

Dr. McKinnell announced that the 4th PICES Summer School on “*Ocean observing systems and ecosystem monitoring*”, will be held August 19–23 in Corvallis, USA. The SSC received almost 90 applicants from which 37 were selected, with PICES member countries being given priority. Every person who was contacted has accepted (6 each from Canada, China, Korea, and the U.S.; 4 each from Japan and Russia, and 5 from outside of PICES).

The next PICES Summer School on “*Ecosystem modelling for marine resources management and research*” (proposed by AP-CREAMS and approved by Science Board at PICES-2012) will take place in Seoul, Korea in 2014. Dr. Kyung-II Chang informed Science Board that 30 rooms have been blocked for the event and that Korea will cover accommodation and meals. He requested travel expenses for 5 to 6 students and for Science Board to recommend possible lecturers. Science Board supported setting up a SSC in principle, from which a selection committee (SC) would be chosen to review applications. Dr. Chang recommended Professor Chung-II Lee (Gangneung-Wonju National University, Korea), and FIS Chair, Dr. Logerwell, to be part of the SSC, but she declined. However, Dr. Logerwell will contact Dr. Chang with recommendations for a more suitable replacement. End-to-end modellers were also requested, and it was suggested that they could be selected from POC and relevant working groups. Dr. Chang will email Science Board regarding SC nominations. Details on the SSC and SC and lecturers will be fixed at PICES-2013. The SSC will need to fix students and lectures by April/May 2014. Preliminary details of the Summer School can be found in *ISB-2013 Endnote 3*.

Action: Dr. Chang to email Science Board requesting SC nominations from Science Board.

Summer Schools co-sponsored by PICES

Dr. Bychkov informed Science Board that 6k was budgeted for students from PICES member countries to attend the 6th International SOLAS Summer School to be held August 23 to September 2, 2013 in Xiamen, China. One student each from Japan, Russia and the U.S. will attend.

No formal proposal has been received for next IMBER summer school but a proposal may be coming after IMBER’s SSC meeting in June.

Training Courses

The second NOWPAP/PICES Training Course on “*Remote sensing data analysis*” will take place October 21–25, 2013, in Qingdao, China. As recommended by Science Board at PICES-2012, PICES will provide support

for one student from a PICES member country to attend the course and one lecturer, Dr. Young Je Park (KIOST), an ocean colour specialist responsible for Korean Ocean Color Satellite.

Action: Science Board to provide ideas for the next PICES Summer School after 2014.

AGENDA ITEM 15

PICES' 25th anniversary

Dr. Bychkov informed Science Board on planning progress to celebrate accomplishments of PICES at its 25th anniversary in 2016. The anniversary will fall on the U.S.'s turn to host the Annual Meeting. The PICES 25th Anniversary Planning Committee, established at PICES-2012 by Governing Council, has been active. A PICES 25th Anniversary draft logo (3 versions) was shown to Science Board for review, and an electronic album of past Annual Meeting photos is being made. Science Board was requested to discuss the scientific activities of PICES. Suggestions included producing a special journal issue, a lecture series related to PICES science, and/or having special topic sessions at PICES-2016. In addition, Science Board was to consider what it would like to do during that year. As to communicating with the public, Dr. Bychkov related that for PICES' 10th anniversary, it was done at the Committee level, *e.g.*, a former Chair was tasked with highlighting the accomplishments of that Committee and the current Chair described where they intended to focus.

Dr. Logerwell presented a number of suggestions from FIS such as 1) a publication summarizing 25 years of activities and posing three questions: what was successful, what was unsuccessful, and what was intended for the future; 2) producing a book or pamphlet; 3) following an example of ICES' "ICES takes stock" on "investigating our role" for their 20th anniversary. The Bevan lecture series that Alaska Fisheries/NWFSC co-sponsored with the University of Washington could be another way of communicating with the public, if they were willing to co-sponsor a series with PICES.

The mechanisms for communications, besides standard ones, could be through social media like YouTube or Facebook; and could be in other languages besides English.

Other suggestions included looking at the achievements of PICES, CCCC, and FUTURE, and looking at the activities in member countries, *i.e.*, workshops, lectures, some other event. It was also important to inform other organizations of the anniversary so they could 'book their calendar'. A common whiteboard could be used to facilitate messages or ideas between Committees, and it was suggested that the Anniversary Committee look into how to set one up. Further ideas can be discussed at PICES-2013, especially at the FUTURE Advisory Panel meetings (early), and can be captured by the Anniversary Committee (later in the meeting).

