

Mean monthly seawater temperatures in St. John, US Virgin Islands from 1989-2016

Website: <https://www.bco-dmo.org/dataset/750049>

Data Type: Other Field Results

Version: 1

Version Date: 2018-11-26

Project

» [RUI-LTREB Renewal: Three decades of coral reef community dynamics in St. John, USVI: 2014-2019](#) (RUI-LTREB)

Contributors	Affiliation	Role
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Abstract

Mean monthly seawater temperatures in St. John, US Virgin Islands from 1989-2016. This study was carried out on shallow reefs along the south coast of St. John, which have been monitored since 1987, and studied since the 1950's. Three aspects of the time-series analyses are utilized, and the study period exploited concurrent sampling of coral cover, coral recruitment, and the dynamics of small corals (colonies \leq 40-mm diameter). Records were averaged by day and month, and displayed as a line graph of temperature against months within each year.

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Coverage

Spatial Extent: Lat:18.32 Lon:-64.723

Temporal Extent: 1989-01 - 2016-07

Dataset Description

This study was carried out on shallow reefs along the south coast of St. John, which have been monitored since 1987, and studied since the 1950's. Three aspects of the time-series analyses are utilized, and the study period exploited concurrent sampling of coral cover, coral recruitment, and the dynamics of small corals (colonies \leq 40-mm diameter). These aspects of community structure were studied at 5-6 sites at 5-9-m depth between Cabritte Horn and White Point (Figs. 1, S1), and each was added to the study as the project evolved, mostly for purposes other than the one described herein. The longevity and breadth of this study created opportunities for analyses that rarely have been considered in ecological investigations of coral reefs, but the ad hoc evolution of the study resulted in an imperfect match among the components, notably in the 4-m depth range over which the three aspects of community structure were studied. This depth range is ecologically relevant for corals, and interpretation of the present analysis therefore must be constrained by the assumption that temporal variation in coral recruitment, dynamics of small corals, and coral cover is similar between 5 and 9 m depth. Apart from the first two years over which recruitment was measured every \sim 6 months, annual surveys were completed in July and August. Throughout this analysis, study sites, and mean

values by site, are treated as statistical replicates of the fringing reefs of St. John.

The entire Excel Workbook, which contains the additional datasets listed below, can be downloaded using the following link: https://datadocs.bco-dmo.org/docs/302/St_John_LTREB/data_docs/Data_for_P...

Coral cover in St. John, US Virgin Islands from 2007-2016: <https://www.bco-dmo.org/dataset/750676>

Coral mortality and growth in St. John, US Virgin Islands from 2006-2016: <https://www.bco-dmo.org/dataset/750710>

Coral cover, density, and recruits averages per site in St. John, US Virgin Islands from 2007-2016: <https://www.bco-dmo.org/dataset/750740>

Coral cover, density, and recruits averages per year in St. John, US Virgin Islands from 2007-2016: <https://www.bco-dmo.org/dataset/750771>

Methods & Sampling

Seawater temperature

To provide physical environmental context to enhance the interpretation of coral community dynamics, seawater temperature was recorded at 9-m depth at Yawzi Point using loggers (± 0.2 °C, Model U22-001, Onset Computer Corp., Bourne, MA) recording at 1 mHz. Records were averaged by day and month, and displayed as a line graph of temperature against months within each year.

Data Processing Description

BCO-DMO Processing Notes:

- Transposed the matrix to conform with BCO-DMO.
- added conventional header with dataset name, PI name, version date
- modified parameter names to conform with BCO-DMO naming conventions

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Data Files

File
fig_s2.csv (Comma Separated Values (.csv), 2.10 KB) MD5:15c0a80279586cc64908387e272f93c8
Primary data file for dataset ID 750049

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Related Publications

Edmunds, P. J. (2018). The hidden dynamics of low coral cover communities. *Hydrobiologia*, 818(1), 193–209. doi:[10.1007/s10750-018-3609-9](https://doi.org/10.1007/s10750-018-3609-9)

Results

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Parameters

Parameter	Description	Units
Year	year for averaged value in YYYY format	unitless
Jan	Averaged seawater temperature value for January	degrees Celsius
Feb	Averaged seawater temperature value for February	degrees Celsius
March	Averaged seawater temperature value for March	degrees Celsius
April	Averaged seawater temperature value for April	degrees Celsius
May	Averaged seawater temperature value for May	degrees Celsius
June	Averaged seawater temperature value for June	degrees Celsius
July	Averaged seawater temperature value for July	degrees Celsius
Aug	Averaged seawater temperature value for August	degrees Celsius
Sept	Averaged seawater temperature value for September	degrees Celsius
Oct	Averaged seawater temperature value for October	degrees Celsius
Nov	Averaged seawater temperature value for November	degrees Celsius
Dec	Averaged seawater temperature value for December	degrees Celsius

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Instruments

Dataset-specific Instrument Name	Onset Temperature Logger
Generic Instrument Name	Temperature Logger
Dataset-specific Description	To provide physical environmental context to enhance the interpretation of coral community dynamics, seawater temperature was recorded at 9-m depth at Yawzi Point using loggers (\pm 0.2 °C, Model U22-001, Onset Computer Corp., Bourne, MA) recording at 1 mHz.
Generic Instrument Description	Records temperature data over a period of time.

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Project Information

RUI-LTREB Renewal: Three decades of coral reef community dynamics in St. John, USVI: 2014-2019 (RUI-LTREB)

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

Coverage: USVI

Describing how ecosystems like coral reefs are changing is at the forefront of efforts to evaluate the biological consequences of global climate change and ocean acidification. Coral reefs have become the poster child of these efforts. Amid concern that they could become ecologically extinct within a century, describing what has been lost, what is left, and what is at risk, is of paramount importance. This project exploits an unrivalled legacy

of information beginning in 1987 to evaluate the form in which reefs will persist, and the extent to which they will be able to resist further onslaughts of environmental challenges. This long-term project continues a 27-year study of Caribbean coral reefs. The diverse data collected will allow the investigators to determine the roles of local and global disturbances in reef degradation. The data will also reveal the structure and function of reefs in a future with more human disturbances, when corals may no longer dominate tropical reefs.

The broad societal impacts of this project include advancing understanding of an ecosystem that has long been held emblematic of the beauty, diversity, and delicacy of the biological world. Proposed research will expose new generations of undergraduate and graduate students to natural history and the quantitative assessment of the ways in which our planet is changing. This training will lead to a more profound understanding of contemporary ecology at the same time that it promotes excellence in STEM careers and supports technology infrastructure in the United States. Partnerships will be established between universities and high schools to bring university faculty and students in contact with k-12 educators and their students, allow teachers to carry out research in inspiring coral reef locations, and motivate children to pursue STEM careers. Open access to decades of legacy data will stimulate further research and teaching.

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Funding

Funding Source	Award
NSF Division of Environmental Biology (NSF DEB)	DEB-0841441
NSF Division of Environmental Biology (NSF DEB)	DEB-1350146

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