Fishers near marine protected areas go farther for catch but fare well

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Fishers near marine protected areas end up traveling farther to catch fish but maintain their social and economic well-being, according to a study by fisheries scientists at Washington State University and in Hawaii.

The study, reported in the journal Biological Conservation, is one of the first to look closely at how protected areas in small nearshore fisheries can affect where fishers operate on the ocean and, as a consequence, their livelihood.

"Where MPAs are located in relation to how fishers operate on the seascape is critical to understand for fisheries management and this is an important lesson to draw from this study," said Todd Stevenson, the paper's lead author, who did the research as part of his WSU doctorate.

Marine protected areas have become a cornerstone of ocean conservation, setting aside specific waters to preserve and manage vulnerable resources like declining fish stocks. In theory, the MPAs will provide a refuge in which fish can breed and help replenish nearby, open areas with their offspring. Nearly 6,000 MPAs have been set up around the world, according to a 2010 report by the International Union for Conservation of Nature and Natural Resources.

Stevenson focused on a network of MPAs on the west coast of the island of Hawaii, home to an aquarium fish trade and one of the state's most lucrative nearshore fisheries. While the fishery is relatively small, with only about 40 active fishers, small-scale fisheries actually employ more

people than large-scale operations and catch fish more efficiently. Their small size also makes fishers more vulnerable to changes, as a poorly placed MPA can have a large effect on their options.

Starting in 1999, the west Hawaii MPAs closed more than one-third of the coast to aquarium fishing. Many areas were closed to avoid conflicts with dive charters and the tourism industry, particularly in the more populated central part of the west coast. This is where most ports and launches are, too. As a result, fishers had to go farther in search of fish.

Analyzing social surveys and state catch reports, Stevenson and his colleagues found just that.

"Fishing cost and distances traveled were perceived to have significantly worsened," he and his colleagues wrote, "while economic status was perceived to have significantly improved."

"It's not uncommon to establish MPAs in areas where fishers operate, as these are usually biologically and economically productive spots that receive heavy fishing pressure and thus need the most protection," said Stevenson. "When MPAs are placed in these locations, they displace fishers into new, slightly less optimal fishing spots.

"This happened in Hawaii," he said, "and it appears to have had little impact on the socioeconomic well-being of fishers who remained involved in the fishery since before the MPAs were in place, which is somewhat counterintuitive and makes our study interesting."

Without a separate economic analysis, said Stevenson, it's hard to say how the changing fish stocks might have affected fishing incomes. He and his co-authors—WSU Professor Brian Tissot and Bill Walsh of Hawaii's Division of Aquatic Resources—conjecture the fishers had higher yields, in part because they were steered toward underexploited or

more biologically productive areas.

Fishers also benefited from rising prices for yellow tang, the most abundant and popular fish in Hawaii's aquarium trade, and price wars among island buyers working to satisfy the growing demand from coral aquarium tank owners.

Provided by Washington State University