# Certifying China

## The Rise and Limits of Transnational Sustainability Governance in Emerging Economies

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# 3 Seafood: The Rise of Eco-Certification Led by a National Industry Association

This chapter presents the first empirical case study in the book. It investigates the entry and growth of transnational sustainability certification in China's seafood industry, including both wild capture fisheries and aquaculture.[1] While providing critical food sources and livelihoods for millions of people around the world, the global seafood sector faces serious sustainability challenges, including the decline of fish stocks, nutrient pollution, and human rights abuses (FAO 2018c; Smith et al. 2010). In the global seafood supply chain, China plays a prominent role as the leading producer and consumer, representing about 20% of the total production in capture fisheries and over 60% in aquaculture (FAO 2018c). Over the past two decades, the country has also transitioned toward becoming a major seafood importer because of a growing domestic market (World Bank 2013). It was in this market context that sustainable seafood certification first entered China 15 years ago, and over time, gained traction in the Chinese market. Despite the continuous growth in the number of certified firms and products, civil society movements advocating for sustainable seafood in China remain in their infancy, and Chinese consumers are largely unfamiliar with the concept of sustainable seafood. What forces, then, have driven the expansion of the relevant transnational programs?

My analysis in this chapter traces the processes through which different eco-certification programs were introduced to China's seafood industry and gradually increased their uptake in the country. It shows that the rise of sustainable seafood certification in China can be divided into two stages. The first stage began in the mid-2000s, when some eco-certification programs were introduced to Chinese firms by Northern buyers. In this stage, adopters of transnational standards were confined to export-oriented producers.

The second stage started around 2013 after certification programs and their NGO supporters had actively engaged with domestic stakeholders, especially the China Aquatic Products Processing and Marketing Alliance (CAPPMA), a national industry association supervised by the Ministry of Agriculture. By interacting with transnational actors, officials in this quasi-state agency saw the benefits of eco-certification for industrial upgrading and sustainable production, and therefore, they decided to provide moral and policy support to relevant programs. As a result, transnational certification programs partnered with Chinese state actors to promote the concept of sustainable seafood and their standards such that an increasing number of Chinese producers began to use eco-certification to expand their business both internationally and domestically.

The seafood case suggests three key findings. First, it shows the limits of transnational market influences in driving significant changes in China's sustainability governance in an era when the Chinese economy has become increasingly less dependent on exports. Although buyers in developed markets were the initial agents introducing seafood certification to Chinese firms, only a very small proportion of China's seafood industry was influenced by these Northern buyers due to the growing domestic market. Second, when Chinese industry associations partner with transnational governance programs, as part of the state, the former can effectively nudge businesses along the supply chain toward the adoption of relevant standards. The rise of sustainable seafood certification in China is indebted to CAPPMA for its awareness-raising activities, technical advice to firms, and its efforts to link producers with retailers. Third, certification programs' strategies of proactive engagement were successful in gaining the support of state actors in China. In this case, CAPPMA's interests in eco-certification were triggered by its interaction with some transnational certification programs and their NGO supporters.

To present this case study, I begin with a brief summary of major certification programs and their current uptake in China. Next, I examine key structural features of the Chinese industry and how they fit with transnational governance of eco-certification. After this, I conduct a process-tracing exercise to show the two stages of the rise of sustainable seafood certification in China, exploring the incentives of major stakeholders in these processes. I conclude by discussing the successes and limits of sustainable seafood certification in China.

### 3.1 Certification Addressing the Global Fisheries Crisis

For centuries, humans exploited seafood as an unlimited gift of nature. However, rising demand and technology development since the mid-twentieth century posed alarming threats to this sector's sustainability. On wild catch, the percentage of biologically unsustainable marine fish stocks increased from 10% in 1974 to 31.4% in 2013, such that the volume of global wild catches has leveled off at around 80 million tons (FAO 2016). More seriously, prolonged intense exploitation caused the collapse of many fish stocks, which might not be reversed even by extreme restrictions on harvest (Neubauer et al. 2013). Besides the ecological consequences, overfishing also incurs huge economic costs, as much as $83 billion per year according to the World Bank's (2017) conservative estimate. In China, overfishing is a salient issue, as shown by the decline and depletion of many fish stocks in its domestic seas over the past 30 years and the further pressure that has been added to Chinese fisheries' ecosystems by coastal pollution from industrial development and waste (Pan and Wang 2012; Cao et al. 2017).

To sustain the rising demand for seafood, the aquaculture industry has rapidly expanded around the globe since the 1970s, and the volume of farmed fish for human consumption surpassed that of captured fish in 2014 (FAO 2016). But the growth of this subsector has profound implications for the environment due to habitat destruction in coastal lowlands, large inputs of wild fish for feed, introduction of invasive species, and eutrophication and pollution in coastal waters (Naylor et al. 2000; Páez-Osuna 2001; Tilman et al. 2002). Many of these problems are indeed serious in China's fast-growing aquaculture industry, especially water pollution due to the (over)use of antibiotics, which are detrimental to fish, terrestrial animals, and human health (Cabello 2006; S. Zou et al. 2011).

It was in this context of increasing global concern about sustainability of fisheries resources that eco-certification emerged in the 1990s in the seafood sector. For decades, global fisheries governance remained state centered, dominated by public rules that were imposed domestically by individual coastal states and globally by regional fisheries management organizations (Barkin and DeSombre 2013). But the development of a code of conduct for responsible fisheries in 1995 by the Food and Agriculture Organization (FAO) of the United Nations gave a momentum to NGO activism and

transnational governance in the seafood sector. Subsequently, some NGOs decided to promote this conservation approach through certification, and the code has also served as a main reference for most schemes (Auld 2014). Below, I present the major certification programs in the global seafood market and their current status in China.

The Marine Stewardship Council (MSC) is the world's first seafood certification program, focusing only on wild capture fisheries. It was created in 1997 by an NGO-business partnership between the World Wide Fund for Nature (WWF), which wanted to model the success of forest certification in the fisheries sector, and Unilever, which had a growing concern about the long-term supplies of its seafood products (Gulbrandsen 2009; Auld 2014). In addition to certifying fisheries that adopted sustainable fisheries management, the program also created a chain-of-custody certification for supply chain actors using or selling certified products, such as possessors and retailers, to ensure product traceability. The program won the support of major retailers in Northern markets in the early 2000s, including Sainsbury's and Tesco in the UK, Migros in continental Europe, and Whole Foods in the US. It thus quickly became the most established certification program for capture fisheries and has continuously increased in market uptake around the world (Jacquet et al. 2010; Pérez-Ramírez et al. 2012; The Press Association 2017). As of March 2017, 315 fisheries in 34 countries have been MSC-certified, representing 12% of the world's marine wild catch (9.5 million tons), and nearly 25,000 labeled products are on sale in over 100 countries (MSC 2017b).[2] Since the mid-2000s, the MSC has made noteworthy progress in China by having certified two fisheries operated by Chinese companies and more than 300 supply chain actors, mostly processors, and by introducing over 150 labeled products into the Chinese market (The Press Association 2017). Notably, the MSC has gained support from many Chinese processors, as shown by the number of chain-of-custody certificates in China, ranked third in the world (MSC 2017b).

