

NSW Threatened Species Scientific Committee

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Response to the Shark Meshing (Bather Protection) Program

2021/2022 Annual Performance Report

Background. The NSW Scientific Committee initially listed 'Death or injury to marine species following capture in shark control programs on ocean beaches shark meshing' as a Key Threatening Process under the *Threatened Species Conservation (TSC) Act*. This KTP is now listed under the *Biodiversity Conservation Act (2016)*. It is also listed under the *Fisheries Management (FM) Act*.

The NSW Shark Meshing (Bather Protection) Program (SMP) is a joint management agreement (JMA) between the Department of Primary Industries (DPI) and the former Office of Environment and Heritage. The objectives of the JMA and accompanying Management Plan include:

- Reduce the risk to humans from shark bites at beaches subject to the SMP
- Minimise the impact on species and to ensure that the SMP does not jeopardise the survival or conservation status of threatened species, populations and ecological communities, or cause species that are not threatened to become threatened (SMP)

Under section 2.25 of the *Biodiversity Conservation Regulation 2017*, the NSW Threatened Species Scientific Committee (TSSC) must conduct an annual review of the performance of all parties to a joint management agreement and advise the Minister of any deficiencies in implementation of any joint management agreement by any party to it. The NSW TSSC has reviewed the Shark Meshing (Bather Protection) Program (SMP) 2021-2022 annual performance report prepared by DPI to document progress in achieving the objectives of the SMP. We note several points in our response to both aims listed above.

Reducing risk to humans. We note that there was only one reported shark-human interaction at netted beaches but no comparative data about numbers of encounters at unnetted beaches across the same area, making the assessment of aim 1 unavailable. Furthermore, there is no measurement of the percentage of the beaches that are netted within the SMP area, to place the numbers of interactions into context. By comparison, Cardno (2022) reported 29 encounters at netted beaches in NSW out of a total of 35 encounters since 2000. These data suggest that nets do not eliminate the risks of shark interactions.

Minimising impacts to threatened species. The consistent annual record of non-target species being caught in nets is of significant concern to the NSW TSSC. This year there were over 300 non-target animals caught, and only 51 target animals (six times as many non-target animals as target animals). This is supported by the estimate in Cardno (2022) of approximately 10 individuals of non-target species for every individual of a target species. A large non-target catch has continued for many years with little effective actions to reduce the quantities. Eight species of marine animal that are listed as threatened under the *Biodiversity Conservation Act (2017)* were caught this year, many of which were found dead. Threatened species accounted for 22% of these. We are concerned that the mortality cost is likely to be greater than recorded in the report, as there is no knowledge about the survival of the clearly stressed animals that were released, and we consider that survival is likely to be impacted. The committee also notes that there were considerable issues with nets with 17/51 reporting damage, most associated with large sharks or whales. This is clearly another component of unmonitored risk to marine fauna which may be significant, especially for whales. Furthermore, all

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'missing' nets also pose unrecorded and almost guaranteed negative interactions with marine fauna if they are untethered and lost in the water. Again, this year we can conclude that the JMA is not meeting this objective. While the marine mammals and turtles are of particular concern for us, as they are listed under *Act*, we also remain concerned about the impacts of the shark meshing program on species listed under the *Fisheries Management Act 1994*.

Trigger points. We note that the trigger point for threatened non-target species that are listed under the *BC Act* was tripped in 2021/22 and the NSW TSSC holds serious concerns about the response of the program to the loss of significant numbers of the two threatened turtles. In our response to the 2020/2021 report, we noted that the last trigger was in the 2019/2020 season but still have not heard what changes to management were made and whether these were known to be effective. We are similarly extremely concerned that there was no immediate response to the triggering of two species of turtle in this year's report; 19 green and 16 leatherback turtles. Loggerhead turtles were also caught. Nets should have been pulled immediately from the areas where catches were made to ensure no further turtles were caught, and yet this did not happen. These species cannot sustain such mortality and better management actions are required to eliminate the increased risk of extinction posed by netting. Clearer immediate and longer-term response tactics need to be set.

As previously noted (TSSC 2021), the committee considers that the current trigger point system lacks scientific validity and should be quickly replaced with a trigger system that uses population parameters related to the life histories and current population estimates for each species. Trigger points are currently too coarse to initiate an effective change in management for species with declining or recovering populations. They do not account for the different threat categories in which a species is listed and their current risk of extinction level. As we said in our previous report 'More sensitive trigger points should be set for species listed as either Endangered or Critically Endangered, where life history traits (e.g. late maturation, low fecundity, small population size) and low population numbers already predispose species to significant impacts from anthropogenic sources of mortality' (TSSC 2021). Immediate responses to triggers are required.

Overall, we are extremely concerned that the current management actions are not meeting either of the objectives. We provide further comments in relation to this below.

Strong scientific evidence for alternative approaches. We note current literature and advice that suggests that the use of a range of technologies and the cessation of shark nets are likely to achieve a better result for the objectives of the JMA. Tate et al (2020) reported that drumlines have had significant success overseas in Reunion Islands and Brazil and found that in a trial in NSW, the drumlines resulted in 70% of captures being target sharks. Drumlines appeared very effective in reducing bycatch deaths. Tate et al (2020) further suggested a number of modifications to their trial which have merit in maximising efficacy (e.g. night drumlines for bull shark captures and increasing trace length in cooler waters). Cardno (2022) reported that there were no interactions with sharks when drumlines were operating, compared to 11 encounters prior to deployment. Overall, this suggests that the impacts of current management practices could be dramatically reduced with a change in the management strategy and the NSW TSSC would support the use of drones, planes and drumline technology and the cessation or significant reduction in reliance on beach netting in the future. We also strongly support the trialling of emerging technologies such as VR4G stations with the aim to incorporate this into future programs if effective.

Adequacy of research. Finally, we note the inadequacy of the data collected and analysed from the current management program. We consider that it is imperative that genetic samples from all dead animals are lodged with the Australian Museum, the state repository for such material. And we consider that an agreement and protocol be appropriately set up with the museum. We also note

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that tissue samples have been kept for scientific genetic analysis but also note that this work has not been prioritised and is not providing important additional knowledge to manage threatened populations. We suggest that this analysis be funded urgently.

The NSW TSSC will continue to raise its concern regarding the SMP in order to assist in improving the operation of the Program in relation to mitigating impacts on non-target marine species.

We have copied this letter to Hon James Griffin, MP, Minister for the Environment.



Prof Kristine French
Chairperson
NSW Threatened Species Scientific Committee

29/September/2022

References

Cardno (NSW/ACT) Pty Ltd (2022) NSW Shark Management Strategy and Shark Program Review. Prepared for NSW Department of Regional NSW.

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NSW TSSC (2021) NSW Threatened Species Scientific Committee Response to the Shark Meshing (Bather Protection) Program 2020/2021 Annual Performance Report.