

## **Dynamics and evolution of epidemic diseases in Antarctic and Arctic seals**

Since Antarctic seal species have not been exposed to exploitation for more than 50 years, most populations are expected to have reached their asymptotic population sizes, often termed carrying capacity (K). Fluctuations in population numbers are in such cases often linked to food limitation, predation, disease, or catastrophic events leading to mass mortality. Such events have been documented in the 1950s, when a majority of crabeater seals in investigated areas died. Serum samples collected during the SWEDARP expedition in 1989 showed that the likely cause for the mass mortality was a canine distemper epidemic, that seem to have circulated among crabeater seals and leopard seals ever since. We run a program focusing on the potential role of infectious diseases for the population dynamics of Antarctic seals. A general core issue is to explore processes involved in the evolution of disease resistance, where the epidemiology and immunogenetics of canine distemper in the Antarctic seals will be investigated in parallel with phocine distemper in Arctic and North Sea seals. Samples secured during the 2008-2009 expedition are now being analyzed together with earlier collected material from seals in the northern hemisphere.

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