

TRADE IN FISHING SERVICES

Emerging Perspectives on Foreign Fishing Arrangements



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2. Small scale fishers in West Africa. Courtesy of MRAG Ltd.
3. Purse seining for tuna. Courtesy of Marc Taquet, FADIO IRD-Ifremer and Peter Sharples, SPC.
4. Trawler, Alaska Pollock. Courtesy of Gunnar Knapp.

APPENDIX G

CHINESE DISTANT WATER FISHING ACTIVITIES

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China is the world's largest producer of seafood, including production from both capture fisheries and aquaculture. In the past few decades, China has increasingly engaged in trade in fishing services, both harvesting and post-harvesting services such as processing. China is a significant seafood processor of both aquatic products originating domestically for national and international markets and products that are imported for processing and then re-exported. With a total processing capacity of 26.38 million tons annually, China's 9,706 processing enterprises nationwide processed 19 million tons in 2012.¹ Over 90 percent of U.S. seafood exports to China in the early 2000s were re-exported elsewhere.²

In line with the emphasis of this report, however, this appendix will focus on China's harvesting services in the capture fisheries industry. Since the initial expansion of its fishing industry to areas beyond its own national jurisdiction in 1985, China has become a significant global fishing nation. China maintains fishing operations on both the high seas and in the exclusive economic zones (EEZs) of other countries. China accesses the waters of host countries through foreign fishing arrangements (FFAs), which take the form of bilateral fisheries access agreements, joint ventures, and the chartering of foreign fishing vessels.

As this report's overview discussed, FFAs have been criticized for contributing to unsustainable use of fisheries resources and for negatively affecting the socioeconomic development of host countries.³ China's FFAs likewise have been criticized for their principal-agent problems, in the form of lack of transparency and association with corruption, inequitable benefit sharing, poor flag state control, and conflict with small-scale and artisanal fisheries.⁴ The Chinese fishing industry is also believed to

engage in illegal, unreported, and unregulated (IUU) fishing in both areas governed by FFAs and outside them, vastly underreporting the true volume of its catch.⁵

This case study seeks to examine China's fishing activities in the context of the overarching goals of the study—both assisting host countries to identify and enable means to secure equitable and sustainable returns from FFAs and encouraging flag states to adopt more responsible policies and practices with regard to the activities of their fleets. The case study begins with (1) background information on China's distant water fishing industry in order to inform (2) an analysis of the economic and legal principles underpinning China's FFAs, then (3) places China in comparative perspective with other Asian nations, and finally concludes with (4) a discussion of the costs and benefits associated with China's FFAs and lessons that can be drawn from the China experience.

BACKGROUND

VESSELS

Chinese fishing vessels are defined as those flagged to the People's Republic of China (or Mainland China, excluding Hong Kong, Macau, and Taiwan), unless otherwise indicated. Evidence suggests that some fishing vessels that are linked to or controlled by Chinese entities are also fishing under non-Chinese flags. Chinese regulations generally forbid the registration to China of vessels owned by non-nationals.

Whereas *distant water fishing* is usually defined as fishing operations taking place in areas beyond the national EEZ, China's Distant Water Fishing Supervisory Provisions, promulgated by the Ministry of Agriculture in 2003, define distant water fishing (DWF) 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."⁶ Therefore, Chinese fishing operations that occur, for example, in the western EEZs of South Korea or Japan

¹ 农业部渔业局 [Ministry of Agriculture Bureau of Fisheries]. 2013. *2013 中国渔业年鉴* [2013 China Fisheries Yearbook]. 北京: 中国农业出版社 [Beijing: China Agriculture Publishing Company].

² Clarke, Shelley. 2009. *Understanding China's Fish Trade and Traceability*. TRAFFIC East Asia.

³ Mwikya, Stephen Mbithi. 2006. "Fisheries Access Agreements: Trade and Development Issues." ICTSD Natural Resources, International Trade and Sustainable Development Series Issue Paper 2. International Centre for Trade and Sustainable Development, Geneva, Switzerland; Walmsley, S. F., C. T. Barnes, I. A. Payne, and C. A. Howard. 2007. *Comparative Study of the Impact of Fisheries Partnership Agreements—Technical Report*. MRAG, CRE, & NRI.

⁴ Standing, André. 2008. *Corruption and Industrial Fishing in Africa*, Chr. Michelsen Institute U4 Anti-Corruption Resource Centre; EJF. 2009. "Dirty Fish—How EU Hygiene Standards Facilitates Illegal Fishing in West Africa." Environ-

mental Justice Foundation, London; Environmental Justice Foundation. 2007. "Pirate Fish on your Plate: Tracking Illegally-Caught Fish from West Africa into the European Market." Environmental Justice Foundation, London; Hanich, Quentin, and Martin Tsamenyi. 2009. "Managing Fisheries and Corruption in the Pacific Islands Region." *Marine Policy* 33, 386–92; Mallory, Tabitha Grace. 2013. "China's Distant Water Fishing Industry: Evolving Policies and Implications." *Marine Policy* 2013, 99–108.

⁵ Pauly, Daniel, et al. 2013. "China's Distant Water Fisheries in the 21 Century." *Fish and Fisheries*. March 23.

⁶ 农业部 Ministry of Agriculture. 远洋渔业管理规定 [Distant Water Fishing Supervisory Provisions]. April 14, 2003, entered into force June 1, 2003. See articles 2 and 3. www.cndwf.com/news.asp?news_id=19.

are not considered DWF activities and China has bilateral fisheries agreements with South Korea, Japan, and Vietnam to manage shared stocks.

The *2013 China Fisheries Statistical Yearbook* reports that in 2012, of the 695,555 Chinese-flagged motorized fishing vessels, 194,240—representing a total tonnage of 7.707 million and combined engine power of 17.31 million kilowatts—were marine capture vessels.⁷ Of these, 1,793 vessels with a total engine power of 1.112 million kilowatts were DWF vessels. The *2012 China Fisheries Yearbook* reports that China had 2,230 DWF vessels in 2011. The discrepancy in the size of the fleet is because while a majority of the DWF industry operates on a regular basis, a few hundred vessels operate on a temporary basis for a few months every year in Russian and North Korean waters.⁸ Therefore, sometimes the total vessel numbers account for these temporary vessels and sometimes they do not. The *2013 China Fisheries Yearbook* reported 1,830 permanent DWF vessels and 599 short-term vessels for a total of 2,429 vessels operating in distant waters.⁹

China's DWF fleet is the world's largest in terms of number and is continuing to grow, although the size and technological capacity of its vessels lags behind the fleets of more developed countries. The Chinese government has outlined plans to expand the number of DWF vessels.¹⁰ The *2013 China Fisheries Yearbook* announced that the industry had built more vessels in 2012 than ever before, including China's first domestically constructed large-scale purse-seining vessel and a new saury vessel. China also imports vessels secondhand, including in 2012 two tuna purse-seining vessels, 17 ultralow-temperature tuna vessels, and a krill fishing vessel with processing capability. In the same year, China had 967 vessels on the high seas, adding 115 from the previous year; another 863 vessels operated in the EEZs of other countries, with 86 new vessels added that year.¹¹ China reported 410 tuna vessels and 546 squid jiggers.

Chinese ownership information and vessel reflagging activities can be challenging to trace. Of the 1,955 Chinese DWF vessels assembled in one report, 279 had no ownership information.¹² Vessels were flagged to 24 other countries or entities, including Argentina, Belize, Brazil, Cambodia, Fiji, Georgia, Ghana, Honduras, India, Indonesia, Japan, Kiribati, Micronesia, Mongolia, Morocco, Myanmar, Nigeria, North Korea, Panama, Saint Vincent and the Grenadines, Taiwan, China, Tonga, Uruguay, and Vanuatu.¹³

⁷ 农业部渔业局 [Ministry of Agriculture Bureau of Fisheries]. 2013. *2013 中国渔业年鉴* [*2013 China Fisheries Statistical Yearbook*]. 北京: 中国农业出版社 [Beijing: China Agriculture Publishing Company].

⁸ Mallory, Tabitha. 2013. *China, Global Governance, and the Making of a Distant Water Fishing Nation*. PhD dissertation, Johns Hopkins University.

⁹ *2013 China Fisheries Yearbook*.

¹⁰ 农业部 [Ministry of Agriculture]. 2011. 全国渔业发展第十二五年规划 (2011–15年) [*National Fisheries Development Twelfth Five-Year Plan (2011–15)*], October 17. http://www.moa.gov.cn/zwillm/ghjh/201110/t20111017_2357716.htm.

