

*Please provide the following information, and submit to the NOAA DM Plan Repository.*

### **Reference to Master DM Plan (if applicable)**

*As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.*

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

## **1. General Description of Data to be Managed**

### **1.1. Name of the Data, data collection Project, or data-producing Program:**

St. John, USVI benthic habitat assessment and monitoring data (2001 - Present) using Rapid Habitat Assessment (RHA) survey methodology: 2011

### **1.2. Summary description of the data:**

This fish and benthic composition database is the result of a multifaceted effort described below. The intent of this work is five fold: 1) To spatially characterize and monitor the distribution, abundance, and size of both reef fishes and macro-invertebrates (conch, lobster, Diadema); 2) To relate this information to in-situ data collected on associated benthic composition parameters; 3) To use this information to establish the knowledge base necessary for enacting management decisions in a spatial setting; 4) To establish the efficacy of those management decisions; and 5) To work with the National Coral Reef Monitoring Program to develop data collection standards and easily implemented methodologies for transference to other agencies and to work toward standardizing data collection throughout the US states and territories. Toward this end, the Center for Coastal Monitoring and Assessment's Biogeography Branch (BB) has been conducting research in Puerto Rico and the US Virgin Islands since 2000 and 2001, respectively. It is critical, with recent changes in management at both locations (e.g. implementation of MPAs) as well as proposed changes (e.g. zoning to manage multiple human uses) that action is taken now to accurately describe and characterize the fish/macro-invertebrate populations in these areas. It is also important that BB work closely with the individuals responsible for recommending and implementing these management strategies. Recognizing this, BB has been collaborating with partners at the University of Puerto Rico, National Park Service, US Geological Survey and the Virgin Islands Department of Planning and Natural Resources. To quantify patterns of spatial distribution and make meaningful interpretations, we must first have knowledge of the underlying variables determining species distribution. The basis for this work therefore, is 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 are stratified to select sampling stations. Sites are randomly selected within these strata to ensure coverage of the entire study region and not just a particular reef or seagrass area. At each site, fish, macro-invertebrates,

and benthic composition information is then quantified following standardized protocols. By relating the data collected in the field back to the habitat maps and bathymetric models, BB is able to model and map species level and community level information. These protocols are standardized throughout the US Caribbean to enable quantification and comparison of reef fish abundance and distribution trends between locations. Armed with the knowledge of where "hot spots" of species richness and diversity are likely to occur in the seascape, the BB is in a unique position to answer questions about the efficacy of marine zoning strategies (e.g. placement of no fishing, anchoring, or snorkeling locations), and what locations are most suitable for establishing MPAs. Knowledge of the current status of fish/macro-invertebrate communities coupled with longer term monitoring will enable evaluation of management efficacy, thus it is essential to future management actions.

**1.3. Is this a one-time data collection, or an ongoing series of measurements?**

Ongoing series of measurements

**1.4. Actual or planned temporal coverage of the data:**

2001-07 to Present

**1.5. Actual or planned geographic coverage of the data:**

W: -64.84, E: -64.66, N: 18.38, S: 18.23

**1.6. Type(s) of data:**

*(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)*

**1.7. Data collection method(s):**

*(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)*

**1.8. If data are from a NOAA Observing System of Record, indicate name of system:**

**1.8.1. If data are from another observing system, please specify:**

**2. Point of Contact for this Data Management Plan (author or maintainer)**

**2.1. Name:**

NCCOS Scientific Data Coordinator

**2.2. Title:**

Metadata Contact

**2.3. Affiliation or facility:**

**2.4. E-mail address:**

NCCOS.data@noaa.gov

**2.5. Phone number:****3. Responsible Party for Data Management**

*Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.*

**3.1. Name:**

NCCOS Scientific Data Coordinator

**3.2. Title:**

Data Steward

**4. Resources**

*Programs must identify resources within their own budget for managing the data they produce.*

**4.1. Have resources for management of these data been identified?****4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):****5. Data Lineage and Quality**

*NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.*

**5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible**

*(describe or provide URL of description):*

Process Steps:

- There are two RHA data collection methods to be utilized at each RHA site: cylinder RHA and transect RHA. The modified habitat survey is utilized to characterize areas within and nearby the Virgin Islands Coral Reef National Monument (VICR) boundaries. The RHA survey has the advantage of reducing bottom time at greater depths (i.e., sites below 80 ft). Site selection begins by stratifying NOAA's nearshore benthic habitat maps into predetermined habitat strata and monument boundaries. ArcGIS is then employed to randomly select sites within the hardbottom strata inside and outside the VICR boundaries. Using a handheld GPS unit, the boat captain navigates to the previously selected sites. Once on site, the transect and RHA divers are deployed. Fish transect diver follows a random compass bearing and swims in a straight line, collecting data along the 25m x 4m transect (details above). The fish transect diver does not deviate from a straight line unless changes in depth make it dangerous to continue. In this case, the

