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 Monitoring and Assessment (CCMA)/ Cooperative Institute for Ocean Exploration, Research and Technology

Publication\_Date: 201409

Title: Baseline characterization of benthic and coral communities of the Flower Garden Banks (2010 - 2013)

Publication\_Information:

Publication\_Place: Silver Spring, MD

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

Online\_Linkage: http://flowergarden.noaa.gov/

Description:

Abstract: This study utilized ROV photograph transects to quantify benthic habitat and coral communities among the five habitat types (algal nodule, coralline algal reefs, deep reefs and soft bottom) identified in the Flower Garden Banks National Marine Sanctuary (FGBNMS). ROV surveys were conducted in the mid and lower mesophotic zone of the sanctuary (17-150 m) on both the East Bank and the West Bank.

The FGBNMS represents the northernmost tropical western Atlantic coral reef on the continental shelf and support the most highly developed offshore hard bank community in the region. The complexity of habitats supports a diverse assemblage of organisms including approximately 250 species of fish, 23 species of coral, and 80 species of algae in addition to large sponge communities. Understanding and monitoring these resources is critical to both sanctuary inventory and management activities.

During the course of the sanctuary’s management plan review process, the impact of fishing was identified as a priority issue, and the concept of a research only area was suggested. The purpose of this project is to provide baseline data for all benthic habitats and coral communities.

Purpose: 1) To design appropriate sampling and monitoring strategies for benthic community sampling, as well as data collection, 2) To build a baseline dataset on coral communities and benthic habitats, 3) Ground-truthing and collection of underwater imagery and video to improve existing map products, and 4) To analyze the information gathered to help guide sanctuary resource management decisions.

Supplemental\_Information: This work is being conducted in collaboration with the Flower Garden Banks National Marine Sanctuary (FGBNMS), Center for Coastal Fisheries and Habitat Research (CCFHR), NOAA’s Center for Coastal Environment and Health and Biomolecular Research (CCEHBR), NOAA’s Cooperative Institute for Ocean Exploration, Research and Technology (CIOERT).

Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: 201005

Ending\_Date: 201208

Currentness\_Reference: Ground Condition

Status:

Progress: Completed

Maintenance\_and\_Update\_Frequency: as needed

Spatial\_Domain:

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -93.87

East\_Bounding\_Coordinate: -93.57

North\_Bounding\_Coordinate: 27.99

South\_Bounding\_Coordinate: 27.82

Keywords:

Theme:

Theme\_Keyword\_Thesaurus: CoRIS Discovery Thesaurus

Theme\_Keyword: Numeric Data Sets > Biology

Theme:

Theme\_Keyword\_Thesaurus: CoRIS Theme Thesaurus

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

Theme\_Keyword: EARTH SCIENCE > Biosphere > Zoology > Corals

EARTH SCIENCE > Biosphere > Zoology > Corals > Coral biodiversity

Theme\_Keyword: EARTH SCIENCE > Oceans > Coastal Processes > Coral Reefs

Theme\_Keyword: EARTH SCIENCE > Oceans > Coastal Processes > Coral Reefs > Coral Reef Ecology > BioDiversity

Theme\_Keyword: EARTH SCIENCE > Oceans > Coastal Processes > Coral Reefs > Coral Reef Ecology > Coral Cover

Theme\_Keyword: EARTH SCIENCE > Oceans > Coastal Processes > Coral Reefs > Coral Reef Ecology > Habitats

Theme\_Keyword: EARTH SCIENCE > Oceans > Coastal Processes > Coral Reefs > Coral Reef Ecology > Hard Coral Cover

Theme\_Keyword: EARTH SCIENCE > Biosphere > Zoology > Corals > Deep-water corals > Antipatharia (Black and Thorny Corals)

Theme\_Keyword: EARTH SCIENCE > Biosphere > Aquatic Habitat > Reef Habitat

Theme\_Keyword: EARTH SCIENCE > Biosphere > Aquatic Habitat > Reef Habitat > Description

Theme\_Keyword: EARTH SCIENCE > Biosphere > Zoology > Corals > Reef Monitoring and Assessment > Benthos Analysis

Theme\_Keyword: EARTH SCIENCE > Biosphere > Zoology > Corals > Reef Monitoring and Assessment > Photographic Analysis

Theme:

Theme\_Keyword\_Thesaurus: ISO 19115:2003 MD\_TopicCategoryCode

Theme\_Keyword: biota

Theme\_Keyword: 002

Theme\_Keyword: environment

Theme\_Keyword: 007

Theme\_Keyword: oceans

Theme\_Keyword: 014

Place:

