

ANZSOG Case Program

Off the hook: Western Australia's shark cull (B: Epilogue)

2015-171.2

On 25 January 2014, the Western Australian drum-line trial commenced at selected beaches around Perth and the Margaret River region. Twenty-four hours later, on Australia Day, the first shark – reportedly a female tiger shark – was caught and destroyed. True to their word, some environmental activists attempted to impede the cull by removing bait. Others shadowed contractors and Department of Fisheries (DoF) officials responsible for monitoring lines and handling sharks,¹ or attempted to rescue snared creatures.² Security was bolstered after a vandalism attack on the Premier's office. Antipathy towards the trial didn't abate over the course of the summer and early autumn; as time went on, it seemed to garner attention further and further afield. By May 2014, there had been:

- over 20,000 submissions to the EPA;
- a petition tabled in the Western Australian Parliament;
- two protest rallies at Cottesloe Beach attracting thousands of participants;
- 12 Freedom of Information requests;
- 28 Western Australian Parliamentary Questions, many with multiple sub questions;

This case was written by Marinella Padula, Australia and New Zealand School of Government for Dr George Argyrous as a basis for class discussion rather than to illustrate either effective or ineffective handling of a managerial situation.

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¹ Offer, K. and AAP 'Pro-shark activists remove bait from South West drumlines' www.perthnow.com, Published: 28 January 2014, Accessed: April 2014.

² Paddenburg, T. 'Stingrays 'rescued' from drumlines' www.perthnow.com, 28 January 2014, Accessed: May 2015.

- 765 separate articles on sharks in local, state and national newspapers;
- 1,100 radio news bulletins on sharks (Western Australia);
- 850 radio talk back comments on sharks (Western Australia);
- 290 television news items on sharks (Western Australia);
- 286,000 emails and letters to the Western Australian Department of the Premier and Cabinet on sharks (a significant number of which were pro forma emails); and
- a significant number of postings on Twitter and Facebook on the WA Government's drum-line strategy (some of which were offensive and contained personal attacks on members of the government and staff involved with the program).³

In May 2014, the government also began a second series of consultations with stakeholders (*Exhibit A*) to discuss the policy, its outcomes, and directions for the future. The government again opted not to meet with conservationists, and described water user groups as generally in favour of drum lines while academics were generally opposed. However, a media report later revealed that only the Margaret River Board Riders club fully supported all aspects of the drum-line trial.⁴

Explaining the policy

Just prior to the release of the review, the WA Minister for Fisheries (now Ken Baston) and senior executives from the DoF were called before a Senate Budget Estimates Hearing to explain the drum-line trial amongst other department activities. Under questioning, the Minister offered his assessment of the trial:

Hon STEPHEN DAWSON: Thank you. Minister, again on the same dot point: do you and the government believe that the drum line program actually reduces the risk of shark attacks; and, if so, how can you quantify that reduced risk?

Hon KEN BASTON: We did not reinvent the wheel; it has already been operating in Queensland since 1962, very successfully. When we had seven shark fatalities in three years, the government certainly thought it needed to do something more than what it was already doing in terms of the shark mitigation policy. Drum lines have been used in other parts of the world, of course, so that was the obvious next step—to put drum lines in place one kilometre offshore, and you know the rest of it. Can we say they were successful? Did we have any deaths? No. Would there have been any deaths? Well, you cannot measure that. But I believe that the idea of it was they were set there with the bait on so that if the shark came in close, it would take the bait instead of taking a human. So, that makes it very hard. How do you value the human life as against what the program was? I think in the small area of ocean that it was actually doing it, my personal belief is it was worth it.⁵

Meanwhile, Director General of DoF, Stuart Smith was also quizzed about the purpose of the trial and measurement of its outcomes:

Hon LYNN MacLAREN: Does the shark mitigation strategy have a key performance indicator of reducing the number of shark attacks?

Mr Smith: Well, that is the purpose of them. I believe it will be an outcome; I believe it is an outcome of it, yes.

³ 'Shark Hazard Mitigation Drum Line Program 2013/14: Review' Department of the Premier and Cabinet, Government of Western Australia, Perth, June 2014, p.11.

⁴Wahlquist, C. 'WA shark cull: 'imminent threat' criteria scrapped in favour of 'serious threat' *The Guardian*, www.theguardian.com, Published: 24 December 2014, Accessed: March 2015.

⁵ Standing Committee on Estimates and Financial Operations '2014–15 Budget Estimates Hearings' Government of Western Australia, Perth, 13 June 2014, p.11.

Hon LYNN MacLAREN: Could I see the measures? How are you going to measure that, and exactly what are we spending these multimillion dollars on? I would like to see how we are going to measure the effectiveness of the shark mitigation strategies. You probably do not have it right now, but would you be able to provide it as supplementary information?

