

Drifter and mooring deployment information in Palimco Sound, North Carolina between June of 2013 and August of 2014 (EstuarineMetaDyn project)

Website: <https://www.bco-dmo.org/dataset/719182>

Version:

Project

» [Interacting Effects of Local Demography and Larval Connectivity on Estuarine Metapopulation Dynamics](#)
(EstuarineMetaDyn)

Contributors	Affiliation	Role
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Coverage

Spatial Extent: N:35.66866 E:-75.65215 S:35.01168 W:-76.394067

Temporal Extent: 2013-06-15 - 2014-08-15

Dataset Description

This dataset contains deployment information for cement mooring and drifters in Palimco Sound, North Carolina between June of 2013 and August of 2014.

Methods & Sampling

Cement moorings were created by filling 5 gal buckets with cement and affixing rope with surface floats. Larval homes were attached ~1m above cement bucket. Pacific Gyre Microstar Lagrangian Surface Drifters and Brightwater Instruments Model 104 GPS/Argos Drifting Buoys were used interchangeably, with larval homes attached onto the wings via zippy.

Location: Pamlico Sound, North Carolina is the largest lagoonal estuary along the U.S. East Coast, approximately 129 km long and 24-48 km wide. Average depth is ~2 m but can reach ~ 10 m, with wind-driven currents dominating circulation patterns.

Deployment 1: 6/15/13

Collection 1: 6/17/14-6/23/13

Deployment 2: 6/28/14

Collection 2: 6/29/14-7/2/14

Deployment 3: 8/8/14
Collection 3: 8/9/14-8/15/1

Data Processing Description

BCO-DMO Data Manager Processing Notes:

- * added a conventional header with dataset name, PI name, version date
- * modified parameter names to conform with BCO-DMO naming conventions
- * Changed name of latitude and longitude columns, they were reversed.
- * Date 2024-06-28 changed to 2014-06-28 in deployment column

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Data Files

File
drifters.csv (Comma Separated Values (.csv), 4.35 KB) MD5:4fac6ddddd1c2cdf5fccb9058a0da9fd Primary data file for dataset ID 719182

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Parameters

Parameter	Description	Units
Platform_Name	Mooring or Drifter name	unitless
Platform_Type	Mooring or Drifter type description	unitless
Deploy_Lat	Latitude of deployment location	decimal degrees
Deploy_Long	Longitude of deployment location	decimal degrees
Deploy_Date	Date of deployment in format yyyy-mm-dd	unitless
Collect_Lat	Latitude of collection location	decimal degrees
Collect_Long	Longitude of collection location	decimal degrees
Collect_Date	Date of collection location in format yyyy-mm-dd	unitless
Notes	Comments	unitless

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Deployments

Fodrie_drifters

Website	https://www.bco-dmo.org/deployment/725195
Platform	shoreside Pamlico-Oysters
Start Date	2013-06-20
End Date	2014-08-11

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Project Information

Interacting Effects of Local Demography and Larval Connectivity on Estuarine Metapopulation Dynamics (EstuarineMetaDyn)

Coverage: North Carolina Estuaries

Description from NSF award abstract:

The PIs will use the eastern oyster (*Crassostrea virginica*) in Pamlico Sound, North Carolina, as a model system and will attempt to optimize the design of networks of no-take reserves as a strategy for maintaining metapopulations of this commercially harvested species. The project specifically recognizes that network persistence depends on (1) the potential for growth, survival, and reproduction within reserves, and (2) the potential to distribute offspring among reserves. Thus, demographic processes within reserves and settling areas play important roles, along with variability of physical transport. The PIs plan to:

- (1) test and refine 3D bio-physical models of connectivity due to oyster larval transport in a shallow, wind-dominated system;
- (2) test, refine, and apply technology to detect natal origins of larvae using geochemical tags in larval shell; and
- (3) integrate regional connectivity and demographic rates to model metapopulation dynamics.

This study will produce new tools and test and refine others used for studying larval connectivity, a fundamentally important process in the maintenance of natural populations, and thus in biological conservation and resource management. The tools include a hydrodynamic modeling tool coupled with an open-source particle tracking model that will be available on-line with computer code and user guide. The project will use integrated modeling approaches to evaluate the design of reserve networks: results will be directly useful to improving oyster and ecosystem-based management in Pamlico Sound, and the methods will inform approaches to network design in other locations.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1155609

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