

# S9

## CCCC Topic Session

### The impacts of large-scale climate change on North Pacific marine ecosystems

*Session Convenors: Harold P. Batchelder (U.S.A.), William R. Crawford (Canada), Michael J. Dagg (U.S.A.) and Suam Kim (Korea)*

Although it is widely known from the fossil record of deep-sea cores that climate changes on the glacial-interglacial scale generate significant impacts on marine ecosystem productivity and structure, it is only in the last ten to fifteen years that marine scientists have begun to document evidence that basin- or large-scale climate changes might be significant forcing for decadal to millennium-scale changes in marine ecosystems. Tidbits of information led to the development of the Global Ocean Ecosystems Dynamics projects of many individual nations, and to several regional scale programs examining the influence of climate change. In 1994, PICES initiated the Climate Change and Carrying Capacity (CCCC) Program to provide an organizational framework for examining climate impacts on marine ecosystems in the North Pacific. During the past decade, the North Pacific experienced the strong 1997 El Niño and 1998 La Niña, as well, perhaps, as a regime shift in the late 1990s. The purpose of this session is to begin a general synthesis of these studies linking climate change to ecosystem productivity and structure in the North Pacific Ocean.

Many national programs examining climate – ecosystem linkages on a regional scale are nearing conclusion and will benefit by the grander scale, basin-wide, synthesis that will be initiated in this session. We believe that this session will bring together scientists from different regions of the Pacific to share their results, and will encourage collaborations for the broader synthesis that will be the topic of a PICES Symposium planned for April 2006.

*Day 1 Wednesday, October 20, 2004 13:30-17:10*

- 13:30-13:50     **Harold P. Batchelder**  
U.S. GLOBEC: Significant findings of climate variability impacts on marine ecosystems in the Northeast Pacific (S9-1931)
- 13:50-14:10     **David Mackas and Ian Perry**  
GLOBEC Canada: Results and follow-on activities (S9-2204)
- 14:10-14:30     **Vladimir I. Radchenko**  
Russia in scientific collaboration in programs related to the GLOBEC International (S9-1842)
- 14:30-14:50     **Yoshioki Oozeki and Hiroaki Saito**  
Progresses and achievements of GLOBEC research projects in Japan (S9-2076)
- 14:50-15:10     **Im Sang Oh**  
Korea GLOBEC (S9-2186)
- 15:10-15:30     **Coffee break**
- 15:30-15:50     **Qisheng Tang**  
The overview of Chinese National GLOBEC Program (S9-1880)
- 15:50-16:30     **Thomas Weingartner** (Invited)  
Ecosystem structure and function on the Gulf of Alaska shelf (S9-2138)
- 16:30-16:50     **Julie A. Hall**  
A new international research project: Integrated Marine Biogeochemical and Ecosystem Research (IMBER) (S9-2131)

16:50-17:10 **Enrique Curchitser, Dale Haidvogel, Albert Y. Hermann, Elizabeth Dobbins and Thomas Powell**  
A numerical simulation of large-scale physical events in the North Pacific ocean during the 1997-2003 period (S9-1993)

*Day 2 Thursday, October 21, 2004 8:30-16:30*

08:30-08:50 **William R. Crawford**  
The eastern Gulf of Alaska: A 36-year time series along Line-P and implications for biological impact (S9-2158)

08:50-09:10 **Adriana Huyer, P. Michael Kosro, Robert L. Smith and Patricia A. Wheeler**  
Changing ocean conditions in the Northern California Current: 1997-2003 (S9-1871)

09:10-09:30 **John A. Barth, Brian A. Grantham, Francis Chan, Karina J. Nielsen, David S. Fox, Adriana Huyer, Jane Lubchenco, Bruce A. Menge, Anthony R. Kirincich, Burke Hales and Patricia A. Wheeler**  
Upwelling-driven inner-shelf hypoxia and its connection to oceanographic changes in the Northeast Pacific (S9-1986)

09:30-09:50 **James Overland, Jennifer Boldt, Phyllis Stabeno, Anne Hollowed and George Hunt, Jr.**  
Is the Bering Sea ecosystem stuck in a warm phase? (S9-1868)

09:50-10:10 **William Peterson and Rian Hooff**  
The climate shift of 1998: Something old or something new? (S9-2081)

10:10-10:30 **Coffee break**

10:30-10:50 **Sanae Chiba, Hiroya Sugisaki and Toshiro Saino**  
Decadal scale variation of copepod community structure in the Oyashio based on the Odate Collection (S9-1944)

10:50-11:10 **Kazuaki Tadokoro, Hiroya Sugisaki, Hiroaki Saito and Toshiro Saino**  
Interannual variations in developmental timing of *Neocalanus* copepod populations in the Oyashio waters of western subarctic North Pacific (S9-1968)

11:10-11:30 **Jung-Hoon Kang, Woong-Seo Kim, Hae-Jin Jeong and Jae-Hoon Noh**  
The latitudinal differences of mesozooplankton distribution in the Northeastern Equatorial Pacific under El Niño, La Niña and normal condition (S9-1894)

11:30-11:50 **Kenneth O. Covle**  
The Optimal Stability Window hypothesis and copepod concentrations on the Gulf of Alaska shelf during spring and summer, 1998 - 2002 (S9-1850)

