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China's Marine Fishery and Global Ocean Governance

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Abstract

This paper first examines two most significant structural shifts in China's marine fishery sector in the past decades, namely, expanding outward and going after high market value species. It then explains how domestic policies and development strategies have shaped the trajectory of China's marine fishery sector, and analyzes the obstacles rooted in both

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domestic socio-political settings and global governance that have impeded policy reform and effective enforcement in China to ensure marine sustainability and international cooperation. Lastly, the paper explores possible options for transnational advocacy actors that are concerned with the global impact of China's growing fisheries.

Policy implications

- The outward expansion of China's offshore fishing can result in a rising number of fishing incidents and disputes in the regional waters and beyond.
- Chinese fishermen's poaching of endangered marine species and Chinese fishing companies' unsustainable activities could have devastating impacts on the global marine environment and generate more challenges for global ocean governance.
- To achieve sustainable fisheries, China needs to reform its marine fishery policies and take international norms and best practices into consideration.
- NGOs, experts networks and other actors of transnational policy advocacy may have a role to play in fostering policy and practice changes in China.

Background

By 2015, China has developed world's largest fishing fleet and industry, and is reaching into some of the world's deepest waters. Amid lingering maritime territorial disputes between China and neighboring countries, Chinese fishermen are often caught incidents in regional and international waters, which have triggered political tensions between the governments involved. Also, the outward and rapid expansion of China's marine fishery sector, as well as Chinese companies and fishermen's illegal harvesting of endangered marine species, have generated pressure on the already fragile global marine ecology and new challenges to global governance.

The paper examines the structural changes of China's marine fishery sector, the main policy rationales behind them, and the obstacles rooted in domestic socio-political settings and global ocean governance that have prevented policy formation and effective law enforcement

to ensure marine sustainability and international cooperation. The next section provides the general background and explains two most significant structural shifts of China's marine fishery in the past three to four decades, namely, expanding outward and going after high market value species. The paper then takes a closer look at the development trajectory of China's marine fishery and explains the policy rationales and paradoxes that have shaped it. After explaining the challenges in both domestic and global governing structures, the last section of the paper explores the potential for transnational advocacy actors to engage with various stakeholders in China to introduce new policy ideas and practices in order to reverse some of the ongoing trends and improve fishery sustainability at the global level.

In addition to publicly available official documents and statistics and scholarly works, the analysis in the paper also relies on the authors' own previous research, fieldwork observations and interview materials. Particularly, between October 2014 and December 2016, the first author has conducted six field researches trips to China's some of China's major fishing towns, including Tanmen in Hainan (October 2014/November 2015/December 2016), Lianjiang county in Fujian (October 2014), Qingdao in Shandong (December 2014) and Zhoushan in Zhejiang (July 2015), to collect specific data for this paper.

Expanding Outward and Distant: China's Marine Fishery Sector

A brief overview of China's fishing industry

Since the 'Reform and Open Door' policy was launched in 1978, China's fishing industry has experienced phenomenal growth (Figure 1). Its annual fishery production, including both freshwater and marine fishery, has increased from 4.7 million metric tons in 1978 to 67 million in 2015 (Bureau of Fisheries of China, 2016). Today, China has the largest fishing industry in the world, with overall production counting for over one-third of the global total, aquaculture production for over 60%, and marine catch for about 18% (FAO, 2016).

Figure 1 China's total fishery production, 1978-2015 (million metric tons)

Source: Bureau of Fisheries of China, 2016

In addition to the volume of production, fishing sector has also grown in terms of labor size, vessel number and capacity, and marketization. In 1979, China had 52,225 motorized ships with a total capacity of 1.4 million metric tons and engine power of 3.1 million kilowatts (KW); mostly were small and old fishing boats. By 2015, China had the largest fishing fleet in the world with over 672,416 motorized fishing vessels (total tonnage of 10 million metric tons and total engine power of 22.6 million KW), including 187,211 marine fishing vessels and 2,512 distant water fishing (DWF) vessels. China's fishing industry now employs 14.4 million people, including both fishermen and workers of 9,892 fishery-processing companies (Bureau of Fisheries of China, 2016). An average fisherman in China earns USD 2,320 annually, significantly higher than the annual income of a regular farmer (USD 1,607) (National Bureau of Statistics of China, 2016). Such an income difference attracts peasant workers from China's inland provinces to join the fishing industry along the coasts. China is also the largest fishery trader and processor in the world and plays an increasingly critical role in global fishery markets and production chains. In 2015, China's fishery exports and imports reached USD 20 billion and USD 8.9 billion, respectively (Bureau of Fisheries of China, 2016).