Action: Science Board to consider scientific content, national activities, target audiences, video events in each country (outside the Annual Meeting) to be discussed at PICES-2013.

AGENDA ITEM 16

Mid-year reports from Scientific and Technical Committees

Brief highlights of Committee and expert group activities since PICES-2012, and any requests, are provided below.

Biological Oceanography Committee (BIO)

BIO Chairman, Dr. Atsushi Tsuda, announced that the Section on *Carbon and Climate's* (S-CC) PACIFICA data sets and data products were now open on the public domain. The accompanying data report (NDP_092) will be published soon. S-CC is preparing papers for a special issue in a peer-reviewed journal.

The Advisory Panel on *Marine Birds and Mammals* has produced a special publication resulting from the 2011 joint PICES/ICES Topic Session (S2: BIO/POC Topic Session entitled “*Mechanisms of physical-biological coupling forcing biological “hotspots”*” which will appear as a Theme Session in the journal *Marine Ecology of Progress Series* (6 papers and 3 potential: invited editors, Elliott Hazen, Rob Suryan, Jarrod Santora, Yutaka Watanuke, and Rory Wilson, Steven Bograd). Dr. Yutaka Watanuki organized a Marine Spatial Ecology Symposium at the Bio-logging Society’s Annual Meeting at Hokkaido University, Hakodate, Japan, in 2012 where Dr. Suryan gave plenary talk on “*Many lessons learned from long-term tracking studies of albatrosses*”. The Bio-logging Society agreed to share its seabird tracking data for AP-MBM’s spatial ecology project.

The 4th International Jellyfish Bloom Symposium will be held in Hiroshima, Japan, from June 5–7, 2013, and is being co-organized by Working Group on *Jellyfish Blooms around the North Pacific Rim: Causes and Consequences* (WG 26) Co-Chairman, Dr. Shin-ichi Uye. PICES has given travel support for 2 invited speakers. The call for papers was very successful with about 140 abstracts submitted, of which 56 will be included as oral presentations, which will make it the largest meeting ever to examine jellyfish blooms. A WG 26 inter-session meeting will be held in advance of the symposium to take advantage of the expertise coming to the meeting, including present WG members to discuss plans for the final report. WG 26 proposed a ½-day Topic Session on “*Natural and anthropogenic drivers of jellyfish blooms in coastal ecosystems: Correlation, causation, and prediction*” to be co-convened by WG members Drs. Uye, Ric Brodeur and Lucas Brotz and held at the FUTURE Open Science Meeting in 2014. [This has now been combined with WG 28’s proposal for a workshop – see Agenda Item 7.]

Several new members, especially from China, have been added to Working Group on *Development of Ecosystem Indicators to Characterize Ecosystem Responses to Multiple Stressors* (WG 28) since PICES-2012. Mr. Vladimir Kulik participated on behalf of WG 28 at a workshop on “*Marine Biodiversity Conservation and Marine Protected Areas in the Northwest Pacific*”, convened by NOWPAP in Toyama, Japan (March 13–14, 2013). The objective of this workshop was to share information on methodologies for marine environment assessment and the current status of Marine Protected Areas in member states; PICES WG 28 was invited to discuss its work on ecosystem indicators for multiple stressors. Several WG 28 members are participating at the PICES/ICES Workshop on “*Global assessment of the implications of climate change on the spatial distribution of fish and fisheries*” following the ISB-2013 meeting in St. Petersburg (May 22–24, 2013). WG 28 proposed a ½-day Workshop on “*Communicating and presenting indicators of ecosystem responses to multiple stressors in North Pacific marine systems*” to be co-convened by WG members Drs. Ian Perry, Motomitsu Takahashi, Vladimir Kulik, and Jameal Samhoury and held at the FUTURE Open Science Meeting in 2014. There is still large uncertainty about the ability for all members to participate in the meetings and work of WG 28 at the Annual Meeting in the fall.

Dr. Tsuda will be stepping down as BIO Chairman at the end of PICES-2013. The proposed Chair to take his place is Dr. Angelica Peña (Canada), who will be formally elected at the Meeting.

