

## Data management Plan:

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For this proposal my research group will be responsible for the following sampling activities. First, my group will participate in the monthly BATS cruises and collect at least one vertical profile of the following: high sensitivity nutrient analysis (nM level nutrients for NO<sub>3</sub>, NO<sub>2</sub>, NH<sub>4</sub>, Urea), environmental genomic samples for my co-PI, Adam Martiny, whole community 15N uptake of NO<sub>3</sub>, NO<sub>2</sub>, NH<sub>4</sub>, Urea, and taxon-specific uptake of NO<sub>3</sub>, NO<sub>2</sub>, NH<sub>4</sub>, Urea. Our taxon-specific uptake measurements have the highest priority on *Prochlorococcus*, but we will also endeavor to sort *Synechococcus* and pico-eukaryotic populations so that our *Prochlorococcus* data can be put in the context of competition with other pico-plankton groups that may play a similar biogeochemical role. My group, through other projects, is responsible for detailed characterization of the phytoplankton (pico-plankton to micro-plankton) communities. Second, we will conduct quarterly experiments, for one year only unless repeating them will provide additional valuable information, designed to understand the relationships between genomic potential and nitrogen utilization. Lastly, we will participate in the annual BATS validation cruises and have requested several additional ship days to allow this transect to go north of Bermuda. On these validation cruises we will generate all the same data as on the monthly BATS core cruise sampling. In summary the two primary datasets generated by Lomas' component of this project are high sensitivity nutrient analysis and nitrogen uptake rates.

As all of our sampling will be from aboard the R/V Atlantic Explorer associated with BATS activities, we will utilize their processing of CTD data. All researchers will be able to access preliminary CTD data (2 decibar averaged data, pre-QA/QC) and cruise event logs for BATS cruises on our anonymous ftp site (<ftp://ftp.bios.edu/prelim/ctd> or [/plots](ftp://ftp.bios.edu/plots) or [/eventlogs](ftp://ftp.bios.edu/eventlogs)) or through the BATS data extraction page (<http://bats.bios.edu>). These preliminary data will be posted to the website within 1 week of the conclusion of each cruise. Roughly every six months, the BATS database is updated at which point this preliminary CTD data migrates to the extractable side of the database where researchers can access the final QA/QC'd CTD and biogeochemical data at the same time.

The data specific to our project will be coordinated with these efforts. Metadata for each of our sampling activities specific to this project will be collated into a single file and updated following each cruise. This information will be provided to all participants on each cruise so that they are aware of what samples were taken and how their data may interrelate with our data. Actual rate measurements and nutrient concentrations will be processed in as expedient a manner as possible, likely within ~3months of collection. This data will be merged with the appropriate metadata so that it is in a usable format, both by us and our colleagues who are interested in collaborating and sharing data. Once per year, when annual reports are submitted, the data specific to this project (including new data and any updates of previously submitted data) will be provided to the BCO-DMO. Included in this data submission will be the CTD-bottle data (pressure, temperature, salinity, calculated density, dissolved oxygen, fluorescence, and turbidity) so that those we share the data with will have ready access to hydrographical data: BATS does not provide as extractable values the CTD bottle data, rather they provide full CTD downcast data. Each sampling activity will have a unique ID (cruise type, number and cast number following BATS format) that will allow researchers to link our data to the appropriate cast from the BATS dataset to get more detailed CTD information. Over the course of previously funded NSF research, my group has worked with BCO-DMO to identify a data submission format that is user friendly and makes sharing of the data through that portal very efficient. As well through this iterative process, our own efficiency of internal data handling has improved. Lastly, from my lab group's home page (<http://www.bios.edu/Labs/pel/>) I will update the appropriate research pages to describe the research being done. In addition, on that updated web page, I'll add a specific statement on data availability, including where researchers can find the data or who to speak with about access to the data.

Following completion of the project, the data collected will be archived internally within my lab group, but will also be submitted to the National Ocean Data Center as that appears to be the most appropriate national data archive for the type of data collected under this project. The BCO-DMO is not a data archive perse, it is anticipated that colleagues will be able to continue accessing our data through that portal for some period of time following the completion of the project.