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IMAS  
INSTITUTE FOR MARINE & ANTARCTIC STUDIES

**NEWS FROM THE UNIVERSITY OF TASMANIA, AUSTRALIA**

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## Media Release

Chiefs of Staff, News Directors

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### Unlocking the secrets of Antarctic fur seal winter foraging

Research into the winter foraging and diving behaviour of Antarctic fur seals has revealed, for the first time, two contrasting strategies the predators use to survive in one of the world's most inhospitable environments.

IMAS researcher Ben Arthur, with assistance from the University of Pretoria, tracked seals from Marion Island in the southern Indian Ocean and found that while about half headed south of the Antarctic Polar Front and hunted prey on short, shallow dives, the remainder stayed further north and foraged on long, deep dives.

Mr Arthur said it was the first time advanced bio-logging technology had been used to track Antarctic fur seals and their diving behaviour during winter, revealing the clear choice the animals face in deciding how and where to find food.

"As a seal, do I swim 2000 kilometres into the Southern Ocean to where's it's going to be easier for me to get prey, or do I stay closer to land and forage a bit harder but don't have to travel as far? This kind of individual difference is something that's often a bit overlooked in ecology as we tend to look at populations and assume all animals are behaving the same way," Mr Arthur said.

"But studies like this show that faced with the same conditions almost identical animals can behave very differently.

"It's difficult to say how the two strategies emerged but it's possibly related to conditions encountered during the first year or two of the animal's life.

"Juvenile fur seals are known to range widely in the first few years of life. One hypothesis is that individuals remember favourable conditions experienced when they are young."

Although Antarctic fur seals are one of the most numerous and best-studied Southern Ocean predators, until now their winter diving and foraging behaviour has been largely undocumented.

Mr Arthur's study followed 12 seals in the Southern Indian Ocean during their post-breeding winter migrations in 2012 and 2013.

He said that despite the clear differences in foraging effort between the two strategies both offer similar benefits in terms of energy gain in the long term.

“For both of those strategies to persist in the one population it suggests that neither one of them is consistently better than the other, because if that were the case you’d expect one strategy to dominate and the other one would simply die out.

“Research like this is interesting because it helps us to understand how populations evolve and the role of individual differences, as well as showing us that different animals within a population may be affected in different ways by changes such as fishing pressures or climate change depending on their foraging strategy,” he said.

The published research is available at <http://onlinelibrary.wiley.com/doi/10.1111/1365-2435.12636/full>

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