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Evolving blue development discourses and policies: Salmon farming industry and regional making in Chile

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ABSTRACT

As the second biggest producer of salmon after Norway, Chile is one of the leading forces of aquaculture with a long history of being strongly focused on international markets. Based on contributions from critical geography, political ecology and the sociology of globalization, the article analyses the dominant narratives and policies deployed by the Chilean government and the salmon farming industry in successive contexts of boom and crisis of production activity in the archipelago of Chilóe (Los Lagos Region). In a context of a world-wide growing interest in the capabilities of the blue economy, a discourse analysis of governmental, industrial, and public-private institutional documents, together with semi-structured interviews to a broad number of stakeholders contributes to advance the understanding of and learn from the evolution and challenges faced by one of the longest world's salmon aquaculture leaders. The research identifies five discursive and policies phases over more than four decades of development. From an initial narrative that defines the region as “empty” and uses the discourse on salmon farming to justify territorial integration policies (1973–1982); to a second period in which the fostering of the salmon farming in the southern region served as a catalyst of national economic growth interests (1983–1994). It follows a boom phase characterized by the capitalization on the blue revolution discourse (1995–2006), which lasted until the territorial crisis resulting from the ISA virus, and the expansion of the industry towards southern regions (2007–2015). The analysis reveals a fifth phase starting in 2016 and ongoing by 2023, which characterized by the emergency and implementation of a new administrative right over coastal-marine areas to safeguard the traditional uses of indigenous communities, starts to challenge the long-standing hegemony of the salmon farming industry in Chile.

1. Introduction

Being one of the fastest growing production systems in recent decades, aquaculture accounts for an increasingly significant proportion of global food production [65]. Its evolution has been accompanied by the rise of discourses on blue economics and growth, according to which aquaculture should reconcile the principles of economic growth and social development, contributing to the sustainability of the oceans, worldwide food safety, and the welfare of coastal communities [97]. Aquaculture has hence gained the attention of economists and development planners and has played a major role in so-called developing countries [21], to the extent that there is talk of a veritable “blue revolution”. This activity has also attracted increasing attention from the social and geographical sciences [19,26,109], in a context of major anthropogenic pressure on the oceans [59], the collapse of major fisheries [96], ocean grabbing [28], and the loss of marine and coastal

biodiversity and habitats [69].

As the world's second biggest producer of salmon after Norway, Chile is one of the leading forces of aquaculture, with a history of being strongly focused on international markets [18]. The expansion of this industry from the neoliberal reforms of the 1970s brought with it the formation of growth poles in the south of the country, reorienting the pattern of production, modifying the structure of labour markets, and transforming remote coastal and rural areas into production nodes on a global scale [20]. Given its relevance, scientific attention has focused on the study of salmon farming and its impacts on socioeconomic dynamics [2,17,47,48,53,83], territorial planning [9,22,39,68,108], the lifestyles of local communities [16,38,40] and environmental degradation [35,99,107].

Despite the relevance of these published studies, a little-explored field of research is that related to how blue development discourse has evolved throughout the boom and crisis phases of salmon production

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activity, and how this discourse has configured and legitimised a certain mode of territorial development and growth policies over time. To do so, in this article we integrate contributions from critical geography, political ecology and the sociology of globalization. We take as a case study the Province of Chiloé, an archipelago in the south of Chile (Fig. 1) that has historically been characterised by rurality, geographic isolation, and the presence of indigenous peoples, and which since the 1970s has been the hub of salmon farming in Chile [108].

Unlike other studies that have addressed the role of discourse in the development of industrial aquaculture at some phase or crisis, here we explore the evolution of the development discourses of more than four decades, providing an overall understanding of the strategies and capability of the Chilean state and industry to produce and maintain until recently, and despite recurrent crisis, a dominant model of territorial development and governance. The article identifies five phases and legitimising frameworks of discourse. From an initial narrative that defines the region as “empty” and uses the development discourse to justify territorial integration policies (1973–1982), to a second period in which the fostering of the salmon farming in the southern region served national economic growth interests (1983–1994), followed by a phase of boom characterized by the capitalization on the blue revolution discourse of the third period (1995–2006), which lasted until the territorial crisis generated by the ISA virus, and the subsequent expansion of aquaculture towards southern regions as a part of the salmon farming 2.0 (2007–2015). The analysis reveals a fifth phase starting in 2016, which is characterized by the implementation of a new administrative right over coastal-marine areas to safeguard the traditional uses of indigenous communities, and which questions the long-standing

hegemony of the salmon farming industry in southern Chile.

2. The ocean as a new frontier: blue development discourses and practices

Since the second half of the 20th century, profound and accelerated changes linked to the creation and allocation of property rights in ocean and coastal areas have redefined marine governance at a global scale [90,122]. New activities have added to the expansion of fishing and maritime transport, generating an unprecedented diversification of industries and economic activities affecting coastal and marine ecosystems [82]. This phenomenon is framed in global development agendas as a blue economy, which would reconcile economic growth and sustainable management of marine resources, offering development opportunities to coastal and island communities around the world [64,66,103,126,130].

