



CTA-038-Healthier Coral Reefs-Caribbean

How do we save coral reefs?

Vic Ferguson

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Tourist could be the answer to healthier Coral Reefs



Annapolis, Md — Overfishing, coastal development, pollution, and climate change threaten more than the colorful fish and towering coral pillars of the Caribbean's reef systems. They also put an important part of the region's \$49 billion tourism industry in direct peril.

Tourism is the lifeblood of much of the Caribbean economy, and particularly of coastal tourism. Yet as human activities push coral reef health to decline, the snorkeling, SCUBA diving, and recreational fishing that attract visitors from all over the world will most certainly also suffer. In addition to the subsequent loss of tourism-generated income, coral reef decline could severely compromise the livelihoods, food security, and culture of impacted coastal and island communities.

A new study by [David Gill](#), postdoctoral fellow at the National Socio-Environmental Synthesis Center (SESYNC), quantifies how the loss of reef fish communities could impact the Caribbean's tourism economy. It also accounts for how reef-related tourism could, in effect, help save itself by financing the conservation of reef ecosystems.

"Divers come to the Caribbean to see healthy, abundant fish life," said Gill, "but coral habitat in the Caribbean has drastically declined in many parts of the region since the 1970s. We need to identify ways to protect both coral reefs and the region's reef tourism economy—because the demise of one could mean the demise of the other, and the preservation of one could mean the preservation of the other."

Gill interviewed more than 500 tourist SCUBA divers at seven sites throughout Barbados, Honduras's Bay Islands, and Saint Kitts and Nevis. He found that tourists are less likely to pay for dives with fewer and/or smaller fish, but that they are willing to pay more for dives with more abundant and/or larger fish. The findings suggest that while declines in coral reef fish populations could result in significant economic loss for the region, improvements in fish populations could result in significant economic gains.



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"If tourists perceive that the quality of reefs in the Caribbean is in decline, they may consider alternative dive locations in the Red Sea or Pacific, for example," explained Gill. "To safeguard its economy, which is heavily dependent upon tourism dollars, the Caribbean needs to ensure the quality of its market product—the health of its coral reefs."

For higher quality dive experiences, surveyed tourists indicated a willingness to pay above current dive prices—revealing a potential source of revenue that could be directed toward the conservation of reef fish resources, such as personnel salaries and equipment purchases for marine reserves.

Healthier reefs and more vibrant fish communities could encourage more tourist activity, and, accordingly, even more dollars for conservation.

[A scientific paper based on the research](#), which Gill led while working on his doctoral degree at the University of the West Indies, was published online January 28 in the journal *Ecological Economics*. The paper's co-authors include [Peter Schuhmann](#), professor of economics at the University of North Carolina, and [Hazel Oxenford](#), professor of marine ecology and fisheries at the University of the West Indies.

Tourist activity has itself contributed to the degradation of fragile coral reefs through, for example, direct physical damage from snorkelers and divers, sewage pollution from resorts, and the construction and operation of tourism-related infrastructure. But income generated by tourism activity could be used to mitigate those impacts and preserve reefs to natural and social benefit alike.

The researchers say that if even a small user fee per diver were instituted, the cumulative revenue would likely result in a large, untapped potential for financing the conservation of the Caribbean's coral reefs. These monies could be used to monitor reefs and prevent actions that degrade reef resources.

One of the most surprising findings from the research, Gill said, was that across sites most of the tourists surveyed expressed a stronger preference for seeing large fish over large numbers of fish on dives. It's an interesting and informative result, he says, because some parts of the Caribbean no longer have many of these larger fish, such as snappers and groupers, due to a history of overfishing that continues today.

The predicament of trying to balance anthropogenic pressures, such as increasing demands for seafood and tourist infrastructure, with marine ecosystem health underscores the need to establish fish sanctuaries and marine reserves that protect and restore communities of large fish. "Not only are these larger fish important for ecological reasons, but they're important for the vitality of dive tourism and fishing livelihoods, as well," said Gill.

But resource managers may be hard-pressed to garner funding for conservation efforts. The researchers point out that tourism dollars could easily offset some of the costs of conservation, without discouraging many tourists by initiating fees they're unwilling to pay.

"The Caribbean has been feeling the effects of the global economic crisis these past few years, and environmental agencies find themselves competing against other agencies such as education and health for public funds," said Gill. "This study demonstrates why conserving coral reefs should be an economic, as well as ecological, priority—and it provides policy makers with a possible roadmap for sustainably financing that conservation."



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The National Socio-Environmental Synthesis Center, funded through an award to the University of Maryland from the National Science Foundation, is a research center dedicated to accelerating scientific discovery at the interface of human and ecological systems.

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*The only thing necessary for the triumph of evil is that good men do nothing"....**Edmund Burke***