

Testimony before the U.S.-China Economic and Security Review Commission

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China as a Distant Water Fishing Nation

I would like to thank Co-chairs Blumenthal and D'Amato for the honor of inviting me to testify on this topic and I look forward to discussing the matter with you and other distinguished members of the Commission and participants.

We have all heard the 21st century referred to as the “Chinese century.” The Chinese, no doubt, agree. Yet the Chinese are also calling the 21st century the “ocean century.” A strong ocean country, in the mind of one Chinese scholar, has three components: economic, scientific and technological, and military.ⁱ One issue that lies at the intersection of these three facets is marine fisheries. China is already the world's largest producer of marine catch, producing 12.7 million tons out of an estimated global total of 79.9 million tons in 2009 (which is about 16 percent of the world total).ⁱⁱ As such—and furthermore as 85 percent of global fisheries are fully exploited, overexploited or depleted—China's behavior in international fisheries has considerable economic, security, environmental and governance implications for the United States.

My testimony addresses China's international fishing operations, particularly distant water fishing operations, as well as China's compliance with international ocean governance institutions related to fisheries. In one sense China's expanding fisheries activities might seem to be a narrow topic with limited security and global implications. However, beyond its importance to the global economy, the findings of this paper have significant implications along the lines of the following issues: 1) Can the Chinese government control the behavior of its companies and agents in the world system as it goes global? 2) Is China abiding by the agreements it has signed and will China be a responsible actor in the global system? 3) To what degree is competition for ocean resources going to be a source of interstate conflict? 4) And finally, will sustainable development be a relevant concept to the Chinese system as it develops nationally and internationally?

I begin with an overview of China's distant water fishing (DWF) industry, examine the country's compliance with international laws and norms that relate to fisheries management, and then discuss the impact that China's DWF activities are having on

global fish stocks and other countries. I argue that while China is on the whole cooperative, several challenges remain in efforts to work with China to sustainably manage stocks. I conclude with some policy recommendations on this matter.

Overview of China's Distant Water Fishing Industry

“Distant waters” refer to major fishing areas that are not adjacent to the fishing country, such as in the exclusive economic zone (EEZ) of another host country or on the high seas.ⁱⁱⁱ Article 62 of the UN Convention on the Law of the Sea (UNCLOS) stipulates that when a coastal State does not “have the capacity to harvest the entire allowable catch, it shall, through agreements or other arrangements . . . give other States access to the surplus of the allowable catch.” This provision has led to the development of fisheries access agreements to allow a state's DWF fleets to fish in the EEZs of other host countries. The largest DWF nations/entities are Japan, Spain, South Korea, the former USSR/Russia, and Taiwan.

China's “Distant Water Fishing Supervisory Provisions,” promulgated by the Ministry of Agriculture in 2003, defines distant water fishing as “citizens, legal entities, and other organizations of the People's Republic of China engaging in marine fishing and its processing, supply and product transportation activities on the high seas and in the sea areas under the jurisdiction of other countries, but does not include fishing activities in the Yellow Sea, East China Sea, or South China Sea” and states that “the Ministry of Agriculture is responsible for the planning, organization, and administration of the distant water fishing industry, though the ministry also works with the State Council and other related departments over policy and supervision of the industry.”^{iv} The Ministry of Agriculture's Bureau of Fisheries has a Distant Water Fishing Subdivision.

The growth of China's DWF industry has been primarily driven by domestic economic concerns. The DWF industry began in 1985, when one of China's state-owned fishing enterprises expanded outward to seek profit in Africa, as China's own resources were overfished.^v Since the late 1980s, the Chinese government has invested in conservation of domestic fisheries resources through seasonal moratoria on fishing, vessel decommissioning, and alternative employment programs. As UNCLOS entered into force globally in the mid-1990s, it put further restrictions on China's domestic fishing industry. China's bilateral fisheries agreements with South Korea, Japan, and Vietnam that came into effect in the early 2000s limited traditional fishing grounds for Chinese fishermen. The combination of domestic resource depletion and China's implementation of UNCLOS has led to unemployment in China's fishing industry, which China has sought to relieve through development of its aquaculture and DWF industries. China maintains that DWF is an important part of its official “going out” (走出去) strategy, which was elaborated in China's 2001–2005 tenth five-year plan and encourages Chinese companies to search for new markets and invest abroad.^{vi}

