

DiverReef: A global database of the behavior of recreational divers and their interactions with reefs over 20 years

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Handling editor: Graziella V. DiRenzo**Abstract**

Recreational diving is an important activity in reef environments worldwide, providing income and employment for coastal communities and connecting visiting divers to these ecosystems promoting conservation and stewardship. However, if poorly managed, diving has the potential to cause detrimental effects on benthic communities via mechanical damage caused by physical contact of divers with the reef, often in the form of unintentional fin kicks resulting from poor buoyancy. Understanding diver–reef interaction patterns is important to elucidate the potential impacts of diving tourism on the reef biota. The DiverReef database provides the first public dataset on the underwater behavior of recreational divers in shallow reef environments (<25 m depth) globally and their interactions with the reef seascape and/or reef benthic sessile organisms. The dataset comprises 20 years of data (2004–2023) by observing the behavior of 2311 recreational divers in nine countries at 19 diving destinations and 176 diving sites; 93% of the observations were in marine protected areas. The data were collected through on-site observations of divers' behavior during tourism activities and their physical interactions with the reef structure and/or benthic sessile reef organisms. Observers discreetly followed divers and recorded their behavior and interactions with the reef over set periods. Interactions were described as “contact” or “damage,” the latter referring to when physical damage to a benthic organism or the reef structure was observed. Besides behavior, observers also recorded data on the type of diving activity (scuba or snorkeling), profiles of the divers (gender and experience), use of cameras by the divers, visibility, type of reef formation, and marine protection status of the dive site. The authors of this research expect that the data provided will be useful in advancing knowledge of how divers interact with reefs and in developing strategies to mitigate the potential detrimental effects of the diving industry on reef biota. Part of the data has already been used in reports and scientific articles. This dataset can be freely used for noncommercial purposes; we request that users of these data cite this data paper in all publications resulting from the use of this dataset.

KEYWORDS

diver behavior, global, recreational activities, reef damage, reef tourism, scuba diving, snorkeling, tourism impacts

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The complete dataset is available as [Supporting Information](#). Data are also available in Zenodo at <https://doi.org/10.5281/zenodo.11373292>.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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