

Data Management Plan

Types of data

The proposed work will generate cruise and mooring data on water column characteristics, zooplankton distribution, species composition, and abundance. Model “data” will consist of statistics of zooplankton movements from images collected in the field. Laboratory experiments will generate data on zooplankton distributions and movement statistics under controlled experimental conditions.

Our goal for data management is to ensure accurate and precise data collection with associated metadata, careful backup and local archiving of data, and long-term data archiving through publicly available sites. Our primary local data storage and backup will be through a combination of duplicated hard drives and cloud storage. Long-term storage will be primarily done using the Biological and Chemical Oceanography Data Management Office (BCO-DMO). The PIs have submitted previous project data to BCO-DMO and are aware of how to configure data and metadata so that it is compatible with existing databases. Key aspects of our data formatting for archiving will include (1) following standard formats (2) geo-referencing and (3) data attribution. To the extent possible, metadata for all data sets will be maintained according to data standards (i.e. Federal Geographic Data Committee; <http://www.fgdc.gov/>; NBII Biological Data Profile, The Dublin Core Metadata Element Set, and the Directory Interchange Format). The intent is to compile metadata-based systems that foster flexible structures for data acquisition, data transformation and analysis.

Mooring and modified-SPC2 data

Environmental data collected by the ORCA moorings are stored and publically served by NANOOS. Images and statistics of zooplankton distributions and movement from the modified SPC2 system will be stored and backed up in the cloud, with data served publically through UW web servers and ultimately to BCO-DMO with associated water column conditions.

Cruise data

On cruises, we will collect water column characteristics data (CTD + dissolved oxygen and pH profiles, DIC, alkalinity, and O₂ analysis of water samples). CTD and bottle cast data will be submitted to BCO-DMO within two years of collection. Zooplankton samples collected during cruises will be processed in the laboratory to provide information on zooplankton species composition and taxa-specific densities. These data will be internally housed in an Access database, backed up in the cloud, and submitted to BCO-DMO within two years of collection. Imaging data will be handled and served as from the modified SPC2 system.

Laboratory data

Data generated as part of laboratory experiments will be publicly served to BCO-DMO and as supplemental tables in any resulting peer-review journal publications.

Model and Statistical Analysis

We will use widely available open-source software (R) or other programs that are commonly used (e.g., Python, Matlab) for modeling and statistical analysis. Publications will detail specifics of models, and we will make available all computer code to researchers that request it.

We will endeavor to adhere to the data management policies of the NSF Division of Ocean Sciences, and to practice data sharing consistent with University of Washington policies governing intellectual property, copyright and the dissemination of research products.