

REPORT OF MONITOR TECHNICAL COMMITTEE



The Monitor Technical Committee (MONITOR) met from 16:00–18:30 hours on October 18, 2006, under the chairmanship of Dr. Jeffrey M. Napp. Eight of 16 MONITOR members were present, and a total of 20 scientists from all 6 PICES member countries were in attendance (*MONITOR Endnote 1*). The meeting agenda was slightly modified (*MONITOR Endnote 2*) to accommodate the needs of guest presenters and issues that arose after the original agenda was circulated. Dr. Phillip R. Mundy served as rapporteur.

North Pacific Ecosystem Status Report (Agenda Item 2)

The Committee reviewed the draft proposal for producing the next North Pacific Ecosystem Status Report (NPESR) and supported the plan for MONITOR to develop the following NPESR-related products: (1) a website reporting seminal time series from Large Marine Ecosystems in the PICES region, (2) a paper (and PDF) version of the full report, and (3) brochure-like Outlooks or Advisories to PICES member countries on emerging ecosystem issues (*MONITOR Endnote 3*).

The Committee recommended that a Section within MONITOR be established to deliver all 3 products. Suggested Terms of Reference and initial Co-Chairmen are included with the recommendation (*MONITOR Endnote 3*).

It was noted that several of PICES member countries (Canada, Japan, Korea, and the United States) either have ecosystem status reports of their own, or have data and time series available via the web with an English interface. China also has such a website, but there is not yet an English version. These will be valuable resources for the production of the LME web reporting and the next NPESR, and may help to dramatically decrease the amount of work necessary to develop the products.

One important issue is the funding of the website and NPESR. There is currently about \$80,000 for the NPESR in funding remaining from the North Pacific Research Board. The Committee asked the PICES Secretariat if the funds could be used to begin development of the website. The Committee recognizes that this will reduce funds available for a hardcopy report. Nevertheless, it was felt that fewer workshops would be needed to generate future versions of the hardcopy report because PICES already has significant experience in producing the first report, and the time series reported in the first version would only have to be updated, not recreated. The Committee leadership and PICES Secretariat should meet to discuss budgets for all proposed products and to identify other possible sources of funding. Included in these discussions will be a budget for personnel and funds necessary for continuation of the website after the contract with the developer expires.

Committee members emphasized that the website, if designed properly, would build towards the full hardcopy report and not be an additional, isolated project. The proposed NPESR Section is charged with formulating a statement of requirements to facilitate this outcome. When it comes time to prepare the hardcopy report, updated time series and interpretive text from the website can be used verbatim in the hardcopy report. The website can also be used to link to the most recent NPESR and related PICES reports regarding monitoring in PICES member countries.

Progress report of Study Group on PICES involvement with GOOS (Agenda Item 3)

Dr. Mundy presented the initial results of the Study Group to develop a strategy for GOOS (SG-GOOS). After consultation with national and international GOOS representatives, the Study Group recommended that PICES not

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attempt to initiate a new GOOS North Pacific pilot project. Instead, it was suggested that PICES should play a strong role in coordination and facilitation of North Pacific regional projects. SG-GOOS further recommended that a Section on North Pacific Observing Systems (NPOS) be established within MONITOR, to track and organize PICES efforts in GOOS, and that MONITOR's Terms of Reference be amended to explicitly include facilitation of cooperation, communication and coordination among North Pacific ocean observing systems.

PICES has a long history of successful coordination and facilitation of research across national boundaries and can best contribute to GOOS by being active in the GOOS Regional Alliance (GRA) programs. PICES would provide a forum for representatives of the existing North Pacific observing systems to develop cross-GRA (international) observing projects, improve observing technologies, and compare data and information sharing protocols. The latter objective would be in cooperation with TCODE.

The Committee recommended that PICES send representatives to the 3rd Forum of GRAs to be held on November 14–17, 2006, in Cape Town, South Africa, and to the next GOOS SSC meeting to be held on March 13–17, 2007, in Seoul, Korea.

