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The Transformation of Coastal Governance, from Human Ecology to Local State, in the Jimei Peninsula, Xiamen, China

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Abstract: The coastal zone, situated at the sensitive interface between land and sea, serves as a pivotal area of human economic activities. As one of China's economic special zones, Xiamen exemplifies the comprehensive trajectory of coastal governance in China. However, there are still research gaps in the human ecological transitions in coastal governance. This study adopts the research approach of scale politics and the local state, with the purpose of explaining the governance model of the coastal zone transformation. Sources include interviews with fishers, direct observation, participant observation, and content analysis. The study demonstrates how local governments strive to maximize the profits of scenic tourism, by (1) appropriating the international scale, absorbing international aid and technical assistance; (2) confiscating the access rights of the coastal zone; and (3) vertically integrating all relationships from local to international organizations to create new governance patterns. Xiamen's coastal landscape not only presents the meltdown of human ecology under local state governance but also demonstrates a keen adaptation to the shifting dynamics of the international tourism market. From the theoretical perspective of the local state, this paper effectively points out the political characteristics of local government and bridges the loss of cultural ecology in the transformation of governance patterns.

Keywords: coastal exclusion policy; scale; function shift; reform; confiscation; local state



Citation: Zou, Z.; Zhang, Y.-Y.; Lee, S.-H.; Tsai, S.-C. The Transformation of Coastal Governance, from Human Ecology to Local State, in the Jimei Peninsula, Xiamen, China. *Water* **2023**, *15*, 2659. <https://doi.org/10.3390/w15142659>

Academic Editors: Ta-Jen Chu, Hwey-Lian Hsieh, Chenghsin Liao and Elias Dimitriou

Received: 21 June 2023

Revised: 17 July 2023

Accepted: 19 July 2023

Published: 22 July 2023



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1. Introduction

Since the official enactment of the United Nations Convention on the Law of the Sea (UNCLOS) in 1994, global attention towards marine governance has gradually increased. This shift can be attributed to expectations for environmental sustainability [1], as well as considerations regarding the security of maritime spaces and resources [2].

From an ecological geography perspective, the marginality of geographic environments is a hotspot for biodiversity. Species residing at the edge of ecosystems often exhibit high adaptability. Coastal zone species commonly possess the following characteristics: genetic adaptations for the biotic evolution of marine and terrestrial environments [3], the ability to exchange and absorb energy between marine and terrestrial habitats [4], strong adaptability with population extinction having cascading effects on plant ecology [5,6], and habitat destruction as a primary cause of extinction [7–9]. The coastal zone, including the terrestrial, intertidal, and nearshore marine areas, represents the interface between land and sea, extending a certain width on both sides of the coastline. Although there is no unified definition for its extent, it is known to possess characteristics such as risk, sensitivity, openness, and complexity [10–13]. It constitutes a complex socio-economic and ecological composite regional system, characterized by conflicting and acute human–environment relationships. Despite being the most biodiverse region, it remains the most impoverished academic desert due to the uncertainty in enhancing effective conditions for

coastal population replenishment [14–16]. Therefore, the coastal zone is the cornerstone of sustainable development, requiring resilience to face various impacts and the regulation of social governance systems.

The global governance of coastal zones is primarily focused on two main aspects: resources and activities [17]. For example, the centralized coastal governance pattern implemented by the central government in Malaysia represents a case of national-level coordination. It involves the development of comprehensive governance plans, including national wetland policies and initiatives for beach conservation [18]. On the other hand, countries such as Northern Ireland, Japan, Victoria in Australia, Indonesia, and Brazil demonstrate examples of governance at the integrated local scale. In these cases, coastal communities, local residents as volunteers, non-governmental organizations, and civil society organizations participate in coastal zone governance, effectively carrying out functions of supervision, implementation, governance, and research [19–23]. Tourism has become an important pillar of the economy of coastal cities. However, the conflict between human activities and the ecological environment has become more and more obvious. Brazil, the United States, and the Macaronesian Islands have demonstrated the conflict between marine tourism and ecosystems, including coastal garbage pollution, the intensification of ecological protection, the contradiction between ecological protection areas and tourism behavior, the change of beach erosion caused by man-made facilities, etc. [24–27] These examples illustrate that countries have undergone governance processes that involve multiple political scales. Furthermore, scholars have recognized that in the context of increasing competition over marine resources globally, the coastal zone has become a site of degradation, marginalization, disputes, and conflicts. With the growing human activities in the marine environment, scholars advocate for a greater emphasis on the political dimensions of ocean and coastal governance research [28].

In recent years, there has been a noticeable increase in approaching ocean issues from the perspective of political ecology. Political ecologists focusing on the marine environment have begun to analyze how power operates in the ocean and coastal environments [28], indicating the explanatory power of this research approach in coastal zone studies. Studies involving political ecology in coastal governance mostly explore four aspects: power and politics, knowledge and narratives, scale and history, justice, and fairness [29]. Political ecologists argue that scale is constructed by actors in social and political contexts to maintain or reconfigure power relations [30].

Chambers, Helgadottir, Carothers, and others discuss how the power and influence of large fishing conglomerates consolidate control and ownership over the Icelandic fisheries, marginalizing small-scale fishermen and coastal communities in national politics [31]. Stonich examines the impact of tourism development on the health of local water, land, and marine resources using the case of the Bay Islands of Honduras, emphasizing the vulnerability of the poorest residents to the related environmental changes [32]. Ajibade discusses the creation of the Eko Atlantic project in Nigeria from an environmental perspective, exploring how it reshapes the risk landscape and further marginalizes certain groups and future generations [33]. Donkersloot and Menzies explain how Irish fishing communities and fleets have been influenced by external political forces, thereby affecting the actual choices of coastal fishermen [34]. However, Vazquez argues that these governance measures are not well suited to the ecological environment and overlook local voices, failing to address deeper structural issues of resource governance and acquisition to respond to environmental change [35].

Political ecology often focuses on the *local* arenas of political contestation outside formal institutions, including cultural and symbolic competitions as well as everyday resistance within families, communities, and civil society [36]. Most of the aforementioned studies concentrate on the influence of economic systems and policies on the environment, with limited attention being paid to the relationship between environmental degradation and local residents. There is also a lack of research that examines the connections between human–political transitions and ecological degradation.

