

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:**

Evaluating management strategies to optimize coral reef ecosystem services: Ecosystem Model Data for Puako, Hawaii

1.2. Summary description of the data:

Coral reefs provide a wide range of ecosystem services that are valued differently by different users. Managers are challenged to comprehensively address the full suite of pressures that act simultaneously on these ecosystem state variables and dynamics. We developed a decision-support tool using an ecosystem model, Ecopath with Ecosim, that ranks the efficiency of potential management strategies in evaluating ecological and socio-economic trade-offs based on multiple indicators for coral reef ecosystem services in Puako, Hawaii Island. Our results indicate that current management is inadequate to prevent further declines in coral reef resources and that improved fishery management can mitigate the detrimental effects of expected bleaching-related coral mortalities on the ecosystem services in the next 15 years. The scenario that minimized conflicts between stakeholders was "Only Line Fishing" and to a lesser extent a reduction in fishing effort.

Results include the biomass (tons per square kilometer) for several groups of marine organisms (invertivores, coralivores, planktivores, browsers, grazers, sharks, reef fishes, sea turtles, invertebrates, corals, algae, and plankton) for 2017 and 2032 under the current and alternative management scenarios and the relative performance of the indicators under six management scenarios in 2032 and compared to current management.

The data are available from the Dryad Digital Repository: <https://doi.org/10.5061/dryad.4sh45>

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:

1980 to 2016, 2017 to 2032

1.5. Actual or planned geographic coverage of the data:

W: -155.894, E: -155.8361, N: 19.972, S: 19.9194

Puako is on the northern part of the west coast of Hawaii Island in the State of Hawaii.

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:

Mariska Weijerman

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:

Input data was collected for the Ecopath with Ecosim model (EwE) from Hayes et al (1982). Vital rates and diet came from Weijerman et al (2013). Model validation data was supplied by the Hawaii Division of Aquatic Resources (POC Dr. WJ Walsh) and the Nature Conservancy (POC D. Minton). The model output data are generated with the EwE model. All steps are available in Weijerman et al (in prep) J Applied Ecology.

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):**

Model dynamics were validated with a hindcast simulation (1980-2016). Reconstructed linear catch time series per gear type from 1980 and 2007 were loaded into Ecosim for validation and to fine-tune the model by adjusting fishing effort and so minimize the residuals between predicted and observed fish biomass and fish landings temporal data points (from DAR and TNC) using a least-square fitting criterion.

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)
- 7.2. Name of organization of facility providing data access

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/36315>

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:

7.2.1. If data hosting service is needed, please indicate:

Dryad repository

7.2.2. URL of data access service, if known:

<https://datadryad.org/bitstream/handle/10255/dryad.168672/EdopathInputData.xlsx?sequence=1>
<https://datadryad.org/bitstream/handle/10255/dryad.168673/OutputDataSet.xlsx?sequence=1>

7.3. Data access methods or services offered:

Model input and output data can currently be obtained by the author, and has also been submitted to the Dryad repository. The data package has been approved, and will be available in the Dryad repository once the associated article has been published.

Title: Data from: Evaluating management strategies to optimize coral reef ecosystem

services

DOI: doi:10.5061/dryad.4sh45

Journal: Journal of Applied Ecology

Journal manuscript number: JAPPL-2017-00655

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)

OTHER

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

Model data is stored on an external hard drive and backed up to a server at PIFSC weekly by the data steward. Data on the PIFSC server are managed by NOAA IRC and NOAA Fisheries ITS.

9. Additional Line Office or Staff Office Questions

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