Today China has the largest DWF fleet in the world, although China's production capacity and industrial scale is much smaller than that of developed countries.^{vii} China has a number of fisheries access agreements in the form of state-to-state bilateral

agreements that allow its distant water fleets access to resources in the EEZs of other nations. In 2010, China had 1899 DWF vessels.^{viii} Total catch amounted to 1.12 million tons worth RMB 12 billion (about \$1.8 billion).^{ix} Of the total catch, 54 percent was transported back to China, and the rest was sold abroad. Tuna and squid accounted for 14.6 percent and 32.9 percent of total catch respectively.^x Most high-value species are sold abroad.^{xi} In 2009, the industry had 108 DWF enterprises.^{xii} Operating in 32 countries in three oceans, about 500 of the vessels are squid jiggers, almost 400 were tuna boats, almost 800 were trawling boats, and over 100 were purse-seiners and other fishing vessels.^{xiii} The DWF industry directly employs about 50,000 people. The DWF industry has evolved from being entirely state-owned to being 70 percent privately owned. A third of the industry is composed of a large Chinese state-owned enterprise, Chinese National Fisheries Corporation (中国水产) and its subsidiaries, which maintained 556 of a total of 1652 boats in the industry in 1999. The rest of the industry is composed of regional middle-sized companies and small coastal companies.^{xiv} Because of this gradual change in ownership structure, the Chinese government now has less control over the activities of its fishing enterprises.

China plans to expand its DWF industry and update its fleets through state subsidies. China aims to increase its DWF fleet to 2300 ships by the end of the twelfth five-year plan (in 2015) for an output of 1.7 million tons at an estimated value of RMB 18 billion.^{xv} One report explains the Ministry of Agriculture's eleventh five-year plan to develop the DWF industry, stating that the Ministry of Agriculture coined the concept of "grabbing the high seas and EEZs with two hands, they form two wheels turning together" (大洋过洋两手抓，两个轮子一起转).^{xvi} The plan also aimed to improve the quality of fishing operations through quality assurance systems, improved processing (such as a mobile processing seabase), and utilization of ports that are farther away to develop new large-scale fishing operations.

In September 2010, a task force composed of twelve people affiliated with the State Council, Chinese DWF companies, industry associations, and universities published a report advocating supporting and strengthening China's DWF industry.^{xvii} In advocating for expansion of distant water fishing for food security reasons, the report argues that "marine biological resources are seen as the largest store of protein, therefore owning and mastering the ocean means owning and mastering the future" ("海洋生物资源被视为世界最大的天然蛋白库，因此，拥有和掌握海洋就意味着拥有和掌握未来"). The report sees expanding DWF as a way to guard China's ocean interests and seek international space for development because, it says, the more international space China has, the more resources and benefits it can obtain. The report argues that while the ocean ecosystem should be managed under a framework of sustainable development, at the same time those countries that have had a longer history of using the ocean have achieved more say in how ocean resources are distributed and thus receive a larger share of those resources; in other words, the authors say, the international fisheries management system is one of "if you occupy and possess, then you have rights and interests" ("占有即权益").

China also plans to develop nontraditional fisheries, such as Antarctic krill. In 2010, the Ministry of Agriculture implemented an inaugural exploratory catch of Antarctic krill

that resulted in 1846 tons and “laid a solid foundation for the development and utilization of Antarctic resources.”^{xxviii}

To achieve the aforementioned objectives, the State will “provide corporate tax relief; reduce import duties or value added taxes; provide subsidies to renovate boats; reduce taxes on import of second hand equipment like ultra-low temperature, trawling, and purse seiner tuna boats; provide subsidies for the development and exploration of new fisheries, and fuel subsidies.”^{xxix} The Chinese state invested over RMB 10 million every year during the tenth five-year plan (2001–2005) to develop fisheries resources (such as tuna and squid) and more efficient fishing technology.^{xx}

Without such subsidies, it is doubtful that China’s DWF industry would remain profitable. As three economists showed in their analysis of subsidies from 2003 to 2008 provided to China National Fisheries Corporation, the subsidies necessary for the company to remain profitable rose steeply beginning in 2006, to the point that subsidies were equal to approximately half of the company’s net profit in 2008.^{xxi} China is the world’s third largest subsidizer of its fishing industry, with harmful, capacity-increasing subsidies equaling 20 percent of the overall value of its catch in 2000.^{xxii}

China’s Compliance with International Ocean Governance Institutions

As many scholars have noted, China is an active member in many international organizations and on the whole has demonstrated a record of cooperation through the framework of the international community.^{xxiii} The same is largely true of international institutions related to fisheries, although some challenges remain.

China ratified UNCLOS in 1996 and successfully implemented this international treaty in two broad areas concerning fisheries.^{xxiv} First, China claimed its EEZ and formally adopted an UNCLOS-based management approach to its domestic fisheries resources. Second, China signed bilateral fisheries agreements with neighboring countries.

