

La Plata Island: Creating the First Managed Marine Protected Area in the Coast of Ecuador

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Marine-protected areas (MPAs) have become one of the most important tools in protecting marine resources all over the world. These sites provide protection to targeted, endemic, endangered and charismatic species, and allow oceanic habitats to recover and regenerate from intensive exploitation (Gell and Roberts 2003). Despite the importance of these zones, Ecuador has only one “real” MPA (Galapagos) among the 40 protected areas of its national system, demonstrating a prevailing low interest of authorities to preserve the country’s marine ecosystems in the past, a common situation around the globe (Carr et al. 2003). However, in the last two years the interest in Ecuador to design and create participative MPAs has increased. The process of MPAs development in the country can be summarized in two stages. The first stage occurred in the four decades following the creation of Ecuador’s first protected terrestrial zone in 1959. During this period only one protected marine area has been developed, the Machalilla National Park (1979), until 1998 when the Galapagos Marine Reserve became a worldwide symbol for the marine conservation (Davos et al. 2004). Recently, a second stage started and the situation has taken a startling and hopeful turn of events: in 2007 alone, four new MPAs were proposed and the following year, the Galeras protected marine area was created (2008). This positive trend, however, does not signify that a solution has been found for the nation’s historical neglect of marine ecosystems; effective management of old and new MPAs has yet to be implemented.

La Plata Island: Study area

In 2006, Terán et al. examined the state of coastal environments in Ecuador, establishing the priorities for conservation. Based on these analyses the marine area of the Machalilla National Park was selected as the study site for a proposal that aims to combine biological, social and economic criteria to consolidate the first managed MPA in the continental Ecuadorian waters. The Machalilla National Park protects 55.000 hectares, including a two-mile ocean belt along the coast and two major islands (Figure 1). Once this site was selected, a local marine conservation and science NGO, Equilibrio Azul developed a feasibility analysis was developed. The results of 146 interviews with fishermen indicated a positive response (72%) towards closing off selected zones in order to allow the ocean to recover from continuous and intensive fishery use.

Considering the results of the analyses and the available resources, Equilibrio Azul decided to focus its efforts on a specific zone within the national park boundaries. La Plata Island was selected as the most important site of the area

not only for its biodiversity but also for its wide touristic appeal. With 14 km² this continental island is the biggest in Ecuador. La Plata Island remains an ideal study site for the following reasons: 1) the size of the area will allow us to use the available resources in order to implement the selected objectives; 2) the island is uninhabited and has a permanent presence of authorities; 3) the size of the selected area will facilitate the enforcement of agreements reached with fishermen; 4) it has been considered that closing the area will not affect fisheries negatively because fishing in this area is not profitable with the actual rates of capture.

The majority of the studies developed in La Plata Island are merely species inventories that do not describe the ecosystem and its processes. Therefore, in mid-2008 several species, populations and habitats were selected as conservation indicators within the Island, thus launching one of the most important research programs of the Island with the Ministry of Environment of Ecuador that includes: 1) tagging of marine turtles; 2) banding of marine birds; 3) photo-identification of manta rays; 4) a coral reef monitoring program with permanent transects; 5) the installation of telemetry stations (Vemco VR22) to study migratory patterns and habitat use; 6) a new assessment of the Island's flora; 7) GPS tagging of waved albatrosses; 8) an eradication program for introduced species; and 9) the installation of a weather station on land and temperature loggers to correlate environmental conditions with biological data.

The preliminary results of the implemented activities have identified the Island as a key site in terms of marine biodiversity not only for Ecuador, but also for the entire region considering the presence of migratory species. Study results indicate that La Plata Island: 1.) is a mantaray (*Manta birostris*) aggregation site; 2.) represents the most important nesting and aggregation area for black turtles (*Chelonia mydas*) in Ecuador; 3.) is the most important nesting site on the coast of Ecuador for blue-footed (*Sula nebouxii*), nazca (*Sula granti*) and red-footed (*Sula sula*) boobies; 4.) has the most significant of coral patches of Ecuador (*Pavona* sp., *Pocillopora* sp); 5.) is the only nesting site, besides the Galapagos, for the waved albatross (*Phoebastria irrorata*), a critical endangered species; 6) Goat introduced population was eradicated from the Island in 2008.

Even though the ecological and economical importance of La Plata Island, the lack of understanding and knowledge of La Plata Island's natural processes, along with the effects of fishing and illegal activities, make it a heavily threatened ecosystem in need of urgent attention. This project aims to provide evidence of the benefits resulting from the creation and sustainable use of marine protected areas and integrate this concept into Ecuador's management of fisheries (Helvey 2004). The project has seen strong participation from various environmental authorities of Ecuador and it has been requested that the project be expanded to Santa Clara Island, located near Ecuador's southern border.

References

Carr M.C., , J.E. Neigel , J.A. Estes, S. Andelman, R.R. Warner, and J.L. Largier. 2003. Comparing marine and terrestrial ecosystems: Implications for the

- design of coastal marine Reserves. *Ecological Applications* 13: 90-107.
- Davos C.A, K. Siakavarab, A. Santorineoub, J. Side, M. Taylord, P. Barriga. 2004. Zoning of marine protected areas: Conflicts and cooperation options in the Galapagos and San Andres archipelagos. *Ocean and Coastal Management* 50 : 223-252
- Gell F.R., and Roberts C.M.. 2003. Benefits beyond boundaries: the fishery effects of marine reserves. *Trends in Ecology and Evolution* 18: 448-453.
- Helvey M. 2006 Seeking Consensus on Designing Marine Protected Areas: Keeping the Fishing Community Engaged. *Coastal Management*. 32:173–190.
- Terán, M.C., Clark K., Suárez C., Campos F., J. Denkinge y D. Ruiz, y P. Jiménez, P. 2006. Análisis de Vacíos e identificación de áreas prioritarias para la conservación de la biodiversidad Marino-costera en el Ecuador Continental. Resumen Ejecutivo. Ministerio del Ambiente. Quito-Ecuador.

Figure 1. La Plata Island, Machalilla National Park. Manabí-Ecuador