The Committee thanked Dr. Mundy for his leadership of the Study Group and the Study Group members for their contributions. The full SG-GOOS progress report is included elsewhere in this Annual Report.

Other relevant reports (Agenda Item 4)

PICES/NPRB Ecological Indicators workshop

Dr. Skip McKinnell (PICES Secretariat) briefed Committee members on a workshop on “*Integration of Ecological Indicators for the North Pacific with Emphasis on the Bering Sea*”. This workshop, co-sponsored by PICES and NPRB, was held on June 1–3, 2006, in Seattle, U.S.A. Details of the workshop are available on the PICES web site at <http://www.pices.int/>

[projects/Bering_Indicators/bering.aspx](#)). The draft meeting report is being reviewed by the meeting convenors and NPRB. It will soon be published and available to the public.

Progress report of CPR-AP and status of the PICES CPR Pacific project

Dr. Charles B. Miller (Chairman of CPR-AP) briefed the Committee on the results of the Advisory Panel's meeting and the current status of the CRP Pacific project. The project now includes collection of bird and mammal observations, as well as surface water properties (T, S, chlorophyll fluorescence) along the north–south and east–west runs. Scientific progress by the investigators is commendable. New patterns of temporal and spatial variability in plankton, birds, and mammals are being discovered and described. The full CPR-AP progress report is included elsewhere in this Annual Report.

An urgent issue before the Advisory Panel is the funding status of the CPR project. The east–west and north–south transect lines are funded by different entities, NPRB and the *Exxon Valdez* Oil Spill (EVOS) Trustee Council, respectively). Dr. Sonia Batten, principal investigator of the PICES CPR Pacific project, recently wrote a proposal to request funding to continue the north–south transect. While the EVOS Science Review Committee endorsed the proposal and recommended it for funding, the EVOS Science and Executive Directors recommended that it not be funded on the basis of low relevance to PWS (Prince William Sound) herring, the main focus of the Trustees. Without new funding, the north–south transect will be dropped. Funding for the east–west transect also needs to be renewed. Drs. Batten and David L. Mackas will submit a proposal to NPRB in December 2006, to continue work along that transect.

MONITOR supports the request by CPR-AP that a letter be sent to the EVOS Trustees on behalf of PICES strongly urging that the north–south transect of the CPR Pacific project receive funding for 2007 (*CPR-AP Endnote 3*). The timeline is very short as decisions are to be made by the end of October.

Science Board asked MONITOR to review the Terms of Reference for CPR-AP and determine whether or not there was a need to continue the Advisory Panel. This was discussed both at the CPR-AP meeting and at the MONITOR Committee meeting. Both groups believe strongly that an Advisory Panel is needed to advise and advocate for the CPR project. It was felt that MONITOR would be very busy creating the new website and developing NPESR, and that the CPR project would not receive the attention it needed without an Advisory Panel. The MONITOR and the CPR-AP Chairmen will review the Terms of Reference and, if necessary, make suggestions on how they should be changed. It should be noted that MONITOR did discuss whether or not the Terms of Reference should be expanded to include all vessel of opportunity programs in the PICES region since the east–west transects have bird and mammal observations as well as sea surface water properties. MONITOR felt that this was premature given the funding situation of the CPR Pacific project.

PICES web publications

The PICES *ad hoc* committee to improve PICES web content was not active last year. The MONITOR Vice-Chairman, Dr. Sei-Ichi Saitoh, graciously agreed to continue to serve as the MONITOR representative. Several suggestions were made for items that could be placed on the Committee’s web page.

MONITOR/TCODE workshop at PICES XV

MONITOR and TCODE co-sponsored a 1-day workshop at PICES XV on “*Data management, delivery, and visualization of high volume data products*”, with the subtitle “*How to drink from a fire hose without drowning.*” The workshop was very successful and well attended. In addition to the oral presentations during the workshop, there were several electronic demonstrations given at the workshop and during the Poster Session. The workshop report can be found in the *Session Summaries* chapter of this Annual Report. The Committee thanked Drs. Mackas and Saitoh for their efforts as MONITOR co-convenors of this workshop.

