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PERSPECTIVE

Fulfilling global marine commitments; lessons learned from Gabon

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Abstract

As part of the Post-2020 Biodiversity Framework, nations are assessing progress over the past decade in addressing the underlying drivers that influence direct pressures on biodiversity and formulating new policies and strategies for the decade to come. For marine conservation, global marine protected area (MPA) coverage is still falling short of the 10% target set in 2010. Here we show that while this reflects a lack of progress in many low- and middle-income countries, a few of these nations have met or exceeded international commitments. To provide an in-depth explanation of how this was achieved in Gabon, we summarize the lessons learnt by our consortium of policy makers and practitioners who helped implement a comprehensive and ecologically representative network of 20 MPAs. We show the importance of creating a national framework, building long-term stakeholder support, and focusing on research that guides implementation and policy; and outline a four-step approach that countries and donors could use as an example to help meet international commitments. By responding to calls to share lessons learned to inform future Convention on Biological Diversity targets, we show how Gabon's experiences could inform change elsewhere.

KEYWORDS
Aichi biodiversity targets, conservation optimism, Convention on Biological Diversity, Gabon, marine policy, marine protected areas, Post-2020 Biodiversity Framework, protected area targets

1 | INTRODUCTION

Our oceans contain a wealth of biodiversity and play a critical role in supporting local livelihoods and ecosystem services (Barbier, 2017). Anthropogenic activities, however, are fundamentally altering many of these marine systems, leading to dramatic declines in biodiversity and ocean health (Halpern et al., 2015; WWF, 2020). The international

community has responded through a number of global commitments; most notably the Convention on Biological Diversity (CBD) Aichi Biodiversity Target 11 and Sustainable Development Goal (SDG) 14.5, which urge nations by 2020, to protect at least 10% of the world's oceans, in a manner consistent with national and international law and based on the best available scientific information (O'Leary et al., 2016). As a result of government action, the global coverage of marine protected areas (MPAs) has increased from 2 million km^2 in 2000 to 28.6 million km^2 in 2020, equivalent to 7.9% of the global ocean (UNEP-WCMC et al., 2020). However, far less progress has been made in ensuring that these protected areas: (1) safeguard the most important areas for biodiversity; (2) are ecologically representative and well connected; (3) are integrated into the wider landscape and seascape; and (4) are equitably and effectively managed (CBD, 2020a; Cockerell et al., 2020). Similarly, efforts vary at the national scale, as while some high-income countries have protected 10% of their national waters (Figure 1a), much of this growth has been driven by these countries designating large MPAs in their overseas territories, 10 of which are >800,000 km^2 and account for 65% of global coverage (UNEP-WCMC et al. 2020).

In contrast, low- and middle-income countries (hereafter collectively referred to as lower-income countries) have been much slower at establishing new MPAs (Figure 1a). This could stem from these countries preferring to support locally managed marine areas or other effective area-based conservation measures (OECMs), as these are largely missed in global reporting on conservation area coverage (Alves-Pinto et al., 2021; S. L. Maxwell et al., 2020). However, most of these countries have also not made any commitments to increase MPA coverage (Figure 1b), despite the CBD targets allowing for increases in the extent of locally managed MPAs and OECMs. This is concerning because lower-income countries represent the majority of coastal nations, so meeting global targets will require refocusing national and international efforts to increase action where it is most needed.

One often-cited constraint for addressing biodiversity loss is funding, as most nations under-spend on conservation and this is more acute in lower-income countries (McClanahan & Rankin, 2016; Waldron et al., 2013), where conservation is often viewed as a cost rather than a driver of social and economic development. However, in the last decade, this has become less of a limiting factor because many philanthropic foundations, trusts, and international development agencies have prioritized support for MPA projects in countries that are eligible to receive official development assistance (ODA). These projects need to align with the priorities of the ODA country governments and the people they represent, helping them achieve their different conservation and development commitments rather than solely following an externally driven agenda that can lead to a conflict between stakeholders (Aburto et al., 2020). Thus, to better inform future efforts to transform ocean governance, we need examples that identify the enabling factors that can underpin changes in environmental policy and action under this new funding paradigm. Here, in the light of calls to share lessons to inform the Post-2020 Biodiversity Framework (CBD, 2018a, 2018b, 2020b), we explain how one lower-income country—Gabon—implemented policies that underpinned a comprehensive marine zoning plan that accounts for a range of stakeholder needs and surpasses international commitments (Figure 2).

