



Provincial variations and entrepreneurialism in the development of China's Distant Water Fisheries (2011–2020)

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ABSTRACT

This study rescales the current state-centric understanding of the development of China's distant water fishing (DWF) and explores the instrumental role of Chinese provinces in actualizing and shaping this development. The rapid growth of China's DWF during 2011–2020 can be attributed primarily to five subnational provinces and actors. As a case study, this article shows that the Fujian provincial government proactively carved out development space for boosting its DWF industry, despite Beijing's growing efforts to tighten central control out of concern over environmental externalities. Central–Local relations remain a critical perspective for those who seek to understand the challenges faced by China's central government as it tries to rein in the rapid expansion of the country's DWF activities.

1. Introduction

As a relative latecomer to distant water fishing (DWF), China's overseas fishing activities began in 1985 when 13 vessels of the China National Fishing Corporation set sail for west Africa. Since then, the scale, scope of operations, and output value of the Chinese DWF fleet have grown rapidly and some analysts now term China as “a global fishing superpower” [29]. By the end of 2019, China had 178 DWF enterprises, with 2701 vessels operating in the Economic Exclusive Zones (EEZ) of 42 countries and high seas across the Pacific, Indian, Atlantic, and Antarctic oceans [13].

Existing studies have traced the evolution of DWF policies in China over the past three decades in order to analyze their changing characteristics and foci, as well as their implications for international efforts to manage fish stocks and combat illegal, unregulated and unreported (IUU) fishing activities [40,52,55,58,59]. These analyses generally identify the 2010 s as a crucial transition and adjustment decade in China's DWF. During this period, Beijing's emphasis was on accelerating the transformation and upgrading of its DWF industry, and increasingly on strengthening the supervision, management, and production safety of its DWF vessels, enterprises, and crews to better conform to international fisheries management rules and standards [58,59].

Much of the existing literature on China's DWF confines itself to analysing changes in policymaking and management on a national level [58,59].² It tends to rely on a unidirectional, top-down, and homogeneous framing of China. This conjures an image of national leaders in Beijing designing grand plans to expand China's DWF overseas or tighter control thereof—mainly based upon changes in their perceived priorities on economic growth or environmental sustainability. They are believed to wield power that ensures the effective execution of central plans across China's multilevel administrative landscape.

The current study rescales this state-centric understanding of China's DWF development and explores the instrumental role of provinces in actualizing and influencing this development with objectives not necessarily in accordance with those of the central government in Beijing. The two main aims of this article are to provide empirical data about provincial performance in China's DWF, and to examine the role of provincial actors in boosting their DWF activities.

2. Background

China promoted separate policy regulations on the dispatch of national observers [10], vessel positions monitoring [9], and safe production of DWF [11] in the beginning of the 2010 s, in order to improve

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² One notable exception in this regard is the most recently published report by Environmental Justice Foundation, which has also paid attention to provincial variations in China's DWF development. See ‘The Ever-Widening Net: Mapping the Scale, Nature and Corporate Structure of Illegal, Unreported and Unregulated Fishing by the Chinese Distant-Water Fleet’, Environmental Justice Foundation, April 2022.

the management and supervision of China's DWF. At the same time, the industry evolved "from being entirely state-owned to being 70 % private owned" [40] and therefore posed monitoring challenges for Beijing. The detention of a Chinese-flagged ship off the Galapagos Islands for the illegal capture of endangered marine species in 2016, along with the ensuing heightened international scrutiny and protests, exposed the insufficient scale and imperfect implementation of the erstwhile policy measures and prompted Beijing to further tighten control of its DWF fleets. In its 13th Five-Year Plan (2016–2020) on DWF published in 2017, Beijing identified "sustainable exploration" as a basic principle of its DWF activities, adopts a "zero-tolerance" approach to IUU, and proposed to cap the size of its fleet at 3000 and maintain zero growth in the number of its DWF enterprises [8]. Towards the end of the last decade, increased efforts were therefore directed at establishing and/or strengthening the DWF license system, data collection and reporting, standardized fishing log, national observer system, vessel position monitoring, and supervision over at-sea transshipment [13].

The recentness of these initiatives makes it difficult to assess their effectiveness in reining in the expansion of China's DWF fleet, regulating its overseas fishing activities, and reducing their harmful environmental effects. A note of caution against overly optimistic predictions about their effectiveness is warranted because China's marine fisheries—and, more broadly, ocean—management has long been known for being marred by problems of insufficient capacity, overlapping authorities, and implementation gaps, among others [57,58,61]. However, the political-administrative recentralization during the Xi Jinping era appears to raise hope that more effectual policy management from Beijing will ensure local compliance, especially in response to environmental challenges. This has led some analysts to hypothesize China as a "success story" of environmental authoritarianism [28,41] through its habitual deployment of governance techniques such as "quantitative goal-setting" and "statist mandate-making" [37]. Beijing's 2017 announcement to maintain zero-growth in DWF enterprises and keep the number of DWF vessels capped also typifies the use of these governance techniques.

However, more recent scholarship has cautioned that, notwithstanding centralizing tendencies under Xi Jinping, "China remains in fundamental ways a country of provinces" [33]. Chinese provinces remain "major players in both economic and environmental governance" [1]. They can influence policy formulation and implementation through "trailblazing, carpetbagging, and resisting" tactics [56], deploying their own preferred narratives to re-interpret Beijing's guidelines [34,60] and playing a "gatekeeper" role to broker development space for local industries and areas that conform to parochial economic interests, but deviating from central priorities and often engendering externalities for China's international relations [33].

