

Proposal for a workshop at the International Symposium on
“Climate Change Effects on Fish and Fisheries: Forecasting impacts, Assessing Ecosystem
Responses, and Evaluating Management Strategies”
April 2010, Sendai, Japan

1. Title
Coupled climate-to-fish-to-fishers models for understanding mechanisms underlying low frequency fluctuations in small pelagic fish and projecting its future
2. Convenors
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3. Description and Objectives
The low-frequency variability of small pelagic fish abundance is one of the most emblematic and best-documented cases of fish population fluctuations not explained wholly by fishing effort. Over the last 25 years, diverse observations have been integrated into several hypotheses; however, due to limited-duration time series, hypothesis testing has proven extremely difficult with the available statistical and empirical tools. As a result, the mechanistic basis for how the physics, biogeochemistry, and biology interact to result in the various patterns of synchronous variability across widely separated systems remains unknown. Identification of these mechanisms is necessary in order to explore projections and to build scenarios of the amplitude and timing of stock fluctuations, and their responses to human interactions (fisheries) and climate change. The proposed workshop aims to bring and compare state-of-the-art modeling tools and discuss on expertise to tackle this important scientific and environmental problem. Spatially and temporally explicit models that mechanistically represent the feedbacks among the various components of the climate-to-fishers system are welcomed.
4. Anticipated Outcomes/Products
We expect about 10 presentations and anticipate receiving several manuscripts for the symposium special volume. We will discuss the possibility of submitting a review paper on state-of-art models for coupled physical and biological (including higher trophic level) systems.