Launched in 2006 in Italy by an environmental activist, Friend of the Sea (FOS) is another seafood certification program covering both capture fisheries and aquaculture. Since 2008, the program has experienced significant growth in its certified wild catch production, which reached 9.3 million tons by the end of 2015 (Friend of the Sea 2018). Part of the reason for this surge is the program's more lenient standards compared to the MSC (Auld 2014). The program's impact on the aquaculture industry remains very limited, as

its certified producers represent less than 1% of the global production volume. However, in both subsectors, Chinese producers and processors have not yet adopted the program's standards; nor have certified products been sold to China.[3]

For aquaculture, certification programs also emerged in the 1990s as the industry, especially shrimp farming, had become subject to controversies. The Global Aquaculture Alliance (GAA) was established in Seattle in 1997 by businesses and scientists studying shrimp farming to develop a code of practices for the industry. In 2002, the GAA launched its shrimp certification program, named "Best Aquaculture Practices" (GAA-BAP). Covering four aspects of sustainability issues—environmental protection, social responsibility, food safety, and animal welfare—the GAA-BAP specifies standards for farms, feed mills, hatcheries, and processing plants. Since 2005, with the support of large branded retailers, such as Walmart, the program has rapidly increased its market uptake. In 2007, the GAA-BAP started to expand its standards to many other species, starting with tilapia. Today, it is one of the leading certification programs in the global aquaculture market, with 1,850 certified facilities in 31 countries producing more than 2 million tons of products.[4] By the end of 2017, there were 170 GAA-BAP certified facilities in China, mostly in the tilapia and shrimp industries.[5]

The Aquaculture Stewardship Council (ASC), jointly created in 2010 by the WWF and IDH, the Sustainable Trade Initiative, is another major certification program. It resulted from eight multi-stakeholder dialogues organized by the WWF, on developing sustainability standards for farmed seafood. In 2012, the ASC awarded its first certificate to a tilapia farm in Indonesia. Like the MSC, the ASC sets standards for both farms and supply chain businesses (e.g., processors and retailers). Despite being a newer program, the ASC has experienced rapid growth around the world. By the end of 2017, the program had 548 certified farms producing a total of 1.27 million tons of farmed seafood sold in 66 countries; in China, there are seven certified farms (six for tilapia, one for scallops), 49 chain-of-custody certificate holders, and 101 certified products on sale.[6] For both the GAA-BAP and the ASC, their certified companies in China were concentrated in the tilapia industry. In fact, among different seafood industries in China, tilapia has the highest uptake of transnational eco-certification, with an estimate of over 13% of the production by volume in 2015 coming from businesses adopting at least one transnational certification (iFISH 2016).

Additionally, in the early 2000s, transnational certification programs on organic agriculture (e.g., International Federation of Organic Agriculture Movements) and good agricultural practices (e.g., GlobalGAP) developed aquaculture standards (Auld 2014). Although these programs have grown in the global seafood market, their impact in China remains insignificant, partly because they have not focused on species produced in China (Potts et al. 2016; Chen, Han, and Wang 2017). Moreover, the Chinese government developed its own organic (China National Organic Product Certification) and good agricultural practices (ChinaGAP) certification programs in the mid-2000s, making Chinese producers more exposed to these domestic standards. Both the Chinese organic and good agricultural practices certification programs are regulated by a state agency—the Certification and Accreditation Administration (CNCA)—and their standards are only recognized by a few foreign markets, meaning that their certified products are almost all sold domestically. To date, the number of producers certified by ChinaGAP remains very low, whereas organic certified production has surpassed 300,000 tons (CNCA and China Agricultural University 2016; Chen, Han, and Wang 2017).[7] Yet both programs have gained little support from downstream businesses and play a marginal role in the Chinese market.[8]

In summary, the field of sustainable seafood certification is fragmented into several programs differing in their subsectors (i.e., wild capture fisheries or aquaculture), sponsors, and geographical coverage. Table 3.1 lists the programs relevant to the Chinese seafood sector. Of the two leading transnational programs for capture fisheries, the MSC has entered China and made remarkable progress, whereas FOS remains absent in the Chinese industry and market. The aquaculture subsector is a more crowded field for eco-certification due to the existence of government-developed organic and GAP programs. But these domestic programs do not directly compete with transnational programs, as they focus on different species and market segments. Accordingly, both the GAA-BAP and the ASC have been able to quickly increase their uptake in China in the past decade.

As many programs do not disclose their certified production volume in each country, I use the certification status of the 10 largest Chinese companies as an indicator of the influence of eco-certification in China's seafood sector. Table 3.2 shows that half of these companies have been certified by at least one transnational program applicable to them. This pattern suggests that eco-certification has become popular at least among large producers in China's seafood industry.

**Table 3.1**
Summary of seafood certification programs (as of 2017)

| Program | Subsector(s) | Global reach | Uptake in China |
|---|---|---|---|
| Marine Stewardship Council (MSC) | Wild capture | 315 fisheries in 34 countries, 12.0% of global marine catch | 2 fisheries, 389 supply chain businesses, and 150 labeled products on sale |
| Friend of the Sea (FOS) | Wild capture, aquaculture | 88 fisheries in 45 countries, 12.4% of global marine catch, 1% of global aquaculture production | No certified business |
| Best Aquaculture Practices (GAA-BAP) | Aquaculture | 1,850 facilities in 31 countries, 2.5% of global aquaculture production | 84 farms, 12 feed mills, 15 hatcheries, and 59 processing plants |
| Aquaculture Stewardship Council (ASC) | Aquaculture | 548 farms, 1.6% of global aquaculture production | 7 farms, 49 supply chain businesses, and 101 labeled products on sale |
| China Good Agricultural Practices (ChinaGAP) | Aquaculture | Not applicable | 23 producers; very low production volume |
| China National Organic Product Certification | Aquaculture | Not applicable | Over 700 producers; around 0.6% of China's total production |

*Data sources*: Annual reports and websites of the transnational certification programs; L. Chen, Han, and Wang (2017); and CNCA and China Agricultural University (2016). The percentages were calculated according to the total production volume provided by the FAO and China's Bureau of Fisheries.

## 3.2 China's Seafood Industry in a Changing Market

Before assessing the role of different stakeholders in driving the rise of seafood certification in China, let us first consider how the domestic industry's structure conditions the applicability of eco-certification standards. The analysis in this section shows that the industry remains diverse, with different types of supply chains. On one hand, the industry has been upgraded in the past two decades to become increasingly integrated both horizontally and vertically. This trend indicates the rise of industrial, capital-intensive production, which

**Table 3.2**
Support of top 10 Chinese seafood companies for eco-certification

| Order | Company name | Main business | Certification programs adopted |
|---|---|---|---|
| 1 | Zhangzidao (Zoneco) Fishery Group | Marine fisheries (scallops) | MSC (sustainable fisheries and chain-of-custody) |
| 2 | Zhanjiang Guolian Aquatic Products | Shrimp and fish farming | GAA-BAP, ASC |
| 3 | Baiyan Investment Group | Tilapia farming, fishmeal production | GAA-BAP, ASC |
| 4 | Dalian Tianbao Green Foods | Seafood, agri-cultural product processing | MSC (chain-of-custody) |
| 5 | Shandong Homey Aquatic | Mariculture and seafood processing | |
| 6 | Dahu Aquaculture | Freshwater fisheries, fish processing | China Organic certification |
| 7 | Shanghai Kaichuang Marine International | Distant water fishing | |
| 8 | Shandong Oriental Ocean Sci-tech | Seafood seed breed-ing, farming, and processing | MSC (chain-of-custody) |
| 9 | China National Fisheries Corporation Overseas Fisheries | Distant water fishing | |
| 10 | China Ocean Fishing Holding Limited | Distant water fishing | |

*Note*: The companies are ordered by sales revenues in 2016 as estimated by Harkell 2017b.

can ease the adoption of eco-certification. On the other hand, due to the size of the country, small businesses still represent a large segment of the Chinese industry, especially in the domestic market. These producers face many difficulties in adopting sustainability standards originated in the Global North.

China's seafood production has had a more than 20-fold expansion since the 1950s (see figure 3.1). It is now the world's largest seafood industry, producing around 80 million tons of aquatic products (FAO 2018c). Aquaculture has driven this dramatic growth, especially since the mid-1980s. Marine capture and the freshwater fish farming dominate, respectively, China's wild capture and aquaculture industries (Bureau of Fisheries 2016).[9] This

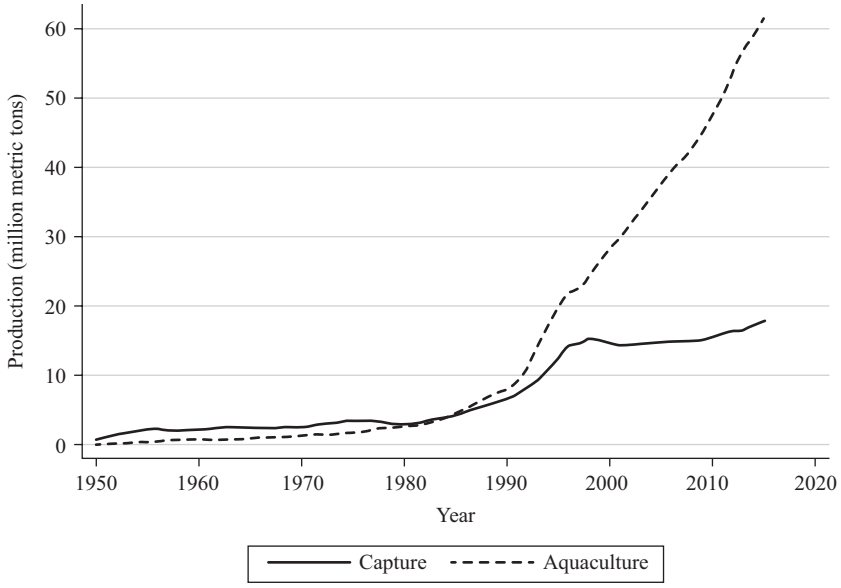


**Figure 3.1**
Changes in China's production of aquatic products since 1950.
*Data source*: FAO fishery commodities production and trade database at http://www.fao.org/fishery/statistics/global-commodities-production/query/en.

expansion largely benefited from the country's economic reform in 1978, which improved fishers and fish farmers' production incentives by de-collectivizing property rights and introducing market prices. In 1985, market reforms in the seafood sector were deepened by a central government's directive to liberalize the prices of all products, further product circulation and market competition, and relax export controls.[10] The state also set the goal of tripling per capita fish consumption in China by the end of the twentieth century.