This article is informed by the burgeoning scholarship that brings Chinese provinces into the analytical forefront at a time when China's domestic and foreign policy making and implementation experience revived centralism. It focuses on the period of the 2010 s, a decade that corresponds to the implementation of China's two most recent national Five-Year Plans and sees Beijing's efforts to gradually integrate ecological considerations into China's rapid expansion of DWF. The research draws primarily from Chinese-language materials, including official documents, academic articles, and newspaper reports, in addition to interviews. Based on Chinese official statistics, this article begins with an empirical unpacking of provincial variations in the development of Chinese DWF activities and identifies provincial outperformers. It then zeroes in on the province of Fujian as a particularly outperforming case in DWF development during the 2010 s. By carefully parsing publicly available materials from the Fujian provincial government, my analysis traces Fujian's DWF chronologically and explains how the provincial government proactively carved out development space within China's system of central-local relations. The article concludes with some thoughts on the reasons behind and the implications of this kind of provincial activism for China's DWF, and identifies future

research directions in this fast-changing policy field.

3. Provincial variations and outperformers in China's DWF (2011–2020)

A cursory glance at the discrepancy between Beijing's DWF goals and actual outcomes during the period of China's 12th Five-Year Plan for Fisheries Development (2011–2015) hints at its lack of control over subnational actors' enthusiasm and drive to boost the DWF industry, once they were mandated with this task. The *Plan* expected that by 2015, the targeted DWF output production would increase from 1.1 to 1.3 million t and the size of China's DWF fleet would grow to 2300 [7]. However, by the end of this *Plan*, the number of Chinese DWF vessels expanded to 2512 and their total catch rose by more than 1 million t to 2.192 million t in 2015—80 % higher than the target. As mentioned, Beijing's 13th Five-year Plan for DWF acknowledged this explosive growth and made a clear commitment to put a lid on it. The period between 2016 and 2020 saw a more moderate growth in both the number of Chinese vessels (2705 in 2020) and their catches (2.316 million t), generally meeting the intended targets of capping the number of vessels to 3000 and the production output to approximately 2.3 million t by 2020.

Moving one rung down the analytical ladder to the provincial level, the geographical origin of Chinese overseas fishing activities is unevenly distributed and highly concentrated in specific provinces within China. Not all provincial actors shared the same level of developmentalist enthusiasm to expand DWF during the 2011–2020 decade. Among the 12 provinces and one state-owned enterprise, China National Agricultural Development Group Co., Ltd (CNADC) listed in China's official census on DWF, five of them—Liaoning, Shandong, Zhejiang, Fujian, and CNADC³—occupied a particularly noticeable place in terms of vessels, horsepower and catch (Table 1). By 2020, these four provinces and CNADC together owned 84 % of Chinese DWF vessels and their horsepower represented 86.6 % of the total horsepower of all Chinese DWF vessels. The catch by their DWF vessels also took up 87 % and 86.8 % of the total catch of Chinese DWF measured by weight and value, respectively.

Interesting DWF development trajectory differences can be detected among these five actors. Three provinces—Zhejiang, Shandong, and Fujian—stand out for their rapid expansion of DWF activities, whereas Liaoning experienced a moderate growth and CNADC declined modestly. When it comes to the DWF fleet capacity between 2011 and 2020, the number of Chinese DWF vessels grew by 66 % (1077) and 88 % of this increase was attributed to those three provinces, whereas CNADC lost 18 % of its DWF vessels in 2020 compared to 2011. The total horsepower of the Chinese DWF fleet almost tripled, and 80 % of this growth was contributed by newly commissioned vessels from the three provinces. In terms of DWF outputs, during the 2010 s, the volume of China's DWF catch doubled, and 86.8 % of this growth was accounted for by vessels from these three provinces. The value of Chinese DWF catch (in 2011 USD) also rose by 164 %, and this increase was predominantly the result of catches from the three provinces; the value of catches by vessels registered with Liaoning and CNADC, in fact, declined. In nutshell, the rapid expansion of China's DWF during the past decade was primarily driven, enacted, and actualized by a very limited number of entrepreneurial provinces, a finding that existing state-focused studies on China's DWF might not discern.

A closer look at the expansion of DWF activities in these three provinces reveals that Fujian is the province where increased fleet

³ CNADC, a core central-state-owned company, is directly supervised by the State-owned Assets Supervision and Administration Commission of the Chinese State Council. The top leaders of this company often have the equivalent of at least a vice-ministerial ranking, which places them on par with provincial vice-governors. CNADC is therefore defined here as a "provincial actor".

Table 1
Comparison of China's Top 5 Provincial DWF Actors in 2020*.

(Growth Rate 2020 vs. 2011)	DWF Vessels		Volume of DWF Catch (in tons)		Value of DWF Catch (in million constant 2011 USD)	
	Number	Average Horsepower (in kilowatts)	Total	Per Vessel	Total	Per Vessel
Liaoning	328 (+126 %)	966 (+191 %)	249,843 (+155 %)	762 (+123 %)	241.5 (-8.3 %)	0.736 (-27 %)
Shandong	499 (+320 %)	1304 (+231 %)	384,378 (+300 %)	770 (-6 %)	700.4 (+249 %)	1.404 (-22 %)
Zhejiang	676 (+191 %)	1126 (+171 %)	568,376 (+242 %)	841 (+127 %)	761.2 (+221 %)	1.126 (+116 %)
Fujian	481 (+247 %)	1130 (+227 %)	607,935 (+331 %)	1264 (+134 %)	628.2 (+286 %)	1.306 (+116 %)
CNADC	287 (-18.3 %)	772 (+103 %)	205,233 (-13 %)	715 (+106 %)	286.7 (-31.6 %)	0.999 (-17 %)
National	2705 (+166 %)	1064 (+176 %)	2,316,574 (+202 %)	856 (+122 %)	3014 (+164 %)	1.114 (-1 %)

Source: China Fishery Statistical Yearbook 2012 & 2021.

capacity yielded the best return in capture fisheries production. In terms of fleet capacity, Fujian owned the smallest DWF fleet among these three provinces (especially compared to Zhejiang) and its number of vessels also plateaued since 2014. However, the growth in the average horsepower of Fujian's DWF vessels was akin to that in Shandong and much more sizable than that in Zhejiang, making Fujian's vessels on average the second most powerful ones in China, only after Shandong's. It appears that the quality rather than the quantity of vessels became the primary concern of Fujian and Shandong's DWF vessel-building exercise, whereas Zhejiang was still mainly preoccupied with commissioning more vessels (Figs. 1 and 2).