Despite the positive narratives of this discourse, in the last decade there has been increasing concern over competing interpretations regarding the implementation of blue development in the context of strong pressure on the oceans, and complex and fragmented marine governance [42,120,128]. Recent studies analyze how these narratives are promoting development agendas that legitimize the privatization, financialization and commodification of the oceans, while downplaying the unequal distribution of their potential costs and benefits [15,30,34,84]. Additional studies explore how the narratives of oceans as environments of biodiversity, void the understanding of their social dynamics and institutions, which has led to taking advantage of the blue capital of the oceans, overlooking the traditional practices of coastal communities [71,117]. Critical aspects associated with blue growth

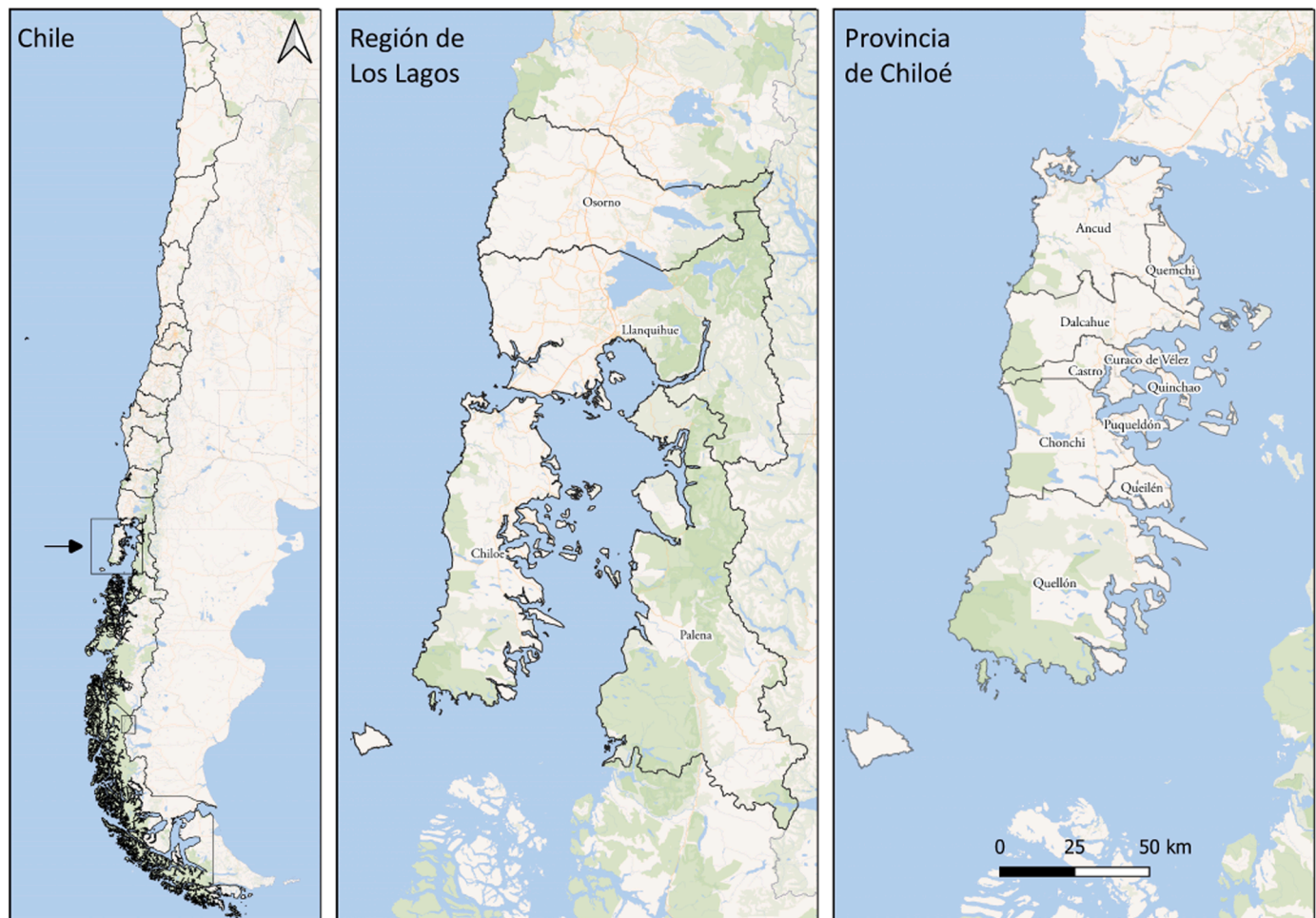


Fig. 1. Location of the Province of Chiloé. Source: prepared by the authors.

include environmental degradation, reduction of ecosystem services, food insecurity due to loss of access to resources, impacts on the lifestyles of local communities, violation of human and indigenous rights, and the creation of exclusionary governance systems [13,29,49,50,54,118,123].

In recent decades the socio-ecological alterations that aquaculture produces has attracted attention in the academic literature [26,109]. Although diverse in regional practices, from small-scale stocking for local consumption to industrial-scale production for global markets [11,27,98], recent aquaculture literature highlights its role in integrating coastal-marine spaces into capitalist production, the restructuring of labour dynamics in rural communities, the transnationalization of the production of species with high commercial value, the transfer of environmental costs to producing countries, and its contribution to the limitations of the governance and sustainability of the blue economy [14,24,28,48,52,62,85,87–89,91,104,111].

