



The Eastern Tropical Pacific Marine Corridor (CMAR): The Emergence of a Voluntary Regional Cooperation Mechanism for the Conservation and Sustainable Use of Marine Biodiversity Within a Fragmented Regional Ocean Governance Landscape

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The San Jose Declaration formally established the Eastern Tropical Pacific Marine Corridor (CMAR) in 2004, a voluntary regional cooperation mechanism created by the coastal States of Ecuador, Costa Rica, Colombia, and Panama in response to anthropogenic pressures in the Eastern Tropical Pacific, one of the most productive and biodiverse oceans in the world. This article will explain how, in the absence of a coherent, overarching regional ocean governance framework, these four coastal States came together to create a regional cooperation mechanism for the conservation and sustainable use of marine biodiversity in the Eastern Tropical Pacific. The key normative features of CMAR will be examined, as well as legal and governance challenges, such as its non-binding nature, large scale, limited sectoral engagement, and insufficient resources. The analysis will be couched within a discussion of the wider regional ocean governance framework, which remains fragmented, with gaps and overlaps in terms of membership, mandates and geographic coverage. Possibilities for integration, and the potential impact of a new treaty protecting biodiversity beyond national jurisdiction (BBNJ), will also be considered.

Keywords: regional cooperation, Eastern Tropical Pacific, marine corridor, MPAs, regional ocean governance, CMAR, BBNJ

INTRODUCTION

Area-based measures, in particular marine protected areas (MPAs), have emerged in recent decades as a widely accepted policy and legal instrument to provide for the long-term conservation of nature, restore ecosystem resilience¹ and mitigate the damage to marine biodiversity caused by human activities (Laffoley et al., 2019). Networks of MPAs² across jurisdictional boundaries are now seen as increasingly necessary due to the interconnectivity of ocean ecosystems (Laffoley et al., 2020, p. 4) and regional cooperation has been deemed essential for their management (Ângelo Guerreiro da Silva et al., 2012, p. 329). The Eastern Tropical Pacific Marine Corridor (CMAR)³, established in 2004 by Ecuador, Costa Rica, Colombia and Panama, is regarded as a leading example of regional cooperation for the creation of a transboundary network of MPAs in Latin America (Johnson et al., 2014, p. 80). This article will describe how, in the absence of an external, overarching and coherent regional ocean governance framework, these four coastal States came together, in response to anthropogenic pressures, to create a regional cooperation mechanism for the conservation and sustainable use of marine biodiversity in the Eastern Tropical Pacific. The key normative features of CMAR will be examined, as well as the legal and governance challenges it has faced, such as its non-binding nature, limited sectoral engagement, large scale and insufficient resources. The analysis will be couched within a discussion of the wider regional ocean governance framework, which remains fragmented, with gaps and overlaps in terms of membership, mandates and geographic coverage. Possibilities for integration, and the potential impact of a new treaty protecting biodiversity beyond national jurisdiction (BBN³), will also be considered.

EASTERN TROPICAL PACIFIC OCEAN

The Eastern Tropical Pacific Ocean (ETPO) extends from the Gulf of California to the north of Peru, covering 21 million square kilometers, which includes international waters and the national waters of 12 states (Spalding et al., 2007; Martin et al., 2016, p. 3). The ETPO is connected by a series of currents that provide a diverse and changing set of oceanographic conditions throughout the region and high levels of productivity and biodiversity (Fiedler and Lavín, 2017). In recognition of the exceptional levels of biodiversity and extraordinary presence of endemic, native and migratory species, several world-renowned MPAs have been created in the region, including Galapagos (Ecuador), Cocos (Costa Rica), Coiba (Panama), Malpelo and Gorgona (Colombia). All of these MPAs, except for

Gorgona, are World Heritage Sites [United Nations Educational, Scientific and Cultural Organization (UNESCO), 2021], two are Ramsar Sites (Galapagos and Cocos; Ramsar, 2021) and the International Maritime Organization (IMO) has designated Galapagos and Malpelo as Particularly Sensitive Sea Areas (PSSAs) [International Maritime Organization (IMO), 2021].

The ETPO features strong climatic asymmetry across the equator, cool and warm currents meet in what is called the Intertropical Convergence Zone (ITCZ), where the above MPAs are located, resulting in unique oceanographic conditions that affect the distribution of marine species and habitats (Banks and Witman, 2018). The large numbers of migratory species that travel between several of the MPAs, along with the larvae dispersal in the region, clearly demonstrate the ecological connectivity within the region and the importance of protecting it (Hearn et al., 2010; Bessudo et al., 2011; Cortés et al., 2017; Romero-Torres et al., 2018). The region is characterized by its high biological diversity and regional endemism, including some of the last large concentrations of sharks globally and the second most important nesting colony for green sea turtles (Seminoff, 2004; Hearn et al., 2010). The area of the ETPO which is being proposed as a marine corridor (**Figure 1**) has been recognized as an Ecologically and Biologically Significant Area (EBSA) by parties to the Convention on Biological Diversity (CBD, 1992) on the basis that *inter alia* “the geomorphological structures of the area are biologically and ecologically significant and are important for the connectivity of species on their migratory routes and at other times of their life cycles (e.g., mating, birth, feeding). The area plays an important role for populations of hammerhead sharks, humpback whales, leatherback and Ridley turtles, and birds, such as cormorants, boobies and pelicans” (CBD and COP Decision XII 22, 2016, p. 18).

The ETPO is considered one of the most productive oceans in the world with a biological richness that provides significant ecosystem services. For example, commercial fisheries (food production) are valued at approximately \$2 billion per year and other significant economic benefits include carbon storage and tourism (Martin et al., 2016, p. 13). The MPAs in the region are recognized as some of the best recreational diving destinations in the world, thanks to the abundance, biodiversity, and beauty of their marine resources, and are an important economy for many communities along the ETPO. Despite their immense ecological value, marine ecosystems in the ETPO are becoming degraded due to the steady increase of anthropogenic pressures that can in some cases cause significant changes and reorganizations of the structure and function of marine ecosystems (Rocha et al., 2015). Climate change (Castrejón and Charles, 2020), illegal, unreported and unregulated (IUU) fishing (Castro et al., 2020), marine invasions (Carlton et al., 2019), pollution (Alava et al., 2014), increasing tourism, coastal development and population growth (Hastings et al., 2015; Ramirez, 2016) are among the well-documented problems posing a critical, growing threat to livelihoods, ecosystem sustainability and functioning of coastal zones.