Since then, China has begun to develop a modern seafood industry and has gradually become a leading exporter in the market. Figure 3.2 shows the surge in China's fish product exports over the past three decades (these exports have multiplied by 17 in volume and 27 in value). The rise of a large and competitive processing industry is a major driver of this development. Since the mid-1980s, the Chinese government has used a series of supportive policies, including tax reductions and financial credits, to develop the aquatic product processing industry as part of its plan

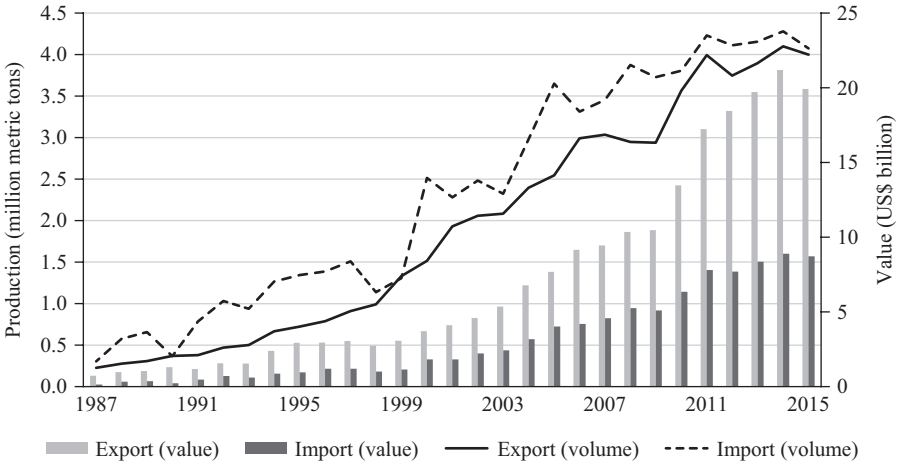


**Figure 3.2**
Imports and exports of China's fish products.
*Note*: The data in the figure refer to the trade of the four categories of fisheries products, including fish, crustaceans, mollusks, and other aquatic invertebrates.
*Data source*: FAO fishery commodities production and trade database at http://www.fao.org/fishery/statistics/global-commodities-production/query/en.

for agricultural industrialization (Yang et al. 2016). These policies have created a thriving industry of frozen processing to export products having higher added value to developed countries. Drawing on cheap labor, Chinese processors rely more on manual filleting, which generates higher yields compared to mechanized filleting (Lindkvist, Trondsen, and Xie 2008). Hence, many Northern producers decided to outsource processing activities to China, making the country the world's largest exporter of fish products since 2002 (FAO 2016). For instance, frozen cod is sent to China from Europe and North America for filleting and packaging, and then is reexported (Hanson et al. 2011).[11] In these supply chains, export-oriented processors are likely to receive certification requirements from their foreign buyers. However, the export volume represents only 6% of China's total production—this figure suggests that a large majority of producers cannot receive information on eco-certification from their customers (Bureau of Fisheries 2016).

Moreover, the global seafood market began to change in the mid-2000s due to decreasing consumption in developed countries and increasing labor

costs in China (Cui 2015). Consequently, more and more Chinese producers began to shift their focus to the growing domestic market and introduce premium processed seafood to Chinese consumers. This leads to a trend of industrial upgrading in the industry. Instead of only being suppliers of Northern brands, many Chinese producers and processors started to build their own brands, targeting both the domestic and international markets.[12] For these Chinese firms, seafood certification can provide opportunities for building reputation and creating added value for their products.

In parallel with this trend is the rising consumption of seafood in China. In 2015, the country accounted for 36.9% of global fish consumption, making it by far the world's largest consuming country.[13] Driven by this growth, the consumption of imported premium seafood in China also significantly increased in the past two decades (FAO 2018c; also see the import value and volume in figure 3.2). Foreign species, such as lobster, salmon, and scallops, have become fashionable in China. For instance, Atlantic salmon is considered to be the "Prada of seafood" and has gained popularity among young urban consumers (Undercurrent News 2012). Shrimp is another example: The demand in the Chinese market grew 123% on average between 2005 and 2015 such that China has transformed from a major shrimp exporter into the leading importer in the global market (Anderson, Valderrama, and Jory 2016; Harkell 2018).

In addition to changing consumption habits, Chinese consumers' distrust of food safety standards used by domestic producers has also contributed to the increase in imported seafood products (Villasante et al. 2013). In fact, food safety has become as "a major concern" of most Chinese seafood consumers, and many even believe that "imported products are always better."[14] Seeing this trend, fresh food e-commerce platforms in China have introduced more and more imported seafood products to consumers and have experienced exponential growth in their sales of relevant products (Harkell 2017a). The rise of some e-commerce giants also led to increasing market concentration in the retail segment, which is a supply chain feature conducive to the spread of eco-certification, as discussed in chapter 2.

To better understand the industry's fit with eco-certification, we can identify three typical types of supply chains for both capture fisheries and aquaculture products according to their target markets: *traditional domestic market, domestic premium market,* and *export market*. The first and third chains

emerged with different production networks in the mid-1990s, whereas the second one arose in the mid-2000s. They vary in product forms; species; and accordingly, stakeholders involved. This trifurcated structure suggests that transnational certification programs can only be introduced and accepted in some types of supply chains but not in others.

In the traditional domestic market, live products maintain a dominant position due to the consumption habits that see "live" is a symbol of freshness and good quality.[15] Despite the rise of frozen seafood sales in supermarkets, live, fresh fish remains highly popular among Chinese consumers, as freshness is "a culturally-valued institution" (Fabinyi and Liu 2016). Therefore, the chains supplying the traditional domestic market are often short and even informal, with little or no involvement of branded manufacturers. Moreover, species traditionally consumed in China are very different from those in Northern markets. Popular products are mainly caught in China's coastal seas, including largehead hairtail, yellow croaker, cuttlefish, and squid. For Chinese fishers, the costs of entering the domestic market are relatively low, and therefore most of them operate on a small scale, often as family businesses.[16] Due to the collapse of many fish stocks in China's coastal seas, it has become even more difficult for these fishers to increase their scale of production or achieve vertical integration (Cao et al. 2017). On farmed seafood, carp, a low-trophic-level species, has always been the most popular farmed fish in China (Cao et al. 2015; Bureau of Fisheries 2016). Because of low costs and a long production history, most carp are farmed in small polyculture facilities owned by households and sold live without being processed (Smith et al. 2010; Chiu et al. 2013; Yang et al. 2016). Hence, in the traditional domestic market, most products are from unbranded, small-scale producers and are sold in wet markets. All these features can be barriers to the adoption of eco-certification.

The chains supplying the export market focus on the species popular for Northern consumers. Typical wild-caught products are whitefish (e.g., cod or pollack), salmon, and tuna. In these supply chains, fish is first harvested in fisheries outside China and then sent to China for secondary processing to produce fish fillets to be sold in the EU, the US, and Japan. Due to the size of this market, some producers have been able to increase their scale of production and achieve horizontal integration: It has been estimated that in the early 2010s 50 companies produce 60% of China's exported fish fillets

(Hanson et al. 2011). In aquaculture, China has also developed an export-oriented industry, supplying Northern markets with maricultured scallops and high-tropic-level freshwater fish, such as tilapia and catfish. Notably, since the 2010s, China has produced over 40% of the farmed tilapia in the world, and most of these products were exported (CAPPMA 2017). A key feature of these supply chains is that producers, processors, and retailers are often vertically integrated to ensure coordination along the chain. Through capital accumulation, some export-oriented companies in China have also transformed into large agribusinesses, specializing in industrial fishing or faming and high-standard food processing (Godfrey 2014). These producers are likely to have the financial and technical capacity to adopt transnational sustainability standards.

