

# Data Documentation

## Dataset Information

### Dataset Title:

National Coral Reef Monitoring Program: Assessment of coral reef fish communities in the U.S. Virgin Islands from 2017-06-12 to 2017-08-04

### Description:

The National Coral Reef Monitoring Program (NCRMP) assessed coral reef fish communities in St. Croix, St. Thomas, and St. John, U.S. Virgin Islands (USVI) using the stationary point count method (7.5m radius cylinder).

This method collects and reports information on species composition, density, size structure, abundance and derived metrics (e.g., species richness, diversity). Data are collected using a 2-stage, stratified random survey design in hardbottom and coral reef habitats less than 30m in depth.

All datasets contain data fields on general station information (e.g., survey strata, depth, rugosity). Each of these data tables contain additional survey-specific data fields. For complete information and descriptions of attributes and data fields for all data tables, refer to the data dictionaries.

Three datasets are provided under the stationary point count fish protocols and are distributed as one compiled package: (1) Analysis Ready dataset, (2) Boatlog/Station dataset, and (3) raw QAQC'd sample data file. The methodology used for this survey can be found in the point count fish protocols.

All three datasets contain data fields on general station information (survey strata, depth, rugosity). Each of these data tables contain additional survey-specific data fields. For complete information and descriptions of attributes and data fields for all data tables, refer to the data dictionaries.

### Purpose:

The National Coral Reef Monitoring Program (NCRMP) details a long-term approach to provide an ecosystem perspective via monitoring climate, fish, benthic, and socioeconomic variables in a consistent and integrated manner. The NCRMP is intended to coordinate various Coral Reef Conservation Program (CRCP) biological, physical, and human dimensions activities into a cohesive NOAA-wide effort. Through the implementation of the NCRMP, NOAA will be able to clearly and concisely communicate results of national-scale monitoring to national, state, and territorial policy makers, resource managers, and the public on a periodic basis.

NCRMP is a framework for conducting sustained observations of biological, climate, and socioeconomic indicators at 10 priority coral reefs across the U.S. and its territories. This integrated approach will consolidate monitoring of coral reefs under a uniform method in the Pacific, Atlantic, Caribbean, and the Gulf of Mexico for the first time. NCRMP is funded by the

NOAA Coral Reef Conservation Program (CRCP) and supported by NOAA National Centers for Coastal Ocean Science (NCCOS) and many other partners.

NCCOS is co-leading biological monitoring missions with NOAA's Southeast Fisheries Science Center (SEFSC) to gather data on fish populations and coral reef communities in the U.S. Caribbean, Florida, and the Gulf of Mexico. Each year, our scientists work closely with CRCP and local partners to collect biological data from thousands of strategically selected sites. We then use innovative analysis techniques to develop products that give fellow scientists, managers, decision makers and the public a better understanding of a region's resources and how they are changing over time. The biological component of NCRMP provides a biennial ecological characterization at a broad spatial scale of general reef condition for reef fishes, corals and benthic habitat (*i.e.*, fish species composition/density/size, benthic cover, and coral density/size/condition). Data collection occurs at stratified random sites where the sampling domain for each region is partitioned by habitat type and depth, sub-regional location (*e.g.*, along-shelf position) and management zone.

Data provided in this dataset are from St. Croix, St. Thomas, and St. John, and surrounding Sail Rock and mid-shelf reef region. Lead agencies involved include the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Coastal Ocean Science (NCCOS), NOAA Southeast Fisheries Science Center (SEFSC) and the National Park Service (NPS).

## Methods:

2017 benthic assessment and coral demographic survey locations were selected using a stratified random sampling design within the USVI study area for St. Croix, St. Thomas and St. John. Locations selected for coral demographic surveys are a subset of fish and benthic assessment survey sites. Detailed information describing the sampling design is provided in the NCRMP Caribbean-Gulf of Mexico Sampling Design Protocol.

