NExUS Ongoing Projects and Activities Thu Feb 21 21:06:32 EST 2019

Name	Integration and Synthesis of the Georges Bank Broad-Scale Survey Results

Description	Project Summary: The GLOBEC NW Atlantic/Georges Bank study identified the pelagic early life stages of cod (Gadus morhua) and haddock (Melanogrammus aeglefinus) and the copepod zooplankton, Calanus finmarchicus and Pseudocalanus spp. as target organisms (GLOBEC, 1992) for an extensive and intensive effort to understand the underlying physical and biological processes that control the population dynamics of key populations of marine animals in space and time. Over a six year period, broad-scale surveys of the Georges Bank and adjacent waters were conducted to collect samples for cohort and survivorship analysis of the target fish and zooplankton populations. These surveys included the collection of data on hydrography, acoustics, phytoplankton chlorophyll, competitors, and predators, as well as the target species, in order to provide a description of the biological and physical environment in which the target species resided. More than 30 surveys of the Bank were conducted between January and June/July over the period June 1994 to June 1999. Phase IV of the US GLOBEC Georges Bank program will synthesize the results from the program's earlier phases to provide an integrated understanding of the population dynamics of key, target species and evaluate how a varying climate may influence these populations. Our intent in this proposal is to capitalize on the very comprehensive broad-scale survey data sets that now exist to address two overarching questions: 1) What controls inter-annual variability in the abundance of the target species on Georges Bank (e.g., bottom up or top down biological processes, or physical advective processes)? 2) How are these processes likely to be influenced by climate variability? Under this proposal, a team of principal investigators will bring together the broad-scale data sets for integrative studies. Most of the analyses to date have been done on an individual or project basis and an integrative approach is needed now. Two general methods of analysis will be used to identify and investigate these patterns and relationships: statistical analysis and inverse modeling using the adjoint method of data assimilation. The broad-scale data sets represent a unique opportunity to explore the spatial and temporal patterns and relationships between the various measured biological and physical fields as they relate to the population dynamics of the target organisms. These results will provide a fundamental foundation for a complete interdisciplinary synthesis involving all components of the GLOBEC Georges Bank program.
Category	- Climate-change Specific Projects
Sector	- Managed Ecosystems - Natural Ecosystems - Biota
Focus Area	- Sustainability of Marine Ecosystems
Region	- Regional Or State -- New England

Status	- Ongoing
Lead Agencies	NOAA National Marine Fisheries Service (NMFS), Woods Hole Oceanographic Institution, University of New Hampshire, San Francisco State University, University of Rhode Island, University of Maine
Contacts	NOAA Center for Sponsored Coastal Ocean Research, coastalocean@noaa.gov