

## **6.0 RELATIONS WITH INTERGOVERNMENTAL ORGANIZATIONS**

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## 6.0 RELATIONS WITH INTERGOVERNMENTAL ORGANIZATIONS

### 6.1 Intergovernmental Oceanographic Commission (IOC)

*Fennel*

IOC for SCOR 2012

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**IOCCP** (see report in Tab 4)

#### **Symposium on the Ocean in a high CO<sub>2</sub> World**

SCOR, IGBP, and IOC will hold the third symposium on The Ocean in a High-CO<sub>2</sub> World on 24-27 September 2012, at Monterey (California, USA). IOC has provided grants to experts from developing countries and also to promote women working on ocean sciences. The scientific sponsors (SCOR, IOC and IGBP) will produce a summary for policymakers outlining the new results arising from the Symposium which will be published soon after the completion of the event. As in 2008, this symposium overlaps with the other big event: the International Symposium on the Effects of Climate Change on the World's Oceans (May 2012; Yeosu, Korea). To avoid this overlapping in future editions, the institutions organizing the latter, IOC-PICES-ICES, will fix the next edition in 2015 instead of 2016.

#### **GEOHAB**

The long-term goal of the IOC is to foster the effective management of, and scientific research on, harmful algal blooms in order to understand their causes, predict their occurrences, and mitigate their effects. The work plan of the IOC Intergovernmental Panel on Harmful Algal Blooms (IPHAB) includes the IOC-SCOR research programme GEOHAB. GEOHAB is in a productive period leading up to a synthesis conference in 2013. With the support of Republic of Korea a regional GEOHAB project was launched in May 2012 in South East Asia with focus on ciguatera and other toxic benthic HAB events. Two IPHAB Task Teams on Biotoxins and Algal Taxonomy, two working groups co-sponsored with ICES, and four regional IOC HAB groups are also addressing various aspects of research and management of HABs. A joint IOC-ICES-PICES conference on HABs and Climate Change is being prepared, and preparations have been initiated for an international workshop with industry partners to identify research needs and solutions in relation to HABs and their potential impacts on desalination of seawater. Capacity development activities to strengthen HAB research and management capabilities remain essential to the IPHAB Work Plan and the IOC therefore continues its longstanding implementation of both global and regional training activities.

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### **Nutrients:**

The IOC Assembly has endorsed a plan for a new activity focussing at integrated coastal research and coastal eutrophication and linking nutrient sources to coastal ecosystem effects and management in particular; an IOC Nutrients and Coastal Impacts Research Programme (N-CIRP). A key component in our implementation strategy is a three-year Joint UNEP-IOC-GEF Project “Global foundations for reducing nutrient enrichment and oxygen depletion from land-based pollution” which was launched in March 2012. This project will deliver a strong global partnership on nutrient management; quantitative modelling approaches for nutrient loadings, and their impacts in coastal waters at the global, regional and local scales; development of a policy toolbox; and execution of a nutrient reduction pilot project in the Manila Bay watershed in the Philippines and Chilika Lake in India. IOC also actively participates in a “Global Partnership on Nutrient Management” (GPNM) with other UN organisations, NGOs and governments.

### **OBIS**

As part of the legacy of the Census of Marine Life (CoML), OBIS was adopted and is now fully operational as part of UNESCO/IOC under its IODE programme. The new OBIS project manager, Mr. Ward Appeltans, was recruited in May 2012 and is based at the IOC project office of IODE in Oostende (Belgium). Mr. Appeltans was managing the World Register of Marine Species (WoRMS) database before moving to OBIS. OBIS is governed by a steering group composed of the OBIS node managers. Currently, the data providers network consists of 15 operational OBIS nodes, which are regularly harvested by the central OBIS node. The central database servers are based in Oostende. New data continue to flow to OBIS. It now provides 32.7 million distribution records of 118,937 valid marine species (approximately half of all currently described marine species), from 1,072 datasets.

