



## Recent developments

## The Chinese policy and governance context for global fisheries

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## ABSTRACT

With the massive expansion of the Chinese economy over the last thirty years, China's role in global fisheries production, trade and consumption has become increasingly prominent, and a progressively conspicuous focus of attention among academics and policymakers. This rapid growth in the fisheries sector has also come with significant environmental challenges. The paper first describes trends in environmental governance generally in China, then examines recent developments in fisheries governance, then discusses the role of civil society and market actors. The essay outlines 1) particularly important developments in policy and governance in China that affect global fisheries; 2) their environmental implications; and 3) the social, economic and political processes that influence these policy and governance developments. Noteworthy trends include: the increasing expansion of the aquaculture and distant water fishing sectors; state policy that increasingly emphasises sustainability; the introduction of environmental certification regimes; and attention to Chinese seafood consumption. However, significant challenges remain in relation to enforcement of state policies, and limitations of NGO and private sector activities.

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## 1. Introduction

With the massive expansion of the Chinese economy over the last thirty years, China's role in global fisheries production, trade and consumption has become increasingly prominent, and a progressively conspicuous focus of attention among academics and policymakers (Clarke, 2009, 2008; Clarke et al., 2007; Buluswar et al., 2011; Hanson et al., 2011; Fabinyi, 2012; Mallory, 2013; Pauly et al., 2013; Villasante et al., 2013). Although data are imprecise, it is likely that China is now the largest consumer and producer of seafood products in the world. Consumption of seafood is measured in different ways (see Kearney (2010) for discussion, and Chiu et al. (2013) for China specifically), but one measure shows China's per capita fish consumption growing to 33.1 kg per year in 2010, at an annual rate of 6 percent between 1990 and 2010 (World Bank, 2013). China alone accounted for 62 percent of world aquaculture production by volume in 2011, and China's share in global fish production grew from 7 percent in 1961 to 35 percent in 2011 (World Bank, 2013: 1). By 2030, China is expected to account for 37 percent of total fish production, while accounting for 38 percent of global consumption of food fish (World Bank, 2013: xv).

This rapid growth in the fisheries sector has also come with significant environmental challenges. In China, these challenges include high levels of fishing in both domestic (Villasante et al., 2013) and international waters (Pauly et al., 2013), pollution and high use of fishmeal related to the rapid expansion of aquaculture (Lei, 2010; SFP, 2012; Sun and Che, 2012; Chiu et al., 2013), and the trade in and consumption of unsustainably harvested species (Fabinyi, 2012). How to address these challenges is a major global issue for marine policy in the years to come.

This essay takes a place-based approach to examine the governance and policy context for China's role in global fisheries. The goal is not to provide a comprehensive overview, but to highlight 1) particularly important developments in policy and governance in China that affect global fisheries; 2) their environmental implications; and 3) the domestic social, economic and political processes that influence these policy and governance developments. We take a broad view of 'fisheries' as encompassing production, trade, and consumption in both freshwater and marine environments. Important trends include: the increasing expansion of the aquaculture and distant water fishing sectors; state policy that increasingly emphasises sustainability; the introduction of environmental certification regimes; and attention to Chinese seafood consumption. These trends have a range of implications for environmental sustainability.

We discuss some of the major issues related to environmental governance in China generally, then detail recent developments in

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government fisheries policy, and then shift to discuss the role of civil society and market actors in China.

## 2. Environmental governance in China

A broad consensus among scholars working on Chinese environmental governance seems to be that while important progress has been made in key areas, considerable challenges remain (Mol, 2006; Economy, 2010; Shapiro, 2012; Geall, 2013). At the broadest level, the task has been to reconcile China's drive for economic development and poverty reduction with the need for environmental reform. As Li and Lang (2010) note, the need for economic development has usually been the winner in these tradeoffs, and is linked to the notion that the broad-based legitimacy of the regime is more closely tied to economic growth than environmental reform.

A key issue is the considerable disjuncture between legislation that is enacted and the rhetoric that is espoused, and actual patterns of implementation and enforcement. Governments at the local level are usually closely linked to the economic performance of local industries (Economy, 2010: 20–21; Tilt, 2010; Shapiro, 2012: 69). This linkage means it is very difficult to enforce environmental regulations, and violations see relatively minimal repercussions. While local Environmental Protection Bureaus exist, their power is typically subordinate to the local government (Economy, 2010).