More importantly, while Fujian did not have the largest DWF fleet (Zhejiang did) or the most powerful one (Shandong did), it ranked first in both the total volume of DWF catch and the average catch per vessel, and came second only to Shandong with respect to catch value per vessel (Figs. 3 and 4). This continuous growth in the average catch and the value thereof—particularly since 2016 when Beijing stepped up efforts to tighten control over overseas fishing—was not only contrary to the national trend within this period, but also to the development trend in Shandong and Zhejiang. The average catch by a Fujian vessel more than doubled, from 575 t in 2016–1304 t in 2020, rendering Fujian the only Chinese province whose average catch per vessel substantially surpassed the national average (856 t in 2020). Within the same period, the average catch per vessel fluctuated in the case of Zhejiang and even declined by 33 % in Shandong. When it comes to value, Shandong's catch value per vessel remained the highest, but we can observe a notable downward trend since 2016. On the contrary, a continuous upward trend can be detected in the case of Fujian, where the average output value per vessel more than doubled between 2016 and 2020. Put differently, even within the three provincial outperformers in DWF, Fujian's success in expanding its DWF activities is particularly striking.

4. Unpacking provincial entrepreneurialism in China's DWF expansion: the case of Fujian

As shown in the previous section, Shandong, Zhejiang, and Fujian played a disproportionately important role in facilitating China's rapid expansion of DWF during the 2010 s, and Fujian stood out particularly. In fact, when Beijing aimed to increase China's DWF fleet by 309 during the 12th Five-year Plan (2011–2015) [7], Fujian alone commissioned 292 new DWF vessels—the largest number among all provinces—with scant regard for national targets or potential ecological implications of this surge. Later, when Beijing moved to limit the growth of vessel number and DWF catch during the span of the 13th Five-year Plan, Fujian still carved out space for further developing its DWF industry. While the province's number of DWF vessels plateaued between 2016 and 2020, these ships became more capable in horsepower, leading to an over 220 % growth in DWF catch per vessel measured in both weight and value (Figs. 1–4). In the following analysis, I examine how Fujian was able to enact this impressive expansion and categorize its development trajectory into three phases. The rest of this section elaborates on each phase.

4.1. Escalating the importance of Fujian's Marine Economy Development to the central level (2010–2012)

Fujian's development of its marine economy had a bumpy start. In 2010, when China's National Development and Reform Commission (NDRC) announced the list of pilot provinces for marine economy development, Fujian was not included. This pilot scheme promoted by NDRC aimed to actively expand development space for the national economy and cultivate new poles of economic growth—an extension of development discourse and practice into ocean seascapes. Membership within such a national pilot scheme often brings about preferential and budget support from Beijing and, more importantly, grants additional planning, regulating, and allocative powers to selected provinces. This

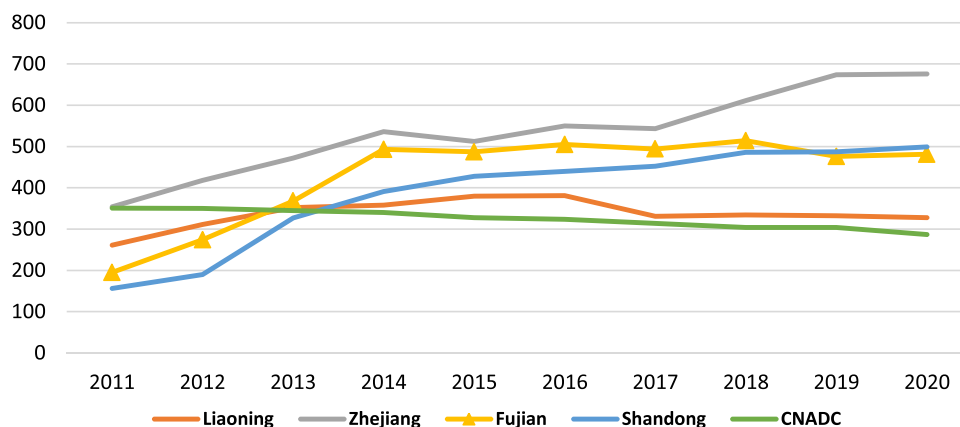


Fig. 1. Number of Distant water Fishing Vessels by Province & CNADC (2011–2020).
Source: China Fishery Statistical Yearbook, various years, 2012–2021.

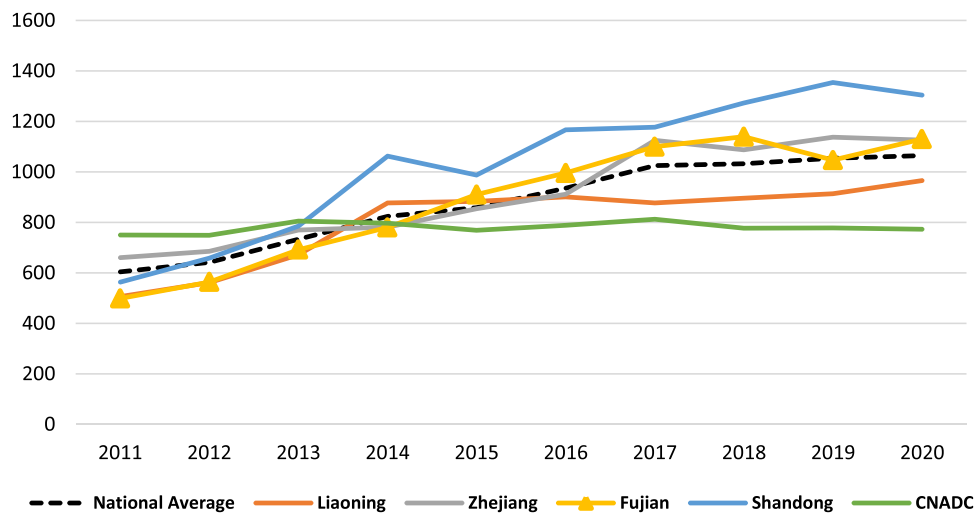


Fig. 2. Average Horsepower of Chinese DWF Vessels by Province & CNADC (2011–2020, kilowatts). Source: China Fishery Statistical Yearbook, various years, 2012–2021.

