

# Fishful THINKING

Solving **China's**  
distant-water challenges





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# Executive summary

## Investors are exposed to the harm caused by China's distant-water fleet

No country catches more seafood than China, whose share of global catches has quadrupled since 1950. That expansion was partly built outside of Chinese waters: China's distant-water fishing fleet caught 2.33 million tonnes of seafood in 2022 and is now a critical first link in the global seafood supply chain. It is often also a large-scale source of environmental and social harm to which many financial institutions are exposed, mostly via their holdings in food producers and food retailers.

Analysing this harm with a financial lens, this report outlines how governments and financial institutions could turn the tide and make this fleet sustainable.

## China's distant-water fleet is not doing well

Planet Tracker's deep dive revealed that the Chinese distant-water fleet is overall in a mediocre financial situation: the 147 owners of the [1,446 vessels](#) investigated generate an average estimated gross margin of 14%, with at least 45% of profits coming from subsidies. The most profitable operations, like tuna purse seining, are state-owned, while fragmented, unprofitable ones, such as squid jigging, are privately owned.

This low profitability has severe consequences. For example, squid jigging would be heavily loss-making if crew wages were aligned with Chinese norms. This financial strain may also drive companies towards illegal activities to boost revenue, such as for the squid fleet off South America.

**Without action, the situation will deteriorate.**

## Climate change and legal issues to impact the fleet's finances and sustainability

Tuna in the EEZ of Western and Central Pacific Island states is a key profit pool for the Chinese fleet. Not currently overfished, this region offers the fleet some of its highest margins, despite comparatively high access fees. However, climate change will likely reduce tropical tuna biomass and push it towards the high seas. This shift could drive increased IUU fishing or labour abuse at some Chinese vessels, as they travel further at increased costs in less monitored waters.

Climate change is also likely to turn some African coastal states into new fishing grounds for the Chinese tuna fleet, exacerbating the already high exploitation by EU vessels and Chinese trawlers. Forming a coalition to impose higher access fees and condition entry on sustainability credentials could help these African countries protect their waters from overexploitation. Investors could aid in funding this coalition.

Nearer term, the Chinese fleet is also likely to suffer from a reduction in subsidies when the WTO Agreement on Fisheries Subsidies enters into force as China's current incentive system does not fully reflect this agreement to ban subsidies linked to IUU fishing, overfished stocks, and fishing on unregulated high seas. China therefore needs to act to improve the financial, environmental and social health of its distant-water fishing fleet.



## **An ambitious transition plan for China, funded by a 'Hai Feng' bond**

As it prepares its 15th five-year plan, China urgently needs to change its incentive system, and in particular its 'compliance subsidy' system: rewarding traceability and transparency and properly penalising illegal fishing and labour abuse could increase the industry's future profits and lower its impact on ocean health and coastal communities.

To fund this transition and become a global blue leader, China could issue a RMB 5.5 billion blue sustainability-linked sovereign bond, enabling it to reach 100% monitoring and traceability onboard its distant-water fishing fleet. Challenges abound, but this 'Hai Feng' (ocean abundance) bond would dramatically improve ocean health if successful.

By engaging with companies and governments on transparency, traceability, monitoring, sustainable sourcing, and labour rights, financial institutions could support this turnaround, while de-risking their seafood exposure and improving future profits.



