



The Endowment Fund and the financial sustainability of the Malpelo Flora and Fauna Sanctuary, Colombia

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Introduction

Malpelo Flora and Fauna Sanctuary (FFS) is the only protected area in Colombia's national park system that has its own separate and dedicated fund through the Endowment Fund in addition to government resources. This makes it the only national park that has been able to diversify available funds in this way. By not relying on a single source of funds, the MPA has been able to reduce financial risks and also ensure the conservation of hammerhead sharks, humpback whales, leatherback and ridley turtles, and birds such as cormorants, boobies, and pelicans.

This document explores the history of the financing mechanism for Malpelo FFS, taking into account the governance of the protected area, challenges with respect to exchange rates and securing additional funds, in order to eventually ensure that the protected area meets its conservation objectives and goals. This document provides valuable lessons and information for donors and organizations hoping to develop sustainable financing mechanisms.



Photo: Romain Troublé

1. Introduction to Malpelo - Description, Management, and Financing

1.1. Description of Malpelo FFS

The Malpelo Marine Sanctuary (Malpelo FFS) is a marine protected area (MPA) located 500km west of the city of Buenaventura on the Pacific coast of Colombia. It was initially established in 1995 under Colombia's National Natural Parks (PNN) system and was expanded progressively in 1996, 2002, 2005, 2017 and 2022. The most recent expansion in 2022 expanded the MPA from 26,679km² to its current size of 48,151km² (Resolución 0669, Ministerio de Ambiente y Desarrollo Sostenible, 2022; Parques Nacionales Naturales de Colombia, 2015), making it one of the largest MPAs in the country.

It is located in the Eastern Tropical Pacific, one of the most productive ocean regions in the world (Enright et al., 2021). In other words, this area of the world provides several ecosystem services. For example, commercial fishing (food production) is valued at about US\$2 billion per year, and other important economic benefits include carbon storage and tourism (Enright et al., 2021). Malpelo FFS is a globally important MPA that protects endangered, endemic, and highly migratory species, including several species of sharks. The sanctuary was awarded UNESCO World Heritage Site status in 2006 for its importance to marine biodiversity. The abundant marine life makes it a destination of great interest for specialized recreational diving, which takes place around the island on tourist boats.

Malpelo is an MPA where all forms of fishing are prohibited. The authorities' capacity for monitoring, control and surveillance has improved in recent years, but illegal fishing, especially by foreign vessels, remains a frequent threat.

1.2. Management Structure and Relevant Actors

The Malpelo FFS is managed by PNN, the entity in charge of the administration of the protected area, together with the support of the private organizations Malpelo Foundation and Biodiversity Conservation Colombia (BCC) for the implementation of the management plan. The PNN also has the support of the Colombian Navy for control and surveillance of the area, including direct interdiction of illegal fishermen when necessary.

The Malpelo Foundation is a private non-profit organization founded in 1999 to support the government in the conservation of the Malpelo FFS. The foundation's objectives include scientific monitoring of biodiversity, environmental education, and audience awareness-raising, as well as managing relationships with other stakeholders, including ecotourism companies and the Colombian Navy, and external fundraising.

Biodiversity Conservation Colombia (BCC), a private non-profit organization created in 2016, joined more recently. BCC, with the financial support of the Griffiths family, purchased and operates the boat "Silky", which supports the monitoring and surveillance activities. This vessel remains within Malpelo FFS for extended periods lasting several months or more in order to facilitate daily tours, and it is operated jointly by BCC and PNN personnel.

1.3. Structure and Financial Sustainability of Malpelo FFS - Results of Previous Investigations

****This section is mainly based on the results of Bohorquez (2021) (Bohorquez, 2021). The results primarily reflect the status of the MPA up to 2019, with financial analyses drawn from data between 2015 and 2018 and updated with data provided by Fondo Acción.**