Being the largest global source of information on marine species distributions, OBIS serves new research and policy making at local and international levels. Not less than 23 scientific publications that refer to OBIS were published between January-July 2012 (traced by Google Scholar). Fifteen of these also used OBIS data in their analyses. OBIS is explicitly mentioned in the list of recommended data sources in the decisions report of the tenth meeting of the Conference of the Parties (COP 10) of the Convention on Biological Diversity (CBD) in Nagoya (October 2010). In response to this, OBIS is providing data for the scientific preparation in support of a series of regional workshops being convened by the CBD Secretariat for the identification of Ecologically or Biologically Significant Areas (EBSAs) in open oceans and deep seas, which is one important step in the protection and preservation of marine biological diversity in Areas Beyond National Jurisdiction (ABNJ).

**6.2 International Council for the Exploration of the Sea (ICES)***Fennel***ICES SCIENCE COOPERATION 2011-2012****▪ Marine / Maritime Forum**

ICES chairs the ‘Marine and Maritime Science and Technology Forum’ (a consortium of marine and maritime research networks which develops a forum for cooperation and interdisciplinary exchange). The Forum follows the FP7 coordination and support action ‘Towards an Integrated Marine and Maritime Science Community’ and has the task of creating and sustaining effective interactions with the broader stakeholders groups (European member states, regional authorities, industry and civil society). In 2011, the Forum’s vision and mission were agreed upon and the following two organizations decided to officially join the existing consortium:

- The European Fisheries Technology Platform;
- The European Ocean Energy Association.

The coming Marine/Maritime Forum’s activities include a multi-stakeholder aquaculture session during the ICES Annual Science Conference (September 2012) and a workshop on ocean observation and the role of the maritime shipping and offshore industry during the SeaTech week (October 2012).

**▪ MSFD**

ICES has been working with the European Union, Member States and other relevant organizations to provide scientific support for the development and implementation of the EU Marine Strategy Framework Directive (MSFD; 2008/56/EC). With the view of developing and coordinating of monitoring programmes under the MSFD, a strategic monitoring initiative (integration between fisheries and environmental surveys) between ICES, interested Member States, and the Regional Seas Commissions is being considered. ICES is also aiming to provide a modelling “toolbox” to member states, specific to the implementation of the MSFD, to help in relation to state-pressure-impact assessments and for evaluation of management measures, related indicators, and associated risks.

ICES is also commencing work under the FP7 ‘Science and Technology Advancing Governance of Good Environmental Status’ project. This initiative is focused on ensuring that relevant knowledge already generated through marine environment research is identified, and the results made available to decision and policy-makers and MSFD stakeholders. The project consortium has been tasked to identify knowledge gaps, and highlight needs for further research to improve the scientific underpinning needed for implementation of the MSFD.

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- **New memoranda of understanding**

- ICES MoU with the Convention on Biological Diversity (CBD) – developing areas of common interest including data and information management and development of marine information technologies;
- ICES MoU with the UN Intergovernmental Oceanographic Commission (IOC) - updated and renewed in 2012 - on intensified cooperation in the implementation of the coastal and open-ocean observations as a part of the Global Ocean Observing System (GOOS);
- ICES MoU with the Mediterranean Science Commission (CIESM) - in progress – on introduced species, including economic implications of introductions, operational oceanography, jellyfish outbreaks and ecosystem regime shifts, marine protected areas and biodiversity, and economic valuation of ecosystem services.

- **ICES Symposia**

2011:

- 5th International Zooplankton Production Symposium, Pucon, Chile, March 2011;
- ICES/NAFO Symposium on the Variability of the North Atlantic and its Marine Ecosystems, Santander, Spain, May 2011;
- Symposium on “Comparative studies of climate effects on polar and sub-polar ocean ecosystems: progress in observation and prediction” Seattle, USA, May 2011;
- 2nd International Symposium on Integrated Coastal Zone Management, Arendal, Norway, July 2011;
- ICES Annual Science Conference 2011, Gdansk, Poland, September 2011;
- ICES/NASCO Symposium on 'Salmon at Sea: Scientific Advances and their Implications for Management', La Rochelle, France, October 2011;

2012:

