

Introduction

The NSW Shark Meshing (Bather Protection) Program (SMP) operates in accordance with a Joint Management Agreement (JMA) and an associated Management Plan authorised by the *Fisheries Management Act 1994* (FM Act) and the *Biodiversity Conservation Act 2016*. The Management Plan contains a performance assessment and reporting framework to assess the performance of the Plan in achieving its objectives, and to communicate the results transparently. Achievement of those objectives is determined against performance indicators and trigger points and is communicated by annual performance reports and review reports.

The SMP annual performance report for 2024/25 (Dalton, Peddemors and Doak, 2025) identified that the trigger point for the objective of '*minimising the impact on non-target species and threatened species*' was breached for Olive Ridley Turtles (*Lepidochelys olivacea*) following the capture of a single individual. The trigger points related to the objectives of Work Health and Safety (WHS); and reducing the risk to humans from shark attacks at meshed beaches were not breached during the 2024/25 reporting period. The trigger point for 'transparent monitoring and reporting' was also breached, with the 2024/25 SMP Annual Performance not being submitted to the Parties to the Agreement by 31 July 2025.

The trigger points are precautionary measures as they relate to the number of entanglements, not the number of animals that die as a result of entanglement. A range of technology is used to reduce the impact of nets on non-target species. Shark nets are fitted with a number of 'dolphin pingers' and 'whale alarms' to deter the marine mammals from the netted area, as well as lights to deter turtles from the nets. The nets are also not deployed over winter during the peak of the whale migration along the NSW coast. Contractors are required to free all animals found alive in the nets where it is practical and safe to do so.

Summary of Recommendations

As required by the Management Plan, this report reviews the circumstances that may have caused or contributed to the breaching of the trigger points for the aforementioned objectives and species. It also makes recommendations for remedial actions or changes designed to return the performance indicator to an acceptable range. **This review does not recommend any changes** to the 2017 JMA or July 2024 Management Plan, which now makes provision for: removing the nets on 31 March; increasing the frequency of net checking by net contractors in February and March; aerial surveillance techniques to inspect the nets; and trials of lights to deter turtles. To implement those provisions, this review recommends that:

- The increased drone surveillance implemented in February and March 2025 that resulted in an increase in the frequency of net checking be continued for February and March 2026
- DPIRD should continue to use the shark detection drones deployed during the summer school holidays as a means of identifying non-target animals caught in the nets and/or areas of relatively high jellyfish and/or turtle abundance; and
- LED light trial during February and March 2025 at beaches and/or regions with relatively high catches of Leatherback Turtles be extended to cover all regions of the SMP in an attempt to reduce turtle interactions.

Trigger Point Reviews

Transparent Monitoring and Reporting

Trigger point description

Objective 11.1.4 of the Management Plan requires an Annual Performance Report (APR) to be prepared and submitted to the Parties to the JMA and the two scientific committees by 31 July each year (i.e. four months after the conclusion of the meshing season). The 2024/25 APR was not submitted to the Parties to the Agreement by the required date, triggering a review report for the 'transparent monitoring and reporting' objective.

Review findings

The 2024/25 meshing season saw the entanglement of 199 non-target species consisting of 117 sharks, 56 rays, 13 turtles, 4 marine mammals, and 9 finfish. The NSW Government implemented significant operational changes in 2024/25 with the introduction of the new 2024 Management Plan. The changes included increased net checking, reducing the meshing season by approximately 1 month (finishing on 31 March), and trials of lights on nets to reduce turtle interactions.

The Government continued to review the Shark Meshing Program and its overarching Shark Management Program in 2024/25 aimed to reduce the impacts on marine wildlife while still maintaining beachgoer safety. The review involved consulting the eight councils with nets in relation to a potential net removal trial during the 2025/26 meshing season. The consultation process involved local councils covered by the Shark Meshing Program (Newcastle to Wollongong) selecting their preferred shark mitigation measures at beaches of their LGA. Local council meetings only occur at specific times each month and require papers to be submitted weeks in advance, and by complying with those requirements and proving additional briefings for councillors and staff, the consultation and approval process caused a delay in the publication of the 2024/25 APR.

Conclusions

The review and approval processes involved in the proposed changes for the 2025/26 meshing season involved a time dependent consultation process with local councils along with potential changes to the SMP Management Plan and meshing contracts. These changes were seen as a priority by the Government and subsequently delayed the publication of the 2024/25 APR.

Trigger Point Reviews

SEA TURTLES

Olive Ridley Turtles (*Lepidochelys olivacea*)

Trigger point description

The trigger point for the objective of '*minimising the impact on non-target species and threatened species*' was breached following the entanglement of an Olive Ridley Turtle caught at Blacksmiths Beach on 18 October 2024. Although Olive Ridley Turtles are not listed as a threatened species under the NSW *Biodiversity Conservation Act 2016*, they are a protected species in NSW waters. The trigger point for Olive Ridley Turtles in 2024/25 was 0.6, so the entanglement of this individual turtle breached this trigger point. Since 2014/15, there have been four Olive Ridley Turtles caught in the SMP, none of which survived.