Photo: Sandra Bessudo

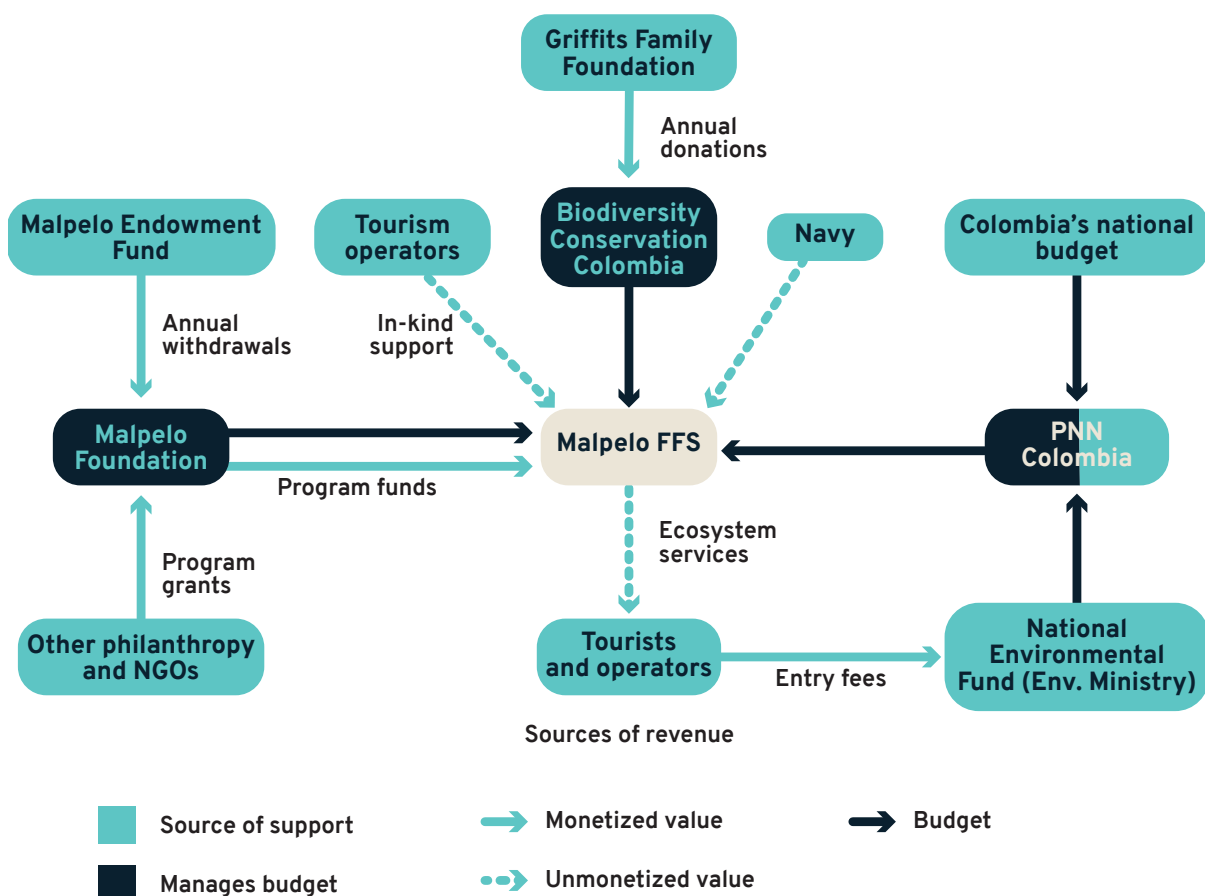


Figure 1: Flow chart of the financial structure of Malpelo FFS

Description	Total (COP\$)	Total (US\$, 2018)	Percentage allocation
Personnel	750,148,622	253,797	50.7%
Fuel	76,753,002	25,968	5.2%
Equipment	164,717,399	55,729	11.1%
Infrastructure	60,416,221	20,441	4.1%
Others	146,704,092	49,634	9.9%
TOTAL	1,198,739,337	405,568	81.0%
Scientific monitoring	143,789,300	48,648	9.7%
Communication and education	-	-	0.0%
TOTAL	143,789,300	48,648	9.7%
Office supplies	9,389,891	3,177	0.6%
Travel	35,799,395	12,112	2.4%
Events	13,119,541	4,439	0.9%
Others	78,890,575	26,691	5.3%
TOTAL	137,199,401	46,419	9.3%
GRAND TOTAL	1,479,728,038	500,635	

Table 1: Composite budget with allocation of expenditure for the operation of Malpelo FFS. Combination of PNN, Malpelo Foundation and BCC budgets. The expenditure groups correspond to the analysis of J. Bohórquez for the MPAs of Latin America and the Caribbean.

Malpelo FFS has a range of funding sources, including PNN, the Endowment Fund, the Malpelo Foundation, Biodiversity Conservation Colombia (BCC) and various international co-operation and philanthropic sources (Figure 1). The contributions of each source to the total MPA operating budget vary from year to year. Historically, most of the expenditure came from the Endowment Fund through the managing entity Malpelo Foundation, until BCC arrived and became the organization with the largest annual budget of all in 2018. It is important to explain that Bohórquez's estimates do not include data for PNN or the Endowment Fund after 2018, or for BCC after 2019. PNN's budget has been increasing in recent years, and focuses on long-term operating expenses. Finally, these estimates also do not include additional grants raised by the Malpelo Foundation that are independent of the Endowment Fund's support for operations.

To correct for volatility between years, Bohórquez (2021) estimated an operating budget for Malpelo FFS that adjusted expenditure based on observed trends and capital expenditure, or other expenditure that is not incurred every year (Table 1). For Malpelo FFS, it was a total of US\$500,635.00 (2018), or about COP\$1,479,729,168. Bohórquez then calculated that Malpelo FFS requires an additional 40.5% – 71.7% per year, a financial gap of approximately US\$202,869.82 – US\$359,056.92. The above figures are the result of consultations with the following sources of information:

- i. Surveys and interviews with stakeholders from PNN, the Malpelo Foundation, BCC, and Fondo Acción,
- ii. Internal documents such as AEMAPPS reports and the management plan, and
- iii. Two commonly used algorithms for estimating costs based on AMP area (Balmford et al., 2004; Gravestock et al., 2008).

Information sources (i) and (ii) estimated the existing funding gap prior to the expansion in 2017. Algorithms (iii) then calculated additional long-term operating costs of 25.5% – 37.4% per year to adjust for the expansion of the sanctuary area from 8,575 to 26,679km².

According to the investigation, additional funds are needed to cover personnel costs and PNN equipment. Additional maintenance was also required for the vessel operated by Biodiversity Conservation Colombia that supports the surveillance and control activities. These and other results are explained further on in the financial sustainability and recommendations chapters.

Malpelo FFS has generated substantial revenue from tourist entrance fees (totaling US\$175,000 in 2018). They are charged to visitors, guides, and vessels (scuba diving live-

aboard vessels) with fluctuating rates based on national or foreign status. These revenues go into the pooled fund, the National Environmental Fund¹ of the Ministry of the Environment, which is then reallocated across various programs in the ministry, including the national parks system (Figure 1). However, even if not directly reinvested in Malpelo, income of this type generated by the MPA remains an important part of the overall planning and financial sustainability of the National System of Protected Areas (SINAP). In-kind support from tour operators and the Navy also helps to offset financial needs in ways that are explained below.

According to Bohórquez's financial research (2021), there are several recommendations for improving the financial sustainability of Malpelo FFS, which include:

1. Updating the management plan to include the financial planning and budgetary needs for dealing with the 2017 expansion, which had not been anticipated in the management plan available in 2019.
2. The MPA could conduct a willingness to pay study to help identify the most efficient price for park entrance fees and possibly increase tourism revenues.
3. New financial mechanisms could also be implemented to raise additional funds for the MPA, including:
 - a. Taxes levied on industrial fishing and other economic activities in other parts of the territorial seas of the Colombian Pacific.
 - b. Private investment, mainly debt financing from impact investment groups.²
 - c. Debt-for-nature swaps, which could provide financing at the national level (Silver and Campbell, 2018).
 - d. Blue bonds, potentially combined with debt-for-nature swaps, for financing at the national level (Smith, 2019).

These recommendations, along with additional analysis and recommendations carried out for the Endowment Fund, are presented in more detail in subsequent chapters.

1 The National Environmental Fund (FONAM) finances the execution of activities, studies, research, plans, programs and projects of public use and social interest that are aimed at strengthening environmental management; the preservation, conservation, protection, enhancement and recovery of the environment; and the proper management of renewable natural resources and sustainable development.

