

W3 CCCC Workshop

Linking open ocean and coastal ecosystems II

Workshop Convenors: Kerim Aydin (U.S.A.), Shin-ichi Ito (Japan), Jin-Yeong Kim (Korea), Gordon A. McFarlane (Canada), Akihiko Yatsu (Japan)

This workshop will continue ongoing international collaborative research efforts to explore specific food web modeling approaches to link climate with coastal and oceanic biological production. Specifically, climate events may propagate through trophic levels with variable effects at each level such that coherent patterns that exist may not be detectable across all regions without further modeling synthesis. To date, models of lower trophic levels (NEMURO), forage species (NEMURO.FISH) and upper trophic levels (ECOPATH/ECOSIM) have been constructed of multiple regions of the North Pacific to examine coastal and oceanic regions with a common set of modeling tools. The next step is to compare and to evaluate these and complementary methods (such as Individual Based Models) in a Pacific-wide synthesis. The workshop will consist of three components:

1. A critical evaluation of regional and basin-wide trophic models with a focus on the recent results of the BASS, MODEL and REX Task Teams. The development of complementary and comparable approaches to: (a) modeling connections between climate and ecosystems, lower and upper trophic levels, and coastal and oceanic regions; and (b) incorporating seasonal dynamics. Discussion shall include the identification of key data requirements for North Pacific scale production modeling and forecasts.
2. As a specific example, the examination of climate-driven processes underlying changes in the distribution (expansion and contraction) of Pacific sardines, especially with respect to transitions between coastal and oceanic (gyre) ecosystems. What are the future expectations of sardine productivity and distribution under various climate change scenarios?
3. Synthesis of PICES activities to date that are applicable to BASS/REX studies, particularly Pacific-wide climate influence on ecosystems and marine resource productivity. Identification of the major issues and gaps in knowledge relating to the understanding of changes in ecosystems under a changing environment. Recommend solutions, particularly identifying fieldwork required to fill in the gaps in knowledge and to improve predictive ability.

Day 1 Friday, October 15, 2004 9:00-12:00

Section I (Co-chairmen: Gordon A. McFarlane and Shin-ichi Ito)

09:00-09:15	Opening remarks by Convenors and introductions
09:15-09:45	BASS Task Team Results of upper trophic level ("whole ecosystem") modeling of the subarctic gyres
09:45-10:15	MODEL Task Team Results of coupled lower trophic level-fish models (NEMURO-FISH)
10:15-10:35	Coffee break
10:35-11:05	REX Task Team Overview of REX workshop on seasonal cycles of nutrients, phytoplankton and zooplankton and discussion of opportunities for model/data comparisons among coastal ecosystems around the Pacific Rim
11:05-12:00	Discussion Synthetic approaches and the potential methods for integration of models or for the testing of specific hypothesis using current models (<i>e.g.</i> , links between long-term changes in mixed-layer depth and fish production)
12:00-13:30	Lunch

- 13:30-14:10 **Kosei Komatsu** (Invited)
Modeling of transportation of phyto- and zooplankton in the Kuroshio and Kuroshio Extension (W3-2012)
- 14:10-14:50 **Vera N. Agostini** (Invited)
Modeling the California Current ecosystem: Can the small inform the large? (W3-2004)
- 15:10-15:50 **Alec D. MacCall** (Invited)
Climate-driven fluctuations in fish stocks of the California Current (W3-2063)
- 15:50-17:00 **Discussion**
Incorporation of spatial and/or seasonal variation into current CCCC-developed box models (NPZ, bioenergetics, or food web), or on specific places in current modeled regions (*e.g.* the subarctic North Pacific) where spatial variation and linkages will be critical to interpreting results

Day 2 Saturday, October 16, 2004 9:00-17:00

Section II (Co-Chairmen: Akihiko Yatsu and Gordon A. McFarlane)

- 09:00-09:15 **Introduction by Gordon A. McFarlane**
- 09:15-09:45 **Jake Schweigert**
Recent distribution and ecology of sardines in the north-eastern Pacific Ocean (W3-2205)
- 09:45-10:15 **Akihiko Yatsu, Masayuki Noto, Minoru Ishida, Hiroshi Nishida and Maki Suda**
A review of the population dynamics of Japanese sardine in the Northwestern Pacific (W3-2182)
- 10:15-10:35 **Coffee break**
- 10:35-11:05 **Motomitsu Takahashi, Hiroshi Nishida and Akihiko Yatsu**
Preliminary study of growth of larval and early juvenile Japanese sardine in the Kuroshio-Oyashio transition region (W3-2183)
- 11:05-12:00 **Discussion**
- 12:00-13:30 **Lunch**

Section III (Co-Chairmen: Kerim Aydin and Jin-Yeong Kim)

- 13:30-17:00 **Discussion**
Each co-convenor should present a short list from their Task Team or from the workshop on "possible future projects" hopefully arising out of the earlier portions of the workshop. Goal will be to collect possibilities into a plan for future synthesis through new Task Team, CFAME (Climate Forcing and Marine Ecosystem Response). Section includes writing of workshop recommendations

Posters

Shin-ichi Ito, Michio J. Kishi, Akihiko Yatsu, Yoshioki Oozeki, Kosei Komatsu, Yasuhiro Yamanaka, Bernard A. Megrey and Francisco E. Werner

An application of NEMURO.FISH for multi-species modeling (W3-2121)

Jin Yeong Kim, Eun Seob Cho and Woo-Jin Kim

Population genetic characteristics of the Japanese anchovy, *Engraulis japonicus*, in Korean waters (W3-2033)

Yury I. Zuenko, Victoria V. Nadtochy and Marina S. Selina

NPZ monitoring in the coastal area of the Japan Sea (W3-1845)