Spatial and Temporal Variability of Zooplankton Community Structure in the Chukchi Sea

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Changes underway in the US Arctic are unprecedented; the physical environment is experiencing increases in temperature, progressive declines in sea ice concentration, earlier spring ice retreat, and delayed fall ice formation. This physical restructuring is expected to propagate through the ecosystem, and include changes in primary, secondary and upper trophic level production. As part of the Chukchi Acoustic, Oceanographic, and Zooplankton (CHAOZ) study, we examined zooplankton community structure to examine the spatial and temporal patterns over 2010, 2011, and 2012 and relate to potential physical forcing variables. During the sampling period (August), sea surface temperatures were slightly warmer than average in 2010 and 2011, while slightly colder than average in 2012. Sea ice was near normal in 2010 and 2011, but record low in 2012. Results of zooplankton community analyses will highlight differences in assemblage structure both spatially and inter-annually. Environmental factors correlated with zooplankton community structure will be discussed. Information gained from this study will help us understand the potential effects of climate change and shrinking summer sea ice extent on the pelagic food web from plankton to fish and marine mammals.