CTD measurements from WaveGlider from fishing vessels in the Southern California Bight off Huntington Beach in 2012 (SoCalPlumeEx2012 project)

Website: https://www.bco-dmo.org/dataset/537792
Version: 04 November 2014
Version Date: 2014-11-04

Project
» Assessing the Ecophysiological and Biogeochemical Response to Deliberate Nutrient Loading in the Southern California Bight (SoCalPlumeEx2012)

Contributors	Affiliation	Role
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Dataset Description

CTD data from G5 WaveGlider (surface only)

Data are described in the following manuscript:
Seegers, B.N., Teel, E.N., Kudela, R.M., Caron, D.A., Jones, B.H. Submitted to Estuaries, Coasts, Shelf Science (October 2014). Glider and remote sensing perspective of the upper layer response to an extended shallow coastal diversion of municipal wastewater effluent.

Methods & Sampling

Sampling and Analytical Methodology:
Data collected from an underway mapping system using a YSI 6600v2 sonde (CTD) and Turner Designs PhytoFlash variable fluorescence meter. Data merged with GPS locations and binned to 1 minute intervals. The PhytoFlash data were blank-corrected with 0.2 µm filtered seawater but were not corrected for ambient irradiance.

Data Processing Description

Data Processing:
Outliers removed

BCO-DMO Processing Notes
- Generated from original file: "SoCalPlumeEx2012_WaveGlider_CTD.csv" contributed by Raphael Kudela

- Parameter names edited to conform to BCO-DMO naming convention found at Choosing Parameter Name
- Date reformatted from MM/DD/YY to YYYYMMDD
- Time reformatted from HH:MM:SS to HHMMSS

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Data Files

File
WaveGlider_CTD.csv (Comma Separated Values (.csv), 941.37 KB) MD5:f66d579f10b7d05bf6be711f17e51984 Primary data file for dataset ID 537792

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Parameters

Parameter	Description	Units
DATE	Date (GMT)	YYYYMMDD
TIME	Time (GMT)	HHMMSS
Latitude	Latitude Position (South is negative)	decimal degrees
Longitude	Longitude Position (West is negative)	decimal degrees
Conductivity	Conductivity	S/m
OxygenSolubility	OxygenSolubility	mg/L
Pressure	Pressure	dbar
Salinity	Salinity	PSU
Temperature	Temperature	degs Celsius

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Instruments

Dataset-specific Instrument Name	Turner Designs PhytoFlash variable fluorescence meter
Generic Instrument Name	Fluorometer
Dataset-specific Description	Data collected from an underway mapping system using a YSI 6600v2 sonde (CTD) and Turner Designs PhytoFlash variable fluorescence meter. Data merged with GPS locations and binned to 1 minute intervals. The PhytoFlash data were blank-corrected with 0.2 µm filtered seawater but were not corrected for ambient irradiance.
Generic Instrument Description	A fluorometer or fluorimeter is a device used to measure parameters of fluorescence: its intensity and wavelength distribution of emission spectrum after excitation by a certain spectrum of light. The instrument is designed to measure the amount of stimulated electromagnetic radiation produced by pulses of electromagnetic radiation emitted into a water sample or in situ.

Dataset-specific Instrument Name	Wave Glider G5
Generic Instrument Name	Wave Glider G5
Dataset-specific Description	Wave Glider G5
Generic Instrument Description	Wave Glider G5

Dataset-specific Instrument Name	YSI 6600v2 sonde (CTD)
Generic Instrument Name	YSI Sonde 6-Series
Dataset-specific Description	Data collected from an underway mapping system using a YSI 6600v2 sonde (CTD) and Turner Designs PhytoFlash variable fluorescence meter. Data merged with GPS locations and binned to 1 minute intervals. The PhytoFlash data were blank-corrected with 0.2 µm filtered seawater but were not corrected for ambient irradiance.
Generic Instrument Description	YSI 6-Series water quality sondes and sensors are instruments for environmental monitoring and long-term deployments. YSI datasondes accept multiple water quality sensors (i.e., they are multiparameter sondes). Sondes can measure temperature, conductivity, dissolved oxygen, depth, turbidity, and other water quality parameters. The 6-Series includes several models. More from YSI.

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Deployments

SoCalPlumeEx2012

Website	https://www.bco-dmo.org/deployment/537425
Platform	Fishing Vessels
Start Date	2012-09-06
End Date	2012-10-17
Description	Multiple vessels used for this effort. R/V Yellowfin R/V Nerissa

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Project Information

Assessing the Ecophysiological and Biogeochemical Response to Deliberate Nutrient Loading in the Southern California Bight (SoCalPlumeEx2012)

Website: http://oceandatacenter.ucsc.edu/MBHAB/hotspots/

Coverage: Southern California Bight [33-33.75° N, 117.25-118.5° W]

In autumn 2012, Orange County Sanitation District (OCSD) will divert ~150 million gallons/day of secondarily-treated effluent to a nearshore (1 mile offshore) outfall pipe over a period of ~4 weeks. No discharges of this magnitude have been conducted in decades. The planned diversion is expected to create a buoyant surface plume that will spread over much of the coastal region. Because OCSD plans to "super-chlorinate" and then dechlorinate the discharge, the effect of the plume should be predominantly a nutrient addition rather than direct addition of intact microbial populations. The PIs propose to address two broad questions through a study of the plume:

First, what happens ecologically and physiologically to the phytoplankton assemblage when nutrients are discharged in the surface ocean for extended periods of time?
Second, can this dynamic and shifting environment be sampled by deploying multiple technologies to identify the physical/chemical drivers of the biological response at ecologically relevant space and time scales?

They will test two hypotheses:
H1: Continual discharge of nutrients to the surface ocean results in a dinoflagellate-dominated bloom which leads to dampening or cessation of vertical migration of the dinoflagellates and drives a shift to net heterotrophy.
H2: The bloom will initially result in a strong local sink for carbon dioxide which gradually develops into a strong source as heterotrophy develops.

The study is expected to provide a time-evolving picture of interactions within and between autotrophic and heterotrophic communities and will illustrate the short-term biogeochemical and ecological consequences of sustained nutrient discharge to a shallow coastal site. The planned diversion provides an unprecedented opportunity to study the ecophysiological response in a natural setting over a period of weeks, including the interaction of biology, chemistry, and physics, and it will contribute to basic understanding of anthropogenic nutrient loading to the coastal ocean. Undergraduate and graduate education and training will be furthered through active participation in lab, field, and data synthesis activities involving academic, government, and industry partners.

Affiliated Programs or Projects:
- NOAA ECOHAB Project (NA11NOS4780030): A Regional Comparison of Upwelling and Coastal Land Use Patterns on the Development of HAB Hotspots Along the California Coast
- Southern California Coastal Ocean Observing System
- Central and Northern California Coastal Ocean Observing System

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1251573
NSF Division of Ocean Sciences (NSF OCE)	OCE-1251547

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