<https://www.minambiente.gov.co/planeacion-y-seguimiento/fondo-nacional-ambiental-fonam/>

2 The majority of these types of investments were for tourism in a way that also supports the sanctuary's operating expenses. For example, the businesses of the Blue Finance group <https://blue-finance.org/>.



Photo: Yves Lefevrè

2. Introduction to the Malpelo Endowment Fund

2.1. Summary

In the context of the overall management and finances of Malpelo FFS, this document primarily evaluates the importance and contributions of the Endowment Fund to the financial sustainability of the MPA. The results provide recommendations for the management of the fund and could also be a valuable input for other MPAs. Much of the assessment is based on the results of Bohorquez (2021), who conducted a comprehensive study of the financial sustainability of Malpelo FFS, as well as three other MPAs in Colombia and two in other countries.

Until 2022, Malpelo FFS was the only protected area in Colombia's national park system with a dedicated and independent funding source in the form of the Malpelo Endowment Fund. The Endowment Fund was formed as a joint initiative between the Colombian organization Fondo Acción and the international NGO Conservation International (CI). Planning began in 2004, when Fondo Acción and CI committed US\$2.5m each to capitalize the fund with US\$5m in 2006. 2009 was the fund's first year of operation, with plans to distribute approximately COP\$400,000,000.00 per year.

The Malpelo and Other Marine Ecosystems Foundation (Malpelo Foundation) is the main recipient of these funds, and in turn depends on the Endowment Fund to finance its core operating budget. The Malpelo Foundation is a non-profit organization that mainly supports PNN in the implementation of the protected area's management plan in the areas of research, scientific monitoring, ecotourism, outreach, environmental education, and control and surveillance of Malpelo FFS. This includes helping to maintain relationships between

the different actors involved in the management of the protected area, including the Colombian Navy and tourism operators. The Malpelo Foundation is also responsible for raising additional funds, mainly from philanthropic sources, to cover expenses associated with monitoring and scientific research. Many of these Malpelo Foundation activities, supported by the Endowment Fund, are integral to the long-term financial sustainability of Malpelo FFS, as explained below.

2.2. Performance of the Endowment Fund

The Malpelo Foundation's annual operations are supported primarily by the Malpelo Endowment Fund (Figure 1), a \$5 million endowment fund capitalized by Conservation International and Fondo Acción, with resources from the Walton Family Foundation and the US-Colombia debt-for-nature swap known as the Americas Initiative, respectively. In the first year (2009) the fund withdrew and distributed US\$190,472, equivalent to a payout ratio of 3.8% of the assets under management. In exceptional cases, resources from the Endowment Fund were used to support some of PNN's activities. The Malpelo Foundation has also raised funds through grants from a wide variety of NGOs and philanthropic foundations, primarily for scientific monitoring. These resources qualified as programmatic funding and were not included in Bohorquez's compilation of the operating budget .

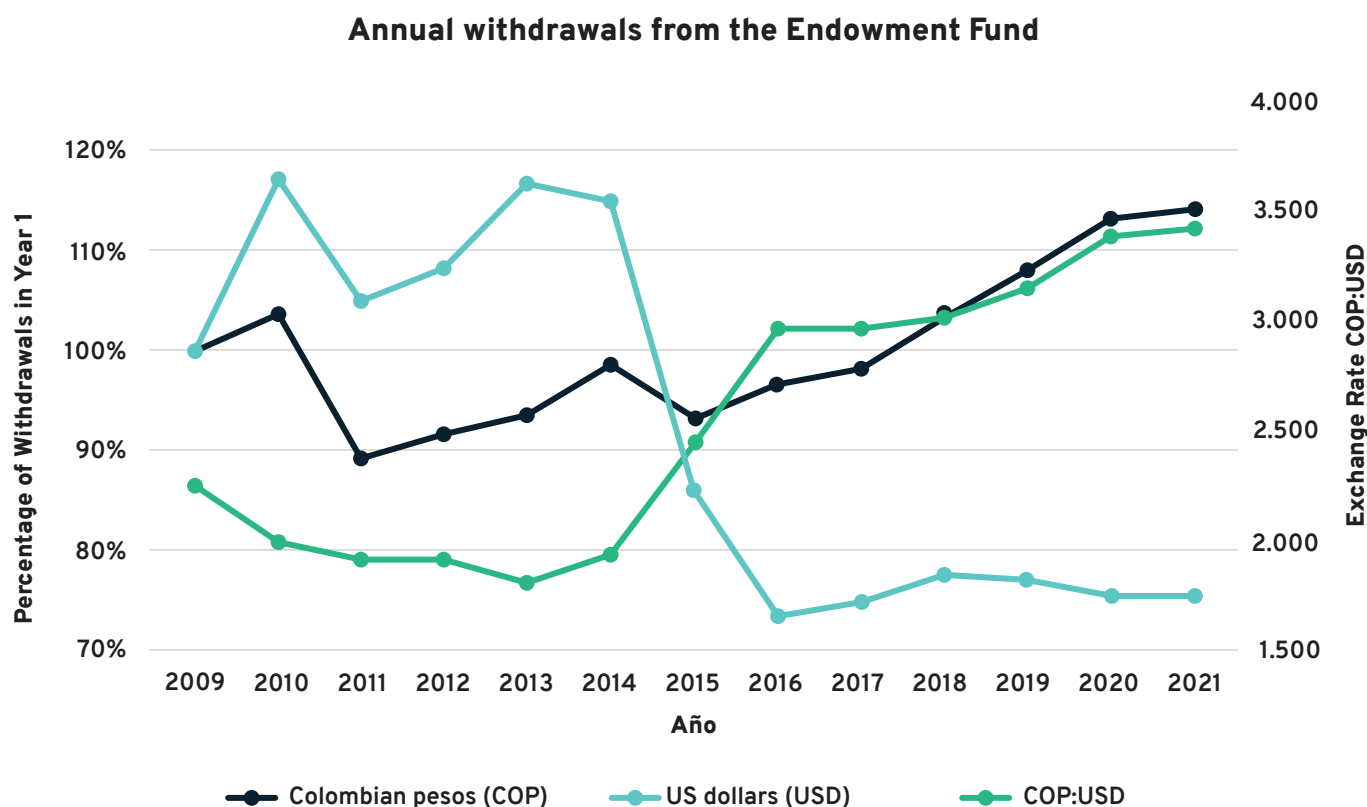


Figure 2: Change in withdrawals from the Malpelo Endowment Fund in COP and USD, between 2009 (year 1) and 2021 (year 13). The exchange rate is the annual average. Data from the World Bank.