From a comparative perspective, marine aquaculture presents an uneven development pattern between developed and less developed countries, with a limited expansion in the former, and less regulated growth in the latter [70,131]. Phyne [105] explores this phenomenon within the framework of the development of salmon aquaculture, highlighting important variations among the main global producers according to the economic-political conditions in which this industry emerges, and the institutional environments that promote its consolidation. Thus, while Norway experienced the industrialization of this activity under the auspices of a social democracy, establishing limits to the economic concentration of capital and promoting the distribution of its benefits at national level, Chile did so under the influence of neoliberalism (in an authoritarian regime), adopting a clear orientation towards economic growth, the attraction of foreign direct investment, and the economic and geographical concentration of capital. This results in different national productive trajectories, especially in contexts of globalization in which the influence of international markets and agents in the formulation of national policies is increasing, promoting new narratives and geographies of development [79].

Globalization processes impose important and unequal challenges on territories based on a dialectic between localization of the global and denationalization of the national [116]. This dynamic is particularly complex in Latin American countries where the extractivist mode of accumulation seems to favor restricted governance systems and processes of expansion of the extractive frontier to new geographical spaces that often undermine the livelihoods of communities, intensify the dynamics of deterritorialization and reterritorialization, and produce impacts that reduce local socio-ecological well-being [25,75,76]. Added to this is the biocultural relevance of the sea and the coast in the imaginary, knowledge and practices of the coastal communities, artisanal fishermen and indigenous people of the continent [43], often ignored and made invisible by the dominant instrumental rationality that promotes modernizing narratives that legitimize government control and/or commodification of these spaces through the promotion of development and the application of market forces [115].

3. Methodology

Viewing discourse as a social practice [63], that is, as a set of ideas, concepts and categories that are produced, transformed and reproduced in a set of policies and practices through which meaning is given to social and physical phenomena [77], we not only focus on texts as an object of study, but also establish a description of the social processes and structures that lead to the production of those texts and the ways in which they are legitimised [129]. By studying development discourses and policies in relation to the foundation and expansion of salmon farming in Chiloé, we elucidate and analyse its characteristic narrative elements, and how it functions as a means of appropriation and valuation that produces and legitimises one particular territoriality and introduces specific patterns of territorial development and governance.

38 semi-structured interviews with representatives of civilian society, traditional fishing, public management, indigenous peoples, social movements and academia, conducted between June and October 2022, are analysed together with 19 official reports associated to modernisation processes and regional development programmes produced by the Chilean Government between 1973 and 2023, including law decrees and technical reports produced by the Ministry of the Interior, the National Planning Office (ODEPLAN), the National Commission on Administrative Reform (CONARA), the Secretariat for Regional Planning (SERPLAC) and the Regional Government (GORE), among others. Sustainability declarations and reports by companies and the industry association with ties to salmon farming and statistics produced by public bodies, the industry association and companies are also reviewed. The field work is also supported by the experience of one of the authors in the design and implementation of territorial development and community outreach programmes related to salmon farming in Chile in the mid-2010s

We first classified and reviewed the documents depending on the historical contexts in which they were produced and the institutional bodies responsible for them. Secondly, we performed an open coding of the texts. These codes were reduced and combined to create units of analysis with the Atlas-Ti software. In the third phase, we examined the categories and subcategories to identify and systematise those discourses in which the industry and the territory take on a specific meaning that can be used to establish evolutionary periods.

4. Results

Based on the analysis of interviews and documents, five phases and contexts of discourse were identified around the development of salmon farming in Chiloé. For each phase, we present the central ideas on the role of salmon farming in the territory's development, the policies and practices that promote them, the participating institutions, the modes of legitimisation that reproduce them, and the sociopolitical and economic context in which they are framed.

4.1. Territorial integration of an "empty space" (1973–1982)

The structural reforms introduced by the military dictatorship starting in 1973 define Chile as a politically, economically and administratively centralised country, but with "empty spaces" and "deprived areas" that hinder national integration and development [56,101]. Faced with this, the government considers that developmental planning needs to strike "a better balance between the exploitation of natural resources, the geographical distribution of the population and national security [to] lay the foundations for effective and rational occupation of the territory" ([57]: 9). So, from 1974 the government started promoting a regionalisation process that redefined the political-administrative division of the country to promote "effective spatial decentralisation of the economy", taking advantage of the "geographic potentialities" of the regions and creating new "growth centres" ([101]: 23). "Regional vocations" needed to enable "specialised industrial growth" and "selective regional development" [101,102] based on techno-scientific criteria derived from applied research in each region to safeguard efficient exploitation of their resources and "advance towards a technological society" ([101]: 14).

The archipelago of Chiloé quickly received direct assistance since it was a territory of major geopolitical significance to an authoritarian government that viewed territorial dispersion as a threat to national sovereignty. Los Lagos Region, where the Chiloé archipelago is located, acquired a strategic role due to its connections with the southern parts of the country, becoming a hub for interregional integration aimed at achieving diversified development based on the industrialisation of the exploitation of its natural resources [102]. The economic insertion of the region in international markets perceived through salmon farming was an opportunity to expand the country's production network, promote

foreign investment, develop the capacity of regional businesses and “end the historical inertia of deprived rural areas” [100,102]. The geographical and environmental conditions of the Chiloé archipelago were considered ideal for the artificial and intensive harvest of hydro-biological species [101,102].

The Government was defined as a subsidiary, with the responsibility to support investment in prospecting and a production infrastructure that, if it did “not lead to direct pecuniary results in its early stages, would not be financed by the private sector” ([101]: 67). This was expressed in the form of inter-governmental associations, institutional restructuring and public incentives aimed at promoting investment projects and technology transfer in production sectors that exploited the comparative regional advantages [56]. Marked by the discourse of territorial integration and modernisation, the establishment phase of salmon farming in Chiloé was characterised by a low number of companies, dependence on foreign supplies of inputs and technology, and little regulation of the aquaculture sector [48].

