A Framework for Assessing the Equity Impacts of Changing Access Regimes in Fisheries

Marisa Nixon

A thesis

submitted in partial fulfillment of the requirements

for the degree of

Master of Marine Affairs

University of Washington

2020

Committee:

Yoshitaka Ota

Edward Allison

Phillip Levin

Program Authorized to Offer Degree:

School of Marine and Environmental Affairs

University of Washington

Abstract

A Framework for Assessing the Equity Impacts of Changing Access Regimes in Fisheries

Marisa Nixon

Chair of the Supervisory Committee:

Yoshitaka Ota

School of Marine and Environmental Affairs

This thesis outlines historic trends and current policy focus toward privatization in the ocean, provides a basis for assessing how this process is affecting access to fisheries resources, and suggests how considerations of equity should be incorporated into our assessments of such changing access regimes. The current focus on privatization as a means for extracting the most economic benefit from the ocean endangers access to resources that are important for food and livelihood security for a large percentage of the global population. Ultimately, in order to preserve equitable access to fisheries resources and food production in the coastal landscape, we need to develop a system or typology that carefully documents existing access rights and fisheries management regimes, whether reforms are deemed successful, and what their sustainability outcomes are. This documentation is important not only so changes can be measured over time and so we can consider alternatives, but so the voices of those who may be marginalized by large-scale transitions in access can be considered. This thesis provides a brief overview of the history of enclosure of the Commons, drawing parallels between land and sea,

before focusing more directly on saving space for food production in the ocean. Next, the access arrangements, governance and management models that are in common use for regulating access to fisheries are introduced before considering how the analysis of fisheries management and governance styles have been approached in the past. Finally, a typology of access arrangements is proposed.

Table of Contents

Acknowledgements:

This thesis is based on a report prepared for the Ocean Policy Research Institute with support from the Sasakawa Peace Foundation. I offer my sincerest gratitude for their support, and for the input of those who attended a workshop at the University of Washington in March 2017 and provided feedback on an early draft: Dr. Edward Allison, Dr. Wilf Schwartz, Dr. Yoshitaka Ota, Dr. Rashid Sumaila, Dr. Oai Li Chen, Dr. Andrés Cisneros-Montemayor, Dr. Lydia Teh, Dr. Evelyn Pinkerton, Dr. Sunny Jardine, Dr. Chris Anderson, Dr. Patrick Christie, Lucy Harrington, Nelson Del Rio, Dr. Katherine Seto, Dr. Gerald Singh, Dr. Zachary Koehn, Teressa Pucylowski, Hannah Russell, Karen Villeda and Emily Crigler. Additionally, many thanks to my supervisory committee and for the support of the MARINA Lab.

Abbreviations:

CBFM: Community Based Fisheries Management
EEZ: Exclusive Economic Zone
FAO: Food and Agriculture Organization
GBFM: Government Based Fisheries Management
ICSF: International Collective in Support of Fishworkers
ITQ: Individual Transferable Quota
LMMA: Locally Managed Marine Area
MPA: Marine Protected Area
MSP: Marine Spatial Plan
SSF: Small-scale Fisheries
TURF: Territorial Use Rights for Fishing
WFF: World Forum of Fish Harvesters and Fish Workers
WFFP: World Forum of Fisherpeoples

Introduction

As competition for coastal space and resources intensifies (Schupp et al. 2019), two tendencies are becoming clear: the movement toward regulation of space, primarily through methods like marine spatial planning and integrated coastal management (UN Environment 2018); and the movement toward increasingly specific spatial and rights allocations for deriving benefits from fisheries resources (Barner et al. 2015). It is essential to document such changes and their impacts, not only so we may measure them over time and consider alternatives, but so the voices of those who may be marginalized in such processes are considered.

This thesis aims to identify the formal and informal management structures that grant resource access to fishery users in the world's coastal and oceanic waters, and how benefits and costs of access are distributed to users. As globalization and increasing competition for space and resources rapidly alter the global seascape and its governance (Schupp et al. 2019), it is important to take stock of how access to marine resources is determined around the world, and the forces that have the power to change such arrangements. This accounting could contribute to a "shared information and knowledge commons," a proposed step in working toward sustainable ocean governance (Brodie Rudolph et al. 2020).

This topic was chosen for the opportunity it presented to engage with the question of resource access at the conceptual level, and to think critically about the broader landscape in which these ideas (and the author) are situated. In order to preserve equitable access to fisheries resources and food production in the coastal and ocean landscape, we need to develop a system or typology that carefully documents existing access rights and fisheries management regimes, whether reforms are deemed successful, and what their sustainability outcomes are. This thesis will show that traditionally, primarily biological and economic measures have been used to assign success or failure in fisheries management reforms, and that this is not always appropriate, especially when seeking equity-focused outcomes. Additionally, this thesis will underscore the value of assessing the current state of global fisheries access, in the hope that any future reforms are undertaken consciously and not without historic reference— à la shifting baselines (Pauly 1995). Planning exercises that lead to such reforms could either save space for or diminish some of the heterogeneity that makes social ecological systems in the coastal zone so dynamic. Ultimately, the contributions of this thesis to ocean governance are to advocate for diverse perspectives in coastal planning processes and to encourage a greater plurality of institutions to acknowledge that not everyone believes resources are best utilized or cared for by monetizing them.

Chapter I introduces a brief history of how privatization and enclosure has progressed in the oceans, the debates over access that it has provoked, and how it has mimicked similar processes on land. Of particular note are the growing influence of transnational companies in the movement toward privatization (Schlüter et al. 2020, Brodie Rudolph 2020); the role of grassroots movements that advocate for small farmers or small-scale fisheries (Cohen et al. 2019); the loss of structural complexity in terrestrial and near-shore landscapes (Bournazel et al. 2015); and the role of the state in facilitating such transitions (Margulis et al. 2013).

Chapter II focuses on the role of Marine Spatial Planning (MSP) in saving space for food production. The MSP process, while it endeavors to plan ahead for disparate uses in the coastal

zone, can be particularly impacted by power dynamics and the level of participation allowed to stakeholders (Pomeroy et al. 2015). A review of MSP processes worldwide reveals their consideration for access to food production and food security, or lack thereof. The way that different uses compete for space in the coastal zone is once again compared to processes on land.

Chapter III delves into what an access right constitutes, and how access rights have been considered in fisheries management systems in prior characterizations (e.g. Hannesson 2004, Huppert 2005, Charles 2009). What is their role in the 'bundle of rights' so often discussed by fisheries economists, and how have they been broken down in the past? This chapter also focuses on how different ways of analyzing governance may augment the larger conversation around fisheries access, and reviews how prior literature has examined management regimes for fisheries worldwide. The debate over the merits of each of these systems and their applicability to certain species, geographic types and standard of institutions is well-documented in the fisheries literature, and briefly summarized here.

Of primary interest in Chapter IV are how authors determine the success of different regimes, and the importance of setting appropriate objectives before introducing fisheries management reforms. The methods by which access to a resource may be conferred and how we may introduce equity into the conversation are also discussed.

Chapter V approaches the specifics of developing a typology for fisheries access rights, in terms of recommended frameworks and considerations, and grounds it in the previous chapters' reviews and analyses. While a more comprehensive typology is desirable to populate a global database in the future, a simplified structure and example is presented that focuses on who holds what rights and how access is allocated.

Chapter VI emphasizes next steps. How can we apply lessons learned from large-scale access transitions on land, and is there time to do better in the ocean? In saving space for food production and fishers, can we incentivize considerations of equity? Being aware of what access arrangements exist around the world today, and how we evaluate their success, is the first step in answering these questions. Beyond that, it is recommended that a more comprehensive analysis take place in order to populate a more detailed database of access rights that exist worldwide.

Chapter I: The Enclosure of 'Mare Liberum'

1.1 Property and Privatization: History of Enclosure and Evolving Governance at Sea

Privatization of natural resources and space, and the role of governance in such processes, has a long and storied history on land and at sea, and ownership and rights to access are today a fundamental part of the conversation around fisheries management. The doctrine of the freedom of the seas and belief that the fisheries resources of the sea cannot be exhausted still dominate the legal discourse around ocean access and use (UN 2013); initial disputes centered around whether access to the sea was indeed a common right to all men, or whether the doctrine of 'mare clausum,' or closed seas unavailable to other nations, applied (Hanneson 2004). It was in the early 17th century that Dutch jurist Hugo Grotius argued for 'mare liberum,' or the notion that the high seas cannot be possessed, and that freedom of the seas is essential for the development of maritime trade (Grotius et al. 2004). At that time, many states maintained a narrow band of territorial waters along their coastline, but accepted that the high seas were for common use. These basic tenets—that citizens claim an access right to the fish inside their nation's territorial sea but share those on the high seas with all— represent the primary arrangement in regard to law that we still see today (Allison 2001). By the late 1800s, most countries had adopted a three-mile limit to their territorial sea, and conflict over who had rights and jurisdiction to certain living and nonliving marine resources beyond this limit were taking place (Hannesson 2004). States began to claim territory even further beyond their coasts, and concluding in 1982, the third UN Conference on the Law of the Sea legally established a 200-mile limit to an Exclusive Economic Zone, in which states could manage the exploitation of natural resources ("Convention…" 1982). The existence of EEZs has since crystallized into customary international law and non-signatories to the treaty also claim 200-mile EEZs. The establishment of the 200-mile EEZ as part of international law was a key moment in enclosure of the ocean, and in establishing state 'property rights' to fish stocks, as it meant that a state could place conditions on the access to or utilization of the majority of the world's valuable fish stocks. This ability is the basis of many management regimes seen worldwide today (Hannesson 2004).

Over the last several decades, we have seen increasing movement toward privatization of the commons, especially in the ocean— what may be considered the commons last great stand, as privatization on land has a more protracted history that has resulted in its being largely privatized or declared state property already (Hannesson 2004). This phenomenon may be traced back to the Enclosure Acts in 16th to 18th Century England, during which smaller landholdings were enclosed to create large farms presented to single owners, thus cutting off access to previous users and extinguishing prior communal use (Acheson 2015). The impacts of these initial enclosures and formation of formalized property rights have been mirrored in subsequent processes in the oceans, including conflict over rights to access when all who wanted them and previously enjoyed them could not be included (Hannesson 2004).

This history of evolving law and implications for fisheries access is the story most commonly told, and represents a simplified and euro-centric view, because prior to the creation of State EEZs that brought open access areas into state-managed commons, fisheries existed worldwide that were not lacking in rules or in incentives to conserve a resource (Acheson 2015). However, community-based exclusive fishing rights like traditional marine tenure were not significantly

recognized at the academic and management level in many cases until the 1980s (Huppert 2005). Movement toward more well-defined ownership of the seas (at the state and private level) was in fact detrimental to some of these existing systems (Johannes 1978). There has since been much discussion over the clarification of terms concerning common-property resources: we will use (1) property owned by no one (open access), (2) property owned by the state (who sets access rules), (3) private property, and (4) common property (owned / defended by a defined community) (Schlager and Ostrom 1992, Bromley 1991).

1.2 Property Rights at Sea

Assigning 'property rights' to resources or places in the ocean aligns with the economic principle that fishers or other resource users will take better care to protect a resource, and therefore their future return, if they have some form of ownership toward it (Leal 2010). The notion of creating property rights systems in the marine environment grew from the recognition that free and unregulated fisheries (open access) can cause a 'race to fish' that leads to overcapitalization, risky decision-making, depleted stocks and reduced economic returns (Birkenbach et al. 2017). One such example is the famous collapse of the Atlantic northwest cod fishery (McCain et al. 2016). The desire to end the 'race to fish' and the spread of conservation-focused rules was significant in the development of fishing rights (Huppert 2005), and property rights based fisheries management has been lauded for its ability to reduce fishing competition where it results in unsafe and economically inefficient outcomes (e.g. Pfeiefer and Gratz 2016, Lubchenco et al. 2016, Nowlis and Benthem 2012, Huppert 2005). However, since the embrace of property rights by fisheries management, there has been substantial conversation around the tension between economic efficiency and distributional equity, and there is a significant body of literature that is critical of the effects of privatization on fishery-dependent communities and individuals (Pinkerton and Davis 2015, Carothers and Chambers 2012, Bromley 2009).

The movement from fisheries resources as open access or commons toward property-rights based management has been accompanied by a shift in governance, including the involvement of institutions outside the state in regulating access (Allison 2001). Non-governmental organizations, particularly those based in conservation, are increasingly involved in the regulation of fisheries access (Petersson 2020), as are market instruments and mechanisms (Le Gallic et al. 2006). The role of the market may be seen in the emphasis on tradability of quotas in certain rights-based management schemes (Thøgersen et al. 2015), discontinuation of inefficient subsidies, and labeling or certification schemes to promote ecological, or most recently, labor and social related goals (Macfadyen et al. 2009). Other civil society groups involved in the broader discourse on access include the marine science community and organizations representing fishers themselves (Allison 2001). Allison wrote in 2001 that we appeared to be witnessing a "shift from emphasis on 'hard laws' regulating fisheries in sovereign-states' territorial waters, towards governance through 'soft' global voluntary codes of conduct, market incentives and partnerships between fisherfolk and governments." (p. 933), and this evolution has only expanded since then with a proliferation of non-state market-driven incentives and further voluntary codes (Gutiérrez and Siân 2017, Jentoft 2014).

The global voluntary agreements that address fisheries management, and within that, specific questions around access, enjoy varying degrees and versions of national implementation (Hanna

1999, Jentoft 2014). Perhaps the most widely known is FAO's 1995 Code of Conduct for Responsible Fisheries, which mentions access in several places, including but not limited to the need for preferential access to traditional fishing grounds and resources by small-scale fishers who rely on such access for meeting basic rights and needs, and the need for coastal states to develop frameworks that govern access to coastal resources while explicitly taking into account the rights of small-scale fishers ("Code of Conduct for Responsible Fisheries" 1995). Though voluntary, the CCRF is grounded in relevant international law and supported by other international agreements like the Rome and Kyoto declarations, and where it has been adopted there is evidence to support improved incorporation of marginalized viewpoints into discourse (Hanna 1999, Allison 2001). Other relevant voluntary international agreements include the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (FAO 2012) and the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (FAO 2015).

1.3 Parallels and Lessons from Land

There are several similarities, beyond general enclosure, between what is happening in the sea and what has already happened on land in regard to privatization. Of note are the role of transnational companies (Schlüter et al. 2020, Brodie Rudolph et al. 2020), the role of social movements and civil society (Cohen et al. 2019), the loss of complexity in landscapes (Bournazel et al. 2015), and the conversion of land and resources from forest, to use for local food production, to commodities for the international market (Lambin and Meyfroidt 2011).

In reviewing the history of global land governance and its privatization, Margulis et al. (2013) recognize how postwar democracies like the U.S. initially tried to keep conversation on land redistribution out of formal international governance institutions, despite the efforts of the FAO. In the 1990s institutions like the World Bank began to advocate for more market-led agrarian reform while small-scale famers were left feeling unheard and concerned about 'land-grabbing,' referring to large-scale land acquisitions, particularly by transnational companies but also by governments and individuals (Land Research Action Network 2011). Predicated on this lack of conversation about the social justice aspects of land reform at the international level, organizations like La Via Campesina began to advocate for smaller land holders (Von Redecker and Herzig 2020). It was the International Conference on Agrarian Reform and Rural Development in 2006 that provided pushback to market-assisted land reform, and opened space for advocating for collective land rights or cultural dimensions of land (Margulis et al. 2013). This led to the publication of the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests in the Context of National Food Security in 2012, which were produced with wide civil society buy-in (Land Research Action Network 2011). Assies (2009) characterizes this discourse, which we see replicated in fisheries albeit further behind, as being situated in two camps: economists who focus on private property as an economic and marketable asset, whereby enforcing rights can enable the poor to transfer their land in a market, and organizations representing local user groups who view access to land and security of tenure as a human right or a means to secure human rights like secure livelihoods and food security. Economists emphasize transferability as a key component of property rights and route to

economic efficiency, but many customary tenure regimes restrict the ability to sell land in order to preserve said security and livelihoods (Assies 2009).

Margulis et al. (2013) point out several key distinctions in the most recent iteration of land-grabbing that we see today, including even larger shifts in power and production. Transnational and domestic corporate investors, facilitated by state governments, are key in taking control of large quantities of land to produce not just food but feed, biofuel and other industrial commodities (Margulis et al. 2013). There is also a high level of resistance, augmented by global governance instruments to address land grabbing, such as the aforementioned FAO agreements (e.g. FAO 2012). The authors note that what is being fought over is not just who should control and access the land in question, but what should be grown on it, how, by whom, and for what markets, and that this struggle has the ability to homogenize landscapes and significantly curtail the autonomy of those who rely on access to land for their livelihoods. (Margulis et al. 2013, Land Research Action Network 2011).

In the aquatic realm, parallel but slightly delayed changes are at work. Transnational companies are seeking more access to the ocean and the ability to privatize it, excluding other uses from space designated to them (Schlüter et al. 2020). Business alliances like the World Ocean Council are a part of this evolving ocean governance structure, advocating for increased privatization and geographical partitioning of ocean use, and the development of regional ocean business councils to have direct input into ocean planning and development conversations worldwide (World Ocean Council 2017). Jouffray et al. (2020) term this expedited scale and pace of competing ocean uses 'blue acceleration,' or "a race among diverse and often competing interests for ocean food, material, and space."

1.4 Resistance to Property-based Regimes

We also see strong emergent resistance: organizations like the World Forum of Fisherpeoples (WFFP), World Forum of Fish Harvesters and Fish Workers (WFF), International Collective in Support of Fishworkers (ICSF) and Masifundise, among others, advocate on behalf of small-scale fishers. In 2018, the World Forum of Fisher Peoples categorically rejected the annual "Our Ocean Conference," organized by world governments and the private sector and with a focus on market-based solutions to ocean issues, in favor of their own conference – stating "We reject the Blue Economy framework of International financial institutions and Transnational Corporations, which promote ocean Grabbing, disposing small scale fisher from their resources, and undermines the livelihoods of coastal communities. We reject the framework of the 'Our Ocean Conference:' selling the ocean won't save it." (WFFP 2018). These small scale fisher driven movements see advocating for policies that focus on economic exploitation and mechanisms to assign property rights in the ocean as a power grab that will grant transnational forces greater control over resources at their [small scale fishers] expense (Barbesgaard 2018). Resistance is also manifest in the academic sphere, where criticisms of the 'Blue Growth' paradigm, (discussed in greater detail at the conclusion of this chapter) question the representation of the ocean as a new frontier for limitless economic returns, and the ability of blue growth initiatives to meet social and ecological goals (Ertör and Hadjimichael 2020, Bogadóttir 2020, Barbesgaard 2018).

Despite this resistance, some coastal communities are losing the land they live on and land they conduct their fishing activities from (Bavinck et al. 2017), impacting the natural structural complexity of their seascapes, which provide many uncredited ecosystem services (e.g., conversion of mangrove commons to private shrimp farms) (Bournazel et al. 2015). Additionally, stakeholders are concerned over not just who has access to the near-shore area, but what specifically that space is used for— just as land-based crops are being used for feed, biofuels, and industrial commodities; wild-capture fisheries are increasingly being used for things like fish meal for aquaculture and other animal feed, and production of fish oil and other supplements— sometimes at the expense of human nutrition in other parts of the world (Zhang et al. 2019, Hicks et al. 2019, Cashion et al. 2017). Globalization, both on land and at sea, has made possible large-scale transitions from food grown or captured for local consumption, to former food being exported for other markets (Cashion et al. 2017, Lambin and Meyfroidt 2011).