¹¹ *2013 China Fisheries Yearbook*.

¹² Clarke, Shelley. 2009. *Unpublished Research*, p. 34.

¹³ *Ibid.*, p. 17.

CATCH

Evidence indicates that China's DWF capture production data reported by China are neither comprehensive nor accurate. Whereas fisheries experts showed that China was overreporting its domestic catch due to domestic political reasons, they believe that China is underreporting its DWF catch.¹⁴ Official sources report that China's DWF industry produced 1.223 million tons of catch in 2012, valued at Y 13.21 billion (approximately \$2.17 billion or \$1.77 per kg).¹⁵ However, fisheries experts estimated that the real amount and value of Chinese catch taken outside of its own EEZ annually to be 4,604,000 tons (with a margin of error of $\pm 687,000$) from 2000 to 2011, for an ex-vessel landed value of €8.93 billion (± 1.53 billion) a year.¹⁶ Excluding Japan and Korea, whose EEZs, according to China's definition, are not included in the DWF industry, the total is 4,498,000 tons, or over three and a half times more than China's official statistics report. The largest source of China's distant water catch is Africa, with an annual estimated volume of 3.1 million tons ($\pm 690,000$), followed by Asia at 948,000 tons ($\pm 241,000$), Oceania at 198,000 tons ($\pm 31,000$), Central and South America at 182,000 tons ($\pm 53,000$), and Antarctica at 48,000 tons ($\pm 26,000$).¹⁷

China's high seas catch targets two main species—tuna and squid. A third species, jack mackerel, has been targeted in recent years. Squid accounts for about one third of China's overall distant water catch—32 percent of total catch in 2012, according to Chinese official statistics.¹⁸ China's most productive fishing grounds on the high seas for squid are the North Pacific, Southeast Pacific, and Southwest Atlantic. Squid catch in 2012 amounted to 388,000 tons worth Y 2.82 billion (about \$1.20 per kg), according to China's official statistics. China is adding vessels to the squid industry. In 2010, 100 new squid jiggers built in Zhoushan were introduced into the industry.¹⁹ In 2011, 82 new vessels were added. The added capacity meant that catch of jumbo squid (*Dosidicus gigas*, 茎柔鱼) in the Southeast Pacific doubled between 2010 and 2011.²⁰

Tuna accounted for 14 percent of total catch in 2012, according to Chinese official statistics.²¹ China has both high seas and EEZ operations and is a member of four of the five tuna regional fisheries management organizations (RFMOs).²² Catch of tuna, a particularly high-value species, amounted to 172,000 tons worth Y 3.28 billion (about \$3.14 per kg) in 2012, according to official Chinese statistics.²³ China is also adding vessels to the tuna industry, for example 30 new vessels in 2010 and 86 new vessels in 2012.

¹⁴ Watson, Reg, and Daniel Pauly. 2001. "Systematic Distortions in World Fisheries Catch Trends." *Nature* 414 (29), 534–36.

¹⁵ *2013 China Fisheries Yearbook*.

¹⁶ Pauly, 2013.

¹⁷ *Ibid.*

¹⁸ *2013 China Fisheries Yearbook*.

¹⁹ *2011 China Fisheries Yearbook*.

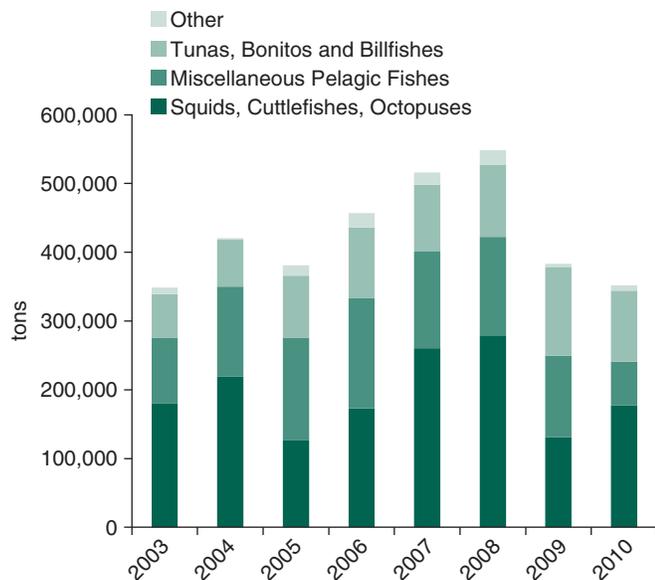
²⁰ *2012 China Fisheries Yearbook*.

²¹ *2013 China Fisheries Yearbook*.

²² All but the Commission for the Conservation of Southern Bluefin Tuna (CCSBT).

²³ *2013 China Fisheries Yearbook*.

FIGURE G.1. COMPOSITION OF CHINA'S DWF CATCHES (EXCLUDING "ASIA-INLAND WATERS" AND "PACIFIC, NORTHWEST") AS REPORTED TO THE FAO, 2003–10, IN TONS¹



¹ FAO, Fishstat, 2012.

China's jack mackerel catch is on the decline since 2007, which is in line with what international observers are saying about the jack mackerel stock. After four years of steady decline, the vessels in the area have moved on to target Antarctic krill and resources in the EEZs of Mauritania and Russia.²⁴ This flexibility to move to new fishing grounds is an example of the malleability of DWF fleets that Monro discussed in appendix A of this report.

Figure G.1 depicts the catch composition of China's DWF as reported to the Food and Agriculture Organization (FAO) in all marine areas beyond the Northwest Pacific (Area 61) and Asia-Inland Waters (Area 04). Catch quantities of Chilean jack mackerel (*Trachurus murphyi*, shown as "Miscellaneous pelagic fishes") exhibited a noticeable decrease in 2010. There were increases in the reported catches of skipjack tuna (*Katsuwonus pelamis*) in 2005 and albacore tuna (*Thunnus alalunga*) in 2009.

DWF COMPANIES

In 2012, the Chinese government licensed 120 Chinese companies for DWF, and 43,000 people were working offshore in the industry.²⁵ China has 45 companies engaged in tuna fishing and 55 engaged in squid operations. Of the 86 percent of Chinese fishing vessels for which ownership information was available in a 2009 study, 48 percent (804 vessels) of these were associated with the China National Fisheries Corporation (中国水产) (CNFC, or

中水).²⁶ Since the CNFC website claimed at the time to operate only 250 vessels, it is likely that the remaining vessels are operated by one of CNFC's 67 (or more) subsidiary companies.²⁷ In decreasing order by fleet size, the largest CNFC regional affiliates are located in Zhejiang, Shandong, Shanghai, Liaoning, and Guangdong provinces or municipalities. One report, citing data from 2003, characterizes the Chinese distant water fleet as one-third government owned and suggests that the government now has less control over the fleet than it previously did.²⁸ In this sense, DWF fleets may exhibit their own internal principal-agent problem, in addition to the principal-agent problem described in appendix A, in which the coastal state is the principal and DWF nations are the agents. Whereas the central authority (the principal) may desire to follow international or coastal state fishing regulations in order to benefit from maximum economic returns through time from sustainable fisheries, vessels flagged to the state (the agents) may violate those regulations because fishermen are acting in their own short-term interests.

ANALYSIS

DWF POLICIES AND DRIVERS

Chinese government policies toward domestic fishing versus DWF reflect some policy incoherence with regard to long-term global stock sustainability. Whereas China's domestic fisheries management tends to be strict, that of the DWF industry is less so. In this regard, China is no different than the DWF fleets that launched their operations in the 1950s and 1960s—such as the then Soviet Union, the now European Union, Japan, South Korea, and Taiwan, China. Even if some of these entities have begun to re-evaluate their policies, their decades of unfettered fishing overwhelmingly contributed to the current fisheries crisis. Furthermore, some of the unsustainable fishing operations should not be attributed to China's policies but rather to poor governance in host countries and the principal-agent problems described by the summary report and in appendix A.

Acknowledging depletion of domestic fisheries, China's first policy to mention DWF—a State Council report in 1983—calls for relieving pressure on domestic resources by encouraging the development of DWF through preferential fiscal treatment. The state subsequently promulgated a series of supportive policies, including income, value-added, and import tax exemptions.²⁹

Development of the DWF industry was specifically mentioned as a component of the "going out" (走出去) policy, which first appeared in the 2001–05 Tenth Five-Year Economic and Social Development Plan and encourages Chinese companies to seek markets and investment opportunities abroad.³⁰ Later in 2001, the State Council approved the Master Plan for Developing China's

²⁶ Clarke, 2009.