Annual withdrawals from the Endowment Fund (COP)

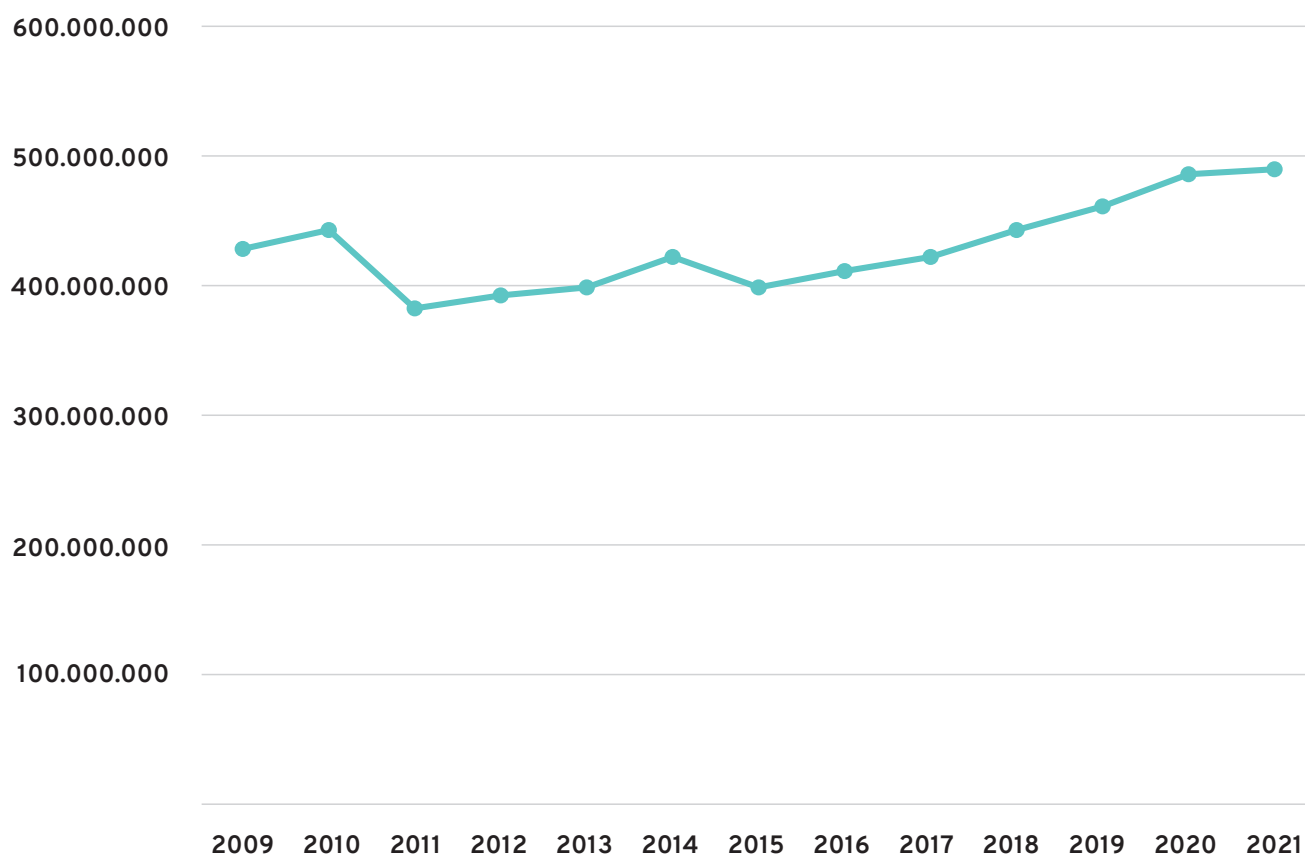


Figure 3: Annual withdrawals from the Endowment Fund (COP)

Assets under management of Malpelo Endowment Fund

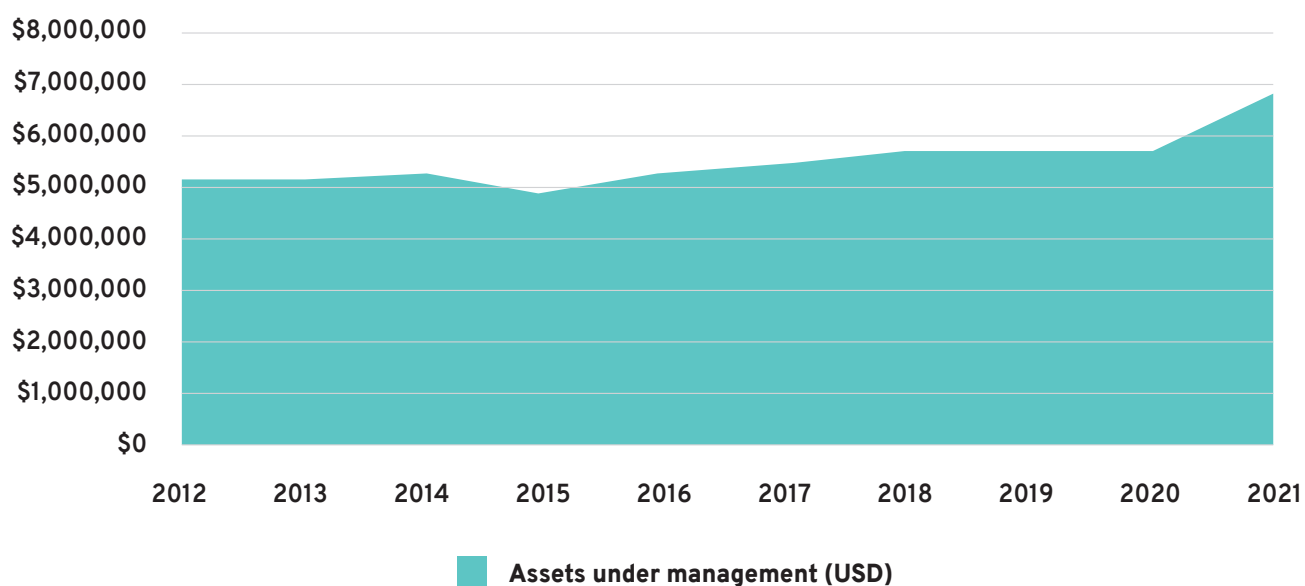


Figure 4: Assets under management of the Malpelo Endowment Fund, 2012 – 2021 (USD).