- ICES/PICES Early Career Scientist Conference, Palma de Mallorca, Spain, April 2012;
- 6th World Fisheries Congress (WFC 2012) “Sustainable Fisheries in a Changing World“, Edinburgh, UK, May 2012;
- Symposium on "Research and ecosystem-based management strategies supporting the implementation of the Marine Strategy Framework Directive" (Marine Strategy 2012), Copenhagen, Denmark, May 2012;
- ICES/PICES/IOC Second International Symposium on the Effects of climate change on the world's oceans, Yeosu, Korea, May 2012;
- ICES Annual Science Conference 2012 will be held in Bergen, Norway, September 2012;
- Symposium on “Forage fish interactions: Creating the tools for ecosystem based management of marine resources” will be held in Nantes, France, November 2012.

### 6.3 Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP)

*Urban*

GESAMP, at its meeting at the IAEA lab in Monaco last spring, approved a continuation of WG 38's efforts, and the new work would be a follow-on to the 2008 *Science* paper (which SCOR supported) on the impact of anthropogenic atmospheric nitrogen deposition on marine biogeochemistry and climate (Duce et al. 2008). This follow-on work would have the following goals:

- Update the geographical estimates of anthropogenic nitrogen deposition to the global ocean made in the Duce et al. (2008) paper in *Science*, which were based on data from 2005 or earlier. This would utilize newer and more geographically distributed data on anthropogenic nitrogen concentrations over the global ocean and its deposition to the global ocean surface as well as improved models of atmospheric deposition and its impacts.
- On the basis of the above update, re-estimate the amount of additional CO<sub>2</sub> that could be drawn down from the atmosphere to the ocean as a result of the increased productivity in the ocean resulting from the additional anthropogenic nutrient nitrogen deposited. This would allow an update on the impact of the atmospheric nitrogen deposition on atmospheric radiative properties, relative to the 2008 paper in *Science*.
- Provide a much more accurate estimate of the impact of atmospheric anthropogenic nitrogen deposition on the production of additional nitrous oxide in the ocean and its subsequent emission to the atmosphere. This was certainly one of the greatest uncertainties in the 2008 *Science* paper. This is very important to evaluate accurately, since N<sub>2</sub>O is such a powerful greenhouse gas, and the emission of additional N<sub>2</sub>O from the ocean will cancel (to some extent) the effects of the additional drawdown of CO<sub>2</sub> on the radiative properties of the atmosphere. There are new data and other information now available that should make a much better calculation possible.
- Evaluate the extent to which anthropogenic nitrogen delivered to the coastal zone via rivers, atmospheric deposition, etc. is transported to the open ocean, in which regions this may happen, and what its impact is there. (The 2008 *Science* paper assumed that all nitrogen delivered to the coastal zone was sequestered there and did not reach the open ocean, but this may well not be true, and this is something that needs to be looked at more carefully.)
- Do a much more detailed estimate of the input and impact of anthropogenic nitrogen in the area of the northern Indian Ocean (Arabian Sea, Bay of Bengal) and the South China Sea and other areas east of Asia - the areas that are expected to show the greatest increase of anthropogenic nitrogen deposition over the next decade or so (according to the 2008 *Science* paper). These very important regions are also areas for which extensive new atmospheric data are now available compared with 5 years ago, and this should enable much more accurate estimates to be made.

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These goals would be addressed by a workshop on “The Atmospheric Deposition of Nitrogen and Its Impact on Marine Biogeochemistry” to be held at the University of East Anglia in Norwich, United Kingdom on 11-14 February 2013. NSF has committed to provide partial funding for this workshop through SCOR.

