

# THE RISK OF DISPOSSESSION IN THE AQUAPELAGO

## A Coral Reef Restoration Case Study in the Spermonde Islands

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**ABSTRACT:** Drawing on an ethnographic case study concerning fears of dispossession, corporate social responsibility and coral reef restoration (CRR), this article examines the socio-cultural dynamics related to an ongoing corporate-led CRR initiative located on a small coral island in the Spermonde archipelago of Indonesia. Surveys and semi-structured interviews were conducted on 154 households in villages on the island where the program was implemented and on 3 neighbouring islands. By analysing the narratives of local people from the immediate and surrounding communities, this article describes the inter- and intra-village perceptions of the significance and impact of CRR on local wellbeing. Respondents from across the island community revealed varying degrees of feelings of vulnerability, fear and disempowerment. Despite the company's best intentions to create a monetary-based, community-supported conservation program, the transactional relation that has developed between the community and the company has slowly evolved into fears of multiple forms of dispossession. Initially viewed as a source of supplementary income, the project is now viewed by some members of the community as a process through which local people have sold their rights to marine territories that they once managed. Moreover, the restoration infrastructure that is anchored to the seafloor is perceived as real and physical evidence of the company's claims to spatial ownership. This fear extends beyond their surrounding seascape, and some islanders are concerned that territorial claims will eventually encroach on the island itself. It is uncertain whether the CRR project will be able to positively influence this developing local narrative. This study highlights the importance of examining aquapelagic social complexities, historical context and micro-political systems at the local level in order to understand evolving realities in the Anthropocene that affect marine conservation outcomes.

**KEYWORDS:** Community-based conservation, corporate social responsibility, fisheries, coral restoration, dispossession

### Introduction

In late 2016, the people of a small island community in the Spermonde archipelago of Indonesia learned that they had been selected in a process organised by a multinational corporation, in conjunction with regional authorities, as the site of a large-scale coral reef restoration (CCR) initiative. Several islands self-nominated and were surveyed by regional university scientists to determine the most socially supportive and ecologically suitable island for reef restoration. Based on this assessment, the aforementioned island community was selected. An official ceremony, attended by invited government officials and company

representatives, was held on the island to grant the community their newly designated title, and also to explain how over the next few years their surrounding coral reefs would be transformed. The reefs would be restored, the fish would return, and the community would reap the benefits. Three years have now passed, coral has begun to grow back, and fish are slowly returning. However, these ecological changes have not necessarily translated into the promised social benefits of improved fishing and food security. Instead, some members of the local community perceive that they have been dispossessed of their rights to the surrounding seascapes, while others are fearful of future dispossession from their island home.

This particular narrative, where local people are displaced and dispossessed of resources, landscapes and seascapes on which they historically depended, is a familiar one in the conservation world. Efforts to sustainably manage vulnerable biodiversity on the planet have increased substantially in recent decades due to the recognition of anthropogenic change in the biosphere. Yet major social costs have accompanied these initiatives. Dispossession, similar to what is described above, has been argued to be a recurring theme of conservation globally (Chatty and Colchester, 2002; Choudhary, 2000; Geisler, 2004; Geisler and Letsoalo, 2000). For example, the establishment of protected areas for the purpose of protecting vulnerable species or ecosystems has led to the displacement of tens of millions of people from the landscapes and seascapes where they have historically resided, farmed, hunted, fished and foraged (Agrawal and Redford, 2009). While some protected area programs have led to successful social and economic outcomes (Ferse et al, 2010; Persha, 2011; Cinner et al, 2012), many scholars argue that this process prioritises the conservation of rare species and/or vulnerable ecosystems over social equity and human welfare; and is thus a new form of ‘accumulation by dispossession’ (West, 2016; Corson and MacDonald, 2012; Neves and Igwe, 2012; Kelly, 2011). This unintended consequence is, however, paradoxical as many forms of conservation aim to simultaneously achieve both conservation and development goals (ie poverty alleviation through non-extractive forms of resource use) (McShane and Wells, 2004). Despite heavy criticism of the unintended consequences of dispossession and displacement and the intention to improve the wellbeing and livelihoods of local people, protected area approaches to conservation remain a mainstay of conservation practices across the world and, in some of these cases, continue to lead to various forms of dispossession.

In recent years, studies on dispossession and conservation have extended beyond the terrestrial to aquatic spaces (Barbesgaard, 2018, 2019; Bennett, 2018; Bennett, Govan and Satterfield, 2015; Foley and Mather, 2019; Knott and Neis, 2017). Marine territorial dispossession has been widely referred to as “ocean-grabbing” and is defined as “the dispossession or appropriation of use, control or access to ocean space or resources from prior resource users, rights holders or inhabitants” (Bennett et al, 2015: 62). Studies that have adopted this definition and discussed ocean-grabbing and its social implications have mainly revolved around the direct effects on livelihood and human security (Barbesgaard, 2019; Foley and Mather, 2019). However, I argue that affected communities can be dispossessed of not only the rights to space and marine resources but also to other forms of non-material rights that are vital to small island and coastal life. Illustrated through a case study of corporate-led coral reef restoration in the Spermonde archipelago of Indonesia, this article describes how this particular marine conservation program led to various fears about dispossession including but not limited to marine spatial access.

