## Item Identification

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| **Dataset Title** | National Coral Reef Monitoring Program: Assessment of coral reef benthic communities in Flower Garden Banks National Marine Sanctuary from 2022-08-25 to 2022-09-02 |
| **Short Title** | NCRMP FGBNMS 2022 Fish |
| **Status**<br>*Complete, In Work, Planned* | Complete |
| **Abstract**<br>*Dataset description*<br>● *Parameters included*<br>● *Scientific keywords* | The National Coral Reef Monitoring Program (NCRMP) assessed coral reef fish communities in Flower Garden Banks National Marine Sanctuary using the stationary point count method (7.5m radius cylinder).<br><br>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 1-stage, stratified random survey design in hardbottom and coral reef habitats less than 30m in depth.<br><br>Data provided in this dataset are from Flower Garden Banks National Marine Sanctuary. Lead agencies involved include the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Coastal Ocean Science (NCCOS, NOAA Southeast Fisheries Science Center and the Flower Garden Bank National Marine Sanctuary. |
| **Purpose**<br>*Project overview*<br>● *Partnerships*<br>● *Dataset 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 Coral Reef 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. |
| **Cited Publications** | [blank] |
| **Supplemental Information**<br>● *Collaborators*<br>● *Partner Entities*<br>● *Base Funding*<br>● *NCCOS Project*<br>● *Additional Funding*<br>● *Additional Projects* | The National Coral Reef Monitoring Program (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) under CRCP Project #743 "National Coral Reef Monitoring Plan (NCRMP) Implementation," and supported by NOAA's National Centers for Coastal Ocean Science (NCCOS) under NCCOS Project #180 "National Coral Reef Monitoring Program Implementation: Biological and Socioeconomic Monitoring" and NOAA Southeast Fisheries Science Center (SEFSC). These biological monitoring missions gather data on coral reef benthic and fish communities in the U.S. Caribbean, Florida, and the Gulf of Mexico. Each year, NOAA scientists work closely with CRCP and local partners to collect biological data from strategically selected sites. We then 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. |
| **DOI (Digital Object Identifier)** | https://doi.org/10.7289/v5057d81 |

## Keywords

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| **NCCOS Keywords**<br>*See Appendix* | NCCOS Research Priority > Marine Spatial Ecology<br>NCCOS Research Topic > Ecological and Biogeographic Assessments<br>NCCOS Research Location > Region > Gulf of Mexico<br>NCCOS Research Data Type > Field Observation |

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| | NCCOS Research Data Type > Long-term Monitoring |
| **CoRIS Keywords** *(Required if CRCP-funded) See link for CoRIS keywords. Select at least one each for Theme, Discovery, and Place (include both COUNTRY/TERRITORY and matching OCEAN BASIN).* | CoRIS Theme Thesaurus:<br>EARTH SCIENCE > Biosphere > Zoology > Corals > Reef Monitoring and Assessment > Reef Fish Census > Stationary<br>EARTH SCIENCE > Oceans > Marine Biology > Fish<br>EARTH SCIENCE > Oceans > Marine Biology > Fish > Fish Census<br>CoRIS Discovery Thesaurus:<br>Numeric Data Sets > Fish Census<br>CoRIS Place Keywords:<br>COUNTRY/TERRITORY > United States of America > Texas > East Flower Garden Banks (27N093W0001)<br>COUNTRY/TERRITORY > United States of America > Texas > West Flower Garden Banks (27N093W0002)<br>OCEAN BASIN > Atlantic Ocean > Gulf of Mexico > Flower Garden Banks > East Flower Garden Banks (27N093W0001)<br>OCEAN BASIN > Atlantic Ocean > Gulf of Mexico > Flower Garden Banks > West Flower Garden Banks (27N093W0002)<br>CRCP Project:<br>743<br>National Coral Reef Monitoring Plan (NCRMP) Implementation |
| ***GCMD Keywords*** *Use the current list* | Earth Science:<br>Earth Science > Biosphere > Ecosystems > Marine Ecosystems > Reef > Coral Reef<br>Earth Science > Biological Classification > Animals/Vertebrates > Fish<br>Location:<br>Ocean > Atlantic Ocean > Atlantic Ocean > Gulf of Mexico |
| **Sea Areas or Regions** | Gulf of Mexico<br>Flower Garden Banks National Marine Sanctuary (FGBNMS) |
| **Marine Protected Areas** | Flower Garden Banks National Marine Sanctuary (FGBNMS) |
| **NOAA Ships** | Manta |
| **Other Ships or Platforms** | [blank] |