The workshop will have 27 participants:

Katye Altieri (US)

Kevin Arrigo (US)

Alex Baker (UK)

Doug Capone (US)

Frank Dentener (Italy)

Robert Duce (US)

Katja Fennel (Canada)

James Galloway (US)

Nicolas Gruber (Switzerland)

Tim Jickells (UK)

Maria Kanakidou (Greece)

Jean-Francois Lamarque (US)

Julie LaRoche (Canada)

Kitack Lee (Korea)

Peter Liss (UK)

Jack Middelburg (Netherlands)

Keith Moore (US)

Slobodan Nickovic (Switzerland)

Greg Okin (US)

Andreas Oechlens (Germany)

Joseph Prospero (US)

Manmohan Sarin (India)

Sybil Seitzinger (Sweden)

Jonathan Sharples (UK)

Arvind Singh (Sweden/India)

Parv Suntharalingam (UK)

Mitsuo Uematsu (Japan)

#### 6.4 North Pacific Marine Science Organization (PICES)

*Taguchi*

### **SCOR and PICES: Continuing Connections** **Report for the 2012 SCOR General Meeting** **October 21–23, 2012, Halifax, Nova Scotia, Canada**

The North Pacific Marine Science Organization (PICES) is an intergovernmental scientific organization established by an international convention in 1992, in order to promote and coordinate marine scientific research in the North Pacific and adjacent seas. Our current member countries are Canada, Japan, People's Republic of China, Republic of Korea, Russian Federation and the United States of America. Our goals are to (1) advance scientific knowledge and capacity available for the member countries, including information on human activities affecting, and affected by marine ecosystems, and (2) provide a mechanism for collaboration among scientists in addressing timely and critical scientific questions. In 20 years since its establishment, PICES has become a major forum for marine science in the North Pacific. Information on the Organization and its activities can be found on the PICES website at <http://www.pices.int>.

Continuing and extending collaboration between SCOR and PICES is based on the recognition that PICES can play an important role in bringing a North Pacific perspective to the global activities of SCOR, and that by participating in and implementing these activities in the region, PICES can advance its own scientific agenda.

To discuss on-going and future collaborations between the two organizations, SCOR and PICES continue to regularly exchange observers at each others' annual meetings. In recent years, SCOR was represented at PICES-2009 (Jeju, Korea) by Drs. Wolfgang Fennel (President of SCOR) and Ed Urban (Executive Director of SCOR) and at PICES-2010 (Portland, USA) by Dr. Fennel, and will be represented at PICES-2012 (Hiroshima, Japan) by Dr. Satoru Taguchi (Vice-President of SCOR). Dr. Alexander Bychkov (PICES Executive Secretary) attended the 2010 SCOR General Meeting (Toulouse, France) and the 2011 SCOR Executive Committee Meeting (Helsinki, Finland).

This report provides an update on PICES-SCOR collaboration since the 2011 SCOR Executive Committee Meeting.



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## LARGE-SCALE OCEAN RESEARCH PROGRAMS CO-SPONSORED BY SCOR

### *Integrated Marine Biogeochemistry and Ecosystem Research (IMBER)*

#### Joint sessions/workshops at PICES Annual Meetings

- PICES and IMBER have convened joint topic sessions at every PICES Annual Meeting since 2008, and IMBER has provided travel funds for an additional invited speaker for each of these sessions. The following sessions were organized in 2011–2012:
  - “*How well do our models really work and what data do we need to check and improve them?*” (PICES-2011, Khabarovsk, Russia);
  - “*Changing ocean biogeochemistry and its ecosystem impacts*” (PICES-2012, Hiroshima, Japan).
- IMBER was invited to submit a proposal for a joint session/workshop at PICES-2013 (October 11–20, 2013, Nanaimo, Canada) through the online system at (<http://www.pices.int/meetings/annual/PICES-2013/2013-call-for-proposals.aspx>). The overall theme for PICES-2013 is “*Communicating forecasts, uncertainty and consequences of ecosystem change*”, and proposals are due September 7.