Ultimately, the history of land privatization and alienation from the commons can provide a glimpse of what some users fear similar policies may bring at sea. Clear comparisons between land-grabbing and processes in the ocean have already been made (Bennett et al. 2015). Bennett et al. (2015) define ocean grabbing as referring to "dispossession or appropriation of use, control or access to ocean space or resources from prior resource users, rights holders or inhabitants. Ocean grabbing occurs through inappropriate governance processes and might employ acts that undermine human security or livelihoods or produce impacts that impair social-ecological well-being. Ocean grabbing can be perpetrated by public institutions or private interests." (p. 62). In addition to concern about ocean grabbing, tension continues to mount around the growing economic emphasis of fisheries reform. The publication in 2009 by the World Bank, in collaboration with FAO, of "The Sunken Billions: The Economic Justification for Fisheries Reform," which posits that economic efficiency of fisheries is seriously compromised by lack of sufficient property rights (World Bank 2009) triggered many rebuttals (e.g. Béné et al. 2010, "The Wealth to Welfare Continuum" n.d.). Critiques of this approach focus on the fact that policies that emphasize economic rent-maximization may not be appropriate for rapid implementation around the world, specifically in developing countries where small-scale fisheries have positive pro-poor impacts (Béné et al. 2010); and that there is a lack of transparency and small-scale participation in the move toward such 'wealth-based' policies ("The Wealth to Welfare Continuum" n.d.). There is also recent unease by civil society and fisherfolk organizations that FAO, previously sympathetic to fisherfolk concerns, is now turning away from the SSF guidelines and toward a property-rights based approach, which they associate with social disruption and equity issues (Isaacs 2019). This is highlighted in concern over the tone of FAO's 'user rights' meetings in 2015 and 2016, and the replacement of stigmatized terms like 'property rights' with 'tenure characteristics' when they are being used largely in the same way (Transnational Institute, World Forum of Fisher People and Afrika Kontakt 2016).

1.5 The Blue Economy Conversation

This entire debate can be situated in an even broader discourse over what recently in vogue phrases like the 'Blue Economy' and 'Blue Growth' truly mean—used by some in an exclusively economic and industrial sense, and by others in a more holistic and inclusive way (Ertör and Hadjimichael 2020). Proponents of blue economy approaches in their simplest, economic-efficiency-focused forms claim that blue growth can simultaneously meet environmental and

social goals, while releasing untapped profit. However, detractors view the focus on assignment of property rights as a means to extract the full economic potential promised to investors as a vehicle for privatization that could result in consolidation and accumulation of wealth by a few, at the expense of former coastal commons and those who would rely on them (Barbesgaard 2018). Cisneros-Montemayor et al. (2019) advocate that for a 'Blue Economy' to be a valuable paradigm for development of our ocean resources, considerations of equity and social benefits must be valued at the same level as economic and environmental goals—and that this is what distinguishes the term from prior economic growth-centric models of development for our oceans. They also argue that such an inclusive definition may be key in achieving the United Nation's Sustainable Development Goals, a notion that is supported by the recent High Level Panel for a Sustainable Ocean Economy's Blue Paper 'Towards Ocean Equity,' which also outlines ways that a more diverse group of actors may have access to decision-making and benefits in a 'Blue Economy' (Österblom et al. 2020). While these more overt and actionable proposals for including equity and other social outcomes in ocean development are relatively recent to the literature, concerns about social justice in ocean governance and distribution of resources are not new—and as I will discuss in subsequent chapters, have historically been underrepresented in evaluations of fisheries management (Bennett 2018).

While some seek to salvage the concept of blue growth from being defined as a purely economic imperative, others are introducing new terms to challenge its growth-based premise. One such concept is that of 'blue degrowth' (Ertör and Hadjimichael 2020, Hadjimichael 2018), which seeks to bring the degrowth idea that "infinite economic growth is neither possible, nor desirable for achieving societal objectives for sustainable and just futures" into the ocean sphere. Calls for 'blue justice' advocate for a specific social justice framing to the blue economy debate (Bennett et al. 2020, Isaacs 2019).

There are several similarities across the genre of work that is critical of blue development approaches, which are important to bear in mind for the context of this paper. These include a call for novel governance approaches, the need to include a broad alliance of actors in scenario planning, and a need to carefully consider the distribution of costs and benefits in a blue acceleration / blue economy scenario (Allison et al. 2020, Bennett et al. 2020, Brodie Rudolph et al. 2020, Cisneros-Montemayor et al. 2019). Finally, considering the conception of coastal and ocean space as a final frontier (Cohen et al. 2019), and the looming threat of climate change (Harley et al. 2006), there is a pervasive sense of urgency to outlining a way forward and strong recognition of the challenge inherent in trying to reconcile different visions for the future of ocean use. Cohen et al. (2019) explore the plight of small scale fishers in particular in regard to being 'squeezed' by competing interests in the coastal zone. This squeeze and the planning processes that, depending on how they are enacted, could facilitate or help prevent it, are explored in the following chapter.

Chapter II: Saving Space for Food Production: Fisheries in Marine Spatial Planning

2.1 Planning for Food Production: Benefits and Costs of Marine Spatial Planning

In terms of potential routes for privatization in the ocean, one key mechanism to consider is the marine spatial planning process. Such processes seek to assign spatial designations for different uses of the ocean, including but not limited to energy exploration and production, recreation, military use, scientific research, aquaculture, and marine transportation (Sale et al. 2014). While it is important to acknowledge and plan for this increasing competition for space in near-shore areas, and some planning processes seek to be participatory, some projects have also "had the effect of legitimizing and creating space for new forms of industrial development, while effectively shutting many historic ocean users out of the process altogether" (p. 114 Pinkerton and Davis 2015).

Proponents of marine spatial planning, however, state that creating access to fisheries, aquaculture, and other forms of food production through spatial management is a critical opportunity for enhancing food security (Lester et al. 2018a). Spatial planning may also be useful for managing spatial use conflicts, ensuring that the production of ecosystem goods and services remains sustainable in the long run (Foley et al. 2010), and helping allocate resources efficiently (Katsanevakis et al. 2011, Tidd et al. 2015, Douvere 2008).

As part of this project, a literature review was conducted in 2017[1] on the current discourse concerning marine spatial planning and specifically the allocation of space for fisheries, aquaculture, and food production. We used Google Scholar to search the words "aquaculture," "fisheries," "food," "food security," "food production," and "seafood" in combination with "marine spatial planning," "marine spatial management," "coastal/marine/ocean zone management," "coastal/marine/ocean zoning plan," and "coastal/marine/ocean spatial zoning plan;" all possible combinations between the two categories were entered.

No explicit mention of setting aside space for food production in order to promote food security was found. Consistent with this finding, a study by Mangubhai et al. (2015) illustrates how socioeconomic factors are not often treated as a target within MSPs. Thus far, protecting biological resources is the main driver behind the generation of many MSPs without socioeconomic factors stated as main goals. Review studies have pointed to the Millennium Ecosystem Assessment, in which the major concern is for biodiversity loss rather than explicitly human-linked issues like food security (Douvere 2008, Douvere & Ehler 2009). However, effective spatial management is dependent on the balance between ecological and socio-economic factors, which means moving forward that focusing solely on conservation goals can be ineffective, and it is essential to include other social elements (Teh, L. C. & Teh, L. S. 2011).

In terms of specific discourse on marine spatial planning, there are many examples of rudimentary forms of coastal zone management within the context of Integrated Coastal Zone

[1] This key word search and subsequent country ranking were conducted by Teressa Pucylowski, MMA, who collaborated on the creation of this chapter for the original report for which it was produced in 2017.

Management (ICZM) beginning in the 1970s, and fewer and more recent examples of highly developed marine spatial plans. As of 2017, more specific spatial allocation had not been implemented in most countries across the world, in part because many countries lacked the government infrastructure or the regulatory power to guide the development and implementation of effective marine spatial planning (FAO - SP aqua). Even within a developed framework, access to space depends on property use rights or how commons are allocated (Katsanevakis et al. 2011).

2. 2 Assessing the Use of Marine Spatial Planning Around the World

To look more closely at the design and implementation of marine spatial plans and how they allocate for food production, we conducted a global assessment using available national data. The purpose was to illustrate how marine spatial planning is implemented throughout the world, and how food production, aquaculture, and fisheries are incorporated into the discussion. We started the analysis by looking at several review sources related to spatial planning and coastal management, as well as databases on the status of marine protected area (MPA) designation. Finally, a literature search using the same key words as our initial survey was conducted for each country. We developed a two-part matrix scale to rank the extent of marine spatial planning policies used in each country. The first ranking is as follows:

1	No marine spatial plan of any kind
2	No explicit or formal MSP, but elements of zonation or spatial allocation evident
3	No explicit or formal MSP, but evidence of steps taken toward developing MSP
4	MSP, but no explicit recognition of fisheries or aquaculture designated zones
5	MSP with explicit recognition of fisheries and aquaculture
6	MSP with explicit recognition of food and nutrition function of fisheries and aquaculture

The purpose of this ranking system is to illustrate the trend toward spatial allocation in marine governance, beginning with elementary actions towards zonation. This can include fishing zones within EEZs, the creation of MPAs, navigation rights, or shipping lanes, among others (Rank 2). This does not have to be associated with a specific intention. From there, steps that are taken toward MSP explicitly, in the form of workshops or collaboration, or seen in the development of Integrated Coastal Zone Management plans are categorized as Rank 3. The next step includes formal plans allocating marine space according to specific users and/or activities (Ranks 4-6). A higher rank is not meant to convey a positive or negative value judgment, but simply to gauge the extent to which a country is utilizing marine spatial planning practices.

For this use, formal marine spatial plans are considered to be all inclusive of the nation's territorial sea, in that the plan must designate some use(s) for each allocated space, that when combined together encompass the entire marine territory for a given government system (this can include states within nations). For example, if a nation has developed a single marine park that makes up a percentage of their total EEZ or territorial sea, even with well-developed spatial access and use allocation it would still only be considered an MPA, or Rank 2. However, if the entire specified marine territory was made up of a network of MPAs with different allowed activities initiated under a single spatial management plan, it would be counted as a formal marine spatial plan.

Due to their elementary use of zoning, we consider marine protected areas (MPAs) as representing initial steps towards spatial allocation (Katsanevakis et al., 2011, Klein et al., 2010). Therefore, countries with any marine parks or protected areas were considered to be in category "2" regardless of the size or the percent of the nation's EEZ it covers. While the dominant goal for MPAs is frequently conservation, within the more developed MSPs that we see today, objectives are more multi-faceted (Douvere 2008). Besides promoting biodiversity, the creation of MPAs has been one of the main priorities found within most marine spatial plans (Vince 2014).

Part two of our matrix scale looks at the degree of implementation of these plans, and whether they were actually implemented, monitored, and evaluated. It is widely agreed that these elements are key to the success of an MSP, and include consistent reviews and adaptive measures (Douvere 2008, Katsanevakis et al. 2011, Day et al., 2008). The following categories were used to rank degree of implementation within nations that have already developed an MSP:

(Rank 4-6):

a	No evidence of implementation
b	Implemented
c	Implemented and monitored
d	Implemented, monitored, and evaluated

2.3 Results: Use and Implementation of Marine Spatial Plans

Since this is the first attempt to systematically categorize this issue on a global level, this analysis should be considered preliminary. As of 2017, if no information was found for a country or region, it was assumed that country or region had no formal marine spatial plan. Additionally, while there are several examples of regional and international agreements, we focused only on plans that were developed at the country level to maintain consistency. The status of the nation's MSP was determined by the most advanced action taken toward implementing, monitoring, and evaluating marine spatial planning, regardless of whether or not it was nationwide.

Of the 176 countries analyzed, very few, as of May 2017, actually demonstrated the use of marine spatial planning in a formalized setting, with only 21% of coastal countries having a formal MSP developed. Almost half of the coastal countries show signs of spatial allocation, most commonly seen in the form of designated MPAs (Figure 1). Developed countries in North America and Europe were more likely to have formal MSPs than regions with more developing countries (Table 1). This is likely due to having the financial and technical resources and advanced political structures that enable this type of strategic action planning. When it comes to implementation, monitoring, and evaluation, a large number of marine plans have yet to be implemented (Figures 2 and 3).

Table 1. Percentage of countries in each ranking per region

	"1"	"2"	"3"	"4"	"5"	"6"
Europe	2.8	19.4	19.4	19.4	33.3	5.6
Africa	13.2	47.4	28.9	5.3	5.3	0
South America	0	84.6	7.7	0	7.7	0
Oceania	4.8	71.4	19.0	0	4.8	0

Figure 1. Total percentage of countries in each ranking

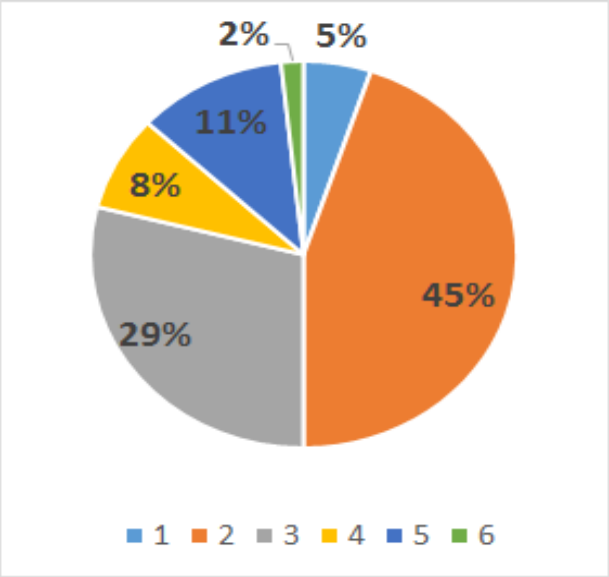


Figure 2. Total percentage of countries in categories a-d

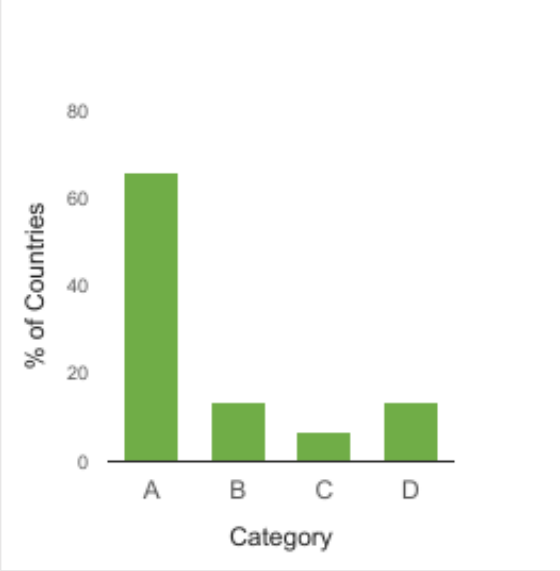
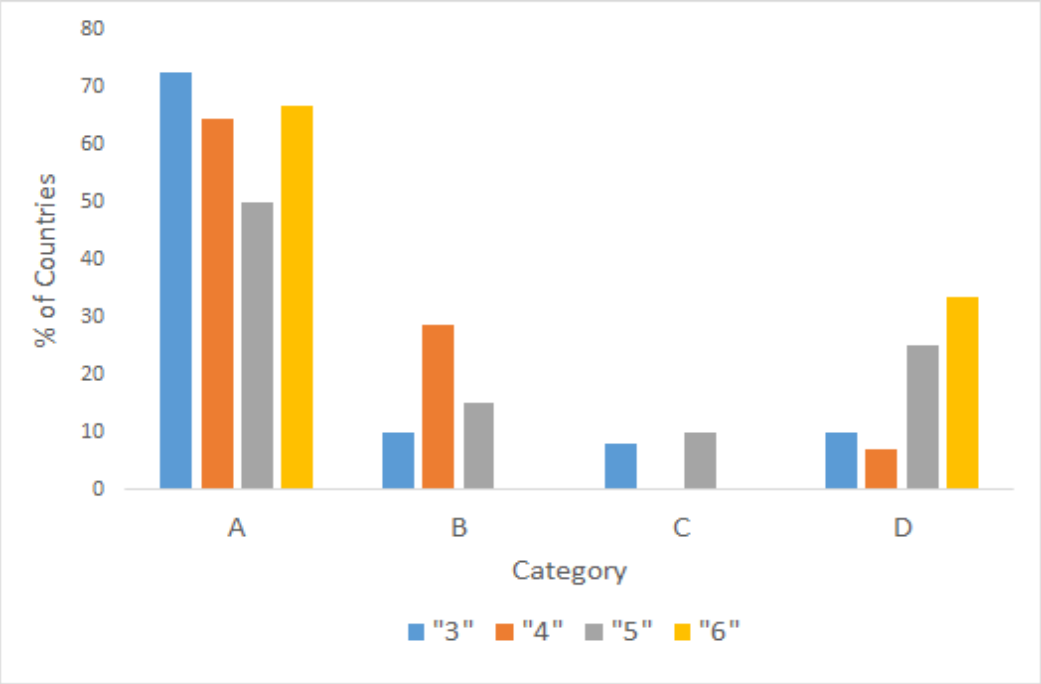


Figure 3. Percentage of countries in each ranking 1- 6 and categories a-d



The Netherlands, Wales, and Israel were the only nations to explicitly mention the role of food production in marine spatial planning via fisheries and aquaculture. The Netherlands' Maritime Spatial Plan went into the most detail in advocating for food security and is the only one of the three that has been fully implemented, monitored, and evaluated (Hoel and Olsen 2010). Food security is also explicitly mentioned in the Israel Marine Plan, and the Welsh National Marine Plan mentions the importance of fisheries and food production ("Welsh National…" 2015, "Israel Marine Plan" 2015). The Israel Marine Plan has not yet been implemented (Ramieri et al. 2019), while implementation guidance for the Welsh National Marine Plan was recently published in June 2020 ("Welsh National…" 2020).

This thesis suggests that for many marine spatial plans, overall societal objectives should be included at the forefront of planning— i.e. *why* are we creating space for specific activities and uses? What are the benefits? While this process represents an initial analysis into food production and marine spatial planning, further research questions should address issues around why food production and security are not included in many MSPs, whether the development of MSPs with fisheries and aquaculture goals is largely fueled by declining fish stock within a nation's EEZ, and whether countries with smaller coastlines experience higher pressure for spatial management.

2.4 Why We Create Marine Spatial Plans: Benefits and Concerns

With increased competition for space, conflict among users and activities is inevitable (Douvere & Ehler 2009). Further development of existing activities and the addition of new uses will add to this stressor (Christie et al. 2014), and mismanaged coastlines can create additional

environmental problems (e.g. pollution) that impact other uses (Douvere 2008). However, with adequate and effective spatial planning, these clashes may be mitigated or avoided by physically separating them or engineering new multiple uses for a single location. Conflicting uses related to food production may include aquaculture and tourism; fishing and wind farms; or aquaculture/fishing and shipping/transport, among others (Douvere 2008, FAO - SP aqua, Berkenhagen et al. 2010, Christie et al. 2014) Aquaculture and capture fisheries themselves can be viewed as being in conflict: the presence of farmed animals could present the risk of disease, escaped individuals, or diminished water quality (Gentry et al. 2016).

Conversely, aquaculture has the potential to be compatible with other uses of marine space. Within aquaculture alone, there is space for multi-trophic production (e.g. seaweed, shellfish, and finfish) in one area (FAO maricult). Offshore aquaculture is increasingly being touted as a way forward because of increasing demand for food (Christie et al. 2014, FAO maricult), its potential compatibility with other uses, and its potential to combat the U.S. seafood trade deficit (Lester et al. 2018). Pairing aquaculture with oil and gas platforms is one example put forth as a compatible use, in terms of cost-sharing for transport services from onshore as well as start-up expenses (FAO maricult, Christie et al. 2014). Linley et al. (2007) predict that mussels could be farmed within wind parks; aquaculture could focus on species that are able to grow on the support structures of various energy platforms, abandoned oil rigs, or other support structures, and that these could also act as Fish Aggregating Devices (Dempster et al. 2006, Christie et al. 2014, Pomeroy et al. 2015). However, there is emerging literature that critiques the promises of such space-sharing proposals, and the push of aquaculture into offshore areas— highlighting barriers to efficacy and sustainability in such practices, and alignment with the aforementioned potential for spatial displacement of coastal fishers resulting from ‘blue growth’ initiatives (Belton et al. 2020).

