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## THE ROLE OF JUVENILE FORAGING ECOLOGY AND GROWTH IN THE EVOLUTION OF LIFE HISTORY STRATEGIES FOR SOUTHERN ELEPHANT SEALS

IC Field[1], CJA Bradshaw[2], HR Burton[3], MA Hindell[1]

*[1]Antarctic Wildlife Research Unit, University of Tasmania, Hobart, Tasmania, Australia, [2]School for Environmental Research, Charles Darwin University, Darwin, Northern Territory, Australia, [3]Australian Antarctic Division, Kingston, Tasmania, Australia*

Southern elephant seals (*Mirounga leonina*) are a major consumer of biomass in the Southern Ocean with a global distribution. Recent modelling of the Macquarie Island population concluded that juvenile survival is a key parameter in influencing the rates of population change and as an important demographic component of the population. Resource limitation has been suggested as the primary reason for the change in numbers of these populations and this coupled with the importance of juvenile rates of survival influencing population change may provide some insight into explaining any reduction in juvenile survival. Until now, little has been known about these juveniles, ontogenetic and intra-specific differences in life history and foraging ecology have been suggested but not investigated. During this juvenile stage individuals undergo many morphometric and physiological changes as they develop toward maturity. Therefore, it would seem likely that studying the foraging ecology and growth, through studies of diet and habitat use, and development patterns, of growth and changes in metabolism, of this demographic group may show the proximate processes in affecting population dynamics. Using conventional stomach lavaging techniques, we found age differences in the diet of the juvenile seals along with seasonal differences in the habitat use from tracking logger deployments. We also found seasonal and sexual differences in the requirements and use of energy, from proportions of lean and blubber tissues, throughout their annual cycle that influences their overall growth patterns. These key ecological areas of an important predator has increased our understanding of the evolutionary and ecological interactions that influence the population dynamics of southern elephant seals at Macquarie Island and the structure of the Southern Ocean ecosystem.