2 | MARINE CONSERVATION IN GABON

Protected area creation is a relatively recent phenomenon in Gabon (Laurance et al., 2006), with the government creating a terrestrial national park system in 2002 that covered 10% of the country to protect intact landscapes and globally important populations of many species (Figure 2). This initiative did not cover the marine environment though, despite Gabon's marine Exclusive Economic Zone (EEZ) being similar in size to its terrestrial area. To address this, the national parks agency, Agence Nationale des Parcs Nationaux (ANPN), developed long-term formal partnerships with other national agencies, international research institutions, nongovernmental organizations (NGOs), and the private sector (Table S1). The arrival of external funding through these partnerships resulted in increased investment in applied marine conservation and research projects between 2005 and 2012 (Figure 3a). While these projects mostly focused on sea turtles and marine mammals, they were primarily directed at strengthening institutional capacity through training and mentoring, building the scientific evidence base, and addressing key knowledge gaps regarding species spatial distribution and ecology, population statuses, and threats. Outputs from these projects were instrumental in building scientific credibility and raising awareness of the country's marine biodiversity nationally and internationally. The former through scientific reports and publications (e.g., Maxwell et al., 2011; Witt et al., 2009), and the latter through media campaigns, social events and actions (i.e., sea turtle days, beach clean-ups) and new opportunities (e.g., whale watching and sea turtle nesting tours).

Following a national marine scientific expedition in 2012 that was attended by the President of Gabon, there was growing awareness within government that many marine species and ecosystems lacked effective management and protection, and were facing significant pressure from

