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China's Role in the Exploitation of Global Fisheries: Issues for Congress

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China has emerged as the world's largest exploiter of fisheries on a global, not just regional, scale. Chinese fleets are active in waters far from China's shores, and the growth in their harvests threatens to worsen the already dire depletion in global fisheries. China leads the world in seafood production from aquaculture, inland (freshwater) fisheries, and marine fisheries. The expansion and modernization of fisheries is a key part of China's broader industrial policy goals of upgrading their agricultural industries and improving domestic food security. China has developed the world's largest fishing fleet of vessels operating in domestic and neighboring coastal inshore and offshore areas, as well as a distant-water fleet (DWF) active in many parts of the world. China is a major hub for value-added processing in seafood supply chains and it is the world's largest seafood processor; much of what China processes is exported to other countries. China is also the largest importer and producer of fishmeal for use in aquaculture. The magnitude of China's seafood production and consumption has implications for international trade, fisheries conservation and management, and allocation of fishery resources among fishing and coastal nations. Many in Congress are interested in China's involvement in fisheries around the world because of efforts to conserve marine resources globally, and the fishing industry's intersection with regional conflicts and transnational criminal activities that impact U.S. national security.

China's fishing fleets have been implicated in illegal fishing activity in many parts of the world, and China is a leading country responsible for Illegal, Unreported, and Unregulated (IUU) fishing. The decline in China's own coastal fisheries from overfishing and habitat degradation has led, in part, to Beijing developing the world's largest aquaculture industry and DWF. Limits to China's inshore fisheries also contributed to an increase in aquaculture production, measures to constrain domestic inshore fisheries (increased regulation and curtailment of some subsidies), an increase in fishing in disputed areas and adjacent nations' waters, and an expansion of the DWF to other parts of the world. The expansion of the marine sector in China is also driven by China's broader industrial policy and efforts to improve domestic food security. China also uses its fishing fleet to further geopolitical objectives. The expansion of China's fishing interests is contributing to conflicts between China and other countries who seek to protect their national fishing interests and to conserve fish stocks.

Congress and successive administrations have taken a number of actions to combat IUU fishing. These actions attempt to influence the behavior of fishing fleets through international agreements and trade because most IUU activities occur outside of U.S. jurisdiction. Many of these actions are applied to IUU fishing generally and applicable to illegal activities associated with Chinese fleets and fishing companies. U.S. efforts to combat IUU fishing have included enforcement agreements, trade monitoring, international treaties and agreements, and efforts to promote resource sustainability.

As Congress considers China's maritime ambitions and the depletion of global fisheries, it may consider the ways in which Chinese fishing—both legal and illegal—has affected global fisheries stocks. The U.S. policy response to IUU fishing and China involves two general areas: the review of existing laws and administration efforts to improve efficacy, and the identification of additional authorities that may be needed to combat IUU fishing activities. Given the prominent role of the Chinese DWF in many regional and global fisheries, some have questioned whether U.S. actions should focus on the behavior of China's fishing fleets or continue to take a more general approach to combating IUU activity. Some potential lines of effort to bolster global fisheries management and combat IUU fishing include improving coordination of U.S. agency efforts, seafood traceability, surveillance and enforcement, and supporting existing international agreements. Related efforts may include providing assistance to countries to enforce regional fishery management organization agreements and national laws related to IUU fishing, and supporting efforts at the World Trade Organization (WTO) to negotiate reductions in fisheries subsidies.

Seafood obtained from IUU fishing feeds directly into the flow of seafood traded throughout the world and imported into the United States. The United States is the largest importer of seafood by value and some analysts estimate that over 90% of the seafood consumed in the United States is imported. According to some estimates, 11% of the total U.S. imports (valued at \$2.4 billion) were obtained from IUU fishing. The International Trade Commission estimates that China is the largest single source of U.S. seafood imports from IUU fishing.

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Introduction

Illegal, unreported, and unregulated (IUU) fishing and the growing number of overfished global fish stocks have raised environmental and national security issues for Congress and successive U.S. Administrations (refer to the **Appendix** for IUU fishing definitions). In 2019, a nongovernmental organization-led initiative (the Global Initiative Against Transnational Crime) developed an IUU Fishing Index that identified China as the overall worst-scoring coastal country (out of 152 total countries) with regard to IUU fishing practices.¹ By a wide measure, China is the largest single contributor to these concerns because of the scale, range, and behavior of its fishing fleets. A recent Foreign Policy report states:

Though China isn't alone in its destructive fishing practices, it stands apart by virtue of its sheer size and the extent to which it pushes its highly subsidized fleet across the world's oceans. It's also the only country whose fishing fleet has a geopolitical mission, taking over weaker countries' waters and expanding Beijing's maritime territorial ambitions.²

Declining domestic fish stocks and an expanding fishing fleet encouraged by national policies are two factors that may be driving IUU fishing by Chinese actors. A significant portion of China's domestic fish stocks have been depleted by overfishing and degradation of coastal habitat. As production of inshore fisheries decreased, managers have attempted to rebuild domestic stocks by employing more restrictive measures and regulations and limits to some subsidies. Natural and regulatory constraints on inshore fisheries prompted China to adopt policies that encourage development of aquaculture, fishing in neighboring jurisdictions, and expansion of distant-water fisheries.³ China now leads the world in aquaculture production and distant-water landings of fish.⁴ An apparent consequence of the expansion of China's offshore fleet is an increase in illegal fishing by China in many parts of the world.⁵

Addressing fisheries is a key component of China's broader industrial policy goals of upgrading China's agricultural industries and improving domestic food security.⁶ Further expansion of China's aquaculture and distant-water fisheries are needed to satisfy increasing domestic consumer demand, maintain employment in fishing and processing sectors, and to sustain export markets. Demand for relatively low-valued fish is also likely to increase to support production from aquaculture. Low-valued species are used to produce fishmeal and are a sometimes essential ingredient of fish feed.

Congress and successive administrations have taken a number of actions to combat IUU fishing including enforcement agreements with other countries, trade monitoring, participation in international treaties and agreements, and general efforts to promote resource sustainability. Congress may consider whether U.S. policies need to focus on China's fishing activities because

¹ The Global Initiative Against Transnational Organized Crime and Poseidon Aquatic Research Management, "*The Illegal Unreported and Unregulated Fishing Index*," January 2019, <https://globalinitiative.net>.

² Christopher Pala, "China's Monster Fishing Fleet," *Foreign Policy*, November 30, 2020.

³ Tabitha Grace Mallory, "Testimony Before the U.S.-China Economic and Security Review Commission," January 26, 2012.

⁴ *Fish landings* are the catches of marine fish landed in foreign or domestic ports. Fisheries landings are subject to changes in market demand and prices as well as long-term fish stock sustainability concerns.

⁵ Blake Herzinger, "China Is Fishing for Trouble at Sea," *Foreign Policy*, November 20, 2020.

⁶ Ministry of Agriculture and Rural Affairs of the People's Republic of China, "十三五全国远洋渔业发展规划 (13th Five-Year National Fishing Industry Development Plan)," December 21, 2017, http://www.moa.gov.cn/gk/ghjh_1/201712/t20171227_6128624.htm.

of its dominant role in many distant-water fisheries, or whether a more general approach to IUU fishing that builds on current efforts is warranted.

After a brief overview of the state of the current global fisheries and international and regional fisheries management, this report will examine China's fishing practices, including IUU activities and distant-water fishing in select regions. There is also a discussion of potential issues for Congress, including U.S. responses to IUU fishing.

Illegal, Unreported, and Unregulated Fishing

National and international efforts to manage fisheries are weakened by Illegal, Unreported, and Unregulated (IUU) fishing, both within Exclusive Economic Zones (EEZs) and on the high seas. IUU fishing may diminish the benefits of fisheries management and contribute to overfishing. IUU fishing generally refers to fishing activities that violate national laws or international fisheries conservation and management measures. For example, licensed vessels may operate in violation of national laws within EEZs, misreport harvest, or not comply with regional fisheries management organization (RFMO) measures in high seas areas outside of national EEZs. Unlicensed vessels may operate illegally within EEZs, or participate in unregulated fishing in areas managed by RFMOs (**Figure 1**). IUU operations may violate basic safety standards and deny crew members' fundamental rights, such as agreed-on terms and conditions of their labor. IUU fishing is also sometimes associated with other illegal activities such as drug trafficking, labor exploitation, and organized crime. However, the United Nations Food and Agriculture Organization and U.S. definitions of IUU fishing are specific to fisheries laws and resources while other types of illegal activities are subject to other national laws and international agreements.

According to the National Intelligence Council, IUU fishing, along with surging worldwide demand for seafood and declining ocean health, pose an existential threat to global fisheries.⁷ Precise estimates of the global scale of IUU fishing are difficult to quantify in financial terms, but the National Oceanic and Atmospheric Administration recognizes that "there is little disagreement that it is in the billions, or even tens of billions, of dollars each year."⁸ One recent study estimated that gross revenues associated with unreported fish catches worldwide potentially generate \$9 billion to \$17 billion in illicit proceeds annually; the study further estimated corresponding economic impact losses due to the diversion of fish from the legitimate trade as costing \$26 billion to \$50 billion annually and potential losses to countries' tax revenues worth approximately \$2 billion to \$4 billion annually.⁹

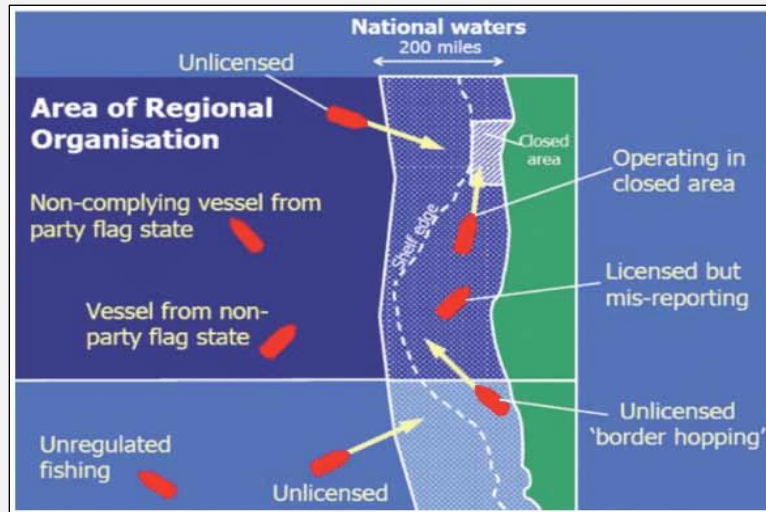
IUU activities can contribute to overfishing, deplete protected resources (e.g., endangered species and marine mammals), and frustrate efforts to assess and manage marine populations. International cooperation is necessary to manage many fish stocks because they move among different national zones of jurisdiction and the high seas. Overfishing of the stock in one area affects the stock condition of the species in other parts of its range. IUU fishing presents wide-ranging management and conservation challenges at both national and international levels. Actions to combat IUU fishing activities are often hindered by the large areas in which fishing takes place, the lack of resources for adequate enforcement, weak governance institutions, and inadequate international cooperation.

⁷ National Intelligence Council, *Global Implication of Illegal, Unreported, and Unregulated (IUU) Fishing*, NIC WP 2016-02, September 19, 2016.

⁸ National Oceanic and Atmospheric Administration (NOAA), "Understanding Illegal, Unreported, and Unregulated Fishing," undated webpage, <https://www.fisheries.noaa.gov/insight/understanding-illegal-unreported-and-unregulated-fishing>.

⁹ U.R. Sumaila et al., "Illicit Trade in Marine Fish Catch and its Effects on Ecosystems and People Worldwide," *Science Advances*, Vol. 6, No. 9, February 26, 2020, eaaz3801, pp. 1-7. According to an earlier estimate, annual global fisheries losses due to illegally caught fish amounted to approximately \$10 to \$23.5 billion annually. See David J. Agnew et al., "Estimating the Worldwide Extent of Illegal Fishing," *PLoS ONE*, vol. 4, iss. 2, February 25, 2009, pp. 1-8. See also C. Nellemann, ed., *The Rise of Environmental Crime—A Growing Threat to Natural Resource Peace, Development, and Security*, United Nations Environmental Programme and INTERPOL Rapid Response Assessment, 2016, p. 20.

Figure 1. IUU Fishing Examples



Source: MRAG, Review of Impacts of Illegal, Unreported and Unregulated Fishing on Developing Countries, 2005, at [http://transparentsea.co/images/5/58/Illegal\[1\]fishing-mrag-report.pdf](http://transparentsea.co/images/5/58/Illegal[1]fishing-mrag-report.pdf).

IUU activity undermines efforts to conserve and manage stocks and provides an unfair advantage to those entities that engage in these activities. IUU fishing also “adversely impacts legitimate commercial fishers.”¹⁰ The decline of common or shared stocks may then lead to lower harvests for legitimate fishermen. Vessels conducting IUU fishing avoid operational costs by not complying with regulatory requirements such as gear restrictions, closed areas, or harvest limits. Those fishing legally may be harmed by lower catch rates and higher associated fishing costs, and shore-based businesses such as processors, dealers, and vendors may be harmed by the decrease in supplies of fish. The combined effects of overfishing and disruption of traditional markets may contribute to food scarcity. In addition, the harm to local and national economies may increase tensions within and between countries and contribute to broader conflicts. Legal fishing could be further affected as rebuilding programs are implemented and catches are reduced for fishermen who are fishing legally, while IUU related activity may continue unabated and potentially the ratio of fish caught by IUU activities versus legal activities could increase.

Global Fisheries Overview

Most fish are harvested in areas under national jurisdiction; however, many fish stocks move among internal waters (e.g., bays, such as the Chesapeake),¹¹ territorial waters, Exclusive Economic Zones (EEZs),¹² and the high seas. The following provides a brief overview of global marine fisheries production and management.

Marine Fisheries Production

Global fisheries provide economic benefits to fishing and processing sectors and are a source of high quality protein to billions of people.¹³ From 1961 to 2017, global fish consumption grew by

¹⁰ “Illegal, Unreported and Unregulated Fishing,” PEW, February 25, 2013.

¹¹ United Nations, Convention on the Territorial Sea and the Contiguous Zone, 1958, at https://www.gc.noaa.gov/documents/8_1_1958_territorial_sea.pdf. The Convention entered into force on September 10, 1964.

¹² The Exclusive Economic Zone (EEZ) includes the waters beyond and adjacent to territorial waters and extends up to 200 nautical miles as measured from the baseline (generally coastal states’ coastline). The high seas are comprised of all parts of the sea that are not included in the EEZ, the territorial sea, or internal waters of a coastal state.

¹³ In this context fish includes marine invertebrates (shellfish) such as crustaceans, mollusks and others, but not marine

an average annual rate of 3.1%, which was approximately twice the annual world population growth rate of 1.6% during this period. Fish accounted for 17% of the global population's intake of animal protein in 2017.

In 2018, total world production, including inland capture fisheries, aquaculture, and marine capture fisheries, was 179 million tons (mt) with a sale value of \$401 billion.¹⁴ Of the overall total, approximately 156 mt were used for human consumption and 22 mt were used to produce fishmeal, fish oil, and other non-food uses. Aquaculture accounted for 46% of the total production and 52% of fish for human consumption.¹⁵ Demand for low-valued fish to produce fishmeal and oil is driven by the need to produce food for fish raised on farms. The need for fishmeal and oil encourages targeting and retention of species of low value for human consumption and further geographic expansion of the marine fishing sector. Since 1986, marine catch has been relatively stable with landings ranging from 78 and 84 mt.¹⁶ However, wild production has varied by species and region depending on environmental conditions, fishing pressure, and overfishing. During the same period, aquaculture from both freshwater and marine sources increased from 15 to 84 mt.¹⁷

Exploitation of Fish Stocks

The number of fish stocks considered to be either fully exploited or overexploited has grown over the last two decades (**Figure 2**). Secretary General of the United Nations António Guterres stated in December 2020:

Overfishing must stop ... marine reserves must increase significantly; and coastal areas need greater protection.... We need urgent action on a global scale to ... protect the world's seas and oceans from the many pressures they face.¹⁸

According to the United Nations Food and Agriculture Organization (FAO):

The state of marine fisheries resources ... has continued to decline. The proportion of fish stocks that are within biologically sustainable levels decreased from 90% in 1974 to 65.8% in 2017 ... with 59.6% classified as being maximally sustainably fished ... the percentage of stocks fished at biologically unsustainable levels increased from 10% in 1974 to 34.2% in 2017.¹⁹

A study of the biomass of 1,300 species of marine fish and invertebrates over 60 years discovered global declines of many traditional and high-demand species.²⁰ Further, they reported that the biomass of most major fisheries are "well below the level that can produce optimal catches."²¹ The

plants.

¹⁴ United Nations Food and Agriculture Organization, "The State of World Fisheries and Aquaculture 2020: Sustainability in Action," p. 2, <https://www.fao.org/3/ca9229en/ca9229en.pdf>. Hereinafter cited as FAO, 2020.

¹⁵ FAO, 2020, p. 2.

¹⁶ FAO, 2020, p. 3.

¹⁷ FAO, 2020, p. 3.

¹⁸ António Guterres, "Secretary General's Address at Columbia University: 'The State of the Planet,'" United Nations, December 2, 2020, <https://www.un.org/sg/en/content>.

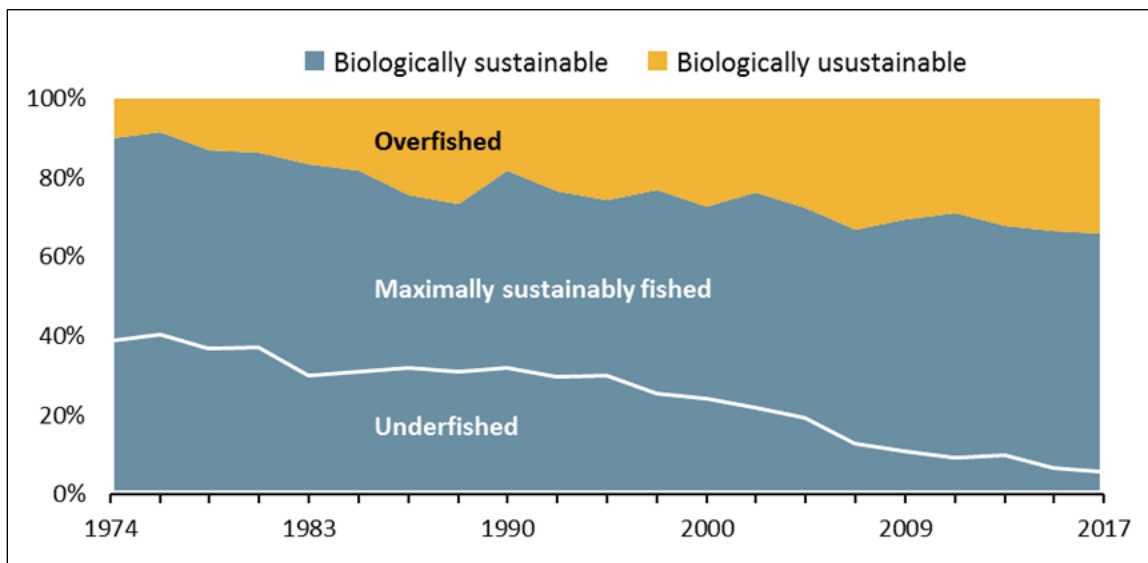
¹⁹ FAO, 2020, p. 2.

²⁰ M.L.D. Palomares et al., "Fishery Biomass Trends of Exploited Fish Populations in Marine Ecoregions, Climatic Zones and Ocean Basins," *Journal of Estuarine, Coastal and Shelf Science*, September 2020.

²¹ M.L.D Palomares, "Popular Seafood Species in Sharp Decline Around the World," *The Sea Around US: Fisheries, Ecosystems & Biodiversity*, July 21, 2020. <http://www.seaaroundus.org>.

study noted that its findings support anecdotal evidence of systematic and widespread overfishing of the coastal and continental shelf waters in much of the world over the past 60 years.²²

Figure 2. Status of World Fish Stocks



Source: United Nations Food and Agriculture Organization, *The State of World Fisheries and Aquaculture 2020: Sustainability in Action*, 2020, at <https://doi.org/10.4060/ca9229en>; adapted by CRS.

