

Who owns the sea?

Investigating the trends and perceptions of enclosure in Scottish seas

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ABSTRACT

For half a century, the seas have been transforming from a *mare nullius*, to an area of enclosed and private rights. Despite the growing body of literature addressing these transitions, there has been a lack of engagement with property rights and enclosure in Scotland's seas. Using a conceptual lens of historical institutionalism, the research explores the drivers, consequences, and perceptions of enclosure in two case studies in Scotland; spatial enclosure via marine spatial planning, and resource access enclosure in fisheries. Defining enclosure as the process of concentrating rights and power, the research foregrounds the issues of power imbalances, distributional conflicts, and a lack of knowledge and transparency. Q-methodology is applied to detail the range of views on enclosure in the participating stakeholders.

The findings of the thesis suggest that the introduction of both the MSP regime, and the market-led fisheries management system, are not efficiently allocating resources in a rational manner. Rather, institutional change has been steadily influenced by political thinking and powerful actors, so that rights and resources are being concentrated to fewer hands. The research also suggests that a diverse array of understandings of ownership are present in Scotland's seas that are not currently foregrounded in policy. Excluding these forms of ownership will lead to further tensions between users. As such, understanding the marine environment as a series of social institutions is necessary for designing a governance regime that is both equitable and sustainable. By understanding the sources of rights, and how they are performed in concrete relations between individuals, regulators can better address potential conflicts, and avoid destructive enclosure. The research therefore recommends further engagement with stakeholders, and acknowledgement of rights through different participatory or financial channels.

Keywords: enclosure; resource ownership; marine spatial planning; fisheries; perceptions; Q-methodology

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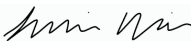
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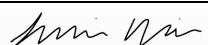
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ACRONYMS

CES	Crown Estate Scotland
CFP	Common Fisheries Policy
COSLA	Convention of Scottish Local Authorities
CQ	Community Quota
DEFRA	Department for Environment, Food and Rural Affairs
EBM	Ecosystem-Based Management
EC	European Commission
EEZ	Exclusive Economic Zone
EKP	External Knowledge Provider
ENGO	Environmental Non-Governmental Organisation
EU	European Union
FAO	Food and Agricultural Organisations
FQA	Fixed Quota Allocation
HI	Historical Institutionalism
ICES	International Council for the Exploration of the Sea
ICZM	Integrated Coastal Zone Management
ITQ	Individual Transferable Quota
IUU	Illegal, Unreported and Unregulated
km	Kilometres
LA	Local Authority
LOSC	Law of the Sea Convention
MPA	Marine Protected Area
MPP	Marine Planning Partnership
MRE	Marine Renewable Energy
MS-LOT	Marine Scotland Licensing Operations Team
MSP	Marine Spatial Planning
MSPD	Maritime Spatial Planning Directive
Mu	Metres and under
nm	nautical mile
NMP	National Marine Plan
NPF	National Performance Framework
NTZ	No-Take Zone
PCA	Principal Components Analysis
PO	Producer Organisation
RAC	Regional Advisory Council
RBM	Rights Based Management
RIFG	Regional Inshore Fisheries Group
RO	Regulating Order
SAC	Special Area of Conservation
SDG	Sustainable Development Goal
SFF	Scottish Fishermen's Federation
SFL	Significant Loading Factor
SIMSP	Shetland Islands' Marine Spatial plan
SMR	Scottish Marine Region
SSMEI	Scottish Sustainable Marine Environment Initiative

SSMO	Shetland Shellfish Management Organisation
TAC	Total Allowable Catch
TURF	Territorial Use Rights in Fisheries
UK	United Kingdom
UKAFPO	United Kingdom Association of Fish Producer Organisations
UN	United Nations
UNCLOS	United Nations Conference for the Law of the Sea

1 INTRODUCTION

Roll on, thou deep and dark blue Ocean, roll!

Ten thousand fleets sweep over thee in vain;

Man marks the earth with ruin; his control

Stops with the shore...

(Lord Byron, in *The Sea*, Childe Harolde's Pilgrimage)

1.1 BACKGROUND AND MOTIVATION

When I first received the offer to begin this research, I expounded on the ideas of privatisation at sea to a friend. She expressed outrage at the notion of anyone 'owning' the sea; 'No one *owns* the sea! I hope that doesn't ever happen!' Her reaction exemplifies a common view of the sea as a *mare nullius*.¹ It is a vision of the ocean as a space without boundaries or politics, and predicated on a consistent division between land and sea (Jackson, 1995). The land is recognisable as an ownable, marketable product that can be easily controlled; the oceans are an unpredictable and unownable space. Even as politicians and scientists look towards cohesive governance of the seas, a culture of '*freedom and openness that have always been part of the appeal of the oceans*' has remained (Orbach, 2003, p. 28).

However, this openness, characterised by an absence of property rights institutions, is often blamed for the crisis in the world's oceans. Issues of mismanagement are often attributed to the '*tragedy of the commons*', the problem of exploiting a common-pool resource without incentive to think about its future sustainability (Hardin, 1968), coupled with centuries of '*weak governance*' (Flannery *et al.*, 2016, p. 122).² There has been a continuous decline of

¹ Taken from the term '*terra nullius*', *mare nullius* translates to 'nobody's sea'.

² Tragedy of the commons is examined further in section 3.4

marine resource health (Halpern *et al.*, 2015), with high levels of marine species extinction (O'Hara *et al.*, 2019), and many fish stocks overexploited (Food and Agriculture Organization of the United Nations (FAO), 2018). As global marine health declines, it has become increasingly obvious, to business organisations and governments, that ocean resources are also a potential source of economic growth and profit. By 2030, the global blue economy could be double the current estimated value of €1.3 trillion (Organization for Economic Co-operation and Development, 2016).

Driven by the dual goals of sustainable development and environmental protection, there have been concerted efforts to transform the ocean commons by enforcing new property regimes. In the past four decades, approaches to enclose the marine commons are being implemented on increasingly localised scales. The governance of live resources often uses rights-based management (RBM) to overcome races to exploitation. Controlling fish stocks using RBM is effectively an act of *enclosure*, limiting rights and power to fewer actors (Mansfield, 2007). Additionally, development strategies, such as the EU's Blue Growth Agenda, are sanctioning further encroachment in our seas. With a growing number of industries seeking quasi-permanent access to marine space, the marine environment is being progressively managed by marine spatial planning (MSP), which can enclose areas of sea for blue uses (Fairbanks *et al.*, 2018).

These approaches are changing the nature of property rights and ownership at sea, as communal resources are transformed and enclosed into private property. These changes raise questions of power, equity and sustainability (Bennett *et al.*, 2015; Barbesgaard, 2018). New property regimes could bring significant consequences to users of the sea, changing the way people interact with and understand their marine environments. Consequently, the oceans have become a '*unique domain*' for critically evaluating enclosure (Fairbanks *et al.*, 2018, p. 158).

1.2 RESEARCH PROBLEM

This thesis concentrates on enclosure of marine resources and spaces in Scotland, one of four countries that make up the United Kingdom (UK). The thesis is a deliberately interdisciplinary study, critically evaluating enclosure by focussing on the two primary examples of marine enclosure discussed above, namely i) fisheries resources and ii) marine space through MSP. Using these case studies, the research seeks to understand marine enclosure by asking: which rights are changing through enclosure? What are the drivers behind the enclosure? Who are the actors involved? What are the potential or observable consequences? And what are the perceptions of stakeholders towards enclosure?

Given its currency, the enclosure of fishing rights has been of growing focus for social and economic scholars. As the socio-economic consequences of RBM in fisheries are becoming more apparent, there have been concerted efforts to understand the ‘*cumulative effects*’ of changing property regimes through RBM (Murray *et al.*, 2010). Consequently, there has been a move away from theoretical explorations (Gordon, 1954; Hardin, 1968), to empirical studies on RBM and its effects on social actors (Olson, 2011). Drawing variously on political ecology, feminist theory, and institutionalism, case studies have been undertaken at a range of scales, from national analyses (de Alessi, 2012; Pinkerton and Davis, 2015), to state- and community-based examples (Mansfield, 2007; Carothers, 2010).

However, there is surprisingly little critical analysis of the effects of enclosure in Scottish fisheries. A report commissioned by the Scottish Government in 2014 illustrates the impacts of the current rights-based system on employment in the fishing industry, focussing on barriers for new entrants (Stewart, 2014). The report signals there is a baseline understanding of the negative effects of the current system, indicating further analysis is needed. Cardwell and Gear (2013) offer a discussion of the transferability of the Scottish management system in a local case study, following fishers in the Shetland Isles. However, few other studies detail the

historical transition of the Scottish system, and the effects that changes in institutions have had on social actors in the fishing industry.

Within the MSP discipline, research of the enclosure of marine space has also been steadily growing. As MSP became a popularised method for marine management, studies primarily focussed on the benefits and efficiency of MSP (Douvere, 2008; Allmendinger and Haughton, 2010; Agardy *et al.*, 2011). However, such research is often '*unreflecting*' in its view on MSP's effectiveness, instead promoting MSP as an efficient approach within largely descriptive accounts (Tafon, 2018, p. 259). The critical turn in analysing MSP has become a recent branch of the research, following calls from researchers (Kidd and Ellis, 2012). Peel and Lloyd's (2004) analysis was one of the first critical engagements with MSP, addressing the fact that MSP is a product of political and cultural agendas. Contributions have since questioned the roles of power within MSP, the distributive effects on marine actors, and the rationality of the planning process (Ritchie and Ellis, 2010; Kidd and Ellis, 2012; Flannery *et al.*, 2016; Fairbanks *et al.*, 2018; Tafon, 2018).

Whilst providing a crucial foundation, the existing literature often presents theoretical work, forgoing real-world analyses of MSP and its role in distributing access and resources. There are also few examples of empirical research which engage with Scottish MSP. Notable exceptions are studies conducted by Smith and Jentoft (2017), and Smith and Brennan (2012), which critically analyse the power dynamics in Scottish MSP processes. However, these discussions fail to foreground the issues of ownership and rights within planning arrangements.

Changes in rights and ownership also raise questions of fairness, power, and the ability to influence decision-making processes. Privatising and enclosing natural resources can bring unforeseen consequences to both natural and social networks (Liverman, 2004). As rights change, so do the holders of them. These changes could empower stakeholders by distributing rights more equitably, or may concentrate assets into the hands of fewer interests (Harvey,

2003). Although much has been written on the inclusion of stakeholders for democratic decision-making in MSP (Jarvis *et al.*, 2015; Flannery *et al.*, 2018) and fisheries management (Leite and Pita, 2016), these analyses exclude the importance of changes in ownership and rights.

As change occurs, precedents for enclosure are being set that may be difficult to reverse. It is therefore crucial that stakeholders' perceptions towards enclosure are recorded, so that future management endeavours can avoid further inequality between marine users. 'Perception' is used as a term here to capture a variety of dynamics such as *'knowledge, interest, social values, attitudes, or behaviours'* (Jefferson *et al.*, 2015, p. 62). Engaging stakeholders, as a *'group or individual that has an interest in the exploitation... of the resource'* (Delaney *et al.*, 2007, p. 804), has been deemed an important function of effective, democratic management (Bäckstrand, 2003; Reed, 2008). Involving stakeholders, and utilising pre-existing knowledge and experience, can help understand complex natural ecosystems, identify relations and potential conflicts between users, and establish consistent dialogue and trust (Pomeroy and Douvère, 2008; Pita *et al.*, 2013). Establishing stakeholder perceptions through participatory processes can also help understand behaviours; by recognising what stakeholders think and want, and integrating those views into regulations, it can increase the likelihood for compliance (Kapoor, 2001; Cordano *et al.*, 2004). Participation has therefore been established as one of the critical criteria for *'good governance'* (UNESCAP, 2006).³ Furthermore, the right to participate in environmental decision-making was codified by the Aarhus Convention, which Scotland has been bound to since 2001.⁴

³ The term 'good governance' has been used variously by organisations to emphasise the links between human rights and governance. Although there is no singular exhaustive definition, the framework established by UNESCAP (2006) provides an adequately comprehensive definition for good governance of natural resources, utilising eight guiding principles, indicating governance should strive to be: consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive, follows the rule of law, and participatory.

⁴ The Aarhus Convention and the importance of participation, transparency, and institutional design, is discussed further in section 3.9.

However, as yet, little research has been undertaken centring on the perceptions of ocean enclosure. Whilst research on stakeholders' perceptions of fisheries management has been growing (Hanna and Smith, 1993; Garza-Gil *et al.*, 2017), these often do not include an assessment of the enclosure of rights. An exception assesses the opinions of fishers on the transformation of fishing rights in France (Frangoudes and Bellanger, 2017). The study found a divergence of views, with certain factions of fishers actively seeking the redesign of the current management system. Research such as this highlights the need to address the nuances in perceptions of fishers, which could impact the effectiveness of regulations.

Similarly, perceptions of marine spatial enclosure have yet to be fully addressed within the literature. Previous studies have mapped stakeholders' perceptions to specific uses such as marine conservation (Cocklin *et al.*, 1998; Suman *et al.*, 1999), and aquaculture (Bacher *et al.*, 2014; Carr, 2019), providing some insight into perceptions of increasing conflicts. In Scotland, research into stakeholders' perceptions have focussed on inter-industry relations, such as between fishers and energy (Alexander *et al.*, 2013), or fishers and marine conservation (Pita *et al.*, 2013). Therefore, to date, researchers have focussed their efforts on understanding the tensions between individual industries as they compete for space and resources. This competition over marine resources is set against a backdrop of increasing enclosure. However, little research effort has been put into understanding perceptions of the process of enclosure.

1.3 RESEARCH AIMS AND OBJECTIVES

Evidently, there is a critical gap in research which concentrates on the enclosure of marine resources within Scotland, and the perceptions of stakeholders to change. This research aims to contribute to this gap by explicating the motivations behind changes in marine governance, the socio-economic consequences of such changes, and the perceptions of stakeholders, using the case studies of fisheries management and MSP. The primary objective of this research is therefore to critically analyse the emergence of enclosure in Scottish seas. This primary objective is divided into three sub-objectives.

The first sub-objective is to explore *how and why* enclosure is occurring, focussing on what drives changes in formal rights established through legal arrangements, as well as evidence of changes to *de facto*, perceived, and informal rights. These informal conceptions of ownership have been foregrounded in recent literature, to take into account wider and more inclusive understandings of ownership (Selin, 2013; Berkes, 2018). The examination of the drivers behind changes will be followed by a discussion on the witnessed or potential consequences of such institutional changes, and whether these consequences are being considered within policy.

The second sub-objective is to understand stakeholders' *perceptions* of enclosure at sea in Scotland. By delving into the potential differences between groups of stakeholders, this analysis will provide a greater understanding to the possible futures of both Scotland's seas and global marine environments. The study foregrounds individual stakeholders and their roles in the decision-making processes over Scotland's marine environment. Understanding these perceptions can illuminate the different conceptions of *fairness*, and the equitability of enclosure for stakeholders.

The final sub-objective is to compare the results garnered from the case studies using a typology which can contextualise the processes of enclosure and reform in the marine environment. The typology acts as a method for bringing both case studies into a unified framework, but also to situate the discussed examples of enclosure in a wider discussion on the privatisation of natural resources.

Consequently, the research questions are as follows:

1. In the context of each case study, what are the drivers behind changing property rights and enclosure in the ocean?
2. What are the potential and perceived socio-economic consequences of these institutional changes?
3. What are the perceptions of stakeholders to changing rights in 'their' seas?

4. What is the role of ‘fairness’ in the process of enclosure?
5. How can these examples of enclosure be used to prevent ‘unfairness’?

1.4 SCOPE OF THE RESEARCH

This thesis concentrates on Scotland. There are a number of reasons for this; (i) the country has a great reliance on its seas, with a significant proportion of the population working in maritime industries, and that reliance is only set to increase with the ongoing drives for blue growth; (ii) it has a long history of contentions over rights to land and sea, which will inevitably influence its population’s understandings and outlook on marine rights; (iii) it is currently experiencing great political upheaval, set to influence the governance of its marine territory, amongst many other things; and finally, (iv) from a methodological standpoint, it was important to situate the study within a jurisdiction large enough to give a good overview, but small enough to provide finer details of policy and legislation.

With the fourth largest sea area in the EU (462,263km²), Scotland has a history of relying on marine industries for economic development. The fishing industry contributed much of the country’s past economic productivity (Coull, 1996). Although it is now a modest contributor to Scotland’s national economy, the fishing industry maintains a high cultural importance to coastal communities (Nadel-Klein, 2000; Brookfield *et al.*, 2005; Ross, 2015). The North Sea oil industry is thought to have contributed more than £300 billion to the UK economy since the 1970s, although it was also subject to collapse following price wars between petroleum exporting countries (Geoghegan, 2016). In 2016, the marine economy still contributed £3.8 billion to the Scottish economy, approximately 3% of the country’s annual Gross Value Added (Scottish Government, 2018b).

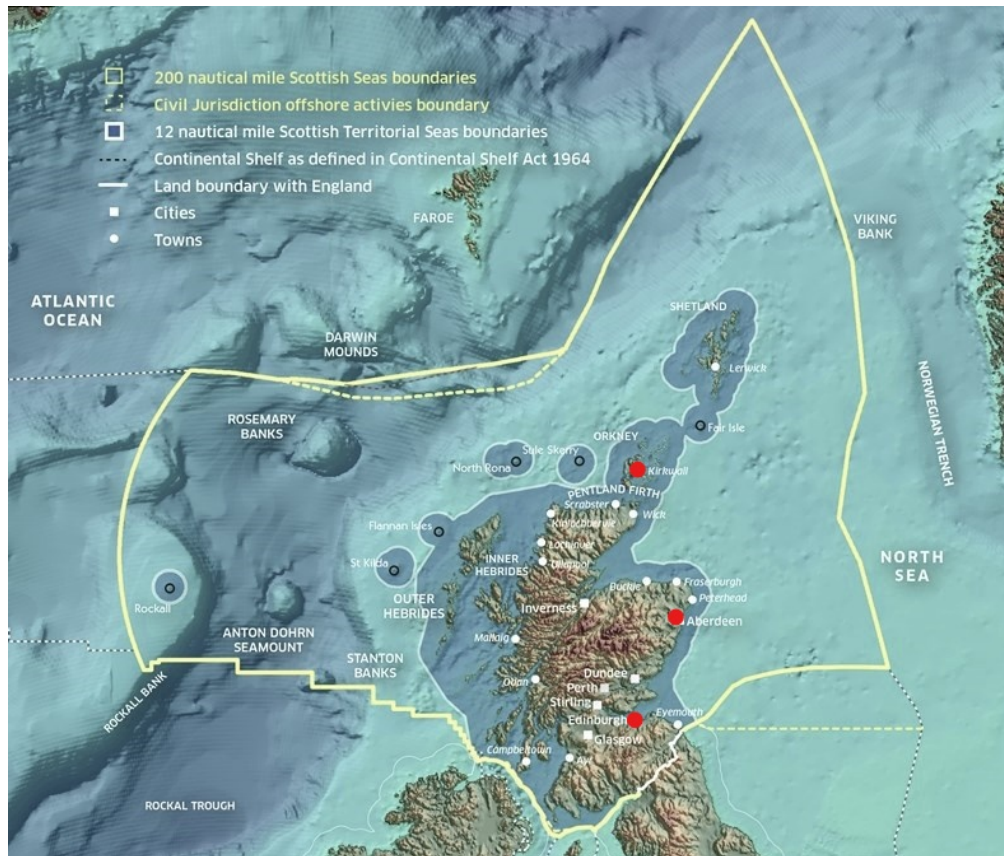


Figure 1: Scotland's marine territory (with research loci in red)⁵

Scotland also has a contentious history with rights to land and sea, with multiple periods of dispossession, enclosure and reform. Enclosure has been witnessed in Scotland in multiple waves, including in the famous example of the Highland Clearances, which will be explored further in the first case study. Scotland now exhibits what has been called the ‘*most concentrated pattern of land ownership*’ in Europe (Hunter, 2013, p. 1). This unique history with terrestrial property rights could change the way that communities and individuals react to changing rights in their marine environment (Mackenzie and Dalby, 2003; Kerr *et al.*, 2015). This history of land distribution has also become an important feature of Scottish politics, with recurring governments focussing on rebalancing the land inequity. Rebalancing has been facilitated through different institutional changes under the title of land reform

⁵ Source: Scottish Government (2017) Available at: www2.gov.scot/Resource/0045/00451087.pdf (Accessed: 13.04.2020)

(Bryden and Geisler, 2007). Scotland's land reform is often viewed as progressive, with new sustainable futures being imagined (Fiona and Mackenzie, 2006; Lovett, 2010).

Community land rights, alongside promoting sustainable use of ecosystems, and enhancing the capacity for participatory planning and management, are embodied within the United Nations' Sustainable Development Goals (SDGs) (UN, 2015). Scotland was one of the first countries to commit to the SDGs in 2015. Of the seventeen Goals, one (SDG14) is dedicated to the oceans, stating '*Conserve and sustainably use the oceans, seas and marine resources for sustainable development*' and stipulating ten targets. Of importance to this research are Target 14.2, '*sustainably manage and protect marine coastal ecosystem... in order to achieve healthy and productive oceans*', and Target 14.4 '*end overfishing, illegal, unreported and unregulated fishing... in order to restore fish stocks*'.

Following review in 2018, the Scottish Government reformatted its own National Performance Framework (NPF) to align with the UN's SDGs, so that they shared similar aims. The NPF is an outcome-based performance system which aligns the public sector for the long-term goal of making Scotland a '*more successful country, with opportunities for all of Scotland to flourish, through increasing economic sustainable growth*' (Scottish Government, 2007, p. 2). The Framework is built upon a tiered system of Strategic Objectives, National Outcomes, and National Indicators. The Government collaborates with public sector organisations, including local authorities (LAs), to help achieve these Outcomes.

The progression of each Outcome is reflected by a series of Indicators (eighty-one as of 2019). Four of the National Outcomes are related directly to the topic of enclosure within Scotland's seas; Communities, Environment, Economy and Human Rights. These Outcomes, and their pertinent Indicators, are outlined in Table 1, along with a description to provide context for their importance to the research.

Table 1: Scottish Government's National Performance Framework Outcomes and Indicators identified as having direct relevance to enclosure and property rights in Scotland's seas ⁶

National Outcomes	National Indicator	Description
Communities <i>'We live in communities that are inclusive, empowered, resilient and safe'</i>	Community ownership	Measures the number of assets under community ownership. Important for helping understand the performance of the changes in landownership patterns.
	Access to green and blue space	Measures the proportion of the population with access to a local blue or green space. Important for assessing perceptions of changes and development in local blue spaces, including infrastructure development.
Environment <i>'We value, enjoy, protect and enhance our environment'</i>	Energy from renewable sources	Measures the amount of renewable energy generated as a proportion of Scotland's gross energy consumption. Important for assessing the increases in space taken up by marine renewable energies.
	Clean seas	Measures the levels of contaminants within Scottish waters. Important for the productivity of fish stocks.
	Sustainability of fish stocks	Measures the percentage of fish stocks fished sustainably. Important for understanding the performance of the current fisheries management system.
Economy <i>'We have a globally competitive, entrepreneurial, inclusive and sustainable economy'</i>	Greenhouse gas emissions	Measures greenhouse gas emissions. Important for helping to understand the trends in renewable energy technologies, including marine renewable energies.
Human Rights <i>'We respect, protect and fulfil human rights and live free from discrimination'</i>	Influence over local decisions	Measures the percentage of people who agree that they have measurable influence over decisions affecting their local areas. Important for understanding the performance of participatory procedures in environmental management, including planning decisions.

⁶ Source: Scottish Government (2019c)

Alongside the changes in Scotland's policy-making, significant political changes have occurred that may influence marine management. Since March 2017, the UK Government has been in the process of leaving the EU. The process, colloquially known as 'Brexit', involves renegotiating the UK's position in the European network of economies. Brexit has created widespread uncertainty, especially regarding legislation, environmental policy, supply chains, and investment. Legislation for Europe's marine environment is the complex product of decades of reform and change, as a result of increasing conflicts between sectors (Boyes and Elliott, 2014). As the UK, and subsequently Scotland, has been a member of the EU for over forty years, many targets that the UK is currently working towards are a direct product of EU policy.

The role of Scotland within the wider structure of UK governance is also ambiguous. Scotland was one of the regions that voted to stay within the EU. The reaction of the Scottish public to the EU referendum, coupled with the perceived lack of compromise from the UK Government, led to the Scottish Parliament pursuing a second independence referendum. However, following the results of the General Election in June 2017, incumbent First Minister Nicola Sturgeon confirmed that the referendum bill would not be introduced until after Brexit negotiations had ceased (Carrell, 2017). However, the mere idea of increased autonomy lends more uncertainty for Scotland, and for the future of its environmental legislation, economic policy, and devolved powers.

This thesis was researched and written before and during the negotiations period with the EU. Given the pervasiveness in the news, the process was highly prevalent within the research, and often Brexit became a central component of the research journey. However, the focus of the research is not to provide a 'before' and 'after' snapshot of Scottish marine policy in the Brexit era. Rather, Brexit, and its associated consequences, should be viewed as one aspect, and not the central tenet, of the research.

The policy, legislative, and political changes that Scotland is experiencing could affect the structures of governance over the marine environment, and additionally could influence drivers for current and future marine development. Political changes are also concurrent with major shifts in public opinion, as concerns regarding environmental, sovereign, and human rights are increasingly foregrounded (Etemire, 2018). Consequently, the current era of uncertainty has provided a unique opportunity for the discussion of enclosure at sea.

1.5 RESEARCH DESIGN

The thesis is an interdisciplinary investigation, employing a historical institutional perspective as a conceptual lens through which to analyse enclosure at sea. Historical institutionalism (HI), as a branch of new institutionalism, has been used widely for studying natural resource governance, because there are often few well-defined property rights and the resulting institutional design is '*specifically complex*' (Caballero-Miguez *et al.*, 2014, p. 465). There has been a growing tradition of applying HI to the study of change within property rights (Parker and Amati, 2009), as well as in understanding markets (Farrell and Newman, 2010), planning (Moroni, 2010; Sorensen, 2015), and natural resource management (Ryder and Hall, 2017).

HI allows for an analysis of state and market agents and their actions, and can help understand competing interests, as well as power relations, within institutional regimes (Steinmo *et al.*, 1992). Furthermore, HI permits an understanding of how institutional changes can shape behaviours in individuals (Webster, 2007). The theory relies on studying human actors, and how the economic incentives that institutions embody can shape those actors' behaviours (Hanna, 1998). HI can provide a deeper analysis of the relations between a large range of actors, and provide an account of the consequences of institutional change (Lowndes and Roberts, 2013). HI also emphasises the importance of history, focussing on tracing the processes and behaviours that have led to the formation of institutions such as property rights.

Yet, HI is underutilised for studying the marine environment. In novel approaches, Van Tatenhove (2013) employs HI to explore the complex institutional arrangements for governing Europe's regional seas. Furthermore, de Morais *et al.* (2015) highlight HI's use for discussing the development of marine conservation areas, focussing on how tensions between existing institutions can impact the effectiveness of conservation goals. To contribute to HI research, the thesis aims to understand marine enclosure by examining the changing nature of property rights institutions, competing interests, and power relations in Scotland's seas.

An initial case study is provided as a 'baseline' with which to compare the marine enclosure case studies. The baseline case study (case study 1) focusses on the historical enclosure of rural land in Scotland, and modern land reform, examining what has, and has not, been successful in the institutional redesign. Two marine case studies then follow; case study 2 discusses fisheries management, and case study 3 focusses on marine planning. Crucially, whilst the two marine case studies are investigated individually, they inform and influence each other. In the hopes of providing a path to good governance, marine governance within Europe has transitioned to integrating sectoral policies (Boyes and Elliott, 2014). As fishing is a significant anthropogenic pressure on the UK's seas (Eastwood *et al.*, 2007; Stelzenmüller *et al.*, 2008), MSP should work towards the integration of fisheries management within its objectives. However, some goals of integrative marine management could also be viewed as contradictory; for example, guaranteeing sustainable fishing practices through RBM may conflict with enclosed conservation areas (Bess and Rallapudi, 2007). Subsequently, the management of fisheries cannot be considered in isolation of marine planning. The thesis therefore ends with a cohesive discussion on enclosure in Scotland's marine resources, and the shared opportunities that exist for the future of their governance.

1.6 THESIS STRUCTURE

This introduction has set out the research context, identified the research gap, and established objectives and questions. Chapter 2 will establish the methodology used in the

investigation. The chapter begins by exploring the use of HI as a flexible conceptual lens with which to inform both the literature review and the empirical analysis within the case studies. Following this, the practical methods utilised for the case studies are discussed, justifying their ability to answer the research questions. The chapter then discusses the role of reflexivity within this study, and any ethical concerns.

A review is then undertaken to refine research ideas. Chapter 3 establishes a conceptual framework of property rights within natural resources. It does so by applying an HI lens to clarify definitional issues, and critically discussing prevalent literature within this field. The chapter goes on to discuss the regimes of property arising within natural resources, before examining how and why property rights institutions change. Key literature which drives the examination is foregrounded, highlighting the analytical criteria which can provide structure to the analysis within the case studies.

Chapter 4 examines the history of institutions in ocean governance. The chapter builds upon the conceptual framework introduced within Chapter 3, by examining the roles of power and history within institutions in marine governance. The chapter discusses the prevalent approaches for understanding institutions within the marine environment by focussing on the historical transition of enclosure in the oceans. The conceptual basis established in Chapters 3 and 4 can then be applied to understanding enclosure in the three case studies chosen.

In Chapter 5, case study 1 is introduced as a baseline study, discussing the historical enclosure of Scotland's rural lands. The discussion examines the motivations behind institutional change, the redistribution of rights, the actors involved in those changes, and the socio-economic consequences of the redistribution. Finally, the case study examines the institutional reform process that has attempted to provide equitability and fairness to landownership by rebalancing power.

Chapter 6 presents the results of case study 2, focussing on the enclosure of Scottish fisheries resources. The case study is split into two parts. The first part discusses the

supranational, national and regional property rights institutions in place managing Scotland's fisheries. The part identifies the historical pathways for the current management system, exploring the drivers behind the processes of institutional change that have led to enclosure. The socio-economic consequences of enclosure are then discussed, leading to an exploration of opportunities for rectifying these consequences. The discussion of the history of enclosure and its consequences then provides the basis for the second part, analysing the perceptions of stakeholders towards the redistributing of rights within the fishing industry. The perceptions analysis is undertaken using Q-methodology, allowing for a range of views to emerge from the participating stakeholders.

Chapter 7 discusses the findings of case study 3, which evaluates the process of enclosure occurring via marine spatial planning and zoning in Scotland. The case study follows a similar pattern to the fisheries study, with the first half identifying the context for marine spatial planning in Scotland, and the drivers behind both marine planning and the development of specific spatially-determined marine industries and uses. Socio-economic consequences and opportunities are then identified and discussed. The second half analyses the perceptions of stakeholders in industries who are enclosing areas of sea, or whose rights are being redistributed, again using Q-methodology. The analysis assesses the level of knowledge and understanding of marine enclosure amongst stakeholders, as well as their conceptions of fairness in the process, and their priorities for the future.

Chapter 8 presents a comparative discussion of the results found within this project, using a typology to set out a spectrum of awareness on the different enclosures. The typology uses the three case studies of land reform, fisheries, and MSP. Using analytical questions, the typology discusses the empirical results of the case studies, and compares these results. The comparison allows for patterns to emerge within the case studies, which can be used to explore recommendations for marine governance. The chapter also uses the synthesis of findings to construct a conceptualisation of ownership at sea, illustrating the different forms of property rights expressed by participants in the research.

Chapter 9 discusses the contribution of the thesis to the literature, as a novel study on marine enclosure in Scotland. The chapter also explores the limitations of the research that provide scope for future examinations into rights at sea. The final section permits a reflection on the research journey, incorporating some insights from my experiences in studying property rights and enclosure.

2 METHODOLOGY AND ETHICS

2.1 INTRODUCTION

This chapter outlines the methodology employed within the thesis, which is a theory-driven process beginning with a discussion of HI. Section 2.2 outlines the motivation for choosing HI, and how it will be applied through the thesis to provide structure for understanding enclosure. Following this, the methods for identifying rights (section 2.3) and perceptions (section 2.4) are explained, giving justification for the methods chosen. Section 2.5 discusses the use of an explanatory typology in the final discussion, as a useful tool for comparing the empirical work in the case studies. Section 2.6 is dedicated to the reflexivity innate within the thesis, before section 2.7 details the ethical concerns of the project.

2.2 CONCEPTUAL LENS

Although this research is placed at the nexus of legal, political, and social studies in an interdisciplinary format, understanding enclosure requires a framework to tease out the critical aspects. HI provides such a framework, with the theory implemented to investigate human behaviour, and the ‘institutions’ or rules which govern these behaviours (Steinmo *et al.*, 1992). The central tenet of both ‘old’ and ‘new’ institutionalism as a social theory is that ‘*institutions matter*’ (Williamson, 2000, p. 595). The evolution of institutionalism from old to new is often attributed to the work of economists such as Williamson (1985) and North (1990, 1994), who developed and built upon the concepts of the ‘old’ theory to ask new questions, specifically ‘*why economic institutions emerged the way they did*’ (Arrow, 1987, p. 734). The application of new institutionalism has its origins in a number of disciplines, and as such the theory is increasingly considered as multiple schools of thought. Different overviews of new institutionalism provide different analyses of its branches (for example, Peters (2012) distinguished seven branches, whereas Lowndes and Roberts (2013) identified nine). A widely accepted model is Hall and Taylor’s (1996) three schools, namely sociological

institutionalism, rational choice institutionalism, and HI, used here. Each branch utilises different definitions, relies upon different central concepts, and conceptualises different roles of actors.

Broadly, sociological institutionalism has its origins within sociology and organization theory, and emphasises the role of cultural practices and symbols for informing institutional design and formation (Froger and Meral, 2012). Rational choice institutionalism, which is heavily influenced by new institutional economics and transaction costs, focuses on the transition of institutions towards an *equilibrium* for the social and economic goals of rational actors (Peters, 2012). Finally, as introduced in section 1.5, HI has roots within political and social science disciplines, and attests that institutional change occurs in response to political influences. Steinmo *et al.* (1992), who coined the term HI, were instrumental in constructing the analytical tools of HI. Crucially, they distinguish the ‘*core difference*’ between HI and previous iterations of institutionalism as ‘*the question of preference formation*’ (Steinmo *et al.*, 1992, p. 9). Consequently, HI places increased emphasis on the role of institutions as a function of political preferences, rather than rational choice.

Whilst some have utilised the branches under an umbrella term (Hall and Taylor, 1996; Lowndes and Roberts, 2013), others contend that combining these branches is futile (Healey, 2006; Sorensen, 2017). This research considers these three branches of institutionalism set out by Hall and Taylor (1996) as distinctive, thus warranting the choice of one. Consequently, HI appears to be the most appropriate. The motivation for applying HI is rooted in its emphasis on three main concepts. Firstly, the theory emphasises the use of path dependency to understand the journey of institutional change. Although not unique to HI, path dependency has been a particularly important concept in institutionalism. Path dependency relates to the notion that choices made by actors will have a significant impact on the choices perceived as available later on, or ‘*once actors have ventured far down a particular path, they are likely to find it very difficult to reverse course*’ (Skocpol and Pearson, 2002, p. 699). Secondly, HI highlights the role of power and its contribution to distributional conflicts (Froger and Meral,

2012). For HI advocates, institutions can have significant impacts on individuals and so powerful actors have an incentive to shape and establish different institutions (Steinmo *et al.*, 1992). Both of these concepts will be discussed further in Chapter 3, which focuses on HI as a lens for understanding property rights and institutional change.

Lastly, given its emphasis on historical and political influences, HI works well within a comparative model of cases (Thelen, 1999). Rational choice institutionalists have been critical of the theoretical contribution that HI has had, arguing that HI can sometimes consist of ‘*merely telling stories*’ (Thelen, 1999, p. 372). Thelen (*ibid.*, p.372) dismisses this critique, arguing that HI is effective for ‘*generating hypotheses that are then brought to bear on empirical phenomena*’, particularly when employed within a comparative model. Thus, HI is appropriate for a comparative case study approach, as used in this research.

The use of case studies transcends purely descriptive studies, instead permitting an analysis of individual junctures in changing rights frameworks (Yin, 2013). Each case study borrows HI as a conceptual lens to drive the multi-method process. The theory’s use here will thus call attention to the political processes at play in Scottish marine governance. Using critical aspects of HI provides structure to the data, so as to adequately explore the journey of enclosure within each case study.

Figure 2 demonstrates the timeline of the methodology, and highlights the use of reflexivity following observations made from the case studies. Additionally, it demonstrates the position of Brexit within the research agenda; the Brexit vote came following initial planning and review stages but prior to data collection. Hence, some critical reflection was needed to ensure that the questions being asked were still applicable.

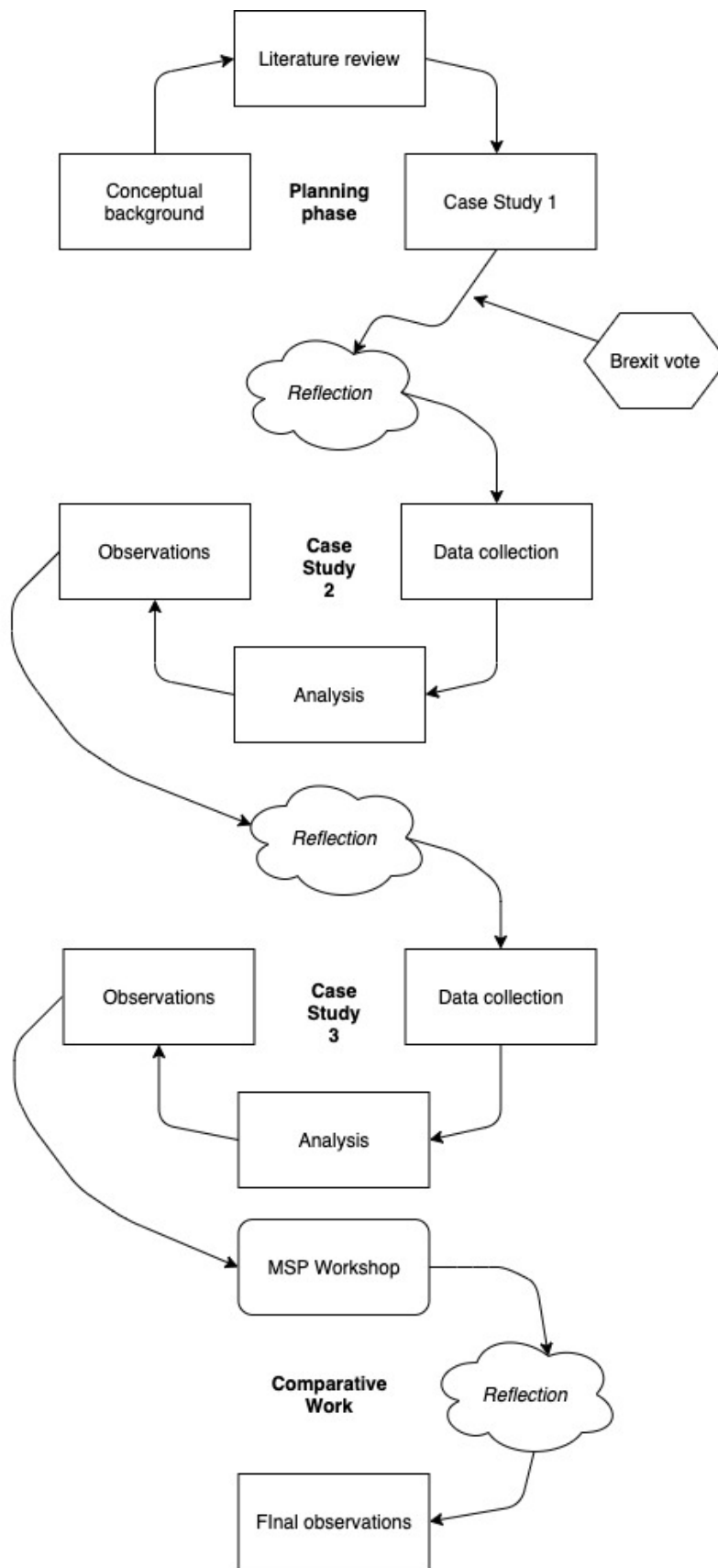


Figure 2: Reflexive timeline of research

2.3 IDENTIFICATION OF CHANGING RIGHTS: LITERATURE REVIEW AND INTERVIEWS

Property rights and ownership in Scotland's seas are a relatively novel research area. Therefore, the first half of the research focuses on answering the following questions to establish a basis of knowledge:

1. In the context of each case study, what are the political and institutional drivers behind changing property rights in the ocean?
2. What are the potential and perceived socio-economic consequences of these changes?

To do so, methods were employed to uncover which and whose rights were changing, the drivers for the changes, and the socio-economic consequences.

Within each case study, this examination was done by gathering data using different techniques in an example of methodological triangulation. Triangulation refers to using multiple approaches for providing an '*alternative to validation which increases scope, depth and consistency*' in research (Flick, 2002, p. 227). It is important that, in using methodological triangulation, the results are appropriately mixed. Ideally, the research must '*take care to negotiate back and forth... rather than dichotomising their values and methods*' (Lingard *et al.*, 2008, p. 461). As such, an embedded approach was used, so that the data collected by one method can support the other.

The research was weighted towards the gathering of information through literature, legislative and policy review to extract specific details of policies and rights. Fundamental sources included documentation from the Scottish Government, Crown Estate Scotland, the UK Government, developers, and think tanks. This policy and literature review looked particularly into the role of property rights in management regimes at sea, and the roles of power and fairness within such regimes.

As emerging areas of research, there is relatively little research into understandings of property and enclosure at sea, where social assumptions are very different to those that exist on land. Thus, semi-structured interviews permitted the collection of data not readily available in the literature. The benefits of using such a design are two-fold; it is simple, with stages clearly explicated, and allows for easy interpretation of results. Semi-structured interviews are useful as they benefit from being structured enough to tackle specific matters, but '*leaving space*' for the interviewees to introduce new information not previously considered (Galletta, 2013, p. 24). Consequently, the interviews conducted here allowed for causal relationships to appear and added context to the information found from the document analysis, giving greater texture to the social phenomena.

These interviews were conducted either in person or over the phone, and could last between 1 and 3 hours. If given permission (see section 2.7 on ethical concerns), the interviews were recorded using a recording application on a mobile phone and then transcribed by the researcher. Interviews took place across Scotland but were predominantly concentrated in three loci with strong representation in marine industries. These were the Orkney Islands, Aberdeen, and Edinburgh (see Figure 1). These coastal locations have high employment in the marine uses that feature in this study. Furthermore, the locations cover a wide range of socio-economic and political circumstances, providing a diverse cross-section of actors in the marine sector.

Interviews were preceded by a search for participants, who were initially identified using purposive sampling. Purposive sampling, also termed nonprobability sampling, intentionally selects specific entities, as opposed to choosing participants at random. This technique is usually employed to sample a representative proportion of a population or community (Lavrakas, 2008). Subsequently, participants were recruited using snowball sampling. Snowball sampling is the method for gathering subjects using initial participants as the link to future individuals who they believe may be valuable to the project (Atkinson and Flint, 2004). A 'snowball' effect then occurs, as the range of contacts grows when more participants

become visible to the researcher through previous contacts. This method is often vital for recruiting participants that may not otherwise be known to the researcher.

Table 2 shows the number of these initial semi-structured interviews which took place to inform case studies 2 and 3, along with the stakeholder categories they represented.

Table 2: Summary of initial interviews for case studies 2 and 3

Case study 2: Fisheries		Case study 3: Marine spatial planning	
Number of Interviews	Categories	Number of Interviews	Categories
10	Local authorities, national authorities, fishers, community bodies	5	Local authorities, national authorities, specific marine industries, community body

DATA ANALYSIS

All documents, literature, and transcribed interviews were input in NVivo 12, a qualitative research software for thematic analysis. Using an open-coding system driven by an HI lens, key concepts were extracted, which allowed for relational comparisons between interviews, legislation, policy, and academic literature. Open coding ‘opens’ the data up to examine its parts and find relations within them. The practice involves reading transcripts of literature, documents, and interviews, and labelling recurrent words, phrases and themes, whilst maintaining a flexible adherence to HI. Labelling is done until redundancy sets in, i.e. when no new concepts emerge from the data. The constructed codes and their patterns can then help previously unexplored phenomena to emerge. The codes that emerged through the coding practice allowed various key issues to emerge from the case studies. These issues provide a better view of the complexity of rights, relations between actors, and drivers of enclosure in each case study. The issues also informed the methodology for identifying perceptions, as described below.

2.4 IDENTIFICATION OF PERCEPTIONS: Q METHODOLOGY

The second half of the research focuses on stakeholders' perceptions of the changing rights identified in the first half, specifically:

3. What are the perceptions of stakeholders to changing rights in their seas?
4. What is the role of 'fairness' in these processes?

Perceptions toward complex issues are often difficult to map, especially given a lack of knowledge and vague definitions. Perceptions can be influenced by so many factors that making broad generalisations is often restrictive and unrepresentative. As detailed in the introduction, there has been little research centring on the perceptions of privatisation, marketisation, and enclosure at sea. Attempting to answer a problem such as the future of property rights at sea, in which concerns, values, and knowledge are not currently well established, requires a method that can cope with the unstructured nature of the discourse and help identify the '*plurality of problem definitions*' (Cuppen *et al.*, 2016, p. 1350). Entirely qualitative approaches to research are important for discovering subtleties in subjects' perceptions and understandings within their ontologies. However, they can also be highly interpretive, and risk excluding details to fit into a perceived narrative. On the other hand, quantitative methods traditionally arrange viewpoints across certain demographics, often ignoring more complex variables that could be highly influential.

Q-methodology, created by Stephenson (1935), combines the strengths of both qualitative and quantitative research traditions. Q-methodology, hereby known as 'Q', forgoes the usual predetermined categories of analysis, which are often based on stereotypes or assumptions. Instead, Q allows subjective perceptions to emerge without *a priori* categorisation, drawing out people's innate viewpoints on issues by mapping subjectivities.

The point of Q is also not to generalize the whole population's opinions. Rather, Q helps group those of similar opinions to give a range of perspectives from knowledgeable

stakeholders. Grouping permits a systematic structuring of viewpoints (McKeown and Thomas, 2013). In traditional methods for factor analysis, finding patterns across variables meant situating the participants of the study as the ‘subjects’ and the questions asked as the ‘variables’. However, in Q, this process is upturned. The set of questions becomes the subject, and each participant’s viewpoint (or Q-sort) becomes the variable. Patterns across the variables are actually patterns across subjective viewpoints.

The use of Q in this research was tactical, because recruiting participants in small communities can prove difficult. Q is able to use smaller sets of participants than other methods. Using fewer participants can reduce time and effort whilst garnering significant results, and is effective for topics, such as rights, which may be evocative or controversial. There is dedicated software for Q analysis, along with several web-based interfaces for applying Q online. Online applications reduces effort for both participants and researchers when face-to-face interviews prove difficult to facilitate. Q also maintains a degree of objectivity for the researcher, distancing them from the subject matter and limiting the researcher’s own subjectivity in the interviews. Distancing relinquishes ‘power’ to participants, allowing them to have the freedom to talk through the issues.

There are criticisms of Q’s reliability and validity (Watts and Stenner, 2012). If repeated by the same participants, Q may not yield the same results, although there is ‘*no expectation that an individual will express the same views on two separate occasions*’ (Cross, 2005, p. 211). The use of different data gathering techniques with the same individuals may provide greater validity of the results. Additionally, as Q is used to extract viewpoints from a deliberately non-random population, the results cannot be directly extrapolated to represent a wider population. Consequently, further studies could be carried out that explores the prevalence of perceptions (Danielson, 2009; Zabala *et al.*, 2018).

Q is used in many disciplines, including environmental studies (Eden *et al.*, 2005). Recent examples of its use include mapping perceptions of energy policies (Ellis *et al.*, 2007; Cuppen

et al., 2010), sustainability discourses (Barry and Proops, 1999; Curry *et al.*, 2013), and ecosystem services (Pike *et al.*, 2015; Hermelingmeier and Nicholas, 2017). Q is particularly useful for this research because the results will represent common narratives within groups, which can be useful in studying behaviours. As discussed in the introduction, perceptions can influence behaviours, and in turn behaviours drive both institutional change and subsequent effectiveness. Identifying the perceptions of stakeholders will help understand what they wish for the future, giving unique insights for policy making.

Q METHODOLOGY PROCESS

Q was used twice within this research for case studies 2 and 3.⁷ The following sections elaborate on how the method was applied, clarifying the steps summarized in Figure 3.

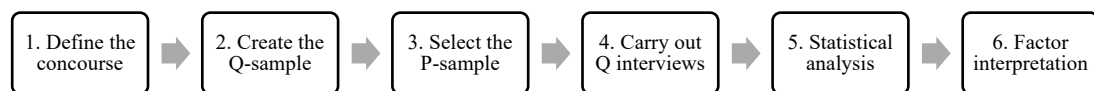


Figure 3: Q-methodology process⁸

DEFINITION OF THE CONCOURSE

Q begins with defining the concourse, or the ‘*flow of communicability*’ surrounding the topic (Brown, 1993, p. 94). This process allows for the construction of a list of statements, used later in the method. There are several methods for exploring the key concepts and themes within a topic, including interviews, literature review, and media analysis. In this investigation, concepts and themes were taken from the extensive document and literature review and interviews which were undertaken for first halves of the case studies. As discussed

⁷ No interviews were completed for case study 1, which acts as a baseline study for understanding transitions in Scottish property rights.

⁸ Source: Adapted from Brown (1993)

in the previous section, thematic analysis was conducted on the results of the literature review and the interviews using dedicated coding software NVivo.

The concourse can then be refined to construct a list of meaningful statements, known as the Q-sample, typically consisting of between 20 and 60 statements (Webler *et al.*, 2009). Refinement was done using a semi-structured approach with an aim to have approximately equal number of statements for each of the identified themes. The distribution of statements helps to capture as much diversity and uniqueness in the concourse whilst staying true to the results from the thematic analysis. It could be argued that the researcher selecting statements for use within the studies would indicate bias within the concourse. Researcher bias was limited through the use of pilot studies with participants, who can provide feedback on the concourse. In both Q studies, the Q-sample was beta-tested by two different participants for each application, who gave vital feedback and suggestions for rewording, replacement or removal of statements.

SELECTION OF P-SAMPLE

The P-sample is made up of respondents that represent a range of stakeholders and provide a '*breadth of perspectives*' (Brown, 1980, p. 260). The number of respondents in the P-sample can be significantly lower than in traditional methods whilst still achieving significant results. Brown (1980) states that between twenty and forty participants are generally used for Q studies; other studies have used as few as twelve individuals (Barry and Proops, 1999). One general rule states that Q should use a ratio of participants to statements of between 1:3 and 1:2 (Webler *et al.*, 2009). Another general criterion appears to be that for each factor, there should be at least two Q-sorts '*loading*' significantly upon it i.e. the extent to which each Q-sort correlates with others in the factor (Watts and Stenner, 2005, p. 81). Prior to analyses, it will not be known how many Q-sorts will load onto each factor or even the number of factors that will emerge. Practically, the number of individuals in the P-sample is unimportant; more vital is that the participants will have '*well-formed opinions*', thus must be knowledgeable, experienced and have a stake in the questions being asked (Webler *et al.*, 2009, p. 9).

The selection of the P-samples was undertaken in a similar fashion to the initial semi-structured interviews. Individuals who had partaken in the semi-structured interviews were invited back to complete the Q study; these individuals were also asked to provide names of potential participants in a snowball sampling model. Case study 2 had a P sample of fourteen and case study 3 had a P sample of twenty-three. Table 3 summarises the interviewees for each case study, along with which stakeholder category they belonged to.

Table 3: Summary of P sample for case studies 2 and 3

Case study 2: Fisheries		Case study 3: Marine Spatial Planning	
Category	No. of interviews	Category	No. of interviews
Local authority	1	National authorities	2
Fishers association	3	Local authorities	3
Producer Organisation (PO)	2	Environmental Non-Governmental Organisation (ENGO)	3
Sector fishers	3	Marine Renewable Energies (MRE)	3
Inshore fishers	2	Aquaculture	3
Inshore representative	1	Fishing	3
Processors, marketers, agents	2	Engagement body	2
Total	14	Recreational user representative	1
		External knowledge provider (EKP)	3
		Total	23

“External knowledge providers” (EKPs) are those working in academic/legal fields that present high levels of knowledge but may not have an economic stake in the situation. Given that stakeholders should represent any ‘*group or individual that has an interest in the exploitation... of the resource*’, it was important that their views were included in the Q study for case study 3, particularly as marine enclosure is a subject with relatively little understanding at present (Delaney *et al.*, 2007, p. 804).

Within the marine case studies, there are evident gaps in stakeholders. Prior to beginning the Q study for case study 2, it became obvious that national authorities were unwilling to participate. This unwillingness may have been symptomatic of the time. Fisheries were a contested issue, resulting in authorities being unwilling to provide clear opinions. However, contacted organisations were forthcoming in recommending local representative groups. Within case study 3, recreational users of the sea were underrepresented. Q participants are chosen because the researcher believes they have '*something interesting to say*' (Webler *et al.*, 2009, p. 10), and so will require enough knowledge of the subject to take part. The reluctance of recreational stakeholders to represent their industry was often expressed as a discomfort in being termed 'knowledgeable'; many contacted individuals, particularly from less organised groups, claimed they did not feel knowledgeable enough to participate.

Given the relatively narrow field, the P-samples arguably reflect a source of bias. Without representation, there is little chance for all possible perceptions to emerge, which is understood as a weakness of Q in general (Burns and Cheng, 2007; Zabala *et al.*, 2018). Whilst there is a recognisable gap, this was mostly overcome by ensuring that missing stakeholders could have their views, as expressed in initial interviews, included in the sample statements. Additionally, many participants within both case studies were the head of representative groups, speaking on behalf of their members or affiliates. These participants, such as the engagement bodies, routinely represented numerous stakeholders that are otherwise unorganised. These participants would therefore provide a mouthpiece for a wider range of individuals. The use of a few diverse organisations, rather than many similar-thinking individuals, is in keeping with Dryzek and Berejikian (1993, p. 52), who suggest that '*adding individuals to a study does not yield any new information unless the extra individuals are truly different.*' However, further research, including a wider population and utilising triangulating methods, would be arguably beneficial.

Q-INTERVIEWS

Q-interviews were completed face-to-face, using physical cards, or over video conferencing and using a software, QSortware, which replicates the cards. Respondents were asked to rank the series of statements within a normally distributed range (see Figure 4 for an example of the Q-sort matrix).

Strongly disagree			Neutral			Strongly agree		
-4	-3	-2	-1	0	+1	+2	+3	+4

Figure 4: Example of the Q-sort matrix

The number of columns and boxes are dependent on the number of statements within the sample. Although forced distribution appears restrictive, Brown (1980) demonstrates that the forcing of rankings has little statistical influence on the outcomes; in part, this will be due to the contextual discussions given by participants. As such, the viewpoints that emerge from the analysis will adequately represent the population sampled.

During the Q-interview, participants were encouraged to talk through their decisions, and the interview was recorded with the participant's consent. The Q-interviews were transcribed, and participants were sent a copy of the transcript should they wish it, with the option to retract anything they did not want to be included. The transcription could then be used to provide context for decisions made during the interview. Within interviews, meanings and inferences of the statements are not given by the researcher but rather interpreted by the participants. This

helps increase objectivity, by not imparting the researcher's subjectivity onto the sorting, and statements may be interpreted differently by interviewees.

STATISTICAL ANALYSIS

The penultimate step is to statistically analyse the Q-sorts. Analysis is done via dedicated software PQMethod (Schmolck and Atkinson, 2002). Each Q-sort is inputted into the software, using the rankings values (dependent on the scale, e.g. -4 to +4). Then, the information held within the complete matrix of all Q-sorts in the set can be condensed so that resemblances can be found. The Q-sorts which positively correlate with each other are clustered into factors. This analysis is performed by Principal Components Analysis (PCA). Despite suggestions that centroid factor analysis is preferred for Q, Schonemann (1990) contends that there is little difference between the two extraction methods.

PCA extracts unrotated factors that hold similar properties and allows for identification of factors which should be kept for rotation and final analysis.⁹ PCA produces eigenvalues and the percentage of explained variance in unrotated factors, which in turn can be used to identify how many factors will be kept for rotation. To satisfy the Kaiser-Guttman¹⁰ criterion, only factors with an eigenvalue in excess of 1.00 should ideally be considered for rotation, as this would indicate that a factor explains more variance than a single Q-sort would. However, not all factors with eigenvalues over 1.00 need be included in the factor analysis (McKeown and Thomas, 2013). Thus, other criteria must be employed. Factors chosen should demonstrate as much variance as possible, which would ideally be a combined variance of over forty percent (Watts and Stenner, 2005). Additionally, each factor should ideally have at least two Q-sorts that load significantly upon it. Significance is measured by the significant factor loading (SFL) at the 0.01 level, when the $SFL = 2.58(1/\sqrt{\text{number of statements}})$ (Watts and Stenner, 2012). Q sorts which straddle two or more factors are known as confounders. Watts & Stenner (2005)

⁹ Ultimately, the number of factors chosen is up to the researcher. The presence of choice reduces the objectivity of the method, but this is consistent with any factor analysis.

¹⁰ Sometimes known as Guttman-Kaiser, other times just as the Kaiser criterion.

warn that confounding should be kept to a minimum, as confounders' views are often lost in the interpretation of factors.

Once the number of unrotated factors is chosen for analysis, they undergo rotation to maximise the variance within the factors. PQMethod uses Variamax rotation for automated rotation, as opposed to hand rotation which can be influenced by *a priori* meanings. PQMethod, using an add-on application called PQROT, can then automatically flag which Q-sorts load significantly onto which extracted factors, using the SFL equation above. The number of factors for each case study, along with their respective variances and SFLs, will be depicted in the case studies in Chapters 6 and 7.

Finally, these factors can be interpreted by identifying statistically distinguishable statements in each factor and critically employing the explanations given by the respondents during the sorts. This process provides an understanding of the perceptions held by each factor. Distinguishable statements are identified using z-scores, a measure of how much each factor prioritises a statement compared to the others within the sample. The higher the z-score, the more the factor agrees with the statement. Z-scores are calculated using equation $Z = \frac{T - X_r}{S_r}$, where X_r = mean, S_r = standard deviation of the Q sort, and T = each Q sort total. Each z-score can then be converted to its factor score equivalent (i.e. -4 to +4), which will give a hypothetical sort representing 100% loading.

2.5 EXPLANATORY TYPOLOGY

The final research question is:

5. How can these examples of enclosure be used to prevent 'unfairness'?

To answer this, the case studies were used to help construct a final explanatory typology of enclosure, which can be used to hypothesise on other enclosure processes as well as identify lessons from reformed examples of enclosure and privatisation. The results of this can be found in Chapter 8.

Explanatory typologies have been used for comparative works such as those that comprise historical analysis (Steinmo *et al.*, 1992; Thelen, 2003). Consequently, this comparative method fits well within a research agenda using an HI perspective. A typology helps understand a phenomenon by evaluating the distinct categories that lie across that phenomenon within a classificatory framework. They can help view the plurality of a concept, such as the different institutional mechanisms, historical contexts, and social actors involved in a process like enclosure. As such, an appropriately developed typology could be viewed as developing a theory in itself (Doty and Glick, 1994).

Criticism of using typologies appear to be two-fold. Firstly, that typologies lack the rigour of quantitative techniques such as factor analysis (although not done in this research, explanatory typologies can also go on to inform quantitative studies). Secondly, that typologies lack the detail of the '*microprocesses*' of cases, instead focussing on the larger, and perhaps more obvious, relationships (Møller and Skaaning, 2017, p. 1019). Despite these criticisms, typologies are well established in environmental sociology, being used to map concepts such as sustainability (Dobson, 1996), management issues (Margerum, 2008), and green/blue industry behaviours (Kerr *et al.*, 2017).

Borrowing from Dobson (1996, p. 403), the explanatory typology used in Chapter 8 utilises questions to create a '*map with which to find one's way around the territory*'. Six questions were identified to illustrate the plurality of enclosure processes in natural resources, summarising their explanatory variables such as drivers, actors, and socio-economic consequences (see Table 21). The identification of these questions was understandably contingent on undertaking some prior analysis of the issue, in a 'chicken and egg' scenario. Nevertheless, the typology is advantageous for exploring the myriad variables of enclosure, with its ability to perform both 'cross-case' and 'within-case' analyses being particularly beneficial (Møller and Skaaning, 2017).

2.6 REFLEXIVITY AND POSITIONING

Researcher bias has long been viewed as an evil in scientific research because it reduces reliability and validity, affecting the ‘construct’ of reality that the research is trying to approximate (Podsakoff *et al.*, 2012). Certain research methods, usually quantitative in nature, are employed to decrease subjectivity, striving for complete objectivity of researchers who stand ‘outside’ of the subject. However, in this thesis, I wish to embrace reflexivity and subjectivity. The thesis itself is already in part an examination of subjectivity; Q analyses the subjectivity of stakeholders.

Reflexivity is an admission to the inherent bias that all researchers possess, usually as a response to their own experiences. Utilising reflexivity within social research has been praised as a means of moving beyond methods which place researchers as ‘above’ their subjects, or the binary of being an insider/outsider (Dwyer and Buckle, 2009). Whilst I am not an ‘insider’ to the industries or communities within this research, I have previous knowledge and personal ties to those on the ‘inside’. In employing reflexivity, it has allowed me to consistently tack back to my own positionality, helping to understand why I have drawn certain conclusions, as well as helping provide sympathy for the views of participants in controversial matters such as politics.

