

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:

Benthic Surveys in Vatia, American Samoa: benthic cover derived from analysis of benthic images collected during belt transect surveys of coral demography in 2015 and 2020

1.2. Summary description of the data:

Jurisdictional managers have expressed concerns that nutrients from the village of Vatia, Tutuila, American Samoa, are having an adverse effect on the adjacent coral reef ecosystem. Excess nutrient loads promote increases in algal growth that can have deleterious effects on corals, such as benthic algae outcompeting and overgrowing corals. Nitrogen and phosphorus can also directly impact corals by lowering fertilization success, and reducing both photosynthesis and calcification rates. Land-based contributions of nutrients come from a variety of sources; in Vatia the most likely sources are poor wastewater management from piggeries and septic systems.

NOAA scientists conducted benthic surveys to establish a baseline against which to compare changes in the algal and coral assemblages in response to nutrient fluxes.

The benthic cover data described here were generated from the quantitative analysis of photoquadrat benthic images using image analysis software, whereby random points are projected on each image and the benthic elements falling directly underneath each point are identified. The images were collected at 18 and 24 stratified randomly selected sites in 2015 and 2020 respectively, during belt transect surveys of coral demography by the NOAA Ecosystem Sciences Division (ESD; former Coral Reef Ecosystem Program CREP). Five of the 18 sites surveyed in 2015 were resurveyed periodically in 2016 (January, March, June, September, and December) to assess any short-term temporal changes in the benthic composition.

The benthic cover data can be accessed online via the NOAA National Centers for Environmental Information (NCEI) Ocean Archive. The benthic images and coral demography data are described and archived separately.

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:

2015-11-02 to 2015-11-12, 2020-01-23 to 2020-01-29

1.5. Actual or planned geographic coverage of the data:

W: -170.67555555556, E: -170.66666666667, N: -14.24305555556, S: -14.25138888889

Location extent of Rapid Ecological Assessment (REA) surveys in Vatia Bay in 2015 and 2020

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:**

Lori H Luers

2.2. Title:

Metadata Contact

2.3. Affiliation or facility:**2.4. E-mail address:**

lori.luers@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:

Bernardo Vargas-Angel

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:

The methodology to analyze benthic imagery using CoralNet to derive benthic cover values. The data described here were derived from the analysis of benthic images collected along photo-quadrat surveys by the NOAA Ecosystem Sciences Division (ESD):

In 2015 photo quadrat images were taken every meter from the 1-m to the 15-m mark along TWO, 18-m transects per site (n = 30 images). In 2020 photo quadrat images were taken every meter from the 1-m to the 30-m mark along one 30-m transect line (n = 30 images).

Process Steps:

- Still photographs were collected during belt transect surveys of coral demography to record the benthic community composition at predetermined points along the transect lines with a high-resolution digital camera mounted on a pole. 30 photoquadrat images were collected at each site. In 2015 the photoquadrat surveys were conducted along two, independent 18 meter transects per site. Photos of the benthic substrate were taken at one meter intervals starting at meter 1, along the left hand side of each 18 meter transect (15 images/transect; 30 images total). In 2020 the photoquadrat surveys were conducted along one, 30 meter transect per site. Photos of the benthic substrate were taken at one meter intervals starting at meter 1, along the left hand side of the transect (30 images/transect; 30 images total).

The benthic photoquadrat images were analyzed by using the web-based annotation tool CoralNet (Beijbom et al. 2016). CoralNet assigns 10 random points per photo and the benthic elements falling directly underneath each point is identified to three functional group levels: Tier 1 (e.g. hard coral, macroalgae, etc.), Tier 2 (e.g. Hard coral by morphology = massive, branching, etc.), and Tier 3 (e.g. Hard coral by genus and morphology). The detailed list of each functional group level or tier is included in the benthic image analysis classification scheme. See the

published standard operating procedures for further details. (Citation: Lozada-Misa P, Schumacher BD, Vargas-Angel B. 2017. Analysis of benthic survey images via CoralNet : a summary of standard operating procedures and guidelines. Pacific Islands Fisheries Science Center, PIFSC Administrative Report, H-17-02, 169 p. <https://doi.org/10.7289/V5/AR-PIFSC-H-17-02>.)

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):

Quality control is enforced by means of point-to-point, inter-observer calibration exercises that are conducted before each image analysis production series. Training modules and standard operating procedures have also been developed and documented to ensure improved performance and consistent imagery analysis results produced by multiple analysts.

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)

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/31611>

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:

National Centers for Environmental Information - Silver Spring, Maryland (NCEI-MD)

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

7.2.2. URL of data access service, if known:

<http://accession.nodc.noaa.gov/0169726>

<http://accession.nodc.noaa.gov/0264809>

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

NOAA IRC and NOAA Fisheries ITS resources and assets.

9. Additional Line Office or Staff Office Questions

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