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

Website: https://www.bco-dmo.org/dataset/537818
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
Kudela, Raphael M.	University of California-Santa Cruz (UCSC)	Principal Investigator, Contact
Lucas, Andrew J	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

R/V YellowFin CTD Data

Data are described in the following manuscript:
Caron, D.A., Gellene, A.G., Smith, J., Seubert, E.L., Campbell, V. Sukhatme, G.S., Seegers, B., Jones, B.H., Howard, M.D.A., Kudela, R.M., Hayashi, K., Ryan, J., Birch, J., Demir-Hilton, E., Yamahara, K., Scholin, C., Mengel, M., Robertson, G., Submitted. Response of the phytoplankton and bacterial communities during a wastewater effluent diversion into nearshore coastal waters. Estuar. Coast. Shelf Sci.

Methods & Sampling

Sampling and Analytical Methodology:
Data collected from an instrumented rosette using a SeaBird 9/11+

Data Processing Description

Data Processing:
Processed using SeaBird software, downcast only

BCO-DMO Processing Notes
- Generated from original file: "SoCalPlumeEx2012_YellowFin_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

[table of contents | back to top]

Data Files

File
YellowFin_CTD.csv (Comma Separated Values (.csv), 114.44 KB) MD5:52b8299db5642e6dc04d3fa68a2174f3 Primary data file for dataset ID 537818

[table of contents | back to top]

Parameters

Parameter	Description	Units
Station_ID	Station ID	dimensionless
Date	Date	YYYYMMDD
Latitude	Latitude [deg N]	decimal degrees
Longitude	Longitude [deg W]	decimal degrees
Pressure	Pressure; Digiquartz [db]	dbar
Temperature	Temperature [ITS-90; deg C]	degs Celsius
Temperature_2	Temperature; 2 [ITS-90; deg C]	degs Celsius
Conductivity	Conductivity [S/m]	S/m
Conductivity_2	Conductivity; 2 [S/m]	S/m
Salinity	Salinity; Practical [PSU]	PSU
Salinity_2	Salinity; Practical; 2 [PSU]	PSU
Oxygen	Oxygen; SBE 43 [ml/l]	ml/l
Oxygen_2	Oxygen; SBE 43; 2 [ml/l]	ml/l
Fluorescence	Fluorescence; WET Labs ECO-AFL/FL [mg/m^3]	mg/m^3
CDOM	Fluorescence; WET Labs CDOM [mg/m^3]	mg/m^3
Turbidity	Turbidity; WET Labs ECO [NTU]	NTU
Beam_Attenuation	Beam Attenuation; WET Labs C-Star [1/m]	1/m
Scan_Count	Scan Count	dimensionless
Depth	Depth [salt water; m]; lat = 33.33	meters
Potential_Temperature	Potential Temperature [ITS-90; deg C]	degs Celsius
Potential_Temperature_2	Potential Temperature; 2 [ITS-90; deg C]	degs Celsius
Potential_Temperature_Anomaly	Potential Temperature Anomaly [ITS-90; deg C]; a0 = 0; a1 = 0; salinity	degs Celsius
Potential_Temperature_Anomaly_2	Potential Temperature Anomaly; 2 [ITS-90; deg C]; a0 = 0; a1 = 0; salinity	degs Celsius
Conductivity_Difference	Conductivity Difference; 2 - 1 [S/m]	S/m
SalinityA	Salinity; Practical [PSU]	PSU
SalinityA_2	Salinity; Practical; 2 [PSU]	PSU

Oxygen_Saturation_ml	Oxygen Saturation; Garcia & Gordon [ml/l]	ml/l
Oxygen_Saturation_umol	Oxygen Saturation; Garcia & Gordon [umol/Kg]	umol/Kg
Density	Density [sigma-theta; Kg/m^3]	Kg/m^3
Acceleration	Acceleration [m/s^2]	m/s^2
Descent_Rate	Descent Rate [m/s]	m/s
Depth_A	Depth [salt water; m]; lat = 33.33	meters
Potential_TemperatureA	Potential Temperature [ITS-90; deg C]	degs Celsius
Potential_TemperatureA_2	Potential Temperature; 2 [ITS-90; deg C]	degs Celsius
Potential_TemperatureA_Anomaly	Potential Temperature Anomaly [ITS-90; deg C]; a0 = 0; a1 = 0; salinity	degs Celsius
Potential_TemperatureA_Anomaly_2	Potential Temperature Anomaly; 2 [ITS-90; deg C]; a0 = 0; a1 = 0; salinity	degs Celsius
Conductivity_DifferenceA	Conductivity Difference; 2 - 1 [S/m]	S/m
SalinityB	Salinity; Practical [PSU]	PSU
SalinityB_2	Salinity; Practical; 2 [PSU]	PSU
Oxygen_SaturationA_ml	Oxygen Saturation; Garcia & Gordon [ml/l]	ml/l
Oxygen_SaturationA_umol	Oxygen Saturation; Garcia & Gordon [umol/Kg]	umol/Kg
DensityA	Density [sigma-theta; Kg/m^3]	Kg/m^3
AccelerationA	Acceleration [m/s^2]	m/s^2
Descent_RateA	Descent Rate [m/s]	m/s
number_of_scans_per_bin	number of scans per bin	dimensionless
flag	flag	dimensionless

[table of contents | back to top]

Instruments

Dataset-specific Instrument Name	CTD SBE 911plus
Generic Instrument Name	CTD Sea-Bird SBE 911plus
Dataset-specific Description	Data collected from an instrumented rosette using a SeaBird 9/11+
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

[table of contents | back to top]

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

[table of contents | back to top]

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

[table of contents | back to top]

Funding

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

[table of contents | back to top]