Most notably, reflexivity was employed towards the end of the research agenda within a workshop setting (see Figure 2). The workshop, held in November 2018, featured marine stakeholders undertaking the MSP Challenge, a tabletop ‘serious game’ simulating real-life marine planning. The event was an opportunity to reflect on the results of the analysis in a real-life setting, asking questions of new and diverse stakeholders to gauge their understandings and knowledge, and compare them with the conclusions drawn from the case studies. The results of the workshop are shared in Chapter 8.

2.7 ETHICAL CONCERNS

As the research focuses on people, there are some ethical implications that needed to be addressed prior to beginning fieldwork. Firstly, some of those who were interviewed came from vulnerable or small communities, or worked in an industry that required confidentiality and discretion. To prevent identification of participants, all have been anonymised within the thesis, and the majority of identifying details have been omitted. However, their stakeholder category was included, as well as occasional details whose omission would render the results unusable through data distortion, e.g. location. This was made clear to all respondents during the interview process, either verbally for the initial interviews, or on an informational sheet given before any interview (see Appendix 3).

Prior to conducting interviews, participants were given the choice to be recorded; if they agreed, they could stop recording at any time during the interview. Participants were also informed they could refuse to answer any question, or go ‘off the record’, i.e. even if the answer was recorded, it would not be used within analysis. Post-interview, the participant was asked if they would like a copy of the transcribed interview, emailed to them once transcribed, which would allow them to retract or amend any answers so as to make their meaning clearer.

Interview transcriptions were kept on a secure computer, and printed copies kept in a locked filing cabinet. Neither was shared with anyone other than my immediate supervisors, as per the information sheets, and the data have not been made available for public consumption. Consent to be involved, and the storage and use of the information collected in interviews, was made verbally in recorded interviews or by reading the information sheet and agreeing to the commencement of the activity (see Appendix 3).

2.8 SUMMARY

To provide an adequate overview of the changing nature of rights in Scotland’s seas, a case study approach was decided upon. Three case studies were selected, with rural land

enclosure providing a baseline study. The other two, consisting of fisheries management and MSP, are empirical studies on marine enclosure. Within the case studies, it was necessary to use a range of methods for data collection and analysis to answer the questions identified in the introduction. The methods chosen provide an appropriate and effective way to gather data on complex processes, and include semi-structured interviews, literature and policy review, and Q-methodology. These methods, particularly Q, are novel in their use here, and so should provide unique insights into marine enclosure.

This chapter also justified the use of HI as a conceptual lens. The following two chapters demonstrate the theory's use by establishing a conceptual framework of property rights and enclosure in natural resources, and in marine governance. Thus, by identifying the prevailing themes within the literature on property rights (in Chapter 3), and marine governance (in Chapter 4), the conceptual framework can inform the interpretation of the case study findings in Chapters 5, 6, and 7.

3 PROPERTY RIGHTS AND ENCLOSURE IN NATURAL RESOURCE GOVERNANCE

Property is theft! (Proudhon, 1893)

3.1 INTRODUCTION

Tolstoy (1887, p. 161) once wrote that ‘*the division and safeguarding of property occupies the whole world.*’ To this day, property is just as central in our lives, regarded as essential for both economic and social actions. The rights over property have been enshrined as a human right under the Universal Declaration of Human Rights,¹¹ and is a central aspect of many of the UN’s SDGs, including Target 1.4, ensuring all have equal rights to, amongst other things, ‘*ownership and control over land and other forms of property*’ (UN, 2015).

Prior to the critical works of theorists such as Coase (1960) and Demsetz (1967), economists did not consider property rights as an integral part of economic analysis (Feder and Feeny, 1991). Economists of the 1960s began to describe the absence of well-defined property rights as a contributor to ‘*wasteful*’ resource use (Alston *et al.*, 1996, p. 3). As such, property rights institutions are now acknowledged as having a significant influence on both economic development and resource governance. Yet understandings of property, and the institutions that surround it, are sometimes lacking. When one thinks of property, what is it that immediately comes to mind?

This chapter aims to provide a theoretical framework for the understanding of institutions, property rights and enclosure as used within this thesis. This framework is presented utilising the conceptual lens of HI. In doing so, the chapter explores the functions of property rights as institutions within natural resource governance. To illustrate the dominant literature included

¹¹ ‘*Everyone has the right to own property alone as well as in association with others*’ Art. 17, Universal Declaration of Human Rights, United Nations General Assembly Resolution 217(III) 1948

within this review, and used for analysis throughout the thesis, a literature map has been created, adapted from Cresswell (2013) (Figure 5).

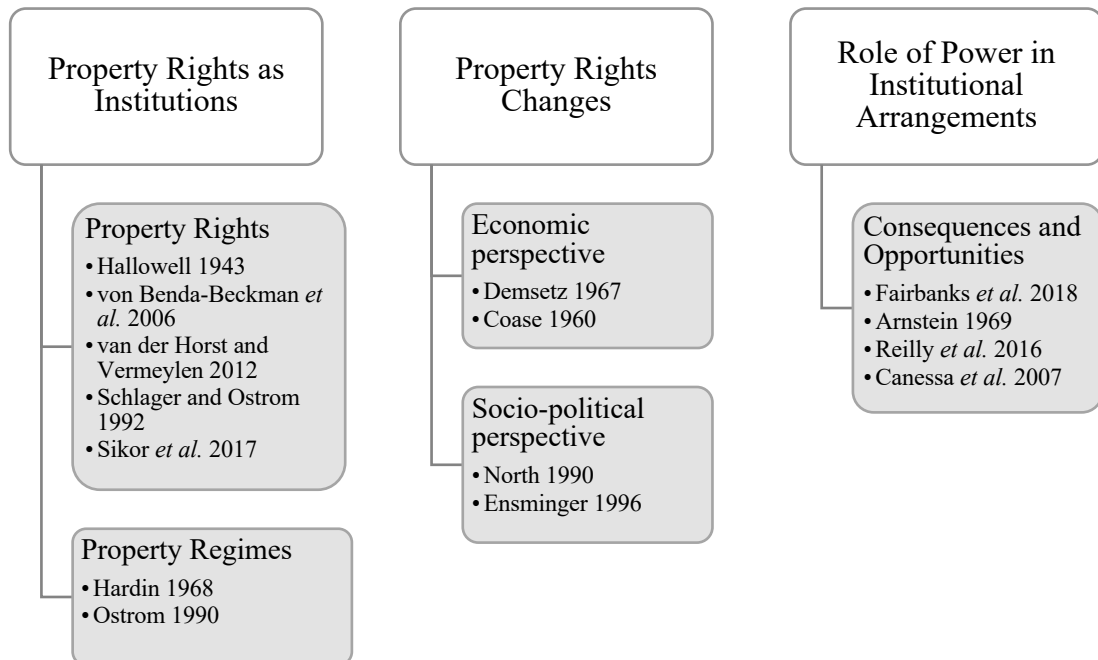


Figure 5: Map of key literature for property rights and enclosure in natural resources

The chapter starts by examining the definitional issues of ‘institutions’, ‘property rights’, and ‘property regimes’, highlighting the prevailing approaches to these definitions within institutionalist literature. Section 3.4 then discusses why and how property rights institutions change, focussing on economic and socio-political models of change. Section 3.5 explores the role of power in the context of property rights, focussing on the consequences of institutional change, where exclusion and distributional conflicts become central issues, and the opportunities for addressing these consequences through institutional capacity building and empowerment.

3.2 PROPERTY RIGHTS INSTITUTIONS

The problems of defining property rights have been explicated by non-legal scholars, including Bromley (1992, p. 2), who condemned previous attempts as the product of writers who *'failed to understand the concept of property'*. Consequently, it has become increasingly useful to conceptualise property rights through an approach such as HI, which provides structure to a concept that is consistently misinterpreted (Hoffmann, 2013).

In understanding property rights through institutionalism, one must first define 'institution'. HI theorists Streeck and Thelen (2005, p. 9) state that institutions are the *'collectively enforced expectations with respect to the behaviour of specific categories of actors or to the performance of certain activities.'* In other words, institutions can be thought of as the rules to which individuals adhere. This definition has been deemed appropriately narrow for studies such as this thesis, that focus on HI and the evolution of legal and regulatory frameworks (Sorensen, 2015).

This definition also defies the trap of declaring that institutions can only constrain behaviours; Bromley (2006, p. 197) states that institutions should instead be thought of as both *'liberating and restraining individuals'*. This argument views institutions as methods for emancipation, reconciling institutional analysis with democratic society. Another worthwhile addition to this definition is Scott's (1995) understanding of institutions as embodiments of knowledge. Contending that institutions consist of *'cognitive... structures that provide stability'*, this addition recognises knowledge as an essential ingredient of institutions (*ibid.*, p.33). As such, knowledge is an important aspect within this research. In summary, institutions, both formal, such as laws, and informal, such as customs, taboos, and shared norms, are instruments used to regulate social and political processes. Thought as such, property rights are an important subset of institutions.

How property rights are defined is also dependent on which discipline they are viewed through. Within economic theory, property rights are usually regarded as a right to a benefit

stream (Bromley, 1991a). Consequently, property rights, and particularly private property rights, are often viewed as efficient institutions as they incentivise individuals to behave ‘*economically*’ with respect to valuable objects (Neher *et al.*, 1988, p. 1; Challen, 2000). For legal theorists, property rights are usually understood as a set of rules to convey ownership over objects. Viewed as such, property rights are uniquely intertwined with the law, as the state becomes the protector of *de jure* property rights through the enforcement of laws (Pejovich, 1990). Legal scholars and economists predominantly establish property rights as synonymous with material ownership, indicating that property rights are a relation between people and their things.

In a divergent view, Hallowell (1943) situates property rights as social institutions, describing them as a triadic social relationship of the following three variables:

- rights exercised through correlative duties and obligations
- individuals or groups in whom these rights and duties are vested, and those who play the correlative roles
- the objects of social value to which the property rights pertain

Under Hallowell (*ibid.*), the correlation between right and duty is fundamental; a right can only be upheld by the acknowledgement of a non-holder’s corresponding duty. This conceptualisation of property is significant in recognising the social relations between rights holders and non-holders, which has proved critical for other property rights scholars. Bromley (1989, p. 202) for example, states that rights ‘*link not merely a person to an object, but rather a person to an object against other persons*’. Similarly, Hann (1998, p. 5) argues that ‘*property is best seen as directing attention to a vast field of cultural as well as social relations, to the symbolic as well as material contexts within which things are recognised and personal as well as collective identities made*’. Hann’s approach also brings the dimension of embeddedness to the definition of property. Embeddedness originates from Polanyi (1944), whose work provided evidence of how economic activities are entangled in social and cultural relations. Although Polanyi’s theory of embeddedness has been considered limited in its application

(Lie, 1991), the concept of embeddedness has been used widely by institutional scholars (Nee and Ingram, 1998). As such, embeddedness is a key component of institutional frameworks.

From this literature, it is clear that property rights are a complex term to define. Different disciplines will conceptualise and use the term 'property rights' in different ways. Whilst economic and legal disciplines have primarily addressed property as synonymous with ownership of an object, interdisciplinary scholars have established property rights as embedded in economic, cultural and political relations. Consequently, as this research is situated within an interdisciplinary field and uses an HI conceptual lens, identifying property rights as the latter is valid.

BUNDLE OF RIGHTS APPROACH

Building upon this interdisciplinary understanding, institutionalists such as North (1990) have worked on defining rights and duties which emphasise the social relations between holders using the '*bundle of rights*' approach. This approach contends that property rights consist of a variety of different rights, which can highlight the diverse heterogeneity of relations, rights and duties between actors in a complex system (von Benda-Beckmann *et al.*, 2006). The bundle of rights theory has been criticised for its fractioned approach to property. For example, speaking on native and indigenous rights in Australia, Barnett (2000, p. 462) argues that the bundle of rights approach fails to '*adequately explain the phenomenon of proprietary rights*', calling into question the applicability of the theory to convey property relations outside of a western perspective.

However, Von Benda-Beckmann *et al.* (2006) argue that using a bundle of rights approach has advantages for identifying different conceptions of 'ownership' other than private individualised rights. Understanding different conceptions of 'property', 'rights' and 'ownership' helps to distinguish categorical relations, upon which introduced policies are based, and the concrete ownership patterns that occur in reality. Van der Horst and Vermeulen (2012) similarly contend that viewing property rights from outside of a purely legal framework

can help to differentiate between the rights and duties of actors, and the *value* of those rights to individuals. Their work on energy landscapes highlights diverse conceptions of rights, and bring to light an *ideological* property right. This level of property right, they argue, expresses a philosophy or cultural ideal of duties and rights, rather than a formal ownership. For example, the perceived duty of individuals to ‘*do their bit to tackle climate change*’ can be viewed as an expression of ownership over the environment (*ibid.*, p.430).

In summary, although the bundle of rights approach relies on a disintegration of rights, this study considers it a valuable method for viewing the different relations present in institutional arrangements. As such, Table 4 demonstrates the categories of rights frequently discussed in the context of a bundle of rights. The table’s contents is adapted from the works discussed above, as well as two important conceptual schemas by Schlager and Ostrom (1992) and Sikor *et al.* (2017). Schlager and Ostrom (1992) establish an often-cited categorisation of the bundle of rights that includes the rights of access, withdrawal, management, exclusion, and alienation. However, Sikor *et al.* (2017, p. 337) argue that in the nearly two decades since Schlager and Ostrom’s schema, the methods for natural resource governance have ‘*changed dramatically*’. An updated version incorporates the nuances of social actors and the importance of ‘*indirect benefits*’ (*ibid.*, p.338). Indirect benefits for Sikor *et al.* (*ibid.*) include the provision of compensation to communities to mitigate their exclusion. Therefore, this research would argue that indirect benefits are intertwined with the concept of value, as they recognise the value that individuals place on natural resources even in the absence of *de jure* rights. This categorisation of rights is also in keeping with HI advocates who include informal institutions within analyses (Helmke and Levitsky, 2004).

Table 4: Rights which may be included in a ‘bundle of rights’ approach to property¹²

Right	Description
Use rights: <i>The rights to direct benefit and indirect benefit</i>	The right to the direct benefit refers to the right to obtain direct benefits from the resource, i.e. to sell or use the resource. The right to the indirect benefit refers to the ability to gain socially or financially from the resource in an indirect way, such as through using public goods, or through compensation. Adapted from the first tier of ‘operational rights’ under Schlager and Ostrom (1992), which includes the ‘right to access’ and the ‘right to withdraw’, holders of a property right made up with only use rights normally cannot make decisions on the future of the resource.
Control rights: <i>The rights of management, exclusion, and monitoring</i>	The right of management refers to the right to regulate resource use, exclusion determines who can possess use rights, and monitoring refers to the right to monitor how resource use occurs, in association with increased transparency. Co-opted from the ‘collective-choice’ rights in Schlager and Ostrom (1992), control rights can define the extent and authorisation of use rights. Control rights therefore determine the future of the resource.
Authoritative rights: <i>The right of allocation</i>	The right of allocation is used to give control rights to individuals. Authoritative rights allow holders to determine control rights, and refer to the ability to grant control rights to other actors. Predominantly, actors who hold authoritative rights are governments or other state agents such as the Crown Estate.
Public rights: <i>E.g. the right to fish</i>	Public rights are overarching rights of the public, and can include the right to roam or the right to fish. Public rights should be enjoyed by all members of the public, secured by a state’s legislation.
Perceived common rights	Different to public rights, perceived common rights are more likely to be based on a broad ideology rather than a local tradition; these can often be linked to notions of identity, such as the right to bear arms in America, or <i>mare nostrum</i> , the sea belongs to everyone.
Emotional rights/sense of ownership	The ‘weakest’ of property rights, not secured by an authority, still hold a powerful position amongst many who may perceive a sense of ownership over resources. These feelings can be influenced by ideologies and values, such as a feeling of responsibility over the environment.

3.3 PROPERTY RIGHTS REGIMES IN NATURAL RESOURCES

As property rights are often established as measures for efficiency, approaches for understanding property regimes have been similarly preoccupied with the design of effective institutional arrangements for protecting scarce natural resources. Hardin’s (1968) ‘*tragedy of the commons*’ theory has become one of the most influential models for assessing the effectiveness of institutional approaches in natural resources. The ‘*tragedy of the commons*’ took inspiration from Lloyd (1833), who argued that an open-access resource, grazing land

¹² Sources: Adapted from Schlager and Ostrom (1992), Sikor *et al.* (2017), von Benda-Beckmann and von Benda-Beckmann (2006), and van der Horst and Vermeylen (2012)

for cattle, would lead to inevitable overgrazing after individual cattle owners decide to put more than their allotted number of cows on the land. This conclusion of unavoidable overexploitation in open-access resources became the basis of the argument proposed by Hardin (1968). Appropriating from both Lockean and Hobbesian¹³ thinking, Hardin (*ibid.*) offered two stable arrangements that could flourish over the threat of overexploitation: regulation through centralised government, or privatisation. Both advocate enclosure, transforming commonly held resources into private or state-held regimes.

However, Hardin (*ibid.*) also established a persistent misinterpretation of the commons, communal property and open-access regimes. According to Berkes *et al.* (1989, p. 91), the commons are resources that share two traits 1) there is difficulty in creating exclusionary boundaries and 2) there is subtractability, when users are able to ‘*subtract from the welfare of others*’. As such, stating a resource as a commons gives no illusion to the property regime (whether open-access, communal, or otherwise) within which it sits (Barnes, 2009). Furthermore, Hardin’s conclusions have been critiqued by many in the commons discipline, who argue that the work has contributed to communal property management being ignored (Berkes *et al.*, 1989; McCay and Acheson, 1990; Ostrom, 1990). Consequently, communal property, as well as the social ties and values placed upon the commons and communal ownership regimes, should be foregrounded in institutional analysis, to contribute to the growing literature.

Despite these criticisms, property rights in natural resources have been heavily influenced by Hardin’s (1968) model. The organisation of property rights in natural resources are often thought of in terms of ‘regimes’, which are conceived as a way of categorising the variety of property holders and how they exist in relation to each other. Within a Hardinist perspective, these regimes are often represented on a spectrum, with open-access at one end, and either

¹³ Locke was a keen advocate for the right to private property (Henry, 1999). Contrastingly, Hobbes’ *Leviathan* (1651) advocates for the use of a strong centralised government to overcome the ruthless state of nature, or state of perpetual war, inherent in the world prior to civilised society.

state or private property as the ‘goal’ at the other (Dietz *et al.*, 2003). **Error! Reference source not found.** sets out a simple classification of property regimes which has been adapted by numerous institutional theorists, including Bromley (1989) and Feder and Feeny (1991).

Table 5: Taxonomy of property regimes¹⁴

Property-rights regime	Rules within regime
<i>Open access</i>	Where there are no defined group of users or owners, individuals have no specific set of rights with respect to the resource
<i>Common property</i>	Individuals within a group of co-managers/co-owners have exclusive rights to resource
<i>State property</i>	The state/nation has the right to impose access/use rules, and non-owner individuals have a duty to observe them
<i>Private property</i>	Individual owners have exclusive rights to resource, whilst non-owners are excluded from resource

However, Ostrom *et al.* (2002) argue caution should be used with such simplistic systems, arguing that it is unlikely that resources will lie squarely within one of these regimes. Instead, resources can be held in a variety of combinations of these four types, usually as a system of ‘*nested*’ institutions (Ostrom, 1990, p. 50). For example, in a state-owned resource, where the state can control management and alienation of the resource, a common property regime can occur in a group of individuals which holds use rights of the same resource, acquired through a licence or a rent. Thus, whilst a simple categorisation is an effective tool for visualising property regimes, it is important to note that property in resources will be more complex.

OPEN-ACCESS RESOURCES

Open-access resources have been identified as common-pool resources, both man-made and natural, which lie within a regime in which there are no core property rights. The ‘problem’ with natural resources lacking property rights, as argued by Hardin (1968), is a lack of institutions which guide behaviours and responsibility. As such, actors within an open-access regime will act irresponsibly. However, Mansfield (2004) argues that a lack of property rights in an open-access regime does not necessarily constitute a lack of institutions. Rather,

¹⁴ Source: Bromley (1989)

open-access could be viewed as a '*social relation in which different sorts of institutions*' are present (*ibid.*, p. 319). This view challenges assumptions in property rights theory that posit property rights, and in particular private property rights, as more efficient for governing resources. Evaluating different institutional arrangements could thus be key for achieving effective governance without enclosure.

COMMUNAL PROPERTY

Communal property has been heralded as one of the earliest forms of institutionalised property (Ostrom and Hess, 2007). In contrast to the commons, communal property demonstrates exclusivity in rights held by a group of owners. Bromley (1991b, p. 93) states that within a regime of private property held by a group, there is a suggestion that each individual within the group retains '*full autonomy to make decisions*', something that is usually absent within a group of users in a communal property regime. This argument suggests the difference between a communal property regime and private property is a question of the internal decision-making process. Rather than allowing users to make decisions without discussion, a communal property regime will require decisions to be made through debate and compromise to achieve the best outcome for all owners. The success of communal rights regimes within certain resources demonstrates that, in opposition of Hardin (1968), regulation or privatisation are not necessarily the only solutions for efficient resource management (Wilson *et al.*, 2007; Brewer, 2012).

STATE PROPERTY

At present, there are very few examples of completely open commons, where goods are free for all. In part, this is due to the establishment of state property; lands and resources belonging to or governed by the state, who hold exclusivity to resources through their control or authoritative rights. The public is usually allowed to use state property freely, but at the mercy of the state. The state may manage their resources directly or use a proxy agency. Additionally, resources may be leased by the state to individuals, thus creating a nest of institutions in the resource.

Feder and Feeny (1991) also term state property as ‘crown’ property, which is an important facet for understanding property in Scotland. The Crown, as the reigning monarch, retains ownership over Crown properties in Scotland, which include the territorial seabed and over half of the foreshore (the remainder is privately owned) (MacAskill, 2018). These properties are managed by the Crown Estate; the Crown Estate, and its devolution to Scotland, will be discussed further in case study 3.

PRIVATE PROPERTY

Private property is usually understood as a structure where *‘full... rights to possess, use, manage, alienate, transfer and gain income from property are granted to individuals’* (Christman, 1994, p. 15). Consequently, private property rights, according to neoclassical economists, are the most ‘complete’ form of property, and are most amenable to a market society (Webster and Lai, 2003). Following a historical propensity to do so, private property is routinely believed as superior to other forms of property (Ostrom and Hess, 2007). Prior to the 19th century, there was a recognised trend by western jurists to conflate the basic historical concept of property with private ownership (Grossi, 1981). Private property rights continue to be considered a prerequisite for *‘improved economic performance’* and *‘healthy societies’* in a liberal paradigm (Hann, 1998, p. 1). Neoclassical economics, upon which liberal ideology is based, contends that a reliance on private property is founded in its ability to limit externalities, lessen uncertainty, and encourage increased individual responsibility (Demsetz, 1967). This functional approach to property contends that there will be an optimal regime for a resource, and that regime will usually be private property. Consequently, the enclosure of resources, and in particular land, to private individuals has been justified as economic efficiency in action (Pinkerton and Davis, 2015). However, as will now be discussed, this is not necessarily the case, as extraneous factors will affect the development of property rights arrangements.

3.4 WHY DO PROPERTY RIGHTS INSTITUTIONS CHANGE?

Within an institutional perspective, property rights and regimes are dynamic, in that they are subject to change and routinely transition from one form to the next in multi-directional ways (Merrill, 2002; Ostrom *et al.*, 2002). There are multiple approaches for understanding the ways in which property rights emerge and change, particularly within natural resources. From an economic standpoint, the works of Coase (1937, 1960) and Demsetz (1967) focus primarily on the emergence of property rights as spontaneous or even unintentional components that drive efficiency. However, HI theorists are increasingly focussing on the socio-political aspects of property rights development, and the role of actors in intentionally designing new property arrangements.

ECONOMIC PERSPECTIVE

Research analysing property rights as institutions prospered in the 1960s, with researchers such as Coase (1960) and Demsetz (1967) theorising and analysing the economic efficiency of property rights. Often termed the '*property rights school*' (Baland and Platteau, 1998, p. 644), it concentrated on property rights, particularly private property rights, as emerging in systems as methods for economic efficiency. In his seminal work '*The Problem of Social Cost*', Coase (1960) argued that in arrangements with no transaction costs, a Pareto efficiency will occur regardless of the holders of the property right. Pareto efficiency is determined as the state where resources are allocated in the most efficient manner. In other words, bargaining between actors will lead to an efficient outcome as long as costs are zero. However, the application of Coase's theory is dubious, as for voluntary transactions with no costs, the actors must hold perfect information of their own costs and benefits. Webster and Lai (2003, p.103) argue that this is '*an absurdity*'. That is to say, actors within transactions of property rights will nearly always hold unequal information, and therefore unequal power.

Subsequently, Demsetz's (1967) theory of property rights builds upon Coase's work on transaction costs. In his theory, Demsetz argues that property rights are introduced when the

benefits of the change exceed the cost. An external or exogenous shock, such as the scarcity of resources, will compel actors to enforce new and different rules and regimes so that a more efficient system can be reached. Property rights institutions, therefore, emerge to minimise transaction costs. This view is, however, restrictive, as it conjectures that there is an optimal timing for a one-time institutional change. Demsetz's (1967) theory has been referred to as 'naïve', as it suggests that property rights will always be developed to improve efficiency, and that private property cannot fail (Eggertsson, 1990, p. 254). Consequently, this thesis contends that this school of thought, whilst providing essential components for understanding property rights changes, fails to tackle the so-called '*gory details of transition*' (Epstein, 2002, p. S519).

SOCIO-POLITICAL PERSPECTIVE

Recent HI approaches to understanding the 'hows' and 'whys' of institutional change have tended to focus on institutional arrangements as a method of achieving social stability (Streeck and Thelen, 2005; Mahoney and Thelen, 2010). These analyses additionally consider the importance of political and social factors. HI theorists have leaned upon the dimensions of path dependency, embeddedness of institutions, ideologies, distributional conflicts, and bargaining power, as ways to interpret why property rights emerge or are enclosed.

Both North (1990) and Ensminger (1996) are key contributors to investigating the connections between social actors and property rights. North's (1990) framework is a particularly famous example for analysing institutional change. North (*ibid.*, p.27) argues that his theory of institutions is a combination of '*a theory of human behaviour combined with a theory of the costs of transacting*', in a reference to the economic foundations of institutional change. However, North furthers the work of economists by introducing the concept of power into the analysis. North (1990, p. 16) argues that '*institutions are not necessarily or even usually created to be socially efficient; rather they, or at least the formal rules, are created to serve the interests of those with the bargaining power to devise new rules*'. In other words, North's model recognises the unequal power held by actors, which Coase's theory excluded.

Ensminger's (1996) framework for analysing institutional change also foregrounds power, highlighting the effect of ideologies on property rights. She argues that newly established property rights, introduced to bring stability to social relations, can also act as a stabilising agent for dominant ideologies. Ideologies which are marginalised are then often in contention with those that are stabilised, creating tensions which can become another driver for institutional change. Ensminger (*ibid.*) also accepts the concept of bargaining power, contending that asymmetries of power can lead to asymmetries in rights and resource distribution.

Both North and Ensminger's frameworks also utilise the component of path dependency, introduced in section 2.2. North's (1990, p.112) describes the emergence of path dependency as the product of '*increasing return mechanisms*' which reinforce the incumbent arrangements. As such, path dependency will usually reduce the number of alternatives considered by decision makers, who will tend to support the status quo over a potentially risky option. Traditional HI analysis conceived of path dependency as a system of 'locking-in' an institutional arrangement (Mahoney, 2000). According to Mahoney and Thelen (2010), however, irreversible lock-ins of institutions are rare. Rather, path dependence may be influenced and broken by shifts in power, actors, or other institutions. Institutional change can be thought of as a series of '*critical junctures*', or '*moments when substantial institutional change takes place*' (Froger and Meral, 2012, p. 371), which can work to reinforce or disrupt path dependency. The enclosure of natural resources could thus be considered as a result of critical junctures in history that have changed the network of property rights institutions.

In summary, this section has identified the key components for understanding shifts in property regimes, utilising the models of North (1990) and Ensminger (1996). Their models build upon the works of economists such as Coase and Demsetz to provide a better understanding of the role of power, ideologies, and historical junctures in changing property rights and enclosure. Consequently, these aspects are necessary to understand changing property rights within natural resources.

3.5 CONSEQUENCES AND OPPORTUNITIES OF RESOURCE ENCLOSURE

Institutional research into enclosure and property rights institutions will thus often take account of political philosophies and ideologies. By focussing on the political nature of institutions, research efforts are increasingly attending to the effects of asymmetries of power on institutional change. For example, recent scholars have been occupied with understanding neoliberal interventions in natural resources, centring on the negative socio-economic consequences of global neoliberalism (Bakker, 2005; Pinkerton and Davis, 2015). The social and economic costs of institutional change are often felt in the disparities between those able to afford property regime changes, and those that cannot. As Hannesson (2006, p. 6) states, *'few changes are such that no one loses'*. Privatisation, at least in the short run, has been criticised for being harmful to actors without the power to enter, or resist, the new regime. Where private property regimes have been enforced, Liverman (2004, p. 734) describes a distinctive restructuring of both social and ecological aspects, in a *'massive transformation of the human-environment relationship'*. This is to say that when thought of as a part of a larger, interconnected, and embedded system, social consequences can have significant effects on the sustainability and efficiency of the natural resource under an enclosure regime.

As such, 'enclosure' within an embedded system of social relations could be considered more than fundamental changes in rights, and instead as a method of restructuring control, power and values. Enclosure in this sense resembles the term 'grabbing' when used in environmental justice literature. Indeed, the term 'land grabbing' stems from Marx's (1867) accounts on the enclosures in England's rural lands. Borras *et al.* (2012, p. 850) describe resource grabbing as a function of power to beget more power, i.e. *'grabbing the power to control land and other associated resources... to derive benefit from such control'*. By concentrating power, resource grabs can marginalise and dispossess less powerful players of rights and by extension power. Although used interchangeably in certain studies (e.g. White *et al.*, 2012), this research follows Fairbanks *et al.* (2018, p. 145) in understanding enclosure to be a more encompassing term for the processes of *'subjection and control'* than grabbing.

However, despite its appropriateness, there have been few HI studies that focus on resource enclosures and their potential for dispossession.

OPPORTUNITIES FOR EMPOWERMENT

Although there are few works that attend to resource enclosure using an explicit HI perspective, wider research on the methods for reconstituting or rebalancing power in environmental governance has proliferated. Often these approaches centre on ways to redistribute power, and achieve a fairer, and more democratic, outcome for individuals. The powers of the powerful are often framed as enacted within social relations, with the less powerful lacking the institutionalised power to resist change. Consequently, these studies suggest the methods for empowerment is related to changing those imbalanced relations (Friedmann, 1992). These studies are considered critical for understanding how enclosure, and its potential consequences, can be mitigated or reversed. As such, understanding the methods for redistributing power will be essential for identifying opportunities for empowerment within this research's case studies.

A particularly prescient moment for helping to empower citizens was the Aarhus Convention on Access to Information, Public Participation and Access to Justice in Environmental Matters, which has brought environmental democracy to the forefront of governance. The Convention centres around the right of people, both present and in future generations, to live '*in an environment adequate to his or her health or well-being*', and attests that the three pillars of access to information, public participation, and access to environmental justice should help achieve this human right (UN Economic Commission for Europe (UNECE), 1998). Subsequently, the Aarhus Convention has helped to place individuals at the forefront of environmental decision-making. Public systems such as land-use planning have evolved to provide '*important democratic forum[s]*' for individuals to be a part of decisions over their lived environments (Sheppard *et al.*, 2017, p. 6).

A well-established concept within HI is that stakeholder participation in decision-making processes is ‘*positively correlated with successful governance*’ (Garza-Gil *et al.*, 2017, p. 34). This success has been attributed to the ability of stakeholders to identify potential conflicts early in the planning and decision-making processes (Fletcher, 2007; Pomeroy and Douvere, 2008; Reed, 2008). According to planning theorists, truly collaborative planning processes can also help shape institutional capacity, or the capability of institutions to achieve their goals, by connecting new institutions with prevailing knowledge held by stakeholders (Healey, 2003; Flannery and Ó Cinnéide, 2012).

The argument that greater participation improves governance was first expressed in Arnstein’s (1969) ‘*ladder of participation*’. Arnstein (1969) proposed a hierarchical ladder with higher rungs of engagement, such as citizen control, preferred over lower rungs, such as tokenistic consultation. Whilst Arnstein’s ladder has become a highly referenced model for participation, it is often critiqued for being simplistic (Smith, 2018; Morf *et al.*, 2019). In a review of various frameworks of classifying engagement, Reilly *et al.* (2016) summarises recent participation efforts into three main categories: ‘*informed*’, ‘*consulted*’, and ‘*involved*’. Each category reflects a different directional flow of information between decision-makers. Reilly *et al.*’s (*ibid.*) conclusions are consistent with Arnstein (1969), in that effective engagement is beneficial for stakeholders and decision-makers alike. By empowering stakeholders through improved communication and involvement, engagement and participation in decision-making can aid in the compliance of regulations.

The Aarhus Convention also attests that access to environmental information is vital for democratic forms of governance, and as such, the need for transparency and flows of communication have taken centre stage in the endeavour for effective and equitable governance. For example, participation can be more effective when used in a transparent design, and so transparency has been cited as an important feature of the participatory process by stakeholders (Gopnik *et al.*, 2012). Transparency regarding the goals of management

should allow for early trust-building between stakeholders, minimise user conflicts, and prevent the marginalisation of certain groups (Mason, 2010).

Transparency ultimately enhances the flow of knowledge and information, which should also enable a more democratically-oriented governance system; for example, Reilly *et al.* (2016) declare that two-way information flow is critical for engaging stakeholders. Increasing the availability of knowledge could help address imbalances of power within institutional networks. By enhancing transparency, and allowing free flows of information, then the bargaining powers held by actors should equalise, and distributional conflicts decrease.

Importantly, knowledge and understanding are not necessarily interchangeable concepts. Rather, it could be argued that knowledge, or ways of knowing the world, can be used as a method of enhancing understanding (Riedlinger and Berkes, 2001). Canessa *et al.* (2007, p. 107) distinguish between the different levels of information required to ‘*support informed decision making*’ in marine areas. Their information infrastructure in marine management is a hierarchical process, beginning with gathering operational data, and finishing with enabling decision-making through ‘*wisdom*’ (*ibid.*, p. 107). Thought as such, building knowledge is a fundamental step in the journey to improved decision-making.

Participation, transparency and knowledge should not be considered panaceas for rectifying power asymmetries, as natural resource governance is often a complex system of conflicting interests. However, as discussed in this section, the inclusion of participation and transparency can help build institutional capacity in governance arrangements by equalising bargaining powers and reducing distributional conflicts.

3.6 SUMMARY

The theoretical approaches explored in this chapter have illuminated a number of ways to conceive of property rights in natural resources. Primarily, the review has established an understanding of property rights and enclosure through the conceptual lens of HI. Mainstream

approaches to understanding property and property rights have centred on the synonymy of property rights and ownership of objects. However, for understanding property rights in an interdisciplinary field, the bundle of rights approach is considered a more suitable theory. This approach situates property rights as different social relations between actors in an embedded framework. Table 4 adapts a variety of key sources to provide a broad conception of rights that can make up a property bundle, focussing on a wider understanding of ownership and property.

Within natural resources, the model set forth by Hardin (1968) is considered one of the prevailing property rights approaches, and identifies the tragedy of the commons as a key component for studying scarcity and property regimes. The property regimes set out in Table 5 are considered 'ideal' categories within natural resources; open-access, communal, state/crown, and private property. Although there is mounting criticisms of the model, the tragedy of the commons continues to be central to understanding both property regimes and their dynamism. Hardin's model attributes a lack of property institutions as the reason for inevitable overexploitation. As such, in applying property rights as a method for behavioural change, Hardin argues that open-access regimes must transition to achieve efficiency. However, following models of institutional change set out by North (1990) and Ensminger (1996), this research recognises that the enclosure of resources is not always motivated by, nor achieves, efficiency. Indeed, property rights arrangements are often the product of asymmetries of power and dominant ideologies that can lead to inefficient arrangements and distributional conflicts. Both power asymmetries, and the potential opportunities for empowerment, have thus become important factions of research in property rights research.

The definitions of rights, regimes, and enclosure set out here, and the focus on path-contingency, power, participation, and knowledge and understanding of stakeholders, are all central to the thesis. Understanding how property rights change, and how enclosure is driven, will be critical for answering research questions 1, '*what are the drivers behind changing property rights and enclosure in the ocean?*', and 2, '*what are the potential and perceived*

socio-economic consequences of these institutional changes?'. Additionally, foregrounding the concept of power will be key for answering research question 4, *'what is the role of fairness in the process of enclosure?'*. Finally, discussing the methods in which institutional change can be used to empower rather than enclose can help to answer question 5, *'how can these examples of enclosure be used to prevent 'unfairness'?'*

Consequently, the case studies will pay particular attention to these concepts, questioning the motivations underpinning critical junctures and associated institutional change. In particular; (i) who played a role in decision-making processes? (ii) what were the resulting conflicts following enclosure? (iii) how was participation facilitated? And, (iv) how could power be rebalanced? The following chapter builds upon the work done within this review, focussing on the history of property rights institutions in marine governance, and enclosure in modern marine policies. The framework will then be used in Chapter 5 to explore the first 'baseline' case study for the thesis, of landownership concentration and subsequent reform in Scotland's rural areas, and the case studies of commercial fisheries (Chapter 6) and marine planning (Chapter 7).

4 OCEAN GOVERNANCE, RIGHTS AT SEA, AND MARINE POLICY

He who controls the sea, controls everything. (Themistocles 490 BC)

4.1 INTRODUCTION

The oceans provides humanity with a food source, an area for transport, and a regulator for our atmosphere. For centuries, it has been understood that it is critical to control and manage this environment. However, effective governance over this dynamic and disputed arena has somehow eluded policy-makers, with governance structures of the oceans described as a ‘*chimera*’ of ideas taken from terrestrial governance (Sloan, 2002, p. 295).

Governing the seas presents myriad challenges, both physical and legal. While the governance of land and marine spaces are both complex, with a wide range of multilevel institutional structures, there are additional facets to ocean governance that ‘*makes the complexity more apparent*’ (Sutherland and Nichols, 2006, p. 11). Physically, the ocean is a more convoluted and intrinsically connected environment than the land. It is larger in surface area and has the added element of three-dimensionality, i.e. depth. It is also fluid in nature, and so nutrients, seabed sediments, and organisms all move with limited predictability. Where, for the most part, governance of terrestrial resources has been a steady evolution over centuries, most of ocean law codification has occurred within the past century. Concurrently, the legal frameworks for controlling the sea had to develop faster than on land.

Institutionalising the claims made over the marine environment, ocean enclosure has proliferated in recent decades in examples of ‘*creeping jurisdiction*’, as supranational, state, and individual actors intervene in the previously ‘free’ dominion for economic growth (Knauss, 1985, p. 210). However, whilst formalised rights have been largely absent from its governance for centuries, concrete property relations, consisting of layered public and informal rights, are arguably widespread. The marine environment is thus a unique

environment for studying enclosure because of the currency of the changes and their potential consequences (Fairbanks *et al.*, 2018).

Following on from Chapter 3's review of property rights and natural resources literature, this chapter reviews the prevailing approaches for studying ocean governance and its association with changing property rights institutions and enclosure. The following sections will demonstrate the complexity of rights that occur in the marine environment, including their origins, their recognition, and their influence on other rights. The chapter begins with a review of literature which centres upon understanding international claims to marine spaces and the shift of the oceans from an open commons to an enclosed space over centuries. section 4.3 then focusses on the prevailing approaches for studying marine enclosure by communities and individuals. In section 4.4, there is a discussion of the concept of 'good' environmental governance at sea and the journey to integrated marine policies, which are transforming our understandings of the oceans.

4.2 INTERNATIONAL INSTITUTIONS IN THE GLOBAL MARINE COMMONS

FREEDOM OF THE SEAS

The literature on the evolution of international institutions in the marine environment has historically focussed on the legal histories of 'modern' sea law, beginning in the early 17th century. Churchill and Lowe (1999) highlight the role of Hugo Grotius'¹⁵ *Mare Liberum* or 'The Free Sea' (1609) as instrumental in the evolution of institutions within the marine environment. Grotius attested to the freedom of the seas, a concept which had already been a central tenet in the governing of the ocean from at least Roman times (Churchill and Lowe, 1999). The Grotian work began an international conversation about rights to the marine environment. Grotius contended that the seas could not be occupied and were instead the common heritage of mankind. Hence, the freedom of seas must be upheld by coastal states,

¹⁵ The Latinised version of his Dutch name, Hugo de Groot.

including the imperial powers that Grotius wrote against, Portugal and Spain. Baird's (1996) comprehensive historical analysis of the freedom of the seas doctrine contends that the common rights of navigation, trade and fishing, as important institutions for coastal states' development, played an integral part in Grotius' work. Alongside other legal historians (Vieira, 2003), Baird (1996) ties the freedom of the seas philosophy with the economic and political interests of coastal states who were looking to the ocean commons for economic development.

In a review of the legacy of Grotius from a commons perspective, Berkes (1994) argues that Grotius' free and limitless sea has led many to interpret the marine environment as open-access, and thus no one's property. Berkes contends that this is a misinterpretation, stating that Grotius' reading of marine resources should be interpreted as communal property (see section 3.3). Osherenko (2006, p. 329) similarly states that the '*Grotian order of the oceans embodies the concept of communal ownership*', to be held in trust by the people. Consequently, the interpretation of Grotius' doctrine as a 'free for all', rather than as the common heritage of mankind, has led some to regard the philosophy as establishing a race for exploitation (Schrijver, 2016). In confusing the meaning of open-access, property rights theorists not only continue to discount the importance of communal rights and ownership over natural resources, but have also furthered the argument that the Grotian principle cannot align with an '*expanded world*' (Röling, 1992, p. 281). Such arguments may inform the hegemony of private property rights that has dominated economic thinking.

WAVES OF ENCLOSURE

Whilst the freedom of the seas doctrine remained the prevalent governance philosophy in Europe for centuries, the beginning of the 20th century saw an increased recognition from states over the limitations of the ideology. In particular was the acknowledgement of the exhaustibility of marine resources. Fish stocks had plummeted during both the First and Second World Wars, leading to an acknowledgement that fishing effort could reduce fish populations. As discussed in section 3.3, open-access regimes do not necessarily constitute an

absence of institutions (Mansfield, 2004). However, under a similar perspective to Hardin (1968), economists such as Demsetz (1967) and Coase (1960) viewed conversion from open-access regimes rights to private rights as necessary and inevitable when the benefits outweigh the costs of conversion. Consequently, policymakers in the first half of the 20th century sought to establish formal institutions in the world's oceans (Osherenko, 2006).

Watt (1979) argues that the Truman Proclamations of 1945 became the first drive for formal enclosure. The incumbent US President Truman issued two proclamations regarding claims to different aspects of US waters. Whilst the second, concerning fisheries, was never put forward by the US Government, the first, the Proclamation on the Continental Shelf, set out new rules for the USA's sovereignty. The proclamation claimed ownership of natural resources on the US continental shelf seabed and within its subsoil, whilst maintaining that the waters above said shelf would remain within the remit of the high seas (Bratspies, 2001). The assertion of rights to the seabed, up to a depth of 200m, was an effective extension of the country's sovereign rights without disrupting the concept of the free seas in the waters above. Consequently, Watt (1979) contends that the act of the USA to extend their jurisdiction over its continental shelf set a precedent for other states to institutionalise their claims.

Increasingly, economic development at sea pushed for a legal system, which could codify the claims that nations were making over marine spaces. Institutions, as laid out in section 3.2, are essential for establishing the contexts for behaviours. Consequently, Keohane (1989) argues that international agreements and law will shape states' behaviours, because rules set out by international legal frameworks will influence how a state observes and enforces its territorial sovereignty. The need for an international law of the sea could subsequently be regarded as a need for rules on how coastal states can extend their powers over the marine environment, and minimise conflicts with other states.

The second wave of enclosure followed the Truman Proclamations in 1958, with the First United Nations Conference on the Law of the Sea (UNCLOS I) (Churchill and Lowe, 1999). Four conventions were adopted following the conference;

- The Convention on the Territorial Sea and the Contiguous Zone acknowledged and codified sovereignty rights over internal waters but did not manage to specify an exact extent of the territorial sea. It entered into force in September 1964 and helped define the concept of the 'baseline', as well as the contiguous zone (12nm).
- The Convention on the Continental Shelf, as a result of the Truman Proclamation, gave rights to States over the resources on their adjacent continental shelves. It was entered into force in June 1964.
- The Convention on the High Seas entered into force in September 1962 and outlined the rights to the high seas, i.e. any waters not claimed as territorial or internal.
- The Convention on Fishing and Conservation of the Living Resources of the High Seas was the final convention to be entered into force, in March 1966. It gave permission for all nation-states to fish on the high seas, along with management procedures to combat overfishing.

The next major wave of enclosure came with the Cod Wars of the 1970s, a series of disputes between the UK and Iceland over fishing rights in the North Atlantic. The conflict resulted in Iceland extending an exclusive fishing zone to 200nm from their coastline. The Cod Wars were not the first instance of a coastal state declaring a 200nm limit; the confrontation between Chilean and Peruvian fishing fleets led to both countries also claiming a 200nm limit for themselves in 1947. However, Russ and Zeller (2003, p. 76) argue that the Cod Wars ignited the precedent for other nations to claim the 200nm exclusive economic zone and take '*responsibility for managing the resources in these areas*'. Contrastingly, Orbach (2003) declares the US Magnuson Fishery Conservation and Management Act of 1976 as the instigator of the 200nm zone. Although there is contention as to which country made the first

crucial move, the argument remains the same; the extension of state jurisdiction for the management of fishing resources led to further enclosure of the oceans.

Following the failed second UNCLOS in 1960, the third and final conference (UNCLOS III) commenced in New York in 1973. UNCLOS III was concluded in 1982 with the adoption of the Law of the Sea Convention (LOSC). The comprehensive treaty is, or was intended to be, an all-encompassing legal framework for marine affairs, and particularly for the delimitation of boundaries. LOSC became international law after Guyana became the sixtieth state to ratify in 1994, a move which Boyle (1997, p. 37) describes as the '*most important development in the settlement of international disputes*'. The establishment of an international institutional regime alleviated the strains between coastal states who were looking to capitalise on their marine resources, by setting out clear rules and principles for states' behaviours and relations.

As of 2019, 162 states, and the European Commission, have ratified LOSC. The treaty has never been ratified in the US. Whilst the US signed the treaty in 1994, ratification stalled because of internal disagreements within the US Senate regarding Provision XI, relating to deep-sea mining. Although other objections to restrictions regarding deep-sea mining were shared by other nations, including the UK and Germany, these objections were largely resolved in the 1994 Implementation Agreement. The 1994 Agreement makes up the remainder of the LOSC 'package' along with the 1995 Straddling Stocks Agreement, which was implemented following criticism of LOSC and its weaknesses on promoting sustainable fishing practices (Freestone and Makuch, 1996).

Smith (2017) argues that the decision of the US not to accede LOSC is detrimental to both their economic development, and the foundation of the institutional arrangement. Smith concludes that acceding would be a mutually beneficial decision for both the state and global security, highlighting the need for cooperative action between states. This argument is in keeping with Drezner (2008, p. 142) who declares that the creation of a '*well-defined*

international regime’ will impose rules that make it easier for states to detect ‘*noncooperative behaviour*’. International institutionalists such as Drezner, and Keohane (1989), thus contend that institutions such as LOSC can be instrumental for rebalancing the unequal power that states hold. This may be true of an international arena where information is most likely held equally by states. However, an international institutionalist perspective does little to emphasise the power relations between states and other actors, such as communities, who may hold less power for affecting decisions.

ENCLOSURE UNDER LOSC

The events between the end of World War II and the present are examples of long-term critical junctures which have facilitated broadscale institutional change. The instances of conflicts represent significant power struggles between states which were instrumental in eventually establishing a hard regime of institutions. Academics in the political, economic, and sociological fields have consequently termed the events of the 20th century as the ‘*ocean enclosure movement*’ (Alexander, 1983).

Osherenko (2006) provides a comprehensive analysis of the different marine boundaries and zones that LOSC codified, and the transition of rights within these diverse zones. Alongside other legal scholars (Churchill and Lowe, 1999; Tanaka, 2015), Osherenko establishes that within territorial seas and EEZs, the state controls marine space and resources for the unorganised public. However, the power of this control also decreases the further one travels from shore, as territorial sovereignty only extends to 12nm. Beyond this, absolute sovereignty does not apply, but rather the state’s jurisdiction is defined by sovereign rights under international law.

Consequently, the zonation of the oceans following LOSC converted territorial waters and EEZs from an effectively open-access resources to state-controlled property, as per the terms set out in section 3.3. Below, Table 6 highlights some key definitions which were solidified

with LOSC becoming international law, as well as some additional important concepts that predate LOSC but are fundamental to its continued enforcement.

Table 6: Law of the sea definitions which pertain to enclosure¹⁶

Term	Definition
<i>Baseline</i>	The ‘baseline’ is the fundamental starting point for the measurement of the extents of territorial seas, EEZs, contiguous zones and continental shelves. A ‘baseline’ under LOSC usually begins at low tide mark. However, as a result of confusion over the establishment of baselines along Norway’s intricate coastline, ‘straight baselines’ are allowed where it may be difficult to establish normal baselines e.g. In island archipelagos.
<i>Exclusive economic zone</i>	The exclusive economic zone (EEZ) extends up to 200nm from the baseline of coastal states. Within their EEZ, the state has fewer rights than in their territorial seas. However, the state is still in control of exploration and exploitation rights, and additionally is required to endorse ‘optimal utilisation’ of natural resources. The territorial seas and EEZs of coastal countries constitute thirty-nine percent of global seas
<i>High seas</i>	LOSC uses the term the ‘high seas’ to indicate the water column beyond national jurisdiction. The high seas lie beyond the 200nm limit of the EEZ and are not subscribed to domestic law.
<i>Innocent passage</i>	Innocent passage, under LOSC Article 19, is defined as the right for vessels to pass through territorial waters of another state if that passage is ‘innocent’, i.e. ‘ <i>not prejudicial to the peace... of the coastal state</i> ’. Innocent passage is not legally or conceptually the same as freedom of navigation. Whilst innocent passage openly recognises the territorial claims of a state in its water, freedom of navigation challenges these claims, indicating a prevailing ideology that affects concrete property relations and behaviours.
<i>Territorial sea</i>	Each coastal state’s territorial sea extends to a maximum of 12nm from the baseline. Where two states territorial seas meet before the 12nm limit, the limit will be the median between the two, unless otherwise agreed by the states. States can create domestic laws within their territorial seas, as well as regulate access to resources. These rights amount to nearly full sovereignty within their territorial sea. However, territorial seas must also allow for innocent passage.

The chosen definitions are significant in understanding marine enclosure, demonstrating the ‘rules’ behind the enclosure. These rules represent the rights and duties that sovereign states must adhere to in relation to each other. Figure 6 additionally demonstrates the zonation of ocean space under the boundaries discussed in Table 6. These boundaries demarcate three different governance conditions within each coastal state’s waters; i) within the territorial sea,

¹⁶ Source: Adapted from Osherenko (2006), Tanaka (2015), and Churchill and Lowe (1999)

where sovereign rights and jurisdictional authority are granted, ii) the expanse between 12 to 200nm, where the state exhibits less control, and iii) governance over migratory resources.

Understanding that property regimes are embedded in economic and political frameworks, Pontecorvo (1986, 1988) concerns himself with the unequal distribution of resources following LOSC, highlighting the unintended consequences of widescale institutional change. The codification of the 12nm and 200nm limits resulted in what Pontecorvo (1988, p. 361) describes as the '*redistribution of wealth*'. This wealth is attributed primarily to the transferral of two major ocean economies, hydrocarbons and living resources. Ninety percent of fisheries yield were enclosed into national jurisdiction (Russ and Zeller, 2003), as well as nearly all offshore oil and gas production (Zacharias, 2014). With the establishment of the 200nm limit, resources such as fish stocks within those boundaries became the property of the state effectively overnight. The state now holds *de facto* rights over any fish stock that lies solely within their EEZs, which allows nations a choice in how they control their fishing efforts. This redistribution of rights, and benefits, consequently brings into question the fairness of global institutional change, indicating that LOSC has brought distributional conflicts between certain states.

Specifically, Pontecorvo (1988) argues that the ratification of LOSC established a clear division between geographic 'winners' and 'losers'. The 'winners' were arguably the already industrialised countries that benefitted from the largest economic zones, such as the United States and Norway. Amongst the 'losers', however, were those already disadvantaged geographically, such as Iraq or Jordan, who have very limited coastlines, and the twenty-nine landlocked countries. Arguably, these unequal bargaining powers have led to distributional conflicts, as certain states concentrate power and rights, whilst dispossessing others that could previously access enclosed marine resources.

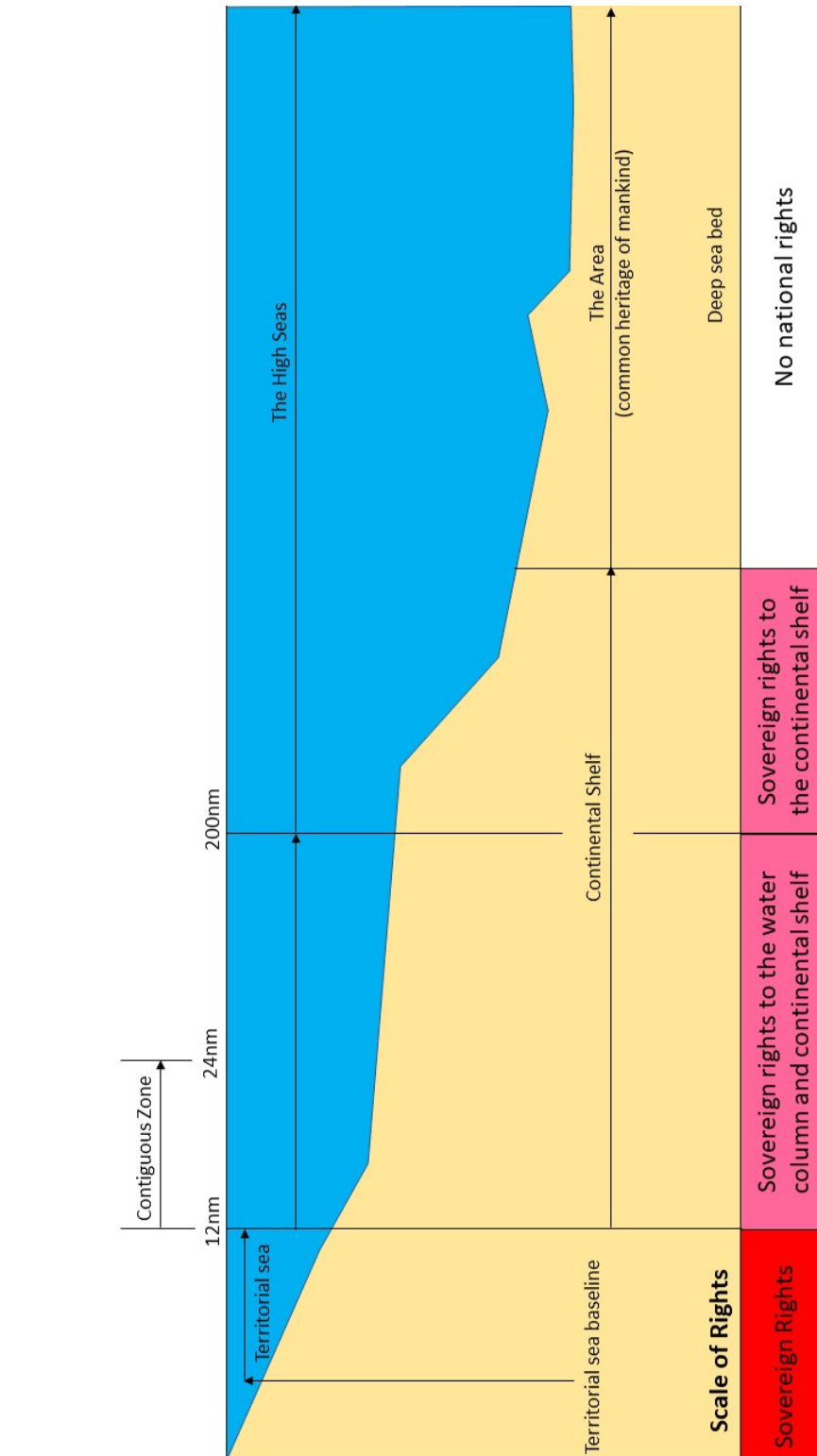


Figure 6: Marine boundaries and zones as defined by LOSC¹⁷

¹⁷ Source: Adapted from Tanaka (2015, p.8)

Campling and Havice (2014) provide a different perspective, acknowledging the difficulty of institutional arrangements to provide the ‘perfect’ solution to a problem as complicated as marine resource distribution. LOSC needed to fulfil the task of bringing solid governance to coastal states’ waters, whilst still situating the marine environment in the traditional ideology of freedom of the seas. As such, despite LOSC contributing to the waves of oceans enclosure, states continue to govern their marine territories as if they were open-access, and awaiting a private property regime. According to Campling and Havice (2014), this behaviour is driven by the oceans being intricately connected with the freedom philosophy, in an example of the strength of ideologies affecting property relations.

The high seas exemplify these contrasting philosophies of freedom and capture. Sixty percent of ocean space lies beyond national jurisdiction, and arguably lack the ‘good’ governance set out by UNESCAP (Ardron *et al.*, 2008). Fisheries outside of EEZs are still mostly regarded as open-access, which private property proponents have argued is contributing to illegal, unreported and unregulated (IUU) in high seas fishing (Russ and Zeller, 2003). However, willingness to introduce formal rights institutions in these areas may be complicated by actors wishing to maintain the philosophy of the free seas. In other words, the ideology of the freedom of the seas is a powerful component of the bundle of rights in the high seas, as argued in section 3.4.

Campling and Havice (2014) point to the difficulty in regulating migratory resources, although acknowledge that states are attempting to overcome transboundary issues through cooperative work. Schrijver (2016) terms the actions of states to establish forms of cooperation as a ‘*path-breaking innovation*,’ illustrating the difference between these processes and path dependent arrangements. Consequently, it may be assumed that path-breaking decisions and policies are possible in marine institutional arrangements, an important point for later analysis in the case studies.

4.3 COMMUNITY AND INDIVIDUAL PROPERTY RIGHTS

Section 4.2 has illustrated the prevailing narratives in the academic literature on enclosure of the global marine commons. Generally written by researchers from a legal/historical view, they are usually quick to point to LOSC as the founder of ‘formal’ property rights institutions at sea. However, other disciplines, such as anthropology, have explored the way that individuals and local communities exercise control over their adjacent waters.

Hviding (1989) uses the term ‘*customary sea tenure*’, which he defines as governance over the sea that follows rules made by communities rather than governmental institutions. The term ‘tenure’ is common in anthropological literature, but does not usually describe any one particular property regime (e.g. in Pinkerton and Silver, 2011). As such, instances of self-imparted rules and regimes may exist within coastal societies to exercise traditional or cultural rights over their marine spaces within communal or private regimes. Hviding also argues that traditional sea tenure and ownership in non-western societies often predates western understandings of property at sea, and can overcome the land-sea binary that pervades western culture.

Indigenous land rights are increasingly acknowledged by economists and sociologists as both legitimate and often economically efficient (Sjaastad and Bromley, 1997). However, indigenous and aboriginal rights to the sea do not yet have the same recognition. Ethnographic works of marine anthropologists are helping to overcome this gap. Mulrennan and Scott (2000), for example, establish the links of the Torres Strait Islanders, and the Cree peoples of Canada, between the sea and their cultural practices. Such work contributes to empirical understandings of the ties between individuals and their sea tenure, which have been reflected through phrases such as ‘*sea-country*’, ‘*salt-water country*’, and ‘*marine peoples*’ (Mulrennan and Scott, 2000). Studies into local ocean enclosure also pay close attention to the embedded nature of ‘*culturally specific institutions*’ (Fairbanks *et al.*, 2018, p. 147). Mulrennan and Scott (2000, p. 681) conclude that indigenous communities’ assertion of ownership over marine

spaces should be used as a method for ‘*reconnecting fractured jurisdictional domains*’. In other words, research on indigenous sea tenure may provide an example for recognising the importance cultural and social institutions for governance where legal regimes may have failed.

Historically, marine tenure research has predominantly focusses on the ‘curios’ of non-western/non-European customs, whilst often bypassing examples in western coastal communities. Prior to the advent of national claims over territorial waters in the 16th-17th centuries, local forms of marine tenure was common in many western countries. Some examples still exist to this day, although less prolifically as newer and codified legal systems have usurped previous claims and rights. McGlashan *et al.* (2005), for example, illustrate the use of Udal law, a historical legal system, that persists in certain parts of Scotland. Examples of Udal law still in existence are relatively rare, and Udal rights are often difficult to prove. The system only applies to properties which have not been ‘*passed to the Crown at any point in the past*’ (*ibid.*, p.188). Udal rights differ from the newer system of land right under Scot’s Law in definitions of foreshore extents. Whilst in Scot’s Law the foreshore is the area between high and low water mark of spring tides, and thus owned by the Crown, Udal tenure does not recognise a standard foreshore. Therefore, private landownership extends to the lowest tide mark.¹⁸ McGlashan *et al.*’s (2005) analysis contributes to the gap in understanding marine property rights in Scottish communities. However, the work does little to communicate the social relations existent in the institutional arrangement. Whilst studies into the different conceptualisations of rights and ownership are critical, neglecting the embedded nature of rights may not provide a complete picture of the concrete relations.

