TERRITORIALISATION AND COUNTER-TERRITORIALISATION AT THE FRONTIER

Spatial boundaries and mobilities in Chilean Southern Patagonia

José Barrena Ruiz

Propositions

1. Global frontiers continue to be shaped by historically marginalised and forgotten peripheral people.
   (this thesis).

2. Environmental governance is more about channelling mobilities and connecting networks than administrating spatial enclosures.
   (this thesis).

3. Transdisciplinary research requires questioning the very existence of borders between natural and social sciences.

4. Ruralisation instead of urbanisation is the most effective way to mitigate climate change.

5. Academics with sustainable discourses have unsustainable practices.

6. Social movements aiming to change the social order risk reaffirming the status quo.

Propositions belonging to the thesis, entitled:

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José Barrena Ruiz
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List of Abbreviations

AAA: Appropriate Areas for the exercise of Aquaculture

ADI: Area of Indigenous Development

AMCP-MU: Marine and Coastal Protected Areas for Multiple Uses

CKDM: Kawésqar Communities for the Defence of the Sea

CONADI: National Commission of Indigenous Development

CONAF: National Forestry Corporation

ECMPO: Coastal Marine Spaces for Indigenous People

GORE: Regional Government of the Region of Magallanes

IDEAL: Research Center Dynamics of the High Latitude Marine Ecosystems

NGOs: Non-governmental organisations

SETF: Sociedad Explotadora de Tierra del Fuego

SNASPE: National System of Wild Protected Areas

SUBPESCA: Undersecretary of Fisheries and Aquaculture

TCNPBO: Territorial Characterization of the National Park Bernardo O'Higgins

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CHAPTER 1: Introduction

1.1 Chilean Southern Patagonia as a frontier

Chilean Southern Patagonia is a vast territory of more than 132,000 km^2 (equivalent to the size of Greece). The region is also both isolated and poorly accessible from the political and economic centre of Chile, making it what some have called the last 'inner frontier' of Chile (Martinic, 2004; Figure 1.1). This predominantly marine territory, made up of countless islands, fjords and channels, has remained a frontier because of its distance from control by the state and private economic interests. This isolation has also meant that Southern Patagonia remained a territory of nomadic people moving both across land and sea. On land, the Selk'nam could move relatively free in Tierra del Fuego Island, until the end of the 19th century, while at sea the Kawésqar and Yagán people used their canoes to navigate in the area of the Patagonian Archipelagos, the Magellan Strait and the Beagle Channel, until the middle of the 20th century. However, both terrestrial and marine Indigenous nomads were forced into a sedentary life as the state extended its control over the environment, resources, and peoples of Southern Patagonia.

The Region of Magallanes (the official name in Spanish is *Región de Magallanes y de la Antártica Chilena*), under which Southern Patagonia is administered, was formally incorporated to the Chilean state in 1927 after a period of colonisation whereby the state attempted to impose sovereignty through *colonos* - settlers that came to Southern Patagonia mainly from Europe (Alonso, 2014) and northern regions of the country to develop predominantly mining and sheep farming (Harambour, 2012). During the first half of the 20th century, Magallanes became a central node in the global network of wool production, and Tierra del Fuego the most important place for sheep farming and production of wool (Martinic, 2011). The definition of spatial boundaries to demarcate property and land for sheep, came into direct conflict with the mobility of the Selk'nam Indigenous people. Material and immaterial boundaries were imposed over Indigenous mobility, hindering their mobility for guanaco (*Lama guanicoe*) hunts not only by wires and fences, but also because the sheep began to compete with the guanaco for food (see Muñoz & Simonetti, 2013). The clashes between colonos and Selk'nam in relation to boundaries and mobility, led the former to carry out a bloody hunt against the latter, with the complicit silence of the Chilean state (Alonso, 2014; Coronato, 2010).

The region, and especially its marine space, has also had growing strategic importance for the Chilean state. Tierra del Fuego Island borders with the Magellan Strait and the Beagle Channel, which form the only natural passages connecting the Atlantic and Pacific oceans. The Magellan Strait

has been an important route for international trade since its discovery by Fernand Magellan in 1520, until the opening of the Panamá Canal in 1914[1]. The Beagle channel, on the other hand, is a natural border between Chile and Argentina and has been subjected to sovereignty disputes between these countries. In the early 1980s, they were on the verge of starting a war for the sovereignty over three small islands located in the east section of the Beagle Channel (Lacoste, 2004).

Although terrestrial space was of central importance for processes of colonisation in the late 19th century and early 20th century, by the middle of the 20th century the marine space of Southern Patagonia gradually became a connected space crossed by different kinds of global networks and flows. Different flows of fishermen, sea hunters, navigators, and state expeditioners aimed to map and measure the spaces and resources, intersected Indigenous mobility producing profound changes on their navigation and livelihoods (Emperaire, 2002[1958]; Martinic, 2004). 'Connectivity' and 'sovereignty' projects led by the Chilean state had a particularly profound role in forcing marine nomadic people into sedentary life on land (Aguilera & Tonko, 2013; Aragay, 1968). This was compounded by further claims by the Chilean state over huge areas of land and sea to establish protected areas, further marginalising Indigenous peoples. This gradual control over land and sea has continued into the 21st century with global sectors, such as nature-based tourism, nature conservation, marine salmon farming, green hydrogen extraction, and scientific research furthering spatial claims over resources, environments and peoples.

The historical and contemporary processes of control over spaces and resources experienced in the terrestrial and marine environments of the Chilean Southern Patagonia, reflect wider global processes in peripheral areas worldwide. These areas can be conceptualised as frontier spaces, not mainly because of their geographical remoteness, but rather because they constitute spaces for the expansion of global networks of extractive sectors and conservation projects (Adams, 2019; Foley, 2019; Moore, 2000; Rasmussen & Lund, 2018; Serje de la Osa, 2017; Steinberg, 2018). Frontiers are spaces of opening and of closure at the same time, in this sense, new spaces and resources are integrated into both state sovereignty and global networks of production, consumption, and conservation. As a consequence, following Steinberg (2018) resources and people are controlled through different forms of spatial delimitation, which at the same time open up new frontiers.

Frontiers are spaces where hegemonic power is contested. While enabling the expansion of hegemonic power, frontiers also enable the emergence of counter-power by place-based networks

(Adhuri et al., 2023; Ferguson et al., 2022; Raycraft, 2020). It is, then, the interaction between the expansionary aims of global powerful networks on the one hand, and the organised resistance of place-based networks on the other, that is constantly producing frontier spaces. To define access and control to frontiers, global networks establish different types of enclosures by drawing spatial boundaries, such as mining plots, factories, fishing spots, and aquaculture areas (see for e.g. Nolan, 2019; Peluso & Lund, 2011), while at the same time deploying mobilities of different kinds, which in turn produce new routes and transportation flows (see Boas et al., 2018) that are permanently shaping terrestrial and marine frontiers. As shown in various places around the world (see Adhuri et al., 2023; Ferguson et al., 2022; Huntington et al.2020; Volpato et al., 2024), these spatial boundaries and mobilities by global networks, and the restrictions they pose to local forms of mobility, are often countered by place-based networks attempts to shape, change, and remove spatial boundaries while designing strategies to assert or regain patterns of mobility.

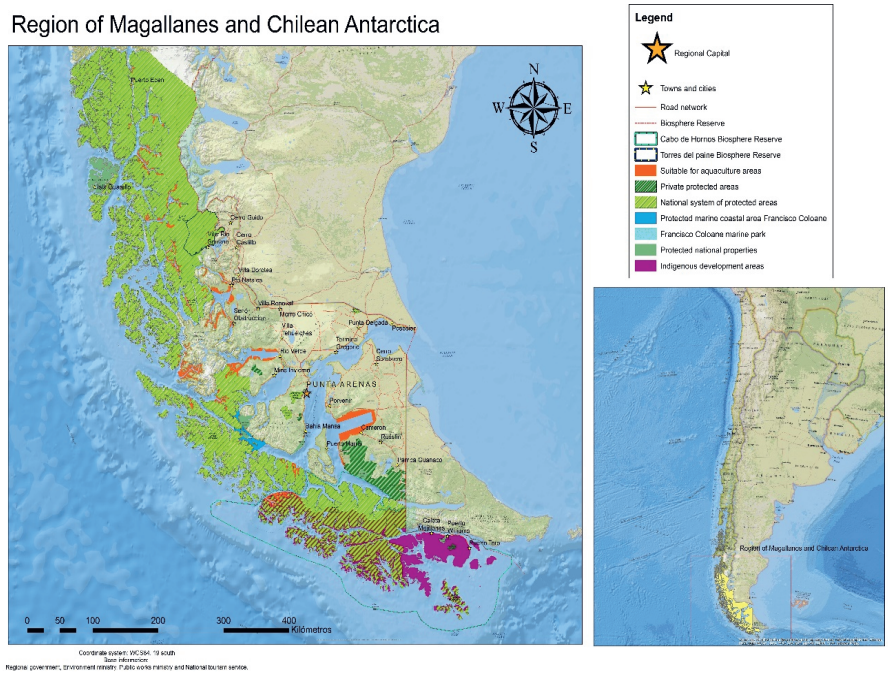

Figure 1.1. Spatial boundaries of conservation, salmon farming, and Indigenous development areas in Chilean Southern Patagonia

The interactions of boundary formation and mobilities in global frontiers challenge spatially delimited forms of environmental governance – defined as "the set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and

outcomes" (Lemos & Agrawal, 2006). Both on land and at sea, environmental governance has been predominantly limited by the fixity of spatial enclosures, neglecting the ways in which spatial boundaries interact with the different aspects of mobility that are inherent to global and place-based networks (see for e.g. Pauwelussen, 2015; Verbeek, 2009). Nevertheless, the analysis of interactions between spatial boundaries, mobilities, and networks is particularly important in frontier spaces. It is in these frontier spaces where spatial delimitations and patterns of mobility both control spaces and resources for both extractive and conservation purposes (Peluso & Lund, 2011). However, it remains unclear how processes of boundary formation occur, and how boundaries and mobilities of different scale interact, affecting each other and producing frontiers spaces. It also remains unclear whether and how the governance of resources in these frontiers can balance both global and local economic demands in ways that ensures equitable environmental stewardship (Bennett & Satterfield, 2018). In this thesis I propose a framework to analyse the dynamics of boundaries and mobilities and their effects on how peoples, resources, and environments are governed in frontier spaces by using the concepts of territorialisation and counter-territorialisation.

Sack (1983) defines territoriality as "the attempt to affect, influence, or control actions and interactions (of people, things, and relationships) by asserting and attempting to enforce control over a geographic area" (p. 55). Territoriality is then a spatial strategy to affect, influence, or control forms and patterns of mobility. Based on territoriality, Vandergeest and Peluso (1995) develop the concept of territorialisation focussing on forms of state control over resources and people. Specifically, they analyse internal territorialisation exerted to resources and people within the boundaries of a national state. Internal territorialisation needs to be communicated and exerted through the establishment of spatial boundaries. These boundaries not only delimit specific territories, but they also inform about the type of activities that can or cannot be done inside of a specific area.

Historically, territorialisation has been exerted by the states. However contemporary processes of territorialisation involve globally articulated networks of heterogenic actors with competing interests. On the one hand, national and international companies create alliances with state agencies (see for e.g. Borras et al., 2020). On the other hand, place-based networks with local organisations, Indigenous people, global non-governmental organisations (NGOs), and international scientific networks (see for e.g. Adhuri et al., 2023). Alliances and networks are formed then by both, actors that lead processes of territorialisation and by those that resist or contest territorialisation.

The organised resistance to territorialisation can be conceptualised as counter-territorialisation (Lestrelin, 2011; Raycraft, 2020). Processes of counter-territorialisation are not always local in nature. Instead counter-territorialisation can also be enabled through local and extra-local networked actors who shape the redefinition of boundaries and processes of territorial control. It is, as such, the interplay between social processes of boundary formation and mobility that shape both territorialisation and counter-territorialisation. This thesis explores this interplay in the context of Southern Patagonia and explores whether and how territorialisation and counter-territorialisation can be seen as processes of environmental governance that enable self-determination over spaces, resources, and mobilities, to emerge.

1.2 Governing boundaries and mobilities in the Chilean Southern Patagonia frontier

Access to and use of terrestrial and marine spaces is creating growing tensions among various actors in Chilean Southern Patagonia. Increasing economic and social activities attract competing users with conflicting objectives. Forestry exploitation, energy generation, mining exploration, tourism expansion, fisheries and aquaculture production are progressively putting pressure on natural resources, threatening the social and ecological sustainability of those spaces (Bustos et al., 2017; Frodeman, 2008; Nahuelhual & Carmona, 2024; Pollack et al., 2008). These extractive sectors advance in complex networks connecting different type of actors. Moreover, the establishment and operation of these networks requires both the displacement of multiple flows – people, materials, information, species, etc. – and the formation – and transformation – of spatial boundaries.

To preserve the exceptional ecological and cultural features of Southern Patagonia in the face of the expansion of globally mobile extractive sectors, large parts of the region have been turned into conservation areas (see Figure 1.1), designed and implemented by the state, international NGOs, and public-private partnerships (Tacón et al., 2024). But while nature conservation projects can help to avoid ecological degradation, through the definition of spatial boundaries they have also been shown to generate enclosed spaces that restrict and regulate the mobility of place-based actors. As a consequence, conservation has challenged the equitable access and use of natural resources and environments by existing local and Indigenous communities in Patagonia. These communities have expressed opposition to some public and private conservation enclosures, which they perceive as diminishing their ability to use natural resources, restricting their mobility, and undermining their social and cultural wellbeing. Furthermore, as Indigenous people and fishermen in Southern Patagonia have been historically nomadic (Harambour, 2012; Mellado et

al., 2019; Pollack et al., 2008; Serrano, 2006), mobile agents can be seen as being not only affected by the imposition of spatial boundaries by global networks, but also actively controlling and planning the use of their natural environment though their mobility.

Multiple globally mobile sectors have accessed Patagonia through the establishment of conservation enclosures. Nature-based tourists arrive in a larger number every year attracted by the 'pristine' nature of the southernmost ecosystems of the world and the imaginaries of 'ancient cultures' that inhabit these remote territories (Guala et al., 2024). Scientists increasingly flock to Patagonia too, drawn by the characteristics of its ecosystems, as well as its vulnerability to global warming and other anthropogenic impacts, and have encouraged the establishment of 'natural laboratories' for scientific research, fostering the flow of scientists from all over the world to the region (Rozzi et al., 2006; UNESCO, 2016). In connection with protected areas, nature-based tourism, and scientific research, other actors, such as international tourist guides, porters, and tourism and service sector entrepreneurs, have increased in numbers too. As local and Indigenous communities are confronted with these networks of globally mobile actors, tensions and conflicts over the access and use of spaces and resources in Patagonia are rising (Nahuelhual et al., 2020). Subsequent attempts to govern the mobility of these sectors, by increasing territorial control over resources and people, have led to questions over whether inclusive environmental governance arrangements support or undermine social and environmental sustainability in the region.

The many flows of human and non-human actors intersecting, shaping and creating terrestrial and marine spatial enclosures in Patagonia appear to create a mismatch between spatially fixed forms of environmental governance and the highly mobile character of social relations, institutions, and actors across the region (as also observed by Peluso, 2018 elsewhere). The design of environmental governance arrangements is typically built on the existence of spatial boundaries that delimit both the governing system and the system-to-be-governed (Kooiman et al., 2008; Ostrom, 2009), without further interrogation on the ways in which these boundaries have been formed through social relations and processes. Especially, there has been a lack of attention on how patterns and aspects of mobility affect the formation of spatial boundaries, and what are the implications for environmental governance. As spatial boundaries are taken for granted, they are not understood as socially produced, which in turn hides actions and strategies developed by actors and networks of actors to control spaces and resources through the formation of spatial boundaries and the channelling of different patterns and aspects of mobility.

1.3 Research objective and research questions

Against this background, the objective of this thesis is to explore the ways in which environments, resources and peoples are governed through the changing relation between boundaries and mobilities in global frontiers. Using three cases of terrestrial and marine territorialisation and counter-territorialisation in Southern Patagonia, two outcomes of boundary-mobility interactions are examined. The results of these three cases provide insights into how equitable environmental governance in frontier spaces can incorporate interactions between mobility and spatial boundaries, and in doing so open up new ways of thinking about the social production of terrestrial and marine territories through boundary-mobility interactions. This objective is addressed by the following main research question: *In what ways do interactions between spatial boundaries and mobilities shape existing and new forms of environmental governance in globally connected frontier spaces?*

The overall question is divided into two sub-questions. The first sub-question is: *In what ways are global networks implicated in processes of boundary formation and mobilities in frontier spaces?* The aim of the question is to shed light on the ways in which global networks in connection to the state are implicated in processes of territorial control through the establishment of spatial boundaries and the channelling of the mobility of place-based actors and networks. At the same time, it seeks to identify the different aspects of mobility related to global networks involved in processes of boundary formation. This question assumes territorialisation is a function of changing relational dynamics between spatial boundaries and mobility. In doing so it explores the variation in possible outcomes of how boundary-mobility outcomes beyond the spatial determinism often expressed by debates on grabbing and resource control in global frontiers.

The second sub-question is: *In what ways does counter-territorialisation by place-based networks incorporate boundary formation and mobilities in terrestrial and marine frontiers, and with what effect on prevailing forms of territorial control?* This question explores different strategies and forms of counter-territorialisation and the extent to which networks of actors are able to shape and change imposed spatial boundaries in processes of territorialisation. Answering this question opens up a new round of debate on the agency of historically marginalised groups from decision-making processes, by enrolling global networks to assert territorial rights and practices – i.e. spatial boundaries and mobilities. This question also opens up debate on the ways in which seemingly

disempowered groups can engage in environmental governance through processes of boundary formation and channelling of mobilities.

1.4 Research methodology and methods

1.4.1 Positionality

The research performed in this thesis is oriented by the principles of reflexive science developed by Burawoy (1998). The principles of reflexive science stand against the tenets of positivistic science which are commonly implemented through the survey research method. This means that the researcher does not only act as non-intervening observer, nor develops a fixed prism for extracting, analysing and presenting information. Rather, value is attached to the intervention that researchers make by: (1) positioning themselves within the social phenomena under investigation; (2) moving with informants through their space and time aggregating situational knowledge into social process, (3) studying the everyday world as shaped by and shaping an external field of forces, and (4) recognising the contribution of a particular case to reconstructing theoretical frameworks for making sense of everyday experiences.

With the ideas of reflexive science in mind, this research was conducted within the Research Center Dynamics of the High Latitude Marine Ecosystems (IDEAL), an initiative financed by the Chilean Government to develop socioecological research in the Antarctic and Subantarctic territories of Chile. Working through the Human Dimension research programme of the IDEAL, enabled this research to be integrated into a wider programme of social and environmental scientists from disciplines such as environmental economics, sociology, geography, history, anthropology, and biology. Participation at IDEAL present opportunities to present and discuss research progress; it also enabled access to (through the facilities of the IDEAL in Punta Arenas) key stakeholders, scientists, public officials, and representatives of local organizations in Patagonia. It also meant, however, that some respondents had preconceived ideas on the positionality of IDEAL and perceived biases of the organisation. This affected how I and the research conducted was also perceived. Especially, when I started the first fieldwork period it was difficult to talk to representatives of Indigenous communities as some of them distrusted researchers and academics in general. Besides, during the period of my research the IDEAL received public critics from the salmon industry, through opinions published in local newspapers and complaints to the Regional Government of Magallanes (GORE). These critics were based on a report published by some researchers of the IDEAL (included me) in which it was analysed the environmental and social

impacts produced by the marine salmon farming in Magallanes, and the importance of taking into consideration Indigenous and local people in decision-making processes regarding environmental governance in Southern Patagonia. These situations generated interesting conversations and debates within the working group of the Human Dimensions of the IDEAL regarding to the position of the Center and its researchers in the socio-political context of Magallanes, which enabled me to reflect on the social and political context of study area and be aware of the difficulties involved in developing social research in territories where socio-spatial disputes exist.

1.4.2 Case study methodology

The following chapters apply a qualitative case study methodology, with the aim of developing a deep understanding of social relations and processes, while considering contextual elements into the analysis (Meyer, 2001). The purpose of a case study is to zoom in on specific social reality to analyse phenomena framed in a time-space context, providing context-dependent knowledge on concrete socio-spatial and political context.

The empirical chapters are based on three specific cases in the Chilean Southern Patagonia. Chapter 3 analyses nature-based tourism in the National Park Torres del Paine. Chapter 4 focuses on historical and contemporary processes of territorialisation in the Patagonian Archipelago, the marine space of the Kawésqar people. Finally, Chapter 5 investigates processes counter-territorialisation against marine salmon farming in the Beagle Channel, the marine space of the Yagán people.

Each of these cases can be understood as a paradigmatic case study within the context of territorialisation and counter-territorialisation. Paradigmatic case studies “highlight more general characteristics of the societies” (Flyvbjerg, 2006). These three cases provide contextual information on the socio-spatial disputes and the resulted configuration of boundaries and mobilities occurring in frontier spaces for global capitalism. Both, the environmental and social characteristics of Chilean Southern Patagonia made these three cases relevant to understand contemporary processes of territorialisation and counter-territorialisation in frontier spaces. The geological and ecological features of the Chilean Southern Patagonia have enabled the overlapping of the expansion of global industries and the national and international efforts for protecting nature. The expansion of global industries sometime goes in alliance with the enlargement of forms of nature protection, as is the case of nature-based tourism and protected areas. However, in other cases the interest and spatial

expansion of global sectors, such as marine salmon farming, conflict with the establishment of protected areas by the state or private initiatives.

Two of the cases are focused on socio-spatial disputes on marine space, incorporating the spatial claims of Indigenous people in the context of global expansion of marine industries and nature conservation. These cases highlight how nomadic Indigenous people deploy their agency through socio-spatial strategies in processes of marine (counter)territorialisation. As a whole this thesis presents a perspective of the advance of territorialisation from land to sea in a frontier space where sea not only stands out by the vast area of fjords, channels, and sounds that enclose hundreds of islands and islets, but also because it has been long ago claimed by marine nomadic people.

1.4.3 Research methods

Data within the three core case studies were collected through semi-structured and unstructured interviews, participant observation, and literature review. Data was collected in three periods of fieldwork in Chilean Southern Patagonia between spring 2016 to fall 2019. The stays in Chilean Southern Patagonia varied between two weeks to seven weeks. Research settings included Puerto Williams, settlement within the Cape Horn Biosphere reserve, Puerto Edén, a village in the boundaries of the National Park Bernardo O'Higgins, the National Park Torres del Paine, and Punta Arenas, the capital city of the Region of Magallanes (Figure 1.1).

Consistent with assuming a mobile perspective of social life, data was collected while moving between research settings and within the boundaries of specific areas. Following Büscher and Urry (2009), three specific mobile methods were used during fieldwork: observing people's movement, participating in patterns of movement, and seeing places as on the move. For example, data observations and interviews were made during the three-day ferry journey to Puerto Edén and Puerto Natales. Most of the passengers were international tourists that planned to visit the National Park Torres del Paine. Rangers of the National Park Torres del Paine were also accompanied while conducting day-to-day activities in the mountain circuits of the park for a week. These mobile methods (Büscher & Urry, 2009) provided a deep understanding on practices and social relations and dynamics of particular informants, and the interactions between global and local networks (Büscher & Urry, 2009, Bærenholdt, 2013).

This data was recorded in the form of fieldnotes, interview records or transcripts, photos, and secondary data from news, reports, articles, and archival registers in digital folders. Data was classified and coded according to key concepts that I inductively defined during the research

process. I discussed these key concepts in face-to-face and online meetings with the co-authors of each of the empirical chapters. In addition, drafts of the empirical chapters were presented in different symposiums, conferences, and academic meetings, with feedback from these meetings incorporated into the data analysis process.

Interview records and field notes will remain anonymized and archived for the purposes of potential audits only, at the Environmental Policy Group of Wageningen University. Due to the sensitive matter of some issues discussed, and the trust placed by the interviewees, the scientific articles that have already been published as part of this dissertation, have kept the data collected as confidential.

1.5 Outline of the thesis

The rest of the thesis is structured as follows:

Chapter 2 presents the conceptual framework of the thesis based on spatial boundaries, mobilities, territorialisation, counter-territorialisation, and frontier space concepts. This chapter analyses contemporary processes of territorialisation as they move from terrestrial to marine environments, using the case of Chilean Southern Patagonia as an example of a frontier.

Chapters 3, 4, and 5 are the empirical chapters of the thesis. Each of the chapters provides a specific case study to analyse (counter)territorialisation in the context of the Chilean Southern Patagonia.

Chapter 3 explores nature-based tourism as a form of mobility in the most visited national park of Chilean Patagonia. By using routes, rhythms, and frictions as three elements of nature-based tourism's mobility, the chapter analyses how the inherent mobile character of nature-based tourism challenges territorial forms of conservation governance based on the existence of spatial boundaries.

Chapter 4 analyses three processes of marine (counter)territorialisation in the Patagonian Archipelago, a marine space claimed by the Kawésqar Indigenous people. The chapter presents a typology of boundary-mobility relations in the context of marine territorialisation. It provides a novel understanding on the ways in which boundaries and mobilities relate in the marine space, especially exploring how imposed boundaries can be used to counter processes of marine territorialisation by seemingly disempowered local groups in the face of the expansion of global industries such as marine salmon farming.

In Chapter 5 I delve into marine counter-territorialisation in the context of salmon farming expansion, by analysing the case of the Beagle Channel and the network of actors involved in counter-territorialisation. The chapter examines how networked actors exert counter-territorialisation by creating connections and negotiating the aims and goals of networks in the southern Magallanes Region.

To conclude, Chapter 6 discusses the key findings and provides the conclusions, by focusing on answering the key questions of the thesis. The chapter synthesizes the findings of the previous chapters proposing two general forms of territorialisation by global networks and three forms of counter-territorialisation by place-based network. Finally, some topics for a future research agenda are proposed

CHAPTER 2: Tracing new forms of territorialisation from land to sea in frontier spaces

2.1 Introduction

This chapter provides a general theoretical framework to understand territorialisation in frontier spaces, which will guide the work in the following three chapters of this thesis. By bringing together the concepts of spatial boundaries, mobilities, networks, and frontier space, an analytical lens for examining processes of territorialisation in terrestrial and marine areas is presented. This lens enables territorialisation to be seen as the networked definition of spatial boundaries and mobilities that enable access and control to remote areas. More specifically, it is argued that such a networked approach to territorialisation enables an analysis of how global networks affect patterns of mobility that in turn shape the formation of spatial boundaries. It is this interaction between spatial boundaries and mobilities that can in turn be observed and analysed as patterns of social control, access and resistance. This framework, it is argued, opens up a new round of debate on how power relations shape the socio-spatial organisation and environmental governance in terrestrial and marine frontiers.

The chapter is structured as follows. First, the notion of frontier space is introduced before being used to trace processes of territorialisation from land to sea. The chapter then explores the concepts of boundaries and mobilities and how they offer a starting point for elucidating new forms of territorialisation and counter-territorialisation on land and at sea. Attention is then given to how territorialisation and counter-territorialisation affects the governance of coastal and marine frontiers in Chilean Southern Patagonia.

2.2 Global engagement in frontier spaces

Once remote, less-populated and less exploited terrestrial and marine regions around the world are increasingly confronted with the global expansion of mining (Vuola, 2022), forestry (Kenney-Lazar, 2019), fishing (Nolan, 2019), agriculture (Cáceres et al., 2020; Lai, 2022), and energy production (Kingsbury & Wilkinson, 2023). Production-based industries, such as agriculture and aquaculture, also exploit these areas and in doing so introduce new species, people and material elements to peripheral and often 'pristine' territories, with the hope of avoiding social conflict (Saguin, 2016). At the same time, however, these regions are also spaces for nature protection and conservation (Gruby et al., 2021; Rasmussen, 2021; Silver & Campbell, 2018; Walters & Wardell, 2023). As a result, these remote regions are increasingly sites of what Tsing (2004) refers to as global frictions, where extractive, production-based and conservation sectors overlap and conflict (Armendáriz-Villegas et al., 2015; Kamino et al., 2020, Vuola, 2022), as well both partnerships and disputes over access to

spaces and resources with local (and often Indigenous) people emerge (Adhuri et al., 2023; Allen et al., 2019; de Vos, 2018; Ferguson et al., 2022; Hernando-Arrese & Rasch, 2022; Paz Salinas, 2017; Peluso, 1995; Raycraft, 2020; Rocheleau, 2015).

The terrestrial and marine territories where expansionary global networks and place-based resistance meet are not only geographically peripheral, but also politically. The politics of peripheral territories have been analysed by using the concept of 'frontier' (Moore, 2000; Rasmussen & Lund, 2018; Steinberg, 2018). As a political concept, frontiers are not just boundaries or borders, but instead liminal spaces representing zones subject to declining or ambiguous authority. As Steinberg (2018) puts it

> A frontier […] is less a line that divides one "inside" from another, equivalent, "inside" than an area of diminishing authority within which the "inside" gradually becomes an "outside" (p. 238)

Sassen (2006) argues that these global frontiers have always been subject to territorial authority as states have extended control over peoples and resources - either directly, or by enabling access by private sector actors and/or NGOs. As further argued by Sassen, these actors do not exert direct authority over space, but instead through the state's institutions. State boundary formation as such enables the expansion of global networks and their authority through processes of boundary formation. This is especially crucial in frontier spaces, as it is through the establishment of spatial boundaries that frontiers can be seized (Steinberg, 2018) and even closed (Nolan, 2019). The authority expressed through the establishment of these spatial boundaries also affects different forms of people's mobility, restricting access to spaces and resources to some groups, while at the same enabling access for other groups (Leutloff-Grandits, 2023). Seen as such the fluidity of global extractive and conservation sectors, based on networks and flows (Castells, 2004, 2009), remains tied to the spatially fixity of territories.

