

# Visual assessments of fish densities and sizes on reefs at sites with hydrophone recordings from Eastern Abaco Island, the Bahamas, 2015 and 2016 (Fish and Biogeochem Hot Spots project)

**Website:** <https://www.bco-dmo.org/dataset/681000>

**Data Type:** Other Field Results

**Version:**

**Version Date:** 2017-02-15

## Project

» [Fish aggregations and biogeochemical hot spots across regional environmental gradients](#) (Fish and biogeochem hot spots)

Contributors	Affiliation	Role
<a href="#">Layman, Craig</a>	North Carolina State University (NCSU)	Principal Investigator
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## Coverage

**Spatial Extent:** Lat:26.3333 Lon:-77.0121

**Temporal Extent:** 2016-02-26 - 2016-05-27

## Methods & Sampling

Surveys were carried out using snorkel and mask and recorded on underwater paper.

## Data Processing Description

### BCO-DMO Processing:

- added conventional header with dataset name, PI name, version date
- renamed parameters to BCO-DMO standard
- added lat, lon columns
- sorted by date

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## Data Files

File
<b>fish_surveys_v2_sortdate.csv</b> (Comma Separated Values (.csv), 539.55 KB) MD5:50873037b95ec863a4394731d4794778
Primary data file for dataset ID 681000

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## Parameters

Parameter	Description	Units
date	survey date formatted as yyyy-mm-dd	unitless
lat_site	latitude; north is positive	decimal degrees
lon_site	longitude; east is positive	decimal degrees
site	survey site code	unitless
species	common species name of fish surveyed	unitless
count_total	the number of individuals of each species on each reef in a single survey	fish
time	survey site	unitless
surveyor	person who took survey	unitless
len_1 to len_288	number of fish surveyed of size 'n' centimeters	fish

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## Deployments

### Layman\_2014

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/542786">https://www.bco-dmo.org/deployment/542786</a>
<b>Platform</b>	Caribbean_nearshore
<b>Start Date</b>	2014-01-01
<b>End Date</b>	2014-11-30
<b>Description</b>	Coral reef surveys as part of the project "Fish aggregations and biogeochemical hot spots across regional environmental gradients".

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## Project Information

### Fish aggregations and biogeochemical hot spots across regional environmental gradients (Fish and biogeochem hot spots)

**Coverage:** Caribbean

*Description from NSF award abstract:*

Consumers in marine ecosystems have long been acknowledged for their role in top-down regulation of ecosystems, but their influence through bottom-up pathways such as nutrient supply is often underappreciated and has not been integrated into models of coastal ecosystem dynamics. Yet, nutrient supply from consumers may be a regulating factor when consumers aggregate, such as fishes around structurally complex habitat. Examining this bottom-up mechanistic pathway is essential for a more holistic

understanding of seagrass ecosystems, which are important and threatened globally. This study will address the following questions: (1) Does concentrated nutrient supply from consumers result in distinct biogeochemical hot spots in seagrass beds? and (2) How do consumer effects on ecosystem processes vary across regional environmental contexts where nutrient availability and fishing pressure vary? The PIs will conduct experiments at multiple sites within three biogeographic regions in the Caribbean (The Bahamas, Hispaniola, and Grenada/St.Vincent/Grenadines). The experiments will utilize artificial reefs that mimic natural patch reef habitats that concentrate animals at high densities. Response variables reflecting ecosystem processes (e.g., seagrass nutrient content, seagrass biomass, primary producer diversity) will be measured at reef sites and compared with control sites (seagrass sites without reefs). The spatial extent over which ecosystem processes may be affected, i.e., distance from artificial reef, will be quantified and used to detect ecological thresholds in ecosystem responses. Predictor variables, including measures of ambient nutrient availability, fish densities and fish grazing rates, will be used to contextualize the relative importance of consumer-mediated nutrient supply. The hierarchical experimental design and two-pronged analysis will characterize relationships across environmental gradients found among and within the biogeographic regions, facilitating a conceptual framework needed to predict when, where, and why consumer-mediated nutrient supply is an important control of ecosystems processes in seagrass beds.

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## Funding

Funding Source	Award
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-1405198</a>

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