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6.0 RELATIONS WITH INTERGOVERNMENTAL ORGANIZATIONS

6.1 Intergovernmental Oceanographic Commission

Robert Duce and Ed Urban attended the IOC Assembly in June 2003 to represent SCOR. Several items were relevant to SCOR, and Duce and Urban made official interventions related to these issues:

Agenda Item 4.1.5—Feasibility of Establishing a Regular Process for Assessment of the State of the Marine Environment

Thank you, Mr. Chairman. The Scientific Committee on Oceanic Research (SCOR) believes that an accurate and thorough assessment of the state of the marine environment on a regular basis is a critical step toward the attainment of a sustainable marine environment. The development of such an assessment will clearly require the active involvement and leadership of the international marine science community. SCOR stands ready to assist the IOC and other United Nations bodies by providing scientific advice and assisting in any other way to make the global marine assessment process scientifically sound as well as useful to policy makers.

Agenda Item 4.2.3—Report of the 6th Session of the IOC Intergovernmental Panel on Harmful Algal Blooms

Thank you, Mr. Chairman. SCOR is pleased with the progress of the GEOHAB programme, which we co-sponsor with IOC, as mentioned by Dr. Reguera in her excellent report. This programme has demonstrated the benefits of SCOR and IOC working together, contributing their specific capabilities. The GEOHAB programme is poised to broaden international participation in the programme through a series of four focused, international open science meetings over the next 12-18 months. These open science meetings will focus on specific ecosystem types that are subject to harmful algal blooms and we have basic funding already arranged for these meetings through IOC and national science agencies. SCOR looks forward to the increasing momentum and scientific achievement that will result from these meetings and other GEOHAB implementation activities. We hope that IOC and SCOR member nations will contribute to the support of an International Programme Office for GEOHAB, by supporting the establishment of an Executive Officer position, to augment the support that has been offered by France. This staffing is needed for timely implementation of the programme.

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Agenda Item 4.3.2—Report of the 2nd Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy

We do not have the exact text of our intervention, but to summarize, the intervention supported the version of the policy that was available before the meeting and opposed the change to Clause 4 from

“The underlying aim of the IOC policy is to maximize the amount of oceanographic data for public use, while acknowledging the associated rights of the data originators and Member States.”

to

“With the objective of encouraging the participation of national and private marine data-gathering bodies in international oceanographic data exchange and maximizing the contribution of oceanographic data from all sources, this policy acknowledges the right of Member States and data originators to determine the terms of such exchange, in a manner consistent with international conventions, where applicable.”

We felt that the change could effectively nullify Clause 1:

“Member States shall provide timely, free and unrestricted access to all data, associated metadata and products generated under the auspices of IOC programmes.”

Agenda Item 4.4.2—Review of the Structure of the Global Ocean Observing System (by Robert Duce on behalf of Thomas Rosswall, ICSU Executive Director)

Thank you Mr. Chairman. ICSU and SCOR want to thank Prof. Mason and the GOOS Review Group for their comprehensive and thorough review.

As one of the sponsors of the Global Ocean Observing System and the Chair of this year’s meeting of G3OS, the sponsors group, ICSU is very pleased with the outcomes of the GOOS review. One of the major beneficiaries of GOOS is the international Science community. ICSU is a sponsor of the four global change programmes and the three global observing systems, which are all vital for reducing scientific uncertainties regarding the functioning of the Earth system. The science programmes, the observation systems and the assessments through IPCC are vital components underpinning the political discussions on climate change.

IOC, UNEP, WMO and ICSU are all signatories to the MoU that established the GOOS Steering Committee. This Committee has played many vital functions and is a Group of Experts in which the science community plays a highly significant role. The value of the advice of GSC is enhanced by the enthusiastic cooperation of the science community. The scientific underpinning of GOOS is essential for its success. Independent scientific advice is important for the entire global observing systems, and we are very pleased with the developments of IGOS-P and look

forward to important discussions in Washington, D.C. later this month during the Earth Observations Summit.

Thus, we are not in favour of a change in the status of the GOOS Steering Committee, and if there are proposals to this effect, this must be discussed with the government organizations and ICSU that are sponsors of this group.