#### Co-sponsored symposia/conferences

- IMBER co-sponsored the PICES/ICES/IOC Symposium on “*Effects of climate change on the world’s oceans*” (May 13–20, 2012, Yeosu, Korea) by providing partial travel support for 2 speakers for the workshop on “*Effects of climate change on advective fluxes in high latitude regions*”. This was the joint workshop of two IMBER Regional Programs, ESSAS (Ecosystem Studies of Sub-Arctic Seas) and ICED (Integrating Climate and Ecosystem Dynamics). The report of the workshop can be found in the July 2012 issue of *PICES Press* ([www.pices.int/publications/pices\\_press/volume20/v20\\_n2/pp\\_21-23\\_Yeosu\\_W4.pdf](http://www.pices.int/publications/pices_press/volume20/v20_n2/pp_21-23_Yeosu_W4.pdf)).
- PICES co-sponsored IMBER IMBIZO II on “*Integrating biogeochemistry and ecosystems in a changing ocean: Regional comparisons*” (October 10–14, 2010, Crete, Greece) by providing travel support for 3 invited speakers from the North Pacific and was requested to co-sponsor IMBER IMBIZO III on “*Multidimensional approaches to the challenges of global change in continental margins and open ocean systems*” (January 28–31, 2013, Goa, India) at the same level. This request will be considered at PICES-2012.

#### Capacity building activities

- PICES co-sponsored the IMBER ClimECO3 Summer School on “*A view towards Earth System models: Human-natural system interactions in the marine world*” (July 23–28, 2012, Ankara, Turkey) by providing travel funds and arranging additional support (through national programs/agencies) for 5 early career scientists from PICES member countries (1 from Japan, 2 from Korea and 2 from China).
- IMBER was invited to co-sponsor the 2013 PICES Summer School on “*Ocean observing systems and ecosystem monitoring*” (August 2013, Newport, Oregon, USA).

### Regional Program level

- IMBER Regional Program on Ecosystem Studies of Sub-Arctic Seas (ESSAS)
  - PICES provided organizational support (including: maintaining the meeting website, handling major finances, on-line registration and abstract submission, compiling the book of abstracts, and arranging the logistics for the venue) for the second ESSAS Open Science Meeting on “*Comparative studies of climate effects on polar and sub-polar ocean ecosystems: Progress in observation and prediction*” (May 2011, Seattle, USA). A summary of the meeting was published in the July 2011 issue of *PICES Press* ([http://www.pices.int/publications/pices\\_press/volume19/v19\\_n2/pp\\_9-13\\_ESSAS\\_OSM.pdf](http://www.pices.int/publications/pices_press/volume19/v19_n2/pp_9-13_ESSAS_OSM.pdf)).
  - The goal of the Marine Ecosystem Model Inter-comparison Project (MEMIP), initiated by PICES and ESSAS in 2008, is to compare the performance of various lower trophic level marine ecosystem simulation models in predicting the abundance and distribution of coastal zooplankton functional groups. A series of joint MEMIP workshops has been organized in conjunction with PICES Annual Meetings since 2008. A 2-day MEMIP workshop on “*Comparison of multiple ecosystem models in several North Pacific shelf ecosystems*” will be held at PICES-2012.
  - A joint ESSAS/PICES workshop on “*Subarctic–Arctic interactions*” will be convened at PICES-2012.
- IMBER Regional Program on CLimate Impacts on Oceanic TOp Predators (CLIOTOP)
  - PICES co-sponsored a CLIOTOP special session on “*Global science for global governance of oceanic ecosystems and fisheries*” at the Planet Under Pressure Conference (March 26–29, 2012, London, UK) by providing travel support for an invited speaker from the North Pacific.
- PICES Program on Forecasting and Understanding Trends, Uncertainty and Responses of North Pacific Marine Ecosystems (FUTURE)
  - Issues in marine biogeochemistry and food webs are important components of the second integrative scientific program of PICES, FUTURE ([http://www.pices.int/members/scientific\\_programs/FUTURE/FUTURE-main.aspx](http://www.pices.int/members/scientific_programs/FUTURE/FUTURE-main.aspx)). The first FUTURE Open Science Meeting is planned for the spring of 2014, and IMBER is invited to co-sponsor the meeting.

### Expert Group level

- In 2011, new expert groups on human dimensions were established by IMBER (Working Group on *Human Dimensions* (WG-HD); <http://www.imber.info/index.php/Science/Working-Groups/Human-Dimensions>) and PICES (Section on *Human Dimensions* (S-HD); <http://www.pices.int/members/sections/S-HD.aspx>). These two expert groups have the same motivations, similar objectives, identical challenges, and overlapping membership

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(Drs. Mitsutaku Makino and Ian Perry are members of both groups) and are well set to work together to more effectively implement their tasks.

