

In Galápagos, Clashes Between Fishers and Managers Jeopardize Conservation Efforts

Dozens of fishers in the Galápagos Islands, angered by resource managers' refusal to expand a lobster quota, rioted in mid-November, looting and destroying buildings including the administrative building of the Galápagos National Park. Eventually halted by military personnel sent from mainland Ecuador, the clashes signaled the continuation of episodes among Galapaguense fishers to use violence to oppose conservation efforts.

Conservation scientists in the Galápagos Islands face the challenge of implementing several initiatives — including a zoning plan to create a network of no-take areas (MPA 1:7) — in an island society that is increasingly trying to benefit from valuable fisheries.

Gold-rush fisheries

Although industrial fishing is banned within the 140,000 sq. km Galápagos Marine Reserve, “artisanal fishing” by locals is still allowed in most of it. The reserve was created in 1998 by the Special Law of the Galápagos, which placed the reserve under the jurisdiction of the National Parks Service. The National Parks Service also oversees the Galápagos National Park.

The mid-November unrest is the latest in a string of serious conflicts dating back to 1992, coinciding with the development of sea cucumber fishing in the archipelago. Efforts by park officials to place restrictions on the sea cucumber harvest in the mid-1990s led to the shooting of one park official and threats to other officials working for the park and for the Charles Darwin Research Station.

Owing to the islands' sea cucumber fishery and a growing, yet illegal, shark-fin fishery, the gross income of the Galápagos fishing sector has skyrocketed in the past few years. The sea cucumber fishery is worth US \$3.5-4.0 million to Galápagos fishermen per annual two-month season, and shark fins are reportedly earning \$100 per shark. With the money to be made, these are boom times for Galapaguense fishers. The number of registered *pepinos* (sea cucumber fishers) in Galápagos rose more than 70% from 1999 to 2000 alone. Many

locals with limited experience in the fishing sector have declared themselves to be fishers, and some fishing cooperatives have accepted them.

What partly sparked the riots in November was a price spike in the value of spiny lobster, which attracted the burgeoning fishing effort to target on that fishery. By some reports, it was possible in the 2000 lobster fishery to earn US \$500/day, compared to perhaps US \$100/day in 1999. Some officials have questioned the US \$500/day figure as an exaggeration; nonetheless, the number of registered divers for lobster in Galápagos jumped from 200 in 1999 to 450 in 2000.

Amid this surge in fishing effort, the national government's quota of 50 metric tons of lobster tails for the four-month season (September to December) was reached by the end of October. Fishers appealed to the local Participatory Management Board — composed of local authorities and representatives from the tourism, fishing, and conservation sectors — but the board reconfirmed the closure in early November.

Following this, from 13-17 November, groups of fishers mobilized and engaged in a number of disruptive activities, including seizing local government and research institutions, kidnapping giant tortoises from a tortoise raising center, and even ramming tourists' dinghies with fishing boats. The private home of Park Director Juan Chavez was invaded and destroyed; gifts of toys and clothes intended for his children were stolen and distributed in the streets.

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On behalf of the staff and editorial board of MPA News, I wish you the best for the new year!

John Davis
Editor

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Galápagos

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Reactions

The recent rioting saddened conservation officials and scientists, who have teamed with local stakeholders in the past half-decade to conduct research and define a marine zoning scheme.

Rodrigo Bustamante, former head of marine research and conservation for the Charles Darwin Research Station during the marine zoning process, placed blame for the violence on a number of factors. He expressed his personal thoughts on the violence — including

reasons for, and possible responses to — in an essay, which MPA has excerpted (see boxes, below and facing page).

Jerry Wellington, a University of Houston (US) coral biologist who has assisted in Galápagos marine planning since the 1970s, said he has observed episodes of violence against Galápagos park wardens dating back decades. He had hoped, however, that a corner had been turned with the recent participatory management efforts. "I had great expectations six months ago," he said. "Then it all of a sudden blew up."