These studies which focus on the practices of marine tenure and community rights in marine spaces disrupt the long established notion of the oceans as an ‘open’ commons. However, further research provides evidence of the ignorance of informal institutions in

¹⁸ See McGlashan *et al.* (2005, p. 187) for a helpful illustration of the position of the foreshore under English, Scots and Udal Law.

formal arrangements. Balint (2005) argues that with the codification of coastal countries' territorial seas and EEZs, LOSC effectively erased many native and traditional rights. Her work in the Timor Sea demonstrated the problems of enclosure for Rotesian subsistence fishers residing on the Indonesian side of the Indonesia-Australia territory boundary. Prior to the setting of the boundary in 1979, fishers from the island of Rote would access and fish in now-Australian waters. Now, this boundary is heavily policed, and Indonesians who have 'illegally' fished beyond the boundary are routinely arrested. LOSC has thus caused significant unintended consequences for previously held rights and 'owners' by ignoring the complex network of property relations that existed prior to institutional change.

4.4 INSTITUTIONS IN EVOLVING MARINE GOVERNANCE

LOSC provides a largely comprehensive legal framework, governing relations between states. Acting within the strictures of this framework, each state (or supranational institution as in the case of the EU) then implements its own domestic policy arrangements, dependent on its own system of national and local laws. Section 1.1 noted how the continuous decline of marine health, and the overexploitation of fish stocks, is routinely attributed to '*weak governance*' (Flannery *et al.*, 2016, p. 122). Consequently, efforts to resolve marine issues have resulted in complex arrangements of legislation and regulations, driven by diverse policies. This section highlights the prevalent approaches for understanding the dynamic nature of marine policies and agendas, and their roles in facilitating different forms of marine enclosure.

FROM SECTORAL TO INTEGRATED MARINE MANAGEMENT

Historically, marine policy has been implemented on a sector specific basis (van Hoof *et al.*, 2012). Boyes and Elliot (2014) demonstrate that the compartmentalisation of sector-based management has resulted in unprecedented complexity in European seas in their a 'horrendogram'. The work maintains that the level of fragmentation in policies is not conducive to good governance, as sectors may work towards their own goals rather than shared

objectives (*ibid.*). Consequently, literature into marine policy is increasingly concerned with the ability of new integrated policies to achieve good governance. Integrated management approaches such as ecosystem-based management and ocean zoning are emerging in a move which are ‘*reshaping social institutions for the sea*’ (Osherenko, 2006, p. 381). In other words, the integration of marine policies is establishing new rules and regulations at sea. This reforming of marine governance may have significant, and unintended, consequences.

The first transition within research, and consequent policy making, concentrated on the value of the coastal zone. There has been particular focus on the management of coastal environments since the 1960s, under the moniker of coastal zone management, also known as integrated coastal zone management (ICZM) (McKenna *et al.*, 2008). The European Parliament’s ‘*Recommendation... concerning the implementation of integrated coastal zone management*’¹⁹ provides good practice principles for ICZM implementation. ICZM was upheld as the integrated approach to sustainably manage coastal areas by building effective institutional arrangements. ICZM allows a medium for users of the coast to receive information, and is designed to incorporate a range of different tools such as coastal permitting and planning. As such, ICZM should enhance transparency, allowing for a rebalancing of power held by actors, as discussed in section 3.5. However, in a review by McKenna *et al.* (2008), ICZM in Europe saw conflicts between actors over priorities, resulting in inefficient arrangements. These results demonstrate that even with capacity-building components such as transparency and participation, institutional changes can often result in compromised arrangements in which conflicts are inevitable.

A subsequent research agenda was formed with a shift to ecosystem-based management (EBM). EBM emerged in the 1970s to further develop environmentally conscious and more

¹⁹ EU Recommendation 2002/413/EC of the European Parliament and of the Council of 30 May 2002 concerning the implementation of integrated coastal zone management in Europe, *OJL* 148, 6 June 2002.

holistic approaches for managing our natural resources. McLeod *et al.* (2005) contend that EBM's goal is to manage an entire ecosystem, including human activity, in an effort to forgo traditional sectoral or individual species approaches, thus accounting for the interconnectedness of ecosystems. However, although EBM most often works as a place-based, few studies have concentrated on the role of property rights and ownership, or the conflicts that may arise. This gap exists despite many citing the use of exclusive rights to achieve coordinated management goals, for example through zoning (Halpern *et al.*, 2008). This gap is significant, as EBM routinely underwrites MSP, which forms a case study in this research.

CONSEQUENCES OF MARINE INSTITUTIONS

The unintended consequences of institutional changes, as discussed in section 3.5, are not unique to terrestrial resources; the discussion on the enclosure of marine spaces following LOSC has demonstrated this fact. As novel methods for governing the marine environment are emerging, there is a growing focus on the consequences and conflicts that such methods may incur.

Some recent research has focussed on the power imbalances and distributional conflicts associated with institutional change at sea. Bennett *et al.* (2015, p. 62) use the term '*ocean grabbing*', which they define as '*the dispossession or appropriation of use, control or access to ocean space or resources from prior resource users, rights holders or inhabitants*'. Research into ocean grabbing has historically centred on poorer areas, Small Island Developing States or regions with high reliance on small-scale and artisanal fisheries (Buxton *et al.*, 2014; Franco *et al.*, 2014). However, recent attention has been paid to the spread of new marine policies and forms of governance. Blue growth, for example, has been described as a '*power-grab*' (Barbesgaard, 2018, p. 130), alluding to the potential for changes in the marine institutions to concentrate and enclose power to certain actors.

Changes to the governance of Scotland's marine environment are typically justified and explained by the language of conflict minimisation and optimising exploitation of sea space and resources. However the associated enclosure could also have significant unintended consequences. Marine enclosure could lead to the dispossession of public interests and rights, moving towards regimes which prioritise private interests without the necessary safeguarding. As such, it is essential to pay attention to individual nations' policies and institutions.

4.5 SUMMARY

This chapter has illuminated the prevailing narratives in the academic literature surrounding the enclosure of marine resources. The transition of the institutions within the marine environment demonstrate a consistent theme of control, with conflicts over prized marine resources a major driver for ongoing division of the seas. A legal historical perspective dominates the literature centring on the enclosure of the international commons. Churchill and Lowe (1999), as well as Baird (1996), illustrate the international drives to enclose areas of sea were predicated on a need to extend sovereign rights to marine resources. The international legal framework of LOSC attempted to mitigate power conflicts between states. This increased marine jurisdiction on a scale formerly unseen. The works of economic and legal scholars following LOSC demonstrate the extent to which the international regime enclosed global waters, which Pontecorvo (1988) argues redistributed power to certain states. Consequently, enclosure under LOSC follows the models of North (1990) and Ensminger (1996) (section 3.4) as the unequal powers of states resulted in distributional conflicts.

In contrast, ethnographic studies document how marine enclosure pre-dates international law by hundreds of years. Indeed, controlling marine space has been witnessed in Scotland under archaic legal systems, which continue to be upheld by the state. Consequently, the tradition of the 'freedom of the seas' is arguably an incorrect notion within many communities, despite persisting as a founding principle for marine governance.

Most significantly, this chapter has demonstrated that although research on the enclosure of marine spaces and resources are prolific, particularly within the legal and anthropological fields, there is surprisingly little literature focussing on marine enclosure as a series of institutional shifts. Section 4.4 provided evidence that integrated and holistic management is often an advocate for a property rights approach. Yet, research into these approaches often forgo discussions on property rights institutions and enclosure. Whilst recent contributions to understanding inequities in marine rights have been made in the context of ocean grabbing, these contributions are yet to attend to the current situation in Scotland. As such, the next three chapters set out the results of empirical analysis of enclosure in Scotland's natural resources, utilising the understandings built in the last two chapters on property rights, institutions, enclosure, and marine resources.

5 CASE STUDY 1

SCOTTISH LAND ENCLOSURE AND REFORM

Where once people had lived in their hundreds and their thousands, there stretched out only unpopulated emptiness of vast estates with their sheep covered hills... or shooting ranges for the well-to-do. (MacLeod, 1988, p. 420)

5.1 INTRODUCTION

The first case study is introduced here, focussing on the history of enclosure, and subsequent reform, of Scotland's rural landownership. This 'baseline' case study is used to help demonstrate how enclosure of resources are embedded within socio-economic and political relations, and can have long-term consequences. The reform of imbalanced institutions are also intimately entangled with local communities' histories. This discussion of the history and reform of land enclosure will allow for a comparison with the processes which are occurring at sea, so that lessons can perhaps be learned from the past.

This case study initially focusses on discussing enclosure processes within land resources, using the theoretical understandings of property rights institutions and enclosure set out in Chapter 3. Section 5.3 gives historical context for the enclosure of Scotland's rural lands, and examines the drivers for institutional change. Section 5.4 examines the socio-economic consequences of the concentrated pattern of landownership that resulted from enclosure. The reform process is then discussed in section 5.5. Finally, the challenges and opportunities of Scottish land reform are examined, focussing on the slow nature of institutional change and the continued difficulties in redistributing power.

5.2 ENCLOSING THE LAND

‘The first man, who, having enclosed a piece of ground, bethought himself of saying “This is mine,” and found people simple enough to believe him, was the real founder of civil society.’
(Rousseau, 1762)

This oft-quoted passage regarding property presents the idea of private landownership as the basis of modern society, as opposed to the understandings of property held within traditional indigenous societies prior to colonialism (Hann, 1998). Rousseau’s writings are indicative of an era in which land allocation was central to philosophical and economic debates. The 17th and 18th centuries saw resources and their allotment as an *‘underlying theme of theories of society’* (Stocks, 1987). In other words, the privatisation of land became a central tenet to the development of modern, capitalist, society.

As discussed in section 3.4, neoclassical economics contend that scarce resources must be privatised in order to achieve economic efficiency. The creation of private property triggers the creation of a market, which can create powerful incentives for individuals to act rationally over the resource. By extension, acquiring the exclusive rights to the land, through financial transactions or regulatory institutions, should optimise economic efficiency and maximise profits for property rights holders. These neoclassical arguments have underpinned the research of many resource economists after Hardin’s (1968) critique of open-access regimes. Flanagan and Alcantara (2004), for example, argue that the lands of First Nations peoples in Canada would be managed more efficiently if they were privatised. These arguments are dismissive of conceptions of ownership, or rights, which do not amount to complete and private ownership. Critical voices suggest that arguments made for the enclosure of land are dis-embedding property relations from their social connections (McCay and Jentoft, 1998).

Hann (1998) demonstrates that the history of the individuation of land is intimately entangled with the spread of European liberal philosophies, which connected economic justifications with moral ones. For example, Locke argued that the foundation of tenure in

material goods, including land, is the labour invested into nature, to transform the previously common stock into private property (Henry, 1999). Subsequently, the right to the private ownership of land was considered a human right, and a *'precondition for full citizenship'* in democratic societies (Hann, 1998, p.14). Additionally, the optimisation of profits is inherently political, underwritten by capitalist logic (Longo *et al.*, 2015).

Consequently, understood as socially embedded relations, the changes in landownership should not be attributed solely to economic reasoning. Instead, land enclosure has come to signify an entangled process of accumulating power and control (Mansfield, 2007; Fairbanks *et al.*, 2018). Land enclosure has been witnessed across the globe, particularly in response to colonialism, as political and economic processes ensure power is concentrated to fewer hands (White *et al.*, 2012). Using the understandings of property rights shifts as the product of powerful actors, politics, and path dependency, the following section will follow the evolution of Scotland's rural lands from common land, to enclosed private estates.

5.3 DRIVERS FOR ENCLOSURE IN SCOTLAND'S RURAL LANDS

Land enclosure in Scotland occurred over centuries starting from the introduction of feudalism in the 12th century (Wightman *et al.*, 2004). The feudal system is a system of governance that mandated all land is ultimately owned by the Crown, and owners of land are 'vassals' of the crown (Stockdale *et al.*, 1996).²⁰ This system of ownership thus maintained that the Crown had ultimate power of the allocation and management of the land. However, it was predominantly from the 17th century that the concentration of landownership proliferated. This concentration followed the introduction of private property rights over previously common lands and clan territories (Glass *et al.*, 2019). Many new estate owners, principally barons or other nobility, were granted large tracts of land from the Crown under the feudal system, in an exercise of power and favour.

²⁰ The feudal system survived in Scotland for over 900 years, until it was abolished in 2000.

Estates were then chiefly rented out to tenant farmers, who often worked on shared grazing lands. When renting to farmers became economically less profitable than sheep and cattle farming, landowners began to clear populations from their land, in a process known as the 'Highland Clearances' (Hunter, 1976). The process was one of capitalism heralded as agricultural improvement, but also a recognition of the powers of landowners over apparently public rights and the subsequent rights of their tenants. As opposed to intervening in the dispossession of these populations, the authorities of the time, dominated by landowners, enhanced the powers prioritising private interests.

The next critical juncture followed the collapse of sheep prices in the late 1800s, when many of these areas were converted to hunting estates that still take up much of the Highland regions (Wightman *et al.*, 2002). The movement of wealthy people from outside the region into the Highlands grew in the Victorian era, as recreational activities, such as shooting and fishing, became fashionable (Lorimer, 2000). This transition again favoured the private interests of the landowners, and continued to ignore crofters and other land users in decision-making procedures. As such, the land distribution in Scotland is ostensibly the result of changes in agricultural practices and prevailing economic conditions; but also a monopoly market failure, where a lack of competition amongst large estates caused an inefficient use of the land.

INSTITUTIONAL CHANGE

Importantly, the concentrated pattern of landownership is a result of widespread institutional changes, reflecting the socio-political dynamics of the time. Rural land enclosure in Scotland was initially facilitated by legislation introduced by authorities in the guise of economic development (Wightman *et al.*, 2004). The introduction of the feudal tenure system in the 12th century was the beginning of a centuries' long process that favoured the interests of the landed populations and superiors, with increasing powers given to protect titles. The codification, through systems such as the Register of Sasines, gave ever greater security to landowners. Legislation was later introduced to help landowners retain their land even in

financial turmoil (*ibid.*). Despite the break-up of a few larger estates at the beginning of the 20th century, there has been little funding, limited political motivation, and insufficient power to facilitate the redistribution of landownership, which remains dominated by protected private individuals (Glass *et al.*, 2019).

The concentration of landownership, across the Highlands, into the hands of a few wealthy individuals resulted in the removal of certain rights from the public and communities that previously benefitted from the land. An institutional framework emerged which empowered landowners, and dispossessed farmers by refusing to acknowledge that they had any substantive right in the land. Furthermore, without the option to buy and own the land they had worked, individuals and communities were deprived of the benefits that accompany ownership. As laid out in Table 4, such benefits include the rights to direct and indirect benefits but also control rights over the future. These various rights have, over the centuries, been consolidated to a handful of landowners. As such, private landowners of large estates arguably became ‘*de facto rural planners*’ (MacGregor, 1988; Warren and McKee, 2011, p. 19). In summary, the changes in property rights institutions, a result of legislative and administrative junctures spanning centuries, ensured a private property hegemony reigned in previously communal areas, and significantly shifted powers towards a minority.

5.4 SOCIO-ECONOMIC CONSEQUENCES OF RURAL LAND ENCLOSURE

Institutional change can drive unintended consequences, as discussed in section 3.5, and this is particularly true of enclosure processes which has concentrated ownership and power. An immediate consequence of the land enclosure was the clearing of peoples from Scottish lands. The Highland Clearances have become one of the most notorious examples of dispossession in Europe. The Clearances led to the forced movement of peoples to increasingly overpopulated areas around the country and the subsequent mass emigration away from Scotland (Richards, 1982).

In the longer term, some positive impacts of continued private landownership have been noted in research undertaken by the Scottish Land Commission, including the facilitation of rural employment by a range of estates (Glass *et al.*, 2019). Kerr (2004) contends that privately-owned estates bring tourist revenue to an otherwise dispersed population, in a ‘trickle-down’ economy. However, others have demonstrated a myriad of negative consequences of privatisation and enclosure processes. Central to these consequences is a long narrative of dispossession, and resistance, which has become a part of communities’ histories (Kenrick, 2011; Devine, 2018). Pursuing a dismissive attitude towards landowners, Cramb (1996, p. 12) contended that the unequal distribution of landownership ultimately led to concerns over the commodification of Scottish land by the ‘*self-perpetuating elite*’ that were predominantly absent or foreign. This ingrained ‘us versus them’ thinking has led to a mistrust of private landowners, particularly of absentee or foreign landlords who have maintained demand for sporting estates and kept land values high (Thomson *et al.*, 2016).

Moreover, the continuation of an effectively closed market for land has prevented much of the population from participating in decision-making over enclosed rural areas. The consolidation of wealth has meant a drastic shift in power away from the communities that still reside in the regions. As international policy on land management has shifted to citizen-led and community-based approaches (UNECE, 1998; Agrawal and Gibson, 1999), the failure to include individuals in decision-making processes could be regarded as a direct defiance of democratic processes and fairness.

5.5 REFORM PROCEDURES

Redistributive land reform is routinely regarded as an effective method for providing an alternative institutional arrangement, when unequal land distribution becomes unproductive and inequitable (Sikor and Müller, 2009; Combe, 2016). Successful reform does not amount to merely redistributing resources but also reconstructing the process of resource allocation, to achieve both procedural justice as well as distributive justice (Törnblom and Vermunt,

1999; McDermott *et al.*, 2013; Pascual *et al.*, 2014; Zafra-Calvo *et al.*, 2017). Land reform, which is really land *law* reform, permits redistributing property and re-evaluating the existing legislative and institutional procedures, to empower those that have been historically dispossessed. In state, or community-led, reform programmes, new institutions can be used to help increase access to previously enclosed resources (Narh *et al.*, 2016). Restructuring institutions should, therefore, also mean a redistributing of power and control, allowing for a more socially equitable network. Although the concept of path dependency alleges that history will provide fewer and fewer alternatives for institutional arrangements, radical reform has been witnessed in countries with long histories of landownership concentration, such as South Africa and Colombia (Faguet *et al.*, 2016).

The potential to reform Scotland's inequitable land pattern has frequently been at the forefront of the public consciousness. Whilst the Victorian era had romanticised the Highlands and Islands as a sporting getaway, the works of Prebble (1963) and Hunter (1976) provided a different perspective. The accounts, although likely biased, brought forth the injustices of the Clearances to the public (Sellar, 2006). The writings foregrounded the experiences of powerless actors, and served as the forebearers to recent publications centring on land concentration, including '*Who Owns Scotland?*' (Wightman, 2013) and '*Who Owns Scotland Now?*' (Cramb, 1996).

Following these accounts, Sellar (2006, p. 104) contends that there was a public perception of a '*democratic deficit*' over landownership in Scotland. This observation corresponds with increased recognition of the importance of environmental democracy, particularly following the Aarhus Convention. Additionally, a lack of '*checks and balances*' in purchasing Scottish land had resulted in higher percentages of foreign or absentee landlords (Cramb, 1996; Sellar, 2006, p. 101). Consequently, the modern impetus for change of landownership was the dissatisfaction of the Scottish populace to both the absence of public access, but also the '*distribution and nature of landownership itself*' in their country (Lovett, 2010, p. 771). The driving forces behind reform of Scotland's landownership were predominantly '*from below*',

as described by Sikor and Muller (2009, p. 1307), in path-breaking initiatives led by communities.

With mounting dissatisfaction, the persistence of campaigning communities initially resulted in buyouts of private lands in the 1990s (e.g. on the Isle of Eigg in 1997). Following these community-led movements, a bill for land reform became one of the earliest actions of the Scottish Parliament following devolution, providing the '*political space*' for further reallocation of control (Kenrick, 2011). The bill was passed as the Land Reform Act 2003, which, along with the abolition of feudal tenure under the Tenements (Scotland) Act 2004, became seminal moments for landownership.

The 2003 Act's arrangement is ostensibly the articulation of '*the right of responsible access*' in a new property regime within Scotland's rural and urban areas (Lovett, 2010, p. 741). The freedom to roam provided the crucial transfer of the right to access rural lands for the purposes of recreation and education. Consequently, under the framework of rights in Table 4, the freedom to roam provided access to indirect benefits for Scottish individuals, as a method of enjoying a public good.

The Act also crucially introduced the institutional procedures for community buyouts of lands that were up for transfer, facilitating the 'right to buy' for communities of up to 10,000 individuals. Community buy-outs have been aided by the passing of the Community Empowerment (Scotland) Act 2015, which modified sections of the 2003 Act for more streamlined procedures. Community ownership of lands has been particularly prevalent in areas which saw mass depopulation through historical enclosures, i.e. in the Highland and Islands regions. These newly communally owned properties also delegate decision-making powers, facilitating the empowerment of communities who now have greater stake over their immediate surroundings. The Scottish Land Fund has helped facilitate these 'right to buy' schemes, providing financial assistance for transactions. Interestingly, the incumbent First Minister, Jack McConnell, noted that the Act was not about '*righting wrongs inflicted*

centuries ago... It is about enabling people in today's rural communities to be ambitious' (quoted in Combe, 2016, p. 110). Reconfiguring the pattern of landownership appears to be, from the state's view, not a question of equity but an opportunity for development. Arguably, these goals are not mutually exclusive; Scottish land reform, as both community-led and state-backed, could be regarded as an opportunity for both development and fairness.

In an attempt to increase transparency and improve public understanding of changes to landownership, a new digital Land Register was created, which has allowed the identification of who controls what land.²¹ Counterproductively, however, the initial transition from the analogue Register of Sasine's to digital mapping, in the lead up to the new register, resulted in a contemporary land grab. Informed (data-rich) landowners used the newly digital register to identify parcels of unclaimed land, and through the legal process of *positive prescription*, then claimed title (Wightman, 2013). A lack of societal knowledge of the reform in land registry, or the legal process involved, meant there was no significant public or community debate about these changes.

However, the continued roll-out of community right to buy, and with it the potential for community-ownership over assets like renewable infrastructure, has increased public awareness. Three percent of Scotland's land (562,230 acres) now lies within local communal ownership, and targets set by the Government wish to see community ownership of land at one million acres by the end of 2020 (Scottish Government, 2017c, p. 1). Additionally, the percentage of assets under community ownership has been assigned as a National Indicator within the NPF (see Table 1).

Community ownership has been described as '*bringing democracy to rural Scotland*', empowering communities in a way that '*markets alone do not*' (Hoffman, 2013, p. 296). Although new land policy instruments allow communities to buy land in free market transactions, state intervention has been fundamental for change to occur. The state has

²¹ Scotland's Land Information Service can be found at: <https://scotlis.ros.gov.uk/>

subsequently become a central agent in facilitating reform, helping communities to demonstrate their connections to their lands, increasing access direct and indirect benefits, and redistributing rights.

Reform of land regulations has also reformulated the relationship between public and private interests. The state has directly supported collective ownership, and allowed inclusion of the public interest in land development. As such, Scotland's land reform process has been heralded as a '*progressive*' institutional design, in that it promotes distributional fairness alongside shared social interests (Lovett, 2010, p. 739). The progression of Acts have established a comprehensive framework, which has sought to rebalance the interests of the public, whilst attempting to preserve the private property rights foundation, in an innovative format (Lloyd, 2018). Community ownership over land in Scotland has provided an alternative to the enclosure narrative, as self-determined peoples act collectively rather than on individual bases for the good of their common areas (Kenrick, 2011). Community buyouts have therefore provided a true transition of power to groups that had little decision-making influences.

Land reform in Scotland has countered the assumption of land being a solely economic resource, introducing an institutional design that recognises the imbalances of participants working within free markets. Reforming the ownership model by subverting the binary of public and private ownership is essential for progressing social equity. Concurrently, these kinds of ownership could be viewed as a robust method for enabling non-tokenistic participation in the long-term resource governance, and realigning the different goals and '*value regimes*' of interested actors (Sevilla-Buitrago, 2015, p. 5). Land reform has therefore rearticulated the values held by stakeholders away from profit-driven objectives to socially-inclusive development, and formalised those values within a new institutional arrangement.

5.6 FURTHER CHALLENGES AND OPPORTUNITIES

Due to both capital involvement and social ties, land reform is not without controversy. The reform process can be subject to influence and manipulation by powerful interests. This is particularly so as environmental decisions are increasingly situated in capitalist paradigms (Scott and Oelofse, 2005; Narh *et al.*, 2016). In keeping with other institutional changes, actors on either side of the bargaining process will usually have mismatched powers. Zimbabwean land reform, for example, began with efforts to rectify the ethnic imbalance in agricultural landownership, following independence from the UK in 1980. The institutional restructuring resulted in occasional bouts of violence, and the programme has been criticised by the UN for its poor implementation and exclusion of important stakeholders (UN, 2010). The exclusion of stakeholders, particularly the already marginalised, put a halt to true environmental democracy and equity.

Despite the strides that land reform has made in Scotland, there have been occasional controversies, as well as some reflections upon the process of reform. The 2016 Act, for example, grants Scottish Ministers the powers to force landowners to sell land which has been deemed unproductive, even if those landowners are unwilling (Scottish Parliament, 2016). These provisions were met with indignation from certain factions of society, including comparisons to a '*Mugabe-style land grab*', in reference to the situation in Zimbabwe (Astor, 2015). The value and purpose of community ownership continues to be questioned in mainstream media; as recent as August 2019, newspapers declared that a community-owned forest on the Isle of Bute had been '*locked up and neglected*' after the original owner had been '*forced*' to sell it to the local land trust (McLaughlin, 2019). These arguments are consistent with advocates of the private property hegemony. In actuality, reports such as these usually point to the failure of internal decision-making over communal resources, as competing priorities will influence the chain of decision-making (McCay and Jentoft, 1998). Consequently, it is important to maintain an effective process for resolving conflicting priorities and values, such as through debate.

Reform is also a slow process. Recent reports indicate that landownership concentration continues to be high (Glass *et al.*, 2019). In 2018, fewer than 500 individuals owned just slightly less than fifty percent of Scotland's land (Peacock, 2018). Questions over the practice of community ownership, and the continued high concentration of ownership, queries the effectiveness of the current processes. Even with radical reform, empowerment opportunities, and institutional capacity building, governing natural systems is complex. Community ownership is not a panacea, and will be subject to similar challenges found in private property arrangements. However, this complexity should be recognised as a reason for consistently re-evaluating institutional arrangements, as priorities, and powers, shift.

Some critical analyses of community ownership have reflected on the links between empowering citizens and tackling neoliberalism. Mackenzie (2012, p. 4) suggests that Scottish community ownership enterprises have become sites where '*neoliberalism's normalising practices are countered*'. This argument proposes community ownership as a method for recreating power relations by dismissing the private property hegemony. However, Hodge and Adams (2012) argue that community ownership could still be characterised as a form of neoliberalisation, as the power given to communities is directly from the state. MacLeod and Emejulu (2014, p. 446) agree, contending that the evolution of community development could be deemed '*neo-liberalism with a community face*'. The research suggests that co-opting communities into asset-based regimes still serves a neoliberal agenda. As property rights institutions function in wider political frameworks, it may be inevitable that the reform process will function in a (quasi)neoliberal paradigm. Consequently, it may be worthy to argue that characterising community ownership as a form of neoliberalisation is not inherently harmful, so long as environmental and social equity goals are still met.

5.7 SUMMARY OF CASE STUDY 1

The land market in Scotland has a number of issues that have been perpetuated by the focus on private property rights and the ongoing enclosure of land. The journey of the

enclosure of rural lands can be effectively analysed using the theoretical understanding of institutional change discussed in Chapter 3. The focus on a private property, beginning with the feudal system and emphasised by a series of legislative and administrative acts, resulted in an unequal distribution of power and assets. The concentration of power and resources in Scotland's rural areas, mostly within Highland and Island regions, has had significant socio-economic consequences. The distributional conflicts around land that resulted in the land reform process in Scotland centred not only on who owns the land, but also the political nature of who had the power to decide its future. The underlying factors behind these conflicts were both technological change in agriculture practices but also market failure. The assumed economically-beneficial model for land use actually contributed to net social losses, indicating a need for change.

The process of land enclosure in Scotland resulted in highly uneven patterns of land ownership, with the large parts of the population disempowered and disenfranchised from the land around them. Land reform is now attempting to unwind this process, but progress is slow and difficult. However, reform of landownership is also an example of path-breaking change that has provided a unique alternative model of management. Land reform has had a powerful influence on both rural and urban spaces in Scotland. It has also played a crucial role in the evolution of Scotland's political landscape. Despite the challenges that land reform continues to face, attention must be paid to the strides that Scotland's land reform has made. These lessons should be of considerable significance for the marine environment where the process of enclosure is still progressing, as will be discussed further in section 8.4.

6 CASE STUDY 2

ENCLOSURE IN SCOTTISH FISHERIES

The transition to property rights regimes in fisheries is occurring with a speed which, I think, is not fully appreciated. The process is inexorable. (Christy, 1996, p. 288)

6.1 INTRODUCTION

This chapter comprises the second case study of this thesis, which focuses on commercial sea fisheries in Scotland. Despite the fishing industry being a moderately small section of Scotland's economy (approximately 0.2% of Scottish GVA in 2016 (Scottish Government, 2018b)), it is still of high cultural importance for many coastal regions. Nadel-Klein's (2000) seminal ethnographic work on fishers in the North-East of Scotland argued that, even in areas where fishing was no longer a primary source of income, the practice still upheld a strong sense of identity and heritage. More recently, Williams (2014, p. 301) stated that fishing provides '*more than a way of earning a living*', alluding to its influence on identities, community relations, and sense of place. As such, threats to the fishing industry could have both economic and social consequences for fishing-dependent communities across Scotland. Moreover, the fishing industry has been an integral part of the UK's economic and political consciousness following the Brexit vote. The right to 'their fish' in 'their waters' was a crucial argument used by those campaigning to leave the EU (see for example Fishing for Leave (2017)).

The right to fish in the UK has, for the most part, been considered an unrestricted right for centuries (Barnes, 2009). As the right to fish has been considered a right for the public, as argued since Grotius, there was little legislation pertaining to who could fish what and when until relatively recently. However, as discussed in Chapters 3 and 4, this unrestricted nature, and perceived inefficiency, has been used as a foundation of arguments by neoclassical economists for the creation of private property (Gordon, 1954; Hardin, 1968; Neher *et al.*,

1988; Arnason, 2005; Hannesson, 2005). Consequently, this resource, and the rights to it, are undergoing a rapid and often contentious transformation, introducing new private rights and markets. There have been increased efforts to document specific case studies of RBM, particularly in light of the growing interest in social consequences of institutional change (St. Martin, 2007; Murray *et al.*, 2010; de Alessi, 2012). However, as of yet, little empirical work has been undertaken in Scotland that documents the motivations and responses to enclosure in fisheries.

This chapter contributes to the growing literature centring on tradeable rights systems in fisheries, discussing the journey of the Scottish fishing industry and its foray into an informal system of tradeable rights. Section 6.2 discusses the prevailing methods for regulating fisheries through property rights institutions, particularly examining the use of quota systems which are enclosing and redistributing fishing rights in other countries. Using the results of the document analysis and embedded interviews, the case of Scottish fisheries will be discussed. Section 6.3 provides context on the organisation and management of Scottish fisheries, before section 6.4 investigates the critical junctures of institutional change in the fishing industry. A discussion on the enclosure of property rights then follows in section 6.5. Section 6.6 discusses the socio-economic consequences of enclosure, illustrating the critical roles of power and path dependency in establishing the current regime and its consequences. Finally, opportunities for future institutional change are examined, utilising the components for institutional capacity building explicated in section 3.5. The discussions within the first half of this chapter will inform the Q study, which follows in the second half.

6.2 PROPERTY RIGHTS INSTITUTIONS IN GLOBAL FISHERIES MANAGEMENT

Institutions are key within fisheries management. These range from formal rules and regulations set out by international organisations, to informal constraints directed and managed by co-operative fishers (Jentoft, 2004). Section 3.3 discussed the central role of

Hardin's (1968) theory of the tragedy of the commons in facilitating different approaches to natural resource governance. The theory, which favours strong governmental regulation or privatisation, connected the freedom to fish with overexploitation by individual actors. Although the theory has brought numerous critics (Berkes *et al.*, 1989; McCay and Acheson, 1990; Ostrom, 1990), it has also been a foundation for the emergence of state-controlled fisheries, as well as the privatisation and enclosure of fishing rights.

State-controlled hierarchical systems are long-standing institutional arrangements in fisheries (Holm, 1995; Chuenpagdee and Song, 2012). The territoriality concept under LOSC means states possess control over the resources within their territorial seas and EEZs, as demonstrated in section 4.2. LOSC redistributed control, rights and wealth, so that coastal states hold sovereign rights to '*explore, exploit, conserve and manage those resources in areas under their jurisdiction*' (FAO, 2002, p. 9). This control allows nations to choose how they control their fishing efforts, although LOSC does set out provisions for setting limits for fish stocks under Article 61(1).

The institutions that states impart on fisheries tend to co-exist, providing a multi-level arrangement of rules and duties. These multi-level arrangements are subject to changes in fashions and philosophies. Consequently, fisheries and the rights to them have been subject to increasing enclosure through the emergence of RBM. Although the term RBM was not used until Neher *et al.* (1988), RBM in state-controlled fisheries emerged in the 1970s (Chu, 2009). Fisheries economists (Grafton *et al.*, 1996; Scott, 2000) argue that RBM, using property-like features, should increase individualised responsibility over the sustainability of the resource. These arguments mirror institutional economists such as Demsetz (1967), and resource economists such as Hardin (1968), in advocating private rights, alongside state regulation, for fisheries management. Consequently, institutional arrangements are increasingly featuring RBM to combat the race to exploit a commonly-held resource.

RBM acts as a foundation for new institutions that limit entry to the fishery. Enclosing access to common-pool resource to fewer individuals, these institutions are often tradeable within a closed market. RBM methods are usually categorised by the type of rules they exhibit. Many (King, 1995; Morison, 2004; Hannesson, 2006) categorise these rules as either input controls, which limit the effort put into catching fish, and output controls, which limit the amount of fish being caught. Pope (2002) argues that input controls are generally cheaper, consisting of fewer transaction costs. Consequently, input controls are shown to be easier to implement than output controls, especially within mixed fisheries, where vessels commonly use a wide range of gear.

Bellido *et al.* (2015) categorise regulatory measures further using terminology which can provide greater clarity. These regulations all represent different forms of institutions, imparting different rules and duties on actors within the arrangement. Property rights can be used in some form in all three categories:

- *Regulations of fleet characteristics*: A form of input control, usually implemented through licences which can determine the size and power of fishing vessels.
- *Regulations of access to fishing grounds*: A form of input control, controlling access can include temporal, seasonal or spatial restrictions.
- *Regulations of what can be caught*: An output control limiting what can be caught. These measures can consist of catch limits in the form of quotas or Territorial Use Rights in Fisheries (TURFs), usually as a share of a state-controlled Total Allowable Catch (TAC).

Despite the tendency for input controls to be cheaper to enforce, and their suitability for mixed fisheries, there has been a marked increase in states' relying upon the third category of regulations. Consequently these output measures, which limit exactly what can be caught by fishers, are the focus of this chapter, as they introduce new property rights into fisheries management.

CATCH SHARES AS PROPERTY RIGHTS INSTITUTIONS

TACs, which stipulates the upper limits of how much fish of a certain stock can be landed, are used widely by states and supranational organisations like the EU (Morin, 2000). TACs are usually set within a specified area and over a defined period, and are often divided and distributed to individuals or groups of individuals, using ‘catch shares’, which provide those individuals the right to fish. Consequently, catch shares, implemented either through TURFs or quotas, have introduced models of private property, or more complete property rights, where there were previously very few.

Catch shares have proliferated in coastal states, and are now used to manage more than 500 fish species worldwide (Bonzon *et al.*, 2010). This proliferation is indicative of an allegiance to neoclassical economics that has underwritten nature resource governance for decades (Davis and Ruddle, 2012). Neoclassicists argue that restricting the number of individuals who have the right to access and use fishing resources should limit the problems of open-access regimes, and work towards economic efficiency (Williamson, 1985). Assigning property rights to individuals should ensure compliance by consigning fishers with a concern about the health of the stock, and a long-term stake within the fishery (Demsetz, 1967). As such, catch shares have been linked to the feeling of responsibility over the health of an environment, also known as environmental stewardship (Fuchs, 2003).

Environmental stewardship has been associated with improving the effectiveness of fisheries management through economic drivers (Arnason, 2005; Chu, 2009). In wanting to enhance profits from either selling shares or resources, individuals will have an economic incentive to look after their resource. Stewardship has also been associated with changing social values and value regimes (Van Slyke, 2007). Social values, including knowledge value, economic value, and community value, are important factors which can impact the effectiveness of fisheries regimes (Song *et al.*, 2013). Lam and Pauley (2010, p. 12) determine that shifting social values can inform new structures for protecting fish by assigning a ‘*collective right and moral responsibility*’. By implementing new property rights, individual

fishers may feel ethically motivated to change from short-term to long-term behaviours. RBM could theoretically provide incentives for sustainable resource use, improving compliance with regulations, and disincentivise cheating (Charles, 2009).

Catch shares should also aid efficiency in the fishery by allowing inefficient actors to capitalise on selling quota rather than investing in high-cost operations, thus removing themselves from the network and raising overall efficiency (Hentrich and Salomon, 2006). Other potential attributes of catch shares contended by fisheries economists include their ability to avert the collapse of stocks (Costello *et al.*, 2008), enact efficient co-management (Gutiérrez *et al.*, 2011), and promote safer working environments for fishers (Grimm *et al.*, 2012).

The question of whether these tools (quotas, licences, TURFs) consign ‘property rights’ is a contested issue in the literature (Bromley, 2016). While the use of rights to control fishing is not akin to the rights used to control ownership of land, the methods utilise similar rules to set out the terms of the bundles of rights. Typically, catch shares provide an access right to a resource, or a right to the direct benefit as per Table 4, rather than ownership over the actual resource; as such, fish are not owned by fishers until they are caught (Charles, 2009). Using this definition, the term ‘property right’ is appropriate when describing regulations which seek to control the right to access and withdraw fish (Bromley, 2016).

However, as they confer only use rights rather than control rights, catch shares often provide holders with very little control over the actual resource (Arnason, 2005). There is sometimes no legal title exchanged when purchasing or leasing quota, as exemplified in Scotland’s system. With a lack of legal title, some quota systems are more akin to quasi-property. Quota units can be purchased, sold or leased, and allow the right to fish (either generally or targeted), but those rights can also be changed or withdrawn at the behest of the permitting authority. This system provides little stability for the holders of quota, and could also affect their actions, if they believe that their investments will be removed by the state.

Despite these potential difficulties, catch share programmes have been widely employed in global fisheries. For example, over forty-one countries use TURFs, which employ spatially-defined measures (Costello *et al.*, 2014). TURFs are highly suitable for non-migratory species such as shellfish, which are more easily controlled by spatial rights-based tools because of their relatively stationary nature. As per Table 4, TURFs give fishers the right to the direct benefit from the resource within a defined area. TURFs impose property-like features onto the previously open resource, creating ownership over the resource and the rights to it. Often, TURFs are administered by communities or in co-management regimes, which require collective decision-making processes involving multiple actors (Hilborn, Orensanz, *et al.*, 2005). TURFs are therefore also commonly associated with customary marine tenure (Ruddle *et al.*, 1992). Such examples of co-management regimes could provide greater effectiveness for the regime, as they allow for potential conflicts to be addressed early on.

TURFs were introduced in Chile in the 1990s, following a series of crises within their abalone industry which finally resulted in a total ban on the fishery (Fernández *et al.*, 2011). To ensure their livelihoods were sustained, independent fishers worked together as organisations to eradicate illegal poaching and recover the stock within their region. Communally they developed the current TURFs system which grants common use rights to a defined set of fishers within bounded areas (*ibid.*). The regime has been an overall success, with an increase in resource abundance in comparison to open-access regions (Gelcich *et al.*, 2010). However, Fernández *et al.* (2011, p. 481) also argue that the social embeddedness of different TURFs will determine their success, concluding that future assessments of governance regimes must consider the '*particularities of specific fishing communities*'. Therefore, the viability of regimes, as established by Hann (1998), is intrinsically embedded in wider social and political contexts that must be accounted for in analysis.

For fish stocks that do not adhere to strict spatial boundaries, quotas are a common measure. Similar to TURFs, quotas are also an assigned share of a species TAC. Quotas can be given on individual bases, either to vessels or fishers, or to communities as Community

Quotas (CQs). Nearly 80% of systems using quotas also utilise trading, for example as Individual Transferable Quotas (ITQs) (Carothers and Chambers, 2012). In 2005, 10% of all fish landed were harvested under an ITQ scheme (Arnason, 2005). ITQs have the added component of marketizing allocations of catch, in that they can be transferred between fishers who sell or lease their quota. In allowing transferability, the system should theoretically get to a state of equilibrium or Pareto efficiency, once every fisher has adequate quota by ‘*buying the less efficient ones out of business*’ (Eythórsson, 1996, p. 270). The regime restricts access to individuals who are either granted rights at the start of the ITQ system, or can buy or lease the rights as quota. Consequently, the initial allocation of property rights is vital for setting out the distribution of rights, and can have significant impacts on the success of a property rights regime (Bellanger *et al.*, 2016).

Numerous countries have instigated individual quota systems since they were first proposed in the 1970s, during a period when neoliberal policies were abundant. New Zealand was one of the first countries to implement a comprehensive system of ITQs, introduced in 1986 by the Fisheries Amendment Act.²² The country’s Quota Management System has been heralded by many as an example of effective RBM (Hannesson, 2005; Hilborn, Parrish, et al., 2005). There were, however, claims of inequity amongst part-time fishers, many of them Maori (indigenous peoples of New Zealand) who were initially excluded from quota allocations (de Alessi, 2012). Prior to European settlement in New Zealand, the indigenous Maori controlled and fished their waters using techniques similar to today, including closed seasons and areas, and strict delineations of sea areas for communities. Following the introduction of New Zealand’s ITQ system, there were calls from indigenous fishers that the new system infringed on their historic rights ratified by the 1840 Treaty of Waitangi. Repeated legal action by the Maori population culminated in the ‘Sealord Deal’, in which the Crown assigned 20% of commercial fishing quotas, and a 50% share in the Sealord Fisheries

²² Iceland, the Netherlands and Canada established ITQs for some of their fisheries in the late 1970s, but New Zealand was the first to implement the system for all of their 97 commercial species.

company, to Maori fishers. The Sealord deal was part of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, which also created the Te Ohu Kaimoana, a trust for the future of Maori quota.

In order to gain recognition of their rights and become a part of the modern rights-based regime, Maori fishers had to convey '*capitalist relations of production*' (de Alessi, 2012, p. 391). In other words, fishers were required to enter a market arrangement that was not a part of their cultural norms, requiring a realignment of their social values. Although the New Zealand ITQ programmes has been determined a 'success' by many (Pearse and Walters, 1992; Bess, 2006), success, and fairness, is evidently a subjective opinion that has not been shared by all analysts. Torkington (2016, p. 180) argues that the '*perverse, rent-based management system*' in place has incentivised fishers to maximise catches of low-value fish. Consequently, Torkington (*ibid.*) contends that New Zealand's quota system has not achieved its goals for environment stewardship or economic efficiency. Examined in an embedded network, the justifications for rights-based systems can be questioned, providing a justification for examining context-specific histories.

CONSEQUENCES OF PROPERTY RIGHTS IN FISHERIES

As evidenced from the example of New Zealand above, the use of RBM, and in particular tradeable rights systems, has led to criticism of its ecological, economic and social suitability. Critics initially argued quota systems could lead to increased high-grading (the act of throwing back unsatisfactory fish so as to maximise highest quality fish landed) and illegal off-loading (Copes, 1986). Thirty years on, similar arguments are being made in cases where quotas have proven to be ineffective on conserving stocks. Hoshino *et al.* (2020) provide a comprehensive overview of the ecological consequences of ITQs. Although the study finds most ITQ systems to bring positive benefits to the sustainability of the fisheries they manage, there were also examples of significant negative ecological impacts. However, failure may not be the product of the property rights themselves, but of poor management decisions and design process, e.g. if the TAC is set at the incorrect level (Chu, 2009). The findings of Hoshino *et al.* (2020)

demonstrate the complexity of resolving the ‘wicked’²³ problem of fisheries (Jentoft and Chuenpagdee, 2009, p. 553), as well as the importance of social and political contexts for success.

From a social perspective, the commodification of fisheries has proved controversial. As per section 3.5, the advent of new property rights institutions are not always the product of balanced and equal decision-making. The potential for social inequity has become a significant focus for fisheries researchers (Murray *et al.*, 2010; Carothers and Chambers, 2012). Such research often focusses on the equitability of the initial distribution, the consolidation of rights and power, and institutional barriers to entering the industry.

The example of New Zealand demonstrates the impact of excluding important stakeholders in decision-making prior to initial allocation. Maori fishers were disproportionately dispossessed of fishing opportunities. Further research has demonstrated that the initial allocation of fishing quotas have proven inequitable in cases where stakeholder groups hold diverse values, such as in the case of indigenous peoples (van Putten *et al.*, 2013). Mapping values, as a component of perceptions, is thus important for understanding any potential social inequity.

Additionally, following the implementation of a tradeable quota system, an economic perspective would argue that some consolidation is expected, as a natural move occurs towards efficient vessels with the lowest costs (Scott, 1989; Eythórsson, 1996). However, without limits on the movement of rights, consolidation can become inequitable, as evidenced in many cases of ITQs. For example, the gravitation of Iceland’s quota meant that, in 2007, over 50% of the country’s ITQs were controlled by ten individuals, and debatably contributed to the country’s financial crisis (Benediktsson and Karlsdottir, 2011). Similarly, South Africa’s consolidation of ITQs, after their introduction in 1988, resulted in a failure of management of

²³ A ‘wicked’ problem, as inspired by Rittel and Webber (1973), is a problem which is not easy to define, and are thus difficult to solve. As such, wicked problems are constantly reappearing and being resolved, with no clear beginning or end to the problem.

the country's 50,000 small scale fishers. The ITQ regime, described as a '*wealth-based approach*', saw fishing rights concentrated to the '*elite*', dispossessing those without the ability to formally apply for, or afford, rights (Isaacs, 2011, p. 75). These examples of consolidation arguably hamper the social benefits of quota systems, as the concentration of rights and power may decrease the collective moral responsibility that property rights should provide. Van Putten *et al.* (2014, p. 6) argue that without the ability to buy quota assets, fishers who rely on leasing shares may not feel '*sympathetic toward long-term resource sustainability*'. As such, the consequences of introducing property rights may be counterintuitive to the initial motivations.

Property rights approaches in fisheries can also create institutional barriers for new entrants. Barriers to entry are not uncommon in institutional networks; North (1990) argues that it can be of interest to decision-makers to allow inefficiency in arrangements, so that the efficient institutions cannot be used against them should they lose control. In fisheries, barriers to entry have mostly been the inability to buy or lease fishing opportunities, partly a consequence of consolidation. Younger generations can find it difficult to invest in the industry, which will have knock-on effects for its demographics. Alaska, for example, has witnessed a '*graying*' of their fleets, where the average age of fishers has increased by ten years over the course of a generation (Ringer *et al.*, 2018, p. 98). This shift will be of particular significance to rural populations who may have few employment alternatives for younger people.

The controversy surrounding the enclosure of fishing rights to fewer individuals have led some to term it the '*tragedy of the commodity*' (Longo *et al.*, 2015, p. 1). In their critical evaluation of fisheries privatisation, Longo *et al.* (*ibid.*) challenge the dominant narrative of the tragedy of the commons by declaring that the real '*tragedy*' is that of the tendency of RBM to favour exchange value over social value. In other words, the institutional arrangements are often designed in such a way that property rights undermine social objectives, by instead focussing on maximising profits.

However, Asche *et al.* (2018) argue that it is not inevitable that a system based on tradeable rights becomes socially inequitable. Analysing data from global fisheries, they conclude that the potential negative social consequences should not mean a rejection of rights-based systems, but rather ‘*social considerations should be addressed in the design*’ (*ibid.*, p. 11221). Similarly, Mansfield (2004) contends that property rights institutions can be set using social, rather than economic, criteria, which can empower actors and mitigate negative consequences. Different forms of property, such as CQs used for the development of rural populations, can contrast neoliberal approaches as they work towards protection, instead of market efficiency (*ibid.*). As such, property rights approaches do not have to enclose rights in a method of dispossession, but rather work for communal ownership, providing greater incentives over resource sustainability.

In summary, although current RBM approaches in fisheries have demonstrated negative socio-economic consequences, property rights could still achieve social objectives if institutional arrangements are designed in collaborative and transparent ways. However, the consequences of enclosing rights to fishing resources must be initially acknowledged and analysed. The remainder of this half of the case study focusses on the processes, drivers, and consequences of enclosure in Scottish fisheries.

6.3 CASE STUDY CONTEXT

There are three main sea fishing industries in Scotland; demersal fishing, pelagic fishing, and shellfish fishing. Demersal species are usually white fish including haddock, which accounted for approximately 9% of total value of Scottish landings in 2015 (Scottish Government, 2016c). Pelagic species are highly mobile stock and include mackerel and blue whiting. As of 2019, twenty-two Scottish vessels exclusively fish for pelagic species (SPFA, 2019). Currently, pelagic mackerel is the most abundantly landed fish for the Scottish fleet, accounting for 30% of the total value of landings (Scottish Government, 2016c). The shellfish industry is dominated by the *Nephrops* (Norwegian prawns) fishery, which can be caught in

creels or trawled; this is also the only shellfish species to be managed by EU quota. Other shellfish species include velvet crabs, edible crabs and lobsters, caught predominantly by creeling in inshore waters.

These various fishing types make up three different ‘fleets’, categorised by how they are allocated quota (discussed further in section 6.4).

- Sector fleet: The sector fleet comprises of vessels over 10 metres that are a member of a Producers Organisation (PO). They usually target the demersal and pelagic stocks, being larger vessels that can safely go out beyond the territorial sea. Approximately 400 Scottish vessels are members of Pos.
- Non-sector fleet: Non-sector vessels are >10m vessels that do not belong to a PO. They usually target non-quota species as they do not have access to the quota managed by Pos. There are approximately 150 non-sector licences for >10m vessels (Scottish Government, 2019b).
- Inshore (or 10 metres and under) fleet: The inshore or 10mu fleet represent the largest proportion of the industry, with 1503 vessels registered in 2017 (72.8% of the entire Scottish fleet). 88% of the inshore vessels use creels targeting shellfish as their main method (Scottish Government, 2018d).

Scotland contributed 65% of the UK landings by quantity in 2016 (Scottish Government, 2017f). These landings by Scottish vessels were valued at £556.9 million, with a nearly even split between the three fisheries.²⁴ Despite the large contribution to UK and EU catch figures, the Scottish fishing industry has seen a decrease in both vessels and jobs in the past few decades. In 2016, the entire Scottish fleet comprised of 2,038 vessels employing just under 5,000 workers (Scottish Government, 2017f). Since 1999, this is a loss of 21% of the fleet and

²⁴ Specifically, in 2016, shellfish landings amounted to 30% of the total value; demersal landings were valued at 30% of the total; and pelagic landings amounted to 40%. However, in terms of weight, pelagic landings far exceeded the others, at 65% of the total 453,334 tonnes landed. Demersal landings came in at 21%, and shellfish was the remaining 14% (Scottish Government, 2017f).

34% of the labour force (Scottish Government, 2000). Recent reductions could be attributed to increasing costs, but could also be due to changes in fishing practices, facilitated by technological advances and diversification of gear (RSE, 2004).

Fisheries management in Scotland is a system of international, national and regional policy and regulations. The complexity of fisheries management is indicative of a transition away from top-down management approaches of governance to a more inclusionary bottom-up method (Agrawal and Gibson, 1999). The transition has meant the creation of partnerships and community-based groups, independent trade organisations, non-statutory member groups, and many other stakeholder-led advisory bodies. Figure 7 which illustrates the major figures regulating Scottish fisheries. As the figure suggests, despite the attempts to decentralise decision-making, the regulation of fisheries remains a broadly top-down process.

The bodies at the lowest level are arguably the most important for individuals, as these organisations regularly liaise with fishers. These organisations include Fishermen's Associations, which are member-led bodies that act on behalf of specific geographic or sectoral fisher groups, providing legal advice and enabling political lobbying. The Scottish Fishermen's Federation (SFF) (est. 1973) was established to '*preserve and promote the collective interests*' of these associations [emphasis added]. As of 2019, the SFF represented just over 500 vessels (approximately one quarter of the Scottish fleet).

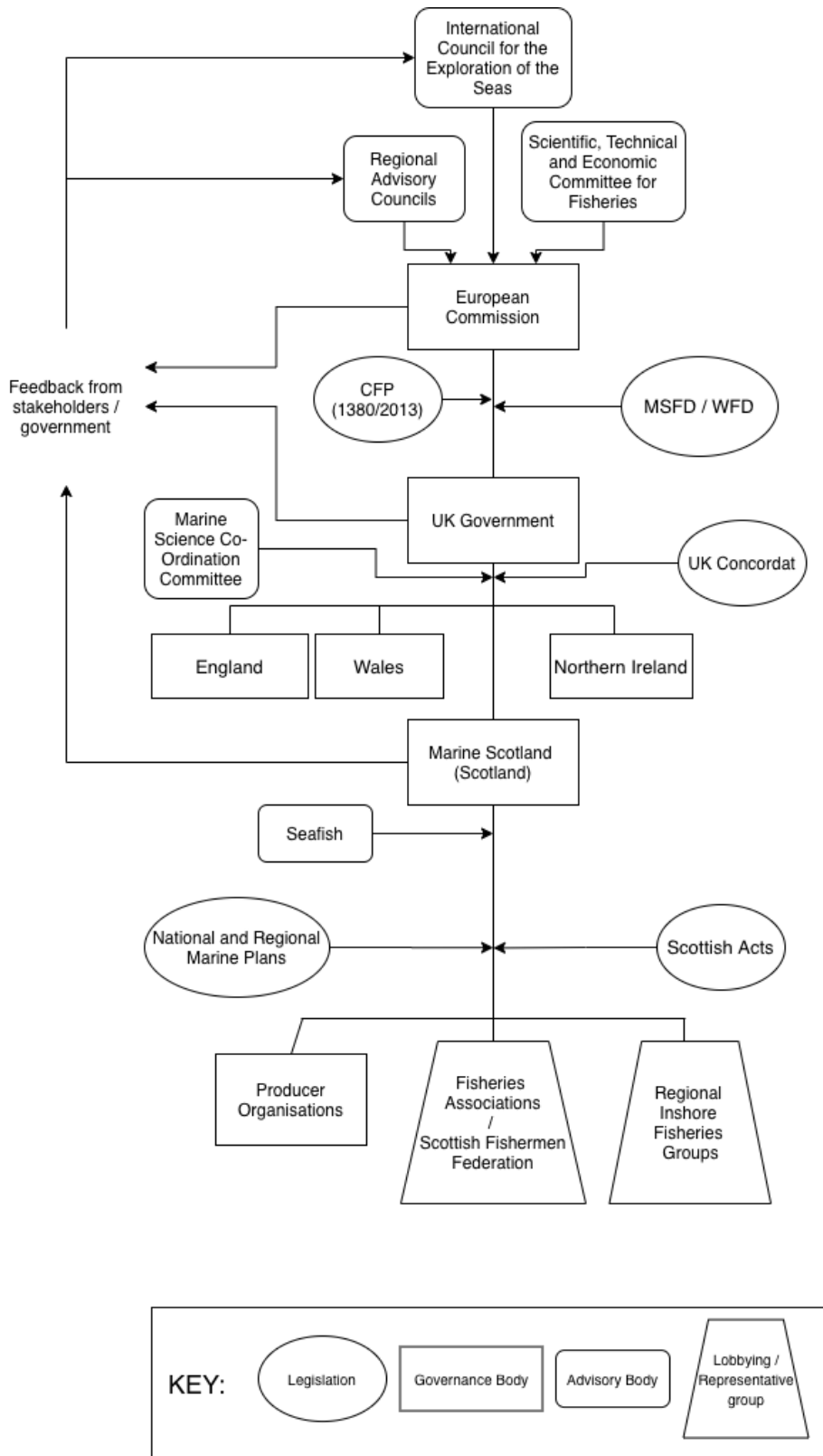


Figure 7: Regulatory organisations and legislation in Scottish fisheries²⁵

²⁵ Sources: Adapted from information in Scottish Government (2020) and House of Commons (2018)

Inshore vessels are represented primarily by Regional Inshore Fisheries Groups (RIFGs). In 2016, the five current RIFGs were introduced by the Scottish Government, following increased recognition of the value of local decision-making for the inshore fleet (SIFT, 2018). The heterogenous nature of the Scottish fleet often means that values and interests are not fully captured in larger federations. As noted above, the nationwide SFF, for example, should act as a mouthpiece for the ‘*collective interests*’ of the entire Scottish industry. However, the inshore fleet have found that a ‘*clear and coherent voice*’ for their actors has been historically absent at both national and EU levels (Worrall, 2017). As such, RIFGs should allow for greater participation of inshore fishers in decision-making processes at a regional level, by providing an organised voice for the small-scale fleet. The RIFGs are also the main route for ‘*engagement between commercial fishermen and Marine Planning Partnerships*’ (Scottish Government, 2016b). Marine Planning Partnerships, which are discussed further in the next case study, are collaborative working groups, soon-to-be established in each of the eleven marine regions around the Scottish coast. The duty of the Partnerships is to provide local, participatory action, to work towards regional marine planning in inshore waters, of which the inshore fishing industry is a significant user.

This section has set out the overall context for Scotland’s fishing industry as it is currently situated. The Scottish fleet is a heterogenous mix of fishing types, regulated and represented by a variety of hierarchical organisations that have undergone a number of evolutions and changes. The following section will discuss these evolutions, examining the critical junctures of changes in regulations and institutions, as well as the potential opportunities for change in the near future.

6.4 HISTORY AND DRIVERS OF SCOTTISH FISHERIES ENCLOSURE

This discussion takes an historical approach, to examine the critical junctures within Scotland’s fisheries institutions. Critical junctures, as discussed in section 3.4, are events where substantial change occurs in institutional arrangements (Froger and Meral, 2012).

Critical junctures do not have to be instantaneous, and can instead be a long and gradual process that manifests in institutional change, such as the evolution of LOSC (see section 4.2). This section will discuss how these events took place, centring on the key actors within the decision-making processes and their relative powers which drove these events, following the frameworks of North (1990) and Ensminger (1996).

THE COMMON FISHERIES POLICY (1983)

An important part of Scottish fisheries has been the EU's Common Fisheries Policy (CFP). First introduced to member states in 1983 following reform of the original fisheries policies, the primary intention of the new CFP was the formal creation of a free market for fish within EU waters for its newly joined members. The creation of a market was, in part, a response to the enforcement of 200nm limits under LOSC in 1976, which had ultimately led to the loss of fishing grounds for foreign vessels following state enclosure. The CFP is comprised of four main components: (i) the resource management system, which focuses on TACs, changes in the Maximum Sustainable Yield (MSY), and the landing obligation; (ii) the common structural policy; (iii) the common organisation of markets; and (iv) external policy (Hatcher *et al.*, 2002; House of Commons, 2017).

On joining the CFP, the UK's fishing industry was deeply divided in its wants. The inshore fleet wanted to maintain its monopoly in a small territory of 12 miles. The sector fleet wanted '*the utmost freedom of access to waters everywhere*', and, according to the then director of the British Trawlers' Federation, were happy with the equal access arrangement (Wise, 1984, p. 113). The want for freedom was most likely the response of fishers who had seen much of their waters enclosed by other states following LOSC.

As a result of the CFP and bilateral agreements with non-EU nations, Scottish vessels are currently permitted to land catch into foreign ports. Consequently, Scottish vessels landed 169,000 tonnes into both EU and non-EU ports, amounting to 38% of all landed catch by Scottish registered vessels in 2015 (Scottish Government, 2016c). Furthermore, these

reciprocal agreements, along with various historical fishing rights, allow foreign vessels to catch fish within Scottish waters. Accordingly, EU vessels land 51% of all catch by weight in Scottish waters on average; however, this is only 35% of all catch by value, and the figure inevitably varies depending on species (Napier, 2016).

The CFP, and its implementation in EU member states, is reminiscent of neo-corporatist arrangements, defined by a small range of actors with ‘*well-defined exchange*’ between them (van Hoof and van Tatenhove, 2009, p. 727). These actors are typically the market, the state, and the industry (fishers and processors). Although neo-corporatist arrangements are participatory in nature, as they invite ‘*organised interest to the table*’ (*ibid.*, p.728), the key component of the actors is that they are organised. As such, if parts of the fleet are not sufficiently organised and represented, they can be excluded from decision-making processes.

The CFP also introduced TACs based on ‘relative stability’, the principle of allocating EU member states a quota share of the TAC (Morin, 2000). The allocation of shares of the TAC to states is the first step in the process of distributing fishing rights. Once the quota share is given to the governing body within the state, it becomes their responsibility for ‘*transparent and objective*’ distribution of quota to the state’s fishers (EC, no date). National quota in the UK is first administered to the UK Government before being divided amongst the four UK Fisheries Administrations (Marine Scotland for Scotland’s fleet) (see Figure 7). The distribution of quota to individual vessels is the last step in the distributive process; the intervening allocation steps between Marine Scotland and individual members are determined by the vessels’ sector allegiance.

PRODUCER ORGANISATIONS (1985)

Producer Organisations (POs) are decentralised member-led groups of fishers and skippers. Although POs had been in place acting as marketing organisations since the early 1970s, it was not until 1985 that the CFP contended that POs could act on the ‘*day-to-day management of fisheries*’ (European Commission (EC), 2016). In this respect, POs have

become an important role in direct fisheries regulation, as they act as the quota allocating body between the Fisheries Administration (Marine Scotland), and their member vessels.