Briefly, surveys were located on shallow-water coral reefs and hardbottom habitats to a depth of 30 meters. Survey site selection was stratified according to depth classes, benthic habitat types, large marine biotopes and administrative zones. Samples were allocated disproportionate to area and consequently sampling weights are an integral component of data analysis. Variables addressing the sampling design process such as stratum documentation and sampling weights are provided in all data tables as survey attributes.

Data provided from this process are provided in all data tables as station information in addition to a main survey attribute table (sample strata, sampling weights).

## 2017 Stationary Point Count:

The Stationary Point Count component of the protocols were modified in 2016 to integrate with similar methods used in Florida, another NCRMP sampling location. These changes were instituted in USVI in 2017 and are reflected in the 2017 USVI data sets. The Stationary Point Count data collection provides information on fish species collects and reports information on species composition, density, size structure, abundance and derived metrics (*e.g.*, species richness, diversity) and of overall species diversity in a stratified random sampling design in hardbottom and coral reef habitats in the U.S. Caribbean and FGBNMS.

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Stationary point count surveys were conducted at all sample locations and co-located with a subset of Coral Demographic and Benthic Assessment surveys.

Quality Control:

Before implementation the sampling design was reviewed and agreed upon by representatives from program partners, as well as NCCOS scientists. Quality control procedures are implemented in four main stages:

1. Ongoing routine training of observers (initial detailed training, annual refresher training).
2. Data check following data collection, where divers trade datasheets immediately upon returning to boat after dive, to ensure all data were collected accurately and required information is complete.
3. Independent reviewers compare datasheets with database entries.
4. Statistical analyses are conducted as the final check before distribution.

For more information, see metadata and protocols included in this accession.

Associated Accessions:

- National Centers for Coastal Ocean Science; Southeast Fisheries Science Center (2018). National Coral Reef Monitoring Program: Assessment of coral reef fish communities in the U.S. Virgin Islands. NOAA National Centers for Environmental Information. doi:10.7289/V5F769MM. <https://doi.org/10.7289/V5F769MM>
- National Centers for Coastal Ocean Science, Southeast Fisheries Science Center (2018). National Coral Reef Monitoring Program: Assessment of coral reef benthic communities in the U.S. Virgin Islands. NOAA National Centers for Environmental Information. doi:10.7289/V5WW7FQK. <https://doi.org/10.7289/V5WW7FQK>
- Coral Reef Conservation Program (2016). Documentation for NOAA's Coral Reef Conservation Program (CRCP) National Coral Reef Monitoring Program (NCRMP) data archived at NCEI (NCEI Accession 0157633). NOAA National Centers for Environmental Information. Documentation. <https://accession.nodc.noaa.gov/0157633>

People & Projects

Principal Investigator:

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Primary Point of Contact:

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Dataset Author:

- US DOC; NOAA; NOS; National Centers for Coastal Ocean Science (NCCOS)

Partners:

- US DOC; NOAA; NMFS; Southeast Fisheries Science Center (SEFSC)
- US DOI; National Park Service (NPS)
- US Environmental Protection Agency (EPA)
- USVI Department of Planning and Natural Resources
- University of the Virgin Islands, University of Miami

Funding:

- US DOC; NOAA; NOS; National Centers for Coastal Ocean Science (NCCOS)
- US DOC; NOAA; NOS; Coral Reef Conservation Program (CRCP)

Associated Projects:

- CRCP Project #743 National Coral Reef Monitoring Plan (NCRMP) Implementation, <http://www.coris.noaa.gov/monitoring/>
- NCCOS Project #180 National Coral Reef Monitoring Program Implementation: Biological and Socioeconomic Monitoring, <https://coastalscience.noaa.gov/project/national-coral-reef-monitoring-program-biological-socioeconomic/>
- NOAA's SEFSC Reef Visual Census Fish Analysis Ready datasets and custom R-package, [https://grunt.sefsc.noaa.gov/rvc\\_analysis20/](https://grunt.sefsc.noaa.gov/rvc_analysis20/)

