BYCATCH BYLINES

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HEADLINE

The devil you know

Spinetail devilrays are mostly caught as bycatch in purse seine fisheries in New Zealand. But what happens after they are released alive? There is a lot to learn about this devilray. However, what we already know might improve their survival prospects.

Spinetail devilrays are bycaught in purse seine fisheries targeting skipjack. On average over the last decade, fisheries observers have reported that approximately 8% of skipjack sets also caught spinetail devilrays. Devilray nirvana in New Zealand waters appears to be an area near the shelf edge off the North Island at 150–350 m depth. There, these rays have been reported caught in approximately 24% of purse seine sets. Devilrays are most often reported to be brailed aboard vessels with the target skipjack catch. However, rays can also be tangled in the bunt of purse seine gear, especially when sets are unsuccessful ('skunked').

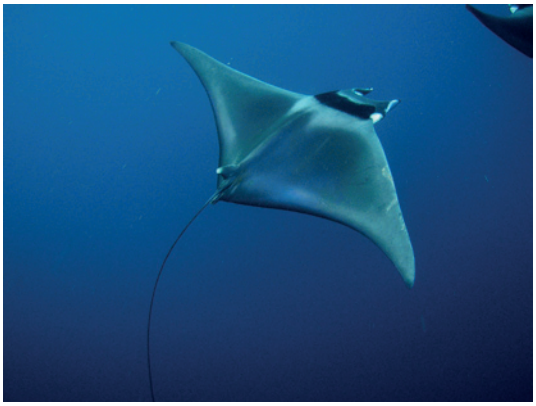
To learn more about spinetail devilrays, nine were fitted with electronic tags after being caught on purse seine sets in 2013–2015. All rays swam away from the vessel and were considered likely to survive.

Technology is seldom perfect, and two tags did not work well after deployment. However, the information recorded by the remaining seven tags showed that four rays died within 1–4 days of release. These rays had all been tangled in netting and hauled aboard the vessel in the bunt. Three of these four rays were caught in skunked sets.

Three rays survived at least 30 days and one tag collected data for 82 days. Of these surviving rays, two were caught in successful sets. All three were brought onto the vessel in the brail. After tagging, they were released from the brailer or lifted with a rope and winch.

These results are very preliminary, but may suggest what is common sense – rays are sensitive to handling, and careful handling could improve their survival. Further, swimming away from a vessel on release doesn't mean they survive longer term after being captured.

Managing ray interactions in 'ray nirvana' is a sensible way to reduce impacts on this protected species. Setting in depths of less than 200 m (i.e. over the shelf) should reduce interactions. Not setting when rays are sighted around skipjack schools would also help. This makes sense from a fishing perspective too, as schools with rays often result in skunked sets. When rays are caught, releasing them while the gear is still in the water is ideal. If they are brought aboard, handling them with hooks and ropes is likely to be harmful. Separating rays from target catch using a cargo net over the fish hold is a promising method, and also makes catch handling and ray release easier. Rays can be returned to the water in the cargo net itself. Release the ray and walk away!



A spinetail devilray. *Photo: © Guy Stevens, Manta Trust 2008*

WHAT'S UP?

Fisheries management system review

MPI has kicked off a review of our fisheries management system. What's in, what's out, and how can you have your say?

- The review covers our territorial sea and Exclusive Economic Zone, and is focused on wild-caught fish and shellfish.
- There are five themes to the review, and an overall focus on future-proofing the system in terms of:
  - sustainability
  - benefits for all New Zealanders
  - decision-making processes
  - monitoring and enforcement, and
  - responding effectively to future challenges.
- There are many ways to have your say, from regional drop-in sessions to an online questionnaire. For more information, follow the link in '*Want to know more?*'.

Ministry for Primary Industries
Manatū Ahu Matua

WHAT THE FAQ?!

Cape crusaders

Cape petrels are often seen around fishing vessels, eating fish scraps that are too small for other seabirds to bother with. What else is known about these 'chickens of the sea'?

- Cape petrels can live more than 40 years.
- They breed from November to February. Eggs hatch after a lengthy 45 days in the nest. Hatchling petrels stay at the nest for another 52 days.
- Cape petrels are social at sea and on land where they breed in loose colonies, returning to the same mate and nest site year after year.
- Cape petrels occur around coastal New Zealand waters. Outside the breeding season, the population here is boosted by immigrants from Antarctic and subantartic waters.
- This petrel is also known as the pintado petrel.

A Cape petrel. *Photo: © M.P. Pierre*

THE BIG PICTURE

The risk report, shark-style

Experts have now completed their assessment of the risks that commercial fishing presents to sharks in New Zealand waters. The assessment was designed to help prioritise research and management actions among shark species. What did the experts decide about the 85 sharks considered?

