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## Statement of Intent GP17

We're interested in examining microbial community composition along GP17 using amplicon sequencing (16S and 18S metabarcoding) of DNA collected from the surface and chlorophyll maximum on both the OCE and ANT cruise legs. Different primer sets will be used to allow for both a broad assessment of the microbial community (e.g., "universal" primer sets that amplify most prokaryotic and eukaryotic sequences) as well as focused analyses of important phytoplankton groups (e.g., primers that amplify diatoms). There are multiple goals associated with this project that we expect to be of interest both to the GEOTRACES and broader oceanographic community. First and foremost, these data build on the growing catalog of microbial sequence data from multiple oceanic sampling efforts, such as TARA Oceans, but with the advantage that there will be a much larger contextual framework in which to analyze them. A specific goal of this project will be to explore the environmental controls (physical, chemical, biological) on phytoplankton biogeography along the GP17 transect. We have done similar collaborative analyses with GEOTRACES PIs previously, such as with the GEOMICS and IRN-BRU sampling efforts. This past work has found exciting linkages between diatom community composition and dissolved trace metal concentrations including Fe and Zn. Sampling on the GP17 transect is an especially exciting opportunity as the transect is anticipated to cross large gradients in productivity, which will certainly be associated with large microbial community shifts. While these analyses will not be the full extent of what the nascent BioGEOCAPEs program hopes to become, it is an effort to capitalize on this opportunity to collect some biological samples in addition to the TEIs that are the focus of the GEOTRACES sampling efforts.

### Logistical Details:

Cruise Legs of Interest: Both OCE and ANT

# berths needed: 1 berth needed on each cruise because of need to filter on ship with specific filtration and preservation protocol

Sample collection systems: tow-fish/underway system and conventional CTD

Horizontal resolution: all stations & any in between stations where TEI measurements are collected from Tow-fish

Vertical resolution: Surface and Chlorophyll Max only

Approximate Volume needs: Surface: 10-20L; Chl Max: 9-10L