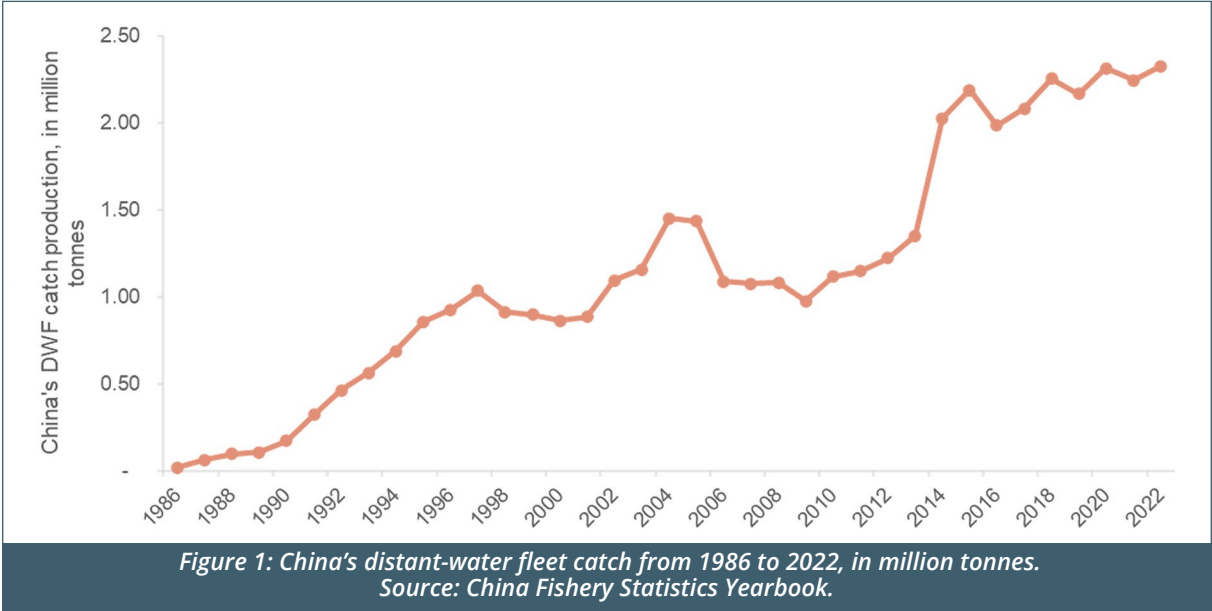


# Sustainability pains, few financial gains for the Chinese distant-water fleet

## Our fish, your problem: financial institutions are exposed to the Chinese distant-water fishing fleet and its negative impact

No country catches more seafood than China, whose share of global catches has quadrupled since 1950,<sup>1</sup> to reach 14.3% in 2022.<sup>2</sup> Since the turn of the millennium, China has increased its annual seafood catch by 2 million tonnes, while the rest of the world has reduced theirs by 11 million tonnes.<sup>3</sup>

Key to this expansion is the rise of China’s distant-water fishing fleet, which caught 2.33 million tonnes of seafood outside Chinese waters in 2022 with its 2,551 vessels, according to government data – see Figure 1.<sup>4</sup>



Due to its size, the Chinese fishing fleet likely has the biggest absolute impact on the ocean, although it is definitely not the only one (the [EU](#), [Japan](#), [Indonesia](#), [Russia](#), India, or South Korea are also among key fishing nations with a large impact). Key sources of concern include [IUU fishing](#), overexploitation, under-reporting of catches, outcompeting local fishers and disrupting the livelihoods of coastal communities, often in ecologically sensitive areas and/or with negative social impact like the coasts of West Africa and the [Galapagos](#).

Chinese distant-water fishing companies sell to multiple large international corporations like Mitsubishi Corporation (8058 JT), Maruha Nichiro (1333 JT), Tri Marine Group, or FCF Co., Ltd, and ultimately supply food retailers such as Walmart (WMT US), Carrefour (CA FP), or Amazon (AMZN US).<sup>5</sup>

This means that international financial institutions are (indirectly) exposed to this industry, the same way they are exposed to deforestation via their agriculture or food retail investments, or to plastic pollution via their food and beverage investments.

## Revealing the owners of the Chinese distant-water fishing fleet

Securing seafood is a priority for the Chinese government,<sup>6</sup> and along with aquaculture, the distant-water fishing fleet is a key means to achieve that end.<sup>7</sup> Political, economic and environmental issues surrounding the fleet are therefore commingled.