Similarly, while there is a clear case for including food production in marine spatial planning efforts, there is also concern about whether such efforts can truly represent the position of affected fishers. For example, Pomeroy et al. (2015) express skepticism that participatory planning efforts, particularly those around marine renewable energy, will truly benefit small-scale commercial fishers – when areas are dynamic and multi-dimensional, it is not easy to simply partition them up, and conflicts amongst users may increase instead of being ameliorated. Pomeroy et al. (2015) also state that while developers may feel mitigation measures are appropriate to compensate fishers for a loss of access to fishing space, fishing communities do not always agree that financial mitigation is an acceptable remittance for loss of their livelihood and future food production, and that similar to fish itself, ocean space is being increasingly cast as a commodity. To be successful, MSP projects should take into account local context and values that cannot be understood in economic terms (Pomeroy et al. 2015) and take care not to simply exclude small-scale fishers (Belton et al. 2020). Social and economic needs, along with space conflicts, should be considered more explicitly in planning efforts, especially where those advocating for them do not have as much power as those advocating for strictly economic interests. Certain species only live near shore (Costello et al. 2017) or are accessible to communities near shore, and protecting that access is crucial in the face of urban expansion (Kadfak 2019).

Finally, it is important to acknowledge that while this initial analysis recognizes whether space has been allocated to wild-capture fisheries or aquaculture and accepts both as a recognition of the need to maintain space for food production in the coastal zone, large-scale aquaculture can in itself be a mechanism for privatization and for ocean-grabbing (Bennett et al. 2015, Pinkerton and Davis 2015) and can exclude coastal fishers who support local nutritional security (Belton et al. 2020). It matters to whom space for food production is allocated, and private aquaculture operations may displace subsistence fishing practices (Abdullah et al. 2017) or deflect consumption of certain species away from local groups and toward manufacturing fish feed for large-scale operations (Cashion et al. 2017). While this is shifting and aquaculture may be used to augment local food and livelihood security, it is important to note that both wild-capture and aquaculture fisheries will continue to be integral in meeting global seafood demand (Thilstead et al. 2016), and we must be careful if we privilege one at the expense of the other (Allison 2001). Moving forward, further consideration of specific space allocation toward aquaculture versus wild-capture fisheries, to whom they are designated, and the power dynamics involved in that transaction are necessary to obtain a more nuanced perspective.

2.5 Displacing Food? Parallels from Land

As we can with broader trends in privatization, we can also draw parallels between changes in spatial use of the coastal zone and what has happened on land. Historically, cities have developed near fertile areas, as fertility attracts initial settlers and supports higher densities of population (Satterthwaite et al. 2010). Close proximity of farmland to cities also makes food access and transportation easier for inhabitants. However, as urban centers expand, it follows that valuable land is moved from food production into urban or suburban land uses (Güneralp et al. 2020). This can have the effect of displacing populations from their food source, forcing them to rely on more imports, and increasing environmental and transportation costs. As urban centers grow larger, they in any case require more food than can be produced on the surrounding fertile land, even if that land were not encroached upon by urbanization (Satterthwaite et al. 2010). Urban areas are often located on coasts for ease of security, transport, trade, and other benefits and the issues surrounding the loss of valuable space for food production to other needs are certainly present in the coastal zone (UN Atlas of the Oceans 2016). Depending on accompanying policy, intensifying trade to compensate for cropland loss or loss of space for fisheries can make a country more vulnerable to exogenous shocks in global food supply, and at the very least can decrease a region's self-sufficiency in regard to food (Satterthwaite et al. 2010). There is a pervasive notion that one can always get food from somewhere else, but at some point it must be rendered untrue, and growing international markets for seafood are putting greater distance between production and consumption (Hanna 1999).

Bren d'Amour et al. (2016) discuss how urban expansion will reduce global croplands by 1.8 - 2.4 % by the year 2030, and that this expansion and displacement of food production will have significant regional disparities. Additionally, this urban expansion is "expected to take place on cropland that is 1.77 times more productive than the global average" (p. 8939 Bren d'Amour et al. 2016). Similarly, in marine waters, it has been noted that the majority of human impact, industrial development and competition for spatial use happens in the coastal and near shore zones, which also tend to be most productive for fisheries and aquaculture (Crossland et al.

2005). Many of the fastest growing urban areas in the world are located in the coastal zone (Smith 2011).

The notion of differentiated impacts for different regions has bearing on how the loss of food production spaces will be compensated as well. Less developed and emerging countries may sustain more losses, and not all of them can intensify existing production or expand their cropland further (Bren d'Amour et al. 2016). Based on the current status of fisheries and their management around the world, this differing ability to compensate for loss of space will also occur in the aquatic realm, but perhaps at a higher level of impact— where soil amendments and techniques can make agriculture viable in less-than-ideal areas, the preferred habitat of desirable species, especially those that are wild-caught, may not be as easily amended (Basconi et al. 2019). Impacts of lost space will extend beyond small-scale farmers (and fishers) to retailers, processors and brokers that will experience changes in competition and demand, potentially affecting food accessibility (Bren d'Amour 2016).

In addition to having clear economic consequences in terms of what activities are allowed to exist in a certain space, as well as environmental consequences in terms of changing ecosystem function and services, the loss of food production space on land and in the coastal zone can have social consequences in terms of lost livelihoods and lost cultural connection to a place or resource (Bavinck et al. 2017). Loss of income and displacement of livelihoods may be filled by other opportunities for economic development that include non-farm (or non-fishing) employment, but this may still leave people food insecure or disconnected from cultural practices (McClanahan et al. 2013). Good governance will be key as urbanization and expansion continue in terrestrial and near-shore environments, and the role of urban policy makers and urban and marine planners will be important in making sure space for food production is not forgotten while decision making amongst competing uses is done equitably (Bren d'Amour et al. 2016, Ratner et al. 2013). One tool for such decision-making is offered by Feist and Levin (2016), who create indices to measure human population influence in the coastal zone. Innovative approaches like this can be used to predict future anthropogenic impacts in specific areas, revealing useful information about spatial relationships between burgeoning population centers, habitats that provide important ecosystem services, and food production (Feist and Levin 2016).

Finally, it would be incomplete to discuss parallels of food production being displaced on land and at sea and to not include the body of work that seeks to integrate food production in both places using food systems approaches (Lowitt et al. 2020, Fisher et al 2017). Such work posits that in discussions of food and nutritional security, too little attention is given to analysis and solutions that focus on livelihood strategies where households depend on both fish and terrestrial farming, when combining program interventions could lead to more beneficial and more resilient outcomes (Fisher et al. 2017) and recognition of the interdependence between ecosystems (Lowitt et al. 2020). Such approaches could lead to unique solutions in coastal zones where space is being lost for food production in both areas (marine or freshwater and terrestrial).

Chapter III. Review of Access, Governance and Management Models for Fisheries

3.1 Setting the Stage

Moving beyond a broader discussion of privatization and its manifestation in spatial planning for competing uses, we can more closely consider how access, governance and management for fisheries have been addressed previously in the literature. This chapter therefore provides a conceptual review of different approaches to fisheries access and defines relevant terminology.

The purpose of most fishery access regimes is to regulate fisheries in order to prevent resource decline and collapse (Charles 2009). Generally, arguments for doing so include a focus on Maximum Sustainable Yield (MSY) of single species, and the economic inefficiencies, ecological risks and management costs associated with the 'race to fish' that happens in commercial (open access or state-managed) commons when actors are more competitive than cooperative (as compared to cooperatively managed commons with their own rules and enforcement) (Charles 2009, Huppert 2005, Rannesson 2004, Bromley 1991).

While the desire of this thesis is to focus on access, it is difficult to disentangle matters of fisheries access from those of other rights and characteristics present in fisheries management regimes. There is an abundance of literature that has contributed to parsing these (Schlager and Ostrom 1992, Hannesson 2004, Huppert 2005, Charles 2009, and more) but there is still a lack of consistency in the way some terms are used in and across disciplines, and the way property rights, or user rights, and certain aspects of fisheries management are classified. While each fishery requires a situational analysis, a more commonly accepted and universally used system of classification would go a long way toward making global comparisons and the construction of empirical databases more attainable—Anderson et al. (2018) make strides toward this in the creation of a Venn diagram that depicts overlaid paths of catch limits, effort limits and spatial limits (diagram depicted p. 28). There also appears to be a lack of systematic analyses and meta-analyses surrounding access to fishery resources, which is a gap to note for future research. Most reviews to date tend to focus on a particular fishery management or governance approach and instruments— e.g. ITQs, or MPAs, or co-managed fisheries (e.g. Arnason 2012, Jardine and Sanchirico 2012). These are challenging to compare across types, due to the diversity of indicators and measures used, and due to the fact that they can encompass a range of approaches (e.g. there are co-managed MPAs and community-managed quota fisheries).

3.2 Defining Access

While there are many ways to define and classify access and rights regimes, this review will be situated in Schlager and Ostrom's (1992) classification of property rights. Schlager and Ostrom (1992) define access rights simply as the right to enter a defined physical property; in this sense, they are the most basic property right an individual can hold. They determine both who can enter a designated area and who is eligible to exploit a specific resource (Mascia 2008). An access right in itself does not confer a right to remove resources. Beyond *access* rights are *withdrawal* rights, or rights to remove a specific resource from that space. *Management* rights are the rights to participate in decision making or regulation; *exclusion* rights confer the right to exclude others from access, withdrawal and management; and *alienation* rights are the right to sell or pass on in

another sense any of those prior component rights (Ban et al. 2015, McGinnis 2011, Schlager and Ostrom 1992). The rights presented by Schlager and Ostrom (1992) are hierarchical and well-described here by Ban et al. (p. 4 2015): "the packaging of property rights advances in a simple step-progression from authorized user (right to access/withdraw resources) to claimant (adding management privileges/ responsibilities) to proprietor (adding the right of exclusion) and finally to owner (with the right of alienation). In addition, these bundles also depend on the nature of the rule-making process within which they occur: who implements the rules (operational level) and who has the authority to change or create rules (collective-choice level)."

Schlager and Ostrom (1992) also emphasize that the security of an individual's access rights is impacted by the combination of *de jure* (explicitly granted and recognized by the government) and *de facto* (recognized by resource users but not recognized by government authority) rights, which frequently evolve over time. While *de jure* and *de facto* rights may exist in combination in any fishery, *de facto* rights are more commonly associated with community-based management of commons (Berkes 2006).

Hannesson (2004) uses the term 'exclusive use rights' to confer rights of access and utilization of state-managed commons; he defines three major ways that they may be defined, including "rights to catch a certain quantity of fish, rights to own and operate fishing vessels, and territorial use rights" (p. 55). Huppert (2005) breaks exclusive fishing rights into "limited entry permits, IFQs and local community-based or co-operative harvesting." Charles (2009) breaks use rights into access and withdrawal rights, citing TURFS as an example of a non-quantitative access right, and differentiating these from the right to participate in fisheries management. While these are all examples with a foundation in the property-rights based view of access, they represent just a small sample of the variety of ways that access, rights, tools and management may be overlaid with one another.

It is common now to adopt the legal metaphor of a "bundle of rights" when discussing the characteristics of fisheries management tools; Henry Maine introduced this idea in 1917 with bundles of rights and duties including the ability to own, inherit, use, and dispose of a resource (Maine 1917). This notion has since evolved into a bundle of different characteristics that may be associated with 'property' rights themselves. While transferability (ability to transfer the right to another; important for economic gains), durability (length of time held), exclusivity (freedom from interference), and security (ability to not have right challenged) are the most commonly used, other characteristics frequently included are divisibility, flexibility, and enforceability (Charles 2009, Huppert 2005, Scott 1989).

Other authors will quantify the degree of control in a particular fishery by using these characteristics to create an index that is representative of the fishery. Anderson (2002) creates a property rights index that correlates with the degree of control found in a fishery; the first four indices are degree of transferability, exclusivity, security, and durability, and the fifth represents a degree of economic freedom. The property-rights based indices are scored from one to five; for example, the security of the property right would be 1 if there was no security at all, but very strong if the legal system and enforcement protected the right (Anderson 2002).

It is also important to acknowledge the body of literature that is more grounded in the sphere of political ecology, and seeks to move beyond access as a property right. Ribot and Peluso (2003) present a concept of access that moves it from a right to an "ability to benefit from things" (p. 153). Their intent is to bring attention to "a wider range of social relationships that can constrain or enable people to benefit from resources without focusing on property relations alone" (p. 154). In this framework, then, one may have access without rights or rights without access (e.g. no boat with which to benefit from the resource). Instead of bundles of rights or characteristics of rights, they include bundles of power that are located in broader webs of power, capturing the many ways people might derive benefits from a resource beyond simply property. They also seek to capture the broader relationships that may change the terms of access and how people benefit. Some of what they propose is similarly captured in frameworks focused on rights; Ribot and Peluso's (2003) 'access control' or ability to mediate others' access, may be considered similar to Schlager and Ostrom's (1992) alienation right. Ribot and Peluso's (2003) proposed analysis of access includes identifying the resource in question; identifying the resource's benefits and following their flows, including how actors gain access to them; and examining the power relations that underlie such a process.

Sikor and Lund (2009) expand the work of Ribot and Peluso (2003) to look at how issues of access and property are joined to issues of power and authority, and again emphasize that property is not the only way by which users can derive benefit from a resource. In addition to property, both papers point out other access mechanisms to resources that include technology, capital, markets, labour, knowledge, identities and social relations, and both emphasize that guaranteeing property rights for some people logically means denying the same guarantee to others. (Sikor and Lund 2009, Ribot and Peluso 2003).

While Ribot and Peluso's (2003) and Sikor and Lund's (2009) theories are both helpful in scoping our ideas around access, the detail of their framework concerns access more generally, and this thesis is more specifically concerned with access rights, whether de jure or de facto, rather than with the political or capital factors that may mediate the ability to benefit from an access right. They also look at all those who benefit from a resource, which would be useful if this thesis were to expand its level of analysis from those who have direct access to a resource to those who benefit from the entire commodity chain. However, the level of analysis for this thesis is requisitely more superficial at this point in time, and there is not an abundance of fisheries-based case studies rooted in this framework right now. Ribot and Peluso (2003) acknowledge that "property generally evokes some kind of *socially acknowledged and supported* claims or rights—whether that acknowledgment is by law, custom, or convention" (p. 156) – while this may not completely capture all the possible ways individuals can benefit from a resource, it is our main point of concentration at this time. Other aspects of their theory, like mechanisms of access and power, a proposed typology of access rights can seek to capture with acknowledgement of allocation processes and governance.

3.3 Importance of Governance

The question of governance is distinct from an individual's ability to go fishing, but is recognized as an integral part of how fisheries management is conducted, especially when resources are considered scarce (Hanna 1997). Governance concerns access to decision-making –

in Schlager and Ostrom's (1992) framework participants here have at least a management right, to participate in decisions about regulating a resource. In equity terminology, this access to participation in decision-making would be deemed procedural equity (Österblom et al. 2020). Decisions made in terms of governance commonly include deciding who can access a fishery (exclusion right); in the event of a Total Allowable Catch (TAC), what that TAC is and the way it is determined; and what the rules are in a particular fishery. While terms around government-based fisheries management, co-management and community-based fisheries management may often be related to fisheries governance, the use of such terms does not always accurately convey how participatory a decision making process may be (van Hoof 2010). Effective governance also does not necessarily depend on the property rights regime in use (e.g., collective or private), but more on the strength of institutions involved (Hanna 1999).

3.4 Examining Governance at the Community, Government-based, and Co-management Levels

There have been many frameworks proposed to analyze governance of resources; Ratner et al. (2013) analyzes governance context for aquatic agricultural systems (AAS) and similar to our focus, the paper is grounded in the issue of growing competition from stakeholders over rights to access and use natural resources. Stronger governance can "enable equitable decision making amidst competition," and Ratner et al. focus on three key focal points of stakeholder representation, distribution of authority, and mechanisms of accountability (2013). Analysis of these three dimensions of governance can allow one to conceptually separate analysis of governance context from access and commensurate rights. It is important to acknowledge, however, the challenge of examining this level of governance without complete information, which is why this initial analysis will necessarily classify governance as state, co-management or community based, despite the shortcomings of such simplicity.

This analysis considers Community Based Fisheries Management (CBFM) as analogous to local-level management, where decisions about management and allocation may be made at a relatively small scale. Berkes (1986) states that this kind of local control over access works best when the group using and managing the resource is relatively small and homogenous, and that local rules surrounding such access may be either formal or institutionalized. Hannesson (2004) reinforces this idea— where commons resource management is successful, it is almost always where it is possible to restrict the amount of users, or there is a natural limit. Increasingly, CBFM needs to be sanctioned by the state in order to be deemed 'secure' (FAO 2004). Conversely, it may be that Government Based Fisheries Management (GBFM) needs to be accepted by a community for compliance to occur. Ribot and Peluso (2003) and Sikor and Lund (2009) both emphasis the role of 'forum shopping' for authorities that will legitimize claim to a resource in actually helping to cement the power of some institutions over others.

Government-based fisheries management simply refers to when rules are set primarily by the state (Hannesson 2004). As mentioned previously, GBFM took control of or overlapped with previously open access areas as well as community management structures during the advent of EEZs, and in some cases the state has been perceived as failing to adequately manage fisheries resources under their control (Cochrane 2002). This is one reason why privatization and the market are increasingly expressed as a solution (Carothers and Chambers 2012).

However, some see co-management as an alternative to complete privatization, and there has been increasing movement toward joint management of resources by state and community entities (Evans et al. 2011). Again, this may be superficial and varies in the extent to which it is truly participatory (Allison 2001), but there is evidence to support that when resource users are more involved in decision-making through community or co-management, access rights may be distributed more equitably (Pomeroy 2005). Also noted, as mentioned previously, is the growing role of external agencies and the market in in co-management arrangements (Evans et al. 2011). This points to the fact that co-management and privatization are not necessarily exclusive, and many existing access regimes are governed by a multiplicity of market, civil society, community and state forces, making them challenging to categorize. While we treat co-management as a decision-making level at which users choose to set specific rules, many reviews tend to treat co-management as a tool unto itself; what truly matters here beyond participation in the rule-making process is what rules the co-managers pick. A co-managed fishery may use ITQS or harvest cooperatives, or be based in customary marine tenure. It simply means that (traditionally) a resource group and government share responsibility over the fishery, although this is evolving to include more actors and forces (Jardine and Sanchirico 2012).

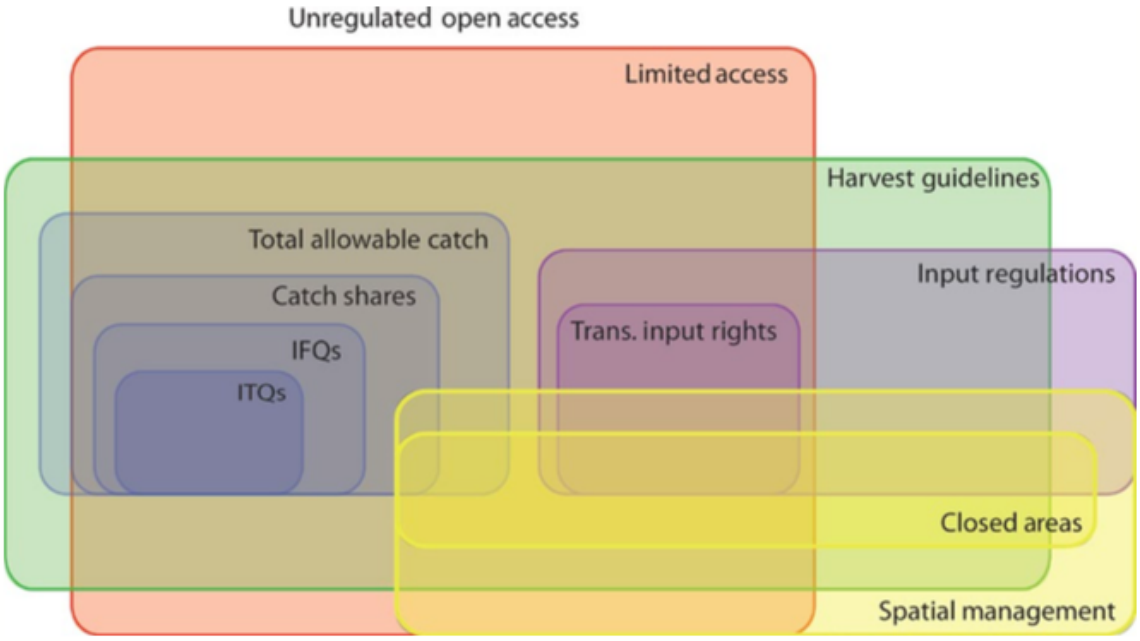
Two co-management reviews were examined in this paper that reveal some of the important aspects of successful co-management. Gutiérrez et al. (2011) look at 130 co-managed fisheries around the world and find that strong leadership is the most important factor in determining co-management success, followed by use of individual/community quotas, social cohesion and use of protected areas. The conditions these authors use to define success include whether co-management improves the social, economic and ecological success of the fishery in question, based on relevant attributes for which they were scored and then ranked among different socio-economic conditions and environments.