Mr. Chairman, let me finish by assuring you and the Assembly of ICSU's commitment to continue its sponsorship and help further strengthen the very successful developments of GOOS.

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6.1.1 IOC / SCOR Coastal Ocean Advanced Scientific and Technical Studies (COASTS)

6.1.2 IOC Oceanographic Data Exchange Policy

6.2 Other Intergovernmental Organizations

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

No written report.

6.2.2 World Meteorological Organization

No written report.

6.2.3 International Council for the Exploration of the Seas (ICES)

No written report

6.2.4 North Pacific Marine Science Organization (PICES)

Existing and Potential Areas Of Cooperation between SCOR and PICES

Report at the 26th SCOR Executive Committee Meeting
Moscow, Russia
September 15-18, 2003

The North Pacific Marine Science Organization (PICES) is an intergovernmental scientific organization and its current membership includes Canada, Japan, People's Republic of China, Republic of Korea, the Russian Federation, and the United States of America. The Organization was established in 1992: (i) to promote and co-ordinate marine scientific research in the northern North Pacific and adjacent marginal seas, particularly northward from 30 degrees north; (ii) to advance scientific knowledge about the ocean environment, global weather and climate change, living resources and their ecosystems, and the impact of human activities on them; and (iii) to promote the collection and rapid exchange of scientific information on these issues. In 10 years, PICES has become a diverse community of government and academic scientists from various disciplines who share a common interest in the North Pacific. The Organization has grown into the major forum for advancing and coordinating international marine sciences in the North Pacific, for communication among its members, and for exploration of new ideas and building cooperative approaches to key scientific questions.

PICES has many scientific interests coinciding with interests of SCOR, and PICES scientists have been important contributors to certain SCOR activities. Continuing and extending cooperation with SCOR is important for PICES to advance the scientific agenda of the Organization. Conversely, PICES could offer a regional perspective to global activities of SCOR.

Mutual benefits of interactions are well recognized by both organizations. At the 26th SCOR General Meeting (September 2002, Sapporo, Japan), Dr. Alexander Bychkov (PICES Executive Secretary) reported on existing and potential joint activities with SCOR major research projects and working groups. In the SCOR address at the PICES Eleventh Annual Meeting (October 2002, Qingdao, PRC), Dr. Edward Urban (SCOR Executive Director) stated that PICES proposals provide opportunities for fruitful cooperation and will be discussed on a project-by-project basis.

The following summarizes activities completed in 2003 and ongoing joint activities and proposed relationships between PICES and various scientific projects/programs and working groups established/co-sponsored by SCOR.

