

Commercial fishing estimated to kill millions of sea turtles

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The number of sea turtles inadvertently snared by commercial fishing gear over the past 20 years may reach into the millions, according to the first peer-reviewed study to compile sea turtle bycatch data from gillnet, trawl and longline fisheries worldwide.

The study, which was published online April 6 in the journal *Conservation Letters*, analyzed data compiled from peer-reviewed papers, government reports, technical reports, and symposia proceedings published between 1990 and 2008. All data were based on direct onboard observations or interviews with fishermen. The study did not include data from recreational fishing.

Six of the world's seven species of <u>sea turtles</u> are currently listed as vulnerable, endangered or critically endangered on the IUCN Red List of Threatened Species.

"Direct onboard observations and interviews with fishermen indicate that about 85,000 turtles were caught between 1990 and 2008. But because these reports cover less than one percent of all fleets, with little or no information from small-scale fisheries around the world, we conservatively estimate that the true total is at least two orders of magnitude higher," said Bryan Wallace, lead author of the new paper.

Wallace is the science advisor for the Sea Turtle Flagship Program at Conservation International and an adjunct assistant professor at Duke University's Nicholas School of the Environment. Most of his co-authors



are researchers at Duke's Center for Marine Conservation.

Their global data review revealed that the highest reported bycatch rates for longline fisheries occurred off Mexico's Baja California peninsula, the highest rates for gillnet fishing took place in the North Adriatic region of the Mediterranean and the highest rates for trawls occurred off the coast of Uruguay.

When bycatch rates and amounts of observed fishing activity for all three gear types were combined and ranked across regions, four regions emerged as the overall most urgent conservation priorities: the East Pacific, the Mediterranean, the Southwest Atlantic, and the Northwest Atlantic.

"Although our numbers are estimates, they highlight clearly the importance of guidelines for fishing equipment and practices to help reduce these losses," Wallace said.

Effective measures to reduce turtle bycatch include the use of circle hooks and fish bait in longline fisheries, and Turtle Excluder Devices (TEDs) in trawling. Many of the most effective types of gear modifications, Wallace noted, have been developed by fishermen themselves.

Wallace said the Hawaiian longline fishery and the Australian prawn fishery have significantly reduced bycatch through close working relationships between fishermen and government managers, use of onboard observers, mandatory gear modifications and innovative technologies. TurtleWatch, a real-time database that provides daily updates on water temperatures and other conditions indicating where turtles might be found, has guided fishermen to avoid setting their gear in those areas.



Other approaches, such as the creation of marine protected areas and use of catch shares, also reduce bycatch, preserve marine biodiversity and promote healthy fish stocks in some cases, he said.

"Fisheries bycatch is the most acute threat to worldwide sea turtle populations today. Many animals die or are injured as a result of these interactions," Wallace said. "But our message is that it's not a lost cause. Managers and fishers have tools they can use to reduce bycatch, preserve marine biodiversity and promote healthy fish stocks, so that everyone wins, including turtles."

The study stems from work Wallace began in 2005 as a postdoctoral research associate at the Duke University Marine Lab, where he helped develop the first global bycatch database for longline fisheries. That work was part of a three-year initiative called Project GloBAL (Global By-catch Assessment of Long-lived Species).

More information: "Global Patterns of Marine Turtle Bycatch," Bryan P. Wallace, et al, Conservation Letters. <u>doi:</u> <u>10.1111/j.1755-263X.2010.00105.x</u>

Provided by Duke University

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