There have been at least three structural changes in China's fishing industry. The first is the rapid expansion of aquaculture, which now contributes nearly three-quarters of the country's total fishery production. Second, China's marine industry is expanding outward, evidenced by a growing fishery presence in China's offshore waters, foreign countries' Exclusive Economic Zones (EEZs) and high seas. The third is the transition from traditional fish species

such as hairtail, anchovy and shrimp to high-value and even endangered species including red coral, sea turtles, and giant clams. The latter two summarize the main trends in China's marine fishery sector, and they are the focus of this paper.

Outward expansion of China's marine fishery sector

China's marine fishery sector has transformed from being predominantly based inland and inshore to increasingly moving offshore and into the distant waters. Table 1 lists the legal definitions of the different types provided by the Chinese government. Traditionally, the inshore fishery was the main form of marine fishing in China, as nearly 90% of China's total marine catch (excluding DWF) in 1985 was from inshore. However, by 2002, only 64.5% of the total marine catch comes from inshore (Bureau of Fisheries of China, 1986; Bureau of Fisheries of China, 2003). During the period from 1985 to 2002, the total output of inshore fishery was still higher than offshore catch, but the average annual growth rate of the offshore fishery of became much higher (Table 2). After 2002, while national level data is unavailable, local level evidence confirms the shift from inshore to offshore fishing. The production of inshore fishing dropped to 60% of Guangzhou city's total marine catch in 2006, and 50.5% in Hainan province in 2007 (Zhang H., 2016a). Fishing in the Spratly Islands is another case in point. In 1985, only 13 small vessels regularly fished near the Spratly Islands, but in 2013 over 700 big fishing boats with over 14,000 fishers engaged in fishing activities there (Zhang D., 2014).

Table 1 Definition of inshore, offshore and distant water fishing in China

Inshore fishing	Fishing in the Bohai, Yellow Sea, the area within N33, E125; N29, E125; N28, E124.5; N27, E123 in the East China Sea, and the area east to E112 within 80-meter isobath and west to E112 within 100-meter isobath in the South China Sea.
Offshore fishing	Fishing in the area outside of the N33, E125; N29, E125; N28, E124.5; N27, E123 in the East China Sea (including the waters near Diaoyu/Senkaku islands) and the area east to E112 beyond 80-meter isobath and west to E112 beyond 100-meter isobath in the South China Sea.

Distant Water Fishing	Fishing, processing, and supply and product transportation activities on the high seas and in the sea areas under the jurisdiction of other countries, excluding fishing activities in the Yellow Sea, the East China Sea, or the South China Sea.
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Source: Bureau of Fisheries of China, 1997; Bureau of Fisheries of China, 2016

Table 2 China's inshore and offshore marine fishery production (excluding DWF), million metric tons

Year	Inshore	Offshore
1985	3.13	0.31
2002	9.24	5.09
Average annual growth rate	11.5%	90.7%

Source: Bureau of Fisheries of China, 1986; Bureau of Fisheries of China, 2003

One direct result of the structural shift to offshore fishing is a rising number of fishing incidents and disputes involving Chinese fishermen in regional waters. Several of such incidents sparked diplomatic and political tensions between China and its neighbors. For instance, in September 2010, Japan's arrest of the Chinese fishing captain in disputed waters near the Senkaku/Diaoyu Islands after the boat collision incident triggered a major diplomatic dispute between China and Japan. In April 2012, the Philippine Navy's attempt to detain Chinese fishing vessels in the disputed Scarborough Shoal resulted in a standoff that went on for months.

In addition to offshore fishing, China's DWF has also been expanding since the first DWF fleet was dispatched to West Africa waters in 1985. The development of DWF significantly contributes to the overall outward tendency of China's fishery sector. As shown in Figure 2, the country's annual DWF production reached 2.19 million metric tons by 2015. With the largest DWF fleet in the world (2,512 vessels, excluding the 614 vessels operating in North Korean waters) and a total engine power of 2 million KW, China's DWF has expanded into 40 countries' EEZs (particularly in African countries, Indonesia and Myanmar) and most of

the high seas of the Pacific, Indian and Atlantic Oceans (Table 3). China also aims to expand its krill catch operations in the Antarctica seas in the coming years. Liu Shenli, Chairman of the China National Agricultural Development Group, said in 2015: ‘The Antarctic could provide almost 100 million metric tons of krill products annually, equal to the world's current fishing output, and China should aim to harvest one to two million tons’ (Xie, 2015).

