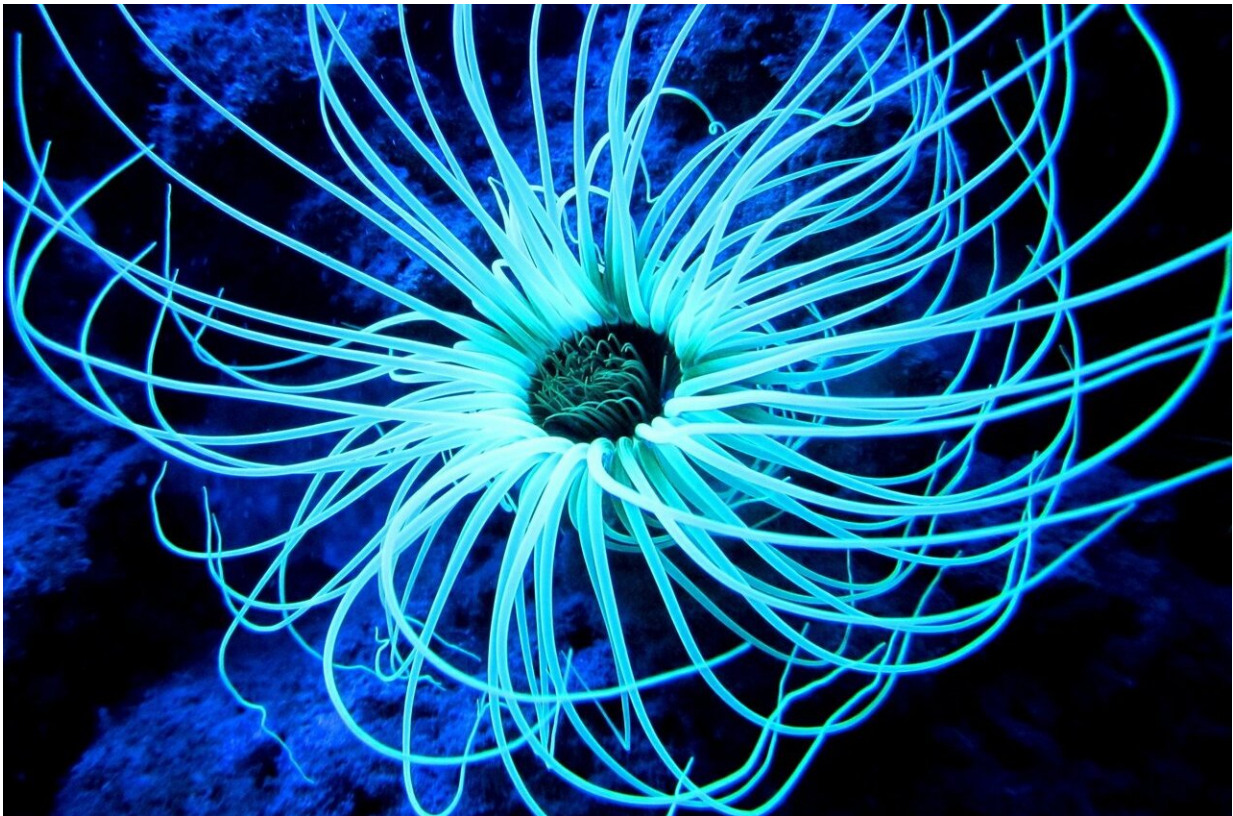


Study identifies how to verify whether MPAs are effective

July 17 2019, by Kat Kerlin



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Marine protected areas, or MPAs, are an increasingly common way of protecting marine ecosystems by prohibiting fishing in specific locations. However, many people remain skeptical that MPAs actually

benefit fish populations, and there has not yet been a way to demonstrate whether or not they are effective. Until now.

A study published July 17 in the *Journal of Applied Ecology* is the first description of how to use data collected before and after a protected area is implemented to measure its effectiveness. Data collected beforehand can help predict how much fish populations are expected to increase. Then scientists can compare it to data collected after the MPA is in place to help determine whether adjustments are needed, such as changing the size or enforcement levels of an MPA.

Safeguarding California's Marine Life

California's Marine Life Protection Act of 1999 was created to safeguard some of the state's most treasured resources—its coast and ocean. It mandated that such areas be managed adaptively, with the ability to be changed if needed to meet the goals of preserving the diversity and abundance of [marine life](#) off the California coast. But, since its implementation, there has not been a way to assess whether or not the state's MPAs are effective in meeting those goals.

"California has the second largest marine protected area network in the world—the first is in Australia with the Great Barrier Reef—and the rest of the world looks at California as an example of what can be done," said lead author Kerry Nickols, who began the work while a postdoctoral student at UC Davis and is now at California State University, Northridge.

Such areas are important havens for marine populations facing multiple threats, including [climate change](#), overfishing and habitat degradation. In a sense, MPAs provide a "fence" around a healthy marine environment to preserve what's inside, Nickols said.

"We have developed a method for managing these MPAs that properly quantifies whether they are benefiting populations in the anticipated way," said co-author Louis Botsford, a professor emeritus at the UC Davis Department of Wildlife, Fish and Conservation Biology. "It demonstrates the possibility of transparently verifying that MPAs work."

More information: Kerry J. Nickols et al, Setting ecological expectations for adaptive management of marine protected areas, *Journal of Applied Ecology* (2019). [DOI: 10.1111/1365-2664.13463](https://doi.org/10.1111/1365-2664.13463)

Provided by UC Davis

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