

EVALUATION REPORT

Malpelo Fauna and Flora Sanctuary Colombia

Location: South Pacific

Global Ocean Refuge Status: Nominated (2017), Evaluated (2017)

MPAtlas.org ID: 3803

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1.1 Eligibility Criteria: Biodiversity Value (must satisfy at least one)

- a. *Includes area of high species richness or endemism within the context of the biogeographic region.*

Ocean currents and upwelling converge within the Malpelo Fauna and Flora Sanctuary, leading to productive, diverse and unique coral reef and pelagic ecosystems. Documented marine wildlife in the sanctuary includes 17 marine mammal species, six marine reptiles, 394 fishes, and 115 echinoderms, 182 crustaceans, and 393 mollusks.¹ The single, 0.35 km² island within the sanctuary is home to unique species of birds and other terrestrial flora and fauna. The total area of the sanctuary is 8,575 km², making it the largest no-take zone in the Eastern Tropical Pacific.²

Malpelo Island and the surrounding sanctuary waters are 380 km off the coast of Colombia.³ This isolation has led to a high level of endemic terrestrial species. Additionally, the ecosystems within the sanctuary remain largely undisturbed, allowing them to flourish. There have been documented reports of two invasive species, the crown-of-thorns starfish (*Acanthaster planci*) and the snowflake coral (*Carijoa riisei*), but monitoring data has shown no significant impact on conservation targets.⁴

The sanctuary is one of the only places in the world with confirmed sightings of the smalltooth sand tiger shark (*Odontaspis ferox*).⁵

- b. *Includes demonstrated historic or predicted ecological refugia.*
- c. *Includes rare, unique, or representative ecosystems.*

The known endemic marine fauna consists of five fish species and two sea star species. Endemic species on Malpelo Island include three reptiles, and one arthropod.⁶

- d. *Includes area important for threatened species (including those identified by the IUCN Red List or national legislation), keystone species, or foundational species. Important areas include migration pathways and breeding, nursery, feeding or assembly areas.*

The sanctuary is a known shark breeding area, hosting endangered whale and hammerhead sharks (*Rhincodon typus*, and *Sphyrna* spp., respectively) as well as 9 other threatened shark species.⁷ There are also 6 threatened marine mammal species and 5 threatened turtle species in the sanctuary, along with “many other endangered bird[s],

¹ Paola Rojas Malagón, Manager of Malpelo Sanctuary, personal communication, July 18th, 2017.

² UNESCO. (2006). *Malpelo Fauna and Flora Sanctuary*. Retrieved June 2017 from <http://whc.unesco.org/en/list/1216>.

³ Paola Rojas Malagón, Manager of Malpelo Sanctuary, personal communication, July 18th, 2017.

⁴ Paola Rojas Malagón, Manager of Malpelo Sanctuary, personal communication, July 18th, 2017.

⁵ Brodzinsky, S. (2011). Shark massacre reported in Colombian waters. *The Guardian*. Retrieved June 2017 from <https://www.theguardian.com/environment/2011/oct/19/shark-massacre-colombia>.

⁶ Paola Rojas Malagón, Manager of Malpelo Sanctuary, personal communication, July 18th, 2017.

⁷ Paola Rojas Malagón, Manager of Malpelo Sanctuary, personal communication, July 18th, 2017.

fish, and corals that appear on the IUCN Red List,⁸ including the Galapagos petrel (*Pterodroma phaeopygia*) and the Goliath grouper (*Epinephelus quinquefasciatus*).^{9,10,11}

e. Qualifying designations

Important Bird Area: Within the sanctuary there is a 10 km² Important Bird Area.¹²
Hope Spot¹³

1.2 Eligibility Criteria: Effective Management & Compliance (must satisfy all)

- a. The MPA is designated by a legitimate and functional government representing the interests of civil society, and the MPA's implementation meets the IUCN standards for recognizing indigenous peoples' rights.*

A Colombian Ministerial Resolution designated Malpelo Island a Flora and Fauna Sanctuary in 1995. In 1996, the sanctuary was extended to include the waters up to 11 kilometers from the island. The sanctuary was expanded to its current size in 2005 by a new Ministerial Resolution.¹⁴

There have never been any permanent residents in or around the sanctuary,¹⁵ so indigenous peoples' rights have not required recognition in the implementation of this sanctuary.