1. PROJECTS/PROGRAMS CO-SPONSORED BY SCOR

1.1 GLOBEC (Global Ocean Ecosystem Dynamics Project)

- The PICES-GLOBEC Program on Climate Change and Carrying Capacity (CCCC Program) provides a mechanism for integrating national GLOBEC research programs in the North Pacific and is a regional component of the international GLOBEC effort.
- A joint PICES/GLOBEC issue of PICES Press (Vol. 11, No. 1) was published in February 2003. The issue is focused on the results from PICES XI and the 2nd GLOBEC Open Science Meeting held sequentially in Qingdao, People's Republic of China, in October 2002.
- PICES and GLOBEC worked together (and with ICES as another sponsor) to organize the 3rd Zooplankton Production Symposium on "*The role of zooplankton in global ecosystem dynamics: Comparative studies from the World Oceans*" that was held May 20-23, 2003, in Gijón, Spain. It was the largest and most exciting zooplankton meeting that has ever been convened, with 333 participants from 38 countries from 6 continents. The Symposium papers will be published as a special issue of the ICES *Journal of Marine Science* in late 2004. To assist young scientists and scientists from developing countries and countries with "economies in transition", travel support was given to 16 scientists from 12 countries by the SCOR/NSF grant, 11 scientists from 4 countries by the PICES Trust Fund, 9 scientists from 9 countries by GLOBEC, and 8 scientists from 6 countries from the Symposium budget.
- The overall theme for PICES XII (October 10-18, 2003, Seoul, Republic of Korea) is "*Human dimensions of ecosystem variability*", and a 1-day Science Board Symposium will be convened using this theme. The objectives of the Symposium are highly relevant to activities of the GLOBEC Focus 4 Working Group on *Feedbacks from the changes in marine ecosystem structure*, and by the invitation from PICES, GLOBEC participated in planning and agreed to co-sponsor the Symposium. The GLOBEC Focus 3 Working Group on *Linking biophysical and upper trophic level models* and PICES MODEL Task Team are the key players in the Study Group on *Extending ecosystem models to the basin scale*. The first workshop of this Study Group was held May 28-June 2, 2003, in Cambridge, UK. The second workshop is planned at the same venue in October 2003. It is expected that this activity will result in publication of a background/review paper in *Science* or a similar journal in 2004.
- PICES scientists were, and will continue to be, active participants of planning meetings for a new *Ecosystem Studies of Subarctic Seas* (ESSAS) program. The first meeting was held May 25-28, 2003, in Bergen, Norway, and the second meeting is planned for the coming November. The ESSAS is being developed as an international comparative field program that may eventually become a regional GLOBEC program. Planning for the ESSAS would benefit from efforts to synthesize current knowledge, and as a first step in this direction, PICES is proposing that GLOBEC, PICES and ICES hold a joint workshop in 2004 on the comparison of factors controlling the biomass, species composition, and fate of zooplankton

(including micro-zooplankton, gelatinous zooplankton, and micronekton such as euphausiids) in the Bering and Barents Seas.

1.2 JGOFS (Joint Global Ocean Flux Study)

- A collection of contributed papers from JGOFS-related field programs in the North Pacific was published as a special JGOFS/PICES issue of *Deep-Sea Research II on North Pacific Biogeochemical Processes* (Guest editors: T. Saino, A. Bychkov, C.-T. Chen and P. Harrison). The issue includes an overview and 27 papers by authors from 4 countries (Canada, Japan, China-Taipei and Russia), but the majority of papers (21) are from Japan.
- Selected papers from the PICES/JGOFS Topic Session on “*Plankton size classes, functional groups and ecosystem dynamics: Causes and consequences*” at PICES X comprise a special issue of *Progress in Oceanography* (Guest editors: A. Peña and A. Bychkov). The issue includes 11 papers by authors from 5 countries (Canada, Chile, Japan, Korea and U.S.A.). Publication is expected in early fall of 2003.
- A special issue of *Journal of Oceanography* on *Synthesis of JGOFS North Pacific Process Study* (Guest editors: T. Saino, A. Bychkov, C.-T. Chen and P. Harrison) is in progress. The issue is based on invited papers only. Topics and leading authors were finalized in December 2002, and manuscripts are due on June 30, 2003. Publication is expected in spring 2004. A CD-ROM with data sets obtained during the *North Pacific Process Studies* will be prepared by the Japan Oceanographic Data Center (JODC) and circulated at the same time.
- Posters summarizing activities of the PICES WG 13 on *CO₂ in the North Pacific* and WG 17 on *Biogeochemical data integration and synthesis*, and JGOFS-related modeling efforts within PICES were presented at the 3rd JGOFS Open Science Conference held May 5-8, 2003, in Washington, DC, U.S.A.

1.3 SOLAS (Surface Ocean-Lower Atmosphere Study)

- Understanding of iron cycle and iron limitation in marine ecosystems is an important part in the agenda of both SOLAS and PICES. All initial planning for iron enhancement experiments in the subarctic Pacific was made under the PICES umbrella. In 2000, the PICES Advisory Panel on *Iron Fertilization Experiment in the Subarctic Pacific Ocean* (IFEP) convened a workshop on “*Designing the iron fertilization experiment in the subarctic Pacific*” in Tsukuba, Japan. Recommendations from this workshop were used to design the Japanese Subarctic Pacific Iron Experiment for Ecosystem Dynamics Study (SEEDS) in the western North Pacific (summer 2001) and the Canadian Subarctic Ecosystem Response to Iron Enrichment Study (SERIES) in the eastern North Pacific (summer 2002).