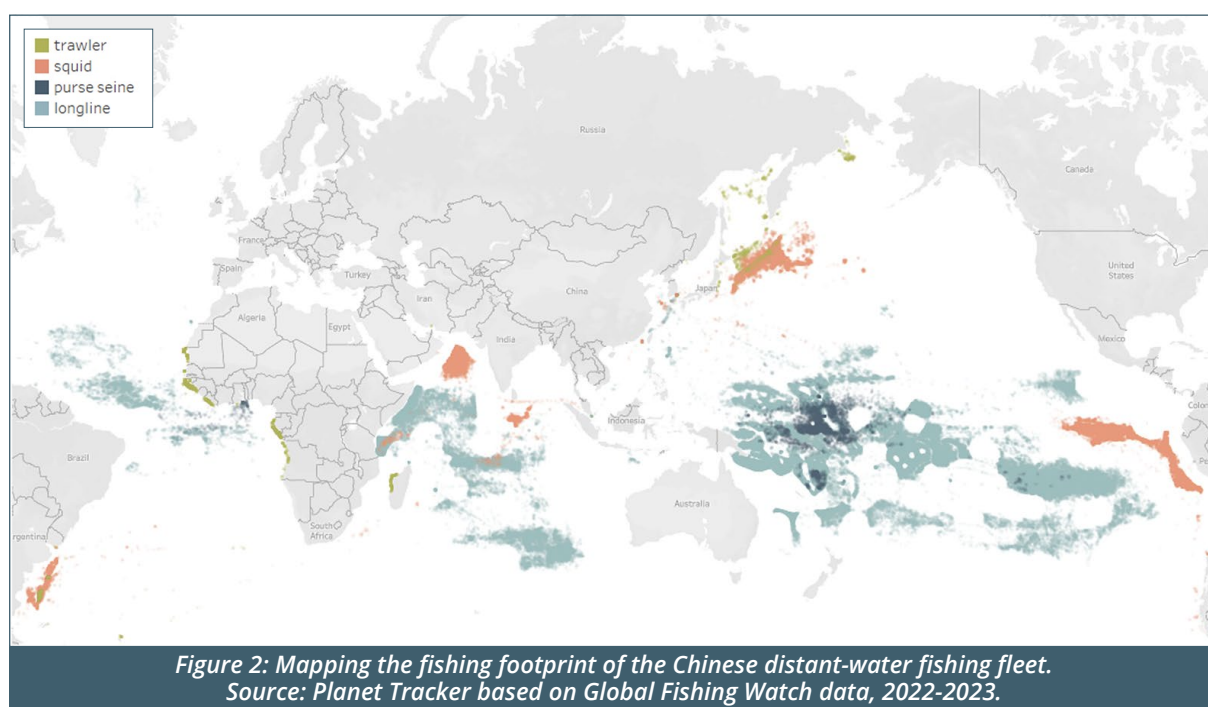
For instance, China fosters close bilateral fisheries ties with many coastal countries through substantial investments under the Belt and Road Initiative. Vessels chartered or re-flagged through joint ventures are often exempt from national law prohibiting foreign ownership of certain fishing vessels, as seen in Kiribati with longliners, and in Ghana with industrial trawlers.<sup>8</sup> And in West Africa, for example, fishing bases developed by Chinese companies in Mauritania, Ghana, Guinea Bissau, or Angola are not subject to the same rigorous inspection or oversight processes as public landing sites. This could exacerbate existing environmental and regulatory challenges.<sup>9</sup>

However, economic motives could also at least partly explain and drive the Chinese distant-water fishing's impact. Planet Tracker has therefore investigated its current and future financial health to understand how it will shape ocean health and the people that rely on it.

We analysed a sample of [1,446 vessels](#) (57% of the country's distant-water fishing fleet, those flying the Chinese flag or controlled by a Chinese owner active in international waters in 2022 and 2023 and equipped with publicly available AIS systems<sup>a</sup>).

This excludes 43% of the country's distant-water fleet, mostly since the transmission of vessel position via AIS is not mandatory under Chinese law (but all Chinese DWF vessels are required to install and maintain VMS<sup>b</sup>, which is not publicly disclosed).

Together these vessels fished a combined 99,430 days in 2022 (103,002 days in 2023) across 80 countries' EEZs and the high seas – see Figure 2.<sup>10</sup>



a Automatic Identification System (AIS), a tracking system that uses transponders on ships to broadcast vessel identification, position, course, and speed for navigation safety and maritime traffic management.

b Vessel Monitoring System (VMS), a satellite-based system for tracking vessel location, movement, and activities.



These vessels are owned by 147 different organisations (out of a total of 177 enterprises approved by the Ministry of Agriculture and Rural Affairs (MARA) to operate in international waters). Out of these 147 organisations:

- 118 are privately-owned,
- 26 fall under the purview of state-owned enterprises, and
- three are privately controlled listed companies.

The top 30 largest Chinese distant-water fishing companies are shown in Table 1. The full list of distant-water fishing enterprises is accessible [here](#).