More recently, a new type of chain supplying premium seafood in China's domestic market emerged due to the growing consumption of high-end products. Popular products in these chains include domestically produced species that are deemed healthy and luxurious, such as shrimp, hairy crab, and sea cucumber, and also imported species from developed countries, like lobster and salmon. Instead of going through wholesale markets, this type of supply chain is vertically integrated and involves large, branded producers and retailers. Thus, in these chains, large producers supply high-quality, branded products to Chinese urban middle-class consumers through supermarkets and e-commerce platforms (Undercurrent News 2012). Compared to the traditional domestic market, this rising market favors large businesses, involves fewer intermediaries, and targets consumers who are less price sensitive. Therefore, it provides a favorable environment for the growth of certified sustainable products.

Figure 3.3 illustrates China's trifurcated seafood sector. Of the three market types, the traditional domestic market has the largest share of China's seafood consumption, but it also has the most complex supply chains that fit least well with the governance mode of eco-certification.[17] By contrast, the chains supplying the export market and the domestic premium market are more likely to be vertically integrated and dominated by large producers, processors, and buyers. The prior practices of businesses targeting these markets should also be closer to standards required by transnational eco-certification programs (Broughton and Walker 2010). Therefore, eco-certification is more likely to thrive in these two types of supply chains.

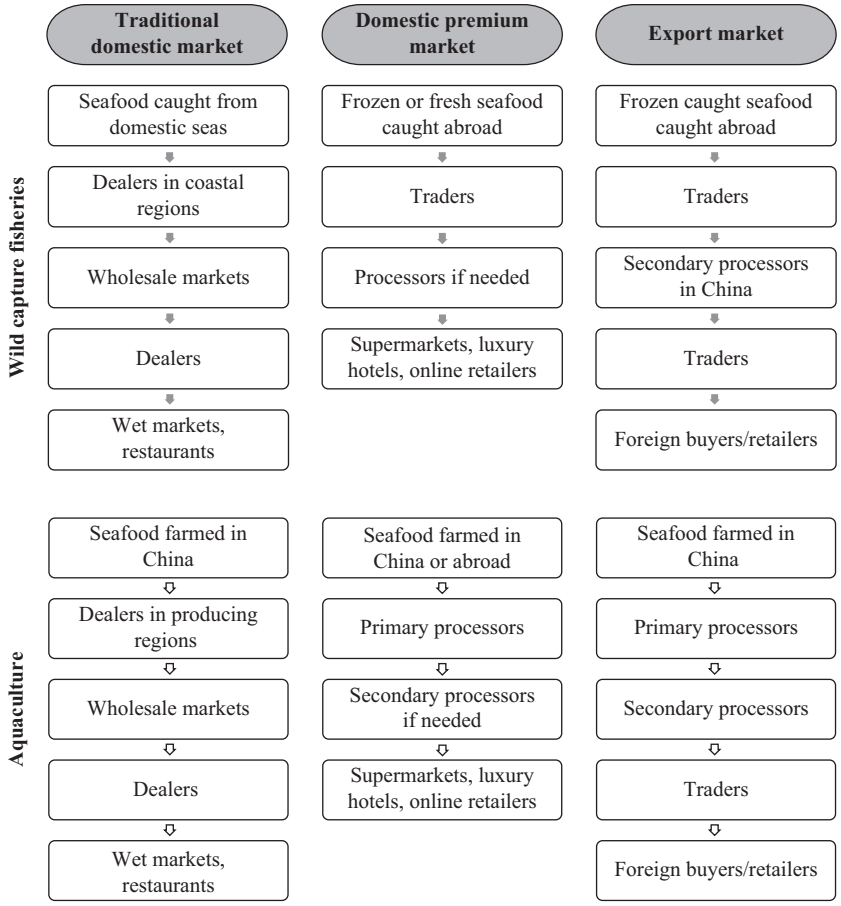


**Figure 3.3**
Typology of China's seafood supply chains.

## 3.3 From Limited Spread to Rapid Growth of Transnational Certification

I now turn to the roles played by different stakeholders in the rise of sustainable seafood certification in China. This process has two phases, demarcated by the appearance of supporters of transnational programs in China's state organization around 2013—especially CAPPMA, an influential industry association. Since then, there has been rapid growth in the uptake of eco-certification in the domestic seafood supply chain. In this section, I

examine the dynamics in each phase and identify the changing forces driving the adoption of seafood certification programs.

### 3.3.1 Stage I: Transnational Governance Driven by Northern Markets

Despite the controversy over the impact of seafood production and the creation of several certification programs in the 1990s, eco-certification, as a new governance mode, was not introduced to China's seafood industry until 2005. The first encounter between the Chinese industry and transnational certification programs occurred when Northern buyers asked their Chinese suppliers to comply with relevant standards. But before the early 2010s, transnational programs made little effort to engage with Chinese stakeholders and promote their standards in China's marketplace. Hence, transnational market influences were the predominant driver of seafood certification in China in this phase, and most certified firms were in the chains supplying the export market.

In the subsector of capture fisheries, the MSC was introduced to China's processing industry as a result of the endorsement of the program by major retailers and seafood brands in Northern markets. In Europe, Sainsbury's committed in 2003 to stocking only sustainable wild catch by 2010, and seafood brands like Iglo Group and Findus started to supply certified products in 2004; in North America, Whole Foods Market began to sell MSC-certified products in 2000, and Walmart made a firm commitment in 2006 to purchase all wild-caught fresh and frozen fish for the US market from MSC-certified fisheries (Walmart 2006; The Press Association 2017). The sourcing policies of these retailers and brands sent clear signals in the marketplace of developed countries and led producers supplying these markets to adopt MSC standards (Gulbrandsen 2009).

This new trend in Northern markets had clear implications for Chinese processors located in the middle of this global seafood supply chain. Due to China's position as the leading supplier of processed whitefish to the EU, the MSC chain-of-custody certification was introduced to the country as early as 2006, targeting processors exporting products to Europe, especially Germany.[18] According to the MSC commercial director, the support of Lidl in Germany was "a particularly important milestone because it sent an incredible signal to the supply chain" (quoted in The Press Association 2017). In 2006, five Chinese processors adopted the MSC chain-of-custody standard to prove traceability of seafood from certified fisheries. Since then,

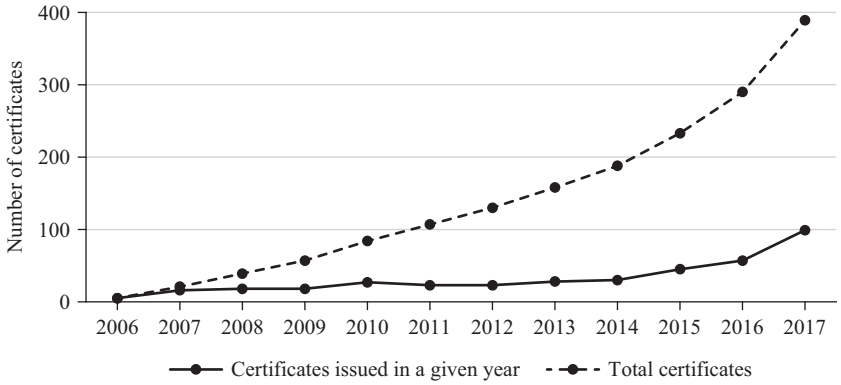


**Figure 3.4**
Growth of the MSC chain-of-custody certification in China.
*Data source*: MSC website at http://cert.msc.org/supplierdirectory/VController.aspx?Path=be2ac378-2a36-484c-8016-383699e2e466&_ga=2.39249824.2088586696.1625995511-1562584574.1624224302.

to meet the demand of their foreign customers, an increasing number of Chinese processing plants have been MSC-certified (see figure 3.4). But the figure also shows a relatively constant growth rate until 2014, suggesting that in this early phase, the program could not gain a momentum to attract a wide range of supporters in China's wild-caught seafood sector.