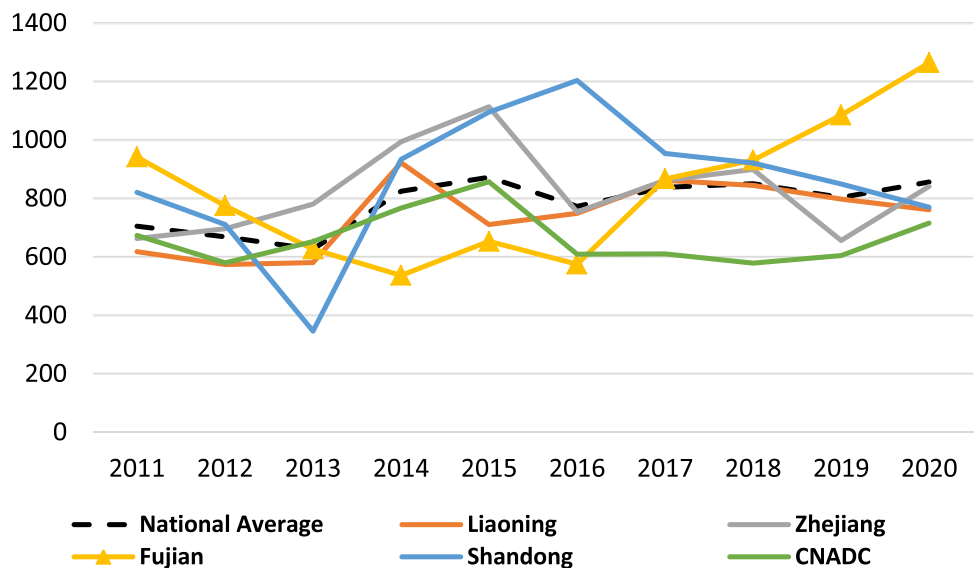


Fig. 3. Average Catch per Distant water Fishing Vessel by Province and CNADC (2011–2020, in tons). Source: China Fishery Statistical Yearbook, various years, 2012–2021.

autonomy is intended to enable them to pursue development trajectories that are more tailored to local conditions and hence better achieve their piloting mandates.

Despite its first unsuccessful application, both the party secretary and provincial governor of Fujian “made instructions” (批示/*pishi*) and Fujian resubmitted its application to China’s State Council two months later [27]. In August 2010, the provincial government decided to establish a Leading Small Group (LSG) on “Forging blue industrial belt and building a strong province for marine economy” [26]. This group was headed by the provincial governor, with the participation of representatives from 6 coastal municipalities and 33 Fujian-based governmental bodies, to strengthen the planning and coordination of marine economic development in Fujian. In September, the provincial government organized a mobilization meeting to rally efforts throughout the province to support the application for the national piloting scheme and to prepare for drafting *Development Plan for Marine Economy of Fujian* and *Pilot Program for the Development Plan for Marine Economy of Fujian* to support Fujian’s candidacy [27].

These intense efforts led by the provincial leadership paid off when

NDRC officially endorsed Fujian’s application in 2011, meaning that the development of Fujian’s marine economy was recognized as part of China’s national strategy [38]. The next year saw Fujian’s promulgation of concrete policy to stimulate its marine economy, epitomized by the *Nine Measures* [48]. These were essentially budget, financial, credit, and tax incentives and subsidies dedicated to the establishment of marine industrial parks, identification and creation of leading marine enterprises and brands, marine technological innovations, and so on. To finance its implementation, the provincial government mobilized CNY 620 million (US\$ 93 m) to set up a Specific Fund for the Development of Marine Economy [22]. One of the *Nine Measures* was targeted at DWF and promised interest subsidies for Fujian-based DWF enterprises that secured loans to build or purchase large-scale DWF vessels with catch quota. Other measures favorable to DWF included exemption from corporate income tax and an increase in the allowable size of a vessel mortgage [48].

Institutionally, the LSG was refitted in April 2012 to be responsible for accelerating the development of Fujian’s marine economy [23]. Corresponding LSGs were then instituted at the sub-provincial level.

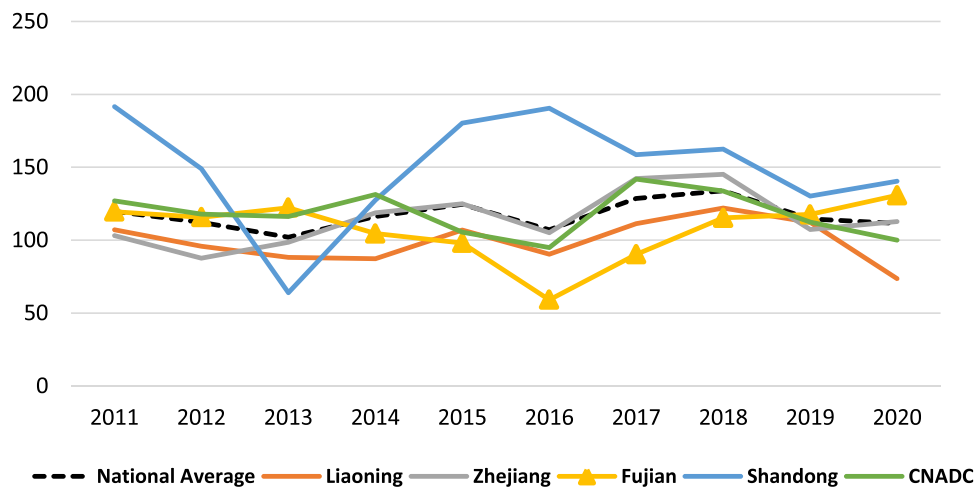


Fig. 4. Average Output Value per Distant water Fishing Vessel by Province & CNADC (2011–2020, in 10,000 constant 2011 USD). Source: China Fishery Statistical Yearbook, various years, 2012–2021.

