Effect of sex and ontogeny on the trophic ecology of Southern Ocean fur seals

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The Southern Ocean is inhabited by, amongst others, two species of fur seal: the Antarctic fur seal, *Arctocephalus gazella*, and the Subantarctic fur seal, *A. tropicalis*. Although both species have been intensively researched, little is still known about the intrinsic factors affecting their trophic ecology. Previous studies have investigated diet through analyses of scats, regurgitations and stomach contents, shedding light on the foraging behaviour and prey preferences of each species as a whole. However, trophic differences in intraspecific components remain largely unknown. These are to be expected in light of the differences in morphology, ontogeny and life history of males and females.

Stable isotope analysis allows investigation of aspects of trophic ecology in greater detail than previously possible through extraction of biological material on a fine scale. Pinniped teeth grow incrementally, with each dentine growth layer group representing information on the environment and the trophic level at which an animal foraged annually. We are using micro-drilling to extract dentine from separate growth layer groups. Through stable isotope analysis we will compare the values of individual growth layer groups in canine teeth from both male and female Antarctic and Subantarctic fur seals from three locations: Marion, Gough and Bouvet Islands. This will establish the effects of sex and ontogeny on their trophic ecology and allow interspecific comparisons where the two species occur sympatrically. This study will therefore provide a more complete assessment of the ecological role of these two important apex predators in the Southern Ocean.