	Average annual growth rate	Standard deviation	Maximum	Minimum	Average annual inflation
End. Fund 2009 – 2021	1.28	5.43	5.65	-14.03	3.95
End. Fund 2015 – 2021	3.48	1.67	5.65	0.90	4.18
End. Fund 2011 – 2018	2.24	3.50	5.65	-5.53	3.94
PNN 2012 – 2018	28.35	63.05	124.29	-37.15	3.59

Table 2: Changes in distributions from the Endowment Fund to the Malpelo Foundation for different time periods, and for PNN's annual budget for Malpelo SFF (FONAM and PGN). All numbers are in percentages. Average annual inflation represents the annual inflation rate in Colombia (from the World Bank) for the same time period, according to the GDP deflator.

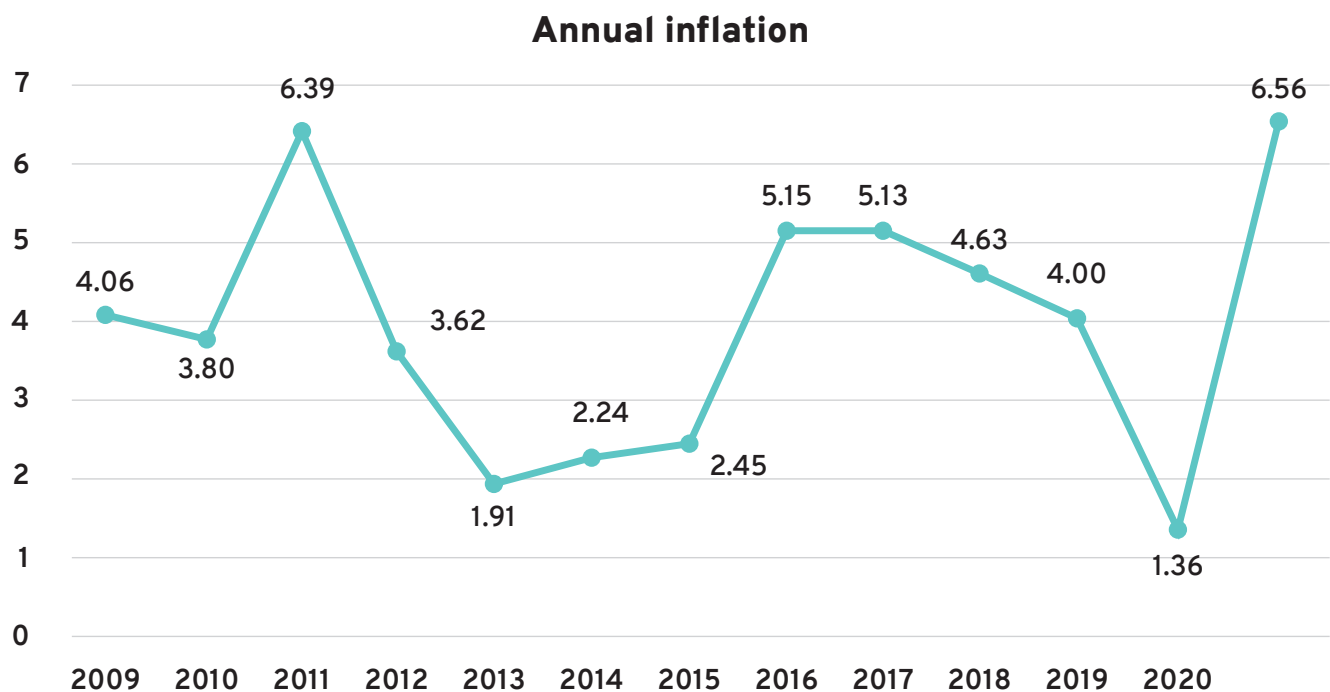


Figure 5: Annual inflation in Colombia from 2009 to 2021 (percentage). World Bank data for inflation according to the GDP deflator.

The Malpelo Endowment Fund is a fund managed internationally in US dollars (USD), as established in the operating manual of the Malpelo Endowment Subaccount and the investment policy of the Fondo Acción equity portfolio³, whose investments are 100% sustainable⁴. The Malpelo Endowment Subaccount is part of the equity portfolio of the Americas Initiative Account managed by Fondo Acción. The withdrawals, which correspond to the

³ Fondo Acción Equity Portfolio Investment Policy <https://fondoaccion.org/wp-content/uploads/2020/11/DA-MA-O2-Politica-de-Inversiones-Portafolio-Patrimonial-V4-julio-28-firmada.pdf>

⁴ 100% sustainable investment portfolios <https://fondoaccion.org/2021/08/12/portafolios-de-inversion-100-sostenible-2/>

yields of the endowment fund, are allocated to the Malpelo Foundation in Colombian pesos (COP) due to the existence of a cooperation agreement between the public entity in charge of the protected area, PNN, and the NGO that supports the implementation of the management plan. Like other environmental endowment funds, the Malpelo Endowment Fund was designed to withdraw around 4% of its assets under management per year, based on an annual operating plan, to enable the fund to provide support in perpetuity. Capitalized with US\$5 million, the fund initially distributed around US\$190,000 in 2009, equivalent to COP\$429,198,829 and 3.8% of assets under management.

Figures 2 and 3 and show the performance of the Endowment Fund from its creation in 2009 to 2021. During that time, the fund's distributions in Colombian pesos increased by an average of 1.28% per year, below the annual inflation rate of 3.95% for the same time period (Table 2, Figure 5). There has been some regular volatility in the fund's distributions, with minimum annual growth of -14.03% in 2013 and a maximum of 5.65% in 2014, and a total standard deviation of 5.43%.

