

Study uncovers drivers of fishers' decisions of where to fish

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A team of researchers from ZSL's Institute of Zoology and the University of Exeter, alongside Oceanswell, have used a new approach to understand the movement and drivers of commercial fishing fleet activity in one of the world's most over-exploited oceans.

As coastal [fish populations](#) decline, commercial fishing fleets in the Indian Ocean are venturing ever further into the high seas, increasing the risk of overfishing of vulnerable species including sharks and tuna. A growing concern due to their impact on already declining fish populations, this study highlights that the true reach and effect of these fishing fleets may still not be fully understood, despite advancements in vessel tracking technologies.

Funded by the Bertarelli Foundation, the study, published today (17 May) in *People and Nature*, highlights that collecting data directly from [fishers](#) significantly increases understanding of the social drivers for fishing behavior and, when combined with environmental data, could help to better manage fishing fleet movements globally.

Researchers focused on the Sri Lankan offshore fishing fleet as a case study because it is known to operate over a large area and was suspected of illegal fishing beyond their own national Exclusive Economic Zones (EEZs).

Building a picture of not just the impact but also the motivation behind the fleet's non-compliance with existing ocean management policies, the research overlaid the broad geographic range of the vessels—and occasional incursions into other country's waters—using the results of informal interviews with 95 fishers landing to two sites on the south west coast of Sri Lanka.

Using a paper map to ask fishers where they had fished over the past five years, Oceanswell researchers and study co-authors asked a series of questions to understand how important each area was in terms of catch volume and earnings as well as how fishing activity is planned. 26% of fishers admitted to fishing illegally in foreign waters during the interviews, whereas 62% indicated doing so during participatory mapping.

When asked to provide their target species in order of importance, tuna was the most common primary target species (94%). Just 19% of fishers reported targeting sharks, however, in conversation, 75% of fishers said that sharks contributed to their annual income—revealing how informal discussions can uncover crucial information.

Author Claire Collins, from ZSL's Institute of Zoology and the University of Exeter, said: "Understanding decisions fishers make about where and when to fish is vital to ensure sustainable management of fisheries. While advancing technologies, including vessel monitoring systems (VMS), have made it easier to track spatial behavior and to identify those fishing in areas illegally, when used in isolation they provide little context for the decision making behind the activity. By speaking directly to fishers we can identify the nuanced drivers behind fleet movement, and the reasons for occasional non-compliance."

Confirming increased income potential as a motivator for non-compliance, fishers explained that higher catch within foreign EEZs allows vessels to fill up faster, spend less money on costs and return to landing sites more promptly. However, the discussions also revealed the importance of [target species](#), with fishers saying those targeting sharks were more likely to [fish](#) illegally.

ZSL Institute of Zoology Research Fellow and co-author Tom B Letessier said: "While overfishing is a globally recognized issue for ocean diversity, existing safeguarding and management policies such as Exclusive Economic Zones and Marine Protected Areas (MPAs) are only effective if fishing fleets adhere to them.

"In the last 10 years, new technology has really revolutionized the opportunities for surveillance and tracking of fishing activity, yet steps must be taken to unravel why illegal fishing is tempting in the first place. Our novel research bridges both the humanities and biological

oceanography and highlights the value of delving into the motivation for carrying out illegal activity, enabling us to devise truly effective solutions."

Dr. Asha de Vos, executive director of Oceanswell, Sri Lanka said: "Beyond the research findings, this study is a good example of the importance of collaborations with teams on the ground. While it is important to speak with the fishers to understand the drivers of these types of behavior, access to such information is only really possible if familiar, local research teams are involved."

Calling for a nuanced approach to managing fishing fleets in future, the researchers are hoping to expand this study beyond Sri Lanka.

The paper is titled "Ocean-scale footprint of a highly mobile fishing fleet: social-ecological drivers of fleet behavior and evidence of illegal fishing."

More information: Claire Collins et al. Ocean-scale footprint of a highly mobile fishing fleet: Social-ecological drivers of fleet behavior and evidence of illegal fishing, *People and Nature* (2021). [DOI: 10.1002/pan3.10213](https://doi.org/10.1002/pan3.10213)

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