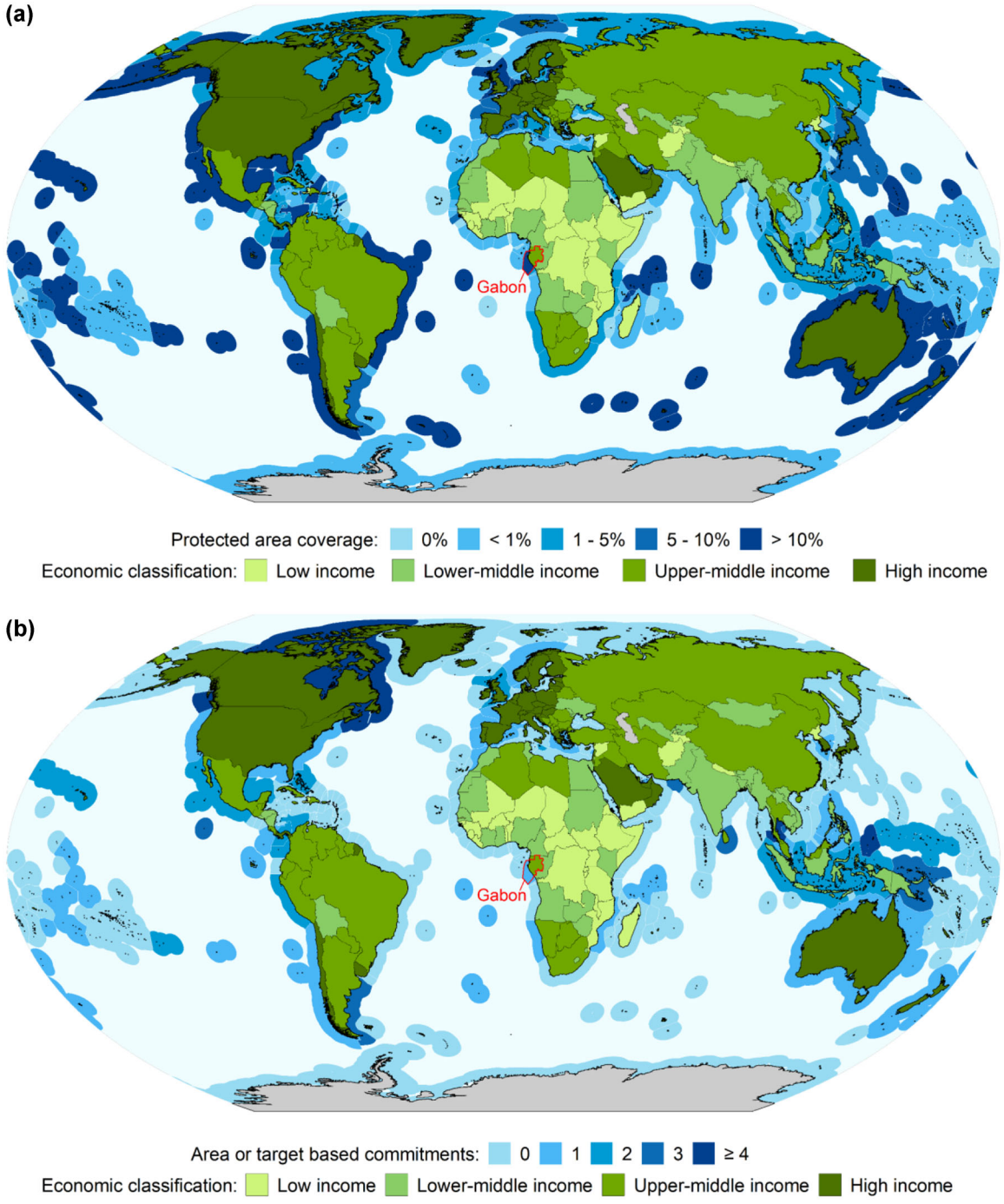

FIGURE 1 Global marine protected area estate and commitments: (a) proportion of protected area coverage within areas under national jurisdiction (Exclusive Economic Zones); and (b) number of area or target-based marine protected area commitments announced between 2014 and 2019 (see Supporting Information Methods). Economic classifications for each country in 2020 obtained from the World Bank and derived from gross national income (GNI) per capita

poorly regulated artisanal and industrial fishing fleets, logging, and an expanding petrochemical sector (Casale et al., 2017; Pikesley et al., 2018, 2013; Rosenbaum et al., 2014; Witt et al., 2011). This increasing competition for space and access to resources led to the creation of a national interministerial commission named *Gabon Bleu*—a top-down government initiative that was launched in 2013. This was followed by a series of announcements at global meetings in which the country committed to enhancing the protection and management of its waters (e.g., IUCN World Parks Congress, World Ocean Summit, Our Ocean Conference, and UN Oceans Conference). The program's principal objectives were to protect marine areas critical for the conservation of threatened and iconic species, increase

