

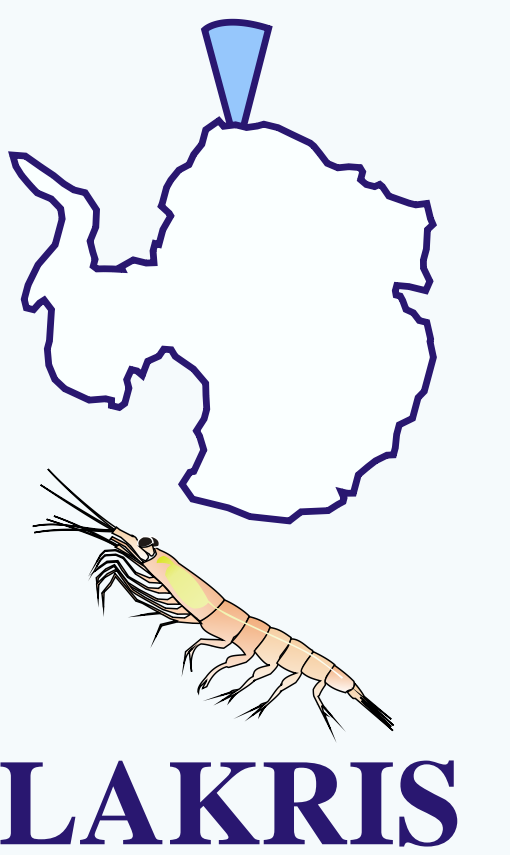
The importance of sea ice - the predators

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IMARES is a partner of the Alfred Wegener Institute (AWI) in the Antarctic 'Lazarev Sea Krill Study' (LAKRIS). Our contribution focuses on the biology in the upper water layer in the seasonal sea ice zone. Birds, seals and whales indicate that the sea ice 'fuels' the Antarctic foodweb. In a 'top down' approach we specify the food requirements of top predators and the availability of prey under the sea ice. Understanding the role of sea ice in sustaining the Antarctic krill stocks and associated foodweb is vital to the assessment of ecological impacts of climate change.



Density estimates of birds, seals and whales are made by surveys from both ship and helicopter. Densities can be translated to daily food requirements of the combined community of top predators. Preliminary data shown here are from ship observations 2004, 2006 and 2007-08.