## Representation

- IMBER and ESSAS are normally present as observers at PICES Annual Meetings. Dr. Liuming Hu (Deputy Executive Officer, IMBER Regional Project Office, Shanghai, China) will represent IMBER at PICES-2012.

## *Surface Ocean-Lower Atmosphere Study (SOLAS)*

### Joint sessions/workshops at PICES Annual Meetings

- PICES and SOLAS have convened joint topic sessions and workshops at PICES Annual Meeting since 2006, and SOLAS has provided travel funds for an additional invited speaker/convenor for each of these events. The following sessions were organized at PICES-2012:
  - “*Ecosystem responses to multiple stressors in the North Pacific*”;
  - “*Changing ocean biogeochemistry and its ecosystem impacts*”.
- SOLAS was invited to submit a proposal for a joint session/workshop at PICES-2013 (October 11–20, 2013, Nanaimo, Canada) through online system (<http://www.pices.int/meetings/annual/PICES-2013/2013-call-for-proposals.aspx>). The overall theme for PICES-2013 is “*Communicating forecasts, uncertainty and consequences of ecosystem change*”, and proposals are due September 7.

### Capacity building activities

- PICES co-sponsored the 5th SOLAS Summer School (August 29–September 10, 2011, Cargèse, Corsica, France) by providing travel funds for 3 students/early career scientists from PICES member countries (Canada, China and USA) and was requested to support the 6th SOLAS summer school (August 23–September 2, 2013, Xiamen, China) at the same level. This request will be considered at PICES-2012.
- SOLAS was invited to co-sponsor the 2013 PICES Summer School on “*Ocean observing systems and ecosystem monitoring*” (August 2013, Newport, Oregon, USA).

## Representation

- SOLAS is normally present as observers at PICES Annual Meetings. Drs. Lisa Miller and Yukihiro Nojiri (SOLAS SSC members) will represent SOLAS at PICES-2012.

## *Global Ecology and Oceanography of Harmful Algal Blooms Program (GEOHAB)*

### Joint sessions/workshops at PICES Annual Meetings

- Dr. Raphael Kudela, GEOHAB SSC Chairman, gave invited talks at the workshop on “*Remote sensing techniques for HAB detection and monitoring*” and at the topic session on “*Harmful algal blooms in a changing world*” convened at PICES-2011 (Khabarovsk, Russia).

Co-sponsored Symposia/Conferences

- The basic plan has been developed for “*HAB and climate change events*” to be conducted jointly by PICES, ICES and GEOHAB. It is a two-phase approach, with a Phase I smaller size workshop (10–12 persons) to be held in March 2013, and a large Open Science Meeting to be convened likely in 2014. The objectives of the Phase I workshop are to (1) assess the state of knowledge on HABs and climate change, and (2) identify the most critical research needs that can realistically be addressed over the next 5–10 years. The output would be a “review” (concept) paper targeted for a high-level scientific journal. In Phase II, the broad topic areas identified by the workshop participants will serve as the foundation for sessions in an Open Science Meeting.

Representation

- Dr. Raphael Kudela represented GEOHAB at PICES-2011 and Dr. Henrik Enevoldsen will represent GEOHAB at PICES-2012.

**OCEAN CARBON ACTIVITIES SUPPORTED BY SCOR**Communication/coordination

- PICES, through its Working Groups on *CO<sub>2</sub> in the North Pacific* (WG 13; 1998–2001) and *Biogeochemical Data Integration and Synthesis* (WG 17; 2002–2005), and now through the Section on *Carbon and Climate* (S-CC; 2006–present; <http://www.pices.int/members/sections/CC.aspx>), has been long acting as a coordinator for synthesis of ocean carbon research and the development of a network of ocean carbon observations in the North Pacific. The importance of ensuring effective two-way communication with other international scientific groups that have a responsibility for the coordination of ocean carbon research, such as the SCOR/IOC-UNESCO International Ocean Carbon Coordinated Project (IOCCP) and to the SOLAS/IMBER Carbon (SIC) Research Working Group, has been explicitly included in the terms of reference for S-CC. There are S-CC members on each of SIC’s subgroups: Dr. Toshiro Saino serves on the subgroup 1 on *Surface Ocean System*, Dr. Masao Ishii is on the subgroup 2 on *Interior Ocean Carbon*, and Drs. Richard Feely and Minhan Dai are members of the subgroup 3 on *Ocean Acidification*. Two S-CC members, Drs. Masao Ishii and Alex Kozyr, are also members of the IOCCP Scientific Steering Group.