4.2. The region at the service of the nation (1983–1994)

Following the economic crisis of 1982, defined as one of the worst in the country’s history [92], salmon farming entered a second phase of development, characterised by learning about technology and the growing connection between the regional economy and global markets [95]. At the beginning of this period, in official documents, Chiloé was still being represented from the perspective of deficit, as a territory with a “different morphology”, characterised by poverty, rurality, labour migrations and a rural subsistence economy based on small-scale agriculture and traditional fishing [93]. The argument was that Chiloé’s geographical isolation had led to the formation of a culture that was firmly rooted in the territory and local traditions that was viewed as a hindrance to its “economic take-off” [93]. From a policy perspective, the main obstacles included the “inadequacy of the technology available for fish production processes” and the “low sociocultural level of traditional fishermen and peasants that prevents them from accessing different production methods to traditional ones” ([119]: 9). Given the “low living standards in the area”, the authorities pushed the need to promote connectivity and production development programmes aimed at generating economic activities based on the exploitation of forest and marine resources, and the “effective colonisation” of the territory ([93]: 16–17).

Fundación Chile, a public-private institution created in 1976 with the purpose of transferring technologies and stimulating the creation of companies based on these technologies, acted as a risk fund through the creation of companies, and the fostering of research into salmon farming [108], as well as establishing the first technical assistance and quality certification services for the industry. Given the gradual stagnation of national wild-capture fishing, salmon farming became one of the country’s main regional development strategies.

In this period, and based on the associative capacity of the sector, which was described as one of the most competitive aspects of the national industry [95], the *Asociación de Productores de Salmón y Trucha de Chile A.G.* (Chilean Association of Salmon and Trout Producers, APSTCH) was created in 1986. This industry association plays a key role in coordination between companies, the promotion of salmon in international markets, and the certification of quality standards. The period witnessed the development of different phases of the production process (fish farms, breeding centres, and processing plants). The country’s production was internationalised to the extent that Chile became one of the leading salmon producers, being ranked second in the world in 1992 [95].

The main national regulations on aquaculture and the environment were passed in the early 1990 s. The *Ley General de Pesca y Acuicultura* (General Act on Fishing and Aquaculture) (Ley 18.892, 1991) granted concessions to aquaculture and created coastal zones for the exploitation of artisanal fishing resources in the form of a network of *Áreas de Manejo*

y Explotación de Recursos Bentónicos (Areas for Management and Exploitation of Benthic Resources, AMERB). Protective bodies which could not be assigned to private parties were established, such as marine parks and reserves. From the authorities’ point of view, this marked the transition from free access fishing to a modern fishing regime, based on regulations aimed at the rational use of resources. The *Bases Generales del Medio Ambiente* (General Environmental Standards) (Ley 19.300, 1994) established that certain aquaculture projects had to be subjected to environmental assessment studies, and fishing operations were banned in protected natural areas. The introduction of these regulations was followed by gradual enclosure of Chiloé’s inland sea via the administrative mechanism of aquaculture concessions (Fig. 2) and a growing geographical concentration of salmon farming in Los Lagos Region. This redefinition of the conditions for accessing the sea had significant effects on local communities, especially traditional fishermen and indigenous peoples who depend on these spaces and resources for their subsistence and the preservation of their territorial identities as highlighted by the interviewees belonging to these communities.

For the government, during this period salmon farming was not only an economic activity with the potential to exploit comparative advantages and attract foreign investment, but also a development model that could promote regional employability (by integrating women and younger people in the production cycle), and social well-being in historically disadvantaged locations in the south of the country [119]. In 1994, the industry association celebrated the consolidation of a “mature industry”, an “example of sustainable development” that had “put the country in a positive position abroad” and contributed to its economic development, especially in “the traditionally most forgotten and unprotected communities of the country” ([3]: 2–8). In this context, under the wing of APSTCH, the *Instituto Tecnológico del Salmón* (INTESAL) was created as a specialist organisation commissioned with the production of information on salmon farming and the coordination of research, the development and innovation programmes, and the transferring of new technologies to the industry. It would play a key role in the reformulation of the regulations in the sector.

4.3. Regional modernisation and blue revolution (1995–2006)

The subsequent boom phase went from the mid-1990 s until the systemic collapse of the industry in 2007. The institutional learning and government-led experimentation give way to a cycle of rapid growth in salmon farming characterised by the major role played by the private sector, a strong economic imperative, and the quest for world leadership [21]. Exploiting the advantages of producing in the southern hemisphere and given the political guarantees of the restoration of democracy in Chile, major multinational companies, slowly started moving in, while there was also gradual reduction of the dependence on foreign inputs and technologies [95]. According to the union’s narrative, between 1988 and 1996 salmon farming grew by more than 3000% in tons of exports, and by almost 2300% in returns in dollars [5]. This growth helped to boost the identification of the communities in Chiloé with salmon farming, and to make salmon part of the “cultural heritage of southern Chile” ([4]: 9).

