



IV ROSS SEA CONFERENCE 2023

Università degli Studi di Napoli "Parthenope"

Via Amm. F. Acton, 38 - 80133 Napoli, ITALY

3-7 July 2023, Via Acton 38, Naples-Italy

Topic: Marine biology and ecology

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ABSTRACT Subject :

Winter movement and foraging behavior of Weddell Seals in the Ross Sea

Abstract 12/02/2023 02:35:19

For Antarctic animals, wintering period is important for survival and reproduction. However, our understanding of their wintering behavior is limited, and we need to have knowledge on their seasonal movements and habitat uses for better understanding of ecology and conservation. In this study, we tracked Weddell seals, an Antarctic circumpolar mesopredator, at Terra Nova Bay, in the Ross Sea, by instrumenting CTD-Satellite Relay Data Loggers. We aimed to investigate their winter movements and foraging behavior from Argos satellite locations and 3D acceleration data as well as the physical oceanographic (temperature and salinity) data. In total, we acquired 33 Weddell seal data from February to July in 2021 and 2022. Among the 33 individuals, 14 seals migrated to northeast or southeast for more than 400 km away (up to 930 km) from the summering site from March to early April while 29 seals remained within 200 km at Terra Nova Bay. In the austral winter season, from April to June, the 14 migrants had higher prey capture attempts than other seals which mainly stayed in Terra Nova Bay. It was also found that the seawater properties at depths where the migrants showed active prey capture attempts were relatively warmer ($> -0.5^{\circ}\text{C}$) than those within Terra Nova Bay. That is, despite the energy consumption and potential risks for long migration, seals moved to near edges of continental shelf regions for taking nutrient warm water, such as modified shelf water or modified circumpolar deep water. These results suggest that Weddell seals may have different wintering strategies with a trade-off between migratory risks and feeding advantages.