The increasing prominence of DWF in high seas reinforces the trend of going offshore, far away and deep of China’s overall fishery sector. While in the early 2000s, over 90% of China’s DWF vessels were small and only capable of operating in coastal waters of other countries, high sea fishing has become the main form of DWF operation for China (Xue, 2006). With at least 1262 vessels, China caught 1.25 million metric tons (61.5% of total DWF catch) in 2014 (Bureau of Fisheries of China, 2015). Chinese DWF companies operating in the high seas are mainly after squid, tuna, saury and increasingly krill (Table 3). As more Chinese fishermen expand their operation outward, fishing disputes occur more frequently nowadays in China’s adjacent regional seas. Also, the rapid expansion of China’s DWF poses threats to the sustainability of global fishery resources and marine biodiversity. According to UN’s estimate, 80% of the world’s fish species are either fully exploited or depleted, and the dramatic increase of destructive fishing techniques can produce unretrievable damage to marine mammals and the entire marine ecosystem (Division of Oceans and Law of the Sea of the United Nations, 2010).

Figure 2 Production of China’s distant water fishing (million metric tons)

Source: Bureau of Fisheries of China, 2016

Table 3 Development of China's distant water fishing, 2014 (1000 metric tons)

High seas fishing			Foreign countries' EEZs		
Species	Total	1250	Areas	Total	780
	Squid	700		Africa	230
	Tuna	285		Argentina	44
	Saury	77		Indonesia and Myanmar	310
	Others (e.g., krill)	188		Others	196

Source: Bureau of Fisheries of China, 2015; Bureau of Fisheries of China, 2016

Although according to Chinese authorities China's DWF activities have contributed positively to local economic development in other coastal countries, there have been several reports documenting China's overfishing in the distant waters of South as well as in Northwest Pacific Ocean (Mallory, 2012; Mallory, 2013). According to a 2015 report by the Greenpeace, Chinese DWF companies, including the largest one – China National Fishery Co., have used unsustainable fishing methods that can undermine the sustainability of West Africa's marine fisheries and biodiversity. The illegal, unreported and unregulated (IUU) fishing practices employed by Chinese DWF companies include bottom trawling, illegal mesh size, under and misreporting of vessel tonnage and catch, transshipment at seas, harvesting prohibited species, automatic identification system inconsistencies, fishing in marine protected areas, and bycatch. The same report also points out that China's DWF companies tend to ignore regional and international fisheries regulations, and overfishing is a common practice for them in both the high seas and foreign countries' EEZs (Greenpeace, 2015). In 2014, China Tuna Industry Group, the biggest player in the China's tuna industry, in a failed initial public offering attempt admitted that it had exceeded international fishing quotas for years and had never been punished by the Chinese authority (Garrett, 2014).

Eyes on the high-valued and endangered

Apart from expanding outward, Chinese fishermen and companies are going after the particular marine species with high market values. Some of the Chinese fishermen have even

become poachers of endangered marine species not only in Chinese waters but also in other countries' EEZs and maritime territories and the high seas. Parallel to the rising demand for fishery productions as high-quality animal protein, the growing affluent middle class in China has also spurred the demand for rare aquatic products for personal decoration and collection purposes such as red coral and giant clams. According to folk interpretations of Buddhist doctrines, red coral and giant clams, together with gold, silver, lapis lazuli, pearl and carnelian, are regarded as 'seven treasures'. As a result, market demand and price of red coral and giant clam have skyrocketed in recent years. For example, a type of red coral, known as 'ox blood', can be sold for USD 1500 per gram in Shanghai, more expensive than gold. The price of the red corals from Japan's Kochi-ken area increased 20 fold between 2011 and 2014 (Hiraga, 2015). Similarly, the price of raw giant clam has risen 40 times over the past five years due to market demand, which led to severe overfishing of the species in China's southern inshore waters and adjacent South China Sea waters (Zhang H., 2016b).

Policy Rationales and Implementation Dynamics

A closer look at the development of China's marine fishery sector reveals a non-linear trajectory. The sector has gone through three periods since 1978 (Figure 3), namely, the rapid growth period from 1978 to 1999, the zero or negative growth period from 2000 to 2010, and the new growth phase from 2011 and up to now. This section explains the rationales, the inconsistencies and the actual failure of the 'zero growth' policy to shed light on the policy implementation in China's marine fishery. The last part of this section explicates the main reasons for China to re-introduce the growth-oriented policies in marine fishery entering the 2010s.

Figure 3 China's annual marine catch production

Source: Bureau of Fisheries of China, 2015; Bureau of Fisheries of China, 2016

Why ‘zero growth’?