As indicated by interviewees from the regional scientific community, this period was characterised by the positioning of salmon farming as a very stable driver of the regional economy that benefited greatly from national support. It was viewed as a paradigmatic example of the Chilean economic miracle. In 1995, the national industry far exceeded the barrier of 100,000 tons of production, and the country consolidated itself as the second largest producer of salmon in the world, after Norway. The sector was generating 17,433 direct jobs, 90.2% of which were concentrated in Los Lagos Region [4]. In the words of a representative of a local social movement, “after a century and a half of state absolute neglect, the salmon farming appears as our saviour.” The promotional narrative presented salmon farming as a “pioneering” industry in the conquest of the “concealed and forgotten landscapes” of southern Chile

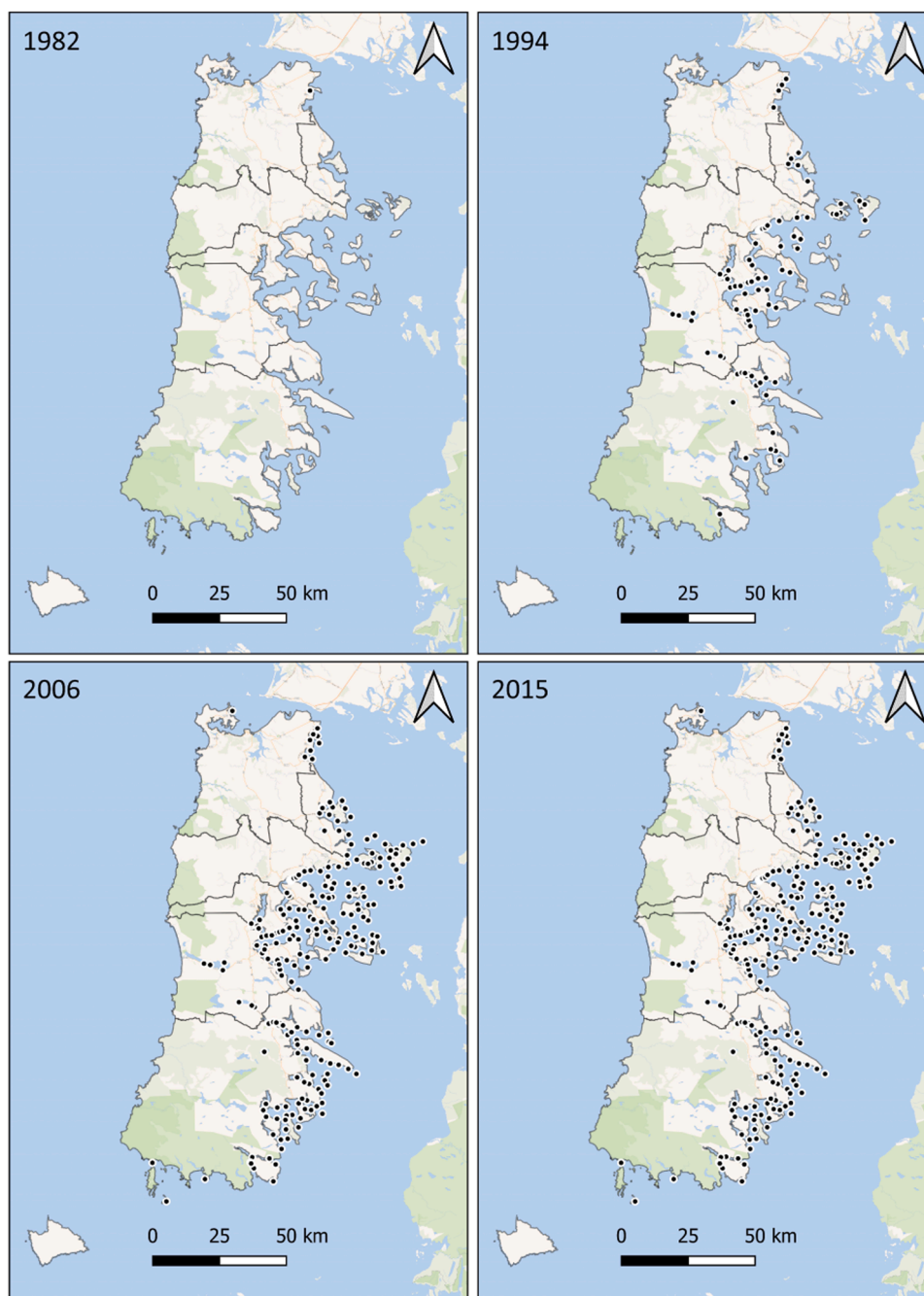


Fig. 2. Evolution of licenced salmon farms in Chiloé. Source: compiled by the authors based on data from the Chilean Undersecretariat of Fisheries, 2023.

to produce salmon in “the purest waters on Earth” and revolutionise their communities’ ways of life ([4]: 3–8).

Neither the accusations of dumping by US (1997) and European (2002) producers, according to whom the competitiveness of the Chilean industry could be attributed to government subsidies, low production costs and scant regulations; nor the growing pressure from the (national and international) scientific community and NGOs regarding the labour and environmental conditions of the industry, could cast a shadow over the government’s confidence in its discourse. This confidence was bolstered by the incipient discourse on the sustainability of aquaculture that contrasted the capacity of salmon farming for generating wealth against the high volumes of extraction required for capture fishing ([6]: 4). In addition, there were programmes to support cultural, sporting, and social activities promoted by the industry in their areas of influence. Hence, the idea was to forge links between the development

of the industry, the improvement of the local infrastructure, and the socioeconomic well-being of the population; aspects that were widely disseminated by the sector in the form of media campaigns, reports, journals, and interviews [7].