CRR is the process of assisting coral ecosystem recovery from a state of disturbance to a state where their structure and function is self-sustaining (Edwards, 2010; Suding, 2011;

Williams et al, 2019). It is often presented as a marine conservation solution that provides 'win-win' outcomes, where biodiversity and food security objectives can simultaneously be realised (Hein et al, 2019). In some instances, successful outcomes occur in both domains (Kittinger et al, 2016), however, like other approaches to marine conservation, CRR can create unintended negative consequences for the communities designed to benefit from it. However, the establishment of marine protected areas (MPAs) has been found in some cases to lead to the dispossession of local peoples' rights to their surrounding marine resources, impacting their livelihoods and food security (Moshy et al, 2013; Mangora et al, 2014; Darling, 2014; Moshy et al, 2015). This particular outcome is mainly true when MPAs are not well supported by the local community (Bennett and Dearden, 2014). West (2016) explores this process of dispossession further by describing the ways in which conservationists tend to delineate local communities' resource governance practices and environments as "prior nature" and "prior practices". She notes how this articulation facilitates dispossession by devaluing local knowledge and practices, producing and reinforcing inequality.

Utilising West's framework of dispossession to emphasise how modes of engagement create both material and non-material forms of dispossession, I explore three main processes of dispossession: the loss of rights to aquapelagic (ie integrated terrestrial and marine) territory (Hayward, 2012), the further marginalisation of local people and their social networks (that result from dispossessive processes), and the deterioration of community security and wellbeing (Lowe, 2013; West, 2006, 2016). I also discuss how previous experiences of dispossession and exploitation in the region influence local people's perceptions of conservation and expectations of displacement, especially in the context of corporate led conservation. Few previous studies have evaluated marine conservation initiatives led and implemented by a private company, rather than a non-governmental organisation (NGO) or government (de Groot, 2010; Bottema, 2012; Bush, 2017) and no studies to date have assessed this nexus in relation to coral reef restoration. In this article I aim to answer the following questions:

- 1) How can the adoption of marine protected area approaches for coral reef restoration lead to multiple forms of dispossession and marginalisation including and beyond marine spatial access?
- 2) How do the potential immediate impacts on wellbeing, including and beyond livelihood resulting from dispossession, compare to the potential longer-term ecological benefits stemming from coral reef restoration that have yet to be realised?
- 3) How does the direct involvement of corporations in conservation practices influence local peoples' support of programs, especially within a post-colonial context?

Considering these questions aquapelagically, I aim to describe the complexity and interconnectedness of islands, marine environments, and island people and how CRR interventions may lead to various forms of dispossession within small island contexts.

I approach these questions through an aquapelagic framework because the interconnectedness of small island life is foundational to this region of Indonesia and because entanglements between islands, island people, and oceans are a critical component of dispossession in many marine spaces of the world. An aquapelagic framework is well suited to this particular context of assessing dispossession is assessed because a fundamental part of thinking aquapelagically is the notion that an aquapelago is "an entity constituted by

human presence in and utilisation of the environment (rather than as an ‘objective’ geographical entity)” (Hayward, 2012: 6). Dispossession does not merely occur through the physical displacement of local people from their homes or from preventing access to marine space. It can also take shape through prohibiting socially meaningful human-environment interactions, such as fishing and navigation, and inhibiting reciprocal social relations that are centerpieces of small island life. Therefore, thinking aquapelagically about these complex entanglements allows for greater insight into the potential consequences of marine CRR, a conservation practice that is only increasing in popularity. It should also be noted that the aim of this piece is not to denigrate rehabilitation and to criticise this particular project as intentionally malicious or having coercive intent. The company implementing this particular project aims to provide social benefits to the community that are locally valued. It has attempted to adapt its engagement approach to be more participatory in order to rectify the unintended dispossessive results of the program, signifying their willingness to improve engagement practices and address the challenges that come with working within complex human environmental systems. This article seeks to demonstrate how socially complex conservation development projects can be and how important concerns and fears can develop within the community. I illustrate how history, culture, and power relations complicate seemingly simple ecological and social outcomes in order to urge conservationists and CRR practitioners to re-think their own assumptions about small island communities and to consider these factors when developing reef conservation strategies.

The arguments I make are based on ethnographic field data I collected over the past three years. The site of my study is a small island in the Spermonde archipelago of Indonesia where this corporate-led coral reef restoration took place, hereafter referred to as the ‘Restoration Village’ and three neighbouring islands (Figure 1).<sup>1</sup> The Restoration Village community has a population of approximately 1100 people, all of whom are Makassarese, one of the four major ethnic groups that reside in this region. I observed and collected accounts of the ways the restoration initiative influenced small island life across these islands and in the broader Spermondes. Over four, 1-3 month field seasons, between May 2017 and August 2019, I conducted a total of 124 household surveys and 30 semi-structured interviews with islanders. Additional data and insights were collected through participant observation and informal interviews with island residents. All surveys and interviews were conducted in Makassarese with the assistance of a local translator and utilising best practices in informed consent.