According to Bohorquez's 2021 research, two factors have influenced the volatility of fund distributions year-over-year. First, the performance of the international financial market coupled with the performance of the financial manager. Until 2014, poor investment performance contributed to the decline in account equity and required adjustments to annual distributions in order to fund the operating plan of the FFS.

Second, volatility in the value of the Colombian peso has also positively and negatively impacted the fund's performance and ability to support the Malpelo Foundation (Figure 2). The strengthening of the Colombian peso against the US dollar from 2009 to 2013 resulted in distributions in USD being more than 10% higher than in 2009, even though the fund was distributing amounts below the budget in COP. Since 2014, the opposite has occurred. The devaluation of the Colombian peso has allowed the fund to meet its COP distribution targets at a discount of more than 20% since 2015. Combined with improved management and good performance in the global financial market, this trend allowed the fund to recover its initial capital and reach total assets under management of \$7.4 million USD by the end of 2021.



Photo: Sandra Bessudo

3. Contributions of the Malpelo Endowment Fund to the Sanctuary's Financial Sustainability

3.1. Significant and secured funds



Figure 6: Annual financial resources provided for the Malpelo FFS; PNN, the Endowment Fund (executed by the Malpelo Foundation), and BCC. PNN and BCC data are from Bohorquez (2021). There was no data for PNN in 2009, 2010 and between 2019–2021. The first year with BCC funds was 2018 and there was no data for 2020 and 2021. Endowment Fund data was provided by Fondo Acción for this report in 2022.

Malpelo Flora and Fauna Sanctuary (FFS) is the only protected area in Colombia's national park system that has its own separate and dedicated fund through the Endowment Fund in

addition to government resources. This makes it the only national park that has been able to diversify available funds in this way. By not relying on a single source of funds, the MPA is in a good position to minimize financial risks. This type of fund diversification is critical to the long-term financial sustainability of MPAs (Bovarnick, 2008; Cumming et al., 2021; Meyers et al., 2020; Phua et al., 2021), and it has been further supported by BCC's available funds.

The Malpelo Endowment Fund, through its support for the Malpelo Foundation, contributes directly to Malpelo FFS's financial sustainability and towards increasing, diversifying, and improving the constant provision of the financial resources needed to manage the sanctuary.

Since its establishment in 2009, it has provided significant funds in the order of US\$2.3m to support the implementation of the Malpelo FFS management plan based on a public-private cooperation agreement between PNN and the Malpelo Foundation. For its part, the Malpelo Foundation has made a significant effort to obtain complementary funds valued at US\$2.9m. As the administrator of the protected area, PNN has allocated more than US\$1.5m for the core activities of administration, operation and maintenance. The arrival of the BCC organization in 2018 enabled the financial and management capacity of Malpelo FFS to be increased considerably through the purchase and maintenance of the boat 'Silky', as well as through crew and management personnel (Figure 6).

In addition, the Endowment Fund guarantees the provision of funds for the implementation of the long-term management plan. The Endowment Fund has been the most consistent source of funding for Malpelo FFS since 2009. For the 2011–2018 period, Endowment Fund allocations increased steadily at a rate of 2.24% with a standard deviation of 3.50% (Table 2). The funds allocated from PNN to the sanctuary have increased at a higher rate during the same period (28.35% on average) but have been less consistent, with a standard deviation of 63.05%, due to decreases of up to 37.15% in some years. However, the annual operating plan for 2022 includes a PNN budget of COP\$689,579,829, indicating that PNN has continued to increase its investment in Malpelo FFS in recent years. With regard to BCC, as a new organization that has only been operating for four years it is not yet possible to statistically evaluate the long-term dynamics of this source. But it has maintained its goals to support the sanctuary's objectives.

3.2. Indirect Benefits for Financial Sustainability

3.2.1. The involvement of PNN

One of the most important characteristics of the Malpelo Endowment Fund is a commitment established with PNN at the time of the fund's creation. In order for Malpelo FFS to receive resources from the Endowment Fund, the funds must be complementary to government resources and cannot replace them. This means that the government must maintain its support for Malpelo FFS, including management activities and financial commitments. According to Bohórquez (2021), this has been a key legal measure for those moments when communication between the Endowment Fund and PNN has been weaker, and when PNN had the aim of optimizing the distribution of resources for the management of protected areas. As a result, the Endowment Fund not only provides direct support to Malpelo FFS through investments that enable the implementation of the management plan but, in the legal provisions contained within it, it also provides incentives for public investment, thus making an even greater contribution to overall financial sustainability.

3.2.2. Supporting the management and collection of complementary funds

The agreements between PNN, the Malpelo Foundation and BCC are known as public-private partnerships. The previous chapters have described numerous benefits of these systems, including facilitating the implementation of alternative financing mechanisms and promoting accountability for meeting objectives among stakeholders (Clifton, 2003; Living Oceans, 2014; Sumaila et al., 2021). As private organizations, the Malpelo Foundation and BCC also have the power to independently raise external funds using alternative mechanisms to those available to public authorities.

For example, one of the Malpelo Foundation's key objectives, with which it has historically been very successful, is raising programmatic funds, which have a fixed duration for individual projects, from private donors and international governments (multilateral and bilateral), up to \$1,149,965,353 COP in 2010 and a total of US\$2.9m since 2009. These funds have primarily supported scientific monitoring efforts, among other activities, which are important for the management of the MPA. By financing the Malpelo Foundation's activities, the Endowment Fund also facilitates the necessary conditions for raising these additional funds.

In this context, coordinated work between public and private organizations provides opportunities for MPAs to achieve better financial sustainability while maintaining and encouraging the participation of state entities. In the case of Malpelo, the MPA can miti-

gate financial risks by having greater diversity of funding sources, which is key to achieving long-term financial sustainability. The inter-institutional coordination structure envisaged by PNN allows the Endowment Fund to contribute to the development of complementary financing mechanisms to improve financial sustainability, some of which were proposed by Bohorquez (2021) and are discussed in the recommendations section of this document.

3.2.3. Supporting Inter-institutional Coordination

MPA management requires effective collaboration among stakeholders and inter-institutional coordination that enables financial sustainability to be achieved. This includes coordination between the different entities and ensuring that they are working in alignment towards known objectives, defined in the MPA management plan.