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- For SEEDS, some high impact results were published in *Science* in May 2003, and a special issue of *Progress in Oceanography* is planned for publication in 2004. For SERIES, high impact results are expected to be published as separate papers in *Nature* in early 2004, and arrangements are in progress to publish other results as a special issue of *Global Biogeochemical Cycles* or *Journal of Geophysical Research*.
- A 3-day workshop on “In situ iron enrichment experiments in the eastern and western subarctic Pacific” organized by the PICES IFEP will be held February 10-12, 2004, at the Institute of Ocean Sciences, in Sidney, British Columbia, Canada. Specific objectives of the workshop are (i) to synthesize results from two recent *in situ* iron enrichment experiments in the subarctic Pacific (SEEDS-2001 and SERIES-2002); (ii) to determine similarity and differences in biogeochemical and ecosystem responses to iron addition between eastern and western subarctic Pacific; and (iii) to identify specific scientific questions for the longer-term experiment in the western subarctic Pacific (SEEDS-2004). Participation of scientists involved in national SOLAS programs in Canada, Japan, New Zealand and the United States is expected.
- The Canadian SOLAS and PICES proposed a jointly co-sponsored session on “Response of the upper ocean to mesoscale iron enrichment” at the ASLO-TOS meeting to be held February 15-20, 2004, in Honolulu, U.S.A.

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

- Activities and products of the PICES WG 15 on *Ecology of Harmful Algal Blooms in the North Pacific* are complementary to the efforts of the SCOR-IOC GEOHAB Program. Greater communication and planning for joint activities between WG 15 and GEOHAB should be encouraged, especially considering sufficient overlap in membership for these two groups. PICES is prepared to discuss involvement in development/realization of the GEOHAB Implementation Plan by assisting with coordination of national efforts in the North Pacific.
- A CD-ROM with PICES Scientific Report No. 23 on *Harmful algal blooms in the PICES region of the North Pacific* will be prepared for IOC/UNESCO training courses for harmful algal bloom scientists and managers in developing countries.
- Our understanding of factors contributing to harmful algal bloom events is limited by our access to comparative data from similar coastlines that face the same challenges from harmful biotoxins. At the upcoming Twelfth Annual Meeting (October 10-18, 2003, Seoul, Korea), PICES WG 15 and Technical Committee on Data Exchange are planning to convene a 2-day workshop on “*Harmful algal blooms - harmonization of data*”. The objectives of the workshop are: (i) to explore the interest of PICES member countries in establishing of a common database on HAB occurrences and impacts; and (ii) to examine mechanisms for integrating this database with HAE-DAT (IOC/ICES Harmful Algal Event Database) in one single global database. PICES invited the ICES-IOC Working Group on *Dynamics of harmful algal blooms* and the SCOR-IOC GEOHAB Program to participate in the planning and organizing of this event.

- **Integrated Marine Biogeochemistry and Ecosystem Research (IMBER) Project**
PICES is interested in the development of a new SCOR-IGBP program on ocean biogeochemistry and ecology, and sent several representatives to the OCEANS (Ocean Biogeochemistry and Ecosystem Analysis) Open Science Meeting, held in January 2003, in Paris, France.

2. WORKING GROUPS/PANELS CO-SPONSORED BY SCOR

2.1 SCOR WG 115 on Standards for the Survey and Analysis of Plankton

- By the request from SCOR, PICES recommended Dr. Song Sun (Institute of Oceanology, Chinese Academy of Sciences, People's Republic of China) as a new member from the North Pacific region for this Working Group. Dr. Sun has the required expertise in conducting CPR (Continuous Plankton Recorder) surveys.