The coastline of China is approximately 18,000 km long. The comprehensive governance of coastal zones in its true sense began in 1994 with the cooperation between China and the United Nations Development Program (UNDP). It was only in 2004 that the country started considering integrated land–sea governance as a national strategy [11]. However, prior to this, China’s coastal provinces had already been the fastest-developing regions in the country. Studies have indicated that by 2017, the per capita GDP in coastal zone areas was close to that of high-income countries [11,37]. On the other hand, the high intensity of land development and population density in these coastal zones have resulted in significant social and environmental changes, resource pressures, coastal pollution, continuous decline in ecosystem health, and increased environmental risks [10,38–41]. These issues indicate that the economic benefits of coastal zones are not proportionate to the governance of their ecological environment.

Xiamen, on the other hand, has been one of the pioneering cities in implementing coastal zone governance in China and has achieved remarkable success in international coastal governance [42,43]. However, recent research has shown that the ecological environment in the maritime area centered around Xiamen is deteriorating. This includes a reduction in biodiversity and species numbers, with the population of Chinese white dolphins decreasing by nearly 50% from 2004 to 2019 [44]. The development of tourism in Xiamen has led to the conversion of some habitats of Xiamen wrasses into tourism attractions, resulting in a continuous decrease in their population and habitat space [45]. A comparison between the data from a 2015 survey on marine animal resources and historical data revealed a significant decline in the number and species of marine species [46]. Over the past few decades, the degree of human-induced artificialization along the coast has increased significantly, with the construction of ports, docks, and bridges occupying a large portion of the coastline, leading to a significant decrease in fishery resources [45,46].

The aforementioned research conclusions indicate that the governance pattern implemented in the coastal zone of Xiamen since 1994 has had negative impacts on both the natural and human ecological systems. Moreover, the uniqueness of the Xiamen case lies in its direct linkage from the local to the international level in terms of political scale. The transformation of the governance pattern has had disruptive effects, influenced by international laws and regulations, which have in turn had impacts on local culture and ecology but have received limited discussion. Interdisciplinary research between human ecology and environmental disciplines in the context of coastal governance mainly focuses on geography [47,48]. However, there are still research gaps in the discussion of human ecology transitions in coastal governance. Therefore, the main purpose of this study is to explore the changes in coastal governance in the coastal area of Xiamen in the past 30 years. The viewpoint advocated in this research is that the current issues in coastal governance in China arise from the uncertainty in the methods of human and political transformation/connection/buffer zones and the ambiguity of the governance targets. While coastal governance measures focus on enhancing economic value and protecting the ecological environment in Xiamen, they often ignore the integration of culture and the rule of law. This study aims to explain the relationship between the transformation of coastal governance patterns and ecological degradation through a case study of the Jimei Peninsula.

2. Materials and Methods

2.1. Study Area

This study focuses on the Jimei Peninsula in Xiamen City, as shown in Figure 1, which is located at the junction of the eastern and western sea areas of Xiamen. The coastal zone at the southern tip of the Jimei Peninsula is one of the few areas in Xiamen that remains relatively unchanged, and it is also one of the few living areas that still retain the culture of southern Fujian. Administratively, it falls under the jurisdiction of Xiamen City.

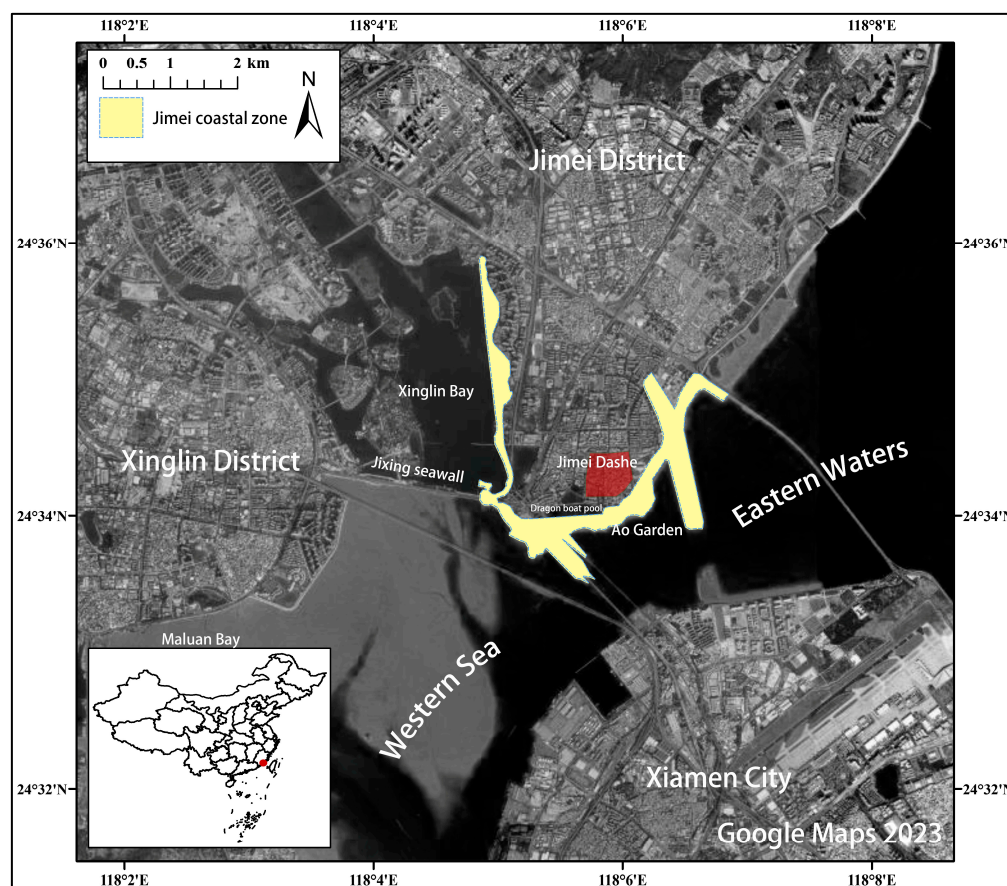


Figure 1. Study Area.

