GREAT WHITE CONTROVERSY

Tagging sharks is standard practice, but rarely gives useful research

FRED PAWLE

After countless thousands of hours chasing, catching, tagging, analysing, releasing and researching more than 1000 man-eating sharks during the past 15 years, one government agency involved finally has published a report with information useful to ocean-goers. Most reports about lethal sharks published by the CSIRO and other scientific bodies since great whites were protected in 1998, particularly those outlining the great white recovery plan in 2002 and 2013, focused on the sharks' vulnerability, treating human safety as an afterthought, if at all.

This report, published last month by the West Australian Department of Fisheries, focuses instead on the proximity of shark movements to where people like to swim, dive and surf. The jargonistic title of the report — Evaluation of Passive Acoustic Telemetry Arrays for Monitoring and Mitigating Shark Hazards Off the Coast of Western Australia — does not reflect the style of the writing within, which, in another departure from most reports on this topic, is at least partly intended for laymen.

Its findings are occasionally surprising. They include:

- There is "limited evidence" that specific great whites return to the same locations year on year.
- As a group, the white sharks' movements in Western Australia and South Australia are "highly variable" and "not consistent."

Apart from one spike in detections off Exmouth in summer, "white sharks were observed travelling along the WA coast in both directions at most times of the year." Most white sharks give Perth's beaches a wide berth, staying west of Rottnest Island, away from swimmers. Their numbers are highest off Perth in spring.

And contrary to popular opinion:
- Detection rates near seal colonies are lower than adjacent areas, therefore it "seems unlikely that seal predation is a driver of white shark movements."
- The findings "do not support the theory that white sharks follow the humback whale migration northwards in WA."

The Department of Fisheries report also contains a useful anecdote about the value of tags in increasing human safety. In October 2012, the DoF'slistening stations at Ocean Reef, Perth, detected two tagged great whites, 2.6m and 3m in length, for five consecutive days. It was just before the first weekend in spring, with high temperatures forecast, so the local media naturally was eager to obtain footage of the beasts as a warning for anybody planning a dip in the ocean.

"However, despite nearly continual observation of this location by up to three separate news media helicopters, no sightings of either shark were reported, even while sharks were within range of the receiver (500m), which was clearly visible from the air," the report says.

This report is only a small step in the right direction. It is still difficult to escape the conclusion that most other research into sharks remains exciting and lucrative for researchers — but expensive and of limited relevance for taxpayers.

Eric Kott, a veteran diver and fisherman from Port Lincoln, South Australia, recently self-published a memoir, The Jawsome Coast, a diatribe against the politicians, researchers, cage divers and game-fishing operators who for decades fought to protect or provoke great white sharks but have yet to accept responsibility for the "horror of recent shark attacks" and other "negative side effects."

Aside from its key about the attraction of shark research, "I've seen them (researchers) come down here to go out to the Neptune Islands," he tells The Australian. "They are hyped up like Boy Scouts on a picnic. They are queuing up to get out there and get in a cage with the great whites."

Kott compares great whites with the King George whiting, which is also experiencing a dramatic decline in stocks and is equally worthy of the researchers' attention but is overlooked because it is not as "exciting" and is caught only by amateur fishermen.

"Most recreational fishing in South Australia revolves around King George whiting and the government is about to reduce the bag limit, which is controversial but there is very little research into it," he says. "If it was a multi-million-dollar commercial fishery, they could screw the fishermen (for research funds)." The value of King George whiting in South Australia would be worth millions but it can't be quantified because it's only caught by blokes like me, who spend $60 on some gear, $40 on some bait and a carton of beer."

The shark cage diving industry, meanwhile, which is often enlisted as the most dangerous in shark research operations, is estimated by state Tourism Minister Leon Bignell to be worth $12 million a year.

The focus on large sharks is often justified because they are an "apex predator."

In Great White (2014), by Guardian Australia journalist James Woodford, South Australia's llian marine biologist, Rachel Robbins says the sharks' status at the top of the food chain makes them an "absolutely critical part of the ecosystem, whose removal could cause a complete collapse."

But would it? One of the key findings of the latest report from the West Australian DoF is that great white behaviour appears to be relatively random — they don't all travel in the same direction and don't revisit the same places. But is it possible some ecosystems that in the past have been visited by great whites can also avoid "complete collapse" when they don't?

Robbins says no. "I do not believe that there is a randomness," she tells The Australian. "It might appear random to us at this time, with a relatively short-term data set (years rather than decades). But as more and more tags are put on and more and more data is revealed, I think we will find it to be anything but random; a life history honed over millennia."

The DoF's executive director of research, Rick Fletcher, agrees, telling The Australian: "That their movement behaviour is not consistent does not mean that they have no effect on marine ecosystems. They are still an important component."