²⁷ China National Fisheries Corporation, <http://www.cnfc.com.cn/>.

²⁸ Mallory, Tabitha. 2012. "China as a Distant-Water Fishing Nation." Testimony before the U.S.-China Economic and Security Review Commission, January 26. http://www.uscc.gov/hearings/2012hearings/written_testimonies/12_01_26/12_1_26_mallory_testimony.pdf.

²⁹ Mallory, 2013.

³⁰ Mallory, 2012.

²⁴ 2012 China Fisheries Yearbook.

²⁵ 2013 China Fisheries Yearbook.

Distant Water Fishing Industry (2001–10). As the Chinese state increasingly worked to address overcapacity and overfishing in the domestic industry, particularly after the ratification of the United Nations Convention on the Law of the Sea (UNCLOS) in 1996, it saw DWF as a means of creating employment and business opportunities abroad for the Chinese fishing industry. The most recent 2011–15 Twelfth Five-Year Plan also mentions developing DWF catch.³¹

The national economic Five-Year Plans have been accompanied in recent years by more detailed National Fisheries Five-Year Plans. The inaugural 2006–10 National Fisheries Eleventh Five-Year Plan called for expanding the industry to 2,200 vessels and engagement from 34 to 38 countries by the end of the plan.³² The 2011–15 National Fisheries Twelfth Five-Year Plan aimed to raise total DWF catch to 1.3 million tons and expand the number of DWF vessels from 1,991 to 2,300 by 2015.³³

State policies combined with other Chinese publications, including academic, media, and industry reports, emphasize the strategic importance of the DWF industry to China. A 2010 report of a task force composed of 12 people affiliated with the State Council, Chinese DWF companies, industry associations, and universities identified several reasons for such importance. DWF is a means of

- » Supplying high-quality food to Chinese consumers, whose demands are rising with increased economic affluence;
- » Reducing pressure on China's own heavily exploited coastal resources;
- » Securing a stable supply of fish meals and oils to support China's massive aquaculture and mariculture industries;
- » Creating jobs for thousands of Chinese workers;
- » Driving development in related industries, such as vessel and gear construction and maintenance, fishing infrastructure (piers, cold storage), and fish product transport and processing;
- » Establishing a catch history in as many fisheries as possible and, thus, under some fisheries management systems, laying a basis for claiming fishing rights and catch allocations; and
- » Safeguarding China's national sovereignty and interests, including improving bilateral diplomatic and economic ties and securing military supplies.³⁴

Whereas Chinese policy changes and publications emphasize the importance of managing domestic fish stocks for long-term ecological and food security reasons, little mention of this principle occurs with regard to distant waters, nor do DWF policies reflect this concern to the extent that domestic policies do. Unlike the

³¹ Mallory, 2013.

³² 农业部 [Ministry of Agriculture]. 2006. 全国渔业发展第十一年规划 (2006–10年) [*National Fisheries Development Eleventh Five-Year Plan (2006–10)*]. December 31. http://zhs.mofcom.gov.cn/article/zt_guihua/subjectcc/200612/20061204195436.shtml.

³³ [*National Fisheries Development Twelfth Five-Year Plan (2011–15)*].

³⁴ “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. www.stats.gov.cn/tjsujia/zggqgl/t20101018_402676860.htm.

EU, which has acknowledged the need for policy coherence across both domestic and international policies, China retains a gap in its policies toward domestic and DWF.³⁵ China has signed but not ratified the UN Fish Stocks Agreement, significant for management of targeted DWF stocks like tuna.³⁶ Although China follows many of the stipulations in the agreement nonetheless, for example joining several RFMOs, the quality of China's compliance with the procedural requirements of those RFMOs is not high. China has not signed the Compliance Agreement, an important agreement outlining flag-state responsibilities for vessels on the high seas, and there is little discussion of this agreement in Chinese policy discussions or publications.³⁷ In a 2009 study scoring countries' compliance with the nonbinding UN Code of Conduct for Responsible Fishing guidelines across nine indicators in six evaluation fields, overall China ranked 22 out of 53 fishing countries, with a score just above failing.³⁸ China received passing scores in the areas of evaluation that are important for domestic fishing. However, in two areas relevant to DWF, IUU fishing and flags of convenience, China ranked 44 and 46, respectively, with failing scores on both counts.

At the same time, the Chinese state is concerned with its image, status, and reputation in the world. As one observer stated, “Reputation, both abroad and at home, [is] an intangible resource but a highly valuable one. . . . International rules may thus be respected because Chinese policy makers may be eager to bolster the country's image. . . .”³⁹ Rhetoric from the government acknowledges the need to ensure the sustainability of fish stocks in distant waters, especially in more recent years. Some Chinese academics also call for more attention to the importance of sustainability and conservation in their writing. Until recently, IUU fishing was rarely mentioned, if at all, in Chinese literature. However, an academic article in 2009 called for China to more adequately address IUU fishing, and in a document issued by the Ministry of Agriculture at the end of 2012 on suggestions for the sustainable and healthy develop-

³⁵ For more on the EU policy coherence approach, see European Union, Policy Coherence for Development, http://ec.europa.eu/europeaid/what/development-policies/policy-coherence/index_en.htm.

³⁶ 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 December 11, 2001. www.un.org/depts/los/convention_agreements/convention_overview_fish_stocks.htm.

³⁷ UN FAO. *The Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas*. Signed 1995, entered into force on April 24, 2003. www.fao.org/docrep/meeting/003/x3130m/X3130E00.HTM.

³⁸ UN FAO. *The Code of Conduct for Responsible Fisheries (CCRF)*. Adopted by the FAO on October 31 1995. www.fao.org/docrep/005/v9878e/v9878e00.HTM; Pitcher, Tony, et al. 2009. “Not Honouring the Code.” *Nature* 457 (5), 658–59.

³⁹ Mushkat, Roda. 2011. “China's Compliance with International Law: What Has Been Learned and the Gaps Remaining.” *Pacific Rim Law and Policy Journal* 20 (1). For similar observations, see, for example, Lampton, David M. 2008. *Three Faces of Chinese Power: Might, Money, and Minds*. Berkeley: University of California Press; and Deng, Yong. 2008. *China's Struggle for Status: The Realignment of International Relations*. New York: Cambridge University Press. p. 29.

ment of China's DWF industry, a call is made to "strictly prohibit IUU fishing activities" (严格禁止非法、不报告、不管制 [IUU] 的渔业活动).⁴⁰ Another academic article calls for active cooperation with other countries for sustainable use of fisheries resources, emphasizing the need for China to establish an image of a responsible fishing country.⁴¹ The authors warn that if China does not adopt a cooperative attitude with coastal countries on protecting fisheries resources nor abide by their laws, then China will lose the permission from many host countries to fish there. China's national fisheries plans, discussed above, also mention the importance of cooperation in the international arena on fisheries management.

China has taken some steps to better control its vessels and regulate the industry. In January 2012, the Ministry of Agriculture required all DWF vessels to have vessel monitoring systems (VMSs) and to report their positions daily.⁴² The state has also made some efforts to improve the quality of logbooks for tuna operations, large-scale trawlers, and krill fishing vessels; started an independent observer program; and launched a certification system for some high-value imports from DWE, such as bluefin and bigeye tuna, swordfish, and Patagonian toothfish.⁴³ Yet, overall, fewer concrete measures have been taken to address issues in distant waters than in domestic waters. The measures that do exist are in conflict with some policies that support the expansion of the industry.

Perhaps the most damaging policy to long-term stock sustainability is the provision of subsidies to the fishing industry, although China is certainly not alone among fishing nations in such subsidization. A 2010 study estimated China's subsidies to be \$4.1 billion per year, which would represent 26 percent of the declared value of all of China's marine fisheries production for that year.⁴⁴ China's estimated subsidies are the second largest of any single nation and are exceeded only by Japan at \$4.6 billion per year.⁴⁵ Another study calculated subsidies provided by the Chinese central government to the fishing industry in 2011 as \$3.876 billion, and possibly as high as \$5.168 billion including provincial-level

expenditures.⁴⁶ Most of these subsidies were in the form of fuel subsidies, which are direct monetary transfers from the central government to fishermen to offset fuel costs. China also provides some shipbuilding subsidies to the DWF industry. Reported subsidies do not include indirect subsidies, such as the preferential fiscal policies also granted to the DWF industry, which have similar effects as direct subsidies.