There are now ten POs in Scotland (see Appendix 2), which continue to be used for the allocation of quota to their member vessels, as well as for the promotion and marketing of members' products. POs can be established for either a specific targeted species or to cover a certain area. To be legally recognised, POs must be '*sufficiently economically active*'; this means meeting one of a list of criteria, such as having a '*minimum of 200 members that are active fishermen*' or making sure the '*number of vessels operated by PO members is at least 20% of the total number of vessels operating in its area*' (UK Government, 2017).

Prior to 1984, fisheries were regulated by vessel-based quotas assigned on a fortnightly or monthly basis (Goodlad, 2000). This vessel-attached quota was then allocated, based on a rolling period of three years, which could not be traded between POs until 1996 (Appleby *et al.*, 2018). Although the swaps between POs were originally constrained by needing to be balanced in terms of value, this balancing was removed so that '*non-balancing swaps*' could be practiced, and then eventually, one-way movements (Hatcher and Read, 2001, p. 6). In doing so, the UK Government '*relaxed*' its rules, taking a step back from the management process and facilitating an '*informal*' market for quota, which has persisted ever since (Appleby *et al.*, 2018, p.3). The UK Government therefore actively encouraged the trading of quota, at the wishes of both the POs and vessels, who saw value in leasing.

The introduction of the POs, and the trading system, constitutes an important point within Scotland's fisheries management, as their establishment became the basis for the current regime as it stands. The introduction of trading in particular, driven seemingly by the will of the fishing industry and a passive regulating body, is pivotal in facilitating enclosure, as POs and fishers were able to retain quota allocations without restrictions on movement or quantity.

LIMITING THE LICENSES (1993)

The licensing scheme in the UK, operating under the Sea Fish Licensing Order 1992 as part of the Sea Fish (Conservation) Act 1967, dictates not only the number of vessels within the British fleet, but also the size and power of vessels, the species targeted, and the gear used. Licences are issued on an annual basis, via Marine Scotland for the Scottish fleet; vessel owners are thus required to renew their existing licences annually. Prior to July 2017, there were several different categories of licences within these length groups. These included Category A (for over 10m vessels fishing important quota stocks), Category B (for over 10m vessels fishing smaller, less important quota stocks), and Category C licences (for over 10m vessels targeting non-quota species only). All 10m vessels were given a special class of Category A licence. However, after review in July 2017, only two general licences exist, split by vessel length ('10m and under', or 'over 10m') (Scottish Government, 2017d).²⁶ Marine Scotland licences only register vessels registered at a port in Scotland, under the Registry of Shipping and Seamen and in compliance with Section 8 of the Merchant Shipping Act 1995.

The allocation of an over 10m licence is contingent at present on vessels landing '*more than two tonnes of quota species annually*' into UK ports, to guarantee that economic value accrued by its own fleet is retained within the UK (Scottish Government, 2017b, p. 1). Following the results of the EU referendum, the Scottish Government have stated they want more emphasis placed on landing into Scotland. Proposals involve amending the current UK-wide 'economic link' by establishing a Scotland-specific economic link of 55% of landings of quota species be landed in Scotland. The results of the consultation proposing this have yet to be published, with no interviewees able to provide a reason as to why. Although reasons for the delay can only be speculated upon, sector fishers were more concerned about the consistent lack of communication as to the results of consultations, particularly as individuals in the fishing industry are regularly consulted. Moreover, without implementing the results of

²⁶ Other domestic licences include permits for Deep Sea fishing, and fishing Razor fish. Vessels are also able to gain external licences for fishing Faroese stocks, or Atlanto-Scandinavian Herring.

consultations, one sector skipper viewed the consultation process as ineffective, indicating an issue in the participatory model of management.

To restrict the size of the Scottish fleet, no new licences have been made available to vessels since the introduction of the system in 1993. In order to gain a licence to fish, one first must have the existing licence ‘entitlement’ transferred, either by buying an already licensed vessel or transferring the licence from a scrapped/deregistered vessel to one’s own. In the Scottish licencing system, a licence has become a right in itself; ownership of a licence gives one certain rights to access certain regions, use certain gear, withdraw specific resources (to an extent, as quota will influence this), and thus directly benefit from them.

Furthermore, due to the finite number of licences, a market has been created for the buying and selling of entitlements, usually facilitated by agencies specifically designed for such transactions (e.g. www.fishquota.net). Licenses have thus become increasingly expensive. A second-hand creel boat in Scotland was approximately £6000 (in May 2019). To creel commercially using this vessel, one needs a licence which is regularly advertised for close to £8000 (in early 2019). A creel fishers remarked in interviews;

‘People started to trade these licences and carve a financial value into these licences so then arose the problem that just to go fishing just with a small dinghy and a few creels there was the introduction of a quite hefty financial burden to buy these licences... So that’s the reason we are in the situation we are in today, where the licences are worth more than the vessel and everything else.’

He went on to add that he did not believe that the government wanted licences to hold a monetary value, but *‘they didn’t bring any legislation not to let it happen.’* The actions of the state have, therefore, led to a commodification of licences. In turn, this commodification has arguably shifted what fishers’ value, prioritising *‘pieces of paper’*, as described by another inshore fisher.

Licences have become more valuable because they have the additional task of being associated with the Fixed Quota Allocation (FQA) units used by the UK Government to allocate quota. A PO may also hold a ‘dummy licence’ for the same function of holding FQA units on behalf of their member fishers. A dummy licence does not amount to a real vessel licence but is an administrative instrument that facilitates the transferal or holding of FQA units.

THE FIXED QUOTA ALLOCATION SYSTEM 1999

The rolling track records that had been in place since 1985 had resulted in an increase in ‘ghost fishing’ in the UK, where vessels were overestimating their landings in order to maximise their quota for the next year (Goodlad, 2005, p. 102). When the UK Fisheries Departments, and the fishing industry, led a Working Group in 1997 to decrease ghost fishing, the group recommended simplifying the system by using track records based on landings within a fixed reference period. The annual track records were replaced by the current FQA system in 1999, which affixes quota entitlements to licences rather than vessels. Officially, the introduction of the new FQA system was built on the hope of improving on the previous system. According to the Scottish Government (2014a, p. 15), drivers for the reform included:

- More stability in annual quota allocations.
- The ability to trade quota without impacting future quota allocation.
- Simplifying the system for better efficiency

However, the move was seemingly industry-led, and specifically sector-led. According to a sector fisher-turned-processor, since the beginning of trading, POs had begun to increase their sectoral member numbers, and thus increase their quota pools. By formalising the trading system with the FQA system, the POs were guaranteed to retain their members’ quota allocations, and consequently acquired a valuable pool of assets. According to Hatcher *et al.* (2002, p. 43), approximately ‘70% of the sector had supported the move to FQAs’, but ‘most’ of the 10mu and non-sector had not shared that support.

Additionally, a Parliamentary report of the time indicated that the UK Government viewed an ideal management system as one that could ‘*minimise the level of Government intervention*’ (House of Commons, 1999). Instead, the regime encourages market-led incentives in a move reminiscent of neoliberal economics (Harvey, 2005). The implementation of markets is often staged as a way to tackle the tragedy of the commons, in a simplistic argument that Mansfield (2010) states is a way of placing blame on users of the resource. Here, the implementation of the market was seemingly driven by a state wanting minimal intervention and a supportive sector fleet who were already used to privately trading commodities, such as vessel licences, and wanted to formalise the trading of quota (Hatcher *et al.*, 2002). Consequently, the formalisation of the trading system was primarily economically driven, and could therefore be accused of lacking adequate social objectives, leading to considerable social consequences (discussed in section 6.6).

Since 1999, quota in the UK has been allocated on a licence-basis via the FQA system. The affixing of quota to licences, rather than vessels, eased trading and created a competitive market for quota within the UK. FQA units, acting as an economic tool, are essentially arbitrary units of measurement, although they were originally the equivalent of 100 kilograms of fish per year. How much they are ‘worth’, in terms of catch, is dependent on the annual setting of the TAC by the EU. In this system, FQA units act as institutions, embodying the rules of who can fish, and how much they can fish; in other words, FQA units now regulate the right to the direct benefit from the resource, conveying use rights directly to the holder of the units.

There are approximately eight million units held by vessels in the UK. The initial distribution of FQA units was based on track records of catch from between 1994 and 1996; vessels which could prove catches from this time period were essentially gifted a valuable asset in the right to fish. The initial allocation of units has never been reviewed, despite the UK Government having the option to do so every two years, and so FQA entitlement has not changed except where trading (selling or annual leasing) has occurred between fishers.

For the sector fleet, Marine Scotland allocates more than 99% of its quota by weight to its ten POs.²⁷ In accordance with the Fisheries Concordat (UK Fisheries Administrations, 2012), an agreement between all four Fisheries Administrations in the UK, a PO does not have any geographic restrictions on membership. Scottish POs can thus receive quota from multiple Fisheries Administrations, should they have non-Scottish vessels as members, for example. Similarly, a Scottish vessel can join any UK PO, and so may have quota units from English or Welsh POs. Once allocated to a PO, the PO then holds administrative rights to that quota, and is free to utilise it as it wishes under the quota management rules. The PO then allocates the quota to its individual members or holds it on a dummy licence. Vessels are then free to trade units on the quota market, either by selling or leasing units annually. Quota trading is conducted in association with the POs and administered by legal professionals.

As the non-sector and 10mu fleets are not members of POs, they do not have access to FQA units. Additionally, the 10mu fleet, who were never obliged to keep a log of catches, could not prove any entitlement to the newly introduced FQA units on initial allocation. Sampling methods were employed to estimate the for the missing logs, but these have been criticised as underestimating the landings (Carpenter and Kleinjans, 2017).

As illustrated in Table 7, the distribution system for 10mu vessels, introduced in 2013, shares quota equally through the fleet for quota species on a monthly or quarterly basis, based on landings recorded between 2008 and 2012. The non-sector fleet's quota is also managed centrally by the Scottish Government. Vessels of the non-sector fleet may have FQA units attached to licences, but as the vessels are not members of a PO, they cannot fish against those units. These vessels are also not allowed to lease quota from the POs. Table 7 additionally illustrates the discrepancy of quota allocations between fleets, indicating a clear distributional conflict. In part, the distributional conflict is a direct result of the initial allocation of quota, which was based on catch records, rather than market forces, and so favoured fishers that could

²⁷ Calculated from 'UK Allocations' spreadsheet, (UK Government, 2018) <https://www.gov.uk/government/publications/fisheries-quota-allocation-2018>, accessed 12.09.2019.

prove high volumes of catch. The conflict has only increased since the initial distribution through internal trading; this concentration is discussed further in section 6.6.

Table 7: Quota allocation in Scotland's fleets, segregated according to allocations by Scottish Fisheries Administration Marine Scotland²⁸

Fleet Segment	Quota System	Allocating Authority	Allocation Rules	Distribution of Quota
Sector	Tradeable FQA units, attached to vessel licences	Producer Organisations, received from Marine Scotland (as one of 4 UK Fisheries Associations)	Initial allocation was based on track records from 1994-1996. This is still the reference period for all species bar a handful (e.g. deep-sea stocks). Revaluation of units based on relative stability occurs annually on 1 st January. Transfer of units on a limited basis between vessels in the same or different Pos. Permanent transfer between Scottish and non-Scottish vessels currently prohibited under a moratorium.	Just under 400 vessels registered in Scotland are members of a PO. According to the Scottish Government, 'most' of the quota administered by Marine Scotland is allocated to Pos. In that share in the Pos, five families own nearly half of all FQA units, either wholly or in part.
Non-Sector (Over 10m)	Non-tradeable pooled quota	Marine Scotland	Allocation of quota to non-sector boats is done centrally, separately to the 10mu pool. Quota is set by monthly catch limits.	Approximately 150 non-sector vessels in the fleet. Non-sector vessels can have FQA units attached to their licences but are not able to fish against those units.
10m and under (10mu) / Inshore	Non-tradeable pooled quota	Marine Scotland	Allocation of quota to 10mu boats is apportioned proportionally. Quota is set by monthly catch limits. The total amount is underpinned by recorded landings by 10mu vessels between 2008 and 2012.	Approximately 1500 10mu vessels in Scotland (72% of Scotland's fleet in numbers). The non-sector and 10mu fleets combined share less than 1% of quota allocated to Scotland by weight.

²⁸ Source: Distribution data calculated from 'UK Allocations' database (UK Government, 2018) Accessed here <https://www.gov.uk/government/publications/fisheries-quota-allocation-2018> and correct as of June 2019

THE SHETLAND REGULATING ORDER (1999)

The use of national legislation, which could ensure greater autonomy over management of inshore fisheries, became popular at the same time as the FQA system. Of significance is the use of Regulating Orders (ROs), which permit the use of specific management rights to a localised area over natural shellfisheries. The first RO implemented across a large area was the Shetland Islands Regulated Fishery (Scotland) Order in 1999. Shetland is a particularly fishing-dependent community; in 2016, £79 million worth of fish and shellfish were landed in the region (Napier, 2017). This RO, along with the establishment of the Shetland Shellfish Management Organisation (SSMO) in 2000, granted the islands the legal right to manage their inshore shellfish fisheries (up to 6nm), including issuing licences, setting tolls, and executing additional regulations. The SSMO now has the right to regulate the fishery until 2028, after the RO was renewed for the second time in 2013.

To catch shellfish²⁹ within Shetland inshore waters, one must be in possession of a specific licence (costing £250 annually), effectively enclosing once open-access shellfish fisheries. These licences were first given to those who demonstrated commercial fishing activity in the Shetland area prior to 1st January 1998. There are two boats registered to Orkney ports which were granted Shetland licences after the initial RO was imposed. According to one inshore fisher in Orkney, this was the result of an unremitting '*fight*' from the Orkney fishers who had cited continuous fishing in the Shetland region, and thus the right to such licences. The exclusion of many from Shetland waters is consequently a point of contention for nearby fishers, who potentially relied on access to the region and resources. The RO thus points to further enclosure in Scotland, as the right to directly benefit is further consolidated to fewer individuals, indicating significant distributional conflicts.

From a neoclassical perspective, this consolidation could be viewed as providing support for sustainability in the Shetland inshore fishery, as it incentivises the included fishers to act

²⁹ Fisheries under the Shetland RO include crabs, lobsters, scallops, queens, razorshells, whelks, mussels, oysters, clams, and cockles.

more economically rational with regard to their resources. The apparent success of the Shetland RO is, however, also a testament to the ongoing effort from both the LA and the fishers that support it (Goodlad, 2005). It has already been established that institutional design requires input from stakeholders for longevity. Co-management approaches, such as the Shetland RO, are often viewed as a method for greater inclusion of a wide range of stakeholders in the decision-making processes. Fisheries co-management, which allows local resource users to share power and responsibility, has proven to reduce transaction costs, as there is increased compliance with regulations (thus reducing policing) and fewer conflicts between stakeholders following implementation (Kuperan *et al.*, 2008).

However, some studies suggest support for the RO is not unanimous amongst inshore fishers, with some suggesting the RO was a method for the consolidation of power by the larger vessels (Johnson, 2004). It could be argued that those that have protested the RO have not had the bargaining power to drive change, and so the RO has continued to be renewed. Despite the resistance of a subset of Shetland fishers, the continuation of enclosing use and control rights could be a path dependent process that offers few alternatives.

To date, the Shetland RO is one of only two ROs to be put in place; the second was enacted in Solway for the cockles fishery in 2006. The Solway Firth RO expired in 2011 following poor yields and the subsequent collapse of its management association. The fishery was closed thereafter. In 2015, the Scottish Government published a report on the potential for TURFs to be used in the Solway Firth. Although the study had to be abandoned prematurely because of low stocks, it did suggest that any future management should be building on equitability and opportunities for young people (Scottish Government, 2015c).

The Sustainable Inshore Fisheries Trust (SIFT) also applied for an RO in 2015 for scallops and *Nephrops* in the Firth of Clyde. The RO was rejected by the Scottish Government. Comments provided by the incumbent Cabinet Secretary for the Rural Economy pointed towards the lack of support from fishers who would be directly affected by the order, as well

as concerns that another layer of administration would ‘*undermine current initiatives*’ like the Clyde MPP (Scottish Government, 2017a). The results of the SIFT campaign indicate the need for a more cohesive framework for supporting management approaches, as the current complexity has evidently worked against the implementation of further exclusivity. More significantly, the campaign did not include a wide range of fishing stakeholders, which resulted in strong opposition from local fishers.

DECOMMISSIONING AND CONSOLIDATION (2000S)

In the late 1990s and early 2000s, decommissioning schemes set forth by the EU reduced the fleet numbers significantly, particularly reducing the demersal fleet in efforts to save the Cod fishery (Scottish Government, 2005). Decommissioning, from the perspective of sector fishers, appears to be part of a larger narrative of ineffective and draconian EU control, which made European policy unpopular. One sector fisher declared,

‘They cut the catching capability of Scotland to make space for the European fleet to come in, and this has affected the young generations in all coastal ports of Scotland, in the last ten years we have had a kind of lost generation, there is no young guy to pass on our knowledge.’

In this perspective, decommissioning is intrinsically linked to creating barriers for younger generations to enter the workforce. Oppositions to decommissioning could be indicative of a concern regarding the future of the industry. However, others had a different opinion, arguing that while the schemes drastically reduced the fleet, they also helped reduce inefficiency by removing unproductive boats. Indeed, a representative for the sector fleet contended that later decommissioning schemes were the product of an industry understanding they had exceeded capacity, stating,

‘The Scottish Government took out seventy-five vessels or so in 2002, and then we did a similar exercise in 2003 taking around fifty away... So that wasn’t because the EU was trying to replace us with European fleet, it was just we had accepted that the fleet was far too big.’

Crucially, the withdrawal of vessels also developed a more competitive market for quota transactions. The trading of quota between sector fishers following the decommissioning schemes increased consolidation to only a handful of fishing companies. In 2018, a report stated that five families control close to half of all quota, either solely or through minor investments in other companies (Dowler, 2018).

This consolidation has left a large proportion of the industry dispossessed of the same opportunities that were allocated to sector fishers. The distribution of quota has left some stock completely *'unviable'* for inshore fishers, leaving only a *'handful'* of units divided between the entirety of the inshore fleet, according to an inshore fisher. A representative for an inshore group³⁰ added that,

'a lot of opportunity to the non-sector has leached out of that quota pot... the non-sector available quota is not a true reflection of what these boats might catch or what fish might be in the areas in which these boats operate.'

As such, inshore boats that used to land multiple tonnes of target species have been left with close to no quota for the same species. A lack of fishing opportunities has led the majority of the inshore fleet to target creel fishing for non-quota species; 88% of 10mu vessels are creelers (Scottish Government, 2018d).

Consolidation and enclosure of the right to fish has been furthered by some in the industry exploiting a system with apparent loopholes. Slipper skippers, for example, are skippers who retain quota on licences from decommissioned vessels, so that active skippers must purchase or rent the quota at usually heightened prices. Slipper skippers have managed to create a very profitable market within the fishing industry that, for them at least, has little to do with fish. However, participants estimate that slipper skippers, whilst presenting a big threat a decade or

³⁰ The representative uses the term 'non-sector' to mean inshore vessels in this instance.

so ago, now only own '2-3% of quota'. It should be noted that this is still more than the 10mu fleet have in its entirety.

FAILED OPPORTUNITIES? (2008-2014)

Since 2008, there have been a number of significant moments in fisheries management that have should have provided the opportunities for potential changes. However, there has been little success in looking into alternatives for the current regime. A Scottish Government consultation in 2008, for example, set out several proposals for securing access for fishing communities. The consultation provided various alternatives, including placing a limitation on FQA holdings, which could '*protect local fishing interests*' and '*offer additional protection to fragile fishing communities and access to fishing rights*' (Scottish Government, 2008, p. 53). However, little appears to have been adopted from the results of the consultation.

In 2014, there was a further opportunity for change in the form of a Scotland-wide consultation over the allocation of quota, rolled out by the Scottish Government (Scottish Government, 2014a). The consultation was a response to repeated calls to re-evaluate the FQA system over fears from inshore fishers over their future opportunities. During the period of the consultation, a moratorium on the permanent transfer of FQA units was set.³¹ According to a representative of a PO, the moratorium resulted in a number of '*stuck*' FQA units, specifically in English POs which could not transfer their Scottish FQA units back. As of 2019, the results of the consultation were yet to be published, and the moratorium was still in place. The delay in publishing has been attributed to the resistance of the Scottish Government to agree to terms in the newly proposed Concordat, according to an interviewed LA fisheries liaison. The interviewee stated that the Scottish Government felt '*hard done by*' by the terms set out in the Concordat, although was unable to give specific details on these terms. As a result, the politically-motivated refusal to the agreement has seemingly caused delays in for the consultation and potentially significant decision-making processes.

³¹ Leasing is still allowed under the moratorium.

6.5 ENCLOSURE IN FISHERIES MANAGEMENT

The previous section examined the historical junctures within Scotland that has led to the current institutional arrangement regulating the country's fishing industry. The public right to fish, at the behest of the state as established under LOSC, now works under several limitations which have arguably transitioned fishing rights from a public right into a series of private rights. Section 4.2 demonstrated that under LOSC, states possess sovereign rights over the fish stocks that lie within their EEZs. As such, the right to benefit from fisheries resources in Scottish waters is regulated by the UK Government, who hold authoritative rights over them (Sikor *et al.*, 2017). However, the introduction of an economic value-based system to regulate who gets to fish has led to a transition towards private rights, held by individuals and corporations. Enclosure of the right to benefit from fishing, as well as the right to manage and control the resource, has occurred, seemingly unfettered, for decades.

Whilst the initial introduction of quota to regulate Scottish fisheries was arguably motivated by a desire to halt the race to fish, in a move for greater ecological stability, the subsequent institutional changes have been more economically, and politically, driven. The wants of the sector fleet to have freedom within EU waters was to maximise their catches, and was in direct contrast to the 10mu fleet who were concerned about foreign vessels gaining access to their inshore waters. Similarly, the formalisation of the quota market through the FQA system was the result of the sector fleets' objectives. This demonstrates an imbalance of bargaining powers within the actor network (North, 1990), where the sector fleet, alongside the passive treatment of the industry by the UK Government, have arguably driven the introduction of private rights and led to the privatisation and enclosure of the right to fish. Accessing the right to fish has in itself become a commodity, as quota is bought or leased on an open market between individual fishers and larger corporations. Indeed, the introduction of the FQA system could be regarded as a particularly significant critical juncture, which caused an immediate shift of the right to fish to an economic commodity. This economic value-based system has essentially created a *de facto* ITQ system, but without the necessary

safeguards in place that can limit concentration, or assess the eligibility of quota owners (Appleby *et al.*, 2018).

However, the extent of these private rights is contested. There is no associated legal title with the possession of FQA units. Hatcher and Read (2001, p. 7) describe the allocation of quota in the UK as an '*informal arrangement*' between government and industry, without an adequate legal framework, and denotes the actual legal status of quota to be '*very weak*'. Indeed, the government is routinely '*at pains to say this is not a legal right*', but rather a right granted at the discretion of the government, according to a legal expert who facilitates quota trading. Thus, in theory, the 'right' to fish that comes with the purchasing or leasing of quota units could be removed or amended at the behest of the permitting body, which, in the case of Scotland, is now the UK government. Marine Scotland quotes on their website:

'The Government's long-stated position on quota ownership is that quota is allocated at the discretion of Ministers and, as such, fishermen neither own nor have property rights over it.' (Scottish Government, 2019a)

The articulation of fishing rights as state property is reinforced by the state and their insistence over their ability to remove quota. However, a recent court case has weakened this argument. The court case featured the UK Association of Fish Producer Organisations (UKAFPO) and the Department of Environment, Food, and Rural Affairs (DEFRA) (2013), wherein Justice Cranston stated that consistently used FQA was a '*possession*' under Article 1 Protocol 1 of the Human Rights Act 1998. The ruling provided evidence that the ability to buy, sell and lease FQA units in the UK means they are reminiscent of a capital asset, with some 'owners' of quota investing heavily into the system. As discussed in section 3.2, under a legal perspective, private ownership is considered synonymous with private property rights. Consequently, determining FQA as a '*possession*' signals an understanding that FQA units are owned by quota-holders, in an effective system of ITQs '*by another name*' (Goodlad, 2005, p. 108).

The case, an appeal by the UKAFPO against the reallocation of *unused* quota from sector vessels to the 10mu fleet, favoured DEFRA. Whilst considered a small win for the inshore fleet, the result could also mean further difficulty when reallocating used quota units. As such, the right to fish (and the right to benefit from it) whilst in possession of quota is still being viewed as a *de facto* private property right held by individuals, POs and fishing companies. The power to remove that property right is now legally weakened (Appleby *et al.*, 2018). Owing to the continued practice of static quota allocation, a perception of permanence has thus been created. This permanence could prove a significant obstacle to further institutional change.

In summary, the actions of the EU and the UK Government, in response to influence from the sector fleet, have all led to the transition of Scotland's fisheries management from a state-controlled system, in the domain of the general public, to a *de facto* ITQ regime, but without the legal stability for fishers. A system of '*nested*' institutions, as per Ostrom (1990, p. 50), means that the state retains authoritative rights, allowing them to grant control rights to private bodies. As such, the POs now hold control rights, with the ability to exclude fishers from accessing resources. Subsequently, quota-holding individuals have either invested in, or have been allocated, private use rights. The use of spatial restrictions, in the form of the Shetland RO, adds another layer of institutions. The RO works on the basis of communal decision-making, allowing an organised group to set the terms of exclusion and use over their resource. As a continued process, enclosure is thus occurring in the form of consolidation of quota, rights and economic value, as a result of both of an imbalance of power towards the sector fleet, but also the resilience of certain communal factions.

6.6 SOCIO-ECONOMIC CONSEQUENCES

The previous sections have discussed how the current regime of managing Scottish fisheries are enclosing the right to fish. The following explores the socio-economic consequences of this regime, discussing the wider ramifications that routinely emerged within

the document analysis and interviews. Using the drivers and institutional changes discussed in section 6.5, and the consequences examined in the following section, Figure 8 illustrates the transition of enclosure within Scottish fisheries.

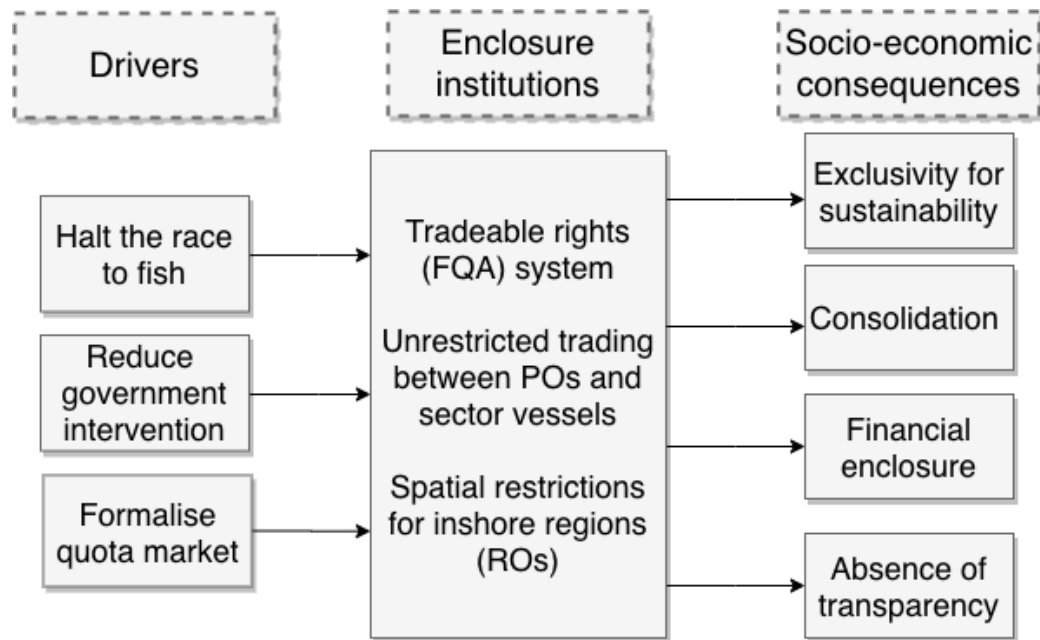


Figure 8: Drivers, processes, and consequences of enclosure in Scottish fisheries

EXCLUSIVITY FOR STABILITY AND SUSTAINABILITY

A positive consequence mentioned by many of the interviewees has been the stability that the FQA system has brought to the Scottish fishing industry. In introducing the formal FQA system (as an improved version of the quota system prior to it), sector fishers have argued that the institutionalisation of rights has also resulted in economic stability for a previously unpredictable occupation. This sentiment has been similarly reflected by the Scottish Government who have argued that the main reason for keeping the FQA regime has been its *'fixed nature'*, which provides a *'stable and resilient system'* (Scottish Government, 2014a). According to interviewees, the FQA system came at a crucial time, when *'blackfish'* was rife.³² A former fisher, now processor, recalls,

³² The term 'blackfish' refers to any illegally landed or unaccounted fish resources.

'Now, prior to FQA being introduced, the POs controlled quota on a tonnage basis, and blackfish was absolutely rife, it was everywhere. The volume of unseen, illegal, call it what you want, landings was off the bloody scale.'

Whilst acknowledging that the industry is still not *'squeaky clean'*, interviewees from across the industry stated that illegal practices have significantly decreased in the past twenty years. Although institutional change has been established as not always rational, the implementation of institutions can help to modify the behaviours of actors so that they are more compliant with regulations, as evidenced by the discussion on environmental stewardship (section 6.2). Thus, a decrease in illegality could be partially due to an increase in environmental stewardship. A representative of a PO agrees, stating that he tends to think *'the introduction of the FQA system, coupled with... stronger enforcement, helped and probably put us on the path to where we are heading now.'* In providing an economic incentive, the tradeable rights system could have contributed to a change in behaviour towards the future of their resources. The Indicator for the NPF, which measures the percentage of fish stocks fished sustainability, corroborates that there has been a steady increase in sustainable practices, rising from 46% of stocks in 2015 to 54% in 2017 (Scottish Government, 2019c).

Exclusivity in the form of the Shetland Regulating Order (RO), which essentially created a fishery owned and governed by a locally run organisation, has similarly been regarded a success in terms of improving fish stocks and bringing stability to the local fishers (Goodlad, 2005). Interviewees both from Shetland and further afield were complimentary of the Shetland model and its reliance on local powers; one Orcadian fisher was particularly aggrieved by the repeated failures of Orkney fishers to establish a similar RO. Arguing that resistance to such powers was a result of wanting to maximise immediate returns, the inshore fisher stated,

'For a regulating order, you pretty much had to have 100% support from your fishermen. And we didn't, because there's some boys who's just in it for now, and not for the future. Which is kind of sad.'

However, attributing the success of the Shetland RO solely to the limiting of access disregards compounding factors such as the collaborative management scheme, which may have affected the outcome. This thinking was reflected in statements from a fisher from Shetland, who viewed the industry in Shetland as ‘*an exception*’, and stated,

‘Those powers remain and they are used to protect fisheries, otherwise there wouldn’t be any [fishers] up here either. It’s a community system.’

Seemingly, the perceived success of the Shetland model was attributed more to the ability of communities to make their own decisions, rather than the presence of increased exclusivity and enclosure. Such views indicate that increased decision-making, rather than the presence of formally-defined property rights, was of higher priority to many fishers. The ability of individuals to participate in planning and decision-making processes has been regularly established by both academics and policymakers as critical for institutional capacity building (see section 3.5). Consequently, the journey towards ecological sustainability is most likely the product of a range of factors, and not solely the result of increased enclosure and tradeable rights. This finding is consistent with Carter (2014, p. 132), who details the growth of active responsibility in fishers as the result of a series of ‘*interdependencies*’ between scientists and fishers, and acknowledging the importance of knowledge exchange.

CONSOLIDATION OF QUOTA AND POWER

Despite a perception of increased ecological, and social, sustainability by some interviewees, the quota system in Scotland has had some negative socio-economic consequences. By putting a value on the right to fish, and marketizing a public right, those initially allocated FQA units became a part of a closed market overnight. According to a representative for the sector fleet, this shift in rights essentially ‘*gifted*’ a valuable commodity to those that were able to prove historical catches. An interviewee working in the inshore fleet attested that, in some cases, this was a ‘*sizeable*’ amount of wealth.

The economic value of quota has steadily been rising, with quota rental and purchasing now accounting for a significant portion of the costs associated with fishing (alongside fuel and vessel maintenance) (Seafish, 2018). Some sector fishers stated the portion of income used for quota units was close to 80% of total costs for highly valued species. This regime has led to high investment from individuals and corporations. Fishers that had both remained in the sector fleet, as well as those who had previously been a sector member before transitioning to inshore work, stated feeling as if they *'had'* to invest large sums into quota, or their stake in the industry was lost.

As such, fewer and fewer people have been either fortunate enough to be a part of the initial allocation or wealthy enough to buy or lease steadily rising quota. In turn, through the act of trading, there has been mass consolidation of these rights to a small subsection of the fishing population. As examined above, 10mu fishers are not members of POs and they possess few fishing opportunities. Additionally, interviewees working in the inshore argued that they have historically been without effective and organised representation. A simple solution would be to join a PO, in order to access quota that could be leased. However, as a representative for the inshore fleet stated, *'You can't just be in the PO with nothing... they would have to bring fish with them.'* A report close to the introduction of FQA similarly detailed that *'over a quarter'* of non-sector vessels had attempted to join a PO and been unsuccessful because *'their track record/FQA was considered too small'* (Hatcher *et al.*, 2002, p. 48). In other words, in order to gain access to future fishing opportunities, fishers already must be in possession of opportunities, making it difficult for outsiders to enter.

This consolidation defies collective action within fisheries, transferring powers of management to individuals and private corporations. In addition, the establishment of the system has removed both the ability to extract rent and decision-making powers from the state. Consequently, the consolidation of quota, and thus rights, has also consolidated power away from a large fraction of the industry, the owners of the resource, and the public, for which the resource is maintained.

The distributional conflicts that the tradeable system has created is symptomatic of imbalances of power held by fishing actors. Distributional conflicts can significantly impact the effectiveness of the institutional arrangement, as those without access to resources and rights may be fundamentally opposed to the incumbent regime. In turn, this opposition may result in non-compliance. The potential for opposition to institutions is thus a crucial reason for mapping the perceptions of fishers to the current regime and future alternatives.

FINANCIAL ENCLOSURE

This steady enclosure of the right to fish could be deemed a kind of '*financial enclosure*', as the economic value of the resource becomes the source of displacement for other users (Tricarico, 2012; Kay, 2017). As consolidation to fewer hands increases, the market for the right to fish has become a significant financial barrier to potential new entrants. A recent study for the whole of the UK showed that all vessel owners within their sample were over forty years of age (Seafish, 2017). The difficulties for new entrants was illustrated numerous times by both inshore and sector fishers within interviews. One creel fisher stated,

'Any young lads getting into the whitefish, it's just a non-starter. Unless its family taking over. The only fishing that's left that anybody could get a start in, is creels. That's the only thing that's left that a young lad could buy into.'

The concern for the future of the industry is not only that new entrants are unable to access pelagic or demersal fisheries, but also that there may be a growing number entering the creeling business, which could additionally drive unsustainable practices. Arguably, the accessibility of the creel industry is the lack of institutional barriers, which economists may argue could be solved by introducing property rights institutions. Thus, the option to bring non-quota species into the quota system should be discussed with fishers, and is included in the Q study in the second half of the case study.

Additionally, high costs of quota are resulting in larger bank loans, which can prevent older generations of fishers from retiring (Stewart, 2014). Quota has also been cited as the

cause of decreased shares of ownership in vessels, although this was not a homogenous finding across the industry, as investment differed dependent on sector and geographic area (Cardwell and Gear, 2013). With an absence of financial stability, vessel owners are also often prevented from offering permanent positions for new crew, which, in turn, has decreased job retention in the younger generations (Stewart, 2014). Movement of labour is especially prevalent in areas where other marine industries are more likely to provide job stability and social mobility in the future. This movement was cited by interviewees in Orkney in particular, where the marine renewables industry has proliferated. According to an Orcadian creel fisher,

‘They can’t catch fish because they haven’t got quota to catch, it’s like a closed shop, there’s no avenue to go and better yourself, there’s no progression, it’s impossible. So they’ll find something else.’

The barriers to enter and progress within the Scottish fishing industry was a unanimous concern amongst interviewees regardless of sector association. However, the options for rectifying the issue are not shared by all. For example, a former sector vessel skipper argued that, *‘we’re not making any new land either so how does a new farmer get started?’*, equating fishing opportunities with landownership. Arguably, the market for land is long established, whereas quota is still burgeoning. In other words, the quota market is *‘emerging right now’* in a process that is not fully understood by those in charge (Holm and Nielsen, 2007, p. 174). Furthermore, the distribution of rural landownership, as discussed in case study 1, has had clear consequences for the economic and social wellbeing of the country, and has subsequently undergone reform. Redesigning the institutions which govern rural land has allowed land to be accessible for those previously dispossessed from property holding. Although North (1990) argues that institutional barriers can often be deliberate, the barriers that have been established within the fishing industry appear an unintended consequence of a poorly executed institutional design, that has led to industry-wide concerns.

AN ABSENCE OF TRANSPARENCY

Fisheries have globally had trouble working within a transparent system, as illegal, unregulated, and unreported (IUU) activities continue to occur on global scales (Le Gallic and Cox, 2006). Section 3.5 examined the role of transparency for successfully managing and allocating resources, as transparency, alongside knowledge transferal, can allow for institutional capacity building (Smith, 2018). There has been increasing recognition of the need to share information between fishers, scientists, and managers, and the inclusion of fishers' knowledge in decision-making processes for more effective regulation (Johannes *et al.*, 2000). Grant and Berkes (2007, p. 162), for example, acknowledge fishers' knowledge as an '*expert system*' of social adaptive learning, which acts with scientific knowledge to improve adaptability. Similarly, understanding the informational flows between managers and fishers have been established as crucial for anticipating responses to changes (Turner *et al.*, 2014). These arguments are in keeping with institutions acting as embodiments of knowledge, in that knowledge systems can influence and stabilise the rules and norms (Scott, 1995). Additionally, the need for flows of knowledge corroborates that two-way communication is a vital component of successful participatory management (Reilly *et al.*, 2016).

There is a significant absence of transparency now evident in Scotland's fisheries. This absence should not be attributed solely to the current property rights regime. However, the quota allocation system has seemingly worked outside of the public, or governmental, eye, with consolidation happening without intervention. POs have been allowed increasing freedom in their control of quota and its value. A recent report stated there was '*insufficient expertise in the specific details of POs*' within Fisheries Administrations, who made '*no attempt at all to identify ultimate controlling, related or connected parties in POs' corporate members*' (LIFE, 2015, p. 9). As such, this ongoing lack of transparency has arguably contributed to the rapid grab of rights that has occurred in Scottish fisheries.

There have been efforts to combat industry 'secrecy'. In 2013, an opportunity for greater transparency came in the form of the FQA register, where all transfers of FQA units must be

logged.³³ The UK and Denmark are currently the only EU countries with public quota registers. Additionally, decentralisation to regional groups such as the RIFGs and Regional Advisory Councils (RACs) has attempted to improve reciprocal flow of information between the state and industry actors by way of collaborative working. RACs are industry-led groups that aid with regional fisheries management, including discard plans, conservation goals, and stock recovery. However, there have been criticisms of the methods in which these groups have facilitated so-called collaboration, with some studies arguing they continue to exclude actors, and involve ‘*uneven power relations*’ (Griffin, 2007, p. 488). Others have termed RACs, ‘*elitist “mini-councils”*’ (Eliassen *et al.*, 2015, p. 230). Khalilian *et al.* (2010, p. 1182) describe RACs as ‘*dominated by the fisheries industry*’, meaning that interests groups such as the unorganised fleets, ENGOs, and scientists are underrepresented and lack influence. The RIFGs have had similar criticism, with opponents citing poor transparency of both membership and decision-making processes (SIFT, 2018).

The inclusion of fishers in decision-making processes was cited by a number of interviewees, particularly inshore fishers, who wished to see further collaborative working in the future to breakdown the science-industry dichotomy of knowledge. An inshore fisher declared,

‘I would say the more people had involved them, the more fishermen would want to get involved with the scientists, I am sure there would be a lot of gains, just in information and understanding.’

However, another creel fisher stated that currently, there is little two-way communication between regulators and those on the ground. He argued that confusion surrounding quota regulations percolated through the system, from managers to fishers.

³³ The FQA online register (www.fqaregister.service.gov.uk) details FQA units allocated to POs and vessels.

'I was in the office there and I was looking at different avenues, because we'd like to catch fin fish... and I have been in the office and even the staff in the office couldn't find what we were looking for on the site.'

Consequently, there appears to be barriers to fully integrating the information of fishers and managers. Fishers are seemingly left behind on decision-making, and lacking access to information that directly affects them, whilst their knowledge of both the ecological and socio-cultural aspects of fishing are not adequately utilised (Symes and Phillipson, 2009). In preventing methods for transparency, knowledge sharing, and participatory governance, there is the risk that solutions to the distributional conflicts and institutional barriers are never fully achieved. In essence, the enclosure of fishing resources may continue if alternative models do not include more transparent and participatory working.

6.7 OPPORTUNITIES FOR THE FUTURE

Path-breaking institutional change has yet to successfully occur in Scotland's fisheries, despite the opportunities presented in section 6.4. However, now, the future of Scottish fisheries management is at a pivotal point, as the current institutional arrangement may have an opportunity for change. In particular, Brexit has created potential for this change. The current debate regarding institutional change has been sparked by possible increased fishing opportunities that may arise from Brexit, triggering conversations about reallocating quota in a more 'equitable' way.

Whilst it was documented that the British fishing industry were content with joining the CFP at the time (Wise, 1984), this feeling has gradually changed. The open-door policy that was originally lauded has meant the CFP is now regarded as '*unfair*' and '*unfit*' by many in the industry (House of Lords, 2016, p. 3). The recalling of the CFP became the basis of arguments of many fishing communities seeking to leave the EU in the 2016 referendum. Arguments against the CFP included the belief that the policy had ultimately failed in its promises for more sustainable stocks. Daw and Gray (2005) found that, although TACs were

set annually on scientific advice, limits could be influenced by member states, in a politicised process that often resulted in higher quotas than advisable. Consequently, interviewees from both inshore and sector fleets, as well as other research efforts, have viewed the CFP as an ecological failure (Daw and Gray, 2005; Khalilian *et al.*, 2010). Additionally, even with reform in 2002, which promised decentralisation, the CFP continued to be an example of a closed policy that excluded a number of actors in the decision-making processes (Gray and Hatchard, 2003).

The consistent failures of the CFP, and the EU in general, to attend to the priorities of individual states' industries was evident in many of the interviews. One participant, a long-time sector fisher, declared,

'It feels that you have been marginalised for the good of the European objective, whatever that is.'

The political, and physical, space between fishers on the ground, and the decisions being made by the EU, are thus felt to be deep. Fishers believed they have been left as bystanders to politically-motivated decisions, deeply impacting the sustainability of both their resources and lifestyles. Consequently, the fishing industry, or more accurately, the industry as represented in the media, were strong proponents for leaving the EU. Most obvious was the language of ownership that surrounded Leave campaigns. The 'Fishing for Leave' campaign was, and continues to be, particularly vocal in its views of Brexit as a '*golden opportunity to regain 70% of the UK's fisheries resources*' (Fishing for Leave, 2017). The nature of these claims was mirrored in the language used by Leave campaigners like Boris Johnson MP, who stated that the EU was '*pinching our fish*', suggesting that the CFP had allowed EU member states to steal British-owned resources (quoted in Hughes, 2016).

On triggering Article 50, the UK Government also announced the recalling of the London Convention on the 2nd July 2017. The then-environment secretary announced this was the beginning of the UK '*taking back control*' and deciding the '*terms of access*' (quoted in

Perraudin, 2017). Control over one's own waters and resources is a central component of the Brexit narrative. As such, the result of the referendum could be viewed as a want, by a public majority, for intensified state control over resources. The sovereignty narrative was again evidenced in a number of interviews, most prominently by sector fishers. A long-time demersal fisher, equating the right to fish in UK waters with landownership, stated,

'I just think that it's a bad taste the fish in our territorial waters is seen as a European commodity (...) I certainly don't see French wine makers giving up part of their land to British to make wine over there, so I think that it should be the same for fish. It should be a national resource to us.'

In arguing that fisheries resources are a 'national' resource, the fisher demonstrates the prevailing ideology of national ownership over resources. In other words, the idea that the right to fish remains a public right, for the good of the Scottish public, is clearly still a dominant ideology in the fishing industry, despite the regulations that have been introduced.

The process of leaving the EU has created further uncertainty for the future of fisheries management in Scotland. Despite the decision to leave the EU, the UK and consequently Scotland will still be bound by international legislation like LOSC and the UN Fish Stocks Agreement. As such, the UK will not only need to continue managing its marine resources sustainably, but some cooperative management must continue with countries that share straddling stocks. However, with uncertainty, there is also potential for institutional change, an opportunity recognised by nearly all within interviews. As stated by an inshore representative,

'When the EU referendum came along, it was the first time ever, that fishing came to the stage as a big political subject within the UK political scene.'

The UK's task in the years following the referendum has been to determine how fisheries policy can be overhauled, and what the relationship with its neighbouring coastal states will

look like. Critically, Scotland was quick to ensure that the wants of the Scottish fishing industry were included in the discussions. The incumbent Scottish Rural Affairs Secretary, for example, maintained the need for Scotland to retain control over their fishing waters, and warned against ‘*trading away*’ access to economically profitable fishing areas to remaining EU States (quoted in Gordon, 2016). The potential for ‘additional’ quota has also become a key factor within the discussions.

It is hoped the post-Brexit Fisheries Bill will answer the questions that Brexit has generated, by establishing a legal framework for the UK to become an independent coastal state. The Bill in itself does not act as policy and so does not state clear policy objectives, but rather will act as a framework around which future policy can be implemented. However, a couple of specific details are contained within the Bill, including the formal removal of the right of EU vessels to fish within UK waters. Additionally, it sets out continued devolved powers to the Fisheries Administrations, but reiterates that ‘opportunities’ will be delivered from the UK Government (UK Parliament, 2019). However, the Bill has seen no progress since December 2018.

The Bill states that the FQA system would stay, with no reallocation to take place. This has been welcomed by the vocal proportion of the fleet that is resistant to potential reform. The SFF, for example, has publicly stated that undermining the current FQA system would risk bankrupting existing businesses and threaten the entire fleet (Fishing News, 2019). Arguments for the status quo are also predicated on the allocation of future opportunities across the entirety of the fleet, something which the SFF has stated will happen (Fishing News, 2019). The form of these increased opportunities is also still uncertain, especially without a formal legal framework in place. Even with the UK acting as an independent coastal state, and limiting access to foreign vessels, there is no guarantee of an increased share of TACs.

The reluctance to accept alternative models of governance is an example of path dependency. The option of reform has become an impossible alternative for many actors

within the Scottish fishing industry, who have a high degree of ‘*sunk costs*’ in the current system (Bartley *et al.*, 2008, p. 165). The legacy of the FQA system, and the continued expectation for quota, has meant fishers face potentially high switching costs should radical reform happen. As such, although many may recognise its failings, investing fishers have been left to cling to the current system.

Whilst consolidation has arguably created a major financial barrier for new entrants, there has been unified motivation for improving recruitment into the industry, in efforts to build social resilience for threatened fishing communities. Financial measures set forth by the European Maritime and Fisheries Fund, for example, provides grants for training courses, vessel modernisation, and diversification through Seafish³⁴ and the Scottish Government; however, this funding will cease following Brexit. Additionally, funding alone is unlikely to be the solution to relational issues of accessing captured quota (White, 2015). As such, an All-Party Parliamentary Group on fisheries has been consulting industry leads on how to incentivise young people to join the career, tackling issues of financial, institutional, and social barriers for new entrants. However, there is still a concern that the previous, and continued, enclosure of fishing rights will hinder any progress that such schemes might make.

Arguably, the repeal of the CFP following Brexit could provide both the political and legislative space where alternatives the FQA system remains, but different forms of communal ownership, or co-management, such as CQ schemes. CQ schemes allow fishing communities to have autonomy in their decision-making; their implementation could be context-specific also, permitting the inclusion of local social and cultural intricacies (Jentoft, 2000; Mansfield, 2007). The idea of widespread CQ was introduced in the UK Parliament in the early 2000s. There have been several locally or regionally managed CQ schemes in the UK previously, including in Orkney, Shetland and Cornwall. However, many faced difficulties with deciding who would benefit from the scheme, where funding would be sourced, and who would handle

³⁴ Seafish is a Non-Departmental Public Body working to improve standards in the seafood industry, sponsored by and working with the UK Fisheries Administrations.

the management (House of Commons, 2005). Crucially, there were problems creating a scheme under EU law; however, following Brexit, the UK could have the opportunity for that may provide scope for mitigating the consequences of the current system. Whatever occurs in the future should reflect the wants and needs of those within the industry. Therefore, in attempting to discover the nuances and consensus between fishers, the second half of case study 2 focusses on the perceptions of those working within the industry.

6.8 Q STUDY INTRODUCTION

The word fair is pejorative. (Interviewee)

The first half of this case study has demonstrated that the implementation of property rights and markets into fisheries management has had significant social consequences. However, despite the significance of such changes, specific research on fishers' opinions of marketisation of quotas has been limited (Frangoudes and Bellanger, 2017). This chapter aims to contribute to this important area of research by empirically mapping the perceptions of lead actors in the Scottish fishing industry to changing rights in fisheries.

Understanding the industry's perceptions on rights in fisheries is also particularly important at the present juncture, when changing law and policy has the potential to enact huge transformations over rights distribution. As a result of the opportunities discussed in the section 6.7, the methods used to manage fisheries have been increasingly put under a microscope. Potential additional quota, the distribution of the current quota, and rights of foreign vessels in Scottish waters, have all become central to discussions on the future of Scottish fisheries. Studies into the opinions and expectations of fishers to the outcomes of Brexit have touched briefly on the issue of changing rights (Agnisola *et al.*, 2019), but further analysis is needed.

Mapping potential dissonances within the industry will be key to achieving better policy in the future that can more effectively incorporate the needs of an increasingly disparate

profession. As discussed in section 1.2, exploring stakeholder perceptions can help understand social values, as well as predict behaviours in response to regulations (Kapoor, 2001; Cordano *et al.*, 2004). Additionally, section 6.6 detailed the socio-economic consequences of rights-based systems, examining the inequity that occurred at initial allocation, as well as the distributional conflicts that arose in the market post-allocation. The potential for mitigating such conflict is a great incentive for involving stakeholders in the decision-making process, as cross-sector conversations can help align priorities and values (van Putten *et al.*, 2013). Consequently, including stakeholders in decision-making processes has been established as one of the critical criteria for good governance (UNESCAP, 2006).

The second half of case study 2 explores the perceptions of workers in the fisheries industry to the enclosure and privatisation processes discussed within the previous sections. The analysis is done using Q-methodology, which groups perspectives, and can help elicit possible options for the future that best serve the diverse Scottish fleet. Section 6.9 explains this specific application of Q, before the results are presented in section 6.10. Section 6.11 then discusses the findings, highlighting the tensions emergent within the industry, and the divergent views on the priorities for the future. The final section then summarises the findings of the whole case study.

6.9 Q-METHODOLOGY

Q and its constituent parts have already been described in section 2.4. This section is dedicated to describing the specifics of this application of Q. The Q statements were constructed using the predominant coded themes identified from the discussion in the first half of the case study. These codes have been categorised as follows: (i) *governance and management*; (ii) *financial enclosure*; (iii) *national ownership narratives*; (iv) *knowledge dissemination and transparency*; and (v) *future of rights in fisheries*. The discourse (as set out in section 2.4) was then captured by writing a longlist of statements, until redundancy set in and no additional value could be added by new statements. The initial list of statements

numbered thirty-seven in total, which was pilot tested with two participants. The pilot participants provided feedback and suggestions for removing or rewording statements and were particularly useful for helping establish the language of the statements. The final Q-sample was made up of thirty-five statements, found in Table 8.

Table 8: Case study 2: Q-sample list and codes

Category Code	Statement code	No.	Statement
<i>Governance</i>	FGov1	1	Fisheries are over managed
<i>Financial enclosure</i>	FFin1	2	It is difficult to diversify into new fisheries
<i>Governance</i>	FGov2	3	Non-quota species should be incorporated into the FQA system
<i>Financial enclosure</i>	FFin2	4	Fishing has become more costly because of the quota market
<i>Future</i>	FFut1	5	There should be quota reserved for new fishers
<i>Financial enclosure</i>	FFin3	6	Quota in the non-sector was distributed fairly after the latest reform
<i>Future</i>	FFut2	7	The FQA system should stay but units be redistributed more equitably
<i>Future</i>	FFut3	8	The FQA system should be scrapped and a completely new system introduced
<i>Financial enclosure</i>	FFin4	9	There has been too much investment to change the quota system
<i>Financial enclosure</i>	FFin5	10	Buying or leasing quota is the main barrier for new entrants
<i>Knowledge</i>	FKno1	11	The method for trading quota is efficient
<i>Knowledge</i>	FKno2	12	‘Unwritten’ rules are often more important and efficient than official regulations
<i>Governance</i>	FGov3	13	The non-sector and sector fleets are treated equally
<i>Financial enclosure</i>	FFin6	14	Ownership of quota has done nothing to stop illegal fishing
<i>Knowledge</i>	FKno3	15	Individuals in the fishing industry are listened to by regulators
<i>Knowledge</i>	FKno4	16	Local knowledge is being adequately used for regulations
<i>Future</i>	FFut4	17	Brexit is going to provide greater scope for better, fairer fisheries management
<i>Future</i>	FFut5	18	An independent Scotland will mean better, fairer fisheries management
<i>Governance</i>	FGov4	19	Conservation should be the number one priority for Scotland’s seas, even if it means excluding other users
<i>National ownership</i>	FNat1	20	Foreign fleets are given too many rights in Scotland’s waters
<i>National ownership</i>	FNat2	21	Reciprocal access is important for Scotland’s fishing communities
<i>National ownership</i>	FNat3	22	An open market is more important than excluding foreign fleets
<i>Governance</i>	FGov5	23	The Scottish Government generally supports the fishing industry

<i>Governance</i>	FGov6	24	Local authorities should have more statutory powers to limit who fishes where
<i>Knowledge</i>	FKno5	25	Rights to fishing resources are easily understood and the information readily available
<i>Financial enclosure</i>	FFin7	26	The distribution of quota in Scotland is fairly regulated
<i>Financial enclosure</i>	FFin8	27	Fewer individuals and companies owning quota is better for the management of stocks
<i>Financial enclosure</i>	FFin9	28	The problem of 'slipper skippers' is the most important issue in the current quota system
<i>Governance</i>	FGov7	29	There is too much informality in the current system of management
<i>Financial enclosure</i>	FFin10	30	The FQA system increases stewardship over fish stocks
<i>Knowledge</i>	FKno6	31	The right to fish should be for everyone
<i>Governance</i>	FGov8	32	Individuals in other marine industries should get more say on who gets to fish where
<i>Governance</i>	FGov9	33	Individuals in coastal communities should get more say on who gets to fish where
<i>National ownership</i>	FNat4	34	Fish are a public asset
<i>Knowledge</i>	FKno7	35	The quota system is easily understood and information is readily available

Governance = 9 statements, Financial enclosure = 10 statements, Knowledge = 7 statements, National ownership = 4 statements, Future = 5 statements

Participants were asked to rank the thirty-five statements into a normally distributed sorting with nine ranks (-4 to +4), as demonstrated in Figure 9. Fourteen participants were interviewed for this application of Q, with all initial interviewees in the previous chapter invited back to participate (three of whom responded positively and undertook the task). The participating stakeholders represent a positive response rate of approximately 19.5% of contacted individuals and organisations.

Strongly disagree			Neutral			Strongly agree		
-4	-3	-2	-1	0	+1	+2	+3	+4
3	1	2	4	6	12	15	8	9
	28	17	5	14	13	20	10	
	34	18	7	23	19	21	11	
		35	16	24	25	27		
			22	26	29			
			33	30	32			
				31				

Figure 9: Example Q-sort matrix for fisheries enclosure attitudes for case study 2

Table 9 summarises the participants' stakeholder categories, along with major demographics. The interviews have been termed F(number) to indicate they are part of the fisheries case study and identify the participant; these interviews correspond to the completed Q sorts (in Table 10). Of note are the age and gender demographics in this Q study; participants were predominantly male, as was predicted for a male-dominated working environment, and within the highest age bracket, usually corresponding to a long stretch in the fishing industry.

Table 9: Case study 2: Participant demographics and stakeholder categories

Interview	Stakeholder category	Gender	Age category	Time in industry
F1	Local Authority	Male	55-64	6-10 years
F2	Fishers association	Male	55-64	31-40 years
F3	Sector vessel owner	Male	55-64	>40 years
F4	Producer organisation representative	Male	45-54	≤ 5 years
F5	Fishers association	Male	55-64	>40 years
F6	Inshore fisher	Male	55-64	31-40 years
F7	Inshore fisher	Male	55-64	>40 years
F8	Inshore group	Female	25-34	6-10 years
F9	Fishers association	Female	55-64	31-40 years
F10	Processors, marketers and agents	Male	55-64	31-40 years
F11	Sector fisher	Male	55-64	31-40 years

F12	Processors, marketers and agents	Male	55-64	>40 years
F13	Sector vessel owner	Male	55-64	31-40 years
F14	Producer organisation representative	Male	55-64	31-40 years
Counts	Local authority: 1	Male:	25-34: 1	<5 yrs: 1
	Fishers association: 3	12	35-44: 0	6-10 yrs: 2
	Producer organisation: 2	(86.7%)	45-54: 1	11-20 yrs: 0
	Sector fisher: 3	Female:	55-64: 12	21-30 yrs: 0
	Inshore fisher: 2	2		31-40 yrs: 7
	Inshore group: 1	(14.3%)		>40 yrs: 4
	Processors, marketers, and agents: 2			

STATISTICAL ANALYSIS

Following the criteria for factor extraction set out in section 2.4, four factors presented with an eigenvalue over 1.00. However, of those four factors, one factor only had one Q-sort load significantly upon it. To maximise variance, and minimise confounders and non-loaders, the extracted factors were reduced to three. Following the reduction, analysis showed all factors were significantly loaded upon by more than one Q-sort. These three factors were then rotated using Varimax rotation to reveal the maximum variance explained by these extracted factors, which ideally should be above 40% (Watts and Stenner, 2005). PQMethod, using PQROT, then automatically flagged which Q sorts load significantly onto which extracted factors, using the Significant Factor Loading (SFL) set at 0.4361 (at $p < 0.01$ level $SFL = 2.58 / \sqrt{35}$) (Watts and Stenner, 2012).

The distinguishing statements for each factor were used to help explain some patterns within the groups, with the corresponding interviews used to provide crucial context for decision-making by the participants. Distinguishing statements are identified by their z-scores, the measurement of how much priority a factor gives each statement within the Q-sample. The z-scores can be ranked and converted into a factor score (as demonstrated in Tables 13, 15, and 17 for each factor).

6.10 RESULTS

The three extracted factors represent the range of viewpoints emergent from the quantitative analysis, accounting for 61% of the variation across the fourteen Q-sorts. Each factor has been given a profound title that provides a short, clear identification of the factor. The titles have been synthesised from a combination of each factor's distinguishing statements and the concurrent interviews. As such, the three factors have been termed:

1. The Investors
2. The Reformers
3. The Realists

All sorts uniquely loaded onto one of these discourses (as shown in Table 10). Below, these viewpoints are discussed using their distinguishing statements and corresponding interviews to provide context for the participants' choices. Statements within these sections are represented in text as (*number*), corresponding to statements found within Table 11.

