Applying IPCC-class Models of Global Warming to Fisheries Prediction
Agenda

Dates: June 15-17 (2.5 days)
Location: Princeton University
Objective: To bring together fisheries and climate scientists to develop applications of existing IPCC models to problems in fisheries science and management.
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Monday, June 15

Talks and discussions will be aimed at establishing a common baseline of understanding between fisheries and climate scientists with regard to 1) the linkages between fisheries and climate change, and 2) the capabilities of present IPCC-class global climate models. An evening poster session will start the process of identifying specific applications and collaborations that will continue on the second day.

8:00-8:30 Continental breakfast, introductions, objectives of workshop
8:30-9:15 Fisheries variability and its drivers, Dr. Francisco Werner, Rutgers, IMCS
9:15-10:00 Fisheries data and fisheries management, Dr. Jason Link, Northeast Fisheries Science Center, Woods Hole Laboratory
10:00-10:30 Break
10:30-11:15 Sustainability, robustness and marine ecosystems, Dr. Simon Levin and Dr. Michael Raghib, Princeton University
11:15-12:30 Discussion Session 1
12:30-1:30 Lunch
1:30-1:45 The IPCC process: past and future, Dr. Ron Stouffer, NOAA/Geophysical Fluid Dynamics Laboratory
1:45-2:30 The scope and fidelity of IPCC-class climate models, Dr. Gabriel Vecchi, NOAA/Geophysical Fluid Dynamics Laboratory
2:30-3:15 Using regional models to link fisheries and climate, Dr. Emanuele Di Lorenzo, Georgia Institute of Technology
3:15-3:45 Break
3:45-5:30 Discussion session 2

6:00-8:00 Reception and poster session

Discussion session 1: What fisheries data is sufficient to establish climate links?
1. What types of fisheries datasets are available?
2. What questions can and cannot be answered with these datasets?
3. To what extent have the mechanistic linkages between climate and fisheries been made and verified?

Discussion session 2: What fisheries issues can be addressed with IPCC-class models?
1. What mechanisms must be captured by climate models to diagnose prominent fisheries fluctuations?
2. What information can present global-scale models provide for coastal regions?
3. What information can ecosystem models provide for prominent fisheries issues?

Tuesday, June 16

Talks and discussions will be aimed at the core goal of the workshop: to develop applications of IPCC models to problems in fisheries science and management. Selected case studies will first be presented. A discussion session will focus on trying to draw broader lessons from the case studies.

8:00-8:30 Continental Breakfast, outline day 2 objectives
8:30-9:15 Projecting global impacts of climate change on marine biodiversity and fisheries, Dr. William Cheung, University of East Anglia
9:15-10:00 Forecasting climate change impacts on Alaskan ecosystems when processes are uncertain, Dr. Anne Hollowed, NOAA/NMFS Alaska Fisheries Science Center
10:00-10:30 Break
10:30-11:15 Past and future impacts of climate on North Atlantic Cod, Dr. Keith Brander, ICES
11:15-12:00 Climate impacts on the Southern Ocean Ecosystem, Dr. Eileen Hofmann, Old Dominion University
12:00-1:00 Lunch
1:00-1:45 Forecasting population trends of tuna under climate change scenarios, Dr. Patrick Lehodey, CLS/Marine Ecosystem Modeling and Monitoring by Satellite
1:45-2:30 Climate variability and the Peruvian Anchovetta, Dr. Francisco Chavez, Monterey Bay Aquarium Research Institute
2:30-3:00 Break
3:00-5:00 Discussion Session

Discussion Session 3: This session will synthesize information from the various case studies and other prominent fisheries in order to evaluate the ability to predict fisheries responses to climate change and variability. Fisheries will be organized according to their scales of variability (time scale, magnitude of change, spatial scale), fractions of variability linked to climate (i.e., primary cause, secondary cause), correlates, mechanisms, data, and an assessment of the readiness for prediction.

Wednesday, June 17

A small number of talks will focus on medium-term horizons in fisheries and climate science. The discussion session will identify focus areas where new developments could lead to significant advances in our understanding of fish/climate linkages, as well as the translation of this understanding to management.

8:00-8:30: Continental Breakfast, outline day 3 objectives
8:30-9:15: Decadal climate variability and predictability - focus on the Atlantic, Dr. Thomas Delworth, NOAA/Geophysical Fluid Dynamics Laboratory
9:15-10:00 Physics to fishers modeling: a proof of principle using sardine and anchovy in the California Current, Dr. Kenneth Rose, Louisiana State University
10:00-10:30 Break
10:30-11:15 The future of fisheries observations, Dr. Jonathon Phinney, NOAA/NMFS Southwest Fisheries Science Center
11:15-12:00 Discussion Session 4

Discussion session 4: What improvements to observations, climate models, and ecosystem models are most critical to improving our ability to predict the impact of climate change to fisheries?

Name	Affiliation
Mike Alexander	NOAA Earth System Research Laboratory
Whit Anderson	NOAA/GFDL
Miguel Bernal	Rutgers University, IMCS
Keith Brander	ICES/CIEM
Francisco Chavez	Monterey Bay Aquarium Research Institute
William Cheung	University of East Anglia
Enrique Curchitser	Rutgers University, IMCS
Tom Delworth	NOAA Geophysical Fluid Dynamics Laboratory
Curtis Deutsch	UCLA
Emanuele Di Lorenzo	Georgia Institute of Technology
John Dunne	NOAA Geophysical Fluid Dynamics Laboratory
Anand Gnanadesikan	NOAA Geophysical Fluid Dynamics Laboratory
Dale Haidvogel	Rutgers University, IMCS
Melissa Haltuch	NOAA/NMFS Northwest Fisheries Science Center
Jon Hare	NOAA/NMFS Northeast Fisheries Science Center
Eileen Hofmann	Old Dominion University
Anne Hollowed	NOAA/NMFS Alaska Fisheries Science Center
Kelly Kearney	Princeton University
Kelly Kryc	Moore Foundation
Patrick Lehodey	CLS/Marine Ecosystem Modeling and Monitoring by Satellite
Simon Levin	Princeton University
Jason Link	NOAA/NMFS Northeast Fisheries Science Center
John Manderson	NOAA/NMFS Northeast Fisheries Science Center
William Peterson	NOAA/NMFS Northwest Fisheries Science Center
Jonathon Phinney	NOAA/NMFS Southwest Fisheries Science Center
Jeffrey Polovina	NOAA/NMFS Pacific Islands Fisheries Science Center
Michael Raghib	Princeton University
Ryan Rykaczewski	NOAA Geophysical Fluid Dynamics Laboratory
Christian Reiss	NOAA/NMFS Southwest Fisheries Science Center
Kenneth Rose	Louisiana State University
Jorge Sarmiento	Princeton University
Kalei Shotwell	NOAA/NMFS Alaska Fisheries Science Center
Micheal Schirripa	NOAA/NMFS Southeast Fisheries Science Center
Frank Schwing	NOAA/NMFS Southwest Fisheries Science Center
Charles Stock	NOAA Geophysical Fluid Dynamics Laboratory
Ron Stouffer	NOAA Geophysical Fluid Dynamics Laboratory
Gabriel Vecchi	NOAA Geophysical Fluid Dynamics Laboratory
Francisco Werner	Rutgers University, IMCS
Andrew Wittenberg	NOAA Geophysical Fluid Dynamics Laboratory
Shaoqing Zhang	NOAA Geophysical Fluid Dynamics Laboratory