

unprotected *in situ* nests (Phillott *et al.*, 2021). Due to the risks (and financial and human resources) involved in *ex situ* conservation strategies like hatcheries, it is essential to examine whether they are achieving their intended objectives. This study is using population modelling to examine the implications of low hatchling numbers for local turtle populations in India and predict target hatchling production rates for population resilience and growth.

Stage-based Leslie matrix modelling is being used to obtain intrinsic growth rates of olive ridley sea turtle populations in the state of Maharashtra, India, with fecundity, survivorship, and stage durations sourced from published literature. Elasticity analysis against survivorship and stage duration will determine the contribution of each life stage (hatchlings, juveniles, sub-adults, adults) to population growth.

Findings will demonstrate a threshold below which low hatchling production from hatcheries may result

in the loss of local populations. Results will be used to recommend hatchling production targets over time for hatcheries. Establishing a target hatchling production and success rate to ensure population longevity will motivate hatcheries to use evidence-based best practices for collecting, moving, and incubating eggs. If the results show that increased survivorship in other life stages strongly reinforces the positive effect of increased hatchling production rates, then that might also lead to a recommendation for a combined conservation focus on multiple stages.

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OLIVE RIDLEY SEA TURTLES WASH ASHORE DEAD BEARING VESSEL STRIKE INJURY ON KOLLAM BEACH, INDIA

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Olive ridley sea turtles (*Lepidochelys olivacea*) nest in Kerala from October to March each year. The number of turtles nesting annually is unknown, however the number of nests laid each year have decreased over time (Laladhas *et al.*, 2016).

On 16th September 2023, we observed a dead olive ridley turtle (straight carapace length ~60cm; short tail length) stranded on Sakthikulangara Beach (8.93679° N, 76.54324° E), approximately 200m from the Sakthikulangara wharf at the largest fishing harbour in Kerala. The carapace was fractured, and the soft tissues were decomposing (Figure 1). Another olive ridley turtle washed ashore, almost midway between the first stranding site and the harbour, on 23rd September 2023. This turtle also had a broken carapace and was in a more



Figure 1. Dead olive ridley turtle on Sakthikulangara Beach, Kerala, on 16th September 2023. (Photo credit: C.P. Christopher)

advanced stage of decomposition (Figure 2). Carapace length of the second turtle was not measured; tail length did not extend beyond the carapace. Both carcasses were buried on the beach by the Forest Department officials.

Damage to the carapace of both turtles is consistent with boat strike. It is more likely that the boat hull struck the turtles, causing the laceration, and not propeller, which usually results in parallel, evenly spaced lacerations (see Phillott & Godfrey, 2019). It is not clear if the injury was the cause of the turtle death, or if it occurred post-mortem. Stranded turtles along the Kerala coast have been rarely reported. The five existing reports, include this record of two dead olive ridley turtles, a dead leatherback (*Dermochelys coriacea*) turtle (Anil *et al.*, 2009), other dead olive ridley turtles (Vizhinjam & Baby, 2012; Sreekumar *et al.*, 2016), and a live olive ridley turtle (Saleem *et al.*, 2019). All the strandings occurred during the nesting season (October to March). Pathissery & Heeralal (2021) also report the death of a nesting olive ridley turtle as a result of stray dog attack in the Sakthikulangara Beach. Olive ridley turtles are included in Schedule I of the Indian Wildlife (Protection) Act, 1972 and thus receive legal protection. Stranded turtles have been reported from this area in Kerala, but stranding observation networks are inefficient or non-existent in some of the state's coastal districts so this will be an underestimate of the number of strandings. Strengthening the conservation efforts of citizen science groups and volunteers along with effective monitoring for dead turtles and relevant data collection would determine the true scale of strandings.



Figure 2. Dead olive ridley turtle on Sakthikulangara Beach, Kerala, on 23rd September 2023. (Photo credit: Sandie Morris)

As sea turtles regularly occur in the waters around Kerala, increased public awareness may help reduce threats and lead to beneficial actions, such as rescue, rehabilitation and, hopefully, release of stranded sea turtles as well as improved reporting rates of dead sea turtles along the coast to help us better understand both the occurrence and threats faced by these species.

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