However, its unique development history fully reflects the contradiction between culture and the rule of law. Prior to 1994, the fishermen of the Jimei Peninsula followed traditional fishing and aquaculture practices, such as small-scale aquaculture, seasonal fishing, and fishing bans during breeding periods, allowing the marine environment time for self-recovery. It was only in 1994 that Xiamen established a marine group dedicated to coastal zone governance and subsequently issued policies and notices such as the “Functional Zoning of Xiamen Sea Areas”, “Regulations on the Use and Governance of Xiamen Sea Areas”, “Several Provisions on Xiamen Marine Environmental Protection”, and “Integrated Rehabilitation of Aquaculture Prohibition in the Western Sea Area”. Only after expanding the scope of marine governance to the coastal zone did the relationship between Jimei fishermen and the ocean begin to change, as this meant that all fishermen in the Jimei Peninsula had to withdraw from the economic sphere of the coastal zone.

The Jimei Peninsula is located in the northwest of Xiamen City, Fujian Province, with geographical coordinates ranging from 117.57° E to 118.04° E and $24^{\circ}25'$ to $24^{\circ}46'$ N latitude. Its land area is approximately 275.79 square kilometers [49]. The Jimei Peninsula features a combination of various geographical features, including low mountains, hills, plateaus, plains, and coastal tidal flats, as it is situated in a transitional zone between land and sea. This has contributed to the formation of a semi-fishing and semi-agricultural society [50]. The maritime area of the Jimei Peninsula is approximately 40 square kilometers. Due to natural siltation, land reclamation, and the construction of reservoirs along the coast, the coastline and tidal flats have gradually reduced, and some areas have experienced varying degrees of pollution. Before 1956, the coastline of the Jimei District consisted of the coastlines of the Jimei Peninsula, Xinglin Bay, Xinglin Peninsula, Maluan Bay, and islands in Xinglin Bay, which were relatively long.

However, with the construction of Xinglin Dam (Xinglin Reservoir) and Xinglin Bay Reservoir, as well as extensive land reclamation, the coastline has gradually shortened. The

area of this study is defined as east to Jimei Bridge, south to Antarctic Ao Garden, west to Ten Mile Causeway, and north to the end of Xinglin Bay Greenway.

2.2. Study Framework

By incorporating perspectives from Human Ecology [51] and New Human Ecology [52], it is possible to effectively explain the pattern of the Jimei Peninsula prior to 1994. However, after 1994, while the distribution of educational spaces (Jimei School Village) remained stable, the coastal zone underwent significant changes that cannot be explained using methods from human ecology. This study is a continuation of the human ecological perspective on the Jimei Peninsula [53], focusing on the land use changes in the coastal zone.

The landscape change of the Jimei Peninsula coastal zone is strongly influenced by global interactions and has undergone changes in international-scale and local government governance, resulting in drastic changes in the environment and social structure. However, the response from the stakeholder community is weak to almost silent. Although during the fieldwork and interviews, we did hear some interviewees express their opinions on coastal zone governance, the transformation of the coastal zone still occurred.

Since the reform and opening up, China has experienced a transition from isolation to global interaction, which has sparked discussions of theoretical models applicable to China, such as scale politics [54–56] and local state [57–60]. The study points out that China's economic achievements are due to institutional reforms, the economic growth implemented by local governments has affected the social structure, and each local government has a governance model tailored to local conditions [57,60]. Under the guidance of local state corporatism, the responsibility for its economic development belongs to the local government [57,59]. Local governments are granted more powers to control local economic activities and distribute economic profits [60]. The directors of the board of directors of the group, based on common interests, are essentially a powerful interest group [57,58]. Local governments achieve effective governance through the interaction of local states [61].

However, empirical studies from various places in China also suggest that one model cannot be used to understand all local governments [60]. This point of view reminds us that we must focus more on the geographical characteristics of Xiamen.

In addition to being a city, Xiamen is also a commercial port to the outside world. It has been an important international trade point since the 17th century [62,63], and became a special economic zone in China in 1980. Located in East Asia and having frequent international exchanges, it is also necessary for Xiamen's governance research to include factors from international scales. For example, in 1993, Xiamen City became a demonstration area for marine governance of the United Nations Development Program (UNDP) [64]. The results of governance were not only regulated on the national scale but also extended to East Asia by the UNDP [65]. This shows that the governance of Xiamen City is the result of global–local interaction and does imply the property of scale.

Furthermore, as an economic special zone, although Xiamen City is under the administrative jurisdiction of the Fujian Province, it possesses provincial-level economic management authority and legislative power over the special economic zone. These two powers enhance Xiamen City's decision-making autonomy. According to a study on Xiamen, firms appointing politically connected directors fail to fulfill their obligations to environmental responsibility [66]. This shows that under the mission of economic growth, local governments' decentralization of enterprises allows market forces to have an impact on environmental regulation.

The focus of this study is not the organization of interest groups, but to clarify why and how the governance of the coastal zone of the Jimei Peninsula has led to environmental decline in the process of sorting out the governance context. If the perspective of scale politics reveals the weak response of coastal zone governance, then adding the theoretical perspective of the local state can effectively explain the reasons for the weak response of coastal communities (Figure 2).

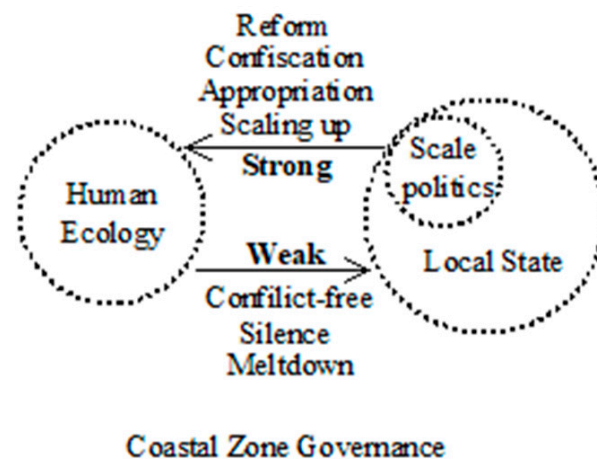


Figure 2. Study Framework Diagram.

2.3. Method Design and Study Materials

The rationale for using the Jimei Peninsula as a case study is discussed below.

