

Plan Overview

A Data Management Plan created using DMP Tool

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Title: Benthic community structure in Narragansett Bay, RI as compared to historical data, a benchmark.

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Template: BCO-DMO NSF OCE: Biological and Chemical Oceanography

Project abstract:

Benthic community structure will be determined at 4 stations in Narragansett Bay, RI. Temperature and salinity will be recorded in the benthic station vicinity Spring through fall for 3 years at 15 minute intervals. Water quality profiles will be conducted bi-weekly at these stations for Temperature, salinity, dissolved oxygen, turbidity, pH and depth. Results will be compared to previous long term data sets in outer Narragansett bay for a benchmark of ecological productivity.

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Benthic community structure in Narragansett Bay, RI as compared to historical data, a benchmark.

Data Policy Compliance

Identify any published data policies with which the project will comply, including the NSF OCE Data and Sample Policy as well as other policies that may be relevant if the project is part of a large coordinated research program (e.g. GEOTRACES).

All data obtained by the Coastal America Foundation will comply with the data management and dissemination policies of the NSF Award and Administration Guide (AAG, Chapter VI.D.4) and the NSF Division of Ocean Sciences Sample and Data Policy. Additionally, the US EPA Water Quality Exchange and the Northeast Regional Ocean Council's Ocean Data Portal compliance for submission will be met.

Pre-Cruise Planning

If the proposed project involves a research cruise, describe the cruise plans. (Skip this section if it is not relevant to your proposal.) Consider the following questions:

- 1. How will pre-cruise planning be coordinated? (e.g. email, teleconference, workshop)**
- 2. What types of sampling instruments will be deployed on the cruise?**
- 3. How will the cruise event log be recorded? (e.g. the Rolling Deck to Repository (R2R) event logger application, an Excel spreadsheet, or paper logs)**
- 4. Will you prepare a cruise report?**

Pre-cruise planning will be done via team meetings online and in person. Onboard Raymarine RV-Pro navigation computers will be pre-programmed with station sampling coordinates. Onset Computer Inc. HOBO data loggers to be deployed will have a coordinated, pre-programmed sampling start time. Each station will have a water quality profile using Xylem ProDSS water quality sonde. These data will be digitally recorded within each device and exported as Excel files. Benthic Van Veen samples will be digitally photographed and cross referenced on the field data sheets. All field activity will be recorded on a comprehensive field data sheet and scanned into a pdf document for daily archiving.

Description of Data Types

Provide a description of the types of data to be produced during the project. Identify the types of data, samples, physical collections, software, derived models, curriculum materials, and other materials to be produced in the course of the project. Include a description of the location of collection, collection methods and instruments, expected dates or duration of collection. If you will be using existing datasets, state this and include how you will obtain them.

Observational Datasets:

Triplicate Van Veen 1/25 square meter benthic community biological samples will be located at the 4 water quality stations, preserved and identified to species. An additional grab will be subsampled for grain size analysis (ASTM 422-63 (2007)). Data will be organized in Excel and statistically processed with PRIMER software. Repository will be DCO-BMO and the Northeast Regional Ocean Council Oceanographic Data Portal (NROC-ODP).

Water Quality profiles will be taken at the 4 stations with a Xylem YSI Pro-Dss system configured with 4 port sensors for Conductivity (salinity), Depth, Temperature, pH, Optical Dissolved Oxygen and turbidity. The system

has internal Lat/Lon GPS file marking. All internal log recordings of data will be exported as CSV into Excel. Repository will be DCO-BMO and NROC-ODP.

Onset Computer Inc HOBO data loggers will be deployed one half meter off the bottom and one meter below the surface to record temperature every 15 minutes. Salinity will be recorded one half meter off the bottom also. loggers will be maintained and cleaned every two weeks. HOBO files will be exported to csv into Excel. Repository will be DCO-BMO and NROC-ODP.

Seaviewer High Resolution 15 minute underwater video transects with precision GPS overlay using a Raymarine 150 GPS/GNSS antennae and or SX Blue II locations. Video transects will be edited into MP4 format or similar. Repository will be DCO-BMO, NROC-ODP and the Coastal America Foundation YouTube video archives.

Experimental Dataset:

An experimental Structure Scan using Raymarine RV Navigation computer and RV-100 sidevision transducer will be attempted to document each station's substrate. The output will be raw sonar data, with options to process the signal into a usable format, depending on success of the field signal. Repository will be DCO-BMO.