For example, PNN rangers do not have the logistical capacity (equipment and training) or the legal authority to directly intercept violators, including boarding illegal fishing vessels, confiscating illegal catch, and other direct interventions if necessary. For this reason, the Colombian Navy has been indispensable to Malpelo and many other MPAs in Colombia. Other examples of external coordination and assistance include in-kind support from tour operators who transport personnel and equipment, help collect tourism revenues for the sanctuary, and provide information on sightings of boats that may be carrying out illegal activities in the protected area. Through these activities, interagency coordination and collaboration contribute to financial sustainability by increasing the management capacity of MPAs that have limited budgets by reducing some expenses related to the direct management of MPAs. Malpelo is an example of an MPA that has benefited greatly from this to expand its management capacity.



However, when coordination and collaboration between authorities and stakeholders is lacking, financial resources may be used inefficiently. For example, in Bohórquez (2021), one of the sources reported that funds for Malpelo FFS may have been used inefficiently in previous years because the relevant actors operated independently instead of coordinating, which could have generated gaps and duplication in management, control and surveillance activities.

The objectives of the Malpelo Foundation include dialogue with the different institutional and local actors, especially tour operators and the Navy. In Bohórquez (2021), the Malpelo Foundation was recognized for helping to improve relations between the Colombian Navy and PNN from 2016 onwards; before this they were less positive, and now official communication and coordination mechanisms are in place. These activities of the foundation, which depend on the resources of the Endowment Fund, are of great importance for the sanctuary's financial sustainability, especially for surveillance and control activities for illegal fishing, the most damaging pressure on biodiversity in the sanctuary (Parques Nacionales Naturales de Colombia, 2015). In this way, these efforts, along with resource mobilization and interinstitutional coordination, are vital to the conservation of species that are harmed by illegal fishing in the sanctuary.



Photo: Yves Lefevrè

4. Opportunities and Recommendations

4.1. The Endowment Fund

The Malpelo Endowment Fund has been fundamental to the financial sustainability of Malpelo FFS, particularly by fostering inter-institutional coordination in a public-private partnership between PNN and the Malpelo Foundation. Investments in this objective must continue.

There are new actions that the Endowment Fund could take to further improve the financial sustainability of Malpelo FFS. By way of context, due to a more favorable exchange rate, the Endowment Fund has been able to withdraw the same amount in pesos for a lower amount in dollars in recent years. For example, withdrawals have increased consistently since 2015, but in dollar terms withdrawals in 2016–2021 were 20–30% lower than the withdrawals initially budgeted for in 2009 (Figure 2). The fund is managed internationally in U.S. dollars. Therefore, from the fund's point of view, it has achieved the budgetary requirements in COP due to a discount in USD.

In addition to these factors, the Endowment Fund has benefited from better financial management since 2014, as well as strong financial market performance in recent years. The combination of all these variables resulted in assets under management increasing to a record US\$7.4m by the end of the 2021 fiscal year. With this amount of assets under management and a hypothetical withdrawal rate of 4% under conservative assumptions for trust funds (Dahiya and Yermack, 2019; Neely and Brister, 2010), the Endowment Fund could theoretically increase distributions to almost US\$300,000 per year, or a sum of about COP\$1,156,000,000,000. This would be more than double the fund's 2021 budget for the Malpelo Foundation of COP\$490,858,744.

This does not mean that it is absolutely necessary for the Endowment Fund to increase its annual withdrawals, and a decision was made to reduce the annual amount in order to strengthen the fund's capital for the long term. But it suggests that the fund has the ability to increase annual withdrawals, and these options should be evaluated. Potential risks to increasing distributions may include volatility in global financial markets, with financial markets performing exceptionally well until 2021 but falling more than 20% in 2022. However, the recommendation by financial experts for a long-term annual withdrawal rate of ~4% usually already takes these risks into account (Dahiya and Yermack, 2019; Neely and Brister, 2010). The other risk is possible changes in the value of the Colombian peso and the exchange rate. The strengthening of the COP against the USD could reduce the purchasing power of the fund. But if the weakening of the COP continues, it may increase the purchasing power of the fund again.

In addition, before increasing withdrawals, any expenditure requiring additional funds must also be identified. In Bohórquez (2021), the most important financial needs for Malpelo FFS were personnel, equipment, and fuel, especially for PNN. But these expenses are outside the objectives of the Endowment Fund. Also, it is important for any support to be on top of PNN resources and not as a substitute for government funds.

Alternatively, instead of increasing distributions, the Endowment Fund could save surplus funds and use them to pay for capital expenditures.

4.2. Malpelo FFS in General

Malpelo FFS has undergone several changes in recent years that have required a review of its financial strategy. First, the 2017 expansion of the MPA from approximately 9,000km² to 27,000km², despite being an important and valuable addition, was not done in accordance with a revised management plan. Bohórquez (2021) estimated that the expansion requires a budget increase of 25% – 37%. In June 2022, President Iván Duque announced the expansion of Malpelo to 48,151.14km² (Ministerio de Ambiente y Desarrollo Sostenible, 2022; PNN Colombia, 2022). Using the same methodology as Bohórquez (2021), operating expenses would increase by an additional 12.5% – 18.0% with this new area, totaling 41% – 62% more than when the sanctuary was 9,000km² in size. According to the analysis of Bohórquez et al. (2021), the financial gap would increase to between US\$291,053.77 – US\$513,615.44 (58% – 103% more than current 2018 funds).

A new Herencia Colombia (HECO) initiative was recently launched, providing US\$245m to support the National System of Protected Areas (SINAP) in Colombia. This initiative follows

the Project Finance for Permanence (PFP) model led by a coalition between the Government of Colombia and the following partners: Natural Heritage Fund, The Gordon and Betty Moore Foundation, Conservation International, the Wildlife Conservation Society, and the World Wildlife Fund (WWF). The expansion of Malpelo, and other MPAs in the Eastern Tropical Pacific region such as the Yurupari–Malpelo National Integrated Management District (DNMI), will be supported by financial resources from this program (Bonvoy, 2022). The agreement includes US\$7,957,252 for Malpelo FFS over 10 years. At an average of \$795,725 USD per year, these funds will be enough to close the financial gap for the sanctuary for the next decade.

