



NExUS Ongoing Projects and Activities Fri Nov 16 02:29:39 EST 2018

Name	The Physical Oceanography of Georges Bank and Its Impact on Biology
Description	<p>Project Summary: This research project has three primary objectives that all serve the broader GLOBEC NWA synthesis effort. First, we seek to more fairly understand the physical dynamics and interactions of several specific processes (e.g., those associated with the seasonal evolution of stratification on the Bank, the crucial flow field over the Northeast Peak, and cross-frontal exchange within the tidal mixing and northern flank fronts) that are thought to play critical roles in zooplankton and fish recruitment. Second, we propose to combine these observationally based process synthesis studies into model-based studies to provide our best descriptions of the Bank's physical environment and its variability on time scales from minutes to monthly to seasonal for the GLOBEC field years. These model studies will use the finite-volume coastal circulation model (FVCOM) developed by C. Chen for coupled physical/biological studies. The model solutions, generated by hindcast and data assimilation approaches, will be used to define and quantify key physical mechanisms and physical/biological interactions on the Bank. Third, we want to provide other Phase IV investigators with as complete a description and understanding of the basic physical processes affecting their observations as possible. The work has two long-term goals: (a) to refine and quantify the new physical paradigm and the physical/biological interactions that impact the target species, and (b) to develop with Franks, Chen et al. the FVCOM coupled physical/biological model system to understand the coupled physical/biological system on the Bank, including why one year might differ from another biologically. These goals are clearly related, since the proposed data synthesis work will guide model evaluation and refinement, and the model simulations (both process and seasonal prognostic) will provide process understanding and realistic property and flow fields that are essential for quantitative biological modeling.</p>
Category	<ul style="list-style-type: none"> - Climate-change Specific Projects - Research
Sector	<ul style="list-style-type: none"> - Managed Ecosystems - Natural Ecosystems - Biota
Focus Area	- Sustainability of Marine Ecosystems
Region	- Regional Or State -- New England
Status	- Ongoing
Lead Agencies	NOAA Center for Sponsored Coastal Ocean Research (CSCOR), National Science Foundation, Woods Hole Oceanographic Institution

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