

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 since 2015: benthic images collected during belt transect surveys 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 land-based sources of pollution, including nutrient fluxes.

Photoquadrat benthic images were collected in 2015 and 2020 only, via belt transect surveys of coral demography according to protocols established by NOAA National Coral Reef Monitoring Program (NCRMP) in 2015.

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, 2020-01-01 to 2020-01-30

1.5. Actual or planned geographic coverage of the data:

W: -170.675555555556, E: -170.666666666667, N: -14.243055555556, S: -14.251388888889
Vatia Bay, Tutuila, American Samoa

1.6. Type(s) of data:

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

Image (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:

Benthic photographs were collected during belt transect surveys of corals by the NOAA Ecosystem Sciences Division (ESD) following the same protocol to that established by the NOAA National Coral Reef Monitoring Plan (NCRMP).

Process Steps:

- In 2015, the survey implemented a two-stage stratified random sampling (StRS) design. The survey domain encompassed the majority of the mapped area of reef and hard bottom habitats in the 0–30 m depth range. The stratification scheme included cardinal position (i.e., north and south) and depth (i.e., shallow: >0–6 m and mid-depth: >6–18 m). Sampling effort allocation was determined based on strata area and sites randomly located within strata. The StRS design effectively reduces estimate variance through stratification using environmental covariates and by sampling more sites rather than more transects per site. Therefore, site-to-site comparisons should proceed with caution. At each site, belt-transects were the focal point of the biological surveys. In 2015, fifteen images were collected along each, two haphazardly laid, 18-m transects. Still photographs were collected to record the benthic community composition at predetermined points along belt transects with a high-resolution digital camera mounted on a pole. Photographs were taken every 1 m from the 1 m to the 15 m mark. This work generates 30 photographs per site, which are later analyzed by ESD staff and partners using the computer program CoralNet. This analysis is the basis for estimating benthic cover and composition at each site. In 2016, American Samoa Department of Marine and Wildlife Resources (DMWR) collected benthic images approximately every 3 months at five shallow sites where permanent transects were established. DMWR forwarded the images to ESD for analysis and assess temporal changes in benthic cover. These data are reported separately. Survey protocols followed the National Coral Reef Monitoring Program methodologies historically implemented by NOAA's Ecosystem Sciences Division. (Citation: Ecosystem Sciences Division Standard Operating Procedures: Data Collection for Rapid Ecological Assessment Benthic Surveys, 2019 Update)

- In 2020 the survey implemented a one-stage stratified random sampling (StRS) design. The survey domain encompassed the majority of the mapped area of reef and hard bottom habitats in the 0–30 m depth range. The stratification scheme included cardinal position (i.e., north and south) and depth (i.e., shallow: >0–6 m and mid-depth: >6–18 m). Sampling effort allocation was determined based on strata area and sites randomly located within strata. The StRS design effectively

reduces estimate variance through stratification using environmental covariates and by sampling more sites rather than more transects per site. Therefore, site-to-site comparisons should proceed with caution. One, haphazardly laid, 30-m belt-transect was the focal point of the photoquadrat survey in 2020. Still photographs were collected to record the benthic community composition with a high-resolution digital camera mounted on a pole. Thirty photographs were taken every meter from the 1 m to the 30 m. This work generates 30 photographs per site, which are later analyzed by ESD staff and partners using the computer program CoralNet. Survey protocols followed the National Coral Reef Monitoring Program methodologies historically implemented by NOAA's Ecosystem Sciences Division. (Citation: Ecosystem Sciences Division Standard Operating Procedures: Data Collection for Rapid Ecological Assessment Benthic Surveys, 2019 Update)

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):

Instrumentation and camera setting are updated periodically to improve image quality.

An optical validation QC procedure is employed to verify number of images, per site and file name. Also, image color correction is implemented to improve image quality.

Benthic images and the file structure are quality controlled by CREP personnel before they are migrated and integrated into CREP's master optical directory on the PIFSC network.

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/31196>

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/0146680>

<http://accession.nodc.noaa.gov/0146680>

<http://accession.nodc.noaa.gov/0259494>

<http://accession.nodc.noaa.gov/0259494>

7.3. Data access methods or services offered:

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

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.