Table 10: Case study 2: Factor matrix indicating significant loading of Q-sorts (significant loading at above the Significant Factor Loading indicated by grey box)

Q sort	The Investors	The Reformers	The Realists
F1	0.2186	0.2679	0.8150
F2	-0.1083	-0.0028	0.7174
F3	0.5998	0.1475	0.1962
F4	0.1785	0.6219	0.1802
F5	-0.0258	0.8469	0.0813
F6	-0.3913	0.5933	0.031
F7	-0.1568	0.6987	0.318
F8	0.2174	0.8239	-0.0757
F9	0.184	0.1683	0.7766
F10	0.3249	0.0463	0.8213
F11	0.7610	-0.1006	-0.0402
F12	0.8148	0.1859	0.0059
F13	0.7222	-0.2779	0.2155
F14	0.5824	0.0365	0.3522

Table 11: Case study 2: Q-sample with factor sort values for each statement (Grey boxes indicate distinguishing statements with significance at $P < .05$; an additional asterisk indicates distinguishing statement with significance at $P < .01$)

No	Statement	Factor		
		The Investors	The Reformers	The Realists
1	Fisheries are over managed	0	-1	-1
2	It is difficult to diversify into new fisheries	+2	+2	+1
3	Non-quota species should be incorporated into the FQA system	-1	-1	-2
4	Fishing has become more costly because of the quota market	+3	+3	+2
5	There should be quota reserved for new fishers	+2	+3	+2
6	Quota in the non-sector/inshore was distributed fairly after the latest reform	3*	-3*	0*
7	The FQA system should stay but units be redistributed more equitably	-3*	+2	+3
8	The FQA system should be scrapped and a completely new system introduced	-4	-1*	-4
9	There has been too much investment to change the quota system	+4	-3*	+3
10	Buying or leasing quota is the main barrier for new entrants	+2	+2	0*
11	The method for trading quota is efficient	+1*	0	-1
12	'Unwritten' rules are often more important and efficient than official regulations	0	0	-1
13	The non-sector and sector fleets are treated equally	0	-4*	-1
14	Ownership of quota has done nothing to stop illegal fishing	-2*	+1	0
15	Individuals in the fishing industry are listened to by regulators	-1	-2	1*
16	Local knowledge is being adequately used for regulations	-3	-2	0*
17	Brexit is going to provide greater scope for better, fairer fisheries management	+1	+1	+2
18	An independent Scotland will mean better, fairer fisheries management	-3*	+1	+1
19	Conservation should be the number one priority for Scotland's seas, even if it means excluding other users	-1	0	+1
20	Foreign fleets are given too many rights in Scotland's waters	+3	+1	0
21	Reciprocal access is important for Scotland's fishing communities	0	0	+1
22	An open market is more important than excluding foreign fleets	0	0	+1
23	The Scottish government generally supports the fishing industry	0	+2	+3
24	Local authorities should have more statutory powers to limit who fishes where	-2	-1	-1
25	Rights to fishing resources are easily understood and the information readily available	1	-1	0
26	The distribution of quota in Scotland is fairly	+2	-3*	+2

	regulated			
27	Fewer individuals and companies owning quota is better for the management of stocks	-2	-2	-1
28	The problem of 'slipper skippers' is the most important issue in the current quota system	-1*	+1*	-3*
29	There is too much informality in the current system of management	+1	0	-2*
30	The FQA system increases stewardship over fish stocks	+1	-2	0
31	The right to fish should be for everyone	0	+1	-3*
32	Individuals in other marine industries should get more say on who gets to fish where	-2	-1	-2
33	Individuals in coastal communities should get more say on who gets to fish where	-1	+3*	-2
34	Fish are a public asset	-1*	+4	+4
35	The quota system is easily understood and information is readily available	+1	0	-3*

FACTOR 1: THE INVESTORS

The following summarises the loading participants, along with significant statements and highest/lowest ranking statements, for The Investors:

Table 12: The 'Investors' factor loading individuals (* indicates highest loading individual in factor)

Q-sort	Stakeholder category	Gender	Age category	Time in industry
F3	Sector fisher	Male	55-64	>40 years
F11	Sector fisher	Male	55-64	31-40 years
F12*	Processors, marketers and agents	Male	55-64	>40 years
F13	Sector fisher	Male	55-64	31-40 years
F14	Producer organisation representative	Male	55-64	31-40 years

Table 13: The 'Investors' factor defining statements (Bold Z-scores indicate significant statements at $p < 0.05$; an asterisk indicates significance at $p < 0.01$)

No.	Statement	Q-Score	Z-Score
9	There has been too much investment to change the quota system	+4	2.02
6	Quota in the non-sector was distributed fairly after the latest reform	+3	1.44*
20	Foreign fleets are given too many rights in Scotland's waters	+3	1.39
25	Rights to fishing resources are easily understood and the information readily available	+1	0.70

11	The method for trading quota is efficient	+1	0.67*
23	The Scottish government generally supports the fishing industry	0	0.03
31	The right to fish should be for everyone	0	-0.22
34	Fish are a public asset	-1	-0.32*
28	The problem of 'slipper skippers' is the most important issue in the current quota system	-1	-0.54*
14	Ownership of quota has done nothing to stop illegal fishing	-2	-1.00*
18	An independent Scotland will mean better, fairer fisheries management	-3	-1.16*
7	The FQA system should stay but units be redistributed more equitably	-3	-2.07*
8	The FQA system should be scrapped and a completely new system introduced	-4	-2.48

Factor 1 consists of five individuals, explaining 21% of the study variance. The participants significantly loading on this factor include three sector skippers/vessel owners (**F3**, **F11**, and **F13**), a representative for a producer's organisation that also owns pelagic and demersal vessels (**F14**), and a representative for a vessel management agency that also trades quota. (**F12**).

One overriding theme within Factor 1 was that of acceptance. Despite an understanding across the factor that the present regime of quota was not '*perfect*', individuals also viewed it as an ingrained part of the system that should not, and more importantly could not, be altered (8).³⁵ Participant **F11** argued that they had had to '*adapt and tailor our business*' to work within the system, meaning that everyone else should be able to do the same.

A major feature of keeping to the *status quo* was the financial implications that change would bring (9). As such Factor 1 has been termed the 'Investors'. Many in the factor had invested large sums of money, or known others that had done the same, to stay economically and legally viable. **F3**, for example, stated that '*New boats and quota are massive investments. How would you reallocate? It's the bedrock of the industry now*'. This commitment by

³⁵ (*number*) refers to the statement (see Table 4)

investment engenders a sense of ownership over FQA, but one that has been transformed into an economically-driven sense of ownership. For the investors, this quota was '*earned*'. Due to the investment of both money and labour, any idea of change, whether that was re-allocating units or scrapping the system entirely, was viewed as detrimental for the future of the industry. **F12** summarised it by stating '*It's not as simple as saying we'll take quota away from the big boats and give them to the small boats because you risk making the entire fleet unprofitable again.*'

The issue of 'fairness' was highlighted by all participants. The Investors believe the distribution and allocation of quota to all vessels has been equitable. Arguments for equitability surrounded historical track records, a contentious point for some in the industry, but viewed by the Investors as effective and representative of their labour. Some questioning by which other method opportunities for fishing could be '*fairly*' allocated. **F14** surmised that the phrase '*redistributed more equitably*' was a difficult concept, stating '*Some people in the industry use this phrase... but I don't know what they want really.*'

On the other hand, any potential change to the regime was deemed unfair, especially on those that had invested for their livelihood. **F11** argued that any alterations to the current system would be like '*robbing Peter to pay Paul*'. On a practical level, the idea of the non-sector being provided more quota was deemed unsuitable and inefficient, with the Investors contending that smaller vessels did not optimise the quota they currently had (7); '*If they were really quota short, they would be catching it, but they don't.*' stated **F3**. Similarly, **F12** argued that the non-sector '*didn't fish all the haddock*' that had been made available to them, and so '*shouldn't be getting the quota.*'

For the Investors, modifying the FQA system was not the immediate priority for the future of the industry. Rather, it appears those in the factor were more concerned with strengthening national ownership over Scottish fish stocks. They strongly agreed with the statement that foreign fleets are given too many rights within Scottish waters (20). Particular reference was

made to Norway, with **F12** indicating that Norway had been given a '*better deal*' regarding who they allowed to fish in their waters. They contended the discrepancy between Norway and the UK was due to Norway having representatives who were more in touch with their industry, whereas European ministers were removed both geographically and politically from Scottish fishers.

Correlating with this issue, the Investors also strongly disagreed with the idea of an independent Scotland being beneficial for the fisheries sector (18). Participants were quick to comment that they had yet to see anything that would suggest a better outcome for their industry following independence. **F12** believed the Government had '*not stuck up for the industry in years, even before Brexit*'. This sentiment also is understandable for participants who predominantly voted out of the EU, and an incumbent Scottish Government who appear set on re-entering should the chance appear.

Despite their arguments against European fleets and Scottish independence, the Investors were not very forthcoming with praise for Brexit as it currently stands. The duration of the process for negotiating the UK's leaving deal, alongside the ongoing battle for establishing a new Fisheries Bill to outline the policies and regulations for fishing's future, appeared to be taking its toll on participants, who continue to be frustrated with the lack of certainty for the future. The Bill, discussed in section 6.7, has seen no progress since December 2018.

Interestingly, this was the only factor of the three extracted that did not agree that fish were a public asset (34). **F3** argued this was due partially due to its transformation to a capital asset, stating '*They're supposed to be but... if it came to the court, trading occurs. They say it's a public asset, but they've allowed trading to happen for so long now*'. As will be shown, both other factors placed this statement at +4; here it sits at a -1. This does not necessarily indicate they disagree with the statement, but rather they believe that fish are an asset that must be regulated '*for the public*', as was indicated by some of the participants. This sentiment

also correlates with the statement that the right to fish should be for everyone, which was placed in neutral, signifying an uncertainty over the issue (31).

FACTOR 2: THE REFORMERS

The following summarises the loading participants, along with significant statements and highest/lowest ranking statements, for the Reformers:

Table 14: The 'Reformers' factor loading individuals (* indicates highest loading individual in factor)

Q-sort	Stakeholder category	Gender	Age category	Time in industry
F4	Producer organisation representative	Male	45-54	<5 years
F5*	Fishers association	Male	55-64	>40 years
F6	Inshore fisher	Male	55-64	31-40 years
F7	Inshore fisher	Male	55-64	>40 years
F8	Inshore group	Female	25-34	<5 years

Table 15: The 'Reformers' factor defining statements (Bold Z-scores indicate significant statements at $p < 0.05$; an asterisk indicates significance at $p < 0.01$)

No.	Statement	Q-Score	Z-Score
34	Fish are a public asset	+4	2.08
33	Individuals in coastal communities should get more say on who gets to fish where	+3	1.58*
23	The Scottish government generally supports the fishing industry	+2	0.73
31	The right to fish should be for everyone	+1	0.57
28	The problem of 'slipper skippers' is the most important issue in the current quota system	+1	0.28*
8	The FQA system should be scrapped and a completely new system introduced	-1	-0.21*
30	The FQA system increases stewardship over fish stocks	-2	-0.85
9	There has been too much investment to change the quota system	-3	-1.36*
26	The distribution of quota in Scotland is fairly regulated	-3	-1.41*
6	Quota in the non-sector was distributed fairly after the latest reform	-3	-1.46*
13	The non-sector and sector fleets are treated equally	-4	-2.33*

Factor 2 consists of five individuals, explaining 21% of the study variance, and include a representative for a producer's organisation with a large 10mu fleet (F4), a predominantly non-sector fishermen's association (F5), two inshore fishers (F6 and F7), and a representative of a regional inshore fisheries group (F8).

Factor 2's views, as predominantly representatives of the inshore or small-scale fleet, appear to be in direct opposition to the individuals in Factor 1. Principally, Factor 2 strongly disagreed that the level of investment means the system cannot be changed (9). Given their commitment to change, Factor 2 have been titled the 'Reformers'. The Reformers argued that the FQA system had contributed to the consolidation of quota ownership to those able to afford it or fortunate in the initial allocation, i.e. the '*hands of wealthy groups,*' according to F6. This consolidation allowed for a concentration of control to a minority group, and away from the larger proportion of fishers who worked on 10mu vessels and/or outside the sector fleet. F6 argued that this was the '*major cause of the decline of small fishing businesses.*'

The Reformers were strong in their conviction that this consolidation was bad for the industry, contending that quota in the hands of fewer people did not promote greater stewardship or sustainability (30). Instead, such processes hindered sustainable practices and endangered fish stocks, as large vessels continued to accumulate quota and smaller, lower impact, vessels were penalised. F5, speaking as a former skipper turned association representative, argued instead that 10mu vessels were '*infinitely more sustainable*', using passive gear as opposed to mobile gear. However, as they were dispossessed of opportunities, these fishers could not contribute to a more sustainable future.

However, starting from scratch was viewed as unrealistic (8); F4 even argued that there was nothing wrong with the quota system but that the '*problem is that the actual distribution is not fair, or not reasonable*'. Many of the Reformers were keen to see a fairer allocation of FQA units. How reallocation would occur was not explicitly expressed, although there was

repeated mention of the reallocation that occurred in the Faroe Islands.³⁶ Participants argued that a change in distribution should accompany increasing transparency throughout the system, as a critical component of effective governance. Similarly, the Reformers argued for greater representation for the inshore fleet. They felt that there was a significant divergence in how the sector fleet and non-sector fleet are treated (13). The sector fleet was deemed as well-represented and particularly vocal in their wants. In comparison, the Reformers expressed concern that the needs of lower impact fishers were not being prioritised, or at worst ignored; ‘*They just don’t think about us*’ said F7. This reflects a worry of a fleet that has struggled to maintain a representative organisation for a highly diverse group of fishers.

The Reformers also strongly and significantly agreed with coastal communities having more of a voice in suggesting who gets to fish and in which area (33). This is understandable for a group that predominantly works close to shore and/or to their local communities. The use of an RO was mentioned by some participants; F7 said ‘*I was a big fan of the Shetland model.*’ F8 was a proponent for a top-slicing³⁷ method that would be applied using zonal attachment, i.e. attributed to specific zones. These sorts of methods arguably allow for greater local say in how inshore fisheries are managed by providing greater exclusivity, and rebalancing power between actors. Subsidiarity to a local, and participatory, organisation was viewed by the Reformers as particularly beneficial for communities that are highly reliant on their inshore waters, with little opportunity for other areas of employment, such as the Western Isles.

These arguments came strangely in opposition to the idea that LAs should have more statutory powers over fishing rights (24). There was agreement by the Reformers that the Scottish Government was supportive of the Scottish fishing fleets (23). Therefore, bottom-up

³⁶ The Faroese Parliament passed a reform of national fisheries policies in September 2018, with one of the facets of the reform being the public auction of a percentage of fish quotas. The government specify that these rights must be used by the holders, with any unused rights to be returned to authorities.

³⁷ Top slicing of quota refers to the practice of extracting quota prior to the usual annual allocation and redistributing that ‘slice’ to the inshore fleet.

management would be most effective in combination with a national framework of governance, rather than increased subsidiarity to LAs. This would mean a greater role for fishers in controlling their industry, instead of adding another layer of ‘*bureaucracy*’ in the form of local government, according to **F7**.

On the issue of Brexit, the Reformers predominantly voted to leave, or represented organisations whose members wished to leave. Despite this, leaving the EU was less of an important issue for the small-scale fishers. National spokespeople, such as the SFF, have made a number of assertions regarding the repatriation of quota to the entirety of the Scottish fleet following the UK’s exit from the EU. However, **F4** and **F5** contended this was mostly offshore quota that would be of little help to inshore fishers. These arguments have been reflected in other media, with small-scale fishers contending that the ‘*sea of opportunity*’ guaranteed by the national lobby groups will not be available for the majority of Scottish fishers (Dickie, 2019).

Other participants, particularly **F4**, were complimentary of the CFP and its efforts for small scale fishers, but chastised its poor implementation. This view is noteworthy as the benefits of the CFP are rarely explicated. The policy itself is necessarily complicated, spanning wide areas of fisheries governance including trade and product marketing, but these aspects are not often foregrounded in analysis. The acknowledgment of the positive by some of the participants was an interesting divergence from the dominant narrative.

As opposed to the Investors, the Reformers agreed most strongly with the statement of fish being a public asset (34). Whilst they agreed that the assets needed to be managed, there was an emphasis within the Reformers against privatising access to direct benefits that the current regime had inflicted upon a public resource. **F5** cited the situation in New Zealand, whose ITQ system has been regularly held up as the archetype for effective RBM. According to **F5**, small-scale fishers have been increasingly dispossessed of opportunities in their industry. Now, the country’s ‘*small group of “heavy weights”*’ appear to be at the centre of

decision-making processes because of their economic standings (McCormack, 2017), a situation that **F5** argued mirrored Scotland.

FACTOR 3: THE REALISTS

The following summarises the loading participants, along with significant statements and highest/lowest ranking statements, for the Realists:

Table 16: The 'Realists' factor loading individuals (indicates highest loading individual in factor)*

Q-sort	Stakeholder category	Gender	Age category	Time in industry
F1	Local Authority	Male	55-64	6-10 years
F2	Fishers association	Male	55-64	31-40 years
F9	Fishers association	Female	55-64	31-40 years
F10*	Processors, marketers and agents	Male	55-64	31-40 years

Table 17: The 'Realists' factor defining statements (Bold Z-scores indicate significant statements at $p < 0.05$; an asterisk indicates significance at $p < 0.01$)

No.	Statement	Q-Score	Z-Score
34	Fish are a public asset	+4	2.11
23	The Scottish government generally supports the fishing industry	+3	1.40
15	Individuals in the fishing industry are listened to by regulators	+1	0.36*
16	Local knowledge is being adequately used for regulations	0	-0.00*
6	Quota in the non-sector was distributed fairly after the latest reform	0	-0.03*
10	Buying or leasing quota is the main barrier for new entrants	0	-0.08*
29	There is too much informality in the current system of management	-2	-1.29*
35	The quota system is easily understood and information is readily available	-3	-1.37*
28	The problem of 'slipper skippers' is the most important issue in the current quota system	-3	-1.44*
31	The right to fish should be for everyone	-3	-1.90*
8	The FQA system should be scrapped and a completely new system introduced	-4	-2.16

Factor 3, the Realists, consists of four individuals, explaining 20% of the study variance. The individuals significantly loading on this factor represented a coastal local authority (F1), a populous fishermen's association (F2), a national fishermen's organisation (F9), and a processor (F10). Factor 3 has been termed the 'Realists', because of a focus the maintenance and improvement of both the industry and the resource.

Importantly, the Realists were the only factor to disagree that the right to fish should be for everyone. Their arguments largely revolved around the need for establishing formal legislative rules around who should be allowed access to such rights, in order to avoid unsustainable practices. F1 stated that the right to fish should only be '*entrusted*' to those capable of '*maximising the value of the asset principally in economic terms but also in social and environmental ways*'. Interestingly, this is despite their assurance that fish are a public asset, a statement they strongly agreed with. F1 stated that, in regard to rights in fisheries, '*the starting point is that fish are an important and valuable public asset*'. The Realists seemingly do not equate the resource as a public good with the right to exploit it. Rather, regarding the resource as a public asset means needing to manage it for the good of the public, which involves placing restrictions on who can access and use it.

The Realists also reflected many of the opinions of the Investors regarding the quota system, including that either reforming or scrapping the regime would be unwise. The Realists' arguments centred on the need to maintain supply for a constant market. F2 contended that '*stability would be completely removed*' because there was so much '*value in the system*'. Despite being aware of the consolidation of units, F2 also argued that further consolidation was going to be '*difficult*', indicating that they believed it had reached a balanced '*rock-solid basis*' through self-consolidation to '*family-owned businesses*'.

The Realists also argued that any redistribution could disrupt the production chain for an in-demand product, resulting in what F9 termed '*stranded assets*.' Additional arguments surrounded the safety aspect, as under-10m vessels were deemed fundamentally unable to

catch the same species in the same inclement conditions endured by larger vessels. **F10** also stated that any new alternatives for the system were '*driven by emotion*' rather than conservation, believing that whilst the current allocations system was imperfect, it was an '*improvement on the past.*' The argument that options for change are driven by '*emotions*', highlights the notion that institutional change is not always the product of rational thinking. Rather, institutions are seldom created to maximise efficiency, as argued by North (1990). The Realists seemingly understand that, whilst the current system may not be the most efficient model, alternatives might also be the product of irrational actions.

However, there were a few differences that make the Realists dissonant with the other factors. Firstly, the participants were uniquely aware of the lack of information feeding into, and out of, the industry. This argument for the absence of two-way communication was in reference to nearly every aspect of fishing, including stock information, management practices, and the quota system. Individuals in the fishermen's associations were especially vocal in the need to educate not only those working in the industry, but the general public as well. **F9** stated that they did not think '*people, in any sense, know the ins and outs of quota. Not even fishers*', indicating a complexity that pervades the industry.

Concurrently, they were also aware of a lack of participatory effort that stifled flows of knowledge from industry workers. Whilst they agreed that individuals were listened to by regulators, with **F2** stating that '*they try and help us, and we try and help them*', they also felt that more efficient processes for using local knowledge could be established.

AREAS OF CONSENSUS

Although there were clear divisive issues emergent between the three factors, there was also a relatively high proportion of statements that were not significantly distinguishable for any one factor at $p > 0.05$ (see Table 18). These consensuses prove some harmony within the Scottish fishing fleet and could be crucial for finding balance in the future.

Table 18: Case study 2: Consensus statements

No.	Statement	Investors	Reformers	Realists
		Q-sort value		
2	It is difficult to diversify into new fisheries	+2	+2	+1
3	Non-quota species should be incorporated into the FQA system	-1	-1	-2
4	Fishing has become more costly because of the quota market	+3	+3	+2
5	There should be quota reserved for new fishers	+2	+3	+2
12	'Unwritten' rules are often more important and efficient than official regulations	0	0	-1
17	Brexit is going to provide greater scope for better, fairer fisheries management	+1	+1	+2
21	Reciprocal access is important for Scotland's fishing communities	0	0	+1
24	Local authorities should have more statutory powers to limit who fishes where	-2	-1	-1
32	Individuals in other marine industries should get more say on who gets to fish where	-2	-1	-2

The most agreed-upon statement through the factors was that quota had meant the practice of commercial fishing has become more costly (4). Many participants clarified that the increased costs were in conjunction with other aspects of the industry, including the rising costs of licences and vessel maintenance. **F14** quoted that licences used to be '£200 per licence and now they can be up to 2200 or 2500 because of this restrictive system.'

Another similarly agreed-upon issue was that of incentives available for new entrants to the industry. Encouraging employment in fisheries has been an ongoing issue for the Scottish, and UK, Governments. Establishing a reserve of quota that could be leased to new entrants is a potential course of action that could entice new fishers to FQA-managed fisheries by decreasing initial upfront costs (5). This quota could also help fishers that wish to diversify but are financially unable to do so. All factors similarly agreed that diversification was difficult within the current regime (2); **F12** for example stated that this was historically because of a lack of track records of catch which meant fewer opportunities.

The idea of incorporating more species into the FQA system was universally disagreed upon by all factors (3). Participants advised against this move, arguing that it would be

unnecessarily costly for stocks that can be successfully managed through other means. Current management of non-FQA species, such as crab and lobster, utilises a number of different controls, including minimum landing sizes. The Shetland inshore brown crab and scallop fishery has been certified by the Marine Stewardship Council,³⁸ indicating some degree of effective management through controls other than transferable quotas. However, this fishery operates under an RO, as discussed in the first half of the case study. **F2** additionally argued that introducing a quota system for every species would ‘choke’ the industry; ‘*once you exhaust any one quota species then you have to shut down that entire fishery.*’

Also disagreed-upon by all factors was the idea of letting other marine industries have priority say over the right to fish (32). Nearly every argument against this idea was centred on the ‘*static versus roving*’ industry dispute, as stated by **F9**. As increasing encroachment into the marine environment occurs by emergent industries like offshore renewables and aquaculture, traditional practices that require free movement are progressively displaced; this displacement will be discussed further in the next case study. It is therefore understandable that representatives of a dynamic industry would want to minimise the power that static industries have on their ability to fish. Furthermore, **F14** stated that static industries should not be ‘*depicting where fishers go because they will just be looking out for their own industry.*’ This argument signifies an apprehension that other users may not act in alignment with traditional fisher values, and instead prioritise the own economic objectives of individual uses. The disturbance of fishing values, by encroaching marine uses, has been a critical concern for researchers and communities alike (Pomeroy *et al.*, 2015). Further awareness of the socio-cultural values held by fishers could limit conflicts with static industries, as planners and developers are given the opportunity to address different forms of ownership extended by individuals at sea.

³⁸ Marine Stewardship Council is a global organisation which certifies fisheries with a Fisheries Standard if they meet the three core principles of: 1. Sustainable fish stocks; 2. Minimising environmental impact; and 3. Effective fisheries management.

6.11 DISCUSSION

This analysis of interviews with members of the Scottish fishing industry has demonstrated a diverse range of perceptions to rights-based management and the ‘public’ right to fish. Crucially, the study also maps the clear differences in priorities regarding reform of the current system. These three viewpoints, which have been termed the Investors, the Reformers, and the Realists, are important as they empirically demonstrate a clear divide within the fishing industry that has not yet been thoroughly addressed within academic literature. The establishment of a market for a previously public right has fundamentally altered how stakeholders perceive ownership over fisheries resources. These views have in turn shifted priorities, and arguably created divergences in values. The following section critically discusses the implications of these divergences.

DISPARATE NARRATIVES

From the perspective of those reliant on access to their ‘*earned*’ quota, it appears the efficiency or equitability of the quota system is not something that needs to be questioned as of this moment. This sentiment has been powerfully vocalised by the Scottish Fishermen’s Federation, who state that reformation of the FQA system would undermine a ‘*settled and defined resource allocation system*’ and risk ‘*bankrupting existing businesses*’ (Fishing News, 2019). Although becoming an independent coastal state may mean an increase in fishing opportunities, which the SFF have stated will be ‘*spread across all fishing communities*’ (Fishing News, 2019), the Investors believe the FQA system must remain, because that was ‘fair’.

Changing the FQA system was also not deemed a priority because of the ongoing deliberations over the future of fisheries. Rather, the Investors focus appears to be surrounding the narrative of sovereign powers over fishing rights. Nearly every individual in the Investors factor mentioned some aspect of foreign fleets in ‘our’ waters, how to protect ‘our’ fish, or what would happen to access rights in ‘our’ territory. The language of national ownership

surrounds the Brexit discourse, where the issues of control over ‘our fish’ and ‘our waters’ are omnipresent in the media (Hughes, 2016).

Media analysis also found that the SFF received 49% of the total coverage on Brexit and the fishing industry between 2016 and 2019, whereas organisations that specifically represented the inshore fleet received only 2% (New Economics Foundation, 2019). As such, it has become increasingly clear that other divergent perceptions in the fishing industry are not equally voiced. The dominant narrative provides a backdrop for a path dependent arrangement, as institutional change does not often cater for the ‘quieter’ voices (North 1990).

FAIRNESS IN REFORM?

Striving for ‘equitability’ was still the priority for the individuals in the Reformers factor. The potential for increased quota from Brexit was seen as a simultaneous opportunity for reform in the FQA system, deeming the two to be inextricable. This reformation could help empower the majority of the fleet by providing a greater economic stake in the industry, as well as increasing returns and closing the gap between the fleets. For the Reformers, this would bring back balance to an industry that saw ‘*millionaires made overnight*’, according to one participant, and move power back towards the ‘powerless’ majority.

However, successful reform, as evidenced in case study 1, requires aligning the disparate values and priorities held by stakeholders, in order to implement effective institutional arrangements. Path-breaking reform has occurred in other rights-based fisheries; the reform of the Faroe Island’s fisheries policy, for example, included a reallocation of fishing rights through auctions and development quotas. However, research suggests there have been barriers to the reform’s success, including a fundamental lack of consensus on many of the policy’s measures (Danielsen and Agnarsson, 2018). Additionally, the Realists acknowledge that any alternative solutions may also not be a panacea for distributional conflicts, especially as they regard the wishes of the Reformers to be driven by ‘*emotion*’ rather than rationality.

As such, reform of Scottish fisheries policy would need to adequately include the views of the wide range of industry interests for it to work effectively. The system of consolidation has ultimately changed how people perceive ownership over these resources. For the Reformers and the Realists, fish are a public asset, a good to be managed *sustainably* on behalf of the public. The long ‘tradition’ of the system has engendered an ongoing expectation for the Investors, which they rely upon for economic stability. Consequently, government intervention using reallocation has been previously unwanted by sector fishers who would see their quota diminished, and potentially high switching costs to an alternative arrangement (Stewart, 2014).

These views represent diverging values of the industry. Any reform of the quota management system would thus have to recognise such diversity, and attempt to realign the values placed upon the ‘right to fish’. One alternative would be providing financial stability for those who had invested, so as to minimise further inequity, in the form of compensation for reallocated units. In establishing compensation, path-breaking reform may become available as it would allow the interests of the Investors to potentially align with the Reformers, without them succumbing to high switching costs. A further solution would be improving communication flows, as signalled by the Realists, so that information regarding institutions was more readily available. By increasing knowledge transfer and co-production, historically powerless actors may gain access to further opportunities. How such measures may be taken will be discussed further in the policy recommendations within Chapter 8.

6.12 SUMMARY OF CASE STUDY 2

This case study has revealed clear conflicts within the Scottish fishing industry regarding rights and ownership. The implementation of property rights in fisheries has been argued by many, including most significantly Gordon (1954) and Hardin (1968), as a method for incentivising resource users to act rationally over their resource and prevent overexploitation. As such, RBM has proliferated in global fisheries since the 1970s, with system of tradeable

rights using quota now evident in numerous countries. The establishment of these tradeable systems relies on market-based interactions that should, theoretically, transition towards efficiency. However, as North (1990) and Ensminger (1996) demonstrated within their models of analysing institutional change, the emergence of new institutions are not always rationally-driven, and are invariably subject to imbalances in power, prevailing norms, and path dependency. Consequently, institutional changes can lead to unintended consequences.

The analysis of policy documents, academic literature, and semi-structured interviews, allowed for understanding of both the drives and processes of enclosure, as well as its consequences, answering research questions 1 and 2. The events that have led to the current regime of tradeable rights, beginning in 1996, have been invariably influenced by powerful actors in the sector fleet, and permitted by a state encouraging market-led incentives. Introduced as a method of revitalising the industry by promising an economically-stable future, the regime appears to be missing social objectives, which may have contributed to the significant conflicts that have now arisen. The distributional conflicts following initial allocations have had significant knock-on effects for the inshore and non-sector fishers, alongside new entrants, and older fishers reliant on loans. These conflicts have only become more prescient, as decommissioning increased consolidation, and, as of 2019, five private corporations own nearly half of all quota allocated to Scottish vessels. The continued absence of transparency, alongside the perceived ineffectiveness of the participatory process, have underpinned this continued imbalance. Whilst alternative regimes have been presented in the past, the views of the sector fleet continue to be the dominant narrative in the media, providing a backdrop for path dependency.

However, the divergent views and values held by the industry have been illustrated within the Q study, which has helped to answer research questions 3 and 4, focussing on stakeholder perceptions and their understanding of 'fairness'. Consisting of inshore fishers and stakeholders without access to the direct benefits of fishing, the Reformers have signalled a clear need for change, recognising an opportunity to rebalance what they see as a detrimental

and unjust system, and welcoming institutional reform. However, for the Investors, there is now opportunity to further consolidate and extend powers over resources they see as rightfully theirs.

Considering the multiple understandings of rights and fairness emergent in this small group of individuals, this case study demonstrates there is a need to facilitate better inclusion of this range of viewpoints in fisheries management. Attempts to do so should include more effective engagement with the diverse range of fishers present in Scotland. This engagement includes the need for better representation for the quieter voices in the industry, as argued by the Realists, but also an understanding of the ownership perspective of other individuals. These discussions have aided in answering the final research question of how further ‘unfairness’ or inequality can be prevented. The manner in which these objectives may be achieved will be discussed in policy recommendations in Chapter 8.

7 CASE STUDY 3

SPATIAL ENCLOSURE IN SCOTTISH SEAS

Will MSP amount to an ‘ocean grab’ by the most well-represented, data-rich actors, or could it be a mechanism that helps constitute greater socio-natural well-being? (Boucquey et al., 2016, p. 1)

7.1 INTRODUCTION

This case study discusses the enclosure of ocean space in Scotland’s seas through MSP,³⁹ in combination with zoning, consents and leases, and the development of specific industries. As Chapter 4 illuminated, dividing up areas of the sea for economic efficiency is not a new endeavour. 39% of the ocean was enclosed through LOSC, as state property as countries fought for control over marine resources (Moraes, 2019). This enclosure has set a precedent for increasingly localised efforts to resolve the perceived issues of open-access regimes. Policymakers have looked to new institutions as a solution to conflicting and inefficient uses of the sea. As a theoretically integrative, technocratic, and rational method of management, MSP has been touted as the answer for such problems, and has featured prominently in global approaches for marine management (Jay, 2010; Flannery and Ó Cinnéide, 2012; Boucquey *et al.*, 2019).

Unlike RBM in fisheries, MSP does not actively seek to introduce private property rights for the development of marine industries. Yet, the increase in newer and more permanent uses of sea space, driven by MSP, is arguably contributing to the so-called ‘*third phase*’ of marine enclosure (Boucquey *et al.*, 2019, p. 485). During this phase, the enclosure of marine space is being legitimized for the purposes of conservation, as well as the growth of certain prioritised marine uses (Campbell *et al.*, 2016; Barbesgaard, 2018). This enclosure is raising questions

³⁹ In the EU, MSP stands for ‘Maritime’ Spatial Planning, rather than ‘Marine’, to ‘underline the holistic cross-sectoral approach of the process’ (COM (2008) 791 final). In this chapter, MSP will stand for marine spatial planning unless specifically referencing EU legislation.

of the equitability of the planning process, in turn querying the rationality and efficiency of MSP (Flannery *et al.*, 2016; Tafon, 2018). In Scotland, these queries have been asked by researchers such as Smith and Jentoft (2017), who suggest that Scotland's MSP is not facilitating adequate arrangements for good governance, neglecting transparency and participation. Consequently, it is important to map the journey of enclosure in Scotland's MSP regime.

This discussion uses the results of the thematic analysis discussed in section 2.3. Using interviews with knowledgeable stakeholders, as well as considerable academic and grey literature, thematic analysis was undertaken. This analysis was driven by the conceptual framework set out in Chapters 3 and 4, through the lens of HI. Using the themes of power, conflicts, and historical junctures, this case study analyses the institutional changes that are facilitating enclosure within Scotland's marine planning regime. Section 7.2 discusses institutions within land use planning, and how terrestrial planning has informed MSP. Section 7.3 provides an overview of the case study, foregrounding the three marine uses which are increasingly utilising sea space and redistributing rights. These are namely marine renewable energy, aquaculture, and marine conservation. Section 7.4 discusses the historical junctures of MSP in Scotland, and the development of these marine industries. Using this historical analysis, section 7.5 examines the enclosure of Scotland's seas as a process of politicisation of MSP and the prioritisation of certain uses. The chapter then provides a discussion on the socio-economic consequences of enclosure, including the reallocation of rights and the potential acceleration of the power gap between stakeholders. Section 7.7 considers the future of management and enclosure in Scotland's seas, highlighting opportunities for empowerment. The findings of this first half of the case study are then used for the Q study that follows in the second half.

7.2 INSTITUTIONS IN PLANNING AND MARINE DEVELOPMENT

LAND USE PLANNING

The use of HI, and its focus on power and path dependence, has proliferated in the study of development and planning (Low and Astle, 2009; Sorensen, 2015, 2017). Such work examines the importance of institutional change patterns for analysing the development of spaces and places, and the contexts for such patterns.

From an institutional perspective, land use planning can be thought of as a way of solving problems, managing change, and *'figuring out what needs to be done and how to do it'* (Randolph, 2004, p. 16). In other words, planning for land is regarded as essential for controlling its development and use both now and in the future, primarily through reconciling the competition between public and private interests and actors (Lee *et al.*, 2013). Environmental plans, whether they are 'urban', 'town', 'land', 'terrestrial', or 'marine', should be viewed as a contract between civil, private and state interests (Webster, 2007). These contracts are then upheld as a network of institutions that regulate the use and development of spaces (Sorensen, 2017). As institutions are politically influenced, as per the models of North (1990) and Ensminger (1996), then it can be assumed that planning systems will also respond to political objectives (Simmie, 1981; Doak and Karadimitriou, 2007). Therefore, although planning for environmental purposes can be regarded as a method for rationalising resource use, the process may instead prioritise the goals of the most powerful actors.

The regime of land use planning in the UK is the product of political objectives post-World War Two, combined with a history of *'military, feudal and economic command'* of property rights (Simmie, 1981, p. 236). The post-war UK Government sought to prioritise public interests against private property holders (McAuslan, 1980); for example, the Uthwatt Report (1942, para. 17) implored that town planning should imply the *'subordination to the public good of the personal interests and wishes of land owners'*. The evolution of land use planning in the UK has thus been described as a *'middle ground'* of the previously dominant

conservative politics and the new socialist ideals, ultimately leading to the Town and Country Planning Act of 1947 (Taylor, 1998, p. 21). The Act nationalized the right to develop land (Lee *et al.*, 2013). Therefore, the new planning regime acted as a mechanism for the state to regulate and control development rights, whilst allowing private ownership rights to be upheld.

The nationalisation of the right to development has been maintained since the 1947 Act, although that right, termed ‘planning permission’, now lies at the discretion of the LAs (Taylor, 1998). The 1947 Act also established the need for LAs to complete local plans, so that areas could develop their own priorities for forward planning. At present, Scotland maintains a hierarchical system of planning, where a centralised framework guides planning procedures implemented by LAs. This framework enables consistency through the country, and whilst LAs are being gifted increasing autonomy, they must always act within the confines of targets set by the UK and Scottish Governments.

Planning permission in the UK allows the transferal of the right to develop, temporarily, to individuals from the LA, and thus the right to benefit from the betterment of their development (Lee *et al.*, 2013). Within planning theory, the transferal of the right to develop should only occur when an increase in social value can be fulfilled from the development, alongside an increase in private economic value. Consequently, as a social contract, land use planning is essential for protecting the rights of the public against damaging private interests.

Land use planning was initially heralded as a technocratic process for optimising national economic development (Taylor, 1998). However, in real terms, land use planning will ultimately always work within wider networks of power, and will remain contingent on development, ‘*the very market it seeks to control*’ (Kerr *et al.*, 2014, p. 119). As such, land planning could be considered a system influenced by individual actors. Private property rights, as institutions imbued with the power to constrain and liberate, continue to be an instrumental factor of planning, and the legislative instruments which maintain and protect those rights are

an important consideration for planners (Parker and Amati, 2009). Ownership of land is therefore a central consideration for planning, as the rights of owners will be impacted by state intervention under planning law (Sheppard *et al.*, 2017).

More recently, land use planning in certain regions around the world has been criticised as a contributor to social, spatial or environmental injustices, in contrast to its initial goals as a method for the empowering of public interests. For example, urban planning was heralded as a rationalist approach to managing overexploitation, but has sometimes resulted in the impairment of vulnerable groups, widening the gap between the haves and have-nots (Sandercock, 1998). The land use planning process has also proven to be costly, leading to increased land and house prices, further dispossessing vulnerable communities (Cheshire and Sheppard, 2002). This type of inequality has been documented in multiple jurisdictions, from India (Banerjee-Guha, 2009) to the US (Wilson *et al.*, 2008).

In Scotland, a series of evolutions of the planning regimes have gone some way to answering the criticisms that have arisen since its inception. One of the major criticisms of the post-war planning system was the lack of consultation with those that lived in the planned areas, i.e. public consultation. Planners of the era believed their professional insights would provide the most efficient model of land use planning that did not require consultation of local residents, because their insights were not a value judgement but a '*pure "technical" fact*' (Taylor, 1998, p. 43). In essence, there was a perceived divide between the judgements of the planners, and what they valued, and the judgements of the residents.

Consequently, garnering the range of values of stakeholders has been deemed essential for effective environmental planning, in a similar fashion to the other examples of institutional change within this research. In attempts to combat such criticisms of planning and zoning, research suggests the use of planning as an integrative strategy involving both policymakers and citizens alike (Wilson *et al.*, 2008). The need for participation of the public in planning had in fact been a component of the Town and Country Act 1947, which offered the space for

the public to air their views on developments. The increased recognition of planning as a political act led to similar recognition that public participation was necessary, to accommodate '*wider social, economic and environmental dimensions*' of development (Peel and Lloyd, 2007, p. 178). The Aarhus Convention has similarly been instrumental in transitioning the land use planning regime into a democratic forum for citizens to have a say on their lived environments.

Through these series of changes, the new land use planning philosophy uses consultation and '*planning through debate*' to help understand what stakeholders want out of planning, and mediate struggles on multiple scales (Healey, 1992, 2003). However, what constitutes effective public participation is still under debate. In a review of planning for energy infrastructure in the UK, Heffron and Haynes (2014, p. 237) argue that the current processes for participation are still ineffective, and give '*disproportionate power*' to well organised interest groups. They conclude with a plea for new solutions to increase participation that can give voice to a wider range of values and perspectives. Research such as this demonstrates that, despite efforts to solve the issue, planning, whether on land or at sea, can still be influenced by powerful voices, and may lead to the dispossession or marginalisation of other interests.

THE EMERGENCE OF MSP

The discussion above has demonstrated that terrestrial planning in the UK has been contingent on the need for efficient, and rational, development, as well as the expression of discrete property rights which can be easily articulated on land. Owing to the lack of this expression, a terrestrial-like planning system would be impossible to enforce at sea. However, with the ever-increasing demands and development pressure on ocean space and resources, it became clear that a system of planning was necessary to optimise the previously open-access space, and facilitate forward planning to drive efficient development.

The term ‘*sea-use planning*’ was used in a political setting for the first time in 1973, in a debate by the UK Parliament (Vallejo, 2002, p. 22). MSP, however, has only been embraced by policymakers since the late 1990s (Portman, 2011). In response to increasing pressure on limited space and resources, MSP has been recognised as a way to reduce user conflicts, and develop the seas with the environment in mind (Douvere, 2008). In this way, MSP can be regarded as an institution, that can help establish a more effective and equitable policy, as it balances the interests that are competing for space, facilitating both constraints and liberation for stakeholders. As such, MSP has proliferated in regions across the globe, as its merits are increasingly advocated for reducing conflict. Table 19 outlines the objectives of MSP as it has developed, as well as some of the challenges the system has yet to overcome.

Table 19: Aims and challenges of MSP⁴⁰

Aims	
<i>Integrative</i>	The main objective of marine planning is to be an integrative overarching plan for an environment that was previously managed by separate policies. Integration should aid in reducing conflict between users by addressing the problems of previously ‘ <i>conflicting sectoral objectives</i> ’ (Kidd, 2013, p. 273). In doing so, integration provides consistency in decision-making towards a common goal.
<i>Efficient/ Equitable</i>	Another primary goal is to optimise the use and development of the sea by allocating resources and reducing conflicts. MSP has been offered as a solution to the layers of administrative inefficiency present in the weak system of governance at sea. It could aid streamlining licensing and consenting processes, and help reconfigure overlapping policy areas, depending on the legislative and statutory bodies (Gilliland and Laffoley, 2008). In maximising efficiency, MSP can also allow for more equitable distribution of resources to different marine stakeholders (although this is contestable when factoring in power relations).
<i>Participatory</i>	MSP should also allow more effective stakeholder participation, and ‘ <i>democratise</i> ’ the seas (Ritchie and Ellis, 2010; Flannery <i>et al.</i> , 2016). Allowing for stakeholder participation can also build trust between governing authorities and communities/industries.
<i>Ecological benefits</i>	Not only does MSP help in the identification of areas in need of conservation, it helps implementation of said conservation through an ecosystem-based approach. The application of ecosystem-based tools ensures the allocation of space specifically for conservation, as well as securing the integration of ecological, social and economic objectives.

⁴⁰ Primary sources: (Ehler, 2008; Gilliland and Laffoley, 2008; Ritchie and Ellis, 2010; Jarvis *et al.*, 2015; Flannery *et al.*, 2016)

Challenges	
<i>Costly</i>	Marine planning, or more specifically the construction and implementation of plans, is a costly process (Gilliland and Laffoley, 2008). The cost of implementing a UK-wide planning system, for example, was estimated at £6.05 million (DEFRA, 2007).
<i>Does not address specific social impacts</i>	As discussed in section 1.2, so far, there has been little research into the social impacts of MSP, particularly in how marine resources and benefits will be distributed. An understanding of the distributive impacts of MSP and the type of power dynamics that exist at sea is necessary for a deeper understanding of the broader implications of implementing a planning system in a previously open-access regime, particularly as these aspects of the system will dictate who has access to which resources and which areas. This thesis hopes to contribute to this gap in the research.
<i>Not really participatory</i>	Despite many marine plans announcing themselves as the product of a collaborative process, some research has argued that many plans are still a product of top-down consultation rather than two-way engagement (Jarvis <i>et al.</i> , 2015). In some instances, the absence of participation has been because of a need for greater expertise from ‘higher-up’ individuals. However, in other cases, it is an example of more powerful actors ignoring the usefulness of factors such as local users’ knowledge and values.
<i>Knowledge-deficient</i>	For MSP to function optimally and efficiently, a good knowledge base is needed, especially considering the oceans and their ecosystems are often highly unpredictable. However, information on the marine environment, including its natural processes and interactions with human activities, is currently lacking (Ehler, 2008). There have been concerted efforts to fill this deficit, for example through the creation of ‘ocean data portals’ (Boucquey <i>et al.</i> , 2019).

Due to its relative infancy, there are still confusions as to MSP’s definition. There has been some confusion within the literature regarding the conflation of MSP with ocean zoning (Douvere *et al.*, 2007; Kenchington and Day, 2011). Ocean zoning refers to a method of dividing ocean space into areas of exclusive use, for industrial, recreational or conservational practices (Agardy, 2010). Marine zones can hold different uses, permitting or prohibiting activities through regulations specific to areas. Zoning promotes the idea of efficiency by using formally demarcated rights of access and use, and can incentivise industries to act as a ‘rational owner’ over their resource, in accordance with neoclassical economics (Eagle *et al.*, 2008, p. 651). Zoning can also permit taxation from users, as it can guarantee exclusivity for certain users (Kaffine and Costello, 2010). As such, zoning could provide indirect benefits to local communities, as per Table 4, if those communities were able to be compensated for losing access to the zone (Sikor *et al.*, 2017).

Zoning has been particularly effective for the purposes of marine conservation, which often pursues exclusivity or dominant-use zones for preservation. The Great Barrier Reef (GBR) Marine Park, for example, is one of the first instances of zoning in the marine environment. The GBR zoning plan was established in 1981, the product of decades of debate and the eventual GBR Marine Park Act (1975) (Kenchington and Day, 2011). The plan covers 345,000km² and is extensively zoned, with each zone outlining limitations on specific activities. Examples of zones include a ‘general use zone’, where all activities are allowed, providing permits are in place; the ‘scientific research zone’, where resource extraction is prohibited, but diving and shipping are allowed; and the most restrictive ‘preservation zone’, i.e. the no-go area (Day, 2002). After over thirty years in use, the GBR Marine Park has shown how zoning can be successful, but also demonstrates the tool’s shortcomings. Day (2002) points out that the limitations of zoning have included the lack of public understanding as to the differences between the zoning types, and an unawareness of the actual boundaries of zones. These conclusions indicate that knowledge exchange may be key for effective implementation of measures.

Zoning has been described as a ‘*fundamental corner stone of effective MSP*’, signifying its importance for more than conservation objectives (Kenchington and Day, 2011, p. 2). Instead of being a final solution to ocean problems, zoning could be thought of as a ‘*framework that can facilitate both the re-alignment of industry incentives*’ along with the ongoing protection of the marine environment (Eagle *et al.*, 2008, p. 651). As such, in this thesis, MSP should be defined as the ‘*rational organization of the use of marine space*’ (Douvere, 2008, p. 766), which is achieved through ‘*allocating the spatial and temporal distribution of human activities in marine areas*’ to attain ‘*ecological, economic and social objectives*’ (Ehler and Douvere, 2009, no pg.). In this definition, ocean zoning should be read as a separate but necessary tool used to aid the execution of MSP.

Given the historical perception of marine planning as unfeasible (Johnson and Wright, 2018), it is unsurprising that current marine planning is still situated at a complicated

interchange with its well-developed predecessor, land planning. Both land use planning and marine planning have nationalised the right to develop their respective environments. Additionally, the need for democratic decision-making is a concept carried over to MSP objectives. However, there are also fundamental differences, physically, socially, and legislatively, between the environments. Indeed, critics have specifically pointed to the inadequacies of using land planning as a foundation for MSP, particularly given their divergent histories and drivers (Gilliland and Laffoley, 2008). Instead, there have been calls for MSP to be thought of as '*built at sea*', not as an extension of terrestrial planning but a unique concept that happens to utilise similar processes (Jay, 2010). Smith *et al.* (2011) state that integration may be feasible, and indeed necessary, in due time, but that the current wave of marine plans are not sophisticated enough to facilitate such integration. Kerr *et al.* (2014), however, conclude that the differences in users and rights between land and sea are too great to overcome. Such differences should be viewed within the specific context of local relations; as demonstrated within section 4.3, indigenous management regimes often work across the land-sea divide. These examples demonstrate the importance of understanding the way different social and cultural values and norms will influence management.

SOCIO-ECONOMIC CONSEQUENCES OF MSP

Case study 1 discussed the dispossession of local resource users following land enclosure in Scotland. This example of enclosure featured powerful actors, wanting to capitalise on finite resources, causing vulnerable groups to lose rights, either directly or indirectly. The previous section similarly attested to the criticisms of land use planning as a method of furthering inequality between private and public interests.

MSP, alongside ocean zoning, and its objectives (to promote economic development in the ocean and to identify the utilisation of maritime space for different uses) are consistent with processes that could lead to similar dispossession of less 'powerful' actors at sea (Jentoft and Knol, 2014). MSP is perceptively a political and social process within which power, politics and history are inherent aspects that should be considered and critiqued (Tafon, 2018;

Flannery *et al.*, 2019), and the neutrality of planners be questioned (Lester *et al.*, 2018; Piwowarczyk *et al.*, 2019). With increased demands come increased conflicts, and understanding how those conflicts will be ‘solved’ is contingent on understanding powers and dominant views held by individual actors. Should MSP only serve the interests of already powerful actors, then this would surely be viewed as a failure of the procedure’s goals of equitability, and lead to enclosure of marine space by certain interests.

Due to its restrictive nature, there are also critics of zoning practices at sea. Ocean zoning has been described as ‘*exceptionally volatile*’ by Steinberg (2011, p. 14), who argues that the ocean’s three-dimensionality and fluidity makes stable, permanent and two-dimensional zoning inappropriate. Similarly, Ehler (in Ehler and Agardy, 2013) asserts that ‘*marine zoning without marine planning is short-sighted*’, indicating the importance of planning for efficiently and equitably governing marine space as a method of forward thinking. Zoning has also been criticised for its exclusionary effects, which could be replicated at sea (Fischel, 2004). Zoning has been identified as a method for prioritising uses deemed appropriate by authorities. This prioritisation thinking can further the gap between users of the resources, as those deemed more economically viable, or with more influence, are given priority over the resource-poor or un-represented.

Consequently, both marine planning, which is a centralised system of government control, and ocean zoning, which can give priority to certain interests, may be influenced by powerful actors. It is therefore important to understand the underlying power dynamics at sea. However, as of yet, these dynamics are a facet that is yet to be more deeply questioned within marine planning research. Flannery *et al.* (2016, p. 121) argue that, given that power is not explicitly mentioned within official documents, MSP would ‘*simply reflect existing power structures*’. This argument would suggest that MSP, despite its alleged participatory nature, would favour market logic, in which powerful stakeholders would have more say in the planning decisions.

As such, marine planning might not act on behalf of the quiet interests or those who hold divergent values to the market. Rather, in wider networks of power and in response to lobbying, government-sanctioned targets, and public opinion, it is unlikely that a fair system will be universally agreed upon by all interested parties. These criticisms have led MSP to be termed post-political (Ritchie, 2014; Tafon *et al.*, 2018; Clarke and Flannery, 2020). A post-political process is determined as one which marginalises opposing voices, and actualises dominant preconceived ideologies (Flannery *et al.*, 2018). Such a process has been witnessed in Germany, for example, where research contends that planning has done little to solve conflicts between users (Aschenbrenner and Winder, 2019). The research concludes with a need to include ‘*diverse perceptions and interests*’ to promote effective integration of marine uses.

In attempting to circumvent potential distributional conflicts, recent MSP research has suggested looking towards diverse understandings of rights and ownership in more embedded practices. Fairbanks *et al.* (2018) argue that understanding examples of enclosure through MSP requires place-based research that can identify to opportunities that MSP may hold for communities and resource users. Highlighting some examples of MSP as produced ‘*relationally through practices of assemblage*’, such regimes could yield ‘*progressive, radical*’ forms of enclosure (*ibid.*, p. 158). Similarly, Eagle *et al.* (2008, p. 653) state that ocean zoning could circumvent the injustices that land zoning can generate, helping to ‘*strengthen politically weak groups and provide ownership-related incentives to all groups*’. Zoning can, in theory, empower *in situ* communities who want to enforce a primary land use, as it gives legislative backing to the priority use (Fischel, 1987). Consequently, terrestrial zoning could be viewed as a ‘*community property right*’; zoning laws vest power in community elected authorities which will work to produce the desired result (*ibid.*). Using zoning in this way would prevent weaker stakeholders having to battle for space in an increasingly crowded environment, which could in turn lead to ‘*social and ecological failure*’ (Jentoft and Knol, 2014, p. 13). Analogous arguments have been made regarding zoning and

its benefits for roving industries; zoning has previously inhibited the movement of traditional industries like fishing, but implemented in conjunction with ecosystem-based management, it could work efficiently in managing roving resources (Norse, 2010). These research efforts have provided scope for developing progressive institutional change in MSP processes as a method for empowering stakeholders, much as in land reform. Empowerment may lead to fewer distributional conflicts may arise, and institutional arrangements can work more efficiently.

However, empowerment efforts also require effective identification of stakeholders. As in land use planning, public participation and stakeholder engagement have been considered significant components for effective MSP (Jarvis *et al.*, 2015; Smith, 2018). However, there are fundamental philosophical and ideological differences between land and sea, which will affect practical matters such as methods for participation. Early research questioned the ability to adequately represent the views and values held by marine stakeholders (Flannery and Ó Cinnéide, 2008; Ritchie and Ellis, 2010). Attempting to define who is involved in participation is complex in such a dynamic and shared environment, whose governance has been dominated by a ‘freedom’ ideology for centuries (Voyer *et al.*, 2015). Traditionally used terms such as ‘local resource user’ may be viewed as problematic as they can signal purely private interests (Carlsson and Berkes, 2005). Consequently, it is worth understanding the diverse values and priorities that stakeholders may hold, particularly those that lie outside of economic valuations of the marine environment.

7.3 CASE STUDY CONTEXT

As briefly discussed in Chapter 1, certain industries and uses are occupying an increasing permanence in the marine environment. The increasingly prolific marine industries and uses that are taking up space in global inshore regions, and foregrounded in this case study, are *marine renewable energies (MRE)*, *aquaculture*, and *marine conservation*. Understandably, there are multiple other uses that will create increased demands on sea space including

pipelines, defence needs, tourism and recreation, and shipping routes, all of which can create conflict.⁴¹

However, these three industries and uses have been chosen for a number of reasons. Firstly, the uses are abundant in numerous countries hoping to marketise their marine environment. Campbell *et al.* (2016) identify aquaculture for food production, and marine areas for biodiversity conservation, as new and emerging issues for oceans governance that require increased attention within research. Additionally, Scotland's NPF, in alignment with the UN's SDGs, has directed the use of MRE within its Environment and Economy Objectives (see section 1.4). Given the push for their development, MRE and aquaculture are increasingly becoming the leading sources of employment for Scotland's changing coastal towns. Case study 2, examining Scottish fisheries, demonstrated a steady decline in the Scottish fishing industry as a result of vessel decommissioning and further regulations, as well as consistent barriers to entry for younger generations.⁴² As such, coastal communities and regions are necessarily diversifying (Stead, 2005). Given this reliance, and their increasing implementation to help meet global and national targets, these uses are also relatively data-rich, providing a good indication for trends in ocean enclosure.

Consequently, Scotland's MSP institutions could be viewed as working towards global interests but facilitated on increasing local scales, as will be demonstrated. These three, often controversial, uses are highlighted within this case study, as a method of tracking the historical drivers and processes of MSP and marine enclosure. The following sections provide further context on the uses.

⁴¹ Offshore, oil and gas must also be considered. However, as marine planning does not (usually) extend to include traditional oil and gas practices, it is not considered within this research.

⁴² Decline is described in terms of number of sector vessels and employment, which have both seen a decrease even though total catch has increased. Data sourced from Scottish Sea Fisheries Statistics (2018).

MARINE RENEWABLE ENERGY

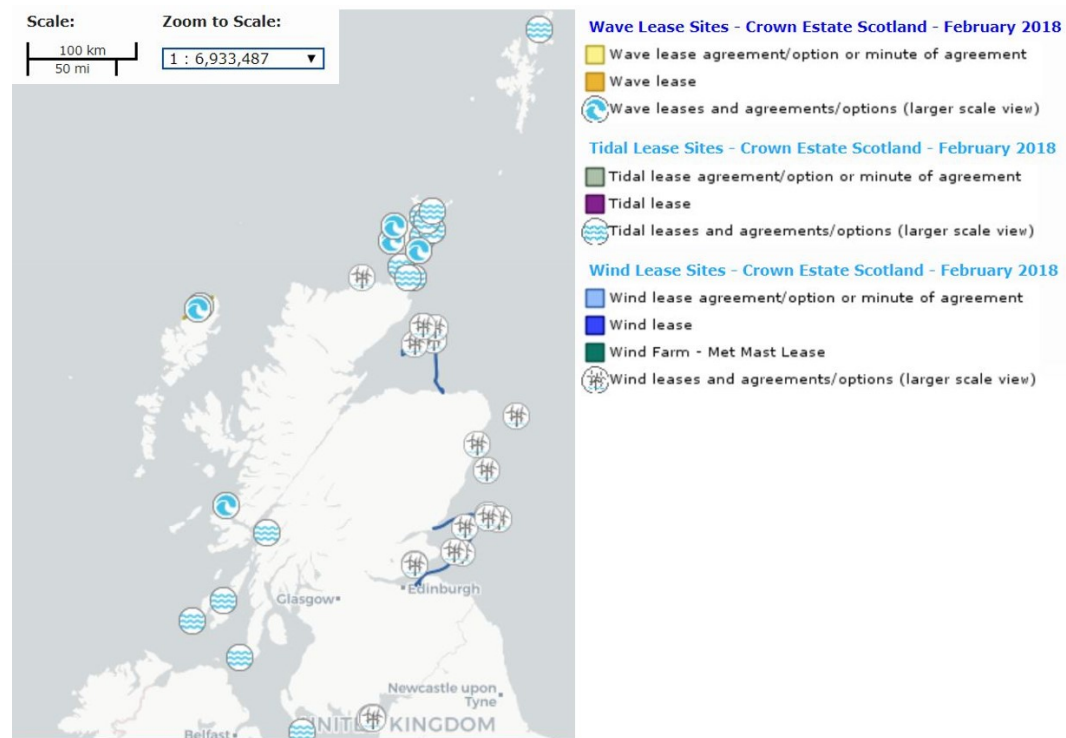


Figure 10: Map of MRE sites in Scotland⁴³

In an effort to reduce the use of fossil fuels, there has been a global rise of MRE such as offshore wind, which has been touted as the solution to many a problem that onshore renewables have (apparently) caused (Haggett, 2008). Offshore wind continues to be the most prominent form of MRE, with the installation of offshore wind turbines in the marine environment steadily increasing since the 1990s, and decommissioning already started on the earliest sites (Orsted, 2017). Other forms of MRE technologies include wave and tidal technologies, which are emerging industries with little commercial success as of 2019.

Scotland has committed to meeting 50% of its energy needs from renewable sources by 2030 (Scottish Government, 2017e), and dedicated an Indicator within the NPF (see section 1.4) to monitoring the increase in energy consumption from renewable sources. As of 2019, Scotland has an installed capacity of 1,003MW of offshore wind, wave and tidal (BEIS, 2020). These developments will not be insignificant. Offshore wind farms can take up a relatively

⁴³ Source: NMPi 2019

large area, as their infrastructure requires spacing turbines for maximum output. Planning guidelines for onshore wind farms suggest a distance of three to four rotor diameters between each turbine (Scottish Government, 2014c). No planning guidelines exist for offshore wind farms but Kafas *et al.* (2018) assume a spacing of turbines at 1km distances. MRE also requires buffer or exclusion zones for safety purposes, which, in the case of offshore wind, is usually set at 500 metres during construction, maintenance and decommissioning phases, and 50 metres during operation (Maritime and Coastguard Agency, 2016).⁴⁴ An overview of current leases and lease agreements for MRE developments (excluding cables), shows that MRE developments currently occupy 3665km² of Scotland's waters, in predominantly close to shore areas (see Figure 10).⁴⁵ Consequently, the spread of MRE could prove a significant interference to the rights of other users.

AQUACULTURE

Aquaculture, also known as fish farming, involves both finfish (e.g. salmon) and shellfish (e.g. molluscs and crustaceans). Aquaculture is considered a separate use of the marine environment to sea fisheries within this research. Although both uses are a method of securing food, aquaculture is inherently spatial, and therefore comes into direct conflict with a roving industry such as demersal and pelagic fishing. The rearing of marine organisms in aquaculture usually occurs near the shore in cages, either suspended in the water column or placed on the seabed.

A rising industry, European aquaculture now contributes 20% of fish production to its totals (Greathead *et al.*, 2012). The focus on the industry in Europe is in response to both a need to add to employment opportunities in otherwise vulnerable communities, and a requirement to contribute to the ongoing attempts for food security (EC, 2017). These

⁴⁴ Safety zones are enforced under the Electricity (Offshore Generating Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007. Further guidelines suggest a '*broadly acceptable*' distance of 3.5nm between turbines and any shipping lanes (containing 90% of marine traffic) (Maritime & Coastguard Agency, 2016).

