



## Follow that Fish: Assessing the Scope and Value of Nearshore Fishing in Hawai‘i

Following years of population decline, three-fourths of Hawai‘i’s reef fish species are now considered seriously depleted. Over-fishing is one factor contributing to this dramatic loss, but surprisingly little is known about how many fish are actually harvested from Hawai‘i’s nearshore waters.

There is widespread concern about dwindling fish populations but little agreement about how to preserve Hawai‘i’s reef fish and build up their numbers. The strategies that have been proposed to monitor and control nearshore fishing are often met with sharp criticism from the public.

To preserve and build back fish populations, government policymakers and community leaders need to start with accurate estimates of how many fish are actually being harvested every year. They also need to understand the social and cultural importance of Hawai‘i’s fish harvest in order to fully assess what the community stands to lose should coral reef fisheries be mismanaged. But good evidence is hard to find. Speaking at the East-West Center, Kirsten L.L. Oleson, University of Hawai‘i Professor of Ecological Economics, described a multi-year research project designed to fill this information gap.

To estimate the annual catch of 57 nearshore fish species, Oleson partnered with former student Shanna Grafeld to study official reports from commercial fishers and fish dealers, plus government estimates of non-commercial catch. They filled out the picture by interviewing key participants in the fishing industry. Finally, to catch a glimpse of trade in reef fish to and from Hawai‘i, they interviewed travelers from Pacific islands arriving at Honolulu International Airport with coolers of fish, and they scanned websites for offers of Hawaiian fish for sale on the U.S. mainland.

Adding everything together, they estimated that nearshore fishing contributes \$10–\$16 million to the Hawaiian economy every year. Roughly three-fourths of these fish are missing from official accounts, however—either caught by commercial fishers but not reported or caught by non-commercial fishers for whom there is no reporting system.

Under the current system, commercial fishers in Hawai‘i hold fishing licenses and are required to report their catch to the state government. Commercial fish dealers may also report their purchases, but for them the reporting system is voluntary. Overall, Oleson and her team estimated that reported sales account for only \$3 million of the annual nearshore fish catch in Hawai‘i. The remaining catch—worth \$7–\$13 million annually—is undocumented.

The study found that fish from Hawai‘i’s shores provide nearly eight million meals a year. This important source of protein, supplied largely by non-commercial fishers, plays a significant, yet unappreciated, role in food security, particularly for people living in rural areas, many of whom are Native Hawaiian.

Interviews also revealed the cultural and social importance of Hawai‘i’s nearshore fisheries. Family members fish together and pass on fishing skills to younger generations. The cultural significance of fishing in Native Hawaiian and other island communities points to an important approach for ensuring the sustainable use of fishery resources: “When communities are involved in fisheries management via community-based or co-management strategies, ecological outcomes can be better than in areas with ‘top-down’ management,”

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Oleson said. To date, local programs have educated more than 1,500 children and their families on marine conservation and sustainable fishing.

Oleson went on to suggest that expanding Hawai'i's "marine managed areas" and increasing protection in these areas could enhance the productive capacity of Hawai'i's entire nearshore ecosystem. "Today, Hawai'i protects about 10 percent of its nearshore area, but the current governor has committed to protecting 30 percent by 2030," she said.

Based on their broad study of fish marketing, Oleson and her colleagues suggested "a 'conservation-off-the-hook' approach where changes in the market system may enhance social, economic, and ecological outcomes." Interventions could include "improved monitoring of catch and post-catch distribution in order to uncover the extent of unregulated catch and halt illegal commercial catch (currently estimated at 10–30 percent of the volume of legal commercial catch)."

If grocery stores, retailers, wholesalers, and restaurants were required to report their fish purchases, rather than the current voluntary system, "management agencies would have more accurate assessments of fishing pressure, which would be particularly useful in

helping state agencies secure ecological and economic sustainability of the fishing industry," according to Oleson.

Over the years, the most controversial suggestion for documenting Hawai'i's nearshore fishing has been to require that non-commercial fishers obtain a license. Oleson suggested that "initiating a licensing scheme for non-commercial fishing would provide an estimate of the number of fishers and would facilitate better research on non-commercial catch." She acknowledges, however, that non-commercial licensing, when proposed in the past, has met strong resistance from fishers who perceive it as a government effort to regulate their inherent right to fish.

Shanna Grafeld added, "Our study focused on the little-understood benefits of the non-commercial fishery, the number of meals it provides, and its importance to the culture of Hawai'i in order to highlight what we stand to lose if our nearshore fisheries continue to decline. The goal of any management plan should be for the community and fishers to view themselves as partners in conservation."

Oleson also suggested better monitoring of nearshore fish imported into and exported from Hawai'i. Although the current volume appears to be small, there is not enough

information available today to quantify the flow of reef fish to and from the islands. Grafeld added, "This flow of fish between Pacific islands may be especially important in maintaining regional cultural and family bonds."

A final intervention point focuses on the end of the value chain—the consumer. "Certification schemes that identify sustainable seafood with a logo or seal can help inform consumers," according to Oleson. "Consumer education can be as simple as signage posted in markets giving information about fishing regulations and sustainable practices. Programs that affect the purchasing patterns of the major buyers through an improved commitment to sustainable sourcing may be an effective means to improve sustainability."

"Hawai'i's small-scale coral reef fisheries provide large-scale benefits to the islands' economy, food security, and cultural practices, underscoring the need for sustainable management," Oleson concluded. "Our research highlights the value of information on these small-scale production systems, making the hidden economy of these fisheries visible and illuminating a range of conservation interventions applicable to Hawai'i and beyond."



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