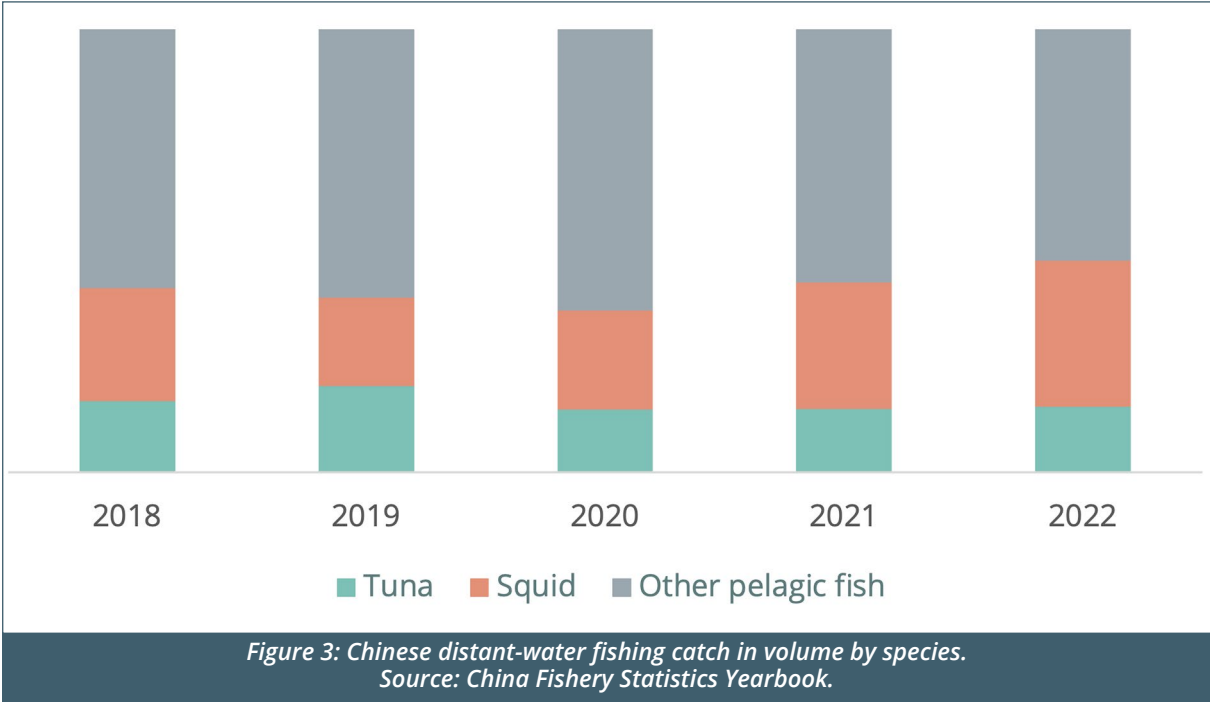
**Table 1: Top 30 Chinese distant-water fishing companies with estimated 2022 revenue and type of ownership.**  
Source: Planet Tracker, Qichacha, company reports. Squid and tuna revenue only

	Company	Revenue RMB mn	Revenue USD mn	Ownership
1	China National Agricultural Development Group subsidiaries (excl. COFC)	1,866	276.4	State-owned
2	Zhejiang Ocean Family	1,287	190.7	LLC, private
3	Pingtang Marine Enterprise	1,132	167.7	Public (delisted in 2023)
4	Shanghai Kaichuang Marine International	851.8	126.3	Public, state-owned
5	Rongcheng Rongyuan Fisheries	627.4	93.0	LLC, private
6	Pingtairong Ocean Fisheries	543.5	80.5	LLC, private
7	Zhoushan Ningtai Ocean Fisheries	516.0	76.4	LLC, private
8	Fuzhou Honglong Ocean Fishing	501.7	74.4	LLC, private
9	Qingdao Ocean Fishery	456.6	67.7	LLC, private
10	Shandong Zhonglu Oceanic Fisheries	397.9	58.9	Public, state-owned
11	CNFC Overseas Fisheries (COFC)	392.2	58.1	Public, state-owned
12	Rongcheng Ocean Fisheries	329.7	48.9	LLC, private
13	Rongcheng Chishan Ocean Fisheries	275.4	40.8	LLC, private
14	Zhoushan Hongpu Ocean Fisheries	274.3	40.7	LLC, private
15	Zhoushan Putuo Deep Sea Fisheries	271.3	40.1	State-owned
16	China Southern Fisheries	227.3	33.7	LLC, private
17	Shenzhen Liancheng Overseas Fisheries	199.3	29.6	LLC, private
18	Zhoushan Mingxiang Marine Fishery	192.1	28.5	LLC, private
19	Rongcheng Yongjin Aquatic	188.6	27.9	LLC, private
20	Zhoushan Shunze Ocean Fisheries	184.8	27.4	LLC, private
21	Shandong Fisheries Enterprise Group	175.4	26.0	State-owned
22	Zhoushan Haixing Ocean Fisheries	165.3	24.5	LLC, private
23	Zhoushan Runda Ocean Fisheries	165.0	24.4	LLC, private
24	Zhoushan Jade International Fisheries	164.9	24.4	LLC, private
25	Fujian Zhengguan Fisheries	163.4	24.3	LLC, private
26	Qingdao Haoyang Ocean Fisheries	161.7	23.9	LLC, private
27	Zhejiang Zhoupu Ocean Fisheries	159.9	23.7	LLC, private
28	Zhoushan Huaying Ocean Fisheries	158.5	23.5	LLC, private
29	Jiangsu Yuanyou Pelagic Fisheries	157.2	23.2	LLC, private
30	Zhoushan Hanyi Deep Sea Fisheries	156.2	23.1	LLC, private

Planet Tracker has comprehensively mapped the ultimate beneficial owners of these 147 companies using a variety of data sources, including the Chinese company information provider Qichacha,<sup>11</sup> company websites, annual reports, and prospectuses. The full list of these beneficial owners is available upon request.

