



Socio-economic Factors Impacting Marine Protected Areas in The Eastern Tropical Pacific Marine Corridor (CMAR) Region

Roz Price
Institute of Development Studies
17 June 2022

Question

What political, social, and economic factors, including those that operate at the transboundary and national levels, may influence the effectiveness of marine protected areas in the Eastern Tropical Pacific Marine Corridor (CMAR) region?

Contents

1. Summary
2. Marine protected areas in CMAR
3. Socio-economic factors
4. “Success” factors and drivers of issues
5. References

The K4D helpdesk service provides brief summaries of current research, evidence, and lessons learned. Helpdesk reports are not rigorous or systematic reviews; they are intended to provide an introduction to the most important evidence related to a research question. They draw on a rapid desk-based review of published literature and consultation with subject specialists.

Helpdesk reports are commissioned by the UK Foreign, Commonwealth, & Development Office and other Government departments, but the views and opinions expressed do not necessarily reflect those of FCDO, the UK Government, K4D or any other contributing organisation. For further information, please contact helpdesk@k4d.info.

1. Summary

This rapid review explores socio-economic and political issues that may affect the effectiveness of the Eastern Tropical Pacific Marine Corridor (CMAR). It specifically focuses on key socio-economic and governance issues around marine protected areas (MPAs) and exclusive economic zones (EEZs) of Colombia, Costa Rica, Ecuador and Panama based in the Eastern Tropical Pacific ocean. Research highlights the importance of understanding perceptions and context in environmental governance analyses and practice (Partelow, Jäger & Schlüter, 2021); and MPAs are increasingly recognised as being embedded in social-ecological systems, where human dimensions (e.g., social, economic, cultural, political, and institutional) interact with ecological characteristics (Burbano & Meredith, 2020, p.2). How do you define the effectiveness of an MPA is another key question to consider (but not explored in detail in this review). Bearing in mind that most MPAs have multiple objectives, including non-biological, which highlights the need for the development and adoption of standardised effectiveness metrics beyond biological considerations to measure factors contributing to their success or failure (Giakoumi et al., 2018). For example, there are growing calls for marine conservation success to move beyond area coverage to include a broader set of metrics related to the effective and equitable management of the marine environment (see Bennett et al., 2021). Hence, the more information the better when establishing integrated, well-designed and connected MPAs – for example, the more information on a sea area, the coastal populations and their socio-ecological relationships, the better stressors, systemic impacts and inter-annual variabilities can be identified, and the more effective protection can be developed (Relano, Palomares & Pauly, 2021, p.13).

The majority of the literature identified is on: governance and management of MPAs in the focus countries (mixture of academic and donor and grey literature); illegal, unreported, and unregulated (IUU) fishing and artisanal fishing around the focus countries (mixture of academic and grey and donor literature); and the use of maritime routes by serious organised crime (mostly donor and grey literature). Literature on the political and intra-organisational dynamics of the large MPAs in the Eastern Tropical Pacific region and between the countries of CMAR was more limited and difficult to identify. The review and search terms were not exhaustive. So this could be a reflection of the focus of this review on MPA dynamics, issues and cooperation, rather than broader political dynamics and foreign relations between the four countries, which may be captured more in political theory and foreign relations literature. There was also generally less information on MPAs and related issues in Panama. It was also outside the scope of this report to review literature in the Spanish language. Therefore, a large swath of literature, especially from non-governmental organisations (NGOs), is likely to have been missed.

Key drivers of socio-economic issues connected to MPAs in the region relate to contextual factors such as weak governance, (lack of) stakeholder engagement, surveillance, leadership, political will, enforcement, and the existence of conflict resolution mechanisms (Giakoumi et al., 2018, p.2; Mizrahi et al., 2019, p.4). Generally, the issues this rapid review focuses on in relation to MPAs, such as non-compliance, illegal, unreported and unregulated (IUU) fishing, social-economic issues etc., remain underrepresented in MPA research and monitoring, which largely focuses on ecological performance and biodiversity effects. Due to the limited scope of this rapid review, the question of defining effectiveness is not possible to explore in detail, nor a discussion of the effectiveness of MPAs as a model. Whilst important to consider, the extensive literature that discusses enabling conditions and lessons learned for the “effective” planning, design, implementation, governance and management of MPAs is also not included (see, for example,

the recent MPA Guide: A framework to achieve global goals for the ocean by Grorud-Colvert et al., 2021).

2. Marine protected areas in CMAR

Marine protected areas (MPAs) are a tool for protecting biodiversity through the regulation of maritime activities, usually applied to limit extractive impacts and, in particular, fishing (Iacarella et al., 2021, p.1). An MPA is included in IUCN's protected area definition: "A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values".¹ Exclusive economic zone (EEZ) "comprise coastal nation state jurisdiction in the oceans, out to 200 nautical miles (nm) from the baseline (normally the low-water mark). States can [sometimes] extend their EEZs further in cases where their continental shelf extends past 200 nm... States maintain sovereign rights within the EEZ, for both exploration/exploitation and conservation/management of marine living and non-living resources, both in the water column and on the seabed and under its subsoil" (De Santo, 2018, p.35).

This section provides a brief overview of CMAR and the management of selected MPAs and national marine reserves in the CMAR countries. This information is not exhaustive and is as up-to-date as has been possible to identify in the timescale of this rapid review

2.1 CMAR

The Eastern Tropical Pacific Marine Corridor (CMAR)² is an intergovernmental initiative between Colombia, Costa Rica, Ecuador, and Panama established in 2004 as a result of the San José Declaration. It is a voluntary regional cooperation mechanism for aligned sustainable management of the Eastern Tropical Pacific and the establishment of an MPA network.³ This is supported by civil society, international cooperation and non-governmental organisations. In 2017, CMAR and PACIFICO⁴ signed a memorandum of understanding with the objective of establishing a strategic alliance to help mobilise resources, create a five-year work plan for 2017-2022, and support the development of CMAR's new 2019-2024 Action Plan. There is a rotating secretariat (the Technical Secretariat Pro-Tempore) to oversee the initiative and coordinate the individual country's work plans; Costa Rica has the current presidency for three years, a role previously held by Ecuador.⁵ The CMAR benefits approximately 3.5 million people and their local economies; at least 48,000 artisanal fishermen depend on the CMAR's marine resources, as well as around 50,000 vessels for industrial fishing (Garcia Leon, n.d.).

¹ Taken from <https://www.iucn.org/content/when-a-marine-protected-area-really-a-marine-protected-area> [accessed 08/06/2022]

² See <http://www.cmarpacifico.org/> (in Spanish) [accessed 08/06/2022]

³ Information taken from <https://conservationcorridor.org/ccsg/working-groups/mcwg/mcwg-activities/case-studies/etp/> [accessed 07/06/2022]

⁴ PACIFICO is a regional financing platform created in 2017 and made up of four environmental funds from Colombia, Costa Rica, Ecuador, and Panama, with the aim of mobilising financial resources to implement marine-coastal conservation actions in the Eastern Tropical Pacific.

⁵ Information taken from <https://redpacifico.net/cmar-pacifico-alliance/> [accessed 17/06/2022]

At COP26, the Presidents of Colombia, Costa Rica, Ecuador, and Panama signed a declaration to permit the extension of CMAR to link several existing MPAs and swimways, pledging to create a “mega MPA” forming an interconnected protected area and building on commitments to CMAR (see Figure 1). In addition, a fishing-free corridor will be integrated into one of the most important marine mammal migratory routes. CMAR connects the Baulas de Guanacaste National Park (Costa Rica), Cocos (Costa Rica), Coiba (Panama), Galápagos (Ecuador), Gorgona (Colombia), and Malpelo (Colombia) Islands; it is aimed at contributing to the targets of the High Ambition Coalition for Nature (30x30 Coalition) to protect at least 30% of oceans and terrestrial resources by 2030.⁶

Figure 1: The proposed mega MPA of CMAR, covering over 500,000 km².

This image has been removed for copyright reasons. The full image can be viewed at <https://www.theguardian.com/environment/2021/nov/02/four-latin-american-countries-join-protected-marine-reserves-to-create-mega-mpa>

Source: Collyns, 2021 [The Guardian article]

Governance

A recent article by Enright et al. (2021) explores the regional ocean governance in the Eastern Tropical Pacific, describing how, in the absence of an external, overarching and coherent regional ocean governance framework, the four coastal States came together to create a regional cooperation mechanism (CMAR). Ocean governance is generally understood to encompass the legal and institutional frameworks for the management of ocean space, activities and marine resources, with the view to maintaining the ocean health, productivity, and resilience (UNCTAD, 2019, p.vi). Enright et al. (2021, p.11) highlight that the four member states of the CMAR 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.” CMAR consists of a political component (Regional Ministerial Committee (RMC) as the key decision-maker, advised by each State’s Foreign Ministry), and a technical component (Regional Technical Committee (RTC) defining the actions needed to implement CMAR). Regional Working Groups represent key priority areas: Tourism, MPAs, Science, Fisheries, and Communications.

Successes 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. However, there are still challenges, and CMAR suffers from weaknesses experienced by regional ocean governance more generally – such as 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 cited in Enright et al., 2021, p.11). While the non-binding and voluntary nature of the cooperation can secure regional political engagement more readily, it also creates significant implications for implementation and enforcement, such as a lack of devoted funding and insufficient resources. Another challenge is appropriately integrating CMAR actions into the distinct cultural, political,

⁶ Taken from <https://www.state.gov/u-s-government-support-for-the-eastern-tropical-pacific-marine-corridor/> [accessed 07/06/2022]

legal and economic systems of four different member States, as well as acting within other regional ocean governance mechanisms with uneven geographical overlap (Enright et al., 2021). Political will remains critical to the long-term success of CMAR.