The value of further research, however, is debated. Even the DoF's report concedes that it is "unlikely that a greater period of data collection will generate an overall predictive model" of great white behaviour. It also reveals an alarmingly low strike rate in detecting tagged sharks. Most of the tags attached to sharks in Western Australia are subsequently picked up in Perth's comprehensive network of listening stations (sonar devices that record a tag's presence if the shark to which it is attached swims within 500m) within the first few months, then disappear. In South Australia, most tags are not heard from again. Fletcher attributes this to the sparsity of listening stations in that state and "tag shedding."

The tags emit beeps audible to dolphins and seals, the sharks'
Sharks

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prey, acting like a “bell on a cat”, potentially depriving them of food. Tags also have been seen to cause infection and irritation to sharks. But at least the DoF, which also publishes live tracking of sharks through a user-friendly Twitter account, should be commended for sharing its data, which is less than can be said for the department’s eastern counterparts.

To access the online tracking of the 14 sharks recently tagged off Ballina by the NSW Department of Primary Industries, one first needs to tick a box agreeing not to reproduce the data. "This means NSW DPI retains copyright and has the first opportunity to publish research," a DPI spokeswoman told The Australian, as if that is the department’s primary objective. One could be on the site, the tracking of the sharks is almost unreadable. It is certainly of no use to anyone about to paddle out for a surfer who wants to check on a phone if any tagged sharks are in or have been in the area.

As reported by The Australian recently, the DPI has repeatedly declined to collaborate with a volunteer-operated, nationwide shark-alert system, Dorsal, which is used by 200,000 ocean lovers.

Nevertheless, the DPI claims to have made at least one useful discovery—a pattern to movements of bull sharks, the species responsible for the two most recent attacks in NSW.

It says “Of the animals tagged in Sydney Harbour, NSW DPI researchers have found that bull sharks are most abundant during summer and autumn and especially numerous when water temperatures are around 23°C.” It has found that bull sharks travel vast distances south to be in Sydney from late November to May.

It is a laborious way of finding out what one independent observer could have told them much more easily. "I already knew that they were there at that time," says fisherman Damon Smith-Horak, who hauled a 4m bull shark out of the water just off Watsons Bay in January last year. "They are the big breeding females. There is plenty of food for them in the harbour now."

The Australian asked the nation’s leading shark researcher, the CSIRO, three questions last month: Does the DoF’s conclusion that great whites don’t follow whale migration or hang around seal colonies also apply on the east coast? Does the unprofitability of great white behaviour suggest they are not necessarily an essential element of a delicate ecosystem? And can anybody at the CSIRO estimate when the protection of great whites might be lifted? (This last question also had been put to the organisation in August last year.) We have also made repeated requests to obtain the CSIRO’s data from tagging operations.

The CSIRO has declined all our requests. Regarding the lifting of protection, this was "not a part of CSIRO’s research and should be answered by the ‘statutory authority’. To be clear: the CSIRO is involved in tagging and tracking sharks in NSW, South Australia and Western Australia, and its resident expert, Barry Bruce, has authored or co-authored many reports (including this latest one from the West Australian DoF) on the topic since the species was placed under protection in 1998. But the CSIRO is unable to envisage the lifting of the great white’s protection, 18 years after it was introduced.

No wonder human ocean users, not to mention most shark attack survivors and friends and relatives of fatal attack victims, feel they are being overlooked.

Veteran Ballina shark fisherman David Woods says the DPI’s local tagging program, part of a $6m five-year plan by the state government, is a waste of money.

"The cheapest way to solve the problem is to run a decent boat putting 30 drum lines between Evans Head and Byron Bay, and have them checked three times a week," he says.

"It would cost $300,000 a year and would get a better result. I suggest that to all the right people but I don’t think they are interested in solving the problem."

Cash lure for best ideas to manage shark threat

Kirsty Needham

STATE POLITICAL EDITOR

Personal shark repellents that give surfers the confidence to go back into the water will be the focus of a new NSW government technology grant.

"These devices are reviewed annually. Last year avoided the killing of seven attack suspects," says government communications director, Sarah Trew."We now have a full list of ideas for shark solutions.

Drones, sonar buoys and a new generation of fish traps will be part of the government’s $50 million trial of shark-detecting technology, with $10 million of the budget going to the DPI.

But a high-tech barrier planned for Ballina will remain in place until the trials are completed. The DPI is testing a prototype of the shark barrier, which has been designed to detect and deter sharks from entering an area where swimmers can, at least, enjoy a degree of protection. The DPI is also looking to trial a similar system in Ballina. But, after the government’s commitment to a $50 million trial, it has now included trials of shark-detecting technology at beaches, as well as traditional aerial surveillance at beaches.

A barrier at Ballina will be installed in the next financial year, with another one being installed at Lennox Head. A third station, at Shelly Beach in Ballina, will also be installed by the DPI.

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