

CTD profiles from R/V Oceanus OC461, OC455 in the South of Martha's Vineyard, MA, USA to 39 31.7N, 70 33.1W from 2009-2010 (Foram Dispersal project)

Website: <https://www.bco-dmo.org/dataset/3919>

Version:

Version Date: 2013-05-03

Project

» [Dispersal and Life History Dynamics in Benthic Foraminifera](#) (Foram Dispersal)

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Dataset Description

Final processed CTD data for the cruises associated with the "Dispersal and Life History Dynamics in Benthic Foraminifera" project. This consists of 8 casts from OC-455 (3 casts) and OC-461 (5 casts).

Data Processing Description

Data were processed after the cruise using standard Seabird processing routines. The conductivity sensor was not calibrated with water sample salinities

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Data Files

File
ctd.csv (Comma Separated Values (.csv), 1.29 MB) MD5:63682388c7441db8176bb755a827a9c1
Primary data file for dataset ID 3919

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Parameters

Parameter	Description	Units
cruise_id	cruise identification	unitless
station	station identification	unitless
lat	latitude; North is positive	decimal degrees
lon	longitude; East is positive	decimal degrees
year	year of sampling; utc	YYYY
month	month of sampling; utc	1 to 12
day	day of month of sampling; utc	1 to 31
time	time of sampling; utc	HHMM.decimal minutes
date	UTC date	unitless
cast	cast number	unitless
press	pressure	decibars
depth	depth	meters
alt	altitude of sampler above the bottom	meters
temp	temperature from primary sensor	degrees Celsius
temp2	temperature from secondary sensor	degrees Celsius
potemp	potential temperature from ITS-90 sensor	degrees Celsius
potemp_2	potential temperature from ITS-90 sensor	degrees Celsius
potemp_anomaly	potential temperature anomaly	degrees Celsius
sal	salinity from primary sensor	practical salinity units (PSU)
sal2	salinity from secondary sensor	practical salinity units (PSU)
sal3	salinity from primary sensor (?)	practical salinity units (PSU)
cond	conductivity from the CTD primary sensor	Siemens/meter
cond2	conductivity from the CTD secondary sensor	Siemens/meter
density	density from primary sensor	kilograms/meter ³
density2	density from secondary sensor	kilograms/meter ³
trans	beam transmission; Chelsea/Seatech	percent
fluor	fluorescence: WET Labs ECO-AFL/FL	milligrams/meter ³
Nsat	nitrogen saturation	milliliters/liter
O2_v	dissolved oxygen; raw from Seabird sensor	volts
O2	dissolved oxygen concentration from Seabird sensor	milliliters/liter
O2sat	oxygen saturation	milliliters/liter
O2_2	oxygen: SBE 43	milliliters/liter
specc	specific conductance	microSiemens/centimeter
sva	specific volume anomaly	10 ⁻⁸ * meter ³ /kilogram
tsa	thermosteric anomaly	10 ⁻⁸ * meter ³ /kilogram
flag	quality flag	quality flag

yrday_gmt	GMT day and decimal time, as 326.5 for the 326th day of the year, or November 22 at 1200 hours (noon). In the case of drifter data, year day may be continuous over a multi year period.	
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Instruments

Dataset-specific Instrument Name	CTD Sea-Bird SBE 911plus	
Generic Instrument Name	CTD Sea-Bird SBE 911plus	
Generic Instrument Description	The Sea-Bird SBE 911 plus is a type of CTD instrument package for continuous measurement of conductivity, temperature and pressure. The SBE 911 plus includes the SBE 9plus Underwater Unit and the SBE 11plus Deck Unit (for real-time readout using conductive wire) for deployment from a vessel. The combination of the SBE 9 plus and SBE 11 plus is called a SBE 911 plus. The SBE 9 plus uses Sea-Bird's standard modular temperature and conductivity sensors (SBE 3 plus and SBE 4). The SBE 9 plus CTD can be configured with up to eight auxiliary sensors to measure other parameters including dissolved oxygen, pH, turbidity, fluorescence, light (PAR), light transmission, etc.). more information from Sea-Bird Electronics	

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Deployments

OC461

Website	https://www.bco-dmo.org/deployment/58771
Platform	R/V Oceanus
Start Date	2010-05-13
End Date	2010-05-17
Description	OC461 is the second cruise for the Dispersal and Life History Dynamics of Benthic Foraminifera project. The anticipated science activities included water collection at depth using the CTD/Rosette system and coring (Soutar Boxcore and MC800 multicore) for collection of live benthic foraminifera. The cruise was funded by NSF OCE ARRA award # 0850494. Cruise information and original data are available from the NSF R2R data catalog.