First, this study uses the case study method because this article is an empirical inquiry, emphasizing the current phenomenon, and it is suitable for discussing questions of “why” and “how” in the context of real life and the environment; that is, case studies can help researchers clarify the context of a specific real situation and achieve a holistic and comprehensive understanding [67]. This study collects relevant data through case studies in the Jimei Peninsula. The sources include interviews with fishermen (Table S1), direct observation, participant observation, documents (Table S2), file records, etc. While each of the five sources of information has its strengths and weaknesses, the different sources are also complementary [67]. However, this study will use as many sources of data as possible to increase the integrity of the study (including official and institutional information, official statements, internal meeting minutes, research reports, planning reports, survey reports). By examining policies and comparing the temporal nodes of policies with the graphical representation of coastal spatial changes in the Jimei Peninsula, this study aims to explain how coastal line changes are influenced by policy changes.

Second, this study also considers the history of the Jimei School Village, a permanent peaceful village within China during World War II, suffered partial damage to its buildings during the wartime. However, its spatial layout and fishing village culture were preserved, and which was fortunate to retain its original culture amidst the rapid development of Xiamen Special Economic Zone. Therefore, we can discuss its coastal zone with its historical background changes in land use and the human environment.

Third, this study uses Citespace to analyze research hotspots (Figure 3). A bibliometric analysis of literature published from 2015 to 2023, indexed in the Web of Science Core Collection’s social science database, with the theme of “local state” and “China” was conducted. The database was accessed on 12 July 2023, and a manual search revealed a total of 477 papers related to “local state” and “China.” The frequently occurring keywords in these papers were “governance”, “management”, “politics”, and “scale”, indicating a significant focus on political aspects. In China, the power relations within the state apparatus are a factor that influences social outcomes. However, it was found that the frequency of the local state concept in coastal zone research was relatively low, which shows that the coastal zone of the Jimei Peninsula is a research gap that needs to be filled urgently.

Although various political entities from the 16th to 19th centuries had policies for managing fishermen organizations, the semi-enclosed and remote geographical location of the Jimei Peninsula hindered effective policy implementation. Therefore, the governance of the coastal zone continued to be dominated by clan and kinship relationships [77]. As a result, the fishermen’s organizations in the area did not go through the transition from fishermen associations and public offices to fishermen’s cooperatives [74]. It was not until 1956, when natural resources were nationalized, that the coastal zone came under unified government governance. Xiamen implemented fishery cooperatives and established the Fishing Union (Table S1, M-k, F-h). The surrounding fishermen began to engage in fishery work organized by the government [49].

Regarding the political scale of the Jimei Peninsula, it was limited to the local level until 1956, with overlapping roles between the government and the clan, and a consistent scale. After the nationalization of natural resources, the political scale expanded to the national level, with the basis of administrative regulations by the state and the regional scale primarily executed by local governments [78]. Since then, the political scale of the coastal zone in the Jimei Peninsula consists of three dimensions: national, regional (including semi-regional), and local (Figure 4).

year	event	coding	governance patten
Before 1625	The government imposes a sea ban Smuggling at sea is hugely profitable	Multi-party battles	
1625	A Jinshi appeared in the Chen clan, integrating the power of the government and the powerful	Clan and Fisherman	
1913	The Chen clan controls the fishery tidal flat resources of Jimei Dashe and needs to buy land from them	Clan exclusive	
1956	The nature of the country has changed, natural resources have been nationalized, and the government has unified management	State-owned property rights Fishing union Blood family relationship	

Figure 4. Human ecological governance pattern (before the year 1956).

3.2. The Scale Politics and Functional Shift in Coastal Zone Governance

Before 1980, China’s focus on resource utilization was primarily centered around land resources, with less attention given to marine resources [79]. Between 1982 and 1993, the government introduced a series of regulations (Table S2, No. 18–32) to provide guidance for coastal zone governance [42]. During this period, a top-down or centralized approach was still employed to manage natural resources. However, rapid economic development, coastal cities, and foreign investments intensified marine economic activities. These dense maritime activities led to issues such as disorder, overexploitation of marine resources, and environmental degradation [78].

Although the UNCLOS came into effect in 1994, the power and responsibility relationships regarding coastal zone governance in Xiamen City were unclear. Various departments had overlapping jurisdictions and functions, leading to conflicts and contradictions when addressing issues such as conflicts between fishing and maritime transport zones, disputes among fishermen, water quality degradation [49], and siltation of mudflats. In order to gain more benefits and avoid troublesome problems, these institutions competed with each other and shifted responsibilities [42].

However, in 1994, Xiamen City obtained legislative authority and became an experimental city for coastal zone governance under the United Nations Partnerships in the Environmental Governance for the Seas of East Asia (PEMSEA) organization [42,64]. As a result, the Xiamen municipal government and an expert team formed the Marine Integrated Governance Coordination Group to resolve coastal conflicts [42]. From 1996 to 2002, various regulations (Table S2, No. 36–44) were introduced for coastal demarcation, functional zoning, usage governance, and protection, aimed at achieving sustainable development of marine resources.

The year 2002 marked a turning point in coastal zone governance. The “Comprehensive Rehabilitation of Aquaculture in the Western Sea Area” policy, commonly known as the “Coastal Exclusion Policy (CEP)”, was implemented (Table S2, No. 44), completely prohibiting aquaculture activities in Xiamen Island, the Jimei Peninsula, Xinglin, and Haicang, with the goal of protecting the marine ecological environment and enhancing the functionality of the western sea area as a shipping channel. In 2006, the prohibition on mudflat aquaculture was implemented in the Jimei Peninsula, and fishermen who violated the ban were penalized [80]. Between 2010 and 2021, land reclamation plans and the marketization of marine resources were carried out in the coastal zone, with sea area usage rights being outsourced through bidding, auctioning, and listing processes. In 2021, the coastal zone of the Jimei Peninsula officially transformed into a tourism and recreational area through regulations (Table S2, No. 58).

