

Identification_Information:

Citation:

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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 $\frac{1}{4}$ 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 density 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/biogeopublic/query_main.aspx

Fees: None

Ordering_Instructions:

Metadata_Reference_Information:

Metadata_Date: 20140909

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Hours_of_Service: 9:00 - 5:00
Metadata_Standard_Name: Content Standard for Digital Geospatial
Metadata
Metadata_Standard_Version: FGDC-STD-001-1998