

IMS Seminar
October 2, 2013
201 O'Neill, 3:30 pm

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Arctic zooplankton advection and relative abundance in the Bering Strait

Pathways of zooplankton advection through the Bering Strait may be indicators of bowhead whale activity. Such pathways can be identified using Acoustic Doppler Current Profiler (ADCP) backscatter data to find areas of high diel vertical migration (DVM), characteristic of bowhead prey zooplankton species, such as the euphausiids *Thysanoessa raschii* and *T. inermis*. It is proposed that the euphausiid population of the Beaufort Sea originates in the Bering Sea, and is advected through the Bering Strait, with an average minimum advection time of about four months. Data from ADCP moorings in the Bering Sea and Bering Strait are analyzed to identify timing of highest acoustic backscatter, as well as to compare relative amplitude between years. The increase of zooplankton DVM activity observed during spring at the Bering Strait moorings for all years agrees with the four month transport period required for these organisms to arrive on the Beaufort Shelf during the fall. Across the northern Bering Sea, there was higher zooplankton abundance and greater variation in DVM at the westernmost mooring during all years. Relative abundance was similar on both sides of the Bering Strait, and was highest during the 2005-2006 years and lowest during 2008-2009. In aggregate, these results suggest the western Bering Sea as a more probable source location for zooplankton advection, and a relatively even advection of zooplankton along both sides of the Bering Strait. Ongoing comparisons to wind and current conditions and to data from nearby moorings will yield further results.