Factors That Led to the Violence

What factors led to November's conflicts in the Galápagos Islands? Rodrigo Bustamante, former head of marine research and conservation at the islands' Charles Darwin Research Station, says the answers are complex. In an essay describing his personal thoughts on the recent situation, Bustamante describes in one passage the primary factors that played formative roles in the clashes. Below, MPA News has reprinted, with permission, that passage from his essay:

"First, the participatory management process requires that decisions agreed during the process must be respected. Law enforcement is then needed, and in the case of Galápagos, has been inadequate. This inadequacy has reinforced the impression among fishers (and some Galápagos politicians) that mobilizing masses for pressure and violence is an acceptable way of achieving outcomes.

"Second, the closure of the lobster season provided a 'good' excuse for some sectors of the fishing community to pressure local authorities about other recent fishing restrictions that attempt to reduce increasing and unregulated impact of fishing on marine species. These restrictions are the banning of the use of long-lines and prohibition of all shark fishing (all species banned or restricted until ongoing negotiations and technical reports are completed).

"Third, not all fishers and fishing communities in Galápagos are the same, nor behave the

same. The majority of the most aggressive and belligerent ones are newcomers (1-5 years in Galápagos), attracted by the 'gold rush' of fisheries for sea cucumbers and shark fin, with no long-term goals or commitments toward conservation and sustainable development. Some are larger and older, others are relatively small and new; but in both cases, unscrupulous seafood dealers and shrewd but shortsighted politicians and community leaders influence and lobby against management and conservation provisions as their political platforms, depicting the authorities as 'oppressors' of the poor fishing communities (with the hope that this will secure them votes for next election!).

"Fourth, despite the advances for conservation in Galápagos, some unresolved issues still remain that are critical for the long-term success of marine conservation. The most important is the lack of detailed regulations of artisanal fishing within the Galápagos Marine Reserve (GMR), overdue since 1998. Because of its slow nature, the participative process has so far failed to define the limits for fisheries growth of numbers of boats and people, nor has it detailed technical specifications and/or dimensions of boats and fishing arts. These are still under ongoing assessments and further negotiations."

[*Note: Bustamante's full essay is on the web, at <http://depts.washington.edu/mpanews/bustamante.htm>.]*

Two years ago, a Galápagos Islands census counted 16,000 people. Although this is widely considered an underestimate in light of recent fishing-related immigration, the size of the community is nonetheless relatively small, and this has led to enforcement difficulties, said Wellington. "The rule of law is weak in the islands, because the law enforcement authorities are so closely tied to the population," he said. "It's a closed community. It's hard to punish your uncle or your grandfather." He said this was why the riots in mid-November lasted for several days, eventually necessitating military intervention.

Roberto Troya, director of the Ecuador program for The Nature Conservancy, said there is also low

credibility for the Ecuadorian government's commitment to enforcement of the Special Law for the Galápagos. With low credibility, there is little public fear of government-led crackdowns, he said.

Troya added that for violence to be averted in the future, locals must be incorporated more effectively in the tourism industry so that they may generate alternative sources of income. It should be noted that the zoning plan includes provisions to develop such economic alternatives, including preferential access for former fishers to new permits for marine tourism activities. 

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Preventing Future Clashes: What Needs to Be Done?

In his essay, Bustamante describes several measures as necessary in order to prevent fisher/manager conflicts from continuing to occur in the Galápagos. These measures are reprinted below, with permission, by MPA News:

- Strengthen and consolidate the participatory management, including renewed efforts to support the weak basis of the stakeholders and to make a real connection between bottom-up and top-down decision-making for management and conservation.
- Help and facilitate the Ecuadorian authorities to publish and implement the special regulations for fishing and its development within the marine reserve.
- Promote and expand the incipient research and understanding of the economic and social drivers that are affecting conservation, with the objective to incorporate the relevant factors into an integrative model for human development guided by the protection and conservation goals for the Galápagos Islands.
- Expand the marine education and awareness programs to all four inhabited

islands, with special attention to local leaders and politicians in order to find a common vision for long-term conservation.