From 1979 to the late 1990s, annual output increase was a primary barometer to measure the country’s success in fishery development and to assess the performance of local officials in charge of fishery matters (Yu & Yu, 2008). Hence, local governmental officials placed marine fishery development at the top of their agenda and provided strong support to local fishing communities and companies to expand their marine activities. However, by the late 1990s, due to overfishing, coastal land reclamation, and industrial pollution, fishery resources in China’s traditional fishing grounds had been severely damaged. For example, in coastal waters near Shandong province, the number of fish species has dropped by nearly three-quarters since the 1970s and most of the traditional fishing grounds now exist in names only (Xinhua Net, 2014).

Against this background, China began to place marine fishery resources restoration and sustainable marine fishery as one of the top policy objectives at the turn of the new millennium. The central government launched a broad range of regulatory measures to achieve this general goal. In addition to the fishing moratoriums covering Bohai, Yellow Sea, and the East China Sea introduced in 1995, the South China Sea Summer Fishing Moratorium was also introduced in 1999 (Shen & Heino, 2014).

Moreover, the ‘zero growth’ policy was promulgated in 1999 to slow down the development of fishing capacity, which was further consolidated and became a ‘negative growth’ policy in the following year. This marked ‘a strategic policy shift’ from a crude expansion for two

decades to a quality oriented and efficiency motivated fishery strategy (Yu & Yu, 2008). It sent out a clear message to all local governments, companies, and fishermen along China's coasts that marine fishery needs to be kept under control, fishery resources must be conserved, and sustainability should be prioritized. Both the 10th and 11th National Five-Year Plans for the Fishing Industry (2001-2010) explicitly listed the reduction in marine fishery output and marine fishing fleet as mandatory targets. The *Fishermen Transfer and Fishery Transition Programme* launched in 2003 laid out detailed plans to reduce the number of fishing vessels and fishing labor, as well as marine catch intensity (Shen & Heino, 2014). From 2003-2010, the central government also allocated RMB 270 million (roughly USD 30 million by then market conversion rate) annually to relinquish licenses, scrap a total of 30,000 fishing vessels, and assist 200,000 fishermen to quit fishing and find other jobs.

The underreported boom

Judging with the official data, the goals of 'zero/negative growth' policies seemed to have been met (Figure 3). However, other sources such as the studies published by the European Parliament, the Greenpeace and a research team led by Daniel Pauly all suggest that China might have underreported its distant water catch since the early 2000s (Blomeyer et al, 2012; Greenpeace, 2015; Pauly et al., 2014). And according to a Chinese research, China's annual catch from the South China Sea exceeded 4.8 million metric tons as compared with the official data of about 3.5 million metric tons in recent years (Liu, 2012). One of the key reasons for the underestimation of the growth of China's fishery sector is the existence of a large number of 'black ships' – fishing vessels without legal permits (Shen & Heino, 2014). For example, in Zhejiang Province in 2014, while 22,000 fishing vessels had appropriate legal permits, 12,000 did not (ChinaNews, 2014). The first author observed similar trends during the fieldwork conducted in fishing towns of Hainan, Fujian, and Shandong provinces in 2014 and 2015.

Local governments to a large extent tolerated the practice of 'black ships' in the 2000s for mainly two reasons: to meet the rising demands of China's expanding middle class and capture market opportunities, and to alleviate social resentment and provide jobs for those who were affected by bilateral fishing agreements and other fishery control policies. The income gap explained above also attracted peasant workers from inland provinces to join the fishing industries. Therefore, despite the top-down policy measures to reduce the number of

fishermen and fishing jobs, fishing labor force expanded from 12.9 million in 2000 to 14 million in 2010 (Bureau of Fisheries of China, 2016)

Moreover, although the absolute number of marine fishing vessels reduced during the period of ‘zero/negative growth’, the average size and horsepower of the fishing fleet increased, though not as significantly as the time after the 2010s (Table 4). This is mainly due to the high level of subsidies created by the central government. In 2006, the central government made a historic decision to abolish the agricultural tax and started to subsidizing agricultural production that includes fishery. Considered part of the ‘rural and agricultural population’ in China, fishermen, who had previously suffered under the ‘zero growth’ policies, began to receive a significant amount of subsidies from the central government after 2006. In the following years, total fishing fuel subsidies increased from RMB 5.43 billion (USD 810 million) in 2007 to RMB 23.4 billion in 2012 (USD 3.49 billion) (CNFM, 2016).

