

# Adult octocoral height measurements from transects conducted at St. John, US Virgin Islands between 2014-2016 (St. John LTREB project, VI\_Octocorals)

**Website:** <https://www.bco-dmo.org/dataset/682966>

**Data Type:** Other Field Results

**Version:** 3

**Version Date:** 2018-04-05

## Project

» [LTREB Long-term coral reef community dynamics in St. John, USVI: 1987-2019](#) (St. John LTREB)

» [Collaborative research: Ecology and functional biology of octocoral communities](#) (VI Octocorals)

Contributors	Affiliation	Role
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## Coverage

**Spatial Extent:** N:18.31672 E:-64.71043 S:18.30293 W:-64.72993

**Temporal Extent:** 2014-07-29 - 2017-06-29

## 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 between 2014 to 2016.

## Methods & Sampling

Species names for field\_codes in this dataset can be found in the related dataset: [octocoral transects - species list](#)

## 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 4 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 have values between 1-4 and are not related to position.

### **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.

Colony heights were measured as the 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 cm with the exception of 5 cm which only includes colonies  $\geq 5$  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**

Lines with no species entry identify quadrats in which no octocorals were present. This is also noted in the comments as "No colonies present."

No processing was conducted beyond loading and proofreading entries from field data sheets.

DATA NOTES & EDITS from data contributor:

29-Jul-14 2014- In the first transect at Booby Rock, some *Plexaura* spp. colonies (most likely *Plexaura homomalla kukenthali*) were incorrectly identified as *P. kuna* colonies. These have been changed to *Plexaura* sp

11-Sep-16 2014 - First Europa transect, now labelled "random" was arbitrarily placed on the reef before the 10x50 grid was laid out

2014 - All quadrats on right side of line

2014 - Europa, species notation ec2 on Comments 1 refers to colonies that appeared to be atypical *E. calyculata*

2014 - E Cabritte, species notation em2 on Comments 1 refers to colonies that appeared to be *E. mammosa* but may be *Eunicea succinea*

2014 - Comment 1: "Originally x": Miss-identification Missidentification in the field of the species "x", corrected after sclerites examination .

2015- All quadrats we positioned randomly on the left (L) or right (R) side of the transect line.

2015 -Species notation aa2 on Comments 1 refers to colonies that appeared to be *A. americana* but had somewhat broader branchlets and were not as slimy as classic *A. americana*. All aa2 colonies that were examined under stereoscope had *A. americana* sclerites.

2015 30-Jul-15 Europa 30 R 6 efl 4

2015- E Cabritte, Transect 20D - The transect line was incorrectly placed, running from the 20m eyebolt to the 30m eyebolt.

2015 - Comment 1: "Originally x": Miss-identification Missidentification in the field of the species "x", corrected after sclerites examination .

12-Sep-16 2016 - Colonies that on the basis of branch thickness are clearly not recruits but are  $<5$  cm height are included as adults.

2016 - Comments 1: "Colony picture": Pictures were taken of some of the colonies for identification purposes

2016 - Europa, Transect 30D - The transect line was incorrectly placed, running from the 30m eyebolt to the 20m eyebolt.

2016 - Comments 1: "Originally x": Missidentification in the field of the species "x", corrected after sclerites examination .

2016 - Comments 1: "Thin form": A thinner form of *E. clavigera*

12-Sep-16 2016 - Recommendations for statistical analysis: Morphological similarities among certain species make the identification of some colonies in the field extremely difficult.

The conservative approach will be to use the following groups:

Eunicea group 1: em/esu/elc

Plexaurella group 1: pfu/pd  
Pseudoplexaura group 1: pw/pp/pf

### 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
- \* blank values replaced with no data value 'nd'
- \* added lat lon of sites
- \* converted site locations from degrees decimal minutes to decimal degrees
- \* added species names based on species codes
- \* fixed switched values for E\_Cabritte on 2016-07-26. Transect meter changed from R to 6 and transect side from 6 to R.
- \* sorted data by site, species, date, transect\_pos
- \* the following code replacements and species name changes have been made to this dataset:  
eusp -> esp and species "Eucinea sp"  
ef -> efu and species "Eunicea fusca"  
unk -> unknown  
Eunicea lacinata -> Eunicea laciniata (accepted name)

Also, in comments andd -> and

Data version 2017-03-20 replaced by version 2018-01-09 which updates site coordinates. Spelling corrections also made to "DATA NOTES & EDITS" section above.