- b. The MPA is designated to enhance the biodiversity value of the site.*

The management plan identifies conservation of biodiversity as the primary aim of the sanctuary.¹⁶

- c. The MPA designation is permanent or is effective for at least 25 years.*

The designation is permanent.¹⁷ Experts have recently been evaluating the current sanctuary boundaries, with the intention of expanding them to include the ecologically important Malpelo and Yurupari sea mounts.¹⁸

⁸ Whitley Fund for Nature. (2011). *Sandra Bessudo – Community and governmental involvement in shark conservation in the Malpelo World Heritage Site, Columbia*. Retrieved June 2017 from <https://whitleyaward.org/winners/shark-conservation-malpelo-world-heritage-site-colombia/>.

⁹ UNESCO. (2006). *Malpelo Fauna and Flora Sanctuary*. Retrieved June 2017 from <http://whc.unesco.org/en/list/1216>.

¹⁰ <http://www.iucnredlist.org/>

¹¹ Paola Rojas Malagón, Manager of Malpelo Sanctuary, personal communication, July 18th, 2017.

¹² <https://maps.birdlife.org/marineIBAs/default.html>

¹³ <https://www.mission-blue.org/hope-spots/>

¹⁴ UNESCO. (2006). *Malpelo Fauna and Flora Sanctuary*. Retrieved June 2017 from <http://whc.unesco.org/en/list/1216>.

¹⁵ UNESCO. (2006). *Malpelo Fauna and Flora Sanctuary*. Retrieved June 2017 from <http://whc.unesco.org/en/list/1216>.

¹⁶ Murillo Bohórquez, N., et al. (2015). *Plan de Manejo del Santuario de Fauna y Flora Malpelo*.

- d. *A management plan, updated within the last 15 years, identifies and prioritizes significant threats to biodiversity and addresses those threats with measurable actions; the resources and capacity to implement the management plan are identified and secured.*

A comprehensive management plan was published in 2005, and an update was published in 2015. The sanctuary is part of the larger Marine Conservation Corridor of the Tropical Oriental Pacific, which includes MPAs in Costa Rica, Panama, Colombia, and Ecuador. As such, there was concerted effort to coordinate the management plans between the various parks. The objectives of the Corridor are to conserve biodiversity and marine resources, establish a regional brand that facilitates management, encourage stakeholder participation in management, and improve overall protection and management of the involved MPAs.¹⁹ In addition to the other MPAs in the Corridor, Malpelo also collaborates with the Colombian Navy, National Parks, Conservation International, and the Malpelo Foundation in areas of research and enforcement.²⁰

The stated conservation objectives of the sanctuary are: 1) Protect and understand the biodiversity of the terrestrial ecosystems of Colombia's only Pacific island that forms a part of the marine corridor in the region, one which is rich in endemism, 2) Protect and understand the biodiversity of the marine ecosystems, contributing to the conservation of populations of migratory and commercially valuable species, as well as endemics and species in risk of extinction, and 3) Conserve the environmental services linked to ecotourism activities. There are plans and success indicators for short-, medium- and long-term activities relating to each conservation objective, utilizing the AEMAPPS tool.^{21,22}

Various risks to the sanctuary are identified and ranked based on intensity, extent, and persistence. The only threat categorized as "high" is illegal fishing. "Medium" level threats include illegal dumping and waste disposal, invasive species, unauthorized tourism, regional urban development, natural disasters, and rising ocean temperatures. "Low" level threats include ocean acidification and atmospheric anomalies. The sanctuary management team categorized these threats into eight overarching "pressures", and then chose to prioritize the four most influential of those eight pressures for more in-depth solutions. These "management priority situations" are illegal fishing, tourism, invasive species, and sea surface temperature anomalies (related to climate change). For each of these management priorities, the plan delineates management opportunities, institutional responsibilities, desired outcomes, and local, regional, national, and international activities.²³

¹⁷ UNESCO. (2006). *Malpelo Fauna and Flora Sanctuary*. Retrieved June 2017 from <http://whc.unesco.org/en/list/1216>.

¹⁸ Paola Rojas Malagón, Manager of Malpelo Sanctuary, personal communication, July 18th, 2017.

¹⁹ Murillo Bohórquez, N., et al. (2015). *Plan de Manejo del Santuario de Fauna y Flora Malpelo*, p. 41.

²⁰ Sandra Bessudo, Executive Director of the Malpelo Foundation, personal communication, July 1st, 2017.

²¹ Murillo Bohórquez, N., et al. (2015). *Plan de Manejo del Santuario de Fauna y Flora Malpelo*, p. 73.

²² Paola Rojas Malagón, Manager of Malpelo Sanctuary, personal communication, July 18th, 2017.

²³ Murillo Bohórquez, N., et al. (2015). *Plan de Manejo del Santuario de Fauna y Flora Malpelo*, p. 91.