Table 4 China’s marine fishery fleet

Year	Total fleet number	Total tonnages	Metric tons per ship	Total engine power (million KW)	Engine power per ship (KW)
2004	220,000	5,559,000	25.3	12,338	56.1
2010	204,456	6,010,919	29.4	13,040	63.8
2015	187,211	7,572,484	40.4	14,417	77.0

Source: Bureau of Fisheries of China, 2005; Bureau of Fisheries of China, 2016

Therefore, contrary to the official narrative, China’s marine fishery sector had an underreported boom rather than a chill during the ‘zero/negative growth’ period. One report even suggested that the country’s fishing vessel building price index shot up 20 times between 2006 and 2012 (Shi, 2013). With bigger and better fishing vessels yet limited resources in the country’s inshore waters, fishermen naturally ventured further outward. In some situations, the central government provided special subsidies to fishermen to go offshore. For example, offshore fishing in waters near the Spratly Islands is not covered by China’s South China Sea fishing ban (16 May to 1 August annually), and fishermen who go there would receive additional fishing fuel subsidies under the *1995 Special Fishing-Fuel Subsidy for Fishing In The Spratly Islands Programme* (Zhang H., 2016a).

A new growth period since 2011

The paradoxical situation of China's marine fishery changed after 2010 when central government spearheaded a new policy that explicitly called for expansion. There are several main drivers behind this policy shift: national food security, economic benefits, maritime security, and political ambitions. They individually and interactively generate influence on the strategic thinking about marine fishery among top Chinese decision makers.

Firstly, as the fishery sector is part of the agricultural system in China, the overall strategy for fishery has to be in line with national food security goals, which have changed substantially since the 2000s. In 2010, a high-level task force report on strengthening the country's DWF sector underlined that China should not solely rely on food resources from its land, territorial waters and EEZs; instead, China should actively explore and utilize ocean resources, particularly marine biological resources in the high seas where the largest sources of protein are found to meet domestic needs (Taskforce, 2010). The 12th National Five-Year Plan for Fishery Development (2011-2015) highlighted meeting the rising demands for fishery products as the fundamental objective of China's fishing industry (Ministry of Agriculture of China, 2011). In 2011, fishery products were officially added to China's national 'vegetable basket program', and central government allocated RMB 100 million (USD 15 million) to boost the supply of fishery products as a measurement to ensure the country's food security (Bureau of Fisheries of China, 2015). Xi Jinping's administration has embraced the notion of 'blue granary' and a marine-based food security strategy (Qing, 2015). In June 2013, at the National Teleconference on Developing a Modern Fishing Industry, China's vice premier Wang Yang stressed that developing a modern fishing industry would boost the supply of fishery products to meet the rising demand for high-quality animal protein and contribute to the country's overall food security (Wang, 2013).

Secondly, while local governments are always aware of the economic value of marine fishery, the central government has only recently recognized this aspect of marine governance. In the 12th National Five-Year Plan, China elevated the importance of the marine economy and made it a state strategic industry (State Council of China, 2011). Since president Xi Jinping launched the Belt and Road Initiative, the marine fishery has been identified as one of the key areas for international cooperation, endorsed by officials from both central ministries and China's major fishing provinces.

Lastly, the Chinese leadership has begun to realize the strategic importance of marine fishery, with the rising political tensions in the South China Sea and the East China Sea, the expansion of Chinese presence overseas and China's growing interest in global affairs. In September 2012, China's Ministry of Agriculture submitted a report titled 'Advice on Enhancing Marine Fishery as A Strategic Industry' to the State Council, which quickly received wide endorsements from different ministries and bureaucracies (Bureau of Fisheries of China, 2015). At the 18th Chinese Communist Party Congress in December 2012, then president Hu Jintao pledged that China would become a maritime power by 'enhancing its capacity for exploiting marine resources, developing marine economy, protecting the marine ecological environment, and resolutely safeguarding China's maritime rights and interests' (Hu, 2012). In February 2013, the State Council held its first meeting on the marine fishery, and published 'Advice on Promoting Sustainable and Healthy Marine Development'. This is the first state-level document of marine fishery development, and it laid down guiding lines, basic principles, missions and specific policy support for the entire marine fishery sector.

Hence, between 2011 and 2015, there had been a convergence of preferences among all key players including the central government, local government, large companies and fishermen to expand China's marine fishery sector. Most notably is the attitude shift of the central government from restraining to promoting the expansion of marine fishery sector, and attaching greater strategic importance to the marine fishery sector than before. Between 2011 and 2015, the central government's financial support to marine fishery reached RMB146 billion (USD 21.8 billion), which is 2.7 times of the amount from 2006 to 2010. While a most of the funding in the past five years came in the form of fishing fuel subsidy a significant amount was also spent on building new boats (Mallory, 2016). Interestingly, local governments have also been enthusiastic and pitching in funding. For instance, Zhejiang provincial government allocated over RMB 1.8 billion (USD 268 million) for building or refurbishing marine fishing vessels between 2011 and 2015, and Fujian government provided at least RMB 1 billion (USD 149 million) to 'the modernization of marine fishery' from 2012 to 2015 (USTR, 2015).