There is nevertheless considerable variation in the ways in which new forms of authority and control over access to, and use of, space and resources take place (Peluso & Lund, 2011). In the case of a protected area, for instance, boundaries indicate that a number of human (economic) activities cannot be developed within this 'conservation territory', such as logging and hunting in a terrestrial national park, or fishing and motorized navigation in a marine protected area. At the same time, the boundaries of a protected area demarcate rules and norms that regulate conservation practices over species and ecosystems. Similarly, as shown by Stefoni et al. (2022), spatial

boundaries that enable access and exploitation of resources also shape the movement of people, enabling different forms of mobility to emerge that extend beyond these territories.

Van Houtum and Van Naerssen (2002) argue that the definition of spatial boundaries comprises a strategy to fix and regulate mobility and define places. As mentioned in Chapter 1, the process of setting these boundaries to control peoples' mobility has been theorised in terms of territoriality (Sack, 1983) and territorialisation (Vandergeest & Peluso, 1995). Following Vandergeest and Peluso (1995, p. 385), two distinct forms of territorialisation can be observed. First, external territorialisation, which sets national borders to assert sovereignty and identity. Second, internal territorialisation, which establishes spatial boundaries to control peoples and resources within the borders of a state. Historically, external territorialisation has arguably had the most dramatic impact on the mobility of Indigenous communities (Barfield, 2020). However, contemporary limitations relate more often than not to the internal territorialisation of private and (protected) public lands and waters (Levin, 2020; MacKay et al., 2014). As such, territorialisation is a social phenomenon in which global sectors and place-based actors are implicated through socio-spatial strategies oriented to the establishment of boundaries and to the channelling of mobilities. Mobilities here can be defined as the "fragile entanglement of physical movement, representations, and practices" that determine where, how and with what consequence human and non-human actors move across space (Cresswell, 2010). The multiple relations between spatial boundaries and mobilities shape processes of territorialisation by global sectors in the frontier spaces.

Processes of territorialisation can produce resistance from heterogenous actors, such as place-based groups in alliance with extra-local groups, or organisations forming a network of actors. Networks of counter-territorialisation are able to challenge territorialisation, especially by affecting the definition of boundaries and enclosures by agents of territorialisation, and by (re)setting forms of mobility (Lestrelin, 2011; Raycraft, 2020; Yee, 2018). Networks of actors can thus shape or change processes of territorialisation to meet their goals and interests regarding access spaces and resources by using different strategies that involve boundary formation and aspects of mobility, just like global networks of territorialisation do. Moreover, both global networks and place-based networks follow different strategies of either territorialisation and counter-territorialisation, which includes different forms of negotiating boundaries and mobilities.

Territorialisation and counter-territorialisation have been predominantly studied in terrestrial environments. Nevertheless, over the last decades various forms of spatial enclosures

have been established in marine spaces, driven by global networks of international companies and national states (Boucquey et al., 2019; García Ch. & Gupta, 2022; Gray, 2018; Ikporukpo, 2020). These marine enclosures can conflict with spatial claims of heterogenous place-based networks of actors in coastal and marine environments, who generate organised forms of resistance. Studying processes of territorialisation and counter-territorialisation in both marine and terrestrial frontiers provides an opportunity to understand how and under which conditions environments and resources are enclosed and the ways in which people are both affected and resist their enclosure.

2.3 Territorialisation from land to sea in frontier spaces

Returning to Sassen (2006) and others (Campling and Colás, 2017; Carver, 2023), states have historically expanded their sovereignty by defining and establishing both external and internal boundaries in frontier spaces (see also Scott, 2009). The expansion of the state's control over frontier spaces is closely related to the expansion of global capitalism, especially through different forms of exploitation and appropriation of nature, peoples and resources (Rasmussen & Lund, 2018). This expansion has been described by Moore (2000) as the global commodity frontier:

> "a zone beyond which further expansion is possible in a way that is limited primarily by physical geography and the contradictions of capitalism rather than the opposition of powerful world-empires. The frontier is a specific kind of space defined by the forward movement of the (capitalist) system" (p. 412)

Moore's notion of commodity frontier has been used to describe the interaction of global capital with local forms of production of food and fibre-based commodities, including timber, sugar, cotton, tabaco, furs, fisheries and aquaculture, and cattle (see for e.g. Campling, 2012; Foley, 2019, Silva-Macher & Farrell, 2014). The term is also increasingly being used to describe the expansion of other global flows across the globe, including nature-based tourism and nature conservation (Bennike & Nielsen, 2024; Sullivan, 2013). In all cases, these frontier spaces are used to describe the 'frictions' (returning to Tsing 2004) between globally mobile capital, knowledge and technology, and local natures, resources and people.

The frictions that emerge within these global frontiers are fundamentally related to the territorialisation of natures and resources. As outlined above, the spatial boundaries that demarcate influence or control over resources and people (following Sack, 1983) are both *material*, in terms of state defined property and tenure, and *discursive*, in terms of the ideas shaping normative goals for what can and should be done to either exploit or conserve frontier resources (Adams, et al., 2014).

It is at the interface of these material and discursive processes of control that new terrestrial boundaries are established for exploitation, such as mining and tourism concessions, as well as conservation, such as national parks and World Heritage Sites. It is also within these different processes that confrontations and new forms of cooperation between globally mobile and locally situated actors are observed.

The territorialisation of global frontiers has also expanded to the marine environment[2]. Steinberg (2018) argues that 'the sea' is one of the last global frontiers that will be a new focus of extraction and conflict over the rest of this century. Attempts to territorialise marine environments and resources have followed a similar logic as terrestrial-based forms of territorialisation (Acton et al., 2019; Campling & Colás, 2017). Material and discursive boundaries are drawn to demarcate property and tenure, as well as spaces and practices of conservation and exploitation. However, the translation of territorial control at sea is challenging for at least three reasons.

First, the biophysical marine environment is in perpetual motion, undermining any attempt to set spatially delimited control over the exploitation or conservation of marine organisms, minerals and habitats, as well as control over mobile marine people and practices (e.g. shipping or fishing) (Bear, 2013; see also Brochier et al., 2018). Attempts to enclose the fluid materiality of the sea, for example, by establishing spatial boundaries with the aim of producing a legible object for policy processes, only enables a partial understanding "of the material realities of this space" (Acton et al., 2019, p. 97).

Second, the three-dimensional space that constitutes the marine environment further challenges attempts to set boundaries around spaces and practices of exploitation or conservation (Bush & Mol, 2015). Two dimensional boundaries are often ineffective at delimiting ownership and conservation of resources in three-dimensional marine space – especially when fish and people move over and through these three dimensions (Saputra & Sammler, 2024). Similarly, pollutive flows dispersed across these three dimensions follow a logic of dilution and volume rather than location and area; contrasting with regulation that is largely defined by two-dimensional spatial jurisdiction (see Elden, 2013).

Third, marine environments are largely conceptualised as 'a space beyond society' (Steinberg, 2013). As further argued by Satizábal and Butterbury (2018 - following Bridge, 2001), the sea is as such viewed as empty of people but full of natural resources. The consequence is that processes of marine territorialisation often invalidate spatial claims by 'land-based' maritime

Indigenous groups and communities. They are marginalised by decision-making processes regarding marine spatial planning and policy, ignoring social and economic activities developed by local groups over, across, and through the marine space. This becomes more evident in the case of marine Indigenous people, whose rights over the maritime are denied – again reifying the fallacy of the sea as a space beyond society.

There has been limited, yet growing interest in the analysis of both marine territorialisation and counter-territorialisation (Acton et al., 2019; Lambach, 2021; Satizábal & Butterbury, 2018). This research has focused on the wider consequences of phenomena like ocean grabbing in part enabled through global policy agendas – such as blue growth and the blue economy - that see the world's oceans as a new frontier of accumulation (Andriamahefazafy et al., 2020; Childs & Hicks, 2019; Choi, 2017; Bennett et al., 2021). The rapidly growing literature that explores these concepts and themes focus – in line with the terrestrial literature - on the material and discursive means by which new boundaries are set around the exploitation and conservation of marine resources (Ehlers, 2016). It also focuses on national and international spatially explicit marine governance instruments, including Marine Spatial Planning, Exclusive Economic Zones, and Marine Protected Areas (Gray, 2018; Raycraft, 2019). Less attention, however, has been given to how these marine spatial boundaries interact with marine mobilities. This lack of attention underlines, on the one hand, the notions of the maritime as an unpeopled space, devoid of social relations (Steinberg, 2013), which in turn reinforces the ocean as a frontier for society (Steinberg, 2018). On the other hand, the lack of attention to the interaction of marine boundaries and mobilities opens up the possibility for new ways of understanding how processes of marine territorialisation and counter-territorialisation can be understood and governed as a global frontier.

2.4 Mobilities and boundaries in marine and terrestrial (counter)territorialisation

The analysis of land-based territorialisation has focused on the ways in which external and internal national boundaries affect the mobility of people in different ways (Menzies, 1992; Vandergeest & Peluso, 1995). Boundaries affect how mobility is practiced, in terms of the velocity and rhythms of routes taken, and any associated frictions (see Cresswell, 2010). The establishment of these boundaries also determine patterns of inclusion and exclusion - enabling the mobility of specific actors or sectors, while restricting the mobility of others (see Leutloff-Grandits, 2023). However, the other way around is also possible: mobilities can influence the definition of territorial boundaries, especially where different mobilities and boundaries, as often seen in global frontiers, are

contested. Even spatial boundaries can be used to empowered groups that have been historically marginalised from decision-making processes, enable them to expand or recover forms of mobility (Mackay et al., 2014; Satizábal & Batterbury, 2018). Figure 2.1 depicts these three possible relations between spatial boundaries and mobilities in processes of (counter)territorialisation: shaping mobilities through boundaries (I); shaping boundaries through mobilities (II); and countering through boundaries (III). The following section discusses the last two relations, much less addressed than the first one in social studies. These interactions between territorial boundaries and mobility in turn opens up a discussion on the ways in which processes of territorialisation can be subverted through different forms and elements of mobility and spatial boundaries. It also points to the possibility of mobility and the establishment of spatial boundaries as political acts of counter-territorialisation.

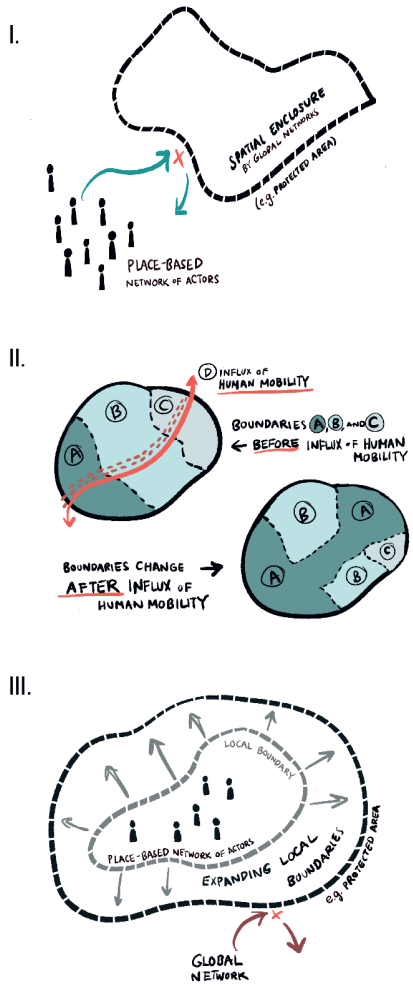

Figure 2.1. Three ways in which boundaries and mobilities intersect in processes of (counter)territorialisation.
(I) Shaping mobilities through boundaries, (II) Shaping boundaries through mobilities, and (III) Countering through boundaries.

2.4.1 Shaping boundaries through mobilities

Patterns of mobility can affect the material and discursive definition of territorial boundaries. Mobility patterns affect, for instance, the meaning and functionality of spatial boundaries. Europe is a case in point. Whereas the number of cartographic state borders have increased over time, the regular crossing of borders by European residents, immigrants and tourists has broadly changed their functional importance (Rumford, 2008). These internal European Union borders are no longer

boundaries characterised by security checkpoints and passport controls. Instead, countries or regions at the margin of the European project of political integration can be considered as borderlands themselves (Balibar, 1998; Paasi, 1999, 2009). This does not mean that national borders and state sovereignty have lost meaning. Rather, their relevance and meaning have transformed to articulate both internal and external conditions and norms to a politics of bordering – as a strategy of what Sassen (2013) refers to as spatial differentiation.

In other cases, mobilities affect both the erosion and creation of territorial boundaries. Nature-based tourism is a case in point. Like many global sectors nature-based tourism mobilities have transcended national boundaries – with tourism sites (e.g. Caribbean islands, the Serengeti, or Borneo) having greater meaning than the nations and social context in which they are located (Hitchener et al.,2009; Menge et al., 2022; van Bets et al., 2016). At the same time, increasing flows of tourists have prompted the definition of new boundaries to demark areas where nature-based tourism, as an activity, can be developed. Furthermore, and closely related to nature-based tourism, protected areas themselves can be thought of as fluid spaces rather than fixed enclosures. Seen as such protected areas are shaped by the intersection of different sorts of socio-material mobilities, including people, species, materials and information (Bush & Mol, 2015; Lund & Jóhannesson, 2014). In that sense, routes and material infrastructure that enable the flow of these mobilities (see Hurley & Ari, 2018) play a central role in how the boundaries of different types of protected areas are established and practiced in reality.

At sea, the effects exerted by mobilities over boundaries are even more visible. As outlined above, despite marine territorialisation following the same logic as on land, the profound fluidity of marine environments and people reshape the form and function of marine spatial boundaries. For example, Stephen and Menon (2016) show how the mobility of fishers renders international maritime borders porous. Their case focuses specifically on transnational fishing conflict between Indian trawl fishers and Sri Lankan small-scale fishers in Palk Bay. In this case, the changing mobile relation between Indian trawl fishers and Sri Lankan fishers produces a fluid marine border that cannot be understood by a fixed spatial delimitation at sea. Instead, cross-border fishing reflects complex historical processes that involve fishers from both sides of the international maritime border, and the states of India and Sri Lanka. Thus, the changing porosity of the international maritime border should be understood as the result of these historical processes and relations between social actors.

In a different context, drawing on a case study of offshore radio pirates, Peters (2014) outlines the challenges of governing and controlling marine mobilities in comparison with terrestrial mobilities. The fluid materiality of the sea makes it difficult to establish clear borders between territorial and extraterritorial national space, which is emphasized with the permanent flux of ships. Moreover, in the case of the radio pirates the broadcasts they transmit from extraterritorial space cross back into the state territorial area, surpassing marine and terrestrial boundaries. Unlike on land, Peters (2014) argues, it is the very molecular composition of the sea (its liquidity) which challenges the effectiveness of spatial boundaries as mechanisms of control, making them blurry and ambiguous.

These examples highlight the ways in which different forms of mobilities are able to shape or challenge boundaries in terrestrial and marine environments. Extending the traditional logic of spatial boundaries affecting different aspects of mobilities, the focus on mobilities-shaping-boundaries opens up new ways to understand both the emergence and development of conflicts and to develop new strategies for equitable environmental governance.

2.4.2 Countering through boundaries

As mentioned above, processes of territorialisation by states or other extraterritorial agents generate resistance by local groups as boundaries create restrictions for accessing resources on which their livelihoods depend. In some cases, networks of local actors engage in organised resistance to the establishment of territorial boundaries by both the state and globally mobile sectors. These acts of resistance are collectively termed counter-territorialisation – that is, the use, modification, removal or establishment of new spatial boundaries to (re)shape socio-spatial order (Hernández Vidal, 2022; de Vos, 2018; Satizábal & Batterbury, 2018). Processes of counter-territorialisation can, as such, be strategies of local and often marginalised groups subjected to exclusionary state and global territorialisation.

Counter-territorialisation can be exerted in multiple ways, including open protests, legal claims, as well as more subtle forms of networked resistance. For example, Lestrelin (2011) shows how ethnic minorities in Laos develop subtle forms of counter-territorialisation to face internal resettlement and land reform. In this case, everyday forms of resistance do not only rely on individual actions but instead operate through networks and alliances between actors including local state agents (Lestrelin, 2011; see also Yee, 2018). Moving beyond what he terms ‘the space of place’, Castells (2009, 2011, 2016) highlights the role of networks that transcend the local (by

working in what he terms the 'space of flows') as a means of exerting power and counter-power. In this sense, networks can bring together the interests and values of spatially distant actors to create alliances that can challenge the meanings given to territorial boundaries – such as 'conservation', 'Indigenous' - or the justifications given to allocating access to global investment in local resource use (building on Castells, 2011). Despite having different political, economic, environmental or cultural positions and claims, these networked actors can engage in strategic cooperation to reshape how these boundaries are maintained – or removed altogether.

Counter-territorialisation has been scarcely addressed in marine environments. Among the few studies on coastal and marine counter-territorialisation, Raycraft (2020) analyses forms of resistance by local villagers in Tanzania whose villages are located within the boundaries of a marine park. This study has relevance for at least two reasons. First, it demonstrates that forms of nature conservation can also generate resistance in marine environments by coastal and marine communities that feel excluded from the governance of protected areas. Second, the case shows that physical displacement is not the only form of dispossession and grabbing over local communities, especially in the case of the establishment of marine protected areas. Rather, exclusionary forms of governance are shown to marginalize local villagers who, though initially supportive of the establishment of the park, took on a negative disposition to marine conservation over time. In this case, exclusion and marginalization affect groups that live within the boundaries of a protected area, whereby these boundaries constrain the mobility and livelihoods of those groups.

In other cases boundaries of protected areas can become relevant spatial tools that local groups can use to counter the expansion of sectors considered as a threat to local mobility and livelihoods (see Rodríguez-Martínez, 2008; Satizábal & Batterbury, 2018). Contrary to the case described by Raycraft (2020), spatial boundaries can be used to the benefit and empowerment of local groups instead of against them. Based on the legal and formal recognition of the boundaries of state-led protected areas, local groups in resistance can use those boundaries to counter the expansion of sectors or industries that are perceived as threatening local development. This strategy can be followed by local groups that maintain rights or spatial claims over terrestrial and marine territories that do not have legal recognition by the state. Thus, legal spatial boundaries such as those of terrestrial and marine protected areas can help local groups to (re)gain partial control over spaces, resources, and mobility.

2.5 Historical and contemporary (counter)territorialisation in Chilean Southern Patagonia

Chilean Southern Patagonia offers an exceptional case for exploring the dynamics between boundaries and mobilities on both land and at sea. As outlined in Chapter 1, Patagonia is the Southernmost, largest and second least populated region in the country. The region can also be considered a frontier space given the partial control exerted by the Chilean state in and across marine and terrestrial environments. These historical processes of territorialisation were entwinned with state control over nomadic Indigenous people, state facilitated colonial settlement and the extraction of resources (see Legoupil & Sellier, 2004; Harambour & Barrena Ruiz, 2019). With the advent of new sectors, such as tourism, salmon farming, and conservation, these historical relations of control continue to shape the territorialisation of people and resources in Southern Patagonia as a partial and contested process. The following describes emerging challenges to the governance of these environments and resources given the interactions of territorialisation from land to sea in Chilean Southern Patagonia, highlighting how 1) boundaries shape mobilities, 2) mobilities shape boundaries, and 3) spatial boundaries empower counter-territorialisation.

2.5.1 Shaping mobilities through boundaries

The first encounters between Indigenous people of the Patagonia and western civilization came from the sea, with European navigators that crossed what today is known as the Magellan Strait in the 16th century (Mayer, 2008). The discovery of a passage that connected the Atlantic and Pacific oceans increased the flow of navigators, scientists, and travellers that came to Southern Patagonia with different purposes. In the 19th century both terrestrial and marine spatial boundaries were established to seize the frontier by the Chilean and Argentine states, and settlers. States drawn their borders, forcing Indigenous to become national citizens on both sides of the borders, impacting deeply on Indigenous mobility (Aliaga, 2000). In terrestrial environments, internal boundaries were established to enable the expansion of sheep farming, mainly in Tierra del Fuego, while at sea, on the other hand, boundaries related to the establishment of routes and villages to enable the displacement of sea hunters and fishermen from northern regions of the country and abroad, were set and continued to expand during the 20th century (Emperaire, 2002[1958]; Harambour, 2012).

Spatial boundaries were drawn to establish sovereignty, commercial purposes, or connectivity in terrestrial and marine spaces of Southern Patagonia. Along with the expansion of sheep farming and fishing sectors, during the 20th century the Chilean state established protected areas that covered huge areas of land and sea. Formally these areas were created to the aim of

nature protection and to foster nature-based tourism, however they also served as strategic purpose to assert sovereignty in the peripheral territories in the south of the country.

All these boundaries enabled in different ways the expansion of economic sectors and nature conservation impacted the mobility of Indigenous people on land and at sea. On land, to enable the expansion of sheep farming it was necessary to demark the limits of the estates by thousands of kilometres of wires that bounded private enclosures where production to global market was developed. This spatial organisation, and particularly the definition of private enclosures through boundaries materialised through fences, affected enormously the mobility of the Selk'nam, nomadic people of the land, who were chased and killed under the orders of the owners of the estates (Alonso, 2014; Coronato, 2010). At sea, the mobility of canoeist peoples was also limited and controlled. By the establishment of spatial boundaries as those demarking large protected areas, the territory of marine nomadic people was divided, restricting access to spaces and resources that were central for their livelihoods. Moreover, nomadic people of the sea such as the Kawésqar and Yagán were forced to a sedentary life on land, through material and cartographic boundaries designed by the state and settlers.

Currently terrestrial and marine spatial boundaries have expanded and varied creating new enclosures that shape to different extent people mobility. On land, the Region of Magallanes has become a key territory for the production of green hydrogen, which is leading to the definition of multiple spatial enclosures where concession will be granted to private to exploring and exploiting (Bartlett, 2022). Besides the environmental impacts of the green hydrogen projects, the definition of spatial enclosures and the granting of private concessions will impact further on resources access and people mobility in the region. At sea, salmon aquaculture has expanded over the 20 to 30 years through the provision of spatial concessions (Nahuelhual et al., 2020). While granting tenure to salmon firms, these concessions also restrict marine mobility of other sectors and groups. In addition, a number of marine salmon concessions currently dispute space to previously established protected areas, overlapping over space and generating an internal contradiction among state territorial policy as promoter of both sectors. The overlap of aquaculture and conservation enclosures has raised controversy among marine actors, as Kawésqar and Yagán Indigenous people in alliance with NGOs, scientists, and other actors, have claimed that industrial aquaculture, and particularly salmon production, is incompatible with nature conservation and the existence of protected areas.

The historical and contemporary effects of spatial boundaries on forms and aspects of mobility in the Chilean Southern Patagonia account for modes of control over peripheral resources, and peoples in a contested space for the expansion of global networks in connection with state interests. While global networks and states need spatial boundaries in their attempts to control frontier spaces, they also require mobilising flows of materials and people that in their movement shape spatial boundaries. How these networks shape spatial boundaries and mobility in ways that can also enable more inclusive and ultimately effective forms of environmental governance remains largely unexplored.

2.5.2 Shaping boundaries through mobilities

One sector where it is possible to observe how mobilities shape boundaries in Chilean Southern Patagonia, is nature-based tourism. As the establishment and operation of conservation enclosures in the form of protected areas has encouraged an increasing flow of nature-based tourists to the Region of Magallanes, at the same time the increasing flow of nature-based tourists has affect the formation of spatial enclosures associated to protected areas in different ways. The influx of tourists attracted by astonishing natural landscapes of Southern Patagonia has trigger the expansion of protected areas in number and size. In addition to public protected areas, in recent decades private protected areas has been established too. Examples of this are the Karukinka Park, established and managed by the international NGO Wildlife Conservation Society (WCS), in an area of 300,000 ha in the southern section of Tierra del Fuego Island, where a former forestry project failed to develop; and the Cerro Paine Reserve, a private protected area which is located within the boundaries of the National Park Torres del Paine, formerly the Estancia Cerro Paine, a sheep farm, which turned to a conservation enclosure pushed by the growing flow of nature-based tourists to the area.

It is, however, not only tourists' mobility that affects the formation of spatial boundaries. The patterns of mobility of species, particularly species that are valuable for being subject of conservation, also challenge and affect the formation of spatial boundaries. For instance, the density of pumas in some protected areas of the Region of Magallanes is the highest at national scale, which has been in fact possible due to the protection given to specific areas. Nevertheless, pumas and other species do not remain permanently within the boundaries of conservation enclosures. As in Magallanes exists a considerable extension of land for sheep farming, the increase in the population of pumas and their displacement crossing spatial delimitations, have been problematic for the relations between sheep owners and managers of protected areas. However, the mobility of pumas

and boundaries of conservation is also dynamic. Information obtained in fieldwork. - and later corroborated by scientific research (see Cárdenas et al., 2021; Ohrens et al., 2021) - indicate that the negative effects derived by the transgression of conservation boundaries by pumas in terms of sheep deaths, has turned to an opportunity to sheep farmers to gain revenues from 'predator tourism' next to Torres del Paine. The mobile character of pumas not only challenge spatial boundaries, in this case pumas' mobility affect the meaning of these boundaries for conservation managers, rangers, guides, tourists, farmers, and other social actors.

In the last years, Magallanes, and particularly the city of Punta Arenas, has positioned itself as a gateway to Antarctic tourism, attracting a growing number of tourists that take Punta Arenas as starting point to go either by flight or ship to Antarctica. Even the small city of Puerto Williams, in the remote Navarino Island, is currently becoming an important place for the departure and arrival of cruises to Antarctica (Tejedo et al., 2022; Varnajot et al., 2024). The movement of tourists from Magallanes to Antarctica occur through the definition of routes, rhythms, speed, and other aspects associated that tourists' mobility shape, and by the formation of spatial boundaries such as those delimiting visiting areas, which constitute central elements to territorialise frontier spaces such as Magallanes and Antarctica. Nature-based tourism and scientific research have also driven the establishment of spatial boundaries in the southernmost marine spaces. In 2019, the Marine Park Diego Ramírez Islands – Drake Passage was created, which is the closest marine protected area to Antarctica (Massardo, 2020), while Antarctic tourism with departures from Chilean and Argentinian Patagonia open up interactions between mobilities and boundaries.

Besides tourism, in the marine space of the Region of Magallanes different forms of mobilities also challenge existing boundaries, shaping and changing cartographical and material delimitations at sea. Since the second half of the 20th century migrations of fishermen from northern regions of Chile came to the Region of Magallanes in different periods, driven by multiple factors, such as the emergence of the national fishing industry, neoliberal structural reforms and the national fisheries crisis, the fishing export boom, and recently coastal and marine spatial planning (Mellado et al., 2019). The most important fishery in Magallanes, in terms of number of fishers and profits, is king crab (Nahuelhual et al., 2018). Although king crab fishery started to develop in the fjords and channels close to the main cities of Magallanes, over time king crab vessels from Punta Arenas has started to cover longer distances to the south entering in higher numbers the historical capture zone of the lower-scale fishers of Puerto Williams, producing tensions among

fishers of different locations. Furthermore, king crab fishing has moved to deeper parts of the sea, which has led fishers to invest and adopt new technologies.

Both on land and at sea different forms of human and more-than-human mobilities have shaped and are currently shaping the formation of spatial boundaries in the Chilean Southern Patagonia. The ways in which these and others mobilities shape spatial boundaries suggest a degree of mutual influence between boundaries and mobilities over time. Moreover, the examples of Magallanes appear to indicate that both strategies boundaries and mobilities can empower globally mobile sectors to control nature, resources, and people. But they also indicate that the interaction between boundaries and mobilities opens up possibilities to counter the expansion of these global sectors by place-based groups. How these strategies of counter-territorialisation, as a function of boundary formation and mobility work out in practice is a focus of the following chapters.

2.5.3 Countering through boundaries

In the region of Magallanes processes of counter-territorialisation led by organised networks of actors appear to be evident in both terrestrial and marine spaces. In 2010 a social movement against a large coal mine project brought together local and extra-local actors in a network of actors called *Alerta Isla Riesco* (Riesco Island Alert). Two powerful economic groups, Angelini and von Appen families, led the project. This consortium established an open-pit mine for coal exploitation in an area of 1,500 hectares in Riesco Island close to the city of Punta Arenas. To counter the establishment and operation of the coal mine, *Alerta Isla Riesco* used the spatial boundaries of the previously established Coastal and Marine Protected Area of Multiple Uses (AMCP-MU for its initial in Spanish) Francisco Coloane, which included part of Riesco Island and surrounding marine space. Although the mine started to operate in 2013, the social movement it triggered resulted in the closing of the mining operations in 2020.

In the marine space of Magallanes nomadic groups have also led processes of counter-territorialisation. Remarkably is the case of the nomadic Indigenous people of Magallanes, the Kawésqar and the Yagán people, who have inhabited the channels and archipelagos of the region since around 5,000 years. As mentioned above, they have endured different processes of territorialisation by the state and settlers since the 19th century. Fishing, marine hunting, and shipping territorialised the marine space of these Indigenous nomads. Although during the 20th century these Indigenous groups were stripped of their nomadic life at sea, and confined into terrestrial settlements where their mobility was controlled, during the first decades of the 21st

century they were able to lead processes of counter-territorialisation that enable them to recover partial control over their marine space. In these processes of counter-territorialisation both groups used boundaries of protected areas in their favour to counter further processes of marine territorialisation.

