

Decadal stability in coral cover could mask hidden changes on reefs in the East Asian Seas

ABSTRACT

Coral reefs in the Central Indo-Pacific region comprise some of the most diverse and yet threatened marine habitats. While reef monitoring has grown throughout the region in recent years, studies of coral reef benthic cover remain limited in spatial and temporal scales. Here, we analysed 24,365 reef surveys performed over 37 years at 1972 sites throughout East Asia by the Global Coral Reef Monitoring Network using Bayesian approaches. Our results show that overall coral cover at surveyed reefs has not declined as suggested in previous studies and compared to reef regions like the Caribbean. Concurrently, macroalgal cover has not increased, with no indications of phase shifts from coral to macroalgal dominance on reefs. Yet, models incorporating socio-economic and environmental variables reveal negative associations of coral cover with coastal urbanisation and sea surface temperature. The diversity of reef assemblages may have mitigated cover declines thus far, but climate change could threaten reef resilience. We recommend prioritisation of regionally coordinated, locally collaborative long-term studies for better contextualisation of monitoring data and analyses, which are essential for achieving reef conservation goals.