## Physical Location

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| **Organization** | National Centers for Coastal Ocean Science (NCCOS)<br>Silver Spring, MD |

## Data Set Information

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| **Data Set Scope Code** | Data Set |
| **Data Set Type** | CSV Files |
| **Maintenance Frequency** | None Planned |
| **Data Set Publication Status** *Published, Unpublished, or Unknown* | Published |
| **Data Set Publication Date** | 2022 |
| **Data Presentation Form** *Document, Image, Map, Profile, Table, Video, Audio, Other* | Table (digital) |
| **Entity Attribute Overview** | 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.<br><br>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.<br><br>Fish protocols: |

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| | CRCP. 2022. National Coral Reef Monitoring Program (NCRMP) Reef Visual Census (RVC) Fish Survey Protocols U.S. Atlantic: Florida, Flower Garden Banks, Puerto Rico, and U.S. Virgin Islands. 2022. NOAA Coral Reef Conservation Program. 21 pp. doi: https://doi.org/10.25923/1baa-5g44 |
| **Distribution Liability** | 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. |
| **Data Set Credit** | Lead agencies NOAA NCCOS and SEFSC, and Flower Gardens National Marine Sanctuary. |

## Support Roles

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| **Principal Investigator** | 2022<br>Kimberly Edwards<br>kimberly.edwards@noaa.gov<br>National Centers for Coastal Ocean Science (NCCOS)<br>http://coastalscience.noaa.gov/ |
| **Additional Principal Investigator(s)** | 2022<br>Jay Grove<br>jay.grove@noaa.gov<br>Southeast Fisheries Science Center (SEFSC)<br>www.sefsc.noaa.gov |
| **Data Steward** | 2022<br>Jay Grove<br>jay.grove@noaa.gov<br>Southeast Fisheries Science Center (SEFSC)<br>www.sefsc.noaa.gov |
| **Distributor** | 2014<br>National Centers for Environmental Information - Silver Spring, Maryland (NCEI-MD)<br>(301) 713-3277 |
| **Metadata Contact** | 2022<br>Jay Grove<br>jay.grove@noaa.gov<br>Southeast Fisheries Science Center (SEFSC)<br>www.sefsc.noaa.gov |
| **Originator** | 2014<br>NCCOS Scientific Data Coordinator<br>nccos.data@noaa.gov<br>National Centers for Coastal Ocean Science (NCCOS)<br>https://coastalscience.noaa.gov/ |
| **Originator** | 2014<br>NOAA Coral Reef Conservation Program (CRCP)<br>https://coralreef.noaa.gov |
| **Originator** | 2016<br>Southeast Fisheries Science Center (SEFSC)<br>www.sefsc.noaa.gov |
| **Point of Contact** | 2022<br>Jay Grove<br>jay.grove@noaa.gov<br>Southeast Fisheries Science Center (SEFSC)<br>www.sefsc.noaa.gov |

## Extents

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| **Currentness Reference** | Ground Condition East Bank |
| **Western Boundary** | -93.6029 |
| **Eastern Boundary** | -93.5977 |
| **Northern Boundary** | 27.91948 |
| **Southern Boundary** | 27.90453 |
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| **Currentness Reference** | Ground Condition West Bank |
| **Western Boundary** | -93.8167 |
| **Eastern Boundary** | -93.8135 |
| **Northern Boundary** | 27.87641 |
| **Southern Boundary** | 27.87328 |
| **Description** | Data were collected in the shallow (<30m) hardbottom shelf habitats around East and West Banks of the Flower Gardens National Marine Sanctuary. |
| **Time Frame Type** *Continuing, Range, Discrete* | Range |
| **Start Date** | 2022-08-25 |
| **End Date** | 2022-09-02 |
| **Description** | |

## Access Information

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| **Security Class** | Unclassified |
| **Security Classification System** | Not applicable |
| **Security Handling Description** | Not applicable |
| **Data Access Procedure** | Data can be accessed via the NOAA National Centers for Environmental Information (NCEI) Ocean Archive. |
| **Data Access Constraints** | None |
| **Data Use Constraints** | Please reference NOAA/NOS/NCCOS and NOAA/NMFS/SEFSC when utilizing these data in a report or peer reviewed publication.<br><br>Cite as:<br><br>Southeast Fisheries Science Center (SEFSC) and National Centers for Coastal Ocean Science (NCCOS). 2022. National Coral Reef Monitoring Program: Assessment of coral reef fish communities in Flower Garden Banks National Marine Sanctuary from 2022-08-25 to 2022-09-02 (NCEI Accession XXXXXX). NOAA National Centers for Environmental Information. Dataset. doi: xxxxx [access date]<br><br>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): Kimberly Edwards (kimberly.edwards@noaa.gov) and Jay Grove (jay.grove@noaa.gov). |