Despite national parks, and national and forestry reserves established by the Chilean state in the middle of the 20th century were forms of territorialisation of the Kawésqar and Yagán terrestrial and marine territories, in recent years the spatial boundaries of protected areas served Kawésqar and Yagán people to avoid further forms of territorialisation as marine salmon farming. Kawésqar and Yagán people have formed alliances with environmental NGOs, research centres, and local governments to resist the expansion of salmon farming to their ancestral marine space, which is nowadays partially territorialised by protected areas. Nevertheless, the legal recognition of the protected areas as spaces for conservation contrasts with the unrecognised status of Indigenous marine space for the state. In countering salmon expansion, the alliances led by the Kawésqar and Yagán have highlighted not only the ecological importance of protected areas but also their cultural relevance as they are established in Indigenous marine spaces. From that position, protected areas have been used to slow down or stop the mobility of salmon industry by emphasising the incompatibility of such polluted industry with nature conservation and protection.

The examples of Southern Patagonia show the ways in which spatial boundaries are used by groups and networks subject of territorialisation in their own favour, in processes of counter-territorialisation in frontier spaces. These processes of counter-territorialisation illustrate how the power of different groups and networks, part of which have frequently seemed as powerless and marginalised, enables to affect original processes of territorialisation. What remains unclear are the mechanisms that enable networks of counter-territorialisation to form, and in what ways these networks can reshape processes of territorialisation in Chilean Southern Patagonia.

2.6 Research agenda

Processes of territorialisation are expanding from terrestrial to marine environments. Beyond the traditional analysis on territorialisation focused on the effects of spatial boundaries on human mobility, there appear to be at least two other forms of interaction between boundaries and mobilities in processes of (counter)territorialisation: mobilities shaping boundaries, and countering mobilities through boundaries. These three boundary-mobility interactions are explored in the following chapters. In doing so attention is given to how each may contribute to a new

understanding of (counter)territorialisation in both terrestrial and marine frontiers and both in and beyond the state. Furthermore, following the work of Sassen (2006) and Brenner (1999), the interactions between the state and networks of globally mobile sectors are explored, with specific attention to how territories and counter-territories are enabled but also constrained.

The following three chapters further explore territorialisation and counter-territorialisation in the Region of Magallanes through three cases related to three specific network-boundary-mobility interactions focused on: 1) nature-based tourism, 2) Indigenous rights, and 3) the expansion of marine salmon farming. These three cases explore current processes of (counter)territorialisation, especially in terms of actors and their socio-spatial strategies to control spaces and resources. In doing so, the following chapters explore how processes of (counter)territorialisation involved not only the state on the one side, and the local people on the other side, but also national and international companies, local and global NGOs, and research centres and universities. Moreover, the cases presented show how these actors do not play deterministic roles. Instead, these groups encompass heterogeneous positions and strategies in processes of territorialisation and counter-territorialisation.

CHAPTER 3: Governing nature-based tourism mobility in National Park Torres del Paine, Chilean Southern Patagonia

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3.1 Introduction

The expansion of protected areas around the world has gone hand-in-hand with the growth of nature-based tourism (Balmford et al., 2009; Brandon, 1996; West et al., 2006). This is in part because nature-based tourism has been thought as a non-extractive activity that can be performed in ecologically relevant places without compromising their sustainability (Novelli & Scarth, 2007). Tourism in protected areas has one of the highest growth rates within the international tourism industry (Balmford et al., 2009; Buckley, 2009). It has also been promoted as a win-win solution to reconcile conservation and development goals by, for example, providing a central source of financing for the maintenance of protected areas (Lamers et al., 2014; Walpole et al., 2001;). However, the increasing flow of tourists to 'natural' spaces also reveals a number of social and ecological impacts that demand closer examination (Barros et al., 2015; Buckley, 2004; Cole & Landres, 1996; Kuenzi & McNeely, 2008; Poudel & Nyaupane, 2015). Underlying these impacts, I argue, are questions on the compatibility of spatially delimited protected 'areas' and the inherent mobile character of nature-based tourism activities.

Mainstream conservation continues to be closely aligned to the establishment of conservation enclosures (Adams et al., 2014). The creation of these enclosures involves a process of territorialisation, or enacting material demarcations that include or exclude people within particular geographic areas and that establish, in turn, forms of access to and use of nature- based resources (Vandergeest & Peluso, 1995). Boundaries in a national park, for instance, spatially delimit the division between non-extractive (conservation) spatial claims made by the state with pre-existing or alternative extractive land-use activities. As argued by Balibar (1998), in separating extractive and non-extractive uses of space, protected areas establish 'natural places' that can be visited and consumed by people through the practice of nature-based tourism (Rutherford, 2011). These bounded places are then continually reproduced through both static and mobile practices related to nature-based tourism (Lund & Jóhannesson, 2014).

While tourism is often conceptualised as a static phenomenon (Zillinger, 2007), it is also fundamentally shaped by mobility (Verbeek, 2009). In fact, nature-based tourism relies on the capability of tourists to move to and through protected areas, crossing external and internal boundaries. Accordingly, different types of routes, including trekking trails and roads, are created to facilitate the continuous displacement of tourists to parks and reserves. Similarly, the development of nature-based tourism demands the establishment and maintenance of socio-

material infrastructure, which is essential for tourists to stop and rest. Routes and infrastructure are established both inside and outside the boundaries of protected areas, linking nature-based tourism to the development of nearby villages, towns and cities (see Villarroel, 1996). Accordingly, managers of protected areas and decision-makers linked to conservation and tourism must take especial attention in governing tourists' movement across protected areas boundaries. This requires turning conservation and tourism governance on aspects of mobility, which is particularly challenging considering the boundary-based forms of governance that have dominated nature conservation (see Phillips, 2004).

The global expansion of social connections, information networks, and means of transportation, has enabled nature-based tourism to include once remote places around the world. Chilean Southern Patagonia is of these places, having continued to grow in popularity over the last two decades. The most visited place within Chilean Southern Patagonia is the National Park and Biosphere Reserve Torres del Paine. In a contest organized by the travel website VirtualTourist.com in 2013, Torres del Paine was voted as the 8th Wonder of the World out of more than 300 destinations from 50 countries. Torres del Paine has an area of 227,298 ha, representing five different ecosystems of the Patagonian Region (Domínguez, 2012; Pisano, 1974). It encompasses mountains, glaciers, rivers and lakes, and hosts a variety of endemic plants and animals (Vela-Ruiz Figueroa & Repetto-Giavelli, 2017). The park has the highest density of pumas in Chile (Barrera et al., 2010), while the populations of guanaco (*Lama guanicoe*) and huemul (*Hippocamelus bisulcus*) have grown steadily in recent years (CONAF 2009). The centrepiece of the park is the Cordillera del Paine, and particularly, the rock formations of Torres del Paine and Cuernos del Paine[5] (Figure 3.1). The desire to closely admire these rock formations has attracted an increasing number of tourists year by year. Annual visitor numbers have fluctuated from around 6,000 in the middle of the 1980s, to more than 250,000 in 2017 (CONAF 2018). Increasing tourism has threatened the conservation objectives of the park, with control over the mobility of tourists a major challenge for both public and private actors. This chapter explores these threats by examining how movements of nature-based tourism are governed in Torres del Paine. In particular, I analyse routes, frictions and rhythms to understand how the mobile character of nature-based tourism confronts the relatively static boundaries of the park, and illustrate the ways in which tourism mobilities challenge boundary-based or 'territorial' forms of conservation governance.

Figure 3.1. Cuernos del Paine from Toro lake.
Source: José Barrena

The rest of the chapter is structured as follows. Section 2 introduces the theoretical framework focused on the relationship between spatial claims, mobility and governance. Section 3 provides a description of the study's methods. Section 4 and section 5 provide the findings. Section 4 presents the historical development of spatial claims and boundary formation regarding protected areas in Southern Patagonia, while section 5 presents the analysis of routes, frictions and rhythms of nature-based tourism in Torres del Paine. In section 6, I discuss the potential for mobility-sensitive-governance of nature-based tourism before turning to the main conclusions.

3.2 A flows and mobilities approach

Nature conservation is a fundamentally spatial practice exemplified by the formation of bounded 'protected areas' or 'parks' (Adams et al., 2014). Establishing protected areas corresponds to a process of territorialisation, through which spatial claims over what can and cannot be done in a given area are negotiated (Vandergeest & Peluso, 1995). The definition of spatial boundaries through this process then enables specific actors to assert control over a geographic area, including flows of people, activities and nature itself (Sack, 1986). Though the territorialisation of nature conservation requires keeping people and nature in place within defined spatial boundaries (Lowe,

2003), protected areas can be also considered as fluid spaces shaped by the intersection of different types of socio-material mobilities (see Bush & Mol, 2015; Lund & Jóhannesson, 2014). By socio-material mobilities, I am not merely referring to the movement of people, materials, species and information in an already taken for granted physical space. Rather, by using the concept I also recognise the capacity of the movement and of the infrastructure that allows the flow of different entities, to transform social and material relations (see Bonelli & González Gálvez, 2016).

From a flows and mobilities perspective, conservation and tourism practices cannot be conceptualised as fully contained within spatially fixed terrains. They are instead understood as being established, reaffirmed and changed through open-ended networks (Castells, 2009; Sheller, 2014; Sheller & Urry, 2006). Although boundaries are relevant elements in the conformation of conservation spaces and in the practice of nature-based tourism, addressing conservation and tourism practices from the perspective of movement requires attention to the elements of mobility as well. These elements are fundamental to understand the ways in which mobility produces, and at the same time is produced by, socially mediated processes and practices. From Cresswell (2010), I take three aspects of mobility that I consider relevant for the sociological study of nature-based tourism mobility in protected areas: routes, frictions, and rhythms.

First, routes operate as spaces of flows through which people, species, materials, and information move (Castells, 2009). Identifying routes therefore makes movement an object of analysis, challenging 'a-mobile' social science research that commonly ignores or trivialises its relevance (Sheller, 2014; Sheller & Urry, 2006). Nature-based tourism as a social practice in particular relies on the operation of routes through which tourists, guides, park rangers and others move. Though social studies on tourism have mostly concentrated on destinations, recent tourism research has focused on routes that connect tourists' origin and destinations, and on social relations that happen on the move (van Bets et al., 2016; Verbeek, 2009). Similarly, I concentrate on routes towards and inside nature-based tourism destinations, where tourists go mainly to practice trekking in mountain circuits.

Second, frictions cause mobilities to stop or slow down (Cresswell, 2010). In a wider conception, frictions can be also understood as the encounter between mobility and place (Cresswell, 2014, 2016; Tsing, 2004). Although some approaches to networks, flows and globalization assume seemingly frictionless environments through which flows of people, materials and information move, many forms of friction are distributed unevenly in social space (Scott, 2009;

Tsing, 2004). Borders and boundaries, for instance, impose friction on those who try to pass them. In the domain of protected areas and nature-based tourism, tourists experience both environmentally derived frictions (from bushes, rivers, lakes, cliffs, wind, slopes, etc.) and social derived frictions (from rules and checkpoints that control and channel tourist movement). Socio-material infrastructures including airports, accommodation and ground transportation also all condition the displacement of tourists.

Third, rhythms represent alternations between moments of movement and of rest (Cresswell, 2010), or crescendos of activity and relative quietness (Seamon, 1979). Henry Lefebvre highlights the relevance of rhythms as an analytical perspective to interpret social life. In the conception of Lefebvre, the existence of rhythm is immanent to time and space, and entails repetition, measure and difference (Lefebvre, [1992] 2004, p. 6). In the context of protected areas and nature-based tourism, patterns of tourists' rhythms can be produced for several reasons. For instance, intervals of movement and rest could be steered according to the distance between campsites along a certain trekking circuit, but can also be generated spontaneously by tourists themselves by choosing their own time to sleep and walk. Based on the work of Lefebvre, Rantala and Valtonen (2014) develop a 'rhythm analysis' of nature-based tourism, defining 'nature tourists, as walking and sleeping beings (p. 20), who synchronise their body 'to the rhythm of nature as a part of the flow of nature-based tourism activities' (p. 22).

The state has had a central role in the territorialisation of nature conservation, often through hierarchical and centralised modes of governance. Spatial boundaries are particularly central to hierarchical modes of governance, as they assert state ownership over conservation spaces, as well as delimit the enforcement of law and rules associated with nature conservation and tourism. However, nature-based tourism has driven changes in conservation governance, associated with the inclusion of new actors, rules, and power relations. These changes configure new governance arrangements, in which hierarchical modes have been transformed into more network-shaped modes of governance through which the territorial claims of state and private actors are negotiated (see Arnouts et al., 2012). As I go on to argue in the rest of this chapter, networked forms of governance can provide a lens to reinterpret protected areas as internally constituted by flows and mobilities, and as such enable the possibility for new forms of nature-based tourism to emerge rather than being prescribed.

3.3 Methodology

I investigate nature conservation and nature-based tourism using case study methodology. Case study methodology enables the investigation of a specific phenomenon, while taking into account the context and processes involved in its generation (Meyer, 2001). A particular case is not chosen because of its representativeness of certain social relations, processes, institutions or structures, but rather as a mean for abstracting social processes from the course of the events analysed (Mitchell, 2006). Case study methodology enables the use of different methods for collecting disparate sources of data, and providing multiple lenses to observe and understand different facets of the phenomenon under investigation (Baxter & Jack, 2008). In this case I used participant observation, interviews and secondary data analysis.

Two of the authors carried out fieldwork in Chilean Southern Patagonia[6] from September 2016 to January 2018. Participant observation and interviews were developed by both observing and participating in tourist movements (see Büscher & Urry, 2009). Observation locations included Punta Arenas, Puerto Natales, Puerto Williams, and Torres del Paine, while displacements included the marine route between Puerto Montt to Puerto Natales in the ferryboat Evangelistas (during summer season where most of the passengers of the ferry are tourists going to Torres del Paine), as well as trail sections of mountain circuits inside the National Park Torres del Paine.

In Torres del Paine, the first author accompanied the interim superintendent[7] of the park in his work activities during one week in peak season. Interviewing while participating in informants' regular practices and activities has been an important strategy in this study (see also Anderson, 2004; Evans & Jones, 2011). Walking along with the interim superintendent enabled an understanding of the day-to-day practices, relations and conflicts produced by the development of nature-based tourism. During those guided transect walks (see Chambers, 1994), the first author also engaged in spontaneous conversations with park rangers based in mountain refuges, managers of campsites and tourists. Data from these observations and conversations were recorded daily in a field notebook.

Seven semi-structured interviews were conducted with public and private actors involved in the governance of Torres del Paine. Interviews were designed to obtain information on three key subjects regarding nature conservation and nature-based tourism: 1. The identification of relevant actors to the governance of Torres del Paine; 2. The identification and explanation of spatial claims and disputes over boundaries in and around the park; and 3. The description of mobile practices

related to both conservation and nature-based tourism. The interviews were conducted in Spanish and varied in length between 40 minutes and two hours. Prior informed consent for conducting and audio recording was sought before all interviews. Five respondents gave permission to record interviews while two declined. Answers from the latter two respondents were recorded directly in the field notebook.

In addition, I carried out a comprehensive search and analysis of secondary sources, including scientific articles, theses, statistical records, technical reports, legal documents, newspaper articles, online information and news, photographs and maps. I focused on documents related to conservation and tourism in Patagonia and Torres del Paine. These secondary sources were not taken for granted as descriptions of reality 'out there'; the analysis included obtaining an understanding of how documents were produced and circulated (Atkinson & Coffey, 2004) and how they related to discourses on tourism and conservation in Patagonia.

Data were analysed using hermeneutic and collective hermeneutic methods (James et al., 2010; Molitor, 2001). Data analysis started in parallel with data collection. Data were coded under the key concepts that support the theoretical approach of the study (i.e. spatial claims, routes, frictions and rhythms). Within each of these categories, further coding was developed based on key subjects used to structure the interviews listed above.

3.4 Spatial claims and boundary formation: the territorialisation of conservation and nature-based tourism in Chilean Southern Patagonia

3.4.1 The development of conservation and tourism in Chilean Southern Patagonia

Spatial claims regarding nature conservation and tourism in Chilean Southern Patagonia began in the middle of the 20th century through the creation of national parks and reserves[8]. The creation of large protected areas was one of the strategies used by the Chilean State to control and set sovereignty over the Southern Patagonian territories. Using the Forestry Law of 1931, the Chilean State decreed the first national park in the region, the Cape Horn National Park (63,000 ha) in 1945, under the banner of virgin land (Ministerio de Tierras y Colonización, 1945). During the second half of the century, the Chilean State continued with the creation of the National Park for Tourism Lago Grey (1959), the National Park Alberto de Agostini (1965), the National Reserve Alacalufes (1969)[9], and the National Park Bernardo O'Higgins (1969). As a result, Chilean Southern Patagonia has been consolidated as a conservation region both at national and international scale. Nowadays, around

50%[10] of the land in the Region of Magallanes and Chilean Antarctica – the southernmost administrative region of the country – is under some form of conservation (see Figure 3.2), and this process continues to expand through the conformation of state and private alliances.

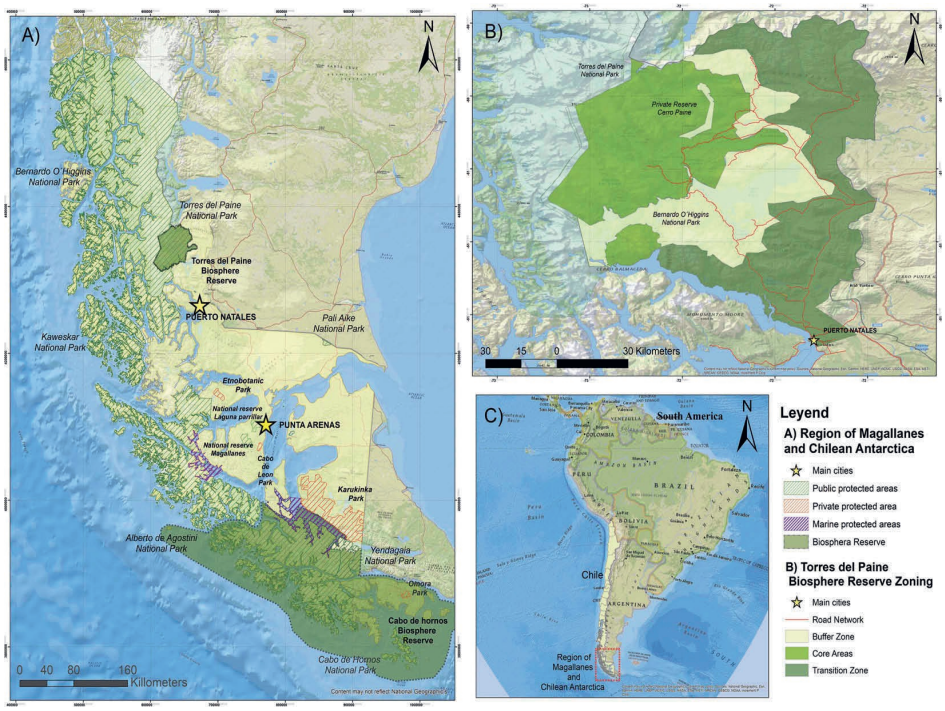

Figure 3.2. Protected Areas in the Region of Magallanes and Chilean Antarctica. (a) Shows public and private protected areas in Southern Patagonia. (b) Shows the National Park Torres del Paine and the projected expansion of the Biosphere Reserve Site, including core (public protected areas), buffer and transition zones. (c) Shows Chilean Southern Patagonia in South America.

In 2018, the state increased protected areas by 9.27%, incorporating 1,356,993 ha to the National System of Wild Protected Areas (SNASPE), administrated by the National Forestry Corporation, CONAF[11]. This was the largest increase in protected areas since 1969, and the result of an agreement signed by the Chilean state and the Tompkins Conservation Foundation[12]. The agreement led to the creation of the *Red de Parques de la Patagonia* (Network of Parks of Patagonia), including the donation of 407,625 ha by the Tompkins family, and the inclusion of 949.368 ha of public lands to the SNASPE[13].

As the state and private actors strive to delimitate and expand protected areas, a range of other activities (including mining, fishing, aquaculture and livestock farming) compete to access,

use, and control resources and spaces in Patagonia (Frodeman, 2008; Pollack et al., 2008). At the same time, as nature-based tourism has become a core activity in the development of Patagonia, various actors involved in these sectors have turned to develop tourist facilities and experiences connected to protected areas. Roughly, 20% of the tourists that visited the areas of the SNASPE in 2017 were concentrated in the territory of Patagonia, which encompasses 23 protected areas. In turn, 82% of those tourists could be found in just one of these areas, the National Park Torres del Paine, in the province of Última Esperanza (CONAF,2018).

3.4.2 The National Park and Biosphere Reserve Torres del Paine

Sheep farming was the central development project promoted by the state as well as by national and foreign settlers in both Argentinian and Chilean Patagonia in the 19th and 20th centuries (Coronato, 2010; Martinic, 2002). In 1915, the largest livestock company in the area was the Sociedad Explotadora de Tierra del Fuego (SETF), which controlled more than 3,000,000 ha, mainly in Chilean territory. In the Province of Última Esperanza alone, the SETF came to control more than 450,000 ha. While most lands were bought in public auctions, the company also annexed publically titledland *de facto* (Martinic, 2011). Thus, the potential occupation of public property by private farmers – who perceived these terrains as freely available – was a main concern for the state around the first half of the 20th century. In order to set effective control over these territories, the Department of Conservation and Administration of Agricultural and Forestry Resources of the Ministry of Agriculture decided to create the National Park for Tourism Lago Grey in 1959. The Lago Grey Park started out with an area of around 4,332 ha, but was expanded shortly after, in 1962, to more than 20,200 ha, mainly to include the terrains of the rock formation called Torres del Paine: 'a set ofscenic beauty of exceptional tourist value' (Ministerio de Agricultura de Chile, 1962). From that time onwards the park became officially the National Park Torres del Paine.

Although the creation and demarcation of conservation enclosures were meant to exert sovereignty and control over spaces in Southern Patagonia, cattle farming continued to dispute these expansions. In 1964, Juan Radic, a cattle farmer, acquired the Estancia Cerro Paine (4,400 ha), located on the southeast slope of the rock formation Torres del Paine. Although at that time the National Park Torres del Paine had been recently created, the area of the park continued to expand towards the neighbouring lands until 1979, when the current boundaries were established. The continuous expansions ended up surrounding the Estancia Cerro Paine. Fearing that the state would expropriate his property, in 1979 Radic decided to sell Estancia Cerro Paine to Antonio Kusanovic,

son of Croatian immigrants, who was an experienced rancher in Patagonia. A year before, in 1978, UNESCO declared the National Park Torres del Paine as a Biosphere Reserve Site at the request of the Chilean state (see about Biosphere Reserve Sites here http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/). The recognition granted by UNESCO promoted Torres del Paine's international visibility for both tourism and scientific research.

Although Kusanovic and his family bought Estancia Cerro Paine to continue with livestock business, the growing tourist numbers visiting the park increasingly approached Estancia Cerro Paine asking for food, water, accommodation or a place to camp, which made Kusanovic family realise the potential economic benefits that nature-based tourism could bring them. The family started to explore nature-based tourism as alternative livelihood by setting up a camping zone, while they continued to be dedicated mainly to livestock ranching. In 1992 they opened the Hostería Las Torres, and in 1997 the family created Fantástico Sur, a tourist company that currently owns one hotel, four lodges, cottages and domes, as well as five camping areas that comprise 450 camping places. In 2012, the Kusanovic family ceased livestock activities to turn completely to tourist business. Recently, they made a further shift to conservation, when in 2017 the Estancia Cerro Paine became the Reserva Cerro Paine, a private protected area[14]. This shift to conservation happened when the relation between CONAF and Kusanovic family were in a conflicting stage because CONAF decided to present a lawsuit against Fantástico Sur for the illegal occupation of 157 ha of public property in the sector of Francés Valley. The disputed space is located at the heart of the mountain circuits, where this tourist company owns different facilities for tourist accommodation. Nevertheless, as I explain in the next section, recent boundary disputes mask a more central challenge related to controlling the flow of tourists in the mountain circuits of the park.

3.5 Nature-based tourism mobility in Torres del Paine

3.5.1 Routes

The boundary conflict between CONAF and Fantástico Sur reflects broader disputes related to the growth of nature-based tourism in the park. However, these disputes are not only about the spatial limits between public and private conservation enclosures, but also about how to gain control over key routes – or sections of these routes – that are strategic for the displacement of tourists, and that cross public and private property. As the main activity in Torres del Paine is mountain trekking, the most prominent routes correspond to several trekking trails that surround the rock formations Torres del Paine, Cuernos del Paine and Paine Grande Hill, which are in the centre of the park (see

Figure 3.3). There are fifteen trails enabled for trekking, which are in turn grouped in two main circuits named by their shapes as the 'W' and the 'O' (also known as Macizo Paine). Trekking trails that conform these circuits are delimitated and at the same time connected by resting places, i.e. camping zones, lodges, cottages and domes that allow tourists to stop and rest while traveling in the circuits. The W and O circuits thereby form a network that enables the displacement of mainly tourists, but also park rangers, guides, porters and scientists moving through this network.

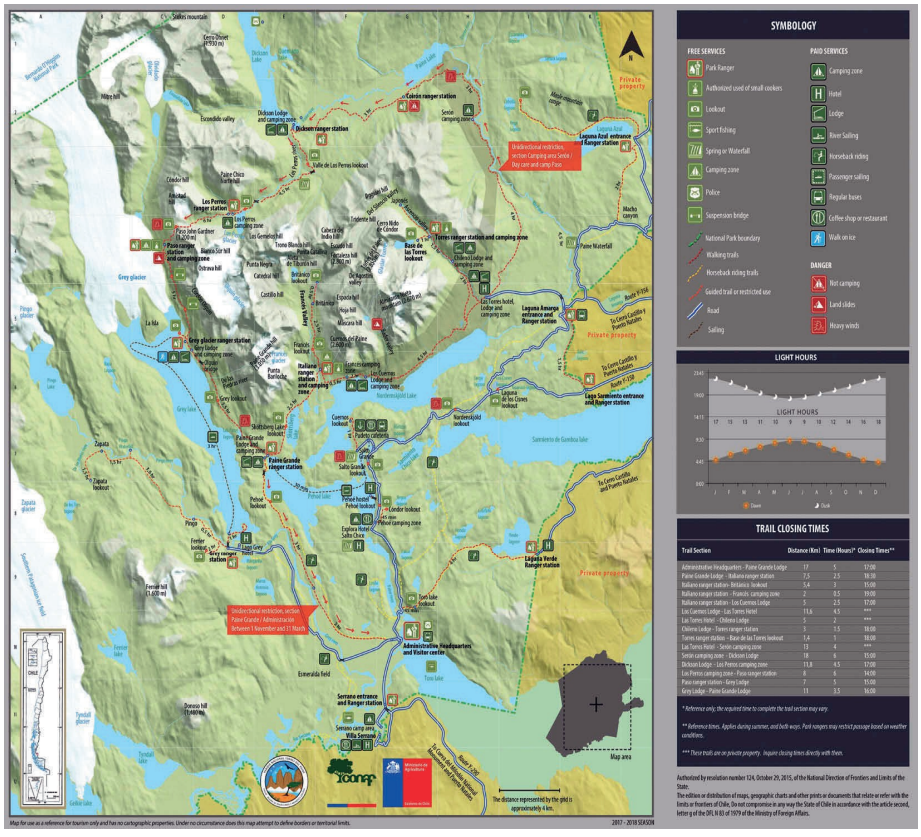

Figure 3.3. National Park Torres del Paine.
The dark green strip that is observed towards the East and South of the rock formations bordering the Nordernskjöld Lake correspond to the Reserva Cerro Paine.
Source: CONAF.

The layout of the trekking circuits challenges boundary configuration in the park. CONAF formally manages the park for conservation purposes within the spatial limits that have been drawn over time. However, as nature-based tourism has become increasingly relevant in terms of volume, impacts, and benefits, spatial limits are no longer central factors to set the scope and traits of governance. The W and O circuits are intersected by public (the park) and private (the Reserva Cerro

Paine) property. Furthermore, CONAF started a policy of concessions years ago, as its institutional capacities could not deal with the influx of tourists, leasing out four concessions in the west, northwest, and southwest sections of the park to the company Vértice, who currently use this land to run three camping zones and three lodges. Yet CONAF still controls three free public camping zones, located strategically in the three valleys that compose the W circuit. Besides ownership considerations, it is in the mutual interest for CONAF, Fantástico Sur and Vértice to govern tourists' movement along the circuits rather than within property boundaries.

In order to steer the movement of visitors, CONAF has eight mountain refuges distributed along the W and the O circuits they use to base groups of park rangers working in a system of shifts. The number of park rangers varies considerably from winter to the peak tourism summer season. There is no regular distance between each of these refuges and the uneven spatial distribution of topographical conditions, such as altitude changes, slope, and sinuosity of the trails (as well as particular spatial and temporal weather conditions that normally include rain and strong winds) make the use of these trails variable in terms of velocity and experience. CONAF has established unidirectional movement in the north section of O circuit, from Serón Camping Zone to Paso Ranger Station, in order to better control the flow of tourists in this less accessible area of the park, where CONAF does not control resting places (see Figure 3.3). CONAF has also established a special schedule including different closing times for different trails sections, taking into consideration their length and the average time it takes tourists to walk them.

Nevertheless, these and other measures have not prevented tourists to perform their own shortcuts and routes that avoid the control of CONAF. In some of the most winding trails sections, tourists have cut corners creating shortcuts that reduce the length of the trails. The frequency and volume of tourists have led that some of these shortcuts have been incorporated as new connecting routes in the circuits, disturbing the original design, which was made considering a minimum impact on soil degradation and fauna dynamics. Similarly, the massive congregation of tourists in specific places, such as at the Salto Grande Lookout, at the Nordernskjöld Lake, has led tourists to find new lookouts in contiguous sites and consequently create new paths to reach them. Furthermore, mountain guides and park rangers have discovered hidden camping sites, which apparently have been used systematically by groups of tourists, who in an organized way have shared their location to avoid paying at private and given-in-concession resting places of the W circuit. As a guide who participated in cleaning the park after summer season explained:

> [some visitors of the same nationality] shared information about different informal campsites established along the W where they didn't have to pay to stay overnight. We discovered these places, because one of them forgot his map [. . .] I was in three of these campsites, and we realised at that time that the places were in use.

