

**Modeling processes controlling the on-shelf transport of oceanic mesozooplankton populations in the Gulf of Alaska and SE Bering Sea.**

Georgina A. Gibson, University of Alaska Fairbanks, [george@ims.uaf.edu](mailto:george@ims.uaf.edu)

Kenneth O. Coyle, University of Alaska Fairbanks, [coyle@ims.uaf.edu](mailto:coyle@ims.uaf.edu)

Oceanic interzonal copepods are large-bodied high-energy crustaceans that can provide an important food source for a variety of planktivorous fish. However, they require deep water to successfully reproduce and therefore tend to occur in oceanic and shelf-break habitats geographically removed from many commercially important coastal fish stocks. Annual differences in year class strength of forage and commercial fish stocks such as herring, pollock, capelin and salmon may therefore depend on climatic and oceanographic conditions promoting cross-shelf transport of oceanic copepods to coastal regions where they are fed on by larval and juvenile stages of the above fish species. However, specific conditions promoting or suppressing on and cross-shelf transport in the Gulf of Alaska and Bering Sea are poorly understood. Our project aims to determine the climate-driven mechanistic processes driving the timing and magnitude of transport of oceanic zooplankton onto the continental shelves of the SE Bering Sea and the Gulf of Alaska using a modified float track model and a Nutrient-Phytoplankton-Zooplankton (NPZ) ecosystem model fully coupled to a three-dimensional oceanographic model (ROMS). Here we present initial results from the float track model and discuss insights into the relationship between physical oceanographic processes and cross-shelf transport of oceanic zooplankton in the SE Bering Sea and the Gulf of Alaska