The National Plan of Action – Sharks (2014) established a risk-based approach to prioritising management actions. To address this, a panel of scientists and fisheries experts met for five days to consider commercial fishing impacts on sharks, skates, rays and chimaeras (referred to collectively as 'sharks' here) in New Zealand waters. The group assigned risk scores as a combination of the level of fishing impacts on these animals (intensity), and the consequence of these impacts on populations. Risk scores for sharks were developed separately for QMS, protected, and non-QMS species. This was because these species groups are managed differently.

QMS species scored relatively highly in the risk assessment (as they are either targeted or caught in relatively large quantities). Because of their inclusion in the QMS, we have the best knowledge about these species and our impacts upon them. The two top highest risk QMS species were rough and smooth skate.

Protected species are often those with high consequence scores. These species often show low productivity, that is, they produce young in only low numbers throughout their lives. This makes it harder for populations to sustain and recover from fishing impacts. However, generally the level of fishing impacts on these species was lower. Our knowledge of human impacts on these sharks is not as good as for QMS species. The two highest ranking protected species were basking shark and spinetail devil ray.

Most of our sharks are non-QMS species (67 of the 85 examined) and these show a wide range of scores. In general this is the category of sharks we know the least about, and there are many of these species where low scores were given as they are rarely caught or seen. The three highest ranking non-QMS species were carpet shark, Baxter's dogfish and seal shark.

So what happens now? The results of the risk assessment are now available to help prioritise management actions. The information base for many of the species considered is weak, but that can be improved over time with additional research and more thorough use of existing data. Where more is known, additional assessment can be undertaken to highlight particular fisheries risks.

The expert panel's full report is available online. Follow the link in '*Want to know more?*'.

The basking shark: the world's second largest fish, which also has one of the biggest mouths. *Photo: AP Photo, Nick Caloyianis, Massachusetts' Division of Marine Fisheries.*

WANT TO KNOW MORE?

- *What's up?:* Find out more about the fisheries management system review at *http://tinyurl.com/qajkaz2*.
- *The Big Picture:* The full report on the shark risk assessment is available online. Go to *www.mpi.govt.nz/document-vault/9803*.
- *World Watch:* Go to *www.seabirdtracking.org/* to find out where your favourite seabird hangs out. The maps shown here were generated from this site.

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WORLD WATCH

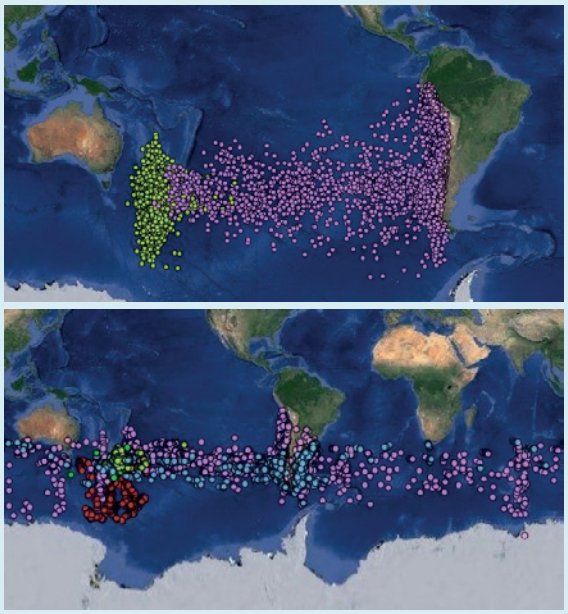
Five million locations and growing

Where do seabirds go? It's an age-old question that now has more than five million data points as its answer. The Global Seabird Tracking Database has been growing for about 12 years and shows no sign of slowing down.

The Global Seabird Tracking Database started in 2003, with information on just 16 albatross species. Getting scientists to share their data can sometimes be tricky. However, the database now contains over 440 datasets from more than 120 research institutes, including many New Zealand scientists.

So what does it show? The database is available online, and can be used by anyone to explore seabird locations. For example, you can choose to make a map by seabird species, and then colour-code the location points to show birds of different breeding stages. You can also connect the dots to show the tracks that seabirds follow as they move over the oceans.

The database provides an excellent example of how a picture is worth 1,000 words. Making a map of Salvin's albatross locations shows how this species covers a huge expanse of ocean with just 68 tracks of breeding and non-breeding birds (upper map below). Similarly, northern royal albatross are shown to be circumpolar travellers, who stick closer to home at breeding time (lower map below – blue and pink dots are non-breeding birds).



The seabirds tracked may be a small proportion of their species' populations. However, there is no doubt they are long-distance travellers. Find out your favourite seabird's at-sea secrets: check the link in '*Want to know more?*'.

The northern royal albatross – a Kiwi world traveller whose at-sea movements are in the Global Seabird Tracking Database (see the map above). *Photo: © M. P. Pierre*

FEEDBACK

To submit feedback or questions, please email: jpecnz@gmail.com

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