While China has adjusted its legislation in accordance with UNCLOS, enforcement of these laws and regulations remains a great challenge. Despite pledges to reduce fishing overcapacity, vessel retirement programs have proceeded at a glacial pace. Illegal fishing remains an enormous problem between China and its neighbors, as witnessed in the December 2011 fatal stabbing of a South Korean coast guard official by an illegal Chinese fisherman. In the case of Japan and Vietnam, maritime disputes further complicate fisheries management. Enforcement problems are often due to a lack of capacity (domestic resources and education), and also reflect tension between the central and local levels of government in China.

It should be noted that China is at odds with UNCLOS over two issues. First, unlike its neighboring countries, China’s claim to the South China Sea is not clearly articulated in accordance with the provisions of UNCLOS, and some of the various bases for China’s claim are not recognized as legitimate by international law.^{xxv} Second, China disagrees with UNCLOS and the United States in arguing that the interpretation of freedom of

navigation in EEZs should exclude military surveys, military maneuvers, and military reconnaissance.^{xxvi}

Several subsequent international agreements attend to fisheries issues that UNCLOS left unaddressed. Many of these agreements have important implications for DWF nations. The 1995 “Fish Stocks Agreement” deals with highly migratory and straddling fish stocks.^{xxvii} China has signed but not ratified this agreement because it disagrees with the understandings of enforcement authorization and use of force during inspections of fishing vessels by authorities other than the flag state.^{xxviii} However, even though China has not ratified the agreement, according to the agreement’s guidelines China is a member of a number of regional fisheries management organizations (RFMOs), including the International Whaling Commission (IWC);^{xxix} the International Commission for the Conservation of Atlantic Tunas (ICCAT);^{xxx} the Asia-Pacific Fisheries Commission (AFPC);^{xxxi} the Western and Central Pacific Fisheries Commission (WCPFC);^{xxxii} the Inter-American Tropical Tuna Commission (IATTC);^{xxxiii} and the Indian Ocean Tuna Commission (IOTC).^{xxxiv}

The 1995 “Compliance Agreement” requires flag states to license high seas fishing vessels; monitor vessels fishing on the high seas so that they act in accordance with sustainable fishing practices; not allow authorization of vessels that act in violation of conservation measures; and share relevant vessel information with the FAO.^{xxxv} China has signed but not ratified this agreement.

The 1995 “Code of Conduct for Responsible Fisheries” is a non-binding agreement that lays out guidelines for the sustainable and responsible use of fisheries.^{xxxvi} A 2009 study scores 53 of the top fishing countries according to Code of Conduct guidelines across nine indicators in six evaluation fields.^{xxxvii} Overall, China ranked 22 out of 53 countries, with an average score just above failing, ahead of Spain and Russia, but behind the United States, Japan, and South Korea. On an indicator comparing intentions and actions, China scored passing on intentions but failing on actions, indicating the aforementioned enforcement problem. Chinese domestic fishing is better regulated than DWF.^{xxxviii} China scored more poorly on measures of illegal, unreported, and unregulated (IUU) fishing and so-called flags of convenience, when ships are registered in countries other than those where they are owned in order to evade regulation—important indicators for international fishing—than it did on domestic measures. On IUU fishing, China ranked 44 out of 53, with a failing score. On flags of convenience, China ranked 46 out of 53, with a failing score, but higher than the other major DWF nations/entities of Japan, Russia, South Korea, Spain, Taiwan.

The 2001 “Plan of Action on IUU Fishing” is a non-binding agreement that addresses IUU fishing.^{xxxix} The Plan was followed in 2009 by a binding “Port State Measures Agreement,” which would require port states to inspect fishing vessels and deny entry to those engaged in IUU fishing.^{xl} This agreement has been signed by 23 countries—China has not signed—and will take effect once there are 25 signatories. The United States Congress introduced Port State Measures legislation in December 2011. The significance of IUU fishing is discussed in more detail in the next section.

