

## **Report of the Advisory Panel for a *CREAMS/PICES Program in East Asian Marginal Seas***

The meeting of the Advisory for a *CREAMS/PICES Program in East Asian Marginal Seas* (AP-CREAMS) was held on October 14, 2011 in Khabarovsk, Russia, under the chairmanship of Drs. Joji Ishizaka, Kyung-Ryul Kim, and Vyacheslav Lobanov. Nine Panel members from China, Japan, Korea, Russia, and USA and 20–25 observers attended the meeting (*AP-CREAMS Endnote 1*). The meeting agenda can be found in *AP-CREAMS Endnote 2*.

### AGENDA ITEM 1

#### **AP-CREAMS tasks**

Dr. Kim briefly reviewed the history and tasks charged to AP-CREAMS. The Advisory Panel was established at PICES-2005 in Vladivostok, Russia, with the terms of reference:

1. to initiate and oversee a program to study the hydrography, circulation, and biology and their variability in East Asian Marginal Seas in the PICES area, effect of climate and long-term changes in the abiotic and biotic environments of this region
2. to facilitate the establishment of permanent observation and data exchange networks in this region;
3. to convene workshops/sessions to evaluate and compare results from the program.

### AGENDA ITEM 2

#### **Meetings in 2011**

##### *Inter-sessional AP-CREAMS meeting*

AP-CREAMS held an inter-sessional meeting from April 18–19, 2011, in Hangzhou, China, and was hosted by the Second Institute of Oceanography, SOA. Six members from China, Japan, Korea, and Russia attended.

##### *PICES-2011*

The second meeting took place on October 14, 2011, in Khabarovsk, Russia, during the PICES 2011 Annual Meeting. It was attended by 9 members (China, Japan, Korea, Russia, USA) and numerous observers. The agenda of the meeting included brief national reports on activities and plans related to the CREAMS/PICES program, discussion on capacity building activities, report and discussions on international co-operation, progress of the EAST-II program, preparation and report on the POC/MONITOR/TCODE Workshop on “*Recent advances in monitoring and understanding of Asian Marginal Seas: 5 years of CREAMS/PICES EAST-I Program*” (W4), and discussion and decisions on the “Supplement to the 2010 PICES North Pacific Ecosystem Status Report-2010: Status and trends of East Asian Marginal Seas in 2003–2010: CREAMS/PICES EAST-I Area”

### AGENDA ITEM 3

#### **Research activities in 2011**

##### *EAST-I region*

A 5-year 2<sup>nd</sup> phase of the Korea EAST-I program was launched in June 2011, building on the 1<sup>st</sup> phase activities and now also including research tasks of “pelagic-benthic coupling” and “modeling and projections”. Under the Korea EAST-I program, 3 multidisciplinary surveys were conducted in the Ulleung Basin in March and twice in August. Time series stations, the coastal buoy station (ESROB), submarine cable voltage measurement, and subsurface mooring (EC1), have been in operation continuously in the Ulleung Basin. A

moored profiler (E-RAP) operating on a real-time basis will be deployed in November in the middle of the Ulleung Basin at the SuperStation.

A project on shelf/deep sea interaction in the northwestern part of the EAST-I area was implemented by the V.I. Il'ichev Pacific Oceanological Institute (POI) under a new Russian program, "Comprehensive Study of the Far Eastern Seas" for 2011–2013. The project consists of field observations, including CTD and hydrochemical surveys, mooring stations and drifting buoy deployments in the coastal areas of Primorye, Peter the Great Bay and Primorye Current area. Two cruises (winter and fall seasons) were conducted by the R/V *Professor Gagarinskiy* 2011.

POI FEB RAS and the Japan Meteorological Agency (JMA) agreed to start a joint long-term observation program under the NEAR-GOOS project "NEAR-GOOS Cross-basin Climate Monitoring Section" with objectives to improve the understanding of the response of regional seas in the EAST-I region to climate change. A cross-basin section will be composed of a PM line implemented by JMA from the Japanese coast up north to Yamato Rise and a 134°E line implemented by POI from the Russian coast down south to meet the PM line. The section will be repeated once a year. The first observations are planned for November 2011.

#### *EAST-II region - Nagasaki-Maru cruise*

The cruise was implemented as a research and training operation in the East China Sea from July 15–25, 2011 with Dr. Joji Ishizaka (Nagoya University, Japan) as chief scientist. Twenty-five participants from Japan, 4 from Korea and 3 from China included 23 Ph.D. and graduate students. The research goals of the cruise were to: map the physical, chemical and biological parameters of Changjiang Diluted Water (CDW), trace the CDW to understand changes with time of the parameters and estimate how primary production of CDW is maintained, and map the locations of giant jellyfish.