⁴⁵ Data obtained from Crown Estate Scotland Available at: <https://www.crownestatescotland.com/maps-and-publications> (Accessed: 23.05.2019).

commitments are reflected in Scotland's NPF, which dedicates an Indicator to improving food security, and a Government commitment to growing its aquaculture industry (Scottish Government, 2015b). As of May 2019, there were 430 active lease agreements for finfish and 258 active lease agreements for shellfish in Scottish waters (see Figure 11).⁴⁶ Active lease agreements occupy 77km².⁴⁷

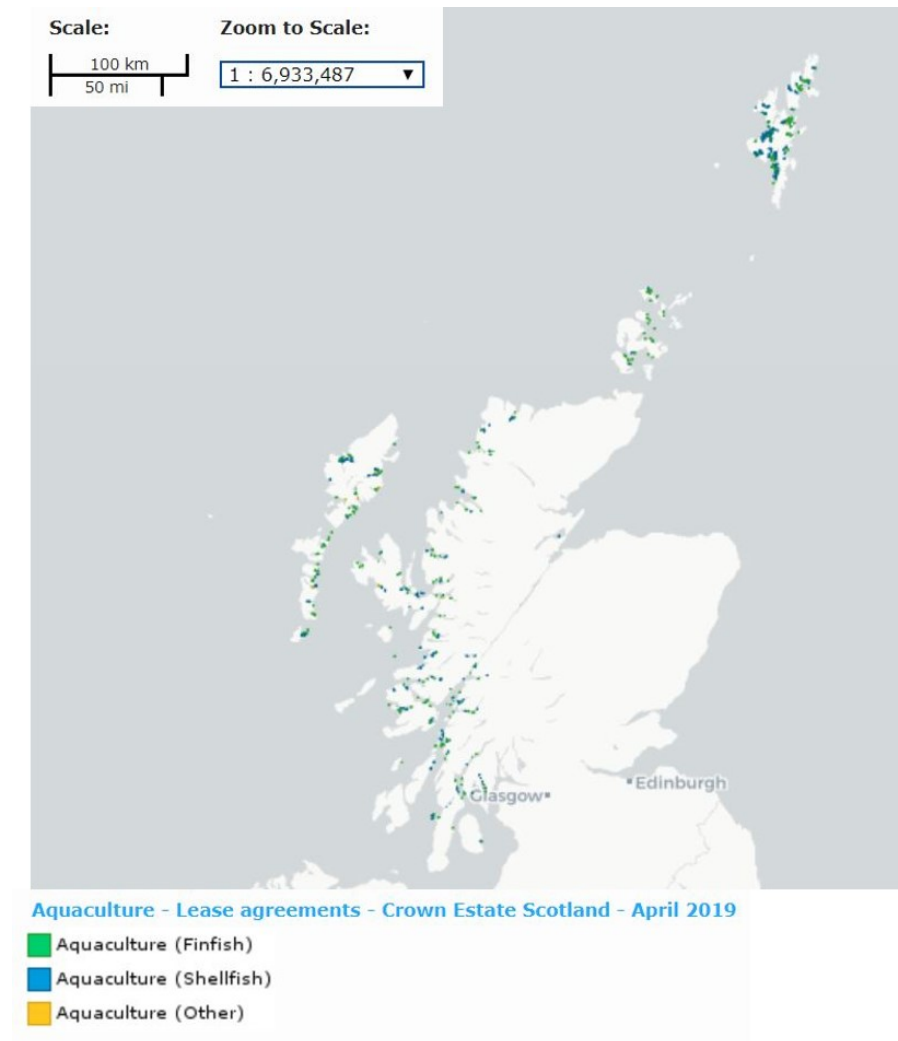


Figure 11: Map of aquaculture sites in Scotland⁴⁸

⁴⁶ All data available at: http://aquaculture.scotland.gov.uk/data/lease_details.aspx (Accessed: 21.05.2019)

⁴⁷ Data obtained from Crown Estate Scotland Available at: <https://www.crownstatescotland.com/maps-and-publications> Aquaculture Spatial Data (Accessed: 23.05.2019)

⁴⁸ Source: NMPi 2019

There has been criticism of aquaculture’s reliance on the neoliberalisation of space (Silver, 2013). Canada has rapidly expanded its aquaculture industry, aiming to double its shellfish production by increasing space available for ‘*private tenure*’ (*ibid.*, p. 430). The use of market-based approaches has been criticised for its negative impacts on community-based goals and collective rights (Pinkerton and Silver, 2011; Silver, 2013). Aquaculture thus provides an example of an industry enclosing locally areas in opposition to other users’ rights.

MARINE CONSERVATION

There are also global drives to protect and monitor the seas and their rich biodiversity. The global network of marine protected areas (MPAs) now exceeds 2.85 million km² and, to some extent, involves restricting access to fulfil their conservation aims (Protect Planet Ocean, 2010).

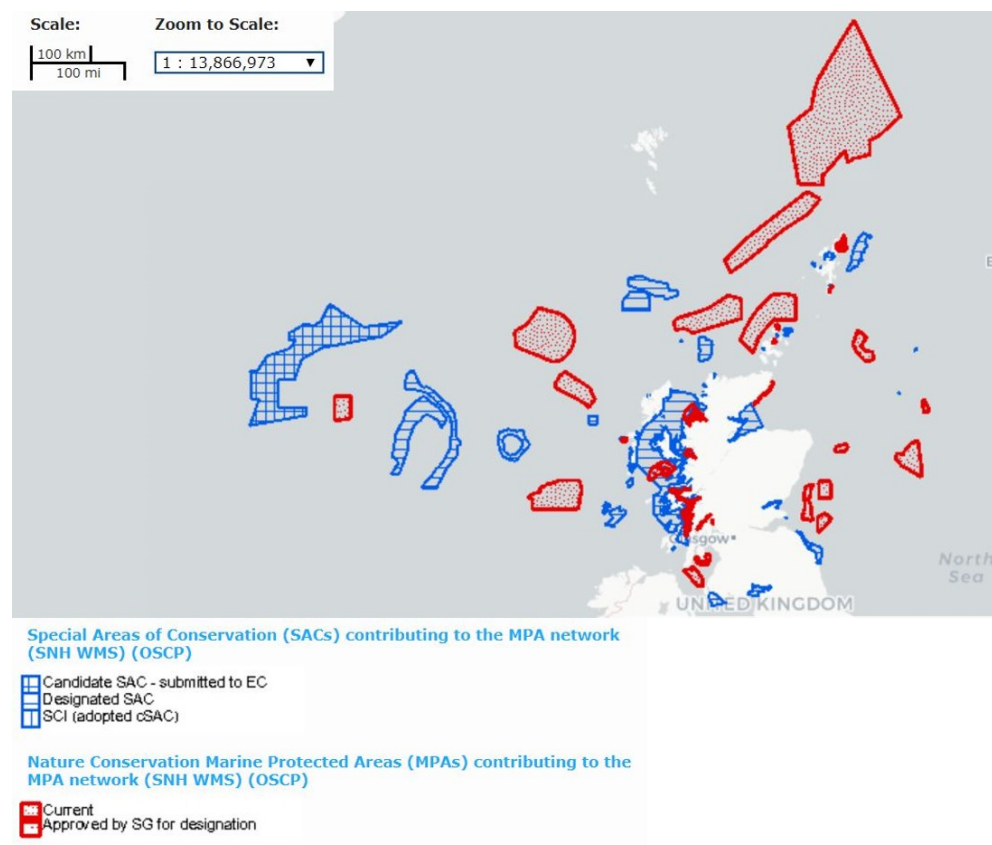


Figure 12: Map of MPAs and SACs in Scotland⁴⁹

⁴⁹ Source: NMPi 2019

In Scotland, an NPF Indicator is dedicated to improving the condition of protected nature sites. MPAs in Scotland are widespread, with 217 MPAs for nature conservation in 2019, covering approximately 18% of Scotland's territorial waters (or 108,000km²) (Scottish Government, 2018c) (see Figure 12).

The establishment of spatially-bounded areas for conservation purposes imposes constraints on the use of that space, and new rules will be set up to inform users of the sea of their limitations. As such, areas such as MPAs can impact incomes on limited users (Jentoft *et al.*, 2007). MPAs on a global scale have emerged in a path dependent track, that have arguably been conceived of as an extension of spatially-determined protection techniques on land. De Morais *et al.* (2015) concede that path dependency has limited the effectiveness and progression of MPAs by entrenching and legitimising existing power relations. Therefore, MPAs are sometimes viewed as controversial solutions that may work to further tensions between users, and constrain their ability to protect their resources. However, as evidenced by the GBR Marine Park, MPAs do not always invoke a ban on accessing or using the area. The terms of MPAs are usually specific to each locale, ecosystem, and can take in account socio-economic factors. Often, MPAs can utilise co-location, as a key facet for efficient zoning plans (Kelly *et al.*, 2014).

PERMITTING AND REGULATION OF MARINE INDUSTRIES

Both MRE and aquaculture also require certain permits from the regulating authorities who hold authoritative and control rights over the sea space and seabed. These permits, in the shape of leases and licenses, provide an adequate method for tracking industry growth. Additionally, leases and licenses, are a property right institution in themselves, facilitating changes in the rules of who can directly, or indirectly, benefit from the resource.

The process of regulating access is partially carried out by the Marine Scotland Licensing Operations Team (MS LOT), who issue licences, consents and planning permission for most marine activities. Licences can also be issued by LAs, i.e. councils, dependent on location and

activity. These permits can last a specific amount of time or in perpetuity, and fees are determined by the scale and cost of the project.

Industries that require access to the seabed for moorings (e.g. marine renewables or aquaculture) must also acquire a lease from the seabed manager, Crown Estate Scotland (CES). The Crown (i.e. the incumbent Monarch) retains ownership over the territorial seabed, but administration of the seabed falls to the managing organisation CES. As described by CES, the authority acts as '*essentially land managers, we manage the rights to the seabed*'; in doing so, they can permit the occupation of their land through leasing, extracting a rent from the developer. Leases give a '*right to occupy*' the mooring area, as determined within the lease agreement (Crown Estate Scotland, 2019). All revenue profits from these leases are funnelled into the centralised 'Scottish Consolidation Fund', from where Scottish Ministers are able to allocate funds. The total value of the Crown Estate assets in Scotland was valued at approximately £275 million in 2017 (Crown Estate, 2017). According to CES, the organisation plays no role in the authorising of licences, or in the process of agreeing locations, which rest with Marine Scotland or LAs. However, CES will still '*follow the contours*' of policy (Toke, 2011, p. 530). It can thus be presumed that CES will not act in opposition to the Government, but rather aid in the development of industries that are mutually beneficial.

7.4 HISTORY AND DRIVERS OF INSTITUTIONAL CHANGE THROUGH MSP

This section provides an historical discussion of the critical junctures in Scotland's MSP journey, beginning with the emergence of MSP as a method for marine conservation in the 1990s. Critical junctures can be instantaneous, such as the introduction of the FQA system which changed the value of quota overnight. Significant events of change may also be gradual, occurring over a years, such as in the case of legislation formation.

Using the frameworks of North (1990) and Ensminger (1996), this section provides a detailed examination of the central actors, and their relative bargaining powers, in the events

that led to Scotland's MSP regime. This examination can be used to understand the ways in which institutional change has facilitated enclosure, and the resulting distributional conflicts.

MSP FOR CONSERVATION (FROM 1990S)

The first examples of global MSP initiatives were primarily driven by the need for conservation. MSP entered the EU policy framework in the 1990s, after spatial exclusivity was recognised as a central instrument for its Birds (79/309/EEC) and Habitats (92/43/EEC) Directives. Both directives called for the designation of conservation areas. The Marine Strategy Framework Directive (2008/56/EC) also commits to a protection network across European seas, and additionally centres environmental issues in marine planning objectives (Qiu and Jones, 2013).

As a member of the EU, Scotland has been bound by the Birds and Habitats Directives since their introduction. As such, Scotland has been driven to create its own network of MPAs, both in response to EU targets, as well as newer Scottish legislation in the form of the Marine Act (2010). However, this has meant that Scottish MPAs have historically been employed in a top-down approach (Jones, 2012). Indeed, despite the commitment to public consultations for the implementation of MPAs, research suggests that, overwhelmingly, Scottish marine conservation is the product of political lobbying by ENGOs (Hopkins *et al.*, 2016). A reliance on lobbying has left marine conservation as a politicised process, and arguably leaves a gap for deeper engagement with stakeholders.

A critical example of ENGO lobbying was the establishment of the only no-take zone (NTZ) in Scotland, consisting of 2.67km² in Lamlash Bay off the coast of the Isle of Arran. The Community of Arran Seabed Trust (COAST) campaigned for 13 years to designate the area an NTZ and continues to preside over its management. The area, previously commercially fished, now attracts tourists and divers which has apparently made the zone more economically viable, according to COAST.⁵⁰ The implementation of the NTZ was, according

⁵⁰ <http://www.arrancoast.com/campaigns/lamlash-bay-no-take-zone>.

to a West Coast fishing representative, backed by local fishers represented by the Clyde Fishermen's Association (CFA). However, in 2016, the Lamlash NTZ was integrated into a new, extended MPA, with various fishing restrictions in place. This extension has proved more controversial, with the CFA suggesting the MPA's design was a breach of trust between local fishers and regulators, and that the displacement of fishers has had significant economic implications (Fishing News, 2016).

Under Marine Scotland's terms, the aim of an MPA is never specifically to restrict fishing activity or any other uses, stating that industries, such as renewables, can work positively by co-locating in MPAs so long as conservation objectives are still met (Scottish Government, 2014b). However, the Scottish Government also state that '*fisheries restrictions are **required at most MPAs***' (*ibid.*). As of 2018, twenty-seven MPAs have '*specific fisheries measures*' operating, and a further thirty-nine are due to have measures in place in the future (Scottish Government, 2018c). NTZs are not yet common in Scotland. However, research suggests the implementation of NTZs, and the use of zoning to exclude incompatible activities, would be beneficial for Scotland's MPA network (Scottish Association for Marine Science, 2011). This suggestion indicates moves towards the exclusion of traditional marine users, such as fisheries, are being pursued by ENGOs and environmental researchers.

MSP FOR RENEWABLE ENERGY (FROM 2008)

More recently, MSP has been additionally driven by the need to address the issue of multiple users and uses in the EU's seas. This approach began with the EU's Integrated Maritime Policy (COM(2007) 575), which cited the need for MSP to help build a holistic framework for sustainable marine development. In 2008, the EU published their '*Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU*' (COM(2008) 791 final). This document reinforced the EU's commitment to using MSP as both a method for promoting sustainable economic growth in European waters (Blue Growth) and, crucially, a necessary tool for supporting MRE development to help limit climate change.

The growth of MRE in Scotland's waters is a testament to a long history of identifying areas for MRE development, which can be partly attributed to the Crown Estate (CES in Scotland). As the owner of the seabed, a lease has to be secured from CES to construct or moor renewables on the seabed for sites out to 200nm.⁵¹ For wave developments up to 3MW, tidal developments up to 30MW, and test and demo wind developments out to 100nm, leasing has been done on an *ad hoc* basis, with developers applying directly to CES for a lease.

For larger offshore wind developments, leases have been allocated via competitive 'rounds'. Three UK-wide leasing rounds have occurred, while Scotland had an additional development round for its territorial waters in 2009. Leasing rounds have arguably been instrumental in establishing the drive for MRE development. CES is legally required to manage the marine estate in the long-term public interest, but also has the duty to '*enhance the value of the assets, and the income arising from them*' (Scottish Parliament, 2019, Section 7). Consequently, the Crown Estate, and latterly CES, has made a '*concerted effort to assist the industry*', and played an active role in MRE's development (Wright, 2014, p. 45). As such, the growth of MRE has been, at least in part, a response to the Crown Estate needing to continue enhancing its income from the seabed. Subsequently, CES could be viewed as economically invested in the Scottish MRE industry's success.

EXTENDING LOCAL CONTROL (2006)

Following recognition of increasing user conflicts in inshore spaces, local MSP pilots were sanctioned under the Scottish Sustainable Marine Environment Initiative (SSMEI). The Shetland Islands' Marine Spatial Plan (SIMSP) was the first to be developed after being named as a pilot project under the SSMEI. Published originally in 2010, the plan has now been through four iterations, the most recent of which was finalised in 2015.⁵² Similarly, the Firth of Clyde Marine Spatial Plan was developed as a pilot project under the SSMEI, starting in

⁵¹ Leases are given for identified areas in Scottish territorial waters out to 12nm, and in the 'Renewable Energy Zone' from 12 to 200nm, under the Energy Act 2004.

⁵² The SIMSP 4th Edition can be found at https://www.nafc.uhi.ac.uk/research/msp/simsp/SIMSP_2015.pdf.

2006 and concluding in the publication of the plan in 2010. These early examples of regional plans were driven primarily to identify potential issues with local marine planning, in response to increased MRE development around Scotland (Smith, 2015). The SSMEI is therefore an important point in Scotland's marine planning history, providing the basis for regional MSP that has followed.

At the same time as the SSMEI pilots, powers were being extended to LAs for the consenting and permitting of other marine industries. Before 2007, aquaculture sites only required a lease from either the Crown Estate or, if in the northern isles, their respective councils (Orkney Islands Council and Shetland Islands Council). This regulatory set-up, with the Crown Estate acting as both '*land owner and de facto regulator of the aquaculture industry*', was demonstrably failing to accommodate the multiple interests of stakeholders (Peel and Lloyd, 2008, 2014). Reform of the regulatory procedures proceeded seemingly as a response to increased awareness of the '*divergence between the social and private interests involved*' (Peel and Lloyd, 2014, p. 299). In 2007, the Town and Country Planning Marine Fish Farming Scotland Order was passed, requiring all aquaculture developments to gain planning permission. As aquaculture developments within 3nm are subject to the statutory land planning system, planning permission is now granted by LAs. This move has not slowed the growth of aquaculture, but it does provide a more direct route for citizens to object to planned developments, an important factor for diverse social interests.

MARINE (SCOTLAND) ACT AND COMPREHENSIVE MSP (2010)

With the growing development of both MRE and aquaculture in Scotland's inshore regions, and the perceived success of the pilot plans, it became clear that new planning legislation was required to provide the drive for comprehensive marine planning. The advent of the 2009 leasing round in Scotland seemingly came as a surprise for local communities and authorities. One marine planner stated,

‘...there was just this advert saying we were leasing all these big areas of space. There's no consultation with the local fisheries industry or any other sectoral interest or any local interest. So it's kind of came as a bit of a surprise...’

However, an unintended benefit of the leasing rounds was recognition that a planning framework was needed, to provide an engagement process for the public. New legislation came in the form of the Marine (Scotland) Act 2010. Under the Act, the creation of both a National Marine Plan (NMP) and corresponding regional plans was stipulated in article 3.5. The Act states that these plans are for the purposes of both “*economic, social and marine ecosystem objectives*” and “*objectives relating to the mitigation of, and adaptation to, climate change*” (art. 5.4.a). These objectives reflect both the environmental and economic drivers behind the use of marine planning in Scotland, and are indicative of global objectives for marine planning around the world.

The UK as a whole also has its own independent Marine Policy Statement (MPS) (2011), which establishes clear objectives for the management of UK waters and specifically facilitates the preparation of national marine plans. Both the Marine (Scotland) Act 2010, and the UK equivalent of the Marine and Coastal Act 2009, were developed as a more strategic method of managing UK seas, where previously marine policy had evolved in irregular and disjointed patterns (Peel and Lloyd, 2004).

Following the Marine Act in 2010, marine planning at regional levels flourished after Marine Scotland launched their ‘*Scottish Marine Regions: Defining their boundaries*’ consultation in late 2010. Under the Act, Scottish Ministers were granted the power to set boundaries for regions within Scotland’s territorial sea for the purpose of marine planning. After five years of consultations, the Scottish Marine Regions Order was assembled in 2015, setting out the boundaries of eleven Scottish Marine Regions (SMRs) (shown in Figure 13) (Scottish Government, 2015a). Statutory marine planning at a local level can be executed

within these SMRs via Regional Marine Plans. SMRs extend from the Mean High Water Mark to 12nm.

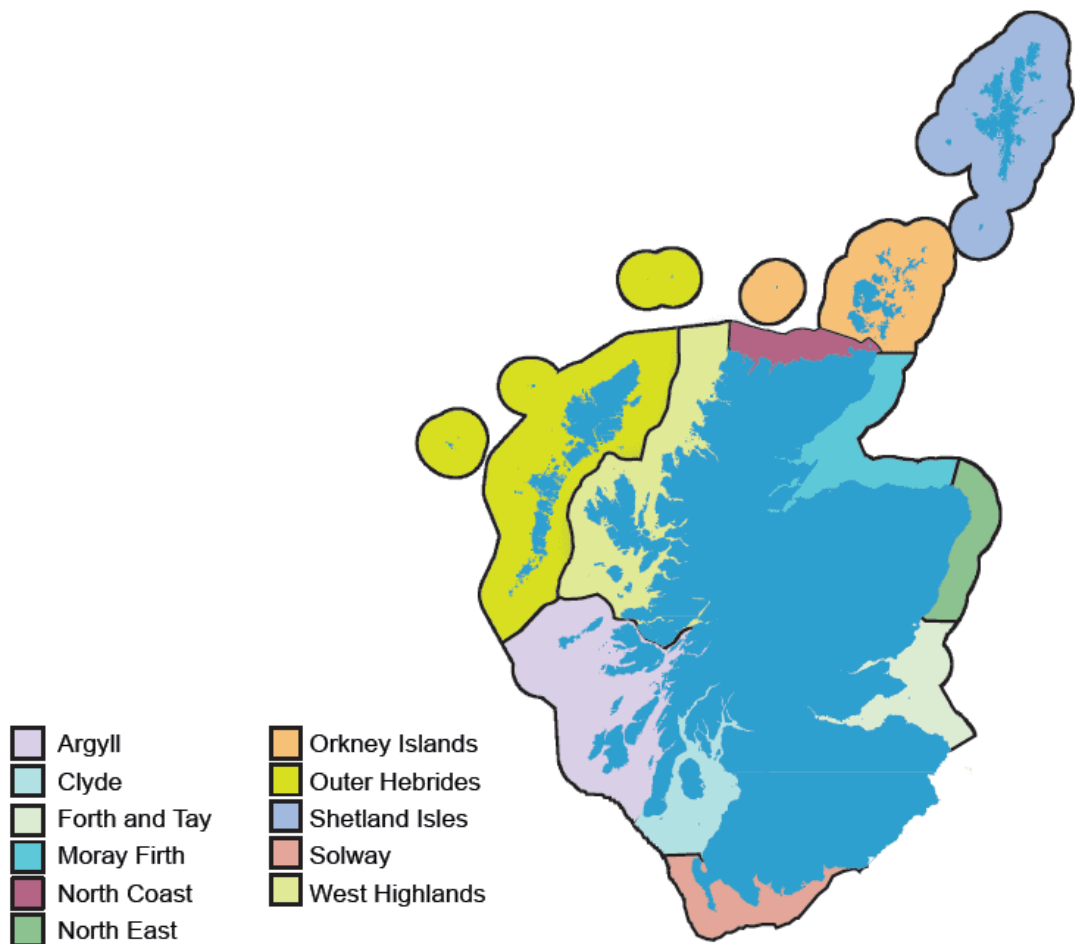


Figure 13: Scottish Marine Regions⁵³

The Pentland Firth and Orkney Waters was the first regional plan to be written and tested under the Marine Scotland Act, and the third overall following the Shetland and Clyde pilot plans. Interviews within a number of LAs indicated that the initial stages of assembling regional planning were still a top-down process to achieve national objectives, despite apparent pushback from individuals. Reflecting on the process, a representative for a community engagement forum stated,

⁵³ Source: Scottish Government (2017g)

‘Through the whole process, the councils were saying for this to be legitimate, it needs to be a fully cross sectoral plan. But it needs to move away from this focus on enabling green energy because it just seems like it’s not taking a balanced view.’

In other words, during the early stages, regional marine planning continued to centre on the development of MRE, in conjunction with the Crown Estate leasing rounds. Seemingly, interests such as community groups, who may hold divergent values outside of economic efficiency, were not involved during the planning phases.

The regional plans must work to the framework set out in the NMP, published in March 2015. The NMP is a statutory document laying out the overall objectives in terms of its future marine management, covering its targets for marine conservation and promotion of industries. The NMP covers both inshore and offshore waters and consequently functions under two pieces of legislation on two levels, Scotland (under the Marine (Scotland) Act 2010) and the UK (under the Marine and Coastal Access Act 2009). Given the need to cover a large area of sea and complex relations between industries, the NMP is also necessarily adaptive and pragmatic, instead of stringently zoned. A review of the plan was published in 2018 (Scottish Government, 2018a).

The marine planning process was designed to allow comments from other stakeholders through consultation. Following applications for development, interested parties can respond, ranging from approval to objection. Responses can then be used to help address concerns via ‘conditions’, which are formulated on an *ad hoc* basis in conversations between the developer and MS-LOT. According to Marine Scotland, conditions are becoming more and more complex, with simple mitigations not addressing the complexity of issues. This complexity is particularly true of objections raised by the fishing industry, as roving industries struggle to cohabit effectively with static developments.

Both prior to, and following, publication, the NMP was also subject to stakeholder consultations through a series of workshops. However, previous research has been critical of

the consultation methods used, particularly in the early stages of the NMP's development (Smith and Jentoft, 2017). Of note are the NMP objectives for individual sectors, which were seemingly established prior to any consultation (*ibid.*, p. 37). Therefore, the process for building the NMP could be viewed as lacking transparency and effective engagement.

In response to both the NPF, and wider initiatives of Blue Growth, both aquaculture and MRE have been foregrounded in the NMP. For example, the NMP set out objectives to increase production of farmed fish to 210,000 tonnes of finfish and 13,000 tonnes of shellfish annually by 2020, an increase of 50% on 2010's production (Scottish Government, 2015b, p. 49). The Government also supports the industry's goals of doubling its economic output to £3.6 billion by 2030 (Food and Drink Scotland, 2017).

Whilst aquaculture have been a central part of Scotland's marine economy for some years, there has been a clear proliferation in the number of fish farms in recent years, chiefly in salmon farms. Owing to aquaculture's needs, the majority of farms are placed on the west and north of the country, where beneficial geography means more sheltered habitats; in Orkney alone, three terrestrial planning permission applications are granted per week for fish farms. According to a local marine planner,

'Through the Scottish Government's own policy, and international marketing plan, they support that mission. And through Scottish planning policy, which is land use planning, which has guidance on fish farming, they support that ambition. And in turn, we have to make decisions in accordance with those higher level.'

In other words, although LAs are not told specifically to permit a certain number of aquaculture developments, they are also required to align with the NPF. Consequently, LAs must act positively towards achieving the National Outcomes, including improving the country's economic performance.

With the official recognition of Blue Growth as a priority in European policy in its ‘Europe 2020 Strategy’, MSP was also awarded its own directive in 2014, establishing a recognised legislative framework for European marine planning. The Maritime Spatial Planning Directive (MSPD, Directive 2014/89/EU), operating within the IMP framework, outlines the requirements for member states to develop their own marine plans. Important to note here is the use of ‘spatial’ within the official directive, indicative of the importance of marine space to its goals. The Directive (2014, para. 19) also states the main purpose of maritime spatial planning is to ‘*promote sustainable development and to identify the utilisation of maritime space for different sea uses*’. However, according to a local marine planner, the MSPD is not regarded as a significant driver for Scottish MSP, and indeed stated, ‘*I don’t even interact with the MSPD.*’

PARTICIPATION AND COMMUNITY OPPORTUNITIES (2016-PRESENT)

Following understandings that stakeholder involvement is vital for successful plans and can build institutional capacity (Flannery and Ó Cinnéide, 2012), the Scottish Government also requested that Marine Planning Partnerships (MPPs), introduced in section 6.3, be established for each SMR. MPPs consist of groups of marine stakeholders and must represent those with an interest in the protection of the area, as well as the use of the area for both recreational and commercial purposes. These stakeholders can include LAs, fishing groups, and coastal partnerships. The groups are designed to work collaboratively with other stakeholders, such as academic bodies and ENGOs, who can advise on delivering the plan.

MPPs can utilise their newly delegated powers⁵⁴ to direct the development of marine plans and help facilitate the inclusion of all stakeholder interests. MPPs should also build upon existing knowledge and plans formally created under the SSMEI. MPPs should therefore further provide a shift in power by allowing for non-tokenistic participation (Reilly *et al.*, 2016). Whilst consultation, advocated by the present planning system, provides limited

⁵⁴ Planning powers do not include licensing or consenting powers, which remain with Marine Scotland (through MS LOT) and LAs.

balancing of views, MPPs should provide an opportunity for involvement that allows stakeholders to influence decisions. The establishment of MPPs could help to build a more transparent institutional arrangement, which could connect the priorities and values of diverse stakeholders, as well as identify potential distributional conflicts. Additionally, some interviewees saw early engagement as a way to imbue a sense of ownership over the development of communities' waters. Speaking on the development of renewable infrastructure, for example, an MRE representative stated,

'It's getting to the stage where it becomes a bit of them. Early engagement is key and it's on a knife edge which way it goes from, the start. We need to make people value something and see it as their own.'

This argument mirrors the theory of environmental stewardship, discussed in section 6.2, which can confer responsibility over the future governance of natural resources. Enhancing a sense of ownership over their marine environment could theoretically influence stakeholders to act economically rational, and enhance the effectiveness of management solutions (Fuchs, 2003).

Currently, however, there are only two MPPs in place, namely the Clyde MPP and the Shetland Isles MPP, both of which have already developed non-statutory regional plans. For the remainder of the SMRs, there is no specific timeline to complete their regional plans; it was alluded to by Marine Scotland that, at present, there was neither the funding nor the motivation to complete any more plans until the consequences of Brexit were clearer. A representative for Marine Scotland stated,

'Marine planning partnerships need to be funded by Marine Scotland, it's a costly thing to do. And we want to support as many of them as possible, but it sort of needs to be done in a kind of slower manner than we might have expected.'

The drive for regional planning in general also appears to have stalled. According to a local marine planner, there is little pressure from local development sectors to establish plans in areas which have no desire to diversify marine uses, such as those with a high reliance on established industries like fisheries, or the oil and gas industry.

Following repeated difficulty in setting up a model which attracts representatives, the structure of MPPs in certain areas has also been under review. Part 7 of the Islands (Scotland) Act 2018 sets up an amendment to the Marine (Scotland) Act, dictating MPPs in island regions can be the sole responsibility of LAs without the need for actual partnership. A marine planner, expressing doubt about the feasibility of collaborative working, stated,

'It is easy to talk about the idea of ... you're going to bring all these interesting people together in a happy family to deliberate common strategy, a common legally binding plan, but, in practice, there's been quite a lot of barriers to the admin, not least the resources.'

This suggests a lack of drive from other stakeholders, who do not wish to have the statutory responsibility for decision-making which may go against the interests of themselves, their industry, or their communities. Consequently, both a lack of resources and a lack of incentive have stalled the establishment of MPPs in some areas, whilst changing the structure of the partnership in others. These changes could have significant implications for who can influence decision-making. These implications will be discussed further in section 7.7, which focusses on opportunities for the future.

A new opportunity for empowering local communities and users came in the form of organisational reform in early 2017, when the management of the Crown's assets in Scotland was devolved to CES. Following an interim period, CES was instated permanently in accordance with the Scottish Crown Estate Act in 2019. In a quote from the incumbent Environment, Climate Change and Land Reform Secretary, devolution provided control over the assets to '*rest with the people of Scotland*', helping to increase benefits to Scottish communities (BBC, 2017). Further devolution to local authorities is being piloted in a few key

marine regions around Scotland following the passing of the Crown Estate (Scotland) Act 2019. These Asset Management Pilot Schemes could see capital from seabed leasing return to local authorities, bringing the benefits of long-term decision-making over ‘their’ environment, as well as direct economic benefits from leasing. However, the specifics regarding revenue distribution remain uncertain at present (COSLA, 2018).

7.5 ENCLOSURE THROUGH MSP

The role of enclosure in redistributing land use patterns and rights has been described in case study 1, which discussed how the actions of both state and private individuals reallocated areas of land to fewer people in a bid for increased profits, argued as economic development. Arguably, the drivers for MSP, the instruments used to implement MSP and the increasing competition for space by marine industries, are similarly redistributing rights within the ocean. The use of licensing and leasing processes, and the prioritisation of spatially-driven industries, are enclosing increasingly localised areas of the sea.

TRANSFERAL OF RIGHTS

Reflecting the objectives of the marine plans, and along with ‘soft’ zoning practices (Scottish Government, 2016a), industries which are featured heavily within Scotland’s marine plans are being granted access to areas of sea by licences, consents and leases. These permits, working alongside the planning system, are effectively granting *de facto* access to specific uses, whilst garnering revenue for the owners, i.e. the state and the Crown.

A licence, as a weaker property right, does not transfer any property interest to the licensee, but will give the licensee certain rights under the terms of the licence, including the right to use and occupy the space for the stated time period. Consequently, marine licences for fixed industries permit a *de facto* occupation of marine space. A licence thus provides the right to the direct benefit stream (Sikor *et al.*, 2017), whilst dispossessing that right from local users of the sea, and also excluding the option for indirect benefits, which are funnelled back to the central Government.

Under Scot's Law, a lease is defined as '*a right to use or possess land or other heritable subjects in exchange for a recurring payment known as a rent*' and provides a tenant a real right recognised by the legal system (Paisley, 2000, p. 180). Thus, similarly, a lease also provides a right to directly benefit from the resource, which in this case is the seabed. In leases provided by CES, a tenant is given specific rights as dictated by individual leases. These rights are usually stipulated as the right to enter the leased premises, and install any allowable infrastructure, whilst also stipulating construction work outside leased premises is forbidden. The lease can also give extra protection with 'Extended Restriction Zones', providing further exclusivity for the tenants.

In aiding the marine planning process, the provision of leases is undertaken with a '*view to generating income*', indicative of a history of commercial approaches to the management of Crown Estate assets. The Scottish Crown Estate Act 2019 has rectified this somewhat, by including wider socio-economic and environmental opportunities, and establishing a goal of '*good management*'. However, '*good management*' was deemed '*undefined*' at a parliamentary debate on the bill (Scottish Parliament, 2018, col. 45). Consequently, the provision of leases both provides little opportunity for local users to have a say in future decision-making, or be privy to indirect benefits from leasing at this stage.

Interestingly, all activities consented in the lease are usually subject to the public rights of fishing and navigation. This was substantiated by the case of *Crown Estate Commissioners v Fairlie Yacht Slip Ltd.*, which concluded that the Crown should not be granting leases to the seabed if there was '*material interference*' with the exercising of these public rights. However, what constitutes '*material interference*' remains unclear. According to an interview with CES, it is the developers' prerogative to maintain public rights as best they can during the occupation of the seabed area, so as not to grant '*material interference*'.

As demonstrated in the maps in section 7.3, MRE, aquaculture, and marine conservation are quasi-permanent, or permanent, uses which are taking up more and more space in a

previously open commons. Despite aquaculture's continued proliferation, there appears to be no mention of spatial implications in the industry-authored growth strategy (Food and Drink Scotland, 2017) or the Scottish Government's (2009) Strategic Framework, '*A Fresh Start*'. Further research also demonstrates exponential increases marine renewables (Kafas *et al.*, 2018). The NorthSEE project concluded that space occupied by offshore wind alone in the North Sea will measure over 8000km² (*ibid.*). A socio-economic review conducted by the Scottish Government states that '*the social impacts [of MRE development] are not expected to be noticeable at the national level*', although admits that impacts on commercial fisheries and recreational users could be '*locally noticeable*' (Scottish Government, 2013, p. xi). Consequently, it appears that official policy is not foregrounding the transferal of rights that MSP is facilitating, which could have profound impacts on divergent interests and users.

The regulatory authorities of the Scottish Government and CES are therefore providing private access to previously state (or crown)-owned property, with little to no forethought of the reallocation of public and perceived rights. In other words, the use of leases and licenses, operating under the planning system, effectively transfer responsibility of the area over to the stakeholder and creates *de facto* private property, in another system of '*nested*' institutions (Ostrom, 1990, p.50).

PRIORITISATION OF INDUSTRIES

The transferal of rights is seemingly being advanced by the prioritisation of certain industries in a politicised move. According to Marine Scotland, the Government is committed to treating all marine interests with '*fairness*', as stated in the NMP (Scottish Government, 2015b, p. 38). However, Government-sanctioned targets for conserving biodiversity, reducing fossil fuel dependence, increasing employment, boosting economic revenue, and securing food reserves, all necessitate priority thinking for providing access to marine space. These targets are enshrined in the NPF, the commitment to the SDGs, and by the need to enhance economic income.

The discrepancy between the start of the leasing rounds and the publication of the NMP signals that the current round of marine plans is consequently playing catch up to the enclosure that has already transpired. Scotland's statutory marine plans could be deemed as arriving too late, given that priorities had already been laid out for the marine environment. Industries such as aquaculture have proliferated in Scotland despite strong opposition from community groups (e.g. Friends of the Sound of Jura, 2017). Even Scottish Planning Policy now states that local development plans '*should make positive provision for aquaculture developments*' (Scottish Government, 2014d, p. 56). The policy does also state that issues of '*interaction with other users of the marine environment*' and '*impacts on...local communities*' should also be taken into account, however (*ibid.*, p.56).

Thus, it could be argued that those who are perceived as 'winning' in terms of spatial distribution are uses which are being enthusiastically backed by government incentives, and so aligned with the dominant ideology of the regulator. In other words, Scotland's MSP regime is working within an embedded political process that is prioritising certain industries that hold economic value. Interests which hold divergent values have been arguably excluded from the planning process, and consequently may find their rights increasingly marginalised. MSP has arisen in a path dependent process which, therefore, has not considered alternatives. These new institutional arrangements are viewed as the solution to previous mismatches in governance and jurisdictions (Alexander and Graziano, 2019). Consequently, enclosure is arguably inevitable within this path dependent regime, viewed by powerful actors as the only option for efficient management of the seas.

7.6 SOCIO-ECONOMIC CONSEQUENCES

The previous sections have discussed the drivers behind, and the processes of, spatial enclosure in Scotland's seas. Using these discussions,

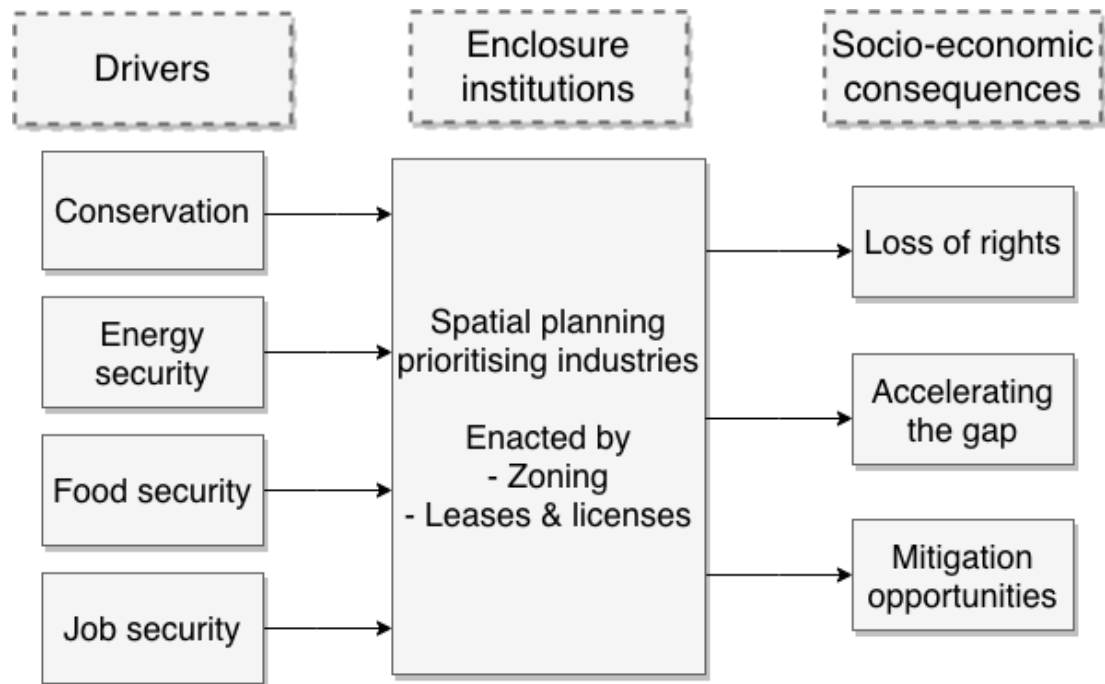


Figure 14 has been constructed to demonstrate the pathway of enclosure, from the motivations of enclosing marine space, to the socio-economic consequences of institutional changes. As is illustrated, there are both negative consequences but also positive opportunities to be taken from these trends of enclosure and privatisation in marine space. The following section provides a discussion of such consequences. As spatial enclosure is still in its early phases in Scotland, some of these discussions are more representative of worries held by interviewees about future consequences, rather than observed consequences.

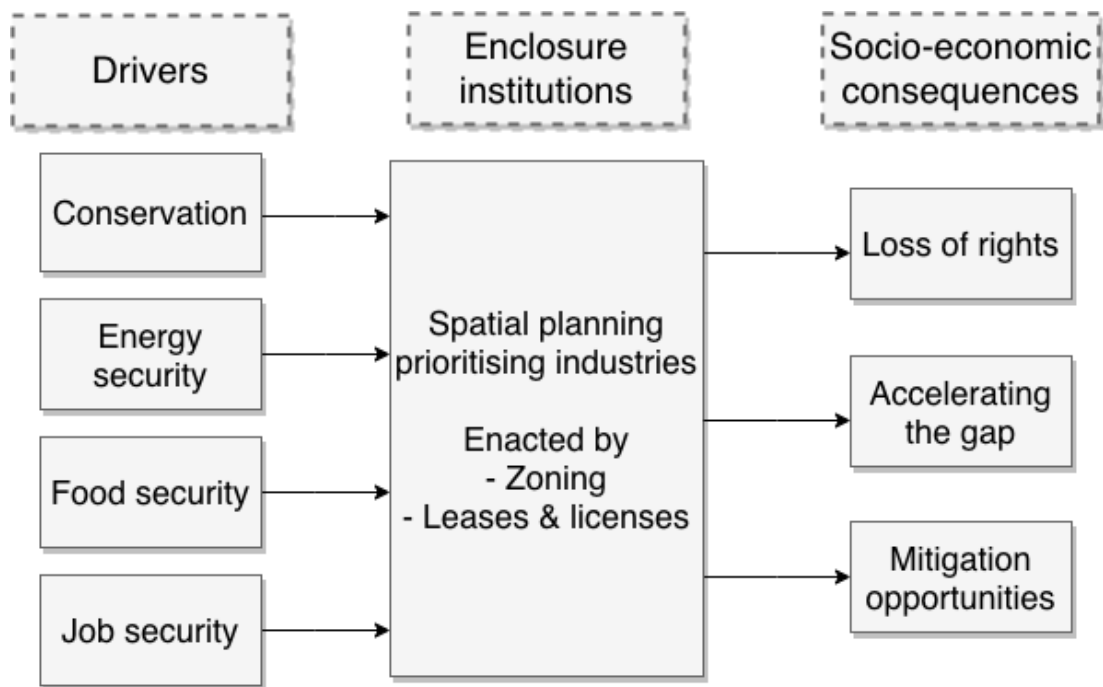


Figure 14: Drivers, processes, and consequences of ocean enclosure

REALLOCATION OF RIGHTS

The most obvious and recurring theme that emerged through analysis of literature and interviews was the potential for conflict and subsequent reallocation (losses or gains) of rights for marine users. As discussed in section 7.5, the deployment of fixed industries ensure an exclusivity in previously open-access space that may cause both social and economic issues for traditional marine users.

The right to access and extract fisheries resources are particularly longstanding rights that could suffer. Case study 2 discussed how the previously unrestricted right to fish is under various limitations through new institutions. The right to fish has become particularly restrictive for inshore fishers, who have struggled to gain access to fishing opportunities. Concurrently, the loss of access to space in inshore waters could prove significant for the 10mu fleet, who rely on these areas for their livelihoods. According to an inshore fisher, perceived entitlement over ‘*patches*’ of the sea is inherent in industries like creeling, where the notion of ownership over fishing grounds is passed down through generations (Nightingale, 2013). These patches are not a formal property right, but the construction of

patches could be interpreted as providing a sense of ownership over resources in their areas, instilling greater responsibility over the future of their sea space. This interpretation is in keeping with the importance of different social institutions that can still convey ‘ownership’, but are not recognised as formal rights, as discussed in section 3.3 (Mansfield, 2004; van der Horst and Vermeulen, 2012). The obstruction of these patches may lead to loss of earnings, but could also change the way that individuals value their resources and patches. In turn, a change in values may affect relations between fishers, and the eventual behaviour of individuals; if they no longer value the unwritten rules between fishers, they may be inclined to act inefficiently (Carothers and Chambers, 2012).

The development of exclusionary zones has been a pressing issue for fishers who may lose the public rights of fishing and navigation, but more tangible for fishers was the loss of earnings should they be made to relocate to less profitable fishing grounds. Loss of access has been cited as a pressing impact of MRE developments by fishers in previous research (Alexander *et al.*, 2013).⁵⁵ In an example at Westermost Rough wind farm, boats reliant on the area for lobster fishing were barred from entering the construction site for approximately two years, leading to significant displacement (Doward, 2015).

Conservation has also proven contentious when impacting the right to fish. For example, the implementation of perceived ‘good’ uses, such as MPAs, can come up against opposition from those losing access and use rights, as has been witnessed in New Zealand (Cocklin *et al.*, 1998). However, despite the potential for loss of rights, users’ views on these losses will not be ubiquitous between, or even within, communities. Speaking to an inshore fisher, there appear to be few tensions between inshore fisheries and the majority of conservation efforts in Scotland. The only case that was highlighted in the interview was that of the Lamlash NTZ. The new extension of the zone into a larger MPA has apparently contributed to a loss of

⁵⁵ The same study found that Scottish fishers’ attitudes to marine renewables developments were usually positive or neutral, despite previous assertions that perceptions were predominantly negative. Attitudes were found to be dependent on knowledge and location, however, and so are not homogenous through the industry.

earnings for both mobile and creel fishers, according to the Clyde Fishermen's Association, but more importantly, as deliberately excluding fishers from the decision-making process (Fishing News, 2016). This case demonstrates that fishers' attitudes to MPAs, and other exclusive conservation areas, are complex and frequently site-specific (Pita *et al.*, 2013). Potential consequences from the growth of MPAs and NTZs will need to be addressed at individual sites, and take into account local values and priorities.

Due to a lack of economic incentive, recreational users of the sea are also often on the side-lines of decision-making processes, with research into recreational users' attitudes to zoning and planning practices similarly limited (Gray *et al.*, 2010). Despite their exclusion, recreational users are an important, consistent, and often low impact stakeholder. Previous research has suggested restriction of access is a top factor affecting opinions of recreational users towards developments, including renewables (Hooper *et al.*, 2017). The Royal Yachting Association also provides position papers on marine infrastructure, and states that a key issue for future development is the right of navigation around Scotland's coasts.⁵⁶ The exclusion of recreational users from official planning processes could be deemed an ignorance to different valuations of the oceans. Aside from tourism ventures, recreational users will have little economic investment in the seas, instead appreciating the marine environment as providing a '*sense of satisfaction*' or '*sense of connection with nature*' (Voyer *et al.*, 2015, p. 96). These valuations can engender a sense of ownership over the marine environment, which may be marginalised by economic interests (van der Horst and Vermeylen, 2012).

These valuations could also be true of the general public and 'casual' users of the sea. The perception of the marine environment as a public good can be a significant factor in the acceptance of developments (Alexander *et al.*, 2012; Kerr *et al.*, 2018). As such, coastal communities are likely to be impacted negatively by a loss of access and use of nearby waters.

⁵⁶ The Royal Yachting Association, as a national organisation, is also well funded and regularly makes representation in the planning system, as stated on their website (<https://www.rya.org.uk/scotland/representation/Pages/renewables.aspx>)

Exploration into the distributive impacts of MSP on onshore communities and casual users is still in its infancy but understanding the attitudes of these stakeholders is just as important as more intensive users. Of course, once again, perceptions are influenced by a myriad of factors. Other contributing factors to perceptions or acceptance of MSP can include complex notions of rural idyllicism and regional history (Cowell *et al.*, 2011) and sense of place (Larson *et al.*, 2013), which both may be affected if rights are lost. Understanding potential conflicts of institutional change is thus not an easy undertaking. Consequently, it is important to adequately address the nuances between and within industries, as is done within the Q study in the second half.

The encroachment into inshore regions around Scotland has not been completely ignored by industry. The displacement and reallocation of certain users was brought up by a number of interviewees, including an MRE representative, who stated that,

‘[The] problem we face is how do we keep some of the traditional industries on the side whilst we seek to go into this area. People locally are going to see displacement of activities, they will be, what I would call, set aside by proxy. And they might get temporary jobs, but really? Those benefits won’t be seen for a long time.’

This understanding points to the difficulties that both new industries and local users may be experiencing during development at sea. The idea of facilitating indirect benefits for communities is laudable. However, there is also recognition that indirect benefits may be delayed, or missing entirely. Providing economic benefits is often a long process, whereas the loss of rights is usually immediate. As such, there is a disconnect between enclosure, and attempts to mitigate the effects of enclosure.

ACCELERATING THE GAP

As discussed in section 7.4, Scotland’s MSP appears to be prioritising certain industries in a path dependent process, instead of considering divergent values and interests. The NMP does recognise potential conflicts of prioritised industries with other users. For example, the

Plan makes mention of potential interactions of aquaculture with inshore fishers and recreation, but states that conflicts will be taken into account through consultation with the marine planning authorities (Scottish Government, 2015b). The NMP also mentions engaging with *'local communities and others who may be affected, to identify and, where possible, address any concerns in advance of submitting an application'* (*ibid.*, p 51). Additionally, according to a representative from Marine Scotland,

'I think the whole process is 'fair' because it gives certainty, you know. There is now certainty within the plans for stakeholders that means that there is some fairness.'

However, stakeholder engagements are contingent upon other users having knowledge of the marine planning system. Acceleration of the gap between those who benefit from MSP, and those who lose out, may be enhanced by a lack of information on the processes of enclosure. Information on marine regulations and planning is considered poorly disseminated to both stakeholders and the public. The consenting process has been historically complicated and often difficult to explain; even those working within consenting found it difficult to explain the process methodically in interviews. According to a local marine planner,

'In regards to local communities, there is a list of licenses on the Scottish Government website, but it's pretty distant, people don't necessarily know... it's happening somewhere else.'

Even other marine stakeholders have concerns about consenting and marine planning, with the ports sector describing it as *'complex and time consuming'* in a recent policy paper (UK Government, 2019, p. 222). This sentiment suggests an innate problem of information dissemination, despite consistent efforts from the authorities to improve and streamline processes.

Additionally, as evidenced above, the consultation process that has already taken place seemingly occurred after objectives for planning had been set. Despite the role of community

being integral to debates on land reform in Scotland, as evidenced in case study 1, the community seems to have taken a back seat role in the MSP process (Smith, 2018). Rather, the MSP regime has entrenched the existing power relations, providing legitimate claims over public spaces for already prioritised interests.

It is important to remember that the ‘winning’ and ‘losing’ stakeholders will be context-specific. Fisheries in other regions of the world may be viewed as the ‘data-poor’, however in Scotland, interviewees from the MRE industry deemed the fishing industry (or sections of it) as ‘*vocal*’ and ‘*powerful*’. Much of the industry, particularly the whitefish fleet, has strong representation, as was explored in case study 2. As such, different actors will enact different influences, and it would be imprudent to frame the same groups as ‘*victims*’ in every scenario (Foley and Mather, 2019). The nuances between and within Scottish stakeholders will be addressed within the Q study.

7.7 OPPORTUNITIES FOR THE FUTURE

In interviews with Marine Scotland, and from language used in the legislation, it is clear the Scottish Government are committed to the philosophical tenet that spatial planning does not equate to exclusivity. Indeed, despite its presence in European regulations, Scottish legislation and planning advice hardly uses the term ‘spatial’, and all planning is referred to as solely ‘marine planning’. According to Marine Scotland, exclusivity is not a priority for the implementation of plans, except for in two areas: conservation, through the network of MPAs, and the designation of areas for MRE. The refusal of Marine Scotland to embrace the presence of exclusivity signals a lack of foregrounding of property rights within the planning process.

The future of further enclosure in the sea is complicated by the UK’s decision to leave the EU. Brexit appears to be more of an opportunity for fisheries, particularly as the drivers for industries such as MRE and aquaculture have now surpassed the EU legislation or directives. Rather, Brexit could be viewed as a hinderance for the rollout of regional planning, which has slowed in response to a lack of funding, limited motivation from developers, and a ‘wait and

see what happens’ attitude in regards to Brexit. As such, whilst the system and marine plans already in place will not be heavily affected by Brexit, the environment for supporting the rollout of regional plans has changed. The goals of the Scottish Government are still in place, however, meaning the seas are set to become increasingly crowded, but potentially without the support from MPPs and regional plans.

COMMUNITY OWNERSHIP

An opportunity that could aid in mitigating the effects of enclosure could be the move to community ownership of inshore waters, which would also allow a shift in power. Case study 1 examined how land reform has allowed community ownership to soar in Scotland’s rural communities. Changing the structure of seabed leasing so that revenue returns to LAs could be a similar way to empower coastal communities who cannot legally ‘own’ inshore waters. This move has been optioned by island councils and championed by interviewees in the island regions, who regarded it as instrumental for the future of coastal communities. The distribution of revenue from natural resources back to LAs has already been highly successful in the Shetland Isles following the Zetland County Council Act 1974. The Act, along with the Orkney County Council Act 1974, meant a shifting of statutory powers to local authorities over offshore hydrocarbon resources landed in their constituencies. These powers permitted the local council to extract rent from activities within their inshore waters, including newly found oil and gas.

KNOWLEDGE PRODUCTION AND TRANSPARENCY

As discussed in section 3.5, knowledge production could also allow for empowerment opportunities. Knowledge production can help ‘*support informed decision making*’ (Canessa *et al.*, 2007, p. 107). Consequently, knowledge is essential for the sustainable use of the seas. Several measures are currently being implemented to improve this dissemination of information regarding the occupation of the seas. Marine Scotland has been making some inroads in this through the Marine Scotland Open Data Network. As part of this, they have established the MAPS NMPi (National Marine Plan interactive), which amalgamates marine

data and information in an interactive GIS tool. Other organisations, such as the Scottish Coastal Forum, have used tools such as the MSP Challenge simulation game (Abspoel *et al.*, 2019). The MSP Challenge is a tabletop game simulating real-life marine planning, and aimed at engaging new and varied stakeholders into the planning process. The MSP Challenge will be discussed further in section 8.3.

COLLABORATION AND CO-EXISTENCE

Other positive opportunities for the future could also involve the implementation of technological or collaborative advancements. These opportunities could mitigate the loss of rights and assuage potential conflicts between permanent structures and traditional ‘roving’ industries. In particular, research has focussed on chances for multi-use (Yates *et al.*, 2015). Multi-use can take the form of co-location, where activities operate in the same place at the same time, or in subsequent temporal phases. Co-location has been deemed ‘*legally feasible*’ under the UK planning system, although will be site-specific (Christie *et al.*, 2014).

Certain industries have been touted for co-location opportunities where separate uses can occur concurrently. For example, only 3% of the leased areas for offshore wind is taken up by infrastructure (Mee, 2006). As such, research has suggested the co-location of offshore wind farms and shellfish fisheries (Hooper and Austen, 2014), which has been implemented in several areas in Germany (Gimpel *et al.*, 2015). This thinking has also been supported by legislation in The Netherlands and Belgium, who are formulating the necessary institutions to support the co-location of these activities in multi-use zones (Kelly *et al.*, 2014).

However, despite the push for coexistence opportunities by policymakers and academics, research has shown that there is not a similar ambition amongst developers. Progress for multi-use strategies has been slow, impacted by a lack of financial incentive and excessive risks (Maynard, 2018), as well as legislative shortcomings and ‘*burdensome administrative procedures*’ (Onyango *et al.*, 2020, p. 12). These institutional barriers will need to be rectified in the future if mounting conflicts between users are to be avoided by utilising multi-use

opportunities. As such, a review of the legislative and administrative processes for facilitating multi-use will need to be undertaken.

There are, therefore, potential opportunities that could lead to more efficient institutional design for marine planning. However, many of those opportunities appear to have stalled or be under-developed. Mapping the priorities, knowledge, and understandings of stakeholders towards enclosure of marine space is therefore crucial, so that further opportunities can be embraced more readily. The second half of this chapter utilises Q-methodology, identifying divergent perceptions, as well as corresponding consensuses, present across key marine stakeholders.

7.8 Q STUDY INTRODUCTION

The sea is a public resource, whether that's for an individual to use or an industry. The bigger question is whether they can use it to do what they want. (Interviewee)

Having examined the drivers, institutions and consequences of spatial enclosure in the previous section, the second half of case study 3 focuses on the perceptions of marine stakeholders to enclosure, changing ownership and knowledge and understanding of changes. This examination aims to contribute to this important but neglected area by empirically exploring stakeholders' views on marine enclosure. Research into changing property rights at sea is still relatively sparse. Concurrently, research into the perceptions towards such changes is also lacking. Within the context of marine planning, perceptions have been mapped using Q to understand economic benefits of marine planning (Gustavsson and Morrissey, 2019), as well as for engaging stakeholders in the decision-making process (Ripken *et al.*, 2018). However, as of yet, there has been few examples of Q-methodology which maps the perceptions of marine enclosure.

Using perceptions to help identify and predict behaviours has been already discussed in the previous case study, which examined the importance of engaging stakeholders early in

planning and decision-making processes. Establishing a topography of perceptions will help identify significant gaps in stakeholder knowledge, increase awareness for effective integration of multiple stakeholders' views, and provide a greater understanding of the possible futures of marine governance by helping to explain behaviours. Section 7.9 explains the specifics of the Q method used in this case study. The results of the Q analysis are then presented in section 7.10. Section 7.11 discusses these results, elaborating on the broad range of opinions on property rights and enclosure held by the knowledgeable participants. The final section provides a summary of case study 3.

7.9 Q-METHODOLOGY

As before, the steps for applying Q have been discussed in section 2.4. Following the application of Q in the previous case study, Q statements were constructed using the discussions of the first half of the case study. The discussions led to the following coded themes: (i) *prioritisation of industry*; (ii) *conflicts and loss of rights*; (iii) *knowledge*; (iv) *power*; and (v) *future of spatial impacts and governance*. These codes were then used to construct the Q-sample to be given to the participants. The procedure initially yielded approximately forty-five statements, following a series of deletions of repetitive phrases or statements which were deemed confusing. These forty-five statements were piloted on two participants, who provided invaluable feedback on both the statements and method process. Following the pilot study, the concourse was reduced to thirty statements, with roughly equal numbers of statements in each of the five codes (found in Table 20).

Table 20: Q-sample list and codes for Case Study 3

Category Code	Statement code	No.	Statement
<i>Knowledge</i>	Kno1	1	The sea is for everyone to use
<i>Knowledge</i>	Kno2	2	Scotland's seas are owned by the public
<i>Power</i>	Pow1	3	Revenue from leasing the seabed should be returned to local communities
<i>Prioritisation</i>	Pri1	4	Some industries are being given priority for space over others
<i>Power</i>	Pow2	5	The local community should have more say in where marine

			industries are placed
<i>Power</i>	Pow3	6	Individuals are listened to if they have a problem with a development at sea
<i>Power</i>	Pow4	7	Other marine stakeholders should have more say in where marine industries are placed
<i>Loss of rights</i>	Los1	8	Industries which occupy marine space are removing rights from casual users of the sea
<i>Loss of rights</i>	Los2	9	Industries which occupy marine space are removing rights from the fishing industry
<i>Prioritisation</i>	Pri2	10	The distribution of space in the sea is controlled fairly by authorities
<i>Knowledge</i>	Kno3	11	The planning process at sea is easily understood and information readily available
<i>Power</i>	Pow5	12	Local authorities should have more statutory planning powers in the marine environment
<i>Loss of rights</i>	Los3	13	It should be the industries' responsibility to maintain public rights in marine space
<i>Loss of rights</i>	Los4	14	Marine spatial planning is contributing to the removal of rights of navigation and access in Scotland's seas
<i>Future</i>	Fut1	15	Marine spatial planning should be using zoning for more efficient management of Scotland's seas
<i>Future</i>	Fut2	16	Brexit is going to provide greater scope for better, fairer marine management in the future
<i>Power</i>	Pow6	17	I would be happy with less access to the sea if the community was benefitting in some way
<i>Loss of rights</i>	Los5	18	Industries should work together to take up less space in the sea
<i>Loss of rights</i>	Los6	19	There should be better technology to allow users to coexist in the sea
<i>Knowledge</i>	Kno4	20	Public rights in the sea are easily understood and information readily available
<i>Prioritisation</i>	Pri3	21	Conservation should be the number one priority for Scotland's marine environment, even if it means excluding other users
<i>Prioritisation</i>	Pri4	22	Marine renewables should be given priority over other industries in the competition for sea space
<i>Loss of rights</i>	Los7	23	Marine industries that need to permanently occupy sea space should be doing more to help communities who are losing out
<i>Future</i>	Fut3	24	Structures should not be in the sea forever
<i>Prioritisation</i>	Pri5	25	People should be happy for their rights at sea to change if it means sustainable development for the future
<i>Prioritisation</i>	Pri6	26	Only the individual marine industry wins when occupying sea space, no one else
<i>Prioritisation</i>	Pri7	27	Scotland's marine plans and strategies are effective in balancing all marine stakeholders' needs
<i>Future</i>	Fut4	28	An independent Scotland will mean better, fairer marine management in the future
<i>Knowledge</i>	Kno5	29	The ownership of Scotland's marine environment is easily understood and information readily available
<i>Future</i>	Fut5	30	Sea space should be owned by individuals so that it is better managed

Prioritisation = 7 statements, Loss of rights = 7 statements, Knowledge = 5 statements, Power = 6

statements, Future of rights = 5 statements

These thirty statements were ranked on a normally distributed sorting with nine ranks (-4 to +4), as demonstrated in Figure 15.

Strongly disagree			Neutral			Strongly agree		
-4	-3	-2	-1	0	+1	+2	+3	+4
1	8	15	5	3	6	9	10	2
	21	17	14	4	7	16	18	
		24	23	11	12	19		
		25	26	13	28	20		
			27	22	29			
				30				

Figure 15: Example Q-sort matrix for spatial enclosure attitudes for case study 3

The P-sample for this case study was twenty-three. All those who were initially interviewed were invited back to participate in the Q study; two of those agreed and took part. The positive response rate for all participants was approximately 27% of contacted individuals/organisations. Table 21 summarises the participants, along with the emergent stakeholder categories that they represented; participants were asked to self-identify which category they belonged to from a range of categories (categories not chosen by respondents have not been included in this table). Table 21 also summarises key demographics and the resulting factors. The interviews have been termed M(number) to indicate they are part of the marine planning case study and identify the participant; these interviews correspond to the completed Q-sorts (in Table 22). The participants in this Q study were nearly evenly split in terms of gender. They were also relatively young in both age and careers, with the largest percentage situated in the 25-34 years category and five or fewer years of experience in their

field. This was to be expected for industries and opportunities which are still in their infancy, such as marine renewables and marine planning.

