

*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:**

National Coral Reef Monitoring Program: Towed-diver Surveys of Large-bodied Fishes of the Marianas since 2014

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

The towed-diver method is used to conduct surveys of large-bodied (> 50 cm) fishes in the Hawaiian and Mariana Archipelagos, American Samoa, and the Pacific Remote Island Areas as part of the NOAA National Coral Reef Monitoring Program (NCRMP). A suitable method for assessing relatively large areas of reef habitat, the method involves towing a pair of SCUBA divers—one benthic and one fish—behind a small boat for approximately 50 min following the ~15-m depth contour and covering about 2–3 km of habitat. Each diver is equipped with a towboard and attempts to maintain a constant elevation above the surface of the reef (~1 m) for the duration of the survey. A complete towed-diver survey is divided into 10 5-min segments, with visual observations recorded by 5-min segment.

The visual estimate data provided in this dataset were collected during towed-diver surveys in which the number, size, and species of all large-bodied fishes observed within a visually estimated 5-m transect on either side of the fish diver and 10 m in front were recorded. The data were collected around the Marianas as part of the NOAA Pacific Islands Fisheries Science Center (PIFSC), Coral Reef Ecosystem Program (CREP) led mission since 2014. These data 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:**

2014-03-25 to 2014-05-06, 2017-05-04 to 2017-06-20

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

W: 144.6258831, E: 145.8533789, N: 20.54979267, S: 13.22982722

Mariana Archipelago including Guam, Rota, Tinian, Aguijan, Saipan, Sarigan, Guguan, Alamagan, Pagan, Agrihan, Asuncion, Maug, and Farallon de Pajaros.

**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:**

Kaylyn S McCoy

**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:

Fish towed-diver survey method of large-bodied (>50 cm) reef fishes

Process Steps:

- A pair of scuba divers is towed about 1 m above the reef roughly 60 m behind a small boat at a constant speed of about 1.5 knots. One diver quantifies fish populations, and the other diver quantifies the benthos. Each diver maneuvers their own towboard. Towboards are connected to the small boat by a bridle and towline and outfitted with various survey equipment, including a video camera on the fish towboard. The fish diver records the number, size, and species of all large fishes (>50 cm TL) observed within a belt that is 10 m wide and centered on the diver. Observations and species tallies are recorded on preprinted data sheets attached to each towboard. The digital video camera on the fish towboard faces forward and takes a permanent record of fishes encountered in a standard field of view. A towed survey is typically 50 min long and covers about 2 km of habitat. Each survey is divided into 5-min 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 its survey track are recorded at 5-s 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. (Citation: Lino K, Asher J, Ferguson M, Gray A, McCoy K, Timmers M, Vargas-Ángel B (2018) Ecosystem Sciences Division standard operating procedures: data collection for towed-diver benthic and fish surveys. Pacific Islands Fish. Sci. Cent., Natl. Mar. Fish. Serv., NOAA, Honolulu, HI 96818-5007. Pacific Islands Fish. Sci. Cent. Admin. Rep. H-18-02, 76 p.)

**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 data is recorded by the diver on a physical data sheet, then transferred to a MS Access database on-board the ship. After the data is entered in the MS Access database,

the diver verifies the data against the physical data sheet to ensure accuracy. Following the conclusion of a mission, the data is migrated to an Oracle database by NOAA CREP data management. There are several queries in both the MS Access and Oracle database to flag errors based on pre-defined criteria.

## 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/35762>

### 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/0157554>

<https://accession.nodc.noaa.gov/0157633>

<https://accession.nodc.noaa.gov/0157633>

<https://accession.nodc.noaa.gov/0166382>

**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*

The data is captured in several locations: physical data sheets, MS Access cruise database, and PIFSC Oracle database. The physical data sheets are housed at PIFSC. The MS Access cruise database is regularly backed up by the cruise data manager while at sea. The PIFSC Oracle database is regularly backed up by PIFSC ITS.

## **9. Additional Line Office or Staff Office Questions**

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