NExUS Ongoing Projects and Activities Mon Jun 25 09:21:47 EDT 2018

Name	Calcium Carbonate Measurements and Experiments (NOAA Fisheries)
Description	This project provides operational and analytical support for research on Ocean Acidification (OA) conducted at the James J. Howard Marine Sciences Laboratory NOAA Fisheries Northeast Fisheries Science Center where studies focus on assessing the physiological effects on living marine resources and the resulting ecosystem impacts of these effects. The NOAA/NMFS/JJ Howard Marine Lab at Sandy Hook, NJ has designed and built a large scale flow through experimental system for exposing a variety of marine species at different life stages. The exposure system is customizable to a number of distinct variables, in different combinations. For example it has the ability to manipulate carbonate chemistry (pCO2 ~300 - >4000ppm), temperature (2 - 25°C), salinity (0 - 33), flow rates, dissolved oxygen (0 - 10mg/l), as well as biogeochemicals like ammonium and sulfide. The experimental system was designed to support the most sensitive and susceptible life stages of benthic and pelagic, oceanic, coastal or estuarine species on shellfish, crustaceans, and finfish exposures. The system is continuously monitored by both automated instruments and discreet sampling. Initial trials of this system successfully accommodated a five pCO2 by five temperature experimental design, as well as a three by three design, both in triplicate for summer flounder (Paralichthys dentatus) and winter flounder (Pseudopleuronectes americanus), as well as a pilot study on fiddler crabs (Uca pugnax). These trials utilized between 50 to 150 exposure containers with 50 to 400 eggs or larvae per container with additional capacity available. Throughout the trials, the system maintained distinct pCO2 and pH values. Analytical measurements of treatment parameters were conducted to determine the pH and DIC produced by CO2 addition to the lab seawater and determine the consistency of pH and DIC treatments.
Category	- Climate-change Specific Projects - Research
Sector	- Managed Ecosystems
Focus Area	- Sustainability of Marine Ecosystems
Region	- Regional Or State -- New England
Status	- Ongoing
Lead Agencies	NOAA Northeast Fisheries Science Center
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