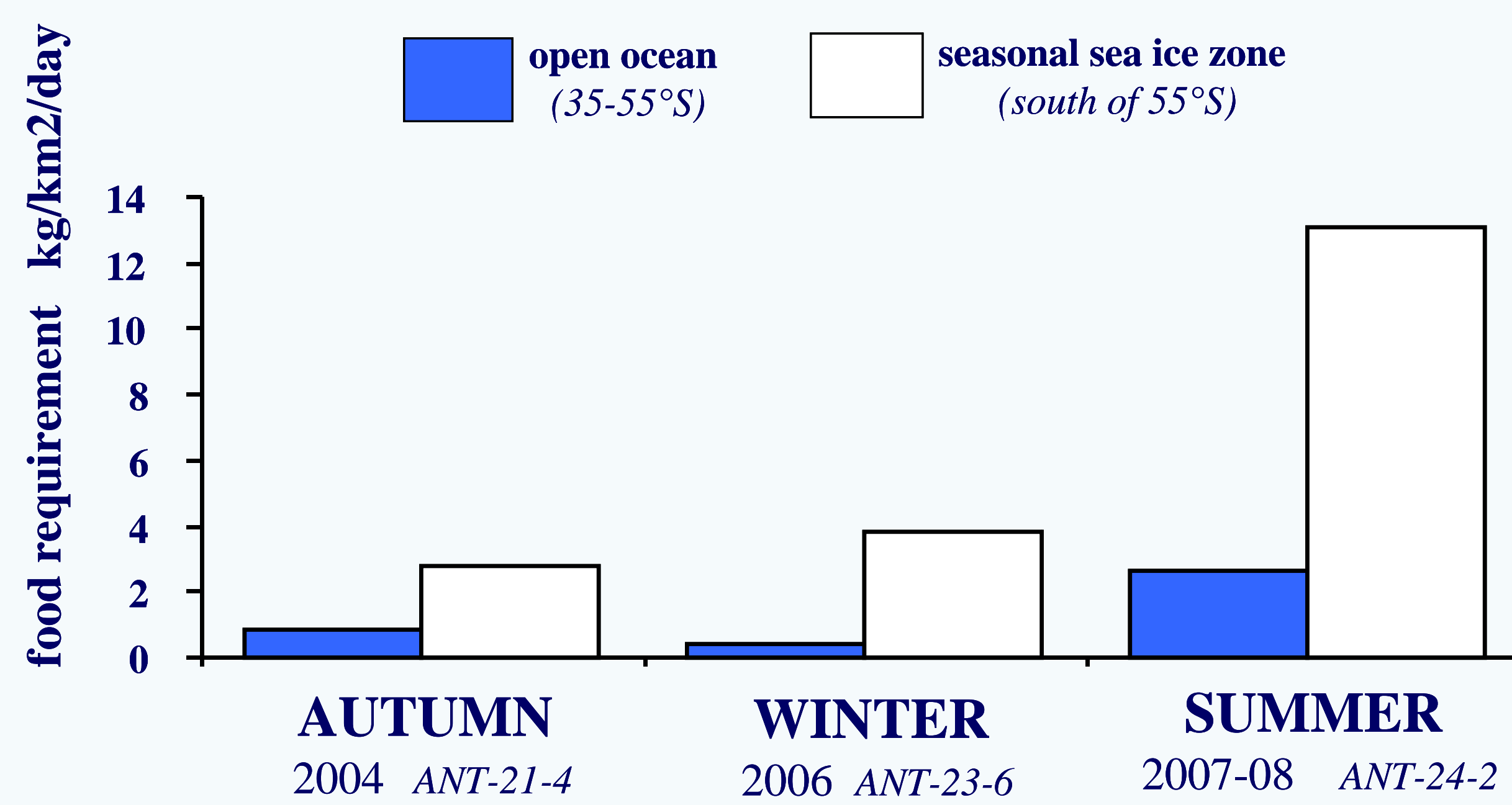


Food from the seasonal sea ice

Throughout the year the seasonal sea ice zone of the Lazarev Sea south of 55°S meets food demands from birds and mammals that are higher than those in the permanently open water further north.

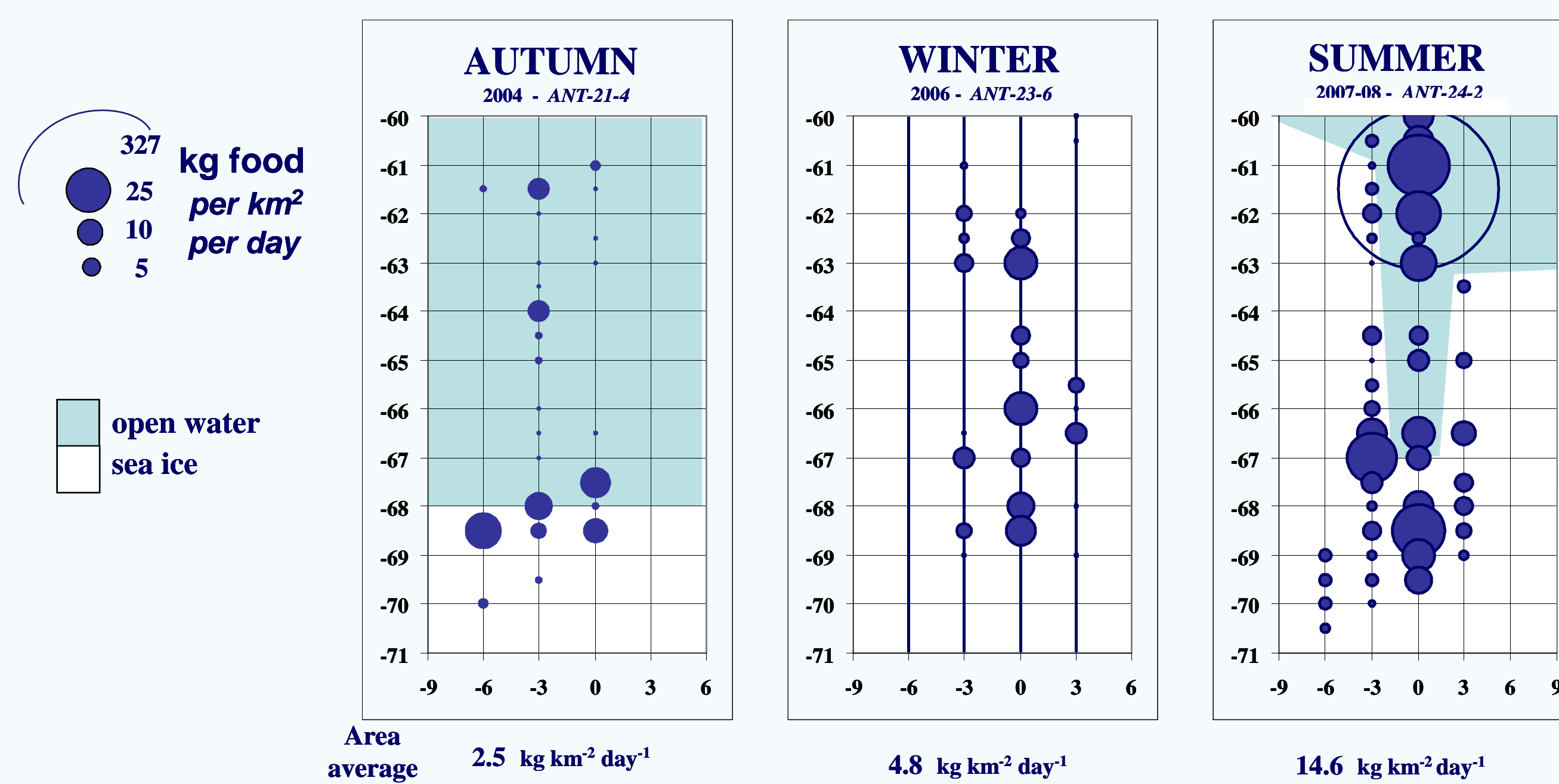


Food requirements of birds and mammals in the sea ice zone and open water



LAKRIS has shown that even in midwinter top predators are attracted deep into the heavy pack ice. Recently formed young ice in autumn and winter appears less attractive. However, after winter the melting of the older ice apparently releases such abundant food that migratory animals move in from 1000's of km's away.

Seasonal changes in the food requirements of predators in the LAKRIS study area



Animal populations of a wide area depend on the continued existence of the Antarctic seasonal sea ice.