Progress report of CREAMS-AP

Dr. Vyacheslav Lobanov described the recent activities of the POC Advisory Panel for a CREAMS/PICES Program in East Asian marginal seas (CREAMS-AP). The Panel’s first meeting was held on April 11–12, 2006, in Seoul, Korea. He described the history of the various CREAMS programs (since 1993) and included the present program and expansion of the measurements into biology and chemistry by all the member countries.

CREAMS-AP has been very active in capacity building and hosted a first PICES summer school for young scientists on August 23–25, 2006, in Busan, Korea. The theme of the summer school was “*Ocean circulation and ecosystem modeling*”. Lectures and tutorials were presented to 37 students from 8 countries (all PICES member countries plus Chile and Indonesia) by 7 lecturers and 3 assistants from Japan and the United States. The school was scheduled immediately after the CREAMS/PICES workshop on “*Model/data inter-comparison for the Japan/East Sea*” held on August 21–22, also in Busan.

The Advisory Panel proposed to MONITOR (and will make the same proposal to POC) that the following capacity building events for young scientists be organized:

- a winter school on “*Field survey of sea ice area*” in February or March 2008, in Vladivostok, Russia;
- a summer school on “*Ecosystem-based management and ecosystem approach*” in August 2008, in Hakodate, Japan;
- a summer school on “*Recent methods of investigating red-tide organisms and controlling red tides*” in 2009, in Busan, Korea).

MONITOR recommended that PICES support these capacity building activities.

New PICES integrative science program (Agenda Item 5)

Practically no time was spent on this issue at the meeting, except to note that MONITOR

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endorsed the draft outline of the new integrative science program of PICES, FUTURE. It was felt that the direction of FUTURE is well aligned with the objectives of MONITOR.

MONITOR Action Plan (Agenda Item 6)

MONITOR did not review its Action Plan during the meeting because much of the discussion had been on the NPESR development, which is the major element of the MONITOR Action Plan. It was announced that the Science Board was requesting that the Committees include a timeline with their Action Plans. The Chairman stated that when the request became official and Committee Chairmen were given guidance for the format, that he would draft a timeline and electronically circulate it to the MONITOR members for discussion, revision, and approval.

National reports of relevant monitor and observation activities (Agenda Item 7)

National reports were made by Canada (Mackas and Crawford), Japan (Saitoh and Sugisaki), Korea (Ro), Russia (Lobanov), and the United States (Barth, Mundy and Napp). The Chairman requested that presenters with electronic presentations provide a copy to Dr. Saitoh for posting on MONITOR's web page.

Planning for PICES XVI (Agenda Item 8)

MONITOR supported a proposal by Dr. Saitoh to convene a ½-day workshop on "*Measuring primary productivity in the North Pacific*". He volunteered to be a co-convenor and has approached several other experts in the topic to join him. Later in the week, at the Science Board meeting, BIO expressed an interest in co-sponsoring this workshop and nominating a co-convenor. The workshop title was modified and the description was prepared after PICES XV (MONITOR Endnote 4).

The Committee strongly supported a proposal by Dr. Jack Barth to convene a 1-day Topic Session on "*Recent advancements in ocean observing systems: Scientific discoveries and technical aspects*" (MONITOR Endnote 5).

The Committee also agreed to co-sponsor, with POC and CCCC, a 1-day Topic Session on "*Operational forecasts of oceans and ecosystems*" (POC Endnote 4).

Proposal for inter-sessional meetings and publications, and travel support requests (Agenda Item 9)

The Committee did not receive any proposals for inter-sessional meetings and publications.

Travel funds are requested from PICES for:

- 1 invited speaker for the MONITOR Topic Session on "*Recent advancements in ocean observing systems: Scientific discoveries and technical aspects*";
- 1 invited speaker for the MONITOR workshop on "*Measuring primary productivity in the North Pacific*".