Evans et al. (2011) examine 29 case studies, including many in the same countries as Gutiérrez et al. (2011), with a focus explicitly on developing countries. They find that the top outcome indicators are "access to resources, resource well-being, fishery yield, household well-being and household income." The indicators are grouped into 'Natural Systems,' 'People and Livelihoods,' and 'Institutions and Governance,' reflecting types of impacts and characterizing them in much the same way as Gutiérrez et al. (2011). Both reviews largely agree that researchers and policy makers should be cautious in drawing conclusions about what success means in fisheries governance and what factors lead to it, because of the diversity of existing situations (Gutiérrez et al. 2011, Evans et al. 2011); this lends credence to the sense that generalities about fisheries governance are difficult to make.

3.5 Management Systems that Regulate Access

Management systems that regulate access have been classified in a variety of ways, and those used here are grouped by a combination of characteristics found with previous reviewers. They do not necessarily distinguish between industrial and artisanal or subsistence access and methods, though the latter are more frequently associated with spatially designated types of access (Le Cornu et al. 2017). It is important to note that these systems are not necessarily mutually exclusive— in fact, they quite commonly overlap and the actual management systems in use are a hybridized version of multiple other tools. Anderson et al. (2018), as introduced

previously, demonstrate the potential overlap of these different management systems well in a diagram that overlays limiting catch, limiting effort, and controlling spatial access, therefore showing the incremental effects of moving along each of these pathways in management:



(Anderson et al. 2018)

A brief summary of potential impacts of different fisheries management systems (excluding open access) is pictured in Table 2, followed by more detailed information on each of the management systems listed.

Table 2. Potential impacts of management systems that regulate access

Management System	**Potential Positive Impacts**	**Potential Negative Impacts**
QUOTAS (e.g. IFQ, ITQ, IVQ, CQ)	• Reduce competition • Improve economic efficiency • Government or conservation NGO purchase can reduce fleet size and pressure • Allow flexibility in harvesting and marketing • Incentive to overcapitalize and risk safety of crew reduced • Incentive to conserve improved	• Risk of concentration of ownership and wealth, including in hands of outsiders • Lack of equity in initial allocation • Increased division and change of values in coastal communities • Movement of capital away from fish-dependent coastal communities • Problems with monitoring and enforcement • Incentive for under/mis-reporting and discard

HARVEST COOPERATIVES	• Collective power for marketing and supply purchase • Catch/profit pooling can reduce effort and help conservation • Improved enforcement and compliance • Enhance product quality • Improve spatial deployment of effort	• May violate anti-trust laws by restraining catches
TURF	• Recognize and reinforce local values and knowledge • Associated with local management and high levels of buy-in • Local knowledge of species and market can lead to economic efficiency and conservation	• Allocation of access may be perceived undemocratic (e.g. ethnicity, social standing) • Success may depend on local knowledge base, politics • Success may depend on ability to enforce exclusion
Marine Reserves and MPAS (restricted and no-take)	• May help revitalize communities when access restricted to local residents • Conservation and spillover benefits	• Disruption of livelihoods and weakening community relationships • Transfer of benefits from fishers to industries like tourism
DERBY (TAC ONLY)	•Improvements in environment and economic realm over open access / limited entry by capping harvest	• Overcapitalization • Race to fish poses danger to crew and poor product quality
LIMITED ENTRY	• Reduce level of competition associated with open access	• Overcapitalization • Little conservation incentive
INPUT CONTROLS	• Reduce level of exploitation associated with no controls	• Fishers can easily substitute around gear restrictions

The potential impacts listed are meant to be illustrative and not exhaustive, and are based on theoretical and empirical studies from Huppert (2005), Dupont (2012), Wilen et al. (2012), Hannesson (2004), Deacon (2012), Ovando (2003), Mascia (2008), Arnason (2012), Matalucich (1996), Pinkerton and Davis (2015), Costello et al (2019) and Anderson et al (2018).

Open access: This is not technically a way to regulate access, as it is the lack of restriction on access, but management decisions are made around purposefully maintaining or introducing open access systems (Anderson et al. 2018). It could be deemed the most equal way to determine access, as all have the ability to derive benefit from it, but may be inequitable, because some will certainly have specific advantages over others. True open access fisheries, which may be highly competitive, should not be confused with resources managed by the state or a community of users in common (Charles 2009).

Quotas: Generally speaking, those who benefit from quota-based systems are those who can consolidate permits and capture a large portion of the resource rent (Costello et al. 2019). Frequently, this movement for consolidation is combatted by limiting the percent of quota to be held by one person or firm, allocating quota to vessels based on certain categories, or requiring owners to be aboard vessels while harvesting, among others (Arnason 2002). If fishers are able to spread out their season under a quota, they may reduce costs associated with freezing and holding (Huppert 2005). Those who lose in quota-based systems tend to be those who lose jobs as employment contracts, those who seek entry into a fishery but are unable to join without

established past participation or ability to pay the potentially steep price of entry, and those who were part of the fishery but not during the years counted for allocation (Huppert 2005). These potential scenarios are tied specifically to the way in which the quotas are allocated, which will be discussed in more detail. Other potential losers in quota-based systems are on-shore processors. This is possible in communities where on-shore freezing and processing were necessary during 'race to fish' times, but fresh fish became more desirable and deliverable when all fish didn't have to be caught at once (Matalucich 1996). Additionally, where holders are legally able to transfer their role in the fishery, they must decide whether they should sell to a processing company for a more lucrative price or pass it on to their family or other community members (Pinkerton and Davis 2015).

Harvest cooperatives: Harvest Cooperatives may take many different forms, and may both hold rights and make management decisions collectively. Membership could range from single digits to the thousands, and they are usually well set up to capture the benefits of collective action. The exact bundle of activities and tools they pursue depends on context, but they may utilize anything from gear restrictions to Private Marine Protected Areas (PMPAS) (Ovando et al. 2013). Quota owners in an ITQ could even form a cooperative (Deacon 2012). Cooperatives are delineated from TURFs in that their rights control actions of members, whereas TURFS claim resource ownership on a spatial basis. In coastal communities, though, they are often found together (Deacon 2012). Formally, harvest cooperatives consist of an association of harvesters that hold rights to control some or all of its members' fishing activities (Deacon 2012). It can be challenging to distinguish whether a group is a cooperative, where associations and contracts are not used. Informally, cooperatives can simply be groups that perform any kind of cooperative function within a fishery. In the case of Ovando (2013) authors examined 67 cooperatives that were identified and scored by the number of cooperative actions taken; this study included both formal and informal cooperatives. Assigning harvest rights to a group versus an individual can make it easier for collective-choice action to occur, especially with regard to taking action that benefits all users simultaneously, like policing, and adopting rights-based management in the first place. Where rights-based management is newly introduced, granting rights to a group that make their own decisions about dividing catch can make this transition easier. There is a need to address how size impacts success, and whether cooperatives truly succeed at capturing rents, as the literature is significantly skewed toward documenting successes rather than failures (Deacon 2013). Formal fish co-ops in the developed world mainly derive benefit from sharing marketing inputs, while informal co-ops (not contract but community based) are more frequently found in the developing world and may fill a gap in regulatory function like enforcement (Deacon et al. 2008).

Territorial Use Rights for Fishing (TURF): Territorial Use Rights, in more detail, refer to spatially-designated rights assigned to a group, which means their efficacy is influenced by whether the species being harvested within them are sedentary or migratory (Wilen et al. 2012). While TURFS are not analogous to community-level management, community management often does fit into this category. It is important to note that once a TURF is designated, access rights can be and frequently are then defined at a smaller scale, via categories like kinship, apprenticeship, caste, station in local society, religion or ethnicity (Huppert 2005, Hannesson 2004). TURFS are frequently found in small, close-knit communities of inshore fishermen, and key factors for success include those commonly associated with successful commons

management: identification of a specific class of users, boundary enforcement, adoption of rules of use, and security of tenure (Wilen 2012). For our purposes, other arrangements included in a category with TURFS are those of traditional marine tenure and collective rights allocations like Locally Managed Marine Areas (LMMAs), which are grouped together as systems that denote tenure over a spatial designation. It is important to note that TURFS may be distinguished by their level of security, which is integral to questions of changing access. TURFS by definition are protected by the legal institutions of their country (FAO 2017).

Marine Reserves and Marine Protected Areas: Marine Reserves and Marine Protected Areas, whether no-take or partial use, and whether short-term or permanent, are another tool that may be used to regulate fisheries access, but may also be used in conjunction with any number of other approaches to fisheries management (e.g. limited entry or input controls). MPAs, when created, reallocate preexisting rights that govern resource access and use (Mascia 2008). Historic evaluation of the success of MPAs has tended to focus on ecological outcomes over social outcomes; however, there is increased awareness and analysis of MPAs as part of social-ecological systems (Ban et al. 2015). MPAs may be implemented by community-level managers of resources, or by the state, or by networks of state and regional organizations in the case of transnational MPAs (Mascia 2008). MPAS may have fisheries management as their purpose, though those created for explicitly conservation purposes will have an effect on fisheries access as well. Here we refer to areas that are formally designated and not temporary spatial closures, which also may be used as a regulatory measure.

Derby (TAC only): TAC only fisheries are traditionally set based on biological information, without economic and community considerations (Dupont 2012). Those who can invest the most in a derby fishery will reap the greatest benefits. Those who lose out in this scenario are crew who may be forced to endure dangerous conditions and long hours for the sake of fishing as much as possible before a derby is closed, those who cannot keep up with the 'race to fish,' and processors who receive catch all at once (Costello et al. 2019, Huppert 2005).

Limited entry and input controls: Limited entry fisheries may only require an individual fisher or vessel to purchase a license, but as with other systems, are frequently coupled with input controls, like gear restrictions (Huppert 2005). It also may be that input controls, like restrictions on vessels and gear, are the sole management tool in a fishery (Anderson et al. 2018).

Chapter IV. Setting up for Success in Fisheries Management Regimes: How we Define Success, Set Objectives, Allocate Access, and Consider Equity Matters

4.1 Defining Success

A variety of methods have been used to characterize the success of these different types of fisheries management and reforms. They may be evaluated by how they meet their initial objectives, or through the lens of what the author deems important. Primarily, however, they are evaluated by their ability to maintain or improve the stock status of the fishery or by their ability to improve economic efficiency, especially at the review and meta-analysis level. Hilborn et al.'s (2003) "State of the World's Fisheries" focuses on single species biological and economic success, specifically highlighting the role of output controls. The authors mention equity once in regard to allocation of rights, but do not evaluate such allocations in their analysis. Costello et al. in 2008 focus on catch-shares and specifically ITQS, examining their potential in the biological realm to prevent fisheries collapse and positing that they are successful at doing so, contingent with other factors. They do not mention equity. Melnychuk et al. (2012) also look at a meta-analysis of quota-based catch-shares in regard to biological impacts, finding evidence that supports biological improvement under fleet-wide quotas, but again do not evaluate social or equity concerns. Marchal et al. (2016) also look at quotas and their success based on stock status and adherence to the TAC, mentioning their social impacts later in the analysis.

Olson (2012) looks at social impacts and equity specifically in a sample of CDQ, IFQ and ITQ fisheries around the world, not necessarily declaring them wholly successful or not but pointing out problematic impacts they have had at the community level. It should be noted however, that it may not be simply be the introduction of quotas that can have negative impacts on equity, but the greater economic context that is enabled when barriers to accumulation are removed in quota systems (St. Martin et al. 2007).

Jardine and Sanchirico's (2012) survey of catch-shares in developing countries, including quotas, cooperatives, and TURFS, focuses more on the factors that determine successful implementation of catch-share programs than the factors that are used to call them successful. While the authors do not examine equity in the referenced catch-shares, they do examine governance effectiveness and relate it to pre-conditions for adopting a catch-share program. Wilen et al. (2012) focus specifically on TURFS, again focusing on the factors that lead to their success, positing that it is related to their physical design and once again on governance. While they mention social cohesion in governance as a factor for success, they also do not specifically address any potential inequity issues in the TURFS they deem successful. Cooperatives as a form of catch share are reviewed by Deacon (2012) who also focuses on determinants of success – including the role of user organizations and their recognition to exclude others by the government, though once again not discussing equity. Ovando et al. (2013) reviews 67 cooperatives, focusing on characteristics that lend themselves to cooperative management but also not on equity.

Anderson et al. (2015) expand what has been a traditional focus on biological and economic assessment to the triple bottom line, which includes economic, community and ecological sustainability outcomes and use Fishery Performance Indicators (FPI) as a tool to assess fishery performance. The FPI have 68 individual outcome metrics within the economic, community and

ecological categories, and input components that reflect governance and institutions as well as the characteristics of fishing access and harvest rights. A much less substantial body of literature looks at how multiple outcomes are related in the management of different resource commons, including fisheries. Focusing on ecological and social sustainability, livelihoods, and equity, Agrawal (2011) finds that few researchers analyze the relationship and trade-offs between these outcomes, which is an important area to address moving forward.

4.2 The Role of Objectives in Implementing Reforms and Determining Success

When evaluating 'success' in the context of efforts to restructure management systems, the policy visions and objectives driving this restructuring can have far-reaching effects on the distribution and nature of fishing rights, including access by local user groups (Pomeroy and Neil 2011). Such objectives should play a prominent role in whether a management change is deemed successful. Hanna (1999) ties objectives into the scope of governance or long-term vision for a fishery, which she notes is often not consistent through time: "Are fisheries managed primarily for biological ends — for conservation? Are they managed for economic productivity? For social and cultural goals? For ecosystem sustainability? For all components? Unlike the expanding scope of regulation, management objectives have not expanded in a systematic way, but instead have emphasized different fishery components at different times" (p. 279). This emphasis on different objectives at different times comes not from a long-term vision but a response to immediate pressures, which can leave managers without a broader framework for coordination over time. Such a reactive state in resource managers may leave the resource users vulnerable to relatively sudden shifts in expectations and constraints, with far-reaching impacts (Hanna 1999).

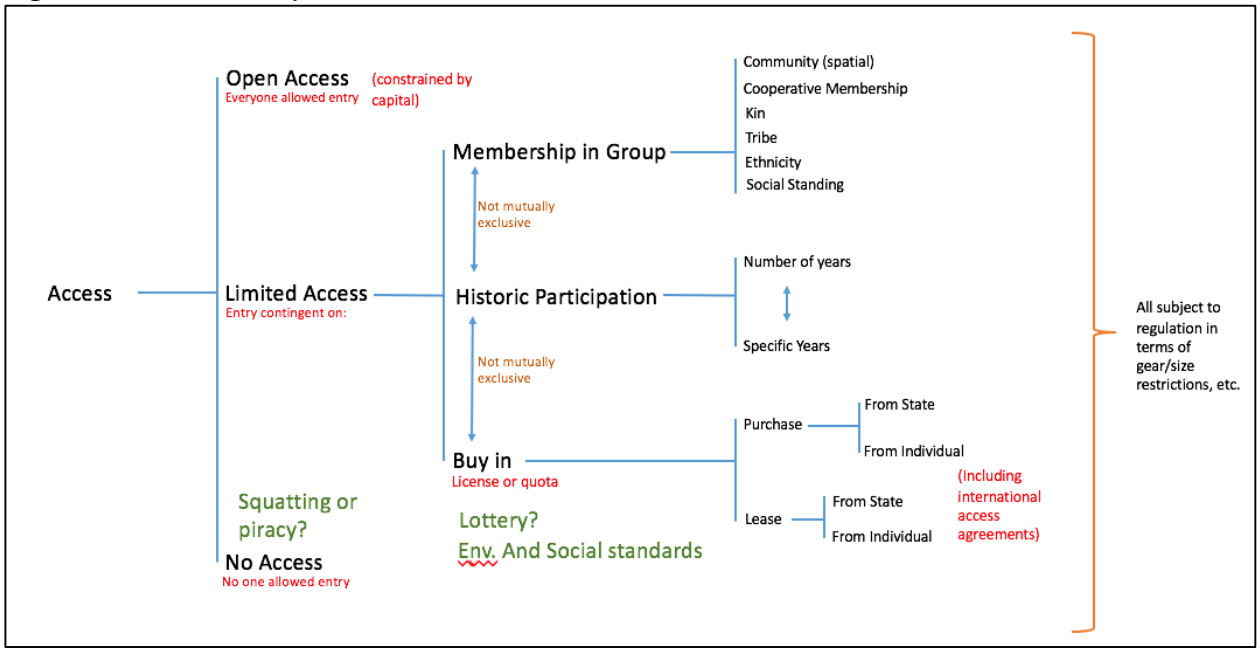
The polarizing nature of the conversation around what fisheries goals should be also feeds into how objectives are built and management decisions are assessed. If you are not managing for specific, positive social outcomes, you are less likely to get them (Farmery et al. 2019). Economic principles may offer that consolidation and exit from a fishery are good, but the community may argue otherwise. ITQS are not designed to be equitable and spread access – they are designed to consolidate access primarily for economic purposes (Brandt 2005). Hannesson (2004) writes "It goes without saying that a quota management system is ill-suited to deal with questions of preservation for purposes other than material benefits. The quota management system is primarily about obtaining maximum economic benefit from whatever quantity of fish one is permitted to take from the sea" (p. 91). If different groups have different measures of success, how can we begin to reconcile them?

Future analysis of the role of objectives should look at cases that have a clear snapshot of the state of the community before management reform, whether reform explicitly mentions objectives and what that focus is, and if the reform is then deemed successful, what other consequences may occur. We need to consider, beyond target reference points for management, the broader societal function of fisheries and govern fisheries with those objectives in mind. Fisheries policy should do this, but often lacks coherent vision or is unwilling to forego growth, perceived to benefit development, for considerations of equity or fairness (Bailey and Jentoft 1990). Only recently is it being recognized at a broader level that for social, especially equity-oriented objectives, to be achieved, intention and thoughtful design with these objectives in mind are required (Costello et al. 2019).

4.3 Importance of Initial Allocation

Also of particular consideration for the question of access rights and the success of fisheries reforms is recognition of the way in which access is conferred or allocated, which may vary by governance level and process. In true open access fisheries, the right to access and harvest is not exclusive to anyone, and fishers are constrained by capital, technology and competition (Charles 2009). Moving toward privatization, other ways fishers may be allocated space in a fishery include historic participation (generally measured in a certain time frame); community or tribal membership; state lease auctions; private purchase; or participation in a lottery, among others. Some of these methods, especially community membership, are also relevant to commons management in the absence of privatization (Hannesson 2004, Huppert 2005). For a visual representation of potential allocation schemes, see Figure 4 (below).

Figure 4. Potential Ways in Which Access is Allocated



Based on Pew Trust (2009), Huppert (2005), Hanneson (2004), Schlager and Ostrom (1992).

A new method of allocation advocated by the EU for their Common Fisheries Policy includes environmental and social criteria for allocating access to fisheries resources. These criteria focus on privileging selectivity, environmental impact, energy consumption, employment and working conditions, and history of compliance. In practice, for example, this would mean that fishers using methods with low bycatch, those using less destructive fishing methods or those using methods that provide more employment opportunities would be given priority access to fish (Pew Trust 2009). The goal behind suggesting changes to their existing systems of allocating access is that "the allocation system should contribute to environmental sustainability, a more equitable distribution of access to available fishing resources, and a culture of compliance" (Pew Trust 2009).

