

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:

Fish, Benthic and Urchin Survey Data from Kahekili Herbivore Fisheries Management Area (HFMA), Maui since 2008

1.2. Summary description of the data:

Data are summary fish, benthic and urchin data from belt transect surveys conducted by the Pacific Islands Fisheries Science Center (PIFSC) Ecosystem Sciences Division (ESD; formerly the Coral Reef Ecosystem Division) within the Kahekili Herbivore Fisheries Management Area (KHFMA) in West Maui.

Surveys were completed in 'rounds', each round being an intensive 4 day survey effort (occasionally with an additional day soon after) from 2009 to 2021. Also included are data gathered by Hawaii Division of Aquatic Resources (HDAR) in 2008 at the same locations and using the same survey design and methods.

Each row represents a single survey of a 25-m haphazardly located transect within the KHFMA. All transects are included. Habitat types are SAG (shallow aggregate reef); DAG (deep aggregate reef); MMX (mixed mid-depth reef); SSG (shallow spur and groove); DSG (deep spur and groove); and SPA (shallow pavement).

Benthic cover (%) is extracted from a photo-transect (25 photographs taken at 1-m intervals, 15+ points analyzed per photograph using image analysis softwares PhotoGrid or CoralNet). -9 values represent situations where images were either not gathered or not analyzed.

Fishes are surveyed by means of a diver swimming outward and return swims along the same transect. On the outward swims, the diver records all fishes >15 cm total length (TL) within a 4-m wide belt centered on the diver; on the return swim, divers record fishes <15 cm TL within a 2-m wide belt. Fish species and size observations are converted to biomass (grams per square meter, or g/m^2) using species-specific length-weight conversion parameters. Urchins are counted on a 1-m wide belt centered on the transect line. Urchin density is calculated by the number per square meter ($\#/m^2$).

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:

2008 to 2021-11

1.5. Actual or planned geographic coverage of the data:

W: -156.6983, E: -156.6867, N: 20.9542, S: 20.9263

Extent of Kahekili Marine Reserve

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:

Lori H Luers

2.2. Title:

Metadata Contact

2.3. Affiliation or facility:

2.4. E-mail address:

lori.luers@noaa.gov

2.5. Phone number:

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:

Andrew E Gray

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:

Belt transect fish surveys are investigations that provide a high degree of taxonomic resolution for reef fish communities. The surveys were conducted by teams of two divers with locations haphazardly spread throughout the survey area. Transect placement was guided by: (1) a focus on hardbottom communities; (2) deploying lines along an isobath and parallel to shore.

Process Steps:

- For each survey round, approximately 80-100 survey transects are conducted within the KHFMA. Survey teams comprising of divers and working off a small boat were haphazardly dropped over hardbottom areas throughout the KHFMA. The divers would then swim straight down to the nearest suitable habitat (hardbottom large enough to lay a survey transect in); one of the survey divers would then tie off the starting point of the survey transect and the other recorded the transect start location using a GPS in a waterproof bag attached to a float. As much as possible, surveys were always run parallel to the shoreline running approximately northwards. Survey transects were of 25m length.
- One of the divers conducted fish surveys, recording the species, number and size (in 5 cm slots) of all fishes recorded within the transect ahead of the diver as they swam slowly along the transect line. Fishes larger than 15 cm total length (TL) were recorded within a 4-m wide belt centered on the diver as they laid out the 25 m transect tape. At the end of the transect, the diver would then turn around and resurvey the transect line, recording species, number and size of all fishes smaller than 15 cm TL in a 2-m wide belt centered on the transect line. The other survey diver followed the fish survey diver, and conducted a photo quadrat survey of the benthos under the transect line, and then recorded all sea urchins within a 1-m wide belt, during a return swim down the transect line.

- Photos were subsequently analyzed using point count image analysis software, with cover recorded to lowest possible taxonomic level (species for coral, genera for macroalgae, functional group for others [crustose coralline algae, turf, sand, other sessile invert]).

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):

Size estimates checked against known size ranges per species

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/30951>

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/0165015>

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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.