

Identification\_Information:

Citation:

Citation\_Information:

Originator: National Oceanic and Atmospheric Association (NOAA)/National Ocean Service (NOS)/National Centers for Coastal Ocean Science (NCCOS)/Center for Coastal Ocean Science (CCMA)/Biogeography Branch

Publication\_Date: 20121114

Title: Characterization of reef fish populations and benthic habitats within St. Thomas East End Reserve (STEER), USVI

Publication\_Information:

Publication\_Place: Silver Spring, MD

Publisher: NOAA's Ocean Service, National Centers for Coastal Ocean Science (NCCOS)

Online\_Linkage: <http://www2.coastalscience.noaa.gov/projects/>

Description:

Abstract:

NCCOS' Center for Coastal Monitoring and Assessment (CCMA) is working closely with a number of divisions in the USVI DPNR (e.g., Divisions of Fish and Wildlife and Coastal Zone Management), the University of the Virgin Islands (UVI), and The Nature Conservancy (TNC) to develop the baseline characterization of chemical contamination, toxicity, and the marine resources in the St. Thomas East End Reserve (STEER) in St. Thomas, USVI. The STEER contains extensive mangroves, seagrass beds and coral reefs. Within the watershed, however, are a large active landfill, numerous marinas, various commercial/industrial activities, an EPA Superfund Site, resorts, and several residential areas served by individual septic systems. This baseline assessment will provide managers with critical information needed to help preserve and restore habitats, including a number of nursery areas within the STEER that are important to commercial and recreational fisheries. As part of the characterization, a field survey was conducted in June 2012 to conduct a biological assessment of fish communities and benthic habitats within the STEER and at select hardbottom locations adjacent to STEER.

The basis for this work was the nearshore benthic habitats maps (less than 100 ft depth) created by NOAA's Biogeography Program in 2001 and NOS' bathymetry models. Using ArcView GIS software, the digitized habitat maps were stratified to select sampling stations. Sites were randomly selected within strata to ensure coverage of the entire study region. The habitat stratification was divided into three major habitat types: hardbottom which includes reef, pavement, etc. inside STEER; softbottom which consists of sand and seagrass, and mangrove. In addition, two hardbottom areas outside STEER of interest to STEER's Core Team were included as a separate stratum. Using standardized protocols of NOAA's Coral Reef Ecosystem Monitoring Project, the fish and benthic habitat survey was conducted by two scientific divers. During each dive one diver quantified the species and size of fish within a 25 x 4 m transect while a second diver characterized the habitat and invertebrate community.

Purpose: Conduct biological assessment to characterize fish communities and benthic habitats within the STEER and at select hardbottom locations adjacent to STEER.

Supplemental\_Information: This work is being conducted in collaboration with the Virgin Islands Department of Planning and Natural Resources, The Nature Conservancy and the University of the Virgin Islands.

Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: 20120612

Ending\_Date: 20120622

Currentness\_Reference: Ground Condition

Status:

Progress: Complete

Maintenance\_and\_Update\_Frequency: one time only

Spatial\_Domain:

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -64.883

East\_Bounding\_Coordinate: -64.818

North\_Bounding\_Coordinate: 18.326

South\_Bounding\_Coordinate: 18.295

Keywords:

Theme:

Theme\_Keyword\_Thesaurus: NOS Data Explorer Topic Category

Theme\_Keyword: Environmental Monitoring

Theme:

Theme\_Keyword\_Thesaurus: CoRIS Discovery Thesaurus

Theme\_Keyword: Numeric Data Sets > Fish Census

Theme:

Theme\_Keyword\_Thesaurus: CoRIS Theme Thesaurus

Theme\_Keyword: EARTH SCIENCE > Biosphere > Zoology > Corals > Reef monitoring and assessment > Reef fish census > Belt transect

Theme\_Keyword: EARTH SCIENCE > Oceans > Coastal Processes > Mangroves > Monitoring

Theme\_Keyword: EARTH SCIENCE > Oceans > Coastal Processes > Mangroves > Animal association

Theme\_Keyword: EARTH SCIENCE > Biosphere > Zoology > Corals > Reef monitoring and assessment

Theme\_Keyword: EARTH SCIENCE > Biosphere > Zoology > Corals > Reef monitoring and assessment > Reef fish census > Linear transect

Theme\_Keyword: EARTH SCIENCE > Oceans > Marine Biology > Marine Plants > Seagrass > Monitoring

Theme\_Keyword: EARTH SCIENCE > Biosphere > Ecological Dynamics > Species richness