Mr Smith: Yes, I can certainly provide you with information relating to the outcomes and outputs from the research and the other components, including the education components of the shark mitigation strategy that our department is responsible for.

Hon LYNN MacLAREN: That would be much appreciated.

[*Supplementary Information No B12.*]

The CHAIR: Can you also include in B12 how many shark attacks you actually expected would occur without the drum lines?

Hon LYNN MacLAREN: Well, the question is regarding —

The CHAIR: You are saying it is going to reduce it, so I wanted to know how many you were expecting before that.

Hon LYNN MacLAREN: The question regards the entire mitigation strategy, of which the drum lining is only a part.

Mr Smith: Can I clarify the information I will be providing? I will not be providing key performance indicators on the drum line policy because it is not a program for which our department is the responsible agency. I can provide information about our role within that program effectively as a contractor for the metropolitan area, but questions on key performance indicators and outcomes and outputs should be directed to the Department of the Premier and Cabinet.⁶

Trial results

Later that month, the WA Department of the Premier and Cabinet had completed a review of its \$1.28 million drum-line program.⁷ From 25 January to 30 April 2014, a total of 172 sharks were caught, tiger sharks constituting the vast majority (*Exhibit B*). No great white sharks were captured, while one bull shark was caught. Fifty of the sharks were greater than 3 metres in length, including a 4.5m tiger shark taken near Floreat Beach (*Exhibit C*). Nine non-target sharks and eight other marine animals were caught on drum lines. The majority of creatures captured were released alive. No shark attacks were reported during the trial period, though a diver went missing near Mandurah. Cause of death could not be confirmed. Although the program had failed to catch any great white sharks, the WA Government nonetheless considered it a success and sought to lengthen the trial:

Tiger sharks are identified as one of the three species accounting for almost all fatalities from shark attack globally over the last 30 years...It is considered likely that capture of a significant number of large sharks close to high use swimming and surfing areas reduced the risk of shark attacks. The trial has been short, and shark attacks generally too infrequent, to have generated substantial quantitative data to measure the reduction in risk. It is recommended that the program be extended for another three years and then be reviewed again.⁸

With the notable exception of tiger sharks, catch-rates for the trial fell largely within DoF predictions (*Exhibit D*). The government concluded that the WA program compared favourably to other programs in terms of minimising bycatch (*Exhibit E*): 'As a result of the above measures, a short period of deployment, excluding the use of nets and deploying a relatively small number of drum lines, the

⁶ Standing Committee on Estimates and Financial Operations '2014–15 Budget Estimates Hearings' Government of Western Australia, Perth, 13 June 2014, p.19.

⁷ 'Shark Hazard Mitigation Drum Line Program 2013/14: Review' Department of the Premier and Cabinet, Government of Western Australia, Perth, June 2014, p.6.

⁸ 'Shark Hazard Mitigation Drum Line Program 2013/14: Review' Department of the Premier and Cabinet, Government of Western Australia, Perth, June 2014, p.7.

program is considered to have had minimal environmental impact. Compared to shark control programs that operate in other jurisdictions, the Western Australian program has a much lower environmental risk.⁹ In response to criticism of the trial, the report noted that ‘the policy objective of the drum line program has been public safety, not catching a specific number of sharks.’¹⁰ Further:

The drum line program is a public policy response that has been construed by some as a cull or a program to kill sharks. However the simple, undeniable and often stated objective of the policy is public safety, something that some critics refuse to accept as a valid or appropriate objective... The science indicates that fatal shark attacks are infrequent, and in Western Australia they are predominantly made by white sharks. However, science also cites the white, tiger and bull shark as responsible for most shark attacks, and the data show that the number of unprovoked attacks is rising. Incorporating scientific evidence into public policy is complex, but science alone will not provide the basis for the development of public policy, rather it informs public policy.¹¹

Western Australia’s Environment Protection Authority (EPA) was less enthused. Its Public Environmental Review, finalised in September 2014, examined the proposed extension of the drum-line trial to 2017. The EPA concluded that there was still ‘a high degree of scientific uncertainty’ about the impact on the south-western white shark population. Said Chairman Dr Paul Vogel: ‘At this stage, the available information and evidence does not provide the EPA with a high level of confidence. In view of these uncertainties, the EPA has adopted a cautious approach by recommending against the proposal.’¹² Premier Colin Barnett signalled that the policy would be abandoned but emphasised the government’s ongoing commitment to combating ‘rogue’ sharks.¹³ Drum lines would still be deployed in the event of shark sightings or attacks. Academic Christopher Neff described the move as ‘historic’ stating that: ‘The removal of shark-culling gear almost never happens and this is remarkable...this ruling is a victory for science in policymaking and common sense beach safety.’¹⁴

Trust in the science would be tested after an October 2014 shark attack in Esperance that left a 23 year-old surfer seriously injured and a December 2014 fatality involving a great white and teenage spear-fisher near Albany. Despite these incidents, however, the WA Government did not reprise the trial.