Fishery Science Committee (FIS)

FIS Chair, Dr. Libby Logerwell, reported that Dr. Jaebong Lee (Korea) is a new member of FIS, replacing Dr. Jinyeong Kim; Prof. Kazushi Miyashita and Dr. Motomitsu Takahashi (Japan) are the new members of FIS, replacing Drs. Toyomitsu Horii and Yasuzumi Fujimori; Prof. Masahide Kaeriyama (Japan) stepped down from AP-AICE. Dr. Anya Dunham (Canada) will now serve as FIS representative on this Advisory Panel.

Dr. Logerwell and Dr. Dunham agreed to review two sections of the final report of the Working Group on *Environmental Interactions of Marine Aquaculture* (WG 24) before signing off on it for publication in the PICES Scientific Report series.

FIS worked with the North Pacific Anadromous Fish Commission to develop a proposal for a joint Study Group on *Scientific Cooperation in the North Pacific Ocean* (see Agenda Item 2, NPAFC).

An ICES/PICES Symposium on “*Forage fish interactions: Creating tools for ecosystem-based management of marine resources*” (endorsed by Council in 2011) was held November 12–14, 2012 in Nantes, France. Topic session descriptions, convenors, and invited speakers were finalized for six FIS co-sponsored sessions to be held at PICES-2013.

Marine Environmental Quality Committee (MEQ)

MEQ Chairman, Mr. Chuanlin Huo, thanked Science Board for its patience and understanding, as the Committee has been in a state of transition since early 2012 [when its former chairman unexpectedly stepped down] and as he becomes familiar with the duties of an MEQ chairman. Any direction or advice from Science Board and/or FUTURE would be welcomed as the Committee finds its direction.

Mr. Huo briefly explained that since FUTURE was established in 2009, every Standing Committee, except MEQ, has aligned its Action Plan with the program’s objectives. After being elected at PICES-2012, he organized a special MEQ task team to work on the Action Plan, integrating the issues/focus areas into a first draft. After a number of iterations, including the recent incorporation of tasks from the SG-RS workshop, Mr. Huo presented the final version for Science Board review.

Mr. Huo presented a short overview of Study Group on *Radionuclide Science in the North Pacific* achievements (see also Agenda Item 2), mentioning that SG (and newly formed WG 30) member, Dr. Gi-Hoon Hong (Korea) was also a member of the London Convention Protocol.

No final report was submitted by Study Group on *Marine Pollutants* because MEQ has just finished revising its Action Plan. Similarly, the Section on the *Ecology of Harmful Algal Blooms (S-HAB)* and Working Group on *Non-indigenous Aquatic Species (WG 21)* can only finish revising their terms of reference once MEQ’s Action Plan has been endorsed by Science Board.

Physical Oceanography and Climate Committee (POC)

POC Committee Chairman, Dr. Kyung-Il Chang, announced that the ½-day joint PICES/CLIVAR Theme Session on “*Biophysical interactions*” at the 2nd International Symposium on “*Boundary current dynamics: Its connection with open-ocean, coastal processes, biophysical interactions and responses to global climate change*” will take place July 8–9, 2013, in Li Jiang, China. The key question to be answered in this session is “What are the roles of boundary currents in biogeochemical cycles and marine ecosystems?” Session convenors are Drs. Shoshiro Minobe (WG 27 member) and Hiroaki Saito (AP-COVE Chairman; BIO, SG-SC-NP member). PICES is supporting two invited speakers for the session.

A 2nd (WG 29) Regional Climate Modeling Workshop will take place September 10–12, 2013, in Busan, Korea. The workshop will involve 4 sessions: downscaling, submesoscale processes, North Pacific variability, and other climate-related issues. Session convenors from PICES are Drs. Chang (POC Chairman; WG 29, AP-CREAMS member), Enrique Curchitser (POC, WG 27 member, WG 29 Co-Chairman), and Chan Joo Jang (WG 29 Co-Chairman; POC, WG 27 member). Among the invited speakers are: Drs. Curchitser, Michael Foreman (POC Vice-Chairman, WG 27 Co-Chairman; WG 29, S-CCME member) and Shoshiro Minobe (WG 27 member).

The Advisory Panel for a *CREAMS/PICES Program in East Asian Marginal Seas (AP-CREAMS)* held its inter-session meeting April 26, 2013, in Hangzhou, China, where national reports were presented. A NOWPAP/PICES joint training course on “*Remote sensing data analysis*” will take place October 21–25, 2013, in Qingdao, China; a 6th China-Japan-Korea IMBER symposium on “*Ocean ecosystem dynamics and integrated marine biogeochemistry and ecosystem research*” will take place October 2–3, 2013, in Tokyo, Japan. The Scientific Organizing Committee includes Drs. Hiroaki Saito (AP-COVE), Jing Zhang (AP-CREAMS), Se-Jong Ju (BIO), Jinjae Yoo (Science Board Chairman), and Sumei Liu (AP-CREAMS). A

PICES Summer School on “*Ecological modelling for marine resources management and research*”, proposed by AP-CREAMS in 2012, is scheduled for August 26–29, 2014.

