

Data Management Plan

The data that will be produced from this project will include results from many laboratory experiments with the diazotrophic cyanobacteria *Trichodesmium* and *Crocospaera*, and the picocyanobacteria *Prochlorococcus* and *Synechococcus*. These efforts will be focused on understanding how evolutionary and plastic responses to interactions between iron limitation and warming affect cellular iron use efficiencies, and ultimately biogeochemically-relevant rates of growth, CO₂ fixation, and N₂ fixation. Along the way, this project will produce many types of data, including experimental, physiological, proteomic, transcriptomic, and biochemical.

Sample Archiving: All biochemical and genomic material produced will be stored at -20 or -80 °C, as appropriate for the sample type. Phytoplankton samples will be stored in 4% buffered glutaraldehyde. A database containing the location of all materials will be maintained for use by all PIs, and submitted along with the data to BCO-DMO.

Data Archiving: All data collected during these laboratory-based evolution and acclimation experiments will be securely stored in multiple redundant formats (hand-written lab notebooks, backed-up files on discs/hard drives) indefinitely in the PI's offices. Upon receipt of the award we will contact the Biological-Chemical Oceanography Data Management Office (BCO-DMO: <http://www.bco-dmo.org/>) to register our project. We will submit all data collected from the field and laboratory portions to BCO-DMO for archiving per NSF guidelines. All biochemical and genetic material produced will be stored at -20 or -80 °C, as appropriate for the sample type. In addition to our findings, a searchable database containing the location of all processed and non-processed materials in long term storage will be maintained by the PIs and submitted to BCO-DMO.

Data Release: Access to data will be given once it is quality controlled and published, or at any rate always within 2 years of collection. Availability will be in accordance with NSF guidelines for data accessibility. We will keep NSF abreast of our compliance with data management through our annual reports and all data will be made available to the general public as expeditiously as possible. We will work closely with the BCO-DMO to ensure that data used in our analyses and outcomes from the proposed experiments are publicly available according to NSF guidelines. Further, all data made available will be accompanied by compliant metadata. DNA sequences generated from this work will be deposited in Genbank at the National Center for Biotechnology for Information (NCBI) within three months of the end of this project (<http://www.ncbi.nlm.nih.gov/geo/>). Our proteome and metaproteome data will be archived in the recently launched Ocean Protein Portal EarthCube Building Block Prototype, a unique proteomics database developed by PI Saito in collaboration with BCO-DMO at WHOI, allowing broad access to these unique data and contributing content to the growing archive in the portal.

As we have done in the past, we will continue to make the results of our work available to the marine science community through timely peer-reviewed publications and professional meeting presentations. Importantly, the budget contains publication and travel funds that will cover the costs of publications and oral and poster presentations at professional venues like ASLO/Ocean Sciences and Gordon Research Conferences.