

## Getting the most out of citizen science for endangered species such as Whale Shark

### ABSTRACT

Citizen science by which the general public is enlisted to participate in data collection programmes, can shed light on the biology and ecology of enigmatic species. The whale shark *Rhincodon typus*, the world's largest fish, is listed as Endangered in the IUCN Red List of Threatened Species due to continued population declines, particularly in the Indo-Pacific region. The species is highly mobile, capable of crossing international boundaries, yet the species' movements in Southeast Asia remain poorly understood. Citizen science has been used broadly in the region and beyond, to understand the species' biology and ecology. Here, we report the first international movement of a whale shark between the Philippines and Malaysia as determined through photo-ID and citizen science. A juvenile female whale shark, P-1159, was first identified in Oslob, Cebu, Philippines in December 2017 by ongoing research at the site, and resighted in Pulau Sipadan, Sabah, Malaysia, in October 2019 by a citizen scientist. Pulau Sipadan is one of Southeast Asia's most popular diving destinations, yet whale shark sightings are uncommon. Citizen scientists ready to collect and share data with ongoing research plays a key role in monitoring enigmatic species. Protocols should be developed to systematically collect unique sightings and behaviours accessible to divers as citizen scientists that would otherwise be lost to science.