According to some observers, distant-water fishing “is an opaque topic that is difficult to study due to data limitations, yet these fleets are likely having a significant impact on marine fishery resources.”²³ The top five distant water fleets (DWFs)²⁴—China (38%), Taiwan (22%), Japan (10%), South Korea (10%), and Spain (10%)—account for 90% of all DWFs,²⁵ and primarily operate in the Pacific Ocean and off the coasts of East and West Africa. A recent Stimson Center report argues

the current fishing industry is unsustainable. The challenges that [distant-water fishing] fleets pose to coastal countries’ resources and the fishing industry, particularly the expanding Chinese fleet, will persist unless there is a significant global shift towards sustained fisheries management.²⁶

China’s, and other nations’, exploitation of global fish stocks occur within a global context of increased stress on fisheries due to the impacts of climate change. By some estimates, climate change impacts are projected to decrease maximum catch potential in the world’s EEZs between

²² M.L.D. Palomares, et al., “Fishery Biomass Trends of Exploited Fish Populations in Marine Ecoregions, Climate Zones and Ocean Basins,” *Journal of Estuarine, Coastal and Shelf Science*, July 2020.

²³ “Distant Water Fishing: Overview of Research Efforts and Current Knowledge,” California Environmental Associates, October 2018.

²⁴ “Distant-water fishing fleets are the fishing vessels that operate within the 200 mile Exclusive Economic Zones (EEZs) of other countries, and less often further offshore, in what is known as the high seas.” As referenced in “What Are Distant Water Fleets, and How Do They Affect Overfishing?” Oceana, October 21, 2013.

²⁵ Sally Yozell and Amanda Shaver, “Shining a Light: The Need for Transparency Across Distant Water Fishing,” Stimson, 2019.

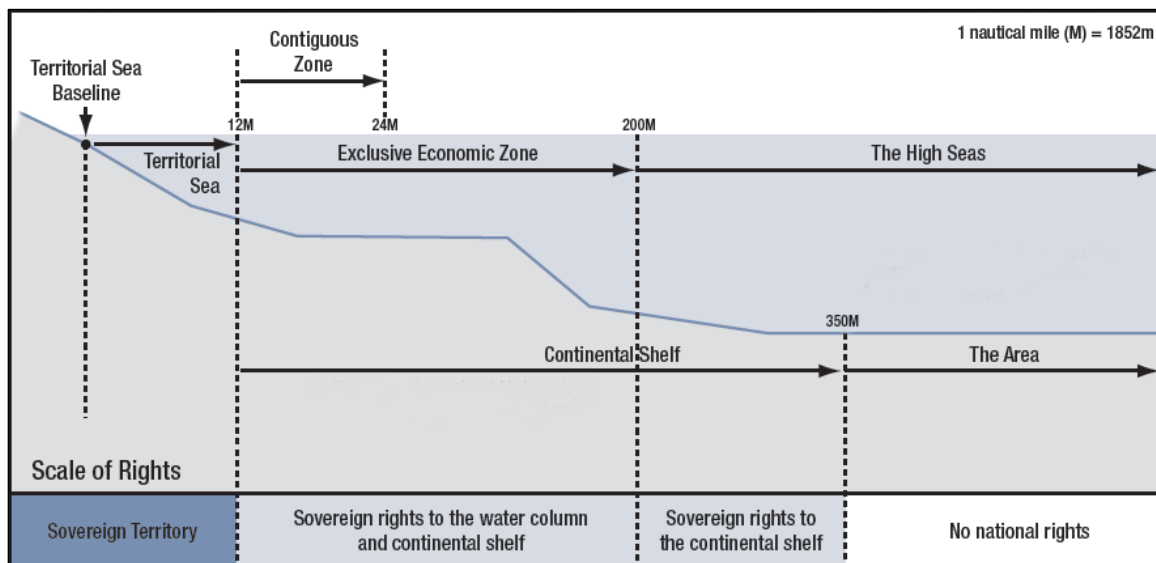
²⁶ Sally Yozell and Amanda Shaver, “Shining a Light: The Need for Transparency Across Distant Water Fishing,” Stimson, 2019.

2.8% and 12.1% by 2050 depending on different greenhouse gas emissions scenarios.²⁷ These impacts are expected to be more significant in tropical regions of Africa and Asia, where warming is expected to decrease productivity.²⁸ In addition, marine fish are shifting their regional and global distributions in response to climate change.²⁹

International Fisheries Management

The United Nations Convention on the Law of the Sea (UNCLOS) established a comprehensive international legal framework for governing the world's oceans.³⁰ The fisheries provisions of UNCLOS provide the foundation for cooperative and sustainable national and international fisheries management.³¹ UNCLOS articles recognize the broad authority of coastal states over living resources within their territorial sea and EEZ to a maximum of 200 nautical miles seaward from the baselines used to measure the territorial sea (Figure 3). In managing living resources, coastal nations determine allowable catches and promote optimal resource use.

Figure 3. Areas of Ocean Jurisdiction



Source: Arctic Council, Arctic Marine Shipping Assessment 2009 Report (Tromsø, Norway: 2009), p. 52.

UNCLOS includes provisions that address access of fishing nations to fisheries in other coastal state EEZs. The treaty also preserves the freedom to fish on the high seas, subject to other treaty

²⁷ United Nations Food and Agriculture Organization, “Impacts of Climate Change on Fisheries and Aquaculture,” Rome. 2018.

²⁸ FAO, 2020, p. vii.

²⁹ “Shifts in Species Distributions Associated with Climate Change,” Mid-Atlantic Regional Ocean Assessment, <https://roa.midatlanticocean.org/ocean-ecosystem-and-resources/status-trends-and-linkages/shifts-in-species-distributions-associated-with-climate-change/>; A. Perry et al, “Climate Change and Distribution Shifts in Marine Fishes,” *Science*, June 24, 2005.

³⁰ Division for Ocean Affairs and Law of the Sea, *United National Convention on the Law of the Sea of 10 December 1982*, United Nations, December 10, 1982, http://www.un.org/depts/los/convention_agreements/convention_overview_convention.htm. Hereinafter cited as UNCLOS, 1982.

³¹ Although the United States has not ratified UNCLOS, in practice it follows most international norms codified in the treaty, especially those related to fisheries.

obligations and conveys an obligation to cooperate in conserving and managing high seas living resources. Each country is responsible for keeping a register of ships (including fishing vessels) that fly its flag and for exercising jurisdiction over its vessels and crew. Provisions specific to fisheries and marine species include utilization of living resources (Article 62), transboundary and straddling stocks (Article 63),³² highly migratory stocks (Article 64),³³ and anadromous stocks³⁴ (Article 66).³⁵ Additional international treaties and agreements have been established to address specific fisheries management concerns (Table 1).³⁶

Regional Fishery Management

Transboundary stocks such as straddling stocks and highly migratory species may be managed cooperatively.

Table 1. U.S. and China Membership in Selected International Fisheries Conventions and Agreements

International Convention or Agreement and Entry into Force	China Party	United States Party
United Nations Convention on the Law of the Sea (UNCLOS), 1982 Senate Treaty Doc. 103-39 (November 16, 1994)	Party	Signed, not ratified
Agreement for the Implementation of the Provisions of UNCLOS of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (December 11, 2001)	Signed, not ratified	Party
The Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (April 24, 2003)	Non-party	Party
International Convention for the Conservation of Atlantic Tunas Rio de Janeiro, (May 14, 1966)	Party	Party
Agreement for the Establishment of the Indian Ocean Tuna Commission (March 27, 1996)	Member	Non-member
Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (June 19, 2004)	Member	Member
1949 Inter-American Tropical Tuna Convention, original bilateral convention (May 31, 1949), subsequent Antigua Convention (August 27, 2010)	Member	Member
Convention on the Conservation and Management of Pollock Resources—Central Bering Sea (December 8, 1995)	Party	Party

³² *Straddling stocks* occurs within the EEZs of two or more coastal States and the adjacent high seas, with a geographic range typically limited to the continental shelf.

³³ *Highly migratory stocks* (e.g., tuna, sharks, billfish) travel far distances and often cross domestic and international boundaries.

³⁴ *Anadromous species* live in freshwater in their early life stages and transition to the ocean to grow and mature as adults. Anadromous species return from the ocean to their natal river or stream to spawn.

³⁵ Related provisions include marine mammals (Article 65), rights of landlocked nations (Article 69), rights of geographically disadvantaged nations (Article 70), non-applicability of Articles 69 and 70 (Article 71), restrictions on transfer of rights (Article 72), enforcement by coastal nations (Article 73). Living resources on the high seas are considered in Articles 116-120, and marine habitat protection is provided by Articles 192-196.

³⁶ An additional example is the International Guidelines for the Management of Deep Sea Fisheries in the High Seas, <https://www.fao.org/in-action/globefish/publications/details-publication/en/c/346096/>.

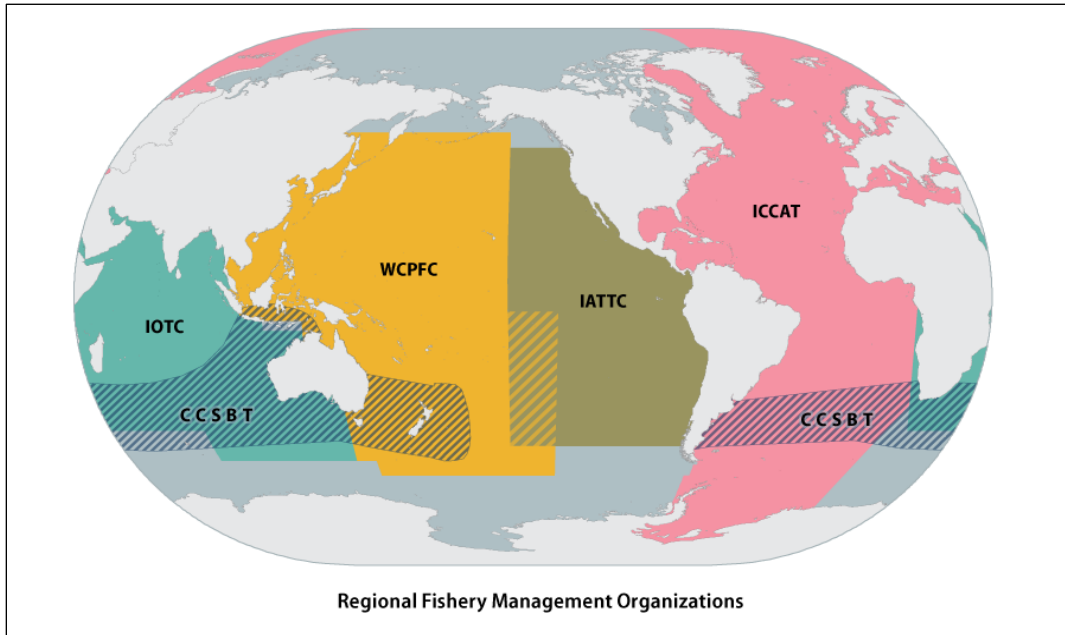
International Convention or Agreement and Entry into Force	China Party	United States Party
The Convention for the Conservation of Antarctic Marine Living Resources (April 7, 1982)	Party	Party
Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported, and Unregulated Fishing (June 5, 2016)	Non-party	Party
Convention on International Trade in Endangered Species of Wild Fauna and Flora, (July 1, 1975)	Party	Party
Convention for the Conservation of Southern Bluefin Tuna (May 20, 1994)	Non-member	Non-member
Convention on the Conservation and Management of the High Seas Fisheries Resources in the North Pacific Ocean (July 15, 2015)	Member	Member
Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean (August 24, 2012)	Member	Member

Source: United Nations Food and Agriculture Organization, "Fisheries and Aquaculture Country Profiles, China," 2017, at <https://www.fao.org/fishery/en/facp/chn?lang=en>.

through bilateral or multilateral international agreements involving coastal nations through whose waters these fish stocks range as well as any nations fishing these stocks.³⁷ In most regions of the world's oceans, fishing and coastal nations have negotiated international agreements that establish regional fishery bodies (RFBs) to foster conservation and management of fisheries that target these species.

³⁷ U.N. Document, A/CONF.64/37, Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, September 8, 1995, https://www.un.org/ga/search/view_doc.asp?symbol=A/CONF.164/37&Lang=E.

Figure 4. Regional Fishery Management Organizations for Tuna and Other Highly Migratory Species



Source: United Nations Food and Agriculture Organization, Regional Fisheries Map Viewer, Fisheries and Aquaculture Department, <https://www.fao.org/figis/geoserver/factsheets/rfbs.html>.

Notes: CCSBT = Commission for the Conservation of Southern Bluefin Tuna; IATTC = Inter-American Tropical Tuna Commission; ICCAT = International Commission for the Conservation of Atlantic Tunas; IOTC = Indian Ocean Tuna Commission; and WCPFC = Western and Central Pacific Fisheries Commission.

RFBs conduct activities to support international efforts to conserve fisheries that often include collecting and analyzing data, coordinating management, and providing technical assistance and policy development. Regional fishing management organizations (RFMOs) are a specific type of RFB that operate under agreements that are binding upon their members. Parties to these agreements are required to adhere to management and conservation measures developed and agreed to by parties of the RFMO. There are 43 RFBs that provide coverage for most of the world's ocean and freshwater areas and 16 organizations that are RFMOs. The 16 RFMOs manage transboundary stocks that include highly migratory species, straddling stocks, and anadromous species. For example, the tuna RFMOs cover transboundary waters and the areas of the high seas where the management of tuna fisheries is relevant (**Figure 4**). Many areas and species are not covered by specialized RFMOs.

China Fishing Industry Overview

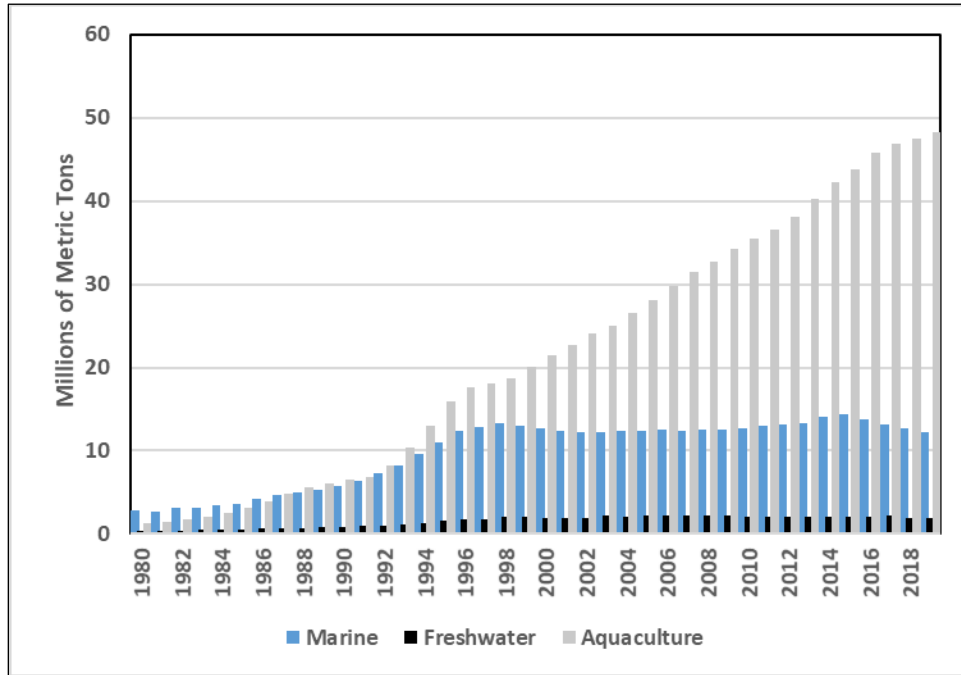
China has become the largest seafood producer in the world. In particular, China increased its share of world landings from 10% in 1961 to 35% in 2018.³⁸ In 2018, China's total seafood production was 62.2 mt, which was 35% of world seafood production.³⁹ China led the world in production from freshwater and marine aquaculture with 47.6 mt, marine capture fishery landings

³⁸ FAO, 2020, p. 65.

³⁹ FAO, 2020, p. 11.

of 12.7 mt, and inland freshwater (rivers, lakes, ponds) landings of 2.0 mt. China's marine fisheries landings of 12.7 mt were from inshore, offshore, and distant-water fishing, and accounted for 15% of world marine fish landings.⁴⁰ Marine landings consisted of approximately 10.4 mt from China's inshore and offshore waters, and 2.3 mt from distant-water landings.⁴¹

Figure 5. Aquaculture, Marine Fishing, and Fresh Water Fishing in China (1980 to 2019)



Source: United Nations Food and Agriculture Organization, “Fisheries and Aquaculture Country Profiles, China,” 2017, at <https://www.fao.org/fishery/en/facp/chn?lang=en>.

Notes: Marine landings include inshore, offshore, and distant-water landings.

Over the last two decades, the two most significant shifts in China's seafood industry are the growth in aquaculture and movement of marine fishing effort from inshore to offshore and distant-water fisheries (Figure 5).⁴² However, China's marine landings declined from an average of 13.8 mt per year between 2015 and 2017 to 12.7 mt in 2018.⁴³ The decrease has been attributed to lower production in inshore waters because of overfishing, stricter regulations, and a decrease

⁴⁰ FAO, 2020, p. 13.

⁴¹ FAO, 2020, p. 10. China only provided details on species and fishing area for 40% of its distant-water catch. In the absence of more complete information, the remaining 1.34 mt were entered in the FAO database under “marine fishes not elsewhere included” in Major Fishing Area 61, the Northwest Pacific, possibly overstating the catches occurring in this area.

⁴² Zhang Hongzhou, “China's Fishing Industry: Current Status, Government Policies, and Future Prospects,” China as a Maritime Power Conference, Arlington, VA, July 9, 2015. Inshore fishing includes inshore areas of the Bohari, Yellow Sea, and the East China Sea; offshore fishing includes water outside of inshore areas of the East China Sea and the South China Sea; and distant waters includes activities on the high seas and in areas under the jurisdiction of other countries.

⁴³ FAO, 2020, p. 10.

in subsidies for inshore vessels.⁴⁴ Overfishing and depleted coastal fish stocks appear to have led the Chinese fishing industry to develop its DWF and to operate in more distant waters.

While estimates of the total number of vessels vary widely, China's fishing fleet is the largest in the world. Its fleet is diverse and ranges from small non-motorized vessels that operate in coastal inshore areas to distant-water vessels that fish for extended periods across the world's oceans.⁴⁵ The International Trade Commission reported an estimate of China's DWF ranging from 2,900 to 3,400 vessels.⁴⁶ Another estimate identified a total of 16,966 vessels, including 12,490 observed outside internationally recognized Chinese waters between 2017 and 2018.⁴⁷ However, the report cautioned that all of these vessels are not operating currently, simultaneously, or consistently in other countries' or international waters.

As the world's largest processor, exporter, and consumer of seafood products, China is a major hub for value-added processing in seafood supply chains. China is currently the world's largest seafood and fishmeal importer by volume, much of which is processed and then exported to other countries, creating a large value-based trade surplus.⁴⁸ In 2019, China exported fish and fish products with a value of \$21.6 billion, a decrease of 7% from 2018. In 2018, China's exports accounted for about 14% of global trade in fish and fish products.⁴⁹ According to the FAO, the decrease may be related in part to trade disputes between China and the United States and greater domestic consumption.⁵⁰

China's seafood imports increased in 2019 both in terms of volume and value, with a 30% increase in volume and up nearly 32% in value (\$15.44 billion).⁵¹ Since 2011, China's imports have increased in recent years partly as a result of seafood landed in other countries that are outsourced to China for processing. A large portion of these imports are subsequently exported as processed products to third-country markets.

⁴⁴ Yu Yani, "No Fish, Lower Subsidies—Where Next for China's Coastal Fisheries?" *China Dialogue Ocean*, August 25, 2020.

⁴⁵ China's distant water fleet (DWF) operates in the Atlantic, Pacific, and Indian Oceans and in the Southern Ocean surrounding Antarctica. FAO, "Fishery and Aquaculture Country Profiles, China," 2017, at <https://www.fao.org/fishery/en/facp/chn?lang=en>.

⁴⁶ United States International Trade Commission (ITC), "Seafood Obtained via Illegal, Unreported, and Unregulated Fishing: U.S. Imports and Economic Impact on U.S.," February 2021, p. 142, at <https://www.usitc.gov/publications/332/pub5168.pdf>. Hereinafter cited as ITC, 2021.

⁴⁷ Tabitha Mallory and Ian Ralby, "Evolution of the Fleet: A Closer Look at the Chinese Fishing Vessels off the Galapagos," *Center for International Maritime Security*, October 19, 2020, <https://cimsec.org/evolution-of-the-fleet-a-closer-look-at-the-chinese-fishing-vessels-off-the-galapagos/46116>; Miren Gutierrez et al., "China's Distant-Water Fishing Fleet," *Overseas Development Institute*, June 2020, https://www.odi.org/sites/odi.org.uk/files/resource-documents/chinesedistantwaterfishing_web_1.pdf, p. 8.