Data and Metadata Formats and Standards

Identify the formats and standards to be used for data and metadata formatting and content. Where existing standards are absent or deemed inadequate, these formats and contents should be documented along with any proposed solutions or remedies. Consider the following questions:

- 1. Which file formats will be used to store your data?**
- 2. What type of contextual details (metadata) will you document and how?**
- 3. Are there specific data or metadata standards that you will be adhering to?**
- 4. Will you be using or creating a data dictionary, code list, or glossary?**
- 5. What types of quality control will be used? How will data quality be assessed and flagged?**

Field data sheets will be hand written and stored as pdf files. All data collected will be stored directly by the equipment as ASCII files (csv) internally on the YSI ProDss (temperature, salinity, dissolved oxygen, depth turbidity, latitude and longitude) and converted by HOBO software from internal .hobo files exported to csv. Quality control will be conducted and stored in .xlsx format. Metadata will be prepared in accordance with the BCO-DMO requirements using BCO-DCO meta data forms. All collection and analyses techniques, as well as field and laboratory calibration procedures will be included.

Data Storage and Access During the Project

Describe how project data will be stored, accessed, and shared among project participants during the course of the project. Consider the following:

- 1. How will data be shared among project participants during the data collection and analysis phases? (e.g. web page, shared network drive)**
- 2. How/where will data be stored and backed-up?**
- 3. If data volumes will be significant, what is the estimated total file size?**

All data will be stored on shared network drives and backed up weekly on secure portable hard drives. Data will be stored at the Exeter RI laboratory of the Coastal America Foundation and shared with student interns on the Massachusetts Maritime Academy network system. Estimated data volume including video is not expected to exceed 500 gigabytes.

Mechanisms and Policies for Access, Sharing, Re-Use, and Re-Distribution

Describe mechanisms for data access and sharing, and describe any related policies and provisions for re-use, re-distribution, and the production of derivatives. Include provisions for appropriate protections of privacy, confidentiality, security, intellectual property, or other rights or requirements. Consider the following:

- 1. When will data be made publicly available and how? Identify the data repositories you plan to use to make data available.**
- 2. Are the data sensitive in nature (e.g. endangered species concerns, potential patentability)? If so, is public access inappropriate and how will access be provided? (e.g. formal consent agreements, restricted access)**
- 3. Will any permission restrictions (such as an embargo period) need to be placed on the data? If so, what are the reasons and what is the duration of the embargo?**
- 4. Who holds intellectual property rights to the data and how might this affect data access?**
- 5. Who is likely to be interested in re-using the data? What are the foreseeable re-uses of the data?**

All data will be publically available upon request during the research effort. BCO-DMO repositories will be available to all interested researchers. The EPA WQX will have a submittal of the final data upon project completion. The Northeast Regional Ocean Council will be given a full set of data from their Ocean Data Portal, a significant tool used by regional scientists. After project completion the intent is to publish a refereed journal article similar to previous work in Buzzards Bay published in the Journal of Marine Ecology.

All requirements of the standards, policies and provisions for data and metadata submission, access, re-use, distribution and ownership by the BCO-DMO Terms of Use.

Plans for Archiving

Describe the plans for long-term archiving of data, samples, and other research products, and for preservation of access to them. Consider the following:

- 1. What is your long-term strategy for maintaining, curating, and archiving the data?**
- 2. What archive(s) have you identified as a place to deposit data and other research products?**

All data will be available through BCO-DMO, NROC-Ocean Data Portal, EPA Aqwer Quality Exchange (WQX) and the Coastal America Foundation website. The PI will assure that the information is appropriately formatted and publically available. Additionally, the intent is to publish in a refereed scientific journal for international availability.

Roles and Responsibilities

Describe the roles and responsibilities of all parties with respect to the management of the data. Consider the following:

- 1. If there are multiple investigators involved, what are the data management responsibilities of each person**
- 2. Who will be the lead or primary person responsible for ultimately ensuring compliance with the Data Management Plan?**

The PI, William A. Hubbard (BillHubbard@CoastalAmericaFoundation; whubbard@maritime.edu) will be responsible for all data acquisition, quality control and long term archive availability as described above.

Planned Research Outputs

Dataset - "Narragansett Bay Water Quality and Benthic data Stations CAF-NBOB-16,16,17+18"

Water quality and benthic community structure in the vicinity of Wickford Harbor/Jamestown Island will be produced by this research effort. The area is known as the Narragansett Bay - Outer Bay (West Passage) by previous researchers. The Coastal America Foundation Narragansett Bay Outer Bay stations 15, 16, 17+18 will be analyzed.

Planned research output details

Title	Type	Anticipated release date	Initial access level	Intended repository(ies)	Anticipated file size	License	Metadata standard(s)	May contain sensitive data?	May contain PII?
Narragansett Bay Water Quality and Benthic data St ...	Dataset	2027-12-31	Open	Coastal America Foundation		Creative Commons Zero v1.0 Universal	None specified	No	No