Yet there was some cause for optimism. Preliminary research funded by the WA Government indicated that the Shark Shield – a portable electronic device – was highly successful in repelling great white sharks without harming the animal.¹⁵

⁹ *ibid.*

¹⁰ *ibid.*, p.41.

¹¹ *ibid.*, p.47.

¹² ‘EPA recommends Shark Hazard Mitigation Drum Line proposal should not be implemented’ Environment Protection Authority Western Australia, www.epa.wa.gov.au, 11 September 2014, Accessed: May 2015.

¹³ Spagnolo, J, ‘Premier Colin Barnett denies scaremongering’ www.perthnow.com.au Published: 16 September 2014, Accessed: May 2015.

¹⁴ Hopkin, M. ‘Western Australian shark cull policy dumped: experts react’ www.theconversation.com, Published: 12 September 2014, Accessed: May 2015.

¹⁵ Russo, N. ‘Shark deterrents: do they really work?’ *Australian Geographic*, 19 June 2015.

Exhibit A: Stakeholder consultations

Table 7. A summary of post-operational meetings undertaken by officers from DPC.

Organisation²	Date
Bouvard Fisheries (SW Contractor)	2 May 2014
The West Australian Fishing Industry Council (WAFIC)	5 May 2014
WA Police	5 May 2014
Department of Fisheries - Operations (5)	5 May 2014
Department of Fisheries - Research (2)	5 May 2014
Oceans Institute University of Western Australia	5 May 2014
Oceans Institute University of Western Australia (2)	6 May 2014
Department of Parks and Wildlife	6 May 2014
Surf Life Saving WA	6 May 2014
EventsCorp WA	6 May 2014
RecFishWest	7 May 2014
Department of Transport	7 May 2014
Western Australian Marine Science Institution (WAMSI)	7 May 2014
Surfing WA	8 May 2014
WA Sports Federation	8 May 2014
Open ocean swimmers (2)	9 May 2014
Wildlife Marine	9 May 2014
Environmental consultant	9 May 2014
Margaret River Board riders	9 May 2014
Margaret River recreational surfers (3)	9 May 2014
Margaret River Recreational Surfers	9 May 2014
WA Undersea Club	12 May 2014
Curtin Centre for Marine Science and Technology	15 May 2014
Oceans Institute University of Western Australia	15 May 2014
Queensland Shark Control Program	15 May 2014
James Cook University	16 May 2014
Kwazulu-Natal Sharks Board (3)	4 June 2016

Source: 'Shark Hazard Mitigation Drum Line Program 2013/14: Review' Department of the Premier and Cabinet, Government of Western Australia, Perth, June 2014.

Exhibit B: Animals caught by number and type

Table 3. Number of animals caught on the drum lines.

The 'dead' category includes target species that were destroyed based on their size (≥ 300 cm TL) and all species that were dead upon hook retrieval or destroyed due to a very low likelihood of survival.

Common name	Total catch		Metropolitan		Geographe Bay		Capes	
	Dead	Released alive	Dead	Released alive	Dead	Released alive	Dead	Released alive
Tiger shark	64	99	34	75	15	5	15	19
Shortfin mako	4	1	0	0	2	0	2	1
Dusky shark	0	1	0	1	0	0	0	0
Spinner shark	0	1	0	0	0	1	0	0
Bull shark	0	1	0	1	0	0	0	0
Unidentified shark	0	1	0	0	0	0	0	1
Ray	0	7	0	7	0	0	0	0
North-west blowfish	0	1	0	1	0	0	0	0

Source: 'Shark Hazard Mitigation Drum Line Program 2013/14: Review' Department of the Premier and Cabinet, Government of Western Australia, Perth, June 2014, p.19.