Enright et al. (2021, p.11) highlights that the “integration within the wider [regional ocean governance] context via cooperation and coordination with key intergovernmental bodies in the region, such as the [Commission for the South Pacific (CPPS)], could be a way to enhance CMAR’s standing, especially on a wider regional and global scale” and would help provide a link between the global and national level of governance. Key components of regional ocean governance in the Eastern Tropical Pacific in addition to CMAP include: UN Regional Seas Program for North East Pacific (RSP NEP) [proposed]; UN Regional Seas Program for South East Pacific (RSP SEP); Permanent Commission for the South Pacific (CPPS) & Regional Fisheries Body (RFB); Inter-American Tropical Tuna Commission (IATTC) & Regional Fisheries Management Organization (RFMO); South Pacific Regional Fisheries Management Organization (SPRFMO); and Large Marine Ecosystem Pacific Central American Coastal (LME PCAC) (see Table 1 in Enright et al., 2021, p.10 for further details of each). Enright et al. (2021) recommend strengthening of the regional ocean governance framework applicable to the Eastern Tropical Pacific, as it is currently fragmented, with limited cross-sectoral cooperation, differing membership compositions and varying geographic coverage.

2.2 Shared MPA enforcement issues

An analysis by WildAid in 2010 identified common law enforcement challenges encountered by Colombia, Costa Rica, Ecuador and Panama in relation to their national MPAs (see Table 1). The recommendations are still mostly relevant for strengthening monitoring, control and surveillance (MCS) policy as the challenges remain topical over a decade on, although some recommendations have already been addressed in recent years. For example, Ecuador has taken migration control measures, issued regulations that regulate tourism in protected areas and acquired more coast guard vessels (Cremers, Wright & Rochette, 2020).

Table 1: Common challenges related to the designation, establishment, and management of MPAs in the Eastern Tropical Pacific countries

This image has been removed for copyright reasons. The full image can be viewed at <https://www.issuelab.org/resources/26036/26036.pdf> pp.70-71

Source: WildAid, 2010, pp.70-71

2.3 MPA creation, management and legal regimes

Ecuador

Since 1998, the Galapagos Islands has been governed under a different legal regime than the rest of the Ecuadorian territory by a special law (the *Ley Orgánica de Régimen Especial para la Conservación y Uso Sustentable para la Provincia de Galápagos*, or LOREG by its Spanish acronym). The LOREG (reformed in 2015) regulates all activities in Galapagos and is based on the principles of conservation, sustainability, and well-being (Viteri Mejía et al., 2022, p.3). A number of government entities govern the territory under this special regime (both in the

protected and non-protected areas); most important include the Governing Council of the Special Regime of Galapagos (CGREG, acronym in Spanish), which governs the non-protected territory (human settlements, 3% of the surface); and the Galapagos National Park Directorate (DPNG, acronym in Spanish), which governs the protected areas (including the Galapagos Marine Reserve (GMR)).

The GMR was created in 1998 and is managed as a multi-use protected area of 137,975 km² with different zones, e.g., a no-take area of 1,323 km² and conflicting objectives (artisanal fishing, tourism, and conservation). Since its inception, the GMR has been mired in issues related to different interests and power struggles (Burbano, Meredith & Mulrennan, 2020). Industrial fishing is banned within the GMR, while small-scale fisheries are permitted for registered fishers of the local community (Moity, 2018). Fishing management actions and tools are designed and applied by the DPNG authority. From 1998 up to 2015, fisheries governance in Galapagos comprised of two levels of decision and policy-making: the participatory co-management board (JMP, acronym in Spanish) at the local level and the interinstitutional management authority (IMA) at the national level. During that period, management forums were collective bodies formed by government entities and users, where decisions were taken by consensus within the JMP and by simple majority voting within the IMA (Ramírez-González et al., 2018 cited in Viteri Mejía et al., 2022, p.3). This co-management of the GMR shifted in 2015 (with the approval of a new regulatory framework of the LOREG in 2015) to a consultative rather than participatory scheme, where government authorities consult with fishers yet independently reserve the right for final decisions (LOREG, 2015 cited in Viteri Mejía et al., 2022, p.3).

The first zoning plan of the GMR was declared in 2000 following a consensus of the Participatory Management Board and later physically demarcated in 2006, with the aim of reducing conflicts between uses, protecting marine biodiversity, and promoting sustainable uses (Heylings et al., 2002 cited in Moity, 2018, p.1). However, the Galapagos National Park did not fully deliver zoning maps for all the agreed zones and no rules were established to follow when two different subzones intersected. Given the complicated geography of the islands, there are many places along the Galapagos coastline where several subzones intersect; creating confusion in enforcement and compliance and potential conflicts among users, as well as posing many difficulties (and biases) to the calculation of extractive and non-extractive areas within the GMR coastal waters (Moity, 2018, p.2). In 2014 the DPNG initiated the rezoning plan process for the protected areas of Galapagos, in part to resolve these ambiguities. New zoning arrangements were officially approved in 2016. Still, full implementation has been delayed due to resistance from small-scale fishers to both process and outcome (Burbano & Meredith, 2020, p.1) (see livelihood section for further discussion of the zoning issues and resistance). Other challenges faced by the GMR include “Law enforcement, the lack of strong fishing regulations, financial stress of public institutions, patrolling and surveillance capacity” (Castrejón and Charles, 2013; Timpe, 2016, all cited in Moity, 2018, p.2).

Colombia

Two ministries have the competency to manage the fisheries and aquaculture sector in Colombia: the Ministry of Environment manages hydrobiological resources; the National Authority for Aquaculture and Fisheries (AUNAP, Spanish acronym) manages fisheries resources. Since 1974, Colombia has used a System of National Protected Areas (SINAP) to coordinate stakeholders, resources and initiatives, including a sub-system of National Marine

Protected Areas (SMPA) that now includes 35 MPAs (across its Pacific and Caribbean coasts) (Cremers, Wright & Rochette, 2020, p.17). Colombia's Institute of Marine and Coastal Research (INVEMAR) supports decision-making processes on issues such as the design, creation and establishment of MPAs through research inputs. The National Environmental Policy for the Sustainable Development of Oceanic Spaces, Coastal and Island Areas (PNAOCI) was approved in 2001 to integrate the management of Colombia's marine and coastal environment. The Maritime Directorate of the Ministry of Defence (DIMAR) was established with the goal of consolidating the governance of its maritime, river and coastal activities, while contributing to its positioning as a regional maritime power by 2030. DIMAR has headquarters in Bogotá, with 20 local offices in the Caribbean and the Pacific, which also serve as port authorities. MCS of maritime zones in Colombia is a responsibility of both DIMAR and the Navy, which has the priority to protect Colombian borders and to fight drug trafficking (Cremers, Wright & Rochette, 2020, p.19).

Costa Rica

In 2019, six ministries decreed the creation of the governance mechanism for marine areas subject to the jurisdiction of the Costa Rican State. As stated in the decree N° 41775- MP-MSP-MAG-MINAE-MOPT-TUR (Gobierno de Costa Rica, 2019), the focus lies in the (i) consolidation of an instrument that promotes inter-institutional coordination for the management and *participatory management* of marine resources in order to take advantage of the ecosystem services they offer in a sustainable way; and in (ii) *guaranteeing the active and effective participation of society* in the integral management of the sea, through the zoning of Costa Rican jurisdictional waters and the establishment of *regional bodies for formal citizen participation*. This decree is complemented by policies such as the National Sea Policy (2014) and the National Strategy for Comprehensive Management of Marine-Coastal Resources of Costa Rica (2008), which, amongst others, call for an integrated management of marine and coastal resources.

The Costa Rican Institute for Fisheries and Aquaculture (INCOPECSA), a quasi-governmental entity, is responsible for the governance of national fisheries. INCOPECSA supports a small-scale fisheries co-management programme to create Responsible Fishing Areas (AMPRs), a form of marine protected area that allows certain types of resource use with explicit goals to support community-based co-management with INCOPECSA (Partelow, Jäger & Schlüter, 2021, p.190). This is achieved by developing community-based rules for fishing to enhance ecological conservation and social welfare by pursuing alternative livelihood opportunities not based on resource extraction (i.e., aquaculture and tourism). Fishing communities “able to self-organize a fishing association and develop a management plan can apply for support from INCOPECSA for an AMPR allowing legitimized access and withdrawal rights and participation in some management decisions with the responsible agencies within a spatially defined marine area” (Lozano and Heinen 2015, 2016 cited in Partelow, Jäger & Schlüter, 2021, p.190). For example, in the Gulf of Nicoya on the Pacific coast of Costa Rica, there are seven AMPRs. The AMPRs are co-managed between local fishers associations and INCOPECSA, which provides legal support and assistance. Monitoring and enforcement rights are given to communities but are also a responsibility at the national level of the Guarda Costa (Coast Guard). “However, responsibilities for nearly all AMPR governance are expected from the communities, empowering local fishing communities to take control of resource management that has historically been controlled by the central government” (Carrillo et al. 2019 cited in Partelow, Jäger & Schlüter,

2021, p.190). Although the AMPRs represent a move towards more inclusive development processes, they face substantial challenges for practical implementation.

