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Float Lines from the Arabian Trap Fishery are an Overlooked Entanglement Risk for Marine Turtles

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Trap-fishery float lines (i.e., "pot gear") are a major source of sea turtle mortality, representing nearly half of all sea turtle entanglements in certain regions (Hamelin et al. 2017). Around the Arabian Peninsula, fishery-related mortality of sea turtles is well recognized, but regional assessments have yet to specify trap-float lines as a threat, largely focusing on nets, hook-and-line gear, and the traps themselves (PERSGA-GEF 2004). Fish and lobster traps are ubiquitous along the southern Arabian Coast where they are deployed across the continental shelf. Fishermen who frequent these waters report regular encounters with sea turtles entangled in float lines and occasional carcasses of entangled turtles washed ashore, which appear to have been cut free from the trap lines (Clare King, pers comm). Commercial traps are often deployed in high

Figure 1. An adult female Loggerhead (*Caretta caretta*) and a subadult female Green Sea Turtle (*Chelonia mydas*) (inset) entangled in fish-trap float lines along the Omani Coast of the Arabian Sea. Photographs by Alexander Kattan and Alexa D. Foster (inset).

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numbers over large areas and left unattended for days at a time, which can present a significant entanglement risk for marine turtles.

We herein report observations of female Loggerhead (*Caretta caretta*) and Green Turtles (*Chelonia mydas*) entangled in float lines from fish traps off the coast of southern Oman on 15 April 2022 (16.84496, 54.18029) and 3 October 2024 (16.89020, 54.14033), respectively (Fig. 1). Both entangled turtles were encountered between 1100 and 1200 h and were actively swimming at the surface. Float lines were entangled at the base of the turtles' front flippers with additional line wrapped around the neck of the Loggerhead. Both turtles were freed by cutting the lines, and the animals swam away in good condition. Carapace measurements were not taken, but visual estimates suggest that the entangled Loggerhead was a mature adult and the Green Turtle a large subadult. Although minor abrasions were present, no severe injuries were evident. These observations mark the first documented sea turtle entanglements in float lines from the Arabian trap fishery and provide evidence of an overlooked regional threat to these animals. Identifying trap-float lines as a local threat enables targeted conservation actions to be developed. Although an assessment quantifying the impact of float lines on marine turtles in Arabia is still needed, including rates of entanglement and associated mortality.

Fisheries bycatch is considered the greatest threat to the critically endangered subpopulation of Loggerhead Turtles in the northwestern Indian Ocean, but no reliable information on entanglement in fishing gear is available (Hamann et al. 2013; Casale 2015). Fisheries also are a primary threat to the globally endangered and regionally vulnerable Green Turtle subpopulation in the northern Indian Ocean (Mancini et al. 2019). Nesting sites in southern Oman represent over 90% of Loggerhead and 80% of Green Turtle subpopulations in the northern Indian Ocean (Casale 2015; Mancini et al. 2019). The number of turtles at these sites are estimated to have declined approximately 80% for Loggerheads and 40% for Green Turtles, respectively (Mancini et al. 2019; Willson et al. 2020). Of particular concern is that entanglement-related mortality could be a contributing factor to ongoing declines of these and other regional sea turtle populations (Bourjea et al. 2008). Other species of marine turtles, including Hawksbills *(Eretmochelys imbricata*) and Olive Ridley Turtles (*Lepidochelys olivacea*), also utilize coastal habitats of the southern Arabian Peninsula and likely face similar entanglement threats. Accordingly, our observations provide justification for relevant conservation authorities to directly assess entanglement risks associated with trap fisheries and consider possible mitigations within their jurisdictions (e.g., gear modification, spatial and/or temporal restrictions of trap placement). Sea turtles around the Arabian Peninsula face a variety of threats, and these observations contribute to developing more informed regional conservation plans.

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