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:

Water chemistry at coral reef sites in Timor-Leste from discrete surface and bottom water samples collected in 2013 and 2014

1.2. Summary description of the data:

The water chemistry data described here are from discrete water samples collected by the NOAA Coral Reef Ecosystem Program (CREP) in 2013 and 2014 to assess the seawater carbonate systems primarily at fixed climate survey sites located in coral reef habitats in Timor-Leste. Climate sites were established by CREP to establish ecological baselines for climate change by measuring multiple features of the coral reef environment (in addition to the data described herein) over time. Water chemistry data for both 2013 and 2014 is only available for a subset of the established climate survey sites (5 of the 8 sites). In 2013, water samples were collected from a few random sites in addition to the samples collected at the climate survey sites.

SCUBA divers collected two discrete water samples from each site; one at the reef and one at the surface directly above the reef. In 2013 only, surface water samples were also collected ~1 km offshore from the survey site. The samples were processed by CREP and sent to NOAA Pacific Marine Environmental Laboratory (PMEL) to be analyzed for total alkalinity (TA) and dissolved inorganic carbon (DIC). From these constituents, alongside temperature, salinity, and depth data, other parameters of the seawater carbonate system were calculated, including pH, partial pressure of carbon dioxide, and aragonite saturation state.

The water chemistry 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:

2013-06-06 to 2013-06-27, 2014-09-16 to 2014-10-09

1.5. Actual or planned geographic coverage of the data:

W: 124.36833, E: 127.31222, N: -8.15301, S: -9.19571
Extent of water chemistry data for Timor-Leste from water samples collected in 2013 and 2014.

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:
Hannah C Barkley

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:
NOAA Coral Reef Ecosystem Program (CREP) assembles carbonate chemistry information from discrete seawater samples analyzed for two parameters: 1) Dissolved Inorganic Carbon (DIC), which in some literature is defined as Total Carbon (CT), and 2) Total Alkalinity (TA or AT). All carbonate system collection and measurement methodologies follow the protocols accepted by the greater scientific community and outlined in Dickson et al. (2007)

Process Steps:

- At each Climate Monitoring site, 1 discrete near reef seawater sample (recovered at ~15-m depth) and 1 surface seawater sample (recovered at ~1-m depth) were collected using 5-L Niskin bottles. In 2013, a third seawater sample was collected ~1-km offshore from each site (recovered at ~1-m depth). Each time a water sample was collected, it was divided into: (1) a 500-mL glass bottle and preserved with mercuric chloride (for dissolved inorganic carbon [DIC] and total alkalinity [TA] analysis) and (2) a 250-mL HDPE plastic bottle (for salinity analysis). During both 2013 and 2014 field efforts, 1 in 4 water sample collections were replicated to ensure analytical reproducibility. Discrete water samples are collected according to the protocol established by the NOAA Pacific Marine Environmental Laboratory (PMEL). (Citation: Inorganic Carbon Sampling: Planning and Sample Collection)
- In 2013, electronic measurements of temperature and pressure were taken at the location where each water sample was collected using a Seabird SBE-39 subsurface temperature recorder. In 2014, immediately upon returning to the dive boat, a conductivity-temperature-depth instrument was used to sample through the water column above the 15-m survey site using a SBE-19plus. (Citation: Dickson et al (2007) , SOP 1: Water Sampling for the parameters of the oceanic carbon dioxide system)
- NOAA Pacific Marine Environmental Laboratory (PMEL) supports NOAA Coral Reef Ecosystem Program's (CREP's) carbonate chemistry sampling through the laboratory analysis of dissolved inorganic carbon (DIC) and total alkalinity (TA), provision of the sample bottles and transport cases, and technical consultation. The source document contains the protocols that PMEL uses to analyze water samples for DIC (SOP 2) and TA (SOP 3b). (Citation: Dickson, A.G., Sabine, C.L. and Christian,

J.R. (Eds.) 2007. Guide to best practices for ocean CO2 measurements. PICES Special Publication 3, 191 pp.)
- The Total Alkalinity (TA) analysis employs a two-stage, potentiometric, open-cell titration using coulometrically analyzed HCl. (Citation: Dickson et al (2007), SOP 3b: Determination of total alkalinity in sea water using an open-cell titration)

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):
PMEL conducts quality assurance and quality control on their analyses; the precision and accuracy of DIC analyses are on the order of ± 0.05% and TA analyses are on the order of ± 0.1% in a laboratory setting.

Data quality flags are provided by NOAA Pacific Marine Environmental Laboratory (PMEL) and included in the dataset. These flags indicate if something went wrong with the analytical equipment or with the processing of the samples. PMEL uses the World Ocean Circulation Experiment (WOCE) data quality flag system, where '2's correspond to good values, '3's to questionable data, and '4's to bad data. Most water samples collected by the NOAA Coral Reef Ecosystem Program (CREP) and analyzed by PMEL in this dataset received a '2' data quality flag and the remainder were flagged as questionable (' 3').

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/46163

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/0157633
https://accession.nodc.noaa.gov/0157633
https://accession.nodc.noaa.gov/0168915
https://accession.nodc.noaa.gov/0168915
https://accession.nodc.noaa.gov/0168915

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 resides in an MS Access database, which is maintained and 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.