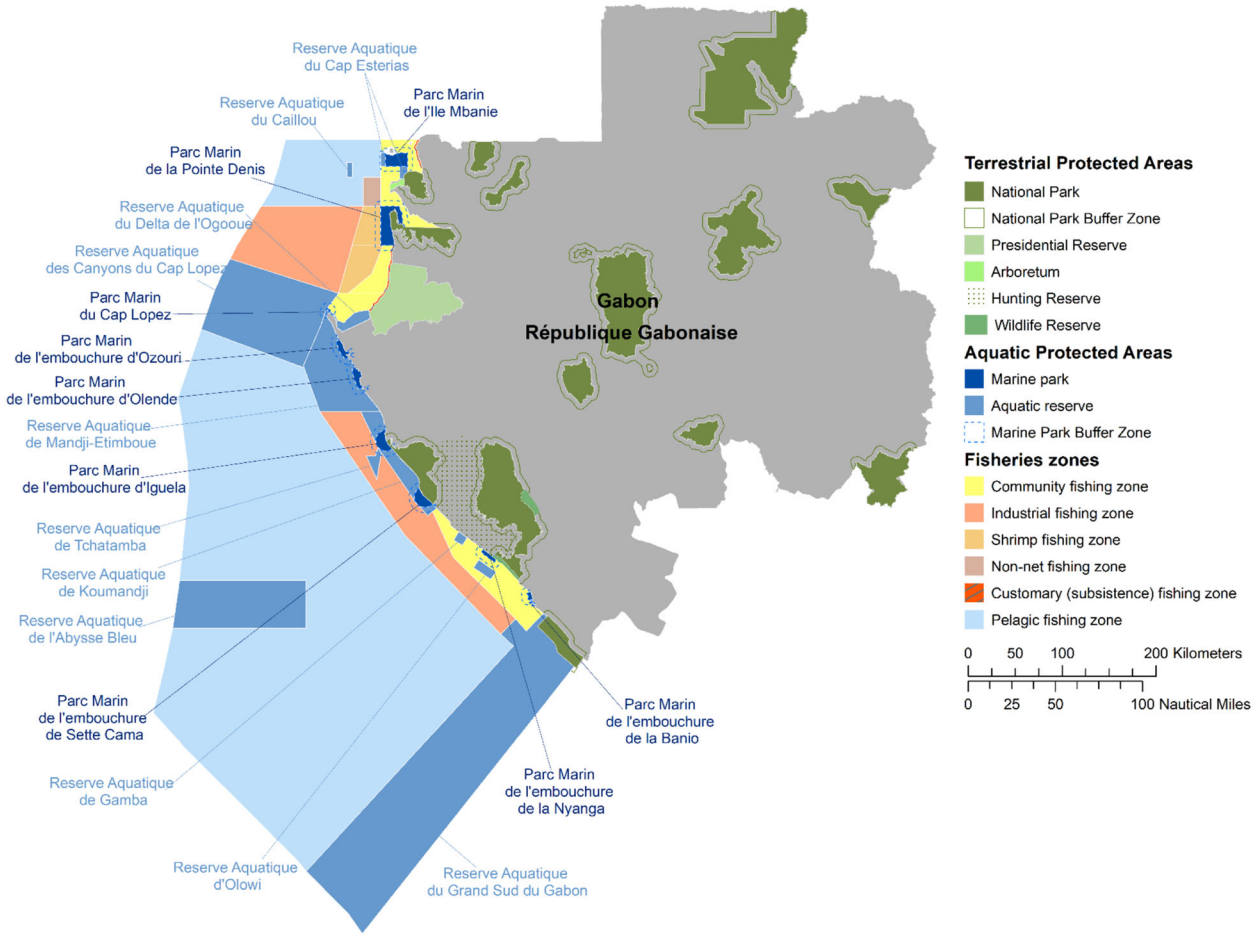

FIGURE 2 Gabonese terrestrial protected areas established in 2002, and aquatic protected areas and fisheries zones established in 2017. See Table S2 in for a synthesis of the types of fisheries activities permitted within each of the marine parks and aquatic reserves

ecosystem resilience, restore depleted fish stocks, and support sustainable fisheries.

A fundamental component of the Gabon Bleu program was the creation of a comprehensive zoning plan for the country's EEZ based on input from stakeholders representing a range of sectors, including petrochemicals, artisanal and industrial fisheries. The plan included the creation of an ecologically representative network of MPAs, and fisheries zones, which were first announced in 2014 (Figure 3b); and centered on a systematic conservation planning approach that sought to meet biodiversity targets while minimizing impacts on ocean resource users (Groves & Game, 2016). Three years later, the establishment of six different types of fisheries zones and 20 new marine parks and aquatic reserves (Figure 2) was approved by parliament and signed into law (Republique Gabonaise, 2017). These new MPAs increased the formal protection of Gabon's waters from <1% to 26%; far exceeding current international commitments and MPA coverage in other nations with a similar or higher economic status. Gabon is now one of more than 50 countries which have committed to the 30by30 initiative to protect 30% of their waters by 2030.

But how did Gabon exceed its international commitments, and what lessons can we learn? Through meetings with our consortium of policy makers and practitioners in Libreville, Gabon in 2018, we identified a range of factors that were perceived to have helped underpin this successful policy process and facilitate changes in environmental governance for increased protection of marine biodiversity and fisheries resources. This group was comprised of ministers, agency and program directors, representatives from local and international NGOs, spatial analysts, and researchers, as well as technical and legal experts with first-hand experience of Gabon Bleu. Evidence to corroborate and/or provide support for these factors was then collated and used to identify key themes, with the final content and narrative emerging from further discussions and 2 years of drafts and reviews. Thus, while more research is needed to evaluate the long-term effectiveness of the resulting MPA network and understand stakeholder perceptions of the MPA planning process and outcomes, we

