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## Plan Overview

*A Data Management Plan created using DMPTool*

**Title:** DMP for The Role of Temperature in Regulating Herbivory and Algal Biomass in Upwelling Systems

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# DMP for The Role of Temperature in Regulating Herbivory and Algal Biomass in Upwelling Systems

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## Data Policy Compliance

Identify any published data policies with which the project will comply, including the NSF OCE Data and Sample Policy as well as other policies that may be relevant if the project is part of a large coordinated research program (e.g. GEOTRACES).

The project investigators will comply with the data management and dissemination policies described in the *NSF Award and Administration Guide* (AAG, Chapter VI.D.4) and the *NSF Division of Ocean Sciences Sample and Data Policy*.

## Pre-Cruise Planning

If the proposed project involves a research cruise, describe the cruise plans. (Skip this section if it is not relevant to your proposal.) Consider the following questions: (1) How will pre-cruise planning be coordinated? (e.g. email, teleconference, workshop) (2) What types of sampling instruments will be deployed on the cruise? (3) How will the cruise event log be recorded? (e.g. the Rolling Deck to Repository (R2R) event logger application, an Excel spreadsheet, or paper logs) (4) Will you prepare a cruise report?

Question not answered.

## Description of Data Types

Provide a description of the types of data to be produced during the project. Identify the types of data, samples, physical collections, software, derived models, curriculum materials, and other materials to be produced in the course of the project. Include a description of the location of collection, collection methods and instruments, expected dates or duration of collection. If you will be using existing datasets, state this and include how you will obtain them.

The types of data that will be collected include: (1) community pattern data (e.g., abundance/cover of algae, grazers, etc. at six sites, during each of the four seasonal surveys) collected via *in situ* surveys, (2) temperature data (from dataloggers at each site), other environmental data including flow and nutrient concentration data, and (3) experimental data (algal biomass, urchin grazing rate and metabolism, algal metabolism, algal tissue N, primary productivity, etc.).

## Data and Metadata Formats and Standards

Identify the formats and standards to be used for data and metadata formatting and content. Where existing standards are absent or deemed inadequate, these formats and contents should be documented along with any proposed solutions or remedies. Consider the following questions: (1) Which file formats will be used to store your data? (2) What type of contextual details (metadata) will you document and how? (3) Are there specific data or metadata standards that you will be adhering to? (4) Will you be using or creating a data dictionary, code list, or glossary? (5) What types of quality control will be used? How will data quality be assessed and flagged?

All field data will be stored as *xlsx* files. Metadata will be prepared in accordance with BCO-DMO conventions (i.e. using the BCO-DMO metadata forms) and will include detailed descriptions of collection and analysis procedures. Metadata will include date, time, latitude, longitude, site name, field condition, and the reference page to the electronic field notebook as well as the link to the GitHub repository where all R code and outputs, used in the analysis of the data will be stored.

## Data Storage and Access During the Project

Describe how project data will be stored, accessed, and shared among project participants during the course of the project. Consider the following: (1) How will data be shared among project participants during the data collection and analysis phases? (e.g. web page, shared network drive) (2) How/where will data be stored and backed-up? (3) If data volumes will be significant, what is the estimated total file size?

The investigators will store project data (spreadsheets, videos, ASCII files, images, field notes in *txt* format) on laboratory computers backed up: 1) daily using Apple Time Machine to an onsite external hard drive, 2) immediately to the Dropbox cloud server, 3) the projects GitHub repository ([https://github.com/johnbruno/Galapagos\\_NSF.git](https://github.com/johnbruno/Galapagos_NSF.git)), 4) by UNC Biology Department's IT staff.

## Mechanisms and Policies for Access, Sharing, Re-Use, and Re-Distribution

Describe mechanisms for data access and sharing, and describe any related policies and provisions for re-use, re-distribution, and the production of derivatives. Include provisions for appropriate protections of privacy, confidentiality, security, intellectual property, or other rights or requirements. Consider the following: (1) When will data be made publicly available and how? Identify the data repositories you plan to use to make data available. (2) Are the data sensitive in nature (e.g. endangered species concerns, potential patentability)? If so, is public access inappropriate and how will access be provided? (e.g. formal consent agreements, restricted access) (3) Will any permission restrictions (such as an embargo period) need to be placed on the data? If so, what are the reasons and what is the duration of the embargo? (4) Who holds intellectual property rights to the data and how might this affect data access? (5) Who is likely to be interested in re-using the data? What are the foreseeable re-uses of the data?

All information and materials generated by this project will be disseminated in accordance with University and NSF policies. We will adhere to and promote the standards, policies, and provisions for data and metadata submission, access, re-use, distribution, and ownership as prescribed by the BCO-DMO Terms of Use (<http://www.bco-dmo.org/terms-use>). All data will be freely shared and made available on the PI web site <http://johnbruno.web.unc.edu/data/>, via GitHub, and archived and shared through the Biological and Chemical Oceanography Data Management Office (BCO-DMO). We plan to make much of the data available immediately and all of it freely available six months after the completion of the project. There are no ethical or privacy issues concerning the content or release of the data. The data is not covered by copyright and will not be licensed. All data will be released and openly shared free of charge and there will be no restrictions on re-use and redistribution.

## Plans for Archiving

Describe the plans for long-term archiving of data, samples, and other research products, and for preservation of access to them. Consider the following: (1) What is your long-term strategy for maintaining, curating, and archiving the data? (2) What archive(s) have you identified as a place to deposit data and other research products?

The PI will work with BCO-DMO to ensure that project data are submitted to the appropriate national data archive.

## Roles and Responsibilities

Describe the roles and responsibilities of all parties with respect to the management of the data. Consider the following: (1) If there are multiple investigators involved, what are the data management responsibilities of each person? (2) Who will be the lead or primary person responsible for ultimately ensuring compliance with the Data Management Plan?

Question not answered.