

*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 Images from Towed-Diver Surveys in the Main Hawaiian Islands to Assess the Mass Coral Bleaching Event in November 2015

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

A team from the Pacific Islands Fisheries Science Center (PIFSC), Coral Reef Ecosystem Program (CREP) deployed on a two-week research cruise in November 2015 to evaluate the impacts of the 2015 mass coral bleaching event in the Main Hawaiian Islands via towed-diver surveys. Areas surveyed included south Oahu, west Maui, Lana'i, and west Hawaii island. Over the course of 10 survey days, the team surveyed approximately 90 km of 15-m wide transects at depths ranging from 2 to 10 m.

Data provided in this dataset include benthic images that were collected during the towed-diver surveys from a camera that was mounted to the towboard. A downward-facing DSLR camera with strobes collected these photographic quadrat data by capturing an image of the benthos at 15-second intervals during the surveys.

Two additional datasets were collected during the surveys and are documented separately. Towed divers recorded visual estimates of percentage of live coral that was pale and bleached, as well as presence/absence data of condition by generic composition.

Oceanographic data was collected continuously throughout each survey with a suite of sensors mounted to the towboard recording conductivity, temperature, depth, fluorescence (chlorophyll-a), turbidity and dissolved oxygen.

The benthic images 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:**

2015-11-03 to 2015-11-18

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

W: -157.94722922, E: -155.82934199, N: 21.30306893, S: 19.74853696

Extent of underwater surveys in Main Hawaiian Islands in November 2015.

**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:**

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:**

Noah Pomeroy

**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 towed-diver surveys of corals by the NOAA Coral Reef Ecosystem Program (CREP) following the same protocol to that established by the NOAA National Coral Reef Monitoring Program (NCRMP).

Process Steps:

- A pair of scuba divers is towed about 1 m above the reef roughly 30 m behind a small boat at a constant speed of about 1.5 kt. Both divers collect visual observations of the benthos. Towboards are connected to the small boat by a bridle and towline. A tow survey is typically 50 minutes and covers about 2 km of habitat. Each survey is divided into 5-minute segments, with data recorded separately per segment to allow for georeferencing of observations within the ~200 m covered during each segment. Throughout a survey, the latitude and longitude of the survey track is recorded at 5-second intervals on the small boat with a global positioning system (GPS). Following a survey, diver tracks are generated using this GPS data and a layback algorithm to account for position of the diver relative to the small boat. One towboard features a forward facing camera that takes video and a downward facing camera records benthic photo-quadrats every 15 seconds, using a DSLR camera and strobes to even lighting conditions. These quadrats provide an archival record of the event, and will allow researchers to more thoroughly document observed patterns. Analysis of the benthic photo-quadrats is planned through a collaboration with academic researchers at Bangor University.

**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):**

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/32587>

### 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 of facility providing data access:

NOAA National Centers for Environmental Information (NCEI)

**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/0157611>

<https://accession.nodc.noaa.gov/0157611>

**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.*