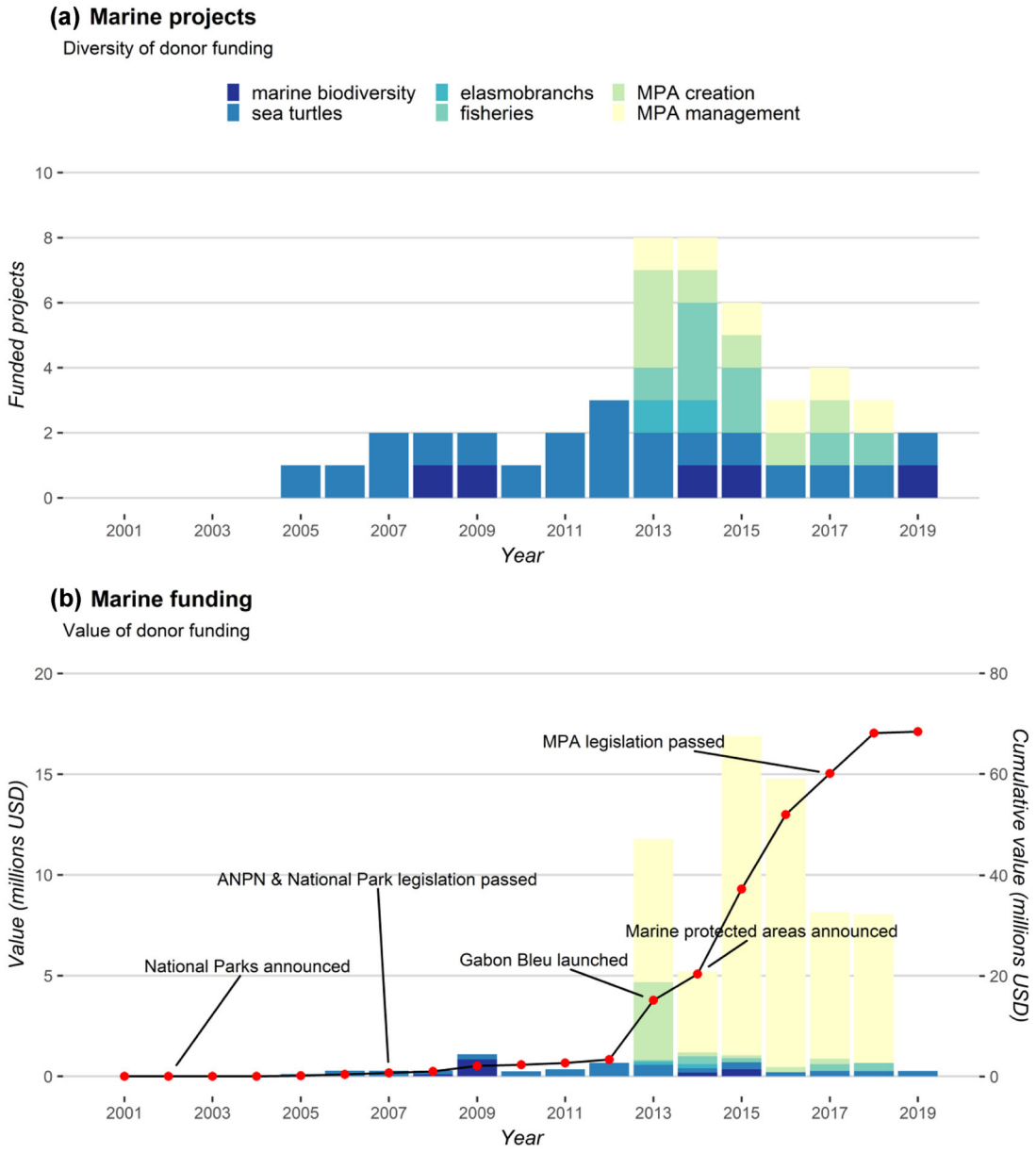

FIGURE 3 Annual trends in (a) the number and diversity of donor funded marine projects and (b) value of donor funding for marine projects in Gabon. Solid black line indicates cumulative value of donor funding over time. See Supporting Information Methods

have identified three key themes that we think should be shared.

3 | CREATING A NATIONAL FRAMEWORK

By establishing Gabon Bleu, and coordinating activities, the government created a clear framework for aligning many smaller projects. This gave each project greater visibility and legitimacy and created an impact larger than the sum of its parts. This is because national programs for MPA creation have a clearer understanding of the necessary timescales and political procedures, so are best placed to lead planning processes (see Botts et al., 2019; Buschke et al., 2019). This led to a national, cross-cutting program that obliged a diverse range of government ministries and departments to collaborate (Table S1), rather than focusing only on their own specific objectives. As a result, all relevant sectors of the administration were required to communicate and work with stakeholders to ensure that policy decisions accounted for the requirements of all ocean resource user groups, rather than those of a narrower conservation-focused group alone. The most striking response to the creation of Gabon Bleu, however, can be seen in the reaction of donors, as the value of externally funded projects increased more than 10-fold (Figure 3b). Thus, by formalizing a political intention

through establishing a national program and making announcements on a global stage, the government of Gabon demonstrated its commitment and credibility and attracted increased donor support that further enabled delivery of a comprehensive program of activities.