## Distribution Information (copy/paste for each downloadable file)

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|---|---|
| **Download URL** | https://doi.org/10.7289/v5057d81 |
| **File Name** | NCRMP FGBNMS Fish Data Collection |
| **Description** | NOAA National Centers for Coastal Ocean Science; NOAA Southeast Fisheries Science Center (2018). National Coral Reef Monitoring Program: Assessment of coral reef fish communities in Flower Garden Banks National Marine Sanctuary. NOAA National Centers for Environmental Information. Dataset. |
| **File Type** | NCEI Archived Data Accession |

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| **Download URL** | https://www.ncei.noaa.gov/archive/accession/0208240 |
| **File Name** | NCRMP FGBNMS 2018 Fish Data Accession |
| **Description** | National Centers for Coastal Ocean Science (NCCOS); Southeast Fisheries Science Center (SEFSC) (2018). National Coral Reef Monitoring Program: Assessment of coral reef fish communities in Flower Garden Banks National Marine Sanctuary from 2018-06-11 to 2018-06-14 (NCEI Accession 0208240). [indicate subset used]. NOAA National Centers for Environmental Information. Dataset. |
| **File Type** | NCEI Data Archive Accession |

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|---|---|
| **Download URL** | https://www.ncei.noaa.gov/archive/accession/0224405 |
| **File Name** | NCRMP FGBNMS 2013-2015 Fish Data Accession |
| **Description** | National Centers for Coastal Ocean Science (2018). National Coral Reef Monitoring Program: Assessment of coral reef fish communities in Flower Garden Banks National Marine Sanctuary from 2013-09-02 to 2013-09-06 and from 2015-08-24 to 2015-08028(NCEI Accession 0224405). NOAA National Centers for Environmental Information. Dataset. |
| **File Type** | NCEI Data Archive Accession |

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| **Download URL** | https://doi.org/10.7289/v5vd6wts |
| **File Name** | NCRMP FGBNMS Benthic Data Collection |
| **Description** | NOAA National Centers for Coastal Ocean Science; NOAA Southeast Fisheries Science Center (2018). National Coral Reef Monitoring Program: Assessment of coral reef benthic communities in Puerto Rico. NOAA National Centers for Environmental Information. Dataset. |
| **File Type** | NCEI Archived Data Accession |

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| **Download URL** | https://www.ncei.noaa.gov/archive/accession/0208241 |
| **File Name** | NCRMP FGBNMS 2018 Benthic Data Accession |
| **Description** | National Centers for Coastal Ocean Science (NCCOS); Southeast Fisheries Science Center (SEFSC) (2018). National Coral Reef Monitoring Program: Assessment of coral reef benthic communities in Flower Garden Banks National Marine Sanctuary from 2018-06-11 to 2018-06-14 (NCEI Accession 0208241). [indicate subset used]. NOAA National Centers for Environmental Information. Dataset. |
| **File Type** | NCEI Data Archive Accession |

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| **Download URL** | https://www.ncei.noaa.gov/archive/accession/0224589 |
| **File Name** | NCRMP FGBNMS 2013-2015 Benthic Data Accession |
| **Description** | National Centers for Coastal Ocean Science (NCCOS); Southeast Fisheries Science Center (SEFSC) (2021). National Coral Reef Monitoring Program: Assessment of coral reef benthic communities in Flower Garden Banks National Marine Sanctuary from 2013-09-02 to 2013-09-06 and from 2015-08-24 to 2015-08-2 (NCEI Accession 0224589). [indicate subset used]. NOAA National Centers for Environmental Information. Dataset |
| **File Type** | NCEI Data Archive Accession |

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| **Download URL** | https://accession.nodc.noaa.gov/0157633 |
| **File Name** | NCRMP Documentation Accession |
| **Description** | US DOC; NOAA; NOS; Coral Reef Conservation Program (2018). 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. |
| **File Type** | NCEI Data Archive Accession |

## URLS - Related Webpages (copy/paste for each URL)

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| **URL** | https://coastalscience.noaa.gov/project/national-coral-reef-monitoring-program-biological-socioeconomic/ |
| **Description** | National Coral Reef Monitoring Program Implementation: Biological and Socioeconomic Monitoring - NCCOS Project Page |
| **URL Type** | Online Resource |