2.2 SCOR WG 119 (Quantitative Ecosystem Indicators for Fisheries Management)

- The overlapping scientific interests of PICES and the SCOR-IOC WG 119 resulted in PICES involvement in planning and organizing the International Symposium on "*Quantitative ecosystem indicators for fisheries management*" to be held March 31-April 3, 2003, in Paris, France. PICES is represented on the Scientific Steering and Organizing Committee for the Symposium, provides its web site for on-line registration and abstract submission, and will develop the Symposium Book of Abstracts and send staff for organizing registration and sessions on site.
- Many recent national and international legal agreements use some form of the term "ecosystem-based approaches" when describing new methods to assess and manage marine living resources. A Topic Session on "*Ecosystem-based management science and its application to the North Pacific*" at PICES XII (October 10-18, 2003, Seoul, Republic of Korea) will be a forum for presentations and discussion of how to improve the science that provides the framework for ecosystem-based management initiatives, what initiatives are being undertaken elsewhere in the world, and how PICES countries are beginning to address the topic. The session is directly related to activities of the SCOR-IOC WG 119, and PICES invited presentations from this Working Group.
- The mentioned above Topic Session on "*Ecosystem-based management science and its application to the North Pacific*" should be instrumental in drafting the terms of references for a new PICES Working Group on ecosystem-based management issues to be established at PICES XII. Cooperation between this Working Group and the SCOR-IOC WG 119

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should be advanced by exchanging representatives and organizing joint meetings and workshops.

- PICES is developing an *Ecosystem Status Report of the North Pacific Ocean*. This is seen as an on-going effort, with regular updates. The report will contain not just descriptive summaries of physical and biological conditions in the North Pacific but also quantitative indices of ecosystem status and trends. Therefore, a 2-day MONITOR Workshop to “*Examine and critique a North Pacific Ecosystem Status Report*” to be held in conjunction with PICES XII might be another event of interest to the SCOR-IOC WG 119. This workshop is intended to identify what should be addressed in the North Pacific Ecosystem Status Report, using relevance to management decisions and relation to other areas of the North Pacific as selection criteria.

2.3 SCOR-IOC Advisory Panel on Ocean CO₂

- The SCOR-IOC Advisory Panel on Ocean CO₂ emphasized the importance of international participation in the design of Ocean Carbon Observing System and recognized/adopted PICES as a regional coordination group for Pacific carbon work. Activities of the PICES WG 17 on *Biogeochemical data integration and synthesis* (as well as its predecessor, PICES WG 13 on *CO₂ in the North Pacific*) are recognized by the Panel as essential for improving the overall quality of oceanic CO₂ measurements, resolving data synthesis issues and developing strong collaborations for the integration of the large CO₂ data set in the North Pacific.
- A report on *CO₂ in the North Pacific* published in the *PICES Scientific Report Series* (No. 24) in June 2003, summarizes the research and technical activities that have been conducted by member nations of PICES to synthesize CO₂ data in the North Pacific and to provide a comprehensive picture of the anthropogenic CO₂ distribution in this region. The report will be circulated using both PICES and the SCOR-IOC Advisory Panel mailing lists.
- A *Guide of best practices for oceanic CO₂ measurements and data reporting* is under preparation. This would be based on existing documents: the DOE (1994) *Handbook of methods for the analysis of the various parameters of the carbon dioxide system in sea water* and draft protocols for data reporting that were generated by PICES WG 13. Publication in the *PICES Scientific Report Series* is planned in mid-2004. The SCOR-IOC Advisory Panel and the International Ocean Carbon Coordination Project (IOCCP) agreed to co-sponsor this publication.
- A Topic Session on “*The impacts of climate change on the carbon cycle in the North Pacific*” will be convened in conjunction with the PICES Thirteenth Annual Meeting, to be held in October 2004 (Honolulu, U.S.A.). PICES invites the SCOR-IOC Advisory Panel and IOCCP to participate in the planning and to co-sponsor the session.