In the early 2000s, the transnationalisation of salmon production was consolidated, as shown by the acquisition and/or merger of companies, corporate grouping (with major participation of foreign investors), and the expansion of the industry towards the south of Chile [31], with an increase in the volume of national exports from 184,000 tons in 1996 to 506,000 tons in 2002, and an increase in the share of world production from 24.5% to 35.2% in the same period [95]. That same year, the members of APSTCH modified their deeds of association and changed the organisation’s name to the *Asociación de la Industria del Salmón de Chile* (SalmonChile). Of note among the amendments were the acceptance of members from areas attached to production (mainly

companies supplying food and services), and the establishment of new guidelines aimed at generating agreements between competitors to avoid accusations of dumping, to promote the nutritional benefits of salmon, and to promote the idea that the industry was sustainable and socially responsible. This scenario handed major bargaining power to the salmon sector, while popularising the concept of the “blue revolution” [125].

In this context, new regulations were introduced, which included health and environmental regulations on aquaculture (RESA, 2001; REMA, 2021) and the *Política Nacional de Acuicultura* (National Aquaculture Policy, PNA, 2003). The first clean and sustainable production agreements were made between the government and companies, granting public legitimacy to an activity that was about to make Chile the world’s leading producer of salmon. However, the formation of a growth-oriented production system, the lack of coordination between companies, and a flexible regulatory system contributed to the collapse of the industry during the sanitary crisis of 2007 [48].

4.4. Territorial crisis and salmon farming 2.0 (2007–2015)

The crisis and restructuring phase began with the outbreak of the ISA virus in 2007, which caused a decrease by around 60% in national production and the loss of 8400 direct jobs [60], and led to increasing questioning of the territorial and aquaculture production model that the Chilean government was promoting [10]. This crisis evidenced the strong dependence of the regional economy and the socioecological contradictions of salmon farming, which is transversally recognized by the different local actors interviewed. The public debate attributed the causes of the crisis to overproduction and overcrowding of fish, the importation of contaminated eggs, the extreme geographical concentration of production, ignorance of the environmental impacts of intensive salmon farming, and the lack of mechanisms to regulate the public sector [37].

Conversely, the salmon industry presented the crisis as the inevitable outcome of inadequate government regulation. It was argued that after the first case of the ISA virus was identified in Norway, the government failed to implement restrictions on the importation of eggs as a preventive measure, largely so as not to breach international agreements. The salmon union pressed for new conditions and regulations to keep the sector active, reinforcing the narratives that associate salmon farming to regional development, as illustrated by the statement issued by the president of SalmonChile in 2008: “We pay the best wages (...) if salmon farming disappears those regions will go back to the Stone Age” [61]. For its part, the government reasserted its commitment to rescuing the industry, maintaining that there was no objective evidence of its environmental impacts, despite the studies published by academics and environmental NGOs. Of note among the institutional responses were regulatory changes that increased national agencies’ capacity for control, the introduction of a new health management scheme, and the reorganisation of the salmon production cycle. These measures drew on the results of a public-private partnership that was established to tackle the crisis, which included the creation of the groups of salmonid concessions, sanitary macro-zones, monitoring areas and stricter health and environmental control measures [37].

The recovery of salmon farming from 2010 also reframed the industry’s discourse. As identified by Bachmann-Vargas et al. [12], first, there was emphasis on the sustainable protein discourse whereby salmon production was presented as an efficient source of highly nutritional animal protein to meet the growing demand for food worldwide. This discourse was supported by partnerships with international NGOs, global certifications and green labels, and the inclusion of the Sustainable Development Goals in companies’ sustainability strategies. Second, there was the biosafety discourse which presented the salmon sector as a universe of companies working in coordination through the synchronisation of production cycles, definitions of production densities, and fallow periods in a shared production area.

Moreover, there was discourse on corporate social responsibility based on the implementation and dissemination of programmes tied to local communities and authorities, and social investment, including donations, improvements to community infrastructures and beach clean-ups, among others. Although such programmes had existed before [6,7], we note that this discourse emerged to compensate for the socioeconomic effects of the ISA virus crisis, and as a key element for obtaining the “social license” to operate and certifications for production, all part of the auspicious discourse based around what the industry had learned [31].

From the perspective of an NGO representative:

Everything here is a matter of words (...) I see that there are concepts that are permanently being used by these industries that are very skilful in terms of communications. For example, adaptation to climate change, resilience, food security, territorial development, all these concepts are widely used (Interview Local Non-Governmental Representative, 2022).

These discourses were unleashed in a complex context of recovery and expansion of the industry towards new regions in the south of Chile, and of efforts by the regional government to promote complementary economic activities, mainly associated to tourism [72–74]. In addition, as noted in the literature [41,99,107], this period was characterised by a growing concern about the socio-ecological impacts of salmon farming in Chiloé, which included such issues as the eutrophication of coastal waters, changes to wildlife habitats, the risks of the use of antibiotics on biodiversity and human health, interaction between escaped farmed species and the local fauna, and spatial conflicts derived from the territorial expansion of the industry.

