Vertical profile data collected by CTD in a subtropical, pelagic environment from R/V F.G. Walton Smith cruise WS15161 in the Straits of Florida in June 2015 (OSTRICH project)

Website: https://www.bco-dmo.org/dataset/654141
Data Type: Cruise Results
Version: 1
Version Date: 2016-08-23

Project
» Spatial variability of larval fish in relation to their prey and predator fields: Patterns and interactions from cm to 10s of km in a subtropical, pelagic environment (OSTRICH)

Contributors	Affiliation	Role
Cowen, Robert K.	Oregon State University (OSU-HMSC)	Principal Investigator
Sponaugle, Su	Oregon State University (OSU-HMSC)	Co-Principal Investigator
Robinson, Kelly L.	University of Louisiana at Lafayette	Contact
Rauch, Shannon	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Abstract
This dataset consists of vertical profile data collected by CTD in a subtropical, pelagic environment from R/V F.G. Walton Smith cruise WS15161 in the Straits of Florida in June 2015.

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Dataset Description

Vertical profile data collected by CTD in a subtropical, pelagic environment on R/V Walton Smith cruise, WS15161.

Methods & Sampling

The conductivity-temperature-depth (CTD) instrument package is a high resolution vertical profiling sampling system. It is instrumented with a set of environmental sensors including: Seabird CTD, Seabird dissolved O2, and Wet Labs Fluorometer (ECO). All data are passed via copper wire-core cable to an onboard computer, time-stamped for cross-referencing, and saved on a computer hard drive.

Data Processing Description

Temperature, salinity, pressure, depth, oxygen, and fluorescence data were binned using Seabird's SeaSave software into 1 db pressure bins by finding the average value for each parameter. Only downcast data was used. Soak time at the surface was excluded from bin averages.

Latitude and longitude values were noted at the time of the cast.

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Data Files

File
CTD.csv (Comma Separated Values (.csv), 216.12 KB) MD5:60dbb993489dbd1033a1d99a52ec8162 Primary data file for dataset ID 654141

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Parameters

Parameter	Description	Units
cruise_name	Cruise name	unitless
cruise_id	Official cruise identifier	unitless
study	Study name	unitless
cast	CTD cast number	unitless
station	Unique station identifier	unitless
lat	Latitude of cast	decimal degrees North
lon	Longitude of cast	decimal degrees West
date	Date of cast in mm/dd/yyyy format	unitless
time	Local time (24h) of cast in HH:MM:SS format	unitless
ISO_DateTime_Local	Date and time (local; EDT) of cast formatted to ISO8601 standard	unitless
press	Pressure bin	decibars (db)
depth	Closest depth value to depth bin	meters (m)
temp	Water temperature	degrees Celsius
sal	Salinity	practical salinity units (psu)
cond	Conductivity	Siemens per meter (S/m)
oxygen	Dissolved oxygen	milliliters per liter (mL/L)
fluor_v	Fluorescence	volts
flag	Data quality flag	unitless

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Instruments

Dataset-specific Instrument Name	Seabird CTD
Generic Instrument Name	CTD Sea-Bird
Dataset-specific Description	The conductivity-temperature-depth (CTD) instrument package is a high resolution vertical profiling sampling system. It is instrumented with a set of environmental sensors including: Seabird CTD, Seabird dissolved O2, and Wet Labs Fluorometer (ECO).
Generic Instrument Description	A Conductivity, Temperature, Depth (CTD) sensor package from SeaBird Electronics. This instrument designation is used when specific make and model are not known or when a more specific term is not available in the BCO-DMO vocabulary. Refer to the dataset-specific metadata for more information about the specific CTD used. More information from: http://www.seabird.com/

Dataset-specific Instrument Name	Wet Labs Fluorometer (ECO)
Generic Instrument Name	Fluorometer
Dataset-specific Description	The conductivity-temperature-depth (CTD) instrument package is a high resolution vertical profiling sampling system. It is instrumented with a set of environmental sensors including: Seabird CTD, Seabird dissolved O2, and Wet Labs Fluorometer (ECO).
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	Seabird dissolved O2
Generic Instrument Name	Oxygen Sensor
Dataset-specific Description	The conductivity-temperature-depth (CTD) instrument package is a high resolution vertical profiling sampling system. It is instrumented with a set of environmental sensors including: Seabird CTD, Seabird dissolved O2, and Wet Labs Fluorometer (ECO).
Generic Instrument Description	An electronic device that measures the proportion of oxygen (O2) in the gas or liquid being analyzed

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Deployments

WS15161

Website	https://www.bco-dmo.org/deployment/654144
Platform	R/V F.G. Walton Smith
Start Date	2015-06-10
End Date	2015-06-27
Description	More information about this cruise is available from the Rolling Deck to Repository (R2R).

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Project Information

Spatial variability of larval fish in relation to their prey and predator fields: Patterns and interactions from cm to 10s of km in a subtropical, pelagic environment (OSTRICH)

Coverage: Straits of Florida, Western Atlantic

Description from NSF award abstract:
The spatial pattern of organisms within pelagic marine environments is of significant ecological importance, and this is particularly true for larval fishes. Patchy prey and predator environments should lead to variation in predator-prey interactions, and thus to variations in larval fish growth and survival. These have proven very difficult to resolve in nature, due in large part to the broad range of spatial scales involved and technological challenges with adequately sampling the various processes simultaneously. This study will use new technology (In Situ Ichthyoplankton Imaging System - ISIIS) to simultaneously measure the fine-scale distribution of larval fishes in relation to their prey, their planktonic predators, and the physical environment of the Straits of Florida. This will be combined with targeted fine-scale net sampling and analyses of individual recent daily larval growth. By sampling a series of water masses at very high resolution, this study will address specific hypotheses concerning: i) the drivers of aggregations and patchiness, and ii) the biological consequences of predator-prey interactions at fine scales.

The primary intellectual merit of the study is the unprecedented examination of plankton processes at scales of relevance to biological interactions among larval fishes, their prey, and their predators. This field study will further our understanding of the predator-prey interactions contributing to spatially explicit larval growth and mortality patterns. The focus on subtropical planktonic food webs will enhance scientific knowledge of these understudied pelagic ecosystems and provide valuable data for comparative analyses with pelagic food web dynamics at higher latitudes. A deeper understanding of pelagic planktonic ecosystems over a range of spatial and temporal scales is increasingly important as the oceans undergo major environmental changes. Substantial increases in the relative dominance of gelatinous organisms, for example, have the potential to cause major shifts in pelagic food webs. A better understanding of the fine-scale interactions of such food webs will help society anticipate and respond to the consequences of such changes.

Note (07 Oct 2014): Funding for this project transferred from award OCE-1333800 to OCE-1419987, coincident with the Principal Investigator's affiliation change from University of Miami to Oregon State University.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1419987

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