The Spermonde archipelago of Indonesia is located in the centre of the Coral Triangle, a region known to have the highest coral and fish diversity on earth (Sanciangco et al, 2013). The archipelago is composed of approximately 180 coral islands, 54 of which are densely populated, and is located approximately 60 km off the coast of Makassar, the capital city of South Sulawesi (Figure 1). Currently, the economy of these coral island communities is semi-subsistent. Island residents rely upon fishing as the dominant livelihood with an estimated 6,500 fishing households in the region (Pet-Soede et al, 2001). Most fishers are employed through a patron-client fishery system. Similar systems are widespread throughout the Spermonde and are characterised as hierarchical wage-labor systems where the patron or boss (known locally as *pungawwa*) provides gear, boats, access to markets, and loans to their client fishers or crewmembers (*sawi*) (Ferse et al, 2012; Ferrol-Schulte et al, 2014). Patron-

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<sup>1</sup> The name of the island and the company implementing the restoration project are purposefully omitted in order to protect the identity of the communities involved and because the project is currently ongoing. Project statements are thus not directly referenced, but all information is taken directly from project media and publications.

client fishers of the Restoration Village are mainly involved in the *pa'gai* fishery. The term *pa'gai* refers to the type of boat used in this particular fishery, which is relatively large (20-30 feet long) and crewed by a group of 10-12 people. *Pa'gai* fishers use purse seine nets to target pelagic species, such as mackerel and squid. They also seasonally fish the surrounding reefs for coral squid and cuttlefish. A smaller proportion of fishers in the local community are semi-subsistent independent fishers and are heavily reliant on the local coral reef for their livelihoods. Beyond livelihood and food security benefits, surrounding coral reefs are locally valued for storm protection of their island home and their boats. It is also an important space for children to play - swimming, fishing for small coral fish or foraging for shellfish on the reef flats.



Figure 1 - Map of the Spermonde archipelago in South Sulawesi, Indonesia, showing the location of the Restoration Village and the 'mainland' city of Makassar.

The coral restoration program that began in July 2017 posed as a dual conservation and development initiative designed by a large multinational corporation that uses resources from the region. The stated objectives of the CRR project are to conserve and restore the biodiversity of local coral reefs, while simultaneously improving the food security of the local community through increased fishing yields. Although the program is executed through this private company, academic research partners from several local and international institutions are involved and have provided guidance on the design and monitoring of the restoration program. As stated previously, the Restoration Village was selected as the project site through a regional government-supported selection process and project engagement is clearly directed to the Restoration Village community, while neighbouring villages are not consulted or included in project decision-making processes.

Initially the village head (*kepala desa*) was consulted and agreed to the restoration project. Afterwards, an agreement letter was distributed to each household. This letter was intended to inform community members of the project and to garner support. This approach was not fully effective. Numerous interviewees informed me that they either never received a letter because they were away fishing or that they had received a letter but could not read its content. Beyond this initial community-wide attempt at communication, community engagement by the company in the Restoration Village over the past three years has occurred through public meetings in the village square, decision making meetings with high level villagers, informational pamphlets, and gifts to the mosque. Decision-making meetings are held fairly regularly with a select few who may or may not share information within the community, and community-wide meetings have occurred twice in the lifespan of the multiyear project and were held to share the progress of the restoration project. Leaflets, brochures, posters and an annual calendar have also been distributed locally, providing information on the scientific findings of the academic collaborators' work on various studies investigating the marine ecology and coastal geomorphology of the island.

The restoration project employs a community-based model where community members are paid to partake in the coral transplantation process, providing a short-term economic stimulus in the community. Initially neighbourhood heads (*rukun tetangga*) selected a number of individuals (typically 6-10 people) from their neighbourhood to participate in monthly build days. However, according to several community members, this method was later abandoned in order to be more inclusive. Now, individuals who want to participate only need to show up at the designated site on the morning of the build day. Community members tie coral fragments to hexagonal-shaped steel structures, termed 'spiders' at the time I studied the project, which are then deployed by trained divers to designated restoration sites around the island. On average, deployment events occurred once per month during the dry season, employing around 36 local men and deploying 550 spiders in areas 1,000m<sup>2</sup> over a 3-day period. A fixed budget was allocated for monthly deployment events. Compensation per person therefore varied depending on the number of individuals who participated (ie more people participating meant a smaller payment per person). On average, compensation was comparable to a typical day's wage as a fisherman in the community (\$5-\$7 USD).