Review findings

The Olive Ridley Turtle has a worldwide tropical and subtropical distribution, including northern Australia, typically occurring in shallow soft-bottomed habitats of protected waters. In Australia, they

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occur along the coast from southern Queensland and the Great Barrier Reef, northwards to Torres Strait, and across to the Joseph Bonaparte Gulf in Western Australia (DPE, 2025). Their distribution range has historically not extended into central and southern parts of New South Wales.

Although no large rookeries of Olive Ridley Turtles have been recorded in Australia, the nesting population for Australia is estimated at comprising 1000-5000 females annually (Taylor *et al.*, 2006), with most nesting in north-west Arnhem Land (DCCEEW, 2025). There are two recognised stocks of Olive Ridley Turtles nesting in Australia, one that nests in the Northern Territory and one that nests on western Cape York (Jensen *et al.*, 2013). There are no historical records of nesting Olive Ridley Turtles on the east coast of Australia (Limpus 1997; DPE, 2025); however, a nest was discovered in May 2024 for the first time (ABC, 2024) implying there may be a range extension potentially due to climate-induced changes to sea temperatures.

Olive Ridley Turtles are believed to primarily occupy continental shelf waters, conducting mainly aerobic dives of a long duration (frequently more than 100 minutes) with short post-dive intervals (McMahon *et al.*, 2007; Fukuoka *et al.*, 2022). Olive Ridley Turtles are carnivorous, feeding mainly on shellfish and small crabs on the seabed (DPE, 2025). Their ability to conduct long dives to feed on benthic prey as deep as 200m (McMahon *et al.*, 2007) does periodically expose individuals to temperatures less than 20°C but they tend to stay within sea surface temperatures between 23°C and 29°C (McMahon *et al.*, 2007). Although movement details for Olive Ridley Turtles are scarce, all other species of sea turtle found nesting in Australia exhibit tight fidelity to foraging sites (Shimada *et al.*, 2019). Olive Ridley Turtles may travel over 1000 km between their foraging and nesting grounds (Whiting *et al.*, 2007), however, there are no known foraging regions for Olive Ridley Turtles in NSW waters.

The Olive Ridley Turtle is not listed as a threatened species under the NSW *Biodiversity Conservation Act 2016* (NSW Office of Environment & Heritage, 2011). Olive Ridley Turtles are listed as *Vulnerable* (A2bd ver 3.1) for their global status under the IUCN Red List of Threatened Species (Abreu-Grobois and Plotkin 2008) and as *Endangered* in Australian waters under the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act) (Dept. of Environment and Energy, 2017b). Olive Ridley Turtles do not have a recovery plan in place (Dept. of Environment and Energy, 2017); however, the National Recovery Plan for Marine Turtles lists bycatch in domestic fisheries as a high threat to Olive Ridley Turtles in Australia (Dept. of Environment and Energy, 2017b).

The SMP has maintained an active policy and procedure of ensuring nets are set sub-surface in an attempt to enable air-breathing marine mammals, reptiles, and birds to swim over the top of the net. Sea turtles are incapable of reverse propulsion (Hamelin *et al.*, 2017) and hence have limited ability to self-release following entanglement.

Conclusion

The trigger point was breached following the capture of one Olive Ridley Turtle during the 2024/25 shark meshing season. Limited movement data for this species and its apparent preference for water warmer than 23°C, and low historical catches in the NSW shark nets imply that this individual was near the southern limit of known distribution. Necropsy indicated it was in good health prior to becoming entangled.

Recommendation

The SMP nets have caught four individuals over the past decade and ongoing efforts to reduce bycatch will be continually re-assessed. Continuing the practice of ensuring nets are not stretched tight when they are laid should continue to assist turtles to reach the surface post-entanglement and thereby potentially reduce turtle mortality. Additionally, following international success in turtle bycatch mitigation in gillnets using LED lights (Ortiz *et al.*, 2018; Virgili *et al.*, 2018), incorporation of LED lights in the SMP nets could potentially reduce bycatch of all turtle species, including Olive

Ridley Turtles. Continued trials of this technology are therefore warranted in 2025/26 meshing season to further investigate the practicality and implications of their use in NSW waters.

Improvements to the historical response arrangements under the management framework for the SMP have been made. The 2024/25 SMP season included substantial changes in an attempt to mitigate sea turtle catches in particular Leatherback Turtles, including a shortening of the period that shark nets were deployed from 8 months to 7 months (i.e. nets were not deployed in April 2025), increased frequency of contractors checking nets during March 2025 from 72 hours to 48 hours between checks, and drone flights over the nets on the alternate days that nets were not checked by the contractors.

Training will continue to be delivered for shark contractors in microchipping of all live released turtles as an alternative to titanium tags which are prone to biofouling and increased risk of entanglement. Alternative bather protection devices, such as SMART drumlines, have been shown to achieve reduced impact on threatened species such as sea turtles.

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