Overfishing, in particular, is a significant threat to migratory species in the ETPO. It is generally accepted that overfishing is the principal cause of marine defaunation globally

¹Ecosystem resilience is “the extent to which ecosystems can absorb recurrent natural and human perturbations and continue to regenerate without slowly degrading or unexpectedly flipping into alternate states” (Hughes et al., 2005, p. 380).

²Networks of MPAs have been defined as “a collection of individual MPAs operating cooperatively and synergistically, at various spatial scales, and with a range of protection levels, in order to fulfill ecological aims more effectively and comprehensively than individual sites could alone.” (IUCN World Commission on Protected Areas (IUCN-WCPA), 2008, p. 3).

³CMAR is the Spanish acronym for Corredor Marino del Pacifico Este Tropical.



FIGURE 1 | Proposed Eastern Tropical Pacific Marine Corridor (CMAR). This map was designed by the MarViva Foundation in 2005 as a tool to visualize the area which could eventually be delimited as the marine corridor. The official geographic delimitation of CMAR remains pending. Available at <http://cmarpacifico.org/web-cmar/quienes-somos/que-es-el-cmar/>.

(Pacoureau et al., 2021) and a main reason for the decline of many migratory marine species in the ETPO (Peñaherrera-Palma et al., 2018, p. 71, 112). As well as intense fishing pressure from national vessels (WildAid, 2010, p. 2; The Economist, 2020; Hearn et al., 2021, p. 8), the high seas areas in this region have been subject to increased fishing effort in recent years by foreign flagged fleets, often loitering adjacent to or entering a marine protected area (Alava and Paladines, 2017; Collins, 2020), a trend which is predicted to worsen in the future. The Intergovernmental Panel on Climate Change (IPCC) has identified the ETPO as an area facing complex fishing governance challenges given that fisheries productivity may be less affected by climate change in certain areas due to the presence of colder oceanic currents (Hearn et al., 2021, p. 10).

Climate change is exacerbating all other challenges facing the region. The ITCZ convergence zone, which shifts latitudinally with climate patterns, makes the marine and coastal ecosystems of the MPAs in the ETPO particularly vulnerable to climate

change impacts. Warming surface waters, particularly during intense El Niño events, result in lower primary production and a general decline in biological activity (Liu et al., 2013). During the past decades, the frequency and severity of El Niño events have increased, and climatic models have shown that this tendency will continue to worsen within the ETP region under current rates of global warming (Liu et al., 2013; Cai et al., 2018).

Weak governance has also been cited as an overarching problem [WildAid, 2010; Corredor Marino del Pacífico Este (CMAR), 2019a, p. 16]. Conservation efforts in the region have struggled due to lack of coordination among governments, civil society and academia, weak management of protected areas, limited capacity for monitoring and enforcement, limited control over the sources of marine pollution, lack of data or lack of access to data, limited public participation, lack of public awareness regarding the value of ecosystem services in the region as well as inadequate resources and funding [Arauz et al., 2017, p. 9; Corredor Marino del Pacífico Este (CMAR), 2019a, p. 16].

The cumulative nature of the above outlined pressures eventually led the governments of Ecuador, Costa Rica, Colombia, and Panama to create a regional cooperation mechanism in order to ensure the sustainability of marine ecosystems in the ETP region.

EASTERN TROPICAL PACIFIC MARINE CORRIDOR (CMAR)

Emergence of CMAR

The genesis for CMAR began in 1997 as a cooperation agreement between Costa Rican and Ecuadorian environmental authorities with the goal of improving coordination between Cocos and Galapagos in light of their significant ecological connectivity [Corredor Marino del Pacífico Este (CMAR), 2005, p. 1]. In 2001, a Presidential Declaration was signed between Costa Rica and Ecuador which welcomed a proposal by a group of intergovernmental and non-governmental organizations (NGOs)⁴ for the creation of a marine corridor between Cocos and Galapagos. This statement of presidential intent has been cited as the beginning of the official process at governmental level which led to the establishment of CMAR [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 7].

In 2002, during a regional ministerial meeting in Colombia, the initial proposal to create a corridor between Cocos and Galapagos was extended to include the islands of Malpelo, Gorgona, and Coiba on the basis that it made strategic political sense to take a regional approach to environmental management [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 8]. The amplified proposal was then presented at the 2002 World Summit on Sustainable Development in Johannesburg as a strategic alliance between Ecuador, Costa Rica, Colombia, and Panama with the support of intergovernmental organizations and NGOs [Corredor Marino del Pacífico Este (CMAR), 2004, p. 6]⁵.

In 2004, CMAR was formally established by the San Jose Declaration (SJD), a non-binding agreement which sets out the objectives of CMAR and establishes a regional cooperation mechanism for its management. The 2019–2024 Action Plan for CMAR (p. 8) defines it as “a regional initiative for conservation and sustainable use which seeks, via an ecosystem approach, the adequate management of the biodiversity, marine and coastal resources of the Eastern Tropical Pacific, through regional governmental strategies, jointly supported by civil society, non-governmental organizations and international cooperation, with the MPAs of Cocos, Galapagos, Malpelo, Gorgona and Coiba considered core areas.” The Action Plan (p. 9) goes on to outline a vision for CMAR which is the achievement of effective governance and participation at a regional scale for the conservation and sustainable use of ETP biodiversity, with the MPAs as core areas of conservation. In close alignment with its vision is CMAR’s stated objective which is to achieve conservation

and promote sustainable use of biological diversity in the ETP region, based on the interests and priorities of its member States, via the establishment of regional governmental strategies supported by civil society, NGOs and international cooperation [San Jose Declaration (SJD), 2004, p. 3–4; Corredor Marino del Pacífico Este (CMAR), 2019a, p. 9]. The guiding principles of CMAR are equity, sovereignty, precaution, transparency and adaptive management [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 19–20].

Regional Cooperation Mechanism

In order to achieve its goals, the SJD provides for the establishment of a regional mechanism, made up of political and technical components, which complement each other (Figure 2). The political element consists of a Regional Ministerial Committee (RMC) which is made up of the Environment Ministers of each State [San Jose Declaration (SJD), 2004, para. 4a]. This is the main decision-making body of CMAR [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 10]. It issues guidelines and supports the process of implementation politically in accordance with conservation priorities for CMAR, the policies of each participating State and the relevant international framework [San Jose Declaration (SJD), 2004, para. 4a]. The RMC meets once a year [Corredor Marino del Pacífico Este (CMAR), 2004, p. 29] and has a “Pro Tempore” Presidency, which rotates every 3 years between the four participating States [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 10]. The RMC is advised by each State’s Foreign Ministry with respect to matters of international relations between the four States [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 10].

