



## **Submission by Lynn MacLaren MLC**

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### **Inquiry by Senate Environment and Communications References Committee into the efficacy and regulation of shark mitigation and deterrent measures**

#### **Introduction**

Thankyou for the opportunity to contribute to this timely inquiry into shark mitigation and deterrent measures.

In 2014, the WA Greens were part of a broad movement in Western Australia that included community members and volunteers, community groups, business people and scientists who worked hard to end the Barnett Liberal Government's use of lethal drum lines as a form of shark mitigation. We opposed the shark cull because it did not increase safety for ocean-users and in fact, potentially achieved the opposite, and because it was unacceptable on environmental grounds.

I take this opportunity to make this submission because I believe the lessons from WA's failed shark cull are worth recording for posterity and may be relevant to other parts of Australia where policy-makers are tempted to begin or continue shark-culling. In addition, the WA Greens are working to end WA's current 'Serious Threat' guidelines which call for white sharks to be killed following shark bite incidents, despite no measurable gain in public safety from this.

I address the inquiry terms of reference as follows:

#### **1. Research into shark numbers, behaviour and habitat**

WA's experience showed that common assumptions and anecdotal accounts claiming that populations of dangerous sharks are on the rise are not always matched by scientific evidence. The reasons for this may include: misidentification of shark species; human population increase and

more people using the ocean, including going further out to sea, to surf, dive and fish and therefore increasing the likelihood of shark encounters and sightings; and availability of video technology enabling a proliferation of shark encounter stories and videos on social and conventional media contributing to heightened awareness about sharks.

In WA, a relatively high number of fatal bite incidents involving mainly surfers in 10 years prior to late 2013 caused many people to assume shark numbers were on the increase. The only shark species confirmed as responsible for human fatalities in WA in recent decades is the great white shark, or 'white shark', so many people thought the population of white sharks off WA's south and west coasts (being the same genetically distinct population found off South Australia and as far east as Bass Strait) must have increased. This assumption underpinned the Barnett Government's decision to order lethal drum lines to be set, initially as a trial from January to April 2014 off Perth and WA's South-West coast, and later as three year program in the same locations for three more years (2014-2017).

In order to secure environmental approval to set lethal drum lines for another three years, the Barnett Government was obliged to submit its proposal for assessment by Public Environmental Review by the WA Environmental Protection Authority (EPA).<sup>1</sup> In this assessment document, the Barnett Government, through the WA Department of Fisheries, estimated that 25 white sharks would be killed over three years and that this would have minimal impact on the white shark population found off WA and South Australia. However, the EPA, and its independent reviewer, Dr Barry Bruce of CSIRO, concluded that there remained a high degree of scientific uncertainty over the proponent's estimates in relation to the white shark population and it was on this basis that the EPA recommended against the three year program proceeding – a recommendation that the Barnett Government accepted.<sup>2</sup>

Subsequent to this, in 2016, the WA Department of Fisheries published a study based on four years of research designed to estimate the size of the WA/SA white shark population. This study reconstructed levels of annual catch of white sharks by commercial and recreational fishers since 1938 and combined these estimates with the limited known parameters about the life-history of white sharks to create white shark population trajectory scenarios.<sup>3</sup> Despite this immense number-crunching effort, the resulting scenarios varied so markedly due to the paucity of data available on white sharks that the research was not able to conclude whether the WA/SA white shark population

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<sup>1</sup> (WA Department of Premier and Cabinet, 2014) *Western Australian Shark hazard Mitigation Drum Line Program 2014-17 Public Environmental Review*. Downloaded 3/3/2017 at [https://www.dpc.wa.gov.au/Consultation/Documents/PER\\_Western%20Australia%20Shark%20Hazard%20Mitigation%20Drum%20Line%20Program.pdf](https://www.dpc.wa.gov.au/Consultation/Documents/PER_Western%20Australia%20Shark%20Hazard%20Mitigation%20Drum%20Line%20Program.pdf)

<sup>2</sup> (WA EPA, 2014) *Report 1527 – Report and recommendations of the Environmental Protection Authority Report 1527, Western Australian Shark Hazard Mitigation Drum Line Program 2014-2017*. Downloaded 3/3/2017 at [http://www.epa.wa.gov.au/sites/default/files/EPA\\_Report/Rep%201527%20Shark%20Drumline%20PER%20110914.pdf](http://www.epa.wa.gov.au/sites/default/files/EPA_Report/Rep%201527%20Shark%20Drumline%20PER%20110914.pdf)

<sup>3</sup> See (WA DoF, 2016) *Fisheries Research Report No. 277, Review of potential fisheries and marine management impacts on the south-western Australian white shark population* at the link at <http://www.fish.wa.gov.au/Education-and-Partnerships/Shark-Hazard/Shark%20research/Pages/default.aspx>

is increasing, decreasing or staying the same. The only clear finding was a need for further investigation.

