

# S1 Science Board Symposium

## Beyond the continental slope - complexity and variability in the open North Pacific Ocean

*Session Convenors: R. Ian Perry (SB), Vladimir I. Radchenko (BIO), Yukimasa Ishida (FIS), John E. Stein (MEQ), Kuh Kim (POC), Igor I. Shevchenko (TCODE), and Harold P. Batchelder and Suam Kim (CCCC)*

Most of the area of the North Pacific Ocean is in the pelagic realm, beyond the major currents and marginal seas that border the continents. This oceanic region has often been perceived as physically homogeneous and stable with low biological productivity. In reality, it is a spatially and temporally dynamic environment of high complexity. *The diversity and structure of open ocean ecosystems are influenced by both horizontal and vertical structure of the ocean's physical and biological properties and by their seasonal cycles. Sharp contrasts in oceanic bottom topography caused by seamounts and islands add additional structure and complexity.* In spite of its relatively low primary productivity, the region supports complex ecosystems with high biodiversity, and is home to many endangered species. Marine resources are important to the peoples of the North Pacific and are fished by fleets from many Pacific Rim nations. This session seeks to improve our understanding of the *physical, chemical, and biological structure and dynamics of North Pacific oceanic waters far beyond the continental shelf, with particular emphasis on the subtropical gyre.* The symposium will consider how these complex subtropical oceanic ecosystems are structured and maintained, in light of their generally low productivity. It will provide opportunities to compare and contrast these areas with neighbouring regions of higher productivity. How important are small and meso-scale features such as fronts and eddies to the growth, survival, and distribution of upper trophic level species? How do ecosystems in the open ocean respond to changes in vertical and horizontal structure? How have sub-tropical waters been affected by recent global changes? What are the major factors causing changes to open ocean ecosystems, particularly in the sub-tropics? What are the physical and biological links between the subtropical gyre and other regions of the North Pacific? What are the human interactions with these systems?

*Monday, October 18, 2004 11:30-17:20*

- 11:30-11:50     **Niklas Schneider** (Invited)  
The forcing of the Pacific Decadal Oscillation (S1-2150)
- 11:50-12:10     **Franklin B. Schwing, Roy Mendelsohn and Steven J. Bograd**  
When did the 1976 regime shift occur? (S1-2096)
- 12:10-12:30     **Howard J. Freeland**  
Argo as an aid to environmental monitoring and assessment - An example from the Gulf of Alaska (S1-1818)
- 12:30-13:30     **Lunch**
- 13:30-13:50     **Jinping Zhao, Shujiang Li, Weizheng Qu and Jie Su**  
Long-term climate change in the Yellow Sea and East China Sea (S1-2122)
- 13:50-14:10     **Robert Bidigare, Y. Chao, R. Lukas, R.M. Letelier, S. Christensen and D.M. Karl**  
Temporal variations in phytoplankton community structure and physical forcing at Station ALOHA (22.75°N, 158°W) (S1-2185)
- 14:10-14:30     **Michael R. Landry and Cecelia C. Sheridan** (Invited)  
Zooplankton community complexity and temporal variability in the subtropical North Pacific (S1-2049)
- 14:30-14:50     **Michael P. Seki** (Invited)  
Processes and patterns at oceanic "hot spots" in the subtropical North Pacific (S1-2165)

- 14:50-15:10      **Coffee break**
- 15:10-15:30      **Akihiko Yatsu, Masatoshi Moku, Hiroshi Nishida, Kaori Takagi, Norio Yamashita and Hiroshi Itoh**  
Possible ecological interactions between small pelagic and mesopelagic fishes in the Kuroshio-Oyashio Transition Zone and Kuroshio Extension in spring (S1-1833)
- 15:30-15:50      **Denzo Inagake, Kazuyuki Uehara, Harumi Yamada, Koji Uosaki and Miki Ogura** (Invited)  
Relation between tuna resources and atmosphere-ocean variability in the North Pacific (S1-2018)
- 15:50-16:10      **Oleg N. Katugin and Gennadiy A. Shevtsov**  
Patterns of distribution and biology of the North Pacific oceanic squid *Berryteuthis anonychus* with implications for the species life cycle (S1-2113)
- 16:10-16:30      **Julie A. Hall**  
Links between biogeochemistry and ecosystems in marine environments (S1-2133)
- 16:30-16:50      **Edward J. Gregr, Karin M. Bodtker and Andrew W. Trites**  
Exploring the structure of the oceanic environment: A classification approach (S1-1994)
- 16:50-17:10      **Vadim F. Savinykh**  
Dynamics of plankton and nekton communities in the Western Subtropical Gyre (S1-2079)
- 17:10-17:20      **Discussion**

## Posters

### **John R. Bower and Taro Ichii**

The red flying squid (*Ommastrephes bartramii*): A review of recent research and the fishery in Japan (S1-1827)

### **Alexander I. Glubokov and Serguei B. Popov**

Results of Russian echointegration and trawl surveys in the Donut Hole during autumn 2003 (S1-1773)

### **Oleg N. Katugin and Evgenyi V. Slobodskoy**

Population structure of the North Pacific oceanic squid *Ommastrephes bartramii* as inferred from variability in biological traits and genetic markers (S1-2114)

### **Andrei V. Suntsov**

Ichthyoplankton of the equatorial frontal zone east of Galapagos Islands (S1-1878)

### **Andrei V. Suntsov**

Species composition and abundance of mesopelagic fish assemblage on the periphery of the North Atlantic subtropical gyre (S1-1877)