Overwhelmed by not being able to face the increasing flow of tourists on the W circuit, in 2016 CONAF planned to lease out the three last camping zones under its control. However, the initiative gained the opposition of the Association of Local Guides of Puerto Natales, the Association of Tourist Operators and Tourist Agencies of Torres del Paine, and other local organizations and workers of Torres del Paine, who conformed the *Comité de Defensa Torres del Paine* (Committee for the Defence of Torres del Paine). This process was explained by one of the members of the board of the Association of Local Guides of Puerto Natales as follows:

> The Committee for the Defence of Torres del Paine arose because [CONAF] wanted to grant concessions for the last public camping areas, so no place would be left for free. The prices are high in Torres del Paine, and it is supposed that the management plan of the park states that there should be a benefit for local community. This was the only benefit that was going to be lost.

The local opposition to the concessions – as a form of virtual privatization – of the public camping zones stopped the initiative, although later, the collapse of the sanitary services both in public and in private camping zones triggered the creation of a system of reservations oriented to control the number of tourists along the W and O circuits. The implications of this reservation system will be discussed in the following section.

3.5.2 Frictions

The making of mountain circuits by CONAF, private agents and tourists, has been a process oriented to overcome frictions that stop or slow down the mobility of climbers, trekkers and day-trippers. The bridge to access the Italiano camping zone, and the three 20+ meter high suspension bridges that cross the ravines between the Grey and Paso Ranger Stations, are clear evidence of this. In fact, Paso Ranger Station owes its name to the opening of a pass in the Olguín Mountain Range in 1976, by John Garner, an English climber, and Óscar Guineo, one of the five park rangers at that time. This pass enabled the circumnavigation of the Paine Grande Massif, thereby configuring the O circuit. This landmark was later known as the Paso John Gardner (with 'd' because of a misspelling), and is nowadays the highest point of the O circuit at 1,200 m above sea level (see Figure 3.3). Since the

opening of the Paso John Gardner, the volume of tourists has changed dramatically. John Garner claims to have seen one single tourist in three months in early 1976, while 264,800 tourists visited the park in 2017 (CONAF, 2018). The rapid increase in the number of tourists in recent years has led to the imposition of friction through rules.

In the summer of 2016–2017 CONAF began to implement a system to regulate the entrance of tourists on the mountain circuits. The design and application of this system was triggered by the collapse of sanitary services, both in public and concessional camping zones, mentioned before, which brought land and water pollution, as well as health problems to some tourists. However, its implementation was the consequence of accumulative impacts caused by massive tourism in the park, including three huge forest fires provoked by tourists that devastated around 47,000 ha in the last 30 years (Vidal, 2012). Specifically, what was put into practice was an online system of reservation, through which anyone who wants to trek on the mountain circuits should register previously. For doing this, tourists should consider that trekking in mountain circuits entails spending several nights in different resting places, including those managed by CONAF, Vértice and Fantástico Sur. As a result, tourists had to arrange their accommodation with different operators and estimate a particular pace on the trails of the mountain circuits.

The lack of an integrated accommodation reservation system created confusion among tourists, guides and tourist operators. Tourists had to book their accommodation on three different online platforms intending to organize their trekking trips considering the available spots in camping zones or lodges. Many tourists complained about the lack of organization between the three main controllers of the mountain circuits. Particularly, local tourist operators claimed that the park, being a public space, is administrated by a duopoly controlled by Fantástico Sur and Vértice, which has negatively affected local tourist agencies, operators and guides, and which has affected Torres del Paine as tourist destination as a whole.

While it contributed to reducing the number of tourists on the mountain circuits, the reservation system also created new issues related to the distribution of tourists in the park. Without having a reservation for resting places on the mountain circuits, tourists could still buy a ticket to visit the park, being valid for three consecutive days. Tourists without reservation for accommodation on the mountain circuits started to concentrate during the day on some of the trails of the W circuits. This concentration of tourists affected the most the route to the most iconic spot of the park, the Base de las Torres lookout, which offers visitors a postcard view of the Torres del

Paine rock formation. In the words of a local guide:

> Apparently [the new system of reservation] is working well, because there is no congestion, I mean it is okay, [the flow of tourists] is normal in the Francés Valley and in Grey [Lake sector]. However, Base de las Torres is a mess. All the people who did not get a reservation go to Base de las Torres for the day.

The starting point of this trail is located in the Reserva Cerro Paine, so to trek this path tourists can bed at the hotel, lodges or camping zones managed by Fantástico Sur, or even come for the day from Puerto Natales or Punta Arenas.

The implementation of the system of reservation, however, did not avoid some tourists trekking on mountain circuits without booking in advance. As the starting point for the mountain circuits is in Las Torres camping zone, in Reserva Cerro Paine, CONAF started to check whether the trekkers had their reservations at that point. Although Reserva Cerro Paine accounts for its own private rangers, which control the displacement of tourists in the 4,400 ha of the reserve, rangers of CONAF are allowed to come in the private reserve to carry out monitoring and control tasks. However, in practice, it has been difficult to prevent tourists without reservation in resting places from having access to mountain circuits and remain there overnight. For example, in Reserva Cerro Paine, the lead author observed:

> Two backpackers being asked by CONAF rangers about their reservations to access to mountain circuits. They said they did not have reservation because they were only going for the day to Base de Las Torres, although their big backpacks indicated that the trip would last several days. The rangers asked then them to leave their backpacks in a secure location in Fantástico Sur, but they replied they did not have money for doing so and preferred to keep their backpacks with them. (Field notes, Torres del Paine, 12 February 2017)

Due to the extension of the park and the reduce number of rangers, it is not possible for CONAF to exert an effective control of tourists on the trail sections of mountain circuits. Furthermore, once in the resting places, rangers cannot drive out tourists outside the park due to the risk of traveling on the trails without daylight. In this sense, the topographic and climatic conditions present in the park, impose their own frictions for the displacement of people.

3.5.3 Rhythms

In order to manage the flow of tourists on trails and in resting places, CONAF decided that tourists could stay only one night in each of the public camping zones under its administration. Since visitors

can book accommodation for more than one night in the private and concessional camping zones and lodges, the restriction of one night implemented by CONAF therefore configured particular rhythms of displacement in traveling around the circuits. The relevance of and demand for public camping zones does not only build on the fact that these are free of charge, but also that they are spatially distributed along the circuits. In fact, the distance and topology of the trail make it necessary for tourists to stop in specific resting places. This is the case for the Paso camping zone (CONAF), which is located around six hours walking from Los Perros camping zone (Vértice), and five hours from Grey lodge and camping zone (Vértice) (see Figure 3.3).

Thus, to cope with restrictions imposed by the system of reservation, tourists should plan their routes, their resting places and their time allocated for movement and for repose. Patterns of rhythms in mountain circuits entail specific social practices and routines in different times of the day. In resting places, dawn is time to break camp and start a new day by trekking in the next trails section, while sunset is the time to set up camp again and get some rest after trekking. On trails, by comparison, trekking occurs during daylight presenting a variety of paces to (Figure 3.4).

Besides the rhythm of tourism on the mountain circuits, restrictions imposed by the system of reservation created rhythm patterns that transcend the boundaries of the park. As mentioned above, tourists without reservations began to concentrate on specific trails in the park, while being accommodated outside the park in the city of Puerto Natales mainly. As the ticket for the park can be used for three consecutive days, a considerable number of tourists started to do daily visits into the park, going back and forth from Puerto Natales to Torres del Paine. The effects of this changing rhythm on tourists' mobility have been particularly visible at the Laguna Amarga entrance, generating further congestion of motorised tourist transport, sanitary issues, as well as management problems for CONAF. Neither CONAF, Vértice, nor Fantástico Sur foresaw these rhythmic 'side effects' of the implementation of such a system of reservation. A recent strategy of Fantástico Sur and Vértice has been to promote tourism in the park during wintertime. This is intended to distribute the number of tourists during the year, instead concentrating around 85% of the total number of visitors from October to April. This more proportional distribution of tourists during summer and winter seasons is also a goal shared by the National Service of Tourism at region scale, and the tourist department of the municipality of Puerto Natales. It could contribute to decongest the summer season, enabling a better management of the resting places and giving the tourist the possibility of having a better experience within the park. However, CONAF reduces the number of park rangers considerably during winter, which complicates the regulation and control

of the activities taking place within the park. For that reason, some of the mountain circuits are closed during winter, thereby limiting the mobility of tourists, while driving rhythms of daily trekking activities and returning to the same resting place.

Figure 3.4. Group of tourists trekking in the trail section Paine Grande – Italiano ranger station. Source: CONAF

The same patterns are also reproduced by different alternatives of full-day trips to the park, or personalised and flexible alternatives of daily trips promoted by luxury hotels and lodges located close to the park. The growth of those rhythms that involve a single full day or more than one day getting in and getting out of the park, lead to an increase of motorised displacement to and inside the park. Motorised tourism then generates its own rhythms along the road, with a proliferation of informal guides conducting groups of tourists. As recorded by the lead author:

> On the way back from Laguna Amarga [to Serrano Ranger Station], CONAF rangers were complaining that tourist vans often park to take photos in places along roads were stopping is prohibited, when we suddenly found a seemingly tourist van parked and a group of tourists taking photos in one of those places. We stopped the car and one of the rangers asked who the guide was. One woman said that there was no guide because they were just a group of

> friends, leaving the rangers with little scope for regulation. (Field notes, Torres del Paine, 13 February 2017)

While measures have been taken in order to reduce the number of tourists in mountain circuits, tourism to Torres del Paine is still promoted through the creation of travel connections. In 2016, a new airport was established in Puerto Natales, creating a direct connection with the city of Santiago, which is the central point of arrival of international tourists to the country. This poses a new challenge for the governance of nature-based tourism. On the one hand, as I have shown, increasing tourism defied the management of activities in the park, which is led by CONAF but also involves the participation of private actor. The latest set of measures taken by these actors have tended to control the entry of tourists to the park, and, at the same time, organize the displacement of tourists within the park boundaries. On the other hand, and contradictory to this new set of measures, national, regional and local authorities have continued to foster the arrival of tourists to Torres del Paine and in doing so increasing the visiting pressure of the park. Conflicting interests and relations between different groups around the access and use of Torres del Paine are central to ongoing debates and practices over the park's governance.

3.6 Governing flows in relation to bounded space

The case of Torres del Paine shows how routes, frictions and rhythms as aspects of nature-based tourism mobility, challenge territorial forms of conservation governance. Routes, in the form of trekking trails on the mountain circuits, transcend park boundaries and in doing so implicate public and private actors in steering the mobility and immobility of tourists around the Cordillera del Paine. Moreover, routes are not merely connections between fixed places, such as trekking trails connecting resting places. Routes also emerge as places in themselves and trekking becomes the way of experiencing and enacting the park as a tourist destination (Lund & Jóhannesson, 2014). Thus, nature-based tourism' mobility defies the logic of 'spatial fixation of people, places, and borders, which has been predominant in conservation' governance (Pauwelussen, 2015, p. 332), turning the focus of governance on keeping tourists moving through routes. Seen as such, the velocity, direction and experience of tourists become equally, if not more important than spatial boundaries to the governance of conservation areas.

Similarly, I have highlighted the importance of frictions and rhythms that reconfigure the movement of tourists within and across spatial boundaries. For instance, the reservation system for staying overnight in the park has implications for the dynamics of movement both within the park

and outside its boundaries, which were not foreseen by CONAF and other actors involved in the park governance. This system reorganizes the rhythms of tourists who cannot get reservations, and in doing so creates concentrations of day visitors on specific trail sections within the park. In response, rhythms beyond the boundaries of the park are also reorganised, with changing volumes and frequencies of tourist movements from Puerto Natales or Punta Arenas to Torres del Paine. Moreover, frictions imposed on tourists' mobility are generating flows of visitors to other protected areas in the region of Patagonia where local actors are less organised, and therefore less able to deal with increasing flows of tourists. This in turn could also jeopardise efforts beyond major tourism sites to promote nature conservation.

The case study shows how nature-based tourism mobility is implicated in the production of a tourist destination like Torres del Paine. Though the movement of tourists is shaped by the existence of different routes, imposed frictions and rhythms, it is at the same time the flow of tourists which shapes those routes, frictions and rhythms in a particular way. As mentioned above, mobilities have the capacity to affect social and material relations. Just as Bonelli and González Gálvez (2016) demonstrate, the construction of routes (roads in their case) can trigger profound socio-material transformations. As they argue, routes should not be considered an inert infrastructure in a landscape, but instead an entity that can modify wider socio-material relations. Based on their argument I show that mobilities associated with nature-based tourism can drive material transformations through establishing routes, overcoming frictions and producing rhythms in and around protected areas. Furthermore, I show how such material transformations in turn shape the social relations between park managers, tourists, mountain guides and land owners that constitute the governance of nature-based tourism and conservation.

The results therefore indicate that the governance of mobilities, rather than the governance of spatial boundaries, requires engagement with the fluidity and socio-material nature of tourists in addition to their capacity to cross boundaries (see also Boas et al., 2018). In the case of nature-based tourism in Torres del Paine, this is demonstrated by tourists creating their own routes and rhythms, while overcoming imposed frictions, escaping from planned governance and channelling. Examples include the establishment of hidden camping sites along the mountain circuits, the growth of full-day trips on buses or private cars generating its own stopping places, and the ways tourists have found to escape from the restrictions imposed by the system of reservation. As argued by Büscher and Urry (2009), it is therefore important to reconceptualise mobile tourists as producers of rules as much as they are subjects of governors alone. Furthermore, the results therefore demonstrate

that mobility-sensitive conservation governance is not only a deliberate attempt of certain actors to channel and control the movement of other actors, but the immanent power of mobilities to influence self- organization among actors involved in a movement phenomenon (Bærenholdt, 2013, p. 26).

Considering this, the findings of the case also demonstrate how routes, frictions and rhythms reconfigure power relations among actors involved in the governance of Torres del Paine. As nature-based tourism has gained more centrality in the functioning of the park, so too have private actors that control spaces and infrastructure associated to its development. I have shown how, by controlling routes and resting places, powerful private actors, such as Fantástico Sur and Vértice, govern access to and movement in mountain circuits, raising claims from other less powerful actors, such as local guides, tourist operators and porters, who are concerned about what they consider the existence of a duopoly managing the park. Nevertheless, the latter, who participate actively in producing patterns of mobility within and in connection with the park, have also formed alliances to stop the granting of additional concessions, which in turn weakens the role of CONAF in controlling the park.

These findings hold broader relevance for orienting the territorial expansion of conservation in Chilean Southern Patagonia and beyond, towards forms of governance that are more sensitive to tourist mobility. This is particularly relevant in the ongoing expansion of the boundaries of Torres del Paine in response to mandatory requirements set by UNESCO for Biosphere Reserve Sites (see Gamonal, 2014 and 3.2), as well as for the enlargement and establishment of new protected areas in the framework of the *Red de Parques de la Patagonia*. Both of these expansions entail the creation of new spatial boundaries to define and demarcate nature to be conserved. However, I advocate for a more integrative view of tourism and conservation that encompasses both boundaries and mobilities interacting in conservation spaces.

3.7 Conclusion

This chapter has presented a sociological analysis of nature-based tourism and conservation governance using a theoretical framework that highlights the importance of the interactions between boundaries and mobility. By integrating spatial claims, routes, frictions and rhythms, I have analysed how the intrinsically mobile character of nature-based tourism challenges existing territorial forms of conservation governance in the National Park Torres del Paine, in Chilean Southern Patagonia. But I have also demonstrated how conservation and nature-based tourism can

be made more sensitive to the routes, frictions and rhythms generated by the movement of tourists and park's workers. Using this more nuanced mobility-sensitive perspective enables a means of reconceptualising the governance of nature-based tourism and conservation in a way that goes beyond the spatial boundaries that delimitate protected areas. Incorporating mobility-sensitive governance can be useful to address the challenges presented by the expansion of protected areas in Chilean Patagonia, particularly in orienting the zoning of Torres del Paine as a Biosphere Reserve Site. But it can also enable a starting point for a far wider transition to alternative approaches to boundary-based territorial modes of control so commonly used in nature conservation governance. To further explore this alternative I advocate for the integration of a broad range of human and non-human mobilities in future social science research of nature-based tourism and nature conservation.

CHAPTER 4: Contested mobilities in the maritory: Implications of boundary formation in a nomadic space

A version of this chapter has been published as:

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4.1 Introduction

> Today we arrive in Puerto Edén, the only human settlement in more than 400 linear kilometres, promoted on board as the place where the last Kawésqar people live. It has been almost two days since we set sail from Puerto Montt on the Evangelistas coastal ferry, filled with international tourists travelling to Chilean Patagonia to see and experience pristine and protected nature. The Evangelistas is anchored in the bay in front of the village to enable the exchange of goods and some local passengers. Disembarking in Puerto Edén is only allowed for residents. From the upper deck it is possible to see several boats coming from Puerto Edén to the ferry. Tourists are called to descent to the lowest deck to take pictures of the loading and unloading maneuvres, and if possible, of the 'last Kawésqar' (first author's field notes, Evangelistas Ferry, 29 January 2017).

Puerto Edén is located on the east coast of Wellington Island in the Patagonian Archipelago of Chile, where 'the land is dismembered in a countless islands, fjords and channels, snow-capped mountains, glaciers and large ice fields' (Aguilera, 1976, p. 514). This area has been called the last frontier by the renowned Patagonian historian Mateo Martinic. The territory of the Region of Magallanes can be divided in 'the east side, the known and inhabited; [and the] west side, the unknown and barely populated' (Martinic, 2004, p. 10). Puerto Edén is the only human settlement on the west side of Magallanes. In early 2017, it was inhabited by no more than 100 people.

Puerto Edén is claimed to be the last rural community of the Kawésqar Indigenous people (Aravena et al., 2018). In the 1930s, the expansion of state sovereignty over the Kawésqar Wæs[15] forced the settlement of a group of these nomads of the sea on the east coast of Wellington Island. The free navigation of the Kawésqar was then controlled by the armed forces as the Chilean state established sovereignty at its southern border. They were taken to religious missions where the majority died as a result of overcrowding, changes in their diet, new diseases, and 'sadness' (Aliaga, 2000, p. 94). The surviving populations of Kawésqar from the genocide perpetrated by the state and settlers were taken or forced to move to the cities of Punta Arenas and Puerto Natales where today they are organised as 'Indigenous communities'[16].

A key factor in the immobilisation of the Kawésqar over time has been the definition of physical or cartographical spatial boundaries by the Chilean state. The impacts of spatial boundaries on (nomadic) people have been addressed in the literature focused on terrestrial environments (Fratkin, 1994; Meir et al., 2019; Retaillé, 2013; Vandergeest & Peluso, 1995). However, less work has been done on the impact of spatial boundaries on the mobility of (nomadic) people at sea (for

exceptions see Gray, 2018; Hoogervorst, 2012).

The liquid topology and fluid nature of the sea makes exercising control and regulation over human mobility less straightforward than on land (Bear, 2013). Moreover, the sea has been, and continues to be, an uninhabited internal frontier for states. Rather than a geographical border, the notion of the sea as a frontier refers to a liminal space where particular configurations between natural resources, mobility and institutional order exist (Rasmussen & Lund, 2018). By setting spatial boundaries to establish control over the movement of transient people or their exploitation of (sedentary and mobile) biophysical resources, states attempt to incorporate the marine frontier within their geographical borders (Steinberg, 2018). These processes of 'internal territorialisation' (Vandergeest & Peluso, 1995) are commonly contested through counter-territorialisation strategies of people resisting constraints to their access to resources and mobility. This resistance commonly involves the configuration of new alliances between Indigenous or local communities, NGOs and local state agents seeking to establish alternative boundaries that recognise pre-existing or new mobilities (Lestrelin, 2011, p. 311).

In this chapter, I examine territorial control at sea by exploring the establishment of, and resistance to, spatial control of human mobility in the Kawésqar Wæs. I do so by analysing the historical and contemporary transformations of the Kawésqar Wæs through processes of both internal and counter-territorialisation. First, I analyse the effect of state boundaries on the movement of the Kawésqar – a process I label immobilisation. Second, I show how the Kawésqar make use of state boundaries to remobilise their right to access marine resources and spaces. Third, I explore how the Kawésqar have subsequently re-gained influence over their marine space by using spatial instruments of the state to demobilise the movements of others. Immobilisation, remobilisation and demobilisation, I conclude, highlight (1) how once mobile Indigenous groups deploy their agency at the frontiers of the nation-state and (2) the potential discontinuities of internal territorialisation in remote and contested marine regions. These insights in turn inform a new understanding of the temporal and spatial struggles nomadic people of the sea face, as well as novel ways in which they regain (partial) control over their marine space, or what I refer to as 'maritory', through different forms of mobility.

The rest of the chapter is structured as follows. The next section outlines the theoretical framework based on the intersection between spatial claims, boundaries and mobilities. I then, describe the methods used to collect field data before presenting the case of the Kawésqar in the

Patagonian Archipelago of Chile. Finally, I discuss these results by exploring how boundaries and mobilities intersect to govern marine spaces.

4.2 Boundary-mobility dynamics in the maritory

States have historically made spatial claims to control and monetise 'the people, lands and resources of the periphery' (Scott, 2009, p. 4). Spatial claims also refer to explicit demands made by states, NGOs and local communities to safeguard geopolitical, economic, and socio-cultural interests. In all instances these spatial claims become territorialized when they lead to the establishment of spatial boundaries that control access to, and use of, resources and spaces, including channelling or controlling people's mobility.

The definition of spatial boundaries at sea have largely followed the logic of establishing territorial enclosures. However, unlike the solidity and fixity of terrestrial spaces, the liquid materiality and mobile character of the sea challenges the capacity of spatial boundaries to exert control over marine spaces, resources and people. Furthermore, the attempts by the states to create spatial enclosures at sea, are built on the notion of the sea as a space devoid of social relations, unsettled and undeveloped; in short, as a space 'beyond society' (Steinberg, 2013; Steinberg & Peters, 2015). This conceptualization, has fuelled the notion of the sea as a frontier space (Steinberg, 2018). As Steinberg (2018) points out, as a frontier space, the sea presents an opportunity for economic expansion and resources control. The realization of this opportunity entails setting boundaries and opening new regulatory frontiers that transcend the margin and allow the incorporation of marine spaces into state control. However, using boundaries to include or exclude people and activities across marine spaces is made difficult by the permanently fluid nature of currents, weather and navigation.

Transcending the notion of marine frontier, I use the term maritory instead of territory to refer to the Kawésqar Wæs, for two main reasons. First, because it brings to the front a sea perspective; that is, a view of an actor for whom liquid materiality and mobility are more relevant than solid land and fixity. Second, because maritory enables us to consider maritime and terrestrial environments as a continuum, which has been the historical perspective of the nomadic canoeing Indigenous people (see Maximano Castillejo, 2017). Recently, the term maritory has been used to define marine spaces and recognize the relevance of marine mobility for local groups in the Patagonian Archipelago (see Álvarez et al., 2019; Araos, 2018; Harambour & Barrena Ruiz, 2019). The term has its origin in the school of architecture of the Universidad Católica de Chile, in the early

1970s. Maritory is defined as a bounded area at the sea "that conjugates: communicability, wealth, adversity and the energies" (Ivelic, 2005). The term is used to describe different ways of living and settlement that are strongly related to marine mobility and activities in the Chiloé Archipelago and the channels of Chilean Patagonia. Based on this perspective, I identify and analyse three distinct and chronologically ordered effects of internal territorialisation over, and subsequently by Kawésqar people in an attempt to regain control over their maritory (see Figure 4.1).

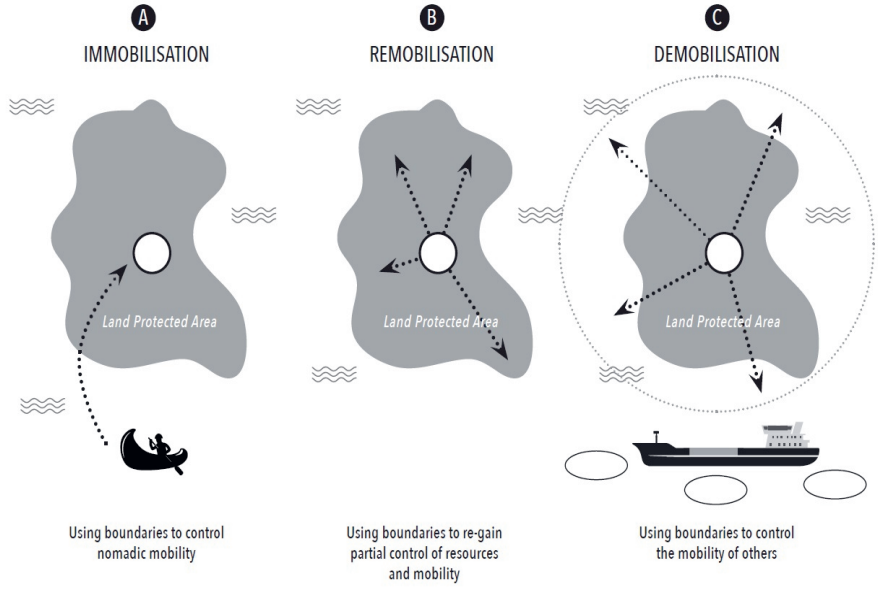

Figure 4.1. Three processes of human (im)mobilisation in and over the maritory.

First, immobilisation refers to a process through which boundaries produce friction on mobilities; stopping or slowing down the movement of peoples, objects, or information (see Cresswell, 2010). Processes of immobilisation on the practices of nomadic peripheral peoples have been largely studied as an effect of establishing or expanding state borders (e.g. Fratkin, 1994; Retaillé, 2013). These borders, as spatial demarcations, create restrictions on access and use of spaces and resources for Indigenous people, but also on their wider mobility. In the most extreme cases, the imposition of spatial boundaries has meant the violent turn of nomadic people to sedentary lifestyles.

Second, remobilisation is a process in which boundaries are used to foster the mobility of local groups in different ways. Remobilisation points to the degree to which immobilised groups re-

establish control over the terms of their mobility on land or at sea. Although the establishment of protected areas has been associated with processes of immobilisation of nomadic people, conservation enclosures can also be a source of remobilisation for local communities to regain control over natural resources and spaces (Ban & Frid, 2018; Tritsch et al., 2015). In those cases, however, local communities are typically defined as fixed entities dwelling in an inner or neighbouring geographical location to protected areas. In actuality, and particularly in the context of marine environments and marine nomads, patterns of settlement and mobility are far from geographically bounded (Newing, 2009).

Third, remobilised groups can use spatial boundaries to demobilise other groups or sectors. To be able to use spatial boundaries to control the mobility of others, local groups can assert territorial rights over the practices of others within those boundaries. While some see territorial rationality as opposed to nomadic rationality (Retaillé, 2013), I argue that a bounded territorial rationality can be used by traditionally nomadic people to take back control and address their displacement by controlling the 'undesirable' mobilities of others. As Tritsch et al. (2015, p. 19) point out, the delimitation of protected areas plays an important role 'in catalysing identity claims' of mobile people. These claims are oriented to the re-occupation and re-appropriation of ancestral spaces that were turned into protected areas by colonial or expansionist processes. The delimited boundaries of these areas, however, can be used in ways that favour the interests of local or Indigenous groups (Raycraft, 2019). It is therefore reasonable to consider how demobilisation can be a strategy to those ends.

4.3 Methods

I investigate boundary-mobility dynamics using an ethnographic and historically based case study methodology (see Meyer, 2001; Mitchell, 1983). In doing so I employ participant observation, semi-structured interviews and document analysis to collect data, and a hermeneutical approach for data analysis.

Three of the authors carried out periods of fieldwork in the Region of Magallanes and Chilean Antarctic from October 2016 to April 2019. Two of the authors are researchers at the IDEAL Research Center. They participated in meetings, engaged in spontaneous conversations, and conducted semi-structured interviews in Puerto Edén, Puerto Natales, and Punta Arenas. During fieldwork in Puerto Edén, the first author lodged in a refuge owned by CONAF. Two staff members from CONAF live in Puerto Edén, using the refuge as an office. The refuge also accommodates

members of CONAF who come to Puerto Edén to perform tasks inside the National Park Bernardo O'Higgins.

Fifteen semi-structured individual and group interviews were conducted with 17 key informants in Spanish. These included members of the Kawésqar community of Puerto Edén, representatives of the *Comunidades Kawésqar por la Defensa del Mar* (CKDM, Kawésqar Communities for the Defence of the Sea) of Puerto Natales, and regional governmental authorities, members of NGOs, and research institutions related to nature conservation and Indigenous people. All key informants were identified during an initial period of fieldwork by the first author aimed at building networks for the IDEAL Research Center.

Interviews were conducted by the first and the second author separately, and focused on the historical and contemporary events that have affected the mobility and livelihood of the Kawésqar since the stabilisation of the Chilean state in the Patagonian Channels. Questions were oriented to spatial claims, spatial boundaries and mobility, especially in relation to the creation of public protected areas since the middle of the 20th century and the current expansion of salmon aquaculture. Seven interviews were audio recorded and one was recorded using a digital video camera, while the remaining seven were not recorded. The information gathered in the unrecorded interviews, was registered directly in a field note-book. Interviews fluctuated in length roughly between 35 minutes and two hours.

In addition, a comprehensive search and analysis of secondary sources was conducted, including state files, scientific articles, theses, statistical records, technical reports, legal documents, newspaper articles, online information and news sources, photographs, and maps.