OC455

Website	https://www.bco-dmo.org/deployment/58770
Platform	R/V Oceanus
Report	http://bcodata.whoi.edu/PI-NOTES/Bernhard/OC455_synopsis.pdf
Start Date	2009-09-09
End Date	2009-09-13
Description	OC455 is the first cruise for the Dispersal and Life History Dynamics of Benthic Foraminifera project. The anticipated science activities included water collection at depth using the CTD/Rosette system and coring (Soutar Boxcore and MC800 multicore) for collection of live benthic foraminifera. The cruise was funded by NSF OCE ARRA award # 0850494. Cruise information and original data are available from the NSF R2R data catalog.

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Project Information

Dispersal and Life History Dynamics in Benthic Foraminifera (Foram Dispersal)

Coverage: South of Martha's Vineyard, MA, USA to 39 31.7N, 70 33.1W

This Collaborative Research award was funded by NSF under the American Recovery and Reinvestment Act of 2009 (Public Law 111-5).

Project description from the NSF award abstract ...

Dispersal and connectivity are fundamental processes known to underpin the health and stability of marine populations and communities. Effective dispersal and recruitment facilitate recovery from a variety of environmental perturbations and allow populations and communities to respond to environmental change operating over a range of temporal scales. This project will study to examine key aspects of dispersal, connectivity, and life history dynamics in benthic foraminifera, a well-defined group of protists that are abundant and diverse in nearly all marine settings. Foraminifera are largely heterotrophic, important in carbon cycling, sensitive to environmental conditions, and their rich fossil record provides insight into processes functioning over the span of historical to deep time. Dispersal and connectivity patterns are not well understood, particularly in benthic representatives of this group. Recent studies, however, suggest very broad connectivity patterns in deep-sea settings yet different dispersal capabilities among closely related species of at least one coastal foraminiferal genus. The overarching goal of this project is to characterize the dispersal patterns and capabilities of coastal to bathyal benthic foraminifera and to relate these patterns to their life history dynamics, ability to respond to different environmental conditions, and the extent of population connectivity as reflected by the presence or absence of cryptic phylotypes in otherwise broadly distributed morphospecies. The PIs utilize coastal to bathyal study sites off the Northeastern US and coastal sites in Georgia (SE US) and will use interdisciplinary methodology for experimental manipulation of the foraminiferal propagule bank (juveniles present in sediments derived from both local and distant sources); morphological, epifluorescence and fine structural techniques; and molecular genetics.

This project will: (1) Determine the extent of dispersal perpendicular to the coastal zone, both from onshore-to-offshore sites, and in the opposite offshore-to-onshore direction; (2) Determine whether dispersal within the coastal zone (i.e., parallel to the coast) occurs over long distances (i.e., between adjacent coastal provinces), as implied by numerous reports of "cosmopolitan" intertidal species, or whether dispersal is generally limited by region. (3) Determine the relationship between dispersal in selected benthic foraminifera and their life history dynamics; and (4) Assess the diversity of adult foraminiferal assemblages that can be grown from a single propagule bank under different environmental conditions, thus providing insight into the environmental adaptability of the propagule bank at each of the sites and hence the ability to respond to environmental change.

Broader Impacts: This project will contribute to a more comprehensive understanding of the processes of dispersal, life history dynamics, and connectivity in marine systems. Results would further resolve the debate between the ubiquity and moderate endemism models of microbial dispersal, provide additional comparisons of dispersal patterns between eukaryotic microbes and macro-organisms, and contribute to our

understanding of community-level modifications that result from environmental perturbations and change.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-0850494

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