From Domestic Policy Implementation to Transnational Advocacy

This section explains the obstacles for policy reform in China's marine fishery sector that rooted in both domestic socio-political settings and global ocean governance, and encourages

innovative thinking of policy advocacy as this special issue aims at. Like many developing countries that have not established a mature system of rule of law and anti-corruption regulations, China faces huge challenges in making real progress in sustainable fishery and natural resource management. Also, political will and commitment to sustainability and international cooperation are also needed as natural resources and environment are ‘exogenous’ to normal market mechanisms (Global Ocean Commission, 2013).

Weak domestic policy enforcement

Besides the problems of corruption and ‘fragmented authoritarianism’ that are not limited to the fishing industry (Lieberthal, 1992), there are a few more specific reasons that make regulating marine fishery a daunting task for the Chinese government. Firstly, the sheer scale of the sector. Over 20 million fishing fishers are living and working along China’s coasts. In contrast, China has only 33,000 fishery law enforcement officers and less than 600 marine fishery law enforcement vessels, the majority of which are small and old. In Hainan province, for example, about 500 law enforcement officers are in charge of monitoring over 26,000 motorized fishing vessels (Bureau of Fisheries of China, 2015). What is worse, most of the limited enforcement resources are concentrated on defending China’s claims in the South China Sea and targeting illegal fishing activities from other claimant states, instead of regulating the behaviors of Chinese fishermen (Ai et al, 2015).

Secondly, there has long been a custom in local Chinese fishing communities that ‘the law fails where violators are legion’. In the case of Tanmen town, northeast Hainan Island, most of the local families and communities are directly or indirectly engaged in illegal harvesting of giant clams and other endangered marine species, as observed by the first author during field research trips in October 2014, November 2015 and December 2016. If not onboard the vessels, one works in the processing, retailing, transporting and other areas related to the giant clam. The whole industry supports over 100,000 people in the town and neighboring regions. Facing a large amount of violation on a regular basis, local authorities usually turn a blind eye to the problems to avoid collective resistance and social turmoil. Also, local authorities are often protectionists as they are embedded in the dense social networks and political ecology of fishing businesses. Sometimes, law enforcement forces on the ground are under heavy pressure from local supervisory agencies not to punish fishermen and their crews for illegal poaching. In fact, some of the local enforcement officers (i.e., Coast Guard) used to be local fishermen themselves and their family members and friends are still fishermen.

The boundaries between those who enforce the laws and those who benefit from breaking the laws all become blurred at local levels.

Furthermore, the fishery regulatory system of in China is outdated and needs amendments to meet new challenges. For instance, under the current law, illegal fishing will be fined up to USD 15,000. Only in very serious cases, fishing vessels and equipment would be confiscated. The amount of fine has remained unchanged for fishing without a legal permit since the Fishing Law passed in 2000. With rising prices and profits, such a fine no longer has the effect of preventing the potential violation. Fishermen could earn up to USD 149,000 with just one voyage. Even if fishermen are caught, they can pay up the fines without necessarily giving up what they do. To deter Chinese fishermen, Japan raised the fines to JPY 4,000,000 (USD 39,000) for illegally entering Japanese waters and JPY 10,000,000 (USD 97,900) for trespassing in Japan's EEZ. However, these fines are still not enough to deter Chinese fishermen's poaching activities (The Japan Times, 2014).

In most recent years, China has taken concrete steps in some aspects to improve marine fishery law enforcement such as combating illegal fishing and reducing fuel subsidies (Goldstein, 2013). In March 2013, China set up the new Coast Guard with better equipment and vessels (Li & Amer, 2015). In 2015, China had confiscated over 16,000 'black ships', and introduced stricter marine fishery regulations to punish illegal fishing and harvesting of endangered species (Ministry of Agriculture of China, 2016). In July 2015, China's Ministry of Agriculture and Ministry of Finance jointly announced that the total amount of fishing fuel subsidy would be reduced to 40% of the level in 2014 by 2019 (Ministry of Finance of China, 2015). In August 2016, China's Supreme People's Court issued a new statement stating that Chinese citizens or foreigners will be pursued for criminal liability if they engage in illegal hunting, fishing, or killing endangered wildlife in China's jurisdictional seas. In the same month, China's top legislature reviewed a draft amendment to the Marine Environment Protection Law, imposing more severe penalties for marine pollution (Xinhua Net, 2016; IANS, 2016). The Hainan provincial government issued a ban on trading and processing corals and giant clams, effective on 1 January 2017. However, the real impact of these recent policy changes remains to be seen.