Data version 2018-04-05 replaces version 2018-01-09. Data updated to include the sampling year 2017.

- \* in comments andd -> and
- \* species names along with field codes used in this dataset can be found in "species list" dataset  
<https://www.bco-dmo.org/dataset/733063>
- \* column names changed to match previous versions and species list (e.g. Species\_code -> field\_code)
- \* leading and trailing spaces removed from field codes

changes made to original line numbers to match entries on species list.

4757 - a - aa  
3879 - am - ma  
1527 - ef - efl  
1536 - ef -efl  
4117 - etop - eto  
4384 - pv - pc  
2152 - unk - pc  
3085 - unk - pc

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## Data Files

File
<b>octocoral_transects.csv</b> (Comma Separated Values (.csv), 299.04 KB) MD5:16ddcb8ce750eec088f74080c847ce91 Primary data file for dataset ID 682966

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## Related Datasets

### IsRelatedTo

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Lasker, H., Edmunds, P. J., Wells, C. (2023) **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

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## Parameters

Parameter	Description	Units
site	Site Name	unitless
lat	Site latitude; north is positive	decimal degrees
lon	Site longitude; west is negative	decimal degrees
field_code	Octocorals species acronyms	unitless
date	Date data was collected in format yyyy-mm-dd	unitless
transect_pos	Transect identifier; see acquisition description for details.	unitless
transect_side	Side of the transect tape (L or R) orientation looking towards open ocean with the nearest shore to the back.	unitless
transect_m	Meter of transect from 0m to 9m. 1x1m 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
height	Maximum distance from the base of the octocoral colony until the farthest tips of the branch. See acquisition description for more details.	centimeters
comment1	Comments about the dataset	unitless
comment2	Sample Numbers for octocorals that were sampled in order to get IDs based on sclerites.	unitless
census_year	year of census	unitless

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## Instruments

<b>Dataset-specific Instrument Name</b>	transect tape
<b>Generic Instrument Name</b>	Measuring Tape
<b>Generic Instrument Description</b>	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.

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## Deployments

Lasker\_St John

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/682967">https://www.bco-dmo.org/deployment/682967</a>
<b>Platform</b>	Virgin Islands
<b>Start Date</b>	2014-07-17
<b>End Date</b>	2019-10-03
<b>Description</b>	Octocoral transects at St. John, USVI. Sites surveyed for corals: Booby Rock Tektite East Cabritte Europa Yawzi

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## Project Information

### **LTREB Long-term coral reef community dynamics in St. John, USVI: 1987-2019 (St. John LTREB)**

**Website:** <http://coralreefs.csun.edu/>

**Coverage:** St. John, U.S. Virgin Islands; California State University Northridge

### **Long Term Research in Environmental Biology (LTREB) in US Virgin Islands:**

*From the NSF award abstract:*

In an era of growing human pressures on natural resources, there is a critical need to understand how major ecosystems will respond, the extent to which resource management can lessen the implications of these responses, and the likely state of these ecosystems in the future. Time-series analyses of community structure provide a vital tool in meeting these needs and promise a profound understanding of community change. This study focuses on coral reef ecosystems; an existing time-series analysis of the coral community structure on the reefs of St. John, US Virgin Islands, will be expanded to 27 years of continuous data in annual increments. Expansion of the core time-series data will be used to address five questions: (1) To what extent is the ecology at a small spatial scale (1-2 km) representative of regional scale events (10's of km)? (2) What are the effects of declining coral cover in modifying the genetic population structure of the coral host and its algal symbionts? (3) What are the roles of pre- versus post-settlement events in determining the population dynamics of small corals? (4) What role do physical forcing agents (other than temperature) play in driving the population dynamics of juvenile corals? and (5) How are populations of other, non-coral invertebrates responding to decadal-scale declines in coral cover? Ecological methods identical to those used over the last two decades will be supplemented by molecular genetic tools to understand the extent to which declining coral cover is affecting the genetic diversity of the corals remaining. An information management program will be implemented to create broad access by the scientific community to the entire data set.

