Data Management Plan

1. Types, sources, and quantities of project data
Field data: This project will generate new data from the Seychelles Chagos from the continuous flow through system, these datasets include data and images on phytoplankton functional types from the FlowCAM, data on phytoplankton photo-physiology [Fv/Fm, σPSII, maximum fluorescence (Fm), electron transport rates (ETR)] from the mini FIRE, phytoplankton functional groups from the bbe Algal Online Analyzer, and data on CDOM, Chl *a* and phycobilipigments from the ALFA; In addition we will sample the CTD bottle samples for HPLC pigments and perform the measurements described above on discrete samples. This project will also generate data on rates of net primary productivity and rates nitrogenous nutrient uptake, and information on preferences for new versus recycled nitrogen by phytoplankton during an Indian Ocean Dipole event. We will also generate data on limiting nutrients from on-board experiments. Enumeration of smaller sized protists will be undertaken using a benchtop flow cytometer in seawater samples preserved in glutaraldehyde. Microscopic counts of phytoplankton and images obtained with an epifluorescence and light microscopes to compliment the image data sets from the FlowCAM will also be obtained as part of this study. These data plus metadata on location, time, etc.

2. Quality assurance
Co PI Gomes will work with Staff Associate McKee, to compile all the data (along with all the metadata) and undertake preliminary quality control prior to storage at LDEO. Prior to submission to BCO-DMO, data from the field and from experiments will be evaluated for accuracy and precision based on the measurement of standards and replicates according to each analytical method. In addition, detection limits based on the analysis of sample blanks will be determined. Measured values below detection limits will be flagged in tabulated data. Missed, null or below detection limit values resulting from handling or mechanical error will not be included in data archives and will be represented with an appropriate tag.
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3. Short-term data storage and management
Experimental and Shipboard data: During the funding period of the project and until the data are published, data generated from the Laboratory will be stored in electronic format on laboratory computers that are mirrored and backed-up weekly on the LDEO's networked secure data storage servers. Stored data will be clearly labeled with unique identifiers and dates of collection and updates. Accompanying metadata and documentation explaining experimental conditions and measurements will be created by the project PI and co-PIs and integrated into the short- and long-term data storage files. All the raw data will be saved in two storage hard drives at PIs Laboratories at Lamont Doherty Earth Observatory. *All data collected in the field by LDEO will be deposited at BCO-DMO, Woods Hole Oceanographic Institute within 12 months of collection.*

4. Long-term data storage and public accessibility of data
Experimental and Field Data: Long-term storage of underway data will be maintained beyond the funding period of this project at Lamont-Doherty Rolling Deck to Repository Portal that caters to most of UNOLS ship's flow through data. All published manuscripts by LDEO scientists are available at Columbia University's Academic Commons web site that provides open access for scientific papers in online repositories maintained long-term by the University. *In compliance with NSF policy on the Dissemination and Sharing of Research Results all (both in-situ and*

experimental) data generated as part of this study will be submitted to BCO-DMO will be made publicly accessible within two years of the project.

5. Short-term accessibility of stored data
All data arising out of this project will be made available immediately to our project collaborators in South Korea.

6. Legal and ethical issues
There are no legal (copyright, licensing) or ethical (privacy) issues concerning data management for this project.

7. Implementation of data management plan
The Data Management plan described above will be implemented by the project team at LDEO together with their IT staff at no additional cost to the project.