The Impact of China's DWF Industry on Global Fisheries

China is already an important presence in West African fisheries, though exact details of China's distant water fishing industry in Africa are hard to come by due to a lack of publicly available information. China signed bilateral fisheries access agreements with South Africa (1978), Guinea-Bissau (1984), Guinea (1985), Senegal (1985), Sierra Leone (1985), and Mauritania (1991) to allow for Chinese companies to fish in the offshore waters of these countries.^{xli} In 2009, China's distant water fishing companies had 375 boats in ten West African countries, producing 190,000 tons valued at RMB 1.9 billion.^{xlii} In Liberian coastal waters, China is the largest foreign fishing country and some argue that Chinese illegal fishing and overfishing are displacing local fisherman.^{xliii} In Senegal, ocean products are the largest export good to China (63 percent of Senegalese exports to China in 2005) and the fishing and shipping industries are by far the predominant destinations for Chinese foreign direct investment into the country.^{xliv} *Senegal Peche*, a subsidiary of the state-owned China National Fisheries Corporation, is the largest commercial fishing company in Senegal, with a fleet of 12 boats.^{xlv}

Fisheries governance experts argue that fisheries access agreements on the whole have led to unsustainable use of fisheries resources and have negatively impacted the socioeconomic development of host countries.^{xlvi} In Africa, DWF has depleted fisheries resources through overfishing, misreported catches and landings, fishing in illegal areas (such as in artisanal zones or in the waters of other countries), transshipped catch at sea, or using inappropriate methods or gear (e.g., trawling or illegal mesh sizes). DWF has led to overcapacity in the fishing industry, and has negatively impacted domestic large- and small-scale (artisanal) fishers by squeezing them out of the industry (due to one or more of the following reasons: fewer fish are available, DWF nations pay higher license fees than locals do, or foreigners destroy the gear of domestic fishermen). DWF has not led to increased employment, economic growth, or food security in host countries. Between 1992 and 1996, employment in the fishing sector in Ghana decreased by 20 percent because of decreased catch per boat.^{xlvii} Fisheries access agreements, especially those signed with Asian countries, lack transparency. These agreements may foster dependency on the fishing nation for income from fishing fees—in Mauritania, fishing fees account for 27 percent of the state budget.^{xlviii} One author views government corruption as a key challenge to sustainable fisheries management in resource-rich African countries, for example officials in some countries sell too many fishing licenses in order to collect the fees, fishing nations may intervene diplomatically on behalf of their fleets caught fishing illegally, and inspectors may be bribed to not report fishing violations.^{xlix} Some host countries may be afraid of cracking down on illegal fishing because it may jeopardize other development aid projects contributed by the fishing nation.¹

IUU fishing is a problem to which China contributes. Estimates of global IUU fishing range from 14 percent to almost 30 percent of global catch, with an estimated value between \$10 billion and \$23.5 billion annually.^{li} IUU fishing is most prevalent in FAO area 34, the Eastern Central Atlantic, which is off the coast of West Africa, with total estimated catches being approximately 40 percent greater than reported catches.^{lii} Many

DWF fleets fish in this area and contribute to the problem. IUU fishing also increased in the Northwest Pacific, due to primarily to the fishing activities of Chinese and Russian fleets.^{liii}

There is a correlation between IUU fishing and poor governance, with IUU fishing being greater in areas where countries score low on governance indicators, such as in West Africa.^{liv} Of all possible vulnerability indices in one study, poor governance was the most statistically significant in predicting IUU fishing.^{lv}

Addressing IUU fishing is important because of the negative economic, social, and environmental impacts it has. IUU fishing poses threats to: sustainable management of fisheries resources (for example by skewing stock assessments); food security; the livelihoods of people dependent on the resource, especially in developing countries; and the broader ecosystem (for example by disregarding regulations on bycatch or gear restrictions). The World Bank estimates that up to half of the animal protein in West African diets comes from fish.^{lvi} Fishing is an important source of employment for many African countries, for example the fishing sector employs 10 percent of the labor force in Ghana, Sierra Leone, and Cape Verde, and 17 percent in Senegal.^{lvii} Illegal fishing also poses dangers to consumers because vessels often do not comply with hygiene standards.^{lviii}

Illegal fishing boats of Chinese origin or with Chinese crew have been captured off the coast of African countries. Reports by observers in Guinea and Sierra Leone state that Chinese and South Korean vessels dominate IUU fishing in West Africa.^{lix} Of IUU vessels observed fishing illegally in Guinean waters, over half were Chinese, far more than any other country.^{lx} Liberia has licensed 17 fishing vessels, but one World Bank fisheries specialist estimated that there were 200 industrial vessels operating in Liberian waters.^{lxi} Many of these vessels are based in Guinea. Industrial vessels frequently violate the moratorium on industrial fishing in the three-nautical-mile artisanal zone.^{lxii} Evidence indicates that Chinese vessels reflag to flags-of-convenience states, but Chinese vessels seem to do so less frequently than other DWF nations/entities.^{lxiii}

As a member of both the WCPFC and the IATTC, China also fishes in the Pacific for tuna and billfish. While China cooperates with these organizations, China also faces challenges in keeping accurate logbooks and observer data, properly identifying bycatch, properly attributing catch to the correct country of origin, and language ability.^{lxiv}

Policy Recommendations

Based on the analysis above, I submit the following policy recommendations:

1) Ratify UNCLOS

The United States is one of the few countries in the world that has not ratified UNCLOS. Ratifying UNCLOS not only gives the United States more credibility in dealing with China over ocean-related matters, including fisheries, but it also allows the United States to participate in fora that make important decisions over ocean issues that directly affect

U.S. interests, for example the current negotiations on extending exclusive economic zones to continental shelf limits.