The regulatory transitions from 1994 to 2021 brought two major changes: first, clarifying the responsibilities and ownership of coastal zone governance, and second, shifting the focus of the coastal zone from mudflat aquaculture to tourism and recreation. In 1994, Xiamen City, as a pilot city under the United Nations program, gained political support for the sustainable development of marine resources, applying the principles of international maritime law to the western sea area and elevating the governance pattern of the Jimei Peninsula from joint governance at national, regional, and local levels to an international scale (Figure 5).

year	event	coding	governance patten
1956	The nature of the country has changed, atural resources have been nationalized, and the government has unified management	National scale	
1980	Pollution governance	National scale	
1982-1993	Union governance	National scale	
1994	UNCLOS	International scale	
1996-2002	Boundary survey Functional division Management and Protection	Local scale	
2002-2006	Regulation of aquaculture prohibition in the West Sea Area (Coastal Exclusion Policy)	Local scale	
2010	Reclamation of land and sea	Regional scale	
2019	Outsourcing Marketization	Regional scale	
2021	Sightseeing	Local scale	

Figure 5. Political ecological governance pattern (after the year 1956).

3.3. *The Meltdown of Coastal Human Ecology*

Research on the southeast coast of China points out that fishermen in fishing villages have a high degree of homogeneity, and the rules of the order come from the internality of blood and geography [81]. The habit of living with a single means of making a living and fishing according to the fish season deepens the internal ties, although it also limits the opportunities for outward expansion [82]. From the aforementioned research results, we can see that the homogeneity and singularity of internal relations in fishing villages have shaped a special and strong organization and order. The fishermen's organizations in the Jimei Peninsula are all composed of clans. Even after organizational reforms, the fishing associations' main membership is still on a clan basis.

In 1956, although the ownership of coastal zones belonged to the state, the actual governance was still carried out by the fishing cooperatives formed by fishermen and clans. To ensure long-term harvest, a governance pattern of timely fishing was implemented. For example, in Dashe Fishing Village at the southern tip of the Jimei Peninsula, small fishing boats were mostly operated by individual households, with one or two people conducting fishing operations. Before the fishing season, especially before the first fishing trip after the Chinese New Year, they would collectively go to the Eastern Tianfei Temple and the Western Dragon King Temple for worship (Table S1, F-h, M-k). This shared belief and customs enhanced the cohesion of local fishing communities [49,75]. Prior to 1956, coastal governance and the allocation of marine resources in the Jimei Peninsula were controlled by clans and fishermen, with local communities overseeing coastal utilization from a long-term perspective that considered the protection and utilization of coastal ecosystems. For example, there was an understanding that fish and shrimp needed suitable habitats for shelter and food, and their capture would be limited if their size was too small (Table S1, M-a, M-b, M-c).

However, in 1994, the governance regulations at the international scale, which had been implemented through the CEP, reached the local level. The existing pattern of local joint governance disintegrated due to many fishermen accepting compensation for CEP (Table S1, M-d, M-j, M-g, F-a, F-b). Meanwhile, capable corporate fishing companies joined the fishing cooperatives, and the original fishing cooperatives integrated their resources to become the Xiamen Second Marine Fisheries Company, which later became the Marine Group [83]. The fishing cooperatives moved away from the governance units and transformed into purely capitalist entities, changing the traditional fishing organizations that were primarily composed of fishermen and clans. The governance pattern of the coastal zone, which was based on shared beliefs and traditions and local joint governance were lost. From the international to the local scale, the governance of the coastal zone now remained only at the international, national, and regional levels during the implementation of the CEP.

Fishermen lacked political assistance during the transition period following the cessation, resulting in feelings of exclusion and disillusionment regarding changes in their way of life and work environment (Table S1, M-a, M-h, M-j, M-k, F-i). However, due to low subsidy rates and an inadequate social security system for fishermen (Table S1, M-c, M-j, F-i), coupled with their limited skills, they were unable to engage in jobs other than fishing [84]. As a result, a small number of aquaculture farmers still take risks by cultivating flower clams (Table S1, F-c, M-j, M-l), oysters, and other marine organisms near the Jimei Bridge. Some fishermen secretly operate unlicensed fishing boats or engage in illicit fishing during the fishing ban period, leading to a widespread phenomenon of impoverished fishermen returning to the industry [80].

However, in the sample interviews conducted in the study area, there are individuals who have not received compensation for the cessation of fishing activities (Table S1, M-c). The income of those affected by the cessation has decreased to a level that barely sustains their livelihoods (Table S1, M-c). Unemployment issues are prevalent among female interviewees (Table S1, F-d, F-e, F-f, F-g). The elderly, who have lost their livelihoods from fishing, are renting out their homes to make ends meet (Table S1, M-a).

Along with the disintegration at the local scale, the maritime culture also suffered. With the loss of fishermen and residents at sea, various skills related to the ocean gradually disappeared. For example, the craftsmanship of handmade wooden boats in Jimei [85] and the technique of fishing with extended ropes [86] slowly vanished. The inheritors of the boat-building craft lamented, “The scenery here is beautiful, but life is not easy” [85]. The loss of the sea had intensified the recognition and sense of belonging of fishermen and related professionals towards cultural heritage. The policy implementation did not pay attention to the cultural heritage of the local residents, resulting in a rupture in the centuries-old maritime culture of Dashe Fishing Village. The younger generation has limited knowledge about the ancestral way of life and various skills, which now only exist in the memories of the elderly (Table S1, M-b, M-c, M-j, F-h).

The introduction of the cessation policy was aimed at mitigating and improving the depletion of marine resources [87]. However, local residents have observed environmental changes, such as the loss or reduction in the diversity of species (Table S1, M-a, M-c), the shrinking of intertidal areas (Table S1, M-b), the artificial replenishment of beaches (Table S1, M-f), and the continuous reduction of marine protected areas (Table S1, M-h, M-i).

After the implementation of CEP, local governance methods lost the perspective of humanistic ecology, resulting in the destruction of the structural integrity of the governance dimension. This not only undermines the stability of the overall political scale but also completely melts down the traditions, culture, way of life, and ecological environment in the coastal zone.

During the process of human survival and development, knowledge is acquired through conceptualizing and observing experiences, which allows for a better understanding, interpretation, and prediction of nature [88]. Traditional wisdom, as a part of the culture, recognizes the resilience of coastlines to adapt to various changes, which is a key attribute of sustainable development [89]. Traditional wisdom can also provide institutional memory for the governance of ongoing ecosystem changes, restoration, governance, and complex adaptive social–ecological systems [89–91].