There are powerful historical trajectories of environmental exploitation in China that continue to influence patterns of governance today (Economy, 2010: 27–57). These have included strong ideologies of modernization and development that remain in place. When analysing an influential report on ecological modernization issued by the Chinese Academy of Sciences, for example, Zhang et al. (2007: 664) noted that 'a primarily economic-technological approach to ecological modernization prevails'. Instead of adapting the broader social theory of ecological modernization directly, which also typically includes discussions of participatory forms of governance (Mol et al., 2014), the authors of the report adapted the ideas to the Chinese context and linked them to existing Chinese discourses on modernization. The emphasis on modernization in the report is closely linked to the 'four modernizations' (of agriculture, industry, national defense, and science and technology) launched by Deng Xiaoping in 1978. Zhang et al. (2007) and others (Economy, 2010; Shapiro, 2012; Geall, 2013) also note that while there is a growing role played by civil society organizations on environmental problems, this is still relatively limited and constrained by the state.

These broader patterns of environmental governance also manifest in governance in the fisheries sector.

## 3. Fisheries policy in China

As in many countries worldwide, fisheries in China are related to the broader frameworks of agricultural policy and are part of the Chinese Ministry of Agriculture. As articulated in official government reports (e.g. China Agriculture Press [CAP] 2012a,b), some of the most prominent priorities of agricultural policy in China are to increase output, increase the earnings of farmers, improve the quality and safety of products, and control disease and epidemics. Throughout the reports and in important government congresses that are cited, there is a strong and consistent emphasis on the use of science and technology as a means to solve problems and to implement policy (e.g. CAP, 2012a: 169).

In the fisheries sector specifically, policy is guided by the 12th Five Year Plan (2011–2015) for Fishery Development (MOA, 2011). Some of the major points focused on in this Plan include:

- Principles of balance between: ensuring demand and promoting quality; developing production and ecosystem conservation; industry and individual fishermen development; domestic development and overseas expansion; fishery industry and the broader economy.
- Raising total production to 60 million tons, with the goal of 75% production from aquaculture.
- A target of 98% for safety inspection targets;
- The development of 'eco-aquaculture';
- The development of environmentally friendly programs such as stock releases, the construction of sea ranches and artificial reefs.

Three noteworthy points in the plan are discussed here. The emphasis on ensuring a balance between quality and quantity is likely related to at least two major factors. First, the growing middle class has led to changing food consumption patterns more broadly across China, and a stronger demand for higher quality product (Zhou et al., 2012). Per capita incomes have risen steadily in China since the 1978 reforms, from \$220 in 1980, to \$930 in 2000 to \$5 720 in 2012 (World Bank, 2014). Secondly, the significant incidence of food safety scandals over the past few years has led to widespread mistrust of the Chinese food system. Scandals have included incidents in the seafood sector (e.g. high use of antibiotics in aquaculture). As Broughton and Walker (2010) suggested, regulation of food safety in aquaculture in China has typically operated in effect as two systems – one for the international export market, with higher regulatory standards designed to meet the requirements of importing countries, and the other for the domestic market, with lower regulatory standards. The government is facing increasing domestic pressure to improve the domestic food safety system.

Noteworthy in the report is the emphasis on aquaculture, which is in part simply due to the sheer scale of aquaculture in China. As Mallory describes, the primary driver of the expansion of fisheries generally in China remains employment concerns and profits (2013: 100). The aquaculture and distant water fishing sectors have formed an important solution for fishermen displaced from the declining capture sector (100–101), and the Chinese state is the world's second-largest subsidizer of its fishing industry (Sumaila et al., 2010; cited in Mallory, 2013: 103). While the rate of growth of aquaculture is expected to slow significantly in coming years due to land and water constraints, it is still expected to provide the bulk of the increase in China's fisheries production (OECD-FAO 95–96).

Much of this aquaculture is focused on relatively low trophic level species – with regard to finfish, for example, aquaculture is dominated by the production of carp for the domestic market, and tilapia for the export market (Chiu et al., 2013). However, Chiu et al. (2013) note that many inefficiencies in farming exist, and that the demand for higher trophic level species (with a subsequent greater demand for fishmeal) is likely to continue to expand. An example of this demand for higher trophic level species is groupers, which according to official statistics have expanded aquaculture production in China from approximately 23 000 t in 2003 to approximately 60 000 t in 2011 (FAO, 2014). Other well documented environmental concerns with the aquaculture sector in China include pollution and the uses of antibiotics (SFP, 2012).