The technical component of CMAR comprises of a Regional Technical Committee (RTC), which is responsible for defining the actions needed to implement CMAR [San Jose Declaration (SJD), 2004, para. 4b]. It acts as the advisory body to the RMC and is made up of a delegate (also known as a focal point) of each State’s Ministry of Environment [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 10], who is often a Director of one of the core MPAs. Currently, the delegates are the Vice Minister for Water and Seas, Costa Rica, the Director of the Galapagos National Park, Ecuador, the Director of National Natural Parks, Colombia, and the Director of Coasts and Seas, Panama. The RTC meets twice a year; in terms of decision making, each State has one vote, yet all decisions are adopted by consensus [Corredor Marino del Pacífico Este (CMAR), 2004, p. 30]. It is supported by a “Pro-Tempore” Secretariat, which rotates between States in conjunction with the Presidency [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 10]. The Secretariat is responsible for carrying out CMAR management actions and coordinating cooperation between the four participating States and any involved international organizations and NGOs [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 10].

The structure of CMAR also provides for Regional Working Groups, which are made up of experts representing key thematic areas identified as priorities for the conservation of the biodiversity of the region: Tourism, MPAs, Science, Fisheries and Communications

⁴United Nations Environment Program (UNEP), the International Union for the Conservation of Nature (IUCN), and Conservation International (CI).

⁵United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Development Program (UNDP), IUCN, and CI.

[Corredor Marino del Pacífico Este (CMAR), 2019a, p. 10]. These groups provide input and advice to CMAR and are made up of representatives from government institutions, NGOs, research and academia. Each group is led by a coordinator and works with the Secretariat to push forward technical matters such as the creation and joint management of projects for CMAR [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 10]⁶.

At the national level, multisectoral and interinstitutional National Commissions are provided for in order to deal with any CMAR related matters in a national context, which are to be convened by the focal point in each State [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 10]. Each State is responsible for forming its own National Commission and establishing its functions and rules. The purpose of the National Commissions is to ensure the involvement of different sectors, for example, fisheries institutes, tourism authorities, government ministries dealing with the environment and agriculture, biodiversity, forestry, ecosystems, water resources, and the Naval and Defense forces [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 10]. To date, only Colombia has officially established a National Commission, which has been in operation since 2012 [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 10]. Costa Rica and Panama are currently in the process of forming their National Commissions by identifying appropriate actors and deciding whether there is already an established organ which could assume this function. Ecuador has not yet begun a process.

Governance Challenges

CMAR is a voluntary, political initiative between four States and therefore not legally binding [Corredor Marino del Pacífico Este (CMAR), 2004, p. 29]. This type of less formal approach is sometimes viewed as a positive at the regional level as it can secure political engagement more readily and may result in less opposition from industry. As a political initiative, it offers the possibility to harmonize national positions in the region with respect to marine environmental protection. On the other hand, the lack of a legally binding element has significant implications for implementation and enforcement. It also implies no devoted funding mechanism, which impacts on critical issues such as institutional infrastructure and capacity for monitoring and enforcement.

At a 2004 RMC meeting, it was deemed essential that the Secretariat have the physical infrastructure, and human and financial resources necessary to effectively carry out its functions. Yet, it was concurrently decided that the Secretariat would be funded by support from other interested governments, international organizations and NGOs [Corredor Marino del Pacífico Este (CMAR), 2004, p. 30], creating circumstances which have not been conducive to a stable and secure funding stream. The Secretariat does not yet have a permanent physical infrastructure and currently rotates between each State every

3 years, in conjunction with the Presidency. The State that exercises the Presidency and the Secretariat (both roles rotate jointly) currently covers the associated expenses of operating the Secretariat with funds that are provided by that government's budget or via international cooperation. Financial sustainability is a chief concern in CMAR's current Action Plan. Coordination between four countries and multiple organizations is resource intensive in addition to the many legal and institutional challenges involved in managing shared biological resources [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 21]. To this end, the Action Plan for 2019–2024 recommends evaluating the possibilities for transforming CMAR into a legally binding agreement, which it asserts would revitalize CMAR politically as well as increase visibility internationally, thus leading to more opportunities for long term sustainable funding (p. 45). During the RMC meeting of August 2020, the Technical Secretariat was instructed to elaborate a draft proposal for such an agreement between the four States, which is due to be presented during the latter half of 2021.

Another limiting factor is that CMAR was not framed in a multi-sectoral manner from the outset, resulting in resistance from the fisheries sector (Bensted-Smith and Kirkman, 2010, p. 98), who were concerned that the marine corridor sought absolute protection of marine resources [Corredor Marino del Pacífico Este (CMAR), 2019b, p. 6]. Although there are strong commercial fishing links between the four CMAR States, there is not a history of collaboration on issues relating to environmental management (WildAid, 2010, p. 2). In order to create a level of sectoral engagement, Regional Working Groups and National Commissions are provided for within the structure of CMAR, as described above, whose goal is to incorporate the viewpoints of different groups who carry out activities in the ETP. However, the private sector is notably absent from both. The Action Plan for 2019–2024 acknowledges the important role of the thematic working groups but notes that interaction with the fishing sector has been limited, pointing to the restricted capacity of CMAR to take political or institutional decisions affecting this sector (pp. 11–12). In terms of concrete actions with regard to fisheries, CMAR restricts itself to producing a report with a set of recommendations on better fishing practices in the region [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 29, 43]. However, the tourism sector has been more receptive to engagement with CMAR.

The scale of a project like CMAR involving transboundary marine management across four jurisdictions is a significant challenge and progress on formalizing the initiative has been slow to date as a result. Such an undertaking is without precedent in the region and execution is naturally complex due to the number of different actors involved (technical, political, and governmental/non-governmental), the limited resources available and the large amount of biodiversity and oceanographic area to be covered [Corredor Marino del Pacífico Este (CMAR), 2005, p. 2]. CMAR has not yet been officially delimited from a geographical or jurisdictional perspective [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 11]. Based on current applicable legal frameworks, it is likely that the eventual delimitation of CMAR will only cover an area within the Exclusive Economic

⁶Examples of recent projects within the Science and MPA Working Groups include addressing plastic pollution in the ETP; monitoring of pelagic migratory species and marine invasive species in the ETP and working toward standardizing methodologies.