Early MSC-certified firms in China were concentrated in the supply chain of seafood reexports, especially large processing companies. The chain-of-custody certification only requires Chinese processors and traders to ensure that their supplies are from certified fisheries elsewhere and to establish certain traceability and management systems.[19] Thus, the uptake of MSC chain-of-custody certification in China's reexport supply chain did not mean the rise of sustainable seafood in the Chinese market. When the MSC set up an office in China in 2013, there were only three to five types of MSC-labeled products for sale in the country—and all were imported and made by foreign brands.[20] Until that time, the program did not attempt to actively promote its standards in China, as the program's leadership found that domestic conditions were not yet ready for its standards.[21]

Regarding fisheries certification, no Chinese fisheries had adopted the MSC standards before 2011. The first Chinese fishery to be awarded MSC certification was Zhangzidao scallop fishery, managed by Zhangzidao Fishery

Group (also called "Zoneco") in China's Yellow Sea (in the Northwest Pacific). The fishery started the initial assessment in late 2011, and after a long process of assessment and audit, was finally awarded certification in 2015. After Zhangzidao, another Chinese company (Liancheng Oversea Fishery) was certified for its longline tuna fishery in the Cook Islands' Exclusive Economic Zone. By the end of 2017, only these two Chinese companies were operating MSC-certified fisheries, and Zhangzidao was the only certified fishery in China's territorial waters.

The fact that only one capture fishery in the China seas has been MSC-certified reveals the challenges that Chinese fisheries face in following transnational governance on sustainable fisheries management. As a general pattern for fisheries in the Global South, this low uptake level reflects the misfit between the existing fisheries management in China and the MSC standards (Pérez-Ramírez et al. 2012). To date, China's marine fisheries management relies on blunt input control measures (specifically, a seasonal fishing moratorium) instead of output controls, such as total catch limits by fisheries and species, the latter of which are more complex and difficult to implement (G. Shen and Heino 2014; Cao et al. 2017). Yet this governance mode is not in line with the sustainable fishing approach championed by fisheries certification, and therefore, makes it very difficult for Chinese fisheries, especially small-scale ones, to get certified.[22] Notably, data deficiency is a critical barrier for Chinese fisheries to pass the MSC's assessment—even a large fishery like Zhangzidao lacked a record of many ecosystems' data when it decided to apply for MSC certification.[23] Such evidence demonstrates the importance of fit between domestic industry structure and transnational rules, as suggested by the framework developed in chapter 2.

Additionally, both Zhangzidao and Liangchen adopted MSC fisheries certification due to the requirements of Northern buyers. In the case of Zhangzidao, the company's application for MSC certification was originally driven by its strategic move to expand business into developed markets. As one of the largest Chinese seafood conglomerates (the so-called "dragonhead" enterprise specializing in scallop production), the company has established a vertically integrated production chain from harvesting to end-product manufacturing and marketing, and it was listed on the stock market in 2006. Since then, it has identified a strategy of internationalization to become "a respectable and remarkable marine food enterprise in

the world."[24] Getting MSC certification was, therefore, part of this strategy, especially to help the company enter the EU market, one of the world's largest scallop buyers with the highest sale price. However, the EU banned the import of all Chinese scallops in 1997 because of *Vibrio parahaemolyticus*, a bacterium found in frozen scallops produced in China (Parker 2016). Therefore, as a leading Chinese brand, Zhangzidao has been eager to rebuild the reputation of Chinese scallops in the global and EU markets, and it considered the MSC certification as a potential seal of approval for entering European markets.[25] But contrary to the company's expectations, its MSC certificate could not effectively help Zhangzidao open the EU market, so that, to date, scallops from this certified fishery are mainly sold in China (Harkell 2017c).[26] Despite this unexpected result, this case again shows that transnational market dynamics were the main driving force of the initial rise of eco-certification in China's seafood industry.

In aquaculture, the GAA-BAP was the first program introduced to the Chinese industry. As for the MSC case, the sourcing policies of large retailers in developed countries were the driving force of the program's entry in China. In late 2005, Walmart announced a commitment to require all of its foreign suppliers of farmed shrimp to be BAP-certified (Walmart 2005). Accordingly, the demand for certified products in the US brought GAA-BAP standards to Chinese aquaculture producers as early as 2006, first to a leading shrimp producer—Zhangjian Guolian.[27] In the early years of aquaculture certification, adopters were mostly large companies having achieved vertical coordination in their supply chains. For instance, Zhanjiang Guolian, as the first BAP-certified producer in China, had acquired industrial farming technologies and an integrated production system (GAA 2014). As the GAA-BAP developed standards for other species, Walmart and other Northern buyers also expanded the scope of their sustainable sourcing policies. These requirements inevitably led more Chinese aquaculture producers to adopt GAA-BAP standards. As China has been an important exporter of tilapia and shrimp to Northern markets, especially the US market, most early adopters of GAA-BAP standards in China were in these two industries (US Department of Agriculture 2018).[28]

As a newer program, the ASC only entered China in the early 2010s, initially through a project under the EU-China Environmental Governance Programme. Funded by the European Commission, the project was carried out by CAPPMA, WWF-China, and the ASC from 2012 to 2014, and it

supported Chinese tilapia producers in achieving ASC certification.[29] As a result of the project, three tilapia farms in the Hainan province were certified in 2015, but all of them belonged to large companies focusing on the export market, and these companies had been also certified by the GAA-BAP. Since then, a few other large tilapia producers sought ASC certification in order to expand their international markets, and a large scallop producer was certified in 2017 to meet the demand from its Australian customers.[30] Compared to the GAA-BAP, the program's lower uptake in China can be partly explained by the lack of demand from European buyers—the ASC's major market—for Chinese farmed seafood, such as tilapia (Harkell 2017a). In other words, the demand for Chinese farmed fish in the US market facilitated the initial spread of the GAA-BAP, whereas limited trade interdependence between China and Europe has hindered the ASC's growth. Therefore, the evidence in the aquaculture industry also shows the strong influence of Northern buyers on the certification decision of Chinese producers during the initial spread of the relevant programs in China.

A statistical analysis using firm-level panel data can provide more insights into the forces driving the early growth of transnational seafood certification programs in China. It draws on the data on seafood processors in the Chinese Industrial Enterprise Database (CIED) from 2005 to 2009. Developed by China's Bureau of Statistics, the CIED is composed of time series data of all firms in China whose annual revenue exceeds 500 million RMB (see more details on how I constructed a subsample of seafood firms from the CIED in appendix B). Therefore, the study presented below only focuses on relatively large companies. I employed logistic regression to assess the impact of export, foreign capital, and size and economic capacity on individual firms' certification status as of 2011. This quantitative study is helpful for testing three of the hypotheses developed in chapter 2 on factors influencing the spread of transnational governance in China: hypothesis 1 (influence of export to developed markets), hypothesis 2 (influence of investment by Northern-based multinationals), and hypothesis 4 (influence of domestic industry structure).[31]

The outcome variable was constructed as a binary variable identifying the firms adopting eco-certification and the year they were certified for the first time.[32] Compared to the total number of firms in the dataset, certified firms represent a very small proportion, only about 2.5% ($N = 61$). However, this actually reflects the slow growth of sustainable seafood certification in

China until the early 2010s, a period in which transnational programs did not directly engage domestic stakeholders. To address the potential issue of reverse causality, I use a lagged dependent variable in the analysis, as firms decided to get certified after they had received demand from their buyers, and the certification process itself also takes time—at least several months—for audit and assessment.[33] The variables used in the analysis and their summary statistics are shown in table 3.3. We can see that export remains important for Chinese seafood processors in the relevant period as overall the export volume accounted for more than third of their production (measured by the variable *Export ratio*). Meanwhile, the industry was not under strong influence of foreign capital as only 21.6% of the firms had received foreign investment (measured by *Foreign invested*) and only 7% of the whole sample is foreign-owned companies (measured by *Foreign owned*).

Table 3.4 reports the results of the baseline model using the random-effects logistic regression and 1-year lagged outcome variable. This model was chosen as the outcome variable of most cases in the sample is time invariant (i.e., firms remained uncertified in the whole period). Two alternative models were used to check for robustness: the mixed-effects model considering the fixed-effects at the firm level and the complementary log-log model taking into account the highly skewed distribution of the outcome variable. They yield results similar to the baseline model (see appendix B).