Apart from coordinating roles, these LSGs install and promote performance marine economic development targets for leaders at different levels of the provincial hierarchical ladder [38]. Within the contemporary Chinese governance landscape, bureaucratic targets play a central role in cadre evaluation. Targets tend to be closely associated with policy goals articulated by the central and/or provincial leadership, and the prospect of career advancement of a cadre depends largely upon the fulfillment of assigned bureaucratic targets. By incorporating marine economy performance targets into cadre evaluation criteria, Fujian's provincial leadership sent a clear signal to its cadres.

The end of 2012 also saw NDRC approval of the central document that guided Fujian's piloting efforts to develop marine economy for the 2010s, the *Development Plan of Fujian Strait Blue Economic Pilot Zone*. This *Plan* set two main goals: Fujian's marine GDP shall reach CNY 730 billion (US\$ 110b) in 2015 and Fujian shall become a powerful marine province (海洋强省/*haiyang qiangsheng*) in 2020 [17]. Marine fisheries were identified as a key component of modern marine industries in the *Plan*: "the rapid development of DWF that is mainly based on fishing in high seas and partially in exclusive economic zones ... and the development and organization of high-quality and reasonably composed modern DWF fleets to enable the scale development and industrialization of DWF." [17] It also promised to allocate more catch quota for Fujian's vessels engaging in DWF in high seas [18]. Considering that this *Plan* was drafted by Fujian and approved by the central government, the inclusion of DWF indicated not only the importance Fujian attached to DWF in its marine economy but also Beijing's principled agreement to confer Fujian with more policy space in this regard.

4.2. Provincial DWF developmentalism in high gear (2013–2017)

After the development of marine economy in Fujian gained national importance and was included in the national piloting scheme, DWF momentum picked up significantly. In 2013, the provincial government called for efforts to forge "a new era for its DWF vessels to 'sail to the Western Ocean for the second time (二下西洋/*erxia xiyang*)'" [6], reframing the maritime expeditions led by Admiral Zheng, whose global exploration between 1405 and 1433 is often redeployed to symbolize China's heroic maritime past and heritage. Provincial leaders exhibited a clear ambition to rapidly expand Fujian's DWF sector. In a meeting with DWF enterprises, Fujian's vice-governor encouraged them to "become bigger and stronger and strive to be national champions" [6]. The growth targets of Fujian's DWF was indeed very ambitious, and perhaps overly so. According to director of the provincial bureau of ocean and fisheries, the province had only 368 vessels producing about 230,000 t of DWF catch at the end of 2013, yet it was targeted to reach

700 vessels and a catch of 600,000 t by 2017 [25].

Local business actors viewed Fujian's successful candidacy to become a national pilot zone on marine economy as a chance to solicit support and gain comparative advantage over peers from other provinces. Heartened by this development, major Fujian-based DWF enterprises like Honglong publicly expressed hope that the provincial government would advance concrete policy and financial support to help them build more modernized and larger vessels [6]. The end of 2013 saw the promulgation of 12 guiding measures to develop marine fisheries, reconfirming the goal of "vigorously develop[ing] DWF" by expanding production areas and building capacity; the provincial government promised to devote no less than CNY 300 million (US\$ 45 m) per year between 2013 and 2015 to support marine fisheries [4,49].

Between 2014 and 2016, the provincial government announced a series of more detailed policy measures with an implementation horizon up to 2018 to give substance to its commitment to DWF. Different from the 2012 *Nine Measures* that aimed at marine economy in its entirety, this round of policy incentives was targeted precisely at DWF and sought to cover the entire value chain of the industry. Financially, parts of the 2012 Specific Fund dedicated to promoting marine economy were earmarked to implement these incentive measures. Four domains were prioritized: vessel renovation, access to fishing grounds, business operation, and human resources.

As to vessel renovation and upgrading, small-scale DWF vessels⁴ would be eligible for a separate subsidy from both the provincial and municipal budgets, equivalent to 5 % of construction costs, for upgrading and renovation purposes. The interest subsidy put forward by the *Nine Measures* remained available but was repurposed to create synergies for developing Fujian's own shipbuilding industry in a policy known as *shenglun shengzao* (省轮省造/provincial vessels built by provincial enterprises). Starting from 2016, new vessels built outside Fujian were no longer entitled to interest subsidies, while those built within the province would receive interest subsidies for two years, and the rate was raised from 5 % to 8 % of a loan's balance. Contrary to the *Nine Measures*, vessels that had already received subsidies from the central government would still be eligible for interest subsidy from the province. Dedicated research on DWF vessel design was also supported; a grant of CNY 1.5 million (US\$ 225,000) was provided to support the research and development of one vessel type.

In terms of access to foreign fishing grounds, not only was the provincial government committed to accelerating the approval procedures

⁴ Small-scale DWF vessels are defined as under 24 m long and engaged mainly in fishing activities in exclusive economic zones.

of DWF activities and lobbying Beijing for a larger quota of fishing vessels and net devices for Fujian-based enterprises, but it also subsidized vessels that were affected by host countries' changing DWF policies and regulations that obliged them to shift their fishing grounds. CNY 200,000 (US\$ 32,800), half each from the provincial and municipal governments, was offered to vessels that needed to upgrade operational techniques to remain in their initial fishing grounds, in addition to fuel subsidy of between CNY 200,000–500,000 (US\$ 30,000–75,000) depending on the distance of the transit voyage. Provincial marine research institutes were called up to strengthen scientific research and exploration of existing and potential DWF fishing grounds, an effort to lay the foundation for opening new commodity frontiers—and DWF profits—for vessels from Fujian [5].

As to the business operation of DWF enterprises, sub-provincial authorities were encouraged to found DWF industrial parks with provincial budget support of up to CNY 5 million (US\$ 750,000) to each. Fujian's own financial institutions were required to increase their credit support to help DWF enterprises that temporarily struggled with loan repayment. Furthermore, in order to incentivize DWF enterprises to bring their harvests back to China, provincial and sub-provincial authorities provided subsidies for transportation and cold storage. Custom, inspection and quarantine, and border control authorities were all required to simplify clearance procedures for DWF harvests, personnel, and vessels.