⁴⁸ Beatrice Crona et al., "China at a Crossroads: An Analysis of China's Changing Seafood Production and Consumption," *One Earth*, vol. 3 (July 2020), pp. 32-44, <https://doi.org/10.1016/j.oneear.2020.06.013>.

⁴⁹ Miren Gutierrez et al., "China's Distant Water Fishing Fleet: Scale Impact and Governance," *Overseas Development Institute*, June 2020, <https://www.odi.org>.

⁵⁰ FAO, 2020, p. 75.

⁵¹ Foreign Agricultural Service, USDA, *Continued Seafood Import Growth*, People's Republic of China, May 8, 2020, https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Continued%20Seafood%20Import%20Growth%20in%202019_Beijing_China%20-%20Peoples%20Republic%20of_05-08-2020.

Analysts expect China to account for an estimated 38% of global fish consumption by 2030.⁵² From 1961 to 2018, China increased its share of world fish consumption from 10% to 36%.⁵³ Although the bulk of distant-water landings are still exported, a growing portion is consumed domestically. China has also become a large consumer of high-valued species that may not be produced locally such as shrimp and salmon. Some analysts estimate that China's seafood consumption will outstrip production by 2030.⁵⁴

China's Fisheries Policies⁵⁵

The growth of China's fishing industry began in earnest following the Chinese government's publication of the *No. 5 Central Document* in 1985, which introduced measures to privatize fishing vessels and encouraged the formation of new enterprises in aquaculture and distant-water fishing.⁵⁶ The rights of fishermen to own and operate their vessels were later codified in the 1986 *Fisheries Law of the People's Republic of China*, which remains the primary statutory mechanism in China for regulating the fishing industry.⁵⁷ The privatization and expansion of China's fishing industry has led to significant growth in IUU fishing by China-flagged vessels, which in turn has raised concerns regarding the sustainability of China's fishing practices.⁵⁸

Industrial Policy Support for Fisheries and Distant-Water Fishing Expansion

The Chinese government provides financial and policy support to China's distant sea fishing, domestic fishing, and aquaculture sectors.⁵⁹ This support takes a variety of forms, including (but not limited to) direct subsidies (e.g., fuel subsidies, vessel upgrading/replacement subsidies), tax incentives, discounted insurance premiums, and discounts on loans used for fixed asset investment in fisheries or new aquaculture product development.⁶⁰ China reportedly provided

⁵² H. Zhang et al., "Seafood Consumption Patterns and Affecting Factors in Urban China," *Aquaculture Reports*, March 2021.

⁵³ FAO, p. 70.

⁵⁴ B. Crona et al., "China at a Cross Roads: An Analysis of China's Changing Seafood Production and Consumption," *One Earth*, July 2020.

⁵⁵ This section authored by Michael Sutherland.

⁵⁶ Ling Cao et al., "Opportunity for Marine Fisheries Reform in China," *Proceedings of the National Academy of Sciences of the United States of America*, vol. 114 (January 2017), pp. 435-442, <https://www.pnas.org/content/pnas/114/3/435.full.pdf>.

⁵⁷ For a history of subsequent revisions and amendments to 1986 Fisheries Law, see "Fisheries Law of the People's Republic of China," *NPC Observer*, <https://npcobserver.com/legislation/fisheries-law/>.

⁵⁸ Zhang Chun, "China Targets Distant-Water Criminals with New Fisheries Law," *China Dialogue*, January 21, 2020, <https://chinadialogueocean.net/12714-china-fisheries-law-distant-water-fishing/>; Whitley Saumweber and Ty Loft, "Distant-Water Fishing Along China's Maritime Silk Road," Center for Strategic and International Studies, Stephenson Ocean Security Project, July 31, 2020, <https://ocean.csis.org/commentary/distant-water-fishing-along-china-s-maritime-silk-road/>.

⁵⁹ Miren Gutierrez et al., *China's Distant-Water Fishing Fleet*, ODI, June 2020; Whitley Saumweber and Ty Loft, "Distant Water Fishing Along China's Maritime Silk Road," Center for Strategic and International Studies, Stephenson Ocean Security Project, July 31, 2020, <https://ocean.csis.org/commentary/distant-water-fishing-along-china-s-maritime-silk-road/>.

⁶⁰ "2021 年渔业补贴政策是怎样的? 补贴项目有哪些? (What Are the Types of Official Subsidy Policies in 2021? What Are the Official Subsidy Programs?)," *Tuliu*, January 4, 2021, <https://www.tuliu.com/read-130055.html>; Ministry of Agriculture and Rural Affairs of the People's Republic of China, "农业农村部办公厅关于修订国内渔业捕捞和养殖业, 远洋渔业油价补贴政策调整实施地方方案的通知 (Ministry of Agriculture and Rural Affairs Notice Regarding Domestic Fishing, Aquaculture, and Distant Sea Fishing Industry Fuel Price Subsidy Adjustment Implementation Plan)," May 20, 2019, http://www.moa.gov.cn/nybg/2019/201905/201906/t20190625_6319221.htm.

\$7.2 billion in subsidies to its fishing industry in 2018.⁶¹ Some analysts argue that some types of distant-water fishing, such as squid fishing, would be unprofitable for Chinese vessel operators without the subsidies.⁶² The European Union (EU), United States, South Korea, Japan, and Russia also subsidize their fishing industries, though by amounts significantly less than China.⁶³

Fuel price subsidies have served as a central pillar of the Chinese government's support for the fishing industry.⁶⁴ Subsidies allowed the Chinese fishing industry to be more competitive internationally, powering the industry's expanding geographic reach and employment, and lowering prices for a key source of protein. Those impacts now likely make it politically difficult for the Chinese government to modify the subsidies.⁶⁵

World Trade Organization and Fisheries Subsidies⁶⁶

During the 1990s, several multilateral organizations, including the United Nations' Food and Agriculture Organization (FAO), raised concerns regarding the impact of fisheries subsidies on overfishing and overcapacity.⁶⁷ Studies found that subsidies threaten the economic and environmental sustainability of fisheries as overcapitalization leads to the depletion of global fish stock and threatens the livelihood of communities that depend on fisheries. In response to those concerns, World Trade Organization (WTO) members agreed to "clarify and improve WTO disciplines on fisheries subsidies" at the 2001 Doha Ministerial Conference.⁶⁸ In 2005, the WTO Ministerial Conference in Hong Kong issued a mandate that called for the prohibition of certain fisheries subsidies that contribute to overcapacity and overfishing, as well as the establishment of disciplines for those subsidies, and noted the need for special and differential treatment (SDT) for developing country members. The Chairman of the WTO Negotiating Group on Rules introduced a first draft of rules in November 2007, but WTO members' lack of consensus on key issues and decline of interest in the Doha round of negotiations reportedly slowed the negotiation process between 2010 and 2015.

The ongoing negotiations have been focused largely on the issues specified in the 2017 Ministerial Decision and SDG Target 14.6, which states that an agreement should prohibit certain subsidies that contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported, and unregulated fishing, and that SDT for developing and least-developed countries be an integral part of the negotiations.⁶⁹ Some prohibited subsidies in the November 2020 revised draft include subsidies for the construction, acquisition, renovation, or upgrade of fishing vessels; subsidies for fuel, ice, or bait; and subsidies covering operating losses of fishing-related activities. The draft also included provisions for SDT for developing countries, technical assistance and capacity building, notification and transparency, and dispute settlement.

One longstanding issue between WTO members in the negotiations is the provisions on SDT. Developing countries argue that SDT is needed so that they have the flexibility to provide subsidies to small and artisanal fisheries and that any SDT should take into account the livelihood of people that depend on fisheries.⁷⁰ China has

⁶¹ Philip Heijmans, "Global Fishing Talks Blow 2020 Deadline as China, India Balk," *Bloomberg*, December 15, 2020.

⁶² Ian Urbina, "How China's Expanding Fishing Fleet is Depleting the World's Oceans," August 17, 2020.

⁶³ David Adam, "Majority of Global Fishing Subsidies 'Harmful,' Report Finds," *China Dialogue Ocean*, November 11, 2019.

⁶⁴ "China's Fisheries Subsidies Propel Distant-Water Fleet," *Oceana*, October, 2021.

⁶⁵ Ling Cao et al., "Opportunity for Marine Fisheries Reform in China," *Proceedings of the National Academy of Sciences of the United States of America* vol. 114:3, (January 2017), 435-442.

⁶⁶ This section authored by Liana Wong.

⁶⁷ William E. Schrank, *Introducing Fisheries Subsidies*, United Nations Food and Agricultural Organization, FAO Fisheries Technical Paper No. 437, 2003, <http://www.fao.org/3/Y4647E/Y4647E00.htm>.

⁶⁸ World Trade Organization, "Ministerial Declaration (WT/MIN(01)/DEC/1)," *Doha WTO Ministerial 2001*, November 14, 2001, https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm#rules.

⁶⁹ United Nations, "Goal 14: Targets and Indicators," accessed February 11, 2021, <https://sdgs.un.org/goals/goal14>. WTO, "Fisheries Subsidies (WT/MIN(17)/64)," December 18, 2017.

⁷⁰ Mark Godfrey, "WTO Talks Stuck on Opt-Outs for Artisanal, Developing Fisheries," *Seafood Source*, March 3, 2021, <https://www.seafoodsource.com/news/supply-trade/wto-talks-stuck-on-opt-outs-for-artisanal-developing-fisheries>.

supported SDT for developing countries and reasserted the need for “meaningful” SDT in the fisheries subsidies negotiations in October 2020. Although the United States supports SDT for developing economies, it does not support a blanket approach or complete exclusion from certain prohibitions, as there would still be harmful subsidies provided to the fishing sector.⁷¹ U.S. trade officials and some Members of Congress have also raised concerns with blanket exemptions that benefit more advanced economies, like China, that still self-designate as a developing economy under the WTO, but may not warrant SDT flexibilities.⁷² Talks reportedly faltered after the United States refused to support a proposal to exempt developing countries, including India and China, from plans to “eliminate subsidies of fishing activities that are linked to overcapacity and overfishing.”⁷³

Although subsidies for fisheries development have persisted, the Chinese government appears to recognize the need to rein in the growth of its fishing fleet and seems to be taking steps to consolidate the fishing industry under the control of larger firms and operators. In 2017, China’s Ministry of Agriculture and Rural Affairs (MARA) published the “13th Five-Year National Fishing Industry Development Plan,” a planning document outlining modernization and reform goals for China’s fishing sector during China’s 13th Five-Year Plan cycle (2016-2020).⁷⁴ A central theme of the document was the need for China to shift away from a focus on pure expansion of overseas fishing operations and toward downsizing and upgrading existing fleets and enterprises. The Plan called for raising market entry standards for small and medium enterprises operating fishing vessels, and established a target of reducing the overall size of China’s DWF to 3,000 registered vessels by the end of 2020. The government introduced several ship dismantling and retirement subsidy programs in an effort to meet this target, but it is unclear if the target was met.⁷⁵

The 13th Five-Year National Fishing Industry Development Plan’s other central focus is expanding investment in overseas fishing capacity. It specifically outlines goals of establishing new overseas tuna and squid fisheries worldwide using what the document calls a “Base + Boat” model of capacity building. The plan also highlights China’s Belt and Road Initiative as a framework under which MARA will pursue bilateral fisheries cooperation agreements with other countries. Additionally, the Plan calls for the construction of three to five national offshore fishing bases that can facilitate, among other things, “fishing, processing, logistics and trade, ship maintenance, and personnel training” to improve fisheries trade with countries that have signed on to cooperate with “One Belt, One Road.”

In March 2021, the Chinese government published its 14th Five-Year Plan (FYP), which includes several sections outlining broad goals for the development of China’s local and distant-water fishing industries through 2025. Although the Article 23 of the 14th FYP includes references to the construction of “sustainable pelagic fisheries” building a “sustainable marine ecological

⁷¹ U.S. Trade Representative, “Ambassador Katherine Tai’s Remarks at WTO Ministerial meeting on the Fisheries Subsidies Negotiations,” press release, July 2021, <https://ustr.gov/about-us/policy-offices/press-office/speeches-and-remarks/2021/july/ambassador-katherine-tais-remarks-wto-ministerial-meeting-fisheries-subsidies-negotiations>.

⁷² CRS Report R45417, *World Trade Organization: Overview and Future Direction*, by Cathleen D. Cimino-Isaacs and Rachel F. Fefer.

⁷³ Bryce Baschuk, “A Once Promising Global Deal to Prevent Overfishing Runs Aground,” *Bloomberg*, December 9, 2020.

⁷⁴ Ministry of Agriculture and Rural Affairs of the People’s Republic of China, “十三五全国远洋渔业发展规划 (13th Five-Year National Fishing Industry Development Plan),” December 21, 2017, http://www.moa.gov.cn/gk/ghjh_1/201712/t20171227_6128624.htm.

⁷⁵ Ministry of Finance of the People’s Republic of China, “船舶报废拆解和船型标准化补贴 (Ship Scrapping, Dismantling, and Standardization Subsidies),” accessed February 12, 2021, <http://jjs.mof.gov.cn/zxzyzf/cbbfcjhcxbzhbt/>.

environment,” the plan does not appear to include any measures that address sustainability issues related to China’s distant-water fishing activities, instead focusing largely on pollution mitigation and biodiversity preservation goals in China’s territorial waters.⁷⁶ The 14th FYP does call on the Chinese government to increase its participation in global ocean governance and includes language that indicates the Chinese government plans to “advance legislation concerning basic maritime law in an orderly manner” at some point in the 14th FYP cycle (i.e., before 2025).⁷⁷

China’s IUU Activities

The National Oceanic and Atmospheric Administration (NOAA) 2019 Report to Congress on Improving International Fisheries Management described multiple reports of illegal fishing by Chinese-flagged vessels, as well as numerous instances of IUU fishing by stateless vessels that had characteristics of being Chinese-flagged vessels but for which China denied responsibility.⁷⁸ These activities include illegal fishing in other nation’s EEZs, unreported or incomplete reporting of fishing activities, and unregulated fishing by vessels flagged under other nations or fishing in unregulated areas of the high seas. Chinese fleets have conducted IUU fishing in areas under the jurisdiction of neighboring nations, such as in the South China Sea, Yellow Sea, and Sea of Japan, and in distant-water fishing grounds, such as the Eastern Pacific and Western Atlantic off South America, the Western and Central Pacific, the Southeastern Atlantic, and the Indian Ocean off Africa.⁷⁹

Coast Guard reports have noted that IUU activities in some regions are being concealed by questionable reporting, reflagging vessels, or turning off vessel tracking instruments (**Table 2**). The Chinese fleet, as well as other DWFs, reportedly take advantage of a lack of enforcement on the high seas or in adjacent EEZs.⁸⁰ RFMOs depend on national parties to police their vessels. Often Chinese fishing practices also take advantage of the asymmetric relationship with developing countries when negotiating agreements for access to national EEZs. In some cases reporting, surveillance, and enforcement are inadequate to fully enforce the terms of access agreements while in other cases agreements are subject to corruption.⁸¹ These activities have a direct relationship to the sustainability of fishery resources, allocation of benefits among fishing nations, and general issues related to security and international influence. Often these arrangements hurt local fishing interests, markets, and the supply of protein to local populations.

⁷⁶ Xinhua, “中华人民共和国国民经济和社会发展十四五个五年规划和 2035 年远景目标纲要 (Outline of the People’s Republic of China 14th Five-Year Plan for National Economic and Social Development and Long-Range Objectives for 2035),” March 12, 2021, translation available at https://cset.georgetown.edu/wp-content/uploads/t0284_14th_Five_Year_Plan_EN.pdf, p. 81.

⁷⁷ Ibid., p. 82.

⁷⁸ Examples described in the report include vessels with the word “CHINA” or the name of a Chinese port painted on its side, or vessels broadcasting a Maritime Mobile Service Identity (MMSI) with maritime identification digits (MIS) that are allocated to China via their Automatic Identification Systems (AIS). National Oceanic and Atmospheric Administration (NOAA), *Improving International Fisheries Management*, Report to Congress, September 2019, pp. 22-23. Hereinafter cited as NOAA, 2019.

⁷⁹ Dan Collins, “‘It’s Terrifying’: Can Anyone Stop China’s Vast Armada of Fishing Boats?” *The Guardian*, August 25, 2020.

⁸⁰ Brian Palmer, “High Seas: Few Rules, Fewer Sheriffs,” Natural Resources Defense Council, January 16, 2019.

⁸¹ Y. Tan and A. Graycar, “New Research Reveals the True Extent of Corruption in Fisheries,” World Economic Forum, May 22, 2020.

Table 2. Vessel Tracking Instruments

	Automatic Identification System (AIS)	Vessel Monitoring System (VMS)
Purpose	Exchange navigation information (including vessel's identity, type, course, speed) in real-time, via ship-to-ship or ship-to-shore communication.	Remote monitoring of fishing vessel position in relation to regulatory areas and maritime boundaries, via a scheduled or manual ship-to-shore communication.
System Type/Use	Digital VHF-based radio system; Line of Sight (20-40 nautical miles)	Satellite-based; long-range potential
Service Provider	Open, non-proprietary	Closed, proprietary protocols
Applicability	Required—per SOLAS V/19—on all oil tankers, passenger vessels, and cargo ships (over 300 GT internationally and 500 GT domestically).	Required—by NOAA via its regional Fisheries Councils—for vessels engaged in fishing certain highly migratory species.

Source: CRS modified from U.S. Coast Guard, “How Does AIS Compare and Contrast with VMS,” at https://www.navcen.uscg.gov/pdf/AIS/Q_AIS_vs_VMS_Comparison.pdf.

Notes: VHF = very high frequency; SOLAS V/19 = Chapter V, Regulation 19 of the Safety of Life at Sea Convention; GT = gigaton.

China may also be implicated in IUU activity due to its lack of transparency when reporting landings, fleet size, and fishing activities. This causes the FAO to allocate many of China's catches in the category “marine fishes not elsewhere included” to area 61, the Northwest Pacific, as a catch-all, although a significant proportion of catches include fish caught in other areas.⁸² The FAO generally considers estimates of total marine catches for China to be complete, but notes that “improvements are needed to more accurately assign China's distant-water fishery catches by area, and to disaggregate catch by species.”⁸³ China defines a large amount of this fishing activity as offshore, but not as distant-water fisheries. In 2017, China published plans to control the size of the DWF and, in 2018, published a list of DWF companies and vessels that it penalized in 2017.⁸⁴

Geopolitical Dimensions of China's Fishing Fleet

China's maritime militia, the People's Armed Forces Maritime Militia (PAFMM),⁸⁵ plays a key role in Beijing's strategy to enforce its sovereignty claims in the South China Sea (see **Figure 6**) and in the East China Sea.⁸⁶ China uses its fishing vessels to further its geopolitical aims.⁸⁷ China's national and local governments recruit some commercial fishing vessels into maritime militia activity through subsidy programs, and require them to operate in specified waters to defend national sovereignty rights, participate in training and sovereignty defense, and provide

⁸² FAO, 2020, p. 15.

⁸³ FAO, 2020, p. 10.

⁸⁴ Zhang Chun, “China Cracks Down on Illegal Distant Water Fishing,” China Dialogue Ocean, September 4, 2018.

⁸⁵ For more information on the People's Armed Forces Maritime Militia (PAFMM) see CRS Report R42784, *U.S.-China Strategic Competition in South and East China Seas: Background and Issues for Congress*, by Ronald O'Rourke.

⁸⁶ Derek Grossman and Logan Ma, “A Short History of China's Maritime Militia and What It Might Tell Us,” *Rand Corporation Commentary*, April 6, 2020.

⁸⁷ Vietnam reportedly also has a maritime militia. See T. Onishi, “Vietnam Expands Maritime Militia off Southern Coast,” *Nikkei Asia*, June 12, 2021.

support to the PLA⁸⁸ in combat.⁸⁹ More aggressive actions, such as ramming other fishing vessels, interfering with the navigation of foreign warships, and other types of physical confrontation appear to be tasked to professional militia vessels.⁹⁰ Many analysts view PAFMM as a key enabler for China's prosecution of maritime "gray zone"⁹¹ operations that use coercion short of war.⁹² Some analysts have stated that the PAFMM is of unknown strength,⁹³ while others have speculated that the PAFMM may have thousands of vessels with tens of thousands of personnel.⁹⁴ Some report that PAFMM vessels have water cannon and small arms and in some cases machine guns and rocket propelled grenades.⁹⁵

⁸⁸ See CRS Report R46808, *China's Military: The People's Liberation Army (PLA)*, by Caitlin Campbell.