Myers and Yozell (2018, p.36) in a summary of the National Maritime Interagency Advisory Group (NIAG) discussion of illegal, unreported and unregulated (IUU) fishing in the Cocos Island MPA, highlight that “Many [attendees] suggested that INCOPESCA appears to be more supportive of the financial interests of the commercial fishing fleet than taking enforcement actions and developing sustainable fisheries.” Furthermore, attendees repeatedly emphasised the undue political influences around fisheries management and enforcement in Costa Rica, as well as its impact on political will to combat IUU fishing, although some progress within certain government entities has been made.

Located 550 km from Costa Rica, Cocos Island is a national park surrounded by a 12-mile no-take MPA zone established in 1982 and extended in 2002. A separate but adjacent conservation area, the Submarine Mountains Marine Management Area (SMMMA), was created in 2011 and is intended to serve as a buffer for Cocos Island MPA (Myers & Yozell, 2018, p.35). The MPA is a no-take fishing area, yet certain types of non-fishing vessels are permitted within the park boundaries. Myers and Yozell (2018, p.35) identify three main challenges to enforcement at the MPA: the remoteness of the MPA, the Coast Guard is not present, and current enforcement assets are inadequate or non-existent.

Panama

In 2005, Panama created Coiba National Park (PNC) comprised of Coiba island, 38 smaller islands and the surrounding marine areas (IUCN, 2020). The MPA encompasses one of the most extensive coral reef systems in the Eastern Pacific. Panama also created the Isla Boná Wildlife Refuge in 2019. Panama has also cooperated closely with Costa Rica and Colombia to identify priority sites for biodiversity conservation in the Caribbean and the Pacific coastal zones (Cremers, Wright & Rochette, 2020, p.31). In 2018, Panama established the Commission for the Formulation, Development and Monitoring of the National Policy of Oceans, creating an institutional framework for MCS activities to guide regulation and government action. Panama receives a significant amount of support for its MCS activities from international funders; such as the Global Environment Facility (GEF) and FAO as implementing partner in ABNJ (Cremers, Wright & Rochette, 2020, p.31).

Coiba National Park has multiple institutions and stakeholder groups involved in its science and governance. The Directive Council for the park is a council vested with decision-making powers and made up of representatives from government, civil society, and users, and academia. Normally meeting every three months, it operates as a governance mechanism enabling discussion, communication, and feedback among a diverse range of groups (Hastings et al., 2015, p.173). The Smithsonian Tropical Research Institute (STRI) and the University of Panama conduct research and STRI helped coordinate the development of the park’s management plan. The government entities ANAM (Panama’s National Authority for the Environment) and ARAP (Panama’s Aquatic Resources Authority) are the most involved government players. A number of NGOs are active in the park, including MarViva (active in strengthening fishers’ organisations and communities around Coiba), it was also involved in the initial political process of Coiba’s declaration and sits on the Directive Council (Hastings et al., 2015, p.173).

The IUCN in their 2020 conservation outlook assessment of Coiba National Park, ranking its conservation outlook as being of significant concern. This is mainly due to the pressures from unsustainable fishing and rapidly increasing tourism, which is happening without effective enforcement of regulations. Although the report flags that the impact of the COVID-19 pandemic on tourism numbers in the park in 2020 and beyond are unclear. This is coupled with the ongoing lack of a coherent management framework for the park and the low level of resources, which hinder effective surveillance and law enforcement across the marine part of the site (IUCN, 2020). Regulations for fishing activities in the Special Zone of Marine Protection (SZMP) were approved in January 2018 and subdivide the SZMP into three sub-zones: Hannibal Bank Habitat Protection Zone, Montuosa Island Marine Reserve and the Resource Management Zone (covering the majority of the SZMP). Fishing is completely prohibited only within the Montuosa Island Marine Reserve. Commercial fishing is allowed in the other two sub-zones. Further specific regulations outlined include seasonal bans on fishing of certain species and restrictions on fishing gear and size of boats (UNESCO, 2019 cited in IUCN, 2020). Concerns have been raised that the regulations in their current form essentially allow commercial fishing in almost 98% of the SZMP (UNESCO, 2019 cited in IUCN, 2020),

The Management Plan for the Coiba National Park was developed in 2009, but did not cover the SZMP, and the levels of funding, staff, and facilities were inadequate to implement it. Furthermore, the Plan expired in 2014, but was extended for 5 years. It is planned to revise the Management Plan for Coiba National Park, and this will be linked to the preparation of a Strategic Environmental Assessment for the World Heritage site and surrounding areas (IUCN, 2020). The effectiveness of the management system has been flagged as being of serious concern; this is related to the overall lack of enforcement of fishing regulations, the absence of a clear management framework for the entire site, the lack of clarity concerning coastal zone development, the lack of effective surveillance and monitoring, the general lack of engagement with local communities (although park staff are mostly recruited locally), and the slow progress in resolving issues (IUCN, 2020). Although mayors of adjacent municipalities and the Governor of the province are actively involved in the Executive Council for Coiba, there is still little evidence of current cooperation and capacity building with the local authorities and fishing communities (IUCN, 2020).

3. Socio-economic factors

Dasgupta (2018) highlights that understanding of how MPAs affect the well-being of local people is currently poor. “Proponents argue that MPAs can have an array of positive effects on fishing and coastal communities, including improved livelihoods from fisheries, political empowerment and new governance and job opportunities. Critics counter that MPAs restrict local communities’ access to their ancestral fishing grounds, make them poorer and often increase conflict between them and people involved in park management or tourism.” However, much of this is based on case reports that depend on interviews with local people. Although important, these are not experimental, and their results are subjective and reveal little about whether the establishment of MPAs, or some other socio-political factor, is really what’s driving these perceptions (Dasgupta, 2018).

4.1 Illegal, unreported and unregulated (IUU) fishing

Large-scale illegal fishing can cause severe economic loss to coastal states (Witbooi et al., 2020, p.51); illegal, unreported and unregulated (IUU) fishing itself can have detrimental effects on the livelihoods of licit fishers, coastline ecosystems, and fish stocks (Seminario, Sandin & Parham, 2021). However, calculating the economic loss and impact on government revenues due to illegal, unreported and unregulated (IUU) fishing is difficult, and estimates vary (Bello, 2021). For a definition of IUU see Box 1 in Widjaja et al. (2020, p.11). IUU fishing is closely linked with a range of illegal activities, which are generally linked with traditional serious organised crime, and there is a growing trend amongst international bodies and inter-governmental organisations to recognise IUU fishing as itself a serious and highly organised crime (Phelps Bondaroff, Reitano & van der Werf, 2015, p.38).

Widjaja et al. (2020)⁷ highlight three key underlying drivers of IUU fishing: large economic incentives, weak governance at all levels that creates an easily evadable regulatory patchwork,, and poor enforcement, mainly due to the lack of surveillance, monitoring and consistent prosecution of illegal activities. Widjaja et al. (2020, p.11) describe the modus operandi of IUU fishing perpetrators as including “moving the catch from one vessel to another at sea (transshipment), using flags of convenience or non-compliance, using ports of convenience which offer little inspection, deactivating vessel monitoring or automatic identification and tracking systems (AIS), using a complex network of ownership, carrying fraudulent ship’s documents and maintaining poor conditions for the ship’s crew.” The report also flags that although most IUU fishing operates mainly offshore or just beyond territorial waters, it has invaded small-scale, artisanal fishing, with significant impacts.

Rampant overfishing in Latin America's oceans has led to an increase in regional vessels crossing into neighbouring countries' waters to fish illegally. The incursions have occurred with varying levels of sophistication and scale (Ford, 2021). See Figure 2. At present, bilateral enforcement agreements in the Eastern Tropical Pacific region are primarily focused on narco-trafficking rather than IUU fishing (Myers & Yozell, 2018). There is a general consensus that the fundamental problem in dealing with IUU fishing in Latin America lies in weak governance, which translates into inefficiency in monitoring and enforcement (Carrere, 2019). A commentary by Seminario, Sandin and Parham (2021) summarise a series of three off-the-record roundtables with regional experts and stakeholders to discuss the IUU fishing challenges on the Pacific coast of South America, the Caribbean, and Mexico and Central America. It highlights that China’s influence in Latin America has been an increasingly important topic in the context of its Belt and Road Initiative. Countries do not have an effective, cooperative response to IUU fishing. While part of the issue is attributable to enforcement capacity, a great deal of it is political, specifically regarding the countries’ relationships with China (Seminario, Sandin & Parham, 2021).

⁷ This is one of a series of Blue Papers prepared as an input to the High Level Panel for a Sustainable Ocean Economy. See <https://www.oceanpanel.org/ocean-science>

Figure 2: Illegal fishing hotspots in Latin America in 2021



Source: Ford, 2021 [Insight Crime article] reproduced under [CC BY-NC 3.0](https://creativecommons.org/licenses/by-nc/3.0/)

Costa Rica

In September 2017, a National Maritime Interagency Advisory Group (NIAG) meeting was convened on IUU fishing, focusing on enforcement within marine protected areas and at ports, with a further focus on two specific case studies on Chile and Costa Rica (Myers & Yozell, 2018). In the report of the meeting, the following is highlighted in relation to IUU in Costa Rica (Myers & Yozell, 2018, p.34):

- The primary IUU fishing threat comes from the foreign industrial fleet, including longliners and purse seiners⁸. It is projected by some in the government and the NGO community that the presence of foreign fishing vessels is expected to significantly increase in the coming years as fish stocks globally face increasing stress and depletion. For example, enforcement agencies of the Eastern Pacific estimated that about 600 Chinese fishing vessels were operating in the Pacific waters between Costa Rica and Chile.
- Domestic artisanal and commercial fleets also provide an additional threat, as the small boats are often not captured by the Automatic Identification System (AIS), and while

⁸ A purse seine is a large wall of netting deployed around an entire area or school of fish.

there is a Vessel Monitoring Systems (VMS), which is enforced on commercial ships, it has been very limited in its implementation and use on artisanal vessels.