The 2010 Task Force report called for increased government subsidies. Specific reference is made to adjusting the subsidy ratio as high as 30 to 50 percent for projects involving technological modernization of fishing vessels and claims that for years developed countries have offered their fleets surreptitious subsidies that represent 15 to 20 percent of the landed value of the catch. Analysis by three Chinese economists of subsidies to CNFC during 2003–08 concluded that "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."⁴⁷

AREAS OF ACTIVITY

China has a number of FFAs that allow its DWF fleets access to resources in the EEZs of other nations. These agreements are in the form of state-to-state bilateral agreements and interagency-level agreements, such as among companies or fishing associations. According to industry promotional material, China has signed 14 state-level bilateral agreements and 7 interagency agreements.⁴⁸ China is also a member of six regional fisheries management organizations (RFMOs). China has more than 100 representative offices, joint ventures, and logistical bases around the world.⁴⁹ The *2013 China Fisheries Yearbook* reported that China had DWF operations in 38 countries in 2012.⁵⁰ However, a report from early 2013 showed evidence that Chinese DWF vessels were active in 93 countries.⁵¹ The uncertainty surrounding the actual number of countries in which China operated reflects the lack of transparency in FFAs and the problems with IUU fishing and vessel reflagging. The lack of transparency also means that the terms of the FFA negotiations, for example how much DWF nations pay for fishing agreements and licenses, is largely unknown. While it is estimated that EU FFAs pay approximately 10 to 15 percent of landed value, Japan pays 5 to 6 percent of the export value of the catch, and Taiwan, China's and South Korea's access fees in the Pacific are estimated to be less than 4 percent of the landed value (between 2–6 percent and 3–6

⁴⁰ 许浩 [Xu Hao]. 2009. 《管制 IUU 捕捞德渔业法对策》 ["Law and Policy for Controlling IUU Fishing"]. 海洋开发与管理 [Ocean Development and Management] 26 (8), 26–29; 农业部 [Ministry of Agriculture]. 2012. 于促进远洋渔业持续健康发展的意见 [Suggestions on Promoting the Sustainable Healthy Development of DWF]. November 22. www.moa.gov.cn/zwllm/tzgg/tz/201211/t20121122_3069037.htm.

⁴¹ 高强, 王本兵, 杨涛 [Gao Qiang, Wang Benbing, Yang Tao]. 2008. 《国际海洋法规对我国远洋渔业的影响与启示》 ["Impacts of International Marine Laws on Distant Water Fisheries in China"]. 中国渔业经济 [Chinese Fisheries Economics] 6 (26).

⁴² 农业部 [Ministry of Agriculture]. 2012. 《远洋渔船船位监测管理暂行办法》 [DWF Vessel Monitoring System Interim Measures]. Fisheries Document 4. January 19. http://www.cnfm.gov.cn/yyyyyzj/zhyyyy/201201/t20120131_2722947.htm.

⁴³ 万晨 [Wan Chen]. 2013. 《我国远洋渔业监管体系基本完整建立》 ["Building a Basic Comprehensive Regulatory System for China's DWF Industry"]. 中国水产 [China Aquatic Production] 9..

⁴⁴ SSumaila, Ussif Rashid, et al. 2010. "A Bottom-Up Re-estimation of Global Fisheries Subsidies." *Journal of Bioeconomics* 12, 201–25; FAO, 2004. Calculated as 4.1 billion / (\$45.9 billion; that is, the value of total fisheries production in 2004 × 0.35; the proportion of marine to total production).

⁴⁵ Sumaila, 2010.

⁴⁶ Mallory, Tabitha. Forthcoming report.

⁴⁷ Mallory, 2012.

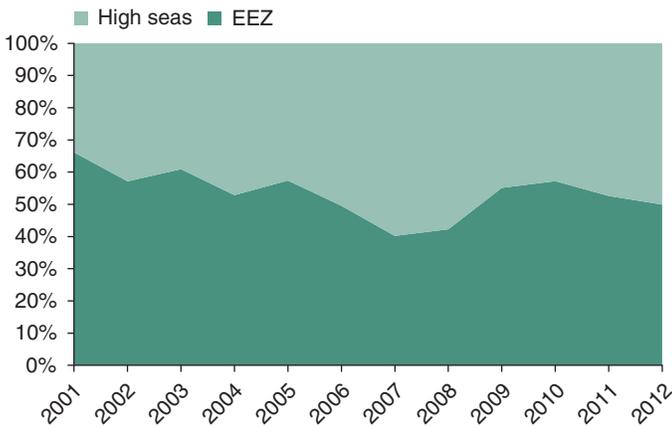
⁴⁸ 中国远洋渔业协会 [China Overseas Fisheries Association]. 2012. Promotional brochure.

⁴⁹ 肖乐 [Xiao Yue]. 2012. 《中国远洋渔业协会在京成立:回良玉致信祝贺, 农业部部长韩长赋、副部长牛盾出席会议 并为中国远洋渔业协会揭牌》 ["China Overseas Fisheries Association Established in Beijing: Hui Liangyu Writes Congratulatory Letter, Agriculture Minister Han Changfu and Vice Minister Niu Dun Attend Inauguration Ceremony"]. 中国水产 [China Aquatic Production] 6, 3.

⁵⁰ 2013 China Fisheries Yearbook.

⁵¹ Pauly, et al., 2013.

FIGURE G.2. HIGH SEAS AND EEZ AS PERCENTAGES OF TOTAL DWF CATCH¹



¹ Based on data from the *China Fisheries Yearbook series*. Note that the data provided for the year 2011 was not as comprehensive as other years and thus is an estimate.

percent, respectively).⁵² If China’s access fees are similar to those of the other Asian countries (2–6 percent of landed value), and China’s EEZ catch in 2012 amounted to \$1.053 billion, then China would have paid between \$21.1 and \$63.1 million total in access fees.

Citing increased restrictions over fishing in the EEZs of other countries, China gradually has been trying to increase high seas catch as a percentage of overall DWF catch. In March 2000, China introduced “Efficiency First” as a new direction of DWF development.⁵³ The policy marked a shift away from an emphasis on merely enlarging the size of the DWF fleet toward a more comprehensive economic approach that consolidated and built upon existing fisheries programs. The new policy called for increasing the competitiveness of China’s high seas fishing, aiming to bring the percentage of high seas catch as a percentage of overall DWF catch to 20 percent by the year’s end (although it appears this target was not reached). EEZ catch gradually fell for a few years (but then rose again in the late 2000s) (see figure G.2). The *2013 China Fisheries Yearbook* reports that in 2012, of the total catch, 611,000 tons worth Y 6.4 billion⁵⁴ came from the EEZs of other countries, whereas 613,000 tons worth Y 6.77 billion was taken from the high seas.⁵⁵ These figures are likely skewed by the fact that many coastal fishing operations backed by Chinese capital are conducted through joint venture operations flagged to the coastal state. The increased emphasis on high seas fishing points to the need for better high-seas fishing governance.

The next section discusses Chinese operations in Asia, Africa, and Oceania in accordance with this study’s geographical focus.

⁵² Gagern, Antonius, and Jeroen van den Bergh. 2013. “A Critical Review of Fishing Agreements with Tropical Developing Countries.” *Marine Policy* 38, 375–86.

⁵³ 龙春 [Long Chun]. 2000. 《效益第一 远洋渔业确定新方向》 [“Efficiency First Determines New Direction”]. *经济日报* [*Economic Daily Report*], March 29. www.people.com.cn/zcxc/2000/03/032911.html.

⁵⁴ A billion is 1,000 million.

⁵⁵ *2013 China Fisheries Yearbook*.

Much of the information is drawn from the Chinese fisheries yearbooks. China does have DWF operations in Latin America and elsewhere, but they are smaller scale in comparison.

Asia

China’s DWF operations in Asia are significant, with larger-scale operations in North Korea, Indonesia, and Myanmar. In 2012, China’s Asia operations accounted for 60 percent of China’s overall DWF catch and 52.8 percent of the overall value.⁵⁶ Chinese vessels account for 95 percent of the vessels entering the fisheries in Asian countries. One reason Asian countries are important hosts for Chinese DWF is their proximity to China. As the Chinese government works to decrease excess domestic fishing capacity through programs such as vessel decommissioning, it encourages privately or collectively owned smaller Chinese fishing vessels to fish in distant waters in lieu of domestic waters.

In 2012, China had 1,037 vessels in 10 neighboring Asian countries—including North Korea, Indonesia, Myanmar, Malaysia, Thailand, Bangladesh, and India—and produced 367,000 tons of catch worth Y 3.38 billion, according to official sources. This represented an increase from 732 vessels in 2010 but a decrease by one country—the Philippines. In 2010, China had 456 vessels, predominantly squid jiggers, operating off the east coast of North Korea. In 2011, production from North Korean waters was 80,000 tons worth Y 1.35 billion. China’s FFA with North Korea is affected by the political instability in that host country.

