

Social tiger sharks may hold the secret to impacts of dive tourism

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A tiger shark. Credit: Neil Hammerschlag

A team of conservation scientists looking at the impact of tourism on tiger sharks have, for the first time observed them in social groups near an area called Tiger Beach off the north-west side of Little Bahama bank in the Bahamas, a popular spot for tourists.

Published today (Friday, 3 September) in *Frontiers in Marine Science*, the study, led by ZSL's Institute of Zoology, Lancaster University and the University of Miami Rosenstiel School of Marine and Atmospheric Science (UM), reveals that tiger sharks appear to choose and form social groups—a contrast to previous understanding—but that their [social preferences](#) for each other tend to break down when they are exposed to

bait provided by shark diving experiences, at Tiger Beach.

Baited shark dives are often conducted by dive tourism companies around the world to attract the animals so that tourists may observe them. This approach has been criticized by some conservationists and shark experts, due to the possible long-term impacts on the predators, including changes to their natural hunting behavior.

This study is the first of its kind to look at the influence of bait feeding on the social behavior of tiger sharks. Although the study reveals that interactions between the sharks seem to become more random when food is provided, the sharks did exhibit a 'take it or leave it' attitude to the bait feeding, suggesting that the impacts on their social behaviors are not long-lasting. The study says that if the frequency of tourism activity doesn't increase, sharks could likely retain natural behaviors when not being fed and avoid dependence.

Dr. David Jacoby, ZSL Honorary Research Associate, now at Lancaster University and lead author of the study said: "The boundary between wildlife and people is becoming increasingly thin, so as well as observing a new social behavior for the first time in what was once thought of as a solitary shark, we also measured the impacts of human activity on these predators' interactions. Luckily, they seem to show some resilience to the bait feeding."

The tiger sharks were observed using a mixture of acoustic tracking data as well as social network analysis of behavior over three years.

Researchers working on the study included scientists from the University of Miami Rosenstiel School, Carleton University in Ottawa Canada, Florida International University, Beneath the Waves Inc, the South Carolina Department of Natural Resources, and Lancaster University. The area of Tiger Beach that was investigated is known to host a high

density of female [tiger](#) sharks, especially during winter months, about a quarter of which are pregnant.

"Given that [tiger sharks](#) spend months at a time out in the open ocean as solitary predators, it's amazing to me that they show social preferences when they aggregate in the Tiger Beach area," said Dr. Neil Hammerschlag, senior author of the study and research associate professor at the UM Rosenstiel School. "For nearly two decades, I have spent countless hours diving at Tiger Beach always wondering if these apex predators interacted socially. Now we know."

The social behavior of predators is an important area of study as it provides another tool to help conservationists build a picture of how they live, what drives them to form [social groups](#), and the roles they play within the wider ecosystem.

Dr. Jacoby concluded: "We hope that if the frequency of these dive trips doesn't increase, the sharks may be able to retain their natural behaviors regardless of their time spent near tourists during dives."

More information: David Jacoby et al, Social Network Analysis Reveals the Subtle Impacts of Tourist Provisioning on the Social Behavior of a Generalist Marine Apex Predator. *Frontiers in Marine Science*(2021). [www.frontiersin.org/articles/1 ... ars.2021.665726/full](http://www.frontiersin.org/articles/1...ars.2021.665726/full)

Provided by Lancaster University

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