

*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:**

Determining Watershed Management Efficacy in West Maui: line-point-intercept and photo quadrat surveys of benthic communities for benthic cover from 2014 to 2015

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

The focus of the Wahikuli-Honokowai Watershed Management Plan is the land use practices and alterations affected in the agricultural and urban districts that have upset the natural drainage patterns and ecohydrologic balance and services the watersheds provide. As the approach to reducing the effects of land-based sources of pollution, the Wahikuli-Honokowai Watershed Management Plan identifies nine priority projects to reduce, capture, and remediate the impacts of non-point source pollutants through the implementation of management practices in priority areas. The Watershed Management Plan also includes recommendations for strategic, long-term trend monitoring of the health of the coral reef ecosystem, which provides information that can be correlated to the implementation of solutions to reduce land-based non-point source pollutants.

Kahekili Beach Park reef and the coastal areas to the north are considered high priority. Corals in this region have been severely impacted by land-based pollutants, causing coral dieback and reducing coral cover. To fill in the gap, a baseline assessment for benthic cover data (described here) along with coral demographic metrics, has been conducted at the mouths of the Mahinahina, Honokowai, and Wahikuli, Kahana, Honokeana, Honokohua, and Honolua stream drainages in West Maui, Hawaii, to track and evaluate the efficacy of implemented management practices. The installation of permanent survey transects will provide long-term time series to quantify changes in the reef benthic community. Sediment flux, and turbidity data are also collected at the Mahinahina, Honokowai, and Wahikuli, drainages (described separately).

The data described here were collected via line-point-intercept (LPI) and photo quadrat surveys by the NOAA Coral Reef Ecosystem Program (CREP) according to established protocols. These data include:

- 1) an assessment of benthic cover for the selected monitoring sites; and

2) benthic photographs to serve as a permanent record of the site.

Data is available for surveys conducted in 2014 and 2015. The LPI data can be accessed online via the NOAA National Centers for Environmental Information (NCEI) Ocean Archive, accession #0138585, and the benthic photographs are available upon request from CREP.

Additionally, belt transect surveys of coral demography (adult and juvenile corals) were conducted (described separately), and turbidity sensors, sediment traps, and sediment pods were deployed by project partners to provide information on sediment loads, sediment accumulation rates, and sediment composition. As watershed management projects are implemented, changes in sediment and nutrient loading and the resulting impacts on the reefs can be monitored over time.

**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:**

2014-06-29 to 2014-07-03, 2014-10-30 to 2014-10-31, 2015-07-20 to 2015-07-31

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

W: -156.692878, E: -156.63948046, N: 21.01574298, S: 20.908651

Mahinahina, Honokowai, Wahikuli, Kahana, Honokeana, Honokohua, and Honolua watersheds, West Maui, Hawaii.

**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:**

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 data described here were collected via Line-Point-Intercept (25-centimeter intervals) and photoquadrat surveys for benthic composition and community structure by the NOAA Coral Reef Ecosystem Program (CREP) following a slightly modified protocol to that established by the NOAA National Coral Reef Monitoring Program (NCRMP).

Process Steps:

- Adjacent to each of the main watershed drainages (i.e., Wahikuli, Honokowai, and Mahinahina in the south; and Kahana, Honokeana, Honokohua, and Honolua to the north), two permanent, long-term benthic monitoring stations were established (except for Honokohua; only one station established); shallow (0-6 meter) and/or mid-depth (6-15 meter). Within each monitoring station two-to-three replicate

survey sites were established; replicate survey sites were several meters apart, given that West Maui coral reef track exhibits a fingerlike-reticulate geomorphology. And, within each replicate site, surveys were conducted along one, 25-meter line transect (same transect as for demographic surveys, just longer). Using a Line-Point-Intercept protocol, hard corals, octocorals, macroalgae, crustose coralline red algae, and target macroinvertebrates were identified to the finest level of taxonomic resolution and recorded at 25-centimeter intervals, starting at the 0.25 meter mark to the 25.0 meter mark. These surveys generate 100 points per survey site/transect (300 points per monitoring station/depth) that can be used to generate estimates of percentage of cover of benthic organisms. (Citation: NOAA Coral Reef Ecosystem Program (CREP) Benthic Monitoring: Rapid Ecological Assessment Methods (REA) Line-point-intercept (LPI) for Benthic Cover (2008-Present))

- Additionally, in concert with Line-Point-Intercept surveys, photoquadrat images were collected to record the benthos at predetermined points along the same 25-meter transect line with a high-resolution digital camera mounted on a photoquadrat pole, starting at the 1 meter mark to the 25 meter mark. This work generates 25 photographs per site that provide a durable pictorial record of the benthos. These photographs can be analyzed, if needed, by staff at NOAA Coral Reef Ecosystem Program (CREP) using computer image analysis software to generate benthic data (for additional details regarding CREP's current standard operating procedure to analyze benthic images, see <https://www.st.nmfs.noaa.gov/confluence/display/CRED/Standard+Operating+Procedures> [\*must have a NOAA account to view this document]).

**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 quality control occurred at two major stages - 1) data entry and 2) data management. Data entry quality control included both review and manual error correction steps. Data management quality control included several standard error queries followed by correction prior to ingestion into Oracle database.

**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/27316>

**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?**

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 or 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:**

<https://accession.nodc.noaa.gov/0138585>

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

Line-point-intercept data can be accessed online via the NOAA National Centers for Environmental Information (NCEI) Ocean Archive, accession #0138585.

Benthic images from photo quadrat surveys conducted by the NOAA Coral Reef Ecosystem Program (CREP) in the Wahikuli and Honokowai watersheds, West Maui, Hawaii from 2014 to 2015 are available upon request from the data steward.

**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.*