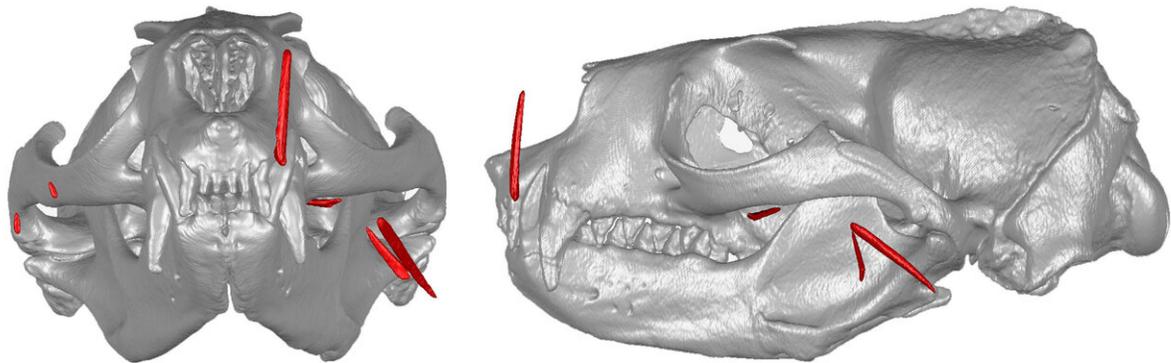


# Last supper: Fish use sharp barbs and spines to fight off hungry seals

May 4 2020

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3D models of fur seal skull showing the fish spines. Credit: David Hocking

What price are you willing to pay for food? As humans, we face this challenge each time we shop, but for some seals and dolphins this may be a life or death decision.

Modern medical scanning reveals the steep price some marine mammals are willing to pay for food, after a stranded fur seal was discovered with more than a dozen facial wounds inflicted by its seafood prey.

The extreme dangers facing hungry marine mammals are revealed in a new study published in the journal *Diseases of Aquatic Organisms*, led by

marine biologist Dr. David Hocking from the Monash University School of Biological Sciences.

"Marine mammals like whales, [seals](#) and dolphins need to eat seafood to survive," Dr. Hocking said. "But, we seldom consider what the [fish](#) think of this situation. Obviously, they are less than enthusiastic about being eaten, and some of them have evolved elaborate defence systems to help them fight off would-be predators."

The study describes a stranded seal found at Cape Conran in south-eastern Australia, which—according to Dr. Hocking—"followed its stomach one fish too far". Unusually, a fish spine was seen poking through the seal's cheek, prompting the researchers to CT scan the seal using the cutting-edge facilities at Monash Biomedical Imaging.



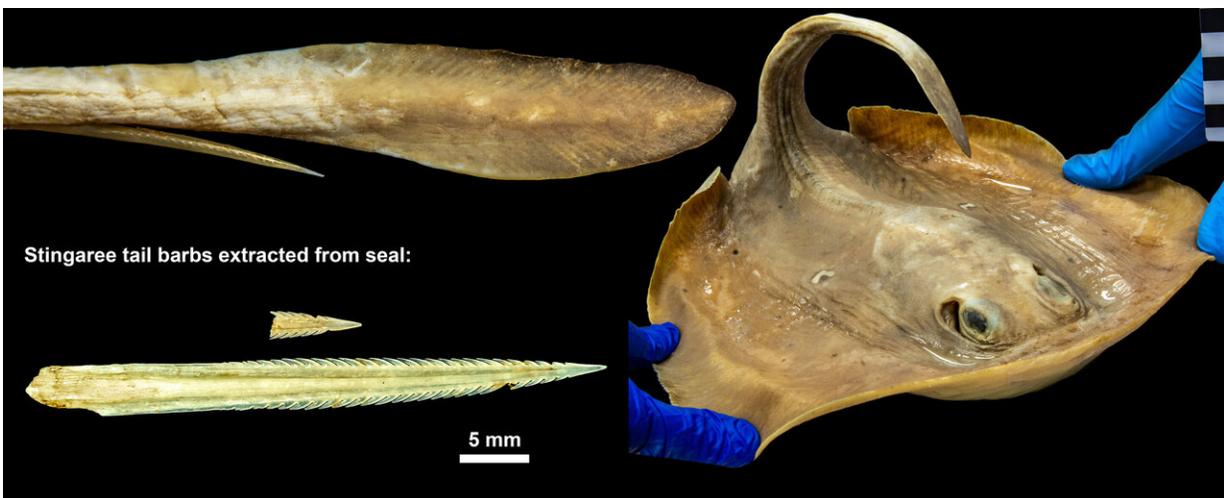
Image credit: Robert Harcourt

New Zealand fur seal playing in Kelp. Credit: Professor Robert Harcourt

"We were shocked to discover not one, but six fish spines embedded in the seal's face," said Associate Professor Alistair Evans, a co-author on the study, also from the Monash School of Biological Sciences. These were later identified by comparing them with specimens at Museums Victoria.

"The fish spines turned out to be tail barbs from stingarees [a small type of stingray] and serrated spines from the back fin of Australian ghostsharks."

While seals are known to feed on these types of prey, this is the first time that researchers have understood how dangerous this process can be. This raises an interesting question: is the Cape Conran seal just an unusual case, or have similar injuries in other stranded individuals simply been overlooked?



Spines and barbs found in fur seal. Credit: David Hocking

"In New Zealand, fur seals target ghostsharks regularly. With that in mind, similar facial wounds may actually be rather common, even though they haven't been recognised much," said co-author Dr. Felix Marx from Museum of New Zealand Te Papa Tongarewa. "That's perhaps not surprising, as the injuries could easily have been hidden beneath the seals' thick fur."

Animals from future stranding events will be examined using X-ray and medical imaging to look for further evidence of facial injuries—a unique yet gruesome window into the eternal battle between predator and prey.

**More information:** DP Hocking et al, Inferring diet, feeding behaviour and causes of mortality from prey-induced injuries in a New Zealand fur seal, *Diseases of Aquatic Organisms* (2020). [DOI: 10.3354/dao03473](https://doi.org/10.3354/dao03473)

Provided by Monash University

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