Data Management Plan

Data Policy Compliance

The project investigators will comply with the data management and dissemination policies of the NSF Division of Ocean Sciences.

Pre-Cruise Planning

The precruise planning will be done via email and teleconference. The deployment schedule and water sampling strategies will be coordinated within the larger cruise plan developed by Chief Scientist Cetenic. Deployments will include the (1) WireWalker with attached (2) sediment trap and (3) time-lapse camera, and a (4) neutrally-buoyant sediment trap with attached (5) optical sediment trap. All 5 instruments will be logged individually. Shipboard collections will include water samples from Niskin bottles, vertical CTD profiles, and vertical 4Deep holographic camera profiles. Deployment and sampling events will be recorded on paper logs at the time of deployment by a designated member of the research team and then transfered to an Excel spreadsheet during the cruise. PDFs of the paper logs and the Excel spreadsheets will be shared among cruise participants at the end of the cruise.

Description of Data Types

A variety of data products will be produced from this work, including field data and molecular sequence data generated post-cruise.

CTD and Niskin Bottle data: CTD data from the R/V Falkor will include standard measurements (e.g. salinity, density, fluorescence, oxygen) and will be processed using SeaBird software. File types: Raw (.con, .hdr, .hex, .bl) and processed (cnv, .asc, .btl) ASCII files. Repository: BCO-DMO.

Images: Images will be collected in situ with the 4Deep holographic camera, profiled on the CTD rosette. Images will also be captured throughout the five, 3-day instrument deployments by the time-lapse camera attached to the sediment trap. Images of sediment trap gel layers include individual particles selected for DNA analysis (imaged at sea) and the entire gel layer samples (imaged on shore). File types: jpeg. Repository: BCO-DMO

Instrument platforms: Data from the optical sediment trap will be collected for approximately 3 days during each of the 5 planned deployments. File type(s): Matlab data files. Repositories: (NASA SeaBASS and BCO-DMO). The WireWalker will continuously profile the upper water column over the same time period as the optical sediment trap (~3 days, 5 deployments) and will collect physical and optical measures (CTD, beam attenuation, optical backscattering, chlorophyll fluorescence, and dissolved oxygen). File type: Matlab data files. Respository: BCO-DMO.

Cruise underway data: Routine underway data collected along the ship's track (including meteorological data, sea surface temperature, salinity, fluorescence, and ADCP) will be collected by the shipboard instrumentation. File types: .csv ASCII files. Repository: BCO-DMO and R2R (through Schmidt Ocean Institute).

Event logs: Cruise logs will include event numbers, start/end dates, times, and locations of instrument deployments. This data will be recorded on paper log sheets at the time of the event. File types: .csv; scanned PDFs. Repository: BCO-DMO

Molecular sequence data: 18s and 16s rDNA sequences will be sequenced at the Stanford Sequencing Facility. A data synthesis spreadsheet will include sequence type, organism ID, and relative abundance in

each sample. File types: short-read archive (.sra), fasta, and .csv. Respository: NCBI, accession numbers and synthesis spreadsheet to BCO-DMO.

Data and Metadata Formats and Standards

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

Data collected during the research cruise will be stored and backed up on multiple hard drives while at sea. On shore, results from data processed by each P.I. will be shared among cruise participants via a shared network drive. OST data will be stored and backed up at Skidmore College. WireWalker data and holographic image data will be backed up and stored at University of Rhode Island. Gel image data and molecular data will backed up and stored at the Moss Landing Marine Laboratories.

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

Data will be made public within 2 years of project completion, or at the time of manuscript publication if earlier. P.I.s will work with BCO-DMO to make all data collected by instrument platforms, CTD, and water samples publicly available. Sequence data will be submitted to NCBI and linked to BCO-DMO. Once submitted to a public repository, all data will be freely available without restrictions.

Plans for Archiving

The R2R will permanently archive underway data at NODC. BCO-DMO will ensure that project data are submitted to the appropriate national data archive. NCBI will archive molecular sequence data. The P.I.s will work with BCO-DMO to ensure that data are archived.

Roles and Responsibilities

P.I. Durkin will be responsible for working with BCO-DMO to make data publicly available and coordinate data deposition by co-P.I.s Estapa and Omand. P.I. Durkin will also be responsible for coordinating data logging and sharing among collaborators. P.I. Durkin will be responsible for management of all data related to sediment trap gel layers, molecular data, and microscopy. P.I. Omand will be responsible for managing data collected by the WireWalker, the sediment trap time-lapse camera, the holographic camera, and the WireWalker sediment traps. P.I. Estapa will be responsible for managing data collected by the NBST and the OST.