Data from field notes, interviews and secondary sources were organised and stored by the first author. Data were analysed through a hermeneutical approach; data analysis occurred in parallel with ongoing data collection to enable iterative sense making (James et al., 2010; Molitor, 2001). Data were discussed collectively amongst the authors to enable continual collective interpretation and analysis as new data was classified and analysed. This enabled specific categories of spatial claims, spatial boundaries and mobilities to be understood individually, as well as in the context of the entire collected data set (Hansen & Rennecker, 2010). The categories of immobilisation, remobilisation, and demobilisation emerged from this analysis as a means of capturing the temporal changes in the relation between spatial claims, spatial boundaries and mobilities. The different disciplines of the authors (rural development, history, sociology and

geography) contributed to the interpretation and collective meaning-making of this data (following Hansen & Rennecker, 2010).

4.4 Boundary-mobility dynamics in the Kawésqar Wæs

4.4.1 Immobilisation

Early encounters. The Kawésqar have inhabited the Patagonian maritory for more than 4500 years (Legoupil & Sellier, 2004). Being nomads of the sea, navigation has been central to their culture. They built canoes by hollowing tree trunks, which they used to navigate in family groups through the channels and fjords located between the Gulf of Penas in the north, and the Peninsula Brecknock in the south (see Aguilera & Tonko, 2013).

The first written descriptions of the Kawésqar come from notes of European navigators in the 16th century. However, encounters between the Kawésqar and foreigners began to be much more frequent during the 19th century, when a North American fleet came to the Kawésqar maritory to hunt whales and sea lions. Further maritime migrations came from northern regions of Chile during the second half of the century, leading to an overexploitation of sea lions, a central species in Kawésqar' livelihoods (Martinic, 2004). The influx of hunters and fishers continued during the first decades of the 20th century. As ethnographic research shows, encounters between the Kawésqar and foreigners were accompanied by violence and abuse against the former (Emperaire, 2002[1958]; Gusinde, 2015). As argued elsewhere (see Harambour & Barrena Ruiz, 2019), the lack of state rule in the last frontier facilitated these systematic acts of violence against the Kawésqar, transforming the nomads of the sea into refugees in their own maritory.

The connecting air route. In 1927, the Territory of Colonisation of Magallanes was formally included as an administrative province of Chile. At that time, the region prospered economically from cattle farming (see Martinic, 2011), which implied the genocide of the Indigenous nomadic people of the land (see Coronato, 2010).

At the end of the 1920s, the Chilean state began to sketch an air route to transport people and goods that would connect Magallanes with the rest of Chile. The air connection presented many challenges, however. First, the distance that separated the cities of Puerto Montt and Punta Arenas defied the maximum autonomy of aircrafts at the time[17]. This meant that the route needed refuelling points. Second, weather conditions, which included strong winds, heavy rains, and snow, made it difficult to find both a suitable aircraft model and sufficient terrain to build runways. Since

the Argentine government was unwilling to grant permission for Chilean aircraft to fly over its territory, the Chilean Airforce was left with the possibility of establishing the route over the rugged geography of the Patagonian Archipelago, the last inner frontier (Fuerza Aérea de Chile, 1939, p. 1).

The air route was designed by using flying boats and hydroplanes, which could land on the Patagonian channels. Several reconnaissance flights were made to identify locations for military stations that could supply fuel, provisions, and information on weather conditions along the route (Fuerza Aérea de Chile, 2013, p. 24). A place called Jetarkte by the Kawésqar people, located on the east coast of the Wellington Island, was chosen to establish a radio-station controlled by the Airforce. This place constituted a semi-permanent camp for groups of Kawésqar, hunting south Andean deer (*Hippocamelus bisulcus*) (Leader Kawésqar of Puerto Edén, 2017, personal communication).

In 1937, the radio-station was established while regular flights came to circulate between Puerto Montt and Punta Arenas with a stop in Jetarkte (Fernández Donoso, 2015, p. 16). The main objective of Kawésqar mobility was no longer subsistence. Encounters and relations established with hunters and fishers transformed mobility into the maintenance of trade relations (Aguilera & Tonko, 2013, p. 23). A number of Kawésqar continued their nomadic navigation, avoiding any contact with the officers of the Airforce (Emperaire,2002[1958], p. 12–13). However, access to goods and new types of food, as well as the need for protection from the abuses perpetrated by sea lion hunters and fishers, led a group of Kawésqar to settle next to the radio-station in Jetarkte. In 1939, a Chilean president visited Jetarkte for the first time, which led to a state decree to 'protect' the Kawésqar of the Patagonian channels, commanding the Chilean Airforce to provide food, clothes, education, and medical assistance. This measure resulted in more Kawésqar families settling in Jetarkte, hoping to receive goods and services from the Airforce[18].

Puerto Edén and the national park Bernardo O'Higgins. Although the development of the areal route failed soon after it was launched, the Kawésqar people settled along the bay of Jetarkte[19]. According to Emperaire (2002[1958], p. 109), only two Kawésqar families remained nomadic around Wellington Island by the end of the 1940s. Over time, groups of otter fur traders and fishers also started to settle in other parts of Jetarkte bay (Aguilera & Tonko, 2011, p. 29).

By the middle of the 1960s, a report prepared by an official of the Fishery and Hunting Zonal Inspection for the GORE accounted for 43 Kawésqar living in eight houses in Jetarkte. The GORE decided to develop a plan that began to be known as *Operación Canales* (The Channels Operation),

which contemplated the formal establishment of a permanent settlement to be added to the administrative organisation of the region. A site was chosen on a small peninsula that expanded south in the bay of Jetarkte, where eleven settlers were already established. The regional authorities decided to move the Kawésqar families of Jetarkte to the chosen site, building small houses for them in a specific sector of the new village. They built a school, a police station, and an administration office to 'register as Chileans the Kawésqar, who lacked nationality' (Martinic, 2004, p. 212). *Operación Canales* accelerated the process of cultural assimilation of the Kawésqar, who were forced to abandon their nomadic life at sea and remain sedentary on land.

The village of Puerto Edén was formally opened in an official ceremony on 18 February 1969. With this milestone, the responsibility of the Airforce for the Kawésqar was transferred to the Chilean Navy. The establishment of a Navy base in the old radio-station further affected the mobility of the Kawésqar. As a Kawésqar leader declared:

> Each departure from Puerto Edén had to be announced to the marine authority, even if it was for a small trip to collect firewood elsewhere in the bay.

The same year, the Chilean state claimed more than 1,760,000 ha of land and sea to create the National Park Bernardo O'Higgins, the largest protected area in Chile. Although the boundaries of the park enclosed Puerto Edén, in the decree of foundation it was not mentioned that people were living within the park (Ministerio de Agricultura de Chile, 1969).

In 1985, the area of the park doubled in size by including 1,750,000 ha[20]. This time, the decree that established the new boundaries mentioned the existence of "the remains of the communities of the man of the channels (Alacalufes, etc...), which should be protected by all the possible means" (Ministerio de Bienes Nacionales, 1985, p. 1). However, four years later the Ministry of National Assets excluded Puerto Edén from the boundaries of the park, arguing that the local population had altered the natural environment in their need for firewood (Ministerio de Bienes Nacionales, 1989, p. 1).

The connecting air route and the establishment of protected areas enabled the inclusion of a frontier space into state control by the definition of territorial enclosures, encompassing people that were considered ungoverned and placeless. The immobilisation of the Kawésqar was thereby complete. The first phase of immobilisation was initiated by the state's gradual occupation of the region; the second phase led to the gradual enclosure and exclusion of the Kawésqar from their traditional maritory. Although Wellington Island was recognised as an important site for the

Kawésqar, they were expelled from their nomadic life at sea by the definition of a new social order that imposed restrictions on their navigation. These restrictions were partly enforced through the demarcation of spatial boundaries to delimit the existence of new settlements and protected areas. However, as I show in the following sections, over time these same boundaries were also used by the Kawésqar to reclaim Indigenous maritorial space.

4.4.2 Remobilisation

Although excluded from the park boundaries, during the last decade the Kawésqar community of Puerto Edén has emerged as a relevant actor in the governance of Bernardo O'Higgins. On the one hand, the boundaries of the park have brought restrictions on access and use of spaces and resources. As Juan Carlos Tonko, one of the leaders of the community of Puerto Edén, explained to the *Comisión de Verdad Histórica y Nuevo Trato con los Pueblos Indígenas* (Commission of Historical Truth and New Deal with the Indigenous People):

> When the national parks were created, it was a sharp blow for the Kawésqar people. There were created: the treaties for the protection of the environment, the flora and the fauna, and in that context the Kawésqar people were unable to make use of the ancestral natural resources that existed in the area. (Bengoa, 2004, p. 603. Translated from Spanish by the authors)

More recently, however, the National Park Bernardo O'Higgins has also emerged as a means for the Kawésqar of Puerto Edén to make counter claims over both terrestrial and marine space. From 2009 to 2011, members of the community have actively participated in a project oriented to the Territorial Characterization of the National Park Bernardo O'Higgins (TCNPBO), which aimed to establish a baseline for natural and cultural resources, a zoning and a management plan, and a strategy to develop nature-based tourism in the park (Aravena et al., 2018, p. 51). Three members of the Kawésqar community of Puerto Edén, along with park rangers and scientists, travelled around Wellington Island to identify 16 historical sites of cultural relevance for the Kawésqar people (see Aguilera & Tonko, 2011). In stark contrast to the past, the Kawésqar people were as such enabled to remobilise through redefining park boundaries to better correspond to Kawésqar Wæs.

The results of that work highlighted the relevance of Kawésqar knowledge in identifying ecological and cultural aspects of the National Park Bernardo O'Higgins. Furthermore, leaders of the Kawésqar people of Puerto Edén have worked with CONAF on a strategy to co-manage the park. This goal has mobilised Kawésqar leaders to promote the integration of Indigenous community

members in initiatives related to conservation, research and nature-based tourism.

In co-managing the park, the Kawésqar community of Puerto Edén has worked with the Inter-American Development Bank, CONAF and the University of Concepción to establish a scientific station on the site of Jetarkte. This project includes the relocation of the Kawésqar community of Puerto Edén next to the scientific station – the same place they settled when the radio-station operated. Moreover, the project aims to integrate Indigenous and scientific knowledge to conduct research and tourism activities within the park (Hernández Salas, 2016).

In 2010, Kawésqar' claims regarding marine mobility and hunting were also recognised by the state. Based on international law and recommendations of the National Office of Indigenous Affairs, the Kawésqar community of Puerto Edén obtained the exclusive right to capture sea lions on the recognition that it corresponds with traditional Kawésqar subsistence practices (SUBPESCA, 2010). This was despite the existence of a national ban on hunting sea lions, which is considered vulnerable in the Region of Magallanes. A specific quota on sea lions was established in an area that overlapped with most of the National Park Bernardo O'Higgins.

Using the national park as a natural setting, the Kawésqar community of Puerto Edén has built alliances with both public and private institutions and organisations to regain control over the Kawésqar Wæs. The legally recognised boundaries of the park have enabled them to partly reclaim their maritory, not only in terms of territorial rights over spaces and resources, but also rights over their mobility within this maritory.

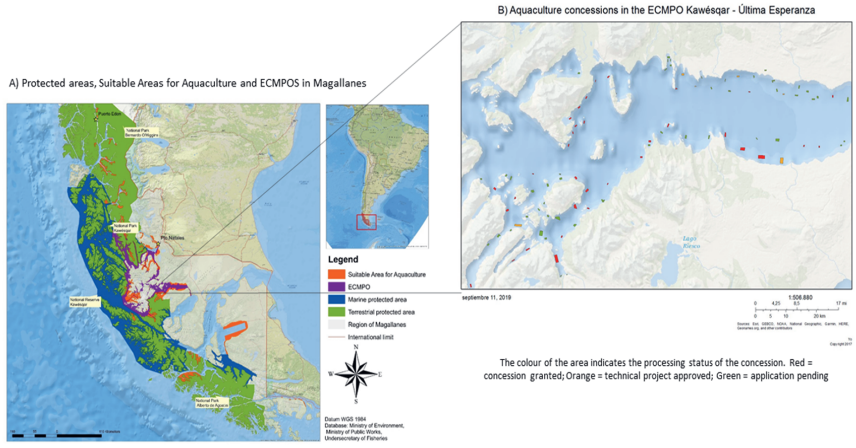

Figure 4.2. Spatial boundary formation in the Kawésqar Wæs.

However, the process of remobilisation has also led to conflicts between various mobile practices at sea. The Kawésqar people have insisted that Chilean fishing law does not apply to Indigenous peoples of the sea. As one the Kawésqar leaders of Puerto Edén explained:

> We proposed for the first time [in the context of the discussion of the fishing law] the concept of the traditional fishers…we are not artisanal nor industrial nor historical fishers. We have been fishing for a long time. And according to the stories and myths that exist within the Kawésqar culture, it is quite clear that we were consuming the products that are now part of the market.

Nevertheless, Indigenous claims over fishing were not accepted by state authorities, who continued restricting their extraction of marine resources for subsistence and traditional uses. In order to address these issues, in 2013 the Kawésqar community of Puerto Edén hosted the Congress of Jetarkte, where they defined and declared the spatial boundaries of the Kawésqar Wæs for the first time. The Kawésqar community of Puerto Edén claimed that this declaration was needed to resist what they considered 'invasive projects' by the Chilean state. Leaders of the Kawésqar community of Puerto Edén were deeply concerned about a decision by the state to declare certain marine spaces within the park as *Áreas Apropiadas para el ejercicio de la Acuicultura* (AAA, Appropriate Areas for the exercise of Aquaculture). The expansion of aquaculture to the Patagonian

channels is, however, not only a concern to the Kawésqar community of Puerto Edén. As I go on to explain, the development of aquaculture in Southern Patagonia also conflicts with spatial claims raised by both urban Kawésqar communities of Puerto Natales and protected areas created by the state. These new conflicts over marine space in turn led to further initiatives by the Kawésqar to not only claim space, but also to demobilise the 'invasive' aquaculture sector.

4.4.3 Demobilisation

Aquaculture in the national park Bernardo O'Higgins. Between 1994 and 2011, the GORE established and expanded the AAA in Magallanes. Aquaculture was identified as a central economic activity in the region's strategic development. The expansion of marine aquaculture, particularly salmon aquaculture, to the region of Magallanes, was driven by the social and ecological impacts produced by salmon farming in the northern regions of Patagonia (see Saavedra Gallo et al., 2016). Consequently, the Undersecretary of Fisheries and Aquaculture (SUBPESCA) decreed a moratorium on granting new concessions in northern Patagonia, leaving the region of Magallanes the only possibility for growth of the industry.

Aquaculture activities were prohibited in protected areas by the Fishing and Aquaculture Law (N° 18,892). However, the coastal zoning of Magallanes enabled several AAA within the boundaries of the National Park Bernardo O'Higgins and other protected areas of the region, such as the Forestry Reserve Alacalufes and the National Park Alberto de Agostini (GORE, 2011; Figure 4.2(A)). The establishment of AAA within the boundaries of Bernardo O'Higgins mobilised the Kawésqar community of Puerto Edén. They were aware of the social and environmental damage caused by salmon farming in the northern regions of Patagonia and, therefore, knew the risks involved in industry operating in the Patagonian Archipelago. CONAF and regional research centre CEQUA, along with members of the community, stressed the nonsense of a state policy that granted resources for nature conservation and, at the same time, enabled salmon aquaculture inside the perimeter of a protected area.

Furthermore, findings from the TCNPBO project, were not taken into account in the approval of coastal zoning, even though the project revealed that some of the most vulnerable areas of the park were chosen for AAA. The operation of salmon concessions would threaten biodiversity, tourism opportunities and cultural heritage of the Kawésqar people (Aravena et al., 2018). Kawésqar community members in Puerto Edén looked for support in international law and agreements that safeguard Indigenous customary use of spaces and resources. This even mobilised the president of

the Kawésqar community of Puerto Edén to share the community's concerns in the Permanent Forum of Indigenous Issues of the United Nations in New York in 2011.

The dispute became legal, with both the Kawésqar community and the salmon companies having support from different state offices. On the one hand, SUBPESCA in alliance with salmon companies advocated the establishment of AAA in protected areas of Magallanes, arguing that water spaces were not part of these protected areas when they were established; therefore, technically, the fjords and channels encircled by the boundaries of Bernardo O'Higgins Park were not protected. On the other hand, CONAF advocated the protection of marine space based on the environmental law (N° 19,300) of 1994. The dispute was finally settled by the *Contraloría General de la República*, a national autonomous state agency, which concluded that marine spaces were part of the park (Contraloría General de la República, 2013). This verdict triggered the relocation of established AAA in Bernardo O'Higgins, and in other protected areas that included water spaces within their perimeter.

Aquaculture in the national reserve Kawésqar. While the Fishing and Aquaculture Law excluded aquaculture activities within state protected areas as a norm, it did allow aquaculture in national reserves or forestry reserves (see Ministerio de Agricultura de Chile, 2002).

In 2017, SUBPESCA proposed 14 new sites for AAA in Magallanes, all located within the boundaries of the Forestry Reserve Alacalufes. Showing the sedentary rationality of the state, the National Commission of Indigenous Development (CONADI) stated that no Indigenous communities existed in the area. Nevertheless, the ratification of ILO Convention 169 by Chile in 2009 obligated the state to carry out a process of consultation with affected Indigenous communities[21]. However, only three of 12 Kawésqar communities of Magallanes were included in the consultation. Mediated by SUBPESCA, those communities signed an agreement with the association of salmon farmers of Magallanes establishing different ways in which salmon companies would compensate for the operation of the industry in the Forestry Reserve Alacalufes, including job opportunities, training, and scholarships for children (SUBPESCA, 2017). Four other Kawésqar communities of Puerto Natales, who were not part of the consultation, formed the CKDM, in opposition to salmon farming.

In parallel, the Chilean government negotiated with private conservationists the creation of the *Red de Parques de la Patagonia* (Network of Parks of Patagonia), which included the donation of both public and private land to create new national parks, and the expansion and upgrading of already existing protected areas. Most notably, the *Red de Parques de la Patagonia* contemplated

upgrading the Forestry Reserve Alacalufes to a national park which would forbid any new aquaculture concessions in any waters under its protection.

This time, the state called all the Kawésqar communities of Magallanes to a process of consultation. However, beforehand, the Council of Ministries for Sustainability[22] decided that the new park should include terrestrial spaces only, opposing the wishes of the CKDM to protect both marine and terrestrial spaces within the future national park, which they proposed to call 'Kawésqar'. Leticia Caro, one of the leaders of the CKDM, then said in a radio interview:

> When this news comes that part of the territory is going to become a national park, and we were glad for that, we went to the Indigenous consultation and we learned that there was a decision on the part of the Ministers of Sustainability [...]. We consider that this is an abusive measure that directly violates our rights as a canoeing people, because that would allow the salmon industry to expand within our territory.

During the subsequent process of consultation, the CKDM tried to protect their maritory by using different state institutional instruments. They first advocated for the creation of Marine and Coastal Protected Areas for Multiple Uses (AMCP-MU), a form of marine enclosure that allows for economic development and social activities with low impact on the environment. After the state blocked this initiative the community As Wal La Lep applied to SUBPESCA for the administration over 319,342 ha of *Espacios Costeros Marinos Pueblos Originarios* (ECMPO, Coastal Marine Spaces for Indigenous People). Supported by Indigenous Law, such enclosures are aimed to safeguard Indigenous customary practices in marine areas claimed as ancestral spaces. In February 2018, a second application for an ECMPO of 275,571 ha was submitted by other Kawésqar communities grouped within the CKDM. One month before, the state had decided to promulgate the creation of the National Park Kawésqar on land, and the National Reserve Kawésqar at the sea, which included marine spaces of the former Forestry Reserve Alacalufes (Ministerio de Bienes Nacionales, 2019). The state made its decision to enable the expansion of salmon farming in Magallanes, while showing – apparently deceptively – that it granted protection to marine spaces claimed by urban Kawésqar communities.

Although the creation of the National Reserve Kawésqar enabled the establishment of salmon concessions, the law established that once the claims for ECMPOs were entered, and until a final resolution was made by the marine authorities, any other claims regarding access and use of marine spaces would be denied. However, contradicting the law SUBPESCA granted new

concessions after an application for a third ECMPO was submitted by the Kawésqar communities of Puerto Natales (see Figure 4.2(B)). The Kawésqar then presented a legal claim to the Supreme Court, which later ordered SUBPESCA to remove those same salmon concessions. Included in the Courts ruling was an embargo on new requests for aquaculture concessions during the review process for the establishment of ECMPOs throughout the region.

In sum, the Kawésqar community of Puerto Edén and the CKDM used different forms of spatial enclosures created by the state to demobilise the establishment of salmon aquaculture in their maritory. In doing so, the Kawésqar gained greater control over spaces and movements over what they deemed invasive activities. Somewhat paradoxically, the Kawésqar were able to employ these spatial instruments of the Chilean state to counter the further internal territorialisation of the Patagonian Channels by the Chilean state.

4.5 Governing marine space through boundaries and mobilities

The findings of the case demonstrate the different ways in which immobilisation, remobilisation and demobilisation contribute to a better understanding of broader processes of territorialisation, counter-territorialisation and governance of the maritory.

A first observation is that an Indigenous (or any other) maritory is not a taken-for-granted physical space 'out there'. It is instead a lived cultural and socio-natural space that is constantly produced and reproduced through social relations, meanings, and mobility practices (Gray, 2018). A maritory is as such a political space that not only demarcates the materiality of the sea, but also includes and excludes social actors and relations that transcend terrestrial/marine boundaries and mobilities (Elden, 2007). Furthermore, the case of the Kawésqar Wæs shows how the construction of governable territories relates air connectivity and dispossessing marine mobility. The latter implication contributes to thinking of territories and maritories as volumes, with three dimensions, rather than areas, with merely two dimensions. This perspective of space is especially relevant in the case of the sea, where a vertical geopolitics of space can better explain resource control processes (see Elden, 2013).

Second, I have built on other observations that spatial claims and boundary formation by the Chilean state have been used to create governable territories that enable capital expansion and the dispossession of pre-existing (Indigenous) groups (Raycraft, 2019; Serje de la Ossa, 2017). The village of Puerto Edén, and the national parks Bernardo O'Higgins and Kawésqar, represent cases of internal territorialisation of, and by, the Chilean state. However, the findings also show that the

Chilean state has not been able to exert absolute control over nature and people, and these peripheral marine territories. Through the three processes of immobilisation, remobilisation and demobilisation, I demonstrate how the spatial boundaries and mobilities represent changing social relations of power and control between the state, the Kawésqar, and the private (aquaculture) sector over terrestrial and marine territories.

Third, I argue that the processes of remobilisation and demobilisation challenge assumptions that Indigenous communities are powerless when confronting the state (Lestrelin, 2011). While the Kawésqar were initially immobilised through the internal territorialisation of marine spaces and resources encompassed by their maritory, they have subsequently been able to remobilise and, through instruments of the state, regain control over their maritory by demobilising the encroachment of new forms of capital investment. Building on Stephen and Menon (2016), these observations demonstrate how Indigenous people can exploit fluid (i.e. unclear, moving and contested) understandings of marine space to reassert maritorial claims.

I recognise that these observations may be less relevant when territorialisation has led to the outright eviction of Indigenous people or where state sponsored violence has led Indigenous people to escape state borders (Scott, 2009). Nevertheless, the case of the Kawésqar does show how Indigenous groups are able to contest their exclusion from and movement across traditional marine spaces by exerting their agency through instruments of state territorialisation. These observations are also not unique (see also MacKay et al., 2014). For example, Satizábal and Batterbury (2018) show how Afro-descendant communities of the Pacific Coast of Colombia were also able to regain control over their maritory through, rather than in opposition to, the creation of a state-led Marine Protected Area.

Fourth, the findings indicate that counter-territorialisation through remobilisation and demobilisation can also lead to division and conflict within Indigenous groups. The urban Kawésqar communities of Puerto Natales and Punta Arenas do not represent a unilateral front to the expansion of salmon farming and protected areas in their maritory. Some of the communities have been willing to negotiate with salmon companies, while others have stood in strong opposition to salmon concessions, mobilising broader sectors of local, regional and national society for the defence of their maritory. Similar divisions also exist within the state administration; as illustrated by the different positions taken by CONAF and SUBPESCA on conservation and the development of aquaculture in National Parks. These alliances and divisions highlight the contradictions of

territorialisation through both conservation and extractive projects by the state and private companies. On the one hand both projects contribute to the dispossession of Indigenous and local groups, but on the other hand, they enable opportunities for remobilisation and demobilisation.

Together these four observations hold consequences for how the relationship between Indigenous people and the state can be 'reset' to advance Indigenous governance over their maritory and mobility (see Tebrakunna Country & Lee, 2019). To enable Indigenous governance over marine territories, the state has to move beyond its fixed rationality of space and recognise the continuum of land and sea practiced by nomadic groups. By recognising this continuum, policy makers can open up to new forms of marine policy that recognises the (collaborative and/or conflictive) effects of Indigenous mobility on, and in response to, 'mobile others' enabled by the state (e.g. tourism, science or, in the case of the Kawésqar, aquaculture). Examples of such approaches include the joint administration of protected areas by Indigenous people and the state, or the designation of marine enclosures exclusive for customary uses (see Tritsch et al., 2015). Doing so can be a first step to redefining the ability of Indigenous people to regain access and control over marine and coastal spaces (Foley & Mather, 2019).

4.6 Conclusion

The case of the Kawésqar contributes to the literature on territorialisation in two ways. First, it extends a large body of scholarship that has focused almost exclusively on the establishment and maintenance of spatial boundaries in terrestrial environments, by opening up to new questions on the territorialisation of marine spaces, the mobility of people of the sea, and the continuum between land and sea. Second, it opens up new questions on the intersection of territorialisation and mobility that goes beyond 'access' and 'exclusion', by exploring not only how mobility can be constrained, but also how the (im)mobility of some becomes a means of politicising and acting upon the (im)mobility of others.

By examining processes of immobilisation, remobilisation, and demobilisation I identify how Indigenous people are able to challenge and even regain partial control over their maritory from the state by using spatial instruments of the state. By adopting this spatial and political strategy, Indigenous peoples run the risk of adapting their spatial claims to the terms imposed by the states, but it is at the same time a way to enable Indigenous claims to be considered in defining legally recognised boundaries, as well as recognising Indigenous mobility within and across these boundaries. I demonstrate that when empowered by these mobility sensitive boundaries,

Indigenous people have the potential to exert influence over the mobilities of sectors that also use the state to make their own maritorial claims.

Understanding the intersection between territorialisation and mobility also opens up the possibility for marginalised Indigenous groups to regain control over land, water, resources and cultures by enacting spatial boundaries and mobilities to challenge processes of territorial or maritorial dispossession. Focusing on both spatial boundaries and mobilities can contribute to orient marine policy regarding the use of spaces and resources to be more sensitive to Indigenous mobility and livelihoods. To meet this objective it is key to recognise the rights of Indigenous peoples to govern their territories, maritories, and mobilities.

CHAPTER 5: Countering salmon farming expansion: Network-making power in a nomadic marine space

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5.1 Introduction

In the first half of 2019, the king and queen of Norway visited Punta Arenas in southern Chile to commemorate the 100 years of diplomatic relations between the two countries. The event came with fanfare. A military band performed in front of the GORE headquarters, stray dogs were locked up for the ceremony and local dignitaries including the mayor of Punta Arenas, governor and members of the city council were on display. However, this fragile order crumbled with the arrival of protesters holding banners reading *salmon es muerte* (Salmon is death), *Canal Beagle libre de salmones* (Beagle Channel free from salmon), and *territorio Yagán sin salmoneras* (Yagán territory without salmon industry). Their efforts were explicitly targeted at the king and queen, claiming that the presence of Norwegian royalty in Punta Arena directly represents an international lobby to further develop salmon farming in the Beagle Channel, a marine space claimed by Yagán people (Fig. 5.1).

The protest of the Yagán people is embedded in a long history of dispossession and resistance. The Yagán were a nomadic people who navigated the waters surrounding the Strait of Magellan, the Beagle Channel, and Cape Horn in their canoes until roughly the middle of the 20th century. Since then, - in a process similar to that faced by the Kawésqar - the Yagán have endured a sustained process of demobilisation within the borders of the Chilean state. In 2019 the majority of Yagán lived on the north coast of Navarino Island after being confined to a sedentary life through a project reinforcing the sovereignty of the Southern border of the Chilean state. At the same time their ancestral maritory has been appropriated by the Chilean state for nature conservation, navigation and border security, and divided into private concessions for salmon farming. Against this century of violence, the Yagán community of Navarino Island, like many other coastal Indigenous groups in Latin America and other parts of the world (see Poepoe et al., 2003; Tester & Irniq, 2008; Von der Porten, 2019), now find themselves at the forefront of the social movement resisting the expansion of a global industry into their maritory.

In contrast to the marginalisation and demobilisation of the Yagán in Southern Chile, the salmon industry has become increasingly mobile in its attempts to expand its available area for production – including into the maritory of the Yagán. Starting in the 1970s under the neoliberal reforms imposed by the Pinochet regime and extended under subsequent democratic governments from the 1990s onwards (Barton & Fløysand, 2010), the Chilean salmon industry has grown into the second largest in the world behind Norway (FAO, 2020). This growth has been driven by a

combination of growing demand in international markets, with 80 % of production exported, and both domestic and foreign investment (Nahuelhual et al., 2019). The expansion of salmon aquaculture into the Region of Magallanes[23] has accelerated since outbreaks of infectious salmon anaemia in the northern regions of the Chilean Patagonia, starting in 2007, pushed companies to seek out more productive (deeper and higher flow) waters (Bachmann et al., 2021a). Four aquaculture concessions in the Beagle Channel were granted to the Chilean company Concar S.A. in 2005 and subsequently traded to Pesquera Cabo Pilar S. A., controlled by the Chilean-Norwegian company Nova Austral in 2009. The four concessions remained unused until 2019, when Pesquera Cabo Pilar S.A. started to move pens, workers and resources to the Beagle Channel. However, the concessions did not enter in operation as the attempts of Pesquera Cabo Pilar S.A. triggered protests by the Yagán community of Navarino Island, with support from the local government and community of Puerto Williams, as well as from scientists and environmental NGOs at local, national and international levels.