Theme\_Keyword: EARTH SCIENCE > Oceans > Marine Biology > Fish > Fish assemblages

Theme\_Keyword: EARTH SCIENCE > Oceans > Marine Biology > Fish > Fish Census

Theme:

Theme\_Keyword\_Thesaurus: ISO 19115 Topic Category

Theme\_Keyword: biota

Theme\_Keyword: 002

Theme\_Keyword: environment

Theme\_Keyword: 007

Theme\_Keyword: oceans

Theme\_Keyword: 014

Theme:

Theme\_Keyword\_Thesaurus: None

Theme\_Keyword: coral reef fishes

Place:

Place\_Keyword\_Thesaurus: CoRIS Place Thesaurus

Place\_Keyword: COUNTRY/TERRITORY > United States of America > US Virgin Islands  
> St. Thomas > St. Thomas (18N064W0033)

Place\_Keyword: OCEAN BASIN > Atlantic Ocean > Caribbean Sea > Virgin Islands >  
Virgin Islands > St. Thomas

Access\_Constraints: None

Use\_Constraints: Please reference NOAA/NOS/NCCOS/CCMA/Biogeography Branch when utilizing these data in a report or peer reviewed publication. 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 Manager: Laurie Bauer (laurie.bauer@noaa.gov).

Point\_of\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: NOAA/NOS/NCCOS/CCMA/Biogeography Branch

Contact\_Position: Characterization of St. Thomas East End Reserve (STEER), USVI, Project  
Manager

Contact\_Address:

Address\_Type: Mailing and Physical Address

Address: 1305 East-West Hwy. (SSMC4, N/SCI-1)

City: Silver Spring

State\_or\_Province: MD

Postal\_Code: 20910

Country: USA

Contact\_Voice\_Telephone: 301-713-3028

Contact\_Electronic\_Mail\_Address: laurie.bauer@noaa.gov

Hours\_of\_Service: 9:00 - 5:00

Data\_Set\_Credit: This is a cooperative effort between NOAA's Biogeography and COAST Branches, and the Virgin Islands Department of Planning and Natural Resources, The Nature Conservancy and the University of the Virgin Islands.

Data\_Quality\_Information:

Logical\_Consistency\_Report: Not applicable

Completeness\_Report: This data consists of multiple fish community surveys across the St. Thomas East End Reserve (STEER), USVI. Sites were randomly selected and stratified across by habitat types using NOAA's benthic habitat maps of St. Thomas.

Lineage:

Process\_Step:

Process\_Description:

Once in the field, the boat captain navigates to previously selected sites using a handheld GPS unit. On-site, divers are deployed and maintain contact with each other throughout the entire census. One diver is responsible for collecting data on the fish communities utilizing the belt-transect visual census technique over an area of 100m<sup>2</sup> (25m length X 4m width). The belt-transect diver obtains a random compass heading for the transect prior to entering the water and records the compass bearing (0-360°) on the data sheet. Visibility at each site must be sufficient to allow for identification of fish at a minimum of 2m away. Once reasonable visibility is ascertained, the diver attaches a tape measure to the substrate and allows it to roll out for 25m while they are collecting data.

Although the habitat should not be altered in any manner by lifting or moving structure, the observer should record fish seen in holes, under ledges and in the water column. To identify, enumerate, or locate new individuals, divers may move off the centerline of the transect as long as they stay within the 4m transect width and do not look back along area already covered. The diver is allowed to look forward toward the end of the transect for the distance remaining (i.e. if the diver is at meter 15, he can look 10 meters distant, but if he is at meter 23, he can only look 2 meters ahead).

On-site, no attempt to avoid structural features within a habitat such as a sand patch or an anchor should be made as these features affect fish communities and are "real" component of the habitats. The only two instances where the transect should deviate from the designated path is to stay above 110 ft (limitations imposed by diving) or while surveying mangrove habitats. In mangrove areas, the diver swims close to the prop roots and looks as far into the mangroves as possible; up to 2m and then out to the edge of the mangrove overhang such that the total area surveyed is still 100m<sup>2</sup>. In this case, some of the survey may necessarily fall on seagrass habitat. This is allowed as the mangrove habitat is defined as a transition zone habitat. The transect should take 15 minutes regardless of habitat type or number of animals present. This allows more mobile animals the opportunity to swim through the transect, and standardizes the samples collected to allow for comparisons.

Data are collected on the following:

1) Logistic information - diver name, dive buddy, date, time of survey, site code, transect bearing.

