Octocoral Recruitment surveys on transects at 6 sites on the south shore of St. John, U.S. Virgin Islands in 2021 and 2022

Website: https://www.bco-dmo.org/dataset/893866
Data Type: Other Field Results
Version: 1
Version Date: 2025-10-03

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

Contributors	Affiliation	Role
Lasker, Howard	State University of New York at Buffalo (SUNY Buffalo)	Principal Investigator, Contact
Edmunds, Peter J.	California State University Northridge (CSUN)	Co-Principal Investigator
Wells, Christopher	State University of New York at Buffalo (SUNY Buffalo)	Scientist
Heyl, Taylor	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager
York, Amber D.	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Abstract
This dataset represents octocoral recruitment censuses conducted on survey transects at 6 sites Booby Rock (18° 18.176' N; 064° 42.626' W), Grootpan Bay (previously noted as E Cabritte or 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), Deep Tektite (18° 18.582’ N, 064° 43.371 W), Yawzi (18° 18.912’ N, 064° 43.500’ W) on the south shore of St. John, U.S. Virgin Islands between 2021 and 2022.

Table of Contents

- Coverage
- Dataset Description
  - Methods & Sampling
  - BCO-DMO Curation Notes
  - Problem Description
- Data Files
- Supplemental Files
- Related Datasets
- Parameters
- Instruments
- Project Information
- Funding

Coverage

Location: St. John, US Virgin Islands
Spatial Extent: **N**:18.7299 **E**:-64.7104 **S**:18.3029 **W**:-64.7299
Temporal Extent: 2021-07-04 - 2022-08-20

Methods & Sampling

Recruit censuses were conducted in 2021 and 2022. Recruits (1 polyp - 5 centimeters tall) were enumerated, and when possible were identified to genus level in separate 0.25 square meter quadrats randomly placed (n = 8) along 6 transects at each of 3 sites (48 quadrats per site). Transects were positioned in a marked 50-meter x 10-meter area, with stainless steel eye bolts marking each corner, and each of the 6 transects. Transects were 10 meters long across the area.

Transect positions by site:
- Europa, Grootpan, and Tektite: transects were positioned in a marked 50 x 10 meter area, with stainless steel eye bolts marking each corner, and each of the 6 transects. Transects were 10 meters long across the area. So there were 0 meters; 10 meters; 20 meters; 30 meters; 40 meters; 50 meters.
- Booby Rock: Surveys at Booby Rock were added in 2022. Transects were positioned at random points along a 100-meter line run parallel to the shore. Transects ran downslope for 10 meters from the point on the 100-meter line.
- Deep Tektite, Yawzi: Three 10-meter transects positioned 10 meters apart along the reef edge and running perpendicular to the reef edge. 0.25 square meter quadrats were randomly placed (n = 16) along 3 transects at each site (48 quadrats per site).

Notes:
- Octocoral recruits are defined as individuals less than 5 centimeters in height.
- In most cases 8 quadrats were surveyed on each transect, but there are a few transects with fewer quadrats.
- <0.1, <0.2 and <0.3 centimeter heights are not actual measurements and are values assigned to recruits with 1, 2, or 3 polyps.
- In the comments column: "No recruits present " indicates those quadrats surveyed without recruits.

BCO-DMO Curation Notes

BCO-DMO Processing description:
- Data imported into BCO-DMO from the provided file "NSF_2021-2022-Octocoral Recruits.xlsx" sheets "Recruit_Surveys-2021" and "Recruit_Surveys- 2022".
* The 2021 and 2022 data were combined and appear in this dataset as Data File "893866_v1_octocoral-recruitment.csv"
- Adjusted field/parameter names to comply with BCO-DMO naming conventions
- Added columns "Latitude" and "Longitude" based on site locations
- Rounded columns "Latitude" and "Longitude" to 4 decimal places (for consistency with other datasets in the project)

The following correction was made to a species name in the data tables and metadata of this dataset.

