Oyster spat site information from the Pamlico Sound, North Carolina from June to August 2012

Website: https://www.bco-dmo.org/dataset/719190
Data Type: Other Field Results
Version: 1
Version Date: 2017-11-13

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

Contributors	Affiliation	Role
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Abstract
This dataset contains site information for oyster spat settlement experiments conducted in Pamlico Sound, North Carolina in 2012.

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Coverage

Spatial Extent: **N**:35.8415667 **E**:-75.4818167 **S**:34.6562333 **W**:-76.7528333
Temporal Extent: 2012-06 - 2012-08

Dataset Description

This dataset contains site information for oyster spat settlement experiments conducted in Pamlico Sound, North Carolina in 2012.

Methods & Sampling

Spat settlement collectors were constructed by affixing 2-3 wire strings, each containing 12 adult oyster shells, to private and public docks or stand-alone wooden pilings, throughout BBCPS study system. Settlement collectors were deployed on June 7th and 21st and again on August 1st and 16th of 2012 and retrieved approximately 2 weeks later as part of an ongoing settlement sampling program (Eggleston and Puckett, unpubl.data). Recovered settlement collectors were frozen until individual spat could be counted and removed from adult oyster shells with a tungsten probe. Spat were divided by collection site and collection period and refrozen at -23°C.

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

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Data Files

File
oyster_sites.csv (Comma Separated Values (.csv), 1.32 KB) MD5:6d7e3f5dc088d04d83d6865c7a7cfd04 Primary data file for dataset ID 719190

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Parameters

Parameter	Description	Units
Site	Site name	unitless
Code	Site code	unitless
Lat	Latitude	degrees decimal minutes
Long	Longitude	degrees decimal minutes
Lat_DD	Latitude	decimal degrees
Long_DD	Longitude	decimal degrees

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Instruments

Dataset-specific Instrument Name	Teledyne ATLex 300si-x 193nm Excimer laser ablation unit
Generic Instrument Name	Laser
Dataset-specific Description	http://www.cetac.com/product_dashboard/laser-ablation.htm
Generic Instrument Description	A device that generates an intense beam of coherent monochromatic light (or other electromagnetic radiation) by stimulated emission of photons from excited atoms or molecules.

Dataset-specific Instrument Name	Thermo-Fisher Element2 inductively coupled plasma mass spectrometer
Generic Instrument Name	Mass Spectrometer
Dataset-specific Description	Both larval and spat samples were analyzed using a Thermo-Fisher Element2 inductively coupled plasma mass spectrometer with a Teledyne ATLex 300si-x 193nm Excimer laser ablation unit (LA ICP-MS). To correct for mass bias and instrument drift, National Institute of Technology Standards-certified standards (Reference Material 612, 614, and 616) were run at the beginning and end of every 4 slide sequence (~140 burns).
Generic Instrument Description	General term for instruments used to measure the mass-to-charge ratio of ions; generally used to find the composition of a sample by generating a mass spectrum representing the masses of sample components.

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Deployments

Fodrie_SpatStrings

Website	https://www.bco-dmo.org/deployment/615538
Platform	shoreside Pamlico-Oysters
Start Date	2012-06-13
End Date	2012-08-25
Description	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. Spat settlement collectors were constructed by affixing 2-3 wire strings, each containing 12 adult oyster shells, to private and public docks or stand-alone wooden pilings, throughout BBCPS study system. Settlement collectors were deployed on June 7th and 21st and again on August 1st and 16th of 2012 and retrieved approximately 2 weeks later as part of an ongoing settlement sampling program (Eggleston and Puckett, unpubl.data).

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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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