Cruise tracks from R/V Melville cruises MV1209 and MV1217 from Coastal California San Diego Margin in 2012 (SeapHOx project)

Website: https://www.bco-dmo.org/dataset/4076
Version: 07 November 2013
Version Date: 2013-11-07

Project
» Macrophyte-induced variability in coastal ocean pH and consequences for invertebrate larvae (SeapHOx)

Program
» Ocean Carbon and Biogeochemistry (OCB)

Contributors	Affiliation	Role
Levin, Lisa A.	University of California-San Diego (UCSD-SIO)	Principal Investigator
Frieder, Christina	University of California-San Diego (UCSD-SIO)	Co-Principal Investigator, Contact
Martz, Todd R.	University of California-San Diego (UCSD-SIO)	Co-Principal Investigator
Gegg, Stephen R.	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Table of Contents

Dataset Description

Cruise tracks generated from R2R Archive files
Cruise Id, Date, Time, Lat, Lon, SOG, COG
1 minute fixes

Methods & Sampling

Generated by BCO-DMO staff from R2R Archive files

Data Processing Description

Generated by BCO-DMO staff from R2R Archive files

[table of contents | back to top]

Data Files

File
SeapHOx_CruiseTracks.csv (Comma Separated Values (.csv), 1.59 MB) MD5:b9160fca2c7220312a98d795f8bf5560 Primary data file for dataset ID 4076

[table of contents | back to top]

Parameters

Parameter	Description	Units
Longitude	Longitude (West is negative)	decimal degrees
Latitude	Latitude (South is negative)	decimal degrees
ISO_DateTime_UTC	ISO formatted UTC Date and Time	YYYY-MM-DDTHH:MM:SSZ
CruiseId	Official UNOLS cruise id	text
SOG	Instantaneous speed over ground (SOG)	meters/sec
COG	Instantaneous course over ground (COG)	degrees

[table of contents | back to top]

Deployments

MV1209

Website	https://www.bco-dmo.org/deployment/59109
Platform	R/V Melville
Report	http://bcodata.whoi.edu/SeapHOx/SDCE_CRUISE_REPORT_FINAL.pdf
Start Date	2012-06-30
End Date	2012-07-10
Description	Original data are available from the NSF R2R data catalog

MV1217

Website	https://www.bco-dmo.org/deployment/59110
Platform	R/V Melville
Report	http://bcodata.whoi.edu/SeapHOx/SDCE_CRUISE_REPORT_FINAL.pdf
Start Date	2012-12-08
End Date	2012-12-15
Description	Original data are available from the NSF R2R data catalog

[table of contents | back to top]

Project Information

Macrophyte-induced variability in coastal ocean pH and consequences for invertebrate larvae (SeapHOx)

Coverage: Coastal CA; San Diego La Jolla Kelp Forest; 32.8 N; 117.3 W

Increased concentrations of atmospheric carbon dioxide are acidifying the marine environment at unprecedented rates. However, relative to the open ocean, predictions of ocean acidification for the coastal ocean are confounded by the greater inherent variability of carbonate chemistry which includes macrophyte photosynthesis and respiration. This proposal addresses the interplay between anthropogenically driven pH changes and the inherently variable coastal ocean carbonate chemistry, and will directly test the implications for a potentially sensitive life form, invertebrate larvae.

The objectives of this study are to measure the impact of key coastal habitats on natural pH variance, and to evaluate the implications these pH regimes have for developing invertebrate larvae. To achieve these objectives the investigators will characterize temporal and spatial carbonate chemistry variability inside and outside kelp forests in San Diego, California. With discrete water samples for the determination of total alkalinity and dissolved inorganic carbon, and continuous autonomous instruments which measure pH, dissolved oxygen, salinity, and temperature, a statistical characterization of carbonate chemistry variability will identify diurnal, seasonal and spatial trends as well as frequencies of maximum variation, rates of change, lowest potential pH (extreme statistics), and biologically-significant thresholds. Subsequently, prominent macrophyte-induced pH regimes will be mimicked in laboratory experiments and incorporated with ocean acidification predictions to test effects of (a) decreased pH, (b) varying pH about the mean, (c) changing variance about mean pH, and (c) pulsed exposure to extreme low pH, on larval survivorship, growth, and calcification responses of multiple species. Together, these laboratory and field studies will offer a mechanistic understanding of the effects of natural variance of carbonate chemistry in the context of ocean acidification for marine invertebrate larvae.

Four moorings identified as SeapHOx Moorings have been deployed in the San Diego La Jolla Kelp Forest in the vicinity of 32.8 N 117.3 W.

Mooring Locations

[table of contents | back to top]

Program Information

Ocean Carbon and Biogeochemistry (OCB)

Website: http://us-ocb.org/

Coverage: Global

The Ocean Carbon and Biogeochemistry (OCB) program focuses on the ocean's role as a component of the global Earth system, bringing together research in geochemistry, ocean physics, and ecology that inform on and advance our understanding of ocean biogeochemistry. The overall program goals are to promote, plan, and coordinate collaborative, multidisciplinary research opportunities within the U.S. research community and with international partners. Important OCB-related activities currently include: the Ocean Carbon and Climate Change (OCCC) and the North American Carbon Program (NACP); U.S. contributions to IMBER, SOLAS, CARBOOCEAN; and numerous U.S. single-investigator and medium-size research projects funded by U.S. federal agencies including NASA, NOAA, and NSF.

The scientific mission of OCB is to study the evolving role of the ocean in the global carbon cycle, in the face of environmental variability and change through studies of marine biogeochemical cycles and associated ecosystems.

The overarching OCB science themes include improved understanding and prediction of: 1) oceanic uptake and release of atmospheric CO2 and other greenhouse gases and 2) environmental sensitivities of biogeochemical cycles, marine ecosystems, and interactions between the two.

The OCB Research Priorities (updated January 2012) include: ocean acidification; terrestrial/coastal carbon fluxes and exchanges; climate sensitivities of and change in ecosystem structure and associated impacts on biogeochemical cycles; mesopelagic ecological and biogeochemical interactions; benthic-pelagic feedbacks on

biogeochemical cycles; ocean carbon uptake and storage; and expanding low-oxygen conditions in the coastal and open oceans.

[table of contents | back to top]

Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-0927445

[table of contents | back to top]