

THE CONVERSATION

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Great white sharks off South Africa's coast are protected by law, but not in practice. Why this needs to change

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shark story.

In less than eight years, white sharks in South Africa have all but disappeared from their historical hotspots in False Bay and Gansbaai, on the Western Cape coast. These areas were once known as the “white shark capital of the world” and were home to a flourishing ecotourism industry. One possible explanation for this change would be a declining white shark population.

We are part of an international research team with expertise in shark ecology, genetics, fisheries and conservation, researching sharks for more than 20 years. This has included tagging sharks and monitoring their activities in the area.

We have published numerous papers on the species. These have included research into conservation plans for sharks in South Africa, white shark cage diving, and the importance of coastal reef habitats for white sharks.

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Our most recent tracking data on white sharks tells a worrying story: 18 of 21 white sharks tagged since 2019 with internal 10-year transmitters in Mossel Bay by the Oceans Research Institute have disappeared. This represents the loss of nearly 90% of the tracked white sharks in less than four years. They have not been detected moving to the Eastern Cape or elsewhere: they vanished.

Furthermore, nowadays, white sharks larger than 4 metres in length, the big breeders, are rarely sighted. Combined with the known low genetic diversity of this population, it is an indication that the white shark population is likely not stable in South Africa.

Based on this, we urge the South African government to take a precautionary approach to white shark conservation. Otherwise, South Africa could go down in history not only as the first country to protect white sharks, but also the first country to knowingly lose its white sharks.

What's known

As far back as 2011, between 500 and 1,000 individual white sharks were estimated to be left in South Africa. Today, we barely see any larger white sharks. This in itself is a sign of a population not doing well, because the fewer adult sharks there are, the greater the decline will be.

Although white sharks have been a protected species since 1991, large numbers are legally killed every year by shark nets and drumlines (anchored hooks with large baits) operated by the KwaZulu Natal Sharks Board. This is based on an outdated 70-year-old idea that sharks should be culled to reduce the chances of encounters with humans.

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Between 1978 and 2018, drumlines and shark nets captured 1,317 white sharks, of which 1,108 died. So, on average, 28 white sharks were killed every single year for the last 40 years.

We have estimated that even if tens of white sharks were killed per year, this would drive the white shark population into decline.

White sharks have also been affected by the demersal shark longline fishery. Boats use fishing lines fitted with thousands of hooks that can be kilometres long. The fishery is permitted to target and kill endangered and critically endangered small sharks. But as the smaller sharks get caught on the lines, so do larger predators chasing them, including white sharks.

This fishery is conservatively estimated to have killed an average of 40 white sharks a year, mainly from 2008 to 2019. Photographer Oliver Godfrey observed three white sharks being caught and killed by this fishery while he was on one of their boats. He confirmed dead white sharks were discarded at sea and not reported to authorities. Three white sharks killed in 10 weeks by one vessel equates to 40 white sharks killed by an average of 4 vessels operating for only 3 weeks per month, 10 months of a year (all conservative figures).

Nevertheless, South Africa's Department of Forestry, Fisheries and Environment has no official records of any of those because it relies only on the records supplied by the same fishery. The lack of records should raise concerns within the department as it knows that during a test run of this fishery, its scientists set three longlines, caught two white sharks and killed one.

What's in dispute

A recent study claimed that the population of white sharks in South Africa was stable. The study suggested that the sharks had simply relocated eastward, fleeing from a pair of shark-eating orcas. According to the authors of the study, the stability of the white shark population was "encouraging" and "reassuring".

But our review of that study found that their results could not demonstrate a stable white shark population, nor that the sharks had relocated. Our analysis found several discrepancies between the results and conclusions.

Read more: Low levels of genetic diversity are putting great white sharks at risk

The main discrepancies included the fact that the declines of white sharks in the Western Cape began before the appearance of the shark-eating orcas in 2015 as reported. And at present there is no evidence of any location with the same large numbers of white shark comparable to the numbers found 10-15 years ago in the Western Cape. If the sharks had only relocated, their numbers should be found elsewhere.

There have been only eight confirmed white shark deaths by orcas since 2017 but possibly a few more unrecorded. Nevertheless, the permitted nets, drumline and longline fishery have together probably been responsible for at least eight times more white shark deaths, every single year.

Next steps

South Africa is still permitting unsustainable shark fishing operations in its waters. This ought to stop.

We also advocate for a discussion on new approaches to bather safety that don't kill sharks, as also advocated in Australia. Tethered drones, shark spotters, and "smart drumlines" that send alerts to quick response teams when sharks are caught are among available technologies to protect swimmers and surfers without culling sharks.

The journal article that this article was based on was co-authored by Chris Fallows, Monique Fallows and Matias Braccini.