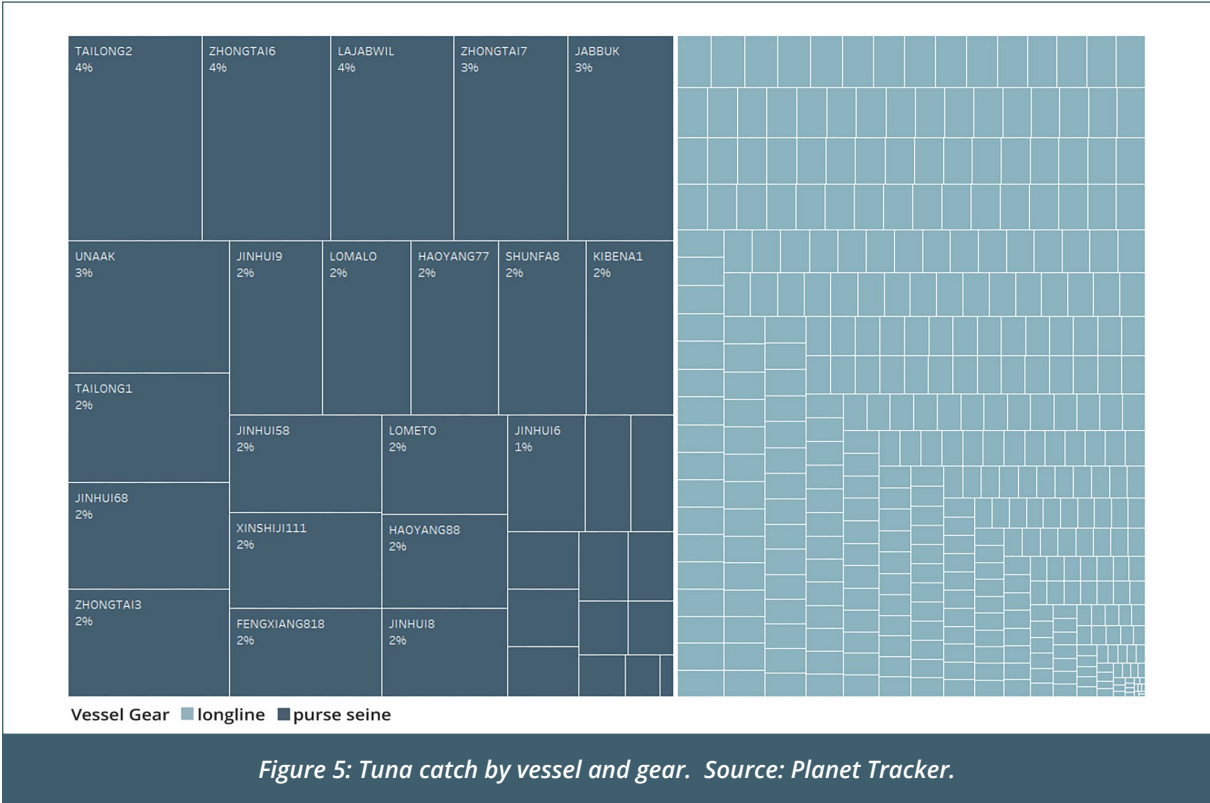
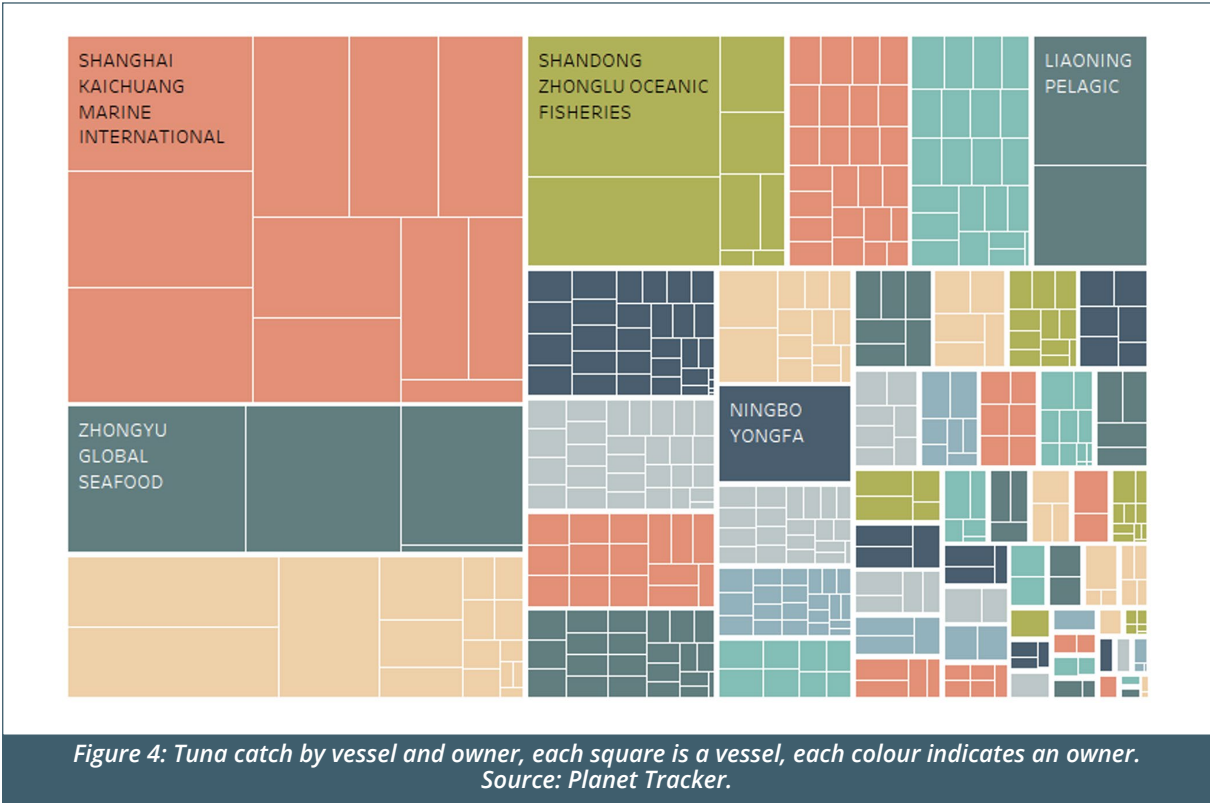
### State-controlled, concentrated, relatively profitable tuna purse seining