Zones (EEZs) of the respective member States, not the high seas pocket included in the proposed map (**Figure 1**)⁷. This is due to the absence of a regional or internationally agreed legal framework with the power to establish protected areas on the high seas. Given that the high seas do not fall under the jurisdiction of any single State, MPAs can only be designated there under an appropriate authority or instrument with a mandate (UNEP-WCMC, 2017, p. 23). Efforts have been ongoing since 2018 to create a new international legal framework for the establishment of MPAs in areas beyond national jurisdiction (ABNJ), as part of the BBNJ negotiations [United Nations General Assembly (UNGA), 2017]. How this may impact existing governance mechanisms in the ETP region will be discussed in the next section.

CMAR also needs to be integrated into the political, legal and economic systems of four different member States, each with its own distinct culture [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 13]. Given that all CMAR member States have already faced significant challenges in effectively managing MPAs within their national jurisdictions from a law enforcement perspective (WildAid, 2010, p. 72; Cremers et al., 2020, p. 11), it remains to be seen how this can be effectively done on a larger scale. MPA managers within CMAR territory have previously identified several limiting factors affecting their work, including overlapping or interfering jurisdiction between authorities, lack of coordination between authorities, lack of resources, lack of political will regarding conservation, and institutional weakness in the government environmental sector (WildAid, 2010, p. 4). These challenges continue to remain relevant today (Cremers et al., 2020, p. 11). CMAR offers an opportunity to redress many of these issues, but only if adequately equipped to do so. The Action Plan for 2019–2024 has acknowledged the need to strengthen the governance of CMAR as a priority action (pp. 20–24). Specific actions listed in order to achieve this include identifying mechanisms for long term financial sustainability, establishing the envisaged National Commissions in each CMAR member State and strengthening the advisory and technical execution role of the Regional Working Groups (p. 23). In order to improve regional coordination in a cost-effective manner, the Action Plan proposes implementing a digital platform for communication between the four States (p. 24). Despite the ambitious scale of CMAR as currently proposed, the 2019–2024 Action Plan recommends considering possibilities for expanding the initiative to include other MPAs and countries in the region [Corredor Marino del Pacífico Este (CMAR), 2019a, p. 46].

REGIONAL OCEAN GOVERNANCE IN THE EASTERN TROPICAL PACIFIC

A Picture of Fragmentation

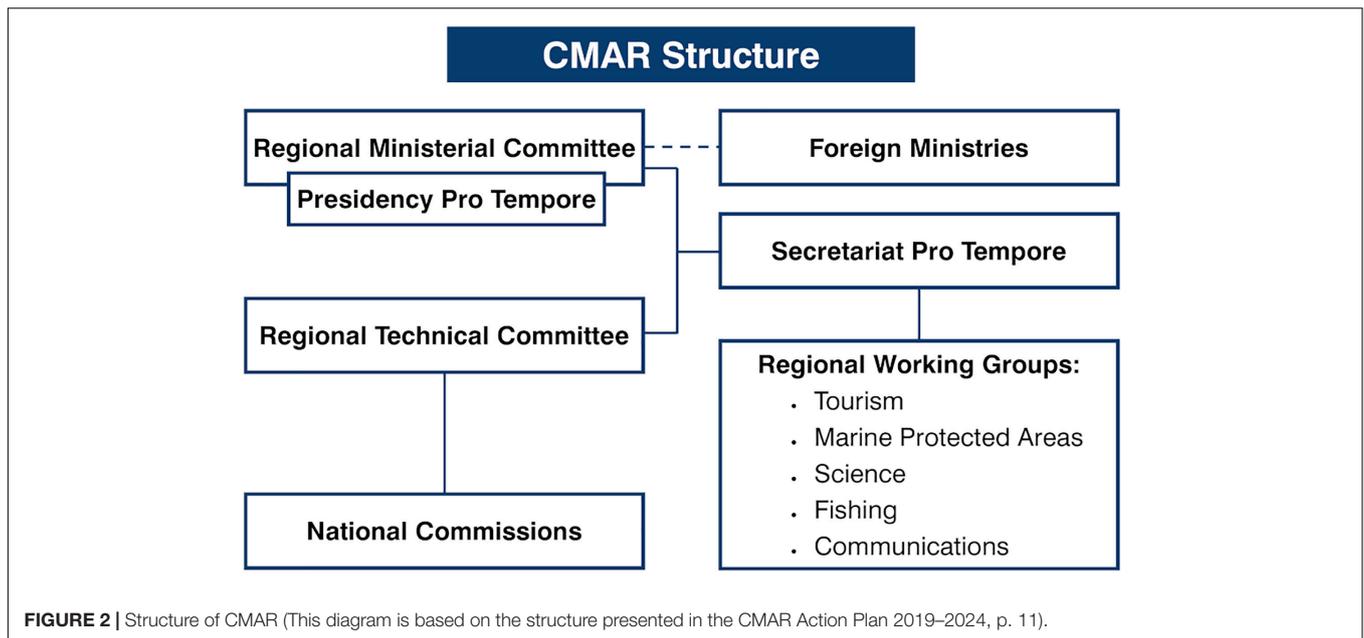
One of CMAR's original objectives was to establish an adequate regional framework to facilitate the development

⁷In this context, it should be noted that Ecuador has declared its right to extend its continental shelf to 350 nm measured from the baselines of the Galapagos Archipelago. <https://www.cancilleria.gob.ec/en/ecuador-seeks-to-expand-its-continental-shelf-beyond-200-nautical-miles/>.

and management of the marine corridor, in a manner compatible with the politics and legislation of the four member States and any applicable international conventions and agreements [Corredor Marino del Pacífico Este (CMAR), 2005, p. 4]. CMAR cites several international agreements as legal justification for its creation [Corredor Marino del Pacífico Este (CMAR), 2004, pp. 9–12]. Specific reference is made to the [International Convention for the Regulation of Whaling (ICRW), 1946], the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention, 1971), the Convention concerning the Protection of the World Cultural and Natural Heritage (United Nations Educational, Scientific and Cultural Organization (UNESCO), 1972), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1973), the United Nations Law of the Sea Convention (UNCLOS), 1982 and the Convention on Biological Diversity (CBD, 1992). Regional agreements such as the Inter-American Convention for the Protection and Conservation of Sea Turtles, 1996 and the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, 1942 are also mentioned.

