

# Leatherback turtle migration study identifies Pacific danger zones for endangered species

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A major new study of migration patterns has identified high-use areas -- potential danger zones -- in the Pacific Ocean for the critically endangered leatherback turtle. Credit: Photo by Scott Hansen

The majestic leatherback turtle is the largest sea turtle in the world, growing to more than 6 feet in length. It is also one of the most threatened. A major new study of migration patterns has identified high-use areas—potential danger zones—in the Pacific Ocean for this critically endangered species. This new understanding could help inform decisions about fishing practices to help reduce further deaths of this fragile species.

"The study shows that leatherbacks can be found throughout the [Pacific Ocean](#) and identifies high-use areas that are of particular importance to their survival," said lead author Dr. Helen Bailey of the University of

Maryland Center for Environmental Science. "This information on their movements is essential for identifying hot spots and assessing where limiting fishing at particular times of year may be effective for protecting leatherbacks."

Leatherbacks are the widest-ranging marine turtle species and are known to migrate across entire ocean basins. Female leatherbacks lay their eggs on tropical nesting beaches, but then migrate to foraging areas to feed on jellyfish. These long-distance migrations are likely to increase the risk that these animals may be caught in fishing gear, undermining conservation efforts to protect turtles on their nesting beaches. Interaction with fisheries is believed to be a major cause of death, which is of particular concern in the eastern Pacific Ocean, where the number of leatherback turtles has dropped by more than 90% since 1980.

"Leatherback turtles are long-lived animals that take a long time to reach maturity, so when they are killed in fishing gear it has a huge impact on the population," said study coordinator Dr. James Spotila of Drexel University. "Their numbers are declining so rapidly it is critical that measures are taken quickly to ensure these animals don't go extinct."

Leatherback turtles can travel enormous distances between their nesting and feeding sites. In the Pacific Ocean there are two populations of leatherback turtles that nest in the eastern and western Pacific. The study used state-of-the-art satellite tracking, the largest satellite telemetry data set ever assembled for leatherbacks, to track 135 turtles. Leatherbacks in the eastern Pacific were tagged at the nesting sites in Costa Rica and Mexico. The western Pacific population was tagged at two nesting sites in Indonesia and at foraging grounds off the coast of California. The tracks were combined with oceanographic satellite data provided by NOAA, NASA, and a number of international partner space agencies to provide important insights into their long distance migrations.

The study found that the western Pacific population nesting in Indonesia traveled to many different feeding sites in the South China Sea, Indonesian seas, southeastern Australia, and the U.S. West Coast, mainly in highly productive coastal areas. This wide dispersal allows for a greater likelihood to find food. It also means that the turtles are more vulnerable to being caught unintentionally by fishing gear in coastal and offshore areas.

The eastern Pacific population had a very different migration pattern, traveling from their nesting sites in Mexico and Costa Rica to the southeast Pacific. These turtles migrated south and tended to feed in offshore upwelling areas where their food, almost exclusively jellyfish, may be concentrated. The more limited feeding areas of the east Pacific [turtles](#) makes them more vulnerable to any changes that occur to the distribution or abundance of jellyfish in this area. Deaths caused by human activities, such as being caught in [fishing gear](#), also pose a greater risk of causing this population to go extinct because they have a smaller range than the western Pacific leatherbacks.

**More information:** The study, "Identification of distinct movement patterns in Pacific leatherback turtle populations influenced by ocean conditions," appears in the March issue of *Ecological Applications*.

Provided by University of Maryland

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