**Role of the in water light field and water column structure on phytoplankton composition in the eastern Bering Sea**

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We present analysis of phytoplankton community composition as it relates to the in water light field and water column physical structure in the eastern Bering Sea. Absorption attributed to phytoplankton, non-algal particles (NAP) and colored dissolved organic matter (CDOM) within the surface mixed layer and near the pycnocline were determined through bio-optical profiles or discrete measurements. Phytoplankton taxa and cell size composition were determined from pigment biomarkers following both CHEMTAX and the Uitz et al. (2006) diagnostic pigment methodology. The relative importance of water column physical structure (temperature, stratification, time since ice retreat), nutrient fields and spectral light field (spectral radiometry and absorption) is explored relative to the resulting phytoplankton community composition. Chlorophyll as a proxy of phytoplankton abundance has been used to explore the role of water column physical structure, nutrient fields and the spectral light field in sub-Arctic and Arctic systems to date. Previous studies have noted the large role of CDOM in structuring the spectral light field in this region. These results contribute to understanding the impact of CDOM on structuring phytoplankton community composition and understanding phytoplankton community response to water column physical structure largely dominated by dynamic sea ice extent and duration.

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