However, a comprehensive, overarching regional ocean governance (ROG) framework is lacking in the ETP. In their global study of ROG arrangements, Mahon and Fanning identified ten different arrangements for the ETP region but no integration mechanism (Mahon and Fanning, 2019a, p. 6; Supplementary Material, p. 4). From a global perspective, there are three main ways that ROG is carried out: via the Regional Seas Programs (RSP), Regional Fishery Bodies (RFB), and Large Marine Ecosystem (LME) mechanisms (Rochette et al., 2015, p. 9). These global approaches are complemented by other regional initiatives, such as those taken by political and economic organizations (e.g., the European Union), leaders and heads of State, NGOs, coastal communities and individuals (Johnson et al., 2014, p. 75; Wright et al., 2017, p. 13).

The RSP was established in 1974 by the United Nations Environment Program (UNEP) to serve as a regional mechanism for the conservation of marine and coastal environments [United Nations Environment Programme (UNEP), 2017, p. 1]. It has been credited with pioneering the regional approach to the management of the marine environment (Johnson et al., 2014, p. 76) and now covers 18 marine and coastal regions worldwide, with more than 146 countries participating in the program [United Nations Environment Programme (UNEP), 2021a]. The mandates of the different RSPs have evolved over time from an initial focus on pollution to encompass biodiversity conservation more broadly, with an emphasis on MPA creation [United Nations Environment Programme (UNEP), 2016, p. 25]. Some regions also include the objective of achieving sustainable development, as can be seen below in the RSP for the North East Pacific. RSPs are usually implemented through strategic action plans (Ehler, 2006, p. 26), which outline the environmental problems in the region and the actions necessary to address them (Oral, 2015, p. 347). Many regions also adopt legally binding instruments and framework conventions to underpin the action plan [United Nations Environment Programme (UNEP), 2016, p. 3].



There is no functioning RSP for the ETP region. The Antigua Convention for the North East Pacific (Antigua Convention, 2002) was signed by Panama, Costa Rica and Colombia, as well as several other Central American States in 2002⁸, however, it has not yet entered into force [United Nations Environment Programme (UNEP), 2021b]⁹. The principal purpose of the Convention is to establish a regional cooperation framework to encourage and facilitate the sustainable development of marine and coastal resources of the North East Pacific (Article 1, Antigua Convention). State parties approved an Action Plan in 2002 detailing how they planned to improve the environment of the North-East Pacific [Plan of Action for the Protection and Sustainable Development of the Marine and Coastal Areas of the North East Pacific United Nations Environment Programme (UNEP), 2002], however, it is not yet supported by legally binding instruments. The geographic area covered by the Convention extends from the south of Colombia to the north of Mexico [Plan of Action, United Nations Environment Programme (UNEP), 2002, para. 1]. Ecuador is not a Party.

The Lima Convention for the South East Pacific (Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific, 1981) counts Ecuador, Colombia, and Panama as State parties but not Costa Rica. It is primarily focused on the prevention, reduction and control of pollution and the environmental management of natural resources (Lima Convention 1981, Article 3.1). It is an associated RSP which means that it is not directly administered by UNEP¹⁰. Rather, the Executive Secretariat of the Lima Convention is held by

⁸Mexico, El Salvador, Honduras, Nicaragua and Guatemala.

⁹The Convention needs at least four country ratifications to come into force and only two countries (Guatemala and Panama) have ratified it thus far (as of 2016) (United Nations Environment Programme (UNEP), 2021b).

¹⁰When UNEP administers a RSP, the Secretariat, administration of the Trust Fund and financial and administrative services are provided by UNEP. However, in an associated RSP, the financial and budgetary services are managed by the program itself or hosting regional organizations (Rochette et al., 2015, p. 10).

the Permanent Commission for the South Pacific (CPPS)¹¹, an intergovernmental body, classified as an RFB by FAO [Food and Agriculture Organization of the United Nations (FAO), 2021]. It was originally established in 1952 by Chile, Peru, and Ecuador to fight illegal fishing, with Colombia joining in 1979 [Comisión Permanente del Pacifico Sur (CPPS), 2012a, Article 1]. CPPS plays a key coordinating role in the region. One of its main objectives is to coordinate the maritime policies of its member States in its area of competence in order to adopt united regional positions at international fora [Comisión Permanente del Pacifico Sur (CPPS), 2012a, Article 3]. It also plays a key linking role between marine scientific research and regional policy (UNEP-WCMC, 2017, p. 75). CPPS became the Executive Secretariat for the Lima Convention in 1981 and thus effectively carries out a dual role. In terms of geographic scope, the Lima Convention applies to the territorial seas and EEZs of participating States and has a narrow mandate in the adjacent high seas, restricted to pollution (Lima Convention 1981, Article 1). However, State parties to both CPPS (Comisión Permanente del Pacifico Sur (CPPS), 2000) and the Lima Convention have expressed their desire to expand their remit in ABNJ (Comisión Permanente del Pacifico Sur (CPPS), 2012b). Expansion of regional coverage into the high seas has been encouraged by the United Nations [United Nations Environment Assembly (UNEA), 2016, para. 13] given that only five Regional Seas Conventions (RSCs) currently have jurisdiction in ABNJ. In relation to MPAs, it is important to note that CPPS has an advisory mandate only and no management authority (UNEP-WCMC, 2017, p. 75) which means it does not yet have the power to establish such legally binding conservation measures. However, State parties to the Lima Convention adopted a Protocol for the Conservation and Administration of Marine and Coastal Protected Areas in the South East Pacific (1989) in which they committed to establishing

¹¹CPPS is the Spanish acronym for Comisión Permanente del Pacifico Sur.

more protected areas within their national jurisdictions (Article II). This protocol led to the creation of a regional network of MPAs in the South East Pacific, which aims to strengthen the management of existing MPAs in the region and expand the network based on scientific information and in line with international law [Comisión Permanente del Pacífico Sur (CPPS), 2010]. The network includes the MPAs of Galapagos, Malpelo, Gorgona, and Coiba.