11:50-12:10 **Andrei S. Krovnin and George P. Moury**  
Climate variations and changes in the state of the main Northern Hemisphere fish stocks (S9-1987)

12:10-13:30 **Lunch**

13:30-13:50 **Kentaro Morita, Shoko H. Morita and Masaaki Fukuwaka**  
Population dynamics of Japanese pink salmon: Does climate change explain the recent increasing trend? (S9-1789)

- 13:50-14:10     **Albert J. Hermann, Enrique N. Curchitser, Dale B. Haidvogel and Elizabeth L. Dobbins**  
A comparison of remote versus local influence of El Niño on the coastal circulation of the Northeast Pacific (S9-2040)
- 14:10-14:30     **Lewis Haldorson, Jack Piccolo and Jennifer Boldt**  
Effects of marine habitats on growth, condition and survival of juvenile pink salmon in the coastal Gulf of Alaska (S9-2035)
- 14:30-14:50     **Carrie A. Holt and Skip McKinnell**  
Annual variability in condition factor of sockeye salmon (*Oncorhynchus nerka*) from 1915-1972 in British Columbia, Canada (S9-2032)
- 14:50-15:10     **Tim R. Baumgartner, Guillermo Auad, Hideaki Nakata and Arthur J. Miller**  
Comparison of the effects of the 1976-77 North Pacific climate shift on the California and Japanese sardine habitats (S9-2014)
- 15:10-15:30     **Coffee break**
- 15:30-15:50     **Juergen Alheit and Andrew Bakun**  
Comparison of synchronous ecological regime shifts in Humboldt and Kuroshio Currents (S9-1900)
- 15:50-16:10     **Shang Chen and Yoshiro Watanabe**  
Did regime shift occur in the East China Sea? (S9-1807)
- 16:10-16:30     **Discussion**

## Posters

### **Toby D. Auth and Richard D. Brodeur**

Distribution and concentration of ichthyoplankton off the Oregon coast in 2000 and 2002 (S9-1856)

### **Rebecca E. Baldwin, Mary Bhuthimethee and Kym C. Jacobson**

Comparing macroparasites of juvenile salmon and associated fish collected off the coast of Oregon and northern California (S9-1936)

### **Steven J. Bograd, William R. Crawford, Howard J. Freeland, Adriana Huyer, Jeffrey J. Polovina, Franklin B. Schwing and Robert L. Smith**

On the origin and evolution of a “minty” water mass anomaly in the Northeast Pacific (S9-2084)

### **Richard D. Brodeur, Elizabeth A. Daly and Robert A. Schabetsberger**

Interannual and interdecadal variability in juvenile salmon diets in relation to environmental changes in the Northern California Current (S9-1872)

### **Alexei I. Pinchuk and Kenneth O. Coyle**

Interannual changes in abundance of dominant euphausiids in the northern Gulf of Alaska (S9-1859)

### **Svetlana V. Davidova**

Dynamics of the mass pelagic fishes of the Japan/East Sea during the second part of the 20th century and factors responsible for the variation (S9-1907)

### **Svetlana Yu. Glebova**

Reorganizations of atmosphere regime over the Far Eastern Seas occurred in 2000-2003 (S9-1804)

**Kym C. Jacobson and Edmundo Casillas**

Varying climate-driven ocean conditions and the growth of juvenile salmonids in the California Current system (S9-1902)

**Julie E. Keister and William T. Peterson**

Biological patterns in years of contrasting upwelling-favorable winds (S9-2075)

**Thomas C. Kline, Jr.**

Spatial and temporal variability patterns in the nitrogen and carbon stable isotope composition of sub-arctic Pacific biota during the GLOBEC long-term observational program: Implications for interpreting long-term records (S9-1855)

**Toru Kobari, Kazuaki Tadokoro, Sanae Chiba, Takashige Sugimoto, Kazuki Kuroda and Naoki Nagai**

Interannual variations in diatom abundance during winter and summer in western tropical to subtropical Pacific (S9-2030)

**Lydia B. Ladah**

A coastal ocean monitoring program along the Baja California coastline: Climate change, internal waves and the kelp forest ecosystem (S9-1881)

**Chung Il Lee, Kyu Dae Cho and Kwang Ho Choi**

The effects of El Niño events on sea water temperature variation and squid catch in the Korean coastal and off-shore waters (S9-1949)

**Jae Bong Lee, Chang Ik Zhang, Karen Hyun, Suam Kim and Dong Woo Lee**

Spatio-temporal distributions of small pelagics around Korean waters using a neural network pattern recognition approach (S9-2052)

**Vadim V. Navrotsky**

Climate, ocean ecosystems, and sustainable fisheries (S9-1971)

**Akira Nihira and Masakazu Takahashi**

Decadal variations of demersal fish populations in relation to climate/oceanic regime shifts in the waters off the northeast coast of Japan (S9-2142)

**Thomas C. Royer, Chester E. Grosch, Thomas J. Weingartner and Seth Danielson**

A warmer and fresher Northern Gulf of Alaska? (S9-2072)

**Amy R. Childers, Terry E. Whitledge and Dean A. Stockwell**

Seasonal and interannual variability in the distribution and dynamics of nutrients and chlorophyll across the Gulf of Alaska shelf: 1998-2000 (S9-2175)