2) *Pass Port State Measures Legislation / Pirate Fishing Elimination Act (S. 1980, introduced 12 December 2011)*

Senator Daniel Inouye introduced a bill on 12 December 2011 that would ratify the Port State Measures Agreement prohibiting IUU fishing vessels from landing their catch in U.S. ports. This bill would also make mislabeling or misidentification of fish or fish products illegal. Congress is also encouraged to pass the Commercial Seafood Consumer Protection Act (S. 50, introduced 25 January 2011) and the International Fisheries Stewardship and Enforcement Act (S. 52, introduced 25 January 2011).

3) *Create better traceability systems*

Almost half of the fish that China catches in its DWF operations is sold abroad, and most of this fish ends up on the markets of developed countries, including the United States. A traceability system would require certificates of origin to provide information on the exact area of catch, vessel identification numbers, and whether the fish are whole or primary-processed.^{lxv} Traceability systems can also be used to deter IUU fishing.^{lxvi}

4) *Encourage the removal of fisheries subsidies*

Capacity-increasing subsidies contribute to overfishing by artificially changing the profit-incentive structure for fishing. In 2000, these harmful subsidies were equivalent to 27 percent of the value of total global catch.^{lxvii} China is the world's third largest subsidizer of its fishing industry.

5) *Strengthen fisheries governance abroad*

The United States should encourage programs that strengthen governance—both with regard to fisheries and in general—in developing countries, such as those in West Africa. Shiprider programs, in which a U.S. Coast Guard jointly patrols an area with forces from a partner state, are encouraged. The United States has a successful shiprider program with China that patrols the North Pacific for illegal fishing, as well as shiprider agreements with eight Pacific Island nations.

6) *Continue a policy of engagement with China over fisheries resources*

Overall, China has demonstrated a record of cooperation with international institutions. The United States should continue to work with China on a multilateral level to manage global fisheries. The United States is also encouraged to cooperate bilaterally with China over this issue. Many of the challenges of China's fishing activities arise from lack of capacity and education in China—bilateral cooperation can impart important knowledge, skills and best practices.

7) *Support multilateral fisheries conservation efforts and encourage other countries to fish sustainably*

Fisheries depletion is a global problem that requires a collective international response. China pays close attention to the fishing activities of other countries and imitates their behavior. The DWF nations/entities of Japan, South Korea, Russia, Taiwan, and Spain, as

well as other fishing nations, should also be encouraged to fish sustainably. And while it is beyond the scope of the discussion here, fisheries are also negatively affected by climate change through ocean acidification—the United States is encouraged to be a leader in addressing climate change through international cooperation.

Endnotes

ⁱ 海洋国策:研究文集 [Essays on Chinese Ocean Policy], 北京: 海洋出版社, 2007, pg. 3.

ⁱⁱ UN Food and Agriculture Organization (FAO), *The State of World Fisheries and Aquaculture 2010*, 24 February 2011, <http://www.fao.org/docrep/013/i1820e/i1820e00.htm>. Some evidence suggests that China may be inflating its catch numbers. Even so, it is likely to be the world's largest or second largest producer of marine catch (after Peru), and remains the world's largest producer of fish products. Watson, Reg and Pauly, Daniel, "Systematic distortions in world fisheries catch trends," *Nature*, Vol. 414, 29 November, 2001, 534-536. For charts on China's catch, please see Appendices I and II.

ⁱⁱⁱ The exclusive economic zone extends 200 nautical miles from coastal baselines, throughout which a country has sovereign rights over economic resources such as fisheries. The high seas fall under the jurisdiction of no country.

^{iv} 农业部 Ministry of Agriculture, "远洋渔业管理规定" ["Distant Water Fishing Supervisory Provisions"], 14 April 2003 (entered into force 1 June 2003), Articles 2 and 3, available at http://www.cndwf.com/news.asp?news_id=19. The Provisions provide a variety of instructions on regulation, licensing, requirements, and supervision.

^v Marine pollution is also a major threat to China's fisheries.