China’s operations in Indonesia are steadily ramping up. Although 200 vessels had exited Indonesian waters in 2006 because of government changes (52 vessels with valid licenses remained), 121 vessels re-entered Indonesia in 2008, producing 110,000 tons worth Y 660 million. China had 133 vessels in Indonesia in 2010. In 2011, China invested in some land-based facilities in Indonesia to earn more fishing licenses for Chinese vessels. In 2011, production amounted to 133,000 tons worth Y 990 million.

China had 72 vessels in Myanmar in 2010. In 2011, because of declining resources, the Myanmar government made some adjustments to policies on foreign fishing vessels, and Chinese production declined 15.1 percent and 26 percent to 45,000 tons worth Y 280 million, respectively.

China’s program in Thailand began in 2008 with 10 vessels. Operations began in Bangladesh in 2010. After consecutive years of decline in India, Sri Lanka, and Pakistan in 2006, 2007, and 2008, China pulled operations out of Pakistan and Sri Lanka in 2009 because these activities were not profitable, although Chinese vessels still operate in Indian waters and recently reached another fishing agreement with Sri Lanka.⁵⁷ Malaysia’s production was up in 2006 but has mostly suffered losses since then.

China historically had significant operations in Southwest Asia, although Chinese fleets have pulled back because of resource scarcity and piracy. The *2004 Yearbook* notes that operations in Yemen

⁵⁶ *2013 China Fisheries Yearbook*.

⁵⁷ “Sri Lanka Lures Foreign Fishing Companies.” 2013. *Business Standard*. August 22. http://www.business-standard.com/article/news-ians/sri-lanka-lures-foreign-fishing-companies-113082201003_1.html.

TABLE G.1. CHINA'S OFFICIALLY REPORTED DWF OPERATIONS IN WEST AFRICA¹

	2000	2001	2002	2003	2004	2005	
Countries	13	16	15	—	—	13	
Vessels	-	401	376	—	—	371	
Catch	147,000 tons	170,000 tons	160,000 tons	—	—	166,000 tons	
Value	\$200 million	—	—	—	—	Y 2.07 billion	
	2006	2007	2008	2009	2010	2011	2012
Countries	12	—	—	10	11	11	12
Vessels	365	393	393	375	394	394	389
Catch	—	189,000 tons	210,000 tons	190,000 tons	166,000 tons	190,000 tons	216,000 tons
Value	—	Y 2.28 billion	Y 2.4 billion	Y 1.9 billion	Y 1.71 billion	Y 2.41 billion	Y 2.78 billion

¹ 2001–13 *China Fisheries Yearbook series*.

ended in 2003, although the 2009 *Yearbook* mentions operations in Yemen (and Oman) again in 2008.

Africa

The 2013 *China Fisheries Yearbook* reports that in 2012, DWF enterprises operated 389 vessels in 12 West African countries. According to the yearbook, China produced 216,000 tons of catch valued at Y 2.78 billion (table G.1).

China's larger-scope operations are in Mauritania, Guinea, and Morocco, with about 60 percent of Chinese fishing vessels in Africa operating in these three countries. China had 76 licensed vessels fishing in Guinea's waters in 2011. Operations in Guinea remained steady in 2011, producing 26,000 tons worth Y 370 million. In Morocco, where China has 65 licensed vessels, the fishing moratorium season was lengthened, and thus production fell by 12 percent in 2011. However, because prices increased, revenue from operations in Morocco increased by 50 percent; catch amounted to 15,000 tons worth Y 500 million.

The largest Chinese fishing operations in West Africa are in Mauritania, especially because cooperation increased in the early 2010s. The 2011 *Chinese Fisheries Yearbook* reported that in 2010 several DWF companies acquired fishing licenses in Mauritania "through more flexible and mature methods of cooperation like mergers and investment." The 2012 yearbook stated that Mauritania had licensed 88 Chinese fishing vessels operating in its coastal waters in 2011. Total production in 2011 amounted to 53,000 tons valued at Y 580 million, an increase of 51 percent and 66 percent over the previous year. The sizeable increase was attributed to CNFC putting into use two large trawlers. The yearbook noted that because fuel prices were high, overall profit was not great.

Mauritania depends heavily on fisheries license fees for its national budget—these fees accounted for 27 percent of the state budget in 2004.⁵⁸ In 2011, the country agreed to a controversial deal with the Chinese fishing company 福州宏东远洋渔业公司

(Poly Hon Done Pelagic Fishery).⁵⁹ The deal gives the Chinese company a 25-year fishing license in exchange for a \$100 million investment for building a processing center that will process 100,000 tons of fish per year, a manufacturing center for traditional fishing vessels, and a training center. The company obtained fishing licenses for 66 of its vessels.⁶⁰ The deal claims it will create 2,500 jobs for Mauritians. The firm does not face any import duties and for the first five years does not have to pay taxes on profits equivalent to 20 percent of its investments. Up to 30 percent of the company's staff may be foreign. Whereas opponents cited these exemptions as well as a lack of transparency and disregard for sustainability in the deal as reprehensible, some supporters in Mauritania point to Chinese involvement as boosting the overall economy. Success of the arrangement will depend on Mauritania's monitoring, control, and surveillance (MCS) ability.

China has also made inroads into East African fisheries. In 2010, new partnerships were reached with Madagascar and Mozambique.⁶¹ Operations were expanded the next year. The 2012 *Yearbook* stated that in 2011, "through wholly acquiring fishing vessels and fishing quotas in Mozambique and Madagascar, China has filled a hole in the space for cooperation in East Africa."

Other data about Chinese operations in West Africa is gleaned in bits and pieces from the fisheries yearbooks and other documents. A 2010 publication mentioned 202 trawling vessels in West Africa, 110 of them over 20 years old and "in need of replacement in order to maintain competitiveness."⁶² In 2009, China National Fisheries Corporation replaced 12 of its trawling ships in Africa, "which has increased production efficiency."⁶³ In 2005, there were approximately 70 foreign trawlers and sardine purse seiners in Sierra Leone's waters, and among them, Dalian International

⁵⁹ Prieur, Laurent. 2011. "Mauritanian Opposition Seethes at China Fish Deal." *Reuters*. June 8. <http://af.reuters.com/article/investingNews/idAFJ0E7570JS20110608?pageNumber=2&virtualBrandChannel=0&sp=true>.

⁶⁰ 2012 *China Fisheries Yearbook*.

⁶¹ 2011 *China Fisheries Yearbook*.

⁶² "Supporting and Strengthening Distant Water Fisheries" Task Force, 2010.

⁶³ 2010 *China Fisheries Yearbook*.

⁵⁸ Alder, Jacqueline, and Ussif Rashid Sumaila. 2004. "Western Africa: A Fish Basket of Europe Past and Present," *The Journal of Environment Development* 13, 156.

Company and China Water Distant-water Fisheries Company LLC had 20 and 16 shrimp trawling boats, respectively.⁶⁴

China's relationships with host countries in Africa through FFAs face certain challenges. Liberian fisheries officials cite unsustainable fishing methods such as pair trawling, issues with the Chinese commercial fishing vessels violating the 6-nautical-mile artisanal zone, and language problems in dealing with the Chinese.⁶⁵ Officials are hesitant to outlaw pair trawling because they worry that Chinese DWF companies will leave for countries whose policies are less strict, thereby losing the revenue earned from Chinese purchase of fishing licenses.

One article in Chinese discussed how to maximize Chinese gains from FFAs with three African countries: Guinea, Morocco, and Cameroon.⁶⁶ The author explains that Chinese fleets should take advantage of the system of issuing only temporary fishing permits to outsiders by purchasing permits when fish stocks are plentiful and withdrawing when resources are down. The author then elaborates on joint-venture schemes with Morocco and Cameroon that preserve the important management jobs for Chinese and the autonomy of Chinese management. In the case of Morocco, the author points out that the local partner will be reliant on China for parts and repair. In the case of Cameroon, which does not allow foreign fishing, the local company becomes the front for the Chinese operation.

Oceania

Oceania, home to Pacific Island Nations (PINs), is the world's largest tuna fishing ground. Because tuna is a highly migratory and straddling stock, the system of bilateral FFAs between DWF nations and host countries is overlaid by an international convention that governs the stocks through the Western and Central Pacific Fisheries Commission (WCPFC). Although DWF nations may have a comparative advantage in providing harvesting services in the WCPFC area, these arrangements may be stymied by corruption and other principal-agent problems. PINs are concerned that these issues could contribute negatively to future development (see box G.1).