4.5. New disputes over the territory (2016–2023)

Finally, we identify a new phase began with the crisis around legitimisation of salmon farming in the wake of the conflicts derived from the dumping of 4600 tons of decomposed salmon off the coast of Ancud, to the north-west of Isla Grande de Chiloé, and the subsequent bloom of poisonous algae that led to the “red tide crisis” in Chiloé in 2016, which caused the contamination and mass death of marine resources of importance both, to the local economy and for feeding the coastal communities [55]. This event created the conditions for one of the biggest socio-environmental conflicts of recent times in Chile, known as the “Chilote May”, which escalated from sector-specific protests by traditional fishermen to the historical demands of the archipelago’s communities, starting to redefine the terms of the debate on the development and governance of the island territory [38,45].

Out of this crisis, new movements for collective action arose in which indigenous communities, in alliance with NGOs and traditional fishermen, play a key role in applying for *Espacios Costeros Marinos de Pueblos Originarios* (Coastal Marine Spaces of Original Peoples, ECMPOs); an administrative right over certain coastal-marine areas to safeguard the traditional uses of indigenous communities. Although the regulation was introduced in 2008, it was not until 2016 that there was a rise in the number of ECMPOs. In the words of a regional leader:

The primary reason for our requests to regain coastal space is to protect us from the environmental contamination generated by the salmon industry (...) what the communities long for is to be able to protect their spaces so that they do not continue to be contaminated (Interview Indigenous Leader, 2022).

In response to this scenario, the salmon industry argued that the red tide crisis largely came about due to the dynamic effects of climate change. The industry presented itself as a vulnerable party to difficult-to-manage scenarios and one of the most badly affected sectors in financial terms, presenting the argument as a highly complex problem on a worldwide scale [106]. This discourse sought to play down the adverse effects of salmon farming on socio-ecological systems, while further stressing the discourse about sustainable protein, biosafety and corporate social responsibility, presenting the salmon sector as part of the solution to the problems derived from climate change [113,114]. As

the president of the SalmonChile asserted,

In 35 years of history, together with the people of the far south who have joined this adventure, we have managed to develop a sustainable activity, with a small carbon footprint and that is fundamental for feeding the world (Clément, 2019, cited in [1]: 29).

From the perspective of a social movement,

Since 2016, there has been a change of direction regarding how they deal with the communities that aims at two things: to buy local powers, buy a 'social license', but also, and this is very interesting, to validate themselves in international markets thanks to sustainability credentials (Interview member Local Social Movement, 2022).

The industry is advocating for a new regulatory framework that will make it possible to exploit the regional potential and turn Los Lagos Region into the "aquaculture capital of the world" ([94]: 62), focusing the discourse on the need to adopt new forms of regulation that are consistent with global aquaculture governance systems. As an interviewee from the salmon sector points out,

the industry has become a global actor that presents a challenge for the government's regulatory capacity, which needs to guide its actions towards the common sustainability standards required by global markets and consumers (Interview member Salmon Industry, 2022).

While the industry is seeking legitimisation by means of hybrid systems of aquaculture governance and certification, such as the ASC (Aquaculture Stewardship Council), BAP (Best Aquaculture Practices) and GAP (Global GAP), which strengthen the role of salmon farming in the provision of food, nutrition, and employment, the historical SalmonChile leadership has declined. Simultaneously there has risen a new business association, the pressure for the standardisation of practices among companies to boost the sector's reputation and, in the industry's words, the effort to regroup the "great salmon family" [112]. On the other hand, the indigenous population have found that their right to recover their traditional practices and their control over marine coastal spaces has been legitimised becoming a new player with their own agenda.

5. Discussion

Recent literature emphasizes that the blue economy narrative is based on the representation of the sea as placeless, as an empty space of people (not of resources) in need of development and governance [71]. In a similar way, during the initial stage of the salmon farming in Chile, the Chilean government portrayed the land and sea of Los Lagos Region as an empty space, in this case, not of people, but because of lack of adequate "exploitation of natural resources". The establishment phase of salmon farming (1973–1982) was framed in a context in which the foundations of the Chilean economic model were redefined and the main agreements that would sustain the new institutional framework were configured [58]. So, the reforms to modernise the nation and regionalisation were key aspects in the formation of the new geography of development based on salmon farming. As Boisier [32] argues, the reformers viewed decentralisation as the institutional framework for a market-based social system, in which the government nevertheless acted as a creator of new markets through support for industrial innovation programmes [23]; and regionalisation acted as a strategy to change the regions' production systems. In practice, we could argue that the discourse on territorial integration contributed to the formation of an unequal development pattern that fostered processes of *commoditization* [46], *glocalization* [124] and *corporatization* [78] of the territory, and a neoliberal environmental governance [90], which, as Boisier [33], Fløysand and Román, [67] and Fløysand et al. [68] identified, have increased governmental responsibility for attracting investment to the region, while eventually losing control over new economic actors and the adverse effects of these investments.