Lastly, the rapid expansion of DWF exacerbated Fujian's persistent shortage of professional DWF crews. The strenuous working conditions on boats, relatively low pay compared to other distant water sectors, improvements in livelihoods of offshore fishers, and gradual retirement of China's first-generation DWF crews all made (and continue to make) recruiting DWF employees a formidable task [32,42]. Hence, the 2014–2016 round of incentive measures offered a subsidy of CNY 100,000 (US\$ 15,000) per person/year to DWF companies that hired experienced foreign professionals as vessel captains. Fujian's marine-related technical colleges were encouraged to enroll more students specializing in DWF-related majors and to offer professional training to 1000 aspiring DWF managers and 3000 aspiring ordinary DWF crew members annually. Fujian also expanded the fishery mutual insurance scheme to cover all DWF crew members, who came to enjoy the same level of insurance support from provincial and municipal budgets as their peers in the offshore fishing sector.

Once entrusted with the national piloting mandate of developing the marine economy, the provincial government of Fujian was delegated to craft implementation processes and had broad discretion over policy formulation and resource allocation. Fujian's provincial empowerment was further reinforced when China began to implement the Maritime Silk Road Initiative (MSR) in 2015 and identified Fujian as a core area for MSR development [16]. Fujian did not waste any time capitalizing on this ambitious policy initiative. It promulgated within the same year its own MSR implementation plan, in which it reaffirmed the goal of actively expanding DWF [43]. These center–province dynamics empowered Fujian to put forth this round of policy measures and mobilize financial resources to implement it. However, the overview of these incentive measures also reveals that Fujian promoted a type of production-focused and extraction-driven DWF growth. It was primarily concerned about enhancing capacities to access, harvest, and process fisheries resources with scant reference to or concern over environmental consequences, despite Beijing's call to promote sustainable and healthy development of marine resources in 2013 and the increased emphasis on ecological considerations in its policy discourses on DWF, particularly since 2016.

In this regard, the subsidies that had been introduced in response to policy changes in host countries are particularly telling. In 2014, following years of continued decline in its fishery stock, Indonesia introduced a series of stringent policies to curb IUU fishing, such as sinking IUU vessels and issuing a one-year moratorium on vessels built outside of Indonesia but reflagged as Indonesian vessels, leading to a

more than 80 % drop in foreign vessels fishing in its waters [3]. Fujian's DWF vessels were gravely affected because Indonesian waters were among their most frequented areas. The provincial government announced subsidies to vessels stranded in Indonesia and actively helped them move to, for example, East Timor, Guinea, Pakistan, and Malaysia [24]. Instead of a thorough investigation into the fishing practices of its DWF vessels in Indonesian waters, Fujian provided these vessels with subsidies to shift operational grounds in a quick "spatial fix" [31] that testifies to the government's primary interest in maintaining its DWF catch production.

The most noticeable result of these tailored incentive measures was the considerable rise in Fujian's DWF vessels by 78 % from 274 in 2012–487 in 2015. Within the same period, Fujian's DWF catch also rose by 50 % to reach 318,000 t in 2015. These growth rates excessively surpassed national targets set by Beijing in China's 12th Five-Year National Plan for Fisheries Development: 15.5 % and 18 % increase in DWF vessel number and catch output respectively, indicating Beijing's loss of oversight and control over the immoderate, province-driven growth in Fujian's DWF activities [7]. Beijing's signaling of tightening of central control and monitoring of China's DWF activities since 2016 influenced, to a certain degree, Fujian's policy discourse on DWF. The provincial government's key annual working points on marine economy included "vigorously developing DWF" [44] in 2015 and "further strengthening the share and the exploration capacity of high-sea marine resources ... focusing on expanding the scale of DWF in Africa" [45] in 2016. In 2017, however, these expansionist visions were toned down and reframed as "standardize and orderly develop DWF" and "moderately develop the scale of Fujian's DWF" [46]. Despite this narrative change, incentive measures were retained and continued to facilitate the production-focused growth of Fujian's DWF between 2016 and 2018.

4.3. Seeking new development space amid Beijing's centralization (2019–2020)

The fact that no new DWF-targeted incentive measures were proposed by Fujian immediately prior to or after the envisaged end of this round of policy incentives in 2018 may indicate Fujian's reconsideration of Beijing's intensified centralized pressure on subnational actors to rein in their DWF expansion. This, however, did not represent a full halt in Fujian's investment in DWF. The 2017 National Plan on DWF put a cap on the number of vessels but supported the construction of national DWF bases. Lack of DWF infrastructure, such as DWF-dedicated ports and comprehensive bases, is seen as a particularly weak point in the value chain development of China's DWF [36]. Capitalizing on this opportunity, the provincial government of Fujian worked closely with Fuzhou municipality and Lianjian county governments to secure support from Beijing to host one of these bases. This effort bore fruit when the Chinese Ministry of Agriculture (MoA) approved in June 2019 Fujian's application to construct China's third national DWF base in Lianjiang. It seeks to establish a geographical zone of corporate concentration, centralization, and integration of DWF activities, ranging from aquatic products trading, cold storage supply chain, to shipbuilding and maintenance, and value-added fish processing. Beijing provided Lianjiang with initial budget support of CNY 35 million (US\$ 5.2 m) [19]. With the development of this base, the number of DWF vessels in Lianjiang is expected to increase from 213 in 2019–400 by 2025, with an annual DWF catch of 300,000 t, and the imported fishing goods would reach 1 million t [2].

Towards the end of the 13th Five-year planning period, Beijing's commitment to reinforce control and monitoring of China's DWF started to take form in more concrete and centralized policies. These included the introduction of a blacklist system against Chinese vessels and captains engaging in IUU, a compliance ranking system for Chinese DWF companies, and revisions to China's DWF management regulations. While the provincial government of Fujian might have taken Beijing's policy cue to limit the growth of its DWF fleet, it now demonstrated its entrepreneurialism by outcompeting other provinces to secure center-

approved development space that anchored its ambition of driving a primarily production-focused growth in DWF. This time, this space is a terraqueous one and provincial efforts are directed at intensifying the connection between the land and sea and coordinating the turnover time of DWF catch as commodities (production, storage, distribution, exchange, and consumption) in order to more fully capture the value of DWF.