Multiple members of the community believed that the restoration infrastructure was initially intended to be deployed within the existing bounds of an MPA that was established through the Coral Reef Rehabilitation and Management Project (COREMAP, 1998-2013). However, through the life of the project, build sites expanded beyond the boundaries of the MPA across the reef crests and surrounding rubble fields. COREMAP is Indonesia's largest MPA initiative and is funded by the Asian Development Bank and the World Bank. The company hired two coral guards to enforce no-take restrictions of the COREMAP-established marine protected area and legally-mandated restrictions on destructive fishing practices (ie bombs and cyanide); however, these coral guards have been described by some community members as over-enforcing (compared to their COREMAP predecessors), restricting the use of spear guns and access beyond the bounds of the MPA. While it is not yet clear what the extent of these restrictions may be, some island residents have said that they are fully restricted from fishing around the island while others have maintained that they are only restricted to fishing where restoration infrastructure has been installed (and this restricted space has continued to expand since the project began). Although enforcing restrictions on fishers from neighbouring islands is not alien to the region (Glaser et al, 2010), fishers from neighbouring islands have been fully prohibited from fishing on the island only since the introduction of the restoration project. None of these new restrictions

are officially mandated by the local government and company project officers state that they do not require that coral guards enforce these newly adopted restrictions; however, the enforcement of these restrictions began with the implementation of this project.

The multinational corporation implementing the program is engaged in various forms of large-scale natural resource extraction in the local region and across Indonesia. This CRR program is part of their broader sustainability initiative, aimed at reducing the environmental impacts that the company poses on the world's oceans and fisheries.<sup>2</sup> This particular project is the first of its kind where the corporation involved is not only funding the work but also developing and implementing the program, despite having mixed results in the realm of marine conservation and community-based initiatives. Not only are complexities exacerbated by the entanglement of CSR, conservation and small island life, but also by the post-colonial context of this particular community.

### Dispossession and Exploitation in the Spermonde

In order to understand the forms of dispossession that are occurring with the CRR project and their implications as either patterns of exploitation and displacement or as legitimate fears for local people, it is important to consider the historical context of resource and land exploitation in the region and the history of colonialism in Indonesia. These historical factors influence the ways conservation and resource exploitation is experienced and practiced by local people in the Spermonde today.

European imperialism in Sulawesi (and Indonesia) spanned over 300 years, beginning in the 16th Century when Portuguese, Spanish, English and Dutch spice traders established processing factories in Makassar, the capital of South Sulawesi. Towards the end of the 17th Century the Dutch claimed hegemony over the South Sulawesi region through a series of wars, pushing out all other European powers (Knaap and Sutherland, 2004). Control of South Sulawesi allowed for the monopolisation of the spice trade in the Maluku islands, east of Sulawesi. At this time settlement in the Spermonde was forbidden by the Dutch who designated these islands for Dutch naval use (Knaap and Sutherland, 2004). However, some historical accounts state that some of the islands had been settled by Bajau communities (Reid, 1999); and, by the early 18th Century, Malay, Indian and Arabic traders had settled on some of these islands, using them as a trading outpost (Mattulada, 1994). When Indonesia gained its independence in the late 1940s, following the end of World War II, communities of South Sulawesi people fled the islands due to political instability (Ferse et al, 2014). However, accounts from the Restoration Village community exhibit a contrary aspect in relating that during the independence movement, violence in mainland Sulawesi pushed individuals to flee and some found refuge on the small coral islands of the Spermonde. The use of Spermonde as a temporary space of refuge fits into the dominant cultural mode of the Makassar region of South Sulawesi. In Makassarese culture, coral islands are perceived as 'amphibious' entities, meaning they are neither terrestrial nor aquatic (Gibson, 2005). They are something in between landscape and seascape - liminal spaces, fit for a time of transition, or a place to find refuge. However, these communities continue to persist and

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<sup>2</sup> Other initiatives related to addressing issues in their fish supply chain include sustainable fisheries and improved labour rights programs. It is also worth clarifying that this company does not recognise these programs as CSR initiatives but steps towards achieving company-wide sustainability. I however use this term to describe this particular program as it is still philanthropic in nature and operates under a community-based model.

the Makassarese people of the Restoration Village have adapted to small island life and fishing-dependent livelihoods, despite originating from agrarian backgrounds in mainland Sulawesi over two generations ago.

The Spermonde Islands were then influenced by a second wave of migration in the late 1960s during Suharto's 'New Order,' which was largely focused on economic development and the corporatisation of government in order to achieve broad political order (Knaap and Sutherland, 2004). This period was also characterised by extreme violence. Genocide of ethnic groups, justified as 'Communist cleansing' swept across Indonesia (Tsing, 1993). Again, according to interview accounts in the Restoration Village, people seeking both refuge and economic opportunities resettled the Spermonde. Here, economic development took shape through the commercialisation of fishing. New development opportunities and fishing technologies attracted fishers to the islands to partake in new forms of wage-labour fishing.

