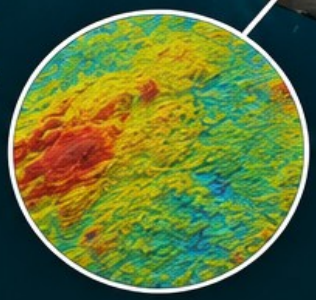
HONOURS PROJECT

KILLER WHALE TOOTH MICROWEAR

Dietary specialisation and the limits of dental microwear in killer whales

FISH SPECIALISTS | SHARK SPECIALISTS | MAMMAL SPECIALISTS



Microscopic wear textures record feeding interactions on tooth surfaces.

WHY DOES THIS MATTER?

Killer whales are apex predators with highly specialised diets, yet they are rarely observed feeding in the wild.

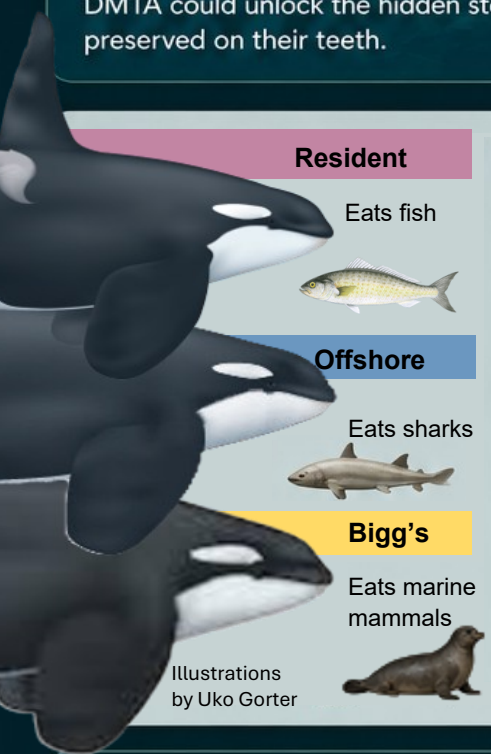
Understanding their diets is vital for their conservation and for addressing changes in marine ecosystems.

DMTA could unlock the hidden stories preserved on their teeth.

WHAT IS DMTA?

Dental microwear texture analysis (DMTA) examines microscopic wear patterns on teeth. It has proven powerful for studying diets in terrestrial mammals, but its application to marine mammals remains largely unexplored.

Toothed whales use their teeth for prey capture and handling, not chewing – making them an ideal system to test the limits of DMTA.



Resident

Eats fish

Offshore

Eats sharks

Bigg's

Eats marine mammals

Illustrations by Uko Gorter

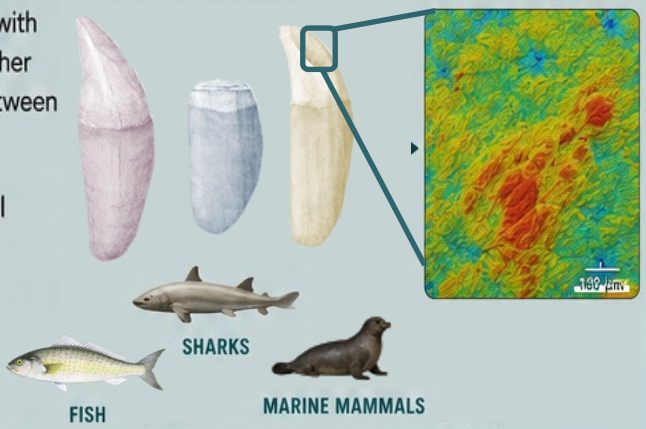
THE PROJECT

We will analyse moulds of killer whale teeth from groups around the world with known specialised diets to test whether dental microwear can distinguish between prey types or feeding behaviour.

This research will define the potential and limitations of DMTA in marine systems and improve how we reconstruct the ecology of marine mammals.

TOOTH MOULDS
from whale populations with known diets

MICROWEAR SCANNING
DMTA captures microscopic textures



YOU WILL GAIN EXPERIENCE IN

- DMTA scanning and microwear analysis
- Working with international datasets and collaborators
- Lab and technical skills
- Interpreting ecological patterns
- Statistical analysis and data visualisation
- Scientific writing and communication

SUPERVISORS

- Dr Isabella Reeves
- Dr Lauren Meyer
- Dr Alice Clement
- Prof Gavin Prideaux

PASSIONATE ABOUT MARINE PREDATORS?

Join this exciting project and contribute to the next chapter in marine mammal ecology!

INTERESTED?

Send CV with GPA to
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SOUTHERN SHARK ECOLOGY GROUP

CETREC Cetacean Research Centre

Flinders University