

MARINE CONSERVATION

Warming and reorganizing

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Temperature strongly influences the distribution of species, affecting what can live where. As Earth's climate warms and as temperature extremes become more common, ecological communities — those species co-occurring on, say, a given reef — will be reshuffled, with implications for associated ecosystem services. Measures that help us simplify this complex process are urgently needed.

Paul Day, of the University of Tasmania, and colleagues analysed reef-fish surveys around Rottnest Island, Western Australia, from 2008–2015, a period of anomalously warm temperatures. They also assessed how this variability affected fish traits, like body size, that influence immigration and other processes affecting where species reside. During these marine heat waves, reef fish mapped onto their species-specific temperature preferences, reshuffling which species co-occurred. Although more individual fish occupied these warmer waters, many species preferring cooler waters temporarily disappeared. Knowing that these thermal comfort zones are relatively stable provides valuable insight for understanding and sustaining reef ecosystems, which are renowned for their biodiversity and which anchor increasingly beleaguered human communities.

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