Tuna and squid stand out as the two most crucial groups of species for China's distant-water fishing efforts. The rest is composed of fleets targeting diverse pelagic fish species, typically off the coast of West Africa – see Figure 3.

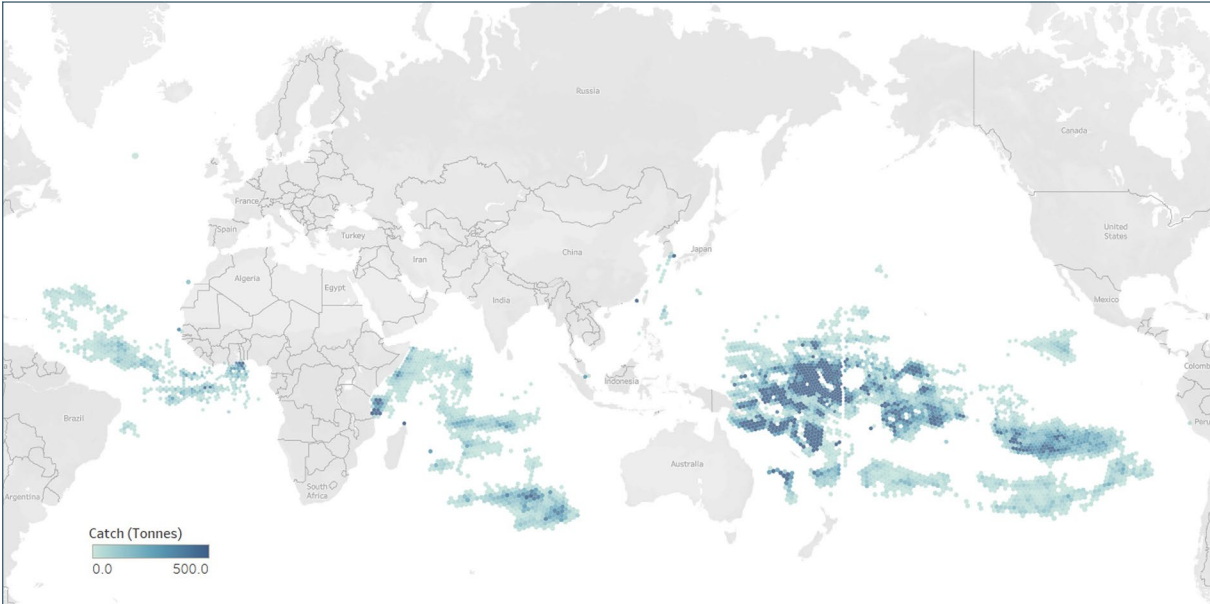




State-owned enterprises control at least half of tuna production which is relatively concentrated with just 20 vessels (all purse seiners) accounting for 43% of the total catch – see Figures 4 and 5 or our [interactive dashboard](#).

