Octocoral colony heights measured during transect surveys at four sites on the south shore of St. John, US Virgin Islands in June-August 2018.

Website: https://www.bco-dmo.org/dataset/765328
Data Type: Other Field Results
Version: 1
Version Date: 2019-09-23

Project
» Collaborative Research: Pattern and process in the abundance and recruitment of Caribbean octocorals (Octocoral Community Dynamics)

Contributors	Affiliation	Role
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Abstract
Octocoral colony heights measured during transect surveys at four sites on the south shore of St. John, US Virgin Islands in June-August 2018.

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Coverage

Spatial Extent: **N**:18.3167 **E**:-64.7104 **S**:18.3029 **W**:-64.7299
Temporal Extent: 2018-06-24 - 2018-08-06

Dataset Description

This dataset contains octocoral colony heights measured during transect surveys at four sites on the south shore of St. John, US Virgin Islands in July-August 2018.

These data are a continuation of BCO-DMO project 562086 (http://www.bco-dmo.org/project/562086) and BCO-DMO project 749653 (https://www.bco-dmo.org/project/749653)

Methods & Sampling

Survey design:

All sites were located at 6 to 9 meters depth.

Censuses at East Cabritte, Europa and Tektite were based on 50x10m areas that were arbitrarily selected and permanently marked with stainless steel eyebolts at the corners of the sites. A total of six transect lines, also marked with eyebolts, were laid out at 10 m intervals. All octocorals present in 1 x 1 m quadrats along the 10-

meter long transects were scored. In 2014 ten quadrats were surveyed along each line. In 2015 and 2016 ten quadrats were scored along each transect line at Europa and Tektite and five randomly chosen quadrats were surveyed at East Cabritte. The transect identifier "transect_pos" has values 0, 10, 20, 30, 40 or 50 which represent position& in meters within the 50x10 survey area corresponding to each of the 6 transects (e.g. 20 = 20m).

The census at Booby Rock was conducted in a single day in which transects were randomly placed along a 50 m line that was arbitrarily placed on a constant depth contour. Only 4 1x1 m quadrats were surveyed along each transect. The transect identifier (transect_pos) for transects at Booby Rock refers to position along the 50 m line.

Yawzi and Deep Tektite surveys: 20 quadrats at each transect (3 transects)

Sampling methods:

Identifications were based on traits visible in the field, and samples of representative colonies were collected for further analysis in cases in which field identification was uncertain. Sclerites from those samples were examined for species identification.

Two height measures are present, height of living tissue, which only includes that part of the axis with living tissue and total height which is the distance from the base to the tip of the farthest branch from the base (i.e. not necessarily perpendicular to the substrate), regardless of whether the tips or base had living tissue. (Only colonies with some living tissue were measured). All measures rounded to the nearest cm with the exception of 5 cm which only includes colonies >= 5 cm. Starting in 2016, measures less than 5 cm reflect colonies with thick branches which could only have <5 cm heights due to partial mortality.

Data Processing Description

BCO-DMO Processing Notes:
- added conventional header with dataset name, PI name, version date
- modified parameter names to conform with BCO-DMO naming conventions
- added species binomials, matched to Species_code

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Data Files

File
adult_surveys.csv (Comma Separated Values (.csv), 155.46 KB) MD5:8379e64a5a03e982c017b4bda2ded7f1 Primary data file for dataset ID 765328

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Related Datasets

IsRelatedTo

Lasker, H., Edmunds, P. J. (2025) **Identity and heights of Octocoral species found on transects at 6 sites on the south shore of St John, U.S. Virgin Islands in 2021 and 2022.** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2025-10-03 doi:10.26008/1912/bco-dmo.893615.1 [view at BCO-DMO]

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Parameters

Parameter	Description	Units
Census_Year	Year of census data collection.	unitless
Date	Date on which data were collected; formatted as yyyy-mm-dd	unitless
Site	Census locations as follows: Booby Rock: 18° 18.176' N; 064° 42.626' W; E Cabritte = East Cabritte: 18° 18.551 ' N: 0.64° 43.129' W; Europa: 18° 19.003' N; 064° 43.796' W; Tektite: 18° 18.775' N; 064° 43.796' W; Yawzi: 18.3153; -64.7257	unitless
lat	Latitude; north is positive	decimal degrees
lon	Longitude; east is positive	decimal degrees
Transect_Position	Transects positioned in a marked 50x10m area with stainless steel eyebolts marking each corner; and each of the 6 transects. Transects were 10m long across the 50x10m area. So there were 0m; 10m; 20m; 30m; 40m; 50m.	unitless
Side_of_transect	Side of the transect tape (Left or Right); orientation looking towards open ocean with the nearest shore to the back.	unitless
Meter_on_transect	From 0 to 9 meters. 1x1 meter quadrats were positioned randomly along the 10 m transect. The values refer to the position of the "shoreward" corner of the quadrat. Thus "0"refers to the quadrat placed between the 0 and 1 meter marks.	meters
Genus	Taxonomic genus of octocoral. 'nd' indicates no corals present in quadrat.	unitless
Species_code	Octocorals species acronym. See the Species codes dataset. 'nd' indicates no corals present in quadrat.	unitless
Height_of_living_tissue_cm	Maximum distance from the base of the octocoral colony until the farthest tips of the branch (i.e. not necessarily perpendicular to the substrate). All measures rounded to the nearest centimeter with the exception of 5 cm which only includes colonies >= 5 cm. Starting in 2016 measures less than 5 cm reflect colonies with thick branches which could only have <5 cm heights due to partial mortality. 'nd' indicates no corals present in quadrat.	centimeters
Total_height	Total height of octocoral colony including non-living portion; measured from the base to the tip including dead tissue. (Only colonies with some living tissue were measured).	centimeters

