

## Combining natural history collections with fisher knowledge for community-based conservation in Fiji

*A team of researchers from Columbia University (USA) and Fiji has found a unique and time-effective way to improve the design of marine protected areas for coastal fisheries in Fiji and, potentially, around the world. This method, which was used to assess a proposed temporary fishery closure in the village of Nagigi, Fiji, is described in a study published in the open-access journal PLOS ONE<sup>1</sup> by Abigail Golden and colleagues from Columbia University, the Wildlife Conservation Society, and the University of the South Pacific.*

The researchers chose Nagigi Village because residents there had already made a proposal to set aside part of their fishery as a temporary marine protected area, or *tabu*, that could last anywhere from a year to ten years. Though the village's elected headman had already proposed a specific part of the reef to be part of the *tabu* area, that did not mean the project could not use some expert, targeted advice.

To figure out which species were most at risk of over-fishing and, therefore, should be a conservation priority in the *tabu* project, the researchers took a two-pronged approach to determine the reef's species composition: while collecting fish for a museum collection (destructive sampling) using scuba gear, they also interviewed local fishermen to find out what species they targeted. With this information, they could make recommendations about the size, duration, and location of the protected area based on at-risk species' life history and habitat use.

“The beauty of this technique is that the two methods we used — the sampling and the interviews — gave us very different results,” Golden said. “If we'd only used one of these methods, we would have gotten half the picture.”



*Nagigi's proposed marine protected area covers one square kilometre of reef flat and seagrass meadow directly in front of the village. Black dashed lines indicate fringing reefs, while the red dotted line indicates the marine protected area site proposed by the village's turaga ni koro (elected village headman).*



*A fisher and study participant holds bait for a Lethrinus harak fishing expedition. Populations of L. harak, or kabatia in Fijian, are declining in Nagigi (image: Abigail Golden).*

This combination of destructive sampling with fisher interviews can potentially be adapted to help develop protected areas for other small-scale fisheries around the world. The two methods combined may allow researchers to make recommendations about conservation projects much more quickly than either technique used alone, and make sure that the expertise of subsistence fishermen — who often possess rich, if undervalued, knowledge about their local ecosystems — is not neglected.

### For more information:

**Abigail Golden**

Columbia College, Department of Ecology, Evolution and Environmental Biology  
[abigolden@gmail.com](mailto:abigolden@gmail.com)

<sup>1</sup> <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0098036>