4 | LONG-TERM STAKEHOLDER SUPPORT

As part of creating the national marine framework, Gabon recognized the value of, and built on decades-long partnerships between government ministries and departments, industry, national and international research institutions, and NGOs (Friedlander et al., 2014; Metcalfe et al., 2015; Minton et al., 2017); a strategy which has been shown to lead to more effective conservation and policy outcomes (Sterling et al., 2017). This multipartner model, as clearly evidenced by co-authorship on research articles and reports, also helped create conditions that encouraged strong political support and access to a diversity of funding sources and data (Figure 3). A key aspect of this involved individuals from international partner organizations being seconded to or embedded within the Gabon Bleu technical team to provide training and support. Building this support and funding ultimately provided ANPN with the political capital and opportunity to push for legislative change. However, even after the government approved the creation of a comprehensive MPA network, it took a further 4 years (2014–2017) to enact legislation for creating these MPAs (Figure 3b). That time was essential to appoint, and build the capacity of a government team tasked with translating technical outputs into policy. This process included refining the original zoning proposals for MPAs and fisheries zones to include feedback from multiple rounds of stakeholder consultation, writing the laws and decrees required for the establishment of these new zones, and ensuring political buy-in at multiple levels to obtain parliamentary approval to pass new legislation.

5 | RESEARCH TO GUIDE IMPLEMENTATION AND POLICY

The Gabon Bleu framework also ensured funding was better spent, by clarifying how NGOs and research institutions could help achieve national goals and encouraging these groups to work directly with the government. This made it easier to tailor projects to the emerging needs of the implementing agencies, rather than limiting them to the priorities of individual NGOs or donors (Smith et al., 2009). This also ensured that there was a close relationship between those generating evidence, and the practitioners and policy makers that apply it—a critical pathway for translating research into policy and practice (Sutherland et al., 2020). The result was a shift away from projects that focused primarily on species of conservation concern, toward complementary applied-science projects and research that addressed protected area governance, marine spatial planning and spatial conservation prioritization, vessel monitoring, law enforcement, social sciences, livelihoods, food security, and fisheries governance (Figure 3a). These projects subsequently provided valuable insights that underpinned important shifts in policy and practice.

For example, analyses of historical vessel monitoring system data revealed low levels of compliance in the industrial fishing fleet, leading to the creation of a dedicated fisheries surveillance center and the strengthening of fisheries regulations, licensing and enforcement policies. This was followed by a 48% reduction in the size of the industrial fishing fleet from 46 to 24 vessels, following the nonrenewal of fishing licenses to recidivist vessels. A greater awareness of the economic value of Gabon's tuna fishery and need to ensure its long-term sustainability also led to the creation of Central Africa's first government-funded fisheries observer program. This program provided new data on threats to several species of conservation concern and resulted in increased legal protection of sharks and rays; complementing the legal requirement for turtle excluder devices to be employed on all shrimp trawlers (Table S3).

This new focus also played a major role in guiding marine spatial planning. For example, participatory research with local communities was employed to map spatiotemporal patterns of resource use (Cardiec et al., 2020), and these data were used to develop a network of community fishing zones to secure access rights and minimize potential conflicts with other sectors (Figure 2). More broadly, a multisector collaborative approach provided a greater understanding of sectorial needs and led to the implementation of two types of MPA—marine parks in which all extractive activities (i.e., petrochemical exploitation, artisanal and industrial fishing) are prohibited, and aquatic reserves which have varying restrictions (Figure 2; Table S2) an approach that has enabled co-location of some activities (i.e., artisanal fisheries and petrochemical exploitation alongside biodiversity conservation). Customary (subsistence) fishing rights have, however, been maintained, although this activity is regulated in accordance with management plans that are reviewed every 3 years (Table S2). Thus, Gabon's approach recognized that implementing an effective MPA network required comprehensive legal and management reform across all sectors (Table S3), incorporating the requirements of different stakeholders to ensure high levels of MPA performance and compliance (Di Franco et al., 2016).