Exhibit C: Captured sharks by size

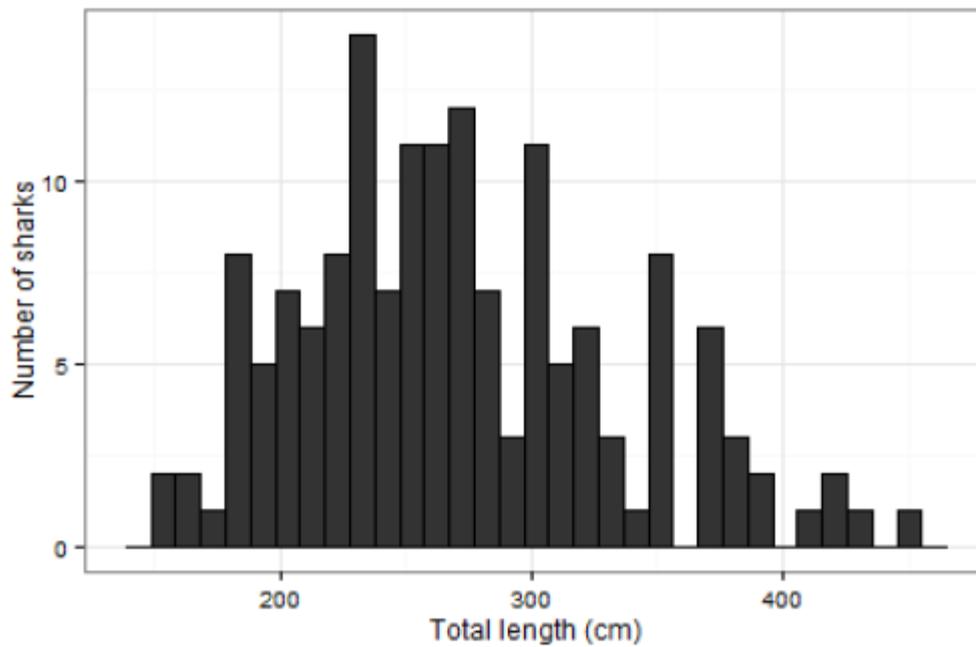


Figure 8. Size frequency of tiger sharks caught from all regions

Source: 'Shark Hazard Mitigation Drum Line Program 2013/14: Review' Department of the Premier and Cabinet, Government of Western Australia, Perth, June 2014, p.21.

Exhibit D: Catch levels versus predictions

Table 6. Summary comparison of actual catch levels versus predictions presented in the risk assessment (DoF 2014).

Species/Group	Level of capture consistent with predictions?	Comments
White shark	Yes	-
Bull shark	Yes	-
Tiger shark	No - Higher	Possible effects of increased water temperatures in recent years
Dusky shark	No - Lower	Drum lines inshore of migration route
Grey nurse shark	Yes	-
Demersal scalefish	Yes	-
Dolphins	Yes	-
Seals/Sea lions	Yes	-
Whales	Yes	-
Turtles	Yes	-

Source: 'Shark Hazard Mitigation Drum Line Program 2013/14: Review' Department of the Premier and Cabinet, Government of Western Australia, Perth, June 2014, p. 28.

Exhibit E: Catch comparisons

Table 9. Presentation of catch data from other jurisdictions

Shark Control Programs⁴ Catch Data Presentation⁵			
Sharks	Other Species	Total	Publication
Western Australia (25 Jan 2013-30 April 2014)			
172 (no white sharks)	1 NW Blowfish 7 Rays	172 Sharks 8 non shark species	Data was published on three occasions over the 14 weeks of the trial.
Queensland⁶ (2013 catch data)			
686 (6 white sharks)	Not published	686 sharks	Shark catch data published monthly. No publication of by-catch.
New South Wales⁷ (2012-13 catch data)			
70 (6 white sharks)	34 Rays 2 Turtles 2 Humpback whales	70 Sharks 38 non shark species	All catch data reported in the Annual Review Report which is released to the public.
South Africa⁸ (2006-2010 average annual catch)			
590 (28 white sharks- average p.a.)	35 Dolphins 8 Whales 211 Rays 4 Birds 27 Fish	590 sharks 285 non shark species	Data is published regularly.
Brazil⁹ (total catch May 2004-December 2011)			
353 (no white sharks)	600 Fish 9 Turtles	353 Sharks 609 non shark species	Program data not released outside academic studies.

⁴ The type and extent of fishing gear is different for each jurisdiction and will determine the range of species and number of individuals caught.

⁵ A set of uniform statistics for any one year is not available. Hence caution should be taken in directly comparing the catch data presented.

⁶ 2013 Catch data figures: Source: Queensland DPI: NB Queensland program operates all year.

⁷ 2012-13 Catch data figures: Nets in water 1 September – 30 April. Source: Shark Meshing (Bather Protection) 2012-13

⁸ Annual Average Catch 2006-2010. Source: Kwa-Zulu Natal Sharks Board at <http://www.shark.co.za/CatchStatistics>

⁹ Only the total catch data is available from May 2004 to December 2011. It should be noted that over this period fishing was suspended on several occasions due to budget constraints. The target species were tiger and bull sharks – no white sharks were captured. Source: Hazin and Afonso, 2013.

Source: 'Shark Hazard Mitigation Drum Line Program 2013/14: Review' Department of the Premier and Cabinet, Government of Western Australia, Perth, June 2014.

Stuff removed