Data Policy Compliance - 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 - Pre-field sampling planning will be done via teleconferencing and a planning workshop, in collaboration with Bermuda Atlantic Time-Series Study personnel and chief scientist. Detailed plans for station locations, instrument deployment, water sampling strategy, and water sample allocation will be written up as a science implementation plan. Sampling instruments will include the Underwater Vision Profiler 5, MOCNESS tows, and Niskin bottle sampling on the CTD Rosette. The actual sampling events will be recorded on paper logs (scanned into PDF documents) and/or in a digital event log.

Description of Data Types - This project leverages previously existing cruise data whose hydrographic and cruise data are already available on BCO-DMO. We will work with BCO-DMO members to publish and link our analytical data characterizing the biodiversity and biogeochemical contributions of the community in a timely fashion, compliant with the requirements of the Division of Ocean Sciences Data and Sample Policy. Molecular, processed image data and metadata will be stored separately (see below), but these datasets will be cross-listed on BCO-DMO so that all outcomes of the project have a centralized repository.

1. **Hydrographic Data from BATS**: Metadata for chemical and physical data from seawater samples collected during hydrographic casts concurrent to sampling will be supplied in association with the BATS time series (http://bats.bios.edu) which are supplied to BCO-DMO. Furthermore, physical and hydrographic data from BATS are deposited at OceanSITES: http://www.whoi.edu/virtual/oceansites/
2. **MOCNESS hydrographic data and metadata**: raw and processed files will be supplied to BCO-DMO. Final datasets will be given a DOI that will be cited in all associated publications.
3. **Rhizaria abundance**: Abundance counts, biovolume calculations and inferred biogeochemical contributions will be stored in BCO-DMO. Final datasets will be given a DOI that will be cited in all associated publications.
4. **Rhizaria elemental composition**: Elemental composition of Rhizaria, reported as micrograms per cubic micrometer of biovolume and including organic carbon, calcium carbonate, strontium, barium, and silicon, will be stored in BCO-DMO.
5. **Metabarcoding:** Raw sequence data will be archived with GenBank (NCBI). Processed sequence files will be uploaded to BCO-DMO. Upon conclusion of analyses, more heterogeneous datasets combining molecular, temporal, and spatial information will be submitted to DRYAD Data Repository or similar. The project codes for these repositories will be included in associated publications and the link will be posted to BCO-DMO.
6. **Barcoding:** Raw and processed sequence data will be archived with GenBank (NCBI). Upon conclusion of analyses, more heterogeneous datasets combining molecular, temporal, and spatial information will be submitted to DRYAD Data Repository or similar. The project codes for these repositories will be included in associated publications and the link will be posted to BCO-DMO.
7. **Image data:** Image data and particle abundances from the UVP will be archived with EcoTaxa in the form of processed vignettes and the link to the project will be posted to BCO-DMO.
8. **Educational component**: The resources developed by Noyes will be shared with the marine education community through BIOS's Ocean Academy resources webpage, BIOS DataBytes, and hosted by the Biological and Chemical Oceanography Data Management Office (BCO-DMO) website.
9. **Scripts used for analyses, and model development** Will be maintained and version controlled throughout the project on GitHub which will facilitate collaboration on code between labs and personnel. Concurrently with publication, the repositories will be mirrored to FigShare and uploaded to BCO-DMO to create citable archives.

Data and Metadata Formats and Standards - Field observation data will be stored in flat CSV files, which can be read easily by different software packages. Field data will include date, time, latitude, longitude, and depth, as appropriate. Quality flags will be assigned according to the ODS IODE Quality Flag scheme (IOC Manuals and Guides, 54, volume 3; http://www.iode.org/mg54_3). 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.

Data Storage and Access During the Project - All PI's maintain a continuous backup of their laboratory computers using various online or institutional backup facilities at their respective locations. They will maintain project specific data on a business class Dropbox drive. Rhizaria imagery data will be stored and shared on the Ecotaxa platform. Data backups will further be maintained throughout the project on external hard drives, cloud storage, and archived on BIOS's 96TB enterprise class storage array at the end of the project.
We will use github for version control, collaboration and backup of data analysis scripts and model development code.
We anticipate that total data size, including amplicon sequence data and model output, will be less than 3TB for this project, which will fit onto backup drives already on hand.

Mechanisms and Policies for Access, Sharing, Re-Use, and Re-Distribution - Oceanographic and biological data sets produced by the science party will be made available through the BCO-DMO data system within two-years from the date of collection. The project investigators will work with BCO-DMO data managers to make project data available online in compliance with the NSF OCE Sample and Data Policy. Data, samples, and other information collected under this project can be made publicly available without restriction once submitted to the public repositories. Data produced by this project may be of interest to chemical and biological
oceanographers, and climate scientists interested in the role of biogeochemistry in the global climate system. 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).
Raw and processed sequence data will be archived with GenBank (NCBI). 18S data will also be submitted to SILVA http://www.arb-silva.de/ with their expansive metadata format. Upon conclusion of analyses, more heterogeneous datasets combining molecular, temporal, and spatial information will be submitted to DRYAD Data Repository or similar. The project codes for these repositories will be included in associated publications and the link will be posted to BCO-DMO.\

Plans for Archiving - PI Stone will collaborate with BCO-DMO will ensure that project data are submitted to the appropriate national data archive. The PI will work with BCO-DMO to ensure data are archived appropriately and that proper and complete documentation are archived along with the data.

Roles and Responsibilities - Each PI will be responsible for sharing his/her subset of data among the project participants in a timely fashion. Stone will be responsible for collecting and analyzing the Rhizaria sampling data. Blanco-Bercial will oversee the molecular biology work and will submit the resulting sequences to the National Center for Biotechnology Information's (NCBI) GenBank database. Cram will be responsible for chemical composition data collection and analysis. The Lead PI, Stone will coordinate the overall data management and sharing process and will submit the project data, including GenBank accession numbers, and metadata to the Biological and Chemical Oceanography Data Management Office (BCO-DMO) who will be responsible for forwarding these data and metadata to the appropriate national archive.
Stone will be responsible for ensuring that all PIs backup, submit and archive their files in accordance with this data management plan.