

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:**

Oceanographic data, including conductivity, temperature, depth, dissolved oxygen, fluorescence, and turbidity, collected during towed-diver surveys conducted from November 3-18, 2015 in the Main Hawaiian Islands to assess damage from the 2015 mass coral bleaching event

1.2. Summary description of the data:

The oceanographic data included in this dataset were collected by the NOAA Pacific Islands Fisheries Science Center (PIFSC), Ecosystem Sciences Division (ESD; formerly the Coral Reef Ecosystem Division) from November 3-18, 2015 with funding from the NOAA Coral Reef Conservation Program. The purpose of the two-week research cruise was to evaluate the impacts of the 2015 mass coral bleaching event in the Main Hawaiian Islands. A modified version of ESD's towed-diver method was used to conduct surveys around south Oahu, west Maui, Lanai, and west Hawaii island. The modified towed-diver method involved towing a pair of SCUBA divers behind a small boat for 50 minutes and covering a linear distance of ~2 kilometers per survey. Each diver was equipped with a towboard and attempted to maintain position ~1 meter above the surface of the reef for the duration of the survey. The oceanographic data was collected with a Seabird Electronics 19P CTD mounted to one of the towboards with two auxiliary sensors connected to it, including a Seabird Electronics SBE43 oxygen sensor and a Wet labs FLNTURTD fluorometer and scattering meter. The data were collected continuously throughout each survey and included conductivity, temperature, depth, dissolved oxygen, fluorescence, and turbidity. A complete towed-diver survey includes ten 5-minute segments, with oceanographic data averaged by 5-minute segment to correspond with the visual observations recorded by the benthic diver. At the conclusion of the mission, approximately 90 kilometers of 15-m wide transects at depths ranging from ~1 m to ~13 m were surveyed.

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: -157.9472292246, E: -155.8293419903, N: 21.3030689284, S: 19.7485369637

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.)

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.)

Instrument: towboard-benthic

Platform: NOAA Ship Hi'ialakai

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:

Modified towed-diver survey methodology to collect benthic observations, images, and oceanographic data around the main Hawaiian Islands to be used to assess impacts from the 2015 mass coral bleaching event.

Process Steps:

- A pair of scuba divers was towed about 1 m above the reef roughly 30 m behind a small boat at a constant speed of about 1.5 knots. Both divers collected visual observations of the benthos. Tow-boards were connected to the small boat by a bridle and towline. Each tow survey was typically 50 minutes long and covered about 2 km of habitat. Each survey was divided into 5-minute segments, with data recorded separately per segment to allow for geo-referencing of observations within the ~200 m covered during each segment. Throughout a survey, the latitude and longitude of the survey track was recorded at 5-second intervals on the small boat with a global positioning system (GPS). Following a survey, diver tracks were generated using this GPS data and a layback algorithm to account for position of the diver relative to the small boat. On one towboard, oceanographic data was collected continuously throughout each survey with a suite of mounted sensors recording conductivity, temperature, depth, fluorometry (chlorophyll-a), turbidity and dissolved oxygen. Sensors included a Seabird Electronics 19P CTD, and a Seabird Electronics SBE43 oxygen sensor and a Wet labs FLNTURTD fluorometer and scattering meter were connected to the 19P CTD. For each 5-minute tow segment, each diver made observation of the benthos, corals, and bleaching status (documented and archived separately). Oceanographic measurements were averaged by each 5-min segment of the tow survey to correspond with the benthic observations recorded by the divers. The other towboard was outfitted with a downward facing camera that captured photos of the benthos (also documented and archived separately). (Citation: Research Report: Observing and Documenting Predicted 2015/2016 Mass Coral Bleaching Events in Hawaii)

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):

Observations, including species identification and coverage area estimates were periodically checked during the expedition for consistency between divers. Data entry was usually conducted on the same day as the surveys using MS Access. Data was quality controlled by the divers using a two-person system. The data was then run through rigorous quality control checks by the data management team before the data was migrated to the Oracle database. Given the size of the data set, there remains some possibility of typographical or other errors.

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?

Yes

6.1.1. If metadata are non-existent or non-compliant, please explain:

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/32586>

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:

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/0189254>

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.