Another noteworthy element of the Plan is a commitment to support and expand the distant water fishery. Pauly et al. (2013) estimate that for the period of 2000–2011, Chinese distant water fisheries catch was more than ten times what was actually reported to the Food and Agriculture Organization (FAO). As this under-reporting suggests, one of the key problems in assessing the role of China in relation to global fisheries more generally is the unreliability of official Chinese data. This unreliability is a long-standing

problem, and has been highlighted earlier in relation to Chinese production statistics, where China was shown to overestimate production statistics (Watson and Pauly, 2001). In large part because of these data deficiencies, and the secretiveness with which China conducts its deep water fisheries agreements with host countries, it is very difficult to understand exactly what the environmental impacts are of this industry (Pauly et al., 2013). There is evidence of unsustainable fishing methods and practices in host countries, particularly in Africa (Mallory, 2013), and the fishery is a significant contributor to the practice of illegal, unreported and unregulated fishing (IUU). However, these are problems closely linked with distant water fisheries more generally, not just with Chinese fisheries (Blomeyer et al., 2012; Mallory, 2013; Pauly et al., 2013).

As with the fishing industry generally, Mallory notes that domestic employment and profits are the most important driver of the distant water fishery (2013: 100), highlighting that about half the catch is currently exported overseas. Security and international relations concerns also feature as increasingly important elements of distant water fishing. Incidents involving fishing vessels have taken place in contested waters with numerous countries, notably the Philippines in the South China Sea since 2012. In 2014, the southernmost province of Hainan introduced a new law that requires all foreign fishing vessels to seek permission before entering waters claimed by China (Gallo, 2014). Expanding Chinese fishing operations in these contested areas is seen by some analysts as a means to assert national sovereignty (e.g. Lei, 2010). As such, regional maritime tensions are likely to increasingly influence the nature of Chinese fisheries.

#### 4. Civil society and market

As with environmental governance more generally in China, while environmental NGOs and civil society has gained significant freedoms in recent years, there are still considerable constraints on their activities and behaviour (Economy, 2010; Shapiro, 2012; Geall, 2013). In the Chinese fishery sector, it is mostly international environmental NGOs that dominate. Interest by international donor agencies and NGOs has been on the rise in recent years, producing reports, holding industry forums and launching consumer awareness campaigns (Clarke, 2009; Buluswar et al., 2011; Hanson et al., 2011; Sustainable Seafood Forum, 2013). Two important areas that environmental NGOs have worked on in China are the introduction of certification, and domestic seafood consumption.

Certification is a market-based tool that aims to shift consumer demand towards more sustainable options, and is increasingly applied internationally. Globally, the Marine Stewardship Council (MSC) is the most prominent seafood certification scheme. Founded in 1997, over 200 fisheries have been certified, and there are over 18 000 products sold with the MSC label (Marine Stewardship Council, 2014). Observers note that Chinese state and market actors see economic opportunities in 'going green', and worry about barriers to entry into certain export markets for their products (Hanson et al., 2011: 8–9). As a result, the introduction of environmental certification has expanded in China in recent years. The MSC established an office in mainland China in 2013. Almost 300 businesses have MSC chain of custody certification, which are primarily involved in processing and re-exporting of various types of whitefish. One scallop fishery is also currently under assessment (Marine Stewardship Council, 2012). 2012 witnessed the announcement of a large collaborative project between the Aquaculture Stewardship Council, the World Wild Fund for Nature (WWF), and the Chinese Aquatic Products Processing and Marketing Association (CAPPMA) focused on tilapia certification in

Hainan province (ASC, 2012). Friend of the Sea, another global certification organisation, is also expanding its activities in China (Friend of the Sea, 2012). Certification is linked to the concept of traceability, another focus of attention among donor agencies and NGOs (Clarke, 2009; Buluswar et al., 2011; Hanson et al., 2011). Interest in traceability is particularly strong in relation to the processing and re-exporting of seafood (Clarke, 2009).

Internationally, there have been significant critiques of environmental certification regimes, including that of the MSC (Christian et al., 2013). Key critiques include the overly generous interpretations of MSC criteria by certifiers, the lack of participation and marginalisation of small-scale producers and developing countries, and the limitations of the market-based logic underlying certification. In relation to China, a key limitation of seafood certification to date is that it is overwhelmingly dominated by attention to fisheries produced for the international export market, not the domestic Chinese market (cf. Belton and Bush, 2013; Bush et al., 2013). This is the same problem identified earlier in relation to standards for food safety in aquaculture in China (Broughton and Walker, 2010). A large reason behind this dual system of seafood certification is the lack of a strong domestic market for sustainable seafood within China.

A second area where NGOs have been active in the fisheries sector has therefore been in relation to seafood consumption, and particularly so-called 'luxury' seafood consumption. Per capita consumption of seafood in China still remains lower than many other countries (e.g. Japan, USA), and the most popular sorts of seafood consumed among most sectors of the population remain relatively lower-trophic level species such as carp (Chiu et al., 2013; FAOSTAT, 2014). However, the sheer scale of the Chinese population, and a rise in middle class incomes has led to increased levels of seafood consumption in China, and increased consumption of imported, higher-trophic level species for 'luxury' seafood consumption (Fabinyi, 2012). This increased consumption has subsequently led to concerns among environmental NGOs about the effects of this consumption on fisheries populations globally<sup>1</sup> (Fabinyi, 2012; World Wildlife Fund, 2012). A prominent feature of Chinese demand for luxury seafood is the consumption of exotic treats at banquets, typically associated with high-status business and government elites (Fabinyi and Liu, 2014). Shark fin soup is likely the most internationally well-known seafood dish at these banquets, and offers a useful example of environmental activism and the complexity of Chinese domestic processes.