China has both tuna longline and purse seine fishing operations in Oceania, launching its longline tuna operations in 1988.⁶⁷ China's first purse seine vessel, from a Shandong DWF company, obtained a fishing license from the Federated States of Micronesia (FSM) on January 14, 2002.⁶⁸ In the area covered by the WCPFC, China reports that catch from the longline and purse seine industries in 2012 was 49,476 and 49,148 million tons, respec-

tively.⁶⁹ China had 286 longline and 13 purse seine vessels in the area in 2010.⁷⁰ China has longline operations in FSM, Fiji, and the Marshall Islands. For the purse seine industry, the greatest catch comes from Papua New Guinea (56.91 percent),⁷¹ followed by FSM (23.03 percent), the high seas (10.36 percent), Nauru (7.55 percent), Marshall Islands (1.45 percent), Kiribati (0.45 percent), and the Solomon Islands (0.27 percent).⁷²

China aims to continue and expand its fishing activities in the WCPFC area. In 2012, China reported that it signed an agreement with the Cook Islands to allow 17 tuna vessels to enter their waters. China also negotiated a transfer of 4,000 tons of tuna quota from Japan in 2011.⁷³ Chinese fishing companies are also targeting fisheries that are relatively undeveloped or unregulated. For example, the *2011 China Fisheries Yearbook* states, "The productivity of the albacore industry is relatively good, and because albacore is not subject to international organizational management measures, the zeal of China's shipbuilding industry has been fairly high, adding 30 albacore long-line vessels."⁷⁴

In the WCPFC, fisheries specialists from other countries have pointed to domestic capacity challenges in China that manifest in a variety of areas, such as inadequate resources, education, and language and technical skills. These inadequacies point to a clear need for capacity building as a precursor for successful fisheries management. According to one specialist, the Chinese delegation is not big enough, and the lack of resources affects the quality of the delegation.⁷⁵ The lack of resources by the delegation reflects a larger capacity problem domestically. For example, the Chinese delegation expressed dismay at a possible change in the vessel monitoring system (VMS) rules, stating that it is hard to education their fishermen about the new rules, plus the change would entail high administrative costs.⁷⁶

According to the guidelines of the WCPFC, China has a scientific observer program to monitor catch and bycatch and ensure that fishing is done according to WCPFC rules; however, China faces some challenges in carrying out this program. China began its observer program in June 2009, making four observer trips in 2010, six in 2011, and eight in 2012.⁷⁷ China's observers, often students, are poorly trained, and thus their observer data is poor.⁷⁸ Capacity-building efforts would be useful in this area.

The data in China's daily fishermen logbooks is also poor compared to other fishing nations since knowledge and skills are lacking. For example, China's logbooks have no entry of nontarget species. The WCPFC has questioned China about data on its albacore catch, noting that the catch was unusually concentrated

⁶⁴ 柴秀芳, 石建高, 汤振明 [Chai Xiufang, Shi Jianguo, Tang Zhenmin]. 2006. "塞拉利昂的海洋渔业现状及发展建议" ["Status of Marine Capture Fisheries and Recommendation of Its Development in the Sierra Leone"]. 现代渔业信息 [Modern Fisheries Information] 21 (4).

⁶⁵ Mallory, 2013.

⁶⁶ 吕雨竹 [Lu Yuzhu]. 2007. 《中国渔业公司在非洲管理模式的研究》 ["Research on Management Models of Chinese Fishing Companies in Africa"]. 新西部 [New West China] 16, 36. Cited in Mallory, 2013.

⁶⁷ 张青, 王锡昌, 刘源 [Zhang Qing, Wang Xichang, Liu Yuan]. 2009. 《中国金枪鱼渔业现状及发展趋势》 ["Status and Development Trend of Tuna Fishery in China"]. 南方水产 [South China Fisheries Science] 5 (1).

⁶⁸ 宋来军, 苏晓飞 [Song Laijun, Su Shaofeng]. 2011. 《中西太平洋金枪鱼围网渔业及资源分析》 ["Analysis of WCPO Tuna Purse Seining and Resources"]. 辽宁经济 [Liaoning Economy] June, 83-85.

⁶⁹ Dai, Xiaojie, et al. 2013. *China Annual Report to the Commission*. WCPFC-SC9-AR/CCM-03. August.

⁷⁰ *Ibid.*

⁷¹ See also box G.1, which examines Papua New Guinea's policy on supporting its domestic fishing industry.

⁷² 宋来军, 苏晓飞 [Song Laijun, Su Shaofeng], pp. 83-85.

⁷³ *2012 China Fisheries Yearbook*.

⁷⁴ *2011 China Fisheries Yearbook*.

⁷⁵ Author interview.

⁷⁶ WCPFC Ninth Annual Meeting Proceedings, December 2012.

⁷⁷ Dai, *China Annual Report to the Commission*; PRC. 2011. *Review of Chinese Scientific Observer Programme in the Pacific Ocean in 2010*. Report WCPFC-SC7-2011/EB-WP 12 to the Scientific Committee of the Seventh Regular Session. August.

⁷⁸ Author interview.

geographically, possibly because of inaccurate logbook data that should have been more spatially representative.⁷⁹ Conflict exists in WCPFC meetings over China accurately identifying shark species, with China arguing that shark identification requirements should be relaxed because of the difficulty of identifying different species at the specific level of detail required by the Commission. Capacity building would improve logbook data.

China's catch data reporting to the WCPFC has been problematic. In 2010, China reported its 2009 longline bigeye catch from the Western and Central Pacific Ocean, excluding the portion of the Eastern Pacific Ocean that is covered by the WCPFC (a value of 9,793 tons was reported, whereas the total was actually 11,565 tons).⁸⁰ This was also the case for the years 2004–08 and 2010, and the WCPFC has requested that China resubmit its data from those years to ensure that the data covers the WCPFC area. Additionally, in 2009, the Chinese did not report 4,133 tons of Chinese bigeye longline catch from the Kiribati EEZ in their catch data, nor was it reported by Kiribati.⁸¹ This 4,133 tons is a significant amount—it is over the total amount of bigeye that the United States is allowed to catch in the entire WCPFC Convention area.

PINs are allocated favorable catch quotas because of their status as developing island countries; therefore, it is in the interest of DWF nations to partner with PINs so that catch data will be attributed to the islands and not the flag state. FSM, Kiribati, Palau, the Marshall Islands, the Solomon Islands, and Fiji have reported that Chinese-flagged longline vessels are considered chartered to these countries and therefore their catch should be considered as catch from these countries, not China.⁸² This issue has caused some uncertainty in the reported catch data from these countries. Indeed, the Chinese literature, in its calls for expansion of China's DWF industry, suggests joint ventures as a strategy to avoid catch limitations. One article advises utilizing the influence of foreign aid programs to develop large-scale purse seining. For example, the piece says, "China has already successfully built the Tuna Commission's headquarters in FSM, and got permission to have 25 boats in FSM EEZ in 2007. Because restrictions are about to increase, China should seize the opportunity to develop while it can." The article continues, saying that "by investing in the Pacific Island nations, [China] can earn bonus points, thereby obtaining fishing licenses." The article goes on to say, "The governments of the Pacific Island countries and the corresponding Tuna Commission mostly control overall catch, so China should have more joint ventures with Pacific Island countries to buy second-hand vessels. If the ship's registry is in the Pacific Islands, or if the companies employ a portion of local workers, vigorous support of the Pacific Island governments will be earned."⁸³ On the face

of it, arrangements in which coastal countries receive development aid and retain management over foreign fishing fleets may benefit both coastal and DWF countries. However, if aid is used as leverage to procure licenses through corrupt means, or if DWF countries form joint ventures in which management and operations are largely controlled by the DWF nation—some evidence suggests that this has occurred on both accounts—the result will be unsustainable management of fish stocks and little benefit to developing countries. Increased transparency in FFA negotiations would improve understanding of the link between aid and FFAs.