Extents

Start Date: (YYYY-MM-DD) 2017-06-12

End Date: (YYYY-MM-DD) 2017-08-04

Northern Boundary: (dd.ddddd) 18.40496

Southern Boundary: (dd.ddddd) 17.63772

Western Boundary: (dd.ddddd) -65.1465

Eastern Boundary: (dd.ddddd) -64.43145

Keywords

Sea Areas, Water Bodies, Marine Protected Areas:

- Caribbean Sea

NCCOS Keywords:

- NCCOS Research Priorities > Marine Spatial Ecology
- NCCOS Research Topics > Ecological and Biological Characterization
- NCCOS Research Locations > Regions > Caribbean Sea
- NCCOS Research Locations > U.S. States and Territories > U.S. Virgin Islands
- NCCOS Research Data Types > Field Observation
- NCCOS Research Data Types > Long-term Monitoring

CoRIS Keywords:

- CoRIS Discovery Thesaurus:
  - Numeric Data Sets > Fish Census
- CoRIS Theme Thesaurus:
  - EARTH SCIENCE > Biosphere > Zoology > Corals > Reef Monitoring and Assessment > Reef Fish Census > Stationary

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- EARTH SCIENCE > Oceans > Marine Biology > Fish
- EARTH SCIENCE > Oceans > Marine Biology > Fish > Fish Census
- CoRIS Place Thesaurus:
  - COUNTRY/TERRITORY > United States of America > U. S. Virgin Islands > St. Croix > St. Croix (17N064W0003)
  - COUNTRY/TERRITORY > United States of America > U. S. Virgin Islands > St. John > St. John (18N064W0011)
  - COUNTRY/TERRITORY > United States of America > U. S. Virgin Islands > St. Thomas > St. Thomas (18N064W0033)
  - OCEAN BASIN > Atlantic Ocean > Caribbean Sea > Virgin Islands > Virgin Islands > St. Croix (17N064W0003)
  - OCEAN BASIN > Atlantic Ocean > Caribbean Sea > Virgin Islands > Virgin Islands > St. John (18N064W0011)
  - OCEAN BASIN > Atlantic Ocean > Caribbean Sea > Virgin Islands > Virgin Islands > St. Thomas (18N064W0033)

GCMD Keywords:

- Science Keywords:
  - EARTH SCIENCE > BIOSPHERE > ECOSYSTEMS > MARINE ECOSYSTEMS > REEF > CORAL REEF
  - EARTH SCIENCE > BIOLOGICAL CLASSIFICATION > ANIMALS/VERTEBRATES > FISH > >
- Instrument:
  - VISUAL OBSERVATIONS
- Location:
  - OCEAN > ATLANTIC OCEAN > NORTH ATLANTIC OCEAN > CARIBBEAN SEA > VIRGIN ISLANDS
- Stratum:
  - VERTICAL LOCATION > SEA FLOOR

File Information

Total File Size: 93.2 MB total, 39 files in 9 folders (unzipped), 9.74 MB (zipped)

Data Files:

- NCRMP\_USVI2017\_Fish\_Data01\_AnalysisReady.CSV
- NCRMP\_USVI2017\_Fish\_Data02A\_Raw\_Sample.CSV
- NCRMP\_USVI2017\_Fish\_Data02B\_Raw\_Substrate.CSV
- NCRMP\_USVI2017\_Fish\_Data02C\_Raw\_Species.CSV
- NCRMP\_USVI2017\_Fish\_Data03A\_PSU\_Corrected.CSV
- NCRMP\_USVI2017\_Fish\_Data03B\_PSU\_Imported.CSV
- NCRMP\_USVI2017\_Fish\_Data04\_NTOT.CSV
- NCRMP\_USVI2017\_Fish\_Data05\_Boatlog.CSV
- NCRMP\_USVI2017\_Fish\_SampleFrame\_STTSTJ.SHP (and ancillary files .CPG, .DBF, .PRJ, .SBN, .SBX, .SHX, .XML)
- NCRMP\_USVI2017\_Fish\_SampleFrame\_STX.SHP (and ancillary files .CPG, .DBF, .PRJ, .SBN, .SBX, .SHX, .XML)

