

# Threatened, Endangered and Protected Species

We work directly on protected species and their threatening processes, often in partnership with stakeholders to deliver outcomes for a diverse group of species

Our research seeks to support efforts directed at:

- Conservation of marine biodiversity
- Management of multiple activities in the marine environment
- Sustainable use of marine resources

We achieve impact by focusing on:

- Management questions of high priority relevant to marine industries
- Meeting information needs to support governance and policy requirements
- Developing novel conservation solutions



We have expertise in:

## Population modelling

We have developed integrated models for sharks, marine birds and mammals that can account for pressures such as fishing, climate variability and change, pollution. Recent innovation has included behavioural modes for selected species that can explain historical population trends.

## Mitigating bycatch

Our expertise with regard to bycatch is based on use of statistical models to estimating bycatch rates, and developing quality controlled data sets for regional and global fisheries. This work underpins our involvement in a number of national and international seabird-fishery interactions working groups.

## Movement modelling

We have developed methods for analysis of spatial and behavioural data collected from a range of species, including whales, seals and tuna. These are used to understand demographic and movement processes supporting decision-making for conservation and management

## Population genetics

New genetic techniques have the potential to efficiently assess population sizes and structure for rare species. These techniques provide new options for researchers and managers, with reduced impact on the focal populations.

## Marine Pollution

Our scientists have developed risk-based approaches to tackling the marine litter issue, with a particular focus on the threat posed to threatened and endangered fauna (seabirds, turtles and marine mammals).

# Research Examples

## Testing adaptation options in response to climate change



In partnership with managers working for the Tasmanian conservation agency (DPIPWE), we are developing and testing adaptation options to help the vulnerable Shy Albatross cope with climate change. This species breeds only on three Tasmanian islands, and is projected to decline under climate change. We are evaluating the use of a Gigapan camera system for monitoring the success of several interventions, including disease treatment and provision of artificial nests to boost breeding success

## Evaluating plastics impacts on marine fauna



Our ultimate goal is to gain a comprehensive understanding of the impact of marine debris on seabird health, survey the prevalence of ingested debris in populations, and ultimately model the lethal and sub-lethal effects of current levels of debris ingestion on seabird populations. We are running an experiment with a model species to identify potential sub-lethal impacts from plastics ingestion and associated chemical contamination. We are asking: Is ingested plastic associated with endocrine disruption? The expected outcome includes empirical evidence of endocrine disruption (or lack thereof) associated with ingestion of varying quantities of virgin and environmentally contaminated plastics.

## Movement and survival of protected marine species



This research spans a diverse set of projects involving CSIRO and other partners. Insight into turtle spatial dynamics of turtles and sharks at Ningaloo reef, movement and survival estimates for conservation-dependent euryhaline elasmobranchs (sawfish), population dynamics and abundance estimates for white sharks, and predicting ship strike risk to marine iconic species. These insights into spatial dynamics allow development of management solutions that address objectives from different stakeholders.

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### FOR FURTHER INFORMATION

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