⁸⁹ China's maritime militia has been observed operating in both the South China Sea and the East China Sea, although they appear more numerous and active in the South China Sea. CRS is not aware of maritime militia involvement with China's distant water fleets, but identifying militia vessels as distinct from ordinary fishing vessels and tracking them is generally seen as difficult. See also Greg Poling and Harrison Pretat, *Pulling Back the Curtain on China's Maritime Militia*, The Center for Strategic and International Studies and the Center for Advanced Defense Studies, November 2021, p. 17, https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/211118_Poling_Maritime_Militia.pdf?Y5iaJ4NT8eITSIAKTr.TWxtDHuLIq7wR.

⁹⁰ Gregory B. Poling, Tabitha Grace Mallory, and Harrison Pretat, *Pulling Back the Curtain on China's Maritime Militia*, The Center for Strategic and International Studies and the Center for Advanced Defense Studies, November 2021, p. 17, https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/211118_Poling_Maritime_Militia.pdf?Y5iaJ4NT8eITSIAKTr.TWxtDHuLIq7wR.

⁹¹ Some have defined gray zone tactics as situations where "unconventional forces and methods are used to pursue strategic interests while trying to avoid the possibility of conflict." "Chinese Maritime Militia Threatens Order in South China Sea," Radio Free Asia, November 20, 2021.

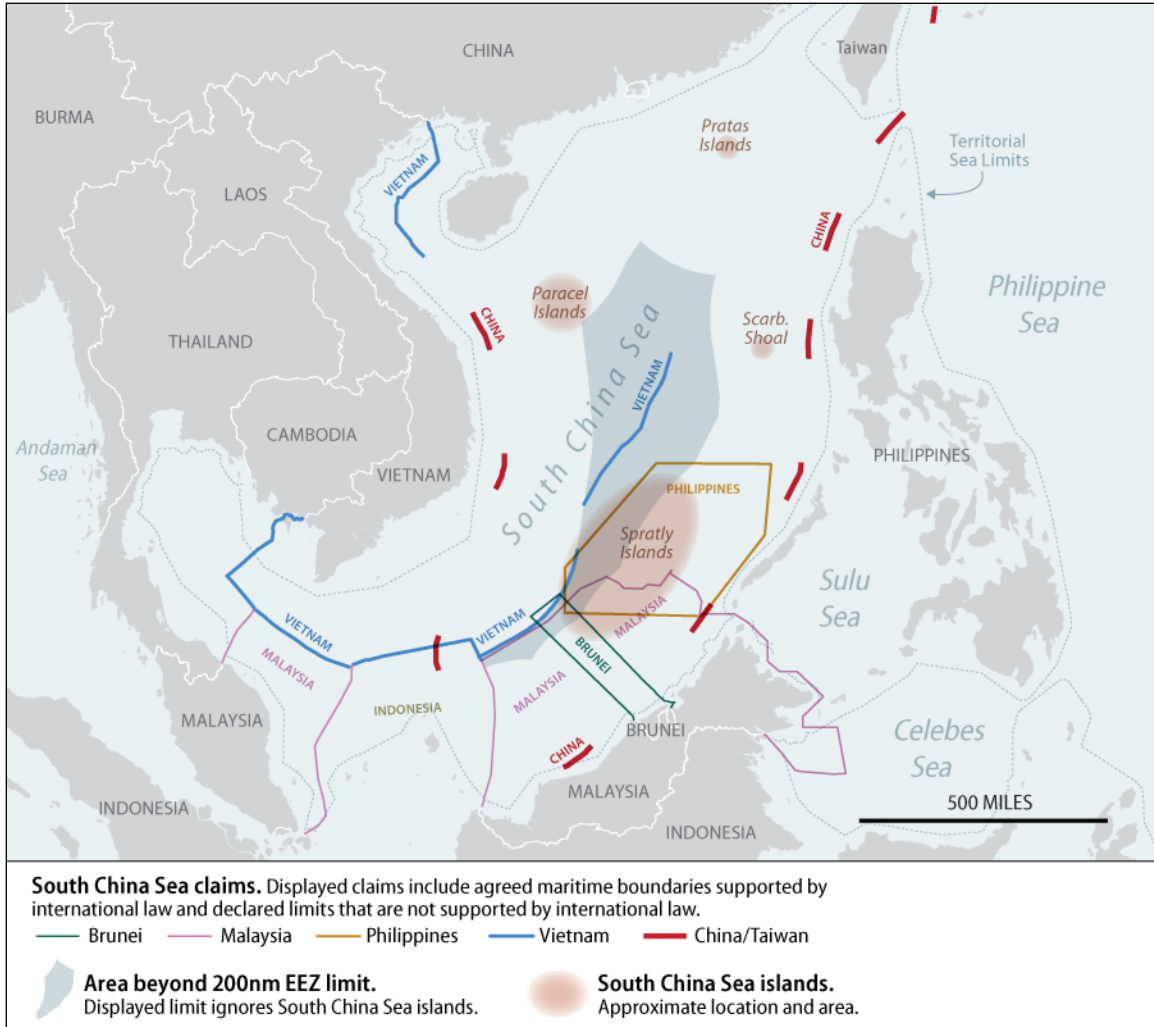
⁹² Andrew Erickson, "Understanding China's Third Sea Force: The Maritime Militia," Fairbank Center, September 8, 2017.

⁹³ Derek Grossman and Logan Ma, "A Short History of China's Fishing Militia and What It May Tell US," RAND, April 6, 2020.

⁹⁴ Ryan Martinson, "Manila's Images Are Revealing the Secrets of China's Maritime Militia," *Foreign Policy*, April 19, 2021.

⁹⁵ "Maritime Militia Give China the Edge in the South China Sea," IANS, June 1, 2021.

Figure 6. South China Sea Claims



Sources: Flanders Marine Institute, International Mapping, Sovereign Limits, U.S. Department of State, and other sources. Map prepared by CRS. Map is unofficial. CRS is unable to verify the accuracy of indicated boundaries and areas of territorial control. Boundaries are not necessarily authoritative.

China has used its militia fishing vessels in conjunction with its coast guard and navy to advance its sovereignty claims in the South and East China Seas.⁹⁶ China's increasing use of fishing vessels as part of a maritime militia has led to an increase in the presence of Chinese vessels in disputed and foreign waters and an uptick in hostile or violent interactions between claimant nations' fishing vessels and between fishing vessels and coastal law enforcement agencies. This has contributed to increasing tension between China and other countries in regions such as the South China Sea and East China Sea.

⁹⁶ Connor Kennedy and Andrew Erickson, "China's Third Sea Force, The People's Armed Forces Maritime Militia: Tethered to the PLA," China Maritime Studies Institute, March 2017. Andrew Ericson, "The South China Sea's Third Sea Force: Understanding and Countering China's Maritime Militia," Testimony Before the House Armed Service Committee, Seapower and Projection Forces Subcommittee, September 21, 2016.

The maritime militia has operated in China's coastal waters since 1949, and has played an important role in conflicts, including China's seizure of the Paracel Islands from the government of South Vietnam (1974), and its assertion of control over Mischief Reef (1995) and Scarborough Shoal (2012) from the Philippines.⁹⁷ Some analysts have speculated that in the event of hostilities the maritime militia could be used to support China's military missions and that the PAFMM may "be a driving force behind the decade-long expansion in the Chinese fishing fleet."⁹⁸

In one 2009 incident, 75 miles off China's island province of Hainan, located in the South China Sea near China's southeastern coast, the U.S. Navy ocean surveillance ship *Impeccable* was harassed by several Chinese vessels, including two fishing trawlers, a Fisheries Law Enforcement Command patrol vessel,⁹⁹ a China Maritime Surveillance cutter, and a People's Liberation Army naval intelligence ship. According to one analysis, "the chief of China's South China Sea Bureau of the Fisheries Law Enforcement Command directed this cross-agency harassment operation" of the *Impeccable*, which at the time was thought to be conducting hydrographic surveys related to China's Yulin ballistic submarine base.¹⁰⁰ In other incidents, both U.S. and Australian military pilots operating in the East and South China Seas have apparently had lasers focused on them from Chinese fishing vessels.¹⁰¹

China's maritime militia continues to be active in various disputes, including the Senkaku Islands in the East China Sea and the Spratly Islands in the South China Sea,¹⁰² where China asserts sovereignty claims. In 2016 as many as 300 Chinese fishing vessels, accompanied by PRC government vessels, gathered in the contiguous zone of the Senkaku Islands. Japan's coast guard regularly warns Chinese fishing vessels to stay away from Japan's claimed territorial waters and has issued exclusion orders to Chinese fishing vessels suspected of illegally operating in these areas.¹⁰³ In March 2021, approximately 200 Chinese fishing vessels massed for several weeks around Whitsun Reef, a feature in the Spratly Archipelago which the Philippines claims is in its EEZ. (China, Vietnam, and Taiwan also claim the Spratlys.)¹⁰⁴ One think tank expert estimated that approximately 300 militia vessels operate in the Spratly Archipelago on any given day.¹⁰⁵

China's construction of artificial islands at seven disputed features in the Spratly Archipelago from 2013 to 2016, including four in the Philippines' claimed EEZ, violated Philippine rights, including by illegally destroying the marine environment, an UNCLOS arbitral tribunal ruled in 2016.¹⁰⁶ These construction activities have negatively impacted fisheries in the immediate area of

⁹⁷ Andrew S. Erickson and Conor F. Kennedy, "Trailblazers in Warfighting: The Maritime Militia of Danzhou," Center for International Maritime Security, February 1, 2016.

⁹⁸ See for example James Kraska, "China's Maritime Militia Vessels May Be Military Objectives During Armed Conflict," *The Diplomat*, July 7, 2020.

⁹⁹ In 2013 China created the China Coast Guard Bureau which united previously separate maritime law enforcement agencies. S. Sakamoto, "China's New Coast Guard Law and Implications for Maritime Security in the East and South China Seas," *Lawfare*, February 16, 2021.

¹⁰⁰ Michael Green, "Counter-Coercion: Harassment of the USNS *Impeccable*," Asia Maritime Transparency Initiative, CSIS, May 9, 2017.

¹⁰¹ Lisa Martin, "Australian Navy Pilots Hit with Lasers During South China Sea Military Exercise," *The Guardian*, May 28, 2019. J. Seidel, "Chinese Fishing Boats Are Blinding US Military Pilots with Lasers," *News Corp Australia*, June 25, 2018.

¹⁰² The Senkaku Islands are also known as the Diaoyu Islands.

¹⁰³ "Japan Issues Exclusion Orders to 80 Chinese Fishing Ships in 2021," *Kyodo News*, August 12, 2021.

¹⁰⁴ Samir Puri and Greg Austin, "What the Whitsun Reef Incident Tells Us About China's Future Operations at Sea," Institute of International Strategic Studies, April 9, 2021.

¹⁰⁵ Greg Polling et al., "Pulling Back the Curtain on China's Maritime Militia," CSIS, November 2021.

¹⁰⁶ International Court of Justice "Ruling in *The Philippines vs. China*." See, U.S. Department of State, "Fifth

the reclamation sites and may have a negative impact in a broader area of the South China Sea.¹⁰⁷ China rejected the court's ruling, arguing that the tribunal did not have legal standing to rule in the case.¹⁰⁸ In an October 29, 2015, ruling, the tribunal considered each of China's objections but ruled that the tribunal did have jurisdiction to address the claims made by the Philippines.¹⁰⁹

There is concern that disagreements could escalate as states move to secure their sovereignty and fisheries resources against China's actions. Further conflicts may arise from the continued or expanded use of the maritime militia to assert China's claims to maritime environments, through competition for fisheries resources found in contested waters or if nations seek to more assertively protect fisheries resources from illegal fishing.¹¹⁰

Chinese Fishing by Region

Chinese vessels have been linked to IUU fishing in many parts of the world, both on the high seas and in the EEZs of Asian, Pacific Island, South American, and African nations. (see **Figure 8** or map of major fishing areas).

Domestic Fishing and Fishing in the Western Pacific

Southeast and East Asian coastal and offshore marine areas are among some of the most productive ecosystems in the world and support extensive marine fisheries.¹¹¹ The region's territorial seas and EEZs include broad, relatively shallow, and productive continental shelf areas composed of semi-enclosed waters, including the East China Sea, South China Sea, Yellow Sea, and Bohai Sea. The East China Sea is the most productive area and may account for approximately 40% of landings from China's waters.¹¹²

The depletion of domestic fishery resources has changed the composition of China's domestic fishery landings.¹¹³ A study published in 2021 found that fishery subsidies promoted rapid development of the DWF, but also contributed to domestic overcapacity and to overfishing of domestic fishery resources.¹¹⁴ To some degree, total domestic landings are maintained by increasing fishing in neighboring countries EEZs and changing the composition of targeted species, from generally high value species to species of low value.¹¹⁵ Lower-valued marine

Anniversary of the Arbitral Tribunal Ruling on the South China Sea," press release, July 11, 2021, at <https://www.state.gov/fifth-anniversary-of-the-arbitral-tribunal-ruling-on-the-south-china-sea/>.

¹⁰⁷ U.S. China Economic and Security Review Commissions, "China's Island Building in the South China Sea: Damage to the Marine Environment, Implications, and International Law," April 12, 2016.

¹⁰⁸ "Beijing Rejects Tribunal's Ruling in South China Sea Case," *The Guardian*, July 12, 2016, at <https://www.theguardian.com/world/2016/jul/12/philippines-wins-south-china-sea-case-against-china>.

¹⁰⁹ CRS Report R44555, *Arbitration Case Between the Philippines and China Under the United Nations Convention on the Law of the Sea (UNCLOS)*, by Ben Dolven et al.

¹¹⁰ Kate Higgins-Bloom, "Food Fight," *Foreign Policy*, September 12, 2018.

¹¹¹ Robert Pomeroy, "Improving Marine Fisheries Management in Southeast Asia," *Science Direct*, March 2016; and "East Asian Seas," UN Environment Programme, <https://www.unep.org/explore-topics/oceans-seas/what-we-do/working-regional-seas/regional-seas-programmes/east-asian>.

¹¹² "Status, Trends, and the Future of Fisheries in the East and South China Seas," Fisheries Centre Research Reports, vol. 27, 2019.

¹¹³ Jinkai Yu and Qingchao Han, "Exploring the Management Policy of Distant Water Fisheries in China: Evolution, Challenges, and Prospects," *Fisheries Research*, vol. 236 (2021). Hereinafter cited as Yu, 2021.

¹¹⁴ Yu, 2021.

¹¹⁵ ITC, 2021, p. 140. "The growing harvest of fish from lower trophic levels robs the higher-level species of the food

species caught in domestic fisheries are generally consumed domestically. In addition, fishmeal produced from low-valued fish is needed for the expanding aquaculture industry in China. Research of catch composition indicates that these shifts have resulted from targeting and overfishing of higher-valued predatory fish.¹¹⁶

Fishing in Neighboring Nations' EEZs

Chinese vessels fish in neighboring territorial waters and EEZs where Chinese jurisdictional claims overlap with those claimed by adjacent countries.¹¹⁷ In other cases, Chinese vessels fish illegally in areas that are undisputedly under the national jurisdiction of other countries.¹¹⁸ These fishing efforts have led to overfishing of fish stocks and increased landings of Chinese vessels at the expense of countries that share straddling stocks that occur in adjoining EEZs. Chinese vessels accounted for about 20.8% of the total fishing activity in disputed areas and EEZs in areas adjacent to Chinese waters in the East and South China seas, Yellow Sea, and Sea of Japan.¹¹⁹

East China Sea

Control of the uninhabited Senkaku Islands (see **Figure 7** below) in the East China Sea, called the Diaoyu Islands by the People's Republic of China, is disputed between China, Taiwan, and Japan.¹²⁰ Some analysts speculate that incidents associated with the dispute could escalate into conflict.¹²¹ Japan maintains administrative control over the islands, while both China and Taiwan have made claims that the islands fall under their jurisdiction. There is fishing in the disputed area, but potential oil and gas resources near the islands and issues of nationalist pride may play a larger role in the dispute. Japan claims its EEZ extends from the Ryukyu Islands to a median line between the Chinese and Japanese continental shelves in the East China Sea. China, however, maintains that their EEZ includes nearly all of the East China Sea, including the Senkaku Islands, based on extended continental shelf claims.¹²²

they need to reproduce and maintain their populations." P. Haque, D Hossain, "The Impact of Overfishing on Fish Population," Aquafind, <http://aquafind.com/articles/Overfishing-Report.php>.

¹¹⁶ Cody S. Szuwalski et al., "High Fishery Catches Through Trophic Cascades in China," *Proceedings of the National Academy of Sciences of the United States of America*, vol. 114, no. 4 (January 24, 2017), pp. 717-721.

¹¹⁷ ITC, 2021, p.152.

¹¹⁸ The jurisdictional claims of China and neighboring nations overlap because the distance between their opposite coastlines is considerably less than 400 nautical miles, the combined potential width of the nations' EEZs, thereby requiring delimitation of marine boundaries between these nations. The jurisdictional boundaries of national EEZs that overlap in these areas are disputed because there has been no agreement on the location of these boundaries. Questions have arisen concerning the international legal basis of China's claims and China's reluctance to settle these disagreements through third party arbitration.

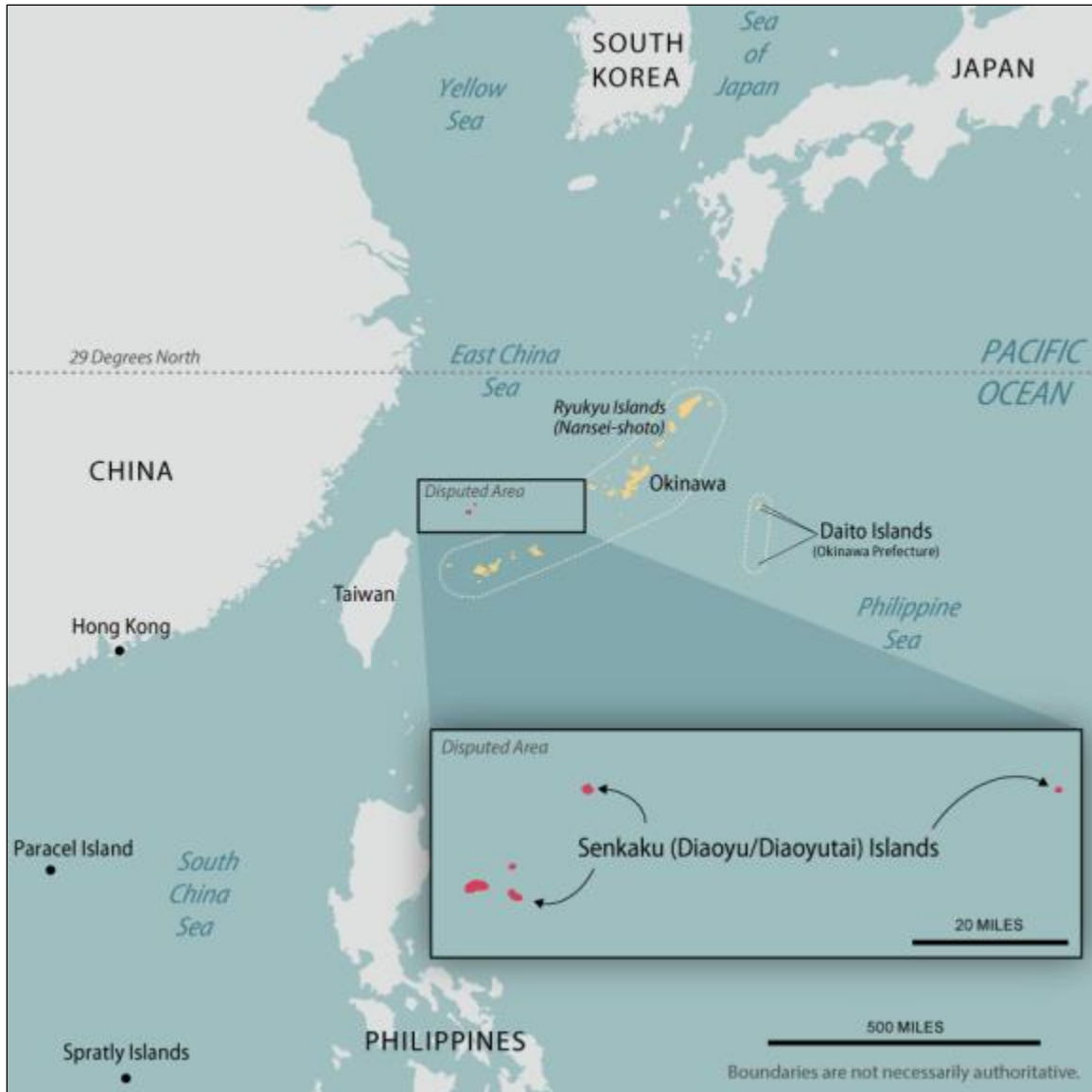
¹¹⁹ ITC, 2021, p. 155.

