

HUNTING BEHAVIOR OF WEDDELL SEALS (*LEPTONYCHOTES WEDDELLII*) DIVING FROM AN ISOLATED HOLE IN MCMURDO SOUND, ANTARCTICA

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An animal-borne video system and data logger was used to reconstruct underwater movements of Weddell seals foraging on fishes from an isolated hole in the fast ice environment of McMurdo Sound, Antarctica. Underwater behavior was interpreted from 758 three-dimensional dives paths, which were reconstructed from time, speed, depth, and direction data recorded at a rate of 1 Hz, plus flipper stroke rate and synchronized video recordings from a head-mounted camera. Foraging dives had distinctive dive paths which were analyzed in detail to describe hunting behavior for piscine prey. Nine behavioral states were identified in 48 unsuccessful foraging dives based on combinations of swimming speed, stroking frequency, and geometry of dive paths. Five additional behavioral states were identified in 61 successful foraging dives. Most differences between successful and unsuccessful dives were consequences of a fish encounter, rather than indications of successful and unsuccessful hunting strategies. Only differences in the terminal stages of the dive (i.e. initial descent and final ascent) were significantly different and not directly related to the presence of fish encounters, though these differences did not explain foraging success. The dominant hunting sequence leading to the initial encounter with *Pleuragramma* during a dive was *meandering descent* → *descent* → *horizontal swimming* → *ascent* → *silverfish encounter*. Behavioral states and sequences were then interpreted in the context of a generalized foraging cycle (search, pursuit, attack, and handling) and time-activity and time-energy budgets were constructed for hunting seals.