2) Taxa presence - as the tape rolls out at a relatively constant speed, the diver records all fish species to the lowest taxonomic level possible that come within 2m of either side of the transect. To decrease the total time spent writing, four letter codes are used that consist of the first two letters of the genus name followed by the first two letters of the species name. In the rare case that two species have the same four-letter code, alternate four-letter codes are used to distinguish between the species. These alternate codes contain the first two letters of the genus, the first letter of the species and then the first letter in the species name that differs from the other code. If the fish can only be identified to the family or genus level then this is all that is recorded. If the fish cannot be identified to the family level then no entry is necessary.

3) Abundance & size - the number of individuals per species is tallied in 5cm size class increments up to 35cm using visual estimation of fork length. If an individual is greater than 35cm, then an estimate of the actual fork length is recorded.

4) Photos - individuals too difficult to identify or unique in some manner may be photographed for later clarification.

Data Caveats: Due to water quality concerns and low visibility, a portion of Mangrove Lagoon and Benner Bay were excluded from the study area. In addition, extra precautions were taken in the area where the ferries traverse.

Process Date: 201211

Process\_Date: Complete

Spatial\_Reference\_Information:

Horizontal\_Coordinate\_System\_Definition:

Geographic:

Latitude\_Resolution: 0.00001

Longitude\_Resolution: 0.00001

Geographic\_Coordinate\_Units: Decimal degrees

Entity\_and\_Attribute\_Information:

Overview\_Description:

Entity\_and\_Attribute\_Overview: We supply abundance and size information of fish species at the lowest possible taxonomic level. This information is collected across all nearshore habitat types. In addition, we provide photographs of many of the taxa. For specific information please see the data dictionary available on the database website.

Entity\_and\_Attribute\_Detail\_Citation: NOAA/NOS/NCCOS/CCMA/Biogeography Branch  
Distribution\_Information:

Distributor:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: NOAA/NOS/NCCOS/CCMA/Biogeography Branch

Contact\_Position: Caribbean Coral Reef Ecosystem Monitoring Database Manager

Contact\_Address:

Address\_Type: Mailing and Physical Address

Address: 1305 East-West Hwy. (SSMC4, N/SCI-1)

City: Silver Spring

State\_or\_Province: MD

Postal\_Code: 20910

Country: USA

Contact\_Voice\_Telephone: 301-713-3028

Contact\_Electronic\_Mail\_Address: tom.mcgrath@noaa.gov

Hours\_of\_Service: 9:00 - 5:00

Resource\_Description: Downloadable data

Distribution\_Liability: These data were prepared by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, make any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference therein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement,

recommendation, or favoring by the United States Government or any agency thereof. Any views and opinions expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof. Although all data have been used by NOAA, no warranty, expressed or implied, is made by NOAA as to the accuracy of the data and/or related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by NOAA in the use of these data or related materials.

Standard\_Order\_Process:

Digital\_Form:

Digital\_Transfer\_Information:

Format\_Name: tab delimited text file

Digital\_Transfer\_Option:

Online\_Option:

Computer\_Contact\_Information:

Network\_Address:

Network\_Resource\_Name: [http://www8.nos.noaa.gov/biogeography\\_public/query\\_fish.aspx](http://www8.nos.noaa.gov/biogeography_public/query_fish.aspx)

Digital\_Form:

Digital\_Transfer\_Information:

Format\_Name: .jpg

Digital\_Transfer\_Option:

Online\_Option:

Computer\_Contact\_Information:

Network\_Address:

Network\_Resource\_Name: [http://www8.nos.noaa.gov/biogeography\\_public/reef\\_photos.aspx](http://www8.nos.noaa.gov/biogeography_public/reef_photos.aspx)

Fees: None

Metadata\_Reference\_Information:

Metadata\_Date: 20121108

Metadata\_Review\_Date: 20120216

Metadata\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: NOAA/NOS/NCCOS/CCMA/Biogeography Branch

Contact\_Position: Characterization of St. Thomas East End Reserve (STEER), USVI, Project

Manager

Contact\_Address:

Address\_Type: Mailing and Physical Address

Address: 1305 East-West Hwy. (SSMC4, N/SCI-1)

City: Silver Spring

State\_or\_Province: MD

Postal\_Code: 20910

Country: USA

Contact\_Voice\_Telephone: 301-713-3028

Contact\_Electronic\_Mail\_Address: [laurie.bauer@noaa.gov](mailto:laurie.bauer@noaa.gov)

Hours\_of\_Service: 9:00 - 5:00

Metadata\_Standard\_Name: Content Standard for Digital Geospatial Metadata

Metadata\_Standard\_Version: FGDC-STD-001-1998