However, the conflict in coastal zone governance arises from the comprehensive replacement of the previous resource allocation system with new institutions. During the human governance of the coast, the role of the clan in coastal governance is accompanied by the involvement of the government, creating a state of co-management. In the case of the Jimei coastline, the coastal ecological environment is well maintained, with harmonious coexistence of various marine species, and the economic activities of fishermen have not caused irreversible harm to the coastal ecosystem [49].

However, the policy of CEP has severed all activities of the peninsula’s fishermen related to the ocean, leading to the withdrawal of local residents from coastal governance. The wisdom of traditional coastal governance has been neglected, and fishermen have gradually become marginalized. The phenomenon of environmental degradation reflects the imbalance between human governance and political governance.

The phenomenon of human ecology meltdown in the Jimei Peninsula reveals that Xiamen City, through its coastal governance, has achieved economic progress but lacks the transformation and preservation of local characteristics. The premise of sustainable development is that economic stability must take priority over growth and should not come at the expense of the rights and interests of others.

4. Discussion

4.1. *Scaling Up: Appropriating International Projects to Shape the Coastal Zone*

We must gain a deeper understanding of the political demands of the state in order to understand the attempts of local government forces [60]. The function of Xiamen as a special economic zone in 1980 was to connect with the world. However, during the rapid economic development process in the surrounding waters of the Jimei Peninsula, various issues have emerged [41], including sedimentation in the ocean [92], heavy metal pollution [93,94], reduction in species diversity [95], habitat compression for protected

animals [45], embryonic deformities in fish [96,97], overfishing [98], as well as concerns regarding residents' health [99,100], and food safety [95,101].

In 1993, the environmental pollution control of the Xiamen marine zone was connected with the world through UNDP, and its successful experience prompted scaling up into national level (Table S1, M-e) [42–44,102]. The enactment of national legislation, the Law of the People's Republic of China on the Administration of the Seas, was approved by the People's Congress in 2001 [65].

After Xiamen was approved as a scenic tourism city by the central government in 2001 [103], the vision of the development pattern in 2035 is to point to the international BRICS countries, intending to become an important hub city for domestic and international dual cycles [104]. In 2017, Xiamen successfully hosted the BRICS Summit [105], which can also be regarded as one of the steps taken to increase the scale of governance.

Xiamen's local government actively transforms nature so that its own development conditions can keep up with the pace of international political and economic development. From the perspective of sustainable development, the Xiamen Municipal Government has adopted effective methods to adapt to environmental changes, such as adopting open policies, strengthening cooperation, actively introducing technology and capital, etc. The role of the local government is comparable to a curator, planning thematic exhibitions from environmental improvement to the BRICS Summit, and the coastal zone of Xiamen is a space for exhibitions and performances. After the program was in place, the coastal zone reform was carried out for the purpose of marine environmental protection and sustainability before shaping the coastal zone into what the local government wanted.

The research points out that this is a symbiotic patronage phenomenon between local officials and entrepreneurs in the Xiamen Special Economic Zone [60,106]. It can also be inferred that the goal pursued by this interest group will be the maximum profit, and the pursuit of profit will also override the goal of sustainable development of the coastal zone. Therefore, even though the tourism function is the secondary goal of Xiamen's west coast management plan, it is the overall goal of urban development, as the economic benefits brought by marine tourism are greater than those of agriculture and industry. This has attracted a large number of external tourists [107], resulting in significant economic benefits. In 1994, Xiamen's GDP was 18.7 billion (RMB) [108], but by 2022, it had increased to 780.27 billion (RMB) [109], with a large portion coming from the cultural and tourism industry [110].

The coastal governance measures in Xiamen have facilitated the development of tourism landscapes. Coupled with the positioning of Xiamen as a "modern port scenic tourism city" [111], the local government emphasizes the unique regional environment and culture of southern Fujian, making the scenic features of the coastline prominent. The implementation of coastal governance measures has improved the water quality in the sea, and the released coastal zones have been developed into coastal tourism facilities in line with Xiamen's tourism-oriented urban development [112].

As a focus of coastal economic development, marine tourism relies on coastal governance measures to protect endangered ecosystems and maintain biodiversity. There is a balance to be struck between conservation and utilization, finding ways to generate economic benefits from marine areas while providing protective benefits [113]. However, under the dominant influence of Xiamen City, the Jimei Peninsula has heavily emphasized tourism development, resulting in the gradual degradation of the original coastal ecosystem, where scenic beauty has become the city's main attraction [42].

From the compiled images of the changes in the coastal zone of the Jimei Peninsula over the years (Figure 6), it can be observed that from 1964 to 2023, the area of the peninsula expanded by 75%, and the coastline length increased by 13.7%. This demonstrates that land reclamation has significantly altered the original appearance of the coastal zone, with the coastline of the Dashe Fishing Village at the southern end of the peninsula experiencing the least change.