diver will maintain a safe depth while continuing to collect data in an area equal to a straight-line 25m x 4m (100m<sup>2</sup>) transect. The habitat diver collects data along the 25m x 4m belt transect in 5 rectangular segments, each measuring 5m long by 4m wide (same area as transect). Each segment should take a maximum of 4 minutes (4 min x 5 segments = 20 min), allowing the habitat diver to finish closely behind the fish transect diver - continuing to meet the physiological parameters of repeatedly diving at Mid Shelf Reef and deep Coral Bay sites. If data are collected in less than 4 minutes, then the habitat diver moves to the next segment. Data are recorded in Q1 - Q5, on the flipside of the cylinder RHA data sheet. Q1 correlates with the first segment along the transect, Q2 the second segment, etc. The following information is recorded during the RHA transect survey: 1) Dive logistics - name of the fish transect and habitat divers 2) Dive logistics - station ID, date, and the start time of the survey. 3) Habitat structure - the dive site is categorized based on the hierarchical classification used to produce the benthic habitat maps. 4) Depth - minimum and maximum depth of each unit, to provide an estimate of bottom slope. 5) Rugosity (low, medium, or high) - based on the height of the tallest hardbottom structure. 6) Abiotic footprint - an estimate of % cover (within 5%) of hardbottom, sand, and rubble in each unit. The sum of % cover in each unit for the abiotic footprint must total 100%. 7) Biotic footprint - an estimate of the % cover (within 1%) of live coral, gorgonians, sponges, macro algae, and uncolonized substrate in each 5m x 4m unit. The sum of % cover (including uncolonized substrate) in each unit in the biotic footprint must total 100%. 8) Acropora presence - mark if *A. palmata* or *A. cervicornis* are seen along the transect or at the site. 9) Photography - the point count or habitat diver will take at least two photos in different directions at each site to maintain an anecdotal and permanent visual description of the sites that were sampled. Proper care and maintenance is necessary for all camera and camera housings. It is important to maintain the cameras and housings before, after and in between dives. Although the 1m-square-quadrat remained the basic method of choice for habitat data collection, overtime, changes in data collection methods were made for some habitat variables and several additional variables were added. These changes were deemed necessary to capture more precise information and as many variables as possible to explain better the observed variability in reef fish assemblage metrics. Detailed information on all changes to the protocols for collecting habitat data in St. John can be found at: [http://ccma.nos.noaa.gov/ecosystems/coralreef/fish\\_protocol.aspx](http://ccma.nos.noaa.gov/ecosystems/coralreef/fish_protocol.aspx) Process Date: 200107 - Present

**5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:**

**5.2. Quality control procedures employed (describe or provide URL of description):**

## 6. Data Documentation

*The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.*

**6.1. Does metadata comply with EDMC Data Documentation directive?**

No

**6.1.1. If metadata are non-existent or non-compliant, please explain:**

Missing/invalid information:

- 1.6. Type(s) of data
- 1.7. Data collection method(s)
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.1.2. If there are limitations to data access, describe how data are protected
- 7.2. Name of organization of facility providing data access
- 7.2.1. If data hosting service is needed, please indicate
- 7.3. Data access methods or services offered
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility
- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

**6.2. Name of organization or facility providing metadata hosting:**

NMFS Office of Science and Technology

**6.2.1. If service is needed for metadata hosting, please indicate:**

**6.3. URL of metadata folder or data catalog, if known:**

<https://www.fisheries.noaa.gov/inport/item/39577>

**6.4. Process for producing and maintaining metadata**

*(describe or provide URL of description):*

Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: [https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC\\_PD-Data\\_Documentation\\_v1.pdf](https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf)

**7. Data Access**

*NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by*

*security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.*

**7.1. Do these data comply with the Data Access directive?**

**7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?**

**7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:**

**7.2. Name of organization of facility providing data access:**

**7.2.1. If data hosting service is needed, please indicate:**

**7.2.2. URL of data access service, if known:**

[http://www8.nos.noaa.gov/bioge\\_public/habitat\\_photos.aspx](http://www8.nos.noaa.gov/bioge_public/habitat_photos.aspx)

<http://www8.nos.noaa.gov/bpdmWeb/queryMain.aspx>

**7.3. Data access methods or services offered:**

**7.4. Approximate delay between data collection and dissemination:**

**7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:**

**8. Data Preservation and Protection**

*The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.*

**8.1. Actual or planned long-term data archive location:**

*(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)*

**8.1.1. If World Data Center or Other, specify:**

**8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:**

**8.2. Data storage facility prior to being sent to an archive facility (if any):**

National Centers for Coastal Ocean Science - Silver Spring, MD

**8.3. Approximate delay between data collection and submission to an archive facility:**

**8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?**

*Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection*

**9. Additional Line Office or Staff Office Questions**

*Line and Staff Offices may extend this template by inserting additional questions in this section.*