

Young loggerhead turtles not going with the flow

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Juvenile loggerhead turtles swim into oncoming ocean currents, instead of passively drifting with them, according to a study published August 6, 2014 in the open-access journal *PLOS ONE* by Donald Kobayashi from National Oceanic and Atmospheric Administration and colleagues.

After loggerhead turtle hatchlings leave nesting beaches, they live in the ocean for 7-12 years before migrating to coastal habitats. Juvenile loggerhead turtles have good swimming abilities, but scientists aren't sure if they passively drift in [ocean currents](#) or actively swim. Combining turtle movement data with ocean circulation models aids scientists in understanding how juvenile turtles orient themselves in response to a current flow. In this study, scientists compared the daily movement over the course of 13 to 350 days of ~40 juvenile loggerhead turtles tracked by satellite with oceanic circulation data from various sources off New Caledonia.

The authors found that the turtles were swimming against the prevailing current in a statistically significant pattern at a rate of 30 cm/sec, which indicates an ability to detect the current flow and orient themselves to swim into the current flow direction. The authors suggest that the turtles likely use multiple sensory cues that enable them to orient and offset displacement due to wind and ocean currents. Additional factors could be taken into consideration for future studies to provide more information about why this swimming pattern exists, to further explore turtle ecology in ocean currents.

"This study provides evidence that these oceanic stages of loggerhead sea turtles studied with satellite tags do not necessarily get passively transported with ocean currents and, further, provides compelling evidence that these [turtles](#) are able to resist such transport using some mechanism not yet fully understood. They are apparently able to detect the direction of current

flow and swim against the prevailing current," Dr. Kobayashi added.

More information: Kobayashi DR, Farman R, Polovina JJ, Parker DM, Rice M, et al. (2014) "Going with the Flow" or Not: Evidence of Positive Rheotaxis in Oceanic Juvenile Loggerhead Turtles (*Caretta caretta*) in the South Pacific Ocean Using Satellite Tags and Ocean Circulation Data. *PLoS ONE* 9(8): e103701. [DOI: 10.1371/journal.pone.0103701](#)

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