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Perspective: The MPAs of Cuba and the implications of a potential end to the US embargo

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By Daria Siciliano

The ecologically rich and relatively understudied Cuban coasts have not experienced the levels of development seen in the rest of the Caribbean. This is due in large part to the US trade embargo of the country, which dates back to the early 1960s. Although the countries are divided by just 150 km of water, there has been very little trade or travel between them for 55 years.

The embargo has also greatly limited scientific collaborations. While US scientists have been allowed to travel to Cuba under specific research licenses issued by the US Treasury Department, only a handful of US universities and NGOs have established collaborations with Cuban peers. This is typically accomplished despite severe resource limitations and vexing bureaucratic challenges.

A coming boom in tourism?

A thaw is now occurring in US/Cuba relations. On 17 December 2014, US President Barack Obama ordered the restoration of full diplomatic relations with Cuba and the opening of a US embassy in Havana for the first time in more than a half-century. While the historic deal did not actually lift the embargo, it broke an enduring stalemate between two countries and represented a turning point - one largely embraced by the science, research, environmental, and medical communities in the US and Cuba.

In fact there are some nuances to that endorsement. Many scientists and resource managers believe that the US embargo of Cuba has been a two-edged sword for the latter nation. While it has certainly limited economic, social, and cultural contacts between the two nations, it has also indirectly helped environmental protection of Cuba's diverse ecosystems.

Consider, for example, that Cuba, roughly the size of the US state of Florida, hosts only three million tourists per year and mostly practices small-scale, organic agriculture. Florida, in contrast, hosts upwards of 90 million tourists annually, generating more than US\$65 billion in tourism revenue per year.

If, or when, the embargo is eventually lifted in total, Cuba will likely experience a veritable boom in American tourism. The relaxed travel restrictions recently enacted already point to a surge in visitation starting this year from qualifying travelers.

Progressive stance in marine conservation

The Cuban government has historically taken a progressive stance in terms of crafting environmental legislation and managing its natural resources, especially its marine assets. The Cuban government's current goal is to include 25% of the insular shelf in marine protected areas. The existing 108 MPAs in Cuban waters already cover:

- 15% of Cuba's insular shelf;
- 35% of its coral reefs;
- 31% of its seagrass beds;
- 27% of its mangroves; and
- 16 fish spawning sites.

Of these 108 MPAs, 48 have national relevance and the remaining 59 areas have local significance.

Editor's note: The August 2004 issue of MPA News profiled efforts by Cuba's National Center for Protected Areas to establish carrying capacity limits for its protected areas, in light of a potential tourism boom ("Assessing the carrying capacity of MPAs: How many visitors can your MPA hold?", [MPA News 6:2](#)).

Example of an effective Cuban MPA

Most studies addressing the effects of marine reserves on fish assemblages in the Caribbean have focused on relatively small sites, since few large and continuous marine reserves exist in the region. However, in terms of supporting the recovery of large, mobile reef fish populations (like groupers, snappers, sharks, and other commercially targeted species), bigger and older marine reserves may play a more significant role.

Cuba's Jardines de la Reina (Gardens of the Queen) archipelago stretches 360 km in length, about 100 km south of the central Cuban coast. It is composed of more than 650 uninhabited cays and includes a variety of coral reef, seagrass, and mangrove systems. In 1996, the Cuban government set aside 950 km² of the archipelago as a no-take zone, the Jardines de la Reina Marine Reserve - the largest MPA in the Caribbean. There is limited recreational access to the site: only 500 catch-and-release fishermen and 1000 divers are permitted to enter the MPA each year.

After designation of the reserve, commercial fishing efforts relocated outside of it. As with most any large marine reserve, particularly in developing nations, enforcement presents a challenge for the site's limited management budget. Most of the MPA's enforcement activities are concentrated in its central area, where a research station also exists. Some poaching of large, commercially valuable species has been observed along the edges of the reserve.

How effective is this MPA? Fabián Pina-Amargós (of Cuba's Center for Coastal Ecosystems Research) and colleagues studied densities of the ten most frequent, highly targeted, and relatively large reef fish species inside and outside the Gardens of the Queen marine reserve over a period of a year and a half (www.ncbi.nlm.nih.gov/pmc/articles/PMC3932734). They found higher abundance inside the reserve for most months during the study, and five out of these ten species were twice as abundant inside than outside the reserve in the habitats surveyed. Previous studies had found that habitat complexity and major benthic communities were similar inside and outside the reserve, while fishing pressure prior to reserve designation was homogeneous across the archipelago. In light of all this, the current patterns observed can be explained by the effective protection inside the reserve.

Besides this scientific study, less rigorous evidence comes from anecdotes of scientists and tourists who have visited and conducted research in this jewel of a marine reserve. There are swarms of huge groupers, snappers, and sharks in addition to healthy coral stands and mangroves, all of which have largely disappeared elsewhere in the Caribbean.

A future of protecting shared resources

Gardens of the Queen is a success, and should represent a goal for what the US and Cuba could achieve together in joint management of shared resources - once the embargo is lifted and the countries' scientists and conservationists can work together in earnest.

Organisms have always flowed freely from Cuba to the US, depending on healthy habitats on both sides of the Florida Straits, paying no heed to international boundaries or economic embargoes. The need to develop common scientific understanding and cross-boundary policies to protect our shared marine resources has long been clear to both Cuban and American scientists. The recent political thaw between the two countries and the new US policy toward Cuba announced in December 2014 are a great step in the right direction.

Now it is essential that foresight and careful planning stem the potential tide of development, which carries with it possible disastrous environmental consequences. The time is ripe to ensure that protections are established bilaterally before the recently enacted, and soon to be expanded, changes in US travel restrictions result in an enormous wave of tourism, causing dramatically increased beach visitation, boat traffic, fishing, and coastal development.

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