### HPLC Phytoplankton Pigments and Phytoplankton ID

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#### Onboard Sampling and Filtering

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A total of 196 samples for HPLC analysis of phytoplankton pigment concentrations (98 unique samples in duplicate) were collected during this survey in the North Pacific, Bering, and Chukchi Seas. These samples were collected in order to deduce phytoplankton community composition from the ratios of pigment concentrations. Seawater was filtered at all rosette stations in duplicate at 5m depth with filtration volumes determined by *in situ* chlorophyll *a* (chl) fluorescence measured during the downcast. Filtration volumes were set according to the following criteria: if chl <2 µg/l = 1985ml, 2< chl <5 µg/l = 1040 ml, and if chl >5 µg/l = 620 ml. On occasion, when a prominent subsurface chl maximum was encountered an additional HPLC sample was collected at that depth. Regular chl samples were collected from the same Niskin bottles to compare to the HPLC total chl a values; these were sampled and filtered by Nina in the North Pacific and by Kristen Shake (Frey group) after Dutch Harbor.

Intensive underway HPLC sampling was also carried out in between stations along the North Pacific transect and from Dutch Harbor to the first DBO section on the SLIP line. Biomass across most of the North Pacific was very low with not much colour on the filters even with the ~2L filtration volumes. For a number of these samples double volumes of 3970 ml were filtered to improve detection.

All samples were collected in Nalgene LDPE bottles with calibrated volumes as above. Each bottle was rinsed three times with sample water then filled to the very top and capped. Samples were filtered immediately after collection under low pressure (7 psi) onto 47 mm GF/F filters (Whatman GF/F, nominal pore size 0.7µm) using the HPLC filtration rig with 47 mm Nalgene filter holders. Filters were then folded in half, blotted 3 times, placed in 5 ml cryovials and immersed in liquid nitrogen prior to being moved to the hold into the -80°C freezer. Later in the cruise when the liquid nitrogen supply was running low, samples were transported directly to the -80C freezer immediately after filtration. Samples were left onboard until ship returns to Victoria in late October.

At a number of stations in the Bering and Chukchi seas samples were collected for phytoplankton identification with microscopy to compare to community composition determinations from HPLC. Seawater was collected into 250 ml amber glass jars that were pre-filled with ~2 ml of Lugol’s iodine. Samples were inverted to mix and then stored in the fridge onboard ship. A total of 18 phytoplankton ID samples were collected.

**The rest to be updated with 2017analysis information when run at IOS:**

#### Onshore Analysis at IOS (to be updated by IOS analysis)