

PROJECT JONAH

NEW ZEALAND

State of Marine Mammals in Aotearoa, 2019 – Project Jonah New Zealand Inc.

New Zealand's marine habitats are constantly changing. For the animals that inhabit them this demands constant adaptation, and conservationists have an ongoing obligation to stay up-to-date and pass on their knowledge.

It is for this reason that we've produced our State of Marine Mammals in Aotearoa, 2019 report.

Methodology

We contacted 20 of New Zealand's leading marine mammal researchers, scientists and experts and asked them three questions:

1. **What threats will have the most significant impact on marine mammals in New Zealand? (Consider and identify whether these are immediate, medium or long-term threats).**
2. **Are you aware of any recent innovations that you would like to see implemented in New Zealand to protect marine mammals? If so, what are they?**
3. **What is the one thing that you would like every New Zealander to know about marine mammals?**

The information contained in this report represents a collation and summary of the answers given by our 12 respondents. We'll use these insights to inform Project Jonah's future strategic priorities, but, as marine mammal conservation requires a collective effort, we wanted to share them with you.

Q.1 What threats will have the most significant impact on marine mammals in New Zealand?

This report examines the most serious short, medium and long-term threats identified by the respondents. These are followed by other concerns that featured prominently in all three lists.

1. Fisheries by-catch

Fisheries by-catch was by far the greatest short-term threat identified by our panel, with 75 percent referencing this problem. It was also named in the experts' top five for both the medium- and long-term threats.

Globally, it's estimated that 300,000 small whales, dolphins and porpoises die every year as a result of unselective fishing equipmentⁱ. In 2018 alone, nine endangered Hector's dolphins were reported killed in commercial set nets and trawl nets around New Zealandⁱⁱ, and this tally has already been added to in 2019.

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Among the suggested solutions were:

- Eliminating gill netting and trawling (especially in water depths less than 100 metres where Maui and Hector's dolphins and other cetaceans are found).
- Greater policing of fishing practices within the industry and by external observers.
- The creation of more marine sanctuaries.

2. Plastic pollution

Plastic pollution was identified as the most serious medium-term threat, named by nearly 50 percent of our experts. While New Zealand took steps to reduce its plastic consumption in 2018, the danger to our oceans and their inhabitants has far from disappeared. Research suggests that New Zealand's oceans are the worst in the world for sea birds accidentally consuming plasticⁱⁱⁱ, and plastic was also found in one-third of the sea turtles that washed up dead on New Zealand's beaches in 2017^{iv}. Necropsies performed overseas on stranded cetaceans have shown that they too are at serious risk from plastic consumption.

3. Climate change

The impacts of climate change are by far the most worrying long-term concern for marine mammals, according to our experts, with over 81 percent referencing this factor.

Within this umbrella, there are a number of factors to consider:

- **Ocean acidification** – Increasingly acidic oceans could impact small species that form the base of marine food webs. If their numbers decline this will pose significant problems for marine mammals.
- **Changing resources** – Shifting water temperatures won't only deplete prey stocks, but also may introduce new warm water species that compete for food.
- **Exposure to new pathogens** – Changing distribution patterns could bring new pathogens to our marine populations.

Other threats that featured prominently across all three threat categories include:

Ocean noise and boat strikes

Last year, a study from the University of Auckland showed that noise pollution from container, tanker and cargo vessels overlapped with vocalisations from Bryde's whales in the Hauraki Gulf 20 percent of the time, reducing their communication space^v. Among the problems this can cause for marine species are:

- Difficulty finding a mate.
- Inability to give warning of predators.

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- Making it harder to mark and defend territory.

It's vital to note that ocean noise isn't only caused by commercial vessels - we need also to consider the contributions made by recreational and tourist boats. The risk of boat and ship strikes are also a serious concern for New Zealand's marine mammals. In 2017, the Port of Tauranga became New Zealand's first to process more than one million twenty-foot equivalent units (shipping containers) in a year.^{vi} As our shipping lanes and harbours continue to get busier, the chances for collisions with marine mammals will only increase.

New diseases

Changing ocean temperatures aren't the only way that new pathogens and diseases can spread among marine mammals. In December 2016, *Mycrobacterium pinnipeddi* (a strain of tuberculosis common in fur seals and sea lions) was found to be the cause of death for a Hector's dolphin that washed up near Kaikōura^{vii}. This was the first recorded incidence of a cetacean dying from this disease. As humans continue coastal development, runoff from farmland and settlements could lead to the introduction of terrestrial pathogens into marine habitats.

Man-made chemicals and toxins

While we need more information on how man-made chemicals and toxins will impact marine mammals long-term, we know their reach is widespread. Toxic man-made chemicals have been found in the South Pacific's Kermadec Trench, home to some of the deepest waters on the planet^{viii}. Monitoring to gain a deeper understanding of what these toxins mean for marine mammals will be a key conservation consideration for the future.

Q.2 Are you aware of any recent innovations that you would like to see implemented in New Zealand to protect marine mammals? If so, what are they?

Our respondents suggested 10 innovations they believe can benefit New Zealand's marine mammal populations.

I. Closer links between conservation and animal welfare science

The principles of animal welfare science, which traditionally centre on studying threats to an individual creature's health or quality of life, are only just starting to be applied to conservation. Together, the two could provide a more holistic picture of what's needed to protect species from extinction.

