Data management plan

This project involves both field experiments and laboratory culture experiments. Field experiments will take place on two monthly Bermuda Atlantic Time Series cruises aboard the *R/V Atlantic Explorer* in the spring and fall of 2015. During these cruises we will generate data for the water column parameters listed in Table 1, as well as further cell-specific data from microbial incubations with radiolabeled substrates ($^{33}PO_4$, ^{33}P-γ-ATP, ^{3}H-leucine, and dissolved inorganic ^{14}C).

Before the cruises, in coordination with the BATS cruise science party, we will develop a sample plan that includes station locations, water budgets, incubator use, shipboard sample processing and sample storage. During the cruises we will keep detailed logs of sampling events and generate a table of samples collected, logging their collection location, date, time, CTD cast number (when appropriate), sample treatment, and state of processing or preservation (processed shipboard, stored frozen at -20 °C or -80 °C, etc). Immediately following the cruises we will write a cruise report detailing the samples collected, data generated, and plans for sample processing. Samples to be processed in our laboratory at Lamont-Doherty Earth Observatory will be shipped frozen from Bermuda to New York and will be processed in the months after the cruise. The table of samples generated during the cruise will be used to keep track of the state of processing of each sample and ultimately the data generated.

Soon after the completion of the cruise, the original underway data will be contributed by the vessel operator to the UNOLS central data repository at http://www.rvdata.us/catalog/ managed by the Rolling Deck to Repository (R2R) project. Also, R2R will ensure that the original underway measurements will be archived permanently at NODC and/or NGDC as appropriate for the data type. The water column data that we generate, along with appropriate metadata, will be contributed to the Biological and Chemical Oceanography Data Management Office (BCO-DMO) and the data sets will be available online from the BCO-DMO data system (http://bco-dmo.org/data/). BCO-DMO will also archive all the data they manage at the appropriate national archive facility, such as NODC and NGDC.

The strains used for the culture experiments were obtained from the Provasoli-Guillard National Center for Marine Algae and Microbiota (at Bigelow Laboratory, formerly the CCMP), and thus are already available from a national sample repository.

Data from the field experiments and laboratory culture experiments will be used to write articles for publication in peer-reviewed scientific journals within the timeframe of the project (two years). Full information about the experimental conditions, treatments, analysis methods, and data generated will be included in the papers, providing tables of data where appropriate. Opportunities to provide full datasets as archived online supplementary information (i.e. downloadable spreadsheets) will be utilized when possible to make data available to the scientific community.

Table 1 – Water column data from Sargasso Sea BATS cruises

Acronym/ short name	Parameter	Data	Units	Extraction/ analysis method	Instrument
SRP	soluble reactive phosphorus	concentration	nmol L^{-1}	MAGIC	UV-Vis spectrophotometer
TDP	total dissolved phosphorus	concentration	nmol L^{-1}	persulfate oxidation + MAGIC	UV-Vis spectrophotometer
PP	particulate phosphorus	concentration	nmol L^{-1}	persulfate oxidation + MAGIC	UV-Vis spectrophotometer
cell counts	*Prochlorococcus*	abundance	cell mL^{-1}	autofluorescence & forward scatter	Flow cytometer
"	*Synechococcus*	abundance	cell mL^{-1}	autofluorescence & forward scatter	Flow cytometer
"	heterotrophic bacteria	abundance	cell mL^{-1}	SYBR green stain & forward scatter	Flow cytometer
"	picoeukaryotic phytoplankton	abundance	cell mL^{-1}	autofluorescence & forward scatter	Flow cytometer
lipids	intact polar diacylglycerolipids	concentration	nmol L^{-1}	modified Bligh & Dyer solvent extraction	HPLC-MS
polyP	polyphosphate	concentration	nmol L^{-1}	Tris boiling & proteinase K digestion	spectrofluorometer
P_i uptake	$^{33}PO_4$ uptake into particulate phosphorus	rate	nmol $L^{-1}hr^{-1}$	$^{33}PO_4$ incubation & filtration (0.2 μm)	liquid scintillation counter
P_{org} uptake	^{33}P-γ-ATP uptake into particulate phoshporus	rate	nmol $L^{-1}hr^{-1}$	^{33}P-γ-ATP incubation & filtration (0.2 μm)	liquid scintillation counter