

THE OCEAN GUARDIAN



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HEADLINE

The truth about *Jaws*

Around the world, sharks are getting increasing amounts of attention, and not for being in fish and chips. These marine predators are a lot more than big fish fillets with a mouthful of teeth. In fact, they've been around over 400 million years – that's 100 million years before dinosaurs – and have some really special characteristics. This month, the *Guardian* brings you the truth about sharks here and abroad.

Mentioning sharks tends to draw strong responses from most people. For some, it's fear. For others, it's about food. For still others, it's fascination. In New Zealand waters, we have more than 60 types of shark. These range from the tiny pygmy shark (just 30 cm long) to the basking shark (10 m long) and the massive whale shark (12 – 15 m long). Ironically, these giants of the shark family eat tiny prey – plankton for the basking shark, and plankton with small fish like anchovies for the whale shark. Nothing to be afraid of there then.....

New Zealand has four legally protected shark species. These include the gentle giants – basking sharks and whale sharks. Other protected shark species are the deepwater nurse shark and the white pointer (great white) shark. Now you might have wondered why these species were protected. Well, despite their nasty reputation, sharks are really cool animals that are vulnerable to over-exploitation.

Most sharks live 20 – 30 years. They have few young (called pups), and often bear these live and fully formed. Shark pregnancy can be a really long haul. Dogfish, for example, can take up to two years to have their pups. Sharks also become adult much later than a typical fish.

For example, white pointer shark and shortfin mako males mature around 8-10 years old. Females wait longer – 12-14 years for white pointers, and 18 – 20 years for makos. The combination of late maturity, slow reproduction, and low populations compared to other fish means sharks cannot recover quickly if overfished.

Out of our unprotected sharks, New Zealand has eight species in the Quota Management System. Along with the use of catch limits, their status is managed through a National Plan of Action. But, shark management is a global issue and New Zealand's actions are important for our reputation worldwide. For more on what the rest of the world is doing, turn over to World Watch.



Female white pointer shark, 3.1 m. Note the attached tag, used to track shark movements. Photo: Department of Conservation.

YOUR VOICE

Got an idea?



Crew deploy tori lines from a South African trawler. Tori lines have been developed by fishermen and scientists to reduce seabird deaths on trawl and longline gear. Photo: J. Pierre.

Sometimes, good ideas need a few helping hands to make them great. The International Mitigation Mentor Programme works on that principle. This Programme gives you access to an international panel, who provide confidential expert advice to help you develop your idea for reducing seabird bycatch. The panel includes scientists, fishermen, and seabird bycatch experts from Australia, New Zealand, Norway, South Africa, and the US. For more information, go to: <http://www.southernseabirds.org/n1759,182.html>

WHAT'S UP?

In news just to hand....

- NIWA scientists have started a new project to see where deep sea corals are most at risk from fisheries. Work will include predictive modelling where no information from at-sea sampling exists. Hard corals are protected (including the *Primnoa*, below), and must be reported when caught during fishing.
- Basking sharks are also in the spotlight at NIWA..... Recent information shows a strong decline in basking sharks around New Zealand. Scientists are looking at causes for this decline, including the effects of water temperature.
- Purse seine fisheries usually get a bad rap for dolphin captures. However, protected manta rays also get caught. Current research at NIWA aims to identify ways to reduce manta ray captures.

For further information, go to 'Meetings and project updates' at: <http://www.doc.govt.nz/mcs>



Gorgonian sea fan *Primnoa* spp. Photo: NIWA.

Why all the fuss about bottom trawling – doesn't that stuff just grow back?

No, not any time soon....and maybe never the same.

In New Zealand, deep sea corals have been a particular focus of anti-bottom trawling lobbyists. Are their claims reasonable? It's worth knowing some facts. Bottom trawling occurs widely in New Zealand waters. Here, we focus on impacts on deep sea corals.

Hard corals (protected in New Zealand waters) are very vulnerable to bottom fishing. They are slow-growing (e.g. 1 mm each year!) and often very fragile. Some areas, including seamounts, have been closed to bottom fishing to protect corals. In other areas, corals are still caught especially when orange roughy and deep sea oreos are targeted.