#### AGENDA ITEM 4

##### **Capacity building**

A NOWPAP/PICES/IOC-WESTPAC Joint Training Course on "*Remote sensing data analysis*" took place from October 8–12, 2011 in Vladivostok, Russia, hosted by POI and Far Eastern Federal University. An additional co-sponsor was the International Ocean Colour Coordinating Group (IOCCG).

The course consisted of lectures by experts and hands-on tutorial sessions on analysis of satellite data. This training course aimed at providing opportunities for students, early career researchers and coastal managers to obtain useful skills and knowledge to utilize remote sensing data to monitor and assess the coastal and marine environment. The topics covered remote sensing of eutrophication, red tides, oil spills and coastal habitats with a focus on the Northwest Pacific Ocean. The following international experts participated as lecturers: Leonid Mitnik, Vyacheslav Lobanov, Leonid Kucheiko (Russia), Roland Doerffer (Germany), Mati Kahru, Raphael Kudela (USA), Joji Ishizaka, Genki Terauchi, Teruhisa Komatsu (Japan), Yu-Hwan Ahn (Korea) and Sung Ling (China).

Twenty-five trainees from China (1), Japan (3), Korea (1), India (1), Indonesia (1), Philippines (1), and Russia (17) attended the course. The training course was provided free of charge but travel costs and accommodation were borne by the participants. PICES provided financial support for 3 participants, IOC WESTPAC for 2, and IOCCG and NOWPAP for 1 each. Selection of participants to be funded was done by the organizers, based on the contents of submitted applications.

NOWPAP plans to have another remote sensing training course in China in 2013/2014.

## AGENDA ITEM 5

**Workshop at PICES-2011**

A ¾-day POC/MONITOR/TCODE Workshop (W4) on “Recent advances in monitoring and understanding of Asian marginal seas: 5 years of CREAMS/PICES EAST-I Program” took place on October 14 at PICES-2011. Co-Convenors were Kyung-Il Chang (Korea), Toshitaka Gamo (Japan), Young-Shil Kang (Korea), Kyung-Ryul Kim (Korea), Vyacheslav Lobanov (Russia), Toru Suzuki (Japan) and Yury Zuenko (Russia) and invited speakers were Sukgeun Jung (Jeju National University, Korea), and Tomoharu Senjyu (Kyushu University, Japan).

Under the auspices of the EAST-I program initiated and supervised by AP-CREAMS, scientists from Japan, Korea and Russia have carried out many successful cruises in the East Asian marginal seas over the last 5 years. With the active discussion and promotion by AP-CREAMS of a new EAST-II program focusing on the Yellow and East China Seas, the workshop provided a forum to summarize some important results obtained by the international cooperative efforts of EAST-I. Thirteen oral and 7 poster papers on hydrography, circulation, biogeochemistry, and ecology and their variability in East Asian marginal seas in the PICES area and on the effects of climate and long-term changes in the abiotic and biotic environments of this region were presented. Presentations and discussion on the Supplement to the 2010 North Pacific Ecosystem Status Report (NPESR) were included in the agenda. Around 30–35 persons attended the workshop. For more details, see the Sessions Summary section of the PICES 2011 Annual Report.

## AGENDA ITEM 6

**AP-CREAMS activity to complete the 2010 NPESR**

In response to Science Board’s decision at PICES-2010, AP-CREAMS was charged with the task of completing the chapter not included in the 2010 North Pacific Ecosystem Status Report (letter of December 21, 2010 from Dr. John Stein, Science Board Chairman). An Advisory Panel *ad hoc* committee consisting of Drs. Toshitaka Gamo and Joji Ishizaka (Japan), Kuh Kim and Chang Keun Kang (Korea), and Vyacheslav Lobanov and Yury Zuenko (Russia) was formed at the AP-CREAMS meeting on April 18, 2011, in Hangzhou, China. The following series of activities and decisions was taken by the Committee:

- June 17, 2011 – the 1<sup>st</sup> *ad hoc* Committee meeting (Busan, Korea) to discuss contents, lead and contributing authors, expected volume, schedule for implementation;
- Sept. 1, 2011 – a 2<sup>nd</sup> *ad hoc* Committee meeting (Busan, Korea) to discuss the first draft and identify any missing items;
- Oct. 7, 2011 – the Supplement to the NPESR submitted to AP-CREAMS;
- Oct. 14, 2011 – Discussion and approval of the Supplement to the NPESR at W4 and AP-CREAMS meeting at PICES-2011 in Khabarovsk, Russia.

A table of contents of the Supplement to the 2010 North Pacific Ecosystem Status Report is appended in *AP-CREAMS Endnote 3*. The full draft of the report was submitted separately to AP-CREAMS. The revised draft is a result of the collective works of more than 80 contributing authors and is more than 300 pages long.