Table 21: Case study 3 participant demographics and stakeholder categories

Interview	Stakeholder category	Gender	Age category	Time in industry
M1	Engagement body	Female	45-54	21-30 years
M2	National authority	Female	25-34	≤ 5 years
M3	ENGO	Male	55-64	21-30 years
M4	Fisheries	Female	25-34	6-10 years
M5	Local authority	Male	25-34	6-10 years
M6	National authority	Female	25-34	≤ 5 years
M7	EKP	Female	25-34	≤ 5 years
M8	ENGO	Male	25-34	6-10 years
M9	Local authority	Male	35-44	6-10 years
M10	EKP	Female	25-34	≤ 5 years
M11	Local authority	Male	25-34	6-10 years
M12	Recreational group	Male	55-64	11-20 years
M13	Aquaculture	Female	25-34	≤ 5 years
M14	MRE	Male	35-44	6-10 years
M15	ENGO	Female	35-44	≤ 5 years
M16	Fisheries	Male	45-54	11-20 years
M17	Fisheries	Female	35-44	6-10 years
M18	MRE	Male	45-54	21-30 years
M19	Aquaculture	Male	45-54	21-30 years
M20	Engagement body	Female	25-34	≤ 5 years
M21	EKP	Male	55-64	31-40 years
M22	MRE	Male	25-34	6-10 years
M23	Aquaculture	Male	35-44	11-20 years
Counts	National authority: 2 Local authority: 3 Engagement body: 2 ENGO: 3 MRE: 3 Aquaculture: 3 Fisheries: 3 Recreational: 1 EKP: 3	Male: 13 (56.5%) Female: 10 (43.5%)	25-34: 11 35-44: 5 45-54: 4 55-64: 3	<5 years: 8 6-10 yrs: 7 11-20 yrs: 3 21-30 yrs: 4 31-40 yrs: 1

Q ANALYSIS

Q analysis was again undertaken by PQMethod (Schmolck and Atkinson, 2002). Initially, six factors were extracted which had an eigenvalue above 1.00. However, sensitivity analysis

showed initially that with six factors, one factor had only one sort load significantly on it. When the factors were reduced to five, this criterion was also met. Thus five factors were rotated using automated Varimax rotation to reveal the maximum variance explained by these extracted factors. PQROT then automatically flagged which Q-sorts loaded significantly onto which extracted factors (see Table 22), using a SFL of 0.471 ($2.58(1/\sqrt{30})$).

The five factors, and their idealised sort, present five different perceptions of marine planning, rights, and privatisation in Scotland's seas. These perceptions were then interpreted by identifying statistically distinguishing statements in each factor, but also critically employing the explanations given by the respondents during the sorts. Additional data characteristics are summarised in Appendix 4.

7.10 RESULTS

Five discourses were found in the analysis, accounting for 71% of the variation across the twenty-three Q sorts. Again, each factor has been given a profound title, synthesised from a combination of their distinguishing statements and concurrent interviews.

1. The Free Seas
2. The 'Greater Good'
3. Mitigating Losses
4. Local Powers
5. The Status Quo

All but one interviewee (M15) uniquely loaded onto one of these discourses (as shown in Table 22). M15 is a confounder, straddling the Free Seas and Mitigating Losses factors. Below, these viewpoints are discussed using their distinguishing statements (in Tables 25, 27,

and 29), and corresponding interviews to provide context for the participants' choices. Statements within these sections are represented in text as (*number*), corresponding to statements found within Table 23.

Table 22: Case study 3: Factor matrix indicating significant loading of Q sorts (significant loading at above the SFL indicated by grey box)

Q sort	Free seas	Greater good	Mitigating losses	Local powers	Status quo
M1	0.4909	0.2561	0.1226	0.2063	0.3227
M2	0.7273	0.3900	0.1178	0.3190	-0.0346
M3	0.5600	0.4010	-0.1451	0.2092	-0.1816
M4	0.4476	-0.2619	-0.1247	0.6267	0.2247
M5	0.0142	0.1634	0.3880	0.7750	0.2883
M6	-0.0071	0.8216	0.0208	0.1541	0.0246
M7	-0.1921	0.8633	0.2101	0.1019	0.1509
M8	0.6955	0.0736	0.5000	0.0688	0.1450
M9	0.0692	0.0573	0.0822	0.1046	0.8061
M10	0.0158	0.6294	0.1534	0.7272	-0.1532
M11	0.2980	0.2048	0.6515	-0.0349	0.3022
M12	0.1320	0.1634	0.0084	-0.0415	0.8306
M13	0.2828	0.0048	0.7325	0.2195	0.1611
M14	0.1845	0.7060	0.0964	0.1818	0.3361
M15	0.5393	0.1998	0.5188	-0.1718	0.4294
M16	0.8155	-0.0842	0.1656	-0.0121	0.1713
M17	0.6736	0.1220	-0.0329	0.0107	-0.0029
M18	0.1915	0.8025	0.1391	-0.2915	0.0066
M19	-0.0194	0.0445	0.8065	0.1428	-0.0577
M20	0.7404	0.1605	0.2242	0.2218	0.4165
M21	0.4491	0.0659	0.1647	0.5844	-0.0184
M22	-0.0356	0.2727	0.7505	0.1349	-0.0864
M23	0.2441	0.6846	0.4161	0.3232	0.1442

Table 23: Case study 3: Q sample with factor sort values for each statement (Grey boxes indicate distinguishing statements with significance at $P < .05$; an additional asterisk indicates distinguishing statement with significance at $P < .01$)

No	Statement	Free seas	Greater good	Mitigating losses	Local powers	Status quo
1	The sea is for everyone to use	+4 *	+2	0	+2	+2
2	Scotland's seas are owned by the public	0	+2	-1 *	0	+2

3	Revenue from leasing the seabed should be returned to local communities	0	0	+4 *	+3	+1
4	Some industries are being given priority for space over others	+2	+4	0 *	+2	+3
5	The local community should have more say in where marine industries are placed	+1	-2 *	+2	+3	+1
6	Individuals are listened to if they have a problem with a development at sea	0	0	0	-1	+4 *
7	Other marine stakeholders should have more say in where marine industries are placed	+2	-2	+2	+1	0
8	Industries which occupy marine space are removing rights from casual users of the sea	0	-2	-2	0	-1
9	Industries which occupy marine space are removing rights from the fishing industry	+3	-2	-4	+1	+2
10	The distribution of space in the sea is controlled fairly by authorities	+1	-1	0	-1	0
11	The planning process at sea is easily understood and information readily available	-3	+1	-1	-2	+2
12	Local authorities should have more statutory planning powers in the marine environment	-2	-1	1	+4 *	0
13	It should be the industries' responsibility to maintain public rights in marine space	-1	0	-1	0	-2
14	Marine spatial planning is contributing to the removal of rights of navigation and access in Scotland's seas	-1	0	-1	-2	-4 *
15	Marine spatial planning should be using zoning for more efficient management of Scotland's seas	+1	+1	+3	-3	-3
16	Brexit is going to provide greater scope for better, fairer marine management in the future	0	-4 *	-1	-1	-1
17	I would be happy with less access to the sea if the community was benefitting in some way	-1	0	+1	+1	-1
18	Industries should work together to take up less space in the sea	+1	+1	+2	+1	+1
19	There should be better technology to allow users to coexist in the sea	+1	+2	+3 *	0	-1
20	Public rights in the sea are easily understood and information readily available	-2	-1	-3	-3	+1 *
21	Conservation should be the	+3 *	+1	0	0	0

	number one priority for Scotland's marine environment, even if it means excluding other users					
22	Marine renewables should be given priority over other industries in the competition for sea space	-2	+3 *	-2	0	-2
23	Marine industries that need to permanently occupy sea space should be doing more to help communities who are losing out	+2	-1	+1	+2	-2
24	Structures should not be in the sea forever	+2	+2	+1	-1	0
25	People should be happy for their rights at sea to change if it means sustainable development for the future	-1	+3	+1	+2	+1
26	Only the individual marine industry wins when occupying sea space, no one else	-2	-1	-3 *	-1	-1
27	Scotland's marine plans and strategies are effective in balancing all marine stakeholders' needs	-1	0	+2	-2 *	+3
28	An independent Scotland will mean better, fairer marine management in the future	0	+1	0	+1	-2
29	The ownership of Scotland's marine environment is easily understood and information readily available	-3	-3	-2	-2	0
30	Sea space should be owned by individuals so that it is better managed	-4	-3	-2	-4	-3

FACTOR 1: FREE SEAS

The following summarises the loading participants, along with significant statements and highest/lowest ranking statements, for the 'Free Seas' factor:

Table 24: The 'Free Seas' factor loading individuals (* indicates highest loading individual in factor)

Interview	Stakeholder category	Gender	Age category	Time in industry
M1	Engagement body	Female	45-54	21-30 years
M2	National authority	Female	25-34	<5 years
M3	ENGO	Male	55-64	21-30 years
M8	ENGO	Male	25-34	6-10 years
M16*	Fisheries	Male	45-54	11-20 years
M17	Fisheries	Female	35-44	6-10 years

M20	Engagement body	Female	25-34	<5 years
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Table 25: The 'Free Seas' factor defining statements (Bold Z-scores indicate significant statements at $p < 0.05$; an asterisk indicates significance at $p < 0.01$)

No.	Statement	Q-Score	Z-Score
1	The sea is for everyone to use	+4	2.20*
21	Conservation should be the number one priority for Scotland's marine environment, even if it means excluding other users	+3	1.62*
25	People should be happy for their rights at sea to change if it means sustainable development for the future	-1	-0.35
12	Local authorities should have more statutory planning powers in the marine environment	-2	-0.93
30	Sea space should be owned by individuals so that it is better managed	-4	-2.34

Seven individuals significantly loaded onto Factor 1, explaining 19% of the study variance. These individuals comprise: two representatives for Scottish ENGOs, both with significant experience working in the marine area (**M3/M8**); two individuals in marine engagement posts, one in a national stakeholder engagement body (**M1**), the other in a regional post (**M20**); two fisheries representatives, one working in a national cross-sector representative body (**M17**), one representing the inshore sector for a coastal region (**M16**); and a policy researcher working in a national governing authority with strong conservation research background (**M2**).

From the significant statements and their contextual arguments, Factor 1 has been termed as advocates for 'Free Seas', upholding the common rights of access and fishing, whilst supporting conservation as the ultimate priority for Scotland's seas. The factor demonstrates a strong affiliation towards the central tenet of the sea being a public resource, maintained and used by everyone (1). Respondents argued that being 'for everyone' was a fundamental attribute of the marine environment, citing the Grotian concept of *mare liberum*. **M1**, for example, stated that 'this is fundamentally the law'. Consonant with this is the strong disagreement of the seas being owned by individuals (30). Citing the terrestrial system and its

repeated failures in land management, the factor eschewed the neoliberal position of private property as the best tool for resource management. **M3**, for example, stated '*Individual private property hasn't worked on land, so I don't see why it would work in the sea*'. **M2** similarly decries privatisation especially in conjunction with '*inefficient governance*' which has '*led to many problems in the past*'.

The Free Seas group also significantly agreed with conservation being the priority for Scotland's seas (21), unsurprising for those working in conservation, or for those in industries which require '*healthy and productive*' seas, as defined by participant **M20**. **M20** also attributed conservation to a public good and right, stating '*I strongly believe that the sea is a resource to be used and protected by everyone*'. Participants noted that prioritising conservation, particularly in more vulnerable areas, would only be beneficial for the productivity of many other industries, including renewables and fisheries, with closures of areas cited as aiding fish stocks. **M8**, for example, stated '*Conservation should be a priority because seas need to be healthy and productive for other industries to flourish... there are going to be certain areas that require to be more protected than others, so we prioritise protection over other industries in more vulnerable areas,*' a sentiment which mirrors the NPF Indicator for 'Clean seas'.

The Free Seas also significantly disagreed with the idea of local authorities being given more statutory powers over their local waters (12). **M1** referenced the current programme of subsidiarity in Sweden, questioning its efficiency. Others questioned the ability of local authorities to make competent decisions, citing a lack of holistic thinking and access to information. **M3** stated more emphatically '*I have no faith in local authorities*', referencing specifically their decision-making on aquaculture which he believed to be counterintuitive to '*healthy*' Scottish waters.

Fishing was also ranked highly as a 'loser' in the marine development process (9), with factor individuals believing that increased development at sea negatively affected the right to

fish. Both fishing representatives specifically mentioned conflicts between fisheries and MRE; they argued the development of renewables was often not challenged even when siting meant the loss of viable fishing grounds and subsequent loss of livelihood for many in the industry. **M16** stated that there needed to be greater support for coastal communities from developments, and that ‘*developers should compensate for loss of fishing areas, or for aesthetic damage to scenic views.*’

FACTOR 2: THE ‘GREATER GOOD’

The following summarises the loading participants, along with significant statements and highest/lowest ranking statements, for the ‘Greater Good’ factor:

Table 26: The ‘Greater Good’ factor loading individuals (* indicates highest loading individual in factor)

Interview	Stakeholder category	Gender	Age category	Time in industry
M6	National authority	Female	25-34	<5 years
M7*	EKP	Female	25-34	<5 years
M14	MRE	Male	35-44	6-10 years
M18	MRE	Male	45-54	21-30 years
M23	Aquaculture	Male	35-44	11-20 years

Table 27: The ‘Greater Good’ factor defining statements (Bold Z-scores indicate significant statements at $p<0.05$; an asterisk indicates significance at $p<0.01$)

No.	Statement	Q-Score	Z-Score
4	Some industries are being given priority for space over others	+4	1.72
22	Marine renewables should be given priority over other industries in the competition for sea space	+3	1.55*
5	The local community should have more say in where marine industries are placed	-2	-1.00*
9	Industries which occupy marine space are removing rights from the fishing industry	-2	-1.05
16	Brexit is going to provide greater scope for better, fairer marine management in the future	-4	-2.10*

Five individuals significantly loaded onto Factor 2, explaining 17% of the study variance, and include: two representatives for large scale MRE companies, one an international energy

producer developing renewables in addition to their traditional fossil fuels (M14), the other a UK-wide energy supplier (M18); one representative for an international aquaculture company producing farmed salmon (M23); an individual working in a national marine authority in consenting (M6); and an academic working on transboundary planning processes concentrating in particular on MRE planning (M7).

The second largest view emergent from the participants concentrated on commercialising the power of the seas for the ‘greater good’. Individuals loading on Factor 2 most strongly agreed that prioritisation of industry was occurring (4), and in particular felt that MRE should be given priority over other industries (22). This was justified with viewing prioritisation as a way of helping achieve national requirements for addressing climate change. M6 stated ‘...if we think in terms of climate change, then it should be prioritised, and this is in keeping with the goals of the Government anyway.’ M18 similarly asserted that marine planning should be ‘driven by national requirements to urgently address climate change and sustainability targets.’ M7 described the current development of renewables not as a prioritisation of the industry, but did admit that the ‘plans recognise the need for spatial delimitations’ in keeping with Government targets and NPF Indicators.

Given the composition of the group, their views are not surprising, and reflect clearly the views of both the Scottish Government and many other governing authorities in the current political *zeitgeist*. The Greater Good participants’ justifications for believing in prioritisation for ‘good’ industries are consistent with global movements in limiting the effects of climate change via changing energy supply patterns. Arguments from the Greater Good factor also promote the need to sacrifice certain rights, such as the public rights to fish and navigate (8/9), to achieve these targets, advocating for the continued enclosure of marine space. M6 states declaratively that ‘yes we are taking rights, but who says that’s a bad thing?’ She goes on to argue that instead of viewing it as removing something, it should be viewed as ‘more like we should live together sustainably’, calling for a reimagining of sea space as not a space to be enclosed but a space for collaboration. M7 stated that the removal of space did not equate to

the removal of rights, particularly when the closure of space was beneficial for biodiversity and stocks. This thinking was reiterated by **M23** who claimed the closure of areas could boost fishing productivity. They further called on regulators to publicise the positives that area closures can bring to both the marine environment and local communities, stating *'regulators are not good at seeing the positive impacts that closing off areas of the seabed can have for... productivity'*.

The Greater Good participants also significantly, and most strongly, disagreed with the idea of Brexit providing scope for better management (16), instead considering the process a mass of uncertainty for the future of Scotland's marine management. **M6** worried about the lack of prioritisation of marine management, declaring it *'at the bottom of the list of priorities.'* Similarly, **M7** was strongly against the result of the referendum, arguing that a *'good working relationship'* with the EU was beneficial for the country on the whole. **M14** additionally contended that Brexit meant a lack of clarity for their company and industry. This sentiment is also unsurprising for a group that features representatives from international companies and individuals who work collaboratively with European and international institutions.

FACTOR 3: MITIGATING LOSSES

The following summarises the loading participants, along with significant statements and highest/lowest ranking statements, for Factor 3:

Table 28: The 'Mitigating Losses' factor loading individuals (indicates highest loading individual in factor)*

Interview	Stakeholder category	Gender	Age category	Time in industry
M11	Local authority	Male	25-34	6-10 years
M13	Aquaculture	Female	25-34	<5 years
M19*	Aquaculture	Male	45-54	21-30 years
M22	MRE	Male	25-34	6-10 years

Table 29: The 'Mitigating Losses' factor defining statements (Bold Z-scores indicate significant statements at $p < 0.05$; an asterisk indicates significance at $p < 0.01$)

No.	Statement	Q-Score	Z-Score
3	Revenue from leasing the sea bed should be returned to local communities	+4	2.28*
19	There should be better technology to allow users to coexist in the sea	+3	2.01*
23	Marine industries that need to permanently occupy sea space should be doing more to help communities who are losing out	+1	0.45
4	Some industries are being given priority for space over others	0	-0.03*
11	The planning process at sea is easily understood and information readily available	-1	-0.58
2	Scotland's seas are owned by the public	-1	-0.86*
26	Only the individual marine industry wins when occupying sea space, no one else	-3	-1.69*
9	Industries which occupy marine space are removing rights from the fishing industry	-4	-1.74

Factor 3 has four individuals loading significantly upon it, explaining 14% of the study variance. The individuals included; a representative of a local council in the process of setting up an MPP (**M11**); two representatives of the aquaculture industry, one from a Scotland-based company (**M13**), the other from the Scottish outfit of one of the largest global seafood companies (**M19**), both specialising in salmon farming; and an individual working in MRE for a smallscale developer (**M22**).

These individuals loading significantly on Factor 3 have been termed advocates for 'mitigating losses' from current and future encroachment in Scotland's seas. Often developments like wave and tidal have little choice as to where they are placed for resource purposes, or plans provide guidelines for maximising resources and limiting potential environmental damage. Recognising that there is often little opportunity for relocation, the Mitigating Losses argues that more needs to be done to alleviate or abate losses that may be felt by other sea users, either through economic or technological advancements.

The Mitigating Losses participants strongly believe that revenues from seabed leases, which are currently funnelled back to a Scottish ‘pot’, should be returned to local communities in a more direct way (3). This argument was set forward by some regional councils for devolving the Crown Estate assets to Scotland, and furthermore to certain local authorities. Whilst devolution to a Scottish-run institution has occurred following the passing of the Scottish Crown Estate Act (2019), the specifics regarding revenue distribution remain an uncertain but key issue for local authorities (COSLA, 2018). **M13** argued that revenue streams from leasing should be directly returned to local communities but added that *‘the administration of such a scheme will need the appropriate skills and experience... not yet apparent at the local level.’* **M22** was similarly pragmatic in his approach to revenue, stating that there needed to be *‘limits’* to the process of returning revenue, asking *‘should someone in [a coastal community] be benefitting from something happening hundreds of miles away?’* This response invokes the consistent problem of defining the ‘community’ when viewed from the sea, an issue which has been raised by other researchers (Kerr *et al.*, 2017; Rudolph *et al.*, 2018).

Similarly, the Mitigating Losses participants significantly believe in the use of technology to aid both coexistence and colocation (19), in efforts to reduce conflicts or inequities between marine users. Interpretation of ‘technology’ was the responsibility of the individual. **M22** suggested the greater implementation of Vessel Monitoring Systems on smaller boats to improve knowledge of vessel/infrastructure interactions; *‘With better knowledge of vessel movements... we can know where vessels go, and where we should be avoiding building things, and vice versa’*. Others understood it as technology for the co-location of infrastructure (e.g. aquaculture and MRE), which would also aid in the reduction of conflicts and long-term sustainability of newer marine industries. **M13** commented that the co-existence of maritime industries will be *‘essential going forward to ensure conservation goals and long-term sustainability of industries using the marine environment’*.

The Mitigating Losses factor also strongly disagreed with the idea of developments removing rights from the fishing industry (9), and iterated similar arguments to the Greater Good participants who concluded that area closures were beneficial for fish stocks. **M22** stated that there were ‘*plenty of other areas to fish*’, and that it was ‘*healthy to have areas where fishing doesn’t occur.*’

FACTOR 4: LOCAL POWERS

The following summarises the loading participants, along with significant statements and highest/lowest ranking statements, for Factor 4:

Table 30: The 'Local Powers' factor loading individuals (* indicates highest loading individual in factor)

Interview	Stakeholder category	Gender	Age category	Time in industry
M4	Fisheries	Female	25-34	6-10 years
M5*	Local authority	Male	25-34	6-10 years
M10	EKP	Female	25-34	<5 years
M21	EKP	Male	55-64	31-40 years

Table 31: The 'Local Powers' factor defining statements (Bold Z-scores indicate significant statements at $p<0.05$; an asterisk indicates significance at $p<0.01$)

No.	Statement	Q-Score	Z-Score
12	Local authorities should have more statutory planning powers in the marine environment	+4	1.47*
3	Revenue from leasing the seabed should be returned to local communities	+3	1.39
22	Marine renewables should be given priority over other industries in the competition for sea space	0	-0.24
6	Individuals are listened to if they have a problem with a development at sea	-1	-0.92
27	Scotland's marine plans and strategies are effective in balancing all marine stakeholders' needs	-2	-1.38*
30	Sea space should be owned by individuals so that it is better managed	-4	-1.72

Four individuals loaded on Factor 4, justifying 11% of the study variance. These include: a representative of a regional inshore fisheries group (**M4**); a local authority representative

working in marine planning (**M5**); and two external knowledge providers, one a legal researcher specialising in property rights (**M21**), the other an interdisciplinary researcher working with communities on engagement with marine industries (**M10**).

Factor 4 has been termed as advocates for ‘local powers’, most strongly agreeing with the notion of local authorities and communities having more devolved statutory powers for making decisions in their marine regions (12). Their arguments centre around a belief they can act in the best way for their local communities, to rebalance the distribution of their inshore waters and enable greater revenue for often marginalised workers. The idea of greater decision-making powers shared by many is understandable for a group that predominantly works in a remote region of Scotland that already benefits from greater control over their environment than many other Scottish marine regions. The highest loading individual in the Local Powers group, **M5**, had particularly strong opinions on the subject, stating that this sort of subsidiarity was ‘*our whole doctrine*’. **M4** wished for more statutory powers for local authorities because it would additionally empower other regulating bodies like the inshore fisheries groups.

This response also correlates with wanting revenue from seabed leasing to return to local communities (3), mirroring arguments put forward by the Mitigating Losses factor. The Local Powers participants also expressed concern about how this would ultimately be administered, with emphasis on the need for clearly defined control and boundaries; **M4** stated that at present there is no proper infrastructure for such funds, and that the local community needed to be ‘*properly structured*.’ **M10** believed that community benefits packages should be ‘*incorporated from the start*’ for marine industries that could have detrimental effects to the marine environment including dredge fisheries.

The Local Powers factor also significantly believes that, at present, Scotland’s marine plans, both national and regional, were not effectively balancing stakeholders’ needs to the best of their ability (27). **M4** stated ‘*I wish I could say yes to the plans balancing needs*’,

before indicating a disconnect between the regulations and certain industries, particularly fisheries. However, other participants in the factor acknowledged the lack of balance is due to the early stages of the plans; **M5** described them as not yet ‘*sophisticated enough*’ to achieve the difficult job of conflict-free balance.

Some within the factor also agreed with the idea of local communities having more control over maritime developments (5). **M21** likened this to the reformation in landownership occurring in Scotland. He stated that ownership could fall to communities if a similar reformation happened in marine spaces, giving them ‘*more clout as to their development*’.

FACTOR 5: THE STATUS QUO

The following summarises the loading participants, along with significant statements and highest/lowest ranking statements, for Factor 5:

Table 32: The 'Status Quo' factor loading individuals (* indicates highest loading individual in factor)

Interview	Stakeholder category	Gender	Age category	Time in industry
M9	Local authority	Male	35-44	6-10 years
M12*	Recreational rep.	Male	55-64	11-20 years

Table 33: The 'Status Quo' factor defining statements (Bold Z-scores indicate significant statements at $p < 0.05$; an asterisk indicates significance at $p < 0.01$)

No.	Statement	Q-Score	Z-Score
6	Individuals are listened to if they have a problem with a development at sea	+4	2.02*
20	Public rights in the sea are easily understood and information readily available	+1	0.63*
14	Marine spatial planning is contributing to the removal of rights of navigation and access in Scotland's seas	-4	-2.33*

The final factor had two individuals loading significantly upon it, with 10% of the study variance. These individuals are: a representative of another local authority’s planning

department (M9) and a marine recreational body (M12). This factor has been termed the ‘Status Quo’ group; participants had a strong affinity to statements that portrayed the current processes of planning, knowledge dissemination and consultation as positive and effective.

The Status Quo participants strongly believed that the consultation process for licensing and leasing was efficient in allowing everyone to voice opinions (6); M12 described the marine licensing system as ‘efficient’ and ‘with lots of public consultation’. Concurrently, the participants believed marine planning in Scotland facilitated lessening negative impacts on other users, as opposed to contributing to power imbalances, and cited the use of MSP as a way of allowing better co-existence at sea. M9, for example, stated that the sea currently ‘has controls in place to try and lessen any impact of one user on another.’

As advocates for the *status quo*, they also portrayed a different opinion regarding knowledge dissemination, as the only factor to believe that public rights are currently well understood (20), and the only factor to not strongly disagree that ownership is easily understood, instead placing it in the neutral pile (29). This reaction is understandable for two bodies that routinely work within the sphere of public rights, particularly navigation.

AREAS OF CONSENSUS

Consensus statements are classified as those which did not significantly distinguish between any pair of factors and are considered non-significant where p-values >0.01. The statements in Table 34 were considered consensus statements.

Table 34: Case study 3: Consensus statements

No	Statement	Free seas	Greater good	Mitigating losses	Local powers	Status quo
		Q sort value				
13	It should be the industries’ responsibility to maintain public rights in marine space	-1	0	-1	0	-2
18	Industries should work together to take up less space in the sea	+1	+1	+2	+1	0

29	The ownership of Scotland's marine environment is easily understood and information readily available	-3	-3	-2	-2	0
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All five factors slightly disagreed or were neutral on the notion that it should be individual industries' responsibility to uphold the public rights in the marine space they lease or inhabit (13), although there appeared to be little consensus on where the responsibility should otherwise lie. **M1** stated that the law was there to uphold rights, whereas **M2** argued that it was '*everyone's responsibility to protect public rights.*' Furthermore, **M22** claimed it was the responsibility of the regulator. In contrast, **M5** argued that it was the responsibility of the industry to maintain public rights, but not necessarily to enforce them. **M4** and **M6** both claimed that this was too big of a responsibility to place upon private organisations, particularly for small developers who had many other 'hoops' to jump through to be viable.

All but the 'Status Quo' more strongly disagreed with the idea that the ownership of Scotland's marine environment is easily understood (29). **M2** called the conversation surrounding rights and ownership as '*very opaque*', further demonstrating the belief that information dissemination and general awareness are currently stifled. **M5** further claimed that whilst ownership appeared to be '*defined*' by the Crown Estate, it is still not easily understood. **M8** argued the lack of clarity in understanding ownership hinders proper engagement from those outwith the planning system, indicating that the data-deficient are the 'losers' of the current regime.

The concept of 'working together' to minimise occupation of sea space (18) was also statistically agreed upon by all but the 'Status Quo', indicating an affinity to collaborative efforts for future management. **M17** stated that '*minimising*' space was beneficial, particularly as a means of avoiding displacement of other users.

CONFOUNDERS

Only one sort did not load significantly onto only one factor; sort M15. Instead, this sort was ‘confounding’, correlating significantly at above the SFL of 0.47 on two factors. Specifically, these were the ‘The Free Seas’ and ‘Mitigating Losses’ factors. **M15** is a representative from a national environmental agency, and demonstrated a high affinity to prioritising conservation (21). Similarly, they strongly believed the sea was for everyone to use (1), and that individual would be detrimental for future management (30). These placements align **M15** with the ‘Free Seas’ views. However, **M15** also strongly agreed with the idea of furthering technology for more effective marine development, aligning further with the ‘Mitigating Losses’ views. These views are therefore not contradictory, but rather support the idea that, although influenced by wider norms, perceptions and priorities are inherently individual.

7.11 DISCUSSION

Rights and ownership at sea are complex issues, but ones that must be considered in light of increased occupation of sea space and exclusionary processes. The first half of this case study helped to identify the current issues and potential consequences of spatial enclosure at sea highlighted the pressing nature of the problem. This application of Q provides a landscape to discover emergent understandings and views, consolidating issues that are not well-defined or contextualised at present.

The factors emergent from this analysis are not all in direct competition with each other. Indeed, there are indications of consensus across many statements. Knowledge of ownership, rights, and the planning process is relatively low, even amongst those that work in such fields. Many of the participants remarked on the need for better dissemination of information, particularly to those outside of the system whose involvement in decision-making processes will be hindered by a lack of understanding. This issue is itself a major challenge for the future of marine planning in Scotland, as discussed in section 7.7.

TENSIONS OVER PHYSICAL RIGHTS

The research also provides evidence of clear tensions between certain stakeholders. The analysis demonstrates some tangible tensions over physical rights in the marine environment. These opposing views on the allocation of space and changing nature of rights at sea are not surprising, particularly between traditional and emerging industries. Some are consistent with previous analysis of conflicts over sea space, e.g. between fishers and marine renewables (Alexander *et al.*, 2013).

However, other expected tensions were noticeably absent in participants responses. It was predicted from the discussion in the first half of the chapter that there may be conflicts between aquaculture and other stakeholders, due to the perception of the aquaculture industry as a 'powerful' player in the planning system. However, aquaculture appeared to be less of a priority for many, despite the industry's continued prioritisation from the Scottish Government. The only participant to take umbrage with the ongoing insurgence of fish farming was **M3**, representative of a national environmental organisation, who stated that *'fish farms are always given priority over the environment.'*

There was also a lack of consideration towards the impact on casual users of the sea. This absence might have been a lack of understanding as to what 'casual' meant, although this was not commented upon by any of the interviewees. However, the Mitigating Losses and Local Powers factors both indicated the need for better integration of community organisations in planning matters, and the return of revenue to local communities who may not otherwise be economically invested in the seas.

The composition of the different factors demonstrates that perceptions towards pure allocation of space are not driven solely by industry representation, and conflicts within stakeholder groups can arise. Stakeholders within aquaculture, fisheries, and MRE were all spread across different factors, highlighting different patterns of consensus instead. Similarities were noticeable amongst some of the factors who hailed from the same coastal

regions. These patterns illustrate the importance of research which portrays responses to institutional change as embedded in more than economic values. Instead, history, cultural values, and social relations will have a profound effect on how individuals' perceptions form. Therefore, such criteria should be taken into account in decision-making processes.

TENSIONS OVER PRIORITIES

Crucially, the research also suggests significant divergence in opinion as to both the priorities and the mechanisms for managing the sea (see Figure 16). These differences in priorities infer differences in values held by groups of individuals. Using the results of the Q study, Figure 16 has been developed to illustrate these divergent values. Demonstrated in the triangle of conflicting concerns, the Free Seas, Greater Good, and Mitigating Losses factors suggest significant disagreements as to current and future priorities. The Free Seas factor proposes that the protection of public rights in the seas is a key priority rejecting the creation of individual rights. The Greater Good factor recommends that key industries should be prioritised "for the greater good". Finally, the Mitigating Losses factor suggests that marine governance should be focusing on minimising impacts of sea users on one another. Simultaneously, there is a divergence in opinion as to how these priorities should be achieved, as illustrated by the Local Powers and Status Quo factors. The Local Powers factor suggests increased local control of resources while the Status Quo factor favours the existing procedures.

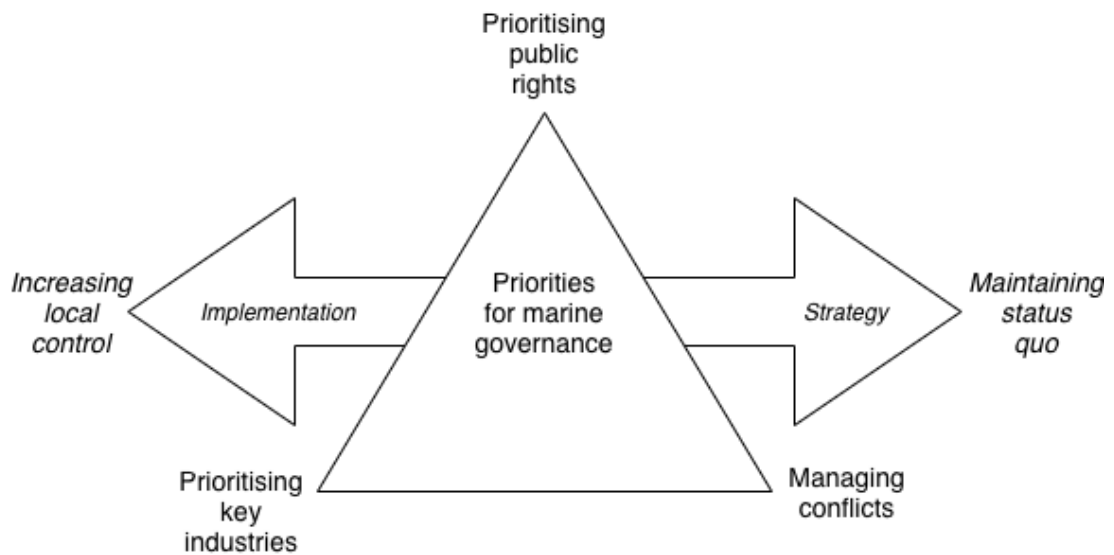


Figure 16: Conflicting priorities and mechanisms for marine governance

The figure demonstrates clear tensions between the values and priorities held by groups of marine stakeholders, as embedded power relations continue to increase the gaps between actors. It appears that MSP, a system that should be used to address such tensions, is currently not living up to this task. MSP's application is admittedly still in the early stages, or halted in some Scottish regions. Existing planning measures need to do more to address inequities fostered by a poor knowledge base and potentially ineffective consultation procedures, which were seen by some participants as tokenistic. There have been consistent calls for 'deepening' the democracy in marine management decision making, something which could allow for better equitability in a framework that is highly susceptible to political influences (Jones *et al.*, 2016; Flannery *et al.*, 2019).

Functioning as a participatory mode of governance, MPPs could potentially be the key to non-tokenistic integrative planning. However, the roll out of MPPs lags behind the current implementation of marine planning and maritime development. There have also been questions as to the effectiveness of current MPPs. The third MPP is currently in creation in Orkney, but its design is deliberately quite different to the Clyde's and Shetland's, with only

one ‘partner’ in the partnership. This change in institutional design is worrying as it may occlude progress for democratic decision-making.

This analysis also revealed that ‘powerful’ voices in the marine network were perceived differently and dependent on individual participants. A few participants mentioned the fishing industry as particularly ‘powerful’, given its strong representation and influence in the planning and governance systems; specific mention was made of associations representing economically ‘valuable’ sectors of the fishing industry, such as the whitefish fleet. This reaction is enlightening as it suggests potentially dispossessed groups might not match previous predictions, and that these roving industries could be the more well-represented and data-rich within Scotland’s specific planning network. The differences between fishing sectors has been elaborated on in case study 2. Evidence has pointed towards inshore fishers as the least well-represented, and thus may be set to lose the most from the industrialisation of the seas. However, as predominantly static creelers, there may be opportunities for co-location and co-existence.

At present, spatial enclosure, as a concept, does not appear to be foregrounded in the current planning system. This case study has highlighted the apparent lack of consideration made by authorities in Scotland, with little reference to spatial or distributive issues in marine plans. This section on the perceptions of those working in the marine industry demonstrates a wide range of opinions and knowledge that are similarly not being taken into account. These oversights could prove costly, increasing the gap between the data-poor and data-rich, and lead to a failure of the institutional arrangement.

7.12 SUMMARY OF CASE STUDY 3

This case study has revealed the changing institutional arrangement of rights in Scotland’s marine spaces. Following the international drive to extend and enclose power and control over marine resources, state governments are now focussing on measures to effectively and

efficiently optimise the use of their territorial waters. MSP has been advocated for as a technocratic, rational method of allocating sea space, and reducing conflict between users. However, as per the frameworks of North (1990) and Ensminger (1996), planning can be influenced by powerful actors, and the emergence of new planning regimes may not always act as an effective balancing of interests.

The analysis of semi-structured interviews with key stakeholders, and document analysis, has provided a detailed examination of the drivers and processes of spatial enclosure in Scotland's seas. It is evident that the regime of MSP in Scotland has been powerfully influenced by the Scottish Government's, and the Crown Estates, own economic objectives. Rather than acting as a rational method for space allocation, Scottish marine planning has arguably been the product of political actions by the Government, who are prioritising some uses over others. In particular, targets set by the Scottish Government for increasing aquaculture production, renewable energy development, and, to a lesser extent, biodiversity conservation, has led to a path dependent process, where few alternatives for marine development are being suggested.

The prioritisation of these specific industries has led to the enclosure of increasingly localised areas of sea. Yet, Scotland's MSP does not appear to be considering the ramifications of spatial enclosure, or even marketisation of sea space. These are significant and often permanent changes in rights, which appear to be an unforeseen by-product of marine planning. The *de facto* occupation of marine space has removed the rights of traditional users such as fishers, as well as the general public, to access, directly or indirectly benefit from the environment. Enclosure has the potential to dispossess data-poor users who rely on the tenet of free seas and the rights. Furthermore, enclosure may lead to changes in relations between users of the sea, and how they come to value the marine environment. Despite efforts to design a collaborative and equitable planning process, through consultation and MPPs, neither the actual enclosure nor disparate values have been taken into account.

In the marine environment, the process of enclosure is just beginning, with important precedents being set. As such, it is important to extricate these potentially divergent perceptions that may have been lost within the development of the marine planning system, as per research questions 3 and 4. Capturing perceptions could allow for alternative futures for the institutional regime, taking into account different voices, and addressing potential conflicts. The results of the Q study have provided two conclusions. Firstly, that despite enclosure occurring in Scotland's seas at unprecedented rates, there exists a vacuum in the knowledge surrounding the changing nature of property rights at sea. Without a transparent forum for the co-production of knowledge, the planning regime may prove ineffective in the long term.

Secondly, that when confronted with these changes, there is a plurality of opinions as to the future of rights at sea. Whilst the Free Seas individuals wished to maintain public rights as a priority, the Greater Good factor saw no issue in prioritising spatial industries such as MRE, as long as that prioritisation was achieving sustainable objectives. Alternatives for the current institutional arrangement were also proposed by the Local Powers group, but other individuals believed in keeping to the current regime. Consequently, the Q study provides evidence of clear tensions between priorities that are not currently being addressed by the MSP regime. Although arrangements to facilitate greater transparency and participation, in the form of consultation and MPPs, should provide a platform to address these diverse perceptions, those arrangements are currently failing. Instead, the current power relations are being entrenched by the regime, so that coastal communities, inshore fishers, and casual sea users are not able to influence, nor directly benefit from, marine development. This issue is almost entirely absent from current political and public discourse around marine governance. The future of marine planning must make efforts to include such issues if the seas are to be efficiently, equitably and collaboratively developed, as per the criteria of good governance and environmental democracy (UNECE, 1998; UNESCAP, 2006). Experiences on land should forewarn that enclosure and the redistribution of property rights is not a trivial matter. The

distribution of rights can be a source of significant public grievance with potential to last for generations. Consequently, the next chapter will strive to set out what lessons can be learned from case study 1 and land reform, so that alternatives for the future of planning may be realised.

8 TYPOLOGY OF ENCLOSURE: DISCUSSION AND RECOMMENDATIONS

What if we wake up in 100 years and think ‘why didn’t we learn from our past’?

(Workshop discussion, 2019)

8.1 INTRODUCTION

This research has highlighted the key institutional arrangements, in the form of property rights, that have influenced the enclosure of two previously open-access resources in Scotland’s seas. In attempting to understand the enclosure, the case studies have focussed on the roles that key actors, along with politics, power, and history, have played in the transition of property rights institutions at sea. The marine case studies have further developed an understanding of the perceptions of key stakeholders, to extricate the inherent values held by users and give some indication as to their potential behaviours.

Using an explanatory typology, as discussed in section 2.5, this final chapter discusses and summarises the findings of this thesis in a cross-case analysis of the research’s three case studies. The typology uses a series of questions to explore each case study. The questions should hopefully reveal patterns within answers and allow a *‘spectrum of conceptions’* to emerge (Kerr *et al.*, 2017, p. 204). Table 35 introduces the questions asked, and their context, as an example of the typology matrix. This table will be reproduced with bullet-pointed summations after longer explorations (see Table 36). These questions have been chosen to reflect the key criteria of institutional change as set out in the models by North (1990) and Ensminger (1996). Hence, the questions highlight the relative powers of actors in the arrangements, as well as the distributional conflicts that have resulted from institutional change. These criteria can also be used to understand how power imbalances and conflicts may be rectified.

Table 35: Example typology matrix

Typology Questions	Case study 1	Case study 2	Case study 3
What are the primary drivers for enclosure? <i>Defines the economic, social and political motivations for why enclosure occurred.</i>	-	-	-
Which institutions are facilitating enclosure? <i>Discusses the legal and regulatory institutions that facilitated the transition of property rights institutions and enclosure.</i>	-	-	-
Who are the actors involved in enclosure? <i>Examines whose rights have changed as a result of the enclosure procedure, i.e. who are the winners and who are the losers?</i>	-	-	-
What are the socio-economic consequences of enclosure? <i>Discusses the further consequences of enclosure. This question particularly seeks to understand the consequences of the inequality that enclosure has wrought.</i>	-	-	-
What is the level of knowledge and understanding? <i>Outlines the dissemination of information regarding property rights, ownership, and the processes of enclosure, and stakeholders' understanding of this information.</i>	-	-	-
How are the potential negative consequences of enclosure being avoided or reversed? <i>Discusses how, if any, the negative impacts of enclosure are being mitigated or reversed.</i>	-	-	-

Section 8.2 synthesises the findings of the case studies to answer the questions found in Table 35. Section 8.3 then populates the typology of enclosure, and provides a cross-case analysis of the three case studies. This discussion focusses on the divergences between the cases, but, more importantly, the similarities. Additionally, this section brings together the understandings of property rights and ownership articulated by the participants of the research, into a coherent dialogue on marine enclosure.

Highlighting the similar patterns found across the cases of enclosure can also allow for an exploration of recommendations which treat the land reform case as a resource for learning. Section 8.4 discusses how the drive for, and implementation, of land reform can be used as a tool for path-breaking innovations in the marine environment. These recommendations incorporate the findings from the perceptions research in this thesis, alongside other examples of novel institutional designs.

8.2 BUILDING A TYPOLOGY

WHAT ARE THE PRIMARY DRIVERS FOR ENCLOSURE?

In case study 1, the legacy of the feudal system first allowed the Crown to gift previously communal lands to private individuals (Glass *et al.*, 2019). The newly privatised estates were rented to tenant farmers, before being converted to sheep and cattle farming which were more profitable for private landlords (Hunter, 1976). In essence, enclosing Scotland's rural lands was a process of capitalism, heralded as nationwide economic development.

In fisheries, enclosure of the right to fish was initially touted as a method for inhibiting the race to fish. However, the introduction of the FQA system, and the formalisation of a market for the right to fish, were influenced by the wants of the sector fleet and POs. As such, the system was seemingly enacted not from a biological perspective, but rather an economic perspective, so that more income could be made from trading (Hatcher *et al.*, 2002).

For case study 3, the need for long-term food and energy security, as stipulated in the UN's SDGs, and reiterated in the Scottish NPF, has provided overarching targets that are driving the direction of MSP. The Scottish Government and semi-autonomous local authorities are increasingly sanctioning the development of 'blue' industries such as aquaculture and marine renewable energy which are occupying marine space with a growing permanence. Arguably, these targets are framed as a method for sustainable development and rational allocation of marine space, but they can also be viewed as working towards global interests that often compete against very local interests.

WHICH INSTITUTIONS ARE FACILITATING ENCLOSURE?

In a very intentional design, the evolution of rural land enclosure was facilitated by legislation introduced in the guise of economic development (Wightman *et al.*, 2004). Legislative acts over centuries introduced methods such as the Register of Sasines to legitimise the rights of private landowners.

In fisheries, the introduction of the private market was similarly an intentional move that has created quasi-private rights within a historically public asset. However, instead of being a gradual process, the creation of the *de facto* ITQ system was an immediate change following a relaxation in regulations on trading. The change has consolidated the right to fish, and with it the right to direct benefits, to those who hold the quota (Appleby *et al.*, 2018).

In case study 3, planning permission, leases and licensing procedures have facilitated the creation of *de facto* private rights for spatial industries. New private rights may marginalise the formal rights of navigation and fishing, as well as informal forms of ownership, such as the patches of inshore fishers and the sense of ownership of coastal communities (van der Horst and Vermeylen, 2012; Voyer *et al.*, 2015).

WHO ARE THE ACTORS INVOLVED IN ENCLOSURE?

The concentration of landownership was, firstly, the work of the Crown, who gifted lands and control to a few wealthy individuals. This concentration of power eventually resulted in the removal of rights, such as to the direct benefit, from individuals such as tenant farmers. In case study 2, the ability to trade and transfer rights, creating a market ‘*overnight*’, was the decision of the UK Government in 1996, but crucially with the backing of the sector fleet. This action has led to a continued practice of both temporary and permanent transfer of quota between licences and POs, with seemingly little intervention by the legal owners of quota, i.e. the Scottish Government. It is estimated that over 99% of FQA units are held by members of a PO or the PO itself; this means that over 1500 vessels have no access to tradeable quota (UK Government, 2018).

In contrast, the enclosure of marine space in case study 3 has been seemingly unintentional. Enclosure has been facilitated by the centralised regulatory systems implemented by the UK and Scottish Governments, and CES. Although designed to be collaborative, incorporating stakeholder engagement, marine planning does not appear to be acting as an independent adjudicator for all competing interests. Rather the MSP regime

functions as a regulatory body acting for the benefit of the Government, CES, and prioritised developer.

WHAT ARE THE SOCIO-ECONOMIC CONSEQUENCES OF ENCLOSURE?

The consequences of enclosure for all three case studies provide similar tales, reflecting concentration of both rights and power that have driven disparate interests and mounting dissatisfaction with the institutional arrangements. In case study 1, the concentrated land pattern across the Highlands ultimately led to a history of dispossession within local communities, who struggled to regain control over the future of their environment (Devine, 2018).

For fisheries, the initial allocation of quota has led to consolidation into the sector fleet, consolidating power away from both the state and much of the remaining fishing fleet. As the price of quota increases (Seafish, 2018), fishers are beholden to larger loans to cover the evermore significant costs, creating a barrier (or series of barriers) to entry. This has subsequently prevented older generations of fishers from retiring, as well as decreased vessel ownership in younger people (Stewart, 2014; Seafish, 2017). Concurrently, the introduction of a formal market has shifted quota-owning fishers' priorities towards '*capitalistic*' incentives, whilst marginalising alternative values within the remainder of the fleet (Carothers and Chambers, 2012, p. 50).

For case study 3, enclosure is only just beginning to occur. However, there is recognition that the prioritisation of industries such as MRE and aquaculture will drive further privatisation of space, and potentially create further distributional conflicts. The Q study established that current marine stakeholders demonstrate clear disparities in their priorities over marine governance. Consequently, the system, designed to address such tensions, is clearly not doing so. Without addressing the disparate priorities, there is potential for accelerating the gap between 'powerful' and 'powerless' social actors.

WHAT IS THE LEVEL OF KNOWLEDGE AND UNDERSTANDING?

Transparency regarding institutional arrangements, as well as the flows of knowledge, have proven to build trust between stakeholders and minimise conflicts (Mason, 2010). For case study 1, there have been active efforts to increase the transparency of the landownership, in particular is the digital Land Register, which has allowed the identification of landowners. Additionally, the continued roll-out of community right to buy has helped place landownership at the forefront of the population's concerns.

The lack of transparency in the fishing industry has arguably contributed to the rapid consolidation of quota, as official bodies such as POs continue to fail in their duties of identifying quota holders (LIFE, 2015). Attempts for greater transparency has included the formation of the FQA Register, and collaborative working through RIFGs and RACs. However, the Q study reinforced that transparency remains an issue. Participants were nearly unanimous in agreeing that there was an absence of knowledge transfer on the issues of ownership and rights, amongst other issues.

For case study 3, a lack of information hinders the ability to become involved in the MSP process (Smith, 2018). Scottish-based efforts to increase knowledge co-production include the establishment of the interactive database NMPi as well as establish participation through the MPPs. However, evidence suggests that information on the ownership and the marine planning system is still generally absent from the public discourse. The Q study provided consensus that knowledge and understanding surrounding ownership and rights in marine space is severely lacking.

HOW ARE THE POTENTIAL NEGATIVE CONSEQUENCES OF ENCLOSURE BEING AVOIDED OR REVERSED?

The most comprehensive reversion of enclosure has been in case study 1, where widespread land reform has led to path-breaking initiatives to rebalance public and private interests. Of particular note is the introduction of community buyout schemes, which

additionally provide a forum for shared decision-making powers, incentivising communities to have greater stake over their immediate surroundings. Reform of institutions is often a slow process, and the distribution of landownership remains unbalanced. However, land reform presents a number of opportunities and lessons which could be significant for marine enclosure, as will be discussed below in section 8.4.

In fisheries, there has been growing interest in the potential reform of the FQA system. This conversation has become more prolific following the UK's decision to leave the EU. The ongoing process of Brexit has meant fisheries taking centre stage within both popular and certain political fields. For those who have faced barriers to entry or diversify in the industry, the prospect of reform could provide greater opportunities for accessing quota. However, those that utilise FQA are understandably resistant to reform, arguing that quota is owned by them as the fruits of their labour and financial investment.

In contrast, marine spatial enclosure is in its early stages, and the concept of ownership is currently not being foregrounded in the context of marine planning. Although the NMP makes mention of mitigating conflicts between marine users, the issue of ownership is not highlighted. Opportunities agreed upon by nearly all factors in the Q study concentrated on the co-location of uses; however, this has previously faced administrative and legislative obstacles (Onyango *et al.*, 2020).

8.3 CROSS-CASE ANALYSIS

Table 36 summaries the results of the questions asked, presenting a typology of enclosure processes. As evidenced in the analysis, the cases within this typology can be thought of as existing on a *spectrum of awareness*. The different stages have thus been called 'Reformed', 'Aware but not reformed', and 'No awareness'. Whilst, these cases are set within a Scottish context, other cases can fit into the typology, either directly within the prescribed boxes, or somewhere between, on the sliding spectrum.

Table 36: The typology of enclosure using the findings of the case studies

Case study	Rural land	Fishing rights	Marine space
<i>Spectrum of awareness</i>	<i>Reformed</i>	<i>Aware but not reformed</i>	<i>No awareness</i>
<i>What are the primary drivers for enclosure?</i>	Maximisation of profits by owners Framed as nationwide economic development	Simplifying system for fishers Framed as limiting fishing effort for sustainability	Global drives to combat climate change and foster economic development
<i>Which institutions are facilitating enclosure?</i>	Legislative changes influenced by private developers	Policy changes creating private rights in a public resource	Centralised regulatory systems unable to function outside of terrestrial understanding, creating <i>de facto</i> private rights for spatial industries
<i>Who are the actors involved in enclosure?</i>	The Crown, gifting shared lands to private owners Landowners	UK Government creating a market, influenced by sector fishers	Scottish Government and CES prioritising specific industries
<i>What are the socio-economic consequences of enclosure?</i>	High level of landownership imbalance Movement of peoples off lands Widespread emigration	Consolidation of opportunities to high-value industry Barriers to entering industry Changes in fishing values	Prioritisation of wants of few actors May not reflect needs of local regions Public rights, as well as entitlements and sense of ownership, marginalised or eradicated
<i>What is the level of knowledge and understanding?</i>	Active efforts to increase information dispersion	Increasing recognition but still poor transparency	Little to no consideration Efforts to increase democratisation failing
<i>How are the potential negative consequences of enclosure being avoided or reversed?</i>	Institutional and legislative reform promoting community ownership Legal incentives for landowners to sell	Discussions beginning regarding policy reform New fisheries legislation currently being drafted following Brexit	No foregrounding of ownership issues in planning system Little opportunity to address problem

The primary difference between the case studies is the intentionality of the property rights institutions. In case study 2, the FQA system in Scottish fisheries has led to admittedly unintentional consequences, but the institutional design can be regarded as intentionally introducing a new market of privatised property. Allowing quota trading between individuals has consolidated rights to a handful of private investors, concentrating control towards them and away from the state who works as a proxy for the public.

Scotland's MSP regime, however, was deliberately designed to be transparent and collaborative, and not as a method for privatisation. Instead, it is a system which prioritises certain private interests, with a view to allocating public space to align with the goals of CES and the Scottish Government. This prioritisation has arguably reshaped the planning regime into a referee, adjudicating private conflicts, rather than a champion of public interests. The efforts to counteract a top-down approach are still playing catch up to a continuous wheel of development, and as such, little is being done to address potential inequity driven by the goals of the responsible bodies. The land planning system was established at a time when land had already been privatised for centuries, emerging as a reactive response to enclosure. The marine planning process, on the other hand, is evolving at the same time as development. As such, the planning system, as a function of both regulators trying to control the space and developers wanting to access it, appears to be acting as a proactive, but accidental, method of enclosure.

The typology also demonstrates the patterns of similarities across the three cases. Each case study appears to be the product of a path dependent process, ostensibly influenced by powerful actors. As posited by neoclassical economics, property rights are efficient, and neutral, methods for allocating resources, thereby reducing costs and conflicts. However, both MSP and the FQA system are instead mimicking early land enclosure, being driven by the interests of a few stakeholders. Prioritising a few interests has led to path dependency, where, for marine regulators, MSP is viewed as the only method for economic optimisation, and for fishers, the views of the sector fleet have dominated decision-making.

As demonstrated in the frameworks of North (1990) and Ensminger (1996), the uneven powers of actors will also negatively impact the distribution of resources. The distributional conflicts that have arisen from the institutional arrangements are obvious in each case. In case study 2, there are clear dissonances in participants' understandings and priorities, partially arising from the imbalance of fishing opportunities. These tensions provide evidence that the different perceptions of ownership have not been reflected within the institutional design.

Rather, certain participants feel that their individual values and ownership narratives have taken a backseat to the prevailing ideology of private property, held in the FQA system.

Additionally, case study 3 has demonstrated conflicting priorities and values between users and stakeholders of marine space. The current marine planning process is clearly not working towards including the range of perceptions found within this research. Quasi-permanent industries are seeking prioritisation over public rights by framing their development as for the ‘greater good’. Other stakeholders, however, are wishing to uphold the doctrine of *mare liberum*, framed as maintaining both environmental protection and public rights.

An important cross-over between both marine studies is that of fishers. Productivity in fisheries is potentially under threats from the increased encroachment of the seas by marine industries and the division of the ocean via marine spatial planning. The rights of fishers to access resources that quota or licenses have provided them, are fundamentally compromised when in the presence of a *de facto* privatised area of sea. FQA units are theoretically supposed to end the race to fish. Now, fishers, along with other users, are competing in a race for space. Inshore fishers must worry both about their spatial rights, and the quantity of their fishing opportunities. Fishers who hold FQA units may increasingly come against physical obstacles, which will limit the inherent right that quota should provide. Such challenges may contribute to further inequity, and drive unsustainable behaviours. Consequently, it is critical that the rights of other stakeholders, and the plurality of understandings, are foregrounded in policy.

REFLECTING ON OWNERSHIP AT SEA

A workshop towards the end of the research provided a unique opportunity to reflect on some of the findings that had been made within the Q studies and historical analysis. The workshop engaged stakeholders in Orkney using the MSP Challenge. During gameplay, the issue of ownership was not raised by participants. Rather, the decisions of game players were made excluding the rights of others not ‘at the table’. These decisions set into motion the

process of codifying claims to spaces and transforming the seas into quasi-private property, just as in real life. The central issue of how the marine environment was being transformed into privately-owned space was never addressed during play.

Reflecting upon these decisions, it became obvious that, for those in decision-making positions, the marine environment was a frontier to be captured and regulated for their objectives. As such, the seas in the game were absent of ownership or property rights institutions, reflecting the dominant ideology of the freedom of the seas. However, this research has demonstrated that the concrete ownership and property rights in the marine environment are complex, incorporating various cultural norms, traditions, and values. These diverse narratives of ownership are predominantly absent from the current management procedures.

Based on the findings of the marine case studies, **Error! Not a valid bookmark self-reference.** has been created to show the complexity with which property rights institutions have emerged and influence each other at sea. The figure uses the understandings of property rights, ownership, and enclosure as articulated by contributors to the research. Figure 17 also demonstrates that viewing the oceans as systemically without property rights institutions, as argued by economists such as Gordon (1954) and Hardin (1968), is a falsity. Rather, following Mansfield (2004), states, regions, and individuals, have all established different and varied forms of ownership, through both formal and informal institutions, over their marine environments.

The freedom of the seas has been the dominant ideology for managing the seas for centuries (Baird, 1996). The ideology has informed the establishment of international law, as discussed in section 4.2, and an openness that has '*always been part of the appeal of the oceans*' (Orbach, 2003, p. 28). However, understandings of rights and ownership are also underpinned by dynamic economic, social and cultural values held individually or communally. These values can affect senses of ownership over spaces and resources.

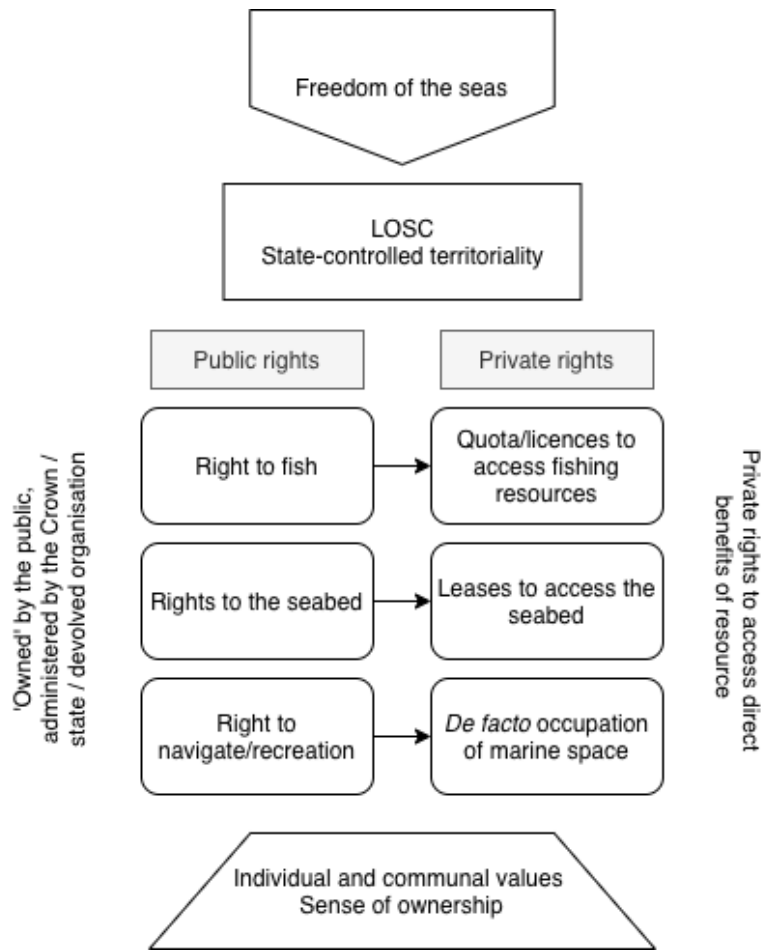


Figure 17: Conceptualising rights and ownership in Scotland's seas, as articulated by research participants

For example, the Investors of case study 2 understand the right to fish as a traditionally public right; however, that right has now transitioned into a privately-held right through financial investment, underpinned by capitalistic values. The Reformers, however, still viewed the right as held by the public, finding value in a right that could, and should, be returned to the public.

Similarly, the Greater Good factor in case study 3 would understand the need for the transition of sea space to a *de facto* privately occupied space, as for them privatisation holds value for the good of future generations. However, the Free Seas maintain that sea space

should be fundamentally free of private rights, finding value in the sea as an open, and conserved, space. This plurality of rights and ownership is reflective of property rights as embedded in cultural and social relations, and yet such relations are seemingly absent from official policy. As such, the following section provides some recommendations that incorporate this plurality into policy.

8.4 POLICY RECOMMENDATIONS

Laudably, NPF Indicators have demonstrated that the goals for increasing the sustainability of fish stocks, and growing the percentage of energy consumption from renewable sources, are both rising. However, there are other important Indicators that should be additionally reflected within policy recommendations. Included are the ability to influence local decisions, and increasing social capital, as a method for improving social networks, community cohesion, social participation, trust and empowerment. Arguably, the current marine arrangements are not functioning with these Indicators in mind.