^{vi} The plan calls for "strengthening China's fisheries resources and ecological protection of fishing areas, and to actively develop aquaculture and distant water fisheries" (加强渔业资源和渔业水域生态保护, 积极发展水产养殖和远洋渔业.), Fourth Meeting of the Ninth National People's Congress 第九届全国人民代表大会第四次会议批准, 国民经济和社会发展第十个五年计划纲要 ["National Economic and Social Development Tenth Five-year Plan"], 15 March 2001, <http://www.people.com.cn/GB/shizheng/16/20010318/419582.html>.

^{vii} "扶持和壮大我国远洋渔业研究"课题组 ["Supporting and Strengthening Distant Water Fisheries" Task Force], "把远洋渔业作为一项战略产业加以扶持" ["Support Distant Water Fisheries as a Strategic Industry,"] September 2010.

^{viii} "十一五"期间我国远洋渔业取得长足发展" ["In the eleventh five-year plan, China achieves rapid development of its distant water fisheries"], 25 February 2011, available at 中国水产信息网 <http://www.jinnong.cn/sc/news/2011/2/25/20112251417624259.shtml>. Some discrepancy exists in Chinese sources on size and production of the DWF industry.

^{ix} 中国渔业统计年鉴 [2011 China Fishery Statistical Yearbook], 北京: 中国农业出版社, [Beijing: China Agriculture Publishing Company], May 2011, pg. 52.

^x Ibid.

^{xi} 中国渔业协会远洋渔业分会 [China Fisheries Association Distant Water Fisheries Subsection], 中国远洋渔业行业发展: 前景可行性调研报告 ["Development of China's Distant Water Fishing Industry: Prospect and Feasibility Investigative Report"], 30 January 2008, 44pp.

^{xii} 农业部渔业局 [Ministry of Agriculture Bureau of Fisheries], 2010 中国渔业年鉴 [2010 China Fisheries Yearbook], 北京: 中国农业出版社 [Beijing: China Agriculture Publishing Company], October 2010, pg. 7.

^{xiii} China Fisheries Association Distant Water Fisheries Subsection, 2008.

