

TRACKING THE BIGHT'S APEX PREDATORS

At a glance

Project title

Status, distribution, and abundance of iconic species and apex predators in the Great Australian Bight

Project summary

To undertake the largest coordinated survey of marine megafauna in the Great Australian Bight region of key marine mammal, seabird and shark species and provide the most detailed assessment of their status, distribution and abundances to date.

Project investigators

SARDI and Flinders University

Program partners

CSIRO, BP, SARDI, the University of Adelaide and Flinders University are working on a \$20 million research program to better understand the environmental, economic and social value of the Great Australian Bight.

Project contacts

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Overview

The Great Australian Bight is a regional hotspot for pelagic species. Globally it is the most significant feeding ground for juvenile southern bluefin tuna and pygmy blue whales. More than 80% of Australian sea lions and Australia's population of long-nosed fur seals live there, as do large populations of short-tailed shearwaters. The region supports Australia's largest breeding aggregation of southern right whales which migrate to the region in winter.

Many of these species are listed threatened or migratory species under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*, and are therefore matters of national environmental significance. Information on their distribution and abundance in the region underpins the species future conservation and management, including the management of potential threatening processes arising from human activities.

The Challenge

This project will undertake the largest coordinated survey of marine megafauna in the Great Australian Bight and provide the most detailed assessment to date of the status, distribution and abundance of marine mammals, seabirds and sharks in the Great Australian Bight.

Within the Great Australian Bight, this project aims to i) assess the occurrence and distribution of pygmy blue whales and other cetaceans using offshore habitats; ii) assess the occurrence and distribution of southern right whales and other cetaceans using inshore habitats; iii) obtain abundance indices of key pinniped and seabird populations; and iv) characterise the spatial and temporal distribution of pelagic sharks and large teleosts.

Below: Australian sea lion pups in the Nuyts Archipelago region of the Great Australian Bight. Australian sea lions are an iconic threatened species, with over 80 percent of the species found in the Great Australian Bight region.



The Research

A range of methods will be used to gather information on the region's apex predators and iconic species.

Methods will include ground surveys of breeding colonies of seals and seabirds on offshore islands; aerial surveys (fixed-wing aircraft and helicopters) of blue and southern right whales and dolphins; acoustic surveys for sperm and beaked whales on deep-sea canyons of the continental slope; and long-line surveys for large pelagic sharks and finfish.

More than eight scientists from SARDI and Flinders University will spend more than two and a half years gathering these data. Information from this project and another project which looks specifically at satellite telemetry and movement data will be used to develop complex movement and habitat models for these species.

The Impact

This project will undertake the largest coordinated survey of marine megafauna in the GAB, providing the most detailed assessment of the status, distribution and abundance of key iconic and apex predator species in the region. Knowledge will improve information on species for conservation and management purposes;



Above: Short-beaked common dolphins off western Eyre Peninsula. One of the species for which estimates have been generated from the aerial surveys for inshore cetaceans between Ceduna and Coffin Bay.

assist the management of impacts from human activities; and enhance the scientific basis for the development of management strategies and monitoring programs.

The People

Professor Simon Goldsworthy leads the Threatened, Endangered and Protected Species (TEPS) Subprogram at SARDI. His research has primarily focused on the foraging and population ecology of marine predators, and their trophic and

operational interactions with fisheries and aquaculture.

Dr Alice Mackay of SARDI is a marine mammal ecologist in the TEPS Subprogram. Her research focuses on population and foraging ecology of key pinniped, cetacean and seabird species, and understanding and mitigating TEPS interactions with fisheries and aquaculture.

Dr Paul Rogers of SARDI leads research on migratory and iconic shark and fish species in the TEPS Subprogram. His research focuses on understanding the critical habitat use, movement-mediated connectivity and foraging dynamics of top predators.

Dr Guido Parra is a senior lecturer at Flinders University School of Biological Sciences and leads (together with Dr L. Moller) the Cetacean Ecology, Behaviour and Evolution Lab (CEBEL).

Dr Luciana Moller is an Associate Professor in Marine Biology at Flinders University School of Biological Sciences, and Research Leader of the University's Cetacean Ecology, Behaviour and Evolution Lab in conjunction with Dr Guido Parra. Dr Moller is also Deputy Head of the Molecular Ecology Lab and has particular expertise in the behavioural and molecular ecology of marine mammals.



Above: Crested terns are an abundant species in the Great Australian Bight.

For more information

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