The regression results demonstrate statistically significant and substantively strong effects of the export market on firms' adoption of seafood

**Table 3.3**
Summary statistics

| | Mean | Standard deviation | Minimum | Maximum | *N* | *n* |
|---|---|---|---|---|---|---|
| Cert1 (1-year lag) | 0.00986 | 0.0988 | 0 | 1 | 5,677 | 2,237 |
| Cert2 (2-year lag) | 0.00899 | 0.0944 | 0 | 1 | 6,786 | 2,397 |
| Export ratio | 0.342 | 0.413 | 0 | 1 | 6,873 | 2,394 |
| Export value (natural log) | 5.270 | 5.317 | 0 | 14.97 | 6,883 | 2,397 |
| Foreign invested | 0.216 | 0.411 | 0 | 1 | 6,883 | 2,397 |
| Foreign owned | 0.0696 | 0.254 | 0 | 1 | 6,883 | 2,397 |
| Assets (natural log) | 8.841 | 1.515 | 0 | 14.54 | 6,836 | 2,391 |
| Employees | 249.0 | 538.9 | 0 | 12,000 | 6,883 | 2,397 |
| Sales (natural log) | 10.72 | 1.335 | 4.369 | 15.05 | 6,873 | 2,394 |

**Table 3.4**
Logistic regression results (random-effects, 1-year lagged dependent variable)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| | Cert1 | Cert1 | Cert1 | Cert1 | Cert1 | Cert1 | Cert1 | Cert1 | Cert1 |
| Export ratio | 1.615*** | 1.675*** | 1.606*** | | | | 1.680*** | 1.776*** | 1.664*** |
| | (4.41) | (4.45) | (4.36) | | | | (4.83) | (4.81) | (4.77) |
| Export value | | | | 0.126*** | 0.150*** | 0.101** | | | |
| | | | | (3.62) | (4.23) | (2.94) | | | |
| Foreign invested | 0.826** | 0.901** | 0.888** | 0.890** | 0.892** | 0.981** | | | |
| | (2.68) | (2.85) | (2.90) | (2.87) | (2.94) | (3.06) | | | |
| Foreign owned | | | | | | | 0.830* | 0.841* | 0.980** |
| | | | | | | | (2.30) | (2.08) | (2.69) |
| Assets | 0.484*** | | | 0.385*** | | | 0.512*** | | |
| | (4.43) | | | (3.36) | | | (5.38) | | |
| Employees | | 0.000416** | | | 0.000256 | | | 0.000448** | |
| | | (2.80) | | | (1.74) | | | (2.90) | |
| Sales | | | 0.636*** | | | 0.518*** | | | 0.666*** |
| | | | (5.02) | | | (3.71) | | | (6.23) |
| 2007.year | –0.0504 | 0.0246 | –0.0405 | –0.0585 | –0.0267 | –0.0609 | –0.0530 | 0.0243 | –0.0431 |
| | (–0.13) | (0.06) | (–0.10) | (–0.15) | (–0.07) | (–0.15) | (–0.14) | (0.06) | (–0.11) |
| 2008.year | –0.484 | -0.388 | –0.507 | –0.474 | –0.417 | –0.484 | –0.498 | –0.402 | –0.514 |
| | (–1.11) | (-0.88) | (–1.16) | (–1.09) | (–0.97) | (–1.11) | (–1.18) | (–0.91) | (–1.22) |
| 2009.year | 0.124 | 0.293 | 0.0616 | 0.143 | 0.212 | 0.0826 | 0.0840 | 0.271 | 0.0246 |
| | (0.31) | (0.71) | (0.16) | (0.36) | (0.54) | (0.21) | (0.23) | (0.66) | (0.07) |
| lnsig2u_cons | –1.254 | 0.0756 | –1.302 | –0.308 | –0.416 | –0.231 | –7.782 | –0.129 | –8.785 |
| | (–0.20) | (0.05) | (–0.22) | (–0.15) | (–0.16) | (–0.11) | (–0.31) | (–0.06) | (–0.23) |
| *N* | 5,630 | 5,670 | 5,670 | 5,637 | 5,677 | 5,670 | 5,630 | 5,670 | 5,670 |

*Note*: *t* statistics in parentheses; *$p<0.05$, **$p<0.01$, ***$p<0.001$.

certification. The coefficients for both *Export ratio* and *Export volume* remain positive and statistically significant across different model specifications. The effects of *Export ratio* show that Chinese seafood processors dependent on foreign markets have a strong tendency to support eco-certification. Using an odds ratio to interpret this result, the likelihood of being certified is more than five times higher for firms focusing on export (*Export ratio* = 1) than for those selling their products only in China. Likewise, the size of firms' export business also matters, as reflected by the positive and statistically significant effects of *Export value*. This result provides strong evidence to support hypothesis 1. Moreover, foreign-invested firms are also more likely to get certified, and the likelihood is more than doubled compared to domestic firms. Similar effects also exist when foreign investors own firms in China, as shown by the coefficient of *Foreign owned* in columns 7–9. This finding supports hypothesis 2.

On firms' capacity and scale of production, *Assets, Employees*, and *Sales* remain positive and statistically significant in almost all model specifications. In line with hypothesis 4, these findings show that eco-certification is more likely to be accepted by large and economically powerful processing firms, which can more easily achieve vertical coordination and economies of scale. The effects of these variables confirm the negative impacts of certification on small-scale seafood producers in the Global South, as highlighted by existing literature (Jacquet et al. 2010; Bush et al. 2013).

In short, the changing sourcing policies of Northern buyers drove the initial entry of transnational certification programs into China from the mid-2000s to the early 2010s. In this stage, sustainable seafood certification only arose in the chains supplying the export market. This uptake pattern supports the hypotheses on the influence of transnational market agents (hypothesis 1 and hypothesis 2). But it also suggests that eco-certification was far from popular in China's seafood sector as export-oriented businesses, often engaging in large-scale industrial production, represent a very small niche of the whole industry. However, this situation quickly changed after transnational certification programs had become active in China.

### 3.3.2 Stage II: Growth in the Chinese Market

In the early 2010s, the spread of sustainable seafood certification in China began to accelerate after relevant transnational programs had attempted to engage with domestic stakeholders. In this new phase, certified seafood

has gradually entered China's domestic marketplace, especially the chains supplying the premium market. A key trigger of this development is partnerships between certification programs and a national association in the seafood processing and marketing industry—CAPPMA. Collaborating with this quasi-state organization, certification programs established their local teams and introduced their standards to a wider range of Chinese producers and consumers. As certification programs have paid increasing attention to opportunities in China's domestic market, the demand of Northern buyers became less important—although it still exists—than information and services provided by CAPPMA to incentivize businesses to adopt sustainability standards. Below I trace the process of this transition, showing how CAPPMA has helped the relevant programs increase their uptake in China.

**The emergence of support of the national industry association** In China's seafood sector, a centralized governance system provides opportunities for transition to sustainable fisheries if the state commands transformational changes (Cao et al. 2017). Being aware of this unique institutional context, several certification programs and their NGO supporters have first sought collaboration with actors in the relevant Chinese bureaucracy when they started to promote their standards in China. Talking about the MSC's China strategy, a top-level official of the organization highlighted that "from [the] beginning (of our activities in China), we explained to the Chinese authorities that we want to work with them and to help them."[34] This example shows that some certification programs understand that their growth in China cannot be solely determined by market dynamics, and they have proactively sought support from domestic state actors. In fact, such efforts have come to fruition in China after CAPPMA, a leading industry association directed by the Ministry of Agriculture, became a champion of sustainable seafood.

CAPPMA is the representative of China's seafood industry at the national level and serves as an intermediary between the government and businesses. Its members consist of major companies engaging in activities along the seafood value chain, including fish harvesting and farming, processing, marketing, and service providing. As a state-sponsored association, CAPPMA is operated as a government agency that has authority delegated by the state to regulate the industry in several domains. Its main functions include collecting production and market data, leading business coordination for market stability, formulating standards on product quality, and supervising seafood

export according to international regulations.[35] The last two functions mean that the association plays a central role in setting production standards and introducing international regulations to Chinese businesses. For this reason, CAPPMA has always been a key information source for actors in China's seafood industry to learn rules and standards from abroad.