Fishing transitioned (or was appropriated) from a practice that was subsistence-based to one that was commodity-based. This transition stripped local people of their autonomy and their rights to resources. Similar to what has been observed in Malaysian rubber plantations (Dove, 2011), fishing in the Spermonde transitioned towards the production of 'dead' goods. The species that were targeted by commercial fisheries were those that could be sold in the urban markets of Makassar, but they did not fit into the local morality of production (ie the production of goods for local consumption). Furthermore, this new form of fishing resulted in a less diverse fishery, the depletion of select commercial species, the degradation of coral (as destructive fishing gear was adopted to target those selected species), and a poverty trap, where islanders no longer fished for their own food but to support the seafood demand of consumers on the mainland and beyond (Gorris, 2016). This wage-labor system is characterised as a poverty trap because 'patrons' pay 'client' fishers low wages but subsidise wages with loans. In order to pay off provided loans, fishers must sell their catch to patrons at below-market costs. This system makes it nearly impossible for fishers to ever regain their autonomy. This practice was not isolated to the Spermonde but occurred across Indonesia and other parts of Southeast Asia. In Borneo, the Meratus Highlands of Sulawesi and mainland Malaysia, ethnographic accounts described similar scenarios where small-scale farming was replaced by plantation-style, wage-labour farming, resulting in social inequality and the deterioration of community networks (Tsing, 1993; Dove, 2011; Li, 2014; Scott, 1999). However, it should be noted that patron-client networks within the Spermonde context are complex social networks that are not one-way relationships. *Pungawwa* also serve important social and cultural roles and provide security for their *sawis* in time of hardship (Ferse et al 2014). This form of capitalist-driven resource appropriation extended beyond fishing and farming to conservation projects all across the region, aimed at stemming the environmental degradation that resulted from New Order economic development.

Most notably in the Spermonde, COREMAP, the large-scale MPA initiative mentioned previously, was organised in the image of high modernism that was characteristic of previous commercial fishing and government intervention in the region. It was designed and implemented as a program aimed at achieving both conservation and neoliberal development objectives. COREMAP, implemented through the Ministry of Marine Affairs and Fisheries of Indonesia, is the largest MPA program in Indonesia (Glaser et al, 2010). The development outcomes of COREMAP were designed to establish "a viable coral reef management system in Indonesia that places the community at the center of management" (Radjawali, 2012: 547). In the Spermonde islands, efforts were focused on establishing community-based initiatives, such as creating locally managed MPAs and awarding grants



to promote the adoption of alternative livelihoods, such as aquaculture and tourism, and the development of coastal resilience infrastructure, such as breakwaters. Despite extensive efforts, many COREMAP-established MPAs remain unenforced, alternative livelihoods were poorly adopted, and other management strategies were typically neglected once COREMAP representatives left host communities (Glaser et al, 2010; Ferse et al, 2014). Furthermore, social inequities and community frictions developed because allocated project benefits were captured by the local elite. Ultimately, the greatest barriers to achieving COREMAP's marine conservation and development goals have been identified as challenges linked to the lack of equitable collaboration and engagement with local communities and the inability to incorporate existing trade and social networks into conservation management strategies (Radjawali, 2012). These particular challenges also highlight neocolonial legacies of conservation strategies in the region, where tools of reform are implemented through force and are expectant that local norms and values will change to Eurocentric ones, echoing the findings of other ethnographic studies of conservation interventions in Indonesia and Papua New Guinea (Li, 2007; Lowe, 2013; West, 2006, 2016). This history of colonial and neocolonial exploitation in the region that has shaped and reshaped the relationships between island, sea and people in the Spermonde lays the foundation for present-day interventions, such as the coral reef restoration described in this article, and the way they are received by local people in aquapelagic societies.

The following three sections discuss the multiple forms of dispossession that interviewees described having developed because of the CRR initiative. These forms of dispossession are either direct experiences or related concerns about what is to come. It is however important to acknowledge that the views that I describe are not necessarily held by the community as a whole, although they are more than minority views. Despite not being a consensual view across the community, they are critical to understand in order to achieve equitable social outcomes and to avoid the marginalisation of groups through restoration practices. Most obviously, some independent fishers from the Restoration Village and neighbouring islands feel that they have been dispossessed from their fishing grounds around the Restoration Village through the enforcement of no-take restrictions around the island, beyond the bounds of the existing COREMAP MPA, resulting in a reduction in fishing yields and possibly local food security. More subtly, the fishing restrictions have also resulted in the damage of reciprocal aquapelagic relations between the Restoration Village and other surrounding islands, further impacting the livelihoods of fishers from the Restoration Village. Finally, many members of the Restoration Village are concerned that the corporation intends to dispossess the community of the island itself. They remain sceptical of the corporation's motivations for pursuing coral restoration. Because it is a company that is involved with local resource exploitation, some members of the community expect they must have ulterior motives for engaging in restoration beyond restoring the reefs for the local community. These various forms of dispossession, along with the community's historical legacy of intergenerational dispossession, contribute to the potential deterioration of local wellbeing where local people feel powerless and vulnerable to the conservation intervention.

### Dispossession through Marine Appropriation

*Before the restoration project we saw the reef as 'ours' and could fish freely; now we [ie some members of the community] do not feel as if we have ownership. (Interview Respondent #5, July 2019)*

When discussing dispossession from land or marine territory, it is necessary to understand “who is being dispossessed of what and the types of rights and power they had to access property prior to dispossession” (Kenney-Lazar, 2012: 1021). In the Restoration Village, some local people areas once used for fishing grounds and boat anchorages now have restricted access for local people, while coral restoration infrastructure is freely deployed. Some local people have lost their rights to fish on and navigate through adjacent reefs and they believe that these reefs have effectively been appropriated for marine conservation.