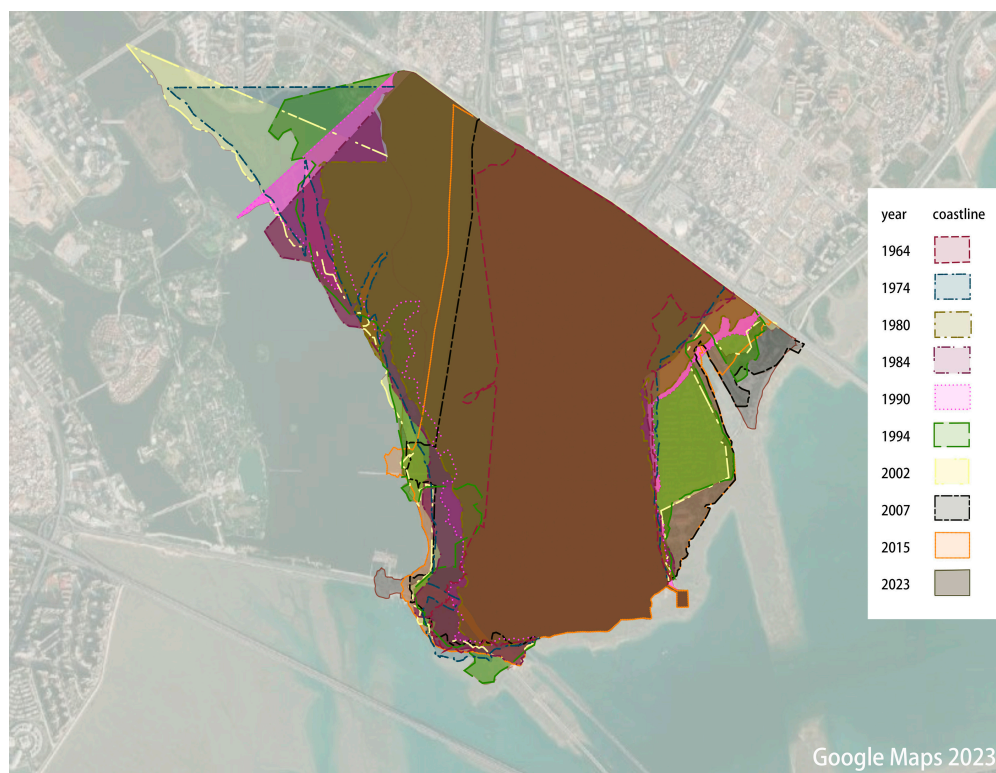


Figure 6. Spatial overlay map of coastal line changes in the study area.

4.2. Reform: Confiscation of Coastal Access Rights

According to Xiamen's Marine Function Zoning Scheme (MFZ) (1997), the dominant functions of the Western Sea Areas (WSA) are providing ports and transportation, while tourism and the protection of endangered species are included as secondary functions. In order to implement the MFZ, Xiamen City initiated, as a component of its ICM program in 2002, the Integrated Improvement and Management of the Western Sea Areas Program (IIMWSAP) [114]. The plan removed 1333 ha of marine aquaculture area and announced the Notice of Xiamen Municipal People's Government on the Comprehensive regulation of aquaculture prohibition in the West Sea Area (Table S2, No. 44).

After 1994, governance reforms in the coastal zone of the Jimei Peninsula were top-down, with strong political power completely covering the entire coastal zone. This study examines the governance policies promulgated by Xiamen City in the past two decades and finds that 76% of the regulations focus on the governance of coastal resources, especially the privatization and commercialization of coastal areas [34,35], and the regulations that position the city as a tourism destination are actually tantamount to confiscating all access rights to the coastal zone and then outsourcing it to the private sector and operators in the name of tourism.

Judging from the changes in coastal zone governance, the original groups in the Jimei Peninsula are facing serious consequences as a result. The strict coastal policy has cut off the connection between fishermen and the sea. Displaced fishermen are faced with the dilemma of separation, declining economic income, lack of voice, insufficient social participation, unrecognized professional value, and unprotected rights and powers, which lead to their gradual marginalization. This case is different from the 2007 Xiamen PX project, which successfully participated in public participation through online media [115]. The Jimei Peninsula faced the implementation of international-scale policies and the strong coverage of local governments, resulting in the absence of actors who lost the sea.

4.3. Silence and Conflict-Free: Discipline and Punishment

The IIMWSAP program in 2002 was designed to include protection of vulnerable communities on the west coast, including cash subsidies, a policy of support to rural industries, a policy on employment, an increase in minimum living standard [114]; however, after the implementation of the CEP, the younger generation sought employment elsewhere, leaving the elderly to stay behind. Women often went to the coast to harvest small marine organisms to supplement their income (Table S1, M-f, M-h) [116]. “Young people work as security guards, middle-aged and elderly people work as cleaners” (Table S1, F-d, F-e) [117], or they took up property governance positions within the Jimei School Village (Table S1, F-f, F-g) [42]. The government provides temporary and mobile entrepreneurial opportunities to those who have received compensation for the cessation (Table S1, F-a, M-f). This study’s sample revealed that residents who originally relied on the sea for their livelihoods had to seek alternative economic means after the cessation of fishing activities (Table S1, M-a, M-c, F-b, M-j, F-i), or they had to follow policies and invest in offshore tourism projects [118].

This has led to the change of users of the coastal zone from fishermen and residents to tourists, and the function of the coastal zone from farming in the intertidal zone to tourism and leisure. Those who fail to comply with the prohibition, such as those who contact the intertidal zone for farming, will be disciplined or punished [80]. Some respondents even expressed that they could not talk about CEP (Table S1, M-g). Research shows that social structure has received little attention in studies of local states [60], and based on the data obtained so far, it can be inferred that after the disintegration of fishermen’s organizations in the Jimei Peninsula, there was no social structure that could affect CEP.

Although studies indicate that Xiamen has implemented detailed protection and utilization measures for the coastal zone from 1996 to 2016 [42], the governance of the coastal zone is marked by conflicts, particularly regarding the utilization of environmental resources [119]. The tourism industry not only brings economic benefits but also leads to changes in the coastal landscape. The Jimei Peninsula has been reclaimed and transformed, converting the original intertidal zones into artificial land, occupying all the coastal space in the name of a tourism city [49].

While the improvement in economic figures has led to a tangible increase in living standards, the excessive emphasis on landscape benefits can easily overlook the impacts on local residents [102]. Currently, there is a gap between the tourism industry policies focused on economic growth and the theories of sustainable development in coastal governance [120]. Research indicates a lack of local residents’ participation in the development and distribution of tourism resources [102]. Furthermore, it is often the vulnerable groups in the local community who bear the negative consequences of coastal tourism.

Xiamen reforms the coastal zone through the environmental governance plan, which is equivalent to obtaining the right to manage all the coasts. In the implementation plan for the resettlement of vulnerable communities in the coastal zone, the local government will bring the fishermen who lost the sea into the tourism city in the form of outsourcing, and they are responsible for security, cleaning, sightseeing vendors, and homestay operators in public places in the coastal zone. Once fishermen transform into interest groups in tourism cities, they share the responsibility of urban management.

On the other hand, when the local government disciplines and punishes the overreaching behavior in the coastal zone, those who lose the sea can only express all possible forms of conflict in silence.

4.4. Transformation of Governance Patterns: Vertical Integration of All Scales

Xiamen misappropriated the resources of international projects and confiscated the access rights of the coastal zone to shape the tourism landscape of the Jimei Peninsula coastal zone. It developed a vertical integration model (Figure 7) in which fishermen and international organizations share the responsibility for the management of the tourism city. This pattern has gone beyond other local government strategic models that use county, township, or village cadres as strategic groups [121,122], or are contracted by local

governments [60]; Xiamen’s coastal governance patterns combines all political relationships in the vertical dimension and also demonstrates a keen adaptation to the shifting dynamics of the international tourism market.