Regional Seas Programs usually have no management or regulatory mandate in relation to fisheries, which are covered by RFBs. RFBs are advisory regional mechanisms through which States cooperate on the sustainable use and conservation of marine living resources, established pursuant to UNCLOS (Article 118). Regional Fishery Management Organizations (RFMOs) are a subset of RFB with a management mandate and the power to establish legally binding conservation measures regarding fisheries, which include area-based management tools such as temporary closures [UN Fish Stocks Agreement (FSA), 1995, Articles 8–13]. The only competent RFMO in the region covered by CMAR is the Inter-American Tropical Tuna Commission (IATTC), of which all four States are members. The IATTC covers a large geographic area in the eastern Pacific Ocean bounded by the coastline of North, Central, and South America (Antigua Convention, Article 3); it includes both the national jurisdictions of the Contracting parties and the high seas in the Convention area. The fish stocks covered are tunas and tuna-like species and other species of fish taken by vessels fishing for tunas and tuna-like species in the Convention area (Antigua Convention, 2003 Article 1). Given that the CMAR region is surrounded by the high seas, it is also worth mentioning that Ecuador is a member of the South Pacific RFMO (SPRFMO), and Panama is a non-contracting Party. The SPRFMO was established in 2012 to cover a gap regarding management of non-highly migratory fishing resources and associated marine ecosystems in the high seas of the South Pacific (Articles 1, 2, 5, Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean, 2012).

The RSP and RFBs are intergovernmental bodies made up of State parties whereas LME mechanisms are usually projects which bring together coastal States, international agencies and regional bodies [United Nations Environment Programme (UNEP), 2016, p. 42]. LMEs are large areas of ocean space adjacent to continents in coastal waters where primary productivity is generally higher than in open ocean areas, and which are based on ecological delimitations rather than political or economic criteria (Sherman and Hempel, 2008, pp. 3–5). They are considered a useful addition to the ROG landscape in terms of their emphasis on science [United Nations Environment Programme (UNEP), 2016, p. 39]. A significant coastal part of the ETP region, including the coastal waters of the CMAR states, is covered by the Pacific Central American LME, however, CMAR has not had any interaction with it. While LMEs are considered as having a solid ecological basis, they have been criticized for weak governance components, especially in developing countries (Bensted-Smith and Kirkman, 2010, p. 3).

Therefore, as demonstrated, CMAR is not covered by one single ROG framework, but rather parts of it fall within the

geographic mandates of several mechanisms (see **Figure 3** and **Table 1**). Studies on ROG have warned that where there is different State participation in different ROG mechanisms, decisions of one mechanism may not be applicable to all participants in other relevant mechanisms [United Nations Environment Programme (UNEP), 2016, pp. 50–51], which can lead to wider fragmentation in the region and a lack of a cohesive ocean governance approach. The overlaps and gaps between mandates and geographical coverage of all these different mechanisms is a key challenge for effective ROG.

Possibilities for Integration

Previous studies examining ROG arrangements in the ETP region have observed that integration is weak with no overarching mechanism in place (Mahon and Fanning, 2019a, p. 5). In general, cooperation between the key actors is not well developed and enthusiasm for enhanced collaboration is varied. For example, the IATTC has expressed concern that cross-sectoral area-based planning initiatives may compromise its ability to adopt a flexible approach to species protection (UNEP-WCMC, 2017, p. 83). Given that fishing is a fundamentally important socio-economic activity in the region, there has been a reluctance by some authorities to commit to sharing data and information on those resources (UNEP-WCMC, 2017, p. 81). Therefore, it is not surprising that at the time of the adoption of the San Jose Declaration (SJD) in 2004 the creation of a new regional mechanism was criticized as being premature prior to adequately exploring the scope for working with existing bodies in the region, such as the CPPS, Navies and the fishing sector (Bensted-Smith and Kirkman, 2010, p. 98).

While the CPPS has a lot of support in the South East Pacific as a cross sectoral coordinating mechanism (UNEP-WCMC 2017, p. 79), it does not cover enough of the ETP region to play an integrating role (Mahon and Fanning, 2019a, Supplementary Material, pp. 4–5). In recent years it has signed bilateral cooperation agreements with the IATTC (IATTC, 2015) and the SPRFMO (SPRFMO, 2019) for the purposes of improving conservation. Areas of cooperation between the CPPS and the SPRFMO are focused on information exchange, specifically sharing of scientific data, meeting reports and other documents or publications considered to be of mutual interest. Specific mention is made of data exchange in relation to *inter alia* IUU fishing activity and bycatch [SPRFMO, 2019, Clause 2 (iib,c)]. Given the importance of the fishing sector in the region, this type of cooperation is to be commended, especially given that RFMOs have the power to establish legally binding conservation measures. With regard to the IATTC, its 2015 Memorandum of Understanding (MoU) with the CPPS expired in 2020 and cooperation efforts have stalled. Analysts say more efforts are needed in general with regard to cross sectoral cooperation in the region. A recent report recommends the adoption of a tri partite MoU agreement between the CPPS, IATTC, and SPRFMO for the purposes of formalizing cross sectoral cooperation on data collection, data analysis, joint monitoring and enforcement actions in the South East Pacific (Cremers et al., 2020, p. 40).

CMAR and CPPS have similar action plans and are currently working toward a cooperation agreement. In relation to cooperation between CMAR and the RFMOs, CMAR has had