Appropriation has been described as the centrepiece of the dual, related processes of accumulation and dispossession (Fairhead et al, 2012). It is the process where the ownership, use rights and control over resources that were once publicly or privately owned are transferred from the poor, or marginalised, into the hands of the more powerful (Cernea, 2006; Fairhead et al, 2012). This process perpetuates colonial and neocolonial legacies of 'resource alienation' or 'land-grabbing' and in this case, the appropriation of nature is made in the name of the environment, rather than in that of the State or economic development (Fairhead et al, 2012). In this way, ecosystems and their services adopt new forms of value and commodification that can be transactional in environmental markets, while local forms of value and dependence are ignored.

For example, carbon offset or biodiversity offset programs have become normal practices in resource extractive industries. Mining and logging companies offset their impacts on the environment by setting aside large swaths of forest, where carbon stocks or biodiversity stocks (ie trees or ecosystems) exist as protected entities that may be traded in emerging environmental markets. Meanwhile, local people who may have depended upon these landscapes for farming, hunting, or foraging are dispossessed of their rights to access these resources. Despite not always being the cause of resource or environmental degradation, local communities often bear the weight of the degradation produced through commercial exploitation - either through displacement for commercial exploitation and development or for conservation efforts designed to offset the impacts of these exploitative industries. Furthermore, the commercial industries engaged in these sustainability and conservation mitigation programs are praised for rectifying the stress they put on the planet, while little attention is brought to how these practices lead to the marginalisation of local people. This emergent entanglement of industries and communities “remakes the world in ways that benefit certain industries at the expense of more locally engaged ways of life” (Moore, 2019: 6).

In the Restoration Village, a similar narrative is at risk of materialising where the water and reefs surrounding the island have been appropriated as reef 'stocks' that can be preserved and restored in an attempt to mitigate the strain that the company has put on the world's oceans and fisheries. The company has also gained international recognition for their work in sustainability and now has clout in the space of marine conservation. In this context focusing attention on the restoration of reefs runs the risk of shifting the burden of guilt away from the company's own large-scale commercial fishing operations to the 'destructive' fishing practices employed by local people.

Some local independent fishers perceive that they no longer have the rights to access marine resources on most of the reefs that fringe their island, despite previously having and freely exercising that right prior to the restoration project. Although an MPA had been previously designated under COREMAP, this MPA was never strictly enforced. Furthermore, the new restrictions extend beyond the bounds of the COREMAP MPA to include most of the near

shore waters of the island. Now, those fishers who once utilised the reef must travel further, expending more fuel, and therefore more money, to catch the yields they had in the past. Some just fish in the limited space not included in the MPA and restoration areas and perceive that they catch less fish. For local spear fishers, the impacts of the restoration project are viewed as insurmountable to their livelihoods because they are no longer allowed access to any of the waters near the island and feel forced to consider new gear types. This particular consequence, where local fishers' livelihoods and potentially their food security have been adversely affected by restoration policy infrastructures, is somewhat ironic yet all too familiar in the conservation development literature (Mangora et al, 2014; Moshy et al, 2013; Moshy et al, 2015; Walley, 2010). The purpose of the CRR initiative was initially posed as a means of improving food security, where enhanced and healthy reefs would bring more fish that fishers would therefore catch. However, excluding fishers from this area, a caveat that most respondents expressed was unbeknownst to them when they initially consented to the project, has led to reduced access to fishing grounds, reduced perceived fishing yields and reduced perceived food security for some families.

Finally, the question of spatial use and resource dispossession applies to more than fisheries. The removal of sand surrounding the island and on the island was banned by the community years ago as a method of mitigating the effects of sea level rise and coastal erosion. However, some local community members perceive that the CRR project has free access to sand on the island. Sand is one of the materials used for the coral spiders, and the company sees using the island's sand for CRR as acceptable, even though it is prohibited for building the homes in which local people live. The local people see how sand has been appropriated for conservation use, despite the importance of maintaining sand on the island to protect it from the threat of violent storms. They see conservationists prioritising the production of healthy coral over their coastal resilience. One particular community member has been more outspoken over this issue than others. In an interview, two other respondents described how this community member was the only individual brave enough to protest this issue and to call out the innate contradiction of allowing the conservation group to utilise this resource, while the community is strictly forbidden to do so. Although coral reef restoration is actually intended to help mitigate coastal erosion, the CRR project has not effectively communicated with the community that this is a potential ecosystem service and the project may also be damaging the community's own forms of mitigation by creating new methods without adequately consulting the community as to their intentions. Like restrictions on spear guns, sand exploitation restrictions are a clear reminder to the community of the double standard that exists between the company and the community and that the conservation group has the power to decide which forms of resource use are appropriate and which are not.

