CTD station list from R/V C-HAWK in the coastal waters, Gulf of Maine from 2015-2016 (GOMEPRO project)

Website: https://www.bco-dmo.org/dataset/699493
Data Type: Cruise Results
Version: 1
Version Date: 2017-09-06

Project
» Intertidal community assembly and dynamics: Integrating broad-scale regional variation in environmental forcing and benthic-pelagic coupling (GOMEPRO)

Contributors	Affiliation	Role
Yund, Philip O.	Downeast Institute for Applied Marine Research and Education (DEI)	Principal Investigator
Copley, Nancy	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Abstract
CTD station list from R/V C-HAWK in the coastal waters, Gulf of Maine from 2015-2016 (GOMEPRO project).

Table of Contents

Coverage

Spatial Extent: **N**:44.805 **E**:-66.963 **S**:42.387 **W**:-70.925

Dataset Description

CTD Stations occupied during the GOMEPRO Project

Methods & Sampling

CTD (conductivity, depth, temperature) casts were taken at discrete stations located along transects, separated by circa 1-1.5 nautical miles. Transects are oriented either across-shelf or along-shelf. Sampling was limited to 2 hrs. in the middle of the tidal cycle, on either flood or ebb tides. See dataset CTD Profiles.

Data Processing Description

BCO-DMO Processing Notes:
- added conventional header with dataset name, PI name, version date
- modified parameter names to conform with BCO-DMO naming conventions

- converted latitude and longitude to decimal degrees
- replaced spaces with underscores

[table of contents | back to top]

Data Files

File
ctd_stations.csv (Comma Separated Values (.csv), 5.20 KB) MD5:959e1bced87e4a8c5661ed2e7af3c8e5 Primary data file for dataset ID 699493

[table of contents | back to top]

Parameters

Parameter	Description	Units
site	site identifier	unitless
transect	transect code	unitless
station	station number	unitless
lat_nom	nominal latitude; north is positive; actual start and stop coordinates are contained in the CTD profile dataset.	decimal degrees
lon_nom	nominal longitude; east is positive; actual start and stop coordinates are contained in the CTD profile dataset.	decimal degrees
comments	comments	unitless

[table of contents | back to top]

Instruments

Dataset-specific Instrument Name	YSi Castaway CTD
Generic Instrument Name	Global Positioning System Receiver
Dataset-specific Description	YSI Castaway CTD with internal GPS sensor
Generic Instrument Description	The Global Positioning System (GPS) is a U.S. space-based radionavigation system that provides reliable positioning, navigation, and timing services to civilian users on a continuous worldwide basis. The U.S. Air Force develops, maintains, and operates the space and control segments of the NAVSTAR GPS transmitter system. Ships use a variety of receivers (e.g. Trimble and Ashtech) to interpret the GPS signal and determine accurate latitude and longitude.

[table of contents | back to top]

Deployments

Yund_GoME

Website	https://www.bco-dmo.org/deployment/699509
Platform	R/V C-HAWK
Start Date	2012-08-01
End Date	2016-07-29
Description	The C-Hawk is a 22 ft. fiberglass modified V-hull. These were multiple single-day deployments for GOMEPRO project. Eastern Gulf of Maine Sampled with single-day cruises on: 8/1/12 8/16/12 8/22/12 7/31/13 7/22/14 8/5/14 8/6/14 8/7/14

[table of contents | back to top]

Project Information

Intertidal community assembly and dynamics: Integrating broad-scale regional variation in environmental forcing and benthic-pelagic coupling (GOMEPRO)

Coverage: Rocky intertidal shores and nearshore coastal waters throughout the Gulf of Maine

Rocky intertidal habitats in the Gulf of Maine (GoM) provide a model system to examine the structure and dynamics of natural communities. Throughout the Gulf of Maine, the same species are often found in these habitats but community structure, dynamics and productivity differ markedly among 3 distinct regions (southern, central and northern GoM). Past influential work, conducted primarily in the southern and central GoM, focused on the local processes driving intertidal community structure but produced very different conceptual models of how these communities are structured. This project examines whether regional differences in rocky shore community processes are driven by differences in recruitment that are shaped by regional variation in temperature and food availability and nearshore coastal oceanography. This project will improve the understanding of how large-scale environmental forces interact with local processes to control the distribution of species and the structure and dynamics of these communities. Understanding the interaction between processes operating at different scales is fundamentally important to developing more reliable models that can be used to predict community dynamics. In addition, data resulting from this project will have important implications for regional dynamics in commercially important species and for ecosystem and fisheries management within the GoM.

The overarching hypothesis of this project is that regional differences in community-level processes are driven by very different patterns of population connectivity and recruitment in a few key species, and that these differences are ultimately caused by regional variation in temperature and food availability and mediated by physical larval transport processes. Hence, the project will test the following hypotheses with manipulative field experiments, field sampling, connectivity estimates, and integrative modeling:
1) Locally-dispersing species dominate dynamics in regions with a net export of planktonic larvae (Northern GoM), while species with planktonic larvae dominate the dynamics in regions with high settlement and extensive connectivity among populations (Southern GoM).
2) Settlement density of species with planktonic larvae increases from northern to southern regions in accord with regional variation in food availability.
3) Population connectivity varies greatly among regions, with regions differing in the degree to which they are self-seeded or serve as larval sources vs. sinks; self-seeding leads to relatively localized population dynamics in the middle portion of the GoM.
4) Patterns of population connectivity are driven by physical transport processes and can be represented by coupling basic larval behavior models with circulation models.

At 18 different sites in the GoM across ~ 600 km, surveys will evaluate variation in recruitment, food availability and secondary productivity and experiments will assess community processes in wave-exposed and sheltered habitats. We will use hydrographic, current profile, and larval vertical distribution surveys to collect data for coupled larval/circulation models. Population connectivity will be both modeled and empirically evaluated (for one species) using elemental fingerprinting. A spatially explicit metacommunity model will integrate across all project components and test the relative importance of regional and local processes in controlling community organization and dynamics.

[table of contents | back to top]

Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1458188

[table of contents | back to top]