- To improve the existing methodology of CO₂ measurements, PICES supported several international inter-comparison studies of measurement techniques for carbonate parameters in seawater:
 - The results for inter-comparisons on dissolved inorganic carbon (1999; 14 labs - 7 from Japan, 4 from the US, and 1 from each of Canada, China-Taipei and Korea) and total alkalinity (2000; 12 labs - 6 from Japan, 3 from the US, and 1 from each of Canada, Korea and Russia) are included in the PICES Scientific Report No. 24 (June 2003).
 - The inter-comparison on the ¹³C/¹²C ratio of the inorganic carbon (8 labs – 2 from the US, and 1 from each Australia, Canada, China-Taipei, France, Germany and Japan and the US) was initiated in late 2001 and will be completed this year. A workshop, if needed, will be convened to discuss the results.
 - An on-land inter-comparison of underway and drifting/mooring *p*CO₂ measurement systems was held March 10-14, 2003, at the National Research Institute of Fishery Engineering, in Hazaki, Japan, with support from several Japanese agencies/institutes. Altogether, 9 labs from 6 countries (3 from Japan, 1 from Germany, 1 from New Zealand, 1 from Republic of Korea, 1 from United Kingdom and 2 from the United States) participated in the inter-comparison of underway *p*(CO₂) systems, and 3 laboratories from France (1) and the US (2) in the inter-comparison of drifting/mooring *p*CO₂ systems. The results will be discussed at the workshop on “*Ocean surface pCO₂ database and data integration*“ to be held October 6-8, 2003, in Tsukuba, Japan. The workshop is co-sponsored by the SCOR-IOC Advisory Panel on Ocean CO₂, IOCCP, PICES, and several Japanese agencies/institutes.
- To foster international cooperation towards the integration and synthesis of the global CO₂ survey data, PICES, through a series of workshops on “*CO₂ Data Integration*“ convened in 2001, identified available and suitable data sets on the oceanic CO₂ system in the North Pacific and developed strategies (including formats and technologies) for the exchange of CO₂ and related data at the international level. An initial North Pacific data inventory for CO₂ and CO₂-related data is now available on line at <http://picnic.pices.jp>. The PICES WG 17 on *Biogeochemical data integration and synthesis* will continue this work to complete the North Pacific database, and to ensure its continuous update and geographical expansion. The SCOR-IOC Advisory Panel on Ocean CO₂ and IOCCP expressed interest in this project and in involving other regional groups such as CARINA and CLIVAR (Climate Variability and Predictability Program) Basin Panels.

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3. NEW PICES PUBLICATIONS OF INTEREST TO SCOR

PICES has developed a substantial publication series to foster an ecosystem/interdisciplinary approach in marine science. The following PICES Scientific Reports and special issues of peer-reviewed journals published in late 2002 and 2003 might be of interest to SCOR:

Journal of Oceanography, Vol. 58, No. 5 (2002)

Special issue on *Physics and biology of eddies, meanders and rings in the PICES region*

Progress in Oceanography Vol. 49 Nos. 1-2 (2002)

Special issue on *Decade of variability in physical and biological components of the Bering Sea ecosystem, 1991-2001*

PICES Scientific Report No. 24 (2003)

CO₂ in the North Pacific (final report of WG 13)

PICES Scientific Report No. 25 (2003)

PICES-GLOBEC International Program on Climate Change and Carrying Capacity: Report of BASS and MODEL Task Teams on Trophic models of the subarctic Pacific basin ecosystems

PICES Scientific Report No. 26 (2003)

PICES-GLOBEC International Program on Climate Change and Carrying Capacity: Report of the 2003 MODEL Workshop to Embed NEMURO and NEMURO.FISH into a 3-D circulation model

PICES Scientific Report No. 27 (2003)

PICES-GLOBEC International Program on Climate Change and Carrying Capacity: Report of the 2002 MONITOR Workshops on Requirements and methods for early detection of ocean change and Monitoring from moored and drifting buoys

Journal of Oceanography (2003)

Special issue on *North Pacific transitional areas*

Progress in Oceanography (2003)

Special issue on *Plankton size classes, functional groups and ecosystem dynamics*

4. SCOR TRAVEL GRANTS FOR MEETINGS ORGANIZED/CO-SPONSORED BY PICES

- By the request from PICES and GLOBEC, SCOR provided US \$7,000 to support participation of scientists from developing countries and countries with “economies in transition” in the 3rd Zooplankton Production Symposium held May 19-23, 2003, in Gijón, Spain. Travel support was given to 16 scientists from 12 countries.
- SCOR provided US \$5,000 to support travel of scientists from developing countries bordering the North Pacific to attend sessions and workshops of interest to SCOR at the PICES Twelfth Annual Meeting (October 10-18, 2003, Seoul, Republic of Korea).