- Moreover, foreign, largely industrial fleets are licensed by the government to fish in Costa Rica, typically for tuna. Costa Rican laws allow international fleets to capture 95 % of tuna caught within the country's EEZ, but little of their economic value is captured by Costa Rica as most of the fish is not landed or brought to market in Costa Rican ports. Most of the catch is taken to processing facilities in neighbouring countries. Some suggest that this asymmetry exacerbates the economic struggles of local fishermen.

Although Costa Rica introduced a ban on selling shark bycatch, Ford (2021) reports that it has failed to yield the desired result, with a lack of proper enforcement enabling the thriving trade in illegal fins to continue.

A report on the Cocos Island National Park (CINP) and the Submarine Mounts Marine Management Area (SMMMA) that compose the MPA in Costa Rica, highlight a high incidence of fisheries within the park boundaries (Rodriguez & Rosero, 2018, p.21). It discusses the methods used for IUU fishing in the area by local fishers, namely: the use of longline placed outside the boundary to drift toward the protected zone (in order to keep boats undetected to the surveillance); deploy fish aggregating devices (FADs), both with radio locator or just precarious constructions; monitoring of the patrol boats movements or their operational status in order to enter the area when they are outside or under maintenance; use of explosives (less common); use of "bait boats" in a far area with the purpose of attracting the attention of Park Wardens to that sector leaving other sectors unattended (less common). In SMMMA the gear used by the tuna fleet vessels is the purse seine complemented with the deployment of FADs found mainly at the southern sectors of the Cocos Marine Conservation Area (CMCA) up to the southern boundary of the Costa Rican EEZ. Costa Rica does not have any tuna purse seiners under its national flag; therefore, all the tuna ships that operate within the EEZ are foreign (international flag) (Rodriguez & Rosero, 2018, p.21). Analysis in the paper of data from Global Fish Watch (GFW) between 2014-2017 identified fleets of eight different flags performing fishing activities within the Costa Rican EEZ (Venezuela, Nicaragua, Panama, Colombia, USA, Peru, Spain and Kiribati) (Rodriguez & Rosero, 2018, p.31). Other foreign fleets fishing in Costa Rica's EEZ come from Ecuador, El Salvador, Guatemala, and Mexico. Although, there was a large proportion (about 50%) of fishing activity in the EEZ that could be considered as "dark" as it did not operate AIS locators for identification. From this "dark" fleet, Inter American Tropical Tuna Commission (IATTC) reports show fishing activities from boats with Chinese, Japanese, Korean, Spain, Ecuadorian and Taiwanese flags (among others) (Rodriguez & Rosero, 2018, p.37).

Costa Rica has established "Six Marine Areas for Responsible Fisheries located on the Pacific coast, where 90% of landings occur" to help tackle IUU fishing (FAO, 2015 cited in Cremers, Wright & Rochette, 2020, p.31).

The main challenges to enforcement in and around the Cocos Island MPA are: (1) limited resources; (2) limited human capacity; and (3) limited patrolling capacity due to a lack of vessels and other equipment (Myers & Yozell, 2018, p.35). Enforcement is conducted entirely by the National System of Conservation Areas (SINAC) rangers using small boats, with a focus on stopping illegal fishing within the MPA. But the rangers have limited patrol capacity and, as a consequence, mostly serve a deterrence role. A system of radars was installed on the island in 2011 by a coalition of NGOs, however, there is limited radar coverage of the south-eastern side

of the island and general maintenance of the radars is problematic given the remoteness of the island. The radar is used by the park rangers, as well the Coast Guard for enforcement against maritime crimes, particularly narco-trade, but not IUU fishing from artisanal fleets. When a park ranger catches persons fishing in the MPA, they can seize the vessel and catch, detain the fisher, and file a criminal complaint with the courts – this can include transferring fishers caught fishing illegally to Puntarenas, where they are then arrested. The current law requires fishers accused of engaging in IUU fishing in the Cocos Island MPA to present themselves to the court in Puntarenas within 24 hours of the incident. However, given the distance of the MPA from Puntarenas, this requirement is nearly impossible to meet, which discourages rangers from taking full legal action against perpetrators. As a result, in most cases, perpetrators are released with a warning or sometimes a fine (Myers & Yozell, 2018, p.36). It is suggested that an increased Coast Guard presence at Cocos Island would provide much-needed support for the park rangers (Myers & Yozell, 2018, p.36). As of 2018, Conservation International and Friend of Cocos Island were “developing a process to expand operational and analytical capacities with both the Coast Guard and SINAC officers [around Cocos Island MPA], and is expected to be implemented during 2018”. Conservation International and Asociación Costa Rica por Siempre also started a project in 2012 that uses available technologies, resources and existing infrastructures to implement Costa Rica’s maritime surveillance system.

A key lesson learned from MCS projects in Costa Rica is that “even if financial resources and technology are available for MCS purposes, this is not sufficient to strengthen MCS. The State in question should also have the political will to make use of (foreign) capital and capacity to expand its mandate or efforts to ensure something will change on the ground. This includes the willingness to clarify which government institution is responsible for which type of MCS activity and to establish coordination mechanisms between different government institutions” (Cremers, Wright & Rochette, 2020, p.32).

Colombia

A brief for Insight Crime highlights that Colombian authorities have been reporting an increase in fishing vessels from Ecuador, China and Panama, off the country’s Pacific coast and near Malpelo since 2017 (Olaya, 2019). It reports that illegal fishing boats often work in partnership with smaller motorboats which allow them to quickly move their catches to safer areas, away from authorities, if needed. The increase in illegal fishing and foreign boats in Malpelo, indicates that the government has been unable to stop them, despite coordinated efforts by the navy, the national park’s staff and NGOs (Olaya, 2019).

According to Cremers, Wright, and Rochette (2020, p.19), “Fisheries management rules and MCS activities are different in neighbouring countries [to Colombia], thereby encouraging IUU fishing activities in Colombian waters, where there are less MCS activities.” They summarise that the fishing sector and associated MCS activities have not been a key priority for Colombia until recently, so activities are relatively weak. Colombia has recently invested capacity in tackling IUU fishing through better inter-institutional cooperation at a national level.⁹ However, there is still a lack of clarity among State institutions with competence in this sector on the responsibility for

⁹ For example through the Colombian Ocean Commission (COC) established National Roundtable on Illegal Fishing and Illicit Fishing Activities (MNPII) to help coordinate institutional efforts.

MCS activities. Cooperation and coordination between Colombia and neighbouring countries to tackle MCS issues and share information or capacity at a regional level is limited (by Cremers, Wright & Rochette, 2020, p.22). There is also criticism of the influence the industrial fishing sector has in establishing extraction quotas in Colombia (Carrere, 2019).

Ecuador

The EEZ waters off Ecuador's mainland have become a hotspot for increased IUU fishing activity by foreign fleets (Bello, 2021). In the Galapagos, the top three entities with fishing fleets operating (or having operated) within the EEZ between 1998–2018 are: Ecuador (72%); Unknown country (due to a lack of/ or turning off of verification equipment on board) (17%); Panama (4%) (Relano, Palomares & Pauly, 2021, p.6). China has been consistently ranked the world's worst IUU fishing offender due to its massive distant-water fishing fleet, and several hundred Chinese vessels operate in Latin America's oceans year-round. They have long been accused of plundering two main fishing grounds -- the waters near Argentina in the South Atlantic and those near Chile, Peru and Ecuador in the South Pacific (Ford, 2021). They have become expert at trawling for squid just outside these countries' EEZs, and often turning off their ship's AIS (Ford, 2021). In 2020, Ecuador warned that the Chinese fleet was trawling along the EEZ around the Galapagos Islands (Ford, 2021). In 2021, after huge negative attention, China imposed stiffer sanctions on companies caught turning off transponders, tightened transshipment reporting requirements and instituted a **ban** on off-season squid fishing near Argentina and Ecuador (Ford, 2021).

Relano, Palomares and Pauly (2021, p.6) highlight that although the no-take areas in the GMR only occupy 1% of the MPA (or 0.2% of the EEZ), "the lack of consultation and participation of the small-scale fishers during the MPA creation has led to many disputes. This resulted in conservation efforts having little support on the island, despite the dependence of Galapagos' economy on tourism." They highlight the following fishery pressures on the fisheries resources in Ecuador's EEZ around Galapagos (Relano, Palomares & Pauly, 2021, pp.8-9):

1. An artisanal fishery by about 1000 fishers (98% men) residing in the Galapagos Islands;
2. A tourist-based recreational fishery – this is supposed to be catch-and-release, but few released fish survive the stress;
3. A legal industrial fishery by industrial vessels from the Ecuadorian mainland;
4. Illegal foreign fishing – countries such as Colombia, Japan, Costa Rica, Taiwan and South Korea have been involved in illegal longline fishing;
5. Large foreign (mainly Chinese) fisheries just outside the EEZ, relying on species that, to a large extent, will complete their life cycle within the Galapagos EEZ.

