

BYCATCH BYLINES

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HEADLINE



Gentle giants: getting to know basking sharks better

Basking sharks are the second largest fish in the world. It is surprising then, that so little is known about them. A recent review checks in on new information.

Basking sharks are one of the gentle giants of our oceans. They cruise through the water at around 3.6 km/h – slower than humans walk. To fuel their 6–10 m long bodies, they filter up to 1,800 tons of water per hour extracting plankton, other invertebrates, and small fish.

Basking sharks are widespread in the Atlantic and Pacific Oceans, and may travel thousands of kilometres. They range from the shallows to the ocean depths and can remain at depths of 600 m or more for months at a time. The sharks seem to mix and mingle at a global level with no genetically distinct populations known to date.

The basking shark has been used as an aphrodisiac in parts of Asia, and also features in Chinese medicine. Targeted catch is a threat, and the species is now listed as Vulnerable.

Similar to the sharks themselves, knowledge about basking sharks globally, and in New Zealand, is hard to find and slow to develop. (Pregnancy in basking sharks is thought to last a year or more!) These sharks have been captured in trawl and set net fisheries in New Zealand. One reported instance of surface longline captures may be a case of mistaken identity. Internationally, pot line entanglements have been reported. Most captures here have occurred off southern New Zealand. Water depth and the headline height of trawl nets feature in analyses of bycatch events to date. For example, analysis conducted by NIWA concluded that trawl headline heights of 4 m or less, and avoiding the



A basking shark with some curious human visitors. Photo: C. Gotschalk

sharks' apparently preferred depths of 200 – 400 m, may reduce the risk of captures in New Zealand's southern trawl fisheries.

So how can we learn more about these gentle ocean giants, when they are uncommon and hard to find? Collecting as much information as possible from sharks that are captured in fisheries is important. For example, the size and sex of sharks seems like basic information, but is a useful contribution to our knowledge of sharks around New Zealand. If sharks are dead, samples of muscle and stomach contents can be used to shed light on the diet of these ocean travellers. Technology also has a role to play, with the potential for placement of satellite tags on live sharks to find out where they go.

Getting to know basking sharks better won't happen overnight, but with patience, effort and time, it will happen.

WHAT'S UP?



Oceans of Innovation

It's a future-focused line-up in Wellington at this year's Seafood Industry Conference. Innovation, adding value, and entertainment feature in a programme with something for everyone.

- The New Zealand Seafood Industry Conference is on 3 August, at Te Papa in Wellington.
- Speakers include people world-famous-in-New-Zealand (such as Graeme Sinclair and Bill Ralston), and international guests.
- Innovation is a focus of the meeting. Other topics include accessing international markets and building trust.
- Breaks provide great opportunities to mix and mingle with other conference attendees.
- The conference website is at www.seafoodconference.co.nz.



NEW ZEALAND SEAFOOD INDUSTRY CONFERENCE
OCEANS OF INNOVATION
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Image: www.seafoodconference.co.nz/

WHAT THE FAQ?!



How many?

New Zealand is well-known as the seabird capital of the world. However, our oceans and coasts are also home to a greater variety of marine mammals than most people realise. Most of us will never see the uncommon ones, but just how many are out there?

- New Zealand is home to 38 different kinds of marine mammals. Another 19 species are rare visitors to our waters.
- Our 38 resident or migrant marine mammals include 10 types of baleen whale, 25 types of toothed whale and three species of seals and sea lions.
- Both the world's largest whale (the blue whale) and the world's smallest dolphin (Māui dolphin) live in New Zealand waters.



Māui dolphin – the world's smallest. Photo: www.doc.govt.nz/mauidolphin

How common is 'common'?

Government's consideration of the risks commercial fishing presents to marine mammals is now informed by a risk assessment. What does this tell us about what we do and do not know?

Risk assessments have been developed for several groups of marine animals, and individual species, in recent years. Assessments of the risk that commercial fishing presents to New Zealand seabirds and sharks are well-known parts of MPI and DOC's approach to managing fishing impacts. Development of a marine mammal risk assessment continues, and its preliminary findings include some surprises.

