

DATA MANAGEMENT PLAN

Principal Investigator, E. Shadwick has been in contact with the NSF-funded Biological and Chemical Oceanography Data Management Office (BCO-DMO, <http://www.bco-dmo.org/>), and has confirmed that they will be able to archive the data generated from this project. If funded, Shadwick will continue working with BCO-DMO to ensure that data generated by the proposed research are submitted in agreement with the current NSF OCE Sample and Data Policy.

Data Description

The types of data produced as part of the proposed research include:

1. Oceanographic and biogeochemical field data (hydrographic data, pH and pCO₂);
2. Laboratory-generated data for total dissolved inorganic carbon (DIC), total alkalinity (TA).
3. Results from model simulations.

Oceanographic and Biogeochemical Field Data: Two autonomous sensors, (which make measurements of pH, pCO₂, temperature, salinity, and dissolved oxygen), will be deployed in Chesapeake Bay in collaboration with the Virginia Estuarine and Coastal Observing System (VECOS). The instruments will record hourly data during deployments lasting between 2 and 4 months. These data will be calibrated with discrete samples collected at the sensor locations in the field, and QA/QC procedures will be undertaken in the Shadwick laboratory at VIMS following recently developed best practices formalized at a workshop that Shadwick attended at the University of California at San Diego (UCSD, Aug. 2014). The pH data will be analyzed in collaboration with Dr. Todd Martz, who developed the pH sensors and hosted the best practices workshop at UCSD. These sensor data, including date and time stamp, and deployment location, will be written out to ASCII format for archiving with BCO-DMO, and integrated into the VECOS data management system (see Letter of Support from W. Reay).

Laboratory-generated Data: Discrete samples will be collected on 4-6 surveys per year in project years 1 and 2; these samples will be returned to VIMS for CO₂ system analysis in the Shadwick laboratory. Samples will be given a unique identifying label, which will correspond to water temperature, salinity, dissolved oxygen, sampling time, and sampling location. All samples will be analyzed for DIC and TA concentration, with the best-practices calibration against standard reference materials (provided by A. Dickson, Scripps Institution of Oceanography). The discrete data, including corresponding metadata calibration information, and QA/QC steps taken, will be submitted ASCII format for archiving with the BCO-DMO, and to the Carbon Dioxide Information Analysis Center (CDIAC, <http://cdiac.ornl.gov>) at the completion of the proposed project.

Dissemination and Archival of Model Simulations: Simulation results of key model state variables will be archived in netCDF format and available to the public from the BCO-DMO website as soon as skill assessment has deemed them worthy of use by others (generally within six months of their generation). BCO-DMO staff will work with us to

manage this model data. Simulation results used in peer-reviewed publications will also be saved as a “tagged release” and stored on the College of William & Mary digital archive. Finally the ROMS source code will be available as part of the open-source community model ROMS distribution, similar to what we have done in past projects with other model code.