

ICES/PICES 6ZPS 2016/S7

Feeding habits of mesopelagic fish in the Scotia/Weddell Sea during the austral winter

Evgeny A. Pakhomov^{1,2} and Brian P.V. Hunt^{1,3}

1. Department of Earth, Ocean and Atmospheric Sciences, University of British Columbia, Vancouver, BC, Canada

2. Institute for the Oceans and Fisheries, University of British Columbia, Vancouver, BC, Canada

3. Hakai Institute, Heriot Bay, BC, Canada

Abstract

Midwater fish in the Southern Ocean are central to krill independent food webs, providing the link between primary consumers (copepods) and top predators (large fish, birds and mammals). However, information on their feeding habits during the austral winter is limited. This represents an important data gap considering the shift in their zooplankton preys vertical distribution and production but continued importance of midwater fish to top predators during winter. To further our knowledge on the midwater fish community structure and feeding ecology during winter, midwater fish were sampled using oblique RMT-8 tows in the top 600 m water layer between August and October 2013 in the Scotia and northern Weddell Seas. In total, 14 species of midwater fish were identified. In decreasing importance, *Electrona antarctica* (32%), *Gymnoscopelus braueri* (19%), *Protomyctophum bolini* (16%), *Krefftichthys anderssoni* (14%) and *Protomyctophum tenisoni* (10%) accounted for >90% total fish collected. The most common prey items in order of importance were copepods, appendicularians, euphausiids, ostracods, amphipods, gastropods, and cnidarians. Copepods were presented mostly by non-diapausing, vertically migrating species, while euphausiids generally belonged to the genus *Thysanoessa*. There was very limited consumption of Antarctic krill during winter. The acoustic data suggested that midwater fish were likely not migrating during winter, residing between 300 and 600 m depth. However, the feeding activity of midwater fish appeared to be enhanced (higher gut fullness indices and fresher prey items) during the nighttime. For the majority of species winter feeding intensity (gut fullness indices) were roughly half of their summer values.

Key words: midwater fish, myctophids, feeding ecology, austral winter, Southern Ocean

Contact author: Evgeny Pakhomov, epakhomov@eos.ubc.ca, Department of Earth, Ocean and Atmospheric Sciences, University of British Columbia, Vancouver, BC, Canada