5. Discussion

The development trajectory of Fujian's DWF sector demonstrates a similar dynamic to the one identified by Alkon and Wong [1] on China's environmental and energy system governance: persistent tensions within an authoritarian state between "decentralized delegation and centralized control aris[ing] from the trade-offs between pursuing economic efficiency versus environmental sustainability." Decentralized delegation contributes to better economic performance because it allows subnational actors—often more informed of local conditions than the authoritarian centre—to experiment and implement policies that cater to local contexts [1]. As a prevalent characteristic of the governance of Central–Local relations in China [54], piloting constitutes a key form of decentralized delegation. It encourages policy and organizational advances and innovation within local governments.

The above analysis shows that, with proactive efforts to be successfully selected into the national piloting scheme on the marine economy, the provincial government of Fujian made the most of this opportunity to establish an institutional coordination mechanism, design targeted incentive measures, and mobilize financial resources for their implementation so as to stimulate the expansion of DWF, a sector key to Fujian's pursuit of becoming a powerful marine province. Nevertheless, Fujian's incentive policies indicate that the provincial government was deeply invested in a DWF growth model that was mainly founded upon enhancing capacities, maximising outputs, and boosting production, but paid insufficient attention to possible adverse environmental impacts. This led to an excessive growth rate in its DWF capacity that surpassed the national targets.

A closer look at the performance appraisals of Fujian's DWF-related fiscal projects again sheds light on its predominantly output-maximization approach to DWF. The Chinese Ministry of Finance (MoF) demands performance appraisals for expenditures related to fiscal projects, and these appraisals should provide substantial guidance on future budget arrangements, policy changes, and management improvements [14,15]. According to MoF's template, fiscal projects are assessed in terms of four indicators—decision-making, implementation, outputs, and benefits—but their operationalization is left to government agencies, often in consultation with a third party contracted to undertake this evaluation. In the performance appraisal matrix of the *2017 Special Subsidy Funds of Fujian Province for the Development of Marine Economy*, the "outputs" are operationalized through four sub-indicators: production on high seas, newly dispatched DWF vessels, Fujian's total DWF catch, and volume of DWF catch supplied to the domestic market [26]. Moving fishers in Fujian from offshore fishing to DWF is argued to generate not only "social benefits" of supplying more professionals into DWF, but also "environmental" ones because it releases the overfishing pressure from Fujian's coastal areas. The subsidy is clearly dedicated to further expand Fujian's DWF fleet size, capacity and catch to create primarily inward-looking and domestically centered benefits. Throughout the evaluation report, no reference is made to any potential concerns over overexpansion, overcapacity, or the resulting environmental impacts and foreign policy externalities.

Even after Beijing noticed the severe externalities arising from China's overcapacity in DWF and commenced to strengthen centralized control and monitoring in the latter half of the 2010 s, we continued to observe provincial entrepreneurialism in identifying and capturing development space within Beijing's emphasis on transforming its DWF industry from one that focuses on scale expansion to one that prioritizes

quality and efficiency. Despite a slight decline in the number of Fujian's DWF vessels, its successful bid to host China's third national DWF base in 2019 sustains the palpable modernizing momentum in Fujian's efforts to develop DWF for the coming years. This shift of developmental focus towards terraqueous DWF space risks contributing to a growth in Fujian's "hidden" fishing capacity and thus indicates the province's continued ambivalence regarding ecological concerns [55].

While expounding the provincial government's predisposition to seek to maximize outputs in DWF requires more grounded research and goes beyond the main focus of this analysis, one possible explanation could be the continued general prioritization of GDP growth and revenue extraction over environmental considerations within China's system of political incentives [1]. Existing analysis on China's environmental governance suggests that China's cadre performance evaluation system still attaches more weight to economic growth [35,51] and, therefore, local government officials often view the fulfilment of environmental mandates as being incompatible with their other responsibilities, including GDP growth and supporting the business development of local enterprises [39]. Frequent cadre rotation gives officials short time horizons that are unpropitious for the implementation of high-quality and long-term oriented environment policies [20], not to mention the fact that the solution to environment issues often requires inter-jurisdictional and cross-administration collaboration within China [1].

These tensions only become more pronounced when the environmental externalities of economic growth do not transpire within China and are not borne directly by Chinese citizens, as in the case of Chinese DWF. This is by no means confined to DWF, but applies more generally to China's foreign economic engagement, which usually occurs in an uncoordinated and unbalanced manner [30,34]. For instance, at the central level, ministries with varying portfolios often harbour competing institutional interests and bargain with each other to champion their own preferred policies and perceived priorities. Subnational actors can also manoeuvre to advance their parochial economic interests by proactively forging external economic linkages. Such linkages, however, often burden the uninformed central government in Beijing with significant and delicate cross-border issues to attend to. Due to the transnational nature of these externalities, gathering information on them is a daunting task for Beijing. The Chinese central government has been already confronted with considerable capacity difficulties in collecting information on ground-level conditions domestically and in overseeing policy implementation across China's extensive and multilevel political economy.

However, this is not to advocate a static or deterministic view that Beijing would not transform its system of political incentives, or it could not improve its capacity to monitor transborder externalities. Since the latter half of the past decade, Beijing's efforts to centralize control over DWF start to take shape and have prospect for bringing about meaningful change in the coming years. The newly announced 14th Five-Year Plan on DWF (2021–2025) highlights the principle of "green development" [12]. Even in the most recent round of incentive measures promoted by Fujian in 2021, the provincial government incorporates "strengthening standardized management of DWF" as a key measure and demands "strict implementation of national DWF regulations and regional fishery management organizations' conservation management measures" [47]. More up-to-date, fieldwork-based investigations are needed to closely monitor and scrutinize this rapidly changing policy landscape in China's DWF sector; and special attention should be directed to the ways Beijing's centralized policies are actually perceived, received, and implemented at the provincial level.