Taking into consideration a progress report presented by the *ad hoc* committee workshop, and comments and suggestions during the discussion at the W4 workshop at PICES-2011, AP-CREAMS came to the following decisions:

- to approve the revised draft of the Supplement to the 2010 NPESR prepared by the *ad hoc* committee;
- to take into account the comments and recommendations by the W4 participants and to charge the *ad hoc* committee to make corresponding corrections and editing of the presented revised draft to plan printing of the Supplement within 6 month since its approval by Science Board.

AP-CREAMS opened the meeting to general audience. After few comments on the scientific contents of the draft, prepared and submitted by *ad hoc* committee, the naming issue was mentioned by one of the audience

## AP-CREAMS-2011

members in regard to the AP-CREAMS report to Science Board. The Advisory Panel members agreed not to discuss it because it was not a scientific issue.

### AGENDA ITEM 7

#### Activities planned for 2012 and beyond

- EAST-I (Russia-Korea joint cruise in October 2012),
- EAST-II (Cruises in July/August 2012),
- Symposia during the 6<sup>th</sup> PEACE Symposium, Nagoya, Japan (+ 9<sup>th</sup> KJWOC?) December, 2012 (travel support from PICES),
- Next AP meeting in spring 2012 in Yeosu, Korea,
- Workshop and Summer School on “*Ecosystem modeling*” in 2014,
- Joint remote sensing training with NOWPAP in 2013 or 2014.

### AGENDA ITEM 8

#### Funding requests

AP-CREAMS requests PICES support for:

- 2 invited speakers to attend CREAMS/PICES session at the 6<sup>th</sup> PEACE Symposium in December 2012 in Nagoya, Japan;
- a Workshop and Summer School on “*Ecosystem modeling*” in 2014;
- Joint remote sensing training course with NOWPAP in 2013 or 2014.



Participants at the AP-CREAMS workshop (W4) and meeting at PICES-2011 in Khabarovsk, Russia (back row: left to right), Vyacheslav Lobanov, Chan Hong Park, Kyung-Ryul Kim, Joji Ishizaka, Yury Zuenko, Tomoharu Senjyu, Toru Suzuki, (front row: left to right) Kyung-Il Chang, Toshitaka Gamo, Pavel Tishchenko, David Checkley, and Kuh Kim.

*AP-CREAMS Endnote 1*

**AP-CREAMS participation list**

Members

Kyung-Il Chang (Korea)  
David Checkley (USA)  
Toshitaka Gamo (Japan)  
Joji Ishizaka (Japan, Co-Chairman)  
Kyung-Ryul Kim (Korea, Co-Chairman)  
Vyacheslav Lobanov (Russia, Co-Chairman)  
Pavel Tishchenko (Russia)  
Dongfeng Xu (China)  
Yury Zuenko (Russia)

Observers

up to 25 observers

*AP-CREAMS Endnote 2*

**AP-CREAMS meeting agenda**

1. AP-CREAMS tasks
2. Meetings in 2011
3. Research activities in 2011
4. Capacity building
5. Workshop at PICES-2011
6. AP-CREAMS activity to complete the 2010 NPESR
7. Activities planned for 2012 and beyond
8. Funding requests

*AP-CREAMS Endnote 3*

**A table of contents of the revised draft of the Supplement to the 2010 North Pacific Ecosystem Status  
Report prepared by AP-CREAMS, October 7, 2011**

Foreword

Highlights

I. Climate and Physical Ocean

Atmosphere and Surface Fluxes

Sea Level

Surface Mixed Layer

Temperature and salinity

Circulation and Currents

Hydrography and Fluxes in the Straits

Mesoscale Eddies

Coastal Upwelling and Cross Shelf Exchanges

Sea Ice

II. Chemistry

Chemical tracers in seawater

Biogeochemical Aspects/Features/Issues

Pollution

III. Phytoplankton and Macrophyte

Seasonal variability of satellite chlorophyll-a and primary production

ENSO scale variability phytoplankton

Decadal scale variability of phytoplankton

Recent variations of satellite chlorophyll-a

Other Factors influencing phytoplankton

Seaweed in Japanese Coast

Seaweed in Russian Coast

Seaweed in Korean Coast

Harmful Algae Bloom of *Cochrodinium polykrikoides*

Bloom of giant jellyfish *Nemopilema nomurai*

IV. Zooplankton

Southwestern Japan/East Sea (SJES)

Northwestern Japan/East Sea (NJES)

Regional comparison of zooplankton community in relation to climate change

Jellyfish

V. Fish and Invertebrate

Nekton and macrobenthic communities

Key species

Response of fish and invertebrates to climate changes

VI. Birds and Mammals

Marine Birds

Pinnipeds

Cetaceans

(in total: 314 pages, 83 contributing authors)