However, Ecuador's fishing industry also undertakes IUU fishing in protected areas such as Colombia's Malpelo sanctuary and Costa Rica's Cocos Island. An article in the Economist highlights that at least 136 large Ecuadorean fishing vessels entered the GMR between 2018-2020 according to park authorities. Ecuadorian boats also illegally transfer their catch on the high seas to larger vessels, which carry them to other markets ("Ecuador: Piscine plunder", 2020, p.48). Ecuador's fishing industry is made up of more than 400 semi-industrial vessels, small boats with no machinery that catch a greater variety of fish, and the largest tuna fleet in the eastern Pacific, with around 115 large, mechanised ships. Purse seining and longlining are the

tuna fleet's main ways of fishing and often result in high levels of by-catch ("Ecuador: Piscine plunder", 2020, p.48). Ecuadorian industrial ships also use FADs, which are released into the current that passes through the Galapagos islands' protected area to attract prey, which are then tracked with GPS and surrounded with nets when they leave the protected zones, entrapping other species such as turtles, sea lions, manta rays and sharks ("Ecuador: Piscine plunder", 2020, p.48). Ecuador's tuna fleet has long come under criticism for massive bycatch when using large nets and longline fishing gear. However, under Ecuadorian law, the shark bycatch, including valuable fins, can be sold, which some environmentalists say has led to sharks being illegally targeted and sold (Ford, 2021). According to a study in 2015 by the Pew Charitable Trusts, Ecuadorian ships deploy more FADs than those of any other country ("Ecuador: Piscine plunder", 2020, p.48).

Ecuador has a National Oceanic and Coastal Policy that has been in force since 2011 (Cremers, Wright & Rochette, 2020, p.24). After threats by the EU in 2018 to restrict Ecuador's access to its market unless it stepped up action against IUU and having its fishing industry accused of violating international conservation agreements by the National Oceanic and Atmospheric Administration (NOAA) in 2019 ("Ecuador: Piscine plunder", 2020), Ecuador has undertaken a number of corrective measures in respect to IUU fishing. For example, legislators committed to more sustainable practices in Ecuador's fisheries and higher environmental standards, passing the Law on the Development of Aquaculture and Fisheries, which went into force on 21 April 2020. This replaces legislation from 1974, integrating modern legal and environmental concepts and helping to harmonise domestic regulations with international law and treaties signed and ratified by Ecuador, and increases fines for illegal fishers ("Ecuador: Piscine plunder", 2020). "In terms of MCS, this law 1) establishes a National Fund for Aquaculture and Fisheries Research; 2) obliges artisanal vessel owners to install satellite monitoring devices on board for safety purposes and 3) indicates the means to carry out MCS activities and implement the law, e.g. using technical reports issued by the Satellite Monitoring Center, RFMOs, onboard observers and the Public Research Institute of Aquaculture and Fisheries" (Cremers, Wright & Rochette, 2020, p.23). However, the full implantation of this new law is still pending, including much of the overall framework to improve sustainability (Bello, 2021, p.6). Furthermore, the fishing industry continues to get special treatment from the government ("Ecuador: Piscine plunder", 2020). A new law is also currently being adopted "on navigation, security management and maritime protection that will aim to tackle increasing security concerns related to fishing activities, the increasing illegal fishing and drug trafficking routes in the Pacific Ocean and ensure that Ecuadorian's national law is in accordance with international ocean governance requirements" (Cremers, Wright & Rochette, 2020, p.23).

In summary: Ecuador does not have an integrated MCS system; It has previously faced capacity challenges and has recently introduced a new law to strengthen its MCS infrastructure; Ecuador sees value in more collaboration and coordination with state and non-state actors to increase its capacity, but is not in favour of operational participation of non-state actors within its maritime jurisdictional spaces (Cremers, Wright & Rochette, 2020, p.24). Ecuador has also entered a number of bilateral agreements to help it target IUU fishing, such as signing an agreement with the Canadian government in 2021 to improve its satellite monitoring and conducted more aerial ocean patrols using spy planes (Ford, 2021).

Panama

Industrial, commercial, artisanal, and sport fishing within Coiba National Park, both legal and illegal, pose the main threats to the site (Maté et al., 2015 cited in IUCN, 2020). Despite the adoption in 2018 of new fishing regulations for the Special Zone of Marine Protection after a long absence of any fishing regulations, unsustainable commercial fishing remains a very high threat. Concerns have also been raised that the regulations in their current form appeared to be insufficient to guarantee the protection of the site (IUCN, 2020). Patrolling efforts in the Coiba National Park have been considered insufficient, and very little patrolling and enforcement is undertaken in the SZMP (UNESCO/IUCN, 2014; IUCN, 2017; UNESCO, 2019 all cited in IUCN, 2020). Despite recent mechanisms such as the Coiba Fund, inscribed in law, funding levels still appear to be insufficient to ensure effective surveillance and law enforcement (UNESCO, 2019 cited in IUCN, 2020).

Panamanian-flagged vessels – many of them Chinese owned – regularly transship suspicious catch for unloading at local ports (Ford, 2021). Recently, Panama announced that it would ban blacklisted fishing vessels from docking in its ports and purchasing Panamanian licenses and flags, which would be a significant blow to Chinese IUU fishing in the region if enforced properly (which remains to be seen) (Ford, 2021).

USA

The US has made fighting IUU fishing in Latin America a priority. It provides a range of regional and bilateral support to the Eastern Tropical Pacific countries. USAID and NOAA's Partnership for Sustainably Managed Fisheries Initiative was signed in late 2021 and will help train port authorities and strengthen the ability of Colombia, Ecuador, and Peru to address IUU fishing and carry out effective management of MPAs (US Department of State, 2022). The US has also provided Colombia, Ecuador, and Panama with access to SeaVision, sharing US maritime domain-awareness information and enabling collaboration with maritime partners. The US Coast Guard also conducted counter-IUU fishing operations with Colombia, Costa Rica, Ecuador, and Panama in December 2021 as part of Operation Southern Shield. For further information on bilateral support see US Department of State (2022).

4.2 Organised crime in fisheries

Witbooi et al. (2020, p.48) highlight how the modern fisheries sector is exposed to organised crime. As with many other economic sectors, it is globalised, industrialised and integrated into the worldwide financial market. Furthermore, this is not a new phenomenon; however, interest has most likely been sparked by “the current focus on sustainable fisheries management in the context of a sustainable ocean economy that has focused attention on the role of organised crime in the emerging parallel shadow blue economy” (Witbooi et al., 2020, p.49). They further explain that crime in the fisheries sector can happen throughout the value chain (from the preparatory stage to at-sea activities to landing etc.), and criminal offences can thus be committed at sea, on land, at the coastal interface or in cyberspace. Furthermore, offences can be “conducted or continued extraterritorially, on the high seas and in other areas beyond national jurisdiction,...making most fisheries crime cases a transnational crime with the added complication of jurisdictional obscurity” (Witbooi et al., 2020, p.48). However, the authors flag that there is a knowledge gap with regards to the scale of organised crime in the fisheries sector, with

no publicly available statistical data that estimate the extent of organised fisheries crime and their location globally (Witbooi et al., 2020, p.54).

Drugs trafficking via fishing vessels is a well-documented issue, as fishing vessels “are ideal modes of transport for the movement of drugs given their legitimate presence at sea, the lack of transparency around their movement, identity and ownership, and their ability to tranship and access small harbours” (Witbooi et al., 2020, p.50). Drugs trafficking via fishing vessels can occur in conjunction with transporting other illicit goods as well as with the smuggling of migrants. For example, in Colombia, a range of inter-related offences, including the trafficking of illegal arms, human trafficking, smuggling of fuel and other contraband, large-scale illegal fishing and wildlife trafficking interlink with organised drug trafficking in the fisheries sector (Witbooi et al., 2020, p.51). Forced labour is increasingly identified as being pervasive in the fisheries sector, with criminal networks using forced labour to cut costs and boost profits. “In addition to the implications for human rights, this results in unfair competition with legal operators, which, in turn, can influence legitimate fishing companies to breach domestic crewing regulations in an attempt to remain competitive” (Witbooi et al., 2020, p.51).

Smuggling is also another issue in the fishing industry, as it provides ideal cover for smuggling of otherwise legal goods from one jurisdiction to another in violation of the law. For example, in Ecuador, small-scale fishers smuggle subsidised Ecuadorian fuel to the neighbouring coast of Colombia, where it is sold at a considerable profit (Ralby & Soud, 2018 cited in Witbooi et al., 2020, p.52). Smuggling of fuel in fishing vessels is often undertaken alongside illicit goods, such as drugs, illegal weapons, and people. Although the smuggling of migrants is alleged to be prevalent, it is less well formally documented (Witbooi et al., 2020, p.52).

From go-fast boats to industrial ships, fishing vessels are used as cover to smuggle drugs across the Latin American region and beyond to European and African markets. In 2021, in southern Mexico, drug gangs set up fake fishing cooperatives whose boats then received cocaine from **Colombia** and **Ecuador**, according to a report by Mexico's Naval Secretariat (Secretaría de Marina - SEMAR) (Ford, 2021).

An older paper from UNODC (2011) highlights how in 2011 the **Costa Rican** police authorities dismantled a cocaine-smuggling network that used fishing vessels to transport drugs from Ecuador and Colombia to Central America and Mexico, according to the Costa Rican Security Ministry. Maritime routes in the Pacific at the time were identified as including fishing vessels acting as “motherships” transporting cocaine from Colombia, interacting and transshipping to smaller speedboats along the way. Costa Rica also noted its concern about the involvement of the fishing fleet in cocaine trafficking at the Sixty-Fourth General Assembly High-level meeting on Transnational Organized Crime in 2010 (UNODC, 2011, p.77).