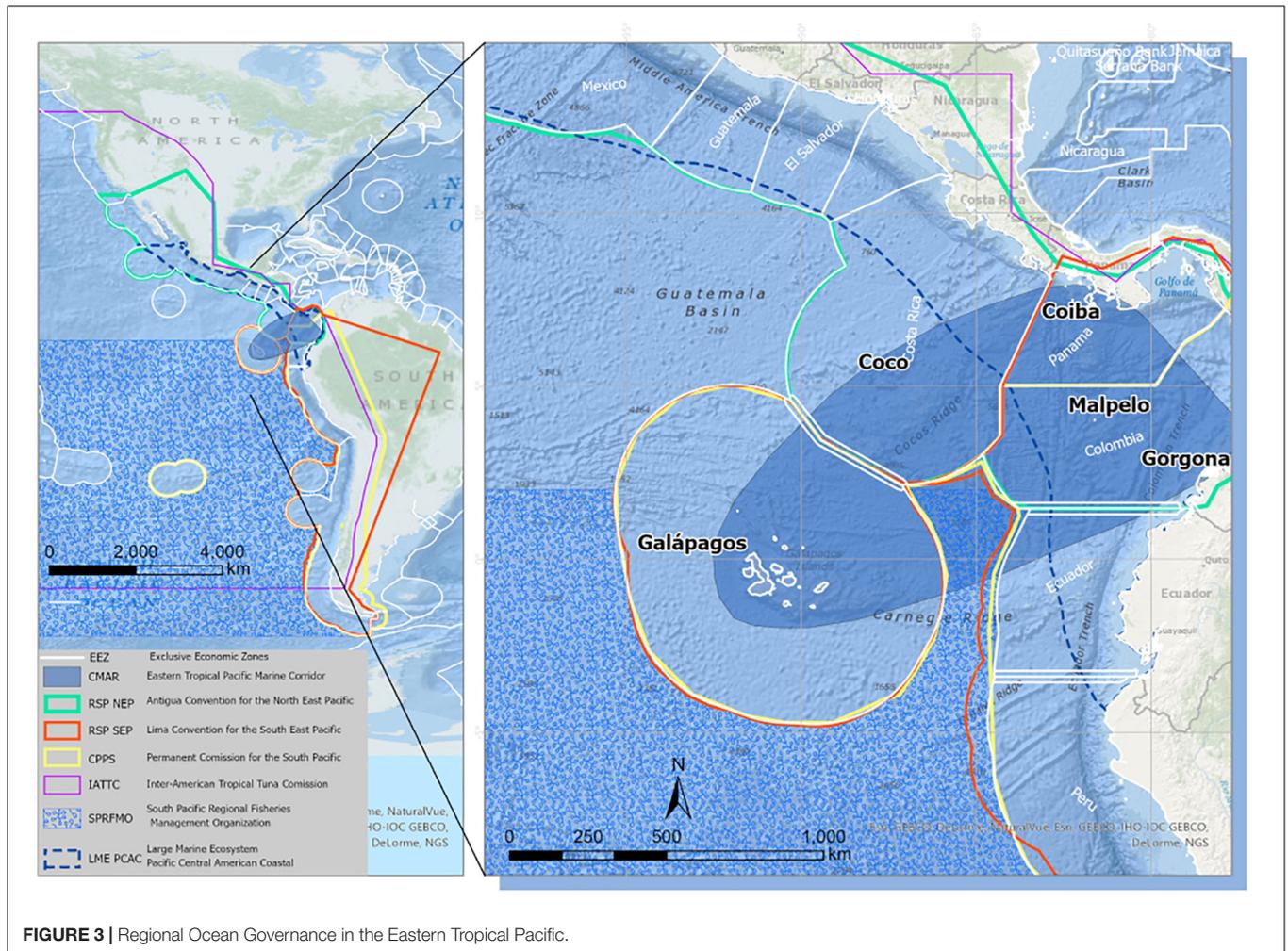


FIGURE 3 | Regional Ocean Governance in the Eastern Tropical Pacific.

no contact with the SPRFMO, but the Technical Secretariat of CMAR has participated as an observer in IATTC committee meetings and meetings of the Parties. There may be scope for a cooperation agreement with the IATTC in the future. CMAR has also held meetings with other fisheries organizations in the region, which operate within the EEZs, the Central American Fisheries and Aquaculture Organization (OSPESCA), of which Costa Rica and Panama are members, and the Latin American Organization for Fisheries Development (OLDEPESCA), which counts Ecuador, Panama and Costa Rica as members.

The BBNJ negotiations and subsequent international instrument may offer a unique opportunity to improve ROG in the ETP region. In response to the significant governance gaps under the current international legal framework for the oceans, such as the incomplete coverage of ABNJ by existing instruments, a disjointed institutional framework lacking mechanisms for coordination across sectors and regions and the lack of a global legal framework for MPAs (Gjerde et al., 2019, p. 4–5), the international community initiated negotiations for a new international treaty under UNCLOS for the conservation of marine biodiversity in ABNJ. The treaty negotiations are limited to four issues: marine genetic resources, including

benefit-sharing, area-based management tools, including marine protected areas, environmental impact assessments and capacity-building and marine technology transfer [United Nations General Assembly (UNGA), 2017]. From the outset, the United Nations General Assembly (UNGA) instructed States that the new instrument ‘should not undermine existing relevant legal instruments and frameworks and relevant global, regional and sectoral bodies’ [United Nations General Assembly (UNGA), 2017, para. 7]. While it is likely that existing ROG bodies will have an important role to play under the new instrument, questions of institutional design and delegation of authority to existing or newly created bodies have been key sticking points in negotiations (De Santo et al., 2020). Thus far, a range of institutional design options have been proposed, encompassing a spectrum of global, hybrid, and regional approaches (Clark, 2020). Those advocating a global approach would like to see the creation of a new global body with the power to make legally binding decisions, including with respect to the establishment of MPAs, which would coordinate existing sectoral and regional bodies and fill governance gaps (Morgera et al., 2018, p. 16). Advocates of the regional approach would prefer efforts to be focused on strengthening existing regional bodies and enhancing

TABLE 1 | Regional Ocean Governance in the Eastern Tropical Pacific.

Organization	Jurisdiction	Mandate	Parties	Legal basis
Eastern Tropical Pacific Marine Corridor (CMAR)	[Proposed] EEZs of Ecuador, Colombia, Panama and Costa Rica and high seas pocket between the Galapagos Islands and Ecuador	Conservation and sustainable use of marine biodiversity in the Eastern Tropical Pacific	<i>Ecuador, Colombia, Panama, Costa Rica</i>	San Jose Declaration (SJD), 2004 Not yet officially delimited
UN Regional Seas Program for North East Pacific (RSP NEP)	[Proposed] The area between the extreme south of the Pacific seaboard of Colombia, where it borders Ecuador, to the extreme north of Mexico on the Pacific, at its border with the United States	Sustainable development of the marine and coastal resources of the North East Pacific	<i>Colombia, Panama, Costa Rica, Nicaragua, El Salvador, Guatemala, Mexico, Honduras</i>	Antigua Convention for the North East Pacific 2002 Not yet in force
UN Regional Seas Program for South East Pacific (RSP SEP)	EEZs of Chile, Peru, Ecuador, Colombia, Panama and the high seas up to a distance within which pollution of the high seas may affect that area	Prevention of pollution and environmental management of natural resources within area of competence	<i>Ecuador, Colombia, Panama, Chile, Peru</i>	Lima Convention for the South East Pacific 1981
Permanent Commission for the South Pacific (CPPS). Regional Fisheries Body (RFB)	EEZs of Chile, Peru, Ecuador, Colombia	Conservation and sustainable use of all living resources within area of competence	<i>Ecuador, Colombia, Chile, Peru</i>	Santiago Declaration 1952
Inter-American Tropical Tuna Commission (IATTC). Regional Fisheries Management Organization (RFMO)	The area of the Pacific Ocean bounded by the coastline of North, Central, and South America and by the lines described in Article III of the Antigua Convention Includes EEZs of Ecuador, Colombia, Panama and Costa Rica	Conservation and sustainable use of tuna and tuna like species	<i>Ecuador, Colombia, Panama, Costa Rica, Belize, Nicaragua, Guatemala, El Salvador, Venezuela, Mexico, Canada, United States, China, Japan, Taiwan, Kiribati, South Korea, Vanuatu, France, EU</i>	Antigua Convention 2003
South Pacific Regional Fisheries Management Organization (SPRFMO)	Waters of the Pacific Ocean beyond areas of national jurisdiction as delimited in Article 5 of the Convention Includes high seas pocket between Galapagos and Ecuador	Conservation and sustainable use of all fish (except sedentary species, highly migratory species, anadromous and catadromous species, marine mammals, marine reptiles, seabirds) in the high seas of the South Pacific and the safeguarding of the ecosystems in which they occur	<i>Ecuador, Peru, Chile, China, Cook Islands, Cuba, European Union, Denmark (re. Faroe Islands), South Korea, New Zealand, Chinese Taipei, United States, Vanuatu. Panama is a non-contracting Party</i>	Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean, 2012
Large Marine Ecosystem Pacific Central American Coastal (LME PCAC)	Bordering Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Colombia, and Ecuador	Integrated, ecosystem-based Management of the Pacific Central American Coastal Large Marine Ecosystem	<i>Ecuador, Panama, Costa Rica, El Salvador, Guatemala, Honduras, Mexico</i>	N/A

