

Data Management Plan

The overall NSF philosophy of data management and dissemination is embodied in the NSF Award and Administration Guide (AAG) Chapter VI.D.4:

Investigators are expected to share with other researchers, at no more than incremental cost and within a reasonable time, the primary data, samples, physical collections and other supporting materials created or gathered in the course of work under NSF grants. Grantees are expected to encourage and facilitate such sharing.

As PI on the grant proposal, I am committed to follow this policy throughout the project duration and beyond.

1. Types of Data – Data from this project falls into two broad categories, measurements made in the field and those from analysis in the laboratory at Florida International University. The PI will be responsible for all data collected.

Field Collections – Data in writing will be recorded on pre-designed, waterproof, data sheets. Separate sheets will be designed for primary producer variables (Braun-Blanquet surveys of benthic cover) and fish assemblage composition. Data on field sheets will either be entered into digital spreadsheets the day of collection, or multiple photocopies will be made if data entry is delayed due to logistical constraints. Data from the sonde will be downloaded to a field computer each day, providing continuous measures of water temperature, salinity, pH, dissolved oxygen and photosynthetically active radiation. Photographs used to assess grazing scar rates will be taken in the field and downloaded daily. All data will be backed up daily with at least one external hard drive. The PI will be responsible for all data entry and archiving in the field.

Laboratory Analysis - The remainder of the data will be generated through analysis at Florida International University in conjunction with Jim Fourqurean's Seagrass Ecosystems Research Lab. These data will include, seagrass blade tissue %nitrogen and %phosphorus, above- and belowground biomass, sediment % phosphorus, seagrass growth rate, epiphyte biomass, and grazing rate. All data will be recorded on pre-designed data sheets. Undergraduate researchers will be responsible for data entry into spreadsheets; all data entry will be re-checked by at least two other members of the Layman lab. All spreadsheet data sets will be backed up daily on at least one external hard drive.

2. Data Format

The primary data storage format will be Microsoft Excel.

3. Access to Data and Data Sharing Practices and Policies

Three main approaches will be used for data sharing. First, we will immediately post sub-sets of the data to the website The Abaco Scientist, one of the outreach mechanisms in this grant proposal. Namely, one of the primary goals of the proposed program is to generate data and information that feeds directly into larger management and conservation goals (e.g., the Caribbean Challenge – see main text Broader Impacts). For example, fish data may be especially important in Haiti where The Nature Conservancy is developing local fishery management plans, or seagrass nutrient content may provide managers information on relative nutrient input to coastal ecosystems. When our data will be of use to these local

stakeholders, we will immediately post data on The Abaco Scientist web page. A new page on the site will be created where these raw data will be available to any user.

Second, following NSF policy, complete data sets will be provided to NSF no more than 2 years following collection. The relevant office for our data storage will be The Biological and Chemical Oceanography Data Management Office (BCO-DMO). This is text from the Division of Ocean Sciences Sample Data Policy:

The BCO-DMO data system facilitates data stewardship, dissemination, and storage on short and intermediate time-frames. The office works with PIs on data quality control; maintains an inventory of available data and program thesaurus based on a controlled vocabulary; generates metadata records required by Federal agencies; ensures submission of data to national data centers; supports and encourages data synthesis by providing new, online, web-based display tools; facilitates interoperability between BCO-DMO and distributed data portals; and facilitates regional, national, and international data and information exchange.

The Biological and Chemical Oceanography Programs expect PIs to utilize BCO-DMO as their primary data management source. When awards are initialized investigators should immediately contact BCO-DMO and register their projects by submitting project metadata. This should be followed by timely submission of deployment and dataset metadata and finally the data. Progress on compliance with the data sharing should be addressed in annual and final reports. For projects where data cannot be served by BCO-DMO, or where it is more appropriately served by other community data bases,

We commit to comply with all of these guidelines and policies.

Third, some aspects of the data will be included in supplementary documents of publications. This will provide full access of our data to other researchers.

4. Policies for Re-Use, Re-Distribution

All policies regarding re-use and re-distribution will follow guidelines of the BCO-DMO office. Any questions we have regarding re-use or re-distribution will be resolved with that office.

5. Archiving of Data

As stated above, long term archives will include The Abaco Scientist web site, BCO-DMO databases, and in written publications. All original data sheets will be stored in fire proof containers. All digital data sets will be stored long-term on at least 2 hard drives.