China has been implicated in corruption cases involving the procurement of fishing licenses. China's activities in Fiji's tuna industry have been detrimental to closer economic relations because of corruption.⁸⁴ China had 54 vessels licensed to fish in Fijian waters in 2000. Former Fijian Prime Minister Laisenia Qarase created an affirmative action program to increase the percentage of Fijians working in the tuna industry to 50 percent by the year 2020. This would be done through joint ventures with outside countries, including China. On a visit by Qarase to China in May 2002, Fiji was awarded a grant of \$3.4 million. On that visit, Fijian and Chinese governments signed a memorandum of understanding on fisheries that established a joint venture between China National Fisheries Corporation and Fiji National Fishing Company. While the Prime Minister was there, four CNFC vessels set sail for Fiji from Dalian. In 2002, 44 more Chinese vessels were added, raising the total to 131. Local fishermen opposed these moves, stating that these fishing vessels were unsustainable. In 2003, tuna catch had decreased 60 percent from previous years. Qarase visited China again in 2004 with Fiji's fisheries minister in tow, and the delegation met with Premier Wen Jiabao and CNFC. The Fijian side requested a fishing vessel for training and research purposes, and the Chinese committed another \$3.4 million to Fiji. Reports emerged that Chinese vessel operators had bribed Fijian fisheries officials to obtain licenses and that the joint ventures between Fiji and China were fronts for largely Chinese operations, neither meeting joint venture standards nor benefiting the Fijians. An investigation in 2004 led to the convictions of several Fijian fisheries officials. Issuance of fishing licenses was reformed, and subsequently 60 out of 84 mostly Chinese license applications were rejected. The number of licenses decreased to 75 in 2005 and 63 in 2006. By 2006, Chinese vessels held 24 licenses.

In another example of corrupt practices, in 2009, six Chinese fishing vessels were caught in the EEZs of the Solomon Islands without fishing licenses. The vessels had apparently been issued "Letters of Comfort" by the Solomon Islands fisheries officials as provisional fishing licenses.⁸⁵ The government of the Solomon Islands stated that these Letters of Comfort had not been obtained legally but instead "by colluding with and corrupting Solomon Islands fisheries officials." The issue will be taken up by Solomon Island domestic courts. Increased transparency would mitigate corruption as well.

⁷⁹ Williams, Peter. 2011. *Issues with Chinese Longline Fleet Data Submitted to the WCPFC*. Report WCPFC-SC7-2011/ST IP-03 to the Scientific Committee of the Seventh Regular Session. August.

⁸⁰ Williams, *Issues with Chinese Longline Fleet Data*.

⁸¹ *Ibid.*

⁸² Williams, *Issues with Chinese Longline Fleet Data*.

⁸³ 王学锋, 孙华, 卢伙胜 [Wang Xuefeng, Sun Hua, Lu Huosheng]. 2010. 《中国中西太平洋金枪鱼围网渔业的可持续发展》 ["Sustainable Development of China's Tuna Purse Seine in the Western and Central Pacific Ocean"]. 水产科学 [*Fisheries Science*] 29 (2), 120–24.

⁸⁴ The information in this paragraph comes from Tarte, Sandra. "Fiji's 'Look North' Strategy and the Role of China." In *China in Oceania*, edited by Wesley-Smith and Porter, pp. 122–123, 127–128.

⁸⁵ WCPFC. 2010. *Technical and Compliance Committee Summary Report*. Sixth regular session, September 30–October 5, Pohnpei, Federated States of Micronesia.

BOX G.1. ARE FFAs ECONOMICALLY EFFICIENT FOR PAPUA NEW GUINEA?

Papua New Guinea (PNG) is an example of a PIN that is considering relying solely on domestic fishing services versus importing fishing services from foreigners. In PNG, all longline operations are domestic, but purse seining is conducted by DWF nations, including China.¹ The existing fisheries access agreements are between the Chinese DWF association China Overseas Fisheries Association (COFA) and the PNG government. Because artisanal fishermen and small and medium enterprises (SMEs) have different technology and target different species than the commercial industry, there is not much competition between these two groups. However, the commercial fishery is of concern to PNG because of domestic employment issues. PNG is encouraging landing more fish locally, as the government would like to capture more of the value added in the industry and eventually have no foreign fishing in their waters. Because of the high capital intensity in the tuna industry, PNG does not currently have the technology or processing capability needed to make the industry more domestic in nature; this would require investment. PNG does require foreign fishing nations to employ a certain number of domestic workers. The Philippines is responsible for 80 percent of PNG's tuna processing domestically, and some is processed in Malaysia. The Chinese have proposed building a tuna processor in PNG, but the proposal is still pending agreement and approval by the PNG government. Whether FFAs are more economically efficient than domestically provided services would be an interesting case to study in further detail.

¹ Author interview.

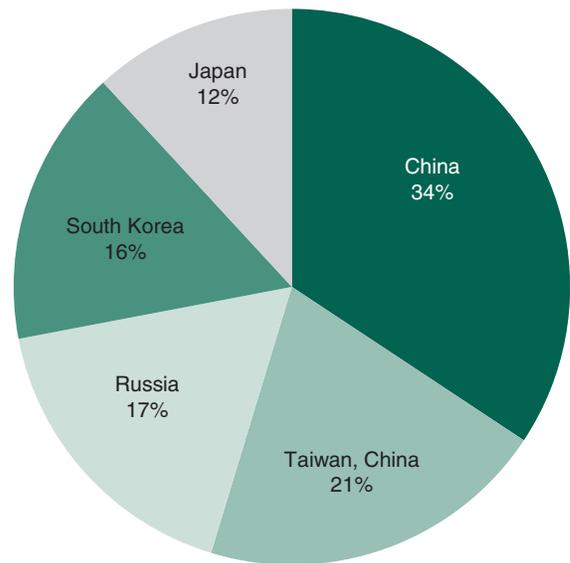
CHINA IN COMPARATIVE PERSPECTIVE

The all-time largest DWF nations or entities are the Russian Federation and Japan, followed by Spain, South Korea, Taiwan, China, and, most recently, China. A 1998 report stated that the most significant nations were Russia (with 32 percent of DWF catch), Japan (21 percent of the total), Spain (10 percent), South Korea (5 percent), Russia and Poland (4 percent each), Taiwan, China, Portugal, Germany, and France (3 percent each), Ukraine (2 percent), Norway, Romania, Cuba, Bulgaria, and the United States (1 percent each), followed by 53 countries with less than 1 percent each.⁸⁶ The Soviet Bloc accounted for 50 percent of total global DWF catch at its height. Yet already in the early 1990s, these nations or entities were reducing their fleet sizes, and it was predicted that China would take over some of the effort from these entities.⁸⁷ Today China accounts for about a third of global DWF catch (see figure G.3).

⁸⁶ Bonfil, Ramon, et al., eds. 1998. "Distant Water Fleets: An Ecological, Economic and Social Assessment." *Fisheries Centre Research Reports* 6 (6), 17.

⁸⁷ Wildman, Mark R. 1993. *World Fishing Fleets: An Analysis of Distant-Water Fleet Operations Past, Present, Future, Vol. 3—Asia*. Silver Spring, MD: National Marine Fisheries Service, National Oceanic and Atmospheric Administration.

FIGURE G.3. PERCENTAGE OF DISTANT WATER CATCH OF MAJOR DWF NATIONS, 2011–13¹



Source: compiled by author from range of data sources.

¹ China, Taiwan, and South Korea, 2012; Russia, 2013; Japan, 2011.

TABLE G.2. JAPAN'S DISTANT WATER CATCH BY FISHING METHOD IN TONS, 2011¹

Distant water trawl	52,549
Distant water skipjack and tuna	184,210
Distant water tuna longline	105,843
Distant water skipjack pole and line	67,889
Distant water squid anglings	12,223

¹ Government of Japan, Ministry of Agriculture, Forestry and Fisheries. http://www.maff.go.jp/e/tokei/kikaku/nenji_e/88nenji/index.html#nse011.

Japan

Japanese DWF vessels have operated globally since the end of World War II, particularly since 1952, when the American occupation relaxed restrictions on Japanese fishing vessels. The Japanese government encouraged the expansion of the DWF industry with the slogan "from coastal to offshore, from offshore to distant waters."⁸⁸ Tuna catch grew from 10,000 tons before 1950 to 50,000 tons in 1960. Since the advent of UNCLOS, Japanese vessels have been decreasing in number rapidly as the fleet was excluded from the coastal waters of other countries and became less competitive in the face of other, more cost-effective fleets. The number of Japanese DWF vessels diminished threefold between 1975 and 1992, and Japan's share of the global

⁸⁸ Barclay, Kate. 2009. "Ocean, Empire and Nation: Japanese Fisheries Politics." In *Water, Sovereignty and Borders in Asia and Oceania*, edited by D. Ghosh, H. Goodall, and Donald S. Hemelryk, pp. 38–49. London: Routledge.

total DWF catch decreased from 20 percent in 1980 to 12 percent in 1991.⁸⁹ Japan's total distant water catch was 458,000 tons in 2012.⁹⁰

Russia

Fishing came under the control of a small number of large state-owned enterprises during the Soviet era.⁹¹ In the mid-1950s, the Soviet Union initiated an enormous program of shipbuilding and fishing around the world. With the help of massive state subsidies, by the late 1950s, the USSR became a significant DWF nation, with fleets off the coasts of Africa and South America.