Interface between domestic policy implementation and global governance

It is not rare for external actors and international agencies to be interested in policy changes in China for the purpose of improving global public goods. Regarding venues, there are the official bilateral and multilateral inter-governmental ones, versus non-governmental centered ones such as transnational advocacy networks and epistemic communities. In terms of political mechanisms, there are the contentious ones such as working with policy victims and ‘naming and shaming’ the Chinese authorities, and exposing China’s policy failures, inadequacies and frauds, versus the cooperative and persuasive ones usually via joint projects, technical support and dialogues (Table 5) (Economy & Oksenberg, 1999; Chan, 2006; Morton, 2006; Kent, 2007; Johnston, 2008; Wu, 2011; Kaufman, 2012).

In the field of fishery governance, in addition to its own domestic regulation, China’s marine fishery operation is governed by a number of international and regional treaties and agreements, such as the *Code of Conduct on Responsible Fishery*; *International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing*; *International Plan of Action for the Conservation and Management of Sharks*; *International Convention for the Conservation of Atlantic Tunas*; *Agreement for the Establishment the Indian Ocean Tuna Commission*; and the *Convention on the Conservation of Antarctic Marine Living Resources*, as well as over 20 bilateral fishery agreements. Nonetheless, there are inherent weaknesses at the global and regional levels that make it tricky and often ineffective for a foreign government or an international agency to pressure China to comply with inter-governmental agreements.

The most prominent reason why coercive measures by a foreign entity or a multilateral agency can generate little impact on China’s domestic change is the rising structural position of China in the international system and the sheer size of global market shares of China’s fishing industry (Chin & Thakur, 2010; Sceats & Breslin, 2010; Shambaugh, 2015; Wu, 2016). Fear of direct sanctions and loss of international reputation are often the reasons why developing countries comply with international agreements and pressures (Guzman, 2002). However, China has been unsusceptible to external pressure compared to many other large countries and mid-range powers, among whom many were keen to get official assistance from either a foreign state or a multilateral agency. The fact is that if China could endure all the external pressure to change its policies before, it certainly can do so better now.

Table 5 Mechanisms of transnational policy advocacy

	Inter-state channels	Non-state centric channels
Contentious (‘Stick’)	coercive measures, pressure, sanction,	‘naming and shaming’, transnational protest and resistance
Non-contentious (‘Carrot’)	official assistance (with or without conditionality)	policy advocacy networks, epistemic communities, technical consultation

The fragmented nature of global governance over natural resources, particularly the oceans, makes not only the ‘stick’ but also the ‘carrot’ strategy via multilateral inter-governmental channels quite infeasible at this stage, not exclusive to the China case. In its most recent report, the Global Ocean Commission identified ‘weak high seas governance’ as one of the five fundamental drivers of ocean decline globally: ‘The existing high seas governance framework is weak, fragmented and poorly implemented. It is sectoral, with different bodies regulating different industries, and not based on modern ecosystem understanding.’ (Global Ocean Commission, 2014) Instead of a coherent and comprehensive regulatory framework, various regional fisheries management organizations (RFMOs) are the *de facto* managing bodies of high-seas fisheries concentrating on a few commercial stocks only. Preliminary examinations of RFMOs reveal a variety of problems, including poor data provision, failure to adopt appropriate conservation measures, and inadequate compliance with management measures (Sumaila et al, 2015).

Also, China usually prefers inter-state bilateral or regional channels than multilateral venues – often involving non-state parties – to handle controversial issues or the issue areas where China is a late-comer of global governance. This partially explains why China is enthusiastic in creating new bilateral and regional mechanisms for international cooperation in the marine fishery, instead of joining in or complying with the existing multilateral frameworks. For example, Guangxi provincial government has proposed to build a China-ASEAN Fishing Corridor in the South China Sea, and Fujian provincial government initiated the idea of establishing a China-ASEAN Marine Product Exchange in the Fuzhou city (Zhang H., 2015).

Any potential for transnational policy advocacy?