6 | RISING TO THE CHALLENGE

There have been many calls for "joined-up" thinking in conservation, moving away from short-term funding cycles and uncoordinated research by distant academics (Botts et al., 2019; Buschke et al., 2019; Smith et al., 2009). This example from Gabon shows what happens when these calls are heeded, even in a country with a short history of marine conservation. The gains from Gabon Bleu have been dramatic: a more than 10-fold increase in funding, 18 new laws and regulations, and the implementation of a comprehensive zoning plan that includes six types of fisheries zones, and 20 ecologically representative MPAs that cover 56,000 km^2 (Figure 2; Table S3). Such changes do not guarantee long-term ecological and sustainable development benefits, and despite extensive stakeholder input, the realities of marine conservation and trade-offs associated with marine spatial planning mean that some groups will inevitably be impacted more than others (see Jones et al., 2016; Frazão Santos et al., 2021). However, we think Gabon has taken important first steps, and importantly, most of the funding for managing these protected areas is now channeled directly to the national implementing agency ANPN, instead of through international NGOs. This creates the enabling conditions to drive locally relevant advances in policy and practice (Paredes et al., 2019), further highlighting the value of long-term institutional capacity building efforts.

Based on this experience we recommend that other countries seeking to increase MPA coverage adopt a four-step approach to assist in meeting international marine targets. First, nations must build and maintain their research and implementation capacity, ensuring scientific evidence underpins policy decisions. Second, countries should make public pledges to adopt global marine conservation targets, signaling their commitment to the international community and potential donors. Third, the conservation community should respond by helping create or strengthen implementing agencies with a similar role to Gabon's ANPN, either directly, or if financial safeguards are weak, via international organizations. Fourth, each implementation agency should lead on developing national marine conservation frameworks, working with stakeholders and donors to produce plans that are ambitious but politically feasible, combining top-down initiatives with bottom-up approaches as much as possible (see Chuenpagdee et al., 2013; Gaymer et al., 2014). Crucially, these four steps depend on long-term funding to maintain momentum, capacity, and awareness, but Gabon shows that short-term funding can also be effective, although only if part of a broader, coordinated agenda based on strong foundations.

However, the greatest challenge facing many nations, including Gabon, is in securing funding for establishing and managing MPAs—which has been shown to scale with coverage (Balmford et al., 2004), and be higher for MPAs that are comprised of multiple use zones (Ban et al., 2011). This is particularly pertinent given there is likely to be a massive global surge to revise existing MPA coverage targets to 30%, which many nations are already supporting (CBD, 2020b). Therefore, we suggest that countries and donors need to factor in long-term management and funding into the creation process, rather than seeing creation and management as two independent entities.

Nonetheless, Gabon has emerged as a regional champion for marine conservation, which is particularly important given that many African nations and other lower-income countries have, thus far, failed to commit to existing calls to protect 10% of their waters (Figure 1b). This lack of progress is concerning given the increasing pressure on the oceans, but we should also celebrate the achievement of Gabon and the eight other lower-income nations (Brazil, Colombia, Dominican Republic, Ecuador, Egypt, Jordan, Kiribati, and Mexico) that have met or exceeded global marine commitments (Figure 1a). Ultimately, in this, the UN Decade of Ocean Science and year of the 15th Conference of the Parties to the CBD in which nations will adopt a Post-2020 Biodiversity Framework that includes new targets, we need to document and learn from experiences in a broader range of countries, to better inform global efforts to secure the healthy functioning of marine ecosystems.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

All authors contributed to the conception and writing of the manuscript. Kristian Metcalfe, Lee White, Michelle E. Lee, J. Michael Fay, Gaspard Abitsi, Robert J. Smith, Matthew J. Witt, and Brendan J. Godley managed the process of synthesising the views of the co-authors. Kristian Metcalfe, Michelle E. Lee, Robert J. Smith, Sam B. Weber, Matthew J. Witt, and Brendan J. Godley collated and analyzed spatial, financial, and project data.

DATA AVAILABILITY STATEMENT

Global protected area and maritime boundary datasets used in this study are freely available from https://www.protectedplanet.net/en and https://www.marineregions.org/, respectively. Project financial data that support the findings of this study are available on request from the corresponding authors, these data are not publicly available due to privacy restrictions. Data on the number of global marine commitments, were derived from the following resources available in the public domain: [1] World Parks Congress: https://www.worldparkscongress.org/wpc/about/promise_of_sydney_commitments; [2] Our Ocean Commitments 2014-2016: http://ourocean2016.org [3] Our Ocean Commitments 2017: http://www.ourocean2017.org; [4] Our Ocean Commitments 2018: https://ourocean2018.org; and [5] Our Ocean Commitments 2019: https://ourocean2019.no. More detail on these data sources are given in the Supporting Information.

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