

## Resurrecting the South African Ross Seal Project

Bester MN<sup>1</sup>, Bornemann H<sup>2</sup>, de Bruyn PJN<sup>1</sup>, Kirkman SP<sup>3</sup>, Lübcker N<sup>1</sup>, McIntyre T<sup>1</sup>, Postma M<sup>1</sup> and Wege M<sup>1</sup>

<sup>1</sup> Mammal Research Institute, Department of Zoology and Entomology, University of Pretoria, Pretoria, South Africa

<sup>2</sup> Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Bremerhaven, Germany

<sup>3</sup> Branch Oceans and Coasts, Department of Environmental Affairs, Cape Town, South Africa

[mnbester@zoology.up.ac.za](mailto:mnbester@zoology.up.ac.za)

This study investigates the ranging and diving behaviour of Ross seals in a former area of high relative abundance off the Princess Martha Coast, Antarctica, their diet through direct (vomit and scat collecting) and indirect (dive behaviour and stable isotope analyses) means, and compares their distribution and abundance on the cruise track of the SA Agulhas II. The study builds on earlier SANAP seal research initiatives in the pack-ice off Dronning Maud Land [1-5], extends earlier pioneering work [6,7] using technology such as Temperature and Depth Satellite Relay Data Loggers (SRDLs) and stable isotope analyses [8] to characterise Ross seal distribution, diet and the physical characteristics of the water column where they forage. Results are envisaged to contribute to detailing the structure and function of the pack-ice ecosystem [9] with a view to using seals as bioindicators of environmental change [10], likely due to global warming. After a very successful first season of fieldwork when a record-breaking number of Ross seals were accessed and instrumented, the continuation of the project is threatened by the shortage of funding in the current financial climate, and the SA Agulhas II sailing schedule.

1. Condy, PR (1977) Results of the fourth seal survey in the King Haakon VII Sea, Antarctica. S. A. J. Antarct. Res. 7:10-13.
2. Skinner, JD, Klages, NTW (1994) On some aspects of the biology of the Ross seal *Ommatophoca rossii* from King Haakon VII Sea, Antarctica. Polar Biol. 14:467-472.
3. Bester, MN, Odendaal, PN (2000) Abundance and distribution of Antarctic pack ice seals in the Weddell Sea. In: Davison, W., C. Howard-Williams and P. Broady (Eds). Antarctic Ecosystems: Models for Wider Ecological Understanding. Caxton Press, Christchurch: 51-55.
4. Bester, MN, Erickson, AW, Ferguson, JWH (1995) Seasonal change in the distribution and density of seals in the pack ice off Princess Martha Coast, Antarctica. Antarct. Sci. 7:357-364.
5. Bester, MN, Ferguson, JWH, Jonker, FC (2002) Population densities of pack ice seals in the Lasarev Sea, Antarctica. Antarct. Sci. 14:123-127.
6. Bengtson, JL, Stewart, BS (1997) Diving patterns of a Ross seal (*Ommatophoca rossii*) near the eastern coast of the Antarctic peninsula. Polar Biol. 18:214-218.
7. Blix AS, Nordøy ES (2007) Ross seal (*Ommatophoca rossii*) annual distribution, diving behaviour, breeding and moulting, off Queen Maud Land, Antarctica. Polar Biol. 30:1449-1458.
8. Rau, GH, Ainley, DG, Bengtson, JL, Torres, JJ, Hopkins, TL (1992) 15N/14N and 13C/12C in Weddell Sea birds, seals, and fish: implications for diet and trophic structure. Mar. Ecol. Prog. Ser. 84:1-8.
9. Ackley, SF, Bengtson, JL, Boveng, P, Castellini, M, Daly, KL, Jacobs, S, Kooyman, GL, Laake, J, Quetin, L, Ross, R, Siniff, DB, Stewart, BS, Stirling, I, Torres, JJ, Yochem, PK (2003) A top-down, multidisciplinary study of the structure and function of the pack-ice ecosystem in the eastern Ross Sea, Antarctica. Polar Rec. 39:219-230.
10. Weimerskirch, H, Inchausti, P, Guinet, C, Barbraud, C (2003) Trends in bird and seal populations as indicators of a system shift in the Southern Ocean. Antarct. Sci. 15:249-256.