Risks to the execution of the management plan are also identified, including finances, institutional coordination, illegal fishing, bureaucratic delays, implementation issues, disruptions of public order, and the isolated location of the sanctuary.²⁴

- e. *Regular monitoring of habitat and/or wildlife is conducted to measure progress with respect to conservation targets.*

A report of monitoring data is required at each GLORES audit after designation. Any negative biological trends identified through monitoring must be addressed in management plans. Progress toward identifying threats and addressing them must be documented.

The National Parks Administration and Malpelo Foundation have collaborated to do three week-long scientific research expeditions in the sanctuary every year, with the goal of monitoring the established conservation objectives. These expeditions collect data on seabird population density, benthic coral cover, reef fish diversity and abundance, sea urchin abundance, coral reef health, and populations of indicator fish species. Scientific interest in the area has increased since it was officially designated a sanctuary, and the sanctuary has established research partnerships with at least seven universities and institutions. Particular areas of research include coral reef health, molecular biology, island ecology, herpetology, and ornithology. There is also a meteorological station on the island in the sanctuary that collects data on atmospheric conditions.²⁵

- f. *The MPA garners high regulation compliance rate. Evidence of adequate resources and capacity (including budget and staff) for enforcement is required.*

The responsibility for enforcement is shared between the National Navy and the National Natural Parks Administration. A recent increase in Navy presence has led to an 85% reduction in illegal fishing infractions. Of the boats caught fishing illegally, only 15% were registered in Colombia as opposed to foreign countries, suggesting that local support for the sanctuary is high. The Colombian Maritime Authority has employed satellite monitoring of all fishing vessels and ships greater than 25 tons since 2006, allowing the restriction of access into the sanctuary.²⁶ The MPA's managers characterize enforcement of regulations in the park as active and consistent.²⁷

The average yearly budget of the sanctuary was \$101,287 USD for 2011-2017. The budget is broken down as follows, on average: 49% regulation enforcement, 4% administrative development, 12% operations maintenance and improvement, 11% research, and 24% staff salaries. The average yearly staff for the sanctuary includes four salaried employees and three contractors. A significant portion of the sanctuary's funding

²⁴ Murillo Bohórquez, N., et al. (2015). *Plan de Manejo del Santuario de Fauna y Flora Malpelo*, p. 155.

²⁵ Murillo Bohórquez, N., et al. (2015). *Plan de Manejo del Santuario de Fauna y Flora Malpelo*, p. 52.

²⁶ Murillo Bohórquez, N., et al. (2014). *Plan de Manejo Santuario de Fauna y Flora Malpelo: Documento de propuesta para la reformulación del plan 2014-2018*, p. 40.

²⁷ P.A.R. Malagón, Manager of Malpelo Sanctuary. Personal communication, July 5, 2017.

is provided by the Malpelo Foundation, an NGO which specifically funds scientific expeditions and environmental education.²⁸

2.1 GLORES Award Status Criteria: Regulations

Scores 1-3 = Platinum, 3-4 = Gold, 4-5 = Silver

Classification and scoring (1-8) of zones based on fishing gear, bottom exploitation, aquaculture, and boating.

The overall regulations score for Malpelo Fauna and Flora Sanctuary is 2.67.

The entire 8,575 km² area of the sanctuary is a no-take zone. There are, however, six distinct management zones that differ slightly in their allowable activities. Two of those zones cover the terrestrial portions of the island, and four zones cover the marine area surrounding the island. Portions of both the terrestrial and marine habitat are closed completely to human activity, while other portions allow controlled tourism and vessel passage. All zones allow permitted research and monitoring activities, image capture for personal use, and passage of authorized vessels less than 500 tons. Starting from the interior of the island and working out, the zones are Terrestrial Intangible, Terrestrial General Recreation, Marine General Recreation, Marine Primitive 2, Marine Primitive 1, and Marine “Buffer”. In calculating the regulations based classification MPA score, we have considered only the four marine zones.²⁹

There are four registered tourism operators in the sanctuary, two from Panama and two from Colombia. Tourists, dive operators, and vessels passing through the sanctuary must pay entrance fees ranging from \$9 to \$54 USD. An average of 234 scuba divers per year visit the sanctuary, for an average sanctuary income of \$61,814 USD from entrance fees alone.³⁰

Marine General Recreation Zone (54.32 km²)

Zone Score: 2

Number of fishing gear types allowed: 0

Fishing gear impact score: 0

Bottom exploitation & aquaculture index: 0

Anchoring & boating index: 1 Boating is permitted, though tourism is limited to one boat of 25 people or less per day. Mooring buoys are available, and anchoring is not allowed.