- Initiate a broad-base communication campaign aimed to all fishers to realize that increasing numbers of fishers on cooperative books is not in their interest at all but is only in the interest of the leaders because of the expanded power base.
- Strengthen the fisheries and fishing-independent management of single-species fisheries based on sound demographic approaches incorporating economic and social parameters, and at the same time initiate multispecies approaches to understand the consequences of fishing on other components of the marine ecosystem.
- Increase the protection and monitoring of the no-take area network as the most important management tool for conservation of Galápagos marine biodiversity.

[Note: Bustamante's full essay is on the web, at <http://depts.washington.edu/mpanews/bustamante.htm>.]

US Creates World's Second Largest MPA

President Clinton has designated a vast marine protected area around the coral-laden Northwestern Hawaiian Islands (NWHI) — an MPA that now ranks as the largest protected area (either terrestrial or marine) in the US and the second largest MPA in the world. Clinton's designation of the MPA in early December followed a 90-day public consultation process — ordered by the president last May (MPA News 1:9) — to develop recommendations for increasing protection of the NWHI's coral ecosystems. The NWHI contain nearly 70% of US coral reefs.

The newly created Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve spans 340,000 sq. km (84 million acres). The Great Barrier Reef Marine Park, widely considered to be the world's largest MPA, is only slightly larger at 350,000 sq. km.

The state of Hawaii will retain its jurisdiction out to three nautical miles from the shore of most of the NWHI islands. The new reserve will extend from the seaward boundary of Hawaii state waters to 50 nautical miles from the geographic center of the NWHI chain's islands. The reserve will be overseen by the National Marine Sanctuary Program of the National Oceanic and Atmospheric Administration (NOAA), an agency within the Department of Commerce.

“Reserve preservation areas”

Under Executive Order #13178, by which Clinton created the MPA, the reserve will feature 15 “reserve preservation areas”. Encompassing roughly 16,000 sq. km, or 5% of the reserve, these relatively shallow areas will be off-limits to most commercial and recreational fishing, anchoring, and collecting or touching of coral. The NWHI's existing bottomfishery will be allowed to continue in 8 of the 15 areas. NOAA considers the NWHI's managed bottomfish

species to be healthy, and the number of active vessels in the fishery ranges from 3 to 13 annually.

The remaining 95% of the reserve covers largely deep water areas. In this section of the reserve, all commercial and recreational fishing will be capped at current or recent levels. The effect on fishing activities of this regulation may be limited: pelagic fishing is already prohibited within a 50 nautical mile zone around the NWHI, and a precious corals fishery is not currently active.

Oil, gas, and mineral production in the reserve — though nonexistent in the case of oil and gas, and very limited for minerals — will be banned, as will be any removal of coral throughout the reserve.

The NWHI's approximately 2000-km stretch of coral islands, seamounts, banks, and shoals feature some of the healthiest coral reefs in the US. The vast area supports more than 7000 marine species, of which approximately half are endemic to the Hawaiian Island chain. The Northwestern Hawaiian Islands are mostly uninhabited.

Reserve operations plan to come

Under the executive order, the Secretary of the Department of Commerce must seek public comment on the order's conservation measures (comment period ends 8 January 2001), and develop a reserve operations plan, in consultation with other federal and state officials.

Technically, Clinton's ordered conservation measures — including the reserve preservation areas — are temporary until made permanent by the reserve operations plan. Potentially, some of the reserve preservation areas could remain open to fishing if the Secretary deems such action appropriate.

The Secretary must establish a multistakeholder reserve council to ensure continued input in the ongoing management of the reserve. The council will include representatives from the Native Hawaiian, scientific, environmental, education, fishing, and tourism communities, as well as state and federal officials. In addition, the Secretary is responsible for initiating a process by which the reserve would be considered for future designation as a national marine sanctuary.

Impacts on fisheries

The new reserve may have the effect of shutting down a small, limited-entry fishery for lobster in the NWHI, which has primarily fished in what are now designated the “reserve preservation areas”. The lobster fishery has been somewhat controversial in the NWHI: some environmentalists have accused it of having negative impacts on monk seals. In late 2000, a court shut down the lobster fishery indefinitely due to lack of information on the fishery's impacts on seals.

