

S1 Science Board Symposium **The changing North Pacific: Previous patterns, future projections, and ecosystem impacts**

Co-convenors: Kuh Kim (SB), John E. Stein (SB), Michael J. Dagg (BIO), Gordon H. Kruse (FIS), Glen Jamieson (MEQ), Jeffrey J. Napp (MONITOR), Michael G. Foreman (POC), Igor I. Shevchenko (TCODE), Harold P. Batchelder (CCCC), Michio J. Kishi (CCCC), Fangli Qiao (China) and Sinjae Yoo (Korea)

The PICES Special Publication, “*Marine Ecosystems of the North Pacific*”, concluded that “during the past five years profound changes have occurred in the North Pacific climate system, in the composition, abundance and distribution of its living marine resources, and in the human societies that depend on the North Pacific Ocean and its resources”. This symposium will build on studies of climate variability and other anthropogenic impacts in the North Pacific and its marginal seas, the latest North Pacific climate projections (whose results have been summarized in the Fourth Assessment Report of the Inter-governmental Panel for Climate Change), future scenarios for direct human forcing by population growth and fishing, and the combined impacts that these changes have already had, and can be expected to have, on North Pacific ecosystems. The symposium will address issues such as: 1) trends *versus* variability; 2) synergisms between climate and direct human forcing; 3) ecosystem indicators and their applicability in the future; 4) impacts arising from regional changes (*e.g.*, less ice-cover in the Bering Sea and Sea of Okhotsk, aquatic bioinvasions); 5) the effects of terrestrial climate change (*e.g.*, river discharge); 6) how projected global change and anthropogenic impacts may alter sustainability of the North Pacific; and 7) what the key messages should be for policy makers regarding sustainability of the North Pacific. Talks describing links with climate change in the Arctic and the International Polar Year Projects are also welcome.

Monday, October 29, 2007 10:50 – 18:00

- 10:50 **Kenneth Denman (Keynote)**
The North Pacific, human activity, and climate change (S1-4160)
- 11:30 **Richard. A. Feely, Christopher L. Sabine, Victoria Fabry, Robert Byrne, J. Martin Hernandez-Ayon, Debby Ianson and Burke Hales (Invited)**
Ocean acidification: Present status and future implications for marine ecosystems in the North Pacific (S1-4187)
- 11:55 **Gregory M. Flato (Invited)**
A brief summary of results from the IPCC Fourth Assessment Report (S1-4376)
- 12:20 **William J. Merryfield and Suelji Kwon**
Changes in North Pacific mixed layer depth in the 20th and 21st centuries as simulated by coupled climate models (S1-4470)
- 12:40 **Lunch**
- 14:00 **Muyin Wang and James E. Overland**
Future climate of North Pacific projected by IPCC models (S1-4070)
- 14:20 **Yasunori Sakurai and Michio J. Kishi (Invited)**
Prediction of life strategy and stock fluctuation of the Japanese common squid, *Todarodes pacificus*, related to climate change during the 21st century (S1-4153)

- 14:45 **Steven A. Murawski (Invited)**
Integrated ecosystem assessments: The first step in ecosystem-based management of living marine resources (S1-4504)
- 15:10 **Francisco E. Werner, Bernard A. Megrey, Michio J. Kishi, Kenneth A. Rose, Shin-ichi Ito, Yasuhiro Yamanaka, Maki Noguchi-Aita and Taketo Hashioka**
Extensions of the NEMURO models for use in studies of future climate scenarios (S1-4374)
- 15:30 **Dave Preikshot and Nathan Mantua**
Comparisons of modeled climate and lower trophic level time series for the North Pacific from 1950 to 2002 (S1-4404)
- 15:50 *Coffee / tea break*
- 16:10 **Emanuele Di Lorenzo and Niklas Schneider**
A North Pacific gyre-scale oscillation: Mechanisms of ocean's physical-biological response to climate forcing (S1-4516)
- 16:30 **Yaqu Chen, Zhijie Hu, Weifeng Gu, Yonghua Jiang, Weimin Quan and Liyan Shi**
Long-term change and ecological restoration of the Yangtze River estuarine ecosystem in past decades (S1-4067)
- 16:50 **Chang-Ik Zhang, Suam Kim and Jae Bong Lee (Invited)**
Marine ecosystems, fisheries and the ecosystem-based resource management in Korea (S1-4292)
- 17:15 **Gregory M. Ruiz (Invited)**
Biogeography of marine invasions: Current status and future predictions (S1-4472)
- 17:40 **Thomas A. Okey**
The changing Pacific: A strategic collaboration for assessing climate impacts and developing effective policy for adaptation (S1-4464)

S1 Posters

- S1-4117 **Ludmila S. Dolmatova**
IL-1-like cytokine production by the phagocytes of the holothurian *Eupentacta fraudatrix* in response to bacterial toxin
- S1-4147 **Olga N. Lukyanova, Margarita D. Boyarova and Andrey P. Chernyaev**
Seabirds as bioindicators of POPs in the marginal seas of northwestern Pacific
- S1-4253 **Alexander V. Moshchenko, Anastasia S. Chernova and Tatyana S. Lishavskaya**
Long-term changes in the marine environment in apex parts of Amur Bay (Peter the Great Bay in the Japan/East Sea)
- S1-4286 **Jingqing Fang and Xueen Chen**
A 44-year hindcast simulation of the North East Asian Regional Seas
- S1-4317 **Valentina V. Kasyan**
Bioaccumulation of heavy metal in zooplankton (Copepoda) from the Amursky Bay, Japan/East Sea
- S1-4369 **Vladimir I. Ponomarev and Elena V. Dmitrieva**
Changing global-regional linkages in the Northwest Pacific and Northeast Asia

- S1-4438 **Inga A. Nemchinova**
Impact of towed airgun arrays, used in seismic exploration, on marine zooplankton from the northeastern Sakhalin shelf coastal waters
- S1-4445 **K. David Hyrenbach, Ken H. Morgan, Mike F. Henry, Chris Rintoul, Gary Drew, John Piatt and William Sydeman**
Documenting changes in the distribution and abundance of warm-water gadfly petrels (*Pterodroma* spp.) in the subarctic North Pacific using vessels of opportunity (2002 - 2006)
- S1-4476 **Andrey P. Chernyaev**
Pollution of Russian Far East seas by petroleum hydrocarbons discharged in bilge water from fishing ships