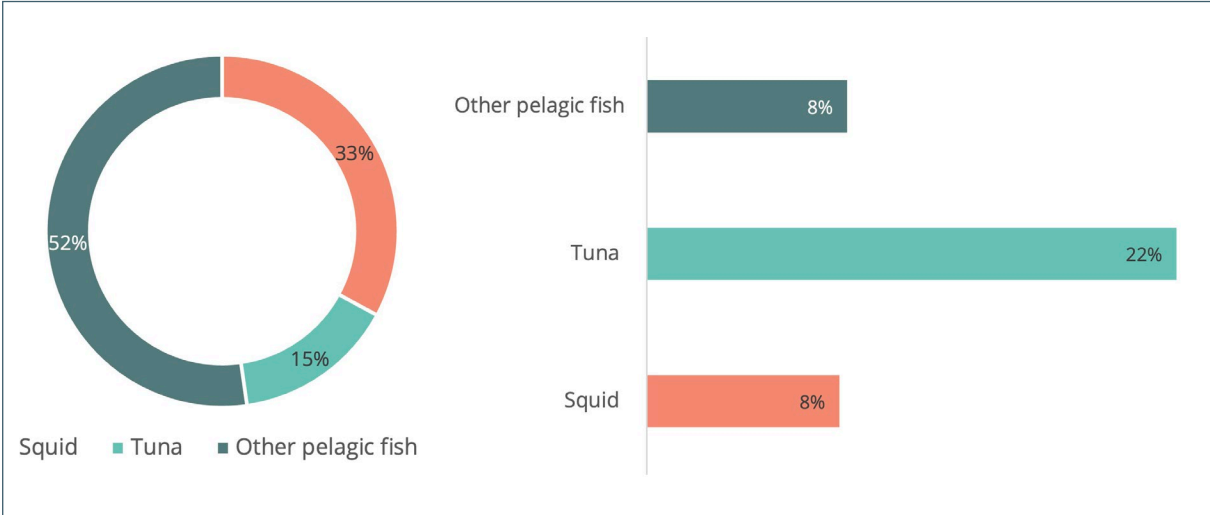


It is however not concentrated geographically, due to the migratory nature of tuna species – see Figure 6.



**Figure 6: Fishing event distribution of Chinese distant-water fishing fleets targeting tuna in 2022 and 2023.**  
 Source: Planet Tracker, based on Global Fishing Watch.

Tuna is also far more profitable than the average. This is especially the case for tuna purse seining, with an average estimated gross margin of 37%, vs 22% for tuna and 14% for the overall fleet – see Figure 7.

