Northern Bering and eastern Chukchi Sea physics, nutrients, and chlorophyll in late summer 2012 and 2013

Lisa Eisner, Seth Danielson, Carol Ladd

Abstract

- Hydrography, nutrients, chlorophyll a (Chla), an estimation of phytoplankton biomass, were collected on Arctic Ecosystem Integrated Surveys (Arctic Eis) in the northern Bering and eastern Chukchi Seas from 7 August to 24 September, 2012 and 2013. Zooplankton (bongo tows), pelagic fish (surface/mid-water trawls and acoustics) and sea bird observations were collected concurrently.

- Oceanographic conditions varied between years with strongly contrasting wind, wave, and current fields during summer. The preceding winters also experienced different ice, winds and currents.

- 2012 Highlights: northern Bering Sea weakly stratified with an absence of Winter Water (WW); northern Chukchi Sea had a saltier subsurface layer (suggesting deeper arctic halocline ventilation), elevated total Chla, but a lower percentage of large phytoplankton, slightly higher surface nitrate and silicate, and eastward/northward near surface advection into Barrow Canyon.

- 2013 Highlights: warmer Alaska Coastal Water (ACW); northern Bering Sea had near-bottom WW south of Saint Lawrence Island; northeastern Chukchi Sea had more ice melt and extensive WW, a lack of ACW along the northeast coast, and westward near surface advection across the Chukchi Sea.

- Variations in oceanographic conditions likely influenced distribution and abundances of zooplankton, pelagic fish and marine birds in this region.

References
Eisner, L., Higuchi N., Martensson E., Masello J. 2013. Pelagic fish and zooplankton species assemblages in relation to water mass characteristics in the northern Bering and southeast Chukchi seas. Polar Biology, DOI 10.1007/s00300-012-1241-0

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