II. Comprehensive necropsies of all dead marine mammals

This is crucial in understanding the reasons behind every marine mammal stranding, as well as keeping up-to-date with new threats to our marine mammal populations.

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III. Triage at all strandings

In stressful stranding situations it's vital to have expert veterinary opinions to guide prioritising and decision making relating to the health and survivability of the animals.

IV. Tagging

In many countries overseas, advances in satellite tagging technology are allowing researchers to build clearer pictures of species' offshore movements. Respondents would like to see this technology used in the field for species that live in or migrate through New Zealand's waters.

V. Remote sensing

New Zealand has struggled with a relative lack of data on marine mammal populations, both in terms of abundance and distributions. Remote sensing refers to the use of satellite technology to track marine mammal populations and activity, and is of particular benefit in hard-to-access locations such as the Antarctic. Advances to this technology, and improvements in machine learning has the potential to make processing large quantities of data faster and less expensive.

VI. Ocean clean-up technology

A number of organisations and businesses around the world are working to remove debris from oceans, with plastic being the major focus.

VII. Technology to reduce boat strikes on marine mammals

A number of measures^{ix} have already been taken to try and reduce incidences of boat strikes on marine mammals. The key is to continue expanding these regulations, and take advantage of new technology that could strengthen this effort^x.

VIII. The use of drones to measure population sizes

Drones have already been used to gain more insights into marine species in New Zealand, and offer a new and exciting way of monitoring mammals with minimal disturbance^{xi}.

IX. Passive acoustic monitoring systems

Several respondents called for nationwide implementation of passive acoustic monitoring systems. These hydrophones would allow us to better understand whales' distribution patterns, with no disturbance to the animals.

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X. A marine mammal ambulance

The IFAW Marine Mammal Rescue and Research team operate a marine mammal ambulance on the coast of Cape Cod, in the United States of America. This incredible service hasn't only saved hundreds of dolphins, but also allows on-the-spot research and diagnosis as rescue efforts continue. ^{xii} A similar service in New Zealand would allow us to learn more about our cetacean populations and aid in efforts to refloat stranded mammals.

Please Note – this is NOT a list in priority, simply a list of suggestions made

Q.3 What is the one thing that you would like every New Zealander to know about marine mammals?

Here are the messages our experts want the New Zealand public to hear:

1. We're privileged to have such diversity of species in New Zealand

Almost half the world's cetacean species have been sighted in New Zealand's waters, some of which are very rare or endemic. We need to acknowledge how lucky we are to have these incredible animals in our back yard, and to understand the threats to their welfare. If we don't address these threats, some species risk extinction or may leave our waters for good.

2. Everybody has the responsibility to care for our marine species

Our choices directly impact the welfare of cetaceans. Among the choices we can make to better protect them are:

- Not buying fish caught in gill or trawl nets.
- Challenging commercial fishermen to improve their practices.
- Balancing our desire to enter their environment with their need to live in peace.
- For Project Jonah, continuing to inform and educate the public on issues impacting marine mammals.

3. The government has a responsibility for New Zealand's cetaceans

Legislation is crucial to making our waters safer for the species that call them home. Most importantly, laws need to be passed to enforce a zero-bycatch policy, and to better protect marine mammal habitats. New Zealanders need to hold the government to account on these matters, and make sure real action is taken.

Summary

New Zealand's marine mammals are in a precarious position, and face threats from many directions. Humans continue to play a huge role in this endangerment, but - by the same token – we have the power to make changes. Through the problems and innovations

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highlighted in this report, our experts have shown that this change can only be effected by a unified effort from legislations, researchers and the public.

Some solutions should be implemented immediately, for example zero by-catch legislation. Others, such as tackling the threats of plastic pollution and ocean temperature rise, will be a longer-term effort.

We hope this report goes some way to highlighting priority areas for anyone interested in the survival and prosperity of whales, dolphins and seals in New Zealand.

Please Note – Not all respondents support the suggestions and recommendations made

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Our final respondent wished to remain anonymous.

ⁱ <https://www.worldwildlife.org/threats/bycatch>

ⁱⁱ <https://www.doc.govt.nz/our-work/hectors-and-maui-dolphin-incident-database/>

ⁱⁱⁱ <https://www.forestandbird.org.nz/resources/nz-seas-worst-world-seabirds-eating-plastic>

^{iv} <http://sustainablecoastlines.org/plastic-bag-phase-out/>

^v <https://www.auckland.ac.nz/en/about/news-events-and-notice/news/news-2018/01/ship-noise-affects-ability-of-marine-species-to-communicate.html>

^{vi} <https://www.port-tauranga.co.nz/port-tauranga-sets-new-zealand-container-throughput-record/>

^{vii} <https://kori.org.nz/news/>

^{viii} <https://envirobites.org/2017/08/19/high-levels-of-toxic-man-made-chemicals-found-in-deep-ocean-critters/>

^{ix} <https://www.poal.co.nz/sustain/Documents/150112-Transit%20Protocol.pdf>

^x <https://www.newsdeeply.com/oceans/articles/2017/10/25/the-high-tech-tools-that-could-save-blue-whales-from-ship-collisions>

^{xi} <https://kori.org.nz/2018/12/17/how-are-drones-helping-scientists-learn-about-kaikouras-dolphins/>

^{xii} <https://www.ifaw.org/united-states/news/nine-things-you-may-not-know-about-dolphin-strandings>