### Dispossession from aquapelagic social networks

*There is a social problem between [the Restoration Village] and other islands because fishers are not allowed to use [a] speargun [here] anymore. (Interview Respondent #5, July 2019)*

Reciprocal relations are a critical component of small island life in the Spermonde (Gorris, 2016). They are a primary ingredient of the "marine adhesive" (Fleury, 2013) that binds small island communities together across aquapelagic seascapes. Access to fishing grounds is often based on reciprocity, where providing access to marine territories controlled by one community can ensure access to those territories managed by others, although this is not

always the case as described in Glaser et al (2010), which identified communities in the Spermonde who enforced fishing restrictions that were viewed by other island communities as acceptable. Despite this fact, social networks and alliances, such as reciprocal fishing relationships, are essential for ensuring food security, and supporting livelihoods and wellbeing in rural communities that cannot exist in isolation (Fabinyi and Liu, 2016). Interventions that interfere in these relations may lead to profound social consequences. The CRR project not only runs the risk of dispossessing fishers from the Restoration Village of their rights to fish around their own island but it also runs the risk of dispossessing fishers from the Restoration Village of the right to participate in aquapelagic reciprocal relations, and therefore the rights to fish on neighbouring islands. This under-explored form of dispossession resulted from the establishment and enforcement of no-take restrictions in the reef restoration sites. Surrounding islands that are excluded from fishing on the CRR sites are protesting these restrictions by prohibiting fishers from the Restoration Village from fishing in the surrounding marine territories. To repair these damaged social relationships between islands, four *pungawwa* (the *pungawwa* who employ *sawi* on the south end of the island) have forbidden their *sawi* to participate in the restoration project in order to demonstrate a greater commitment to their inter-island allegiance. These community-level acts of diplomacy are proving to be effective and, after much discussion and negotiation, many fishers have regained access to neighbouring island fishing grounds.

However, some community members are still prohibited from entering the waters surrounding other islands and are unwelcome at inter-island social gatherings. The islanders employed as coral guards to protect the restoration areas are mainly the ones who experience these exclusions. These individuals were not trained in enforcement strategies and their efforts to keep potential fishers out of the island's waters have been described by others as aggressive and hostile and have sometimes led to near violent conflicts. In one instance, a group of fishers from another island, who were given direct permission from the head of the Restoration Village to fish, were forced to leave by coral guards. Later that week, a group of nearly 30 angry men, armed with spear guns, came to the Restoration Village and demanded to speak to the head about the matter. The incident was frightening to many of the residents because this type of near violent inter-island conflict is extremely abnormal. The wife of one of the coral guards involved in the incident expressed a fear that her husband would be killed for his involvement in the project because of the negative view many of the residents of other islands had adopted towards him. His fishing gear has been vandalised on a number of occasions and he is still not allowed to visit some of the surrounding islands. This incident also indicates that some community members now view the CRR project as having greater authority over inter-island relationships than the village head. Coral guards view their responsibilities to the restoration project as superseding their responsibilities and relations with the local government and surrounding island communities.

So far, the CRR project has operated under the assumption that the program has limited isolated impacts on the community of the Restoration Village. They have ignored or are unaware of the 'marine adhesive' that binds this community to others across the Spermonde. The appropriation of the Restoration Village's reefs for CRR has dispossessed fishers across this aquapelagic society of their rights to fish - not only in the immediate area of the project, but in other communities too, and it has dispossessed them of the important reciprocal relations that are critical to small island life and that support livelihoods and wellbeing. It has also sparked fears about future forms of dispossession.

### Dispossession infrastructure and its evocation of fear

*[The Company] has spent money and time on the project, maybe in the future when I am dead and gone, [the Company] will come back and own this island. They will return and claim the island from our children saying that their parents planted this coral on [the Company's] behalf and is now the property of [the Company] so they will have to leave. What [the Company] has built is a marker of ownership, which they can return to in the future and claim.*  
(Interview Respondent, June 2018)

Beyond the enforcement of no-take restrictions and the designation of MPA boundaries, the coral restoration infrastructure in itself has exacerbated feelings of lost ownership. Although many respondents said that no-take restrictions have been established where the restoration infrastructure had been deployed, other respondents were unaware of the implementation of such restrictions and said that their experienced loss of autonomy over marine territory stemmed from their fear of the corporation. These particular community members were often those who were far removed from the project and did not regularly participate in build days. From their perspective, the only explicit restriction that was enforced by the conservation group was to not damage or break coral; and therefore, they were fearful of the potential penalties imposed by a corporation that appears to some to be operating in an unpredictable manner. Heavy fines or imprisonment are a constant concern for some boat captains when they return to the island and drop anchor in waters that are no longer open for anchorage and for fishers whose hooks and lures snag branching coral. They feel as if they no longer have autonomy over their island and resources and that they now live under the strict scrutiny of the corporation. This sense of vulnerability and powerlessness seems to be shaped by not only the use of an extensive no-take policy but also the material items mounted on the seafloor. Many respondents have described that the transaction between them and the company, where they were paid for preparing the spiders, may in hindsight have been a transaction to sell their rights to the seafloor on which the spiders are mounted. They view the spiders as material infrastructural markers of the company's territorial claim and they believe that if they damage the spiders and the coral tied to them, they will be punished. The spiders are therefore a physical reminder of the company's presence and perceived ownership of the area.