Roger Griffis, a NOAA policy advisor, said the reserve preservation areas were selected largely for two reasons: they were judged to be the most sensitive coral reef habitats, and they feature foraging and breeding areas for endangered species, particularly monk seals.

Kitty Simonds, executive director of the Western Pacific Fishery Management Council, supports the idea of the

continued on next page

Executive Order on Web

President Clinton's executive order to designate the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve is available on the web, at <http://hawaiiireef.noaa.gov/>.

reserve, but is frustrated with what she sees as its heavy-handed treatment of NWHI fisheries. She favors continuing the lobster fishery, and is concerned that the closed areas would negatively impact the bottomfishery as well.

"Roughly 35% of the bottomfishery would be closed down based on the executive order," said Simonds.

"People figure that the fishermen can just go out further [from the reserve preservation areas] to fish, but there are steep drop-offs. We have no continental shelf."

Integrated management

KAHEA — an alliance of Native Hawaiian activists and cultural practitioners working to protect cultural rights and the environment — is concerned that Clinton's proposed protections may not go far enough. Cha Smith, KAHEA's organizational coordinator, states that the extent to which bottomfishing will still be allowed in some of the closed areas will pose an unnecessary threat to reefs and seals.

"There are only four boats actively fishing in the bottomfishery," said Smith. "One option would be for the government to buy them out." She said enforcement of the new restrictions would be key, and that vessel monitoring systems on all boats entering the reserve — suggested as a management option in the executive order — would be a good idea.

Whatever elements eventually make it into the reserve operations plan, NOAA's Griffis said it would be critical for the federal and state governments to work closely to integrate their coral reef management efforts. Some experts have estimated that Hawaii's waters surrounding the NWHI contain as much coral as the new federal MPA does.

"The state's coral is the shallowest and the most sensitive [in the NWHI]," said Griffis. "We are hoping and anticipating that the state will be an integral partner — our goal is to create a coordinated and seamless management plan." The state of Hawaii initiated its own process in 2000 to determine management priorities for its NWHI waters. 

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Multimedia "Toolkit" Makes Scientific Case for No-Take Reserves

WWF, an international conservation NGO, has published an information package designed to summarize in lay terms the scientific case for no-take marine reserves. Composed of a book, slide show, and overhead presentation, the "toolkit" is geared toward people who need to persuade others of the benefits of reserves. Its objective, as stated in the book's preface, is to speed up the process of translating recent research into the creation of more reserves.

The toolkit, titled *Fully-Protected Marine Reserves*, was created by Callum Roberts and Julie Hawkins of the University of York (UK). They said the idea for the toolkit evolved from their research on reserves in developing countries.

"During this work we have come across many people working to set up reserves, and have been struck by the inadequacy of the background information they have access to," said Roberts. "Most are using papers that are five or more years old. In such a fast-moving field, they are missing out on some of the most powerfully convincing case studies and theoretical advances. We wanted to put the most recent information directly in their hands."

The toolkit's book, *Fully-Protected Marine Reserves: A Guide*, cites more than 150 research papers, including dozens from the late 1990s and several that have not yet been published.

A work in progress

The toolkit aims not only to explain the theory behind no-take reserves but also to serve as a practical guide for planning and managing them. Its 131-page book features a question-and-answer format: each short chapter is designed to answer a question about the theory, planning, or management of reserves (e.g., "What is the evidence for recovery of animal populations in marine reserves?"; "How large should a marine reserve be?"; "How do you assess if reserves are effective?").

The book also features 13 short case studies of noteworthy marine reserves around the world, with lessons learned from each. Said Hawkins of the importance of case studies, "When working to persuade local people that reserves are worth trying, it is the experience of others that really counts."

The entire toolkit is available free of charge for downloading from the WWF website (see box).

Toolkit Available for Free

The *Fully-Protected Marine Reserves* toolkit can be downloaded for free from the website of the WWF Endangered Seas Campaign:

<http://www.panda.org/resources/publications/water/mpreserves/>

Also, hard copies of the toolkit — or the book alone — can be ordered free of charge from WWF Endangered Seas Campaign, 1250 24th Street NW, Washington, DC 20037, USA. Hard copies, however, are in limited supply.