The conservation NGO WildAid has led a campaign in China aiming to persuade people to stop eating shark fin soup, using popular former NBA basketball player Yao Ming and other celebrities (WildAid, 2009). The campaigns have highlighted both the effects on shark stocks, and the cruelty involved in the practice of 'finning'. The past year has witnessed reports of declines in the consumption of shark fin soup (China Daily, 2013a, 2013b; Fabinyi, 2013). Fabinyi and Liu (2014) however, found that the most prominent reasons behind the declines in shark fin soup consumption were likely related to other factors. These factors included the increasing prevalence of fake shark fins on the market, leading to widespread consumer mistrust, and a perception that shark fins were generally unfashionable and 'out of date'. Consumer interest in the ecological sustainability of seafood stocks more broadly was generally found not to be a major factor influencing purchase. Since late 2012, the primary driver of the decline in shark fin consumption has likely been a government anti-corruption drive. President Xi Jinping has strongly cracked down on the

<sup>1</sup> High tariffs are imposed on many imported seafood products, leading to the expansion of grey markets in areas such as Hong Kong and Vietnam.

behaviour of government officials, and excessively luxuriant banqueting has been a key target. The policy has had a significant effect on luxury seafood restaurants, and shark fin consumption has declined as a result (Fabinyi, 2013). While the consumption of certain species may therefore be declining, therefore, it is unlikely that they can be attributed primarily to consumer awareness campaigns.

## 5. Conclusion

Recent years have witnessed increased levels of interest and engagement in China's role in global fisheries. In recognition of the significant environmental challenges that have arisen in response to China's rapidly growing role in global fisheries, reforms are taking place at the level of environmental governance generally, fisheries policy and in initiatives among civil society and market actors. In formal state policy, these include the development of a range of new regulations on fisheries management and sustainability, and an emphasis in state rhetoric of ensuring balance between increasing production and environmental sustainability. Among donor agencies and civil society, there has been increasing levels of engagement with China, particularly in relation to the development of traceability and certification systems, and consumer awareness campaigns, such as those related to shark fin consumption. Yet, all these initiatives remain marked by severe constraints. State policy remains subject to the limitations of enforcement that exist across environmental governance more generally in China (Economy, 2010; Shapiro, 2012). The voice of civil society in many ways remains constrained by the state (Mol, 2006; Shapiro, 2012; Geall, 2013), and their activities on fisheries in China are in the early stages of development, and marked by notable limitations (Christian et al., 2013; Fabinyi, 2013).

As Huan (2007) has noted, a weakness of some assessments of environmental reform in China are that they tend to assume a relatively linear, straightforward transition to a 'green' state. According to this line of argument, China will eventually 'catch up' to the developed countries once certain requirements relating to economic growth and the development of environmental institutions are met. In contrast, Huan (2007) notes that the high population of China and scarce natural resources constitute difficulties that present unique challenges. Social scientists writing on environmental governance in China such as Economy (2010) and Shapiro (2012) have also highlighted the importance of particular contextual factors in China as diverse as cultural values, patterns of politics, and historical trajectories. Similarly, we suggest that the development of fisheries policy and governance in China will not be a straightforward or linear development towards the increasing incorporation of ecological 'rationalization' or 'modernization' (Mol, 2006; Mol and Carter, 2006). While there is a growing appreciation of the environmental challenges posed by China's role in global fisheries, the limitations of the policy and governance context that we have identified in this article means that the future is unclear.

China's role in global fisheries is also a highly political question, and many of the problems that China is criticised for are merely local variants of practices that are common across the globe, including in developed countries. Consumption of seafood per capita remains significantly lower than other countries, for example, and while the scale of fisheries production in China is enormous, much of this production comes from the aquaculture of relatively low-trophic level species. China's much-discussed role in the processing and re-exporting of whitefish (Clarke, 2009) has also largely developed as a response to Western demand for this fish, highlighting the fact that responsibility is shared. From this perspective, then, we stress that environmental reform relating to

China's role in global fisheries does not simply lie with Chinese consumers, civil society or the state. While the scale of the population and the rapid pace of change in China means that the environmental challenges that are generated are unique in their size and type, responsibility for their resolution is global.

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