Geoffrey C. Trussell

Data Management Plan

Data QA/QC

Raw data downloaded from instruments (e.g., temperature loggers) will immediately be archived on internal servers; post-processing will be performed with copies of the original. Hand-collected data will be entered into customized templates and immediately transcribed into corresponding computer spreadsheets or relational databases. Paper copies will be archived in notebooks. All electronic records will be backed up to remote systems daily.

Depending on the data source, all incoming data will be evaluated by either senior project personnel or computer algorithms. Suspect data (e.g., questionable time stamp, out of sequence, out of range for an instrument, outside of normal range) will be marked with a flag set in an additional field. The interpretation of suspect data flags will be described in metadata files. The basis for excluding data from subsequent analysis will be clearly stated in all publications.

Data Archive

We are committed to making our environmental data freely available in as timely a fashion as possible, subject to the limitations of existing data repositories. The following plan is based on our understanding of existing services, but data archives are expanding and new repositories are being developed. Consequently, we may modify our plans if more appropriate repositories become available during the project. Proposed archiving and access plans are outlined by data type. Data generated by this project will be made publicly available on the BCO-DMO site for this project within 2 years of collection.

1) Temperature data from loggers. All air and seawater temperature data will be archived with the NSF-funded Biological and Chemical Oceanography Data Management Office (BCO-DMO) within 2 years of collection, with metadata posted within 90 days. We will work with BCO-DMO to assure that the data and metadata will be submitted in a format acceptable to BCO-DMO.

2) Ecological data. The proposed project will generate several types of ecological data including crab and snail densities in the field and data on snail growth (shell mass, tissue mass, shell length) and shell thickness from field and laboratory experiments. Our intent is that these data will be similarly archived with BCO-DMO by the end of the award with the understanding that if processing time is extended, we would like to be able to discuss the possibility of embargo with our Program Officer. We will also make data available post-publication, with peer-reviewed journal articles serving to alert the community to the existence of those data. In addition, we can also make these data widely available by publishing "data papers" in the Ecological Society of America's *Ecological Archives* and portals like DRYAD. Moreover, if other appropriate data portals develop during this project, we will submit the pertinent data to that portal.

All classes of data as well as metadata associated with this proposed research, including information on sites, experiments, and data collected (*e.g.*, date, time, location, experimental treatments and maintenance, and environmental variables measured) will be archived and made accessible to researchers and the public on the Northeastern University Marine Science Center website (http://www.marinescience.neu.edu/). Data formats will be comparable to those used by the national repositories. Any embargoed data will be made available to project participants only via a password protection system until the embargo is lifted. This venue offers the advantage of quicker turn-around when posting new data (i.e., fewer administration layers involved in processing), but at the expense of long-term (beyond the termination of the project)

stability. We will therefore mirror all databases on the BCO-DMO website within 2 years. The redundancy of the two systems maximizes both speed of availability and stability. Finally, Northeastern University recently launched a new Digital Repository Service (DRS, http://library.northeastern.edu/services/drs-digital-repository-service). Data will be stored on this web site as a series of ASCII files because a graphical interface option is not yet available.