South American narco-trafficking and its networks and routes are strongly linked to the **Costa Rican** fishing industry; two primary drug trafficking threats include traffickers from **Ecuador** and **Colombia** who bring products to Costa Rica by boat and land them on remote shorelines to be further shipped north; and traffickers who cross the Costa Rican EEZ to land products in neighbouring Guatemala (Myers & Yozell, 2018, p.35). Drug trafficking offers an alternative source of income for artisanal fishers, whose livelihoods are threatened by collapsing stocks and who tend to live in areas with limited economic options.

Coastal fishing villages have also been caught in drug gang turf wars. The **Ecuador** town of Posorja – a key cocaine dispatch point to the Pacific – experienced a surge in violence in 2021, with Fishers being shot and robbed of their boats, or vessels being torched (Ford, 2021).

A recent report on drug smuggling in **Colombia** from A&I multiprime (2022), describes the common strategies and methods currently used by drug traffickers in Colombia, with a focus on maritime transport. Drugs (mainly cocaine) from Colombia transit through a number of countries and ports before reaching the final destination. “According to the UNODC and national authorities, the cocaine trafficking main routes to the United States begin in the Andean Countries departing mostly from Colombia and Ecuador. Drug trafficking is conducted mostly through the **eastern Pacific route** (74% of all cocaine smuggled to North America), the **western Caribbean route** (16%) and the Caribbean route (8%)” (A&I multiprime, 2022, p.5). Colombian drug traffickers constantly create new complex trafficking patterns to use commercial vessels and their crews to transit illicit substances worldwide, despite compliance by Colombian shipping terminals and controls implemented by the Navy and local authorities. Strategies include (A&I multiprime, 2022, p.3):

- Introducing bags filled with drugs in the sea chests and/or attaching them to the vessel’s hull, rudders, anchors, propeller, vents, or water inlets; using divers while the vessel is berthed or at anchorage.
- Hiding relatively small amounts of drugs in certain remote locations onboard (e.g. cabins, funnels, decks, store room or engine room) with collaboration of stevedores or even crew members. In some cases, visitors (with or without collaboration of the crew) board the vessel and quickly hide these packages in certain remote locations.
- Placing illegal substances within sealed containers before loading. One of the most common methods currently used by drug traffickers all around the world is to break into containers and hide drugs within the cargo, replacing then the security seals (usually this method involves certain level of collaboration from the terminal operators and/or the cargo agents). Most targeted containers are reefers.
- Burying packages with drugs within bulk cargoes. This method allows high quantities of illegal substances to be moved at any time, usually within the stow.

4.3 MCS in areas beyond national jurisdictions (ABNJ)

A report from the STRONG High Seas project (“Strengthening Regional Ocean Governance for the High Seas”) explores ways to enhance regional governance through more effective monitoring, control and surveillance (MCS) of maritime activities in areas beyond national jurisdictions (ABNJ) in the southeast Pacific (Cremers, Wright & Rochette, 2020). The report offers recommendations to the Member States of the Permanent Commission for the South Pacific (CPPS)¹⁰ with a view to supporting decisions on how MCS can be strengthened in the region. The report is based on exchanges from an expert workshop, which included participants identifying legal, institutional and technological challenges, sharing success stories, and highlighting needs. Most existing MCS rules were developed in the context of fisheries management. The report highlights that fishing is causing the most significant pressure on

¹⁰ Member states are Chile, Colombia, Ecuador, and Peru.

marine ecosystems in ABNJ of the Southeast Pacific and most MCS measures introduced in the Southeast Pacific area relate to fishing activities (Cremers, Wright & Rochette, 2020, p.8).

Cremers, Wright and Rochette (2020, p.39) highlight the role of civil society in national and regional MCS policies in the Eastern Tropical and South-eastern Pacific, and the need for states to clarify how they see the role of NGOs in their MCS policies and the extent to which they would like to cooperate with civil society. They provide the following examples of NGOs active in the CPPS region (Cremers, Wright & Rochette, 2020, p.39):

- Global Fishing Watch: a partnership founded by Oceana, Google and SkyTruth in September 2016, and now an independent NGO that aims to make global commercial fishing activity publicly available. It has partnerships with Peru, Panama and Chile. It also signed a MoU with PACÍFICO, a coordination platform comprised of four environmental funds in Central and Latin America, with the goal to collaborate with Costa Rica, Colombia, Ecuador and Panama to develop a joint strategy to improve transparency and fisheries control management at the regional level and strengthen their capacity to use fisheries surveillance and other MCS technology;
- OceanMind: began in 2014 as “Project Eyes on the Seas”, a collaboration between the Satellite Applications Catapult and The Pew Charitable Trusts”, but since July 2018 it has become an independent NGO with the aim to support enforcement and MCS professionals globally;
- Conservation International: American NGO founded in 1987 with a project on the Eastern Tropical Pacific Seascape, the waters, coasts and islands off the shores of Costa Rica, Panama, Colombia and Ecuador;
- Sea Shepherd Conservation Society: American NGO that started with Operation Mamacochoa in 2018, a high seas maritime patrol campaign that uses the vessel M/V Brigitte Bardot to patrol the Eastern Tropical Pacific Marine Biodiversity Corridor for IUU fishing activities.

4. “Success” factors and drivers of issues

4.1 Importance of contextual factors

An article by Giakoumi et al. (2018) explores the “success” and “failure” factors for different MPAs (including the Galapagos Islands MPA). They first emphasise that MPA effectiveness is not static. The stage of MPA establishment varied across their case studies depending on the age of each MPA. For each case study, they considered 23 factors that were identified through group discussions and a literature review as those commonly attributed to MPA “success” and “failure”. For each case study, five factors were ranked based on their importance for the success or failure of the case study (Giakoumi et al., 2018, p.2). Overall, they find that contextual factors, such as governance and socio-economic characteristics, rather than the design attributes, such as the MPA size were the factors viewed as principal drivers of success and failure of MPA effectiveness. “Stakeholder engagement was consistently selected as the most important factor affecting MPA success; its absence was most often linked to failure. Other factors that were reported as crucial for success, and their absence as drivers of failure, included: surveillance, leadership, political will, and the existence of sanctioning and conflict resolution mechanisms”

(Giakoumi et al., 2018, p.2). Effectiveness also depends on how the MPA authority influences the behaviour of marine users through enforcement and/or compliance (Giakoumi et al., 2018, p.4).

Another systematic review by Mizrahi et al. (2019) identified 32 socioeconomic factors that influence whether MPA placement has an impact on biodiversity and/or livelihoods and weighted the quality of evidence using a novel “Evidence for Impact” Score. They highlighted a diverse range of influential socio-economic factors but found that key factors include: “stakeholder engagement, poverty, population density, and strong leadership have most potential to positively impact biodiversity and/or livelihoods, but the direction of impact (i.e., positive or negative) can be context-dependent” (Mizrahi et al., 2019, p.4).

4.2 Multiple, inter-connecting drivers

Iacarella et al. (2021, p. 2) highlight that there are often multiple, interconnecting drivers for compliance and non-compliance by fishers that are related to social-economic factors of the local communities and also dependent on the MPA itself. They summarise that “Drivers of non-compliant fishing can stem from social and personal contexts that relate to self-interest, perceptions (including norms), beliefs, trust, and knowledge, and from external factors including surveillance effort and severity of fines.” Examples of non-compliance related to socio-economic contexts include: lack of awareness, social norms, livelihood or economic benefits, and ineffective governance. Local resource users believe it is their right and perceive regulations as illegitimate, either from lack of consultation during MPA planning and design, exclusion in governance during implementation and management, or if the governance or management of the MPA is ineffective or corrupt (Iacarella et al., 2021, p.2). External factors include insufficient enforcement and unclear MPA boundaries, zones, or gear restrictions, which can lead to involuntary non-compliance. “Large or remote MPAs are more difficult to patrol and may have more purposeful non-compliance from low perceived risk or, conversely, may have less non-compliance from reduced accessibility” (Iacarella et al., 2021, p.2).

A paper by Castrejón and Charles (2020) discusses the importance of considering a number of issues that affect fishing patterns when assessing marine zoning and the effectiveness of no-take zones. This includes understanding “how fishers respond to a combination of the implementation of no-take zones, and various climatic and human drivers of change” such as extreme climatic events (e.g., El Niño), the globalisation of markets, and the boom-and-bust exploitation of alternative fisheries (Castrejón & Charles, 2020, p.1). They argue that “each driver of change can produce “cascade effects” on the socio-economic dynamics of fishing communities, whether through changes in the availability and accessibility of target species or variations in environmental and market conditions” (Castrejón & Charles, 2020, p.2). The study uses long-term spatially explicit fishery monitoring data (1997–2011) for the spiny lobster fishery in the GMR to evaluate how fishing in this MPA was affected by the interaction of different drivers, before and after the implementation of no-take zones. They find that “the boom-and-bust exploitation of the sea cucumber fishery and the global financial crisis 2007–09, rather than no-take zone implementation, were the most important drivers affecting the distribution of fishing effort across the archipelago” (Castrejón & Charles, 2020, p.1). Substantial macro-scale changes in fishing effort dynamics were triggered by these drivers, which in turn altered the micro-scale dynamics of fishing patterns. Hence, while the need to understand the implications of MPAs for fisheries is clear, it is important to recognise that other factors affect fishing patterns in addition to MPAs.