The expansion of and resistance to salmon farming in the Beagle Channel can be understood as simultaneous processes of territorialisation and counter-territorialisation of a frontier marine space, including its resources and people. Mirroring similar experiences in land-based resource sectors (e.g. Rasmussen & Lund, 2018; Vandergeest & Peluso, 1995), the Chilean state territorialised the Beagle Channel by using salmon farming concessions setting internal boundaries that extended control over access to, and use of, a marine frontier (Steinberg, 2018). However, the spatial expansion of the salmon industry also provided a means through which resistance by the Yagán community was made possible by creating, mobilising and exerting power through active 'network-making' (Castells, 2011) in order to redefine spatial boundaries. These efforts to counter-territorialise maritime space, similar to conservation strategies by Indigenous in other parts of the world (e.g. Ban et al., 2008; Ban et al., 2020; Diggon et al., 2021; Lestrelin, 2011; Von der Porten et al., 2019), are more than just resistance. They represent the Yagán capacity to create networks that allow them to organise different strategies to redefine state or private spatial claims and empowers them to regain control over lost resources and livelihoods.

In this chapter I analyse how this network of actors, led by the Yagán community of Navarino Island, deployed their network-making power to counter the expansion of marine salmon farming to the Beagle Channel. Linking to the work Castells (2011), I investigate how the Yagán alliance actively 'switched' connections between existing networks and 're-programmed' these networks to counter the territorial expansion of salmon concessions in the Beagle Channel. Additionally, I build

on previous studies (e.g. Araos et al., 2020; Von der Porten et al., 2019) by exploring the ways in which multi-scalar networks can delimit the social-material elements that are needed for Indigenous-led counter-territorialisation in the marine space.

The following two sections elaborate the theoretical intersection between counter-territorialisation and network-making power, and the case study methodology. I then present the results detailing the Yagán alliance resistance to marine salmon farming in the Beagle Channel. Finally, I discuss the implications of the work for understanding the formation of marine space as a function of counter-territorialisation, which I consider an effect of forms of power exerted through network-making power.

Figure 5.1. Demonstrations at the arrival of the King and the Queen of Norway.
A) and B) Sunday March 31, 2019. Demonstrations in Puerto Williams. C) and D) Saturday March 30, 2019: Demonstrations in the main square of Punta Arenas.
Source: Lisselotte Álvarez and José Barrena

5.2 Counter-territorialisation from a network perspective

Territorialisation is a strategy of setting boundaries as a means of controlling resources and peoples. The definition of the spatial boundaries that establish control over a territory is an expression of ordering space by the logic of inclusion and exclusion (Sack, 1983; Stephen & Menon, 2016). States have historically engaged in internal territorialisation as a means of reaffirming control over frontier spaces, including their resources and peoples, that were considered ungoverned and wild

(Rasmussen & Lund, 2018; Vandergeest & Peluso, 1995). By overlaying boundaries on people and resources, states enclosed frontier spaces and in doing so enabled social control over sovereignty, livelihood opportunities, mobility and, relatedly, opportunities for new actors to extract resource rent (Rasmussen & Lund, 2018). The enclosures and resistance over these frontier spaces tend to be more intense when they involve valuable resources that can be extracted, processed, and traded on the global market (Ferguson et al., 2022). Increasing demand for commodities in global markets can lead to the depletion of natural resources and serious environmental impacts, which in turn eventually cause social disruption. When the exploitation of natural resources is no longer viable due to resource overexploitation or social unrest, the frontier is closed and companies move to another frontier space where to continue extraction and exploitation, leaving a degraded territory in social and environmental dimensions. This process has been termed as 'the tragedy of the commodity' and it has been analysed in relation to marine environment and resources (Longo et al., 2015).

At the same time, the territorialisation of frontier spaces remains incomplete given that the process of overlaying new boundaries and excluding groups remains ambiguous and, as such, dynamic. This means that the hegemonic power of states, and the rentiers they enable, continue to be disputed by seemingly powerless groups (Clare et al., 2017; Raycraft, 2020). It is the ambiguity of these boundaries and the relative absence of material controls over the spaces being enclosed that enables these groups, including Indigenous peoples, to enact strategies of counter-territorialisation. By opposing or reshaping the definition of spatial boundaries by the state or other powerful actors, it is possible to (re)gain partial control over resources and mobilise access and movement between places of value and meaning.

Many cases of counter-territorialisation have been observed on land, linked to local and Indigenous resistance to colonial and post-colonial encroachment on their resources. The Indigenous-led social movements in Latin America literature has pointed to the significance of re-claiming territory. Clare et al. (2017) developed the concept of 'territories in contestation' to demonstrate how more-than-state actors in México and Argentina create territories 'from below' using *Potencia*, a specific type of power that challenges state structural power based on sovereignty. Rocheleau (2015), analyses the forms of resistance articulated by Indigenous and *campesinos* movements in Chiapas opposed to conservation and tourism projects that resulted in eviction and marginalization to local peoples and communities. In Chile, Indigenous and local communities have also organised and developed forms of resistance against different projects of development

promoted by alliance between the state and companies in different sectors. The most emblematic cases being the Mapuche communities in the Araucanía Region (Pairican, 2014) and the Lafkenche in the coastal and marine space (Gissi et al., 2017).

Processes of counter-territorialisation have also been observed in other parts of the world. Yee (2018), for example, demonstrates how poor residents of Tacloban city in the Philippines engage in non-compliance and organised forms of resistance against the no-build zones established by the state in the process of the city's reconstruction after Typhoon Haiyan. Lestrelin (2011) has revealed everyday acts of resistance of ethnic minorities in Laos facing land reforms and schemes of internal resettlement. Peluso (1995) and de Vos (2018) have shown how social actors engage in forest mapping techniques to counter state land use planning policy in Kalimantan, Indonesia. And Isager and Ivarsson (2002) have shown how the Buddhist ordination of trees has been used to regain control of land by farmer networks in Thailand.

In contrast, relatively limited attention has been given to processes of counter-territorialisation by Indigenous groups in marine environments. This is in part because of the inherent challenges of setting spatially delimited boundaries to contain the liquid materiality and mobile character of marine ecosystems, resources and people. Nevertheless, counter-territorialisation at sea has been observed. Von der Porten et al. (2019), for example, identify multiple strategies by Indigenous coastal peoples and nations in Canada to reassert and regain control over herring fishery governance. They describe how Indigenous nations managed to persuade the industry to do not fish in certain areas within Indigenous traditional marine territories, despite the opening for commercial fishing declared by the state. Similarly, Raycraft (2020) analyses the 'every day forms of resistance' practices by villagers in Southeast Tanzania to a state imposed marine protected area through covert acts of noncompliance to conservation regulations which enabled them to maintain access to fishing grounds.

Common to all of these examples of counter-territorialisation, both on land and in water, is the agency of 'disempowered' actors to form alliances and networks that enable the non-violent renegotiation of meanings, rules and actions overlaid by state boundaries in frontier spaces. In most cases these involve networks of in situ actors – farmers, local communities and Indigenous peoples. However, these networks have also been shown to establish associations between non-state minorities and local state agents (Li, 2005; Robbins, 2000). Regardless of their scale and composition, these networks are understood to be decisive in the (re)negotiation of spatial

boundaries and, as such, central in processes of counter-territorialisation. What remains less clear are the processes through which these actors 'make' their networks, especially when the people and groups they align with transcend the spaces and places subject to territorialisation. Regarding this, it is then important to understand in which ways and what type of links actors establish that enable them to build an organized resistance to processes of territorialisation and, at the same time, how through the formation of a resistance network, they can modify or reprogram the objectives set by territorialization they oppose to, particularly how these apparently disempowered groups are able to shape and change imposed spatial boundaries.

According to Castells (2009, 2011, 2016), networks enable the kind of power and counter-power that could embody the counter-territorialisation strategies in four distinct ways. The first three forms of power are less relevant to the case of the Yagán alliance: *Networking power* referring to the influence of actors within networks over those excluded from networks; *network power* afforded by the imposition of standards and norms by some actors over others within their network; and *networked power* related to the structural capacity of some actors over broad societal institutions. More relevant to this case is *network-making power*, referring to (a) the ability of actors to set the goals of the networks in which they operate, referred to as programming and (b) connecting and enabling cooperation between otherwise disconnected networks, referred to as switching. By programming and switching networked actors can establish and shape the structure of a specific network in terms of the organisation of the inclusion and role of people, materials and information, in ways that favour their goals and interests. I argue that this form of power is most applicable to the case of the Yagán alliance because these in situ actors established a network, set goals, and connected with other networks at different scales in developing their counter-territorialisation strategies against the imposed boundaries of the Chilean state and the salmon industry (see also Keck & Sikkink, 1998).

I first examine the role of 'switching' in the Yagán alliance by focusing on the ability of network participants to connect networks extending within and between local and national scales (Bush & Oosterveer, 2019; Castells, 2004). In doing so I specifically focus on how Indigenous people, local bureaucrats, national and international scientists and environmental NGOs exercise counter-territorialisation by defining a new networked actor (Castells, 2011). Second, I examine the role of '(re)programming' in the Yagán alliance by describing how this new networked actor changes original goals of marine territorialisation in the Beagle Channel by removing marine salmon concessions controlled by private companies, and by attempting to define new spatial boundaries

at sea related to Indigenous customary practices and nature conservation.

5.3 Methods

I employ a case study methodology (following Meyer, 2001; Mitchell, 1983) to understand the counter-territorialisation in marine space using a mix of participant observation, open-interviews, and secondary data analysis (Baxter & Jack, 2008). Three periods of fieldwork were conducted in the Region of Magallanes between October 2016 and April 2019 involving the first and the third author. During fieldwork, twenty semi-structured individual and group interviews were conducted with informants in Spanish and English, varying in length roughly between one and two hours. Most of the interviewees were part of the social movement against salmon expansion in the Beagle Channel. Among them, there were representatives of the Yagán community of Navarino Island, members of environmental NGOs, scientists, as well as regular citizens without an affiliation to any formal organization, but who participated in the opposition to salmon expansion to the Beagle Channel in different ways. In addition, officials of the GORE and the navy, as well as local fishers were also interviewed, providing valuable contextual information for the research.

Contact with some of the informants in Navarino Island was facilitated by previous research in the area carried out by the IDEAL Research Center. These informants included Indigenous leaders and scientists. In a first exploratory fieldwork in 2016, the first author had a face-to-face interview with the president of the Yagán community with whom he maintained contact throughout the time of the investigation and beyond. At the beginning of 2019 when the Yagán alliance was mobilised by the arrival of the salmon farming to the Beagle, the first and third authors had a second face-to-face interview with the president of the Yagán community at the community headquarters.

Interviews first identified the different strategies designed and applied by the movement in opposition to salmon farming in the Beagle Channel. Importantly, these strategies were oriented to modifying the concessions granted by the state and controlled by a salmon company. Second, questions focused on the role played by some of the leaders of the movement in this process, especially regarding their capacity to connect different networks in opposition to salmon expansion.

Additional information was collected through a comprehensive analysis of secondary sources, including state files, statistical records, technical reports, legal documents, newspaper articles, online information and news sources, photographs and maps. Following Molitor (2001) and James et al. (2010), data were analysed in parallel with ongoing data collection following a hermeneutical approach, which enabled continual interpretation and analysis collectively amongst

the authors.

5.4 Historical territorialisation of the Yagán maritory

Archaeological research has shown that the Yagán, nomadic people of the sea, have inhabited the area of the Beagle Channel for more than six thousand years (Orquera & Piana, 2009). Before the arrival of European marine expeditions in the 16th century aimed at mapping and territorialising unknown lands and peoples (see Mayer, 2008), the Yagán navigated the Beagle Channel and the region of Cape Horn freely.

The first descriptions of the Yagán come from the logbooks of European navigators, explorers and scientists. In 1520, Ferdinand Magellan commanded an expedition that crossed the marine strait that interconnects the Atlantic and Pacific oceans, which would later bear his name. From that milestone onward, several European marine expeditions were carried out passing by the maritory of the Yagán. In 1830, Robert Fitzroy, captain of the H.M.S. Beagle, which was on a hydrographical expedition funded by the British Royalty, took captive four Indigenous nomads in the Beagle area, who were brought to England and three years later one of them, the Yagán named Jemmy Button, was sent back to Navarino Island as an 'emissary of civilisation' (Mayer, 2008). During the second half of the 19th and the first half of the 20th century, the encounters between the Yagán and settlers, travellers and fishers became more frequent. New spatial and social orders imposed by settlers on the marine and coastal spaces of Patagonia, restricted the marine mobility and livelihoods of the Yagán. By 1918, the priest and ethnographer Martín Gusinde reported the existence of a remaining population of only 100 Yagán (Gusinde, 2015).

In the second half of the 19th century, religious missions were established on the northern and southern borders of the Beagle Channel, where Indigenous people from different groups were sent to be 'christianised'. In those places, they suffered overcrowding, changes in their diet and diseases, and many died as a result (Aliaga, 2000). By that time, Chile and Argentina had started to expand state borders to the south, colonising Indigenous territories and maritories. In 1881, Chile and Argentina signed a border treaty that defined the territorial limits between both countries from north to parallel 52°, therefore north of the Beagle Channel. The definition of national borders and sovereignty was easier on land than at sea, which prolonged a dispute over the islands south of the Beagle Channel that almost resulted in war between both countries in 1978 (see Lacoste, 2004). In the conflict over the border of the Beagle Channel, the previous occupation by Chile of Navarino Island was key in asserting national sovereignty and decisive to the Yagán people.

In 1953, the Chilean government decided to establish a military base on Navarino Island. The base was called Puerto Luisa and was controlled by the navy. The foundation of Puerto Luisa and the rule of the navy on the Beagle area had important implications for the Yagán people. Officials of the navy built houses next to Puerto Luisa, in a place nowadays known as Villa Ukika, to settle the few Yagán groups that still navigated relatively free in the Beagle Channel and the surrounding area (Aragay, 1968). Through the years, the state promoted ways to attract civilians to Puerto Luisa to assert further territorial sovereignty on the southern border of the country. In 1956, the military base of Puerto Luisa was formally renamed Puerto Williams, a town with around 3,000 inhabitants today, half of which affiliated to the navy.

With the rule of the navy, the free navigation of the Yagán was strictly controlled; they were driven away from their nomadic life at sea to a sedentary life on land. As a member of the Yagán community told:

> We have problems with people of our community that move on boat to other sectors of the Island. They sometimes bring cows to sell, to live, but they [the officials] take it away and burn it.

With the issuance of the Indigenous Law in 1993, Yagán people formed in 1994 a functional Indigenous community named Yagán Indigenous Community Bahía Mejillones. The existence of this legal community led the state to establish an *Área de Desarrollo Indígena* (ADI, Area of Indigenous Development) in 2005, including the whole of Navarino Island[24]. Although the establishment of an ADI entails that public policy must be coordinated and oriented to favour the Indigenous community, in practice, the Yagán continued to be left out in decision-making processes. Despite the ADI's recognition of the dependence of the Yagán on maritime and land resources in the area, no Indigenous rights have been granted to the Yagán over their maritory, nor is their nomadism recognised in the state territorial policy. In fact, despite the ADI designation, the Yagán still suffer from systematic restrictions on their navigation and livelihoods.

During the last decade, members of the Yagán community have resisted against the granting of land concessions for conservation purposes by the state to a consortium of the Magallanes University and Omora Foundation. Part of the Yagán community claims that the state expedites the territorial demands for nature conservation purposes raised by extra-territorial actors, while it does not process with the same speed the Indigenous demands for lands on Navarino Island. The claims of the Yagán community led the state to back down from its decision to grant new lands in

concession for conservation on Navarino island. Subsequently, however, the community faced new territorial claims enabled by the Chilean state. In 2018, in the context of the renovation of the coastal road of Puerto Williams, a concrete wall was built, blocking access and views of the Beagle channel. A local movement led by the Yagán community protested for two weeks, and resulted in a reduction of the wall. Soon after the Yagán community was faced with the opening of salmon farming concessions in the Beagle channel - opening up a new challenge to the Yagán maritory.

5.5 Salmon farming territorialisation in Magallanes

The commercial production of salmon farming started in Chile in the 1980s (Hosono et al., 2016; Nahuelhual et al., 2020). Since then, the industry has grown steadily, with Atlantic salmon (*Salmo Salar* L.) accounting for roughly 80 % of the total production (SUBPESCA, 2021). The expansion of the industry in Chilean Patagonia has occurred from north to south: first growing in Los Lagos Region, then moving down to Aysén Region, and in the last decade to the Magallanes Region. The recent growth in the Magallanes Region occurred in the aftermath of the ISAV crisis, which led to the suspension of new marine aquaculture concessions in Los Lagos and Aysén regions (Bachmann et al., 2021a).

As mentioned above, between 1994 and 2011 the AAA were defined and expanded in terms of both location and size, within a regional process of Marine and Coastal Zoning in Magallanes. During this process, marine Indigenous people like the Yagán and Kawésqar were not consulted or informed. Furthermore, the definition of the AAA in the Region of Magallanes conflicted with previous definitions of marine spatial boundaries by the State itself, particularly protected areas created and managed by the state since the 1960s. In fact, more than half of the terrestrial and marine territory of Magallanes is under a form of nature protection, such as national parks, national reserves, and forestry reserves. According to the Chilean Fishing and Aquaculture Law, aquaculture is forbidden within national parks (the highest category of nature protection), but it is allowed in national reserves and forestry reserves. Due to this, 235 applications for salmon concessions located within the boundaries of national parks were rejected in 2014 based on a resolution launched by the Contraloría General de la República (Contraloría General de la República, 2013).

In April 2019, there were 134 salmon farming concessions operating and an additional 185 were being requested by private companies in the Region of Magallanes. The four concessions in the Beagle Channel, each with an authorized production of 1,500 tons, were granted to the company Concar S.A. in 2005 and transferred in 2009 to Cabo Pilar, a company controlled by the Chilean-

Norwegian company Nova Austral, which at that time maintained salmon concessions in other areas of the Region of Magallanes too. In 2010, a year after taking control of the concessions in the Beagle Channel, Cabo Pilar applied for an increase of the production in each concession to 2,500 tons, which was approved by the SUBPESCA in 2015. Importantly, this increase was approved while the concessions had remained inactive for 10 years.

When in early 2019 Cabo Pilar attempted to start operations at the salmon concessions, this was met with a determined and joint opposition from the Yagán community and local groups. These joint actions were undertaken by networked actors, forming a new networked actor, capable of countering power relations at sea.

5.6 Counter-territorialisation in the context of salmon farming expansion to the Beagle

The Yagán were able to (re)programme marine territories and resist the expansion of salmon farming in the Beagle Channel by exerting network-making power. In doing so they employed a series of switching and programming strategies to reshape the territorialisation of their marine space.

5.6.1 Switching: Conforming the network

The Yagán have been able to counter salmon aquaculture expansion by the actions of individuals working cooperatively to form a network extending from the local to the global scale. This network, which became the Yagán alliance, included members of the Yagán community of Bahía Mejillones, the local museum Martín Gusinde, the local government, the Omora Foundation and Greenpeace. By connecting these organizations (and others), the Yagán mobilised the flow of cultural, ecological, and scientific information, and realised collective actions, which challenged the ongoing territorialisation at sea by the state and salmon companies.

In January 2019, the Yagán alliance blocked the main dock of Navarino Island, where the ferry 'Yaghan' departs and arrives twice a week, connecting Puerto Williams and Punta Arenas. In the words of L, a journalist that at the time lived in Villa Ukika, and participated in this action:

> We received an alert by the fishermen that a boat named Gladys S had arrived to the Beagle carrying elements to establish salmon farms close to Puerto Toro [east of Navarino Island]. This was on Friday, and the next day at seven a.m. we were blocking the entrance to the ferry. On Sunday we marched all over town

Blocking the ferry was a spontaneous action as the start of salmon operations and the arrival

of the Gladys S was considered unimaginable by the people in Puerto Williams and Villa Ukika.

> We realised, not in an official way…that salmon farming was coming, which caught us by surprise due to how old this is [the marine concessions]…besides, as an island…as a county, we have many designations that made it impossible for us to think that this [salmon farming] came to here, even more considering what had happened in other regions of the country, what is known by everyone (D, president of the Yagán community)

With the term designations, D referred to the title of Biosphere Reserve by UNESCO, as well as Zone of Tourist Interest and ADI by the Chilean state. D explained that once he and other members of the Yagán community realised that salmon concessions were about to start operating, they acted immediately, involving other local organizations and people in Puerto Williams and Villa Ukika. After blocking the main dock of the island, the Yagán community summoned the mayor of the city to meet in the headquarters of the community in Villa Ukika. According to L, at that time the mayor did not have a clear position regarding the operation of the salmon concessions in the Beagle. However, after this first meeting a group of representatives of the movement, including D, presented their views at the City Council, acquiring the support of the mayor and all the councillors in the opposition to salmon farming in the Beagle Channel. From that point onwards, the movement grew with the involvement of the Municipality, the local cultural committee, two local tourist organisations, and the Omora Foundation, a non-profit scientific organization that maintains a research station in Puerto Williams to develop ecological and cultural studies in the Cape Horn Biosphere Reserve.

The Cape Horn Biosphere Reserve is a protected area designated by UNESCO to 'promote solutions reconciling the conservation of biodiversity with its sustainable use' (https://en.unesco.org/biosphere) and covers roughly five million hectares of mostly marine space (Fig. 5.2). The reserve includes the Beagle Channel and the whole of Navarino Island, on which the Omora ethnobotanical park is located, a site included in the Chilean Long-Term Socio-Ecological Network (https://ltser-chile.cl/red/en/inicio-english/). For the last twenty years, Omora has maintained a permanent workshop in the secondary school of Puerto Williams on cultural and ecological biodiversity. The development of the workshop has strengthened the ties between the foundation and the local community. Nevertheless, territorial claims for the creation of protected areas and the development of conservation initiatives by Omora have also produced tensions and conflicts with other part of the local community. In 2009, the Yagán community, along with three other local organizations, rejected the granting of terrains by the state to Omora and the University

of Magallanes for the development of ecological research and conservation, arguing that those terrains were valuable for local development. The representatives of these organisations declared that Omora only maintained instrumental ties with the local community to meet the requirements demanded by the conservation projects it carried out on the island. Later, in 2018 Omora and the University of Magallanes declined the terrains given in concession by the Ministry of National Assets, due to this local opposition. Recently, the Yagán community criticized the call of one of the leading scientists of Omora to attract investment to the island, stating that he did not represent the Yagán community or the inhabitants of the island[25].

To a large extent, the tensions between Omora and the Yagán community were related to the perception that leading scientists of Omora were not part of the local community. They came and went, staying for short periods on the island to do research without a real commitment to local problems. In the context of the expansion of salmon farming to the Beagle Channel, the differences between Omora and the Yagán community continued. While the main aim of the Yagán community was to safeguard cultural and ecological areas and resources from what they considered an extractive and invasive activity, Omora's initial position was not strongly against salmon farming, as it was mainly focused on the impacts of the industry in what scientists conceptualized as pristine nature within 'a natural laboratory' for scientific research. In that sense, members of the Yagán community and the movement against salmon farming, saw the position of Omora as utilitarian and not aligned with the local community.

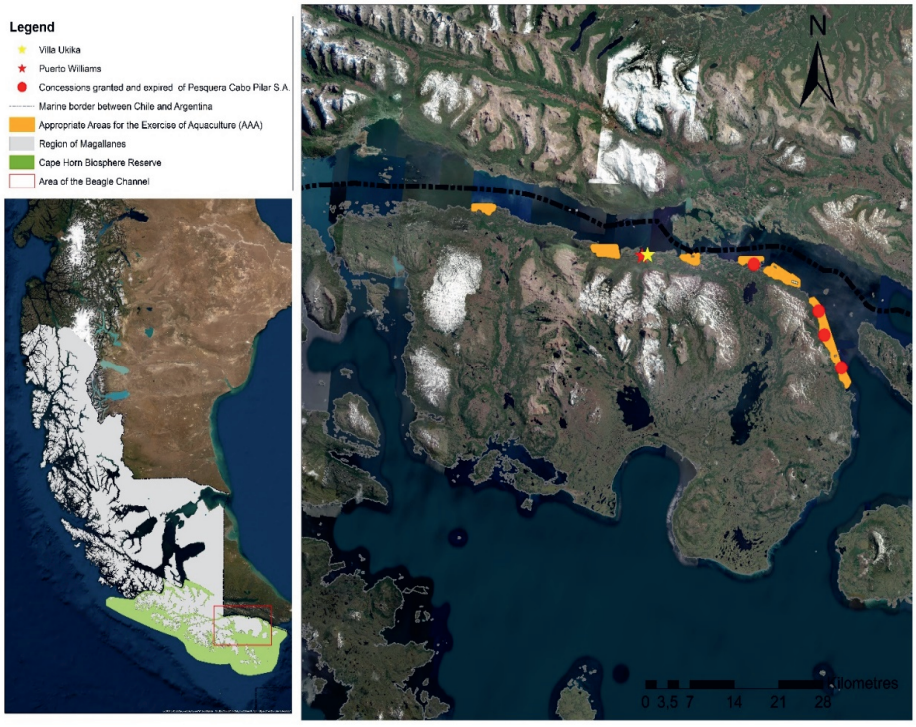

Figure 5.2. Marine salmon territorialisation in the Beagle Channel.
(left) The area of the Beagle Channel in southern Chile, the maritory of the Yagán people, and the Cape Horn Biosphere Reserve boundaries. (right) Chilean-Argentine marine border in the Beagle Channel, the AAA, and the salmon concessions of Pesquera Cabo Pilar S.A

Omora's position changed when T became one of the principal scientists after having lived in Puerto Williams for more than 15 years. T had been involved actively in the actions against salmon farming in the Beagle Channel from the beginning, both as a scientist and as a neighbour. For example, during the visit of the king and queen of Norway to Puerto Williams in 2019, T expressed the socio-environmental arguments of the movement against the expansion of salmon farming in the Beagle Channel. T was invited to give a speech on climate change at a lunch organised by the GORE as part of the welcoming activities. Global climate impact was chosen as an appropriate and less political theme for a speech to the royal visitors. However, as an active member of the movement, T decided to switch her speech to present the ecological arguments that support the position of the local movement.

> I gave them our background and recommendations to exclude salmon farming and explained to them what was going on here. For us it was an opportunity for somebody from the

> community, as a scientist, to tell them that we are not saying no because of no, instead we are saying no because we have a background of information and history that support our claims (T, scientist of Omora).

Actions like these were previously discussed and agreed between the members of the movement in long meetings. In preparation to the visit of the Norwegian royalty, representatives of the Yagán community decided to reject parts of the invitations made by the GORE in the context of the visit.

> When we knew that the king and queen of Norway were coming, we prepared ourselves. We thought that the most massive protest would be in Punta Arenas [capital city of the Region of Magallanes] and that this might avoid their arrival to Navarino Island. However, it was the opposite…there were invitations to the Yagán community to meet the king and queen at the airport and later to a lunch with them, but we did not accept, because this was against all that we planned and talked about for months. The only instance we accepted to participate was in the museum along with A [the director of the museum], because we asked him to be our translator as we did not trust the one of them. Otherwise we would not speak to them (D, president of the Yagán community)

Days before the arrival of the king and the queen, A was removed from his function as director of the local museum by the National Service of Cultural Heritage, arguing that his participation in the demonstrations against salmon farming were incompatible with his position as a public official. A had been working for years with the Yagán community on the recovery of the archaeological and cultural heritage of the Yagán on Navarino Island. He brought to the movement relevant historical and cultural knowledge that helped to reinforce the position against salmon expansion.

> Its consequences [of salmon expansion] are so terrible to the cultural and natural heritage that its establishment is incomprehensible. Established in areas of raw materials and traditional navigation routes, [salmon concessions] will affect the main labour source of the Yagán people, put at risk marine resources, and threaten the archaeological heritage on the coasts of the archipelago (A, declaration to a national newspaper, February 2019, translated from Spanish by the first author)

Despite being removed from his position in the museum, later on A was being reinstated in his position as director of the museum as a result of pressure exerted by his colleagues and the Yagán community.

The close ties built between local leaders as D, T and A, who played central roles as representatives of the Yagán community, Omora and the local museum, respectively, contributed considerably to the strengthening of the Yagán alliance. Next to the local ties, the movement received the support of extra-local organisations, such as Greenpeace, an environmental NGO addressing salmon farming impacts in Chile since 2016, with the dumping of almost 5,000 tonnes of dead salmon in Northern Patagonia, causing a harmful algal bloom or 'red tide' (see Armijo et al., 2020).

In April 2019, four months after the arrival of Gladys S, representatives of the Yagán alliance went to present their case to the Environmental Commission of the Senate in Santiago, more than 3,500 km north of Puerto Williams. The visibility gained by the movement led the commission to hear the position and arguments of the different organisations in opposition to the salmon farming expansion in the Beagle Channel.