Plexaura kukenthali ->
Plexaura kuekenthali

Problem Description

Known Issues:
Eunicea spp. recruits that could not be identified to species were grouped into three groups based on the size of calyces:
Eunicea sp g1 – large polyps -Eunicea calyculata/clavigera/tournefortii/laciniata
Eunicea sp g2 – intermediate size with tubular calyces - Eunicea succinea/mammosa/laxispica
Eunicea sp g3 – small polyps - Eunicea asperula/flexuosa/knighti/palmeri/pinta/pallida

Note: Rows with the same values are not duplicates. They are cases of two recruits of the same size, sampled at the same location.

[table of contents | back to top]

Data Files

File	
893866_v1_octocoral-recruitment.csv	(Comma Separated Values (.csv), 105.37 KB) MD5:3642b4cb2d3b03591d9608476dff80cf
Primary data file for dataset ID 893866, version 1	

[table of contents | back to top]

Supplemental Files

File
species_codes.csv (Comma Separated Values (.csv), 2.91 KB) MD5:67cc47c1c4e4fd35790b2a8dd61f38b4

Field codes and taxonomic identifiers for data provided in the octocoral height data (893615_v1_octocoral-height.csv).

Column descriptions:

Species = A category label for the species identification which may include additional information about the identification besides the Scientific name (e.g. "Briareum asbestinum (upright)"). Species_name "Antillogorgia americana 2" indicates it is an Antillogorgia americana-like species.

Genus = Genus of the Species_name

Lowest_taxon_for_category = This is the lowest taxon name that applies to the category. For example, "Briareum asbestinum" for "Briareum asbestinum (upright)."

Lowest_taxon_for_category_LSID, This is the Life Science Indentifier (LSID) for the Lowest_taxon_for_category.

[table of contents | back to top]

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]

[table of contents | back to top]

Parameters

Parameter	Description	Units
Census_Year	Year the data were collected	unitless
Date	Date the survey was conducted	unitless
Latitude	Latitude of the survey site	decimal degrees
Longitude	Longitude of the survey site (West is negative)	decimal degrees
Site	Name of sampling site	unitless
Transect_Position	Position of transects in a marked 50 x 10 meter area (see acquisition description for details)	unitless
Side_of_transect	Side of the transect tape (Left or Right), orientation looking towards open ocean, with the shore in the back.	unitless
Meter_on_transect	From 0 meters to 9.5 meters. Quadrat of 50 x 50 centimeter positioned randomly along a 10 meter transect. Each number indicates the meter at which the inferior side of the quadrat was positioned.	meters
Taxon	Genus and species of the colony or in the case of species that cannot be differentiated in the field the name of species group	unitless
Genus	Genus of the coral colony	unitless
Height	Height to nearest 0.1 cm, measured from the base of the recruit to the top of the living tissue. Measurements of 0<0.1, <0.2 and <0.3 centimeter heights are not actual measurements and are values assigned to recruits with 1, 2, or 3 polyps.	centimeters (cm)
Comments	Bitten tip of the recruit shows evidence of the tip having been bitten off, "Skel above" or "additional xx cm above stripped" refers to the presence of bare axis at the tip of the recruit. The bare axis was not included in the height measurement.	unitless

[table of contents | back to top]

Instruments

Dataset-specific Instrument Name	Transect tape
Generic Instrument Name	Measuring Tape
Generic Instrument Description	A tape measure or measuring tape is a flexible ruler. It consists of a ribbon of cloth, plastic, fibre glass, or metal strip with linear-measurement markings. It is a common tool for measuring distance or length.

Dataset-specific Instrument Name	
Generic Instrument Name	Self-Contained Underwater Breathing Apparatus
Generic Instrument Description	The self-contained underwater breathing apparatus or scuba diving system is the result of technological developments and innovations that began almost 300 years ago. Scuba diving is the most extensively used system for breathing underwater by recreational divers throughout the world and in various forms is also widely used to perform underwater work for military, scientific, and commercial purposes. Reference: https://oceanexplorer.noaa.gov/technology/technical/technical.html

[table of contents | back to top]

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.

[table of contents | back to top]

Funding

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

[table of contents | back to top]