Time taken for hard corals to regenerate in New Zealand waters is not well known. However, studies 5-10 years after trawling do not show coral recovery here or off Tasmania. Regeneration may be slowed by a lack of colonists. Even if recolonisation does eventually occur, the result will probably be different to what was there before.

WHO'S WHO?

Barry Baker – Bycatch Councillor, Convention on Migratory Species (CMS)

CMS is a treaty that aims to conserve migratory animals throughout their ranges. This includes many marine species, like seabirds, sharks and turtles. 116 countries are currently signed up to CMS, including New Zealand. As Bycatch Councillor, Barry's role is to provide expert advice to the Scientific Council and the Conference of Parties. The Guardian asked Barry more about this international role.

How did you get involved with bycatch issues?

I worked on seabirds for about 13 years with the Australian government. Bycatch is a key threat for seabirds, and because bycatch reduction measures must consider all target and non-target species, my interest soon spread to other species like turtles and sharks as well.

What sort of experience do you bring to the Councillor role?

Much of my work has focussed on finding solutions to human - wildlife interactions. I've worked in both public and private sectors, with industry, and on education and outreach. As well as Bycatch Councillor, I work on bycatch-related issues with other international forums including those working on fisheries and species management. This broad experience and perspective is very useful in my CMS role.

Are there any particular highlights of working in this area?

I'm very positive about the role CMS plays in the bycatch arena, and in sustainable fishing. There is a growing awareness of bycatch issues amongst CMS member countries, and countries are increasingly prepared to tackle these issues. This includes working with industry to find solutions that are practical and improve fishing efficiency. The ongoing challenge is addressing bycatch across all fisheries, not just for the main gear types.

And away from it all, how does a bycatch expert unwind?

I travel a lot and run my own business, which doesn't leave much down time. But, I enjoy breeding and training gundogs, growing bonsai, and photography.

Thanks Barry. Hope CMS keeps up the good work.



Barry in action at CMS. www.iisd.ca/cms/cop9/

How are we doing in the world?

We already know that some shark species are protected in New Zealand. But what happens outside our waters?

Some sharks roam large areas and management varies a lot between countries. Member countries and some parts of international waters are covered by Regional Fisheries Management Organisations (RFMOs). New Zealand-flagged vessels must abide by RFMO rules when they fish in RFMO areas. Since the 1990s, there have been shark-specific measures at some RFMOs. These include collecting data about shark catches. Typically, shark finning is controlled (e.g. fins cannot exceed 5% of total shark landings) or banned. Sometimes, to protect the future of populations, RFMOs may encourage live release of some species and discourage or prohibit vessels from fishing in shark nursery areas.

Basking sharks, whale sharks and white pointer sharks are listed by CITES - the Convention on International Trade in Endangered Species of Wild Flora and Fauna - whoa, that's a mouthful! CITES prohibits trade in these sharks and their body parts (e.g. teeth), across 175 member countries including New Zealand.

Other shark protection measures are area-based. For example, Palau, an island nation east of the Philippines, is surrounded by a shark sanctuary. There, shark tourism brings in US\$18 million per year (8% of the country's gross domestic product) - each live shark is worth around US\$180,000 annually, compared to \$108 if sold dead.

Currently, New Zealand is following, rather than leading global shark management. We manage through catch limits under the QMS or with complete protection (see *Headline*). However, other parts of the world are increasingly banning shark finning, and this is one aspect of New Zealand's management that will likely need further review.



Top predators face off at sea....giant petrel versus blue shark. Photo: Albatross Encounter Kaikoura.

WHAT THE FAQ?!

400 million years of evolution can't be wrong....

Sharks are an amazingly diverse group and only a few fit the 'scary' profile. You might not know that.....

- Shark skeletons are made of cartilage, not bone – the same stuff that makes up human ears and noses.
- Sharks grow teeth throughout their lives – sometimes as fast as every 8 days!
- White pointer sharks breed around northern New Zealand, and move south to be near seal colonies (buffet restaurants for white pointers!) as they grow.

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FEEDBACK

What do you want to know? To submit feedback, questions for Myth Busters or topics of interest please email ocean_guardian@yahoo.com.