

Feeding behaviour of Weddell seals on krill near Syowa Station, East Antarctica

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Food habits of top predators would reflect the characteristics of the local marine ecosystem. Weddell seals (*Leptonychotes weddellii*) are year-round resident top predators in the southernmost part of Southern Ocean. They are thought primarily feed on both pelagic and benthic fishes that inhabit the coldest waters around Antarctica, such as Antarctic silverfish (*Pleuragramma antarcticum*), Antarctic tooth fish (*Dissostichus mawsoni*) and other species (*Trematomus* spp.), based on scat and stable isotope analyses or animal-borne video footage investigations. In addition, a variety of minor prey items, such as cephalopod, myctophid fishes and benthic shrimps, was reported from different regions of Antarctica. However, only a few studies have investigated the food habits of Weddell seals around Syowa Station, East Antarctica, where continental shelf extend ~100 km and the extent of land fast ice vary largely between years. This study aims at characterizing the food habits of Weddell seals around Syowa Station, to understand inter-regional difference in the diet composition. To achieve this, video loggers with accelerometers were deployed on 8 Weddell seals around Ongulkalven (69.0°S 39.4°E) near Syowa Station from early October to early November 2017. Blood and whisker samples were obtained for stable isotope analyses. Blood samples were also obtained from 9 additional seals during March, April and September 2017. Seal scats were opportunistically sampled around the study locations from March to December 2017. The data from 4 out of the 8 seals deployed with video-accelerometers were available for the video footage investigations. The 4 seals consisted of 1 subadult male and 3 adult females nursing pups. Among them, the feeding on krill (likely Antarctic krill *Euphausia superba*) underneath land-fast ice were observed in the video footages from 3 seals (1 subadult male and 2 adult females). Sometime the krill form swarms. We will further analyse the head acceleration, nitrogen and carbon stable isotope of red blood cell (RBC) and whiskers, and scat samples to quantify the proportion of krill in the entire diet of Weddell seals. Antarctic krill is one of the most abundant prey typically found along the continental shelf slope or off-shelf areas in East Antarctica. Even though few studies have reported Antarctic (*E. superba*) and ice (*E. crystallophias*) krill signatures in the scats, regurgitations, or stomach contents of the Weddell seals in the Antarctic Peninsula Region and Weddell Sea, this study provided the first video evidence of the feeding behaviour of Weddell seals on krill in the East Antarctica. These results may suggest unique marine ecosystem characteristics around the Syowa Station, where Antarctic krill may be transported by currents onto the continental shelf from offshore areas during winter/spring, when land-fast ice covers the sea surface.