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**CAUSES OF MORTALITY AND CHARACTERISATION OF  
MYCOBACTERIOSIS IN ADULT NEW ZEALAND SEA  
LIONS (*PHOCARCTOS HOOKERI*) AT ENDERBY ISLAND**

A thesis presented in partial fulfilment of the requirements for the degree of

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## ABSTRACT

The New Zealand sea lion (*Phocarctos hookeri*) is classified as endangered and “Nationally Critical” due to a declining population and restricted population range. There have been recent bacterial epizootic events at the breeding colonies of this species, however the role of disease in the population decline is not known. As part of the investigation into the population decline, the species management plan recommends investigation of disease agents affecting this species, their epidemiology and their long-term effects on population dynamics.

Since the 1998/1999 breeding season, post mortem examinations have been performed on deceased New Zealand sea lions at the Enderby Island breeding colonies during each breeding season, including the collection of samples for histology and bacteriology.

This study describes the causes of mortality in New Zealand sea lions one year of age and older at Enderby Island between the 1998/99 to 2010/11 breeding seasons inclusive, using the archived post mortem reports, histology samples and bacteriology samples. Conspecific trauma was found to be a significant cause of mortality (34.3%), as were various infectious causes (35.7%). The organism *Klebsiella pneumoniae* was isolated from non-pup New Zealand sea lions both from individuals that died from other causes and individuals that showed apparent morbidity as a result of this bacteria. These findings suggest that older animals may be reservoirs of infection for *K. pneumoniae*, which causes significant mortality in neonatal New Zealand sea lions.

Another important infectious agent that was described in non-pup New Zealand sea lions was *Mycobacterium pinnipedii*, which caused both subclinical and clinical disease. Mycobacteriosis of the lymph nodes, lungs, pleura, liver, peritoneum and reproductive tract was described in this study. Strain determination of the *M. pinnipedii* isolates grown show only minor strain variation among isolates, which may reflect the isolated geographic distribution of these animals. There was no apparent association between the individual strains of *M. pinnipedii* and their pathogenicity as indicated by the pathology present in infected animals.

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