

Sampling site and date information at Back Sound, North Carolina between 2010 and 2015 (EstuarineMetaDyn project)

Website: <https://www.bco-dmo.org/dataset/688096>

Data Type: Other Field Results

Version:

Version Date: 2017-04-21

Project

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

Contributors	Affiliation	Role
Fodrie, F. Joel	University of North Carolina at Chapel Hill (UNC-Chapel Hill-IMS)	Principal Investigator, Contact
York, Amber D.	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

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Coverage

Spatial Extent: N:34.7197 E:-76.60361 S:34.68229 W:-76.63948

Dataset Description

Sampling dates, locations, and descriptive information related to laser scan, gps grid, and oyster density sampling in Back Sound, North Carolina from 2010 to 2015.

Other Back Sound datasets in this project:

[Oyster density and length](#)

[Laser scans](#)

[Water level](#)

[Reef elevation, exposure, and vertical change \(GPS Grids\)](#)

The sampling data in this dataset are for data published in the following paper:

Ridge, J. T., Rodriguez, A. B., Fodrie, F. J., Lindquist, N. L., Brodeur, M. C., Coleman, S. E., ... & Theuerkauf, E. J. (2015). Maximizing oyster-reef growth supports green infrastructure with accelerating sea-level rise. Scientific reports, 5. doi: [10.1038/srep14785](https://doi.org/10.1038/srep14785)

Methods & Sampling

See the other datasets in this project for the specific methodology of each sampling type.

Data Processing Description

BCO-DMO Data Manager Notes:

- * added site locations in decimal degree format (lat,lon) from provided UTM coordinates
- * blank values set to "nd" for no data
- * added a conventional header with dataset name, PI name, version date
- * modified parameter names to conform with BCO-DMO naming conventions

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Data Files

File
sites.csv (Comma Separated Values (.csv), 4.04 KB) MD5:a15e72dd3cff8cda5dce37aa00b41586 Primary data file for dataset ID 688096

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Parameters

Parameter	Description	Units
site	Sample site name	unitless
easting	Site UTM easting coordinate	Universal Transverse Mercator (UTM)
northing	Site UTM northing coordinate	Universal Transverse Mercator (UTM)
zone	Site UTM zone	Universal Transverse Mercator (UTM)
constructed	Whether site was constructed. Man-made sites have a "Yes" value	unitless
setting	Description of site reef type	unitless
sample_type	Type of sampling conducted at site	unitless
sampled2010	Site sampling status for 2010; X indicates the site was sampled that year	unitless
sampled2011	Site sampling status for 2011; X indicates the site was sampled that year	unitless
sampled2012	Site sampling status for 2012; X indicates the site was sampled that year	unitless
sampled2013	Site sampling status for 2013; X indicates the site was sampled that year	unitless
sampled2014	Site sampling status for 2014; X indicates the site was sampled that year	unitless
density	Year the site was sampled for oyster density in format yyyy	unitless
lat	Site latitude	decimal degrees
lon	Site longitude; west is negative	decimal degrees

Deployments

Fodrie_EstuarineMetaDyn

Website	https://www.bco-dmo.org/deployment/688049
Platform	Back_Sound_NC
Description	Sampling between 2010 and 2015.

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.

Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1155628