S-CC activities

- The PACIFICA data synthesis project is the most ambitious and significant undertaking of S-CC, and its products will be an important legacy of PICES for the Pacific Ocean scientific community. PACIFICA has collected biogeochemical data from more than 200 cruises (mostly post-WOCE) in the Pacific Ocean and implemented a set of algorithms for crossover analysis that permitted the construction of a basin-wide, consistently calibrated data set which creates opportunities for interdisciplinary studies of future

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ocean change in the context of past variability and change. A scientific analysis of the data is expected to be presented at PICES-2012.

- The following scientific sessions were co-organized by S-CC in 2012:
  - Two Theme Sessions, “*Changes in the marine carbon cycle*” and “*Trend and impacts of de-oxygenation in oceanic and coastal ecosystems*”, were convened at the PICES/ICES/IOC Symposium on “*Effects of climate change on the world’s oceans*” (May 13–20, 2012, Yeosu, Korea).
  - A joint PICES/ICES/IMBER/SOLAS Topic Session on “*Changing ocean biogeochemistry and its ecosystem impacts*” will be held at PICES-2012.

## SCOR WORKING GROUPS

### SCOR WG 131 on *The Legacy of in situ Iron Enrichment: Data Compilation and Modeling:*

- Compiling and synthesizing available iron biogeochemistry data in the North Pacific Ocean was one of main goals for PICES WG 22 on *Iron Supply and its Impact on Biogeochemistry and Ecosystems in the North Pacific Ocean*, and data sets of iron and related parameters in the North Pacific are included in the WG 22 final report published in 2012. This information is expected to be useful for the SCOR WG 131 mandate.

### SCOR WG 137 on *Patterns of Phytoplankton Dynamics in Coastal Ecosystems: Comparative Analysis of Time-Series Observations:*

- There are many phytoplankton data sets from diverse parts of the globe that warrant a comparative examination, and SCOR WG 137 was seen as a logical methodological continuation of SCOR WG 125 on *Global Comparisons of Zooplankton Time Series*. PICES strongly supported the establishment of SCOR WG 137 and agreed to finance an associate member from the North Pacific, Dr. Sinjae Yoo, Korea Ocean Research and Development Institute, to participate in its activities.
- A 2-day SCOR/PICES workshop on “*Global patterns of phytoplankton dynamics in coastal ecosystems*” and a 1-day SCOR WG 137 meeting will be held in conjunction with PICES-2012. PICES will cover meeting costs and travel expenses for the workshop invited speaker, and SCOR will cover the registration fee for any WG members (full and associate) who are attending PICES-2012 primarily to participate in the WG 137 events.

### SCOR WG 140 on *Biogeochemical Exchange Processes at the Sea-Ice Interfaces*

- PICES supported the establishment of SCOR WG 140 and expressed an interest in financing Dr. Lisa Miller (member of PICES Section on *Carbon and Climate*) as an associate member on this group.