Data File Format: Comma-separated value (.CSV)

#### Documentation Files:

- NCRMP\_USVI2017\_Fish\_BrowseGraphic.JPG
- NCRMP\_USVI2017\_Fish\_PreviewGraphic\_STTSTJ.JPG
- NCRMP\_USVI2017\_Fish\_PreviewGraphic\_STX.JPG
- NCRMP\_USVI2017\_Fish\_DataDocumentation.PDF
- NCRMP\_USVI2017\_Fish\_DataDictionary01\_AnalysisReady.XLS
- NCRMP\_USVI2017\_Fish\_DataDictionary02\_Raw.XLS
- NCRMP\_USVI2017\_Fish\_DataDictionary03\_PSUVerify.XLS
- NCRMP\_USVI2017\_Fish\_DataDictionary04\_NTOT.XLS
- NCRMP\_USVI2017\_Fish\_DataDictionary05\_Boatlog.XLS
- NCRMP\_USVI2017\_Fish\_DataDictionary06\_Codes.XLS
- NCRMP\_USVI2017\_Fish\_Metadata.PDF
- NCRMP\_USVI2017\_Fish\_Metadata-InPortXML.XML
- NCRMP\_USVI2017\_Fish\_Metadata-ISO19115.XML
- NCRMP\_Protocol\_Fish\_RVC\_2017.PDF
- NCRMP\_Protocol\_SampleFrame\_2016.PDF

#### Parameter Information

##### Parameter Description:

*Parameter:* FISH - CORAL REEF

*Property Type:* measured

*Units:* count

*Observation Category:* *in situ*

*Sampling Instrument:* visual observation

##### *Sampling and Analyzing Method:*

Size and abundance of fish using the Reef Visual Census (RVC) Survey Protocol for the U.S. Caribbean and Flower Garden Banks National Marine Sanctuary (2017).

##### *Data Quality Method:*

Quality assurance checks for every data sheet and entry into database, as well as analytical checks for using query outputs.

#### Document Information

**Date:** 2018-08-17

**Resource Provider:** NCCOS Data Manager, [nccos.data@noaa.gov](mailto:nccos.data@noaa.gov), US DOC; NOAA; NOS; National Centers for Coastal Ocean Science (NCCOS)

**Comment:** This data documentation describes data files archived as a NOAA NCEI data accession, and is intended to provide dataset-level metadata for the purposes of discovery, use, and understanding.

#### Use Limitation and Constraints

NOAA makes no warranty, expressed or implied, regarding these data, nor does the fact of distribution constitute such a warranty. NOAA cannot assume liability for any damages caused by any errors or omissions in these data.

Please reference NOAA/NOS/NCCOS and NOAA/NMFS/SEFSC when utilizing these data in a report or peer reviewed publication.

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Cite as:

National Centers for Coastal Ocean Science (NCCOS) and Southeast Fisheries Science Center (SEFSC). 2018. National Coral Reef Monitoring Program: Assessment of coral reef fish communities in the U.S. Virgin Islands from 2017-06-12 to 2017-08-04 (NCEI Accession XXXXXX). NOAA National Centers for Environmental Information. Dataset. doi:10.7289/V5F769MM [access date]

Additionally, knowledge of how this dataset has been of use and which organizations are utilizing it is of great benefit for ensuring this information continues to meet the needs of the management and research communities. Therefore, it is requested but not mandatory, that any user of this data supply this information to the Project Co-Investigators (Atlantic/Caribbean): Matthew Johnson ([matthew.johnson@noaa.gov](mailto:matthew.johnson@noaa.gov)) and Kimberly Edwards ([kimberly.edwards@noaa.gov](mailto:kimberly.edwards@noaa.gov)).