4.3 Lack of local engagement in MPA governance in Costa Rica

Partelow, Jäger and Schlüter (2021) link fisher perceptions to the broader social-ecological context encompassing their experience of their governance reality in a small-scale fishing community on Isla Venado, Costa Rica. Isla Venado is located in the Gulf of Nicoya, located on the Pacific Ocean coast of Costa Rica. Here, a co-management approach is implemented to govern an MPA, referred to locally as Marine Areas for Responsible Fishing (AMPR). This is one of seven AMPRs in the Gulf of Nicoya and was established in 2015 to conserve mangrove habitat for fisheries and develop alternative livelihoods (through attracting small-scale tourism and developing aquaculture). The island is only 3.5 km² with 750 people (in 2015) in three artisanal fishing communities (Florida, Jícaro, and Oriente). Partelow, Jäger and Schlüter (2021) describe perceptions of fishers in the community and highlight that the acceptability of the AMPR was the most important governance issue on Isla Venado. Specifically, “While the AMPR is largely viewed [as] a legitimate policy concept, its effectiveness in the local context brought more diverse perceptions, particularly on the roles and responsibilities of different actors” (Partelow, Jäger & Schlüter, 2021, p.199) Generally the concept of the AMPR is accepted; nevertheless, conflicts over location and boundaries originate from the minimal inclusion and participation of community members during planning processes. Furthermore, the local fishers association (ASLOPE) only represents a small proportion of the fishers, mainly from one of the three communities; so “although most complained that the government was a main problem for AMPR implementation, they also recognized that cooperation among the island’s stakeholders in taking self-responsibility was not working” (Partelow, Jäger and Schlüter, 2021, p.199). This gives an indication of the difficulties of meaningful representation and participation of communities in marine protected areas, even on a small-scale.

4.4 Stakeholder engagement and perceptions in the Galapagos

The second zoning plan for the Galapagos from 2016 marked a dramatic change in the GMR’s management as it was designed to manage both land and sea territories, ensure the protection of key habitats for the provision of ecosystem services, and expand marine conservation areas from 10% to 33% (Galapagos National Park Service 2014 cited in Burbano & Meredith, 2020, p.4). The new plan included a large no-take zone surrounding the Islands of Darwin and Wolf and 21 smaller no-take areas distributed through the archipelago; losing approximately one-third of the fishers’ area (Burbano & Meredith, 2020, p.4). This new zoning plan has been actively resisted by small-scale fishers, resulting in the government proclaiming a one-year moratorium to help settle the conflict through further consultations and adjustments – this moratorium has been extended three times as GMR managers have faced sustained objections from the fisheries sector (Burbano & Meredith, 2020, p.6). Burbano and Meredith (2020) assess fishers’ perceptions of the rezoning process that underly their resistance to it. They emphasise that small-scale fishers comprise a heterogeneous group of individuals. However, they highlight five principal themes from fishers’ perceptions regarding the rezoning process: Pressure on Fishing Activities (i.e. *The new zoning will make fishing unsustainable*); The Burden of Increasing Regulations (i.e. *The fishing sector is constantly under pressure*); Inequity of Decision-Making (i.e. *Decision-making processes that favour the tourism sector*); Misappropriation/misapplication of information (i.e. *Sites reported as important for fishing activities were selected for closure*); and Issues of Control and Surveillance of Illegal Fishing (i.e. *[The fishers] presence helps to prevent industrial fishers to come inside the marine reserve*). These perceptions raise questions about the legitimacy, fairness, transparency, and viability of the GMR management tool and decision-

making processes and threats to local well-being based on power imbalances. The study further underlines the “strategic importance of incorporating human dimensions in MPA management and, more particularly, of understanding social concerns that may critically impede the progress of marine resource conservation” (Burbano & Meredith, 2020, p.1).

Viteri Mejía et al. (2022) explore the effects of COVID-19 on livelihoods and food security in the Galapagos Islands, which were impacted by the collapse of the local economy and changes to the food supply chain through dramatically reduced tourism and the loss of linkages with the Ecuadorian mainland. The authors report how the artisanal fishers of the Galapagos were highly adaptative to the diminishing demand for fish caused by the drastic drop in tourism, shifting roles from being mainly tourism-oriented providers to becoming local-household food suppliers. Fishers’ reorganised themselves in response to the COVID-19 pandemic “to carry out fishing trips in an orderly and homogeneous manner as much as possible to avoid saturating the local market,” which “led to coordination and cooperation among fishers; they collectively reduced the fishing effort, by establishing who could fish, and when” (Viteri Mejía et al., 2022, p.8). For example, the Santa Cruz Island fishers’ cooperatives and the boat-owners associations agreed on fishing shifts to avoid a market glut. Viteri Mejía et al. (2022, p.1) argue that “this new role of fishers has triggered an important shift in the perception of fishers and fisheries in Galapagos by the local community. The community shifted from perceiving fisheries as a sector opposed to conservation and in conflict with the tourism sector to perceiving fisheries as the protagonist sector, which was securing fresh, high-quality protein for the human community.” They caution, however, that it is unclear how long this public perception will remain after a return to “normalcy”, as is when or whether the previous negative image of fishers will return. Another development from the COVID-19 crisis has been the linking of small-scale fishers in Galapagos with food security; previously, their contribution to food systems was often overlooked, with research traditionally focusing on their biology, ecology, fish and seafood stocks management, and commercialisation (Viteri Mejía et al., 2022, p.13).

5. References

- A&I multiprime. (2022). Colombia Drug Smuggling Report – March 2022. A&I multiprime. <https://www.ukpandi.com/media/files/uk-p-and-i-club/correspondent-updates/2022/drugs-report-colombia.pdf>
- Bello, M. (2021). Ecuador on the Frontier of a Changing Ocean: Understanding the Impacts of Illegal, Unreported, and Unregulated Fishing on Ecuador’s International Economic Relations. Latin America’s Environmental Policies in Global Perspective, Washington, DC: The Wilson Centre. <https://www.wilsoncenter.org/publication/ecuador-frontier-changing-ocean-understanding-impacts-illegal-unreported-and>
- Bennett NJ, Katz L, Yadao-Evans W, Ahmadi GN, Atkinson S, Ban NC, Dawson NM, de Vos A, Fitzpatrick J, Gill D, Imirizaldu M, Lewis N, Mangubhai S, Meth L, Muhl E-K, Obura D, Spalding AK, Villagomez A, Wagner D, White A and Wilhelm A (2021) Advancing Social Equity in and Through Marine Conservation. *Frontiers in Marine Science*, 8:711538. <https://doi.org/10.3389/fmars.2021.711538>
- Burbano, D.V.; Meredith, T.C.; & Mulrennan, M.E. (2020). Exclusionary decision-making processes in marine governance: The rezoning plan for the protected areas of the ‘iconic’ Galapagos Islands, Ecuador. *Ocean Coastal Management*, 185, 105066. <https://doi.org/10.1016/j.ocecoaman.2019.105066>

- Burbano, D.V. & Meredith, T.C. (2020). Conservation Strategies: Through the Lens of Small-Scale Fishers in the Galapagos Islands, Ecuador: Perceptions Underlying Local Resistance to Marine Planning, *Society & Natural Resources*, 33:10, 1194-1212. <https://doi.org/10.1080/08941920.2020.1765058>
- Carrere, M. (2022, 26 April). Weak governance undermines South America's ocean ecosystems. *Mongabay Series: Sea Change*. <https://news.mongabay.com/2019/04/weak-governance-undermines-south-americas-ocean-ecosystems/>
- Castrejón, M., & Charles, A. (2020). Human and climatic drivers affect spatial fishing patterns in a multiple-use marine protected area: The Galapagos Marine Reserve. *PloS one*, 15(1), e0228094. <https://doi.org/10.1371/journal.pone.0228094>
- Collins, D. (2021, 2 November). Latin American countries join reserves to create vast marine protected area. *The Guardian*. <https://www.theguardian.com/environment/2021/nov/02/four-latin-american-countries-join-protected-marine-reserves-to-create-mega-mpa>
- Cremers, K., Wright, G., & Rochette, J. (2020). "Options for Strengthening Monitoring, Control and Surveillance of Human Activities in the Southeast Pacific Region", STRONG High Seas Project. <https://www.prog-ocean.org/wp-content/uploads/2020/11/STRONG-HS-MCS-CPPS-Report-1.pdf>
- Dasgupt, S. (2018). The ups and downs of marine protected areas: Examining the evidence, *Mongabay Series: Conservation Effectiveness*. <https://news.mongabay.com/2018/01/the-ups-and-downs-of-marine-protected-areas-examining-the-evidence/>
- "Ecuador: Piscine plunder: The country is often seen as a victim of predatory fishing. It is also a culprit." (2020, 21 November). *The Economist*, 48-50. <https://www.economist.com/the-americas/2020/11/21/ecuador-a-victim-of-illegal-fishing-is-also-a-culprit>
- Enright, S.R., Meneses-Orellana, R. & Keith, I. (2021). *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*. *Front. Mar. Sci.* 8:674825. <https://doi.org/10.3389/fmars.2021.674825>.
- Ford, A. (2021, 23 December). Game Changers 2021: How IUU Fishing Plundered Latin America's Oceans. *Insight Crime* news brief. <https://insightcrime.org/news/gamechangers-2021-iuu-fishing-plundered-latin-americas-oceans/>
- Garcia Leon, L.C. (n.d.). The Eastern Tropical Pacific Marine Corridor – CMAR. http://www.naturalresourcespolicy.org/docs/Hands%20Across%20Borders/TBC%20Profile%20Template_Eastern%20Tropical%20Pacific%20Marine%20Corridor_CMAR_Garcia%20Leon.pdf
- Giakoumi S, McGowan J, Mills M, Beger M, Bustamante RH, Charles A, Christie P, Fox M, Garcia-Borboroglu P, Gelcich S, Guidetti P, Mackelworth P, Maina JM, McCook L, Micheli F, Morgan LE, Mumby PJ, Reyes LM, White A, Grorud-Colvert K and Possingham HP. (2018) Revisiting "Success" and "Failure" of Marine Protected Areas: A Conservation Scientist Perspective. *Frontiers in Marine Science*, *Mar. Sci.* 5:223. <https://doi.org/10.3389/fmars.2018.00223>
- Gobierno de Costa Rica. (2019). *Creación del mecanismo de gobernanza de los espacios marinos sometidos a la Jurisdicción del Estado Costarricense*. http://www.pgweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?nValor1=1&nValor2=89298