In addition to the above, a multinational agreement for MPAs in the Eastern Tropical Pacific was announced in November 2021 during the COP26 global congress in Glasgow (Scotland). In June 2022, the Blue Nature Alliance also obtained US\$150m for conservation in the Pacific regions of Colombia, Ecuador, Panama, and Costa Rica. Many of the new or expanded areas of this initiative in Colombia and the region's countries are close to or border the boundaries of Malpelo FFS.

New resources from HECO and the Blue Nature Alliance can help to close the funding gap for Malpelo FFS, provided that there is a concrete strategy and management plan. All groups should focus on ensuring that these funds are used in an efficient manner, and with an expected and measurable impact. In addition, new or recently expanded MPAs in the Pacific region open up a new opportunity to improve the financial sustainability of Malpelo FFS in several ways.

PNN is assigned management responsibility for Yuruparí, which provides an opportunity to consolidate the resources over a larger area. The new or expanded areas in Costa Rica,



Panama and Ecuador also present additional opportunities to invest in maintaining relationships and inter-institutional coordination. Other case studies in Bohórquez (2021), especially Corozal Bay in Belize, have had success with this by coordinating effectively with neighboring MPAs within Belize and in Mexico. Examples of such coordination that have benefited financial sustainability include conducting joint patrols, sharing equipment or resources when necessary, and frequent communication or data sharing between actors regarding offenders and potential threats. Similar opportunities should be investigated for Malpelo FFS.

HECO resources, although very substantial, are only available for a fixed ten-year period. Over the next ten years, it will be important to research and implement strategies for securing additional resources to support the sanctuary beyond this timeframe.

Malpelo FFS has generated tourism revenue from entry and mooring fees for dive boats and their clients. However, a willingness to pay study has not been conducted. These studies can be valuable in ensuring that efficient fees are set for MPAs (Peters and Hawkins, 2009; Thur, 2010). This type of research can estimate a more efficient price to maximize revenue from this source. Although these revenues are collected by FONAM, they are important for the financial sustainability of the Ministry of the Environment and the entire PNN system.

Bohórquez (2021) also described some possible alternative financial mechanisms for Malpelo FFS. This includes earmarked taxes from other activities that benefit the conservation of marine biodiversity in the sanctuary. One example is commercial fishing in other areas of the Colombian Pacific, mainly industrial tuna fishing. If it is demonstrated that these fisheries have the potential to benefit from MPAs in the region due to scientific research, through a surplus of fish stocks within the area, it is possible that some of that added value could be returned for investment in MPAs through taxes or other similar mechanisms (Aburto-Oropeza et al., 2011; O’Leary et al., 2018; Sala et al., 2013). There are many examples of raising funds from the fishing sector for marine conservation in Europe, Asia, Oceania and other places that can help to direct strategies in Colombia (OECD, 2017; Rush and Solandt, 2017; Spergel and Moye, 2004). Typically, the most lucrative strategies are to sell permits giving foreign vessels the right to fish, like in Kiribati in the Pacific where historically they have raised more than US\$60m per year (Blackwell et al., 2013; Emerton et al., 2006; Gillett et al., 2001).

The new territory of Malpelo FFS also includes a marine traffic route (PNN Colombia, 2022). There may be options regarding transit fees for vessels passing through that route.

A third option is to raise funds from the hydrocarbon sector. Colombia is one of only six countries in the world that have specific laws for the allocation of compensation for the loss of marine biodiversity, focused on offshore hydrocarbon exploration and exploitation (Ministerio de Ambiente y Desarrollo Sostenible, 2012; Niner et al., 2017). In Colombia, these activities mainly occur in the Caribbean Sea, and do not yet exist in the Pacific. But if this happens in the future, it could represent an opportunity to raise funds with this strategy.

Colombia's water rates system for national parks in paramo ecosystems and its national carbon tax on fossil fuels are similar mechanisms that have provided financial support to PNN. So, there exists the power and political infrastructure for these types of alternative mechanisms for financing protected areas.



Photo: Yves Lefèvre

5. Conclusions

The funding gap remains a major challenge for MPAs worldwide (Deutz et al., 2020; Gill et al., 2017). Making financial sustainability a reality is especially difficult for MPAs that are very large, remote and far offshore, such as Malpelo FFS (Walsh et al., 2021). In general, these MPAs rely on traditional financial sources such as philanthropy and foreign and domestic governments, and have fewer options for alternative mechanisms of tourism, blue carbon, parametric insurance and other examples (Bohorquez et al., 2022; Iyer et al., 2018; Meyers et al., 2020).

However, Malpelo FFS has strong financial sustainability compared to other ocean MPAs. The endowment fund has ensured secure funds for more than ten years, and supports the sanctuary in other indirect ways. With good management, the fund can continue to support the sanctuary in this way for the long term. And because it has been managed in a very prudent manner in recent years, the possibility exists of extending annual withdrawals to support new objectives.

Nonetheless, it is important to find new funds to close the current financial gap, which is growing with the expansion of the sanctuary in recent years. The research and report by Pew Charitable Trusts, “Funding the Big Blue,” is a good guide for understanding the options available to ocean MPAs in general (Walsh et al., 2021). Also, the results of Bohórquez (2021) provide customized recommendations for Malpelo FFS that are summarized in this report.

Today, as one of the most important ocean regions for marine biodiversity in the world, the Eastern Tropical Pacific is a focus of attention for various international initiatives by NGOs, multilateral groups, and other organizations. This provides many opportunities to raise

funds now and in the future. The HECO and Blue Nature Alliance initiatives are the result of international interest in biodiversity in the region. The commitments of these initiatives will hopefully be implemented in the coming years, which would provide critical resources for the sanctuary for the next ten years or more and close the financial gap.

During this time, it is possible that the field of protected area financing will continue to develop with new mechanisms that have so far been limited to theoretical application, and which will be better established in the future. These may include mechanisms that, according to Bohórquez (2021) and “Funding the Big Blue”, generate funds from actors and economic sectors in or near Malpelo FFS, including fishing, marine transport, and hydrocarbons. These activities and opportunities should be continuously monitored for possible implementation in Malpelo.

6. References

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