5.6.2 Programming: changing spatial boundaries

The actions and claims of the Yagán alliance were oriented to change the formal definition of spatial boundaries in the Beagle Channel. Although the immediate aim of the movement was to remove the four salmon concessions in the Beagle, its objectives were more far reaching. As the vice-president of the Yagán community expressed at the Environmental Commission of the Senate,

> We demand that Nova Austral stops its installation process in the county of Cape Horn; we demand the removal of AAA from the Antarctic province because the process [of establishing the AAA] is flawed; we demand to exclude salmon farming from the Indigenous territories of the Region of Magallanes

This statement directly challenges the coastal and marine zoning plan of the Region of Magallanes; the process of marine territorialisation by which the AAA were defined. The Yagán community pointed out that the zoning plan did not include an Indigenous consultation and that conservation was defined as preferential use of the marine space in the Beagle Channel. The speech of the vice-president of the Yagán community was the last of four interventions at the Senate's Environmental Commission by representatives of the Yagán alliance. The interventions of the Mayor of Cape Horn, T from Omora, and the campaign coordinator of Greenpeace Chile that preceded the speech of the representative of the Yagán community, highlighted that the AAA and the subsequent aquaculture concessions in the Beagle Channel were within the boundaries of the Cape Horn Biosphere Reserve. Unlike national parks, where aquaculture is forbidden, biosphere reserves do

not have an explicit prohibition of the development of aquaculture in general or salmon farming in particular. This apparent contradiction was used in the argumentation of the Yagán alliance; that is, the simultaneous promotion of salmon aquaculture and the establishment of an internationally recognised protected area. In doing so the Yagán alliance began a process of reprogramming salmon farming expansion by not only lobbying for the removal of four salmon concessions from the Beagle Channel, but aligning this expansion with the globally recognised Cape Horn Biosphere Reserve.

From April to June 2019, the Senate's Environmental Commission discussed the establishment and operation of the four concessions in the Beagle Channel in four additional sessions. During these meetings they progressively requested the participation of the SUBPESCA, the Undersecretary of Armed Forces, and the Director of the Fishing and Aquaculture National Service. Additionally, Greenpeace and some citizens of Puerto Williams presented a legal case in the Court of Appeals of Punta Arenas arguing for the cessation of concessions due to the environmental impact of Atlantic Salmon as an introduced species in what they presented as one of the most pristine environments on Earth. Although this legal claim was dismissed by the Court of Appeals of Punta Arenas, the arguments presented in the Senate's Environmental Commission led the Undersecretary of Armed Forces to declare the expiration of the four concessions in the Beagle Channel. This decision was based on a report previously released by the Fishing National Service, which indicated that the four concessions expired because the company Pesquera Cabo Pilar S.A. exceeded the legal timespan of 'inactivity'. Through this institutional path the Yagán alliance succeeded in having the four concessions removed from the Beagle Channel. Moreover, the movement positioned the marine space of the Cape Horn Biosphere Reserve as an important socio-ecological area that is incompatible with salmon farming production (see Figure 5.2).

However, the Yagán community went further in countering state marine boundaries. In attempting to take control back over their maritory, the Yagán community of Bahía Mejillones, applied to SUBPESCA for an ECMPO. As showed in the case of the CKDM, applications for ECMPOs have been one of the tools used by coastal and marine Indigenous communities of southern Chile to assert historical and customary rights over marine and coastal spaces (see also Araos et al., 2020). The Yagán ECMPO application attempted to gain recognition of territorial and marine rights of the Yagán people, which were taken by the Chilean (and Argentine) state in the 19th and 20th century. The Yagán ECMPO identified an area of 2,987,610 ha for sustaining multiple customary practices, including navigation, sea lion hunting, fishing, shellfish and algae gathering, recreational and spiritual use, as well as for nature conservation. Customary practices were demonstrated by using

historical and archaeological data. In its application for ECMPO the Yagán community declared, however, that these customary practices – especially navigation - have been interrupted by the colonization and marine territorialisation exerted by privates and the state. In the view of the Yagán, the definition of an ECMPO as a marine enclosure controlled by the Yagán community could reverse this situation:

> If it is possible to navigate in the future - while it is being done currently it is only mediated by foundations or projects – we would like to manage navigation… [In the current conditions of the state control on navigation], it has been impossible for us to take the little ones to the ancestral settlements, which has damaged our culture (D, April 2019)

Although the law considers that the customary practices could be interrupted by "material, legal or administrative circumstances" (Ministerio de Planificación, 2008, p. 3) and that those interruptions do not affect the regularity of the practices, the ECMPO application was rejected by SUBPESCA arguing that the Yagán community of Bahía Mejillones was not constituted as a formal Indigenous community. The Yagán community responded by submitting a document issued by the CONADI, which proved its legal status, while continuing with the application for the ECMPO. However, the application suffered a second rejection. This time, SUBPESCA questioned the customary practices of the Yagán people in the ECMPO and determined that the requested area was neither reasonable nor proportional. SUBPESCA also observed that the boundaries of the requested ECMPO trespassed the borders of the Chilean Territorial Sea.

Overall, the case shows how the attempts of marine counter-territorialisation by the Yagán alliance were partially reached. The four marine salmon concessions controlled by Pesquera Cabo Pilar S.A. were removed from the Beagle Channel due to the organized actions led by the network of actors that conformed the Yagán alliance. The common goals of redefining cultural, environmental, and socio-spatial boundaries, enabled the Yagán alliance to act as a relevant and effective networked actor to not only remove the four salmon concessions from the Beagle Channel but also positioning the Cape Horn Biosphere Reserve as a relevant marine (conservation) enclosure. However, the Yagán people were not able to establish a new marine enclosure that would enable them to assert Indigenous customary practices at sea.

5.7 Discussion

The case of the Yagán alliance demonstrates how programming and switching strategies embedded in networks of resistance enabled the Yagán to counter-territorialise their maritory against encroachment from the global salmon industry. In line with Castells' (2004, 2011) wider network society theory, the case provides empirical evidence of how local embedded network-making power can also reshape a global commodity frontier (c.f Moore, 2000). Counter-territorialisation by the Yagán alliance redefined global flows (materials, money, people) that enables the salmon farming industry to remain globally mobile, by (re) asserting customary mobility of a marginalised Indigenous group. As a networked actor, the Yagán alliance exerts network-making power by programming the constitution of information as well as switching the flow of information between other actors. These strategies ultimately enabled them to renew their nomadism and local mobility by establishing new spatial boundaries that exclude the globally mobile aquaculture industry from their maritory in the Beagle Channel. This case of counter-territorialisation raises several implications for understanding the formation of marine space as a function of networked resistance against globally networked capital.

First, the analysis contributes to wider theoretical debates on the relationship between networks and territory (see Painter, 2006). Networks and territory are commonly treated as different and even incompatible perspectives on socio-spatial organization (Storper, 1997). Contrary to this perspective, the case shows how networks and territory connect in the actions of resistance of the Yagán Alliance. On the one hand, the case shows how networks are able to shape territories through the definition of spatial boundaries (following Rocheleau, 2015). On the other, the case also shows how specific territories defined by spatial boundaries, such as marine salmon concessions, Indigenous maritories and marine protected areas, represent the networked intersection of territorialisation and counter-territorialisation.

Second, the case of the Yagán alliance highlights the agency of seemingly peripheral and powerless actors, and their networks, in globally driven natural resource use and nature conservation at sea. I show how the collective actions and strategies led by Indigenous marine communities – as illustrated by network programming and switching – enable these apparently peripheral actors to resist the 'tragedy of the commodity', i.e. the critical socio-ecological impacts of (aquaculture) production in frontier spaces (see Ferguson et al., 2022). The Yagán alliance proved to be capable in exerting its agency to modify spatial boundaries at sea that local and extra-local

networked actors consider harmful culturally, environmentally and economically. The capability of the alliance to acquire, share and link information between Indigenous leaders, scientists, environmentalists, local bureaucrats, among others, played a central role in organising opposition to salmon farming expansion. Moreover, local actions, such as blocking access to the harbour and lobbying the Senate's Environmental Commission, were made possible by programming connections amongst the networks of various local and extra-local alliance members – expressing, as Castree (2004) argues, localised spatial claims "founded on an explicit and conscious engagement with extra-local forces" (p. 163). These findings contribute to understanding the ways in which peripheral Indigenous groups in Latin America challenge encroachment and territorialisation by the state and global capital (Clare et al., 2017; Rocheleau, 2015). As seen in other contexts (e.g. Clare et al., 2017; von der Porten et al., 2019), by (re)making networks of counter-territorialisation Indigenous peoples can perform counter-hegemonic non-state practices that align multiple local and global claims to support spatial claims over resources, cultures and people.

Third, the network-making power of the Yagán alliance emphasizes the importance of social movements in redefining processes of state and private territorialisation. Building on Clare et al. (2017), the case shows the importance of social movements in (re)shaping territories through their capacity to change and redefine spatial boundaries. The findings build on previous observations of Indigenous resistance by focusing specifically on the capacity of networks to reshape processes of territorialisation of the state. Unlike Indigenous movements, which create counter claims over space and resources that precariously overlay the boundaries set by the state (see for e.g. Anthias, 2021; Bryan, 2011; Larson, 2010; Porter & Barry, 2016; Prout & Howitt, 2009), the Yagán alliance's was able to redefine boundaries by programming the boundaries enabling salmon aquaculture through existing policy (as also shown by Ishkanian, 2022). Part of their strategy was to support, along with other Indigenous groups, the inclusion of *maritorio* (maritory) in the (eventually failed) proposal of a new constitution written by the 2021 Constitutional Assembly. The case, building on the work of Araos et al. (2020) and others (see Gissi et al., 2017), shows how local networks of resistance can engage national policy to recognise the social and cultural importance of marine space for local and Indigenous communities to (re)establish rights at sea.

Fourth, the efforts of the Yagán alliance to counter-territorialise the Beagle Channel contributes to wider debates on Indigenous peoples rights in marine areas in Latin America and beyond (see Allen et al., 2019). Understanding marine indigeneity has gained renewed attention in the context of blue economy and blue growth policies that frame the oceans as a commodity

frontier, and in doing so marginalises local interests in favour of global capital (Ehlers, 2016; Havice & Zalik, 2019; Nahuelhual et al., 2019; OECD, 2016; Satizábal et al., 2020; Steinberg, 2018). Here again the network making experiences of the Yagán alliance demonstrates how blue economy claims, such as salmon farming, can be shaped by networked forms of counter-territorialisation (Ertör & Ortega-Cerdà, 2019). Responding to Steinberg (2018), the results highlight some of the strategies available for marginalised marine people to open "new regulatory frontiers" (p. 239) in the marine environment. Opening up these regulatory frontiers can in turn speak to wider debates on the repoliticization of nature conservation through the integration of Indigenous knowledge and practices in the production of a (marine) conservation space (see Hope, 2021). Key examples include studies on whether and how Indigenous groups can employ networking power to (re)assert customary practices in negotiations over areas for conservation, food or energy production (e.g. Ban & Frid, 2018; Parsons et al., 2021). Following Ban et al., (2019) and others (e.g. Buscher et al., 2021; Gould et al., 2021), it also opens up questions on how marine spatial planning processes can better consider counter-territorialisation strategies by marine Indigenous people as expressions of just spatial claims and rights over their maritory.

5.8 Conclusion

Marine counter-territorialisation can be understood as a networked phenomenon, with notions of switching and (re)programming enabling a high degree of network-making power to change spatial boundaries at sea. The results show that through switching and (re)programming Indigenous networks, such as the Yagán alliance, can affect marine spatial boundaries by linking conservation and Indigenous customary practices to challenge mobile global capital such as salmon farming. They also highlight how marine space is produced and reproduced through social relations, challenging the wider presumption that the sea is devoid of social relations, or a space beyond society (Steinberg, 2013).

The findings hold ongoing significance for Chile given the increasing interest by the state and private sector to develop economic or conservation projects that imply control over marine spaces and resources. These projects develop in the marine space of Indigenous people, who have for long been marginalised from marine governance by the state. Renewed recognition of not only their ancestral claims but their capabilities to articulate networks of resistance for shaping process of marine territorialisation can open up a new round of debate on how future engagement and recognition of Indigenous claims in the country might be best addressed by the Chilean government.

Beyond Chile, these findings challenge scholars to rethink the participation of Indigenous groups attempting to regain control over their maritories. Future research could further elaborate the ways in which such groups can resist encroachment on ancestral waters and mobilise national and global networks to counter-territorialise control over fluid boundaries in fluid environments. As new claims are made on marine environments and resources under the premise of the Blue Economy, questions of how organised resistance engage global claims on through the state will remain central to how Indigenous maritories are shaped into the future.

CHAPTER 6: General discussion and conclusions

6.1 Introduction

The impacts of tourism, global production-consumption chains, and nature conservation on local environments, resources and peoples are often seen in terms of land and ocean grabbing. 'Grabbing' highlights dispossession, eviction, and impoverishment endured by local groups as a consequence of increased access and control by national and international companies, often enabled by the state. There is evidence for these spatial 'grabs' through processes of territorialisation on both land (Borras et al., 2011) and at sea (Bennett et al., 2015). However, grabbing remains but one form of territorialisation. An emphasis on grabbing may result in loosing attention for more nuanced and diverse processes and outcomes of spatial control. This thesis has attempted to open up a perspective to territorialisation of environments, resources and peoples that traces the interaction between global and local networks implicated in processes of boundary formation and the channelling of mobilities. Together the previous chapters show multiple ways in which networked-actors use boundaries and mobilities as socio-spatial strategies to gain as well as regain control over environments and resources.

This final chapter first summarises the findings of the empirical chapters of the thesis before addressing the overarching sub-questions presented in the Introductory chapter. To recall, the first sub-question asked: In what ways are global networks implicated in processes of boundary formation and mobilities in frontier spaces? The second sub-question asked: In what ways does counter-territorialisation by place-based networks incorporate boundary formation and mobilities in terrestrial and marine frontiers, and with what effect on prevailing forms of territorial control? This is followed by theoretical implications of these findings that address the overall main question of the thesis: In what ways do interactions between spatial boundaries and mobilities shape existing and new forms of environmental governance in globally connected frontier spaces?

The theoretical reflections focus on how networks, boundaries, and mobilities are implicated in processes of internal (counter)territorialisation in territories that represent frontiers for the expansion of global networks. In doing so, attention is given to how state processes of both terrestrial and marine territorialisation, which have historically aimed at asserting sovereignty in and control over nature and peoples within the national borders, increasingly reflect the expansion of global networks of mobile conservation-oriented and extractive actors that extend beyond the state. Second, reflections are provided on the how processes of counter-territorialisation by local groups, such as Indigenous people, are also not place bound, but implicated in relational networks

of the same globally mobile actors. Overall, it is argued that the environmental governance of resources, nature and peoples both on land and at sea in frontier spaces should, as such, not be seen as subjects of state-enabled global flows. It should instead be viewed as negotiated through relational socio-spatial strategies of boundary formation in resistance to such control. Based on these theoretical insights, the chapter concludes with a future research agenda for territorialisation as a means of more inclusive environmental governance.

6.2 Key findings from the chapters

Chapter 2 explored how traditional forms of territorialisation by the state in terrestrial environments have evolved into contemporary territorialisation involving the participation of multiple actors that sustain different strategies both on land and at sea. This chapter showed how historical territorialisation of the state, and its impacts on the mobility of place-based groups, are important for understanding current day dynamics between boundaries and mobility. Furthermore, this chapter posited that current forms of territorialisation should not only be understood in terms of the impact of spatial boundaries on mobility, but also how mobilities affect boundaries and how boundaries can be used as a spatial tool by peripheral groups to counter processes of territorialisation in frontier spaces.

Chapter 3 analysed nature-based tourism in National Park Torres del Paine, focusing on patters and different aspects of tourists' mobility such as routes, rhythms, and frictions in relation to spatial claims and boundaries. The results enabled a mobility-sensitive perspective that reconceptualises nature-based tourism and conservation in a way that goes beyond the spatial boundaries of conservation enclosures. This mobility-sensitive perspective constitutes an alternative approach to boundary-based territorial modes of control so commonly used in nature conservation and nature-based tourism governance. Moreover, the results of this chapter showed the different ways in which through their mobility nature-based tourists challenge spatial boundaries in conservation. This not only has implications for conservation and nature-based tourism governance, but also enables a novel understanding of mobility as generative of rules and conservation territories.

Chapter 4 explored the changing historical dynamics between boundaries and mobilities in the marine space of Chilean Patagonia. It demonstrated the discontinuities of processes of territorialisation by the state and global networks, such as marine salmon farming. The ability of local and Indigenous groups to use spatial instruments of the state to regain partial control over

their spaces, resources, and mobility is a relevant observation that brings to the front the agency of place-based groups to subvert historical processes of territorialisation in terrestrial and marine spaces. Furthermore, the chapter shows how by exerting their agency through formally recognised boundaries by the state, local and Indigenous groups are able to control the mobility of powerful global networks that in alliance to the state attempt to territorialise frontier marine spaces.

Chapter 5 analysed how marine Indigenous groups produce their maritory by building networks of counter-territorialisation against the imposition of boundaries in their marine space. By their ability to connect and enable cooperation between otherwise disconnected networks, and to set the goals of the networks in which they operate, place-based networks of actors show their power shaping processes of territorialisation in frontier spaces. To exert counter-territorialisation against global extractive sectors, local and Indigenous groups connect different networks including those related to nature conservation, scientific research, and customary practices.

Together these chapters have shown the various ways in which global and place-based networks can challenge, and in doing so govern, both boundary formation and mobility in the global frontier of Patagonia. The empirical results as such demonstrate how the environment in these frontier spaces - characterised, as Steinberg (2018) argues, as "a zone of declining [hegemonic] power" (p. 237) – are shaped by processes of territorialisation and counter-territorialisation. The various attempts to govern the environment in these spatially fluid frontier spaces are, as such, not simply determined by internal political boundaries, such as national conservation areas and marine spatial planning and external political borders with adjacent sovereign states. Rather, attempts to govern the environment emerge from the intersection of counter-territorialised boundaries that are produced through both global and local networked mobilities. These insights contribute to addressing the main research questions guiding this thesis.

6.3 Boundary formation in a frontier space

The first main sub-question of this thesis asked: *In what ways are global networks implicated in processes of boundary formation and mobilities in frontier spaces?* Each of the empirical chapters show how global networks, such as nature-based tourism, marine salmon farming, and nature conservation, create new or shape existing spatial boundaries in Chilean Southern Patagonia, affecting at the same time patterns and elements of mobility. The following synthesises two ways in which global networks define frontier spaces through processes of boundary formation.

First, global networks of nature conservation and associated nature-based tourism are implicated in the production of *nature frontiers*. Nature frontiers are characterised by the predominance of boundaries of conservation in the form of protected areas. In the case of Chilean Southern Patagonia these boundaries were established first by the Chilean state in the middle of the 20th century influenced by global conservation perspectives (see Folchi, 2015; Tacón et al., 2024). However, contemporary definitions of spatial boundaries of protected areas involved frequently global conservation actors, such as NGOs and Foundations. These global conservation actors negotiated with the states the terms in which conservation boundaries are established (see Bachmann-Vargas et al., 2024 for a case in Northern Patagonia). The case of Chilean Southern Patagonia shows how over time boundaries of protected areas have expanded and changed in type as a consequence of alliances between global networks of conservation and the Chilean state. As explained in Chapter 3, the creation of the Network of Parks of Patagonia was possible through the agreement of the Tompkins Conservation Foundation with the state, which meant the creation of new protected areas as well as the upgrading of reserves to parks. Currently global conservation NGOs such as Wildlife Conservation Society defined and manage a private protected area in Tierra del Fuego, while areas of global importance for sustainable development such as biosphere reserves sites of UNESCO add new forms of nature protection beyond public areas only.

Global nature-based tourism networks also shape processes of boundary formation at the nature frontier. Nature-based tourism has become a central form of financing for protected areas and gateway communities and regions (Jones et al., 2024; Lamers et al., 2014; Seidl et al., 2023). Nature-based tourism is not only growing in the number of tourists visiting already established protected areas worldwide. Currently global nature-based tourism is shaping new nature frontiers, spaces that recently were better understood as beyond the frontier (Steinberg, 2018). Mobilities (i.e. flows of people, materials, and information) and immobilities (i.e. infrastructure that enable mobility) associated to nature-based tourism are currently expanding from Magallanes to Antarctica not only defining a new nature frontier, but also producing new social and environmental concerns (ASOC, 2024). Besides, mobility of nature-based tourism also affects place-based forms of mobility in different ways. On the one hand, mobility patterns of tourists and the increasing influx of tourists to peripheral areas can conflict with local forms of mobility associated to local economies (e.g. sheep-farming associated mobility), and create other associated patterns of mobility and phenomena that contribute little to local economies, such as the flow external seasonal workers, the influx of external investments and loss of local control on tourism, and the in-migration of

unwanted resident groups (Carson et al., 2014). On the other hand, nature-based tourism can also enable the emergence of local forms of mobilities associated to the flow of tourists, such as local guides and porters, who also shape the territorialisation of nature frontier through their movement (see Bachmann-Vargas et al., 2021b).

Second, global networks are also implicated in the production of *blue frontiers*. Blue frontiers are characterised by contested marine spaces in terms of political disputes over resources and spaces at sea (building on Bennett & Dearden, 2014; Carver, 2023; Silver & Campbell, 2018). As explained in Chapter 2, boundary formation has been moving from land to sea. Currently, there are attempts by global networks to enclose the sea by establishing different types of spatial boundaries that would enable further forms of marine extraction, but also marine protection, which have been framed within the global initiatives of blue growth and blue economy (Ehlers, 2016; Havice & Zalik, 2019; Nahuelhual et al., 2019; OECD, 2016; Satizábal et al., 2020; Steinberg, 2018). However, reconciling conservation with extractive uses of marine spaces and resources is challenging and often controversial (Kapoor et al., 2021; Wolff, 2015). In some cases, marine enclosures of global expansive industry such as aquaculture overlap not only with marine protected areas, but also with territorial claims of Indigenous people and local groups. This is problematic because, as cases worldwide show (Allen et al., 2019), claims of Indigenous and local marine groups transcend the fixed logic of the state and global extractive or conservation networks, materialised through the establishment of marine spatial boundaries.

In line with the observations of Campling and Colás (2017), the production of the blue frontier follows terrestrial logics of sovereignty, territory, and appropriation. However, the mobile and fluid materiality of the sea, and the mobile of marine people, challenge attempts to territorialise the sea. Moreover, the increasing pressure that is being putting over marine ecosystems and resources through the territorialisation of the sea as a blue frontier, produces a number of social and environmental impacts that require close attention, such as dispossession, displacement, and grabbing; environmental degradation and reduction of availability of ecosystem services; ocean pollution; human and Indigenous rights abuses; and exclusion from decision making and governance, among others (see Bennett et al., 2021). As shown in this thesis, and in support of other authors (Campbell et al., 2016; Silver & Campbell, 2018; Steinberg, 2001), the production of blue frontiers and their socio-ecological effects are often assumed to emerge from marine spaces devoid of social and historical context. In Chilean Southern Patagonia, like other blue frontiers around the world (see Allen et al., 2019; Huntington et al., 2020; Kerr et al., 2015; Parsons et al., 2021), the

demarcation of spatial boundaries and flows associated to the production of blue frontiers, have ignored spatial claims and historical rights of marine (Indigenous) peoples.

The cases presented in Chapters 3, 4 and 5 show how global networks - represented by nature conservation, nature-based tourism, and marine salmon aquaculture – affect boundary formation in terrestrial and marine frontiers by implicating themselves in state's spatial planning. The cases show how the establishment of these state enabled spatial boundaries affect access to spaces and resources, and different forms of mobility. For global networks to expand new nodes and connections enabling the flow of materials, resources, ideas, and people should be created. In this sense, the intersection of global networks turned Chilean Southern Patagonia into a relevant node for global networks of nature conservation, nature-based tourism, and marine salmon production. In this sense, both nature and blue frontiers show the same phenomena, that is, the permanent attempts by global networks to control spaces and resources that are useful for the circulation of goods, people and resources, either in the form of exploiting nature further or to protect it. However, the territorialisation of nature and blue frontiers differ in at least two ways.

First, there is a difference between the purposes of creating such frontiers. While on the one hand the nature frontier is oriented to generate enclosures (i.e. protected areas) to safeguard valuable and fragile nature from the impacts of global extractive networks, on the other hand the attempts to territorialise the sea as a blue frontier aim to make the exploitation of old and new resources compatible with the protection of nature. Second, as emphasized throughout this thesis, the mobile and fluid nature of the sea diminishes the effectiveness of spatial boundaries in terms of controlling spaces and resources (Acton et al., 2019; Bear, 2013; Brochier et al., 2018). In turn, two implications can be derived from these observations. First, nature and blue frontiers are not exclusive forms of territorialization, but rather overlapping, with the consequence that they produce tensions between extractive and conservation uses, as well as contradiction within the state objectives. Second, the logic of the global networks-state alliance to territorialise the sea through fixed boundaries can also enable counter-territorialisation by place-based communities and groups, who are able to deploy their agency by using spatial instruments of the state to resist marine territorialisation.

6.4 Countering through boundaries, mobilities and networks

This section turns to the second research sub-question: *In what ways does counter-territorialisation by local networks incorporate boundary formation and mobilities in terrestrial and marine frontiers, and with* what effect on prevailing forms of territorial control? The following answers this question by identifying three types of counter-territorialisation: 1. Countering through mobilities; 2. Countering through boundaries; and 3. Countering through networks.

First, countering 'through' mobilities refers to a type of counter-territorialisation characterised by the use of different elements or aspects of mobility to overcome territorialisation. It is through their own mobility that social actors and their networks defy the establishment of spatial boundaries. As argued by Bærenholdt (2013) and Cresswell (2010), power (and counter-power) is immanent in mobilities, meaning elements of mobility can be used to confront the imposition of spatial boundaries. Cresswell (2010) identifies six elements of mobility that are at the same time produced by and productive of mobile relations of power: motive force, speed, rhythm, route, experience, and friction. Chapter 3 explored how the routes, rhythms, and frictions of nature-based tourist mobilities challenge territorial forms of conservation. Specifically, by using their mobility nature-based tourists were able to transcend the spatial boundaries of Torres del Paine, shaping different routes, producing forms of frictions, and generating specific rhythms, all of which affect the spatial organization beyond the boundaries of the park. Likewise, to overcome frictions generated by overflow of tourists in the park, nature-based tourists reconfigured their rhythms in terms of moments of movement and of rest (Cresswell, 2010), both within the park and outside its boundaries, challenging again spatial boundaries of conservation. In this case, counter-territorialisation seems to emerge from the mobility of tourists itself, rather than being the result of an organised plan, although there were organised actions to countering spatial boundaries in protected areas, such as the establishment of hidden camping sites between routes by specific groups of tourists.

Second, countering through boundaries refers to the strategies developed by place-based networks of actors to countering processes of territorialisation based on spatial boundaries. In this type of counter-territorialisation boundaries are used to favour the goals and interests of territorialised groups, instead of controlling their mobility which is the traditional way to see it (see Rodríguez-Martínez, 2008; Satizábal & Batterbury, 2018). As Satizábal and Batterbury (2018) show in the case of the Pacific Coast of Colombia, marginalised coastal and marine communities such as

the Afro-descendant in Colombia can use the spatial boundaries of marine protected areas to assert their aquatic epistemologies. Chapter 4, for instance, showed how this type of counter-territorialisation works at sea through the case of the Kawésqar people and the expansion of marine salmon farming. The three chronologically ordered processes of immobilisation, remobilisation, and demobilisation account for the different role that spatial boundaries play in territorialisation and counter-territorialisation. Although it was through the imposition of spatial boundaries that historically the Kawésqar and their maritory were territorialised, or immobilised, it was also through boundaries that the Kawésqar were able to counter current processes of territorialisation by marine salmon farming. Concretely, the Kawésqar of Puerto Edén used the boundaries of the National Park Bernardo O'Higgins to regain partial control over their maritory (remobilisation), and then they used the same boundaries to remove AAA and aquaculture concessions from their marine space (demobilisation). In addition, southern Kawésqar communities grouped in the *Comunidades Kawésqar por la Defensa del Mar* also used boundaries of protected areas to counter the expansion of marine salmon farming. In their counter-territorialisation, the *Comunidades Kawésqar por la Defensa del Mar* not only used previously imposed boundaries of state-managed protected areas, but they also created new ones as those of the ECMPOs, positioning new marine enclosures.

Third, countering through networks highlights the central role of connections in the creation of counter-power. It is through connections that social actors are able to exert power and counter-power (Castells, 2011). As Rocheleau (2015) shows in the case of Chiapas, Mexico, place-based networked actors including residents, small business owners, local public officials, representatives of Indigenous and peasant organisations, and environmental NGOs, among others, are able to oppose territorialisation by the alliance between the state and corporative actors in a green grabbing project related to conservation and tourism. Building on Castells' concept of network-making power (Castells, 2009, 2011, 2016) Chapter 5 shows how the Yagán alliance integrated by both place-based and extra-territorial actors was able to re-program original forms of territorialisation in the marine space. In doing so they connected different networks and ensuring cooperations between otherwise disconnected actors, proving that social actors form networks of counter-territorialisation to resist what is perceived as a common threat. It was through programming and switching that the Yagán alliance could reshape spatial boundaries at sea by removing salmon enclosures and re-asserting spatial boundaries of protected areas, such as those of the Cape Horn Biosphere Reserve, as well as reaffirming their marine Indigenous mobility.

The two cases of the networked counter-territorialisation in the Chilean Southern Patagonia analysed in this thesis, frame within a wider phenomenon described in different territories worldwide (e.g. Castree, 2004; Clare et al., 2017; Von der Porten et al., 2019). That is, the capacity of local and Indigenous groups to connect networks at different spatial scales to counter processes of territorialisation in their terrestrial and marine territories. Moreover, following Painter (2006), these cases account for the capacity of counter-territorialisation networks to produce territories and maritories in frontier spaces.