¹²⁰ CRS Report R42761, *The Senkakus (Diaoyu/Diaoyutai) Dispute: U.S. Treaty Obligations*, by Mark E. Manyin.

¹²¹ Global Conflict Tracker, "Tensions in the East China Sea," Council on Foreign Relations, January 3, 2022.

¹²² Under Article 76 of United Nations Convention on the Law of the Sea (UNCLOS), nations can make a submission to the Commission on the Limits of the Continental Shelf (hereinafter referred to as the Commission) concerning the extent of their continental shelves. (UNCLOS, 1982.) China's maritime claims are based on the extent of their continental shelf as opposed to Japan's claim that is based on the EEZ as projected from the Ryukyu Islands and an equidistant line drawn between the two countries.

Figure 7. Map of Senkaku (Diaoyu/Diaoyutai) Islands and Surrounding Region



Source: CRS, using data provided by the Database of Global Administrative Areas (GADM).

Notes: This map reflects geographic place name policies set forth by the United States Board on Geographic Names pursuant to P.L. 80-242. In applying these policies to the case of the sea separating the Korean Peninsula and the Japanese Archipelago, the Board has determined that the “Sea of Japan” is the appropriate standard name for use in U.S. Government publications. The Republic of Korea refers to this body of water as the “East Sea.” It refers to the “Yellow Sea” as the “West Sea.”

Chinese fishing is extensive in both in its waters in the East China Sea and the disputed areas discussed above. The Chinese government limits fishing in the East China Sea for much of the year, but the annual fishing ban typically ends each summer with large numbers of Chinese fishing vessels venturing into the East China Sea, including disputed areas near the Senkaku Islands.¹²³ China also regularly sends Chinese Coast Guard vessels into the disputed area to

¹²³ *Xinhua*, “Annual Fishing Ban Lifted in East China,” September 16, 2020, http://www.xinhuanet.com/english/2020-09/16/c_139373140.htm.

support their claims that they administer the area. These incursions have caused ongoing friction between the China and Japan. Often Chinese fishing vessels and Coast Guard vessels have been reported to chase or harass Japanese fishing boats as likely attempts to challenge the status quo of Japan's claim.¹²⁴

Yellow Sea

Fishing disputes in the Yellow Sea are related in part to maritime claims of China and South Korea that result in the overlapping of the two countries' EEZs. In 2001, the two countries agreed to create the China-South Korea Provisional Measure Zone for the area where their EEZs overlap. The provisional measure was adopted without the delimitation of the maritime boundary between the two countries. According to South Korean officials, the agreement was an attempt to control the number of illegal Chinese fishing vessels that dominated fishing activities in the region.¹²⁵ Despite this effort, incidents of illegal fishing by Chinese fishermen remain an ongoing source of friction between the two countries.

Over the last decade there has been a series of fisheries-related incidents between the South Korean Coast Guard and Chinese fishing vessels operating within South Korea's EEZ.¹²⁶ According to South Korean observers, widespread illegal fishing by Chinese vessels in the Yellow Sea causes severe harm to South Korea by depleting its resources.¹²⁷ Some progress has resulted from talks, joint enforcement patrols, and educational efforts that have helped to decrease arrests of Chinese vessels in South Korean waters.¹²⁸

Another source of illegal fishing is related to Chinese fishing in the Han River estuary along the North Korean side of the Northern Limit Line in the Yellow Sea—a neutral and demilitarized zone decided on by the parties of the Korean Armistice Agreement.¹²⁹ South and North Korea manage the jurisdiction jointly under the supervision of the Military Armistice Commission. Chinese fishing vessels reportedly have often fished on the North Korean side of the Han River estuary and at times crossed the border to fish illegally in South Korean waters. These vessels make incursions into South Korean waters at night, but retreat to North Korean waters if confronted by South Korean authorities. The situation is complicated by the relations among the three parties, and by the fact that the South Korean authorities cannot pursue the Chinese vessels into North Korean waters.

Squid Fishing in North Korean Waters

Large numbers of Chinese fishing vessels reportedly are targeting Japanese flying squid in North Korean waters. The Chinese "dark fleet" in this region operates without broadcasting positions with public monitoring systems while engaging in widespread illegal fishing activity.¹³⁰ A 2021

¹²⁴ Ankit Panda, "Japan Protests China Coast Guard Harassment of Fishing Vessel Near Senkaku Islands," *The Diplomat*, May 11, 2020.

¹²⁵ Young Kil Park, *The Role of Fishing Disputes in China-South Korea Relations*, National Bureau of Asian Research, April 23, 2020, <https://www.nbr.org/publication/the-role-of-fishing-disputes-in-china-south-korea-relations/>.

¹²⁶ "China Rebuffs South Korea Over Sinking of Coast Guard Vessel," *Reuters*, October 12, 2016.

¹²⁷ S. Um, "China's Illegal Fishing Causes Hardship for South Korea," *Maritime Fairtrade*, January 6, 2021.

¹²⁸ Young Kil Park, "The Role of Fishing Disputes in China-South Korea Relations," National Bureau of Asian Research, April 23, 2020, <https://www.nbr.org/publication/the-role-of-fishing-disputes-in-china-south-korea-relations/>.

¹²⁹ Ian Urbina, "China's Illicit Squid Fishery Has Deadly Impact on North Korea," *The Maritime Executive*, September 27, 2021.

¹³⁰ Jaeyoon Park et al., "Illuminating Dark Fishing Fleets in North Korea," *Science Advances*, vol. 6, no. 30 (July 22,

study identified 700 to 900 Chinese vessels illegally fishing for Japanese flying squid in North Korean waters between 2017 and 2018.¹³¹ According to a report by the Korea Maritime Institute, a think tank funded by the South Korean government, the amount of squid caught by South Korean fishers declined from 163,886 tons in 2014 to 46,274 tons in 2018.¹³²

The South China Sea

In the South China Sea, where territorial and sovereignty disputes among China and numerous other claimants have heightened in recent years, many analysts believe that competition over fisheries resources has become a key driver of disputes and tension.¹³³ The South China Sea is a major source of fish resources for each of the littoral claimants that border it, and the largest source of fish protein for many of them. China has territorial disputes in the South China Sea with the Philippines, Vietnam, Malaysia, Brunei, and Taiwan, and a related dispute over maritime rights with Indonesia.

Analysts claim that overfishing has dramatically depleted fish stocks in the South China Sea. One 2017 report estimated that fish stocks in the South China Sea may have fallen by 70%-95% since the 1950s. The report states that the South China Sea fishery “is now in danger of collapse unless claimants act urgently to arrest the decline.”¹³⁴ Other fisheries have also experienced significant loss of fish stocks. For example, the northwest cod fishery in the Atlantic Ocean fell to 1% of historical levels by 1992 largely due to overfishing.¹³⁵

The interplay between resource depletion and maritime rights disputes has made it difficult to manage and protect fisheries resources as fleets and law enforcement vessels from several claimants have become active in the wider parts of the South China Sea. This is illustrated by the Chinese fishing fleet—the largest in the region—and Chinese maritime enforcement vessels venturing further and in greater numbers from China’s mainland coast.¹³⁶

Chinese fishing vessels, for instance, increasingly operate in southern parts of the South China Sea, areas that are furthest from its mainland. The Indonesian government, which prioritizes a fight against what it claims is illegal fishing in Indonesian waters, has made numerous protests against Chinese vessels operating in Indonesian waters, echoing protests that Vietnam and the Philippines have made for decades.¹³⁷

There is no RFMO for the South China Sea, and no consensus on which claimant has rights to manage fisheries resources in its waters. As a result, one 2020 report says, “as competition over dwindling fish stocks intensifies, it ... risks sparking a conflict that further inflames tensions

2020).

¹³¹ ITC, 2021, p.156.

¹³² Young Kil Park, “The Role of Fishing Disputes in China-South Korea Relations,” National Bureau of Asian Research, April 23, 2020, <https://www.nbr.org/publication/the-role-of-fishing-disputes-in-china-south-korea-relations/>.

¹³³ “Fishing Dispute in the South China Sea,” Climate Diplomacy, <https://climate-diplomacy.org/case-studies/fishing-dispute-south-china-sea>.

¹³⁴ Center for Strategic and International Studies, “A Blueprint for Fisheries Management and Environmental Cooperation in the South China Sea,” September 13, 2017.

¹³⁵ Lawrence Hamilton and Melissa Butler, “Outport Adaptations: Social Indicators Through Newfoundland’s Cod Crisis,” *Human Ecology Review*, Winter 2001.

¹³⁶ Other claimants’ fleets and law enforcement vessels have also become active in wider parts of the South China Sea.

¹³⁷ Hannah Beech and Mukhtita Suhartono, “China Chases Indonesia’s Fishing Fleets, Staking Claim to the Sea’s Riches,” *New York Times*, March 31, 2020.

between China and the rest of the world.”¹³⁸ Increasing harassment by regional law enforcement agencies and other vessels have led many fishing vessels to operate in larger groups, and to operate in stealth, either switching off automatic tracking systems or operating without them.¹³⁹ The disputed waters are policed by coast guards and local maritime agencies of several countries, and according to one 2012 analysis, “the claims of sovereignty also serve to justify greater civilian patrols in the sea—opening up still more possibilities of run-ins with fishing vessels.”¹⁴⁰

Some analysts argue that the South China Sea disputants would benefit from greater multilateral dialogue to manage the marine environment and preserve fisheries. Some have called for a set of measures to protect the South China Sea’s marine resources, including the establishment of a Fishery and Environmental Management Area in the South China Sea; an agreement to split enforcement responsibilities; an agreement not to use subsidies to encourage fishing within already overfished areas; and a coordinated effort to reintroduce giant clams and other threatened species such as sea turtles to depopulated reefs in the region.¹⁴¹

Regions Exposed to China’s Distant-Water Fishing

China’s DWF employs extensive fishing efforts in many parts of the world. In the Pacific, fishing activities are generally concentrated in the Western Central Pacific and Southeast Pacific FAO regions.¹⁴² The landings from China’s distant-water fisheries originate from vessels operating both in the EEZs of other countries and on the high seas. Numerous reports have been made of IUU fishing by Chinese DWF vessels that operated without authorization to fish in Pacific island nations’ EEZs or violated measures required in high seas areas managed by RFMOs.¹⁴³

¹³⁸ Kevin Varley et al., “Fight over Fish Fans a New Stage of Conflict in the South China Sea,” *Bloomberg*, September 1, 2020.

¹³⁹ *Ibid.*

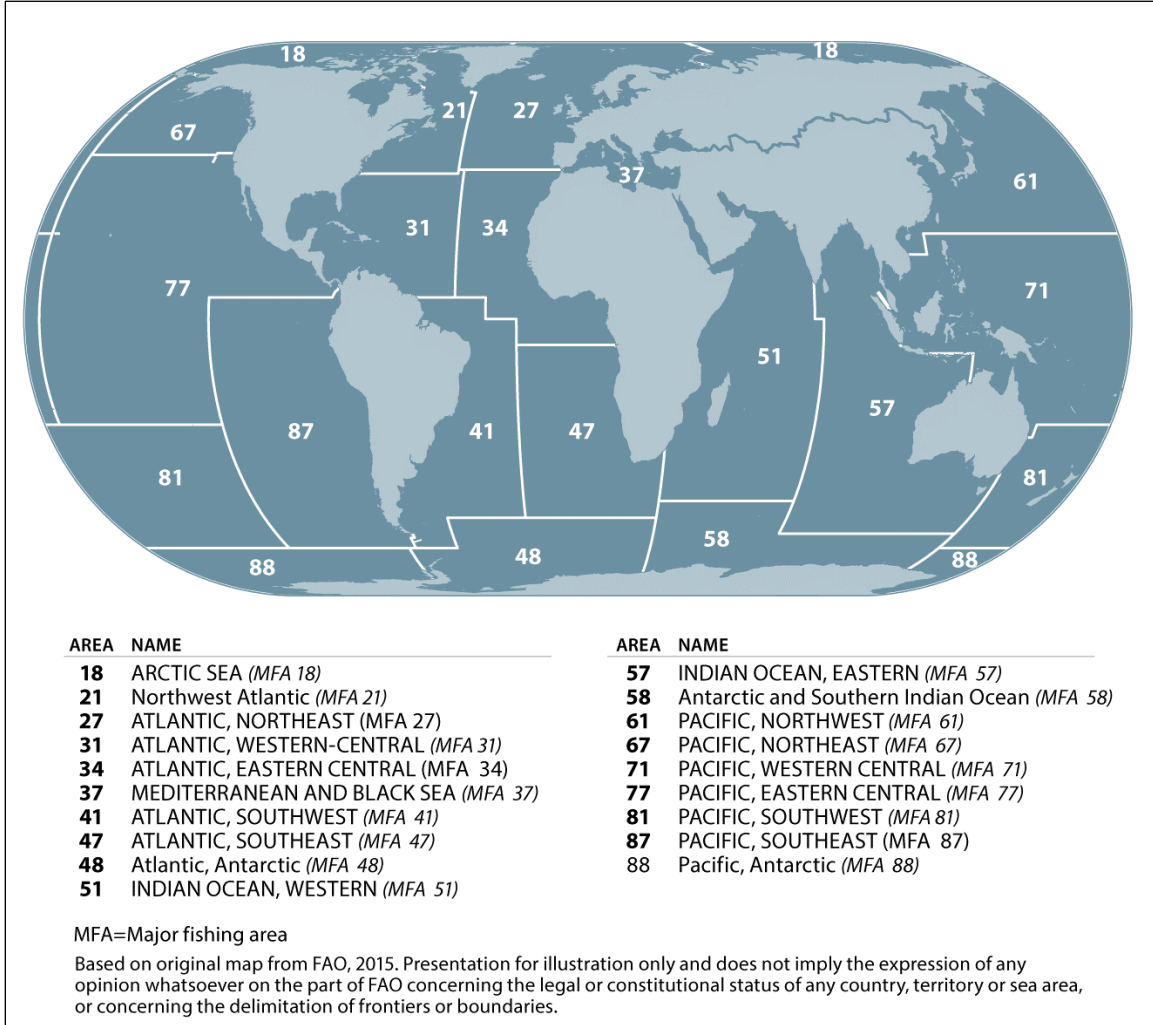
¹⁴⁰ Stephanie Kleine-Ahlbrandt, “Fish Story,” *Foreign Policy*, June 25, 2012.

¹⁴¹ Center for Strategic and International Studies, “A Blueprint for Fisheries Management and Environmental Cooperation in the South China Sea,” September 13, 2017.

¹⁴² Miren Gutierrez et al., *China’s Distant-Water Fishing Fleet*, Over Seas Development Institute, London.

¹⁴³ Miren Gutierrez, Guy Jobbins, “China’s Distant Water Fleet: Scale, Impact and Governance,” ODI, June 2, 2020.

Figure 8. FAO Major Fishing Areas



Source: Food and Agriculture Organization of the United Nations, <https://www.fao.org/fishery/en/area/search>.

Pacific Tuna Fisheries (Pacific Island Countries' EEZs)

The largest and most productive tuna stocks in the world are found in the South and Western Central Pacific Ocean. Pacific island EEZs and adjacent high seas areas in the region are among the most heavily fished areas in the world by DWF fleets. Access to tuna stocks is controlled in part by Pacific island states which project large EEZs into the surrounding Pacific Ocean.

The region's island nations also have established regional associations to coordinate their approach to regulating access to the region's fishery resources by foreign fishing fleets. The Western and Central Pacific Fisheries Commission (WCPFC) is an RFMO established by the Western and Central Pacific Fisheries Convention to conserve and manage the region's highly migratory tuna stocks and other migratory marine resources targeted by high seas fisheries.¹⁴⁴ The Fisheries Forum Agency (FFA) was established to help Pacific countries develop and implement

¹⁴⁴ The Western and Central Pacific Fisheries Commission is composed of 26 members that include both fishing nations with DWF targeting tuna and island nations where tuna resources are caught.

conservation and management measures for the fishery resources passing within their EEZs,¹⁴⁵ by providing technical support and facilitating regional cooperation.

The Nauru Agreement is a subregional agreement among eight parties to provide the terms of access agreements for distant-water tuna fleets.¹⁴⁶ The agreement facilitates cooperation and collaboration among the parties to establish measures to sustain regional fisheries and engage in activities that will increase and diversify socioeconomic benefits from the fisheries in their waters.¹⁴⁷ The EEZs of the parties to the Nauru agreement collectively control 20%-30% of the world's tuna supply. The agreement introduced a Vessel Day Scheme¹⁴⁸ with sustainable fishing targets that reportedly earns the group \$500 million a year.¹⁴⁹ Fishing fees paid by foreign fishing vessels for access to fishery resources within the region's EEZs are significant sources of revenue for many South Pacific nations.

While Pacific island nations target tuna, most tuna are harvested by DWF that are from outside the region including China, Japan, South Korea, Taiwan, the United States, and others.¹⁵⁰ China has one of the largest fleets registered with WCPFC to operate in the region. A large portion of fishing activity by China's fishing vessels is in the EEZs of Vanuatu, Solomon Islands, and Micronesia.¹⁵¹ Chinese fishing includes vessels registered to China that operate under access agreements and Chinese vessels that are registered and/or flagged to Pacific island countries for more favorable terms of access.¹⁵² These arrangements may complicate or obscure the activities of reflagged vessels that commit IUU and labor violations.¹⁵³

The FFA regularly conducts surveillance to detect and counter illegal fishing activities and on multiple occasions authorities have identified Chinese vessels engaging in IUU fishing. For example, in 2018 and again in 2019, three Chinese-flagged vessels were caught fishing illegally in the high seas areas of the North Pacific Ocean.¹⁵⁴ A recent analysis found that a number of Chinese vessels flagged in Fiji are suspected of engaging in IUU fishing, though this may reflect an above-average detection rate rather than a concentration of IUU activity.¹⁵⁵ Foreign vessels, including Chinese vessels, operating in Vanuatu's EEZ have also been linked to under-reporting their catch.¹⁵⁶

¹⁴⁵ For additional information related to the FFA see, <https://www.ffa.int/>.

¹⁴⁶ The Parties to the Nauru Agreement (formed in 1982) includes Micronesia, Kiribati, the Marshall Islands, Nauru, Palau, Papua New Guinea, the Solomon Islands, Tuvalu, and Tokelau.

¹⁴⁷ "The Parties to the Nauru Agreement," <https://www.pnatuna.com/index.php/content/about-pna>.

¹⁴⁸ The Vessel Day Scheme (VDS) is a scheme where vessel owners can purchase and trade days fishing at sea in places subject to the Parties to the Nauru Agreement (PNA). Pacific Islands Forum Fisheries Agency, "Introduction," <https://www.ffa.int/vds>.

¹⁴⁹ Christopher Pala, "The Mice That Roared: How Eight Tiny Countries Took on Foreign Fishing Fleets," *The Guardian*, June 15, 2021.

¹⁵⁰ Less than one percent of the average tuna catch from the EEZs of Pacific Island Countries (PIC) is estimated to be used currently for local consumption in the Pacific region. Most fish currently consumed in the Pacific are caught from coral reefs. Lucy Towers, "Local Tuna Consumption in the Pacific Important," *The Fish Site*, February 5, 2015.

¹⁵¹ ITC, p. 158.

¹⁵² ITC, p. 158.

¹⁵³ ITC, p. 157.

¹⁵⁴ NOAA, 2019, pp. 22-23.

¹⁵⁵ Miren Gutierrez et al, "China's Distant Water Fishing Fleet Scale, Impact and Governance," Overseas Development Institute, June 2020, and ITC, p. 158.

¹⁵⁶ ITC, p. 158.

