

Upwelling and aggregation of zooplankton on the western Beaufort shelf as inferred from moored acoustic Doppler current profiler measurements

Stephen R. Okkonen, University of Alaska Fairbanks, okkonen@alaska.net
Carin J. Ashjian, Woods Hole Oceanographic Institution, cashjian@whoi.edu
Robert G. Campbell, University of Rhode Island, campbell@gso.uri.edu
Dixon Jones, University of Alaska Fairbanks, fndjj@uaf.edu

Water column measurements of relative acoustic backscatter, current velocities, temperature and salinity acquired at mooring locations on the western Beaufort shelf are used to identify upwelling and aggregation of acoustically-detected zooplankton during late summer 2008. Within a few days after the onset of easterly, upwelling-favorable winds, acoustic backscatter signatures indicative of diel vertical migration of zooplankton were recorded at two mid-shelf mooring locations near Barrow. Measurements of near-bottom temperature and salinity show that the inferred presence of zooplankton coincided with the arrival of upwelled Chukchi Sea pycnocline water at the mid-shelf moorings. Comparison of current velocities at the mid-shelf mooring sites implies current convergence and zooplankton aggregation in the vicinity of the southern flank of Barrow Canyon.