Historic concern over how changes in allocation methods impact fishery resources and fisher incentives is well documented. Upon privatization, initial allocation of quotas based on past history has been the most commonly used method, and fishers anticipating a move toward privatization may expend considerable effort establishing a fishing history before the change is made, rewarding those who contribute the most to overcapacity with the highest shares (Charles 2009). Other concerns expressed with allocation by historic participation take issue with 'participation' being defined by boat ownership, and excluding those who are not current boat owners but dependent on the fishery (e.g. crew), rewarding capital investment over labor (Carothers and Chambers 2012). It is also noted that the first generation of fishers to be *given* quota may receive 'windfall' sums of money when bought out by more efficient fishers, who are frequently larger firms – disadvantaging and decreasing access for the next generation of local fishers and dis-incentivizing keeping quotas in families and communities (Carothers and Chambers 2012, Pinkerton and Davis 2015).

There are also resource users that do not have a right to the resource, but nevertheless access and withdraw from it, such as 'squatters.' Schlager and Ostrom (1992) describe squatters as "individuals who possess no rights at any level in relation to a common-pool resource" (252). As trends toward privatization continue, more with historic access to a fishery may be excluded, and squatting may become a more dominant form of 'access' to fisheries resources. This may align with global conversations on the movement to eradicate IUU (illegal, unregulated and unreported) fishing because in a strong rights-based fishing context, any informal fishing could be deemed illegal, or 'squatter fishing.' For this reason, some analyses exclude artisanal unregulated catches from their definition of IUU fishing, but this is an area that merits further exploration (Agnew et al. 2009).

Finally, other issues around allocation of access include the role of leasing access to distant water fleets, sometimes at the expense of nationals, and particularly in developing countries. Such arrangements can impinge on the access rights of small-scale fishers and affect a range of access issues elsewhere in the value chain (Kaczynksi and Fluharty 2002). The role of capital, again, is also incredibly important— even when an individual is technically able to access a fishery, costs can be prohibitive and access to credit can act as a barrier. This may push some with historic access to a fishery out of the picture without technically excluding them or taking away their access rights. Access, and the distribution of costs and benefits in a fishing operation are also significantly impacted by *who* you are on a fishing vessel. Expenses, including that of leasing a quota, may be deducted from a fisher's share of the catch, and crew may depend on a permit or vessel holder for their own access to the resource (Anderson et al. 2015, Olson 2012).

4. 4 The Case for Incorporating Equity in Allocation, Objective Setting, and Defining Success

Equity matters in fisheries because in many cases, it is the user groups that have the longest-standing historical relationships and needs for fisheries resources that are marginalized and excluded by privatization of such resources, and face human rights issues around problems like poverty and food insecurity (Transnational Institute, World Forum of Fisher People and Afrika Kontakt 2016). A report from the Transnational Institute, World Forum of Fisher People and Afrika Kontakt writes that "to ensure that everyone's basic rights are respected universally,

special attention must be paid to the communities, especially women and children, that are most marginalized. In other words, equal treatment does not always mean justice" (p. 10 2016).

As previously delineated, the idea and ability to factor equity into decision-making around fisheries management has led to tension between human rights based approaches to fisheries management, and property rights based approaches to fisheries management. While property rights based management focuses on the maximization of profit, there is literature to show that especially in developing countries, making more money does not necessarily lead to improved well-being outcomes. Other values may matter more than monetary wealth, and there are other ways of valuing things without converting them into a dollar amount (Weeratunge et al. 2014).

Beyond establishing that equity is important, there are many different ways it can be evaluated and considered in fisheries. These might include:

- Equity in decision-making (appropriately considering the voices of those marginalized in management), or procedural equity (Österblom et al. 2020);
- Equity in allocation of access (those marginalized are given just opportunities and perhaps privileged over other groups) (Bennett et al. 2020);
- Equity in distribution of catch, profits and costs (outcome focused), or distributional equity (Österblom et al. 2020); and
- Equity in use / consumption (rising prices can result in less being consumed locally and more sold in the international market, to the detriment of those who are culturally dependent on fish) (Williams 1996, Hanna 1999).

A focus on equity in opportunity versus outcomes may be grounded in regional and cultural differences (Gullestad 1992). Additionally, many questions need to be asked in each scenario considered, such as, equity for whom? Is the entire affected community being considered, is it only the fishers, or does it include other workers and processors? If some fishermen leave the fishery because of consolidation, resource loss or other reasons, we will have a smaller denominator of fishers, and it could seem that benefits are well-distributed when others have lost out (or vice versa). One would need to have information on where the fishers who exited the fishery went in order to see an initial impact on equity from the management change (Johnsen and Vik 2013). Is intergenerational equity considered? One could manage fisheries equitably today, and still leave fewer fish for future generations (Österblom et al. 2020). Is the equity grounded in economic or social (non-monetary) outcomes? If we privilege equity in outcomes, the system may become inflexible to changing conditions. Here we must acknowledge trade-offs – sometimes policies used to promote equity, like preserving historical participation in a fishery, may prevent quick adaptation to ecological change (Hanna 1999). Considerations of equity must also take into account how resource users perceive certain management changes, and their pre-determined attitudes toward different approaches—if a community is already certain they do not like quotas, they are unlikely to be impressed by them in practice (Hannesson 2004). According to Hanna (1999), "the problem of perceived inequity may be especially acute when a new management scope supplants existing patterns of use. If people doubt the legitimacy of the process because they cannot accept the management outcome, they have incentives to undermine its implementation and enforcement." (p. 284)

There are examples of management systems that have made a specific point to ensure access of marginalized communities after a management change has occurred (often in response to backlash). Marchal et al. (2016) detail some of these in their comparison of fisheries management worldwide: the 1992 Fisheries Claims Settlement in New Zealand ensures that Maori now receive 20% of the quota of new quota managed species, and 50% shares of the largest seafood company. The Fisheries Management Act in Iceland, in 2009, was revised to introduce a derby style coastal fishery in response to backlash over being excluded by the ITQ system, and in Australia, aboriginal fishing in the Torres Strait is was protected by a 1989 cap on non-indigenous participation (Marchal et al. 2016).

Only recently have closer examinations been made of what it would look like to manage specifically for equity outcomes in our ocean, and to strive for sustainable development that reduces existing inequalities and prevents new ones from arising. The recognition and protection of access rights, as well as the implementation of policies that consider historical access to ocean resources and how these may be impacted by new development, have been recognized as opportunities for action for achieving equity in a sustainable ocean economy (Österblom et al. 2020). These ideals are also captured in emerging 'blue justice' literature, which as previously discussed has materialized as an answer to the majority of mainstream discourse framing the 'Blue Economy' as focused on the ocean for economic development. This literature focuses on social justice for small scale fishers in particular: the need to include their input in decision-making; to consider equity, access and power in regard to blue development agendas; and to work toward rectifying past wrongs (Bennett et al. 2020, Isaacs 2019, Jentoft 2019, Cohen et al. 2019).

Chapter V. Discussion: Toward a Typology of Access Arrangements in Fisheries

In moving toward a typology of access regimes, the recommended focus at this time is to focus on particular fisheries, as not all countries have a management system that can be used to generalize their entire country. Once a database of individual fisheries is created, dominant forms of access rights regimes can be identified in each country, or for each fishery type. This thesis proposes that a typology of access rights should include a scale at which governance is addressed, or more particularly, whether the process of deciding allocation of space and access is one in which a) stakeholders are represented, b) authority is distributed, and c) there are mechanisms of accountability (Ratner et al. 2013). To do this level of analysis for each case would not, at this time, be feasible; thus initially being able to identify whether access rights are determined from a top-down, co-management or community perspective is a first step.

Also important to identify are the primary management tools used, and how access rights are allocated in that fishery – this may change over time, e.g. an ITQ may be granted to a quota-holder based on past participation but then freely exchanged in the market. The ability to capture such changes over time is one impetus for this proposed typology. Then, we can use Schlager and Ostrom's (1992) rights and identify which actors in the particular fishery hold each of them, and evaluate in simple terms the economic, biological and social outcomes of a fishery management intervention. We can also indicate, based on the literature, whether that particular fishery regime has been broadly received as successful or not. Finally, we can also identify which of the four primary characteristics of rights – transferability, exclusivity, security and duration – are attached to the access and withdrawal rights of an individual user or community.

In terms of equity, we can focus on outcomes like the spread of profits or catch, the form of allocation in the fishery, whether there is shared or rotated access to highly desirable locations, and whether there exist mechanisms like harvest or revenue pooling agreements. Without knowing the employment status of fishers who leave regimes during times of consolidation, it is hard to say whether such events should be deemed positive or negative in the eyes of the community, so we will categorize such impacts the way the literature represents, with some evaluation of likely biases in that literature. We can also consider equity criteria from authors who have specifically studied it in outcomes before, such as Maliao and Polohan (2008) who integrate equity into their empirical analysis of access to and use of mangrove resources. The indicators Maliano and Polohan use for their equity criteria include "participation in mangrove management, influence over mangrove management (bargaining power), control over mangrove resources, fair allocation of access rights to mangrove resources, and household income (generated from mangrove-related livelihood)" (p. 419). While not explicit, our focus on who holds different rights (including management), how rights are allocated and the spread of incomes within a fishery can endeavor to capture as close to these indicators as possible. Eventually, a more structured determination system for *how* equitable the outcomes of a management system are should be developed, i.e. a grading system instead of a narrative description.

Also of importance is whether the access right is a legally enforceable one—if access rights are de facto and not officially sanctioned, they may be less secure, especially when considering the growing conflict over spatial use in marine areas. While many traditional access systems existed

for a long time before being legally recognized, in the last couple decades more and more countries have codified rights of access under national and local law. Depending on the institutions of the country in question, the existence of such laws can be integral to protecting future access (Capistrano and Charles 2012). Conversely, while we may think the best way to protect community rights is to codify them, sometimes it is the flexible nature of informal rules that allows for adaptability and resilience in the face of change (Lauer 2016). While this should be part of a larger discussion on access, for now, this classification will simply state whether an access right is legally protected.

For a simple example classificatory system based on these categories, see Table 2 (next page). Three examples of different fisheries are included here as an illustration of how such a system could be populated, though a final typology would endeavor to include as many global fisheries as possible. This will require a deeper dive into individual case studies.

These cases include the case of Chilean AMERBS (Áreas de Manejo y Explotación de Recursos Bentónicos), which have been co-managed as TURFS since 1999. Allocation is granted to fishers organizations, who themselves control entry into that organization, and they hold access, withdrawal, management and exclusion rights, but not alienation rights. The objective of implementing TURFS was a primarily biological one, in response to resource collapse, and accounts of its success have been mixed. For example, the fisheries stocks are mostly stable, but there has been inequity reported based on the location quality of the AMERBS and how they were distributed. Rights in this fishery are exclusive, durable, secure, formalized by law, and non-transferable. All of the information for this case is derived from Orensanz et al. (2013).

The Galapagos Islands sea cucumber fishery is similarly governed by a co-management regime, but as a limited entry fishery with TAC, established in 1992. Allocation is granted to individuals who are residents that meet required rules, and rights include those to access, withdrawal, management, and exclusion, but not alienation. The stated objective of implementing this management regime was biological, and it has not been deemed successful – low stocks have led to the closure of the fishery for many years, while poaching remains an issue. Socially, there has been a great deal of conflict between fishers, scientists and the government. When open, the rights in this fishery are exclusive, durable, secure, formalized by law, and non-transferable. All of the information for this case is similarly based on Orensanz et al. (2013).

The third example provided here is that of the Iceland Herring Fishery, a top-down or government-implemented ITQ system beginning in 1984. Allocation for this fishery is conferred to individual vessels, equally and based on recent participation. Fishers hold access, withdrawal, management, exclusion, and alienation rights, and the management regime was implemented with a biological objective in response to declining stocks. In this regard, it has been deemed successful—stocks have recovered. Additionally, economic efficiency has improved in the fishery, but there have been some equity issues related to consolidation and lack of stakeholder participation in rulemaking (a coastal derby fishery was implemented to ameliorate some of these impacts). Rights in this fishery are exclusive, durable, secure, transferable, and formalized. This case description is based on Arnason (2005) and Kokorsch et al. (2015).

Table 2. Example Typology of Access Rights

Fishery	Chilean AMERB (Áreas de Manejo y Explotación de Recursos Bentónicos) (primarily Loco - snail)	Galapagos Islands sea cucumber fishery (Ecuador)	Iceland Herring Fishery
Governance	Co-management	Co-management	Top-down
Management System (est).	TURF (1999) - replaced a system of individual diver quotas.	Limited entry with TAC (1992)	ITQ (1984)
Allocation of Access	Granted to fishers organizations; organization entry is controlled by fishers.	Granted to individual artisanal fishers who are residents of the Galapagos and meet registration / permitting rules	Individual vessels, equal for all those with recent participation.
Access Right	Yes	Yes	Yes
Withdrawal Right	Yes	Yes	Yes
Management Right	Yes	Yes	No
Exclusion Right	Yes	Yes	Yes
Alienation Right	No	No	Yes
Stated Objective?	Biological sustainability (response to overfishing crisis).	Biological sustainability	Biological (in response to significant decline of stocks).
Deemed Successful?	Mixed reviews - uneven biological, economic and social outcomes.	No - poor biological, uneven economic and social outcomes	Yes
Biological Outcomes	Stock mostly stable.	Poaching consistent problem and effort difficult to control, leading to low stocks and exceedance of quotas, ultimate closure of fishery.	Herring stocks have recovered from their significant lows in the 1960s.
Economic Outcomes	High transaction costs lead to abandonment of TURFS, highly dependent on export markets.	Initial high economic returns; population now so low it is no longer economically profitable (or legal) to harvest.	Improved economic efficiency.
Social Outcomes	Inequity among user groups based on location quality, initially granted on first-come first-serve basis that excluded historical fishers.	Difficulties maintaining functioning of participatory process and great deal of conflict between government and fishers; problem of outside entrants diminished outcomes for residents.	Maximum quota holdings exist, but some consolidation has occurred. Fishing for own consumption is exempt, and community quotas and coastal fisheries that help small-scale operators haven been introduced. There is a demand for greater stakeholder participation in the system.
Exclusivity	Yes	Yes	Yes (however, small boat exemptions and personal consumption exemptions still technically reduce this right).
Duration	4 years; renewable	2 years ; renewable	Indefinite if pay required fees
Security	Yes; however, Can be revoked for noncompliance.	Yes; however, can be removed from registry when license not renewed in two consecutive years or artisanal fishing not main source of income four consecutive years.	Yes
Transferability	No	No	Yes
Formalized?	Yes	Yes	Yes
Sources	Orensanz et al. (2013)	Orensanz et al. (2013)	Arnason (2005), Kokorsch et al. (2015)

Chapter VI: Conclusion and Next Steps

6.1 Considering the Way Forward

In the discourse on access rights and whether privatization is the key to success in fisheries, it is clear that there is not a one-size fits all panacea for fisheries management. Different attributes of a fishery, including strength of local institutions, existence of historical community-managed commons, social and cultural factors, biological traits, scope of the fishery considered, and pre-conceived attitudes toward privatization, among others, will all play a role in whether the management and access regime meets the needs of fishers and other community members. Whether that access is predicated on space or on access to the physical resource, it is clear that there is increasing competition for space and resources in the the ocean, and that there is an imbalance of power between those who are making decisions about ocean use and access, and those who are living the consequences (Cohen et al. 2019). This means that, moving forward, legitimate communication between those advocates on either side of the aisle will be essential. This could be especially pertinent at this time— while the recent COVID-19 pandemic has created many challenges for fishers worldwide, including complete shutdowns of fisheries and markets (Bennett et al. 2020b), it could also present an opportunity for governments, the private sector, civil society and fishers to work together to build food systems back better and more equitably than before with innovative policies, more resilient supply chains, and fortified social protection systems (FAO and ECLAC 2020).

Awareness of the polarizing discourse around management of fisheries access is not new, and has in fact been deliberated at the policy level for decades. The objective in making this conversation more explicit here is in part to bring broader focus to its existence, and the fact that corporate and community groups are often perceived (and perceive themselves) in opposition to one another. When such sects do not believe they can work together, they only speak to those who are like-minded, and deepen the division in a conversation relevant to so many. There are clear tradeoffs amongst the ultimate objectives between these groups (Cohen et al. 2019), but to reach any kind of mutual agreement transparency will be essential. This does not mean everyone must speak a common language– but that everyone should be willing to listen to a diversity of ideas. There is no one solution to accommodating competing uses and worldviews around ocean use and access, but dialogue between disparate groups should be encouraged. Additionally, most of this conversation is happening outside academia, and future endeavors into this subject should push analysis around what is happening in the private and civil society sector (Allison et al. 2020).

Ocean governance reform has positives and negatives, and sometimes there are trade-offs between growth and equity (Cohen et al. 2019). If we are never able to maximize the economic, biological, or social returns from fisheries all at once, is there an equitable way to decide what the trade-offs should be? For example, in places where fisheries are important in a cultural and social sense, is there a specific rationale behind managing them for an economic purpose that may diminish broader access rights? It is important moving forward to develop management objectives that are comprehensive and longer-term, as well as adaptable (Hanna 1999). As governance approaches favor true participation and power sharing, greater emphasis on equity in

initial allocation of rights and distributed costs and benefits may become more of a priority. In fact, an emphasis on explicitly stating social and especially equity-focused objectives in fisheries management and other ocean management processes is beginning to crystalize, in academic and policy literature (Österblom et al. 2020, Cisneros-Montemayor et al. 2019, Stephenson et al. 2017). This growing body of literature may serve to reinforce the role of equity in sustainability, because currently, it is not sufficiently considered in our definitions of success in fisheries management.

6.2 Other Components of Access to Consider

There are many areas in which to further explore and parse the question of access, which are beyond the scope of this thesis. First, access, equity and the distribution of costs and benefits could be broken down by individual roles in fisheries, both at extraction point, and in the processing sector and other parts of the value chain (Ribot and Peluso 2003, Anderson et al. 2015, Olson 2012). This could also involve examining access not just to the resource itself but to necessary services, markets, financial resources, land / beaches, or other things required for participation in a fishery.

This thesis also does not explicitly examine the role of habitat protection, conservation and environmental stewardship (Bennett et al. 2018). Related to access, is there a right to demand conservation, in protection of particular stocks or habitat? If there is nothing to access, an access right is worth little. This ties into the issue that property rights for fish do not generally include things like rights of the ecosystem to biodiversity or rights of non-humans to prey (Hanna 1999), and relates to issues being explored in the transparency of distributing conservation burdens in trans boundary fish stocks (Hanich et al. 2015). Climate change and its impact on the spatial distribution of species (Poloczanska et al. 2016) is also an issue that further confounds the debate on whether there is a right to environmental protection inherent in a right to access.

Another interesting proposition to consider is that of closing off access to the high seas, perhaps our best example of true open access in fisheries (in the sense of access *rights*, rather than the material, technological, political or physical ability to access the resources). Talk of this idea has circulated for some time, and Sumaila et al. (2015) published a paper showing that if the catch of straddling stocks post-enclosure of the high seas increased (in state EEZs) by only an average of 18%, the Gini coefficient could be halved and distributional equity improved by country. Ideas like this are contrary to many countries' pursuit of high seas stocks, but important to consider in looking at access regimes and equity worldwide.

Another issue to be examined more thoroughly moving forward is that while this initial typology captures the governance scale at which larger access rights are granted, decisions about access are made at more than one level. The state may grant access rights to a community, but at the community level those rights may only be granted to certain people. When decision-making is devolved, community access as a whole may be durable, but individuals in a community may still disagree about access, especially if a community is growing (as so many coastal communities are currently).

Finally, in some cases, as addressed earlier, it may be that initial inequities in a changing management system are addressed retroactively, like the Fisheries Claims Settlement in New Zealand. While this ensures the Maori have a continuing presence and ability to profit from the fishery, the way in which they access and use the fishery has still been fundamentally altered by the quota management system. The current situation may be more equitable than the initial quota system, but it is still the state that is holding the authority to say what is fair, and ethics surrounding such changes merit further consideration (Marchal et al. 2016).