The 20th anniversary of CREAMS expeditions will take place in August in Seoul, Korea. AP-CREAMS will publish (tentatively a book) on the oceanography of the EAST-II region (*i.e.*, Yellow Sea and East China Sea). The first chapter will deal with climate and physical oceanography and will include circulation, tides, water masses, ocean mixing, air–sea interactions, and long-term variations. It was suggested that the chapter could be a product in FUTURE’s roadmap.

Technical Committee on Monitoring (MONITOR)

MONITOR Chairman, Dr. Hiroya Sugisaki, requested Science Board to ask the Secretariat to send a letter on behalf of the Advisory Panel on *Continuous Plankton Recorder* (AP-CPR) to the key agencies (NPRB, DFO, SAHFOS) of the consortium that has supported AP-CPR’s work in the past to continue funding to keep AP-CPR’s sampling program running. Funding by NPRB, DFO and SAHFOS will run out between the end of 2013 to mid-2014. Funding by Japan and EVOS is secure until the end of 2016.

The Global Alliance of Continuous Plankton Recorder Surveys (GACS) will hold its 2013 Board of Governance Meeting from September 25–26 in Plymouth, UK. GACS meetings for its Database Working Group and Standards and Methodologies Working Group will be held there also, on September 24. The Global Marine Ecological Status Report: results from the global CPR survey 2010/2011 authored by M. Edwards, P. Helaouet, D.G. Johns, S. Batten, G. Beaugrand, S. Chiba, M. Flavell, E. Head, G. Hosie, A.J. Richardson, K. Takahashi, H.M. Verheye, P. Ward P, and M. Wootton was published in 2012 as SAHFOS Technical Report 9: 1–40. The paper on “Inter-annual variations and regional differences in the developmental timing of mesozooplankton in the western North Pacific Ocean based on Continuous Plankton Recorder data from 2001 to 2009” authored by T. Yoshiki, S. Chiba, H. Sugisaki, K. Sasaoka, T. Ono and S. Batten has been accepted in the *Journal of Plankton Research*. Dr. Song Sun (AP-CPR member) has joined GACS.

Action: Secretariat to send a letter to NPRB, DFO and SAHFOS requesting funding for the AP-CPR sampling program.

MONITOR continues to maintain relations to the GOOS groups of ICES, and is informed of their meetings and activities. Dr. Sugisaki briefly described the 2013 PICES Summer School on “*Ocean observing systems and ecosystem monitoring*” (see Agenda Item 14).

Dr. Sugisaki announced that two nominations were submitted to MONITOR for evaluation, with one being rolled over from 2012 (see also Agenda Item 12). MONITOR expressed concern that the nominations for POMA were dwindling with each year, and that China is the only member country that has not yet submitted any names.

New items in MONITOR’s Action Plan are to foster the relationships between international and local organizations for ocean observation (*e.g.*, SAON, GACS, and the OOSs), and to link to FUTURE (especially AP-SOFE) and S-HD in order to advance scientific knowledge on the relationship between marine ecosystems and human activities.

Technical Committee on Data Exchange (TCODE)

TCODE Chairman, Dr. Toru Suzuki, informed Science Board that Dr. Ling Tong (China) stepped down as a member of TCODE. No replacement has been made.

TCODE is co-sponsoring three Topic Sessions and co-sponsoring one workshop with IODE on “*Tools, approaches and challenges for accessing and integrating distributed datasets*” at PICES-2013. A

convenor/speaker from IODE is still to be decided. TCODE supported the 2013 PICES Summer School on “*Ocean observing systems and ecosystem monitoring*” (August 19–23, Corvallis, USA) with Dr. Suzuki being one of the members of the SSC/SC.

An IODE GE-BICH Workshop was held February 27–29 in Oostende, Belgium. Dr. Hernan Garcia (Co-Chairman of GE-BICH) and Dr. Suzuki attended. Discussions revolved around a Quality Flag Scheme proposal for the exchange of oceanographic and marine meteorological data, which was accepted by the Ocean Data Standards Pilot Project and published as UNESCO Manual and Guide 54, Vol. 3 in April 2013.