The importance of this study lies in the extreme longevity of the data describing coral reefs in a unique ecological context, and the immense potential that these data possess for understanding both the patterns of comprehensive community change (i.e., involving corals, other invertebrates, and genetic diversity), and the processes driving them. Importantly, as this project is closely integrated with resource management within the VI National Park, as well as larger efforts to study coral reefs in the US through the NSF Moorea Coral Reef LTER, it has a strong potential to have scientific and management implications that extend further than the location of the study.

### **Collaborative research: Ecology and functional biology of octocoral communities (VI Octocorals)**

**Website:** <http://coralreefs.csun.edu/>

**Coverage:** St. John, US Virgin Islands: 18.3185, 64.7242

The recent past has not been good for coral reefs, and journals have been filled with examples of declining

coral cover, crashing fish populations, rising cover of macroalgae, and a future potentially filled with slime. However, reefs are more than the corals and fishes for which they are known best, and their biodiversity is affected strongly by other groups of organisms. The non-coral fauna of reefs is being neglected in the rush to evaluate the loss of corals and fishes, and this project will add on to an on-going long term ecological study by studying soft corals. This project will be focused on the ecology of soft corals on reefs in St. John, USVI to understand the Past, Present and the Future community structure of soft corals in a changing world. For the Past, the principal investigators will complete a retrospective analysis of octocoral abundance in St. John between 1992 and the present, as well as Caribbean-wide since the 1960's. For the Present, they will: (i) evaluate spatio-temporal changes between soft corals and corals, (ii) test for the role of competition with macroalgae and between soft corals and corals as processes driving the rising abundance of soft corals, and (iii) explore the role of soft corals as "animal forests" in modifying physical conditions beneath their canopy, thereby modulating recruitment dynamics. For the Future the project will conduct demographic analyses on key soft corals to evaluate annual variation in population processes and project populations into a future impacted by global climate change.

This project was funded to provide an independent "overlay" to the ongoing LTREB award (DEB-1350146, co-funded by OCE, PI Edmunds) focused on the long-term dynamics of coral reefs in St. John.

Note: This project is closely associated with the project "RAPID: Resilience of Caribbean octocorals following Hurricanes Irma and Maria". See: <https://www.bco-dmo.org/project/749653>.

#### **The following publications and data resulted from this project:**

2017 Tsounis, G., and P. J. Edmunds. Three decades of coral reef community dynamics in St. John, USVI: a contrast of scleractinians and octocorals. *Ecosphere* 8(1):e01646. DOI: [10.1002/ecs2.1646](https://doi.org/10.1002/ecs2.1646)

[Rainfall and temperature data](#)

[Coral and macroalgae abundance and distribution](#)

[Descriptions of hurricanes affecting St. John](#)

2016 Gambrel, B. and Lasker, H.R. *Marine Ecology Progress Series* 546: 85–95, DOI: [10.3354/meps11670](https://doi.org/10.3354/meps11670)

[Colony to colony interactions](#)

[Eunicea flexuosa interactions](#)

[Gorgonia ventalina asymmetry](#)

[Nearest neighbor surveys](#)

2015 Lenz EA, Bramanti L, Lasker HR, Edmunds PJ. Long-term variation of octocoral populations in St. John, US Virgin Islands. *Coral Reefs* DOI [10.1007/s00338-015-1315-x](https://doi.org/10.1007/s00338-015-1315-x)

[octocoral survey - densities](#)

[octocoral counts - photoquadrats vs. insitu survey](#)

[octocoral literature review](#)

[Download complete data for this publication \(Excel file\)](#)

2015 Privitera-Johnson, K., et al., Density-associated recruitment in octocoral communities in St. John, US Virgin Islands, *J. Exp. Mar. Biol. Ecol.* DOI: [10.1016/j.jembe.2015.08.006](https://doi.org/10.1016/j.jembe.2015.08.006)

[octocoral density dependence](#)

[Download complete data for this publication \(Excel file\)](#)

Other datasets related to this project:

[octocoral transects - adult colony height](#)

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## **Funding**

Funding Source	Award
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-1334052</a>

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