

## **DATA MANAGEMENT PLAN**

The *Division of Ocean Science Sample and Data Policy (2011)* recommendations will be followed wherever applicable. All biological, chemical, and hydrographic data acquired by this project will be deposited in the Biological and Chemical Oceanography Data Management Office (BCO-DMO). Our previous project is in compliance with this data management plan: all data from our 2016-2018 REU cruises are registered with BCO-DMO, and we are on target for data submission by the of end 2018.

### **Types of data to be produced**

The REU Site: Observing the Ocean project implemented by Lisa Campbell and Jessica N. Fitzsimmons will generate physical, chemical and biological oceanographic data. The data will be produced by electronic sensors, chemical analysis, visual observations made in the lab or field, and numerical models and may include the following: CTD profiles (conductivity, temperature, depth); seawater nutrient concentrations; O<sub>2</sub> concentrations; trace metal concentrations; phytoplankton abundance estimates; CDOM (colored dissolved organic matter) measurements.

### **Standards to be used for data and metadata formatting and content**

Written records (lab books) will record all sample information (dates, sample identification numbers, environmental conditions). To the extent possible we will encode data into forms and formats that conform to community standards, some of which are evolving (e.g., profiling glider data). For physical, chemical data and model output, current community standards include National Ocean Data Center's NetCDF Feature Type Templates, Unidata's: NetCDF Attribute Convention for Dataset Discovery (ACDD), Climate and Forecast (CF) conventions and Standard Names. We will use the ISO 191\*\* Metadata Family as our metadata content standard.

### **Steps to protect privacy, security, confidentiality**

Data will be maintained and released in accordance with appropriate standards for protecting privacy rights and maintaining the confidentiality of respondents, if necessary. We do not expect to encounter intellectual property or copyright issues. None of data produced by this project will be private, confidential, or require password protection against unauthorized dissemination.

### **Sharing research resources**

The data collected on this project will primarily be disseminated through the process of peer reviewed publication in the literature and through the BCO-DMO data portal. In addition, our findings will be presented at national and international scientific conferences. Information not distributed in this way will be freely available from the PI via written request.

### **Methods for archiving and preserving access to data and materials**

Data will be held by the data originators for at least three years following the end of the project. Data produced by this project will reside on computer disk storage at Texas A&M University as stand-alone files or in databases structures. Network accessible catalogs, webpages and "read-me" files will help interested parties discover data. File access will be accomplished through the network transfers using a variety of mechanisms such as FTP, HTTP, or email. We may employ online databases, THREDDS Data Servers, or ERDDAP middleware to improve data discovery and exchange and to provide the capability of remote data subsetting. Large files or data set collections can be written to disk and shipped. Standard best practices for data storage and duplication, and the university's computer network infrastructure will keep data sets secure from accidental loss or malicious deletion or corruption.

We will submit biological and chemical oceanographic data to the Biological and Chemical Oceanographic Data Management Office (BCO-DMO) following their formats and procedures.