



DATA PAPER

TimeFISH: Long-term assessment of reef fish assemblages in a transition zone in the Southwestern Atlantic

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Abstract

The TimeFISH database provides the first public time-series dataset on reef fish assemblages in the southwestern Atlantic (SWA), comprising 15 years of data (2007–2022) based on standardized Underwater Visual Censuses (UVCs). The rocky reefs covered by our dataset are influenced by pronounced seasonal cycles of ocean temperatures with warm tropical waters from the Brazil Current in the summer (~27°C) and colder waters from the La Plata River Plume discharge and upwelling from the South Atlantic Central Water in the winter (~18°C). These oceanographic conditions characterize this area as the southernmost tropical–subtropical climatic transition zone in the Atlantic Ocean. As a result, reef fish assemblages are comprised of both tropical and subtropical species. All records included in TimeFISH were collected using UVCs, a nondestructive method that allows the estimation of fish species richness, abundance, and body size distributions. UVCs were performed through 40 m² belt transects by scuba diving in nine locations along the southern Brazilian coast (25–29°S). Four of these locations lie within the boundaries of the no-entry Arvoredo Marine Biological Reserve, where fishing and recreational activities are forbidden, and the remaining locations are unprotected

from these activities. During each belt transect, a diver swam at a constant depth above and parallel to the reef, identifying fish species, counting the number of individuals, and estimating the total body length (Lt in cm) of all detected individuals. All fish individuals in the water column (up to 2 m above the substratum) and at the bottom were targeted. In total, 202,965 individuals belonging to 163 reef fish species and 53 families were recorded across 1857 UVCs. All survey campaigns were funded by either public or mixed capital (private–public) sources, including seven grants from the Brazilian federal and Santa Catarina state governments. Part of the data has already been used in multiple MS.c. and Ph.D. theses and scientific articles. TimeFISH represents an important contribution for future studies aiming to examine temporal and spatial variations of reef fish assemblages in transition zones. No copyright restrictions apply to the use of this data set, other than citing this publication.

KEYWORDS

abundance, fish body size, fish richness, rocky reefs, temporal series

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The complete data set is available as Supporting Information. Data are also available in Zenodo at <https://doi.org/10.5281/zenodo.7317084>.

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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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