In conclusion, in WA, there was a concerted effort by government scientists to show a rise in great white shark numbers to match the assumptions of the Barnett Government and some portions of the public and yet years of research effort was unable to prove this.

**2. The regulation of mitigation and deterrent measures under the Environment Protection and Biodiversity Conservation Act 1999, including exemptions from a controlled action under section 158; AND 3. The range of mitigation and deterrent measures currently in use; AND 7. The impact of shark attacks on tourism and related industries;**

It is concerning that the Federal Government has routinely granted exemptions from a controlled action under section 158 of the EPBC Act in order to enable endangered white sharks to be killed in WA without either good evidence or sound understanding of shark behaviour. This is true both of the 2014 shark cull and of section 158 exemptions issued to allow sharks to be killed following shark bite incidents under WA's so-called 'Imminent Threat' and now 'Serious Threat' guidelines.

**Section 158 granted for shark culling**

The section 158 exemption granted for the January-April 2014 WA shark cull to enable white sharks to be captured and killed was given despite extremely weak evidence that doing so was "in the national interest".<sup>4</sup> The then Minister, Greg Hunt's, justifications for the exemption included:

- A reference to 2012 WA Department of Fisheries study into fatal human-white shark interactions 1995-2012 that found white sharks were less commonly seen off Perth and South-West during warmer months of January-April – which were the months when the cull was to be conducted;
- Public perceptions of increased risk of shark attack rather than demonstrated increased risk. The former amounted to a reference to a single anecdotal account by one unnamed member of the diving industry who claimed his diving business was affected; and
- A reference to WA leisure tourism numbers and the industry's contribution to the WA economy without any evidence at all provided to show that these values were being impacted, or had potential to be impacted by shark bite incidents.

Interestingly, Mr Hunt stated in his findings that "the approaches and lessons learnt in the Western Australian trial will inform the mitigation approaches of other governments". As the WA trial was discontinued and was, according to all opinion polls held on it in WA, extremely unpopular with Western Australians, I hope this is the case and other governments will not attempt to follow suit.

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<sup>4</sup> (Hunt, 2014) *Statement of reasons for granting an exemption under section 158 of the EPBC Act 1999* downloaded 3/3/2017 at <https://www.environment.gov.au/epbc/notices/pubs/158-statement-shark-drum-line-deployment.pdf>

In its Public Environmental Review proposal for the three-year drum line program (which was to be subjected to a bilateral State-Federal assessment), the Barnett Government again attempted to substantiate the “for public safety” and “in the national interest” argument by again referring to beach and ocean users statistics and tourism – but again failed to provide any concrete data.<sup>5</sup>

Frustratingly, neither the Barnett Government nor the Federal Minister addressed widespread concerns among ocean users that setting baited drum lines design to attract large sharks one kilometre off popular Perth and South-West beaches (and sometimes closer to where people surfed) might attract large dangerous shark into those areas. This was such a strong concern that organisers of Perth’s annual Rottneest Channel swim successfully lobbied during the 2014 cull to have the Perth drum lines removed several days prior to and during their popular swimming race.<sup>6</sup>

### **Section 158 granted for implementation of ‘Imminent’/‘Serious’ Threat Guidelines**

In October 2014, a surfer was permanently injured after he was bitten by one to two white sharks at a remote beach on WA’s south coast (a location some hundreds of kilometres from where drum lines had been previously proposed).

In response to this incident, then Minister Hunt issued at short notice a section 158 exemption to allow the WA Department of Fisheries to set lethal drum lines to try to catch the sharks responsible.<sup>7</sup> This action demonstrates fundamental misunderstanding and lack of logic about white shark behaviour and safety responses on behalf of the Minister and Federal Government at the time, as:

*there is no evidence to suggest that a white shark that has bitten a human once is likely, or more likely, than any other shark in the ocean, to bite a human a second time.*

If we accept the above statement as true (as only the plotline of the ‘Jaws’ movie series and the discredited rogue shark theory that evolved in the 1930s would suggest otherwise), then there is no reason to believe that killing sharks in an area after a shark bite incident will increase public safety.