IODE-XXII was held March 11–15, 2013 in Ensenada, Mexico. Four TCODE members attended: Drs. Suzuki, Garcia, Joon-Soo Lee, and Ms. Lynn deWitt. A poster on the TCODE GeoNetwork Portal was presented at the meeting.

Dr. Yukihiro Nojiri, past Co-Chairman of Working Group (WG 13) on *Carbon Dioxide in the North Pacific* and Working Group (WG 17) on *Biogeochemical Data Integration and Synthesis* has proposed a Japan-Canada cooperative program for ocean surface nutrients monitoring. As part of TCODE’s Action Plan Goal 4, the Committee and S-CC support this program and will propose a Topic Session for PICES-2014. As part of Action Plan Goals 4 and 5, Dr. Suzuki submitted the PACIFICA (**PACIFic Ocean Interior CARbon**) document to CDIAC (Carbon Dioxide Information Analysis Center) which published it as NDP-092 in May and is available online at <http://cdiac.ornl.gov/oceans/PACIFICA/>. The PICES website <http://pacific.pices.jp/> is the primary source for the PACIFICA document.

As part of TCODE’s outreach activities for 2012–2014 (see 2012 TCODE report, Agenda Item 8, https://www.pices.int/publications/annual_reports/Ann_Rpt_12/2012-TCODE.pdf), an interactive website has been established for the Section on *Climate Change Effects on Marine Ecosystems* (S-CCME), using Google sites, <http://sites.google.com/site/picesscme>. Access to it is free of charge and is open to the public, but only members can edit the Section’s documents.

TCODE is continuing to maintain and promote PICES TCODE GeoSpatial Portal, promote the use of shared information tools, and help in the preparation of the North Pacific Ecosystem Status Report (Action Plan Goal 5).

AGENDA ITEM 17

Committee Action Plans

All Committees have submitted their Action Plans for the next three years. Upon review, Dr. Yoo found different levels of detail and different connections to FUTURE. He explained that Action Plan contents could reflect FUTURE but not everything in an Action Plan had to be related to it. Drs. Therriault and Yoo will edit the Plans to have a common look and feel while maintaining the integrity of each Committee’s Plan.

Action: Science Board Chairman and Chairman-elect to edit Action Plans for commonality.

Although not on the agenda, the following topic was presented for discussion near the end of the meeting.

FUTURE Progress – the next steps

Dr. Therriault raised the question as to when Science Board (as FUTURE SSC) could expect to see FUTURE science being done. The FUTURE Advisory Panels had done their job in asking the SSC to advise them on how to proceed; now the Standing Committees needed to be involved to fix any gaps or issues prior to being appraised by the evaluation team of experts at the FUTURE OSM. FUTURE needs to know where to feed the elements (data) to, so how are the Committees going to get the work done? For instance, S-CCME has a paper in press, so how will the parent Committees of this group take the science from that paper and link it to other tasks of FUTURE? As another example, Dr. Therriault pointed out that specific tasks and components that will

go into the 2015 North Pacific Ecosystem Status Report need to be identified, and the experts who will identify the content need to be determined.

Another issue was to find a strategy to extend products beyond the working group term. Should working groups be staggered to identify different issues, or are there individuals/agencies who can extend/sustain the product? Also, certain products need to be combined or linked (*e.g.*, those of WG 28, 29, S-CCME). Unlike the previous program, which had task teams to address specific tasks, FUTURE is more integrated, so it is more challenging to determine the elements needed and gaps to be filled.

Dr. Therriault noted that when expert groups were established, the Advisory Panels rated them high/medium/low in identifying the questions related to the three overarching research themes. Now it was time for the Committees to bring back to the SSC how their expert groups addressed the specifics, and the Committees' responsibility to guide their expert groups as they finish up on what products are still needed. Therefore, a mechanism needs to be established to gather relevant information and glue it together, and to identify missing parts needed to fill the gaps before the expert group disbands. An individual/team is needed to identify and synthesize the products.

One method suggested for funnelling the information would be for each expert group to present a final report to its parent Committee and add a summary on how they addressed the questions of FUTURE, and how the products will be delivered.

