

**SOCIETY FOR MARINE MAMMALOGY: SMALL GRANTS IN AID OF RESEARCH (2018)
GRANT REPORT**

PROJECT TITLE: Age and sex differentiated diet of Subantarctic fur seals from the Tristan da Cunha Islands: overlap with fisheries?

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Project Summary:

Seals are often in conflict with local commercial fisheries. The Tristan da Cunha archipelago is home to >80% of the world's Subantarctic fur seal (SFS) population. Tristan da Cunha itself is inhabited with an economically important fishery that operates within the archipelago's exclusive economic zone. We use stable isotope analyses to determine the diet of the different sex and age classes of SFS breeding at the archipelago to identify possible dietary overlap and the potential for conflict with the local fisheries industry, aiding the establishment of a regime for protecting the waters across the entire Tristan da Cunha maritime zone.

Research questions:

The aim for this project is to quantify the diet of both adult and sub-adult, SFS of both sexes from all four islands within the Tristan da Cunha archipelago, using bulk stable isotope analyses of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ from sub-sections of longitudinally sampled whiskers.

The specific aims are:

- a) Determine the trophic level where sub-adult and adult, male and female SFS from the Tristan da Cunha islands are foraging
- b) Determine foraging zones based on geographical $\delta^{13}\text{C}$ gradient
- c) Determine whether fur seal stable isotope niche width overlaps with the stable isotope niche width of sampled prey species from the Tristan da Cunha islands

Project Progress:

At the start of the project, the samples had already been collected.

This project was turned into a research project for a BSc. Honours (Zoology) student within the Mammal Research Institute, Department of Zoology & Entomology, University of Pretoria. This Honours project was started beginning of 2019.

The adult male fur seal whiskers were too long and given the budget we had available. I decided to adjust the research questions from comparing male, female and adult vs sub-adults, to just comparing adult females vs adult males. This is still a valuable research question given that there are still currently no bulk stable isotope ratios published for this

species from these islands and the adult male bulk stable isotope ratios would be the first for this species published.

All lab work has been done successfully by the student, where she was taught all the lab sampling techniques. The student is currently learning how to analyse isotope data and the final write-up for the project according to the Honours course in the Zoology & Entomology Department is due at the end of October 2019. A manuscript will be submitted for peer-review before the end of February 2020.

Outcomes:

The funding helped train a female student in stable isotope data analyses and the use of it in marine mammal diet studies. Furthermore, research findings ultimately published in a peer reviewed international journal will acknowledge the Society for Marine Mammalogy for awarding this grant.

We appreciate the support of the Society for Marine Mammalogy and thank the Committee of Scientific Advisors, Board of Governors of the Society and the Society's Treasurer.