The resources needed to enforce existing access agreements and regional arrangements is cited as one of the main constraints to stopping IUU fishing in the region. To combat IUU fishing in the region, the U.S. Coast Guard partners with 11 Pacific island nations through bilateral enforcement arrangements known as shiprider agreements. The agreements allow local law enforcement officers to embark on U.S. Coast Guard and U.S. Navy vessels to observe, protect, board, and search vessels suspected of violating laws or regulations within their EEZs or on the high seas.¹⁵⁷

South American Squid Fisheries

Extensive squid fisheries are in the Pacific Ocean off the west coast of South America and in the Southwest Atlantic Ocean off the southeast coast of South America. These areas are fishing grounds for both South American and distant-water fishing vessels for Humboldt (jumbo flying squid) off Ecuador, Peru, and Chile; and shortfin squid and jumbo flying squid in the Southwest Atlantic off Argentina. Ecuadorans, Peruvians, and Chileans fish for flying squid primarily in their own EEZs. Argentina fishes for both squid species in the Southwest Atlantic, while Chinese and other Asian fishing vessels operate in high seas areas adjacent to Argentina's EEZ. A U.S.-based nongovernmental organization (NGO) focused on protecting the world's oceans asserted in June 2021 that between January 2018 and April 2021, over 800 Chinese, Taiwanese, South Korean, and Spanish vessels may have been fishing within Argentina's EEZ.¹⁵⁸ One analysis of fishing activity in the Galapagos EEZ identified 344 Chinese fishing vessels operating around the Galapagos EEZ in August 2020 alone.¹⁵⁹

High seas fisheries in the southern Pacific are managed by the South Pacific Regional Fisheries Management Organization (SPRFMO) (**Figure 4**); no RFMO manages high seas fisheries in the southwest Atlantic. The main objective of SPRFMO is the long-term conservation and sustainable use of resources under the Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean (the Convention).¹⁶⁰ The Convention covers the high seas areas from South America to Australia. The main commercial fishery resources within the area include jack mackerel, chub mackerel, jumbo flying squid (including other squid species), and orange roughy.¹⁶¹ The Convention is open to nations with an interest in fishery resources within the region.

Chinese deep water fleets operating off the coast of South America appear to focus their efforts primarily on the high seas near or reportedly within the EEZs of Ecuador, Peru, and Argentina. According to the SPRFMO record of authorized fishing vessels, China has the largest fleet with 722 registered vessels.¹⁶² Some Chinese fishing vessels reportedly transship their catch to Chinese refrigerated cargo vessels that land their catch in Chinese ports.¹⁶³ This allows the fleet to fish in

¹⁵⁷ Lt. Com. Lauren L. Wright, "Shiprider Program," *Indo-Pacific Defense FORUM*, January 27, 2020, at <https://ipdefenseforum.com/2020/01/shiprider-program/>.

¹⁵⁸ OCEANA, *Now You See Me, Now You Don't: Vanishing Vessels Along Argentina's Waters*, June 2021, <https://usa.oceana.org/reports/oceana-finds-hundreds-vessels-vanishing-along-argentinas-waters/>.

¹⁵⁹ Tabitha Mallory and Ian Ralby, "Evolution of the Fleet: A Closer Look at the Chinese Fishing Vessels off the Galapagos," *Center for International Maritime Security*, October 19, 2020.

¹⁶⁰ On November 4, 2009, national parties adopted the Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Resources in the South Pacific Ocean, and on August 14, 2012, the Convention entered into force, which established the Commission.

¹⁶¹ Highly migratory tuna species in the Eastern Tropical Pacific are managed by the Inter-American Tropical Tuna Commission and in the Western and Central Pacific by the Western and Central Pacific Fisheries Commission.

¹⁶² ITC, 2021, p. 155.

¹⁶³ "Small Fry: Peru's Fishermen Battle China's Overseas Fleet," *US News and World Report*, September 24, 2021. K.

the region for long periods without interruption. Most of the vessels operating in the region are Chinese, but other DWFs registered by the SPRFMO include Taiwan (55 vessels) and South Korea (44 vessels). Regional fleets (especially fishermen from Peru) target squid in their EEZs and are composed of large numbers of vessels that are generally smaller in size and capacity.

There have been numerous reports of IUU fishing in these areas. For example, according to Global Fishing Watch, there are a number of cases where vessels have broadcasted inconsistent Automatic Identification Systems (AIS) information by switching off their transponders when close to EEZ boundaries, and manipulating data to broadcast false locations (**Table 2**).¹⁶⁴

Examples of IUU fishing in this region include a Chinese refrigerator vessel detained within the waters of the Galapagos Marine Reserve with 6,000 sharks in its hold.¹⁶⁵ Reports from the seizure of this vessel by the Ecuadorian Navy suggested that Chinese fishing vessels targeted sharks, an activity that is not allowed under Ecuadorian regulations.¹⁶⁶ In 2020, China responded that it has zero tolerance for IUU fishing and that it would not fish in waters near the Galapagos Marine Reserve between September and November.¹⁶⁷ Chinese vessels reportedly shut off tracking instruments and entering Ecuador's EEZ to fish illegally in 2020.¹⁶⁸ Also in 2020, Chile reported Chinese vessels were operating in high seas areas within and around its EEZ.¹⁶⁹

Chinese fishing activity occurs off the EEZ of Argentina and the Falkland Islands, with approximately 400 Chinese fishing vessels reported off Argentina's EEZ. Incursions by Chinese fishing vessels into Argentina's EEZ and illegal fishing by China in the region have been documented.¹⁷⁰ In 2019, distant-water vessels fishing in the Southwest Atlantic area during the peak season turned off their vessel tracking instruments. Most of the "dark" vessels appeared to have their AIS off for one to four days at a time and in most cases disappeared about five nautical miles from the boundary of Argentina's EEZ.¹⁷¹ The U.S.-based NGO Oceana also detected more than 6,000 "gap events" during that period, when vessels were not visible on electronic trackers for more than 24 hours, possibly because they disabled their AIS.¹⁷² In 2019 China issued new regulations prohibiting Chinese-flagged vessels from turning off their vessel tracking instruments in the region.

Boerder, N. Miller and B. Worm, "Global Hotspots of Transshipment of Fish Catch at Sea," *Science Advances*, July 25, 2018.

¹⁶⁴ Eloy Aroni, *Follow the Lights: Squid Fishing in the Southeast Pacific Ocean*, Global Fishing Watch, October 13, 2020.

¹⁶⁵ C. Middlehurst, "Ecuador Shark Seizure Exposes Illegal Fishing Network," *Dialogo China*, August 25, 2017. "Countries Step up Efforts to Protect Marine Wildlife," U.S. Embassy and Consulates in Italy, <https://it.usembassy.gov/countries-step-up-efforts-to-protect-marine-wildlife/>.

¹⁶⁶ ITC, p. 167.

¹⁶⁷ "Chilean Navy Ships Monitor Huge Chinese Fishing Fleet," *BBC News*, December 15, 2020, at <https://www.bbc.com/news/world-latin-america-55316326>.

¹⁶⁸ Christian Molinari, "Four South American Countries Prepare to Challenge Chinese Fishing Abuses at COMM9," *SeafoodSource*, January 5, 2021, at <https://www.seafoodsource.com/news/environment-sustainability/four-south-american-countries-prepare-to-challenge-chinese-fishing-abuses-at-comm9>.

¹⁶⁹ "Chilean Navy Ships Monitor Huge Chinese Fishing Fleet," *BBC News*, December 15, 2020.

¹⁷⁰ ITC, p. 161.

¹⁷¹ "Fleets of Fishing Ships Are Going 'Dark' in the South Atlantic and China Is the Leading Culprit," *Business Insider*, June 2, 2021, at <https://www.businessinsider.com/chinese-fishing-vessels-going-dark-off-argentina-waters-2021-6>.

¹⁷² "Oceana Finds Hundreds of Vessels Vanishing Along Argentina's Waters," Oceana, June 2021.

In 2020, the SPRFMO adopted its first management measures for jumbo flying squid in the international waters covered by the convention. To protect overfished squid stocks, the regulation adopted conservation management measures for squid fishing.¹⁷³ In the wake of the latest Chinese incursion into the waters of these South American nations, the four member nations of the Permanent Commission for the South Pacific—Ecuador, Chile, Colombia, and Peru—issued a joint statement promising to work together.¹⁷⁴

West Africa¹⁷⁵

Fisheries overexploitation and IUU fishing in West Africa have attracted growing international attention amid rising concern over the status of fish stocks and coastal livelihoods in the region. The FAO considers several species in the Eastern Central Atlantic zone to be overfished.¹⁷⁶ The Eastern Central Atlantic zone hosts some of the richest and most diverse fisheries in the world, with a variety of species used as food or in the production of fishmeal and fish oil. The FAO reports that over 40% of assessed fish stocks in the region were harvested at biologically unsustainable levels in 2017 (latest data), among the highest rates in the world.¹⁷⁷ Observers generally agree that IUU fishing is “heavily implicated” in this overexploitation.¹⁷⁸ Such trends have been socioeconomically devastating for local fishing sectors and have reduced access to ocean fish, a critical source of protein for large coastal populations across West Africa.¹⁷⁹

Chinese DWFs—alongside other foreign fleets, notably from the European Union (EU)—have reportedly played key roles in overfishing and IUU fishing in West African waters. While the scale and scope of Chinese fishing in the region have not been definitively documented, West Africa reportedly has become a major focus of Chinese DWF operations in recent decades.¹⁸⁰ This includes activity by Chinese-owned or -operated vessels flagged to other countries, which reportedly constitute a small share of Chinese DWF operations globally but are disproportionately flagged to West African countries: according to the Overseas Development Institute (ODI),

¹⁷³ “8th Scientific Committee Meeting Report,” South Pacific Regional Fisheries Management Organization (SPRFMO), October 3-8, 2020.

¹⁷⁴ P. Schechter and J. Cortinas, “Fishing in Dangerous Waters: A Flashpoint for Latin America and China,” *Brinknews*, May 5, 2021.

¹⁷⁵ This section authored by Tomás F. Husted.

¹⁷⁶ This section focuses on the FAO’s Eastern Central Atlantic zone (Major Fishing Area 34), which spans Western Africa’s littoral and deep-sea waters from northern Morocco to northern Angola.

¹⁷⁷ FAO, 2020.

¹⁷⁸ Daniels et al., *West Africa’s Missing Fish: The Impacts of Illegal, Unreported and Unregulated Fishing and Under-Reporting Catches by Foreign Fleets*, ODI, June 2016. Estimates of IUU fishing in West Africa vary considerably, and its prevalence reportedly differs between countries, but observers agree that such practices are pervasive across the region. For instance, a 2009 study found that illegal and unreported catches in the Eastern Central Atlantic were equivalent to 37% of the legal reported catch of the case study species, on average, over 2000-2003 (Agnew et al., “Estimating the Worldwide Extent of Illegal Fishing,” *PLoS ONE* vol. 4, no. 2 [2009]). A 2017 study of six West African countries—Mauritania, Senegal, Gambia, Guinea Bissau, Guinea, and Sierra Leone—estimated that illegal catches were equivalent to 65% of the legal reported catch between 2010 and 2015, though rates varied between countries (Doubouya et al., “Assessing the Effectiveness of Monitoring Control and Surveillance of Illegal Fishing: The Case of West Africa,” *Frontiers in Marine Science* vol. 4, no. 50 [2017]).

¹⁷⁹ One Earth Future, *Stable Seas: Gulf of Guinea*, March 2020.

¹⁸⁰ The Pew Charitable Trusts and the *Sea Around Us* initiative at the University of British Columbia estimated that West Africa accounted for 64% of average annual Chinese DWF catch (by ton) over 2000-2011. See Pew Charitable Trusts and *Sea Around Us*, “China’s Foreign Fishing Is Largely Unreported,” 2013.

Ghana, Mauritania, and Côte d'Ivoire are the three most common foreign-flag states for Chinese DWF vessels worldwide.¹⁸¹

Chinese DWF operations in West Africa have come under scrutiny from analysts and U.S. officials, including some Members of Congress.¹⁸² According to various observers, the opacity of Chinese vessel ownership and fishery access agreements in West Africa may enable exploitative fishing practices and hinder monitoring of Chinese DWF operations by African governments and publics.¹⁸³ Meanwhile, as in other regions, Chinese state subsidies and other official support for Chinese DWFs in West Africa may encourage overcapacity and contribute to unsustainable catch levels, while disadvantaging African domestic fishing industries and foreign competitors. (Analysts have expressed similar concerns over the implications of EU DWF subsidies.¹⁸⁴) Observers have contended that Chinese DWFs may misrepresent their vessel sizes to secure licenses and favorable fisheries access, and under-declare their official catch levels, though the extent of such practices is unclear due to gaps in publicly available information.¹⁸⁵

Observers have implicated Chinese entities in IUU fishing and other predatory or ecologically destructive activities in West African waters.¹⁸⁶ For instance, researchers have accused Chinese companies of extensive involvement in Ghana's "saiko" trade—an illegal practice whereby industrial trawlers transfer by-catch (the incidental capture of non-targeted species) and other ostensibly untargeted fish to intermediaries for sale onshore.¹⁸⁷

West African governments have sought to curtail predatory fishing by Chinese and other foreign vessels in their maritime domains, as artisanal fishing associations and coastal communities have expressed concern over the impacts of foreign fishing for local livelihoods.¹⁸⁸ Some West African governments have denied or revoked licenses awarded to Chinese and other foreign trawlers, in some cases citing sustainability concerns.¹⁸⁹ Regional navies and maritime law enforcement agencies—at times working in tandem or with the support of international conservation organizations—also have episodically interdicted or imposed fines on Chinese vessels found responsible for IUU fishing. Weak maritime security capacities, limited cross-border coordination, and under-resourced port and fishing authorities, among other challenges, continue to inhibit sustainable fisheries management and enable predatory fishing across the region. More

¹⁸¹ Gutiérrez et al., *China's Distant Water Fishing Fleet: Scale, Impact and Governance*, ODI, June 2020.

¹⁸² House Foreign Affairs Committee Minority, "China Regional Snapshot: Sub-Saharan Africa," n.d., accessed February 17, 2021; State Department, "Telephonic Press Briefing on U.S. Coast Guard and Navy Operations in Africa," October 5, 2020.

¹⁸³ Daniels et al., *West Africa's Missing Fish: The Impacts of Illegal, Unreported and Unregulated Fishing and Under-Reporting Catches by Foreign Fleets*, ODI, June 2016; Belhabib et al., "Euros vs. Yuan: Comparing European and Chinese Fishing Access in West Africa," *PLoS ONE*, vol. 10, no. 3 (2015); Environmental Justice Foundation (EJF), *China's Hidden Fleet in West Africa: A Spotlight on Illegal Practices Within Ghana's Industrial Trawl Sector*, 2018.

¹⁸⁴ Ifesinachi Okafor-Yarwood and Dyhia Belhabib, "The Duplicity of the European Union Common Fisheries Policy in Third Countries: Evidence from the Gulf of Guinea," *Ocean and Coastal Management* 184 (2020).

¹⁸⁵ Greenpeace, *Africa's Fisheries: Paradise at a Crossroads*, 2015; Belhabib et al., "Euros vs. Yuan: Comparing European and Chinese Fishing Access in West Africa," *PLoS ONE*, vol. 10, no. 3 (2015).

¹⁸⁶ Charles Clover, "How China's Fisherman are Impoverishing Africa," *The Spectator*, June 9, 2020.

¹⁸⁷ EJF and Hen Mpoano, *Stolen at Sea: How Illegal 'Saiko' Fishing Is Fueling the Collapse of Ghana's Fisheries*, 2019.

¹⁸⁸ See, for example, Holly Eva Ryan, "Anti-Chinese Protests in a Gambian Fishing Village Show Conflict of Foreign Investment in Africa," *Quartz*, June 27, 2019; and Joelle Philippe, "Liberian Fishers Protest Against the Potential Issuance of Fishing Licenses to Six Chinese Supertrawlers," Coalition for Fair Fisheries Arrangements, July 23, 2020.

¹⁸⁹ Eric Olander, "Q&A: Liberia's Decision to Deny Fishing Permits to 6 Chinese Super Trawlers 'Sends a Powerful Message,'" October 19, 2020.

broadly, observers have expressed concern that the opacity of Chinese and other foreign fishing activity in West Africa—as well as power imbalances between foreign governments and West African states and between foreign DWFs and local fishing sectors—may render West African fisheries vulnerable to foreign predation.¹⁹⁰

China's Efforts to Address IUU Fishing and Promote Sustainable Fisheries¹⁹¹

The Chinese government is taking certain steps to address concerns expressed by both Chinese and international experts regarding the sustainability of China's inshore and distant-water fishing practices and the involvement of Chinese fishing vessels in IUU fishing practices. To meet China's Ministry of Agriculture and Rural Affairs' (MARA) 13th Five-Year National Fishing Industry Development Plan's stated goal of promoting more sustainable fishing practices, authorities in China have taken steps that include the imposition of closed seasons for distant-water fishing and inshore fishing operations.¹⁹² In May 2020, the Chinese government extended these measures to disputed waters in the South China Sea it claims as its own and imposed a 15-week ban on all fishing in the South China Sea north of the 12th parallel (the circle of latitude that is 12 degrees north of the equator). The governments of Vietnam and the Philippines protested the move, which ostensibly bans fishing by their nationals in waters both countries also claim as part of their territory.¹⁹³

The Chinese government is also promoting the development of blockchain and cloud-based applications to monitor ocean fishery populations and improve supply chain traceability, which Chinese experts claim will inform more sustainable fishing practices. The China Fisheries Association, the largest industry association in China, is reportedly working to develop single-species data platforms, which it claims will be able to be tied to mobile applications to help firms and regulators monitor fish populations.¹⁹⁴ In 2017, MARA issued new regulations obligating the coastal provinces of Liaoning, Shandong, Zhejiang, and Fujian to establish total allowable catch (TAC) pilot programs. According to an evaluation of the China's TAC pilot programs conducted by the Natural Resources Defense Council and Environmental Defense Fund in partnership with the Qingdao Marine Conservation Society and Zhejiang Marine Fisheries Research Institute in China, at least one fishery in each of China's coastal provinces had implemented a TAC pilot by the end of 2020.¹⁹⁵ The evaluation's findings indicated that although the TAC pilots created new

¹⁹⁰ Belhabib et al., "The Fisheries of Africa: Exploitation, Policy, and Maritime Security Trends," *Marine Policy*, vol. 101 (2019).

¹⁹¹ This section authored by Michael Sutherland.

¹⁹² Zhang Chun, "China Imposes Its First Closed Season for Distant-Water Fishing Fleet," *Maritime Executive*, June 21, 2020, at <https://www.maritime-executive.com/editorials/china-imposes-its-first-closed-season-for-distant-water-fishing-fleet>.

¹⁹³ Drake Long, "China Announces Summer Fishing Ban in the South China Sea," *Radio Free Asia*, May 1, 2020, at <https://www.rfa.org/english/news/china/scs-fishing-05012020194131.html>; Drake Long, "Chinese Fishing Boats Return as South China Sea Fishing Ban Ends," *Eurasia Review*, August 20, 2020, at <https://www.eurasiareview.com/20082020-chinese-boats-return-as-south-china-sea-fishing-ban-ends/>.

¹⁹⁴ The China Fisheries Association works alongside the government to set and enforce industry standards. See Dong Xin, "手机 APP 即可远程养鱼，大数据促渔业全流程信息化 (A Cell Phone App That Can Remotely Raise Fishing Populations, Promoting the Informationization of the Fishing Industry Through Big Data)," *Yicai News*, June 25, 2018; 中国渔业开展大数据研究，你吃的鱼将能追根溯源 (China Fisheries Launches Big Data Research Institute, The Fish You Eat Will Soon Be Traceable)," *Sohu*, May 11, 2018, at https://www.sohu.com/a/231260424_561670.

¹⁹⁵ Willard Wei, et al., "Progress of China's TAC System: Evaluation for Zhejiang and Fujian Pilots," *Environmental Defense Fund*, May 2021, at <https://www.edf.org/sites/default/files/documents/>

tools that allow both the Chinese government and international organizations increased visibility into total catch numbers, significant shortcomings in catch verification methodology, loopholes created by the role of transshipment vessels, and a lack of concrete enforcement measures pose significant obstacles.¹⁹⁶

MARA and the National People's Congress, China's national legislative body, are also taking steps to update various administrative measures and laws to deter IUU fishing and establish stricter management standards in China's distant-water fishing sector.¹⁹⁷ In August 2019, MARA issued *Measures for the Supervision and Location Monitoring of Distant Ocean Fishing Vessels* (hereinafter referred to as "the Measures"), requiring all fishing vessels "approved by the Ministry of Agriculture and Rural Affairs to engage in offshore fisheries production" to install location monitoring equipment.¹⁹⁸ The Measures obligate vessels incorporated into the new position monitoring system to report their positions multiple times per day to MARA and provincial fishing authorities, and entrust the China Fisheries Association with the equipment maintenance, technical training, and standards-setting required to implement the new position monitoring system.