Having said the above, the paper, however, contests that external actors cannot play a role in changing China's practices regarding marine fishery and high seas conservation. This section highlights a particular group of external actors, transnational advocacy networks, and their relevance to policy changes in China. Transnational advocacy networks are 'fluid, open, voluntary-based and loosely coordinated' groups of committed individuals and non-governmental organizations (NGOs) for a particular cause (Keck & Sikkink, 1998). Transnational advocacy actors work closely with domestic policy stakeholders, and are good at information sharing, staging symbolic critical yet non-contentious acts. Successful transnational advocacy depends on finding out folklores in the complex policy processes and using limited resources to leverage significant changes (Khagram et al, 2002; Park, 2005; Price, 2003).

Despite their relative lower visibility compared with large-scale social movement, transnational advocacy networks have proved to be effective in pushing for policy changes in China across policy fields (Morton, 2006; Wu, 2011; Kaufman, 2012; Wu and Xu, 2013). For example, World Wildlife Fund's work since the late 1990s has targeted policy reforms in sustainable forestry and endangered species conservation in China. WildAid, another international conservation NGO, opened its China operation in 2006 and had since successfully campaigned against consumption and trade of endangered species and related products such as blue shark fin, African elephant ivory, and Asian bear bile. 85% of Chinese consumers surveyed said they gave up shark fin soup within the past three years, and they referred to a popular advertisement produced by the WildAid featuring the former basketball superstar Yao Ming (WildAid, 2014).

The arrival of Web 2.0 in China and wide availability of domestic manufactured smartphone has ushered a wave of online activism and political engagement in China (Zhang, 2014; Wu and Yang, 2016). Transnational advocates can tap into this new pool of social stamina for specific policy goals. For example, after the Paracel Islands tourism program launched by the government in 2013, pictures of Chinese tourists hunting, fishing, diving and even eating endangered species such as giant clams, sharks, and coral gradually emerged on the Internet and in social media. Chinese environmentalists and international NGOs caught the momentum and initiated policy critique and advocacy, which eventually prompted the authorities to step up efforts to crack down illegal tourism in the Paracel Islands (Zhou, 2015).

Previous successful experiences by international NGOs and transnational advocates can offer insights for those who are interested in working on overfishing, illegal poaching and unsustainable activities by Chinese individuals and companies in marine spaces. For policy observers and advocates, the focus should be placed on finding the right Chinese counterparts to work with and to identify the suitable policy niche to mobilize for reform. For example, there is a discrepancy between China's domestic regulation and international law regarding the problem of giant clam poaching. According to the International Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), all nine species of the giant clam – Family Tridacnidae – are included in Appendix II. Under regulations for the Implementation of the Protection of Terrestrial Wildlife by the People's Republic of China, only one species – *Tridacna gigas* – is listed. This discrepancy creates grey areas for law enforcement against illegal harvesting, transportation, and sale of giant clams. However, this can also offer environmental NGOs a niche to raise consumer's awareness, provide training of CITES local staff and persuade Chinese law-makers to close up the regulatory gap on the issue. International NGOs that have worked extensively in China shall consider developing projects that can directly connect with and influence millions of China's ordinary fishing workers, families, companies and even local governments to gauge the necessary urge for China to participate in and comply with international marine fishing mechanisms.

Conclusion

In a decade's time, China has emerged as a significant player in the marine fishery. Without systematic policy reform and effective compliance with international norms, China's current marine fishery behaviors can generate challenges to the sustainability of the world's marine biodiversity and the functioning of global ocean governance. The paper has explained the historical background, domestic political dynamics and particular policy rationales that have shaped outward expansion of China's marine fishery sector. Identified as one of the key pillars to push forward Xi Jinping's ambitious plans to continue to grow China's gigantic economy and global presence, marine fishery and economy would probably receive more supports from the top in the coming years.

Targeted efforts from the international community are needed to persuade China to change some of its current policies and practices that take advantage of the holes and gaps in global

ocean governance and cause severe damage to world's marine ecosystems. This paper explains why conventional coercive measures employed by a strong state or inter-governmental agency have not been effective in the case of China, and highlights that NGO, experts networks and other forms of non-confrontational transnational policy advocacy may have a role to play. Given the fact that the central authority, local governments, fishing companies and fishing communities are equally important in determining the actual outcome of China's fishing policies, transnational advocates shall target all of them and aim at changes at all levels. Mobilizing concerned Chinese citizens via advanced interactive internet technologies and collaborating with domestic NGOs and experts can carve out new ways to affect Chinese policy makers and policy-making processes. Raising public awareness of the value of marine biodiversity, the potential for international marine fishery cooperation and the role China could play in global ocean governance building among Chinese citizens can generate much needed alternative policy discourses that could gradually modify the current mainstream narrative that distort the relations among marine fishery, food security and China's overall renaissance.

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