The early development phase of salmon farming (1983–1994) occurred in a context of diversification of national exports, in which the promotion of development in Chiloé was viewed as a techno-scientific

issue that required external strategies and actors to bring in new knowledge and rationalities that would lead to optimal exploitation of the geographical potential. The knowledge and practices of peasants, local fishermen and indigenous peoples were presented as insufficient for the generation of a local development project, to the point of being portrayed as cultural obstacles to regional development. In response, salmon farming would represent rational and efficient management of under-exploited or over-exploited common-use natural resources, triggering a rapid process of territorial modernisation based on technology transfer and the promotion of foreign investment. Thus, salmon farming was consolidated as a modernising agent in the region and a successful example of the Chilean economic model, that as Bustos [36] asserts instated a new vision of development in Chiloé based on the break from a pre-modern past that needed to be abandoned and a modern future to be conquered through salmon farming. The foregoing, along with the first regulations of the sector, paved the way for a utilitarian view of the territory based on the privatisation of coastal spaces and resources, transforming the pre-existing ways of understanding and interacting with the sea [86,110,121,127], and exposing the relevance of the state in neoliberal regulation and governance [39,90]. As it happened in other Latin American countries such Colombia [117] and in Africa [49], the lack of knowledge and understanding of established traditional local practices facilitated the expansion of the blue economy.

Arising from the active governmental promotion of aquaculture, a third phase developed in which salmon farming boomed (1995–2006), characterised by the gradual enclosure of marine coastal spaces, the transnationalisation of production, the convergence of ownership and the territorial expansion of the salmon industry. This led to a gradual change to the territorial landscape and logic, with a redefinition of the power relations between local, national and global stakeholders, and a growing regional dependence on salmon investment [22,68,108].

It is important to note that the socio-territorial transformations that have been reconfiguring Chiloé, which include the de-agrarianisation of the rural, the salarisation of production relationships, the arrival of new residents attracted by the growing industry and the increasing interaction between the rural and the urban, are far from homogeneous across the archipelago, generating major territorial asymmetries and imbalances. In this context, the salmon industry has gained major exposure and, from the 2000s, new discourses were introduced from the perspective of sustainable globalisation [21].

The ISA virus crisis was a turning point in the development of Chilean salmon farming, opening a phase of restructuring of the industry (2007–2015). As our research and the literature points out [36,48,80,81], this crisis showcased the importance of the social and environmental dimensions of the development of the industry and gave rise to new regulations and innovations in the system for granting licences, coastal planning, and the use of antibiotics in a context of major criticism of the industry and the government's regulatory role. Furthermore, as Bachmann-Vargas et al. [12] and Billi et al. [31] posit, the context led to the emergence from the salmon industry of discourse on the need for renewal, in which the narratives of sustainable protein and bioefficiency played a highly relevant role in the stabilisation of the sector, portraying the aquaculture industry as a food production system that could safeguard the sustainability of the oceans and offer a response to the growing demand for food worldwide. In our analysis, we also observe how a third line of discourse focused on corporate social responsibility played a central role in the recovery and expansion of the industry towards the Patagonian regions, with an eye to boosting public confidence in the modernising role of the sector, and without problematising the essence of the salmon development and governance model.

Finally, a phase is identified when the legitimacy of salmon farming gets into a crisis, in the wake of the 2016 red tide crisis, which raised doubts about the sector's ability to learn from past crises and objectify its discourse on socially and environmentally sustainable practices [31]. Along with this, two highly complex processes have been triggered that show the existing multi-territoriality [76] in the Chiloé archipelago. On

the one hand, there is the strengthening of community management of ECMPOs, which broaden the ways in which marine coastal spaces can be appropriated and have redefined how the stakeholders in the territory are organised [8,44]. On the other hand, there are the rising demands from the salmon industry for new aquaculture regulations and changes to the legislation on ECMPOs, which are perceived as obstacles to salmon farming [1]. Here the industry's goal is to strengthen market-based governance mechanisms, where international certifications could play a decisive role [51]. Although by 2023 the number of admitted ECMPOs is still limited, they pose important challenges for Chilean salmon farming in a context where aquaculture of high commercial value species, such as salmon, is increasingly questioned globally, due to the heterogeneity of its production practices and its impacts on socio-ecological systems as identified in many other studies.

6. Conclusions

An examination of the processes whereby salmon farming was introduced and then expanded in Chiloé focused on the evolution of development discourses and policies has allowed us to characterize a discontinuous evolutionary process, marked by rapid growth and recurrent social and environmental crises, which entailed major repercussions for the modern-day make-up of the archipelago and its population. We observe how the construction of this territory not only meant its physical occupation by the salmon industry, but also a historical process of discursive appropriation of the space through the production of absences and forms of knowledge and representation that legitimised a particular way of conceiving and producing development. Once the industry had been consolidated, and in response to the social and health crises, the discourse has overtime evolved towards the narratives of sustainability and self-regulation based on hybrid forms of governance. Thus, the salmon industry has been able to achieve its own interests relatively efficiently thanks to its ability to capitalise on blue development discourse and its associations with territorial integration, economic growth, and the sustainability narrative of global aquaculture.

However, this long-term leadership on the part of salmon farming, with the support of a neoliberal state, is being questioned by the emergence of new discourses and stakeholders that challenge the hegemonic view of the territory. This creates a new scenario in which community management in the form of ECMPOs is being presented as a springboard, not only for the creation of alternative development and governance models, but also to produce new socio-territorial trajectories in Chiloé. Further research should address these new opportunities to strengthen alternative forms of territoriality based on the protection of ancestral ways of life, the redistribution of territorial control among local stakeholders, and the conservation of biocultural diversity and the interactions it brings with the long-established salmon farming industry.

CRedit authorship contribution statement

Daniel Carrasco-Bahamonde: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Writing – original draft, Writing – review & editing. **Antònia Casellas:** Conceptualization, Data curation, Formal analysis, Methodology, Supervision, Writing – original draft, Writing – review & editing.

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Data availability

Data will be made available on request.

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