It was agreed that the SSC needed to identify (1) the products and (2) mechanism to get the products done. The next step would be to identify the expert (either in the Committee/Advisory Panel, in an agency, or visiting scientist) to synthesize the product. The Committee would play two roles: that of acting as a filter and as a bridge between the FUTURE Advisory Panels and expert groups. The Committee would be responsible for looking at what has been done, what needs to be done, what is missing, and the expert would be charged with putting these items together. As a guide, the FUTURE Science Plan sub-questions of each overarching question could be used to do a self-evaluation.

Dr. Atsushi cautioned that in placing so much emphasis on FUTURE, some BIO members were hesitant to propose a new expert group or topic session not directly linked to FUTURE, so as not to take away from the goals of the program, and urged that some room be left open in PICES for other activities.

AGENDA ITEM 18

Other business

Supplementary Chapter

In response to the task set by Science Board to provide advice on the next steps for releasing the revised supplementary chapter of NPESR II, AP-SOFE circulated an email to Science Board (February 15, 2013) recommending that it be published as a special issue in a peer reviewed journal. At the inter-sessional meeting, SOFE Chairman, Dr. Phillip Mundy, confirmed that the authors should be contacted soon to determine if they would like to go ahead with publishing in this manner. If the authors agree to publish in a special issue, the matter will be taken up by Science Board as a matter for financial support.

Action: Dr. Yoo to request AP-CREAMS Co-Chairmen (who are also co-authors) to discuss with the rest of co-authors if they are agreeable to publishing a special issue.

ISB Endnote 1

Science Board list of participants

Members

Kyung-Il Chang (POC)
Chuanlin Huo (MEQ)
Elizabeth Logerwell (FIS)
Phillip Mundy (SOFE-AP)
Hiroaki Saito (COVE-AP)
Igor Shevchenko (representing Russia)
Hiroya Sugisaki (MONITOR)
Toru Suzuki (TCODE)
Tom Therriault (AICE-AP)
Atsuki Tsuda (BIO)
Sinjae Yoo (Chairman, Science Board)

Observers

Robin Brown (GC)
Jinqiu Du (SG-RS)
Heejin Kim (KIOST)
Chul Park (GC, F&A)
Neasun Park (KIOST)
Hiroyuki Shimada (Japan)
John Stein (GC)
Gongke Tan (China)
Dongho Youm (KIOST)
Yusheng Zhang (SG-SR)

PICES

Alex Bychkov (PICES)
Skip McKinnell (PICES)
Laura Richards (PICES)

ISB Endnote 2

Science Board meeting agenda

1. Welcome and adoption of agenda (Yoo)
2. Interactions with other organizations including NPAFC Study Group (Yoo)
Decision 2.1: Accept/reject/modify proposal for PICES to be part of a SCOR/ICES working group
Decision 2.2: Accept/reject/modify proposal for joint study group with NPAFC
3. Status of planning for PICES-2013, Nanaimo, Canada (Secretariat)
4. Report from Study Group on Radionuclide Science and Environmental Quality of Radiation in the North Pacific
Decision 4.1: Accept/reject/modify proposal for a working group on Marine Environmental Quality of Radiation in the NP Ocean
5. Proposal for the establishment of a Section on “Emerging Topics in Marine Pollution”
Decision 5.1: Accept/reject/modify proposal for a section on Emerging Topics in Marine Pollution
6. Presentation and discussion of current status of the FUTURE APs and AP chair rotations (AP Chairs)
7. Status of FUTURE OSM 2014, Hawaii, theme and venue (Secretariat/Therriault)
Action 15.1: Discuss/fill in gaps in the scientific program
8. Venue and date for ISB-2014 (Yoo)
9. Status of Special Session at IMBER OSM 2014, Bergen (Therriault)
10. The 3rd Climate Change Symposium in 2015, Brazil (Secretariat)
Decision 10.1: Names for a PICES convenor and 2 PICES SSC members
11. Possible PICES-sponsored conference/symposia in 2014 and beyond
12. Wooster and POMA awards (All)
Decision 12.1: Decide the recipients of the Wooster and POMA awards
13. Status of PICES-2014, theme and venue (Secretariat)
14. Capacity building/Plan for PICES summer schools (Yoo)
Action 14.1: Discuss how to proceed with the next ECS conference
Action 14.2: Discuss next potential summer school/training course to be sponsored by PICES
15. Preparation of PICES’ 25th anniversary (Secretariat)