Indeed, designated by the Ministry of Agriculture to represent China in international events on commercial cooperation and negotiations, CAPPMA officials were among the first actors in China's state organization to get in touch with sustainable seafood certification in the late 2000s.[36] Since then, increasingly more frequent interactions between CAPPMA and transnational certification programs gradually helped relevant Chinese officials understand the governance mode of eco-certification and its potential benefits. As described by hypothesis 7 in chapter 2, the fact that CAPPMA is the only state-sponsored association representing China's seafood industry and the proactive engagement of transnational programs with the association's officials together provide enabling conditions for the rise of CAPPMA's support for seafood certification. As a result, the leadership of this quasi-state association has generated a strong interest in promoting some transnational certification programs in the Chinese industry, which was shaped by the changing contexts in both the marketplace and domestic policy in the mid-2000s.

On the market side, new challenges emerged in the late 2000s for China's seafood industry due to decreasing profits of reexport business caused by shrinking seafood demand in Northern markets and rising labor costs in China. This change led many Chinese processors to build their own global brands in the retail market in order to add more value to products (Cui 2015). In this new context, CAPPMA's top-level officials saw the opportunities provided by transnational eco-certification for Chinese producers to increase their competitiveness in global markets as certification can secure or expand their access to developed countries.[37] More importantly, the decline of Northern markets has led many Chinese producers to shift their focus to their domestic market. To help the industry better explore the potential of a large domestic marketplace, CAPPMA saw the necessity of reforming the industry to upgrade production standards to address food safety issues and increase trust in product quality of Chinese consumers (Cui 2015). As a well-functioning national system to monitor product quality and safety has yet to be established in China, CAPPMA was willing to

first draw on eco-certification as private institutions to facilitate the industry's self-regulation and rebuild the reputation of the seafood industry among consumers (J. Shen 2017). In other words, when being introduced into China, the focus of transnational certification programs on sustainable fisheries management has often been less emphasized than their requirements for traceability to ensure product quality.[38]

On the policy side, the concept of sustainable fisheries promoted by transnational certification programs is in line with the directions of fisheries governance set by the Chinese government since the mid-2000s. In 2006, the Ministry of Agriculture identified "sustainable fisheries" as a "strategic goal" in China's five-year plan for fisheries development, which highlights the sustainable use of natural resources and reduction of environmental impacts (Ministry of Agriculture 2006). Since then, sustainable production in both capture fisheries and aquaculture has remained an important component of China's fisheries policy. Hence, promoting eco-certification also allows CAPPMA to help the Chinese government reach policy goals on sustainable fisheries, and the association's move has actually been welcomed by many government officials.[39] In fact, the actions taken by CAPPMA to introduce transnational eco-certification in China and support the adoption of sustainability standards have been helpful for the relevant officials to raise the profile of this quasi-state agency as well as of themselves in the state bureaucracy.[40] From this perspective, political incentives of officials in CAPPMA are also an important driver of the association's support for transnational eco-certification.

**Effects of CAPPMA's support** CAPPMA's support for eco-certification has been threefold. First, it has led the organization of the annual "Sustainable Seafood Forum" during the China Fisheries and Seafood Expo, the largest seafood fair in Asia. The initiative started in 2009 after the WWF, the MSC, and a US-based NGO (Sustainable Seafood Partnership) had succeeded in collaborating with CAPPMA, and through CAPPMA reached out to the Bureau of Fisheries in the Ministry of Agriculture. The forum brought together environmental NGOs, seafood producers and buyers, certifiers, and government officials to discuss transnational initiatives promoting sustainable seafood and to introduce relevant certification programs to Chinese stakeholders.[41] Since 2011, the forum has been institutionalized and expanded as a partnership between CAPPMA and WWF-China, the MSC,

and the ASC. As a co-organizer, CAPPMA has invited to the forum a range of important domestic stakeholders, including businesses and governmental officials.

For Northern-based certification programs, this forum has provided a critical opportunity to raise awareness about sustainable seafood in the Chinese industry and establish conversations with key Chinese stakeholders to explain their objectives, methods of working, and potential benefits. As reflected in an observation by a seasoned participant of the forum: "Over the years, we've seen an increase in the range of people [who] actually participated in that discussion (within the forum) . . . and the number of companies with an interest in these environmental and social issues," and through these forums, "we [were] . . . able to offer a value proposition to those businesses, to the retail channels, that there is enough value in what we do and in the sort of risk mitigation that we provide."[42] Therefore, the forum has presented new global trends on sustainable seafood governance to Chinese stakeholders and has been helpful in generating the interest of some businesses in eco-certification.

Second, CAPPMA has supported the work of several certification programs in China through bilateral partnerships. For the MSC, CAPPMA has been an important ally for nearly a decade in organizing fishery improvement projects and promotional activities in China.[43] For the ASC, as mentioned earlier, the program's initial introduction was achieved through an EU-funded project carried out by CAPPMA and WWF-China. In this project, CAPPMA introduced the ASC standards to major Chinese tilapia producers and coordinated with the regulatory agency on certification (CNCA) to facilitate the undertaking of audits.[44] Even after this project ended, CAPPMA continued to support the ASC in introducing its standards to a wider range of Chinese producers. A remarkable example is the development of the ASC standard for flatfish, a mariculture species mainly produced and consumed in East Asia. The proposal for developing this new standard was raised in 2016 by some Chinese producers wanting to use sustainability standards to ensure long-term development of their industry after CAPPMA had introduced the ASC to them. CAPPMA also helped the ASC convene Chinese experts and stakeholders in the subsequent processes of drafting standards and initiating public consultations.[45]

GAA has also built a close partnership with CAPPMA. In June 2014, the two organizations signed a memorandum of understanding (MoU), according

to which CAPPMA helps the program certify more producers and identify marketplace endorsers in China, while GAA promotes certified Chinese products to retailers and foodservice operators worldwide (GAA 2015). The endorsement of CAPPMA has largely facilitated GAA's work in China and also has helped the program establish collaborations with other agencies in the Chinese state. In 2016, GAA organized its annual conference in China and signed MoUs with CNCA and China Entry Exit Inspection and Quarantine Association to increase the GAA-BAP's impact in China (Undercurrent News 2017). In 2017, with CAPPMA's support, GAA strengthened its presence in China by opening a local office in Shanghai, and since then has begun to more proactively approach Chinese businesses. These efforts in China have led to a rapid growth of certification uptake: Within a year, the program won the support of major Chinese e-commerce platforms and introduced its standards to producers of species other than tilapia and shrimp (BAP 2017).

For transnational certification programs, establishing direct collaboration with a quasi-state industry association like CAPPMA has important implications in the Chinese political context. Beyond engagement activities assisted by CAPPMA, the association's implicit or explicit endorsement has increased the legitimacy of these programs in eyes of the Ministry of Agriculture and has reduced their political risks of being opposed by other state agencies.[46] Additionally, for many Chinese firms, CAPPMA, as part of the state organization, is to communicate the government's recommendations and to send signals about future policies. Hence, as described by a certification program's manager, some Chinese producers interpreted CAPPMA's endorsement for her program as "a government requirement" on production standards.[47] CAPPMA has also helped transnational programs to communicate their standards to firms and producers in a way that is "better received" in Chinese culture.[48] The effects of CAPPMA's support on the growth of eco-certification can be seen by comparing FOS with the programs that have partnered with CAPPMA. To diffuse its standards in China, FOS's strategy has been to directly approach businesses without engaging CAPPMA or any other state actors.[49] However, such endeavors have received very little reaction from the Chinese industry, as the program has not yet persuaded any company to get certified.

Third, as part of its work on sustainable consumption, CAPPMA has played a central role in introducing seafood certification to Chinese retailers and

consumers. In 2013, CAPPMA joined the China Sustainable Retail Roundtable initiated by the China Chain Store and Franchise Association (CCFA) and WWF. Through this initiative, CAPPMA has engaged in two projects helpful in generating retailers' interests in seafood certification. The first project is consumer campaigns in the annual "Sustainable Consumption Week." Since 2014, sustainable seafood has become a main theme at this event, during which certification programs like the MSC organize promotional and educational activities in both retail stores and online platforms across the country (MSC 2016). According to the CCFA's estimate, Sustainable Consumption Week has quickly grown from activities in only four big cities in 2013 to national campaigns reaching more than 35 million consumers in 93 cities in 2015 (Pei 2016). Hence, consumers in China's premium seafood market have gained familiarity with eco-certification. For instance, consumer surveys conducted over the years by CCFA show that MSC-certified products have become increasingly recognizable and acceptable to Chinese consumers, especially in wealthy regions (Y. Li, Zhang, and Jin 2017).

