

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:

Pacific Reef Assessment and Monitoring Program: Sightings of Marine Species of Interest during Towed-diver Surveys of the U.S. Pacific Reefs from 2000 to 2017

1.2. Summary description of the data:

The presence data described here include "off transect" sightings of marine species of interest observed during fish towed-diver surveys conducted by the Pacific Islands Fisheries Science Center (PIFSC) Ecosystem Sciences Division (ESD)--formerly the Coral Reef Ecosystem Division--as part of the Pacific Reef Assessment and Monitoring Program (Pacific RAMP). These underwater surveys were conducted across coral reef habitats of the Hawaiian and Mariana Archipelagos, American Samoa, and the Pacific Remote Island Areas from 2000 to 2017. Presence data for marine species observed outside the fish towed-diver's transect were recorded, including the taxon name - generally to species level, the number observed, and in most cases the size in centimeters. Marine species observed include sea turtles, dolphins, eels, rays, seals, as well as a number of fish species that were considered to be species of interest, such as the humphead wrasse, bumphead parrotfish, most reef sharks, and species of large grouper. While not included in this dataset, the towed-diver method was primarily used by ESD to survey large-bodied (>50 cm) fishes within the towed-diver transect and to assess the reef habitat. This dataset also includes fish species of interest observed inside the transect area, but where those were less than 50 cm in total length (and therefore not recorded with the large-bodied fish towed-diver survey data).

Generally, the towed-diver method involves towing a pair of SCUBA divers--one benthic and one fish--behind a small boat for 50 minutes, approximately following the ~15-m depth contour and covering a linear distance of about 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. A complete towed-diver survey includes ten 5-minute segments, with visual observations recorded by 5-minute segment. Sightings of marine species included in this dataset were also recorded by the 5-min segment in which the species was observed.

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:

2003-08-22 to 2003-09-28, 2007-05-12 to 2007-05-22, 2007-05-25 to 2007-06-08, 2009-04-03 to 2009-04-14, 2009-04-15 to 2009-05-05, 2011-04-07 to 2011-05-09, 2005-09-04 to 2005-09-30, 2005-10-03 to 2005-10-08, 2014-03-25 to 2014-05-06, 2017-05-04 to 2017-06-20, 2005-07-14 to 2005-08-06, 2006-07-27 to 2006-08-19, 2008-10-17 to 2008-11-13, 2000-09-09 to 2000-10-05, 2008-12-09 to 2008-12-10, 2010-10-08 to 2010-11-04, 2001-09-13 to 2001-09-25, 2016-07-13 to 2016-09-14, 2002-09-11 to 2002-10-04, 2003-07-14 to 2003-08-08, 2004-09-16 to 2004-10-11, 2006-09-03 to 2006-10-01, 2008-09-14 to 2008-10-09, 2010-09-07 to 2010-09-24, 2010-02-23 to 2010-03-20, 2012-03-21 to 2012-04-25, 2002-02-09 to 2002-03-03, 2004-02-04 to 2004-02-25, 2006-02-11 to 2006-03-09, 2008-02-18 to 2008-03-18, 2015-02-15 to 2015-03-23, 2005-10-18 to 2005-10-21, 2007-04-30 to 2007-05-03, 2009-03-22 to 2009-03-26, 2011-03-23 to 2011-03-27, 2001-02-07 to 2001-02-23, 2002-01-29 to 2002-02-01, 2004-01-12 to 2004-01-24, 2004-03-26 to 2004-04-04, 2006-01-18 to 2006-02-01, 2006-03-20 to 2006-04-02, 2008-01-27 to 2008-02-09, 2008-03-26 to 2008-04-07, 2002-03-10 to 2002-03-19, 2010-01-24 to 2010-02-08, 2010-04-01 to 2010-04-17, 2012-03-02 to 2012-03-16, 2012-05-03 to 2012-05-19, 2014-03-16 to 2014-03-17, 2015-02-04 to 2015-04-25, 2017-04-02 to 2017-04-20

1.5. Actual or planned geographic coverage of the data:

W: 142, E: 146, N: 21, S: 12.5

Mariana Archipelago including Guam, Rota, Tinian, Aguijan, Saipan, Sarigan, Guguan, Alamagan, Pagan, Agrihan, Asuncion, Maug, Farallon de Pajaros, Anatahan, Arakane, Pathfinder, Santa Rosa, Stingray, and Tatsumi.

W: -161, E: -154.5, N: 22.5, S: 18.5

Main Hawaiian Islands (MHI), including Hawaii, Kauai, Kaula, Lanai, Maui, Molokai, Niihau, and Oahu

W: -178.5, E: -164.5, N: 28.5, S: 23.5

Northwestern Hawaiian Islands (NWHI), including French Frigate, Gardner, Kure, Laysan, Lisianski, Maro, Midway, Necker, Pearl & Hermes, and Raita

W: -171.5, E: -168, N: -11, S: -15

American Samoa including Tutuila, Manu'a (Ofo, Olosega, and Ta'u), Rose Atoll, South Bank, and Swains.

W: 166.5, E: -159.5, N: 19.5, S: -0.5

Pacific Remote Island Areas, including the Phoenix (Baker and Howland), Line (Jarvis, Kingman, and Palmyra), and Wake Islands, and Johnston Atoll.

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-fish

Platform: In Situ Ocean-based Platforms > SHIPS

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:

Towed-diver survey method for sightings of marine species of interest, employed by the PIFSC Ecosystem Sciences Division (ESD) from 2000 to 2017. This underwater survey method was primarily used to assess relatively large areas of reef habitat and to survey for large-bodied fishes; however, the method was also used to gather "off transect" sightings of marine species of interest.

Process Steps:

- The towed-diver method involved towing a pair of SCUBA divers--one benthic and one fish--behind a small boat that motored at a velocity of 1-2 mph for 50 minutes, approximately following the ~15-m depth contour and covering a linear distance of about 2 kilometers per survey. A complete towed-diver survey includes ten 5-minute segments, with visual observations recorded by 5-minute segment. Presence data for sightings of marine species observed outside the fish towed-diver's transect were also recorded by the 5-min segment in which the species were observed, including the taxon name - generally to species level - the number observed, and in most cases the size in centimeters. Presence data for fish species of interest observed inside the transect area were also recorded, but only where those were less than 50 cm in total length (and therefore not recorded with the large-bodied fish towed-diver survey data). 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 fish towboard was equipped with a digital videocamera pointing in the forward-looking direction to document the fish associated with the reef. The fish diver maneuvered the towboard on which the camera was mounted and recorded select data pertaining to fish using datasheets mounted on the towboard. The towboard was also equipped with a SEABIRD temperature sensor to record water temperature and depth every 5 seconds. A Global Positioning System (GPS) receiver on-board the surface tow vessel recorded the latitude and longitude coordinates of the survey track over which the divers were towed. The survey tracks were georeferenced, merged with the temperature and depth data, and a layback model was applied (python script in ESRI ArcGIS for Desktop) to reflect the accurate track of the divers whose actual position was a distance behind 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 data management personnel. There are several data validation queries in both the MS Access and Oracle databases 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?

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/25301>

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:

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

<https://accession.nodc.noaa.gov/0189253>

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.