coordination among them (Morgera et al., 2018, p. 16). A hybrid approach would seek to share competences between existing bodies and a new global body (Oude Elferink, 2019, p. 3). Whichever option is eventually taken, there is clearly an opportunity here for interested ROG bodies to expand their role in high seas governance.

CONCLUSION

“Indigenous” or “home grown” ROG approaches such as CMAR appear to engage more active participation of coastal States. In the case of CMAR, its four member States have remained politically engaged in the initiative since its inception 17 years ago and are committed to strengthening CMAR from a legal, governance and financial sustainability perspective. Notable successes to date include permanent coordination between the technical components of CMAR, knowledge exchange and coordination between the core MPAs of CMAR and political coordination between the four Ministries of the Environment, which has facilitated the adoption of joint positions at international fora and in the face of common threats in the region such as overfishing (e.g., CMAR Comunicado de Prensa, 12 August 2020 regarding the presence of an industrial fleet of foreign flagged fishing vessels in international waters adjacent to the Galapagos Islands).

However, CMAR suffers from several of the same weaknesses that afflict ROG more generally, including a lack of interaction with important socio-economic sectors such as fisheries, scarce resources and political instability among some participating States (Rochette et al., 2015, p. 13). Given that individual governments are ultimately responsible for the implementation and enforcement of conservation measures within their respective territories, the long-term success of CMAR will depend on political will. However, from a policy perspective, integration within the wider ROG context via cooperation and coordination with key intergovernmental bodies in the region, such as the CPPS, could be a way to enhance CMAR's standing, especially on a wider regional and global scale. Bensted-Smith and Kirkman (2010, p. 4). suggest that the UNEP RSP program can play an important role in management of large marine areas if they collaborate with the governments involved and other relevant organizations that can bring about results in terms of *inter alia* behavior change, enforcement, biodiversity and species populations. Benefits that engagement with the RSP can offer include its well-established institutional structure, which provides a useful global platform for regions to insert themselves into the global ocean governance architecture while at the same time retaining their focus on the particularities of their region [United Nations Environment Programme (UNEP), 2016, p. 27]. There is general agreement that ROG, including the RSP, plays an essential linking role between the global and national level of governance (Rochette et al., 2014, p. 109). For example, the RSP has valuable regional frameworks for assessing the state of the marine environment, addressing key activities that impact on it and agreeing appropriate responses, which can provide a useful baseline for tracking progress against globally agreed targets, such as MPA coverage (Johnson et al., 2014,

p. 76–77). This can be seen via the MPA Protocol and associated MPA Network created by the RSP for the South East Pacific. Additionally, it has been found that a coherent regional approach to design, compliance and enforcement of MPA networks is an optimal way to counter commercial and industrial forces actively working against sustainable development (Johnson et al., 2014, p. 75). If the global ocean governance system is to move toward a more joined up, connected and coordinated approach, encouraged by the new BBNJ instrument, then it too would benefit from increased links with “bottom-up” regional cooperation mechanisms such as CMAR, which are often left out of global coordination mechanisms due to lack of direct association with a UN body (Mahon and Fanning, 2019b, pp. 10–11).

The importance of the regional and sub-regional levels of governance is being increasingly recognized in the field of ocean governance. There is a growing understanding of the effectiveness of multi-level governance, whereby governance arrangements at any level (local, national, subregional, regional and global) are recognized as equally important (Blanchard et al., 2019, p. 5; Mahon and Fanning, 2019b, p. 1). In fact, it has been recommended that the BBNJ agreement specifically recognize regional cooperative agreements as a means of operationalizing ecosystem-based management (Gjerde and Wright, 2019, p. 18). The BBNJ agreement could create supportive conditions as well as practical arrangements to enable effective cross-sectoral cooperation within and between regions by providing “top down” oversight via global rules and standards (Gjerde and Wright, 2019 p. 18), ensuring an appropriate distribution of competence across the global, regional and sectoral levels (Blanchard et al., 2019, p. 7) and adopting a flexible approach to institutional arrangements which would recognize that different options may be required for different regions of the world (Clark, 2020, p. 5). In any event, as a critical first step, the ROG framework applicable to the ETP needs to be strengthened. As it currently stands, it is fragmented, with limited cross sectoral cooperation, differing membership compositions and varying geographic coverage. When the IPCC recently emphasized the importance of MPA networks for the maintenance of essential ecosystem services provided by the ocean, it cautioned that “geographic barriers [...] and barriers to regional cooperation limit the potential for such networks” [Intergovernmental Panel on Climate Change (IPCC), 2019, p. 35]. The move by CMAR towards cooperation with the CPPS is a positive step forward for integration in the wider region. However, in order to eventually achieve a truly integrated ecosystem-based approach to management for the region, all regional players will need to coordinate their efforts and share information. Finding a suitable platform for this level of engagement is a crucial next step.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

AUTHOR CONTRIBUTIONS

SE was the main author of the manuscript. RM-O contributed data and input to the following sections: Eastern Tropical Pacific Marine Corridor, Regional Ocean Governance in the Eastern Tropical Pacific, and Conclusion. IK assisted in the writing of the section on the Eastern Tropical Pacific Ocean. All authors contributed to the article and approved the submitted version.

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Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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