- Grorud-Colvert K, Sullivan-Stack J, Roberts C, Constant V, Horta E Costa B, Pike EP, Kingston N, Laffoley D, Sala E, Claudet J, Friedlander AM, Gill DA, Lester SE, Day JC, Gonçalves EJ, Ahmadi GN, Rand M, Villagomez A, Ban NC, Gurney GG, Spalding AK, Bennett NJ, Briggs J, Morgan LE, Moffitt R, Deguignet M, Pikitch EK, Darling ES, Jessen S, Hameed SO, Di Carlo G, Guidetti P, Harris JM, Torre J, Kizilkaya Z, Agardy T, Cury P, Shah NJ, Sack K, Cao L, Fernandez M, Lubchenco J. (2021). The MPA Guide: A framework to achieve global goals for the ocean. *Science*, 373(6560): eabf0861. DOI: [10.1126/science.abf0861](https://doi.org/10.1126/science.abf0861)
- Hastings, J. G., Orbach, M. K., Karrer, L. B., & Kaufman, L. (2015). MMAS in Eastern Tropical Pacific Seascape. *Coastal Management*, 43(2), 172-188. <https://doi.org/10.1080/08920753.2015.1005537>
- Iacarella, J. C., Clyde, G., Bergseth, B. J., & Ban, N. C. (2021). A synthesis of the prevalence and drivers of non-compliance in marine protected areas. *Biological Conservation*, 255, 108992. <https://doi.org/10.1016/j.biocon.2021.108992>
- IUCN (International Union for Conservation of Nature). (2020) Coiba National Park and its Special Zone of Marine Protection: 2020 Conservation Outlook Assessment. <https://worldheritageoutlook.iucn.org/es/explore-sites/wdpaid/902479>
- Mizrahi, M. I., Diedrich, A., Weeks, R., & Pressey, R. L. (2019). A systematic review of the socioeconomic factors that influence how marine protected areas impact on ecosystems and livelihoods. *Society & natural resources*, 32(1), 4-20. <https://doi.org/10.1080/08941920.2018.1489568>
- Moity, N. (2018). 'Evaluation of No-Take Zones in the Galapagos Marine Reserve, Zoning Plan 2000'. *Frontiers in Marine Science*, 5:244. <https://doi.org/10.3389/fmars.2018.00244>
- Myers, E. & Yozell, S. (2018). Civil-Military Cooperation to Combat Illegal, Unreported, and Unregulated (IUU) Fishing: A Summary of the September 2017 National Maritime Interagency Advisory Group Meeting. The Stimson Center. <https://www.stimson.org/2018/civil-military-cooperation-combat-illegal-unreported-and-unregulated-fishing-summary/>
- Olaya, A. (2019, 13 May). Colombia Fails to Tackle Illegal Fishing in Malpelo Reserve. *Insight Crime* news brief. <https://insightcrime.org/news/brief/illegal-fishing-colombias-malpelo-reserve/>
- Partelow, S., Jäger, A., & Schlüter, A. (2021). Linking fisher perceptions to social-ecological context: mixed method application of the SES framework in Costa Rica. *Human Ecology*, 49(2), 187-203. <https://doi.org/10.1007/s10745-021-00228-x>
- Phelps Bondaroff, T.N., Reitano, T. & van der Werf, W. (2015). "The Illegal Fishing and Organized Crime Nexus: Illegal Fishing as Transnational Organized Crime." The Global Initiative Against Transnational Organized Crime and The Black Fish. <https://globalinitiative.net/wp-content/uploads/2015/04/the-illegal-fishing-and-organised-crime-nexus-1.pdf>
- Relano, V., Palomares, M. L. D., & Pauly, D. (2021). Comparing the Performance of Four Very Large Marine Protected Areas with Different Levels of Protection. *Sustainability*, 13(17), 9572. <https://doi.org/10.3390/su13179572>
- Rodriguez, A. & Rosero, O. (2018). Characterization and Analysis of Industrial Fisheries Pressures in the Cocos Marine Conservation Area and Surrounding Economic Exclusive Zone. San José: Faico – Friends of Cocos Island. <https://www.cocosisland.org/wp->

[content/uploads/2019/07/FAICO-Characterization-and-Analysis-of-Industrial-Fisheries-Pressures-Cocos-Marine-Area-and-Surroundings.pdf](#)

- De Santo, E. M. (2018). Implementation challenges of area-based management tools (ABMTs) for biodiversity beyond national jurisdiction (BBNJ). *Marine Policy*, 97, 34-43. <https://doi.org/10.1016/j.marpol.2018.08.034>
- Seminario, M.R., Sandin, L. & Parham, I. (2021, 19 July). Development Solutions to Address Illegal, Unreported, and Unregulated Fishing in Latin America and the Caribbean. Center for Strategic & International Studies (CSIS). <https://www.csis.org/analysis/development-solutions-address-illegal-unreported-and-unregulated-fishing-latin-america-and>
- UNCTAD. (2019). Ocean Governance In Costa Rica: An Overview on the Legal and Institutional Framework in Ocean Affairs. UNCTAD/DITC/TED/INF/2018/4. https://unctad.org/system/files/official-document/ditctedinf2018d4_en.pdf
- UNODC. (2011). *Transnational Organized Crime in the Fishing Industry, Focus on: Trafficking in Persons Smuggling of Migrants Illicit Drugs*. Trafficking United Nations Office on Drugs and Crime. https://www.unodc.org/documents/human-trafficking/Issue_Paper_-_TOC_in_the_Fishing_Industry.pdf
- US Department of State. (2022). U.S. Government Activities in the Eastern Tropical Pacific Seascape. Fact Sheet. <https://www.state.gov/u-s-government-activities-in-the-eastern-tropical-pacific-seascape/>
- Viteri Mejía, C., Rodríguez, G., Tanner, M. K., Ramírez-González, J., Moity, N., Andrade, S., ... & Pittman, J. (2022). Fishing during the “new normality”: social and economic changes in Galapagos small-scale fisheries due to the COVID-19 pandemic. *Maritime Studies*, 1-16. <https://doi.org/10.1007/s40152-022-00268-z>
- Widjaja, S., Long, T., Wirajuda, H. et al. (2020). *Illegal, Unreported and Unregulated Fishing and Associated Drivers*. Washington, DC: World Resources Institute. www.oceanpanel.org/iuu-fishing-and-associated-drivers
- WildAid. (2010). *An Analysis of the Law Enforcement Chain in the Eastern Tropical Pacific Seascape*, San Francisco: WildAid. <https://www.issuelab.org/resources/26036/26036.pdf>
- Witbooi, E., Ali, K. D., Santosa, M. A., Hurley, G., Husein, Y., Maharaj, S., ... & Salas, O. (2020). Organized crime in the fisheries sector threatens a sustainable ocean economy. *Nature*, 588(7836), 48-56. <https://doi.org/10.1038/s41586-020-2913-5>

Suggested citation

Price, R.A. (2022). *Socio-economic factors impacting marine protected areas in the Eastern Tropical Pacific Marine Corridor (CMAR) region*. K4D Helpdesk Report 1144. Institute of Development Studies. DOI: [10.19088/K4D.2022.107](https://doi.org/10.19088/K4D.2022.107)

About this report

This report is based on twelve days of desk-based research. The K4D research helpdesk provides rapid syntheses of a selection of recent relevant literature and international expert thinking in response to specific questions relating to international development. For any enquiries, contact helpdesk@k4d.info.

K4D services are provided by a consortium of leading organisations working in international development, led by the Institute of Development Studies (IDS), with the Education Development Trust, Itad, University of Leeds Nuffield Centre for International Health and Development, Liverpool School of Tropical Medicine (LSTM),

University of Birmingham International Development Department (IDD) and the University of Manchester Humanitarian and Conflict Response Institute (HCRI).

This report was prepared for the UK Government's Foreign, Commonwealth & Development Office (FCDO) and its partners in support of pro-poor programmes. Except where otherwise stated, it is licensed for non-commercial purposes under the terms of the [Open Government Licence v3.0](#). K4D cannot be held responsible for errors or any consequences arising from the use of information contained in this report. Any views and opinions expressed do not necessarily reflect those of FCDO, K4D or any other contributing organisation.

© Crown copyright 2022.

