National Estuarine Research Reserve (NERR) System-Wide Monitoring Program (SWMP)

Please provide the following information and submit to the NOAA DM Plan Repository.

Reference to Master DM Plan (if applicable)

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

NANOOS DMP: https://www.nanoos.org/documents/certification/DMP/2023/NANOOS-DMP.pdf

1. General Description of Data to be Managed

1.1. Name of the Data, data collection Project, or data-producing Program:

National Estuarine Research Reserve (NERR) System-Wide Monitoring Program (SWMP)

1.2. Summary description of the data:

NOAA's National Estuarine Research Reserve System (NERRS) acknowledges the importance of both long-term environmental monitoring programs and data and information dissemination through the support of the NERRS System-wide Monitoring Program (SWMP). The goal of the SWMP is to identify and track short-term variability and long-term changes in the integrity and biodiversity of representative estuarine ecosystems and coastal watersheds for the purpose of contributing to effective national, regional and site-specific coastal zone management.

Core abiotic SWMP elements include meteorological (air temperature, relative humidity, barometric pressure, wind speed, wind direction, rainfall and photosynthetically active radiation) and water quality (water temperature, specific conductivity, salinity, percent saturation of dissolved oxygen, dissolved oxygen concentration, depth, or level, pressure corrected depth or level, pH, and turbidity) datasets. All data are available in .CSV format. See more here: https://cdmo.baruch.sc.edu/data/parameters.cfm.

1.3. Is this a one-time data collection, or an ongoing series of measurements?

Ongoing

1.4. Actual or planned temporal coverage of the data:

Continuous at South Slough NERR, one of 30 coastal and estuarine reserves

1.5. Actual or planned geographic coverage of the data:

The geographic coverage includes the boundary of the South Slough National Estuarine Research Reserve and the South Slough and Coos estuary.

1.6. Type(s) of data:
(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.).

Numeric data

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.)

Meteorological data are collected every fifteen minutes at one station equipped with a Campbell CR-1000(x) datalogger and a NOAA Geostationary Operational Environmental Satellites (GOES) telemetry system. The Reserve's primary weather station is located at 43.27917 N, -124.31833 W.

Water quality data are collected every 15 minutes at four permanent monitoring stations equipped with YSI/Xylem EXO datasondes. Water quality stations are telemetered to provide near real-time data delivery through GOES. The Reserve's water quality monitoring stations are located at 43.337828 N, -124.320722 W (Charleston Bridge), 43.317217 N, -124.321633 W (Valino Island), 43.282478 N, -124.320302 W (Winchester Creek), and 43.296501 N, -124.310729 W (Elliot Creek). One water quality station, co-managed, by SSNERR and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians (CTCLUSI) is located at 43° 24' 54.83'' N 124° 16' 42.60'' W (North Spit).

1.1. If data are from a NOAA Observing System of Record, indicate name of system:

NERR SWMP and NANOOS

1.1.1. If data are from another observing system, please specify: N/A

2. Point of Contact for this Data Management Plan (author or maintainer)

2.1. Name: Melissa Ide

2.2. Title: Deputy Director

2.3. Affiliation or facility: NERRS Centralized Data Management Office

2.4. E-mail address: melissa@baruch.sc.edu

2.5. Phone number: 843-904-9003

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: Chris Kinkade

3.2. Position Title: NERRS National Research Coordinator

3.3. Name of current Position holder:

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"): 1.8%

5. **Data Lineage and Quality**

NOAA has issued Information Quality Guidelines[1] 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)*:

http://cdmo.baruch.sc.edu/data/policy.cfm

http://cdmo.baruch.sc.edu/data/qaqc.cfm

5.1.1. If data at different stages of the workflow, or products derived from these data, are

[1] http://www.cio.noaa.gov/services_programs/IQ_Guidelines_030414.html

subject to a separate data management plan, provide reference to other plan:

5.2. Quality control procedures employed *(describe or provide URL of description)*:

http://cdmo.baruch.sc.edu/data/qaqc.cfm

6. **Data Documentation**

The EDMC Data Documentation Procedural Directive[2] *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:

NERRS Centralized Data Management Office and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians

6.2.1. If service is needed for metadata hosting, please indicate:

6.3. URL of metadata folder or data catalog, if known:

http://cdmo.baruch.sc.edu/get/landing.cfm

https://ctclusi.org/department-of-natural-resources-culture/

6.4. Process for producing and maintaining metadata *(describe or provide URL of description)*:

http://cdmo.baruch.sc.edu/data/metadata.cfm

https://ctclusi.org/department-of-natural-resources-culture/

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[3] *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: NERRS Centralized Data Management Office and NANOOS Visualization System (NVS)

[2] https://www.nosc.noaa.gov/EDMC/PD.DD.php

[3] Data Access Directive currently in review; URL to be added.

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

7.2.2. URL of data access service, if known:

http://cdmo.baruch.sc.edu/

https://nvs.nanoos.org/Explorer

7.3. Data access methods or services offered:

Data export system: http://cdmo.baruch.sc.edu/get/export.cfm

Advanced query system: http://cdmo.baruch.sc.edu/aqs

Real time data application: http://cdmo.baruch.sc.edu/get/realTime.cfm

GIS application: http://cdmo.baruch.sc.edu/get/gis.cfm

Vegetation monitoring application: http://cdmo.baruch.sc.edu/get/vegetation_index.html

Web services: http://cdmo.baruch.sc.edu/webservices.cfm

Near real-time data visualization and download: https://nvs.nanoos.org/Explorer?snapshot=e18604bcba2417b9d7b4bed24bb8a

7.4. Approximate delay between data collection and dissemination:

Near real-time data is available via NVS and the CDMO real-time data app. Processed data is available within 1 month of collection.

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 NODC, NCDC, NGDC, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)

NCEI

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):

NERRS Centralized Data Management Office http://cdmo.baruch.sc.edu/

8.3. Approximate delay between data collection and submission to an archive facility: One year

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:

Data are uploaded and 'ingested' into the core SQL database at every stage of data collection (including near real-time transmission) and QAQC. All flat files uploaded to the database are archived on the FTP site hosted by our primary web server, they represent one method for

rebuilding the database and data archive if necessary. These two measures help to minimize risk of data deletion.

The process of data ingestion into the database includes a multitude of checks to include: sampling station verification, datetimestamp verification, missing data, corrupted data, inappropriate characters/content, incomplete file ingestion, and sensor range QAQC checks. In addition, any processing of the data during QAQC is performed within an Excel macro that facilitates formatting and protects data content. These measures help to minimize risk due to malicious or erroneous modification.

A secondary database is maintained on a separate server that serves as an additional local back up. All servers are backed up using Backup Assist software. The SQL database is also backed up using SQL backup functions. Backup files are stored on a network drive in a different location and in the cloud; backups are tested on a regular basis. Additional information can be found on CDMO SWMP QA/QC webpage: https://cdmo.baruch.sc.edu/data/qaqc.cfm

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

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

South Slough NERR operating procedures for calibrating, validating, operating, and maintaining equipment:

As a NANOOS Observing System provider, we follow industry best practices and manufacturer guidance where applicable, to calibrate, operate, and maintain the equipment used in this effort, and will provide documentation of this upon request.

Further, we maintain equipment inventories, calibration logs, and instrument maintenance history logs, as appropriate, that are available upon request.