- PICES requests SCOR to support participation of scientists from developing countries and countries with “economies in transition” in topic sessions and workshops of interest to SCOR (GLOBEC-, SOLAS-, GEOHAB-related, etc.) at the PICES Thirteenth Annual Meeting to be held October 15-23, 2004, in Honolulu, U.S.A. The scientific program for PICES XIII will be finalized in October 2003, at the upcoming PICES Annual Meeting.

5. SUMMARY OF PICES PROPOSALS/REQUESTS

- GLOBEC Focus 4 WG on *Feedbacks from Changes in Marine Ecosystem Structure* nominate and support a keynote speaker for the Science Board Symposium on “*Human dimensions of ecosystem variability*” at the PICES Twelfth Annual Meeting (October 10-18, 2003, Seoul, Republic of Korea).
- GLOBEC, PICES and ICES held in 2004 a joint workshop on the comparison of factors controlling the biomass, species composition, and fate of zooplankton (including micro-zooplankton, gelatinous zooplankton, and micronekton such as euphausiids) in the Bering and Barents Seas.
- PICES and SOLAS organize a joint session on “*Response of the upper ocean to mesoscale iron enrichment*” at the ASLO-TOS meeting to be held February 15-20, 2004, in Honolulu, U.S.A.
- PICES assist in realization of the GEOHAB Implementation Plan by coordinating national efforts in the North Pacific.
- PICES, SCOR-IOC GEOHAB Program and ICES-IOC Working Group on *Dynamics of harmful algal blooms* collaborate in planning and organizing a joint workshop on “*Harmful algal blooms - harmonization of data*” at the PICES Twelfth Annual Meeting to examine mechanisms for establishing a global database on HAB occurrences and impacts.
- PICES co-sponsor the International Symposium on “*Quantitative ecosystem indicators for fisheries management*” to be held March 31-April 3, 2003, in Paris, France, by providing its web site for on-line registration and abstract submission, developing the Symposium Book of Abstracts, and providing staff for organizing registration and sessions on site.
- SCOR-IOC Working Group 119 on *Quantitative Ecosystem Indicators for Fisheries Management* participate in the Topic Session on “*Ecosystem-based management science and its application to the North Pacific*” and the MONITOR Workshop to “*Examine and critique a North Pacific Ecosystem Status Report*” at the PICES Twelfth Annual Meeting.
- PICES, SCOR-IOC Advisory Panel on Ocean CO₂ and the International Ocean Carbon Coordinated Project (IOCCP) co-sponsor publication of a new *Guide of best practices for oceanic CO₂ measurements and data reporting* in 2004.
- SCOR-IOC Advisory Panel Ocean CO₂ and IOCCP participate in the planning and co-sponsor a session on “*The impacts of climate change on the carbon cycle in the North Pacific*” to be

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convened in conjunction with the PICES Thirteenth Annual Meeting (October 2004, Honolulu, U.S.A.).

- SCOR-IOC Advisory Panel on Ocean CO₂, IOCCP and PICES collaborate on organizing the workshop on “*Ocean surface pCO₂ database and data integration*“ to be held October 6-8, 2003, in Tsukuba, Japan, to follow an earlier (March 2003) on-land inter-comparison of underway and drifting/mooring pCO₂ measurement systems.
- To foster international cooperation towards the integration and synthesis of the global CO₂ survey data, SCOR-IOC Advisory Panel on Ocean CO₂, IOCCP and PICES collaborate on developing the global database for CO₂ and CO₂-related data, and work on involving other regional groups such as CARINA and CLIVAR (Climate Variability and Predictability Program) Basin Panels in this project.
- PICES request SCOR to support scientists from developing countries and countries with economies-in-transition to attend SCOR-related topic sessions and workshops at the PICES Thirteenth Annual Meeting to be held October 15-23, 2004, in Honolulu, U.S.A. (program for the meeting will be finalized at PICES XII in Seoul, Republic of Korea, in the coming October).