Enforcement measures outlined in the Measures are vague—the only specific enforcement mechanism states that vessels that falsify location data or improperly remove monitoring equipment forfeit all "policy subsidies" for the year in which the violation occurred.¹⁹⁹ In February 2020 MARA issued additional *Regulations on the Management of Distant Ocean Fisheries* including the provision that vessels engaged in IUU fishing or failed to accurately report their positions risk being placed on a "blacklist" which prohibits violators from applying for fishing licenses for five years.²⁰⁰

MARA also published in August 2019 a draft revision of China's 1986 Fisheries Law. The new version aims to clarify penalties for IUU fishing, outline new enforcement mechanisms, and establish law enforcement powers and standards for investigating and punishing IUU violations. Enforcement measures in the proposed revision include vessel confiscation, revocation of

Progress%20of%20Chinas%20TAC%20System%20report%2C%20English%2C%20May%202021.pdf?_gl=1*s9n34t*_ga*MTMwMjcwMTIxMS4xNjQxNTk0OTM0*_ga_WE3BPRQKW0*MTY0MTU5NDkzNC4xLjAuMTY0MTU5NDkzNy41Nw..., p. 3.

¹⁹⁶ Ibid., pp. 8-15.

¹⁹⁷ Ministry of Agriculture and Rural Affairs, "农业部关于加快推进渔业转方式调结构的指导意见 (Guiding Opinions of the Ministry of Agriculture and Rural Affairs on Accelerating and Promoting Fishery Transformation and Structural Adjustment)," May 4, 2016, http://www.gov.cn/gongbao/content/2016/content_5109351.htm; Standing Committee of the National People's Congress of the People's Republic of China, "全国人民代表大会常务委员会执法检查组关于检查《中华人民共和国渔业法》实施情况的报告 (Report of the Law Enforcement and Examination Group of the Standing Committee of the National People's Congress Examining the Implementation of the Fisheries Law of the People's Republic of China)," December 24, 2019, <http://www.npc.gov.cn/npc/c30834/201912/022a2e6da6374d1dab4cb4606c54092d.shtml>.

¹⁹⁸ Ministry of Agriculture and Rural Affairs of the People's Republic of China, "农业农村部关于印发《远洋渔船船位监测里办法》的通知 (Notice Regarding the Publication of *Measures for the Supervision and Location Monitoring of Distant Ocean Fishing Vessels*)," August 19, 2019, at http://www.gov.cn/xinwen/2019-08/19/content_5422285.htm.

¹⁹⁹ Refer to Article 28 in the Ministry of Agriculture and Rural Affairs of the People's Republic of China, "农业农村部关于印发《远洋渔船船位监测里办法》的通知 (Notice Regarding the Publication of *Measures for the Supervision and Location Monitoring of Distant Ocean Fishing Vessels*)."

²⁰⁰ Ministry of Agriculture and Rural Affairs of the People's Republic of China, "中华人民共和国农业农村部令 2020 第 2 号《远洋渔业管理规定》 (Order No. 2 of 2020 of the Ministry of Agriculture and Rural Affairs, *Regulations on the Management of Distant Ocean Fisheries*)," February 10, 2020, at http://www.gov.cn/zhengce/zhengceku/2020-03/13/content_5490763.htm.

company fishing licenses, and the recording of severe violations in China's Corporate Social Credit databases, which could expose violators to a wide range of additional administrative penalties.²⁰¹ This proposed revision has yet to enter into force, and several experts contend that the Chinese government lacks the administrative capacity to enforce these new provisions given the size of China's DWF and the government's apparent unwillingness to acknowledge the true size of its DWF.²⁰²

International and U.S. Responses to IUU Fishing

International bodies, Congress, and successive administrations have taken a number of actions to combat IUU fishing. These actions attempt to influence the behavior of fishing fleets through international agreements and trade because most IUU activities occur outside of U.S. jurisdiction.²⁰³

International and National Plans of Action

In 2001, the *International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing* was adopted by the Committee on Fisheries of the FAO.²⁰⁴ The International Plan of Action (IPOA) is a voluntary instrument that specifies and advances national and regional measures to prevent, deter, and eliminate IUU fishing. According to the IPOA, management measures should be consistent with the conservation and long-term sustainable use of fish stocks and protection of the environment. The IPOA provides nations and RFMOs with a framework that outlines the responsibilities of coastal and flag states.²⁰⁵ The responsibilities of flag states outlined in the IPOA include

- ensuring fishing vessels flying a state's flag do not engage in or support IUU fishing;
- maintaining a record of vessels entitled to fly the state's flag; and
- adopting measures to ensure no vessel be allowed to fish unless authorized in a manner consistent with international law for the high seas.

The IPOA calls on all nations to voluntarily develop and adopt their own national plans of action. The IPOA also encourages additional actions to be taken by nations, such as port state, market-

²⁰¹ Ministry of Agriculture and Rural Affairs of the People's Republic of China, "中华人民共和国渔业法修订草案（征求意见稿）（Amendment to the Fisheries Law of the People's Republic of China (Draft for Public Comment)," August 2019, available at http://www.moa.gov.cn/hd/zqyj/201908/t20190828_6323271.htm. For more on China's Corporate Social Credit System, see CRS In Focus IF11342, *China's Corporate Social Credit System*, by Michael D. Sutherland.

²⁰² Miren Gutierrez et al., "China's Distant-Water Fishing Fleet," *Overseas Development Institute*, June 2020, https://www.odi.org/sites/odi.org.uk/files/resource-documents/chinesedistantwaterfishing_web_1.pdf; Zhang Chun, "China Targets Distant-Water Criminals with New Fisheries Law," *China Dialogue*, January 21, 2020; Ian Urbina, "How China's Expanding Fishing Fleet Is Depleting the World's Oceans," *Yale Environment 360*, August 17, 2020, <https://e360.yale.edu/features/how-chinas-expanding-fishing-fleet-is-depleting-worlds-oceans>.

²⁰³ Actions to combat IUU fishing have included enforcement agreements with partner countries, trade monitoring, implementation and enforcement of international treaties, and broad efforts to promote resource sustainability.

²⁰⁴ United Nations Food and Agriculture Organization, *International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing*, Rome, Italy, 2001, <http://www.fao.org/port-state-measures/resources/detail/en/c/1113476/>.

²⁰⁵ United Nations Food and Agriculture Organization, *International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated*, Rome, Italy, 2001, <http://www.fao.org/fishery/ipoa-iuu/legal-text/en>.

related, and coastal state measures, to ensure that nations do not support or engage in IUU fishing. The FAO lists 14 national plans of action and 3 regional plans of action.²⁰⁶ In 2004, the United States adopted a plan of action that complement the measures identified in the IPOA.²⁰⁷

International Port State Measures Agreement

The Agreement on Port State Measures to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing (PSMA) is the first binding international agreement to target IUU fishing. The agreement was approved by the FAO at its Thirty-sixth Session on November 22, 2009.²⁰⁸ The PSMA provides port states with the authority to restrict port access of vessels engaged in IUU fishing, thereby seeking to prevent illegally caught fish from entering international markets. In addition, some countries have also decided to prohibit trade with countries that do not have port state measures in place.²⁰⁹

Under the terms of the treaty,

- foreign vessels are required to provide advance notice and request permission for port entry;
- port countries conduct regular inspections in accordance with universal minimum standards;
- offending vessels may be denied use of port or certain port services; and
- information sharing networks will be established.

The United States signed the agreement on November 22, 2009. The President transmitted it to the Senate on November 14, 2010, and the Senate agreed to a resolution of advice and consent to ratification on April 3, 2014. Congress subsequently enacted implementing legislation, the Illegal, Unreported, and Unregulated (IUU) Fishing Enforcement Act of 2015 (P.L. 114-81) on November 5, 2015. President Obama signed the treaty on February 10, 2016.²¹⁰ In 2016, the agreement entered into force with approval of 30 parties and according to the FAO there are now 69 parties to the agreement.²¹¹ As of October 2021, China has not become a party or ratified the PSMA.²¹²

²⁰⁶ United Nations Food and Agriculture Organization, *International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing*, National and International Plans of Action, Rome, <http://www.fao.org/fishery/ipoa-iuu/npoa/en>.

²⁰⁷ U.S. Department of State, *National Plan of Action of the United States of America to Prevent, Deter, and Eliminate Illegal, Unreported, and Unreported Fishing*, Washington, DC, 2004.

²⁰⁸ United Nations Food and Agriculture Organization, *Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported, and Unregulated Fishing*, Rome, Italy, 2016, <http://www.fao.org/documents/card/en/c/915655b8-e31c-479c-bf07-30cba21ea4b0/>.

²⁰⁹ See United Nations Food and Agriculture Organization, *Agreement on Port State Measures*, Rome, Italy, <http://www.fao.org/port-state-measures/en/>.

²¹⁰ P.L. 114-81 included implementing legislation that directs federal agencies to carry out U.S. obligations under the treaty. The law also includes provisions related to duties of the Secretary of Commerce, procedures for vessels entering U.S. ports, denial of port services, inspections, prohibited acts, and enforcement.

²¹¹ “To become Party to the PSMA, an original instrument of adherence should be deposited with the FAO Director-General. For PSMA signatories, this instrument could be one of acceptance, ratification or approval while for non-signatories, this is an instrument of accession.” United Nations Food and Agriculture Organization, *Agreement on Port State Measures to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing*, Rome, Italy, May 2018, <http://www.fao.org/port-state-measures/resources/detail/en/c/1113476/>.

²¹² United Nations Food and Agriculture Organization, *Agreement on Port State Measures, Parties to the Agreement*, <http://www.fao.org/port-state-measures/background/parties-psma/en/>.

Moratorium Protection Act

The Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (P.L. 109-479) amended the High Seas Driftnet Fishing Moratorium Protection Act (Moratorium Protection Act, P.L. 104-43) to address IUU fishing and bycatch of protected living marine resources (PLMR).²¹³ The Shark Conservation Act of 2010 (P.L. 111-348) also amended the Moratorium Protection Act to address issues related to the conservation and management of sharks, including shark finning. Management of transboundary stocks such as highly migratory species and shared stocks depend on international conservation and management efforts. The Moratorium Protection Act seeks to strengthen these efforts by providing a mechanism for identifying and sanctioning foreign vessels engaged in IUU fishing activities. NOAA's National Marine Fisheries Service (NMFS) developed regulations to implement the IUU, PLMR, and shark-related amendments to the act.

The Moratorium Protection Act also requires the Secretary of Commerce to identify nations whose fishing vessels are engaged in IUU fishing or in activities that result in taking PMLRs. Identification of IUU fishing under the Moratorium Protection Act and implementing regulations only apply to violations in the U.S. EEZ waters or violations of conservation and management measures of RFMOs to which the United States and nation in question are contracting parties.²¹⁴

The Secretary is required to establish procedures to certify whether identified nations take actions to address their IUU activities. Identified nations are notified by the Secretary of State.

After a nation is identified, the Secretary of Commerce consults and negotiates with the identified nation to address the reasons why it was identified. A positive certification is issued if the fishing nation has addressed the problems associated with its identification. If the identified nation does not adopt conservation measures that are comparable to those of the United States, it may be negatively certified. A negatively certified nation becomes subject to sanctions such as denial of port access and prohibitions on importing certain fish and fish products.

The Moratorium Protection Act requires NMFS to submit biennial reports to Congress concerning implementation and enforcement of the act. The report is required to include the following:

- the state of knowledge on the status of international living marine resources shared by the United States or managed under treaties or agreements to which the United States is a party;
- a list of identified nations that are or have been engaged in IUU fishing or bycatch of PMLRs;
- a description of corrective efforts taken by identified nations to address the IUU fishing activities of their flagged vessels;
- progress made to strengthen RFMOs and to end IUU fishing;

²¹³ In 1992, Congress passed the High Seas Driftnet Fisheries Enforcement Act (P.L. 102-582) and in 1995, Congress passed the High Seas Driftnet Fishing Moratorium Protection Act (Title VI of the Fisheries Act of 1995) (P.L. 104-43) to implement the United Nations moratorium on high seas driftnet fishing.

²¹⁴ While several RFMOs to which the United States and China are both contracting parties do have prohibitions on unauthorized fishing in areas under the jurisdiction of another party, the protocols for action largely place responsibility on the aggrieved party to initiate discussion on a bilateral basis, and if unresolved, to bring the matter before the RFMO.

- steps taken by the Secretary of Commerce to encourage the adoption of international measures comparable to the United States to reduce the impact of fishing on PLMRs; and
- whether nations identified in the previous report have taken actions to address IUU fishing or bycatch of PLMRs.

According to the most recent biennial report to Congress, the Secretary of Commerce identified 7 nations with vessels engaged in IUU fishing activities and 29 nations that lack a regulatory program to reduce the bycatch of protected marine life that is comparable in effectiveness to U.S. programs.²¹⁵ China was identified both for engaging in IUU activities and for the lack of a regulatory bycatch program for protected marine living resources. According to the report, Chinese fishing vessels violated conservation measures adopted by the North Pacific Fisheries Commission (NPFC), the Western and Central Pacific Fisheries Commission (WCPFC), the Inter-American Tropical Tuna Commission (IATTC), and the International Commission for the Conservation and Atlantic Tuna (ICCAT).²¹⁶ NMFS identified violations related to harvest by unauthorized vessels, and violations of shark-related conservation measures and transshipment.²¹⁷ According to the 2021 report,

Following identification in this report, China's 2023 certification will be based on evidence that China is upholding its flag State duties under Article 13 of the NPFC Convention on flag State duties, as there are currently at least 30 vessels on the NPFC IUU vessel list with evidence of Chinese registration. China's 2023 certification decision will also be based on evidence that China has taken steps to investigate these violations of WCPFC, IATTC, and ICCAT Conservation Management Measures, and evidence that corrective actions were taken to address any substantiated violations.

IUU Task Force and Seafood Import Monitoring

On June 17, 2014, President Obama released a presidential memorandum entitled, "Comprehensive Framework to Combat Illegal, Unreported, and Unregulated Fishing and Seafood Fraud,"²¹⁸ calling on executive departments and agencies to use existing authorities to combat IUU fishing and seafood fraud, such as the Magnuson-Stevens Act and Lacey Act.²¹⁹ The memorandum established a task force composed of senior level federal agency representatives to develop recommendations for a comprehensive framework that targets IUU fishing and seafood

²¹⁵ National Marine Fisheries Service (NMFS), *Improving International Fisheries Management*, Developed pursuant to the High Seas Driftnet Fishing Moratorium Protection Act, August 2021, <https://media.fisheries.noaa.gov/2021-08/2021ReporttoCongressonImprovingInternationalFisheriesManagement.pdf>. Hereinafter cited as NMFS, 2021.

²¹⁶ NMFS, 2021.

²¹⁷ Although these activities were not evaluated through the WCPFC, IATTC, or ICCAT compliance evaluation processes, they constitute violations of the conservation and management measures of the three RFMOs. Thus, NMFS identified China for having vessels that engage in IUU fishing.

²¹⁸ The White House, Office of the Press Secretary, "Presidential Memorandum—Comprehensive Framework to Combat Illegal, Unreported, and Unregulated Fishing and Seafood Fraud," press release, June 17, 2014, at <http://www.whitehouse.gov/the-press-office/2014/06/17/presidential-memorandum-comprehensive-framework-combat-illegal-unreported>.

²¹⁹ The Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1857(1) (Q)) prohibits the import and trade, in interstate or foreign commerce, of fish taken, possessed, transported or sold in violation of any foreign law or regulation or in contravention of a treaty or a binding conservation measure of a regional fishery organization to which the United States is a party. The Lacey Act (16 U.S.C. 3371-3378) makes it unlawful for any person to import, export, transport, sell, receive, acquire, or purchase any fish or wildlife or plant taken, possessed, transported or sold in violation of any law, treaty, or regulation of the United States or in violation of any Indian tribal law.

fraud. On March 15, 2015, the task force released 15 final recommendations organized according to the following categories:

- **International.** Work with international governments, regional fisheries management organizations, and others to combat IUU fishing and seafood fraud at the international level.
- **Enforcement.** Strengthen enforcement tools to combat IUU fishing.
- **Partnerships.** Create and expand partnerships with U.S. state and local governments, industry, and nongovernmental organizations to identify and eliminate seafood fraud and IUU seafood in U.S. commerce.
- **Traceability.** Create a risk-based traceability program to track seafood from harvest to entry into U.S. commerce to prevent entry of illegal product into the supply chain and better inform retailers and consumers.

IUU fishing occurs throughout the world, and a portion of seafood entering the United States reportedly is obtained from IUU fishing activities. The U.S. International Trade Commission estimated that in 2019 about \$2.4 billion (or 11%) worth of U.S. seafood imports were products of IUU fishing, of which about \$204.3 million were obtained from Chinese IUU fishing.²²⁰ Those who harvest seafood illegally may attempt to avoid detection by concealing its origin or mislabeling seafood, but seafood fraud can occur whether seafood products are harvested legally or illegally. Some have recommended that IUU fishing be addressed at the source, before the product enters the market system.

The Seafood Import Monitoring Program (SIMP) is a risk-based traceability program managed by NOAA and U.S. Customs that tracks imported fish and fish products.²²¹ The program's authority is based on the Magnuson-Stevens Act's prohibition on the import and trade of fish taken, possessed, transported, or sold in violation of any foreign law or regulation.²²² On December 9, 2016, the Final Rule providing the operational and data requirements for SIMP was published by NOAA.²²³ SIMP requires seafood importers to follow specific reporting and recordkeeping procedures for 13 at-risk (priority) species groups, which includes over 1,100 unique species.²²⁴ Each seafood importer is required to obtain an annually renewable International Fisheries Trade Permit from NOAA's NMFS. The permit holder is then responsible for collecting and entering accurate information for these 13 species, which can be used to verify that products have been lawfully acquired.

²²⁰ ITC, "Illegal, Unreported, and Unregulated Fishing Accounts for More Than \$2 Billion of U.S. Seafood Imports, Reports USITC," press release, March 18, 2021, at https://www.usitc.gov/press_room/news_release/2021/er031811740.htm.

²²¹ NOAA Fisheries, "Seafood Monitoring Program," <https://www.fisheries.noaa.gov/international/seafood-import-monitoring-program>.

²²² 16 U.S.C. 1857(1)(Q).

²²³ NMFS, "Magnuson-Stevens Fishery Conservation and Management Act," 81 *Federal Register* 88975-88998, December 9, 2016.

²²⁴ NOAA's Final Rule identified at-risk (i.e., vulnerable to IUU, seafood fraud, or both) imported species. On January 1, 2018, compliance for 11 at-risk import species or species groups went into effect. On December 31, 2018, shrimp and abalone were added, bringing the list to 13 at-risk imported species and species groups. See NOAA, "Seafood Import Monitoring Program," at <https://www.fisheries.noaa.gov/international/seafood-import-monitoring-program>.

Compliance and Enforcement Measures

The IUU task force and subsequent administration and legislative actions have supported compliance and enforcement measures through agreements with other coastal nations, surveillance and boarding measures adopted by RFMOs, and interagency cooperation.

Maritime Security and Fisheries Enforcement Act

The Maritime Security and Fisheries Enforcement Act (Maritime SAFE Act; P.L. 116-92), enacted in 2019, supports a whole-of-government approach to counter IUU fishing and related threats to maritime security. The Maritime SAFE Act established the U.S. Interagency Working Group on IUU fishing, which serves as the lead body for providing member federal agencies with a means to share information and coordinate efforts, strengthen maritime enforcement, and advance public-private partnerships, and provide technical assistance on IUU fishing.

