

Shell lengths from reef core samples collected from the oyster reefs along Southeastern Atlantic Bight (SAB) from North Carolina to Florida in 2011 (Oyster Trophic Cascades project)

Website: <https://www.bco-dmo.org/dataset/555083>

Version: 2015-04-01

Project

» [The influence of predators on community structure and resultant ecosystem functioning at a biogeographic scale](#) (Oyster_Trophic_Cascades)

| Contributors | Affiliation | Role |
|-------------------------------------|---|------------------------------------|
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Dataset Description

Oyster reef cages containing either bivalves, consumers or predators were set up along the southeastern US coast from N. Carolina to Florida. This dataset includes shell lengths of live and dead oysters in the planted reefs and the dead base shells.

Related Reference:

DL. Kimbro, J.E. Byers, J.H. Grabowski, A.R. Hughes and M.F. Piehler. The biogeography of trophic cascades on US oyster reefs (2014) Ecology Letters 17:845-854. doi: 10.1111/ele.12293.

Data is also available from the Knowledge Network for Biocomplexity (KNB):

1. Cage Experiment Bivalve Data <http://knb.ecoinformatics.org/knb/metacat?action=read&qformat=knb&sessionid=0&docid=evanlpettis.101.15>

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Data Files

| File |
|--|
| core_len.csv (Comma Separated Values (.csv), 132.20 KB) MD5:1eb7f1da04b7035889329680873bd8ff |
| Primary data file for dataset ID 555083 |

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Parameters

| Parameter | Description | Units |
|--------------|---|-----------------|
| site | Experimental study site/estuary within each region; Two sites per region | unitless |
| lat | latitude; north is positive | decimal degrees |
| lon | longitude; east is positive | decimal degrees |
| cage | ID number of caging enclosure | unitless |
| treatment | Experimental treatment | unitless |
| planted_base | Whether the oyster was from the planted reef (clusters from natural reef) or from the dead base shell | unitless |
| live_dead | Whether the oyster was live or dead | unitless |
| len_shell | Length of bottom valve of oyster (only adults >25mm were measured) | millimeters |

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Deployments

Kimbro_2011

| | |
|--------------------|--|
| Website | https://www.bco-dmo.org/deployment/554925 |
| Platform | Oyster_Reefs_SE-US |
| Start Date | 2011-06-02 |
| End Date | 2011-09-02 |
| Description | Oyster reef communities were manipulated to test the generality of potential causal factors of trophic cascades across a 1000-km region from N. Carolina to Florida using monitoring and cage experiments. |

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Project Information

The influence of predators on community structure and resultant ecosystem functioning at a biogeographic scale (Oyster_Trophic_Cascades)

Coverage: St. Augustine, FL to Cape Hatteras, NC

Predators structure ecological communities by consuming and altering the traits of prey, yet these effects have only recently been linked to local variation in ecosystem functions such as primary production and nutrient cycling. Such linkages may operate differently across biogeographic scales because factors known to affect local predator mechanisms also vary with latitude. The mismatch between knowledge of how predators locally affect ecosystem functions and the biogeographic range at which predator-prey interactions occur inhibits understanding of linkages between ecological communities and ecosystems, and thus our ability to manage valuable ecosystem services. Intertidal oyster reefs provide a model system to address this knowledge gap: they occur throughout the mid-Atlantic and Gulf coasts; they contain a similar food-web assemblage across latitudinal gradients in predation, resource supplies, and environmental conditions; they are strongly influenced by predator effects; and they influence sediment and nutrient cycles by enhancing benthic-pelagic coupling. This research involves a series of standardized sampling and experimental studies to: (1) investigate biogeographic patterns in oyster food web structure, resource supplies, environmental conditions, and sediment properties associated with reef function (2) determine how the vital rates of oysters, which can

influence benthic-pelagic coupling, vary geographically; and (3) examine experimentally the relative importance of consumptive and non-consumptive predator effects on oyster reef communities and the ecosystem processes they provide and how these effects vary latitudinally. It will provide a mechanistic understanding of the basis for biogeographical shifts in valuable ecosystem services performed by an important marine foundation species, and it will also advance understanding of the interactions between predator effects in food webs and the ecosystem processes that depend on them. *(from the Lead Principal Investigator proposal Abstract)*

This is a Collaborative Project with Investigators from four major research universities.

[Funding for this project has transferred from award OCE-0961633 to OCE-1338372, and from award OCE-0961741 to OCE-1203859, coincident with Principal Investigators Dr. Kimbro's and Dr. Grabowski's affiliation changes.]

BCO-DMO is in the process of serving data from this project directly. These data are also available online from the [Knowledge Network for Biocomplexity](#).

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Funding

| Funding Source | Award |
|--|-----------------------------|
| NSF Division of Ocean Sciences (NSF OCE) | OCE-0961633 |
| NSF Division of Ocean Sciences (NSF OCE) | OCE-1338372 |
| NSF Division of Ocean Sciences (NSF OCE) | OCE-0961853 |
| NSF Division of Ocean Sciences (NSF OCE) | OCE-0961741 |
| NSF Division of Ocean Sciences (NSF OCE) | OCE-1203859 |

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