Marine Primitive 2 Zone (493.93 km²)

Zone Score: 1

Number of fishing gear types allowed: 0

Fishing gear impact score: 0

Bottom exploitation & aquaculture index: 0

Anchoring & boating index: 0 Vessels less than 500 tons may pass through with previous

²⁸ P.A.R. Malagón, Manager of Malpelo Sanctuary. Personal communication, July 5, 2017.

²⁹ Murillo Bohórquez, N., et al. (2015). *Plan de Manejo del Santuario de Fauna y Flora Malpelo*, p. 16, 112, 120, 129-130.

³⁰ Murillo Bohórquez, N., et al. (2014). *Plan de Manejo Santuario de Fauna y Flora Malpelo: Documento de propuesta para la reformulación del plan 2014-2018*, p. 47.

authorization, but may not anchor.

Marine Primitive 1 Zone (909.11 km²)

Zone Score: 1

Number of fishing gear types allowed: 0

Fishing gear impact score: 0

Bottom exploitation & aquaculture index: 0

Anchoring & boating index: 0 Vessels may pass through with previous authorization, but may not anchor.

Marine “Buffer” Zone (7117.64 km²)

Zone Score: 3

Number of fishing gear types allowed: 0

Fishing gear impact score: 0

Bottom exploitation & aquaculture index: 0

Anchoring & boating index: 2 Anchoring is partially regulated throughout this zone.

2.2 GLORES Award Status Criteria: Site Design and Management

3 Attributes = Platinum, 2 Attributes = Gold, 1 Attribute = Silver

- a. *Size: MPA \geq 100 km² or explicitly designed as part of a network of MPAs to support population connectivity*

The sanctuary is 8,575 km².³¹

- b. *Isolation: Ecological or other protected area buffers surround ecosystem(s)*

The island and nearshore waters allow tourism but greatly restricted boat access. Within the sanctuary, boating access increases the farther away you get from the island, with smaller vessels being allowed closer than larger ones.³²

- c. *Age: Protections in the site, comparable to the current protections, are \geq 10 years old*

The site has been protected since 1995.³³

- d. *Community engagement: There is a formal process to engage the local community in the implementation and/or ongoing management of the MPA.*

A small portion of the management plan is dedicated to stakeholder involvement and its role in adaptive management. The plan indicates that the sanctuary currently has a “medium degree” of participation from local stakeholders, which is identified as an area of potential improvement. There is evidence that the stated conservation goals of the

³¹ Murillo Bohórquez, N., et al. (2015). *Plan de Manejo del Santuario de Fauna y Flora Malpelo*, p.52.

³² Murillo Bohórquez, N., et al. (2015). *Plan de Manejo del Santuario de Fauna y Flora Malpelo*, p. 47.

³³ Murillo Bohórquez, N., et al. (2015). *Plan de Manejo del Santuario de Fauna y Flora Malpelo*, p. 15.

sanctuary align with those of the surrounding communities. However, the managers cite the sanctuary's geographical isolation as a possible explanation for low stakeholder participation. The area is hard to access and has not historically been used heavily, so local communities may not feel a strong sense of connection or ownership. There are no specific actions listed in the management plan that aim to increase stakeholder involvement, but the overall language indicates that it is an important consideration for managers.³⁴

3.1 GLORES Network Priorities: Replicate Ecosystem Representation

The sanctuary encompasses a remote equatorial Pacific island (0.35 km²) and its surrounding waters (8,574.65 km²). The island of Malpelo itself is the tip of a submerged, dormant volcano. The tropical marine ecosystems found in the sanctuary include coastal, pelagic, and benthic habitats, with barnacle-dominated rocky cliffs surrounded by sandy substrate and coral reefs that support 400 species of fish. The ecosystems in the sanctuary are particularly productive thanks to the regional confluence of currents and upwelling. The sanctuary is an aggregation site for pelagic fish, mammal, and turtle species.³⁵

The Global Ocean Refuge System is in its inaugural year. As a result, the ecosystems protected by Malpelo Fauna and Flora Sanctuary will be the first of their kind within the region to be represented in a Global Ocean Refuge.

3.2 GLORES Network Priorities: Ecological Spatial Connectivity

The Global Ocean Refuge System is in its inaugural year. As a result, there are no other Global Ocean Refuges in the region with which to consider the ecological spatial connectivity contribution of Malpelo Fauna and Flora Sanctuary.

In future GLORES award cycles, we will describe the location of the MPA within the context of the existing GLORES network, considering connectivity.

³⁴ Murillo Bohórquez, N., et al. (2015). *Plan de Manejo del Santuario de Fauna y Flora Malpelo*, p. 76.

³⁵ Murillo Bohórquez, N., et al. (2015). *Plan de Manejo del Santuario de Fauna y Flora Malpelo*, p. 26.