Circulations' Features Associated with a Bowhead Whale Feeding Hotspot in the Sea of Okhotsk

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Abstract

The oceanographic characteristics that produce a favourable feeding environment for the bowhead whale in the Academy Bay (Sea of Okhotsk) are examined by combining satellite observations with physical measurements (CTD, currents and tides) and zooplankton sampling. Bowhead whales are linked via their zooplankton prey to the entire marine food chain. Among their prey in the northwestern Okhotsk Sea shelf are the shelled pteropod *Limacina helicina* and Arctic grazer *Calanus glacialis*. A major physical feature in Academy Bay is the presence of transient headland eddies of different sizes and intensity. These eddies, with diameters of 4-40 km, play an important role in the dispersion of sea ice and plankton. Sea ice is used to track the currents in these headland eddies and their role in the overall circulation within the Bay. Flow convergence associated with the headland eddies is generated by tidal currents, which contributes to the formation of dense aggregations of zooplankton that are prey for bowhead whales.

Keywords: Academy Bay, Bowhead whale, flow convergence, headland eddies, Sea of Okhotsk