The marine mammal risk assessment is intended for use when information is poor. If a detailed and information-rich assessment is possible, this is preferable. However, in most cases, it is also a luxury. Their lifestyle makes marine mammals very hard to learn about – most species spend their entire lives at sea.

The assessment considered 35 types of marine mammals – some species, some subspecies, and some for which taxonomic status is unclear. The assessment incorporates information on the vulnerability of marine mammals to fishing, known impacts based on information collected by government fisheries observers, and the distribution of the mammals. Expert knowledge is a key input where documented information is sparse.



The common dolphin may not be so common. Photo: www.doc.govt.nz/nature/native-animals/marine-mammals/dolphins/common-dolphin/

Of the 35 marine mammals considered, the risks of commercial fishing came up highest for:

- Common dolphin
- Orca Type A (New Zealand resident population)
- Hector's dolphin
- Māui dolphin
- Bottlenose dolphin
- Short-finned pilot whale
- New Zealand fur seal
- False killer whale
- Long-finned pilot whale
- Dusky dolphin
- Southern elephant seal
- New Zealand sea lion.

Common dolphins rank highest in the assessment in part due to a lack of knowledge of the New Zealand population size. How common is common? We don't know with any confidence. Uncertainty around the extent of mortality in set net and inshore trawl fisheries is another key contributor to this species' high risk, compared to other marine mammals.

As with all risk assessments, the marine mammal work is intended to guide management actions, rather than be the last word on species status and fishing interactions. New information will help refine the assessment over time.

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Seabird snapshots

With stories from satellites to sprayers, seabirds are in the news this month

Eyes in the skies

Last issue, we learned about aerial photos taken from helicopters being used to count seabirds on the Auckland Islands. Technology has gone one better with the WorldView-3 satellite. This satellite provides imagery at sub-40 cm resolution. Scientists have used imagery from the satellite to count seabirds on their breeding sites. So far, wandering albatross in South Georgia and northern royal albatross here in New Zealand have been counted this way.

At South Georgia, satellite counts and ground-based counts yield similar numbers of birds. In New Zealand, counts are similar where ground-counts have been conducted recently, but differ more where only older count information is available.

The satellite platform presents new possibilities for counting seabirds, that may be lower cost, easier, and with no disturbance to the birds.



A young northern royal albatross on its nest – in the eye of the WorldView-3 satellite. Photo: S. Wieman, CC-by-SA 3.0 Unported

Aussie Aussie Aussie, Buoy Buoy Buoy

The new fishing season has recently started in the Australian Southern and Eastern Scalefish and Shark Fishery. Seabird interactions with trawlers in this fishery have been a matter of concern in recent years. This season, these interactions are under active management. All commercial trawl vessels in the fishery must use one of three approaches to deter birds from risk areas around vessels – water sprayers, bird bafflers, or so-called pinkies (large buoys deployed where trawl warps enter the water). If pinkies are deployed, restrictions on offal discharge also apply during trawling.

An approval process is part of ensuring bird bafflers and sprayers meet required specifications before use. Demonstrating that vessels can effectively hold their offal while fishing is required where pinkies are the mitigation measure chosen.

So far, all but one of the 28 trawlers operating in this fishery has chosen to use bird bafflers.

Check *Want to know more?* for YouTube links showing the devices in action.

WANT TO KNOW MORE?

Worldwatch: For the full story on satellite seabird counts, go to: www.canterburymuseum.com/assets/Uploads/ibi-12482-Rev-EV.pdf

Bird bafflers looking a lot like some of ours are at:

www.youtube.com/watch?v=S6c8mJF3pDQ

Sprayers look like this:

https://www.youtube.com/watch?v=K1PILX_m2to

Pinkies are in action here:

https://youtu.be/PN8w3u_Lv6I

FEEDBACK

To submit feedback or questions, please email: johanna@jpec.co.nz

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