Overall, these three types of counter-territorialisation highlight different strategies by those who are commonly seen as powerless place-based actors and groups, like the Kawésqar and the Yagán, in shaping processes of territorialisation in terrestrial and marine frontiers. Nevertheless, it is also possible to conceive process of counter-territorialisation that emerges from unplanned actions and agency of global flows and networks whose mobility patterns challenge and in doing so (re)shape internal spatial boundaries of the state. This typology of counter-territorialisation should inform environmental governance, particularly in relation to the inclusion of the interests and goals of different groups in resistance in decision-making processes.

6.5 Governing boundaries and mobilities in a frontier space

The results synthesised above indicate that territorialisation and counter-territorialisation are made possible by the actions of networks of mobile actors engaging in boundary formation across different scales. Information, materials, and people move through networks and in doing so simultaneously and continuingly produce the networks that enable their movement (Boas et al., 2018). Following Castells (2011), the results show that in frontier spaces the power of global hegemonic networks finds counter-power by place-based networks expressed in strategies that involve boundaries and mobilities in different ways. These strategies are particularly relevant at frontier spaces, as it is in these spaces where further expansion of global networks takes place. What this thesis draws attention to is that the extent to which this expansion occurs relies on the capacity of both global and place-based networks to form boundaries and assert different kinds of mobility.

So, returning to the main research question of this thesis, what implications do interactions between mobility and spatial boundaries hold for existing and new forms of environmental governance in globally connected frontier spaces?

Overall, this thesis shows that interactions between boundaries and mobilities can constitute a form of socio-spatial governance over environments and resources. The results

demonstrate that the emergence of frontier spaces is shaped by the ways in which spatial boundaries and mobilities affect each other. Moreover, the results show that the changing relationship between spatial boundaries and mobilities underlies changing power dynamics over control of environments and resources both on land and at sea (Stephen & Menon, 2016). Drawing on the work of others (Isager & Ivarsson, 2002; Lestrelin, 2011; Peluso, 1995; Raycraft, 2020; Satizábal & Batterbury, 2018), frontier spaces are therefore not only produced and controlled by globally powerful networks of actors, but also by the agency of place-based actors who counter the imposition of boundaries and the control of their mobility. This is relevant as it proves the existence of organised resistance against the expansionary attempts of global industries and national states, involving to a different extent the control over spaces and resources that are relevant for place-based actors and networks.

The interactions between boundaries and mobilities also draw attention to the capacity of local groups to affect territorialisation by using spatial boundaries and elements of their mobility to not only resist the imposition of boundaries, but also advance strategies of counter-territorialisation to achieve new socio-spatial forms of more locally inclusive environmental governance. These strategies of counter-territorialisation are relevant for decision-makers regarding the terms of enabling more inclusive and equitable attempts to balance the interests of economic development and conservation. This is especially the case where the spatial claims, practices, and rights of Indigenous communities and other place-based actors and networks are excluded from spatial concessions and/or conservation areas. It is also especially relevant in cases that involved marine people and maritories, where notions of the sea as an unpeopled space and devoid of social relations (following Steinberg, 2013) undermines recognition of coastal and marine people. Following previous research (see for e.g. Allen et al., 2019; Satizábal & Batterbury, 2018), it is precisely when the spatial claims and rights of marine Indigenous people are poorly recognised, and that the participation of local and Indigenous marine groups in decision-making processes not incorporated, that alternative approaches towards more equitable governance of environments and resources are required.

The territorialisation and production of blue frontiers can cause exhaustion of resources and social disruption, leading to what Longo et al. (2015) have labelled as ‘the tragedy of the commodities’, and even in the most extreme cases, leading to the closure of the blue frontier (Nolan, 2019) with severe social consequences for local and Indigenous groups. Counter-territorialisation exerted by place-based networks is then a fundamental way to undesirable both ecological and

social impacts of the expansion of marine global networks manifested in the establishment of the blue frontier. Although different strategies developed by Indigenous and local groups to counter processes of marine territorialisation have been highlighted in different contexts (see e.g. Von der Porten et al., 2019), this thesis positions this resistance as an emerging form of governance based on boundary formation and reasserting pattern and elements of mobility. In doing so, this thesis aligns with calls to reorient the expansion of blue economy toward a just and equitable governance (Bennett et al., 2021; Campbell et al., 2021; Croft et al., 2024), by putting close attention to the ways in which socio-spatial organisation of the blue frontier is challenged through place-based governance strategies.

Similarly, the governance of the nature frontier is constantly shaped by boundary formation and form of mobility deploy by both global and place-based networks. Although in the last decades researchers have emphasised the importance of local actors and Indigenous people participation within the governance of nature conservation, through co-administration or co-management of protected areas (see Huaquimilla et al., 2023), attempts have failed as the participation of local actors is conditioned to the goals and values that extra-territorial actors (i.e. national and global networks of nature conservation) maintain on nature (Aldashev & Vallino, 2019; Gargallo, 2021; Toumbourou & Dressler, 2024; West, 2006). Nevertheless, as the cases of Southern Patagonia and other places show (see for e.g. MacKay et al., 2014; Satizábal & Batterbury, 2018), boundaries of protected areas also enable the empowerment of place-based actors and network, allowing to a certain extent the recovery and assertion of forms of mobility and the consequent access to spaces and resources previously appropriated by the territorialisation of the nature frontier (see Youdelis et al., 2021). This should not be interpreted, however, as simple acceptance or agreement of local groups towards the establishment of marine and terrestrial protected areas. On the contrary, in many cases the boundaries of protected areas have been drawn on a previous spatial organization of Indigenous peoples, affecting their livelihoods and mobility, and undermining community-based governance (Agrawal & Redford, 2009; Paul et al., 2023). Rather, this should be understood as a capacity of historically marginalized actors to use spatial instruments of territorialization as counter-power in emerging forms of governance.

It is then through their counter-power that place-based networks of actors produce counter-territories - both on land and at sea. Considering this reflection, governing through counter-territorialisation to affect imposed boundaries and mobilities, is somehow the consequence of the exclusion of place-based groups from policy negotiations and decision-making processes, and a

response to poor conflict resolution systems. Agency and socio-spatial strategies developed by frequently marginalised place-based actors, should call the attention of decision-makers regarding the ways in which expansionary projects of development and conservation relate and affect to the spatial claims, practices, and rights of Indigenous communities and other place-based actors and networks.

These wider theoretical insights indicate that mobility is equally, if not more, important than spatial boundaries for the governance of environmental (counter)territories. The analysis of Chilean Southern Patagonia provides an understanding of mobility as generative of power relations and governance instead of being simply understood as an object to be governed. This observation brings to the front the idea of two configurations of governance. The first is based on the control of one network of actors over other actors and specific environments, by means of more or less stable institutions, structures, and processes (Kooiman et al., 2008; Ostrom, 2009). The second is sustained based on the capacity of actors, or networks of actors to shape institutions, structures, and processes through their own mobile practices. From the latter perspective, there is an immanent power in mobilities that is exerted 'through' different aspects of mobility, such as routes or rhythms, rather than a governance 'of' mobility (Bærenholdt, 2013). This observation is in line with what other scholars have previously observed in the field of mobilities in both terrestrial and marine spaces (Anim-Addo & Peters, 2014; Bærenholdt, 2013; Boas et al., 2018; Cresswell, 2010; Peters, 2014; van Bets et al., 2016; Winkel et al., 2016). It therefore appears useful to further explore this insight in terms of how it can affect environmental governance in terms of the production of territories and maritories as new forms of forms of authority that extend beyond the state in frontier regions of the world.

Governance and authority are, however, not fixed. On the contrary, as the examples of nomadic marine Indigenous people in Southern Patagonia show, they are affected by the dynamics of boundaries and mobilities, as represented for instance by the chronologically ordered processes of immobilisation, remobilisation, and demobilisation. These are in turn changing power relations between global networks (salmon companies and the state) and place-based networks (Indigenous communities, NGOs, and research institutions). This thesis proposes the categories of nature frontier and blue frontier to analyse these changing power relations. These two types of frontiers are not mutually exclusive. Rather, as mentioned before, they overlap in some geographical areas, producing different forms of collaboration or conflict between networked actors associated with nature conservation projects and global industries and sectors that expand in marine spaces.

These insights go beyond institutional forms of governance, focusing on mobilities-oriented governance practices (Boas et al., 2018) vis a vis the capacity of actors and networks of actors to participate in processes of boundary formation. Instead they draw attention to the need for a new perspective on the social formation of terrestrial and marine environmental (counter)territories and maritories as shaped and constantly changing through boundaries and mobilities. It also opens new perspectives on the ways in which new forms of authority emerge through the tensions between territorialisation and counter-territorialisation that can enable the emergence of socio spatial institutions of the state (Sassen, 2006; Rasmussen & Lund, 2018). This is an important contribution that can be considered in the analysis of governance in different frontier around the world.

6.6 Future research agenda

The empirical and theoretical results of this thesis open up new questions on the interaction of boundaries, mobilities, networks, and environmental governance in both academic scholarship and policy.

First, analysis can be developed further by adopting perspectives of Indigenous ontologies and epistemologies (see Adomako, 2024; Pauwelussen, 2017). This can also be linked to further research on the marine rights of Indigenous people (see Allen et al., 2019). Although marine rights of Indigenous people can be materialised through the establishment of spatial boundaries that demarcate Indigenous maritories, it is at the same time important to think about rights in terms of Indigenous mobility at sea or between sea and land. Is it possible, for instance, to analyse marine rights in the cases of coastal communities by using boundaries and mobilities, rather than only boundaries. Especially, question around how and to what extent Indigenous ontologies and epistemologies include relations between boundaries and mobilities, can guide research on this area.

Second, research could focus on the different kinds of non-human mobilities associated with global and place-based networks that are encountered in processes of territorialisation and counter-territorialisation in frontier spaces. A more-than-human perspective (Bear, 2013, 2017) would acknowledge that there are other types and forms of mobility that can be studied as part of these sectors and cases. For instance, how do species (e.g. salmon, endemic species, pumas, etc.), natural entities (e.g. oceans, rivers, glaciers, etc.), and capital respond to in processes of territorialisation and counter-territorialisation, and how do changes in the mobility of these entities

affect boundary formation? In addition to analysing non-human mobilities, attention could also be given to the immobilities that enable the transit of mobilities, such as places and infrastructure.

Third, counter-territorialisation, and especially marine counter-territorialisation, deserves further analysis. Current global discourses and practices of blue growth/ blue economy are raising new claims and subsequent definition of spatial boundaries at sea, which is producing various forms of counter-territorialisation. One possible way to analyse counter-territorialisation is to focus on the alternative development project raise by place-based actors, and networks of actors, including Indigenous people. Interestingly, Adhuri et al. (2023) use the concept of 're-grabbing' to analyse the strategies developed by coastal communities in Langkat, North Sumatra, against palm oil plantations and its impacts over their fishing and coastal livelihoods, to take back control over spaces and resources. Similar to counter-territorialisation, re-grabbing aims to highlight the deployment of agency and counter-power by place-based networks of actors to control their processes of development. Further research on marine (and terrestrial) counter-territorialisation could explore how current spatial claims by Indigenous and local groups resemble customary boundaries that pre-existed processes of territorialisation. This is a relevant point, as commonly the spatial order imposed by projects of territorialisation overlooks the previous spatial organisation of local and Indigenous groups. Alternatively, questions can be oriented to explore how 'subtle' forms of counter-territorialisation work in processes of negotiation of spatial boundaries between place-based networks, global networks, and the state.

Finally, the connections between boundaries, mobilities, and networks can be analysed from historical perspectives on processes of territorialisation and counter-territorialisation. The notion of constellation of mobilities (Cresswell, 2010) might be useful to guide historical analysis in which mobility is central. Following Cresswell (2010), at any time there are prevailing constellations of mobility, which includes patterns of movement, representation of movement, and practices of movement. Constellations change over time as forms of enabling or controlling movement, social imaginaries, and experiences of movement change. Understanding how these constellations change opens up further areas of scholarship addressing the relationship between mobilities and territorialisation, as well as the extent to which current terrestrial and marine counter-territorialisation can integrate both traditional and new mobility practices.

Notes

1. Currently the effect of a severe drought is putting restrictions on the number of ships that can pass through the Panama Canal disrupting global trade, which may increase ship traffic through the Strait of Magellan (see https://www.nytimes.com/2023/11/01/business/economy/panama-canal-drought-shipping.html#:~:text=But%20a%20drought%20has%20left,about%20water%20use%20in%20Panama).
2. From an alternative perspective, it is also possible to trace territorialisation from the sea to the land, particularly in understanding the development of global capitalism (see Campling & Colás, 2017).
3. See the "Blue Growth Initiative" by FAO, https://www.fao.org/3/I7862E/i7862e.pdf
4. See the "European Green Deal: Developing a sustainable blue economy in the European Union", https://ec.europa.eu/commission/presscorner/detail/en/IP_21_2341
5. This astonishing landscape fascinated Lady Florence Dixie, an English aristocrat who travelled to Patagonia in 1879. She is considered the first tourist to visit the land were today is located the National Park Torres del Paine, and her field trip notes, helped her to write the book Across Patagonia (Dixie 1880).
6. Administratively, Patagonia includes the Province of Palena, the Region of Aysén and Region of Magallanes and Chilean Antarctica. I refer to the latter as Chilean Southern Patagonia.
7. Torres del Paine is the only protected area in Chile that accounts the position of superintendent, which was created in order to address the complexities derived from the development of an increasing nature-based tourism in the park. The first superintendent started in 2012 after the third big tourist-related forest fire that consumed 17,600 ha in the Grey Lake sector, during the summer of 2011–2012.
8. Notwithstanding, it is important to highlight the role of the private sector in promoting nature-based tourism in Patagonia, especially in the territories where today is Torres del Paine, in the first decades of the 20th Century (see Ferrer Jiménez, 2009).
9. In 2018, the National Reserve Alacalufes was upgraded to a National Park, changing its name to National Park Kawésqar. National parks are the most restrictive type of protected areas contemplated in the Chilean law.
10. This was calculated using data of the terrestrial area of the region, as well as of the area of private and public protected areas on land only.
11. CONAF's main task is to manage Chile's forestry policy and promote the development of the forestry sector. Current changes in the Chilean environmental policy, such as the creation of the Service of Biodiversity and Protected Areas under the Ministry of Environment, condition the role of CONAF in the administration of national protected areas. See https://www.amchamchile.cl/en/2011/06/protegiendo-la-biodiversidad-de-chile for further discussion on this issue.
12. Douglas Tompkins was a conservationist that engaged in a controversy with the Chilean State regarding the establishment of private protected areas during the 1990s (see Nelson and Geisse 2001; Humes 2009).

13. For details see http://www.conservacionpatagonica.org/home.htm#modal

14. Reserva Cerro Paine is part of *Así Conserva Chile*, a national organization integrated by around 100 private protected areas' owners, who together own more than 600,000 ha alongside Chile (see http://asiconservachile.cl/acch/).

15. The Kawésqar Wæs is the ancestral space of the Kawésqar people. It includes both terrestrial and marine areas located from the Gulf of Penas in the north, to the Strait of Magellan in the south.

16. Indigenous communities are recognised by the Chilean state as actors with whom to negotiate with on Indigenous matters. The structure of the Indigenous communities follows the classical structure of social organisations in Chile, which contemplates an assembly, a board of directors and a president. This structure ignores the diverse forms of organisation that Indigenous groups maintain, as well as the ways they choose their traditional leaders and authorities.

17. John Alcock and Arthur Brown made the first non-stop transatlantic flight in June 1919 covering a distance of around 3000 km (see www.aviation-history.com/airmen/alcock.htm).

18. Historical and field data show that several Kawésqar of Puerto Edén were forced to enrol in the Chilean Airforce. The most well-known case is that of the Kawésqar man renamed by the Airforce officials as Lautaro Edén Wellington (see López Torres, 2011).

19. In June 1937 one of the amphibious aircraft Sikorsky disappeared during flight and another was damaged as a result of a complicated water landing. These events contributed to turn the eyesight of the state to shipping (see Fernández Donoso, 2015).

20. Part of the area belonging to the Forestry Reserve Alacalufes, which was created in 1969 the same year of the establishment of the National Park Bernardo O'Higgins. Aguilera and Tonko (2013) explain that the term Alacalufe comes from Alihoolip, a term used by the captain of HMS Beagle, Robert Fitzroy, to name the Kawésqar. In turn, Alihoolip would come from the Kawésqar words halí ku(o) halíp, which means down, or down here. This was, the authors argue, the "natural shout of the one who from his/her boat on the sea, is situated lower than the rail of a ship, shouting up to call the attention of those above him/her, to bartering or asking for something" (p. 22).

21. The Indigenous and Tribal Peoples Convention 169 of the International Labour Organisation states in its sixth article that government shall "consult the [Indigenous] peoples concerned [. . .] whenever consideration is being given to legislative or administrative measures which may affect them directly".

22. This Council is led by the Ministry of Environment and integrated by the Ministries of Agriculture, Finance, Health, Economy, Energy, Housing and Urbanism, Transport and Telecommunications, Mining, and Planning. Among its tasks, is to propose to the president the establishment of protected areas.

23. Chile is organised in 16 administrative regions. The Region of Magallanes (Región de Magallanes y la Antártica Chilena in Spanish) is the southernmost region of the country, the largest and the second less populated. The Region of Magallanes is composed of four provinces and eleven counties. The Navarino Island is located in the Antarctic Province and in the Cape Horn County.

24. An Área de Desarrollo Indígena (ADI) is a spatial enclosure contemplated in the Indigenous law (N°19,523) of 1993 to establish Indigenous territories where to orient public policy and services to the development of Indigenous groups that live within the boundaries of the ADI. Most of the ADIs have been established in the Mapuche Indigenous people territory, South-central Chile, where research has found partial Indigenous participation and a weak contribution of the ADI to Indigenous development (Rubilar & Roldán, 2014).

25. Refer to a public statement regarding the issue in the regional press: https://www.radiopolar.com/comunidad-indigena-yagan-y-area-de-desarrollo-indigina

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SUMMARY

This thesis analyses how social networks, spatial boundaries, and mobilities are implicated in the production of terrestrial and marine frontiers. By analysing the encounter between the expansion of global extractive and nature conservation networks, and place-based networks of actors that resist this expansion, this thesis explores the ways in which processes of boundary formation and mobilities are shaped and challenged. The concepts of territorialisation and counter-territorialisation are used to frame processes of boundary formation and channelling of mobilities by global and place-based networks. Territorialisation refers to the attempts by global networks to establish spatial boundaries and patterns of mobility to expand form of extraction and nature conservation, while counter-territorialisation refers to the different ways in which place-based networks use boundaries and mobilities to shape and challenge original processes of territorialisation.

To meet this objective, concepts and theoretical frameworks from territoriality, mobilities, and networks are brought together and used as theoretical basis to analyse three case studies in the Chilean Southern Patagonia. The research developed in this thesis is based on data collected from interviews and participant observation developed in different periods of fieldwork between 2016 to 2019, and a review of secondary sources. The overarching research question of this thesis is: In what ways do interactions between spatial boundaries and mobilities shape existing and new forms of environmental governance in globally connected frontier spaces? This overarching question is divided into two sub-questions. The first is: In what ways are global networks implicated in processes of boundary formation and mobilities in frontier spaces?, and the second is: In what ways does counter-territorialisation by place-based networks incorporate boundary formation and mobilities in terrestrial and marine frontiers, and with what effect on prevailing forms of territorial control?

The thesis is organised in six chapters. Chapter 1 introduces Chilean Patagonia as a frontier space in which various sectors and networked actors including Indigenous people, nature conservation, nature-based tourism, and marine salmon farming, are disputing access and use of spaces and resources through strategies related to boundary formation and mobilities. Subsequently I present the research objective, research questions, and the methodology.

Chapter 2 presents the theoretical framework of the thesis based on networks, spatial boundaries, and mobilities. Tracing the advance of processes of territorialisation in frontier spaces

from land to sea by global networks, the chapter proposes three possible interactions between spatial boundaries and mobilities: boundaries shaping mobilities, mobilities shaping boundaries, and countering through boundaries. These three possible interactions are illustrated by taking the case of Chilean Southern Patagonia.

Chapter 3, 4 and 5 present the three empirical cases of the thesis. Chapter 3 analyses the mobility of nature-based tourism in the most iconic national park of Chilean Patagonia, Torres del Paine. By using routes, rhythms, and frictions as three elements of nature-based tourism's mobility, the chapter analyses how the inherent mobile character of nature-based tourism challenges territorial forms of conservation governance based on the existence of fixed spatial boundaries.

Chapter 4, analyses three chronologically order processes of marine (counter)territorialisation in the Patagonian Archipelago, a marine space claimed by the Kawésqar Indigenous people. The chapter presents a typology of boundary-mobility relations in the context of marine territorialisation. It provides a novel understanding on the ways in which boundaries and mobilities relate in the marine space, especially exploring how imposed boundaries can be used to counter processes of marine territorialisation. by seemingly disempowered local groups in the face of the expansion of powerful global industries such as marine salmon farming.

Chapter 5 delves into marine counter-territorialisation in the context of the global expansion of marine salmon farming, by analysing the case of the Beagle Channel and the organised resistance exerted by a network of actors led by the Yagán Indigenous community of Navarino Island. The chapter examines how this network, labelled as the Yagán Alliance, counters the establishment of marine enclosures by the aquaculture industry in the Beagle Channel by creating connections and (re)programming the goals of environmental governance in the marine frontier of Chilean Southern Patagonia.

Finally, Chapter 6 provides the answers to the overarching research question and the two sub-questions of the thesis, synthetizing the findings from the three study cases of Chilean Southern Patagonia. I propose that the attempts at territorialisation by global networks in Chilean Southern Patagonia lead to the production of two type of frontiers: the nature frontier and the blue frontier. The first is characterised by different projects of nature conservation materialised through the establishment of protected areas in connection with an expansion of nature-based tourism. The second entails the expansion and deepening of exploitation and extraction of marine resources by global industries such as marine salmon farming. These types of frontiers overlap, producing

different forms of conflict and collaboration among social networks involved in processes of territorialization and counter-territorialization. Above all, attempts to produce these types of frontiers by global networks in connection with the state are challenged by various strategies developed by local networks led by groups that have historically been marginalized from decision-making processes, such as the nomadic Indigenous peoples of Patagonia. Through the generation of connections with various local and global actors, they are able to reaffirm their mobility and modify the spatial boundaries imposed by the processes of territorialization, shaping in turn environmental governance at the frontier.

RESUMEN

Esta tesis analiza las formas en que redes sociales, límites espaciales y movilidades están implicadas en la producción de fronteras terrestres y marinas. Analizando el encuentro entre la expansión de redes globales de sectores extractivos y de conservación de la naturaleza, y redes de actores locales que resisten esta expansión, esta tesis explora las formas en que los procesos de formación de límites y movilidades son moldeados y desafiados. Los conceptos de territorialización y contra-territorialización se utilizan para enmarcar los procesos de formación de límites y canalización de movilidades por redes globales y locales. La territorialización se refiere a los intentos de las redes globales por establecer límites espaciales y patrones de movilidad para expandir formas de extracción y conservación de la naturaleza, mientras que la contra-territorialización se refiere a las diferentes formas en que las redes locales utilizan límites y movilidades para dar forma y desafiar los procesos originales de territorialización.

Para cumplir con este objetivo, se reúnen conceptos y marcos teóricos de territorialidad, movilidades y redes, y se utilizan como base teórica para analizar tres estudios de caso en la Patagonia Sur de Chile. La investigación desarrollada en esta tesis se basa en datos recopilados de entrevistas y observación participante realizada en diferentes períodos de trabajo de campo entre 2016 y 2019, y una revisión de fuentes secundarias. La pregunta de investigación principal de esta tesis es: ¿De qué manera las interacciones entre los límites espaciales y las movilidades moldean formas existentes y nuevas de gobernanza ambiental en espacios de frontera conectados globalmente? Esta pregunta principal se divide en dos sub-preguntas. La primera es: ¿De qué manera las redes globales están implicadas en los procesos de formación de límites y movilidades en espacios de frontera? y la segunda es: ¿De qué manera la contra-territorialización por parte de redes locales incorpora la formación de límites y movilidades en fronteras terrestres y marinas, y con qué efecto sobre las formas predominantes de control territorial?

La tesis está organizada en seis capítulos, tres de ellos empíricos. El Capítulo 1 comienza con una introducción general. En este capítulo, se presenta la Patagonia Austral chilena como un espacio de frontera en el que diversos sectores y actores en red, incluidos pueblos Indígenas, la conservación de la naturaleza, el turismo basado en la naturaleza y la salmonicultura marina, disputan el acceso y uso de espacios y recursos a través de estrategias relacionadas con la formación de límites y movilidades. A continuación, presento el objetivo de la investigación, las preguntas de investigación y la metodología.

El Capítulo 2 presenta el marco teórico de la tesis basado en redes, límites espaciales y movilidades. Rastreando el avance de los procesos de territorialización por redes globales en espacios de frontera desde la tierra hasta el mar, el capítulo propone tres posibles interacciones entre límites espaciales y movilidades: límites que dan forma a movilidades, movilidades que dan forma a límites, y contrarrestando a través de límites. Estas tres posibles interacciones se ilustran tomando el caso de la Patagonia Sur de Chile.

Los capítulos 3, 4 y 5 presentan los tres casos empíricos de la tesis. El Capítulo 3 analiza la movilidad del turismo basado en la naturaleza en el parque nacional más emblemático de la Patagonia chilena, Torres del Paine. Utilizando rutas, ritmos y fricciones como tres elementos de la movilidad del turismo basado en la naturaleza, el capítulo analiza cómo el carácter móvil inherente del turismo basado en la naturaleza desafía las formas territoriales de gobernanza de la conservación basadas en la existencia de límites espaciales fijos.

El Capítulo 4, analiza tres procesos ordenados cronológicamente de (contra) territorialización marina en el Archipiélago de la Patagonia, un espacio marino reclamado por el pueblo Indígena Kawésqar. El capítulo presenta una tipología de relaciones entre límites y movilidades en el contexto de la territorialización marina. Proporciona una original comprensión de las formas en que los límites y las movilidades se relacionan en el espacio marino, especialmente explorando cómo los límites impuestos pueden ser utilizados para contrarrestar los procesos de territorialización marina por grupos locales aparentemente carentes de poder frente a la expansión de industrias globales poderosas como salmonicultura marina.

El Capítulo 5 profundiza en la contra-territorialización marina en el contexto de la expansión global de la salmonicultura marina, mediante el análisis del caso del Canal Beagle y la resistencia organizada ejercida por una red de actores liderada por la comunidad indígena Yagán de Isla Navarino. El capítulo examina cómo esta red, etiquetada como la Alianza Yagán, contrarresta el establecimiento de recintos marinos por la industria acuícola en el Canal Beagle, mediante la creación de conexiones y la (re)programación de los objetivos de gobernanza ambiental en la frontera marina de la Patagonia Sur de Chile.

Finalmente, el Capítulo 6 proporciona las respuestas a la pregunta de investigación principal y las dos sub-preguntas de la tesis, sintetizando los hallazgos de los tres casos de estudio de la Patagonia Sur de Chile. Propongo que los intentos de territorialización por parte de las redes globales en la Patagonia Sur de Chile conducen a la producción de dos tipos de fronteras: la frontera

de la naturaleza y la frontera azul. La primera se caracteriza por diferentes proyectos de conservación de la naturaleza materializados mediante el establecimiento de áreas protegidas en conexión con una expansión del turismo-basado-en-la-naturaleza. La segunda implica la expansión y profundización de la explotación y extracción de recursos marinos por parte de industrias globales como la salmonicultura marina. Estos tipos de frontera se superponen produciendo diferentes formas de conflicto y colaboración entre redes sociales involucradas en procesos de territorialización y contra-territorialización. Sobre todo, los intentos de producir este tipo de fronteras por parte de redes globales en conexión con el Estado, son desafiados por diversas estrategias desarrolladas por redes locales lideradas por grupos que han sido históricamente marginalizados de los procesos de tomas de decisiones, como los pueblos Indígenas nómadas de la Patagonia, quienes a través de la generación de vínculos con diversos actores locales y globales son capaces de reafirmar su movilidad y modificar los límites espaciales impuestos por los proceso de territorialización, modificando a su vez a la gobernanza ambiental en la frontera.

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SENSE PhD Courses

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- Spatial thinking in the social sciences: on the local, the rural and nature, WASS (2016)
- Political Ecologies of Conflict, Capitalism and Contestation, WASS (2016)
- Advanced qualitative research data collection design, WASS (2018)
- Sociology and political science of environmental transformations, ENP (2018)

Management and Didactic Skills Training

- Supervising 3 MSc students with thesis (2016, 2022)
- Member of the ENP PhD Quality Criteria Committee (2021)
- Member of the board of the Chilean student association in Wageningen (2016)
- Lecture given to the Bachelor in Forestry Engineering at Universidad Estatal del Sur de Manabí, Ecuador (2023)

Selection of Oral Presentations

- *Producing, controlling and channelling maritime mobilities in West-Patagonia.* Mare Conference, People & the Sea: Dealing with maritime mobilities, 5--7 July 2017, Amsterdam, the Netherlands
- *Mobilities, immobilities and nature conservation in Chilean Southern Patagonia.* Second Biennial Conference of the Political Ecology Network (POLLEN):The Green Economy, and Alternative Sustainabilities, 19-22 June 2018, Oslo, Norway Name of Conference,
- *Contested mobilities in the maritory of the Kawésqar: Implications of boundary formation in a nomadic space*. Third Biennial Conference of the Political Ecology Network (POLLEN): Contested Natures: Power, Possibility, Prefiguration, 22-25 September 2020, Online
- *Countering salmon aquaculture expansion to indigenous maritories:* The cases of Kawésqar and Yagán people in Southern Chile. XI MARE Conference, People & the sea: Limits to blue growth? 28 June – 2 July-, Online
- *Territorialización y Contraterritorialización en el Maritorio,* XI Congreso de Antropología de Chile: Devenires, 16-20 January 2023, Osorno, Chile

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