

Surviving in Isolation: Are the Chilean Patagonia South American fur seals doomed to succumb to parasitic infections?

Mauricio Seguel

Pathology Resident/PhD Candidate, Department of Pathology, College of Veterinary Medicine,
University of Georgia, Athens GA, USA. mseguel@uga.edu

ANNUAL SUMMARY REPORT

This project aims to understand if genetic variability of South American fur seals is related to their susceptibility to hookworm disease. During the 2016 breeding season we captured 120 South American fur seal pups. We obtained fecal, blood, skin and vibrissae samples from these pups. We determined that 90% of them were infected with hookworms, and that at least 25% harbored severe hookworm infection based on fecal hookworm egg counts. These animals had mild to marked anemia and were more likely to be found dead due to hookworm enteritis and bacteremia a couple of weeks later. DNA was extracted from skin samples of 20 animals with mild hookworm infection and 30 animals with severe hookworm infection at the molecular and evolutionary ecology of diseases laboratory of Dr Claudio Verdugo, Universidad Austral de Chile. Previously published primers for the pinniped MHCII DQB locus were purchased to run PCR and posterior sequencing in all DNA samples. These steps will be completed in the upcoming months. If the genetic variability in the MHCII DQB locus are a major factor contributing to death due to hookworm disease in South American fur seals we expect to find a lower diversity within this locus in animals with severe hookworm infection when compared with animals with mild hookworm infection. The funds provided by the Society for Marine Mammalogy were used to pay the maritime transport to Guafo Island and to purchase field sampling supplies. These funds were critical for successful completion of the field portion of this study. The results of this study will be published next year in academic journals.