

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:

National Coral Reef Monitoring Program: Benthic Complexity and Urchin Abundance at Climate Stations of the Hawaiian Archipelago since 2013

1.2. Summary description of the data:

The benthic complexity and urchin abundance monitoring effort provides baselines for tracking these variables at NCRMP climate stations. Climate stations are 3-4 sites per island that were selected in a stratified random fashion to be roughly equally spaced around the island, along the 15 m contour, on hard bottom, and at least 1 km away from a river mouth or embayment. Once selected we assess multiple features of the coral reef environment including in-situ temperature (STR), seawater carbonate, net carbonate accretion (CAU), bioerosion (BMU), and cryptobiota diversity (ARMS).

Structural complexity is known to be an important component in coral reef ecosystems. Ecosystem relationships that correlate with structural complexity include reef fish density and biomass, live and branching coral cover, urchin abundance and algal cover (Graham and Nash 2013). In many cases, the benthic complexity is an important indicator of benthic and fish communities.

The data were collected around the Hawaiian archipelago as part of the NOAA Pacific Islands Fisheries Science Center (PIFSC), Coral Reef Ecosystem Program (CREP) led missions in 2013 and 2016. These data can be accessed online via the NOAA National Centers for Environmental Information (NCEI) Ocean Archive.

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

One-time data collection

1.4. Actual or planned temporal coverage of the data:

2013-08-03 to 2013-08-23, 2013-09-18, 2013-10-22 to 2013-10-30, 2013-07-12 to 2013-07-14, 2013-09-05 to 2013-09-13, 2016-07-14 to 2016-08-24, 2016-09-01 to 2016-09-25

1.5. Actual or planned geographic coverage of the data:

W: -178.37842, E: -166.1166924, N: 28.4529, S: 23.62792

Northwestern Hawaiian Islands (NWHI), including French Frigate, Kure, Lisianski, and

Pearl & Hermes.

W: -160.23392, E: -154.8176, N: 22.16847, S: 18.968567

Main Hawaiian Islands (MHI), including Hawaii, Kauai, Maui, Oahu, Molokai, Niihau, and Lanai.

1.6. Type(s) of data:

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

Table (digital)

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:

Annette M DesRochers

2.2. Title:

Metadata Contact

2.3. Affiliation or facility:

2.4. E-mail address:

annette.desrochers@noaa.gov

2.5. Phone number:

(808)725-5461

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:

Molly A Timmers

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?

Yes

4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):

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):

Lineage Statement:

Benthic complexity and urchin abundance survey employed by the NOAA Coral Reef Ecosystem Program (CREP) since 2013.

Process Steps:

- Climate stations are 3-4 sites per island that were selected in a stratified random fashion to be roughly equally spaced around the island, along the 15 m contour, on hard bottom, and at least 1 km away from a river mouth or embayment. Once selected we assess multiple features of the coral reef environment including in-situ temperature (STR), seawater carbonate, net carbonate accretion (CAU), bioerosion (BMU), and cryptobiota diversity (ARMS). At the NCRMP station a 10m transect is run from the reference stake parallel to shore and in roughly a cardinal (N, S, E, or W) direction. At the 10m mark of the transect tape, a second 5m transect is deployed perpendicular and down-slope. This gives a total of a 15m transect and forms 2 of the boundary sides of the NCRMP plot. Bearings of each transect are recorded. Along the 15m transect tape, record two max vertical relief measurements per meter (based on an area of 0.5 m x 1 m to the left and 0.5 m x 1 m to the right of each meter on the transect). The frequency # should add up to 30 units for a 15m transect. Maximum depth, minimum depth, and maximum vertical relief are also recorded. These measurements are defined as: Maximum depth - deepest point in the NCRMP plot Minimum depth - shallowest point in the NCRMP plot Maximum vertical relief - height of tallest reef structure present within the NCRMP plot Urchin abundance is estimated by conducting a visual census of free and boring urchins within the NCRMP plot and is recorded using DACOR (dominant, abundant, common, occasional, rare) abundance codes.

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):

The data is entered in an MS Excel spreadsheet, then quality controlled against the physical data sheets prior to the data considered final. Upon completion of the cruise, the data is migrated to Oracle databases during which any errors are flagged based on pre-defined criteria.

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:

- 1.7. Data collection method(s)
- 7.2. Name of organization of facility providing data access
- 7.2.1. If data hosting service is needed, please indicate

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/36098>

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

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?

Yes

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:

<https://accession.nodc.noaa.gov/0157760>

<https://accession.nodc.noaa.gov/0159150>

7.3. Data access methods or services offered:

Data can be accessed online via the NOAA National Centers for Environmental Information (NCEI) Ocean Archive.

7.4. Approximate delay between data collection and dissemination:

Unknown

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)

NCEI_MD

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):

Pacific Islands Fisheries Science Center - Honolulu, HI

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

Unknown

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

The data is captured in several locations: physical data sheets, MS Excel spreadsheets, and PIFSC Oracle database. The physical data sheets are housed at PIFSC. The MS Excel spreadsheets are regularly backed up by the cruise data manager while at sea. The PIFSC Oracle database is regularly backed up by PIFSC ITS.

9. Additional Line Office or Staff Office Questions

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