2006 MONITOR Best Presentation and Best Poster Awards (Agenda Item 10)

Presentations made at the MONITOR workshop (W6) on "*Data management, delivery, and visualization of high volume data products*" were not eligible for the awards. Given the mix of paper titles presented at the Topic Session (S10) on "*Synchronous and asynchronous responses of North Pacific boundary current systems to climate variability*" (jointly sponsored by POC, MONITOR and CCCC), the Science Board felt that POC should have primary responsibility for judging these papers and posters.

Other Business (Agenda Item 11)

It was reported that a letter of support for the preservation of Canadian oceanographic time series was being solicited from PICES by the convenors of the recent (July 5–8, 2006) symposium on "*Time series of the Northeast Pacific Ocean: A symposium to mark the 50th anniversary of Line-P*" in Victoria (Canada). The symposium affirmed the value of these time series and the need to continue them into the future. The letter was originally to come from BIO, but may be more appropriate coming from MONITOR. The Committee supports the

preservation and continuation of valuable time series and agreed to work with BIO and the Secretariat to find the correct way to write such a letter.

Dr. Saitoh announced that the Hokkaido University released version 1.1 of its fisheries and oceanographic data base (HUFO-DAT) on CD, and that copies are available.

MONITOR Endnote 1

Participation list

Members

Jack Barth (U.S.A.)
 Vyacheslav B. Lobanov (Russia)
 David L. Mackas (Canada)
 Phillip R. Mundy (U.S.A.)
 Jeffrey M. Napp (U.S.A., Chairman)
 Young Jae Ro (Korea)
 Sei-Ichi Saitoh (Japan, Vice Chairman)
 Hiroya Sugisaki (Japan)

Observers

Vera Alexander (PICES Chairman)
 William B. Crawford (Canada)
 Kiyotaka Hidaka (Japan)
 M. Hoshimoto (Japan)
 Chuanlin Huo (China)
 Yeong-Hye Kim (Korea)
 Anthony Koslow (Australia/U.S.A.)
 Skip McKinnell (PICES Secretariat)
 Charles B. Miller (U.S.A.)
 R. Ian Perry (Canada)
 Kazuaki Tadokoro (Japan)
 Takashi Yoshida (Japan, NEAR-GOOS)

MONITOR Endnote 2

MONITOR meeting agenda

1. Introductions
2. North Pacific Ecosystem Status Report
3. Progress report of the Study Group on PICES involvement with GOOS
4. Other relevant reports:
 - a. PICES/NPRB Ecological Indicators workshop
 - b. Progress report of CRP-AP and status of the PICES CPR Pacific project
 - c. PICES web publications
 - d. MONITOR/TCODE workshop (W6) at PICES XV
 - e. CREAMS Advisory Panel
5. New PICES integrative science programs
6. MONITOR Action Plan
7. National reports of relevant monitor and observation activities
8. Planning for PICES XVI
9. Proposal for inter-sessional meetings and publications, and travel support requests
10. 2006 MONITOR Best Presentation and Best Poster Awards
11. Other Business

MONITOR Endnote 3

Proposal for the development of future editions of the North Pacific Ecosystem Status Report

I. Brief history

At PICES XIV (2005), PICES convened a workshop to review the successes and shortcomings of the first (pilot) North Pacific Ecosystem Status Report (published in December 2004), and to decide how future reports should look. Discussion focused on several key topics or questions:

- What should the report contain?
- Who is the intended audience?
- How often should it be “published”?
- What form should it take?
- Who would be responsible for preparing it?

Those attending emphasized the need for timely information and suggested that the product, audience, and format might be best addressed in

future iterations if a staggered or nested approach was used in its development. Some (easy to obtain) information would be readily available on an annual basis, while the more synthetic information and analyses would be available less frequently. The participants also discussed the need to make some products specifically for policymakers from the PICES member countries. The group settled on the following approach (Table 1): whereby some of the time series are made available to users on an annual basis via the web, syntheses and interpretations (similar to the first NPESR) would be published on the web and in hardcopy less frequently (every 3–5 years), and longer range outlooks for policy makers might be published once every 5–10 years, or more frequently if there were emerging issues that warranted concern or special attention.