Further, I am concerned that the setting of lethal drum lines and killing of sharks after serious shark bite incident in WA potentially decreases public safety: it may create the impression to some ocean-users that once the imagined ‘problem shark’ has been removed or killed, that area is now safe again. Yet we know from tracking and tagging studies that white sharks off WA are highly migratory and able to travel more than 100 kilometres in 24 hours.<sup>8</sup> We also know that they can be attracted temporarily to different locations in WA due to food availability, such as fish aggregations.<sup>9</sup> The fact

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<sup>5</sup> See p69, Section 4.4, Socio-economic and cultural considerations *Western Australian Shark hazard Mitigation Drum Line Program 2014-17 Public Environmental Review*.

<sup>6</sup> <http://www.abc.net.au/news/2014-02-19/rotnest-swim-organisers-asked-for-drum-lines-to-be-remove/5268960>

<sup>7</sup> <https://www.environment.gov.au/epbc/notices/pubs/s158-statement-of-reasons-wa-shark-oct14.pdf>

<sup>8</sup> [http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon\\_id=64470](http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=64470)

<sup>9</sup> See p2,

[http://www.fish.wa.gov.au/Documents/shark\\_hazard/guidelines\\_for\\_taking\\_sharks\\_posing\\_a\\_serious\\_threat\\_to\\_public\\_safety.pdf](http://www.fish.wa.gov.au/Documents/shark_hazard/guidelines_for_taking_sharks_posing_a_serious_threat_to_public_safety.pdf)

that one white shark or more has been removed from a certain coastal location does not mean that location is now safer than it was before that shark's removal: realistically, the fact a shark was there is an indication that there might be other sharks in the area for the same reason. For these reasons, the WA Greens strongly oppose the setting of drum lines to kill sharks after a shark bite incident as currently conducted under WA's current so-called 'Guidelines for taking sharks posing a serious threat to public safety'.

#### **4. Emerging mitigation and deterrent measures;**

The WA Greens wish to see more government support for emerging non-lethal shark hazard mitigation and deterrent measures, in tandem with public education and information measures. This includes both personal and area-based deterrent technologies as well as mitigation measures such as shark-proof swimming enclosures.

#### **5. Bycatch from mitigation and deterrent measures;**

Although large tiger, white and bull sharks three metres or more in length are listed under WA's 'Serious Threat' guidelines as "high hazard" sharks – and sharks of this size and species were the supposed targets of WA's 2014 shark cull – only white sharks have been confirmed as responsible for fatal bites in recent years in WA.

The drum lines set off Perth and the South-West from January to April 2014 caught 170 tiger sharks, two makos and stingrays – in other words, no white sharks. The high number of tiger sharks surprised even the WA Department of Fisheries, and was attributed to higher than usual warm ocean temperatures.<sup>10</sup>

The fact that so many tiger sharks were present off the South-West and Perth coastlines in the summer 2014 but no serious tiger shark-human interactions occurred in those areas at that time does raise the questions about how dangerous to humans this species is, at least off south-western WA during summer. It also demonstrated that a high number of sharks of a certain species being present in an area does not necessarily lead to more serious shark bite incidents.

#### **6. Alternatives to currently employed mitigation and deterrent measures, including education;**

The WA Greens strongly support more research and public education about shark populations, species, behaviours and how to manage risk. We believe governments can play a role in helping all ocean-users to effectively self-manage their level of exposure to risk through education programs and providing up-to-date, accurate information about shark risks such sightings, detections and the presence of known risk factors such as a whale carcass or large seasonal fish aggregation. Although the Barnett Government has made an attempt to do this via its 'Sharksmart' website, its credibility as a source of advice on shark risk and mitigation was damaged so much by the 2014 shark cull and

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<sup>10</sup> P41, (WA Department of Premier and Cabinet, 2014) *Western Australian Shark hazard Mitigation Drum Line Program 2014-17 Public Environmental Review*. Downloaded 3/3/2017 at [https://www.dpc.wa.gov.au/Consultation/Documents/PER\\_Western%20Australia%20Shark%20Hazard%20Mitigation%20Drum%20Line%20Program.pdf](https://www.dpc.wa.gov.au/Consultation/Documents/PER_Western%20Australia%20Shark%20Hazard%20Mitigation%20Drum%20Line%20Program.pdf)

ongoing controversial periodic implementations of the 'Serious Threat guidelines that I believe this website and associated applications has been less successful than it should have been.<sup>11</sup>

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<sup>11</sup> <https://sharksmart.com.au/>