6. Conclusion

Given that China's visions of marine economy remain to be refracted mainly through a geopolitical and geo-economic lens and put social equity and ecological sustainability on the back burner [21], Chinese

provinces generally have little difficulty in discursively framing and justifying their production-focused understanding and interpretation of marine economy. This is particularly true for the DWF sector, a “national strategic industry” (国家战略产业/*guojia zhanlue chanye*) for Beijing that speaks to a set of intimately inter-related goals of food security, economic development, livelihood improvement for Chinese fishers, protection of overseas interests, safeguarding legitimate rights to access the global maritime commons, and expanding influence in global ocean governance [53]. Critical concerns over ecological sustainability are therefore unlikely to meaningfully constrain China’s development of DWF—viewed by Beijing as contributing to “the broader, longer-term vision of modernization as a nationalist project [21].” This is also testified to by the comment made by China’s vice-minister of the MoA after he announced in 2017 that the number of DWF vessels and enterprises would be capped: “Not increasing the number of [DWF] vessels does not mean not developing DWF [50].” Worthy of note is that the recent geopolitical rivalries between China and the United States have only escalated the securitization processes of maritime issues and risked further relegating marine environmental considerations to an increasingly inconsequential place.⁵ The latest publication of China’s National 14th Five-Year Plan for Fisheries Development in 2021 appears to second the relevance of this security logic to Beijing’s understanding of DWF. In its discussion about the “rigid constraints” that China’s fishery sector faces, the *Plan* states that “the U.S. and West strongly suppress and restrict China’s DWF, and it becomes increasingly difficult to develop externally-oriented fishery.” Such securitization dynamics make any discussion on contracting DWF unlikely, and also create opportunities for subnational actors to lobby and enlist central support to maintain growth in their DWF industry—at the expense of environmental interests.

By attending to provincial variations and entrepreneurialism, and thus rejecting the premise that China is a unitary actor, the current

article adds vital nuance to the story of China’s rapid expansion of DWF activities during the 2010 s. This exercise of complexification could be further extended both horizontally and vertically. One key advantage of decentralized delegation is its promotion of horizontal competition among subnational actors. Outperforming DWF provinces like Fujian and Zhejiang cite fierce competition between peer provinces as a key rationale for implementing their own incentive measures, while stakeholders from underperforming provinces often encourage their provincial governments to learn from other provinces [62,63]. Vertically, administrative units under provinces, mainly municipalities and counties, could also take initiative to boost their DWF activities. In fact, in the case of Fujian, the provincial government encourages administrations of lower hierarchy to design preferential policy measures that cater to the needs of their localities. Future research should be directed toward how these (competitive) mutual learning and experience-sharing dynamics between provinces as well as sub-provincial activism may contribute to the growth of China’s DWF activities.

Data Availability

Data will be made available on request.

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Appendix

List of Key DWF-related Provincial Documents and Policies in Fujian.

2011	12th Five-Year Plan (2010–2015) for Fisheries Development of Fujian Province <i>“Actively develop DWF”, “Expand the development space of DWF”, “Building DWF bases”</i>
Aug 2012	Several Opinions of Fujian Provincial Party Committee and Fujian Provincial Government on Accelerating the Development of Marine Economy
Aug 2012	Notice on Nine Measures of Fujian Province to Support and Promote the Development of Marine Economy
Oct 2012	Temporary Methods of Fujian Province on Administration of Specific Funds for the Development of Marine Economy
Nov 2012	Development Plan of Fujian Strait Blue Economic Pilot Zone <i>“Vigorously develop DWF that is mainly based fishing in high seas and partially in by EEZs”</i>
Dec 2012	Pilot Work Plan for the Development of Marine Economy in Fujian (2012–2015) <i>“Vigorously develop DWF, build a modern DWF fleet and establish overseas DWF production bases, cold storage and processing bases and service platforms.”</i>
2013	Notice on Twelve Measures of Fujian Province to Promote Sustainable and Healthy Development of Marine Fisheries <i>“Actively develop DWF”, “Expand the area of DWF production”, “Strengthen capacity building of DWF”.</i>
2014	Notice on Six Measures of Fujian Province to Accelerate the Development of Distant Water Fisheries
2015	Notice on Five Measures of Fujian Province to Further Accelerate the Development of Distant Water Fisheries
2015	Plan for Building Fujian Province into a Core Area of the 21st Century Maritime Silk Road <i>“Actively develop DWF”</i>
2016	Five Measures to Support the Involvement of Provincial-Owned Enterprises in the Development of Distant Water Fisheries (2016–2017)
2016	Measures of Fujian Province on Administration of Subsidy Funds for Distant Water Fisheries (2016–2018)
2017	13th Five-Year Plan (2016–2020) for Fisheries Development of Fujian Province <i>“Standardize and orderly develop overseas fisheries”, “Build a modernized DWF fleet (750 vessels by 2020)”, “Support the building of overseas comprehensive fishery bases”</i>
2018	Opinions on Further Accelerating the Building of A Strong Maritime Province
2019	Approval of the Establishment of Fuzhou (Lianjiang) National DWF Base by the Chinese Ministry of Agriculture and Rural Affairs
2020	Layout and Construction plan of Fishing Harbors in Fujian (2020–2025)
2020	Several opinions of Fujian province on the Further Acceleration of the Construction of Fishing Harbours
2021	Notice on Eight Measures to Promote High-Quality Development of Distant Waster Fisheries
2021	A Three-Year Action Plan to Accelerate the Building of “Marine Fujian” and Promote High-Quality Development of Marine Economy (2021–2023) <i>“Reinforce and expand the development advantages of DWF (650 DWF vessels, annual production beyond 600,000 t, and output value beyond 5 billion RMB by 2023)”</i>
2021	Special Planning of Fujian to Build a Strong Maritime Province during the period of the 14th Five-Year Plan <i>“Expand the strength of DWF”</i>

⁵ Phone exchange with a Chinese government scholar who specializes in maritime affairs, October 26, 2021.

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