- ^{xiv} 文秋利 Wen Qiuli, “我国远洋渔业企业的竞争力分析” [“Analysis of Competitiveness of Distant-water Fisheries”], 水产科学 [Fisheries Science], Vol. 22, No. 6, November 2003.
- ^{xv} “Supporting and Strengthening Distant Water Fisheries” Task Force, 2010.
- ^{xvi} China Fisheries Association Distant Water Fisheries Subsection, 2008.
- ^{xvii} “Supporting and Strengthening Distant Water Fisheries” Task Force, 2010.
- ^{xviii} China also “carried out preliminary research of the fishing area, meteorological conditions, fishing equipment and methods, processing and utilization, as well as the biological traits of antarctic krill,” see “In the eleventh five-year plan, China achieves rapid development of its distant water fisheries,” 2011. See also: 唐建业, 石桂华 Tang Jianye and Shi Guihua, “南极磷虾渔业管理及其对中国的影响” [“Management of Antarctic Krill and Its Implications for China’s Distant Water Fisheries”], 资源科学 [Natural Resources], Vol.32, No. 1, January 2010.
- ^{xix} China Fisheries Association Distant Water Fisheries Subsection, 2008.
- ^{xx} Ibid.
- ^{xxi} In 2008, the company’s total income was about RMB 202 million, while total costs were about RMB 151, for a net profit of about RMB 51 million. However, that same year, the company was given about RMB 18 million in fuel subsidies and about RMB 7 million in other subsidies for a total of RMB 25 million, or about half of the company’s net profit. 陶玉蕾, 孙琛, 周应祺 Tao Yulei, Sun Chen, Zhou Yingqi, “远洋渔业企业经济效益分析: 以中水集团为例” [“Economic Benefit Analysis for Distant Water Fishing Enterprises: The Case of China National Fishing Corporation”] 山西农业科学 [Journal of Shanxi Agricultural Sciences], 2010, Vol. 38, No. 1, 98-102.
- ^{xxii} Sumaila, U. Rashid et al., “A bottom-up re-estimation of global fisheries subsidies,” *Journal of Bioeconomics*, Vol. 12, 2010, 201–225.
- ^{xxiii} See for example: Economy, Elizabeth and Oksenberg, Michel, *China Joins the World: Progress and Prospects*, Council on Foreign Relations Press, 1998, 372pp; and Alastair Iain Johnston, “Is China a Status Quo Power?” *International Security*, Vol. 27, No. 4, Spring 2003, pp. 5-56; and Kent, Ann, *Beyond Compliance: China, International Organizations, and Global Security*, Stanford, CA: Stanford University Press, 2007.
- ^{xxiv} Xue Guifang (Julia), *China and International Fisheries Law and Policy*, Martinus Nijhoff Publishers: Leiden, Boston, 2005; Ferraro, Gianluca, *Domestic Implementation of International Regimes in Developing Countries: The Case of Marine Fisheries in China*, Dissertation for Katholieke Universiteit Leuven, 2010.
- ^{xxv} Dutton, Peter, “Three Disputes and Three Objectives: China and the South China Sea,” *U.S. Naval War College Review*, Autumn 2011, <http://www.usnwc.edu/getattachment/feb516bf-9d93-4d5c-80dc-d5073ad84d9b/Three-Disputes-and-Three-Objectives--China-and-the>
- ^{xxvi} Ren Xiaofeng and Cheng Xizong, “A Chinese Perspective,” *Marine Policy*, Vol. 29, 2005, 689-695.
- ^{xxvii} United Nations, The Agreement for the Implementation of the Provisions on UNCLOS Relating to the Conservation and Management of Straddling Stocks and Highly Migratory Fish Stocks (UNFSA), signed 1995, entered into force on 11 December 2001, http://www.un.org/depts/los/convention_agreements/convention_overview_fish_stocks.htm
- ^{xxviii} Declaration of China, pursuant to Article 43 of the Fish Stocks Agreement, upon signature on 6 November 1996, http://www.un.org/depts/los/convention_agreements/fish_stocks_agreement_declarations.htm#CHINA. For the text of the declaration, please see Appendix IV.
- ^{xxix} International Whaling Commission, www.iwcoffice.org.
- ^{xxx} International Commission for the Conservation of Atlantic Tunas, www.iccat.int/en.
- ^{xxxi} Asia-Pacific Fisheries Commission, www.apfic.org.
- ^{xxxii} Western and Central Pacific Fisheries Commission, www.wcpfc.int.
- ^{xxxiii} Inter-American Tropical Tuna Commission, www.iattc.org.
- ^{xxxiv} Indian Ocean Tuna Commission, www.iotc.org.
- ^{xxxv} UN FAO, The Agreement to Promote Compliance with International Conservations and Management Measures by Fishing Vessels on the High Seas, signed 1995, entered into force on 24 April 2003, <http://www.fao.org/docrep/meeting/003/x3130m/X3130E00.HTM>
- ^{xxxvi} UN FAO, The Code of Conduct for Responsible Fisheries (CCRF), adopted by the FAO on 31 October 1995, <http://www.fao.org/docrep/005/v9878e/v9878e00.HTM>.

^{xxxvii} Pitcher, Tony, et al., “Safe Conduct? Twelve Years Fishing under the UN Code,” December 2008. The first three areas “measure intentions to comply with the code, rating a country’s balance of conservation and economic aims; its stated management targets; and its use of precaution when expanding fisheries and establishing no-take zones. The remaining questions deal with the effectiveness of day-to-day compliance, including the rigorous use of quantitative reference points, minimizing wasteful discard, by-catch and impact on habitats such as coral reefs; socio-economic factors such as maintaining beneficial small-scale fisheries and coastal communities; and the control of illegal fishing and ‘flags of convenience’, when ships are registered in countries other than those where they are owned in order to evade regulation,” Pitcher, Tony et al. “Not Honouring the Code,” *Nature*, Vol. 457, 5 February 2009, pg. 658-59.

^{xxxviii} Cheng Jiahua et al., “An Estimation of Compliance of the Fisheries of China with Article 7 (Fisheries Management) of the UN Code of Conduct for Responsible Fishing,” University of British Columbia Fisheries Centre, 2006.

^{xxxix} UN FAO, The International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, adopted on 23 June 2001, <http://www.fao.org/docrep/003/y1224e/y1224e00.HTM>. For a definition of IUU fishing, see Appendix III.

^{xl} UN FAO, Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, 22 November 2009, <http://www.fao.org/Legal/treaties/037t-e.pdf>

^{xli} China has similar agreements with Russia (1988) and Australia (1988). There are probably more agreements, but these were the only agreements for which I could find evidence. For a (non-exhaustive) list of countries in which China operates, please see Appendix V.

^{xlii} Ministry of Agriculture Bureau of Fisheries, *2010 China Fisheries Yearbook* 2010, pg. 7.

^{xliii} Wrelton, Steve, “Fishing in Troubled Waters,” *Geographical*, June 2009, 38-43.

