

2008 PICES Summer School on “Ecosystem-Based Management”

by Yasunori Sakurai, Masahide Kaeriyama, Michio J. Kishi and Shin-ichi Ito

The Advisory Panel for a CREAMS/PICES Program in East Asian Marginal Seas (CREAMS-AP) was established in 2005. One of its goals is to develop a Capacity Building Program, and summer and winter schools on marine science for students and young researchers is an important component of this program. The first PICES Summer School on “*Ocean circulation and ecosystem modeling*”, with 37 attendees from 8 countries (including all 6 PICES member countries), was held August 23–25, 2006, at the National Fisheries Research and Development Institute in Busan, Korea. This event was a resounding success and set the stage for the following schools. The summary report of the school was published in PICES Press (Vol. 15, No. 1).

Fifty students and early career scientists from China, Japan, Korea, Russia and U.S.A. attended the second PICES Summer School on “*Ecosystem-based management and ecosystem approach*” held August 23–26, 2008, at Graduate School of Fisheries Sciences, Hokkaido University, Hakodate, Japan. The major funding for the school was provided by several Japanese programs (Japan-China Student Exchange Program, Japan-Korea Core University Program, and Sustainability Governance Program of Hokkaido University) and by the Japanese Society for the Promotion of Science. Ecosystem-based management (EBM) is an integrated approach to management that considers the entire ecosystem, including humans. The goal of EBM is to maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the services humans want and need.

Participants were welcomed by the hosts and organizers, and after an introduction to PICES by Dr. Skip McKinnell (Deputy Executive Secretary), the first day was taken up by four lectures. Ms. Shiva Niazi (U.S.A.) gave a lecture on

“*Ecological footprint analysis of fishing*”. Students were introduced to the concept of ecological footprints and some web-based software to allow them computing their own footprint. This was followed by presentations on “*Idea of ecosystem-based management*” by Dr. Mitsutaku Makino (Japan), “*Risk management*” by Prof. Hiroyuki Matsuda (Japan), and “*Ecosystem-based resource assessments for sustainable fisheries*” by Prof. Chang-Ik Zhang (Korea). In the evening, students and professors adjourned to a local watering hole to meet and enjoy each others’ company.

The second morning began with lectures on modelling tools by Drs. Shin-Ichi Ito (Japan) and Angelica Peña (Canada) and ecosystem sustainability by Dr. Masahiko Fujii (Japan). In the afternoon, students were divided into groups to discuss various themes related to EBM. Discussions continued through the following morning, with each group giving a presentation at the final plenary session. These presentations were very fruitful, and some of the groups developed posters that were displayed at the 2008 PICES Annual Meeting in Dalian, China.

Student discussion topics	Leader
Differences of indicators for Subarctic and Subtropical fish	Zhang, Niazi
Indicators for aquaculture	Kishi
Define numerical index and calculate an example for Pacific saury	Ito
Define numerical index and calculate an example for salmon	Peña
Multiple species and EBM	Matsuda
Social indices and examples	Makino
Sustainable fisheries and EBM	Fujii
Roles of NGO and fishermen	Kaeriyama



Students and professors at the second PICES Summer School at the Graduate School of Fisheries Sciences, Hokkaido University, August, 23–26, 2008.

The 2002 World Summit on Sustainable Development (WSSD) recognized that the management needs for the oceans have changed, needing integration of ocean management activities across sectors and responding to the necessity of conservation objectives for the collective ocean-use. Among other defined specific temporal targets

relevant to oceans management by 2012, the WSSD expects to implement “Ecosystem-based management (Ecosystem approach to management, EAM)”. We believe that ecosystem management and ecosystem science are parallel concepts that require continued interaction to achieve marine resource sustainability.



Clockwise from top left: Dr. Angelica Peña (Institute of Ocean Sciences, Canada) preparing for the final plenary session (top right), student discussion with Prof. Chun-hong Yuan (Hokkaido University, Japan) at the laptop, another student discussion group, Prof. Masahide Kaeriyama (Hokkaido University, Japan), Prof. Chang-Ik Zhang (Pukyung National University, Korea) and Dr. Shin-Ichi, Ito (Tohoku National Fisheries Research Institute, Japan).