The USSR caught less than 500,000 tons of fish in 1950. But by 1970, the annual catch was over six million tons. The Soviet Union's fishing fleet became the largest in the world, and its total catch just second to Japan's. After the fall of the Soviet Union, DWF operations were almost completely terminated because Russian vessels concentrated on catch in the Russian EEZ.⁹²

The last director of Russia's Federal Fisheries Agency, Andrey Krayniy, who came into office in 2007 and resigned in January 2014, led efforts to reform and revive the Russian fishing industry, including DWF. Krayniy set forth plans to regenerate the DWF industry initially through the activities of a state-owned enterprise, which may then be followed by commercial ventures. Krayniy stated that Russia has signed fisheries agreements with 14 African countries and aims to sign agreements with all African coastal states. In 2013, the Russian DWF industry caught 617,100 tons of fish, with 446,300 tons coming from the EEZs of host countries, with 229,700 tons from Africa alone. Morocco, the West Sahara, and Guinea-Bissau account for the bulk of this catch, at 36.3, 26, and 25.7 percent, respectively.⁹³

South Korea

South Korea's DWF industry began in 1957, when South Korea sent an exploratory catch mission to the Indian Ocean to conduct longline tuna operations. South Korea went from 100 vessels in the early 1960s to a high of 850 vessels in the late 1980s and then shrank to 645 vessels in 1993.⁹⁴ According to official statistics, in 2012, South Korea's fleet of 344 vessels caught 575,308 tons of fish worth 1,655,406.⁹⁵

⁸⁹ Wildman, *World Fishing Fleets*, p. 27.

⁹⁰ Government of Japan, Ministry of Agriculture, Forestry and Fisheries. Japan Fisheries Agency 2013 Annual Report. http://www.jfa.maff.go.jp/e/annual_report/2013/pdf/25suisan-sankou.pdf.

⁹¹ Jørgensen, Anne-Kristin. 2009. "Recent Developments in the Russian Fishery Sector." In *Russia and the North*, edited by Elana Wilson Rowe. Ottawa: University of Ottawa Press.

⁹² Jørgensen, p. 89.

⁹³ "Глава Росрыболовства: 'Расширение российского присутствия у берегов Африки не нравится конкурентам'" ["Head of the Federal Fisheries Agency: 'Expanding Russian Presence off the Coast of Africa and I Do Not Like Competition'"]. Interfax. January 13, 2014. <http://www.interfax.ru/txt.asp?sec=1483&id=351264>.

⁹⁴ Waldman, pp. 88–89.

⁹⁵ Korean Overseas Fishing Association

TABLE G.3. TAIWAN'S DWF CATCH IN TONS¹

Type/Year	2011	2012
Otter trawling	37,885	36,134
Purse seine (tuna)	176,109	200,958
Longline (tuna)	216,867	223,422
Jigging (squid)	104,513	98,126
Torch light (saury)	160,531	161,514
Total	695,905	720,154

¹ *Ibid.*

Taiwan, China

Taiwan's DWF fleet began in the 1960s, fishing for tuna, which until the mid-1970s was mostly exported for tuna canning. Since then, Taiwan shifted to production of sashimi-grade tuna, largely destined for Japan. Taiwan's fleet has been decreasing as well, from a high of 1,800 in 1990. In 1991, Taiwan froze applications for new DWF vessels, introducing a zero-growth policy, and prohibited the purchase of foreign vessels.⁹⁶ In 2012, Taiwan's DWF industry landed 726,775 tons worth NT\$50.14 million.⁹⁷ In the same year, 6,037 households and a total of 15,840 fishermen were engaged in DWF.

Conclusions and Recommendations

This case study has examined China's DWF operations in ABNJ, including through FFAs with host countries, and now turns to summarizing the key principles discussed in the analysis and identifying lessons learned.

- » Host countries benefit from the income generated through the sale of fishing licenses to China. One way to improve the terms for host countries is through regionally coordinated bargaining as opposed to bilateral negotiations where the Chinese side is advantaged because of its size vis-à-vis the coastal state. While the WCPFC has been criticized for not setting adequately strict fishing quotas, there are benefits to having a regional governance structure in place to decide on fishing practices. Within the WCPFC, a few PINs have an arrangement called the Parties to the Nauru Agreement, which aids in their designation of purse seine licenses to outsiders. Similar regional bargaining arrangements might benefit Africa. For example, Liberian officials were hesitant to ban pair trawling because Liberia might lose Chinese fishing vessels to another country in the region that still allows the practice. However, if all countries in the region would agree to ban pair trawling, the risk of losing foreign vessels is removed.
- » Ownership information about Chinese vessels and Chinese reflagging are challenges to enforcing rules against illegal

⁹⁶ Waldman, pp. 121–25.

⁹⁷ Fisheries Agency, Council of Agriculture, Executive Yuan. 2013. *Fisheries Statistical Yearbook: Taiwan, China, Kinmen and Matsu Area 2012*. Taipei.

fishing. Requiring commercial fishing vessels to have permanent, nontransferable International Maritime Organization (IMO) numbers would ameliorate this problem. China should be encouraged to better address the reflagging of its vessels.

- » The ownership structure of Chinese DWF companies matters because deep-pocketed state-owned enterprises (SOEs) command resources from the government that possibly give them an unfair advantage by skewing their profits in a more favorable direction for the company. At the same time, the Chinese government has less control over its fishing vessels both because of the increasing privatization of the industry and the decrease in direct management over SOEs that the government once had.
- » The development of China's DWF industry is partly because of domestic overfishing and unemployment, and the spillover affects China's Asian neighbors most directly. There is a disjoint between domestic and DWF policies and a lack of policy coherence in terms of long-term sustainability. Whereas China has taken concrete measures to address fisheries depletion domestically, the lack of such measures belies Chinese rhetoric about sustainability in the DWF industry. Nonetheless, Chinese-language sources increasingly call for attention to responsible DWF, and the Chinese state is concerned about its image and reputation abroad. China also exhibits a certain lack of a sense of reality in terms of the potential expansion of DWF—other countries are pulling out because DWF is no longer profitable. This dissonance is a result of subsidies and favorable fiscal policies toward the industry, as well as China's various strategic interests in having a DWF industry.
- » Subsidies are probably the most destructive contributor to overfishing. China is one of the top fishing industry subsidizers. However, because subsidies are pervasive throughout the entire fishing industry, more effort needs to be made to address the removal of fishing subsidies in a multilateral fashion.

- » Catch data accuracy remains a problem.
- » Poor governance in host countries is a statistically significant predictor of IUU fishing. This problem is particularly pronounced in West Africa. Strengthening governance in host countries through capacity building will enable better enforcement of fishing regulations and monitoring of arrangements like joint ventures and chartering.
- » Because host countries have restricted fishing in their waters, China is increasing its high seas operations. Gaps in the governance of high seas fishing need to be filled. The current patchy arrangement of RFMOs is not globally comprehensive, so fishing capacity that is reduced in one region may easily move to another. After the jack mackerel stock showed signs of decline for several years, China simply moved its fishing vessels elsewhere, to Africa and off the coast of Russia. Having a global fisheries management organization that features a system of individual transferable quotas is one way to address the issue of governance gaps.⁹⁸ Requiring IMO numbers of fishing vessels and creating a global record of fishing vessels would also contribute to solving this problem.
- » As this case study showed through numerous examples, capacity-building efforts to improve the skills not only of host countries but also of DWF nations would improve overall management. The Chinese are not as skilled as the fishermen from other more advanced DWF nations. The Chinese have language-barrier issues and other capacity problems, such as poor logbook and observer knowledge. Improving education and awareness among Chinese would contribute to improving sustainable fisheries management.
- » Some of the costs identified by those skeptical of FFAs were observed in the case study, including problems attributing catch appropriately because of murky joint ventures and evidence of corruption in licensing and aid being used as leverage to obtain fishing licenses. These issues essentially stem from a lack of transparency in the negotiation of FFAs.

⁹⁸ Barkin, J. Samuel, and Elizabeth R. DeSombre. 2013. *Saving Global Fisheries: Reducing Fishing Capacity to Promote Sustainability*. Cambridge: MIT Press.