Table 1 NPESR-related products.

Product	Audience	Period	Form	Who
Time series	scientists, public	annual	web	Contractor and PICES Secretariat
Syntheses/interpretations of ecosystem status	scientists, public, policy makers	3–5 years	web and hardcopy	Working Group
Outlooks	policy makers	5–10 years	brochure and web	Working Group

II. Implementation of the future NPESR

The Committee recommends that a new section be established under MONITOR. The NPESR Section would be comprised of 4 members of MONITOR, 1 representative of each of the PICES Committees (BIO, FIS, MEQ, POC, TCODE) and a member from the PICES Secretariat. Drs. Napp and Saitoh are willing to be the first Co-Chairmen of this new Section.

Proposed Terms of Reference for Section

1. Serve as the Editorial Board for the NPESR web page to review format and content, to make initial recommendations on technical details of web page (location of server(s), distributed vs. single server, etc.), and to

- construct plan to transition responsibility for maintenance from a contractor to PICES;
2. Prepare the full NPESR paper publication for review at PICES XVII in October 2008, and for completion/publication no later than June 2009;
3. Evaluate NPESR Version 2 and make recommendations for the next iteration;
4. Evaluate options for passive and active communication of ecosystem status;
5. Recommend process for the development of Outlooks and oversee their publication.

NPESR time series website

The proposal is to create a PICES NPESR website (similar to the Bering Climate Page; www.Beringclimate.noaa.gov) that would serve many of the core indices/time series listed in the

last NPESR. The new website would contain explanations about the relevance of the different time series and how they are collected, just like the first NPESR. The website would need the dedicated attention of programmers and quality control persons the first couple of years. If PICES is interested, Dr. James Overland (PMEL, NOAA, U.S.A.) could manage a team to do the programming and maintenance for 3 years. After 3 years, responsibility for maintenance of the website would be transferred to another entity based on the recommendation of the NPESR Section and the approval of the Science Board. A rough cost estimate for start-up is \$35,000 in Year I (bare bones website), \$25,000 in Year II, and perhaps the same or less in Year III. It might be possible to use the funds already received from NPRB to fund the start-up of this website. This would leverage funds that NPRB already paid to initiate the Bering Climate Page, and would allow the website to be constructed much more quickly.

Table 2 Timeline for the time series website.

Task	When	Who
Build NPESR time series website	2007–2008	Contractor
Begin transfer of responsibility of website	2009	Contractor and TBD
Assume responsibility for website	2010	TBD

Table 3 Key responsibilities for the time-series website.

Data quality control	Initially contractor and NPESR Section, transferred to Section in 2009
Data selection and requests	Recommendations made by NPESR Section; data requests made through Secretariat or Section
Authorship of explanations	NPESR Section
Periodic review	MONITOR

The major question is “How will PICES fund the maintenance of the website after depleting existing funding?” Perhaps it could be funded

and hosted by an in-kind donation from a national laboratory, a national program, or a member country. It could be funded and hosted on a rotating basis among PICES member countries. The NPESR Section will write a proposal to fund maintenance.

Paper and web NPESR

The paper NPESR would be produced in ways very similar to the method used by PICES to produce the first report.

Table 4 Timeline for the paper NPESR.

Task	When	Who
Establish NPESR Section	2007	Science Board and Governing Council
Determine details of report and process	2007	Section and Secretariat
Determine chapter authors, begin writing	2007	Section and authors
Complete writing, hold synthesis workshop(s), present draft at annual meeting	2008	Section and authors
Final editing, publish report	2009	Section and Secretariat

Table 5 Key responsibilities for the paper NPESR.

Establish NPESR Section and Terms of Reference	Science Board and Governing Council
Establish report format and structure	NPESR Section
Address recommendations and reported gaps	NPESR Section
Identify authors and necessary synthesis workshops	NPESR Section
Write report	Chapter authors
Track writing progress	NPESR Section
Convene synthesis workshop(s)	NPESR Section and Secretariat
Publish report	Secretariat and NPESR Section

Major issues are:

- What is the true cost of publishing the report with only a single synthesis workshop?

