Victoria Clipper Ferrybox

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:

Ferry-based Monitoring Program (FMP)

1.2. Summary description of the data:

Since May 2010, Washington State Department of Ecology's (Ecology) Ferries for Science Monitoring Program collects near real-time geo-referenced environmental data from Puget Sound and the eastern Strait of Juan de Fuca. These data are collected during daily transits of the private passenger ferry vessel, *Victoria Clipper V (VCV)*, as it travels between Seattle, WA and Victoria, B.C. Ecology collaborates on this project with GSI Environmental Inc. (GSI's point of contact is Dr. Brandon Sackmann). Data are processed and transmitted daily from the ferry vessel to a cloud-hosted relational database for storage and dissemination amongst the project team.

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

The program captures ongoing hydrographic data for temperature, salinity, and pCO2 at 10-sec intervals, via a pumped continuous water feed taken from the seachest of the VCV ferry vessel.

1.4. Actual or planned temporal coverage of the data:

Seasonally dependent data are collected once or twice daily along an 80 nautical mile transect round trip between Seattle, WA and Victoria, B.C. Measurement are taken every 10 sec.

1.5. Actual or planned geographic coverage of the data:

The 80 nautical mile transect between Seattle, WA and Victoria, B.C. at times has to be altered due to weather. In this case the VCV passes through Whidbey Basin transiting through Deception Pass. Route map Clipper_Map_SEA-VIC-Route_2019_003 (clippervacations.com)

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

Digital numeric data (i.e., sensor 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.).*

Passenger ferry (via custom flowing seawater sampling system)

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:

Victoria Clipper Navigation Vessel Information | Clipper Vacations Victoria Clipper V: Boat length: 167.3 feet, width: 40.4 feet, Carries 525 passengers, Waterjet propulsion system, reaching speeds up to 36 knots.

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

2.1. Name: Dr. Christopher Krembs

2.2. Title: Senior Oceanographer

2.3. Affiliation or facility: Washington State Department of Ecology

2.4. E-mail address: ckre461@ecy.wa.gov

2.5. Phone number: 360 4906131

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: Julianne Ruffner

3.2. Position Title: Unit Manager

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?

4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):

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)*:

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)*:

En route ferry data is only collected inside a specified geographic area that excludes both ports in Canada and in the US. This helps minimize the need to run the flowing seawater pump (decreasing the likelihood of drawing in debris) as the ship navigates near the terminals which could degrade sensor performance and data quality. Transect data of temperature, salinity and position will be automatically screened using fixed range filters informed by historical Victoria Clipper data from 2012-2015.

The Washington State Department of Ecology requires updated and accessible Quality Assurance and Quality Control Plans and current Standard Operating Procedures. Documents are routinely reviewed and signed by Ecology's Quality Assurance Officer Arati Kazar (Tel: (360) 480-1960 e-mail: akaz461@ecy.wa.gov), Documents are made available via Publications (wa.gov)

6. **Data Documentation**

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

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?

6.1.1. If metadata are non-existent or non-compliant, please explain:

Standard metadata to be made available will include:

- Company – Identifies who generated the file and manages the data.
- Creator – Contact person for data source.
- Sensor ID – Manufacturer and model of sensor.
- Sensor serial number – Serial number of sensors whose measurements are being reported.
- Measurement units for all sensor data being reported
- Timestamp (including time zone information, as appropriate)
- GPS location (obtained from onboard GPS sensor)

6.2. Name of organization or facility providing metadata hosting:

Data and associated metadata will be made available to NANOOS via a secure cloud-hosted relational database. The PostgreSQL database will be hosted on Timescale Cloud (https://www.timescale.com/) and maintained by Washington State Department of Ecology, in collaboration with GSI.

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

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

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

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?

Data are daily uploaded and stored in a secure cloud-hosted relational database (PostgreSQL). NANOOS will have full access to this database.

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?

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

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

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:

Data and associated metadata will be made available to NANOOS via a secure cloud-hosted relational database. The PostgreSQL database will be hosted on Timescale Cloud (https://www.timescale.com/) and maintained by Washington State Department of Ecology, in collaboration with GSI.

A R Shiny application being developed will provide a user-friendly platform to visualize ferry data both temporally and spatially. The goal is to enable users to quickly check for and flag outliers, improving the accuracy and reliability of the data. The application will run locally on a desktop computer but will communicate with a cloud-hosted database, ensuring that the data remains up-to-date and accessible.

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

7.2.2. URL of data access service, if known:

7.3. Data access methods or services offered:

Data and associated metadata will be made available to NANOOS via a secure cloud-hosted relational database (PostgreSQL).

7.4. Approximate delay between data collection and dissemination*:* 24 hours

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)

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):

Raw (i.e., unprocessed) sensor data will be transmitted, stored, and archived in a project-specific Amazon S3 bucket. Processed sensor data and associated metadata will be made available to NANOOS via a secure cloud-hosted relational database (i.e., PostgreSQL).

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

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:

For disaster recovery purposes copies of all data will be maintained on the individual data loggers deployed on the VCV. Files from the data loggers will be retrieved periodically and archived by Washington State Department of Ecology.

9. **Additional Line Office or Staff Office Questions**
   Line and Staff Offices may extend this template by inserting additional questions in this section.