6.2 Next Steps

While not all of the issues outlined above will be addressed in an initial typology, there are specific next steps that can be realized in order to move toward a comprehensive database of fisheries access regimes:

- First, fully flesh out a typology of access regimes that can be used to populate a global database. This is a demanding exercise, which may be why no such database exists. Similar attempts have been made on land, however, so there may be models to guide this initiative. Appendix B provides examples of initiatives for typologies and databases of land access regimes and conflict. These models may be partially transferable to the further development of a typology and database for access to coastal space and resources. This typology will additionally draw on the various strands of theory and practice outlined in this thesis, and remain cognizant of the many complications inherent in such an exercise, so that it can be used to track the changing conditions of access in global fisheries. This typology and associated review should be published in the peer-reviewed literature.
- Convene a focused discussion on potential databases, and what they can be used for. At the moment, this thesis envisages a global database of fishery access regimes and their equity outcomes, to track sea-tenure reforms and enable an analysis of their impacts on fishing-dependent populations (with an emphasis on small-scale fisheries in developing countries, i.e. arguably those most affected by large-scale shifts in marine tenure). The potential utilities and market for such a database need to be assessed, using analysis of other marine initiatives (e.g. Too Big to Ignore, Illuminating Hidden Harvests, INDISEAS etc.) and comparable land-based initiatives (again, see Appendix B).

Altogether, the recent focus on equity in fisheries management and outcomes worldwide is a heartening step in the right direction toward making sure that fishers can maintain or achieve access to decision-making over resource use, and access to that use itself. However, in the perceived mêlée between rights based fisheries management and human-rights based fisheries management, we cannot account for transitions of access regimes or marine tenure that we do not carefully track. Competing uses for our oceans, especially in the near-shore spaces where so much food production takes place, are only increasing (Jouffray et al. 2020)—and creating a typology and database of access rights is one way to ensure that large-scale transitions do not go unnoticed. Perhaps then, there is a chance to organize competing uses of our coastal and ocean resources in a more self-aware and equitable manner than the way such processes have evolved on land.

References

Abdullah, Abu Nasar, Abdullah, Abu Nasar, Myers, Bronwyn, Myers, Bronwyn, Stacey, Natasha, Stacey, Natasha, . . . Garnett, Stephen T. (2017). The impact of the expansion of shrimp aquaculture on livelihoods in coastal Bangladesh. *Environment, Development and Sustainability, 19*(5), 2093-2114.

Acheson, J. M. (2015). Private Land and Common Oceans. *Current Anthropology, 56*(1), 28-55.

Agnew, David J, Pearce, John, Pramod, Ganapathiraju, Peatman, Tom, Watson, Reg, Beddington, John R, & Pitcher, Tony J. (2009). Estimating the Worldwide Extent of Illegal Fishing. *PloS One, 4*(2), E4570.

Agrawal, A., & Benson, C. (2011). Common property theory and resource governance institutions: Strengthening explanations of multiple outcomes. *Environmental Conservation, 38*(2), 199-210.

Allison, E.H., J. Kurien, Y. Ota et al. 2020. The Human Relationship with Our Ocean Planet. Washington, DC: World Resources Institute. https://oceanpanel.org/blue-papers/HumanRelationshipwithOurOceanPlanet

Allison, E.H. (2001). Big laws, small catches: Global ocean governance and the fisheries crisis. *Journal of International Development, 13*(7), 933-950.

Arnason, R. A review of international experiences with ITQs: an annex to Future options for UK fish quota management. CEMARE Rep. no.58. 2002, 64p.

Arnason, R. (2006). Property Rights in Fisheries: Iceland's Experience with ITQs. *Reviews in Fish Biology and Fisheries, 15*(3), 243-264.

Arnason, R. (2009). Conflicting uses of marine resources: Can ITQs promote an efficient solution?*. *Australian Journal of Agricultural and Resource Economics, 53*(1), 145-174.

Arnason, R. (2012). Property Rights in Fisheries: How Much Can Individual Transferable Quotas Accomplish? *Review of Environmental Economics and Policy, 6*(2), 217-236.

Anderson, J.L. 2002. Aquaculture and the Future: Why Economists Should Care. *Marine Resource Economics* 17(2):133-151.

Anderson, Christopher M, Krigbaum, Melissa J, Arostegui, Martin C, Feddern, Megan L, Koehn, John Zachary, Kuriyama, Peter T, . . . Sanders, Jessica. (2018). How commercial fishing effort is managed. *Fish and Fisheries (Oxford, England), 20*(2), 268-285.

Assies, W. (2009). Land tenure, land law and development: Some thoughts on recent debates. *The Journal of Peasant Studies, 36*(3), 573-589.

Bailey, & Jentoft. (1990). Hard choices in fisheries development. *Marine Policy,14*(4), 333-344.

Ban, N. C., L. Evans, M. Nenadovic, and M. Schoon. 2015. Interplay of multiple goods, ecosystem services and property rights in large social-ecological marine protected areas. Ecology and Society 20(4):2(online).

Barner, Allison K., Jane Lubchenco, Christopher Costello, Steven D. Gaines, Amanda Leland, Brett Jenks, . . . Margaret Spring. (2015). Solutions for Recovering and Sustaining the Bounty of the Ocean. *Oceanography (Washington, D.C.), 28*(2), 252-263.

Barbesgaard M (2018) Blue growth: savior or ocean grabbing? J Peasant Stud 45(1):130–149.

Basconi L., Cadier C., Guerrero-Limón G. (2020) Challenges in Marine Restoration Ecology: How Techniques, Assessment Metrics, and Ecosystem Valuation Can Lead to Improved Restoration Success. In: Jungblut S., Liebich V., Bode-Dalby M. (eds) YOUMARES 9 - The Oceans: Our Research, Our Future. Springer, Cham. https://doi.org/10.1007/978-3-030-20389-4_5

Bavinck, M, Berkes, F, Charles, A, Esteves Dias, A.C, Doubleday, N, Nayak, P, & Sowman, M. (2017). The impact of coastal grabbing on community conservation - a global reconnaissance. *Maritime Studies, 16*(1), Maritime studies, 2017, Vol.16 (1).

Belton, B., Little, D.C., Zhang, W. *et al.* Farming fish in the sea will not nourish the world. *Nat Commun* **11,** 5804 (2020). https://doi.org/10.1038/s41467-020-19679-9

Béné, C., Hersoug, B., & Allison, E. (2010). Not by Rent Alone: Analysing the Pro-Poor Functions of Small-Scale Fisheries in Developing Countries. *Development Policy Review, 28*(3), 325-358.

Bennett, Nathan & Blythe, Jessica & White, Carole & Campero, Cecilia. (2020a). Blue Growth and Blue Justice. 10.13140/RG.2.2.36121.03686/1.

Bennett, Nathan J, Finkbeiner, Elena M, Ban, Natalie C, Belhabib, Dyhia, Jupiter, Stacy D, Kittinger, John N, . . . Christie, Patrick. (2020b). The COVID-19 Pandemic, Small-Scale Fisheries and Coastal Fishing Communities. *Coastal Management, 48*(4), 336-347.

Bennett, N. J. (2018). Navigating a just and inclusive path towards sustainable oceans. *Marine Policy, 97*, 139-146.

Bennett, Nathan J, Whitty, Tara S, Finkbeiner, Elena, Pittman, Jeremy, Bassett, Hannah, Gelcich, Stefan, & Allison, Edward H. (2018). Environmental Stewardship: A Conceptual Review and Analytical Framework. *Environmental Management (New York), 61*(4), 597-614.

Berkenhagen, J., Döring, R., Fock, H. O., Kloppmann, M. H., Pedersen, S. A., & Schulze, T. (2010). Decision bias in marine spatial planning of offshore wind farms: Problems of singular versus cumulative assessments of economic impacts on fisheries. Marine Policy, 34(3), 733-736.

Berkes, F. (1986). Local-level management and the commons problem. *Marine Policy, 10*(3), 215-229.

Berkes, F., Co-management: bridging the two solitudes. Northern Perspectives, 22(2-3) (1994) 18-20.

Berkes, F. 2006. From community-based resource management to complex systems. *Ecology and Society* **11**(1): 45. [online] URL: http://www.ecologyandsociety.org/vol11/iss1/art45/

Birkenbach, Anna M, Kaczan, David J, & Smith, Martin D. (2017). Catch shares slow the race to fish. *Nature (London), 544*(7649), 223-226.

Bogadóttir, R. Blue Growth and its discontents in the Faroe Islands: an island perspective on Blue (De)Growth, sustainability, and environmental justice. *Sustain Sci* **15,** 103–115 (2020). https://doi-org.offcampus.lib.washington.edu/10.1007/s11625-019-00763-z

Bournazel, Jil, Kumara, Marappullige Priyantha, Jayatissa, Loku Pulukuttige, Viergever, Karin, Morel, Véronique, & Huxham, Mark. (2015). The impacts of shrimp farming on land-use and carbon storage around Puttalam lagoon, Sri Lanka. *Ocean & Coastal Management, 113*, 18-28.

Brandt, S. (2005). The equity debate: Distributional impacts of individual transferable quotas. *Ocean & Coastal Management, 48*(1), 15-30.

Brodie Rudolph, Tanya, Ruckelshaus, Mary, Swilling, Mark, Allison, Edward H, Österblom, Henrik, Gelcich, Stefan, & Mbatha, Philile. (2020). A transition to sustainable ocean governance. *Nature Communications, 11*(1), 3600.

Bromley, D. (1991). Testing for common versus private property: Comment. *Journal of Environmental Economics and Management, 21*(1), 92-96.

Bromley, D. (2009). Abdicating Responsibility: The Deceits of Fisheries Policy. *Fisheries, 34*(6), 280-290.

Bren d'Amour, Christopher, Reitsma, Femke, Baiocchi, Giovanni, Barthel, Stephan, Güneralp, Burak, Erb, Karl-Heinz, . . . Seto, Karen C. (2016). Future urban land expansion and implications for global croplands. Proceedings Of The National Academy Of Sciences Of The United States Of America, Proceedings of the National Academy of Sciences of the United States of America, 2016.

Capistrano, Robert Charles G, & Charles, Anthony T. (2012). Indigenous rights and coastal fisheries: A framework of livelihoods, rights and equity. *Ocean & Coastal Management, 69*, 200-209.

Carothers, C., & Chambers, C. (2012). Fisheries Privatization and the Remaking of Fishery Systems. *Environment and Society, 3*(1), 39-59.

Cashion, T., Zeller, D., Pauly, D., & Le Manach, F. (2017). Most fish destined for fishmeal production are food-grade fish. *Fish and Fisheries: 00:1–8. doi:10.1111/faf.12209.*

Charles, A. (2009) Rights-Based Fisheries Management: The Role of Use Rights in Managing Access and Harvesting. In *A Fishery Manager's Guidebook* (p. 253 – 281). Chichester, West Sussex; Ames, Iowa: Wiley-Blackwell.

Christie, N., Smyth, K., Barnes, R., & Elliott, M. (2014). Co-location of activities and designations: A means of solving or creating problems in marine spatial planning? *Marine Policy*, 43, 254-261.

Cisneros-Montemayor, Andrés M, Moreno-Báez, Marcia, Voyer, Michelle, Allison, Edward H, Cheung, William W.L, Hessing-Lewis, Margot, . . . Ota, Yoshitaka. (2019). Social equity and benefits as the nexus of a transformative Blue Economy: A sectoral review of implications. *Marine Policy, 109*, 103702.

Cochrane, K. (2002). *A fishery manager's guidebook : Management measures and their application* (FAO fisheries technical paper ; no. 424). Rome: Food and Agriculture Organization of the United Nations.

"Code of Conduct for Responsible Fisheries" (1995). FAO. Retrieved from: http://www.fao.org/docrep/005/v9878e/v9878e00.htm

Cohen, P. J., Allison, E. H., Andrew, N. L., Cinner, J., Evans, L. S., Fabinyi, M., … Ratner, B. D. (2019). Securing a Just Space for Small-Scale Fisheries in the Blue Economy. Frontiers in Marine Science, 6.

Cole, D., & Ostrom, Elinor. (2012). *Property in land and other resources*. Cambridge, Mass.: Lincoln Institute of Land Policy.

Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397.

Costello, C., Gaines, S., & Lynham, J. (2008). Can catch shares prevent fisheries collapse? *Science (New York, N.Y.), 321*(5896), 1678-81.

Costello, M.J., Tsai, P., Wong, P.S. *et al.* Marine biogeographic realms and species endemicity. *Nat Commun* 8, 1057 (2017). https://doi.org/10.1038/s41467-017-01121-2

Costello, C., L. Cao, S. Gelcich et al. 2019. *The Future of Food from the Sea*. Washington, DC: World Resources Institute. Available online at www.oceanpanel.org/future-food-sea

Crossland, Christopher J, Baird, Dan, Ducrotoy, Jean-Paul, Lindeboom, Han, Buddemeier, Robert W, Dennison, William C, . . . Swaney, Dennis P. (n.d.). The Coastal Zone — a Domain of Global Interactions. In *Coastal Fluxes in the Anthropocene* (Global Change — The IGBP Series, pp. 1-37). Berlin, Heidelberg: Springer Berlin Heidelberg.

Tim Dempster, Pablo Sanchez-Jerez, Fernando Tuya, Damian Fernandez-Jover, Just Bayle-Sempere, Arturo Boyra, & Ricardo Haroun. (2006). Coastal aquaculture and conservation can work together. *Marine Ecology. Progress Series (Halstenbek), 314*, 309-310.

Day, Val, et al. "The Marine Planning Framework for South Australia: A new ecosystem-based zoning policy for marine management." *Marine Policy* 32.4 (2008): 535-543.

Douvere, F. (2008). The importance of marine spatial planning in advancing ecosystem-based sea use management. *Marine policy*, 32(5), 762-771.

Douvere, F., & Ehler, C. N. (2009). New perspectives on sea use management: initial findings from European experience with marine spatial planning. Journal of environmental management, 90(1), 77-88.

Ertör, I., Hadjimichael, M. Editorial: Blue degrowth and the politics of the sea: rethinking the blue economy. *Sustain Sci* 15, 1–10 (2020). https://doi.org/10.1007/s11625-019-00772-y

Evans, Louisa, Cherrett, Nia, & Pemsl, Diemuth. (2011). Assessing the impact of fisheries co-management interventions in developing countries: A meta-analysis. *Journal of Environmental Management, 92*(8), 1938-1949.

FAO 2004. Creating legal space for community-based fisheries and customary marine tenure in the Pacific: issues and opportunities. Retrieved from: http://www.fao.org/fileadmin/templates/legal/docs/Creating_Legal_Space_for_Fisheries.pdf

FAO 2020. Gender and Land Rights Database. Retrieved from: http://www.fao.org/gender-landrights-database

FAO 2017. Distinctions between common property and territorial use rights. Territorial use rights in marine fisheries: definitions and conditions. Retrieved from: http://www.fao.org/docrep/003/T0507E/T0507E02.htm

FAO 2005-2017.
World inventory of fisheries. Property rights and fisheries management. Issues Fact Sheets. Text by Rebecca Metzner. In: *FAO Fisheries and Aquaculture Department* [online]. Rome. Updated 27 May 2005. [Cited 27 February 2017]. http://www.fao.org/fishery/topic/13335/en

FAO Report from Sub-Committee on Fisheries. APPLYING SPATIAL PLANNING FOR PROMOTING FUTURE AQUACULTURE GROWTH http://www.fao.org/cofi/43696-051fac6d003870636160688ecc69a6120.pdf

FAO TECHNICAL WORKSHOP ON SPATIAL PLANNING FOR MARINE CAPTURE FISHERIES AND AQUACULTURE - 2010 http://www.fao.org/3/a-i2054e.pdf

FAO: A global assessment of offshore mariculture potential from a spatial perspective - FAO 2013 http://www.fao.org/docrep/017/i3100e/i3100e.pdf

FAO and ECLAC. 2020. *Food systems and COVID-19 in Latin America and the Caribbean: Towards inclusive, responsible and sustainable fisheries and aquaculture.* Bulletin 15. Santiago, FAO.

FAO (2017) "About the Voluntary Guidelines on Tenure" http://www.fao.org/nr/tenure/voluntary-guidelines/en/

Farmery, Anna K, Ogier, Emily, Gardner, Caleb, & Jabour, Julia. (2019). Incorporating ecologically sustainable development policy goals within fisheries management: An assessment of integration and coherence in an Australian context. *Journal of Environmental Management, 249*, 109230.

Feist, Blake E, & Levin, Phillip S. (2016). Novel Indicators of Anthropogenic Influence on Marine and Coastal Ecosystems. *Frontiers in Marine Science, 3*, Frontiers in Marine Science, 2016-06-28, Vol.3.

Fisher, Brendan, Naidoo, Robin, Guernier, John, Johnson, Kiersten, Mullins, Daniel, Robinson, Dorcas, & Allison, Edward H. (2017). Integrating fisheries and agricultural programs for food security. *Agriculture & Food Security, 6*(1), Agriculture & food security, 2017-12, Vol.6 (1).

Foley, Melissa M., et al. "Guiding ecological principles for marine spatial planning." Marine Policy 34.5 (2010): 955-966.

Gentry, R. R., Lester, S. E., Kappel, C. V., White, C., Bell, T. W., Stevens, J., & Gaines, S. D. (2016). Offshore aquaculture: Spatial planning principles for sustainable development. Ecology and Evolution.

Global Donor Platform for Rural Development (2020). Land Governance Programme Map & Database. Retrieved from: https://landgov.donorplatform.org/.

Golden. Christopher D., Edward H. Allison, William W. L. Cheung, Madan M. Dey, Benjamin S. Halpern, Douglas J. Mccauley, . . . Samuel S. Myers. (2016). Nutrition: Fall in fish catch threatens human health. *Nature, 534*(7607), 317.

Grotius, H., Hakluyt, Richard, Welwood, William, & Armitage, David. (2004). *The free sea* (Natural law and enlightenment classics). Indianapolis, Ind.: Liberty Fund.

Gutiérrez, Alexis T, & Morgan, Siân. (2017). Impediments to fisheries sustainability – Coordination between public and private fisheries governance systems. *Ocean & Coastal Management, 135*, 79-92.

Gullestad, M. (1992). *The art of social relations : Essays on culture, social action and everyday life in modern Norway* (Scandinavian library). Oslo, Norway : New York: Scandinavian University Press ; Oxford University Press [distributor].

Güneralp, Burak, Reba, Meredith, Hales, Billy U, Wentz, Elizabeth A, & Seto, Karen C. (2020). Trends in urban land expansion, density, and land transitions from 1970 to 2010: A global synthesis. *Environmental Research Letters, 15*(4), 44015.

Gutiérrez, N., Hilborn, R., & Defeo, O. (2011). Leadership, social capital and incentives promote successful fisheries. *Nature, 470*(7334), 386-9.

Hadjimichael M (2018) A call for a blue degrowth: unravelling the European Union's fisheries and maritime policies. Marine Policy 94:158–164.

Harley, Christopher D. G, Randall Hughes, A, Hultgren, Kristin M, Miner, Benjamin G, Sorte, Cascade J. B, Thornber, Carol S, . . . Williams, Susan L. (2006). The impacts of climate change in coastal marine systems. *Ecology Letters, 9*(2), 228-241.

Hanna, S. (1997). The new frontier of American fisheries governance. *Ecological Economics, 20*(3), 221-233.

Hanna, S. (1999). Strengthening governance of ocean fishery resources. *Ecological Economics, 31*(2), 275-286.

Hanich, Campbell, Bailey, & Molenaar. (2015). Research into fisheries equity and fairness—addressing conservation burden concerns in transboundary fisheries. *Marine Policy, 51*, 302-304.

Hicks, Christina C, Cohen, Philippa J, Graham, Nicholas A. J, Nash, Kirsty L, Allison, Edward H, D'Lima, Coralie, . . . MacNeil, M. Aaron. (2019). Harnessing global fisheries to tackle micronutrient deficiencies. *Nature (London), 574*(7776), 95-98.

Hilborn, R., Branch, T., Ernst, B., Magnusson, A., Minte-Vera, C., Scheuerell, M., & Valero, J. (2003). STATE OF THE WORLD'S FISHERIES. *Annual Review of Environment and Resources, 28*(1 1), 359-399.

Hoel, A. H. and Olsen, E. (2010) "Marine Spatial Planning: Norway's management plans" Retrieved from: https://brage.bibsys.no/xmlui/bitstream/handle/11250/102586/O0510.pdf?sequence=1&isAllowed=y

Huppert, D. (2005). An Overview of Fishing Rights. *Reviews in Fish Biology and Fisheries, 15*(3), 201-215.