These concerns are warranted and stem from a long history of colonial and neocolonial displacement and exploitation in the region, but also from news stories of displacement that flood their social media feeds. Intergenerational trauma of displacement, reinforced by constant news and accounts of displacement, fuels some community members' concerns about the company's motives for involvement. As one community member put it, "it's impossible for [the company] to not expect anything in return after all that they have invested into the project". This relation between investment and expected returns is clear to many island residents and it is the uncertainty of what the expected returns are that have left the community fearful for their future. Speculations range but reflect what they have seen in other communities. The aquarium trade, rare minerals and tourism development are the primary speculative drivers of the company's involvement. Fishers have described how there are islands where they no longer can fish because they are controlled by westerners who have established aquaculture operations, while mining and tourism are classical narratives of past and present displacement in Indonesia.

Spermonde is home to one of the largest aquarium trade networks in the world and there are many live coral and coral fish operators in the region (Ferse et al, 2012). Some community

members have expressed concern that the company is working to restore and enhance the reefs surrounding the island with the intention to harvest coral once it has grown. Furthermore, the very material CRR infrastructure itself is described by some respondents as a structure that might facilitate harvesting because coral pieces can easily be broken off these structures. Theories revolving around tourism were influenced by the regular flow of visitors from Western countries the community has frequently observed diving on their reefs and visiting their island since the restoration project began. Many community members perceive restoration efforts as a potential method for making the island more desirable for wealthy tourists. Some members of the community view these potential tourism prospects as an economic opportunity to set up market stalls to sell handicrafts or homestays but others worry that if tourism interests continue to grow, the community will be forcibly removed to make space for a western resort. This concern is reasonable given Indonesia's modern history of tourism-related displacement (Cole, 2017). The company has indeed brought many foreign visitors to dive the restoration site and see the healthy coral growth that has been achieved over the last few years. Collaborating scientists from academic institutions, invited nature filmmakers, science journalists and employees from the company curious about the program have all traveled to the island of the Restoration Village to experience the newly restored reef. These visitors dive on the reefs, join local people in the tying of coral fragments onto the spiders, and 'explore' the local village to experience 'island life.' Over the years the numbers of foreigners who have come to the island have increased, despite the company's claims that it is keeping visitation to a minimum, making the community concerned about what this growing interest might mean for their future.

These fears have been exacerbated by the mixed results of the effort the company has put towards building trust in the community and providing information about their stated motivations of regional marine sustainability and corporate social responsibility. As mentioned earlier, community engagement by the company in the Restoration Village has occurred through public meetings in the village square, decision making meetings with high level villagers, informational pamphlets and gifts to the mosque. These modes of engagement are not necessarily participatory and most in-person consultations are limited to the village elite. Furthermore, these efforts of engagement and information dissemination have not been fully sufficient to quell local people's questions and concerns about the program. Information about the company's background and why they have decided to pursue coral reef restoration in the Restoration Village has never been provided to all residents of the island, leading most people to question the overarching goals of this CRR initiative.

### Conclusion: Towards historically aware aquapelagic coral reef restoration

After three years studying this project, it appears that the seascape and island resources alike run the risk of being appropriated to be used, valued and experienced by the Westerners conducting the CRR initiative, not necessarily by the people in the community, despite claims to the contrary. Western researchers and other visitors are perceived by some community members to have the freedom to move about the surrounding reefs and water, while local people have been excluded from this space, risking the loss of any sense of ownership, even as the project designers state that they are restoring the reef for the future benefit of the islanders themselves. Despite its good intentions, the CRR initiative has caused social consequences that exemplify multiple iterations of "accumulation by dispossession" where the people who were expected to benefit from the supposed conservation as development promises are, in actuality, harmed by them (West, 2016). Some local people perceive that they have lost autonomy over their reef resources to the multinational

company. They see it in their inability to freely fish and navigate in their waters and in the ways that reef resources are managed and controlled by the company rather than their own local governance structures. They also experience it through their inability to freely engage and reciprocate in the aquapelagic society in which they are situated. This CRR approach has led to the initial dispossession of local people from space, rights and resources that are integral to small island life. Coral reef restoration and other spatially oriented marine conservation initiatives need to be more cognisant of the aquapelagic nature of small island societies and the potential ramifications that protected area management strategies and introduced marine infrastructures (material and policy based) can have on small island communities. At the very least, CRR initiatives in archipelagic regions must adopt an aquapelagic framework that recognises local and regional history, inter-island network systems and other social and cultural practices in order to move beyond the narrowly assumed benefits of coral restoration to equally assumed isolated island communities. Aquapelagically-informed marine conservation strategies can expand how communities and their networks might be able to engage with private philanthropic CRR programs and their infrastructures in ways that do not drastically limit community autonomy and dispossess small island populations from the social and ecological relationships that sustain and protect them.

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