

Does the South African chokka squid fishery change Cape fur seal foraging behaviour?

J. S. F van der Vyver^{1*}, G. J. G. Hofmeyr², M. Connan³

¹ORCA Foundation, P. O. Box 1741, Plettenberg Bay, 6600, South Africa

²Port Elizabeth Museum, Bayworld, P.O. Box 13147, Humewood 6013, South Africa

³Nelson Mandela University, South Africa

*frikkie5er@gmail.com

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Project title

The trophic ecology of Cape fur seals that associate with chokka squid fishing operations.

Summary

Cape fur seals *Arctocephalus pusillus* frequently come into conflict with commercial fisheries, including the South African chokka squid *Loligo reynaudii* fishery, the spawning grounds of which is centred in St Francis Bay. It has been suggested that some individuals may specialize on squid and therefore be more prone to conflict. However, this has not been examined and the lack of information on the impact of their behaviour hampers the development of effective management measures. This project aims to compare the trophic ecology of fur seals that associate with chokka squid fishing operations, to those that feed elsewhere. During the 2016/2017 squid fishing season a large number of adult male fur seals washed ashore in St Francis Bay. Supporting evidence suggests that many of them were likely shot from squid fishing vessels (Fig 1). We intend to compare the trophic ecology of these animals to those who died from other causes elsewhere, and were therefore less likely to be squid specialists. Results will be important for understanding the foraging behaviour of fur seals and the implications of their interactions with fisheries.



Fig. 1. A shot Cape fur seal that came ashore near the main chokka squid fishing grounds. After being euthanized and dissected by the Port Elizabeth Museum Stranding Network a small-calibre bullet was retrieved from its skull.

Progress to date

During the 2016/17 squid fishing seasons a number of seal carcasses were collected from two locations close to the city of Port Elizabeth. The first location occurs in St. Francis Bay, where the carcasses of seals shot by the squid fishery regularly wash ashore. The second location occurs in Plettenberg Bay, where the carcasses of seals that die from other causes at the breeding colony on Robberg Peninsula wash ashore after easterly storms. These animals were dissected and samples, including vibrissae, have been collected and accessioned to the Port Elizabeth Museum's marine mammal collection. Vibrissae for the analysis of stable isotope values have been selected and loan applications submitted and granted for the washing, sectioning and analysis of stable isotope samples from twelve whiskers – representing six animals from each location. The preparation of stable isotope samples started in August 2018. We intend to complete this phase by the middle of September 2018. Once completed, samples will be sent for carbon and nitrogen stable isotope analysis by collaborators at the University of Cape Town (Dr J. Luyt). Results will be analysed and interpreted for the preparation of a manuscript and subsequent publication.



Fig. 2. Members of the Plettenberg Bay Stranding Network taking measurements and collecting samples from a Cape fur seal carcass that washed ashore near the Robberg Peninsula breeding colony.

Acknowledgements

The support of the Society for Marine Mammalogy has initiated preliminary work that will form part of a broader project on seal-fisheries interactions in the Agulhas Current. The funding will allow for the cost of stable isotope analysis of twelve seal whiskers. Results will strengthen our chances to attract additional funding for the broader project, hopefully in the form of a PhD.