

Economics Legislation Committee
ANSWERS TO QUESTIONS ON NOTICE
Industry Portfolio
Additional Budget Estimates Hearing 2013-14
27 February 2013

AGENCY/DEPARTMENT: CSIRO

TOPIC: CSIRO Advice – White Shark Biology and Drum Line Policy

REFERENCE: Question on Notice (Hansard, 27 February 2014, page 19)

QUESTION No.: AI-4

Senator PRATT: The CSIRO provides advice for state and national management agencies in relation to white sharks. That is right, isn't it?

Mr Johnson: That is correct.

Senator PRATT: Have you provided any advice to the WA government in relation to their drum-line policy?

Mr Johnson: I will attempt to answer that. To the best of my knowledge, no, but I would like to take that on notice just to double-check. As you say, we provide advice to a number of state agencies around white shark biology and so on, so I will double-check.

Senator PRATT: Have you provided any advice to the Commonwealth Department of the Environment in relation to white sharks?

Mr Johnson: Again, to the best of my knowledge we have not provided any direct advice. But, given that much of our research around great white sharks receives funding support from the Environment portfolio, it is my expectation that the portfolio utilises the outcomes of our research results in their management responses.

Senator PRATT: It is clear from estimates earlier this week that the Department of the Environment made decisions in relation to the approval of drum lines in Western Australia without any regard to environmental legislation. But it is my understanding that the CSIRO's findings in its research into sharks is that, in nursery areas close to human population centres, there are frequent encounters between white sharks and people; nevertheless, the frequency of shark attacks in such areas is very low. That is a statement from CSIRO's own findings on this question.

Mr Johnson: I am not aware of that statement, Senator, but you are correct in saying that we undertake work in understanding the population biology and the dynamics of great white sharks in Australia. You are right also to say that a lot of that work has involved understanding where the nursery areas are for the sharks. We have tagged, since 1993, over 280 sharks. But, again, to the best of my knowledge we have made no such statements along the lines you suggest. We have certainly—

Senator PRATT: It is on your website.

Mr Johnson: Okay. I will take that on notice.

Senator PRATT: The research on your website is not as specific as this information—you will probably need to take this on notice—which talks about drivers for population variations, but it does not acknowledge whether drum lines are a driver of population variations at all. I would be interested to know if CSIRO has any research in that regard and, if so, what impact drum lines may or may not have on population viability.

Mr Johnson: I am happy to take that on notice, but again, to the best of my knowledge, we have done no research on that question.

ANSWER

CSIRO has not provided any advice to the WA Government in relation to their drum line policy.

The statement by Senator Pratt regarding encounters between white sharks and people refers to the findings of a number of publically available reports and published papers that have been produced as a result of research on white shark nursery areas in eastern Australia since 2007.

For clarity, CSIRO commonly uses the terms 'encounter' or 'encounter frequency' to describe when sharks and people share the same space or are in close proximity. This is different to an 'interaction' where a shark responds to the presence of a person by approaching them. The most adverse of interactions is an 'attack' whereby someone is injured or killed.

In relation to juvenile shark nurseries, CSIRO research has been predominantly conducted in the Port Stephens area in NSW. Juvenile white sharks (sharks between 1.7m – 3.0 m) commonly occur on a seasonal basis along a 60km stretch of coastal waters adjacent to Port Stephens. This nursery area includes various surf beaches where sharks and people are frequently in close proximity. In some areas, encounter frequency can far exceed the interaction frequency and frequency of attack. However, it is not known what proportion of encounters lead to interactions and then to attacks, in turn demonstrating that the presence of a shark, or sharks, is not a good indicator of attack risk. However, white sharks over 2.5m in length pose some risk of attack and the risk of severity of injury generally increases with increasing shark size. Despite these encounters, along the Port Stephens beaches encompassing the juvenile nursery area (Hawks Nest and Birubi beaches) there have been no recorded attacks since at least 1907. However, there have been two attacks recorded from inside the adjacent Port Stephens estuary. In the greater Newcastle-Port Stephens region, there have 13 attacks attributed to white sharks: ten recorded between 1907 and 1951; none recorded between 1952 and 2001; and three from 2002 to present.

CSIRO is not doing, nor have we been asked to do, any research on the impact of drum lines on white shark population viability.

CSIRO reports and publications pertaining to shark nurseries and interactions with humans:

- Bruce, B. D., Bradford, R. W., Hughes, B., Carraro, R., Gallen, C., Harasti, D and Gladstone, W. (2013). Acoustic tracking and aerial surveys of juvenile white sharks in the Hunter-Central Rivers Catchment Management Authority region. Final Report Projects HCR11_422 + 423.
- Bruce, B. D. and Bradford, R. W. (2012). Spatial dynamics and habitat preferences of juvenile white sharks in eastern Australia. In Domeier, M (ed) *Global Perspectives on the Biology and Life History of the Great White Shark*. CRC Press, Boca Raton, FL.
- Bruce, B. D and Bradford, R. W. (2011). Near-shore habitat use by juvenile white sharks in coastal waters off Port Stephens. Final Report to HCR-CMA + Tag for Life Trust. June 2011. CSIRO Marine & Atmospheric Research, Hobart. 38 pp.
- Bruce, B. D. and Bradford, R. W. (2008). Spatial dynamics and habitat preferences of juvenile white sharks – identifying critical habitat and options for monitoring recruitment. Final Report to The Department of Water, Heritage and the Arts. CSIRO Marine & Atmospheric Research, Hobart. 75 pp.
- Curtis, T., Bruce, B. D. Cliff, G., Dudley, S. J., Klimley, A. P., Kock, A. A., Lea, R. Lowe, C. G., McCosker, J., Skomal, G. B., Werry, J. M. and West, J. G. (2012). A world-wide review of white shark attacks and mitigation strategies. In Domeier, M (ed) *Global Perspectives on the Biology and Life History of the Great White Shark*. CRC Press, Boca Raton, FL. pp 478-509.
- Werry, J., Bruce, B. D., Sumpton, W. and Reid D. (2012). Preferred beach areas by juvenile white shark, *Carcharodon carcharias*, in eastern Australia from long-term catch and movement data. In Domeier, M (ed) *Global Perspectives on the Biology and Life History of the Great White Shark*. CRC Press, Boca Raton, FL.