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| **URL** | http://www.coris.noaa.gov/monitoring/ |
| **Description** | NOAA's National Coral Reef Monitoring Program - CRCP Project Page |
| **URL Type** | Online Resource |

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| **URL** | https://grunt.sefsc.noaa.gov/rvc_analysis20/ |
| **Description** | NOAA's SEFSC Reef Visual Census Fish Analysis Ready datasets and custom R-package |

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| **URL Type** | Online Resource |

## Data Quality

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| **Completeness Report** | [OK] |
| **Quality Control Procedures Employed** | 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; and (4) statistical analyses are conducted as the final check before distribution.<br><br>Before implementation the sampling design was reviewed and agreed upon by representatives from program partners, as well as NCCOS scientists. |

## Lineage

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| **Lineage Statement** | Datasets and protocols are year specific. Datasets are based on year-specific protocols utilized for data collection. |
| **Source** | Title: National Coral Reef Monitoring Program (NCRMP) Reef Visual Census (RVC) Fish Survey Protocols U.S. Atlantic: Florida, Flower Garden Banks, Puerto Rico, and U.S. Virgin Islands 2022<br>Corporate Authors(s): Coral Reef Conservation Program (U.S.)<br>Published Date : 2022<br>DOI : https://doi.org/10.25923/1baa-5g44 |
| **Additional Source** | Title: Sampling Design Protocol for the U.S. Caribbean and Flower Garden Banks National Marine Sanctuary (2018)<br>Originator: National Centers for Coastal Ocean Science (NCCOS)<br>URL: https://coastalscience.noaa.gov/project/national-coral-reef-monitoring-program-biological-socioeconomic/ |
| **Additional Source** | Title: Reef Visual Census (RVC) Survey Protocol for the U.S. Caribbean and Flower Garden Banks National Marine Sanctuary (2016)<br>Originator: National Centers for Coastal Ocean Science (NCCOS)<br>URL: https://coastalscience.noaa.gov/project/national-coral-reef-monitoring-program-biological-socioeconomic/ |
| **Process Step** | Number: 1<br>Description:<br>2016 RVC survey locations were selected using a stratified random sampling design within the Puerto Rico study area. 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 Sample Frame Generation Protocols and Workflow document.<br><br>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<br><br>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).<br><br>Refer to data dictionary for complete listing of terms and descriptions.<br>Process Date/Time: [blank]<br>Process Contact: National Centers for Coastal Ocean Science<br>Citation: |

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| | Sampling Design Protocol for the U.S. Caribbean and Flower Garden Banks National Marine Sanctuary (2018) |
| **Additional Process Step** | Number: 2<br>Description:<br>2016 Stationary Point Count:<br><br>The Stationary Point Count component of the protocols were modified for the 2016 sample year to integrate with similar methods used in Florida, another NCRMP sampling location. The changes from 2014 protocols are listed below and are reflected in the 2016-present Puerto Rico 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.<br><br>Stationary point count surveys were conducted at all sample locations and co-located with a subset of Coral Demographic and Benthic Assessment surveys.<br>Process Date/Time: [blank]<br>Process Contact: National Centers for Coastal Ocean Science<br>Citation:<br>Reef Visual Census (RVC) Survey Protocol for the U.S. Caribbean and Flower Garden Banks National Marine Sanctuary (2016) |

# Appendix: NCCOS Discovery Keywords

## Research Priorities

- Marine Spatial Ecology
- Stressor Impacts and Mitigation
- Coastal Change: Vulnerability, Mitigation, and Restoration
- Social Science

## Research Topics

- Ecological and Biogeographic Assessments
- Habitat Mapping
- Regional Ecosystem Science
- Coastal Aquaculture Siting and Sustainability
- Harmful Algal Bloom (HAB) Detection and Forecasting
- Biological Effects of Contaminants and Nutrients
- Vulnerability and Risk Assessment
- Natural and Nature-based Features
- Climate Impacts on Ecosystems
- Restoration
- Ecosystem Services Valuation
- Assessing Human Use
- Assessing Vulnerability and Resilience

## Research Locations

- Regions
  - Atlantic Ocean
  - Bering Sea
  - Caribbean Sea
  - Great Lakes
  - Gulf of Mexico
  - Pacific Ocean
  - International
- U.S. States and Territories
  - [list all applicable]

## Research Data Types

- Field Observation
- Long-term Monitoring
- Geospatial
- Derived Data Product
- Model
- Field Experiment
- Laboratory Experiment