<center>**DATA MANAGEMENT PLAN**</center>

We will make our data accessible within 2 years of collection primarily through well-established, web-accessible data archives, as well as through use of our own University affiliations. We recognize that our data types are most relevant to oceanography and biogeochemistry we will use the appropriate archive.

1. **Types of data**

   a. This project will collect a variety of oceanographic and biogeochemical information for the ETNP ODZ including Temperature, Salinity, O_2, nutrients, and N_2 gas and computer simulations thereof.
   b. We will collect this data from appropriate ship-based and float-based sensors as well as on laboratory analyses of water samples collected at-sea
   c. We will use of a variety of computer software packages to analyze the data, including Seasoft CTD data processing suite by Seabird-Electronics Inc., MatLab by Mathworks Inc., Microsoft Excel, and GV IonVantage.
   d. All the data will be stored locally at the different institutions on duplicate hard drives and uploaded to the databases available to the public.
   e. Data will be handled in a variety of ways tailored to the analysis approach and use, from specialized software for time-series analysis to straightforward spreadsheets for less complex information.

2. **Data and Metadata Standards**
   a. Data will be made available through a variety of sites appropriate to the type of data. Metadata for all collections will follow the established guidelines for oceanographic data (e.g., templates established by the BCO-DMO database at WHOI).
   b. There are a multitude of safeguards built into our analysis pipeline to assure data quality. For isotope and mass spec dissolved gas data, we implement all data quality control and standardizations that are built into the isotope ratio mass spectrometer software itself. After analysis, each analytical run is checked against external standards and for long-term drift.
   For float data, pre- and post-cruse manufacturer calibrations are performed and any sensor calibration drift due to field use is quantified and included in the float meta data, along with sensor IDs, much like Argo float data. Post-processed data are documented according to different levels of processing, starting with raw and ending up with publication quality data. All meta data follow through with the levels, and meta data associated with new derived quantities (including excess N_2) are included at each stage.
   c. All data will be made available as soon as it is quality checked and mounted to the public web site.

   d. No datasets will be covered by copyright.
   e. If necessary, all IRB policies will be followed.

3. **Policies for access and sharing and provisions for appropriate protection/privacy**
   a. We expect to share with other researchers, the primary data.
   b. PI's will share the data as it becomes available. Data will be available within 2 years of the end of the project.
   c. We see this data as primarily for scientists including oceanographers and marine biogeochemists.

4. **Plans for archiving and Preservation of access**
   a. At SMAST/U Massachusetts Dartmouth, we have a tiered data archival system including a centralized server system and data are kept in Excel files that are also backed up offsite. At UW we use a campus data archiving facility called LOLO which has redundant backup including magnetic tape for permanent archiving (see http://depts.washington.edu/uwtscat/archivestorage). We will also use established archival programs such as the National Oceanographic Data Center (NODC). Links to these data storage programs will be available on our websites. Our third archival resource will be the Biological and Chemical Oceanography Data Management Office (BCO-DMO) based at WHOI

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and dedicated to data generated from NSF Oceanography funding. We have archived data on both NODC and BCO-DMO numerous times and will continue to make use of this public resource.

    b.   The original data as well as any published papers will be archived. All archival facilities have fully redundant off site back up of computer files. (See the Facilities Document).

5.   **Prior Experience Publishing Data**

    a.   All PIs and have had experience publishing data for open use. Repositories used to date include NODC and BCO-DMO and BODC (UK).

Personnel Data Responsibilities

Responsibilities of each PI with respect to Data Repositories:
All PI's – All data will be deposited to the WHOI BCO-DMO database (bco-dmo.org)