MARINE CONSERVATION

Protecting predator functions

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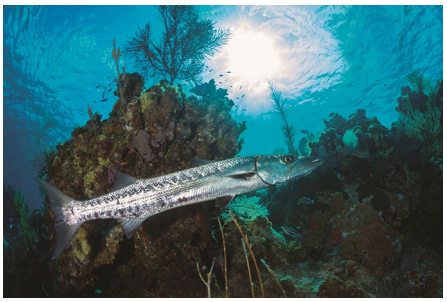

Credit: Global_Pics / Getty

Marine protected areas (MPAs), like those on land, are vital tools for conservation. Many studies have looked at how MPAs affect biodiversity and community structure. However, implicit in MPA creation today is the protection of ecosystem functions, such as energy and nutrient flows.

Brian Cheng, of the University of Massachusetts, Amherst, and colleagues conducted a meta-analysis comparing rates of predation and herbivory across 30 MPAs distributed globally and across 85° of latitude. Synthesizing 15,225 field assays, they found that MPAs preserved predation primarily by supporting greater predator population sizes and biomass. Within MPAs, predators increased 4.4-fold, whereas prey decreased 2.2-fold. Interestingly, the authors found relatively few studies quantifying effects of MPAs on ecosystem function generally. These findings suggest oceans and coastlines historically supported much higher predator densities. Moving from research on biodiversity and community preservation to ecosystem functions and services will deepen our understanding of the value and potential of protected areas for marine conservation.

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