Larval fish counts and identifications from 4m2 MOCNESS sampling conducted in a subtropical, pelagic environment from R/V F.G. Walton Smith cruises WS1406 and WS15161 in the Straits of Florida in 2014 and 2015 (OSTRICH)

Website: https://www.bco-dmo.org/dataset/750961
Data Type: Cruise Results
Version: 0
Version Date: 2018-12-05

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
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Coverage

Spatial Extent: **N**:26.1208 **E**:-79.22671 **S**:24.2116183 **W**:-82.088827
Temporal Extent: 2014-05-28 - 2015-06-26

Dataset Description

Counts and identificaitons of larval fishes collected by a $4m^2$ Multiple Opening Closing Net and Environmental Sampling System (MOCNESS; MOC4) in a subtropical, pelagic environment. Larval fish identified to lowest possible taxonomic group.

Methods & Sampling

Larval fishes were collected at each station using a Multiple Opening Closing Net and Environmental Sensing System (MOCNESS, http://www.whoi.edu/instruments/viewInstrument.do?id=10008) with a 4m2 opening and 1mm mesh nets (MOC4). To capture larval fishes and mesozooplankton on a fine horizontal spatial scale, we sequentially fired each MOCNESS net every ~125-500m. Traveling at a speed of 2 m s-1 each MOC4 net sampled ~500-2600 m3. We fired a total of five nets per tow. One net was open from the surface to depth (net zero), and four nets sampled discrete depths. At every station, this fine-scale net sampling was repeated with two MOC4 tows at 15m, 30m, and 60m (2014 only) depth (randomized order), thus eight replicate tows per depth. Once onboard, the nets were rinsed with seawater and the contents of each cod end immediately preserved in 95% ethanol.

All larval fishes were separated out of the samples, identified to the lowest possible taxonomic grouping following Richards (2005), and measured using a dissecting microscope.

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Parameters

Parameters for this dataset have not yet been identified

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Deployments

WS1406

Website	https://www.bco-dmo.org/deployment/654157
Platform	R/V F.G. Walton Smith
Start Date	2014-05-28
End Date	2014-06-14
Description	More information about this cruise is available from the Rolling Deck to Repository (R2R).

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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