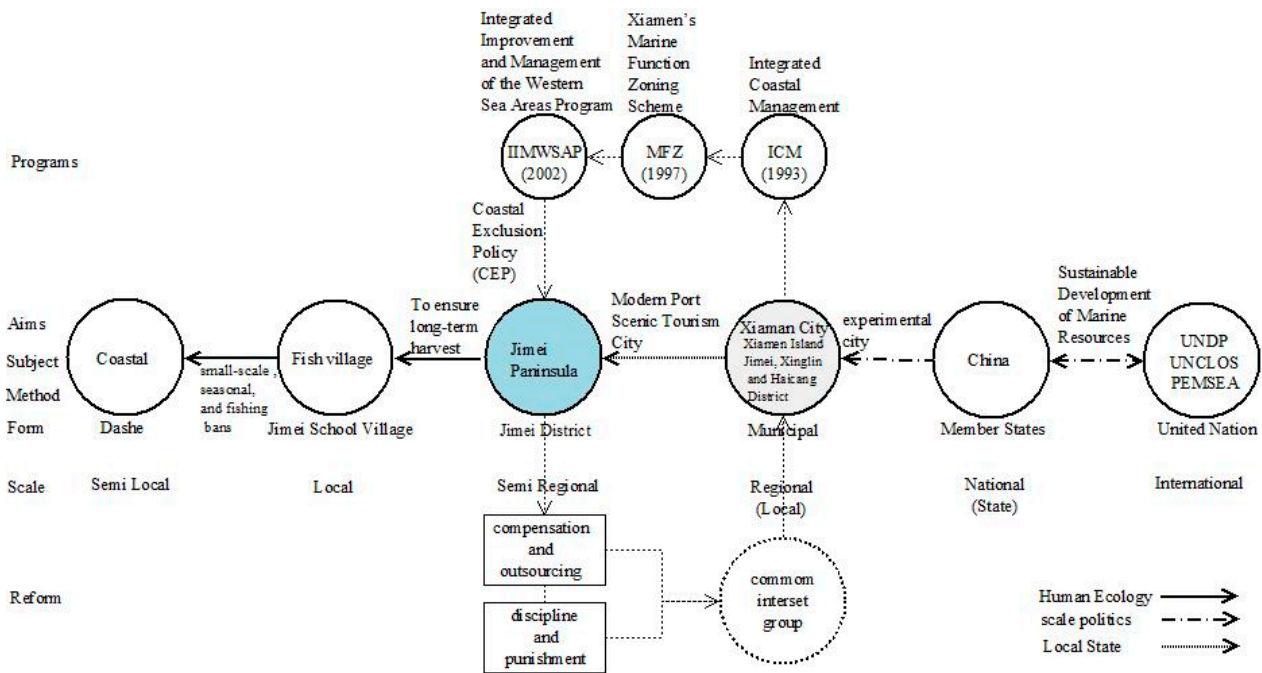


Figure 7. The pattern of coastal governance in the Jimei Peninsula.

5. Conclusions

In the depth of history, Xiamen’s geographical location has served as a gateway to the world, and it is through this city that the state’s economic vision unfolds. Therefore, the function of the local government is to connect the nation with the international community. In the context of the scenic tourism city assigned by the state, the external appearance plays a crucial role. Therefore, the scale and appearance of Xiamen are key factors in the governance of the coastal zone. This study begins from these two perspectives to clarify why and how the governance of the coastal zone of the Jimei Peninsula has led to environmental decline. The study found that the appropriation of international programs by local governments to transform the coastal zone into a tourism city is the first step towards an ecological decline in the coastal zone. This action directly confiscates the power of fishermen to access the coastal zone and completely disintegrates the fishermen’s organization centered on the clan for hundreds of years, leading to the meltdown of the human ecology in the coastal zone.

On the other hand, discipline and punishments are imposed on those who continue to cultivate at sea. The fishermen who receive compensation are incorporated into outsourced employees in tourism cities. The coastal governance patterns led by the local government smoothly transition silently and conflict-free. The Xiamen case proposed in this study is representative of the exploration of China’s coastal governance patterns and also serves as a verification of existing local state theories. However, due to the limited access to local government internal organizational data, if the role of governance can be extended to discuss the composition of governance organizations and the nature of their composition in the future, it will deepen the theoretical orientation of governance subjects.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/w15142659/s1>, Table S1: Overview of Interviewees and Summary; Table S2: Xiamen’s marine policies over the years and their levels and scales.

Author Contributions: Conceptualization, S.-C.T. and Y.-Y.Z.; methodology, S.-C.T.; software, Y.-Y.Z.; validation, S.-C.T. and S.-H.L. and Z.Z.; formal analysis, Y.-Y.Z.; investigation, S.-C.T.; resources, Y.-Y.Z.; data curation, Y.-Y.Z.; writing—original draft preparation, Y.-Y.Z.; writing—review and editing, S.-C.T. and Z.Z.; visualization, Y.-Y.Z.; supervision, S.-C.T.; project administration, Z.Z.; funding acquisition, Z.Z. and S.-C.T. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by a scientific research start-up fund of Jimei University, China, grant number Q2022014; Undergraduate Education and Teaching Reform Research Project of Fujian Province in 2022: Exploration of Virtual Simulation Experiment Teaching of Tourism Landscape Design under the Background of New Liberal Arts (Project No.: FBJG20220194); and Graduate Education and Teaching Reform Research project of Jimei University in 2021: Research on teaching reform of environmental design graduate students based on virtual simulation experiment (YJG2105); as well as Doctoral program of Jimei University in 2017 (Q201705); The second batch of Industry-University Cooperative Education Projects of the Ministry of Education in 2021 (202102100020), and (202102391031).

Data Availability Statement: The verbatim transcripts obtained from the interviews during this study cannot be made public due to privacy or ethical restrictions. However, if anyone is interested in academic research, please communicate with the corresponding author.

Acknowledgments: The study was made possible thanks to all the interviewees in the Jimei Peninsula. Thanks to two anonymous reviewers for their constructive suggestions; all deficiencies in the article are the responsibility of the authors.

Conflicts of Interest: The authors declare no conflict of interest.

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