Isaacs, M. (2019). Blue Justice for small-scale fisheries. Retrieved from Plaas website: https://www.plaas.org.za/blue-justice-for-small-scale-fisheries/

"Israel Marine Plan" (2015). Retrieved from: http://msp-israel.net.technion.ac.il/en/

Jardine, & Sanchirico. (2012). Catch share programs in developing countries: A survey of the literature. *Marine Policy, 36*(6), 1242-1254.

Jentoft, S. (2019). Life Above Water: Essays on Human Experiences of Small-Scale Fisheries. St. John's, N.L.: TBTI Global.

Jentoft, S. (2014). Walking the talk: Implementing the international voluntary guidelines for securing sustainable small-scale fisheries. *Maritime Studies, 13*(1), 1-15.

Johannes, Robert E. 1978. Traditional marine conservation methods in Oceania and their demise. Annual Review of Ecology and Systematics 9:349– 364

Johnsen, Jahn Petter, & Vik, Jostein. (2013). Pushed or pulled? Understanding fishery exit in a welfare society context. *Maritime Studies, 12*(1), 1-20.

Jouffray, Jean-Baptiste, Blasiak, Robert, Norström, Albert V, Österblom, Henrik, & Nyström, Magnus. (2020). The Blue Acceleration: The Trajectory of Human Expansion into the Ocean. *One Earth, 2*(1), 43-54.

Kaczynski, & Fluharty. (2002). European policies in West Africa: Who benefits from fisheries agreements? *Marine Policy, 26*(2), 75-93.

Kadfak, Alin (2020) More than Just Fishing: The Formation of Livelihood Strategies in an Urban Fishing Community in Mangaluru, India, The Journal of Development Studies, 56:11, 2030-2044, DOI: 10.1080/00220388.2019.1650168

Katsanevakis, S., Stelzenmüller, V., South, A., Sørensen, T. K., Jones, P. J., Kerr, S., ... & D'Anna, G. (2011). Ecosystem-based marine spatial management: review of concepts, policies, tools, and critical issues. Ocean & Coastal Management, 54(11), 807-820.

Kokorsch, Matthias, Karlsdóttir, Anna, & Benediktsson, Karl. (2015). Improving or overturning the ITQ system? Views of stakeholders in Icelandic fisheries. *Maritime Studies, 14*(1), 1-22.

Lambin, Eric F. and Patrick Meyfroidt. United States: Proceedings of the National Academy of Sciences. Proceedings of the National Academy of Sciences - PNAS, 2011-03-01, Vol.108 (9), p.3465-3472

Land Matrix (2020). Retrieved from: https://landmatrix.org/.

Land Research Action Network Development (2011) 54: 5. doi:10.1057/dev.2010.108

Lauer, M. (2016). Governing Uncertainty: Resilience, Dwelling, and Flexible Resource Management in Oceania. *Conservation and Society, 14*(1), 34-47.

Le Cornu, Elodie, Doerr, Angee N, Finkbeiner, Elena M, Gourlie, Don, & Crowder, Larry B. (2018). Spatial management in small-scale fisheries: A potential approach for climate change adaptation in Pacific Islands. *Marine Policy, 88*, 350-358.

Le Gallic, B., Cox, Anthony, Schmidt, Carl-Christian, & Organisation for Economic Co-operation Development. (2006). *Using market mechanisms to manage fisheries : Smoothing the path.* Paris: OECD.

Leal, Donald R. (2010). The Political Economy of Natural Resource Use: Lessons for Fisheries Reform. *16757*.

Lester, S. E, Stevens, J. M, Gentry, R. R, Kappel, C. V, Bell, T. W, Costello, C. J, . . . White, C. (2018a). Marine spatial planning makes room for offshore aquaculture in crowded coastal waters. *Nature Communications, 9*(1), 945.

Lester, Sarah E, Gentry, Rebecca R, Kappel, Carrie V, White, Crow, & Gaines, Steven D. (2018b). Opinion: Offshore aquaculture in the United States: Untapped potential in need of smart policy. *Proceedings of the National Academy of Sciences - PNAS, 115*(28), 7162-7165.

Lowitt, Kristen, Levkoe, Charles Z, Spring, Andrew, Turlo, Colleen, Williams, Patricia L, Bird, Sheila, . . . Simba, Melaine. (2020). Empowering small-scale, community-based fisheries through a food systems framework. *Marine Policy, 120*, 104150.

Lubchenco, Jane, Cerny-Chipman, Elizabeth B, Reimer, Jessica N, & Levin, Simon A. (2016). The right incentives enable ocean sustainability successes and provide hope for the future. *Proceedings of the National Academy of Sciences - PNAS, 113*(51), 14507-14514.

Macfadyen, G., Huntington, Tim, & United Nations Environment Programme. Division of Technology, Industry, Economics. (2009). *Certification and sustainable fisheries*. Geneva]: UNEP DTIE.

Maine, H.S. 1917. *Ancient Law*. Dent, New York: Dutton.

Maliao, R., & Polohan, J. (2008). Evaluating the Impacts of Mangrove Rehabilitation in Cogtong Bay, Philippines. *Environmental Management, 41*(3), 414-424.

Mangubhai, Sangeeta, et al. "Explicitly incorporating socioeconomic criteria and data into marine protected area zoning." Ocean & Coastal Management 116 (2015): 523-529.

Marchal, P., Andersen, J., Aranda, M., Fitzpatrick, M., Goti, L., Guyader, O., . . . Ulrich, C. (2016). A comparative review of fisheries management experiences in the European Union and in other countries worldwide: Iceland, Australia, and New Zealand. *Fish and Fisheries, 17*(3), 803-824.

Margoluis, R. and Salafsky N. (1998). *Measures of Success: Designing, Managing and Monitoring Conservation and Development Projects.* Island Press, Washington, D.C. U.S.A.

Margulis, M. E., McKeon, N., & Borras, S. M. (2013). Land Grabbing and Global Governance: Critical Perspectives. Globalizations, 10(1), 1-23.

McCain, J. Scott P, Cull, Deneen J, Schneider, David C, & Lotze, Heike K. (2016). Long-term shift in coastal fish communities before and after the collapse of Atlantic cod (Gadus morhua). *ICES Journal of Marine Science, 73*(5), 1415-1426.

McClanahan, Tim, Allison, Edward H, & Cinner, Joshua E. (2015). Managing fisheries for human and food security. *Fish and Fisheries (Oxford, England), 16*(1), 78-103.

McGinnis, M. D. 2011. An introduction to IAD and the language of the Ostrom Workshop: a simple guide to a complex framework. Policy Studies Journal 39(1):169-183. http://dx.doi.org/10.1111/ j.1541-0072.2010.00401.x

Melnychuk, M., Essington, T., Branch, T., Heppell, S., Jensen, O., Link, J., . . . Smith, A. (2012). Can catch share fisheries better track management targets? *Fish and Fisheries, 13*(3), 267-290.

Namati (2020). Community Land Rights CaseBase. Retrieved from: https://namati.org/ourwork/communityland/casebase/

North, D. (1990). *Institutions, institutional change, and economic performance* (Political economy of institutions and decisions). Cambridge: New York: Cambridge University Press.

Nowlis, Josh & Arthur A. Van Benthem. (2012). Do Property Rights Lead to Sustainable Catch Increases? *Marine Resource Economics, 27*(1), 89-105.

Olson, J. (2011). Understanding and contextualizing social impacts from the privatization of fisheries: An overview. *Ocean and Coastal Management, 54*(5), 353-363.

Orensanz, J. M. & Seijo, J. C. 2013. Rights-based management in Latin American fisheries. FAO Fisheries and Aquaculture Technical Paper, No. 582. Rome, FAO. 136 pp.

Österblom, H., C.C.C. Wabnitz, D. Tladi et al. 2020. *Towards Ocean Equity*. Washington, DC: World Resources Institute. Available online at www.oceanpanel.org/how-distribute-benefits-ocean-equitably.

Ostrom, E. 2009. A general framework for analyzing sustainability of social-ecological systems. Science 325:419-422. http://dx.doi.org/10.1126/science.1172133

Ovando, Deacon, Lester, Costello, Van Leuvan, Mcilwain, . . . Uchida. (2013). Conservation incentives and collective choices in cooperative fisheries. *Marine Policy, 37*, 132-140.

Pauly, D. (1995). Anecdotes and the shifting baseline syndrome of fisheries. *Trends in Ecology & Evolution (Amsterdam), 10*(10), 430.

Petersson, M. T. (2020). Transparency in global fisheries governance: The role of non-governmental organizations. *Marine Policy,* 104128.

Pew Trust 2009 http://www.pewtrusts.org/en/research-and-analysis/reports/2009/12/01/environmental-and-social-criteria-for-allocating-access-to-fisheries-resources

Pfeiffer, Lisa & Trevor Gratz. (2016). The effect of rights-based fisheries management on risk taking and fishing safety. *Proceedings of the National Academy of Sciences - PNAS, 113*(10), 2615-2620.

Pinkerton, & Davis. (2015). Neoliberalism and the politics of enclosure in North American small-scale fisheries. Marine Policy, 61, 303-312.

Pollnac, Richard B., Abbott-Jamieson, Susan, Smith, Courtland, Miller, Marc L., Clay, Patricia M., & Oles, Bryan. (2006). Toward a model for fisheries social impact assessment. *Marine Fisheries Review,68*(1 4), 1.

Poloczanska, Elvira S, Burrows, Michael T, Brown, Christopher J, García Molinos, Jorge, Halpern, Benjamin S, Hoegh-Guldberg, Ove, . . . Sydeman, William J. (2016). Responses of Marine Organisms to Climate Change across Oceans. *Frontiers in Marine Science, 3*, Frontiers in Marine Science, 2016-05-04, Vol.3.

Pomeroy, R., & Andrew, Neil. (2011). *Small-scale fisheries management frameworks and approaches for the developing world*. Wallingford, Oxfordshire, U.K. ; Cambridge, Mass.: CAB International.

Pomeroy, R. (1995). Community-based and co-management institutions for sustainable coastal fisheries management in Southeast Asia. *Ocean and Coastal Management, 27*(3), 143-162.

Pomeroy, Hall-Arber, & Conway. (2015). Power and perspective: Fisheries and the ocean commons beset by demands of development. Marine Policy, 61, 339-346.

Ramieri E., Bocci M., Markovic M. (2019) Linking Integrated Coastal Zone Management to Maritime Spatial Planning: The Mediterranean Experience. In: Zaucha J., Gee K. (eds) Maritime Spatial Planning. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-98696-8_12

Ratner, B., Cohen, P., Barman, B., Mam, K., Nagoli, J., & Allison, E. (2013). Governance of Aquatic Agricultural Systems: Analyzing Representation, Power, and Accountability. Ecology and Society, 18(4), 59.

Ribot, J., & Peluso, N. (2003). A Theory of Access*. *Rural Sociology, 68*(2), 153-181.

Robinson, Brian E, Holland, Margaret B, & Naughton-Treves, Lisa. (2014). Does secure land tenure save forests? A meta-analysis of the relationship between land tenure and tropical deforestation. *Global Environmental Change, 29*, 281-293.

Sale, Agardy, Ainsworth, Feist, Bell, Christie, . . . Sheppard. (2014). Transforming management of tropical coastal seas to cope with challenges of the 21st century. *Marine Pollution Bulletin, 85*(1), 8-23.

Satterthwaite, D., McGranahan, G., & Tacoli, C. (2010). Urbanization and its implications for food and farming. *Philosophical transactions of the Royal Society of London. Series B, Biological sciences*, *365*(1554), 2809–2820. https://doi.org/10.1098/rstb.2010.0136

Scott, A. (1989) Conceptual origins of rights based fishing. In: Neher, P.A., Arnason, R. and Mollett, N. (eds.), Rights Based Fishing. Kluwer Academic Publishers, Dordrecht, Netherlands, pp. 73–85.

Schlüter, A., M. Bavinck, M. Hadjimichael, S. Partelow, A. Said, and I. Ertör. 2020. Broadening the perspective on ocean privatizations: an interdisciplinary social science enquiry. *Ecology and Society* 25(3):20.

Schlager, E., & Ostrom, E. (1992). Property-Rights Regimes and Natural Resources: A Conceptual Analysis. *Land Economics, 68*(3), 249-262.

Schupp, Maximilian Felix, Bocci, Martina, Depellegrin, Daniel, Kafas, Andronikos, Kyriazi, Zacharoula, Lukic, Ivana, . . . Buck, Bela H. (2019). Toward a Common Understanding of Ocean Multi-Use. *Frontiers in Marine Science, 6*, Frontiers in Marine Science, 2019-04-02, Vol.6.

Sloan, & Chand. (2016). An analysis of property rights in the Fijian qoliqoli. *Marine Policy, 72*, 76-81.

Sikor, T., & Lund, C. (2009). Access and Property: A Question of Power and Authority. *Development and Change, 40*(1), 1-22.

Smith, K. (2011). We are seven billion. *Nature Climate Change, 1*(7), 331-335.

St. Martin, Kevin, McCay, Bonnie J, Murray, Grant D, & Johnson, Teresa R. (2007). Communities, knowledge and fisheries of the future. *International Journal of Global Environmental Issues, 7*(2-3), 221-239.

Stephenson, Robert L, Benson, Ashleen J, Brooks, Kate, Charles, Anthony, Degnbol, Poul, Dichmont, Catherine M, . . . Wiber, Melanie. (2017). Practical steps toward integrating economic, social and institutional elements in fisheries policy and management. *ICES Journal of Marine Science, 74*(7), 1981-1989.

Teh, L. C., & Teh, L. S. (2011). A fuzzy logic approach to marine spatial management. Environmental management, 47(4), 536-545.

"The Wealth to Welfare Continuum" Briefing paper (n.d.). Fishing for a Future. Retrieved from: http://www.fishingfuture.org/fileadmin/redaktion/PDF/FFAF-04 TheWealthToWelfareContinuum.pdf

Thilsted, Shakuntala Haraksingh, Thorne-Lyman, Andrew, Webb, Patrick, Bogard, Jessica Rose, Subasinghe, Rohana, Phillips, Michael John, & Allison, Edward Hugh. (2016). Sustaining healthy diets: The role of capture fisheries and aquaculture for improving nutrition in the post-2015 era. *Food Policy, 61*, 126-131.

Thøgersen, Thomas, Eigaard, Ole Ritzau, Fitzpatrick, Mike, Mardle, Simon, Andersen, Jesper Levring, & Haraldsson, Gunnar. (2015). Economic gains from introducing international ITQs—The case of the mackerel and herring fisheries in the Northeast Atlantic. *Marine Policy, 59*, 85-93.

Tidd, Alex N., et al. "Fishing for space: fine-scale multi-sector maritime activities influence fisher location choice." PloS one 10.1 (2015): e0116335.

Transnational Institute, World Forum of Fisher People and Afrika Kontakt (2016) "Property Rights vs. Human Rights: Implementation and Interpretation of the SSF Guidelines." Retrieved from: https://www.tni.org/files/article-downloads/human_rights_versus_property_rights_implementation_of_the_ssf_guidelines_en.pdf

United Nations. Division for Ocean Affairs the Law of the Sea. (2013). *United Nations Convention on the Law of the Sea at thirty: Reflections*. New York: United Nations. Retrieved from: https://www.un.org/Depts/los/doalos_publications/publicationstexts/E.12.V.10.pdf

UN Atlas of the Oceans "Human Settlements on the Coast" (2016). Retrieved from: http://www.oceansatlas.org/subtopic/en/c/114/

UN Environment (2018). Conceptual guidelines for the application of Marine Spatial Planning and Integrated Coastal Zone Management approaches to support the achievement of Sustainable Development Goal Targets 14.1 and 14.2. UN Regional Seas Reports and Studies No. 207. 58pp

U. Rashid Sumaila, Vicky W. Y. Lam, Dana D. Miller, Louise Teh, Reg A. Watson, Dirk Zeller, . . . Daniel Pauly. (2015). Winners and losers in a world where the high seas is closed to fishing. *Scientific Reports, 5*, Scientific Reports, 2015, Vol.5.

van Hoof, L. 2010. Co-management: an alternative to enforcement? – ICES Journal of Marine Science, 67: 395–401.

Vince, Joanna. "Oceans governance and marine spatial planning in Australia." Australian Journal of Maritime & Ocean Affairs 6.1 (2014): 5-17.

Von Redecker, Sophie, & Herzig, Christian. (2020). The Peasant Way of a More than Radical Democracy: The Case of La Via Campesina. *Journal of Business Ethics, 164*(4), 657-670.

Weeratunge, N., Béné, C., Siriwardane, R., Charles, A., Johnson, D., Allison, E., . . . Badjeck, M. (2014). Small-scale fisheries through the wellbeing lens. *Fish and Fisheries, 15*(2), 255-279.

"Welsh National Marine Plan" (2015) Retrieved from: http://gov.wales/docs/drah/publications/151130-welsh-national-marine-plan-initial-draft-november-2015-en.pdf

"Welsh National Marine Plan: Implementation Guidance" (2020) Retrieved from: https://gov.wales/sites/default/files/publications/2020-06/welsh-national-marine-plan-implementation-guidance.pdf

Williams, Meryl. (1996). The transition in the contribution of living aquatic resources to food security. International Food Policy Research Institute. *13*.

World Bank; Kelleher, K., & Food Agriculture Organization of the United Nations. (2009). The sunken billions: The economic justification for fisheries reform (Agriculture and rural development The sunken billions). Place of publication not identified: World Bank.

World Bank. 2017. The Sunken Billions Revisited: Progress and Challenges in Global Marine Fisheries. Environment and Development;. Washington, DC: World Bank. © World Bank. https://openknowledge.worldbank.org/handle/10986/24056 License: CC BY 3.0 IGO."

World Forum of Fisherpeople (2018). "Fisher Peoples reject the "Our Ocean Conference" and organize the Ocean's People Conference." Retrieved from: https://worldfishers.org/2018/10/25/fisher-peoples-reject-ocean-conference-organize-oceans-people-conference/

World Ocean Council (2017). Regional Ocean Business Leadership. Retrieved from: http://oceancouncil.org/global-issues-platforms/regional-ocean-leadership

Zhang, Wenbo, Liu, Min, Sadovy de Mitcheson, Yvonne, Cao, Ling, Leadbitter, Duncan, Newton, Richard, . . . Zhou, Wei. (2019). Fishing for feed in China: Facts, impacts and implications. *Fish and Fisheries (Oxford, England), 21*(1), 47-62.

Appendix A. Resources used for coding of Marine Spatial Planning, Chapter II

General: Multi-country

Blæsbjerg, M., Vestergaard, O., Pawlak, J., & Sorensen, T. K. (2009). Marine Spatial Planning in the Nordic Region: Principles, Perspectives and Opportunities: Outcomes from the Nordic Forum on MPAs in Marine Spatial Planning. Nordic Council of Ministers.

Bournazel, Kumara, Jayatissa, Viergever, Morel, & Huxham. (2015). The impacts of shrimp farming on land-use and carbon storage around Puttalam lagoon, Sri Lanka. *Ocean and Coastal Management, 113*, 18-28.

Caribbean Regional Ocean Partnership (CROP). Marine planning <http://caribbean-mp.org/en/>

Ehler, C. (2014) A guide to evaluating marine spatial plans. UNESCO, IOC. Paris. Manuals and Guides, 70; ICAM Dossier 8.

Ehler, C., and Douvere, F. (2007). Visions for a Sea Change. Report of the First International Workshop on Marine Spatial Planning. Intergovernmental
MARE. (2017). Open Channels: Forum for Ocean Planning and Management. <https://www.openchannels.org/>

European Commission. (2017). European MSP Platform. <http://www.msp-platform.eu/>

Indian Ocean Commission. (n.d.) Integrated Coastal Zone Management (ICZM). Archives. <http://www.commissionoceanindien.org/archives/environment.ioconline.org/coastal-zone-management/integrated-coastal-zone-management.html>

Khaled bin Sultan Living Oceans Foundation. (n.d.) Marine Spatial Planning in the South Pacific. <https://www.livingoceansfoundation.org/science/scientific-collaboration/marine-spatial-planning-in-the-south-pacific/>

Marine Conservation Institute. (2017). MPAtlas. <http://www.mpatlas.org/explore/>

National Geographic. (2017). Marine Protected Areas. <http://ocean.nationalgeographic.com/ocean/take-action/marine-protected-areas/>

NOAA. (2017). Coastal and Marine Spatial Planning: Regional Activities. <https://cmsp.noaa.gov/activities/>

Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guides, 46: ICAM Dossier, 3. Paris: UNESCO.