Now that we understand the dynamics of enclosure, as well as the different conceptions of property rights that individuals hold at sea, there is recognition that alternatives could be considered. The question is, what approach will circumvent further inequality? One answer could be to examine the successful aspects of the land reform processes. Case study 1 demonstrated that the combination of procedural justice and distributional justice through land reform has attempted to combat the historical enclosure of rights. The procedures incentivised landowners to engage critically with how they are managing the land, framing the buyouts by communities as a better model for the future. Reforming the ownership model also allowed for the prioritisation of different objectives other than profit-driven goals.

Learning from land reform is already something being considered by NGOs and academics for fisheries policy in the UK, and extending these lessons could be the key to preventing further inequality in our seas. These functions of reform ultimately represent different instruments of empowerment for powerless actors, as well as building institutional

capacity for better institutional design. The lessons form a series of policy recommendations in the following sections, and include:

1. Identify and involve stakeholders to represent a broader range of values
2. Build institutional capacity through co-production of knowledge
3. Limit further inequity through financial compensation

Any singular recommendation for marine governance will not be a panacea and must be necessarily employed dependent on socio-political and cultural histories (Olson, 2011). Mismatches in jurisdiction, governance, and understandings will all affect how efficient such alternatives will be (Alexander and Graziano, 2019). However, the recommendations discussed provide a reasonable foundation for how we may learn from the past, and adopt new institutions that permit more inclusive, equitable, and sustainable modes of governance. Identifying stakeholders, co-producing knowledge of rights and values, and recognising those rights by compensating their loss, all forward the wider aim of integrating socio-cultural objectives into institutional designs for natural resource governance. Recognising different formal and informal rights that are held by individuals, as demonstrated in Figure 17, and working towards goals other than profit maximisation, could be the key to circumventing the distributional conflicts brought by enclosure.

IDENTIFY LOCAL STAKEHOLDERS

Both marine case studies have demonstrated that conflicts from new institutional arrangements often comes as a result of poor or inefficient stakeholder engagement and participation. Scotland has vowed to increase environmental democracy through its commitment to the Aarhus Convention, and reinforced in the NPF. Greater representation of different stakeholders should lead to better '*models of democratic participation*' which Geczi (2007, p. 375) states will allow policies to develop outside the '*prison of the market*'. In other words, policies should be fashioned outside of the dominant narrative that economic efficiency is synonymous with sustainable and effective governance. To do so requires adequately

engaging with a range of stakeholders that can work democratically to achieve conflict-free resolutions.

However, attempts to define the ‘community’, or which stakeholders should be included in decision-making, is difficult. The concrete relationships of individuals between and within communities can be ‘*complex and ambiguous*’ (Kepe, 1999, p. 417). Often, the term ‘local resource user’ can convey purely economic ties to the resource, and does not reflect other social or cultural relations with environments (Carlsson and Berkes, 2005). The complexity of relationships between individuals and their environment is particularly prominent at the coast, where activities in one region can affect distant others. Developments in neighbouring coastal regions may have to access land or resources in other authorities’ control, introducing problems of crossing jurisdictions. Even when argued as for ‘the greater good’, objections to trans-jurisdictional developments are still common, and can hinder the interests of the public, the state and the developer (Keir and Ali, 2014). Several definitions of community have been used in the literature, including ‘*communities of interest*’ (DTI, 2005). However, within policy, preliminary searches indicate that current community-based legislation (e.g. the Community Empowerment Act 2015) makes no mention of ‘marine’, ‘sea’ or ‘coastal’.

Policy recommendation 1: Identify and include all relevant stakeholders

So far, both consultation processes within MSP, and engagement with a broad range of fisheries stakeholders, have failed. The lack of engagement has led to tensions between users, and resistance to the current framework of governance. In case study 2, the Reformers reflected disappointment at their lack of representation in decision-making, and led to them seeking reform of the current regime. Similarly, in case study 3, there are clear divergences in interests, alongside a fear that the least well-represented will continue to be excluded. As such, identifying a wider range of stakeholders who hold diverse values may facilitate a more effective governance structure.

Methods for identifying stakeholders for marine governance have become innovative in the past five years, so as to include more than the ‘*usual suspects*’ (Colvin *et al.*, 2016, p. 267). However, the identification of who should be involved signals an exclusionary process, whereby others should not be involved. Ritchie and Ellis (2010) argue that MSP should begin with all stakeholders’ views determined as valuable. As such, rather than determining who should be included, policymakers should be asking who have been actively excluded so far. This research would suggest that, in Scotland, this would be local communities and inshore fishers, in both cases of MSP and fisheries management.

CO-PRODUCTION OF KNOWLEDGE

Identifying correct stakeholders, and increasing their representation in positions of power, can help increase knowledge production and transfer between industries, authorities, and the public. The reciprocity, or ‘co-production’, of knowledge, is critical for effective institutional design (Jasanoff, 2004). Deliberative theories, such as post-normal science, dictate that using knowledge from a unitary source is an inefficient base for marine governance (Funtowicz and Ravetz, 2018). Such theories argue for a ‘*plurality of voices and use of a range of knowledges*’ to co-produce knowledge and concurrently build trust between stakeholders (Holm and Soma, 2016; Buchan and Yates, 2019, p. 126). Collaborative planning processes can also help shape institutional capacity by connecting new institutions with prevailing knowledge held by stakeholders (Healey, 2003; Flannery and Ó Cinnéide, 2012). Therefore, knowledge co-production could be useful for identifying a broader range of ownership narratives.

Policy Recommendation 2: Utilise accessible participatory tools, such as mapping, for the co-production of knowledge and to incorporate broader understandings of rights and values

In fisheries, the connection of diverse knowledge and value systems has been acknowledged as a method for distributing ‘*power and responsibility*’ between governments and resource users (Berkes, 2009). However, the Realists in case study 2 were aware that

communicating knowledge between fishers and managers was sometimes stifled. The factor wished to help industry and civil society understand the ‘*ins and outs*’ of the complex system of rights and management, boosting transparency and knowledge exchange.

Research has additionally shown that the co-production of knowledge can help the effectiveness of MSP (Flannery *et al.*, 2019). However, the methods of co-producing knowledge, in ‘*meaningful*’ engagements, are often expensive and time-consuming (Yates, 2018). Case study 3 illuminated the increasing costs of the establishment of MPPs, for example, and how the drive for their development has stalled in coastal regions. Additionally, nearly all factors in the Q study were of the consensus that knowledge of marine enclosure was severely misunderstood. Indeed, participants argued that a lack of knowledge regarding rights and ownership is hindering adequate engagement with a wider range of stakeholders.

A recent method for co-producing knowledge has been participatory mapping, which could provide meaningful engagement for stakeholders (Reilly *et al.*, 2016). Mapping can help establish divergent values (Klain and Chan, 2012; Burdon *et al.*, 2019), identifying different forms of ownership and rights held by stakeholders, which may be integrated into policy. Mapping has also been used to integrate fisheries management into MSP processes (Kopti *et al.*, 2011). Historically, fishers have regarded themselves as marginalised within society (Nadel-Klein, 2000), and their continued exclusion in decision-making will only further disenfranchise fisher communities. Research suggest that the reluctance of fishers to be involved in MSP is the result of negative experiences (Piwowarczyk *et al.*, 2019). Participants in case study 2 similarly demonstrated a worry that static industries would work to their own agendas, rather than in alignment with fishers’ values and priorities. However, participatory actions such as mapping may provide a more accessible and meaningful engagement for a broader range of stakeholders. Such methods provide a forum for sharing knowledge and insights, that should, theoretically, rebalance the power distribution between participants.

FINANCIAL COMPENSATION

Where there are few alternatives, financial compensation could provide a method for balancing divergent interests and mitigate opposition to institutional changes. However, such schemes can only occur with the acknowledgement of property rights, and identification of appropriate stakeholders, by the compensating bodies. The payment of landowners following land reform, for example, was necessary for both the recognition of their private rights to ownership, as well as to mitigate opposition to the reallocation of land.

Policy recommendation 3: In the absence of alternative options, provide financial compensation as a way of acknowledging economic and social ties to rights

As demonstrated in case study 2, establishing compensatory schemes for the reallocation of FQA units would provide both financial stability to investors, as well as potentially realigning the disparate views and priorities that are present in the fleet. Both the Investors and the Realists were strong in their conviction for compensating individuals for their investment into staying viable. In addition, the UKAFPO versus DEFRA court case has maintained that FQA units are possessions, which cannot be removed by without due cause or adequate compensation (Appleby *et al.*, 2018). Any reform of the quota management system must rightly take this ruling into account, providing financial stability for those who have invested in their industry. In this case, the responsible body providing compensation would necessarily be the Scottish Government, as the holder of authoritative rights over quota and the right to fish.

For marine space, whilst compensation was not mentioned during the Q study, precedents are already being set in marine industries which are compensating traditional users for rescinding their rights. Taking inspiration from onshore constructions, some marine developers have utilised benefits schemes, in the form of direct or indirect financial payments to affected communities, to appease opponents. The provision of compensation for fishers after a loss of fishing grounds has been addressed in previous studies on a theoretical level (Gibbs, 2007; Reilly *et al.*, 2015). Such research concentrates on both the physical loss of

space, as well as the imposition on quota holders' rights. As demonstrated by the Investors, there is an implicit right to fish that quota provides, but this right is disrupted in the face of new marine infrastructure. Consequently, compensation could mitigate the impacts of the loss of rights, and the loss of earnings.

There is also a precedence of compensation schemes for the fishing industry from oil and gas. The Fishermen's Compensation Fund, set up in 1975 by the lobby group Oil & Gas UK, compensates fishers who have '*suffered loss or damage to fishing gear caused by UKCS oil-related debris*' (Oil and Gas UK, 2019). However, the fund does not cover loss of fishing grounds from the presence of infrastructure. Offshore wind developments also utilise community funds for both communities and specific users, including fishers (Kerr *et al.*, 2017). Yet, due to the innate differences between land and sea, the form and value of such benefits schemes are wide-ranging and usually do not equate to those that have been seen on land. At sea, benefits are still at the behest of the developer. This is partly because of the lack of properly defined property rights; without ownership, users do not have the traditional power to extract financial benefits. Additionally, Reilly *et al.* (2015) point to the differences between the oil and gas, and MRE, industries, namely that the MRE sector is not as financially stable to provide long-term funding. The study also questions the validity of one-off payments, which may not provide any long-term incentive to change their perception of the industry, nor their behaviour. For compensation to be effective, extensive review of who should be included, and how compensation should be provided, must be undertaken. However, for those who are significantly affected by the reallocation of rights, compensation could provide both the recognition of the recipient's rights, and an incentive to comply with regulations.

8.5 SUMMARY

This cross-case analysis of the case studies has explored the findings of the thesis, by using a typology of enclosure. The typology demonstrates clearly that, for many of the key criteria highlighted in the frameworks of institutional analysis, the three case studies exhibit

many similarities. Identifying these similarities may be crucial for understanding how enclosure occurs in natural resources, but also how to mitigate or reverse its often path dependent progress. These examples of enclosing land and marine resources may provide lessons for path-breaking initiatives.

The case studies demonstrate that the progress of enclosure has path dependent, and influenced by the goals of certain actors. Additionally, for both cases of marine enclosure, there is still little knowledge of the issue of ownership amongst stakeholders. However, although it may be path dependent, marine enclosure does not have to be a 'locked-in' arrangement. Taking steps to reassemble or '*subvert*' enclosure could provide a way for new forms of enclosure to manifest (Fairbanks *et al.*, 2018, p. 150). Rather than reflecting economic objectives, these reassembled enclosures could reflect wider socio-cultural objectives and forms of ownership. The analysis of institutional change, in combination with the perceptions work provided by the Q studies, illustrates that contrary to the dominant belief of *mare nullius*, the marine environment exhibits a nest of social institutions. Establishing the marine environment as full of competing rights, norms, and values, is critical for constructing an institutional arrangement which can avoid further inequity and conflicts.

Case study 1 demonstrated that land reform in Scotland has been a progressive mechanism for balancing private and civil interests, and providing the legislative space for alternative methods for landownership. This case has, therefore, provided a unique insight into how institutional reform can prioritise social objectives, to achieve a more equitable outcome. The insights from land reform have informed a series of policy recommendations, outlined in section 8.4, which have gone some way to answering the final research question, of how the examples of enclosure discussed here can be used to prevent further 'unfairness'.

Arguably, sustainability cannot be achieved without equitability, and equitability cannot be achieved with the current processes of resource enclosure. The lessons of land reform could, and should, inform the practices at sea. These lessons can contribute to working towards

the NPF Indicators of improving influence over local decisions, and enhancing social cohesion. We must learn from the mistakes on land, to use planning and governance in a collaborative way, and effectively implement more cohesive governance in a non-tokenistic manner.

9 CONCLUSIONS

9.1 INTRODUCTION

Extant research posits that property rights institutions are efficient solutions to the problem of environmental governance. Ill-defined property rights in resources have been historically regarded as economically ineffective, often leading to unsustainable practices and over-exploitation (Hardin, 1968). Introducing institutions can constrain, and liberate, the behaviours of actors (Bromley, 2006). Therefore, by dictating behaviours, institutions can regulate the use of resources, as well as incentivise actors to act responsibly with regard to the resource (Hanna, 1998).

The marine environment has long been regarded as a typical open-access resource, absent of such institutions (Gordon, 1954). The transition of the marine environment from a commons, held for the good of mankind, to an area with quasi-private property regimes, has been a gradual occurrence since the 1970s (Chu, 2009). Scotland's marine environment is witnessing such transitions, as nationwide economic objectives have driven 'rational' governance regimes. However, as of yet, few studies have focussed on property rights and enclosure in a Scottish policy context. Changes in rights and ownership raise questions of fairness, power, and the ability to influence decision-making processes. Given that enclosure could lead to unintended consequences for the intertwined social and natural environments (Liverman, 2004; Smith and Brennan, 2012), it was thus important to capture the wider picture of enclosure in Scotland.

This chapter synthesises the findings of the research which have been discussed independently in individual case studies and in a cross-case analysis in Chapter 8. These conclusions will discuss how the research has answered the research questions stated in Chapter 1. Section 9.2 then goes on to explore how the study has contributed to knowledge. Section 9.3 then examines the limitations of the study, which provides opportunities for further research.

9.2 SUMMARY OF RESEARCH FINDINGS

REVIEW OF RESEARCH OBJECTIVE AND DESIGN

The research aimed to identify and analyse the trends and perceptions of enclosure and changing rights in Scotland's seas. By asking the questions of how and why enclosure is occurring, and what stakeholders thought of enclosure, it was hoped that the thesis could make a small contribution to the growing literature on marine rights and institutional change. Using HI as a conceptual lens, the thesis has provided an interdisciplinary view into marine enclosure by focussing on the actions of state agents, as well as industry actors. Although HI has been used increasingly in environmental disciplines, few studies have utilised it for studying the marine environment (van Tatenhove, 2013; de Morais *et al.*, 2015).

Utilising HI was crucial for establishing and defining key terms within the research, such as property rights and ownership. The interdisciplinary literature review within Chapters 3 and 4 highlighted the different conceptions of property rights institutions with natural resources, and in the marine environment. Consequently, the research conceptualises property rights as institutions, or a set of rules that can both liberate and constrain human behaviours, with ownership shown to represent the extension of such rights over resources. Crucially, the review helped to convey the different forms of ownership in natural resources held by individuals or communities. By synthesising key literature, including Sikor *et al.* (2007) and Van der Horst and Vermeylen (2012), the establishment of different rights that convey ownership helped to understand the perceptions of individuals through the research. The use

of this understanding of rights is in keeping with institutionalists who are increasingly focussing on informal institutions, thereby contributing to a growing field (Helmke and Levitsky, 2004).

The use of HI also allowed for a focus on the various roles of actors in the design of institutional arrangements, asking the questions of how and why institutions change. Early literature analysing changing property rights focussed on the economic values of property, and the function of property rights as measures for efficient resource allocation. However, increasing attention is being paid to the political characteristics of property rights institutions, which challenge the assumptions of neoclassical economic theory of property rights. As such, the thesis examined new and diverse approaches to understanding property rights as a function of politics and power. The frameworks of institutional scholars North (1990) and Ensminger (1996) were therefore particularly beneficial within the research. These analysis frameworks called into question the rationality of actors in establishing institutional arrangements, instead foregrounding the roles of power, path dependency, and distributional conflicts. These analytical criteria offered unique insights into how enclosure, as a process of concentrating rights and power, progresses in different resources.

The selection of Scotland and its marine environment proved a suitable location for discussing resource enclosure. Primarily, Scotland has a history of contentions to rights, as demonstrated in case study 1. The discussion of enclosing Scotland's rural lands, and the motivations for reform, was driven by the concepts of power, path dependency, and distributional conflicts identified in Chapter 3. The examination provided an insight into how institutional change is often driven by political factors, rather than rational choices for economic efficiency. The use of case study 1 also proved beneficial for understanding the role of knowledge, transparency, and participation in achieving more effective institutional arrangements. Hence, the work presented in both the literature reviews, and in the first case study, were instrumental in answering the research questions which follow.

RESEARCH QUESTIONS

To achieve the research's primary aim, five central research questions were asked. This remainder of this section will be tasked with answering succinctly how the research has answered these research questions. The questions have been grouped together with respect to the methodology used to answer them (i.e. questions 1 and 2 for the document and semi-structured interview analysis; questions 3 and 4 for Q; and question 5 for the typology).

1. In the context of each case study, what are the drivers behind changing property rights and enclosure in the ocean?
2. What are the potential and perceived socio-economic consequences of these institutional changes?

The enclosure of fishing rights has been a growing focus for interdisciplinary scholars (Mansfield, 2007; de Alessi, 2012; Pinkerton and Davis, 2015). However, research into fishing rights in Scotland have been highly localised undertakings (Cardwell and Gear, 2013), with little consideration as to the differences between fleets, and the roles of power, politics and history on institutional changes. Using the analytical criteria set out by North (1990) and Ensminger (1996), this investigation has provided evidence of the historical junctures that contributed to the transition from the right to fish as a public right, to a privately-owned commodity that can be traded. Facilitated by the UK Government through influence by the sector fleet, the marketisation of this right occurred effectively overnight. The distributional conflicts following the initial allocations of quota have led to significant socio-economic consequences. These consequences are being slowly recognised (Dowler, 2018), but little is being implemented to address the root of the issues. As such, this case study has contributed to the growing material on RBM which challenges the assumption that new property rights institutions in an open-access resource lead to inevitable efficiency. Rather, as socially embedded sets of relations, property rights can promote inequity for some, and empower others to resist change. In presenting this, the research has provided evidence of one source of

the current inequity between the Scottish fishing fleets that needs to be addressed by policymakers.

In MSP research, there has been a laudable turn to the roles of power within the development of planning regimes, and the rationality of the planning process (Ritchie and Ellis, 2010; Kidd and Ellis, 2012; Flannery *et al.*, 2016; Fairbanks *et al.*, 2018; Tafon, 2018). However, as of yet, few studies have foregrounded the issues of ownership and rights. Tracking the historical junctures of enclosure in case study 3 has demonstrated that political objectives for greater economic and environmental security has driven MSP to prioritise certain industries, such as MRE, aquaculture, and protective conservation. As such, the prioritisation of licences and leases by the Scottish Government and CES, to these industries is contributing to a reallocation of marine rights, transforming ‘*mare liberum*’ into quasi-private property. The transition is occurring in a seemingly inevitable move by the state and developers with the view to develop the marine environment sustainably. As such, MSP is performed under the ideology that the sea is an unowned space, to be allocated to industries which will further the political objectives of the Government.

However, the regime could also be contributing to the dispossession of other, ‘data-poor’ users who are not privy to the official channels, or have been excluded from the consultation process. These users seemingly hold diverse understandings of rights and ownership, such as the right to fish or navigate, or a valuing of the sea’s open-access nature. Dispossessing marine users of their rights may transform relations between stakeholders and their environment, and lead to resistance to future changes. Therefore, this research has furthered previous studies on Scotland’s MSP regime (e.g. Smith, 2018) by demonstrating that property rights and ownership play a central role in the use of the marine environment, yet they are not being actively considered in policy. The exclusion of different valuations of the marine environment is important as it could lead to institutional failure.

In summary, the introduction of both the MSP regime, and the market-led FQA system, are arguably not the product of rational thinking, but rather have been influenced by political thinking and powerful actors. Tracing the historical events within each case study has contributed to our understandings of how property rights emerge at sea, disrupting the dominant ideology that the seas are free from social institutions. Rather, the series of critical junctures of each case demonstrates that actors have been extending control and ownership over marine resources, and codifying these claims in path dependent processes. This research has therefore shown how HI can be used successfully to analyse the emergence of marine institutions, as well as challenging Hardinist perceptions of a sea free from property regimes.

3. What are the perceptions of stakeholders to changing rights in ‘their’ seas?
4. What is the role of ‘fairness’ in the process of enclosure?

Involvement in environmental decision-making has been both codified by the Aarhus Convention, and increasingly understood as important for governing complex natural ecosystems (Pomeroy and Douvere, 2008; Pita *et al.*, 2013). By establishing what stakeholders think and want, policymakers can reduce conflicts, establish trust, and increase the likelihood of stakeholder compliance with regulations (Kapoor, 2001; Cordano *et al.*, 2004). Consequently, mapping perceptions is a key method for understanding stakeholders priorities and interests. However, few studies have expressly centred on the perceptions of fishers to institutional changes in ownership (Frangoudes and Bellanger, 2017). Additionally, for marine space, studies have recognised tensions between specific industries, in which competition over marine resources is set against a backdrop of increasing enclosure (Alexander *et al.*, 2013; Pita *et al.*, 2013). However, there has been little effort which centres on understanding perceptions of marine spatial enclosure. The use of Q-methodology in this research has therefore provided a detailed view into what stakeholders prioritised, valued, had knowledge of, and understood as ‘fair’, in regards to marine enclosure.

In case study 2, the Q study empirically demonstrated a clear divide within the fishing industry, with distinct differences regarding changing rights. Those who had invested and become reliant on quota, the 'Investors', disagreed with the notion that redistributing quota was the 'fair' option. However, for the 'Reformers' who felt aggrieved about not receiving quota, or who were now trying to enter the quota market, striving for 'equitability' was still the priority. Finally, the Realists were wary on the merits of institutional reform, but recognised that the current system hinders the adequate transfer of knowledge between fishers, managers, and the public. The case study also demonstrates that, currently, this range of viewpoints is not sufficiently represented in fisheries management. Effective engagement with the diverse range of fishers present in Scotland could help to reconcile these diverse views. This engagement would provide an opportunity for quieter voices to be heard, but also an understanding of the ownership perspective of other individuals. As such, aligning different stakeholders' priorities may increase the chance for a shared understanding of what is 'fair' within fisheries management.

In case study 3, there was a wider array of perceptions, understandable for a process which is still in its initial stages. There was consensus across all factors that, at present, there was little knowledge or understanding surrounding enclosure of marine space. Without a transparent regime, there are no opportunities for stakeholders to articulate their interests and understandings. As a result, the planning regime will prove to be ineffective in its goal of balancing public and private interests. Instead, the claims of powerful actors will become legitimised, and MSP may lead to further inequity.

Proving that conflicts are already forming, the factors also demonstrated a plurality of opinions as to the future of marine planning, and the role of rights and ownership within that. The Free Seas, for example, valued the marine environment as a public resource, eschewing the idea of private property as an efficient method of management. In contrast, the Greater Good justified the need for prioritising industries to achieve wider objectives for the public, arguing that enclosing space should take precedent over public rights. The Mitigating Losses

provided a middle ground view, arguing that the loss of rights for individuals should be compensated. An alternative model for ownership was proposed by the Local Powers, but that was counteracted by the Status Quo factor, who were happy with the current regime. The presence of such divergent interests has illustrated that they are being excluded from the current regime, which is instead entrenching the prevailing views of the regulators.

Most importantly, both Q studies demonstrated that perceptions are not driven purely by sector or industry representation. Stakeholders across both Q studies were spread across different factors. Such analysis contributes to understanding perceptions as concepts that cannot be readily explained by simplistic variables. Crucially, the patterns within the Q studies also demonstrate that views on institutional change are embedded in more than economic value. The Q studies have advanced our understanding that history, cultural values, and social relations will have a profound effect on individuals' understandings of ownership and rights, even at sea. By including these diverse understandings in policy, long-term effective management could be designed which would reduce conflict between users and prevent further inequity.

5. How can these examples of enclosure be used to prevent 'unfairness'?

The final objective was to cross-analyse the case studies, and utilise the example of Scotland's land reform to illuminate potential methods for mitigating or reversing inequity. Using a series of questions that were informed by the frameworks of institutional change, an explanatory typology was constructed in Chapter 8. The typology allowed for patterns between the case studies to be identified. As such, the cross-case analysis illuminated the observable spectrum of awareness to enclosure in natural resources. The scale of awareness is dependent on a number of influences, including the balance of power between stakeholders, the drivers of change, and the progression of the enclosure process itself. Importantly, the typology illustrated the similarities between the case studies. Primarily, each example of enclosure was found to be a path-dependent process that has been influenced by the imbalance

of power inherent in social networks. By illustrating these patterns, previous examples of reformed enclosures can be used to inform newer and emerging enclosures. The lessons of land reform are innumerable, but highlighted within this research are the importance of adequately involving stakeholders, engaging them in meaningful participatory ways, and acknowledging their rights by way of financial compensation to avoid further inequity. The thesis has therefore contributed working policy recommendations that could be useful for the future of marine governance.

The research has demonstrated that the marine environment is not a *mare nullius* to be captured. The construction of Figure 17, using the findings from the thesis, demonstrates that ownership at sea can be conceptualised as nests of institutions, regulated by international law and state actors. Yet, understanding those institutions is influenced by individual values and priorities. Chapter 4 provided a detailed discussion on the enclosure of state waters under LOSC. The codification of states' claims has had profound consequences, enclosing space and resources into state property (Pontecorvo, 1988). In addition, discussions of customary marine tenure (Mulrennan and Scott, 2000), or regimes performed under different legal systems (McGlashan and Duck, 2011), illustrated that individuals have extended property rights into the marine environment for centuries.

From the Free Seas individuals who valued the use of the sea as an open, and protected, space, to the Investors, who valued the economic return that privately held rights provided them, the individuals in this research have demonstrated a wide array of rights which they hold over marine resources. Understanding the marine environment as a series of social institutions is necessary for designing a governance regime that is both equitable and sustainable. By understanding the sources of rights, and how they are performed in concrete relations between individuals, managers can better address potential conflicts, and avoid destructive enclosure.

9.3 CONTRIBUTIONS OF THE RESEARCH

Although research into property rights in the marine environment is growing, there have been few empirical studies on enclosure at sea. This thesis has attempted to narrow the gap of empirical work on marine rights and ownership, as well as contribute to the growing body of research utilising HI for analysing marine governance. The findings in Scotland provide evidence that changes in property rights are not always the product of rational or efficient actions, even at sea. The issues of distributional conflicts, marginalisation of users, and absence of transparency, indicate that property rights are the product of social, political, and cultural relations and ideas. In addressing this, the thesis moves beyond the approach to property regimes which views them solely as management tools, and instead raises questions of the neutrality of their use in resource governance. As such, the thesis has allowed a broader identification of the ramifications of excluding the issues of ownership and entitlement from marine governance.

By establishing ownership as a range of rights, from authoritative rights of the state, to a sense of ownership in individuals, the research has also challenged the dominant ideology of the seas as a *mare nullius*. Rather, following Ostrom (1990), nests of social institutions exist in different marine resources. These institutions comprise of varied rights, norms and values, which are not often highlighted in either research or policy. By building upon the pre-existing institutions, social objectives may be placed ahead of economic goals, which prioritise the long-term social and cultural well-being of communities.

Finally, the thesis provides the novel applications of Q-methodology for studying the perceptions of marine enclosure. This method for mapping perceptions is becoming increasingly popular within the environmental management sector, which is testament to its strengths. The importance of establishing perceptions, as discussed above, is increasingly recognised in environmental research and policy. Here, using Q has provided an example of how it can be a function for knowledge mapping as well as perceptions research. The Q studies have identified the diverse interests of stakeholders in the marine environment that have not previously been captured in literature. By identifying the factors that can influence

institutional change, and the responses of individuals towards change, the thesis has also offered recommendations of how policy can include this variety of interests. Highlighting the importance of participation and transparency in institutional design, the study has demonstrated the opportunities for their inclusion in Scottish policy. Exploring methods such as stakeholder identification, participatory mapping, and financial compensation, has demonstrated how the diverse interests established in the Q studies could be addressed in policy.

9.4 LIMITATIONS AND FURTHER RESEARCH

Whilst the outcomes of the research have provided a comprehensive view of marine enclosure in Scotland, there were some limitations in the progress of the project that require reflection. Given these limitations, there is necessary scope for further research, which will also be addressed within this section. Whilst the strengths and weaknesses of the methods were highlighted in Chapter 2, here the specific limitations discovered during the research are explored.

The scope of the research is limited by both the use of one location (Scotland), and specific methods (Q) which do not allow for a generalisation of trends and perceptions of marine enclosure. The use of just one country, Scotland, was tactical. Understanding ownership and rights requires situating the research within the context of a specific legal and governmental system, since the law influences the expression of rights. Further investigation into marine property regimes in different countries would provide comparative learning. Such work would be especially interesting in countries with indigenous rights, and therefore increased diversity in values and priorities. Further work into the perceptions of stakeholders in these networks would provide a strong base for comparison, and learning opportunities for examples of good participatory governance.

Additionally, the case studies foreground only certain practices and certain industries, necessary in this exploration so as to provide as much detail as possible within the confines of

the thesis. However, it is likely that other forms of enclosure are additionally present in Scotland. The gaps in the stakeholders groups have already been highlighted within section 2.3. Consequently, there is a recommendation for revisiting the subject, and perhaps using Q again, with a broader range of stakeholders. Q studies can be done consecutively with the same participants and not provide the same results, as subjectivity is a fluid concept. Therefore, repeating the method with additional stakeholders would not only provide a snapshot of wider perspectives, but also evidence of changes in perceptions over time.

It is also important to note that, within policy, changes can happen quickly. At the start of this project, the UK was still a member of the EU. The advent of Brexit provided both a challenge and an opportunity for the research. The language of Brexit was pervasively one of ownership and property, and as such became a major theme within initial interviews, particularly for fishers. However, the rapid nature of politics means that there will be inevitable changes in the perceptions of the participants in the research, between the time of the data gathering, and the completion of the thesis. Due to the usual constraints of both time and resources, the research could not take into account these changes. Consequently, a continuation of the research would thus be beneficial, perhaps in the form of a longitudinal study. Longitudinal studies on the attitudes of the public to pivotal political points such as Brexit and Scottish independence are already undertaken by the Scottish Government (see the annual Scottish Social Attitudes Survey). A similar, albeit scaled-down, study on marine governance, rights, and ownership could provide an important basis for ongoing policy reviews.

The use of the range of methods within the thesis has already been critically explored in Chapter 2, but some specific limitations became apparent only after their use. One limitation of both Q and semi-structured interviews was discovered after a key stakeholder was unable to complete their Q interview due to official constraints on responses. Whilst they provided a unique perspective on the discourse after initial sorting, they ultimately could not be included in the final analysis. Although not present within this study, similar commercial constraints

can affect feedback from individuals. Additional limitations were discovered within the fisheries case study, where it was especially difficult to recruit individuals, particularly for the Q study. There appeared to be two main reasons for this reluctance. Firstly, the study came during an incredibly busy period for the fishing industry, during which Brexit negotiations were at their peak. Whilst this proved interesting for the research, it meant that many individuals were unavailable to participate because of other commitments. Secondly, as was predicted, politics played a large part in who wished to participate. Although no individuals were named, the industry is small and on a couple of occasions, potential participants said they were unwilling to take part because of others they knew had been contacted. Others were unwilling to participate after professing to feeling 'uncomfortable' in being identified as knowledgeable. Future research would thus benefit from utilising a different methodology for increased inclusion of constrained stakeholders for both the exploration into the institutional arrangements, and stakeholders' perceptions.

Q additionally cannot be used for a generalised understanding (although this is not the aim of the method). Should a more generalised view on marine enclosure be needed, then different measures of assessments could be employed, either independently or in conjunction with Q. There have been advocates for using Q in a mixed-methods approach which combines additional data gathering techniques. For example, an additional survey could be used in a compatible way to demonstrate if the results found within the Q study are representative of a larger community (Baker *et al.*, 2010).

Whilst it is important to understand shared group values and perceptions, Q will not give insights into individual motivations and behaviours. Analyses on different scales could highlight the roles of specific individuals, the decisions they make, and the motivations behind their choices. Such analyses could utilise ethnographic techniques which might reveal hidden understandings and individual behaviours. Ethnography has been used extensively for research into ownership over natural resources and tales of dispossession and reform, including in areas of Scotland (Mackenzie and Dalby, 2003), and in other examples of

fisheries (Carothers, 2010). Using ethnography was considered at the beginning of this thesis when a smaller scale of study was initially envisioned; its merits are extensive, and would help to provide greater context to regional and local differences. However, because of the breadth of the research, across two marine case studies, ethnography would have been difficult to implement. Ethnographic research usually requires embedded work on smaller, localised scales, across longer timelines, to gain the trust of participants (Hammersley, 2006). As such, to adequately employ ethnography in this research would have been too resource and time intensive.

9.5 CONCLUDING REFLECTIONS

The issues that have been raised here, such as politics, power, and financial distress, are sensitive and highly personal. For their candour and trust, I am forever grateful to the participants. By embracing the research, the issues that each individual discussed have informed new ways of viewing the marine environment. The final workshop, discussed in section 8.3, showed clearly that those standing outside, looking in, view the marine environment as something that can be captured and enclosed, even for perceived ‘good’ uses. Even I have been guilty of thinking of the sea as a *mare nullius*. However, the ownership over the seas that the participants conveyed throughout the research process has been illuminating. The first page of this thesis starts with a quote that says ‘*Man marks the earth with ruin; his control, stops with the shore...*’. We know this not to be true. The marine environment is, and has always been, a place where man can and does bring ruin. But it is also a place where peoples’ lives are formed, through values and relations. To govern this environment sustainably, those people, and their rights, must be kept in mind.

APPENDIX 1 - MARINE LEGISLATION FOR SCOTLAND

Outline of international and European legislative frameworks for marine activities.

Legislation		Objectives/History
International Frameworks		
<i>Bonn Convention</i>	Convention on the Conservation of Migratory Species of Wild Animals	Adopted in Bonn in 1979, the convention was ratified in the UK in 1985, and informs the strict protection of listed migratory species (under the Wildlife & Countryside Act 1981). In reference to maritime conservation, it has Agreements on the conservation of migratory waterbirds (AEWA) and small cetaceans (ASCOBANS).
<i>Bern Convention</i>	Convention on the Conservation of European Wildlife and Natural Habitats	The Bern Convention of 1979 aims to conserve listed plant and animal species along with their habitats (including marine species), and was transposed into Scottish law under the Nature Conservation (Scotland) Act 2004. Additionally, the EU adheres to the provisions under the Birds & Habitats Directives.
<i>Espoo Convention</i>	United Nations Convention on Environmental Impact Assessment in a Transboundary Context	The Espoo Convention established obligations by signatories to notify each other on major environmental impacts across national borders, including marine boundaries.
<i>London Convention / Protocol</i>	IMO Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter	The London Convention 1972 was one of the first international legislative acts for environmental protection in the marine environment. It was replaced by the London Protocol in 1996.
<i>MARPOL</i>	IMO International Convention for the Prevention of Pollution from Ships	MARPOL 73/78, the current version of which was enforced in 1983, minimises pollution by shipping. It includes regulations on oil pollution, sewage dumping, and air pollution from ships.
<i>OSPAR</i>	Convention for the Protection of the Marine Environment of the North-East Atlantic	The OSPAR Convention (1992) combines the 1972 Oslo Convention and 1974 Paris Convention in an updated instrument for regulating the environmental protection in the North-East Atlantic.
<i>UNCLOS</i>	United Nations Law of the Sea Convention 1982	UNCLOS, enforced as the Law of the Sea Convention (LOSC), is described in detail in Chapter 4. The provided a comprehensive framework for regulating activities at sea.
<i>UNFCCC</i>	United Nations Framework Convention on Climate Change	The 1992 international treaty on climate change sets out objectives for limiting anthropogenic influence on the world's climate system. It has provided the scope for the establishment of a number of protocols, including the Kyoto Protocol (1997) and Paris Agreement (2015).
European Frameworks		

<i>Birds Directive (BD)</i>	Council Directive 79/409/EEC of 2 April 1979 on the Conservation of wild birds, <i>OJL</i> 103, 24 March 1979, as amended	The BD covers similar issues as the HD, but is specific to birds. It is also responsible for setting up Special Protection Areas (SPAs), for wild birds and their habitats.
<i>Common Fisheries Policy (CFP)</i>	Council Regulation 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations 1954/2003 and 1224/2009 and repealing Council Regulations 2371/2002 and 639/2004 and Council Decision 2004/585/EC.	The current version of the CFP was inducted in 2013, with the ultimate objective of aiding economically and environmentally sustainable fishing and aquaculture practices. This is achieved through the use of multiannual EBM, with multi-species plans; introducing a ban on discarding; setting new Maximum Sustainable Yields for all fisheries; and decentralised governance. More on CFP is found in Chapter 6.
<i>Habitats Directive (HD)</i>	Council Directive 92/43/EEC of 21 May 1992 on the Conservation of natural habitats and of wild fauna and flora, <i>OJL</i> 206, 22 July 1992	The HD promotes the conservation of biological diversity. Along with the induction of the HD was the establishment of Natura 2000, a European network of protected sites including Special Areas of Conservation (SACs). There are just under 400 Natura 2000 sites identified in Scotland, as of 2016, protecting a range of marine and terrestrial species and habitats. Provisions include Annex IV(a) which gives details of European Protected Species and went on to inform UK Conservation Regulations 1994.
<i>Integrated Maritime Policy (IMP)</i>	Communication COM(2007) 574 final) An Integrated Maritime Policy for the European Union	The IMP focuses on increasing coordination between varied policy fields, with particular emphasis on matters which cannot be covered by any one sector-based policy. This includes issues such as ‘blue growth’ and ‘marine data and knowledge’. It established the need for specific ecosystem approaches to achieve Good Environmental Status in marine areas, and was the first to introduce marine spatial planning into EU legislation.
<i>Marine Strategy Framework Directive (MSFD)</i>	Council Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy, <i>OJL</i> 164, 25 June 2008	The main focus of the MSFD is to achieve Good Environmental Status (GES) of European waters by 2020, particularly waters with exploited fish/shellfish stocks. GES is achieved once a range of qualitative descriptors can be used to describe the waters, including “Biodiversity is maintained”, and “The population of commercial fish species is healthy”. The aim is to achieve GES in European waters by 2020.

<i>Marine Spatial Planning Directive (MSPD)</i>	Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning	The 2014 MSPD was established under the IMP, as a way of forming a European-wide framework for the implementation of MSP. The directive requires EU coastal nations to establish national marine plans by 2021. More about the MSPD can be found in Chapter 4. As of 2018, Scotland had not transposed the MSPD into Scots Law.
<i>Ramsar Convention</i>	Convention on Wetlands of International Importance especially as Waterfowl Habitat, Ramsar 2.2.1971	The 1971 Ramsar Convention was ratified by the UK in 1976, and underpins the designation of Sites of Special Scientific Interests (SSSIs) for wetland areas in Scotland (which receive protection by way of the Nature Conservation (Scotland) Act 2004).
<i>Water Framework Directive (WFD)</i>	Council Directive 2000/60/EC establishing a framework for Community action in the field of water policy, OJ L 327, 22 December 2000	The WFD, first published in 2000, expanded the extent of previous fragmented water protection policy to cover all waters, including estuaries, rivers, and coastal bathing waters. In doing so, the WFD rationalised EU water protection legislation, as well as introducing... The WFD was transposed into Scots Law in 2003. The WFD also replaced the Dangerous Substances Directive, Freshwater Fish Directive, Shellfish Waters Directive, and Groundwater Directive.

Outline of UK-wide and Scottish legal acts pertaining to marine activities in Scotland waters (those specific to Scotland are denoted with a (Scotland) in their title). This list does not include other non-marine Acts that may also pertain to activities at sea, such as the Criminal Justice and Licensing (Scotland) Act 2013, or the Police, Public Order and Criminal Justice (Scotland) Act 2006.

Legislation	Year	Objectives/History
<i>Aquaculture and Fisheries (Scotland) Act</i>	2007	Regards fish and shellfish farms in Scottish waters, including preventing pollution of wild fisheries by parasites.
<i>Aquaculture and Fisheries (Scotland) Act</i>	2013	Amends Aquaculture and Fisheries (Scotland) 2007 Act regarding both sea fisheries and fish farming and shellfish farming.
<i>Coast Protection Act</i>	1949	Provides provisions for protecting the coast against natural changes, e.g. erosion. Additionally transferred management of the Crown foreshore away from the Government to an autonomous body.
<i>Fisheries Act</i>	1705	One of the first acts for establishing fish trading within the UK
<i>Fisheries Act</i>	1981	Established the Sea Fish Industry Authority (known as Seafood), as well as creating greater scope for fish farming
<i>Fishery Limits Act</i>	1976	Established the 200 nm fishery zone for the British fleet, after the repeal of Fishery Limits Act 1964.

<i>Inshore Fishing (Scotland) Act</i>	1984	Only piece of primary legislation for inshore fisheries, Act permits a Minister powers to regulate all fishing effort in specified inshore areas. Under this Act, the Inshore Fishing (Prohibition of Fishing and Fishing Methods) (Scotland) Order 1989 was enacted.
<i>Inshore Fishing (Scotland) Act</i>	1994	Amends Inshore Fishing (Scotland) 1984 Act, informing control of fishing in inshore waters.
<i>Marine (Scotland) Act</i>	2010	Overarching marine act, which sets out provisions in relation to functions and activities in the Scottish marine area. This includes regulations about marine plans, licensing of marine activities, the protection of the area and its wildlife, and regulation of sea fisheries.
<i>Marine and Coastal Access Act</i>	2009	Makes provisions in relation to marine functions and activities, mainly in England and Wales coastal and marine areas, including the establishment of rights of access to land near the coast. The Act also devolved powers to Scottish Ministers over planning and conservation in Scotland's offshore region up to 200nm.
<i>Merchant Shipping Act</i>	1995	Following the repeal of a similar act from 1988 once the UK became part of the CFP, Act helped define 'British vessel'.
<i>Nature Conservation (Scotland) Act</i>	2004	Contains legal provisions to help implement the EU Birds and Habitats Directives inside Scottish territorial waters.
<i>Offshore Marine Conservation (Natural Habitats, &c.) Regulations</i>	2007	Statutory instrument which implemented the EU Birds and Habitats Directives in the UK, and Scottish, offshore waters.
<i>Oyster Fisheries (Scotland) Act</i>	1840	Provides protection for oyster fisheries, including prohibiting dredging of oyster beds.
<i>Planning etc. (Scotland) Act</i>	2006	Planning act which established statutory requirement of planning permission for certain developments, including aquaculture out to 12nm.
<i>Scotland Act</i>	1998	Established, among many other things, the devolved Scottish Parliament. With it came the Scottish Adjacent Waters Boundaries Order 1999, which moved the maritime jurisdictional boundary, leading to some Scottish waters to now come under English control.
<i>Sea Fish (Conservation) Act</i>	1967	Primary conservation act for UK fisheries, set out provisions for points like size of catches, closed seasons, and net sizes.
<i>Sea Fish (Conservation) Act</i>	1992	Amends Sea Fish (Conservation) Act 1967. Act introduced limiting time spent at sea by vessels.
<i>Sea Fish (Shellfish) Act</i>	1967	Set out regulations for the shellfish fisheries within the 6nm limit. Act has been described as controversial because it enables the granting of Regulating and Several Orders, which can effectively impede the public right to fish in areas. Shetland Regulating Order enacted under this Act.
<i>Sea Fisheries Act</i>	1968	Operates as the main statute for fisheries regulations in the UK.
<i>Territorial Sea Act</i>	1987	Set out the extents for the territorial sea for the UK.

APPENDIX 2 – SCOTTISH FISHING STATISTICS

Data correct as of beginning 2017. No new Production & Marketing Plans have been made available since 2017. Source: Producers' Organisations Production & Marketing Plans, www.gov.scot/Topics/marine/Sea-Fisheries/management/17681/producerinterbranch/pmplans

Producer Organisation	Number of Members (vessels)	Total catch value (in 2016)	Main targeted species by value (in 2016)
<i>Aberdeen Fish Producers' Organisation</i>	14	£10,895,125	Haddock
<i>Fife Fish Producers' Organisation</i>	30	£10,100,000	Nephrops
<i>Klondyke Fish Producers' Organisation</i>	3	£28,445,000	Mackerel
<i>Lunar Fish Producers' Organisation</i>	4	£41,142,479	Mackerel
<i>North East of Scotland Fishermen's Organisation</i>	24	£24,641,064	Haddock
<i>Northern Producers' Organisation</i>	27	£17,500,000	Hake
<i>Orkney Fish Producers' Organisation</i>	14	£6,451,450	Haddock
<i>Scottish Fishermen's Organisation</i>	176	£169,876,548	Mackerel
<i>Shetland Fish Producers' Organisation</i>	38	£92,877,198	Mackerel
<i>West of Scotland Fish Producers' Organisation</i>	42	£8,737,802	Nephrops

APPENDIX 3 – PARTICIPANT INFORMATION SHEETS

Participant Information Sheet (Q Sort interviews)

Title of Study: *Who Owns the Sea: Investigating trends and perceptions of enclosure in Scottish seas*

Introduction

My name is Stephanie Weir and I am a PhD researcher at Heriot-Watt University. I am inviting you to take part in my research study which will contribute towards my PhD looking at property rights and enclosure at sea. Please carefully read this information before deciding to continue with this interview.

What is the purpose of the investigation?

This research focuses on the current movements of enclosure and privatisation of ocean space/resources, as ongoing attempts are made to solve increasing conflicts between environmental protection and economic development by way of redistributing property rights. My wish is to better understand the knowledge and attitudes of those who work in the many marine sectors across Scotland to rights, marine industries, and the fairness of new governance interventions.

Why have you been asked to take part?

You have been asked to take part within this study because you represent a sector relevant to this portion of the investigation. I am interested in hearing the diverse views from across marine industries, and yours is one of them.

What will you have to do in this interview?

I will be asking you to rank a number of statements depending on how much you agree with each. In order to make it easier, you will first be asked to arrange all the statements into three (3) piles: “agree”, “neutral”, and “disagree”, dependent on your personal opinion. You will then be given a large

pyramid of boxes that range from most agree to most disagree, which you can then place each statement into.

I would ask that you talk freely about why you are deciding to agree or disagree with each statement, and will be recording the interview on my computer/mobile phone with your prior consent. If there is anything important that you feel is missing from the set of statements, please feel free to explain.

The interview should take no more than 45 minutes.

What happens to the information taken from this interview?

All information from the interviews undertaken for the PhD are recorded, then transcribed and kept on a secure computer only accessible by named researchers (me and my direct supervisors). If you would like a copy of the transcript, please feel free to ask. All interviews are anonymised, and only your location or stakeholder group (e.g. local authority) may be alluded to within the thesis. The results may be used to inform a publishable research paper, in which only your location or stakeholder group may be alluded. Any information that could be used to identify you will be removed from the transcription. The email address which has been used to contact you will not be kept on any database without your express permission.

This investigation was granted ethical approval by the Heriot-Watt University School of Energy, Geoscience, Infrastructure and Society Ethics Committee.

Your agreement to undertake the Q sort and corresponding interview, following reading of this information sheet, will be taken as consent to the terms recounted above.

Participant Information Sheet (Online Q Sort)

Title of Study: *Who Owns the Sea: Investigating trends and perceptions of enclosure in Scottish seas*

Introduction

My name is Stephanie Weir and I am a PhD researcher at Heriot-Watt University. I am inviting you to take part in my research study which will contribute towards my PhD looking at property rights and enclosure at sea. Please carefully read this information before deciding to continue with this interview.

What is the purpose of the investigation?

This research focuses on the current movements of enclosure and privatisation of ocean space/resources, as ongoing attempts are made to solve increasing conflicts between environmental protection and economic development by way of redistributing property rights. My wish is to better understand the knowledge and attitudes of those who work in the many marine sectors across Scotland to rights, marine industries, and the fairness of new governance interventions.

Why have you been asked to take part?

You have been asked to take part within this study because you represent a sector relevant to this portion of the investigation. I am interested in hearing the diverse views from across marine industries, and yours is one of them.

What will you have to do in this interview?

At a prearranged time, we will conduct a Skype session so that we can speak during your Q sorting. Prior to the interview, you will be sent an email with a link for an online Q sort application, where you will have to rank a number of statements depending on how much you agree with each. In order to make it easier, you will first be asked to arrange all the statements into three (3) piles: “agree”, “neutral”, and “disagree”, dependent on your personal opinion. You will then be asked to sort your agree and disagree piles further, in a 9 point scale from ‘strongly agree’ to ‘strongly disagree’. You will be given

prompts and instructions along the way so it should be quite simple to complete. The statements can be interpreted however you wish, it is up to you!

I would ask that you talk freely about why you are deciding to agree or disagree with each statement, and will be recording the interview on my computer/mobile phone with your prior consent. If there is anything important that you feel is missing from the set of statements, please feel free to explain.

The Q sort and corresponding interview should take no more than 45 mins.

What happens to the information taken from this interview?

All information from the interviews undertaken for the PhD are recorded, then transcribed and kept on a secure computer only accessible by named researchers (me and my direct supervisors). If you would like a copy of the transcript, please feel free to ask. All interviews are anonymised, and only your location or stakeholder group (e.g. local authority) may be alluded to within the thesis. The results may be used to inform a publishable research paper, in which only your location or stakeholder group may be alluded. Any information that could be used to identify you will be removed from the transcription. The email address which has been used to contact you will not be kept on any database without your express permission.

This investigation was granted ethical approval by the Heriot-Watt University School of Energy, Geoscience, Infrastructure and Society Ethics Committee.

Your agreement to undertake the Q sort and corresponding interview, following reading of this information sheet, will be taken as consent to the terms recounted above.

Participant Information Sheet (Initial interviews)

Title of Study: *Who Owns the Sea: Investigating trends and perceptions of enclosure in Scottish seas*

Introduction

My name is Stephanie Weir and I am a PhD researcher at Heriot-Watt University. I am inviting you to take part in my research study which will contribute towards my PhD looking at property rights and enclosure at sea. Please carefully read this information before deciding to continue with this interview.

What is the purpose of the investigation?

This research focuses on the current movements of enclosure and privatisation of ocean space/resources, as ongoing attempts are made to solve increasing conflicts between environmental protection and economic development by way of redistributing property rights. My wish is to better understand the knowledge and attitudes of those who work in the many marine sectors across Scotland to rights, marine industries, and the fairness of new governance interventions.

Why have you been asked to take part?

You have been asked to take part within this study because you represent a sector relevant to this portion of the investigation. I am interested in hearing the diverse views from across marine industries, and yours is one of them.

What will you have to do in this interview?

I will be asking you to give your subjective opinions on a number of topics, all surrounding rights and management in Scotland's seas. If you so wish, I will send a preview of the kinds of questions that may appear during the interview. However, the questions are open-ended in nature and may deviate from the set list. With your prior consent, I will be recording the interview on my computer. Should you

What happens to the information taken from this interview?

All information from the interviews undertaken for the PhD are recorded, then transcribed and kept on a secure computer only accessible by named researchers (me and my direct supervisors). If you would like a copy of the transcript, please feel free to ask. All interviews are anonymised, and only your location or stakeholder group (e.g. local authority) may be alluded to within the thesis. The results may be used to inform a publishable research paper, in which only your location or stakeholder group may be alluded. Any information that could be used to identify you will be removed from the transcription. The email address which has been used to contact you will not be kept on any database without your express permission.

This investigation was granted ethical approval by the Heriot-Watt University School of Energy, Geoscience, Infrastructure and Society Ethics Committee.

Your agreement to undertake this interview, following reading of this information sheet, will be taken as consent to the terms recounted above.

APPENDIX 4 – Q METHOD ADDITIONAL DATA

CASE STUDY 2 – FISHERIES Q STUDY

Correlations between factor scores

	1	2	3
1	1.0000	0.0283	0.3167
2		1.0000	0.2471
3			1.0000

Factor characteristics

	1	2	3
No. of Defining Variables	5	5	4
Average Rel. Coef.	0.8	0.8	0.8
Composite Reliability	0.952	0.952	0.941
S.E. of Factor Z-Scores	0.218	0.218	0.243

Z-Scores for statements in factors

Statement	1	2	3
1	0.05	-0.4	-0.65
2	1	1.06	0.48
3	-0.33	-0.79	-0.79
4	1.43	1.46	1.37
5	1.08	1.44	0.86
6	1.44	-1.46	-0.03
7	-2.07	0.94	1.43
8	-2.48	-0.21	-2.16
9	2.02	-1.36	1.66
10	1.28	1.42	-0.08
11	0.67	-0.2	-0.47
12	0.09	0	-0.5
13	-0.09	-2.33	-0.25
14	-1	0.63	0.1
15	-0.49	-0.83	0.36
16	-1.21	-0.91	0
17	0.56	0.4	0.89
18	-1.16	0.14	0.68
19	-0.39	0.09	0.47
20	1.39	0.67	0.25
21	-0.21	0.08	0.32
22	-0.18	0.01	0.51
23	0.03	0.73	1.4

24	-0.67	-0.21	-0.61
25	0.7	-0.4	0.01
26	1.05	-1.41	0.69
27	-0.66	-1.26	-0.22
28	-0.54	0.28	-1.44
29	0.22	-0.01	-1.29
30	0.19	-0.85	-0.07
31	-0.22	0.57	-1.9
32	-1.14	-0.8	-0.96
33	-0.26	1.58	-0.79
34	-0.32	2.08	2.11
35	0.24	-0.15	-1.37

Participants' comments on the Q sort activity (optional question within interview)

Participant	Comments
F2	There was some forcing of the answers I think, but I understand why that is. Some interesting questions though, in general.
F3	The statements were very relevant for this time, but you have to remember that fishing is very very complicated. Every fisher will have different opinions. Every boat is a business, and will depend on how you run that business.
F4	The process was fine, there are quite a large number of questions, surrounding a lot of ground. My overarching comment would be the terminological issues, you have to understand that there are very different meanings between the industry and the government and policy.
F6	I was a little confused on a couple of the questions, so I think that's why some of them are in the neutral pile, but I feel more strongly about the strong statements.
F7	I think it was pretty easy to follow, but needed some help with some of the statements. Think I would have liked to have placed a few more in different columns though.
F9	I was neutral on quite a lot at the beginning but then when I had more time to sit with them I actually found myself disagreeing with many more than I thought at the beginning. The other thing I thought of was the differences in terminology, there are discrepancies within the UK in how we term things like the inshore, the non-sector etc.
F12	I think it was a good way of doing it, makes things very clear by using the stages.
F13	It covered a lot of ground, and the whole online activity was quite simple.
F14	I found it a bit awkward to sort the statements at times, but I appreciated having the time to talk through the sorting after.

CASE STUDY 3 – MARINE PLANNING Q STUDY

Correlation between factor scores

	1	2	3	4	5
1	1.0000	0.2570	0.3733	0.4537	0.3156
2		1.0000	0.3551	0.2770	0.2594
3			1.0000	0.4290	0.1580
4				1.0000	0.1999
5					1.0000

Factor characteristics

	1	2	3	4	5
No. of Defining Variables	7	5	4	4	2
Average Rel. Coef.	0.8	0.8	0.8	0.8	0.8
Composite Reliability	0.966	0.952	0.941	0.941	0.889
S.E. of Factor Z-Scores	0.186	0.218	0.243	0.243	0.333

Z-Scores for statements in factors

Statement	1	2	3	4	5
1	2.2	1.44	0.43	1.06	1.12
2	-0.01	0.89	-0.86	0.24	0.9
3	-0.13	-0.01	2.28	1.39	0.54
4	1.04	1.72	-0.03	1.17	1.48
5	0.73	-1	0.81	1.26	0.58
6	-0.02	-0.05	-0.07	-0.92	2.02
7	0.86	-0.97	0.68	0.35	-0.27
8	0	-0.94	-1.19	0.17	-0.36
9	1.27	-1.05	-1.74	0.3	0.9
10	0.24	-0.21	0.23	-0.62	0.23
11	-1.31	0.52	-0.58	-1.34	0.85
12	-0.93	-0.25	0.47	1.47	0.18
13	-0.6	-0.13	-0.33	0.06	-0.85
14	-0.28	-0.03	-0.56	-1.06	-2.33
15	0.64	0.67	0.95	-1.42	-1.21
16	0.18	-2.1	-0.76	-0.36	-0.54
17	-0.79	0.07	0.63	0.97	-0.58
18	0.29	0.37	0.89	1.06	0.31
19	0.53	1.08	2.01	0.24	-0.54
20	-1.16	-0.63	-1.21	-1.5	0.63
21	1.62	0.19	0.35	-0.08	0.31
22	-1.23	1.55	-1.06	-0.24	-1.17
23	1.19	-0.65	0.45	1.18	-0.9

24	0.8	0.86	0.54	-0.37	0
25	-0.35	1.61	0.65	1.1	0.63
26	-0.89	-0.49	-1.69	-0.41	-0.58
27	-0.25	0.09	0.93	-1.38	1.53
28	-0.03	0.63	-0.11	0.66	-0.81
29	-1.29	-1.17	-0.99	-1.26	-0.31
30	-2.34	-2.03	-1.12	-1.72	-1.75

Participants' comments on the Q sort activity (optional question within interview)

Participant	Comments
M1	The order that the statements come out makes a difference I think, as you're reading the first statements it will inevitably trigger initial responses. So the first statement I read was the independent Scotland, and that might be the best or maybe actually the worst one for me to get!
M2	I'm a conservationist at heart, that's where my belief lies, so a lot of the statements I looked at and thought 'well I should disagree with this'. So your inherent beliefs are going to change how you react to the statements.
M4	I found this quite difficult actually, it was difficult to decide on just my neutral views. I feel like I had a stronger feeling about each of them. I either agreed or disagreed with everything.
M5	I've heard of the method before and had been interested to see how it works, I really enjoyed it.
M6	I really liked the structure of it, it touches on some many different aspects of sea uses in a very simple way.
M8	I found the forcing of statements quite uncomfortable, but I understand that it is necessary for the analysis. I'm glad we've had an opportunity to speak about it afterwards.
M10	I enjoyed it, I thought that the statements were quite well encompassing. Although there were some there that were quite subjective, especially the ones that were like 'I would be happy...'. That's a very personal statement.
M12	These are quite complex concepts, but I liked the simplicity of the exercise.
M14	Trying to explain all my selections might be a bit difficult, but I feel quite strongly about the statements in the extremes.
M17	I feel that the complexity of the topic might not be completely compatible with the methodology used. Any sentence can move around the categories if a condition or an explanation is given, but I appreciate the interview can give context to the choices.
M18	All the choices made are obviously from a personal perspective, so that needs to be taken into account.
M20	There are quite a few subjective statements, which was difficult for someone who aims for neutrality within a coastal organisation.
M21	I wasn't sure of which sector I fell into before the activity, but I understand now how my knowledge can be used in such an exercise. It became clearer throughout the activity.
M22	I think I've had a lot more positives which is making the sort a bit more difficult. I feel the negatives are a lot clearer really.

APPENDIX 5 – PAPERS/CONFERENCES

PAPERS

- Weir and Kerr (2020) ‘Enclosing the right to fish: A Q-study into fishers’ attitudes to rights in Scottish fisheries’, *Ocean & Coastal Management*, 187, 105116.
- Weir and Kerr (2019) ‘Property, power and planning: Attitudes to spatial enclosure in Scottish seas’, *Marine Policy*, 108, 103633.
- Waldman, Woolf, O’Hara Murray, Weir and Kerr (2019) ‘Future policy implications of tidal energy array interactions’, *Marine Policy*, 108, 103611.
- Agnisola, Weir and Johnson (2019) ‘The voices that matter: A narrative approach to understanding Scottish fishers’ perspectives of Brexit’, *Marine Policy*, 110, 103563.
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- Kerr, Johnson, Colton, Weir and Wright (2018) ‘*Mare reservarum*: enclosure of the commons and the evolution of marine rights in an era of ocean industrialisation’, in Wright, Kerr and Johnson (eds) *Ocean Energy: Governance Challenges for Wave and Tidal Stream Technologies*. London: Routledge, pp. 80-98.
- Kerr, Johnson and Weir (2017) ‘Understanding community benefit payments from renewable energy development’, *Energy Policy*, 105, pp. 202-211.

CONFERENCES AND WORKSHOPS

- Political Ecology of Coastal Societies, 2nd Workshop, Aberdeen, 17th-19th June 2019
- Heriot-Watt’s Year of the Sea Event, Keynote Speaker, Scottish Parliament, 20th October 2018
- Regional Studies Association Research Network on Sustainability Transitions in the Coastal Zone 3rd Workshop, Skalanes, Iceland, 13th-15th September 2018
- Planning, Law and Property Rights Annual PLPR Conference, Novi Sad, Serbia, 19th-23rd February 2018
- FIS Annual Scottish Fishing Conference, St Andrews, 22nd-23rd August 2016
- SeaScotland 2016, Dundee, 15th-16th June 2016
- Heriot-Watt SLS PGR Conference, Edinburgh, 10th-11th December 2015
- MASTS Interdisciplinary workshop on Coastal Ecosystem Management and Valuation, Crieff, 16th-17th November 2015
- SUII Knowledge Exchange: Flourishing Communities, Productive Seas Workshops, 2 events, 10th Nov 2015 & 5th Feb 2016

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