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For more information on the toolkit's content:

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Roberts and Hawkins describe the book as a work in progress — a living text that will be updated regularly on the website with new case studies and sections. They anticipate uploading five or so new case studies a year as they become available.

The toolkit's slide and overhead presentations (with accompanying text) are also available on the website. These presentation materials, said Roberts, would help

summarize the case for reserves in ways that could reach people who don't have scientific backgrounds. "We felt a multimedia toolkit would help fieldworkers put the message out more effectively than a book alone," he said.

Roberts and Hawkins said efforts to translate the book into French and Spanish are underway, and that the translations might be ready in the first half of 2001. 

Coelacanths Discovered in S. African MPA; Tourism to Follow?

The discovery of three rare coelacanths in a South African marine protected area has led the national government to place emergency restrictions on access to the MPA. Officials are now examining how the fishes' presence could be harnessed to increase tourism and research in the area.

On 27 November, recreational scuba divers encountered and videotaped the coelacanths at a depth of 107 meters (351 feet) in the St. Lucia Marine Protected Area, off the east coast of South Africa. This is the shallowest site in the world at which these ancient fish have been found. South Africa is just the third country (after Comoros and Indonesia) in whose waters live coelacanths have been observed.

The species is estimated to be 360-million years old. The World Conservation Union (IUCN) has classified the coelacanth as "vulnerable", meaning it faces a high risk of extinction in the near future. Prior to the discovery of coelacanths in the St. Lucia MPA, scientists believed that the species' preferred habitat was on reefs at depths of 200-600 meters.

Mohammed Valli Moosa, the South African minister of environmental affairs and tourism, said the discovery of the coelacanths presented "major opportunities for research and tourism." Moosa responded to the find by declaring an emergency measure to require special permission from his ministry to dive beyond the 60-meter isobath in the MPA, including with submersible craft. Coelacanths will also enjoy complete protection from fishing, disturbance, and commercial trade in South Africa, unless authorized by the minister.

Colin Attwood, principal oceanographer with Marine and Coastal Management (an agency within the Ministry of Environmental Affairs and Tourism) said the emergency measure would allow the thriving scuba diving industry near the MPA to continue in shallower waters. He called the new regulations "an attempt to protect the coelacanth, establish a proper system of awarding rights to dive charters and researchers, and ensure that the MPA derives benefit from activity related to the coelacanths."

Tourism important for poverty-stricken region

All coral reefs in South Africa are protected in two contiguous MPAs: the St. Lucia MPA and the Maputaland MPA. Established in 1979, the St. Lucia MPA is 73 km long (running north/south along the coast) and extends 3 nautical miles out to sea. The shelf drops off quickly and there are a few canyons, such as the one where the coelacanths were spotted. The MPA's reefs lie relatively deeply, and include an abundance of soft corals.

The objectives of the St. Lucia MPA include conservation, fisheries management, and tourism. No bottomfishing is allowed in the MPA, although pelagic fishing is allowed in certain zones. In general, only sportfishing — mainly trolling — is practiced.

"This is a poverty-stricken area, like much of east Africa," said Attwood. "The revenue derived from scuba, sportfishing, and other recreational activities is an important source of income to the local economy. We are hoping that the coelacanth will put the St. Lucia MPA on the map."

Attwood said he expects the MPA now to be in demand for divers, even though special training is necessary in order to descend to the coelacanths' depth. (The divers who observed the coelacanths were breathing TRIMIX, a mixture of oxygen, nitrogen, and helium.) "We do not know what, if any, tourist industry should be developed to take advantage of their presence," said Attwood. "We suspect that the fish, which may be residents, are sensitive to disturbance, and hence we shall proceed cautiously."

The discovery of coelacanths comes as the national government is encouraging tourism growth in the surrounding region. In a media statement, the Ministry of Environmental Affairs and Tourism said the coelacanth discovery would "add another attraction" to the nearby Greater St. Lucia Wetland Park, South Africa's first World Heritage Site (designated in 1999) and the largest wetland system in the southern hemisphere. The ministry has stated its intent to establish the wetland park as a major international tourism destination. 

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