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We Can Save the Caribbean's Coral Reefs

By JEREMY JACKSON and AYANA ELIZABETH JOHNSON SEPT. 18, 2014

PARROTFISH eat algae and seaweed. These brightly colored fish with beaklike mouths inhabit coral reefs, the wellsprings of ocean life. Without them and other herbivores, algae and seaweed would overgrow the reefs, suppress coral growth and threaten the incredible array of life that depends on these reefs for shelter and food.

This was happening in Bermuda, until the government in 1990 banned fish traps that were decimating the parrotfish population. Today, Bermuda's coral reefs are relatively healthy, a bright spot in the wider Caribbean, where total coral cover has declined by half since 1970.

Last month, in a reminder of just how dire the situation facing the world's coral reefs is, the National Oceanic and Atmospheric Administration said it was listing 20 species of coral as threatened under the Endangered Species Act, including all of what were once the most abundant Caribbean corals. The action focused primarily on the projected impacts of global warming and ocean acidification. Carbon dioxide emissions are increasing ocean temperatures and making them more acidic — and less hospitable for corals.

But climate change is only half the story. Up to now, the impacts of climate change on reefs have been much less destructive than the localized effects of overfishing, runoff pollution from the land and the destruction of habitats from coastal development. Those problems have exploded in intensity over the past century and will continue to increase sharply with population growth.

Proof of the destructive power of those impacts is evident in the central Pacific where, in spite of rising temperatures, coral cover is many times higher around islands unaffected by fishing and pollution, compared with heavily fished and polluted reefs of nearby islands.

A recent detailed assessment of the changing status of Caribbean reefs over the past 40 years by the Global Coral Reef Monitoring Network and the International Union for Conservation of Nature provides a similarly important finding that offers hope. Across the Caribbean, reefs near islands with effective local protections and governance, like the ones around Bermuda, have double the amount of living coral compared with those that lack those protections. They also have more fish and clearer waters.

But in Florida, banning fish traps — which should result in more parrotfish, less algae and more coral — has not stemmed coral decline. That's because of extreme local pressures from millions of residents and tourists and insufficient controls on development. Similar problems plague the Great Barrier Reef in Australia, which is being damaged by agricultural runoff and the development of huge ports for exporting coal. Fishing is carefully regulated there, but those other threats must be equally well managed.

The few remaining places in the wider Caribbean with relatively healthy reefs have one thing in common: a greater abundance of parrotfish and other herbivores. They also benefit by being adjacent to islands with comparatively small populations, more modest development and less pollution. You find this in the Flower Garden Banks National Marine Sanctuary in the northern Gulf of Mexico, on reefs around Curaçao and Bonaire and in protected marine areas in the Bahamas and the Cayman Islands.

Stories about coral reefs commonly focus on doom and gloom. But these new findings indicate that there is actually something we can do right now to help reefs recover: prevent overfishing, overdevelopment and pollution from the land.

None of this lessens our concerns about climate change as humanity burns more coal and oil instead of less. But there is increasing evidence that protection from local stresses promotes the resilience of reef corals to climate change.

Several Caribbean islands are moving to control overfishing and pollution. Barbuda just enacted legislation to protect parrotfish, stop overfishing and establish marine sanctuaries. And the Bahamas, Belize, Bonaire, Cuba and Curaçao are working to enhance protections.

In contrast, the condition of the coral reefs of the Florida Keys, the United States Virgin Islands and Puerto Rico is among the worst in the wider Caribbean, despite vast sums invested in the monitoring of reefs and research on the effects of climate change. This monitoring and research are vitally important, but collecting information without strong corrective action is like a doctor analyzing a patient's decline without doing everything possible to save her life.

We need to move immediately beyond listings of species as threatened and research about climate change and take rigorous action against the local and global stresses killing corals.

Coral reefs are vital to the economies of the 38 Caribbean countries and territories and their millions of people. These reefs generate roughly \$3 billion annually in tourism and fishing and provide protection from storms.

To save coral reefs, we need to follow the lead of Barbuda and our other proactive neighbors. We need to stop all forms of overfishing, establish large and effectively enforced marine protected areas and impose strict regulations on coastal development and pollution while at the same time working to reduce fossil fuel emissions driving climate change. It's not either/or. It's all of the above.

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