

**COUNTRY: JAPAN**

**Project Title:**

Japan GLOBEC

**Source of information:**

Dr Yasunori Sakurai and Japan GLOBEC website, May 2004

**National Representative/Contact:**

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**Project Description:**

**System Type Studied:**

Kuroshio, Oyashio and their transition region, the Sea of Japan, The East China Sea, Western North Pacific

**Target Organisms:**

Pacific saury, Pacific sardine, Pacific anchovy, walleye pollock, horse mackerel, mackerels, Japanese common squid, salmon, phytoplankton, zooplankton, micronekton

**Physical Processes Examined:**

Climatic regime shifts

Variation in ocean currents and winter monsoon

Stratification, winter mixing and upwelling

Cross frontal exchange / coastal retention

Effect of frontal eddies and warm streamers

**Key Questions, Hypotheses and Issues:**

- How physical forces are linked with the marine ecosystem dynamics in the western North Pacific and the adjacent waters at regional and basin scales.
- How changes in ocean climate will alter the productivity of keystone species in the sub-tropic and sub-arctic seas, including walleye pollock, salmon and pelagic migratory fishes and squids.
- To develop acoustic, sampling and observation systems to assess and forecast stock fluctuations.
- Changes in physical and anthropogenic forcing mechanisms influence the relative importance of top down vs. bottom up control of energy flow in the Kuroshio/Oyashio ecosystem.
- How do large, regional and local-scale atmospheric patterns cascade into spatio-temporal changes in the ocean physics that are important for ecosystem dynamics in the Kuroshio, Oyashio and their transition region?
- What are the mechanisms that link physical forcing to biological processes and their spatial and temporal scales of interaction?
- To what extent do biological processes regulate the structure, energy flow, and dynamics of the food webs in the Kuroshio/Oyashio ecosystem.
- What are the societal and economic impacts of climate variability on the Kuroshio/Oyashio marine ecosystems and the feedbacks from changes in ecosystem use on these impacts?

**Participating Institutions:**

Hokkaido National Fisheries Research Institute  
Hokkaido Tokai University  
Hokkaido University  
Japan Marine Science and Technology Center  
Japan Sea National Fisheries Research Institute  
Kyoto University  
Nagasaki University  
National Research Institute of Far Seas Fisheries  
National Research Institute of Fisheries Science  
National Fisheries University  
Ocean Research Institute of Tokyo University  
Seikai National Fisheries Research Institute  
Tohoku National Fisheries Research Institute  
Tokai University  
Tokyo University of Marine Science and Technology  
Tohoku University

**Number of scientists and fte:**

**Duration:**

Phase 2: 2004-2009

