

# FIRST ASSESSMENT OF LONGLINE FISHING GEAR INTERACTIONS WITH MARINE TURTLES BASED ON OBSERVATIONS AT OLIVE RIDLEY NESTING BEACHES IN THE SOUTHERN NICOYA PENINSULA, COSTA RICA.

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The Olive Ridley (*Lepidochelys olivacea*) sea turtle is the second highest caught species by the shallow pelagic mahi-mahi longline fishery of the Costa Rican Pacific, with an estimated catch of 699.600 turtles from 1999-2010. Conservation campaigns and subsequent strategies that included lawsuits and technological solutions during the last decades have led to policy changes geared towards the reduction of the incidental catch and mortality of marine animals during fisheries operations. It becomes necessary however, to continuously monitor and quantify fisheries interactions with sea turtles to assess and confirm efficiency of policy changes and reevaluate threats for adaptive management. Whilst observer programs are costly, relevant information can be obtained from nesting Olive Ridley turtles along the Southern Nicoya Peninsula, where the Rescue Center for Endangered Marine Species (CREMA) operates four sea turtle conservation nesting beaches: Costa de Oro, San Miguel, Bejuco, and Corozalito. At this last site, small massive synchronous nesting events known as an “arribadas” regularly occur involving several thousand nesters in a period of 2-3 days. According to trained local monitors, an uncommonly high number of turtles displayed evidence of fisheries interactions during the 2017 nesting season. The aim of the present study is to document fishing gear interactions with nesting Olive Ridley sea turtles along the Southern Nicoya Peninsula, thus establishing a baseline for future monitoring. Since 2018, each interaction of longline gear with turtles was recorded. Subsequently, a description of the fishing gear was made according to the hook type and fishing line, as well as a description of the body parts affected. Photographic records were kept, and hooks were removed when possible. Sea turtles with evidence of fisheries gear interactions were classified as alive/dead, and solitary/arribada nesters. We encountered 37 Olive Ridelys that had interacted with fishing gear in CREMA’s projects, 81% of which were alive and 19% dead, with more than a half of the interactions (51%) occurring at solitary nesting beaches and the remaining 49% at the arribada beach. Most of the interactions involved longline fishing gear (54%), followed by artisanal fishing gear (38%) and ropes (8%). Hooks were classified as “Circle” or “J” when possible, as sometimes

the hook had been swallowed. “Circle” hook interactions were slightly higher (58%) than “J” hook interactions (42%). The most impacted body parts were the mouth and throat (74%), followed by the fore flippers (26%). Occasionally hooks affected more than one body part. Fishing lines did not seem to impair nesting activity, although we did find turtles struggling with lines around their neck and flippers during the nesting process, which regardless nested successfully. The post-hooking mortality of sea turtles ranges from 4% to 27% in longline fisheries, but this figure depends heavily on handling by fishers. This preliminary assessment will not only constitute baseline information for future monitoring of fisheries actions with sea turtles on nesting beaches; it also highlights the need for proper enforcement of regulations.

Key Word: gears, Olive ridleys, longlines, artisanal fisheries.

#### Special Greetings:

We would like to thank the research team and local monitors of CREMA, The Rescue Center for Endangered Marine Species for all their commitment and work on the data collection during this study. In addition, we would like to thank the Turtle Trax team for working side by side with the CREMA team. Lastly, we would like to acknowledge the RIESTER foundation for their constant support to Corozalito and the creation of this campaign.