Basal_damage	Height measured from the base to the living tissue.	centimeters
Damage	Damage code: 0 when there was no damage or only a few small cm scale areas of damage making up <5%; 1 when injuries are > 5% but < 25% of the colony have injuries;Damage = 2 when injuries are in > 25% but < 50% of the colony; Damage = 3 when in juries are > 50% of the colony but < 75%; and Damage = 4 when a colony has injuries in > 75% of the colony. No data was recorded in Damage column at Tektite in 2018.	unitless
Comments_1	Comments about the data: '# C. gibbosum' refers to the number of Cyphoma gibbosum found on the colony; 'aa2' indicates the colony is similar to A. americana but most likely belongs to an as of yet undescribed Antillogorgia species; 'pp2' indicates the colony is similar to Pseudoplexaura porosa but the identification is uncertain; Millepora indicates overgrowth of part of the colony by Millepora.	unitless
Comments_2_sample_tag	Sample Numbers for octocorals that were sampled in order to get IDs based on sclerites.	unitless
Genus_Species	Taxonomic genus and species binomial of octocoral. 'nd' indicates no corals present in quadrat.	unitless

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Project Information

Collaborative Research: Pattern and process in the abundance and recruitment of Caribbean octocorals (Octocoral Community Dynamics)

Coverage: St. John, US Virgin Islands

NSF Award Abstract:
Coral reefs are exposed to a diversity of natural and anthropogenic disturbances, and the consequences for ecosystem degradation have been widely publicized. However, the reported changes have been biased towards fishes and stony corals, and for Caribbean reefs, the most notable example of this bias are octocorals ("soft corals"). Although they are abundant and dominate many Caribbean reefs, they are rarely included in studies due to the difficulty of both identifying them and in quantifying their abundances. In some places there is compelling evidence that soft corals have increased in abundance, even while stony corals have become less common. This suggests that soft corals are more resilient than stony corals to the wide diversity of disturbances that have been impacting coral corals. The best coral reefs on which to study these changes are those that have been studied for decades and can provide a decadal context to more recent events, and in this regard the reefs of St. John, US Virgin Islands are unique. Stony corals on the reefs have been studied since 1987, and the soft corals from 2014. This provides unrivalled platform to evaluate patterns of octocoral abundance and recruitment; identify the patterns of change that are occurring on these reefs, and identify the processes responsible for the resilience of octocoral populations. The project will extend soft coral monitoring from 4 years to 8 years, and within this framework will examine the roles of baby corals, and their response to seafloor roughness, seawater flow, and seaweed, in determining the success of soft corals. The work will also assess whether the destructive effects of Hurricanes Irma and Maria have modified the pattern of change. In concert with these efforts the project will be closely integrated with local high schools at which the investigators will host marine biology clubs and provide independent study opportunities for their students and teachers. Unique training opportunities will be provided to undergraduate and graduate students, as well as a postdoctoral researcher, all of whom will study and work in St. John, and the investigators will train coral reef

researchers to identify the species of soft corals through a hands-on workshop to be conducted in the Florida Keys.

Understanding how changing environmental conditions will affect the community structure of major biomes is the ecological objective defining the 21st century. The holistic effects of these conditions on coral reefs will be studied on shallow reefs within the Virgin Islands National Park in St. John, US Virgin Islands, which is the site of one of the longest-running, long-term studies of coral reef community dynamics in the region. With NSF-LTREB support, the investigators have been studying long-term changes in stony coral communities in this location since 1987, and in 2014 NSF-OCE support was used to build an octocoral "overlay" to this decadal perspective. The present project extends from this unique history, which has been punctuated by the effects of Hurricanes Irma and Maria, to place octocoral synecology in a decadal context, and the investigators exploit a rich suite of legacy data to better understand the present and immediate future of Caribbean coral reefs. This four-year project will advance on two concurrent fronts: first, to extend time-series analyses of octocoral communities from four to eight years to characterize the pattern and pace of change in community structure, and second, to conduct a program of hypothesis-driven experiments focused on octocoral settlement that will uncover the mechanisms allowing octocorals to more effectively colonize substrata than scleractinian corals on present day reefs. Specifically, the investigators will conduct mensurative and manipulative experiments addressing four hypotheses focusing on the roles of: (1) habitat complexity in distinguishing between octocoral and scleractinian recruitment niches, (2) the recruitment niche in mediating post-settlement success, (3) competition in algal turf and macroalgae in determining the success of octocoral and scleractian recruits, and (4) role of octocoral canopies in modulating the flux of particles and larvae to the seafloor beneath. The results of this study will be integrated to evaluate the factors driving higher ecological resilience of octocorals versus scleractinians on present-day Caribbean reefs.

This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1756381

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