Pacific Islands Regional Planning Body. (2016). National Ocean Policy. <https://pacificislandsrpb.org/>

Pak, A., & Farajzadeh, M. (2007). Iran's integrated coastal management plan: Persian Gulf, Oman Sea, and southern Caspian Sea coastlines. Ocean & Coastal Management, 50(9), 754-773.

PAP/RAC. (2005). Report of the Consultative Workshop on Draft Protocol on Integrated Management of Mediterranean Coastal Zones. 24-25 June, 2005, Torregrande-Oristano, Italy. Split: PAP/RAC. pp. 76.

Pitcher, T. Kawolski, D., & Pramod, G. (2006). Evaluations of compliant with the FAO (UN) Code of Conduct for Responsible Fisheries. Fisheries Centre Research Reports. Volume 14(2).

Regional Organization for the Conservation of the Environment of the Red Sea & Gulf Aden (PERSGA). (n.d.) Integrated Coastal Zone Management / (ICZM). <http://www.persga.org/inner.php?id=122>

Regional Programme for the Sustainable Management of the Coastal Zones of the Indian Ocean Countries (RECOMAP). (2010). News of the Coast. Indian Ocean Commission. No. 12 Special ICZM Issue.

UNESCO, IOC. (2017). Marine Spatial Planning Programme, World Applications. <http://msp.ioc-unesco.org/world-applications/overview/>

Albania

The World Bank. (2016). Implementation completion and results report on a credit in the amount of SDR (US$17.50 million equivalent) to the Republic of Albania for an integrated coastal zone management and clean-up project. Report No: ICR00003327.

Algeria

Boubekri, I., & Djebar, A. B. (2016). Marine protected areas in Algeria: Future marine protected area of “Taza”(SW Mediterranean), continuing challenges and new opportunities facing an integrated coastal management. Ocean & Coastal Management, 130, 277-289.

Angola

Federal Ministry for the Environment, Nature Conservation, Building, and Nuclear Safety. (2016). Angola: IKI Project Supports Marine Spatial Planning. International Climate Initiative (IKI).

Antarctica

Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). (2016). Science: Marine Protected Areas (MPAs). <https://www.ccamlr.org/en/science/marine-protected-areas-mpas>

Scientific Committee for the Conservations of Antarctic Marine Living Resources. (2014). Report of the thirty-third meeting of the scientific committee. Hobart, Australia.

Australia

Australian Government, Department of the Environment and Energy. (2017). Commonwealth marine reserves. Commonwealth of Australia.

The Bahamas

Horsley Witten Group. (n.d.) National Integrated Coastal Zone Management Planning. Inter-American Development Bank, The Bahamas.

Bahrain

Implementation of the Bahrain National Planning Development Strategy (NPDS). (n.d.). Coastal Matters. <http://www.coastalmatters.com/project/implementation-bahrain-national-planning-development-strategy-npds/>

Sustainable Seas. (n.d.) Bahrain: Bahrain ICZM and Marine Planning (National Planning and Development Strategy – NPDS). <http://www.sustainableseas.co.uk/bahrain-iczm-and-marine-planning-national-planning-and-development-strategy-npds/>

Bangladesh

Alam, A. (2016). Marine spatial planning: Bangladesh perspective. *Asia Pacific Journal of Energy and Environment*. 3(1), 21-28.

Barbados

The Laws of Barbados. (1998). Coastal Zone Management. CAP 394.

Belgium

Belgian Ministry of Environment (Marine Department). (2014). Marine Spatial Plan for the Belgian part of the North Sea.

Belize

Rosenthal, A., Verutes, G., Arkema, K., Clarke, C., Canto, M., Rosado, S., & Wood, S. (n.d.). InVEST Scenarios Case Study: Coastal Belize. WWF Natural Capitol Project.

Bermuda

Bermuda Institute of Ocean Sciences. (2016). Planning the future of Bermuda's marine resources. *The Bermudian.*

Brazil

American Society of International Law. (1971). Brazil: Decree-law regulating fishing in territorial sea. *International Legal Materials.* 10(6), 1226-1233.

Brunei

Department of Fisheries, Ministry of Industry and Primary Resources. (1992). The Integrated Management Plan for the Coastal Zone of Brunei Darulssalam.

Canada

Government of Canada. (n.d.). Managing Canada's Oceans. Fisheries and Oceans Canada. <http://www.dfo-mpo.gc.ca/oceans/management-gestion/index-eng.html>

Chile

Outeiro, L., Häussermann, V., Viddi, F., Hucke-Gaete, R., Försterra, G., Oyarzo, H., ... & Villasante, S. (2015). Using ecosystem services mapping for marine spatial planning in southern Chile under scenario assessment. Ecosystem Services, 16, 341-353.

China

Liu, N. (2015). China's National Plan for Marine Spatial Planning. IUCN Academy of Environmental Law Journal, 7,179-182.

Colombia

Rozemeijer, M., & Makaske, A. (2013). Marine and coastal ecological potential for the economic development of Colombia. Wageningen UR.

Croatia

Villa, K. D., Rašić Bakarić, I., & Starc, N. (2014). Coastal Zone Management in Croatia. Društvena istraživanja, 23(3), 449-468.

Cyprus

Hadjimitsis, D., Agapiou, A., Mettas, C., Themistocleous, K., Evagorou, E., Cuca, B., ... & Xagoraris, Z. (2015). Marine spatial planning in Cyprus. In Third International Conference on Remote Sensing and Geoinformation of the Environment (pp. 953511-953511). International Society for Optics and Photonics.

Curaçao

Sustainable Fisheries &Coastal Zoning in Curaçao: Legal & Institutional Assessment of Authorities & Approaches. (2016). Environmental Law Institute.

Djibouti

Silva, M. (2015). International Workshop in Djibouti. Cousteau, News. <http://www.cousteau.org/international-workshop-in-djibouti/>

Egypt

Masria, A., Negm, A., Iskander, M., & Saavedra, O. (2014). Coastal zone issues: a case study (Egypt). Procedia Engineering, 70, 1102-1111.

Samy, M., & Lizaso, J. S. (2011). Status of marine protected areas in Egypt. Animal Biodiversity and Conservation, 34(1), 165-177.

England

Marine Management Organisation. (2014). Marine Planning in England. <https://www.gov.uk/government/collections/marine-planning-in-england>

Falkland Islands

Darwin Plus: Overseas Territories Environment and Climate Fund. (2016). Final Report. Department for Environment, Food, & Rural Affairs, Darwin Initiative, Foreign & Commonwealth Office, Department for International Development, & UKaid.

France

Trouillet, B., Guineberteau, T., De Cacqueray, M., & Rochette, J. (2011). Planning the sea: The French experience. Contribution to marine spatial planning perspectives. Marine Policy, 35(3), 324-334.

Gambia

Global Climate Change Alliance (GCCA). (2012). GCCA support project to the Gambia for integrated coastal zone management and the mainstreaming of climate change. <http://www.gcca.eu/print/national-programmes/africa/gcca-the-gambia>

Georgia

MESMA. (2017). Black Sea. <http://www.mesma.org/default.asp?ZNT=S0T1O759>

Germany

Bundesamt für Seeschifffahrt und Hydrographie. (2016). Spatial Planning in the German EEZ. <http://www.bsh.de/en/Marine_uses/Spatial_Planning_in_the_German_EEZ/index.jsp>

Ghana

Marine Fisheries Advisory Committee. (2015). Coastal & Marine Sector Action Plans. Ministry of Fisheries and Aquaculture Development. Jubilee Deepwater Development for Ghana.

Guinea

Honey, K., & Elvin, S. (Eds.). (2013). Towards ecosystem-based management of the Guinea current large marine ecosystem. Global Environment Facility, United Nations Development Program, & United Nations Industrial Development Organization.

Guinea-Bissau

The World Bank. (2011). Implementation completion and results report on an international development association credit in the amount of SDR 2.1 million (US$ 3.0 million equivalent) and a global environment facility grant in the amount of US$ 4.8 million to the Republic of Guinea0Bissau for a coastal and biodiversity management project. Environmental and Natural Resources Unit.

Guyana

McCall, Robin, and Talia Choy. "Integrated Coastal Zone Management (ICZM) in Guyana: Development Barriers, Opportunities and Recommendations." Integrated Coastal Zone Management (2009): 219.

Indonesia

Asia-Pacific Economic Cooperation. (2012). The development of marine spatial planning in Indonesia. APEC MSP Training Workshop. Xiamen, China.

Isle of Man

Isle of Man Government. (2012). Isle of Man Marine Plan: Statement of public participation.

Israel

Faculty of Architecture and Town Planning, & The Klutznick Center for Urban and Regional Studies. (2015). The Israel Marine Plan.

Italy

Buono, F., Soriani, S., Camuffo, M., Tonino, M., & Bordin, A. (2015). The difficult road to integrated coastal zone management implementation in Italy: evidences from the Italian North Adriatic regions. Ocean & Coastal Management, 114, 21-31.

Jamaica

Baldwin, K., Schill, S., Zenny, N., & Blake, D. (2014). Developing ecosystem-based information for marine spatial planning on the Pedro Bank, Jamaica. Proceedings of the 67 the Gulf and Caribbean Fisheries Institute November, 3-7.

Japan

Japanese Government. (2013). Basic Plan on Ocean Policy.

Kenya

National Environment Management Authority. (n.d.). Integrated Coastal Zone Management Action Plan for Kenya, 2011-2015.

Tuda, A. O., Stevens, T. F., & Rodwell, L. D. (2014). Resolving coastal conflicts using marine spatial planning. Journal of environmental management, 133, 59-68.

Lebanon

Shaer, H., Samaha, L., & Jaradi, G. (2012). Lebanon's Marine Protected Area Strategy: Supporting the management of important marine habitats and species in Lebanon. Lebanese Ministry of Environment / IUCN.

Malaysia

Mokhtar, M. B., & Aziz, S. (2003). Integrated coastal zone management using the ecosystems approach, some perspectives in Malaysia. *Ocean & Coastal Management*, 46(5), 407-419.

Malta

Malta Environment & Planning Authority. (2015). Strategic Plan for Environment and Development.

Mauritius

Republic of Mauritius. (2016). Marine spatial plan to be elaborated for the exclusive economic zone of Mauritius. News. <http://www.govmu.org/English/News/Pages/Marine-Spatial-Plan-to-be-elaborated-for-the-Exclusive-Economic-Zone-of-Mauritius.aspx>

Montenegro

Ministry of Economic Development. (2008). Spatial Plan of Montenegro until 2020. Podgorica.

Mozambique

Obura, D. Burgener, V., Nicoll, M., Ralison, H., & Scheren, P. (2015). The Northern Mozambique Channel. Setting the foundations for a regional approach to marine governance. A background document. WWF International and CORDIO East Africa.

Myanmar

Pei Ya, B. (2016). Marine Spatial Planning for Myanmar: Strategic advice for securing a sustainable ocean economy. Wildlife Conservation Society, Myanmar Program.

Namibia

Marine spatial planning group inaugurated. (2016). *The Namibian*. <http://www.namibian.com.na/156514/archive-read/Marine-spatial-planning-group-inaugurated>

The Netherlands

The Dutch Ministry of Infrastructure and the Environment, & the Dutch Ministry of Economic Affairs. (2015). Policy Document on the North Sea 2016-2021.

New Zealand

New Zealand Parliamentary Counsel Office. (2016). Exclusive Economic Zone and Continental Shelf (Environmental Effect) Act 2012. Reprint as of 2016.

Nigeria

Onyenechere, E. C. (2010). Climate change and spatial planning concerns in Nigeria: Remedial measures for more effective response. Journal of Human Ecology, 32(3), 137-148.

Ringim, A. S., Sulaiman, I. M., & Lyakurwa, J. V. (2016). Implementation of Integrated Coastal Zone Management Approach in the Niger Delta, Nigeria: A Review.

Northern Ireland

Department of the Environment. (2015). Report on the Marine Plan process in Northern Ireland.

Norway

PartiSEApate. (2013). Marine spatial planning in Norway. Ministry of the Environment.

Oman

Choudri, B. S., Mahad, B. A. A. W. A. I. N., & Mushtaque, A. H. M. E. D. (2016). An Overview of Coastal and Marine Resources and their Management in Sultanate of Oman. Journal of Environmental Management and Tourism (JEMT), 7(1 (13)), 21-32.

Pakistan

Qureshi, M. (2011). Integrated Coastal Zone Management Plan for Pakistan. IUCN.

Peru

FAO. (n.d.). Latin America Project. Coastal Fisheries Initiative. <http://www.fao.org/in-action/coastal-fisheries-initiative/projects/latin-america/en/>

WWF Peru Technical Team. (2013). Strategic Plan 2013-2017: Building a Green Future for Peru.

Philippines

ICM Solutions: Enhancing food security and sustainable livelihoods in Batangas, Philippines through MPAs and ICM. (n.d.) Partnerships in Environmental Management for the Seas of East Asia (PEMSEA).

Russia

PartiSEApate. (n.d.). Marine spatial planning in Russia. <http://www.partiseapate.eu/wp-content/uploads/2013/08/Russia-country-fiche.pdf>

Saint Kitts & Nives

Agostini, V. N., S. M. Margles, S. R. Schill, J. E. Knowles, and R. J. Blyther. (2010). Marine Zoning in Saint Kitts and Nevis: A Path Towards Sustainable Management of Marine Resources. The Nature Conservancy.

Agostini, V. N., Margles, S. W., Knowles, J. K., Schill, S. R., Bovino, R. J., & Blyther, R. J. (2015). Marine zoning in St. Kitts and Nevis: A design for sustainable management in the Caribbean. Ocean & Coastal Management, 104, 1-10.

São Tomé and Príncipe

Nuno, A. Metcalfe, K. Godley, B.J. & Broderick, A.C. (2015). Marine Conservation Priorities São Tomé and Príncipe Scoping Report. University of Exeter. 41 p.

Saudi Arabia

Meaden, G. (2016). Marine spatial planning for enhanced fisheries and aquaculture sustainability: It's application in the Near East. UN FAO Report.

Scotland

The Scottish Government. (2015). Scotland's National Marine Plan: A single framework for managing our seas. Edinburgh.

Seychelles

The Nature Conservancy. (2015). Seychelles Marine Spatial Planning: On the leading edge of marine conservation and climate adaptation.

Sierra Leone

Dumbuya, I. (2016). Environmental Stakeholders converge to develop a coastal zone management plan for Sierra Leone. *Standard Times Press Newspaper*. African news.

South Africa

Department of Environmental Affairs, Republic of South Africa. (2009). A user-friendly guide to the Integrated Coastal Management Act of South Africa.

Department of Environmental Affairs, Republic of South Africa. (2016). Draft marine spatial planning framework. Government Notices. *Government Gazette*, No. 40219.

Sri Lanka

Samaranayake, R. (n.d.). Sri Lanka's Agenda for Coastal Zone Management. The Review of Advanced Technologies for the Integrated Management of EEZs and Coastal Zones Worldwide. ICG Publishing Limited.

Suriname

Teunissen, P. (2000). Coastal Management Plan for the North Coronie area in Suriname. Final version. Ministry of Natural Resources.

Tanzania

Global Spatial Data Infrastructure Association (GSDI). (2016). Tanzania: Zanzibar SDI project for integrated coastal and marine spatial planning with Finnish Support (ZAN-SDI).

Thailand

The 'Trat model': marine spatial planning for sustainable development. (2016). Integrated Union for Conservation of Nature (IUCN).

Trinidad & Tobago

National Spatial Development Strategy for Trinidad & Tobago. (n.d.). A planning framework to govern physical development. Core Strategy and Regional Guidance.

Turkey

Aydin, M. (2007). Report on the situation regarding marine spatial planning in Turkey. Ministry of Environment and Forestry.

Ukraine

Radchenko, V. (2012). Marine Spatial Management: challenges and opportunities in Ukraine. Expert Consultation Workshop on Coastal and Marine Spatial Planning Approach: International Experiences.

The United States

Goldfuss, C., & Holdren, J. (2016). The Nation's first ocean plans. The White House: President Barack Obama: The National Ocean Council. <https://obamawhitehouse.archives.gov/blog/2016/12/07/nations-first-ocean-plans>

Massachusetts Executive Office of Energy and Environmental Affairs (EEA). (2015). 2015 Massachusetts Ocean Management Plan. Volume 1 & 2.

Mulvaney, K. (2013). First biennial assessment of the Rhode Island Ocean Special Area Management Plan process. Prepared for the Rhode Island Coastal Resources Management Council and the University of Rhode Island Coastal Resources Center.

National Ocean Council. (2013). National Ocean Policy Implementation Plan. Executive Office of the President. Washington, D.C.

Oregon State Government. (2013). Territorial Sea Plan. Oregon Coastal Management Program. Table of contents. <https://www.oregon.gov/LCD/OCMP/Pages/Ocean_TSP.aspx>

Rhode Island Coastal Resources Management Council. (2010). Rhode Island Ocean Special Area Management Plan (Ocean SAMP). Volume 1.

Washington State Department of Ecology, NOAA. (2014). Marine Spatial Plan for Washington's Pacific Coast: Summary of SEPA scoping and response to comments.

Uruguay

Piriz, C., Couto, W., & Jorajuria, A. (n.d.) Integrated coastal zone management in Uruguay. Environment and development in coastal regions and in small islands.

Venezuela

Marine Planning: Practical approaches to ocean and coastal decision-making. (n.d.) Case Studies: Venezuela Energy Development. <http://www.marineplanning.org/Case_Studies/Venezuela_Summary.html>

Vietnam

Nguyen Chu Hoi and Bui Thi Thu Hien (2014). Integrated Spatial Planning and Management for Marine and Coastal Sustainability in Viet Nam. Gland, Switzerland: IUCN, 13pp.

Wales

The Welsh Government. (2015). The Welsh National Marine Plan. [Initial draft].

Yemen

Global Environment Facility. (2009). Yemen: Integrating Coastal Zone Management in Yemen.

Appendix B. Examples of Land-based Resources

FAO: Gender and Land Rights Database

This database for gender equity in land rights includes continually updated country profiles, global gender and land-related statistics, and a legal assessment tool to help inform legal and policy processes. Country profiles include basic country information, including land tenure system; national legal frameworks as they relate to land tenure; the ratification status of international treaties and conventions; the customary law and practices of the country; and existing civil society organizations that support gender equity in land tenure (FAO 2020).

Namati: Community Land Rights CaseBase

Namati's Community Land Rights CaseBase is a global database of case studies, specifically legal decisions, concerned with community land use and resource rights. It is populated by lawyers, advocates and law student volunteers, and users can search by case but also by relevant key words like 'customary title' and 'loss of livelihood.' Information on the court, year, facts, and holding are available for each case study (Namati 2020).

Land Governance Programme Map & Database

This database is specifically focused on donor-related land reforms around the world. By filtering for specific programs or selecting countries on the interactive map, one can examine specific programs and their donors, implementers, and partner countries; as well as a summary of the program's objectives and whether or not they are complete (Global Donor Platform for Rural Development 2020).

Land Matrix

The Land Matrix partnership provides a public database for large-scale land acquisitions, in an attempt to bring greater transparency to decision-making and investment in global land transactions. The Land Matrix tool can break cases down by target country or region, the intention of the investment, the investor and their country or region, the data source type, specific crop, negotiation status, implementation status, and size (Land Matrix 2020).

Robinson et al. (2014) "Does secure land tenure save forests?..."

This 2014 paper is a meta-analysis that examines forms of land tenure and their security, and relates them to forest change and tropical deforestation. The authors pull 118 cases from the peer-reviewed literature and categorize their land tenure into five categories (public, protected, private, communal and customary / traditional); record whether they represent a positive or negative forest outcome; and record a measure of tenure security (Robinson et al. 2014).