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How much of this cost was borne by PICES last time?

- If we use NPRB funds to establish the NPESR time series website, what will fund the synthesis workshop and the printing and artwork necessary to publish the report on paper?
- NPESR Section could write a proposal to NPRB.
- Use general funds or contributions from PICES member countries.

Outlooks

The Outlook is intended to contain short, broad statements to governments and the general public summarizing our current knowledge of ecosystem status and trends. It would most likely be published in the form of a color brochure, or short pamphlet, and may require publication in the language of each member country. The Outlook would state what we know, as well as what we think we need to know to have more confidence in our statements.

MONITOR Endnote 4

Proposal for a 1/2-day MONITOR/BIO workshop at PICES XVI on “Measuring and monitoring primary productivity in the North Pacific”

Marine net primary productivity is a key metric of ecosystem health and carbon cycling and is commonly a function of plant biomass, incident solar flux, and a scaling parameter that accounts for variations in algal physiology. Net primary productivity is defined as the amount of photosynthetically fixed carbon available to the first heterotrophic level, and is the relevant metric for addressing environmental questions ranging from trophic energy transfer to the influence of biological processes of carbon cycling. Long-term monitoring of primary productivity is a high priority for PICES nations because it is one of the essential parameters for the understanding of marine ecosystems and biogeochemistry. Recently, measurement technology of primary production has become extremely advanced through the application of fast repetition rate fluorometers, satellites, buoys, etc. However, inconsistencies between *in situ*

Table 6 Timelines for the Outlook.

Task	When	Who
Establish NPESR Section	2007	Science Board and Governing Council
Select subject for first Outlook	2008	NPESR Section
Write, edit, and translate first Outlook	2009	NPESR Section and Secretariat
Publish	2009	Secretariat and NPESR Section

Table 7 Key responsibilities for the Outlook.

Solicit member country needs to define scope and format	MONITOR and Science Board
Determine distribution methods	Secretariat, Governing Council

Major questions are:

- How would we fund such an Outlook?
- Are there issues that would affect how widely the Outlook did or did not get circulated?

measurements and satellites still exist, and there are some differences between the values obtained with C¹³ and C¹⁴ isotopic methodology.

This workshop will discuss the state-of-the-art primary productivity measurement technology and its application to understanding primary productivity in the North Pacific. Presentations at this workshop should: address techniques for measuring primary productivity, compare *in situ* and satellite measurements of primary productivity, demonstrate the utility of long time series measurements in understanding ecosystem variability, and describe the application of primary productivity studies to marine ecosystems and biogeochemistry.

Recommended convenors: Paul J. Harrison (Canada/Hong-Kong) and Sei-ichi Saitoh (Japan).

MONITOR Endnote 5**Proposal for a 1-day MONITOR Topic Session at PICES XVI on
“Recent advancements in ocean observing systems: Scientific discoveries and technical aspects”**

Given the rapid development of ocean observing systems across the North Pacific, it is timely to discuss their use for scientific discovery and ecosystem research, and to describe the technical advancements in ocean sensors, observational platforms, and improvements in data management and exchange. By providing sustained interdisciplinary observations of atmospheric and oceanic processes, observing systems can capture important events influencing ocean ecosystems. Advanced sensors and platforms are creating new opportunities for deciphering ecosystem dynamics. With the increase in data return across observatories, it is critical that data management and interchange be addressed.

Papers are welcome on: scientific discoveries made possible by ocean observing systems; observed climate impacts on ocean ecosystems and fisheries; advanced ocean sensors including optical, acoustic and genomic devices; autonomous platforms including underwater vehicles and vertical profilers; data management and exchange; and interoperability among ocean observatories. The intention is to have a mixture of scientific and technical talks on ocean observing systems. The session will be complemented by commercial displays around the theme of ocean observatories.

Co-Convenors: Jack Barth (U.S.A.) and TBD.