### Review of SCOR WG proposals for 2012

- PICES Standing Committees reviewed the proposal from the view point of their scientific interests and relevance to the PICES integrative science program, FUTURE. The following is our list in the order of priority:

- WG on *Identify Ecosystem Essential Ocean Variable for Measuring Change in the Biological Properties of Marine Ecosystems*
- WG on *Marine Ecosystem Reorganisation under Climate Change*
- WG on *Quality Control Procedures for Oxygen and other Biogeochemical Sensors on Floats and Gliders*
- WG on *Surface Waves in Ocean Circulation and Climate System*

## CAPACITY BUILDING

- Dr. Harold Batchelder (U.S. national delegate to the PICES Governing Council), will replace Dr. George Boehlert, as a PICES liaison to the SCOR Committee on Capacity Building.
- SCOR continues to provide travel support for scientists from countries with “economies in transition” to participate in SCOR-relevant sessions/workshops at PICES Annual Meetings and international symposia led/co-organized by PICES. In 2012, US\$5,000 from the SCOR/NSF fund was provided to each of the following two events:
  - PICES/ICES/IOC Symposium on “*Effects of climate change on the world’s oceans*” (a brief summary of the symposium and summaries of the associate workshops were published in the summer 2012 issue of *PICES Press* at [http://www.pices.int/publications/pices\\_press/volume20/20\\_issue2.aspx](http://www.pices.int/publications/pices_press/volume20/20_issue2.aspx))
  - PICES-2012 to be held from October 12–21, 2012, in Hiroshima, Japan, under the theme “*Effects of natural and anthropogenic stressors in the North Pacific ecosystems: Scientific challenges and possible solutions*”.

## REQUESTS FOR CONSIDERATION BY SCOR

- Travel support at a level of US\$5,000–7,500 is requested for scientists from countries with “economies in transition” to attend SCOR-relevant sessions/workshops at the 2013 PICES Annual Meeting to be held October 11–20, 2013, in Nanaimo, British Columbia, Canada, under the theme “*Communicating forecasts, uncertainty and consequences of ecosystem change to society*”. The scientific program for this event will be finalized in October at PICES-2012.
- A contribution at a level of US\$7,500–10,000 is requested to support participation of early career scientists in the 2013 PICES Summer School on “Ocean Observing Systems and Ecosystem Monitoring” to be held in August 2013, in Newport, Oregon, USA. The synopsis of the school is appended below, but details will be discussed at PICES-2012.

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## **2013 PICES Summer School on “*Ocean Observing Systems and Ecosystem Monitoring*”**

**Proposed Dates:** August 2013 (most likely August 19–23 or August 26–30)

**Proposed Location:** Newport, Oregon, USA

**Principal Organizer:** Jack Barth (Oregon State University – OSU)

**Steering/Selection Committee:** Jack Barth (MONITOR, USA), Steven Bograd (POC, USA), Lucas Brotz (BIO, Canada), Kyung-II Chang (POC, Korea), Liqi Chen (BIO, China), Shin-ichi Ito (POC, Japan), Sei-ichi Saitoh (MONITOR, Japan), and Toru Suzuki (TCODE, Japan)

**Proposed Instructors:** Jack Barth (OSU), Francis Chan (OSU), Burke Hales (OSU), Waldo Wakefield (NOAA), Steven Rumrill (ODFW), Alicia Helms (South Slough National Estuarine Research Reserve), Cheryl Brown (U.S. Environmental Protection Agency)

**Synopsis:** A 5-day summer school on “*Ocean observing systems and ecosystem monitoring*” will consist of classroom lectures, laboratory demonstrations of inter-disciplinary ocean sensors, an introduction to ocean observing platforms and fieldwork on a research vessel to deploy ocean observing equipment at sea. The school will cover a range of sensors and sampling equipment used to measure physical, biological and chemical properties of the ocean. The utility of time-series datasets generated by moored monitoring stations to estimate net ecosystem metabolism for estuarine and coastal habitats will be demonstrated.

Topics to be covered include: ocean observing system design, platforms (moorings, coastal stations, sea-floor landers, autonomous underwater vehicles), sensors, power, communications (instrument-to-data logger, platform-to-shore, underwater, satellite), sampling strategy, data quality control, and data processing of time-series data.

The lectures and demonstrations will make use of ocean observing systems currently in place in Oregon coastal waters. Students will gain a conceptual understanding of the ecological processes that contribute to marine ecosystem metabolism, and receive practical experience with the programming, calibration, deployment, recovery, data file formats, QA/QC protocols, metadata development, and database management for the time-series data. The workshop will include case-history calculations of marine ecosystem metabolism for several local near-shore and estuarine environments.