The working group is comprised of 21 agencies and the group's chair and deputy chair rotate among NOAA, the Department of State, and the U.S. Coast Guard. Member agencies developed priorities and identified activities that included issues such as maritime intelligence, public-private partnerships, and human trafficking. A related effort was the Executive Order on Promoting American Seafood Competitiveness and Economic Growth (E.O. 13921). Section 5 of the E.O. 13921 set a deadline for proposed rulemaking to implement Port State Measures and provided support for a variety of efforts related to public private partnerships, training and technical assistance, and existing enforcement capabilities to combat IUU fishing.²²⁵

Transnational Crime and IUU Fishing²²⁶

Illegal, Unreported, and Unregulated (IUU) fishing is a potentially lucrative form of transnational organized crime that can be associated with a broad range of transnational criminal activity, including marine life poaching (e.g., illegal catches of Patagonian toothfish, Mexican totoaba and vaquita, South African abalone and rock lobsters, Scottish razor clams, Missouri paddlefish); fraud (e.g., fishing vessel, catch documentation, product labeling fraud); and financial crimes (e.g., tax and customs evasion, money laundering, bribery).²²⁷ More broadly, crime in the fisheries sector can also include labor-related abuses (e.g., worker's rights violations and human trafficking, including forced labor or modern slavery); maritime contraband smuggling (e.g., illegal drugs, migrants, weapons, fuel derived from oil bunkering activities), and other forms of maritime insecurity (e.g., piracy, armed robbery at sea, ship hijackings, hostage-taking, kidnapping for ransom, terrorism).²²⁸

²²⁵ Executive Order E.O. 13921, "Executive Order on Promoting American Seafood Competitiveness and Economic Growth," May 7, 2020.

²²⁶ This section authored by Liana Rosen and Katarina O'Regan.

²²⁷ Emma Witbooi et al., *Organized Crime in the Fisheries Sector*, High Level Panel for a Sustainable Ocean Economy, 2020; INTERPOL, *Fraudulent Abuse of Flag State Registries for Fishing Vessels*, Purple Notice, November 14, 2018; Organisation for Economic Co-Operation and Development, *Evading the Net: Tax Crime in the Fisheries Sector*, 2013; Cathy Haenlein, *Below the Surface: How Illegal, Unreported and Unregulated Fishing Threatens Our Security*, occasional paper, Royal United Services Institute for Defense and Security Studies, 2017; Teale N. Phelps Bondaroff, *The Illegal Fishing and Organized Crime Nexus: Illegal Fishing as Transnational Organized Crime*, The Global Initiative Against Transnational Organized Crime and The Black Fish, April 2015.

²²⁸ NOAA, *Human Trafficking in the Seafood Supply Chain*, Section 3563 of the National Defense Authorization Act for Fiscal Year 2020 (P.L. 116-92), Report to Congress, December 23, 2020; INTERPOL, *Human Trafficking and Modern Slavery in the Fisheries Sector*, Purple Notice, January 2, 2017; INTERPOL, *Human Trafficking and Forced Labour: The Deceptive and Coercive Practices Undertaken Within the Recruitment Process to Work on Fishing Vessels*, Purple Notice, as updated July 8, 2019; Mary Mackay et al., "The Intersection Between Illegal Fishing, Crimes at Sea, and Social Well-Being," *Frontiers in Marine Science*, vol. 7, October 12, 2020, pp. 1-9; International Labour Office, *Caught at Sea: Forced Labour and Trafficking in Fisheries*, 2013; United Nations Office on Drugs and Crime, *Transnational Organized Crime in the Fishing Industry, Focus On: Trafficking in Persons, Smuggling of Migrants*,

Although crime in the fisheries sector is not a new phenomenon, international attention to the relationship between IUU fishing and transnational crime has grown due to the scale and impact of IUU fishing on the global economy and human security.²²⁹ IUU fishing thrives in and between jurisdictions characterized by legal, regulatory, and enforcement capability gaps throughout the fisheries value chain, high levels of corruption, and overall weak governance. Even among countries with stronger anti-IUU fishing capabilities, enforcement efforts to date have had limited deterrent effect due to the often remote and vast maritime operating environment. According to the United Nations Office on Drugs and Crime, a key contributing factor to criminality in the fisheries sector is “a general lack of governance and rule of law in the fishing industry,” particularly with respect to at-sea surveillance of fishing vessel movements and transshipments, transparency of fishing vessels’ beneficial ownership and identity, and use of flags of convenience (i.e., frequent changes in vessel color, name, and flag state) to evade regulatory oversight and law enforcement investigations.²³⁰ The inherently transnational nature of fisheries crimes complicates efforts to bring perpetrators to justice.²³¹

China’s significant demand for and production of fish products, coupled with an extensive and global fishing fleet, makes its participation central to the sustainable management of global fish stocks. Chinese-flagged vessels are alleged to engage in illegal fishing in the EEZs of other countries, including Argentina, Senegal, Guinea, Sierra Leone, Guinea Bissau, Vanuatu, Micronesia, Ecuador, and Peru, as well as littoral states in the East and South China Seas.²³²

Enforcement Efforts

Shiprider agreements are cooperative enforcement arrangements between the United States and other coastal nations. Under these agreements U.S. Coast Guard (USCG) personnel and host country counterparts participate in joint at-sea enforcement actions and training programs. Shiprider agreements improve enforcement and compliance by closing maritime gaps, improving coordination, cooperation, and interoperability, and building enforcement capacity.²³³ Assistance often includes maritime surveillance and boarding of fishing vessels in waters under the host nation’s authority. The USCG has 16 bilateral agreements with countries in the Pacific and West Africa.²³⁴ The U.S. Navy has also supported maritime domain awareness to support USCG

Illicit Drugs Trafficking, 2011.

²²⁹ See, for example, World Bank, *Turning the Tide Saving Fish and Fishers*, 2005; United Nations General Assembly, Resolution 63/112 adopted on December 5, 2008, A/RES/63/112, February 25, 2009; United Nations Commission on Crime Prevention and Criminal Justice, Report on the 20th Session, E/2011/30, E/CN.15/2011/21, Resolution 20/5, “Combating the Problem of Transnational Organized Crime Committed at Sea,” pp. 45-48; Ministers’ Declaration on Transnational Organised Crime in the Global Fishing Industry, October 15, 2018, <https://bluejustice.org/copenhagen-declaration/>; United Nations Security Council, “High Seas Crime Becoming More Sophisticated, Endangering Lives, International Security, Speakers Tell Security Council,” SC/13691, February 5, 2019.

²³⁰ United Nations Office on Drugs and Crime, *Transnational Organized Crime in the Fishing Industry, Focus On: Trafficking in Persons, Smuggling of Migrants, Illicit Drugs Trafficking*, 2011, p. 4. See also Dyhia Belhabib and Philippe Le Billion, “Editorial: Illegal Fishing as a Trans-National Crime,” *Frontiers in Marine Science*, vol. 7, March 2020, pp. 1-3.

²³¹ As described by INTERPOL, fisheries crimes and complicit actors may involve a multitude of jurisdictions, including the flag state(s) of the fishing vessel(s); the coastal state in whose waters the crimes occurred, as applicable; the port state where illegal catches were landed; the nationalities of the individuals, crew, operators, and companies; the import and/or export states; wherever the vessel insurers operate; where the beneficial owners reside; from where and to where corrupt proceeds and laundered funds originate and are funneled. INTERPOL, *International Law Enforcement Cooperation in the Fisheries Sector: A Guide for Law Enforcement Practitioners*, February, 2018, p. 16.

²³² See, for example, Reniel B. Cabral et al., “Rapid and Lasting Gains from Solving Illegal Fishing,” *Nature Ecology & Evolution*, vol. 2 (2018), pp. 650-658; NOAA, *Improving International Fisheries Management*, Report to Congress, September 2019, pp. 37-38.

²³³ U.S. Agency for International Development, *U.S. Coast Guard Fisheries Enforcement Shiprider Operations*, January 5, 2008, <https://rmpportal.net/biodiversityconservation-gateway/legality-sustainability/fisheries-development/project-search/add-a-project-activity/u.s.-coast-guard-fisheries-enforcement-shiprider-operations>.

²³⁴ The United States has signed bilateral shiprider agreements with 5 West African countries (Cape Verde, The

enforcement operations in Oceania. Naval ships are also used as a base to launch boarding parties composed of USCG and host country enforcement personnel. Goals of the initiative are to combat transnational crime including drug trafficking, human trafficking, and IUU fishing.

In September 2020, the USCG released a new strategy to combat IUU fishing.²³⁵ At the time of the strategy's release, Commandant of the USCG Admiral Karl Schultz stated that "we are committed to working with our allies and like-minded partners to strengthen the international fisheries enforcement regime and counter this pervasive threat.... [T]he Coast Guard has a responsibility to help build a coalition of partners willing to identify and address IUU fishing bad actors."²³⁶

Fisheries Compliance and Enforcement

The main objective of fishery enforcement is to improve compliance by deterring fishermen from conducting illegal fishing activities. Measures that may improve compliance include the use of on-board compliance inspectors (observers), air patrols, ship patrols and vessel boarding, vessel monitoring systems (VMS), and dock-side enforcement. Enforcement efforts can include a variety of measures depending on regulations, participants, geographic extent of fishing, and fishery resources.

Compliance and enforcement of fisheries management measures are often difficult to enact because of the vast ocean areas where Illegal, Unreported, and Unregulated (IUU) activities occur and the high associated costs of surface or aerial patrols. VMS are widely used to monitor vessel location and movements from remote locations. These systems employ electronic transmitters that are installed on fishing vessels and send information to satellites. Data are then relayed to enforcement personnel who monitor information such as vessel identification, date, time, and location. VMS can support law enforcement by indicating whether fishing vessels have entered fishing zones or closed areas and by allowing patrols to focus on areas with the highest potential for violations. Some Regional Fisheries Management Organizations such as the Western and Central Pacific Fisheries Commission require the use of VMS for vessels fishing in their convention areas. The costs of VMS can be high and all vessels do not necessarily carry a VMS transmitter, especially those that may be operating illegally. The efficacy of these systems depends on whether they are used consistently and provide information on a real-time basis. It also depends on whether data such as vessel name, class, flag operator, and owner are available and matched to vessel databases.

Port state measures focus on vessel inspections, which may limit transport of illegally harvested products through certain ports. These measures also may be a disincentive to illegal activity because they can make transshipments of fish and the resupply of fishing vessels more costly. Enforcement of port state measures and VMS depend on being able to identify vessels. Identification of individual vessels is often challenging because of the different databases that are maintained and the different types of information that is kept by each.²³⁷ Many fishing vessels that are involved in IUU activities are registered in flag of convenience states that do not hold their vessels accountable.²³⁸ These vessels add to confusion by frequently changing their name, ownership, and nationality. Another challenge is related to the tracking of transshipments that take place at sea and identifying refrigerated cargo vessels that transship fishery products.

An ongoing effort to standardize data for the world's fishing vessels is the United Nations Food and Agriculture Organization's Global Record of fishing vessels, refrigerated transport vessels, and supply vessels.²³⁹ The goal of the Global Record is to enhance transparency and traceability of vessel and vessel-related data. Each vessel is

Gambia, Ghana, Sierra Leone, and Senegal) and 10 Pacific island countries (Kiribati, Palau, Marshall Islands, Micronesia, Cook Islands, Tonga, Nauru, Tuvalu, Samoa, and Vanuatu).

²³⁵ United States Coast Guard, "Illegal, Unreported, and Unregulated Fishing Strategic Outlook," at <https://www.uscg.mil/iuufishing/>.

²³⁶ Mathew West, "Coast Guard Releases New Plan to Combat Illegal, Unreported, and Unregulated Fishing Worldwide," September 18, 2020, U.S. Indo-Pacific Command.

²³⁷ Miren Gutierrez, Alfonso Daniels, and Guy Jobbins, *Fishing for Data*, Overseas Development Institute, Briefing Note, London, January 2018.

²³⁸ National Intelligence Council, *Global Implications of Illegal, Unreported, and Unregulated (IUU) Fishing*, NIC WP 2016-02, September 19, 2016.

²³⁹ United Nations Food and Agriculture Organization, *Global Record of Fishing Vessels, Refrigerated Transport Vessels, and Supply Vessels*, Rome, Italy, January, <http://www.fao.org/global-record/en/>.

provided a unique identifier that remains constant regardless of changes in name, ownership, or flag of the vessel. These data are to be made available in an online repository of vessels that can be used in support of enforcement activities such as port state measures.

Issues for Congress

Issues for Congress related to IUU fishing and China may involve two general areas—review of existing laws and administration efforts, and identification of additional authorities that may be needed to combat IUU fishing activities and their associated impacts. Areas for congressional action may include improving seafood traceability, increasing surveillance and enforcement, and supporting existing international agreements. Given the prominent role of the Chinese DWF in many regional and global fisheries, Congress may consider whether U.S. actions should focus on the behavior of China's fishing fleets or continue to take a more general approach to combating IUU activity.

Many enforcement and regulatory issues related to IUU fishing cut across different federal agencies. The Obama Administration's establishment of the IUU Task Force and the Trump Administration's creation of the U.S. Interagency Working Group on IUU fishing attempted to meet this challenge and improve interagency information-sharing and coordination. Although IUU fishing as defined by the FAO and U.S. law does not include activities related to human trafficking and transnational crime (see the **Appendix**), vessels responsible for IUU fishing may also commit other types of illegal activities. Congress may also wish to consider whether U.S. efforts to combat IUU fishing should coordinate with agencies focused on these related issues.

Congress may also examine whether sufficient support and resources have been dedicated to enforcement efforts such as capacity-building assistance to coastal nations and joint efforts, such as shiprider agreements. Often the seafood sector is related to other national and international concerns such as security, stability, and potential conflict. IUU fishing may intensify disputes and conflicts by affecting the livelihoods of fishermen in coastal nations and local supplies of seafood. Efforts may encourage programs that strengthen governance in developing countries—such as information collection (including resources for the application of technologies, such as Vessel Monitoring Systems), development of management measures, and enforcement—which are applicable across a range of economic and security issues.

Congress may also explore ways to improve seafood traceability to verify information currently collected on the origin and the route taken by seafood before its entry into the United States. Almost half of the fish that China catches in its DWF operations is sold abroad, mostly to developed countries, including the United States. Some U.S. programs, such as SIMP and existing customs enforcement measures, have attempted to provide greater scrutiny over seafood imports. For example, NOAA's SIMP could be expanded to include all species imported by the United States. Congress may also consider increasing customs enforcement at the border and whether greater resources are needed to fully account for the seafood entering the country. Increased efforts to trace seafood may also serve several other purposes such as improving seafood safety, stopping seafood fraud, and identifying seafood production related to human trafficking.

Congress may also consider lending greater diplomatic support to the adoption and implementation of international treaties and agreements. Given the number of nations involved in many regional fisheries, multilateral approaches that strengthen international institutions and their enforcement are often needed. Congress may also weigh in on the ongoing WTO negotiation concerning fisheries subsidies. Fisheries subsidies are an economic driver that increases the

fishing effort of DWF. Decreasing fisheries subsidies could make marginal fishing operations unprofitable, potentially decreasing fishing effort and improving conservation and management efforts. In particular, Congress may provide guidance for WTO negotiations on fishery subsidies and whether exceptions for LDCs including China are appropriate or necessary to reach an agreement.

Congress might consider whether more resources and greater diplomatic support could help in the coordination of fishery management in adjacent territorial waters or establishment of new RFMOs in contested waters or overfished areas. Scientists contend that because fish populations often move freely among neighboring jurisdictions, management and conservation of transboundary, straddling, or highly migratory fish stocks requires limits on harvest irrespective of where stocks are caught.²⁴⁰ Given that the habitat and migration areas of certain fish populations can span the territorial waters of two or more nations, bilateral or multilateral dialogues involving such nations (in the absence of RFMOs) could benefit from the coordinated establishment of fishery and environment management areas. The establishment of new RFMOs (e.g., in the South China Sea) could help reduce the number of fisheries conflicts between neighboring nations.

Congress may also consider whether the Moratorium Protection Act provides an adequate means to identify and sanction vessels, companies, or countries that participate or condone IUU activities, or if such efforts could be strengthened. Although implementation of the Moratorium Protection Act has led to identification of certain IUU activity of other nations, identification seldom results in a negative certification or sanctions on offending parties. Congress may also consider whether the Moratorium Protection Act should be expanded to include other types of illegal activities associated with fishing operations such as human trafficking, or whether these concerns should be handled through other existing laws such as the Tariff Act of 1930.

In addition, Congress may consider how such issues fit into broader U.S. policy towards China. Environmental protection previously has been an area of U.S.-China cooperation; management and conservation of fisheries resources could potentially provide an additional area for productive engagement. Congress may conduct oversight that focuses on U.S. government efforts to address China's role in IUU fishing. China has demonstrated a willingness to ratify international agreements and participate in international institutions; thus, the United States might continue to work with China on a multilateral and bilateral levels to manage global fisheries. Congress may consider whether to encourage the U.S. agencies to consider whether joint enforcement and data collection efforts might be implemented on bilateral and multilateral levels.

²⁴⁰ The United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (in force as from 11 December 2001), https://www.un.org/depts/los/convention_agreements/convention_overview_fish_stocks.htm. Gordon Munroe, "The Conservation and Management of Shared Fish Stocks: Legal and Economic Aspects," Food and Agriculture Organization of the United Nations, Rome, 2004.

Appendix. Illegal, Unreported, and Unregulated Fishing Definitions

The Moratorium Protection Act provided guidelines to define IUU fishing. The following is from 16 U.S.C. 1826j(e).

(e) ILLEGAL, UNREPORTED, OR UNREGULATED FISHING DEFINED.—

(1) IN GENERAL.—In this Act the term ‘illegal, unreported, or unregulated fishing’ has the meaning established under paragraph (2).

(2) SECRETARY TO DEFINE TERM WITHIN LEGISLATIVE GUIDELINES.—Within 3 months after the date of enactment of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, the Secretary shall publish a definition of the term ‘illegal, unreported, or unregulated fishing’ for purposes of this Act. The Secretary shall include in the definition, at a minimum—

(A) fishing activities that violate conservation and management measures required under an international fishery management agreement to which the United States is a party, including catch limits or quotas, capacity restrictions, bycatch reduction requirements, and shark conservation measures;

(B) overfishing of fish stocks shared by the United States, for which there are no applicable international conservation or management measures or in areas with no applicable international fishery management organization or agreement, that has adverse impacts on such stocks; and

(C) fishing activity that has an adverse impact on seamounts, hydrothermal vents, and cold water corals located beyond national jurisdiction, for which there are no applicable conservation or management measures or in areas with no applicable international fishery management organization or agreement.

The term was defined in 2011²⁴¹ and in 2013, NMFS made changes to the IUU definition by clarifying some parts and making some additions.²⁴² The definition as it now appears in 50 CFR § 300.201 is

Illegal, unreported, or unregulated (IUU) fishing means:

(1) In the case of parties to an international fishery management agreement to which the United States is a party, fishing activities that violate conservation and management measures required under an international fishery management agreement to which the United States is a party, including but not limited to catch limits or quotas, capacity restrictions, bycatch reduction requirements, shark conservation measures, and data reporting;

(2) In the case of non-parties to an international fishery management agreement to which the United States is a party, fishing activities that would undermine the conservation of the resources managed under that agreement;

(3) Overfishing of fish stocks shared by the United States, for which there are no applicable international conservation or management measures, or in areas with no applicable

²⁴¹ National Oceanic and Atmospheric Administration, “High Seas Driftnet Fishing Moratorium Protection Act; Identification and Certification Procedures to Address Illegal, Unreported and Unregulated Fishing Activities and Bycatch of Protected Living Marine Resources,” 76 *Federal Register* 2024, January 12, 2011.

²⁴² NMFS, “High Seas Driftnet Fishing Moratorium Protection Act; Identification and Certification Procedures to Address Shark Conservation,” 78 *Federal Register* 3338-3346, January 16, 2013.

international fishery management organization or agreement, that has adverse impacts on such stocks; or,

(4) Fishing activity that has a significant adverse impact on seamounts, hydrothermal vents, cold water corals and other vulnerable marine ecosystems located beyond any national jurisdiction, for which there are no applicable conservation or management measures or in areas with no applicable international fishery management organization or agreement.

(5) Fishing activities by foreign flagged vessels in U.S. waters without authorization of the United States.

The definition of IUU fishing that is provided by the FAO is the following.²⁴³

Illegal fishing refers to activities:

- conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations;
- conducted by vessels flying the flag of States that are parties to a relevant regional fisheries management organisation but operate in contravention of the conservation and management measures adopted by that organisation and by which the States are bound, or relevant provisions of the applicable international law; or
- in violation of national laws or international obligations, including those undertaken by cooperating States to a relevant regional fisheries management organization.

Unreported fishing refers to fishing activities:

- which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or
- are undertaken in the area of competence of a relevant regional fisheries management organisation which have not been reported or have been misreported, in contravention of the reporting procedures of that organisation.

Unregulated fishing refers to fishing activities:

- in the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or
- in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.

²⁴³ U.N. Food and Agriculture Organization, *International Plan of Action to prevent, deter, and eliminate illegal, unreported, and unregulated fishing*, Rome, IT, 2001, <https://www.fao.org/3/y1224e/Y1224E.pdf>.

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