Place\_Keyword\_Thesaurus: CoRIS Place Thesaurus

Place\_Keyword: OCEAN BASIN > Atlantic Ocean > Gulf of Mexico > Flower Garden Banks > East Flower Garden Banks (27N093W0001)

Place\_Keyword: COUNTRY/TERRITORY > United States of America > Texas > East Flower Garden Banks (27N093W0001)

Place\_Keyword: OCEAN BASIN > Atlantic Ocean > Gulf of Mexico > Flower Garden Banks > West Flower Garden Banks (27N093W0002)

Place\_Keyword: COUNTRY/TERRITORY > United States of America > Texas > West Flower Garden Banks (27N093W0002)

Access\_Constraints: None

Use\_Constraints:

Please reference NOAA/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 these data supply this information to the Principle Investigator: Dr. Joshua Voss (email: jvoss2@fau.edu).

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Contact\_Organization: NOAA Cooperative Institute for Ocean Exploration, Research and Technology at Harbor Branch Oceanographic Institute at Florida Atlantic University

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

Data\_Set\_Credit: This is a cooperative effort between NOAA/NCCOS/CCMA Biogeography Branch, Center for Coastal Fisheries and Habitat Research (CCFHR), NOAA’s Center for Coastal Environment and Health and Biomolecular Research (CCEHBR), NOAA’s Cooperative Institute for Ocean Exploration, Research and Technology (CIOERT) and NOAA's National Marine Sanctuaries Program

Data\_Quality\_Information:

Logical\_Consistency\_Report: Not applicable

Completeness\_Report: These data consist of benthic habitat and coral community photographic 100m ROV transect surveys within the Flower Garden Banks National Marine Sanctuary (FGBNMS). Sites were selected using a stratified random design in ArcMap’s GIS sampling design tool across five habitats and two banks (East and West Bank; Algal nodule, Coralline algal reef, Coral reef cap, Deep reef, and Soft bottom).

Lineage:

Process\_Step:

Process\_Description:

A stratified random design was employed with a 40,000 m2 sampling

frame structure. Each frame was classified using the benthic habitat map biological zones. Each year (2010, 2011, 2012) site allocation was intended to be equitably distributed. Site selection was conducted with an ArcMap GIS sampling design tool. The survey design used a stratified random approach with five habitat types (algal nodule, coral reef cap, coralline algae reef, deep reef, and soft bottom) and the two banks, East Bank (EB) and West Bank (WB).

In the field and prior to ROV deployment, a select cluster of sites was chosen and conditions defined as to how the ROV will travel (e.g., under its own control or towed by the surface vessel). Under ideal conditions and when the ROV operator had good control of the ROV, sampling commenced as close as possible to the centroid of each sampling point, or, if conditions hindered ROV handling, sampling began within the 200 m2 grid cell. Transect speed was ¼ knot and followed the target habitat type for 100 m. In addition to high resolution still photos, tracking and depth information was also collected to provide real-time estimates of ROV depth and position on the seafloor.

Benthic community information was collected along each transect using a digital still camera positioned underneath the ROV and facing the seafloor. Still photos of the seafloor were taken by the ROV every 30 seconds with the ROV positioned approximately 1 m from the bottom. Photos were scaled using ROV mounted lasers and images were analyzed in CPCe. Fifty points were randomly transposed over each image and the benthic type under the point was recorded. Generally, bare soft bottom, bare hard bottom, and biota were identified. Within biota, cnidarians in the Class Alcyonacea and in the Order Antipatharia were identified to the family level. Cnidarians in the Order Scleractinia were identified to species level. Algae were identified to Phylum, and sponges were identified to Class. When the area under a point could not be identified, a label of “unidentifiable” was used. All fish, mollusk, echinoderm, bacterial mat, and “unidentifiable” points were omitted from the family and species level analyses. The density of each coral taxon was quantified by counting individuals within all images for each transect.

Process\_Date: 201405

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 benthic habitat percentage cover and coral community desnity information at the lowest possible taxonomic level across all habitats within the Flower Garden Banks National Marine Sanctuary (FGBNMS). In addition, we provide photographs from the ROV.

Entity\_and\_Attribute\_Detail\_Citation: NOAA/CIOERT/NCCOS/CCMA/Biogeography Branch

Distribution\_Information:

Distributor:

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Contact\_Organization: NOAA Cooperative Institute for Ocean Exploration, Research and Technology at Harbor Branch Oceanographic Institute at Florida Atlantic University

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

Resource\_Description: Downloadable data

Distribution\_Liability:

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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/biogeo\_public/query\_main.aspx

Fees: None

Ordering\_Instructions:

Metadata\_Reference\_Information:

Metadata\_Date: 20140909

Metadata\_Contact:

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

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