- Action 15.1:* Science Board to provide additional ideas for tasks/activities
16. Mid-year reports from Scientific and Technical Committees (Committee Chairs)
- Action 16.1:* Provide any highlights on progress of expert groups
17. Committee Action Plans (All)
- Decision 17.1:* Accept/modify Science Board/Committee Action Plans
18. Other business

ISB Endnote 3

PICES International Summer School on “Ecological Modeling for Marine Resources Management and Research”

August 26-29, 2014, Seoul, Korea, Seoul National University

Purpose: Ecological models have applications in a wide variety of disciplines, such as natural resource management, wildlife conservation and agriculture. These models are formed by combining known complicated ecological relations with field observation data, and are being used in order to make an understanding about the process in systems and predictions about the dynamics of the real ecosystem. The purpose of this Summer School is to review and present methods of modeling in ecological relations, and to show how these models (methods) can be applied to understand and predict change in ecosystem.

Date: 26-29 (Tuesday ~ Friday) August, 2014

Venue: Seoul National University (Republic of Korea)

Lecture & Workshop: Bd. 25-1/1st floor International Conference Room

Hands-on Exercise: Bd. 25-1/2nd floor Room 210 (SEES Computer Room)

Students: maximum 30

Lecturers: up to 10 (including 5 foreign lecturers)

Organizing committee: to be determined

Request for financial support from PICES: travel costs for five non-Korean students and five foreign lecturers.

1. Background

An ocean ecological model and its application are representation of an ecological system which is ranging in scale from an individual population to an ecological community, or even an entire system. The real systems are quite complicated because they involves biotic and abiotic components all interacting over a large area and a long time span. Understanding and predicting the changes in marine ecosystem requires high quality observation and experiment data. The models are formed by combining known ecological relations (e.g. the relation of sunlight and water availability to photosynthetic rate, or the relation between predator and prey populations) with data gathered from field and laboratory experiments. Ecological models are useful tools to describe ecological conditions and have long been developed to understand ecosystem behavior mechanism and to predict changes in community composition and ecosystem functioning. In particular, there has been a rapid rise in the development of end-to end model dealing with the effects of climate change and human activity on the marine ecosystem through the food web. End-to-end models combine physicochemical oceanographic descriptors and organisms ranging from microbes to higher-trophic-level organisms. The demand for End-to End approaches including bottom-up and top-down control in food webs arises from the need for quantitative tools for ecosystem-based management. End-to-end models that can deal with bottom-up and top-down controls that operate simultaneously and vary in time and space and that are capable of handling the multiple impacts expected under climate change.

This summer school intends to help graduate students and early-career scientists as well as new comers by providing basic knowledge for advanced applications. The 4-day summer school will cover an introduction to marine ecosystems (e.g. concept of the ecosystem) and parameter optimization of marine ecosystem model and

its application. The courses will be composed of lectures, seminars, and hands-on training in parameter optimization and end-to-end model application.
The official language of the school is English.

2. International Organizing Committee

Prof. Chung Il Lee

Department of Marine Bioscience, Gangneung-Wonju National University, Korea

leeci@gwnu.ac.kr

- To be determined

3. International Advisory Committee

- To be determined

4. Program (tentative plan)

Day	Time	Type	Title	Lecturer
Tuesday	08:30-09:30	Registration Address	Summer School Registration Welcome Address	
	09:30-12:30	Lecture	Introduction of Ecological Model	
	12:30-13:30		Lunch	
	13:30-18:00	Lecture Exercise	Principles and Application of Ecosystem-based Model (End-to-End Model) Introduction of End-to-End Model tools	
Wednesday	09:00-12:00	Lecture	Introduction of Food-web Model	
	12:00-13:00		Lunch	
	13:00	Lecture Exercise	Parameter for Food-web Model Food-web Model Simulation	
Thursday	09:00-12:00	Lecture	Time-dynamic Simulation for Ecosystem & Fisheries Management Evaluating Ecosystem Effects of Climate	
	12:00-13:00		Lunch	
	13:00-18:00	Lecture Exercise	Evaluating Ecosystem Effects of Fishing Fitting an Time-dynamic Module for Ecosystem & Fisheries Management	
Friday	09:00-12:00	Lecture	Change in biomass and trophic interactions in space Data needs and how to build an Model	
	12:00-13:00		Lunch	
	13:00-16:00	Exercise	How to use ecosystem-based model for addressing the issues of Ecosystem & Fisheries Management	
	16:00-17:00 18:00-20:00	Ceremony	Graduation Ceremony Farewell Dinner Party	