The second project is the development of a "Guideline on Responsible Seafood Sourcing" to raise awareness about sustainable seafood among Chinese retailers and help them implement responsible sourcing policies. The first version of the guideline was published in 2015 jointly by CAPPMA, CCFA, and WWF-China. The guideline follows a goal-based governance approach and lays the basis for diffusing the norm of sustainable sourcing. By introducing different certification programs and listing the number of certified producers of key species consumed in China, it recommends that Chinese retailers prioritize certified products in their sourcing and establish direct connections with certified producers (China Sustainable Retail Roundtable 2015). In 2017, CAPPMA and CCFA gathered more stakeholders to update the guideline.

Beyond awareness raising, this guideline sent a clear signal to the Chinese retail sector and helped transnational certification programs approach large retailers to promote sustainable seafood. After the guideline's release in 2015, several certification programs intensified their efforts to engage with Chinese retailers. As in Northern markets, they first tried to convince multinational retail and catering brands to source more certified products in China; but large retailers like Walmart were hesitant to make sourcing commitments to the Chinese market.[50] Despite limited support from multinational supermarkets, with the assistance of CAPPMA, transnational

certification programs have successfully reached out to Chinese e-commerce giants, who have been major drivers of the growth of China's retail market since 2010. In contrast to the continuous decline in the growth of most physical retailers, China's online retail market has rapidly expanded to become the world's largest and to reach a transaction scale of $581.8 billion in 2015 (Deloitte China 2017). Hence, the online market of fresh food, including seafood, in China is deemed a promising way to target wealthy consumers who value food safety and quality, and it has been booming since the mid-2010s on major Chinese e-commerce platforms, such as Alibaba's Tmall and JD.com.

Important progress was achieved in 2017, as reflected by the signing of MoUs between GAA and JD.com and between the MSC and Tmall to promote sustainable seafood. Expecting eco-certification to increase their sales of high-quality seafood, these e-commerce giants set ambitious sourcing targets: By 2020, Tmall aims to sell 20% of its seafood with the MSC label, and JD.com is committed to ensuring 50% of its farmed seafood supply and over 80% of its private label farmed offerings are at least two-star BAP-certified (MSC 2017a; BAP 2018).[51] To convince Chinese e-retailers to change their sourcing policies, CAPPMA has served as a broker to connect them with certification programs.[52] E-retailers' commitments have quickly influenced producers targeting the domestic premium market. For instance, in October 2017, a Chinese hairy crab producer, eager to expand its online market, became the first BAP-certified hairy crab farm in the world (BAP 2017). Hence, with support from large e-retailers, sustainable seafood certification has gathered momentum in China's domestic market.

Table 3.5 lists the activities promoting sustainable seafood in China carried out by transnational certification programs with the support of CAPPMA since the early 2010s. At this stage, certified firms in China expanded from export-oriented producers to those supplying the domestic premium market, and large Chinese e-retailers made strong sourcing commitments for certified seafood. Given the country's size, certified products are likely to represent a small niche in the whole Chinese industry. Nonetheless, transnational certification programs, including the MSC, GAA-BAP, and the ASC, have grown much faster since 2013. CAPPMA is a key contributor to such growth by introducing and recommending the relevant programs to Chinese producers and retailers.

**Table 3.5**
Major progress on sustainable seafood movement in China supported by CAPPMA

| Date | Activities |
|---|---|
| Since 2011 | "Sustainable Seafood Forum" taking place annually during the China Fisheries and Seafood Expo |
| Since 2013 | "Sustainable Consumption Week" organizing annual consumer campaigns on sustainable seafood through large retailers |
| 2012–2014 | An EU-funded project for Chinese tilapia producers to adopt the ASC certification |
| 2014 | The MoU between GAA and CAPPMA to help certify more aquaculture producers and identify marketplace endorsers in China |
| 2016 | The MoUs between GAA and the Chinese regulatory agency on certification and a leading trade association to increase the impact of GAA-BAP |
| 2015, 2017 | Publications of the *Guideline on Responsible Seafood Sourcing* for the Chinese retail sector |
| 2016 | The development of the ASC flatfish standard led by Chinese producers |
| 2017 | The MoU between the MSC and Alibaba's Tmall, with the latter's commitment of having 20% of seafood sold with the MSC label by 2020; The MoU between GAA and JD.com, with the latter's commitment of having sourcing for 50% of its farmed seafood to be at least two-star BAP-certified by 2020 |

## 3.4 Conclusion

As the world's largest seafood producing and consuming country, China's support has profound implications for the overall effectiveness of eco-certification programs aiming to promote sustainability transition in the global seafood supply chain. The modernization of China's seafood industry since the 1990s has consisted of enabling conditions for the adoption of eco-certification, especially by producers supplying the export and domestic premium markets. In this market context, different sustainable seafood certification programs were introduced to the Chinese industry in the mid-2000s. By examining the entry processes of the relevant programs and survey data from Chinese processing firms, I find that, prior to 2012, demand in Northern markets was the main driver of the uptake of eco-certification in China's seafood industry. In addition to the requirements of foreign

buyers, rising Chinese seafood brands proactively adopted eco-certification standards in the hope of gaining access to foreign markets, as shown by the case of Zhangzidao. Overall, the evidence in this initial stage supports my first two hypotheses (hypothesis 1 and hypothesis 2) in chapter 2 on the influence of transnational market agents.

But this uptake pattern changed in 2013, as transnational certification programs began to actively engage with Chinese stakeholders to promote their standards and build partnerships with CAPPMA, a national seafood industry association supervised by the Ministry of Agriculture. Through interactions with certification programs and the NGO supporting them, CAPPMA's top-level officials realized that eco-certification could provide economic benefits to the association's members through upgrading and branding, as well as political benefits for the association itself through the promotion of sustainable fisheries—an important element of China's fisheries policy. Thus, CAPPMA has collaborated with transnational programs, and its endorsement and direct support for eco-certification led to the quick expansion of seafood certification in China's industry and marketplace. Although the association cannot provide financial rewards to its members, by leveraging its connections with the central government, it has successfully nudged some producers toward using eco-certification and has encouraged large e-retailers to include certification in their sourcing policy. Therefore, at this stage, domestic state actors, rather than transnational market agents, played a critical role in driving the growth of seafood certification in China. This finding strongly champions hypothesis 6 on the influence of quasi-state industry associations. As suggested by hypothesis 3, the efforts by transnational certification programs to proactively engage with CAPPMA and to build their local chapters have also been helpful for increasing their uptake in China. Additionally, CAPPMA's increased support is also in line with the expectation of hypothesis 7, as the regulatory structure in China's seafood sector is concentrated.

To summarize, unlike experiences in the Global North, the recent rise of sustainable seafood certification in China was not led by a bottom-up civil society movement; instead, it was achieved in a top-down manner, driven by a quasi-state national industry association. Given growing consumption in China, this rising momentum for certified seafood in the Chinese market holds the promise of limiting or even reducing environmental burdens on global fisheries resources. That said, we must be cautious and

not be too optimistic about the ultimate outcomes of seafood certification in China for several reasons. First, most Chinese producers, especially those in the capture fisheries subsector, remain unable to adopt sustainability standards, as their unsophisticated management measures are not compatible with the approach advocated by eco-certification. Moreover, in line with hypothesis 4 on the fit of eco-certification with large, capital-intensive production, certified producers in China are mainly confined to the chains supplying the high-end market segment, whereas the majority of seafood in the domestic market is still sold in wet markets without labeling. Additionally, the quality of standard implementation can also be questionable, as well-functioning traceability systems have yet to be established in China's seafood industry, and certification does not necessarily lead to better performance and the continual improvement of compliant producers (Tlusty and Tausig 2015; Sun and van der Ven 2020). Finally, the increasing popularity of eco-certification may increase consumption of high-trophic-level species in China, such as salmon and catfish, which could, paradoxically, put further pressure on global fisheries resources and introduce negative ecological impacts. These are important questions to be considered if we want to better harness eco-certification to achieve a sustainable seafood sector in China and globally.


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