^{xliiv} Hazard, Eric et al., “The Developmental Impact of Asian Drivers on Senegal,” *The World Economy*, 2009, pg. 1568-1570.

^{xliiv} *Ibid.* The authors argue that the Chinese fishing industry in Senegal threatens the fishing sector.

^{xlivi} Several studies have detailed this impact, see for example: Alder and Sumaila, 2004; EJF, “Pirate Fish on your Plate – Tracking illegally-caught fish from West Africa into the European market,” Environmental Justice Foundation, London, UK, 2007; EJF, “Dirty Fish—How EU Hygiene Standards Facilitates Illegal Fishing in West Africa,” Environmental Justice Foundation, London, UK, 2009; Mwikya, Stephen Mbithi, “Fisheries Access Agreements: Trade and Development Issues,” ICTSD Natural Resources, International Trade and Sustainable Development Series Issue Paper No. 2, International Centre for Trade and Sustainable Development, Geneva, Switzerland. April 2006; Standing, André, “Corruption and Industrial Fishing in Africa,” Chr. Michelsen Institute U4 Anti-Corruption Resource Centre, U4 ISSUE 2008:7; Walmsley, S.F., Barnes, C.T., Payne, I.A., Howard, C.A., “Comparative Study of the Impact of Fisheries Partnership Agreements—Technical Report,” May 2007, MRAG, CRE & NRI. 183 pages.

^{xlvii} Atta-Mills, John, Alder, Jackie and Sumaila, Ussif Rashid, “The decline of a regional fishing nation: The case of Ghana and West Africa,” *Natural Resources Forum* 28 (2004) 13–21, pg. 18.

^{xlviii} Alder and Sumaila, 2004.

^{xlix} Standing, 2008.

¹ *Ibid.*, pg. 15. The author says that this has been the case with China—for example in Mozambique commentators believe that illegal Chinese fishers escape punishment because China has become so influential in that country.

ⁱⁱ Agnew DJ, Pearce J, Pramod G, Peatman T, Watson R, et al. (2009) Estimating the Worldwide Extent of Illegal Fishing. *PLoS ONE* 4(2): e4570. doi:10.1371/journal.pone.0004570. Their analysis excludes discards and unregulated artisanal catch.

ⁱⁱⁱ *Ibid.*

^{liii} *Ibid.*

^{liiv} *Ibid.*

^{lv} Marine Resources Assessment Group Ltd (MRAG), “Review of Impacts of Illegal, Unreported and Unregulated Fishing on Developing Countries,” report prepared by MRAG for the UK’s Department for International Development (DFID), with support from the Norwegian Agency for Development Cooperation (NORAD), July 2005.

^{lvi} World Bank, “Project Appraisal Document for the West African Regional Fisheries Program APL-1,” 2009, pg. 1.

^{lvi} OECD, “Fisheries for Coherence in West Africa: Policy Coherence in the Fisheries Sector in Seven West African Countries,” 2008, pg. 9.

^{lviii} EJF, “Dirty Fish—How EU Hygiene Standards Facilitates Illegal Fishing in West Africa,” Environmental Justice Foundation, London, UK, 2009.

^{lix} Ibid.; and EJF, “Pirate Fish on your Plate – Tracking illegally-caught fish from West Africa into the European market,” Environmental Justice Foundation, London, UK, 2007.

^{lx} Ibid.

^{lxi} Interview with World Bank fisheries specialist, 26 August 2010, Monrovia.

^{lxii} While several Liberian Bureau of Fisheries officials reported this, several members of the local expat community in Monrovia also anecdotally reported that they frequently spot industrial fishing vessels right offshore.

^{lxiii} Gianni, M. and Simpson, W. (2005). *The Changing Nature of High Seas Fishing: how flags of convenience provide cover for illegal, unreported and unregulated fishing*. Australian Department of Agriculture, Fisheries and Forestry, International Transport Workers’ Federation, and WWF International.

^{lxiv} Interviews with NOAA fisheries experts, Honolulu, Hawaii, 21-23 November, 2011.

^{lxv} For more on China’s traceability systems, see: Clarke, Shelley, *Understanding China’s Fish Trade and Traceability*. TRAFFIC East Asia, 2009.

^{lxvi} Borit, Melania and Olsen, Petter, “Evaluation framework for regulatory requirements related to data recording and traceability designed to prevent illegal, unreported and unregulated fishing,” *Marine Policy*, Vol. 36, 2012, pg. 96-102.

^{lxvii} Sumaila, U. Rashid et al., “A bottom-up re-estimation of global fisheries subsidies,” *Journal of Bioeconomics*, Vol. 12, 2010, 201–225.