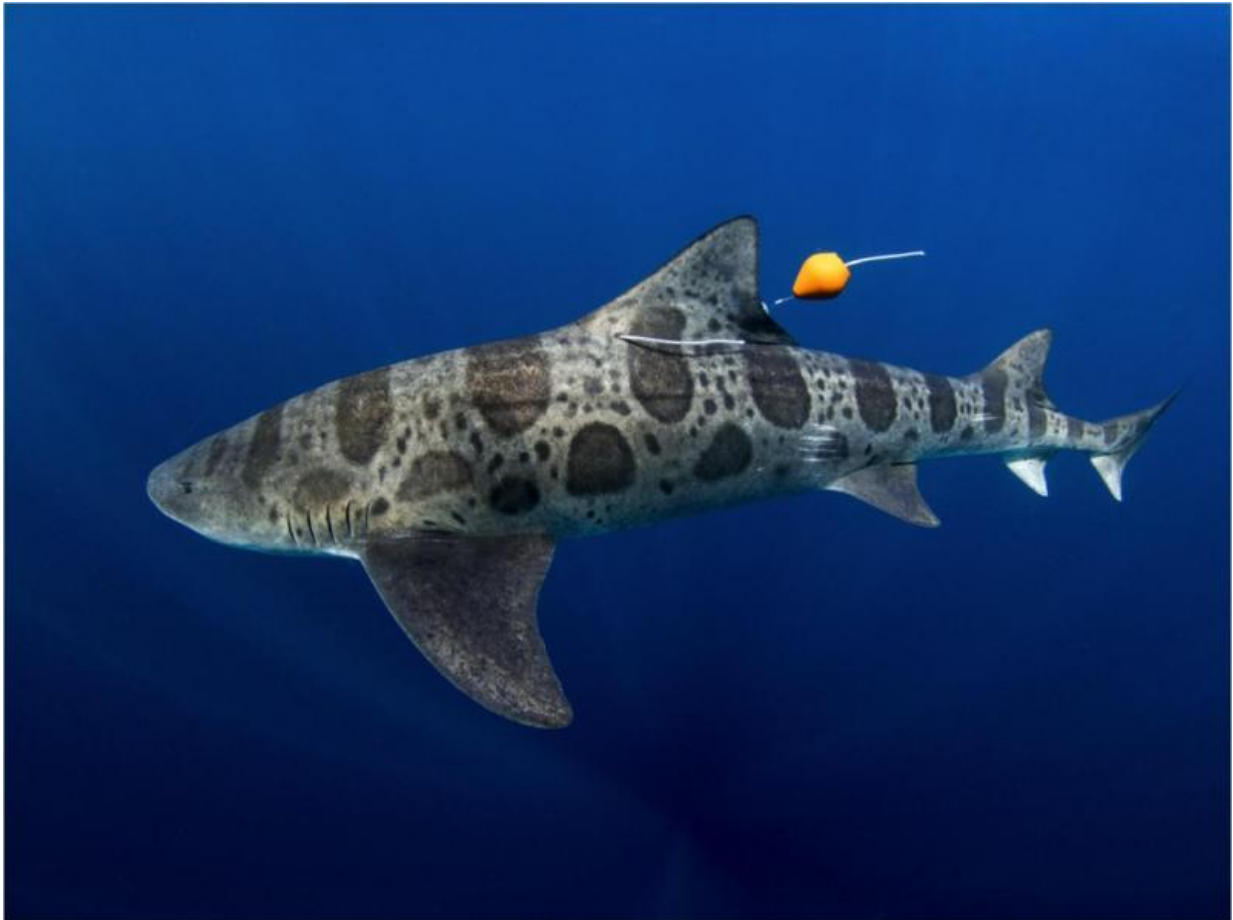


Leopard sharks navigate with their nose

January 6 2016



A shark with a reusable tagging apparatus. Credit: Kyle McBurnie

Olfaction may contribute to shark ocean navigation, likely based on their ability to sense chemical changes in the water as they swim, according to a study published January 6, 2016 in the open-access journal *PLOS ONE*

by Andrew Nosal from UC San Diego and colleagues.

Little is understood about how sharks navigate straight paths between distant sites in the ocean. The authors of this study used shoreward navigation by [leopard sharks](#) to test whether [olfaction](#) contributes to ocean navigation. About 25 leopard sharks were captured alongshore. About half had their sense of [smell](#) temporarily impaired, and then they were transported 9 km offshore, released, and acoustically tracked for approximately four hours each.

On average, tracks of control sharks, with no impairment of their sense of smell, ended 62.6% closer to shore after the four hour period, following relatively straight paths. In contrast, tracks of sharks with impaired smell ended 37.2% closer to shore, following significantly more tortuous paths. The authors suggest their study experimentally demonstrates that olfaction contributes to ocean navigation in sharks, likely a result of their ability to sense chemical gradients in the water.

Dr. Nosal adds: "Although chemical cues apparently guide sharks through the ocean, other sensory cues likely also play a role. Future work must determine which environmental cues are most important for navigation and how they are detected and integrated."

More information: Nosal AP, Chao Y, Farrara JD, Chai F, Hastings PA (2016) Olfaction Contributes to Pelagic Navigation in a Coastal Shark. *PLoS ONE* 11(1): e0143758. [DOI: 10.1371/journal.pone.0143758](https://doi.org/10.1371/journal.pone.0143758)

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