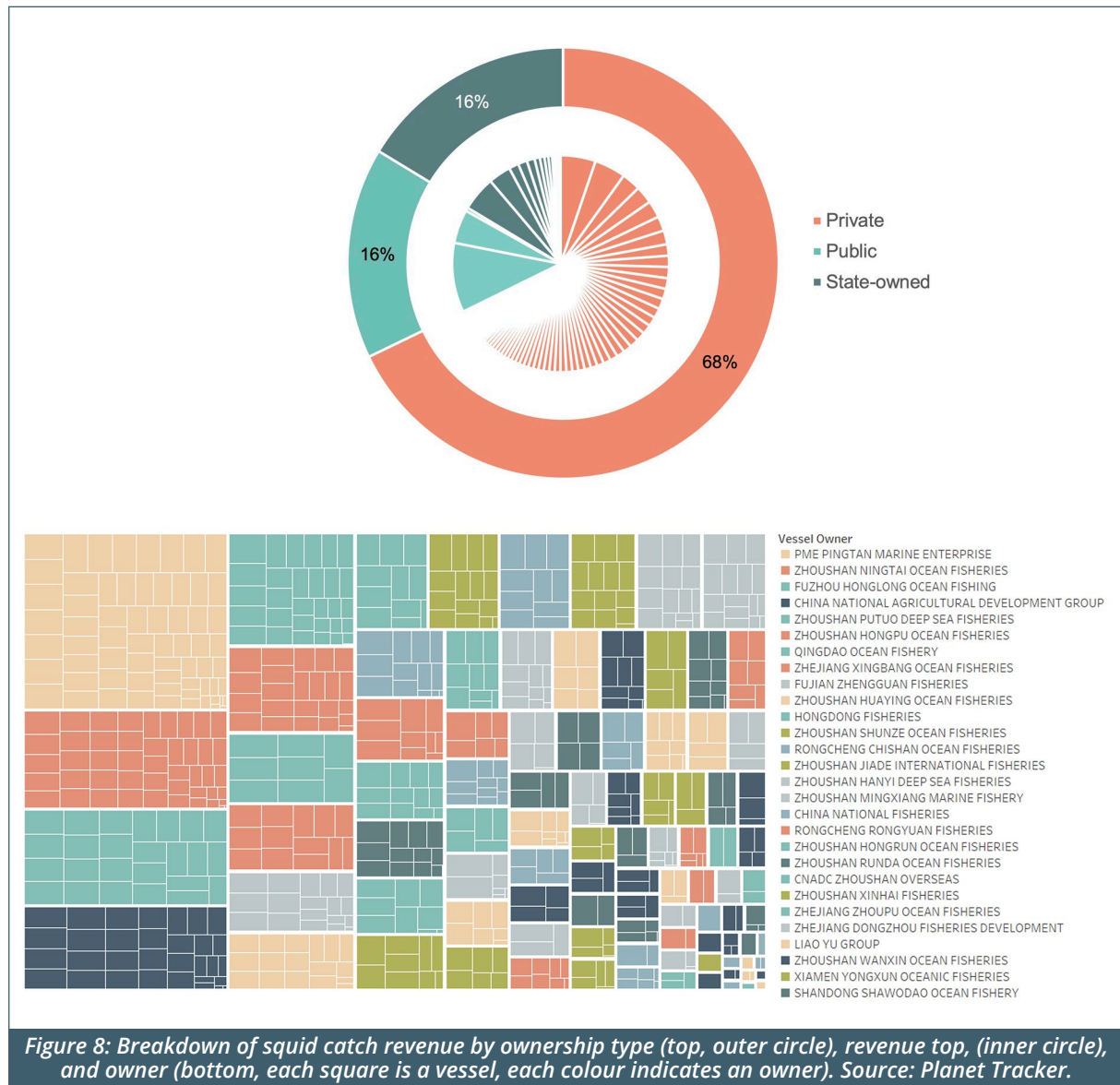


**Figure 7: Catch composition of the Chinese distant-water fishing fleet (left), and estimated average gross margin of distant-water fishing vessels in 2022 and 2023 (right), by target species.**  
 Source: Planet Tracker, based on company reports.

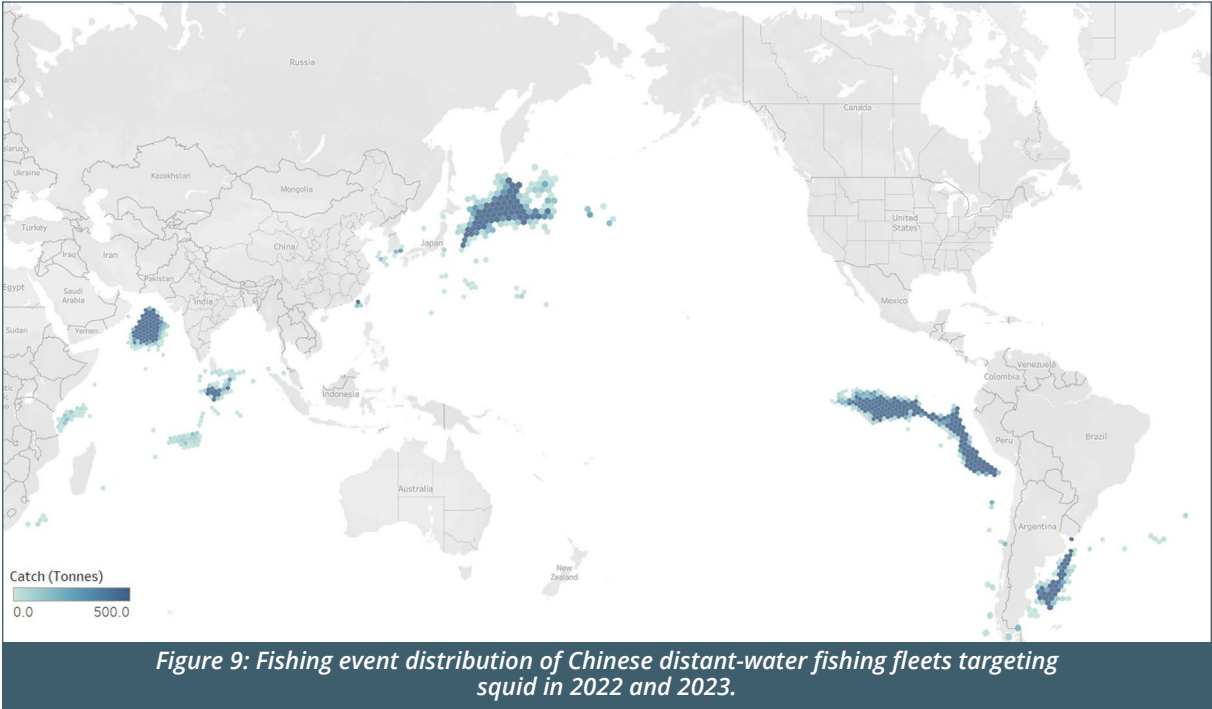


## Privately-owned, fragmented and unprofitable squid jigging

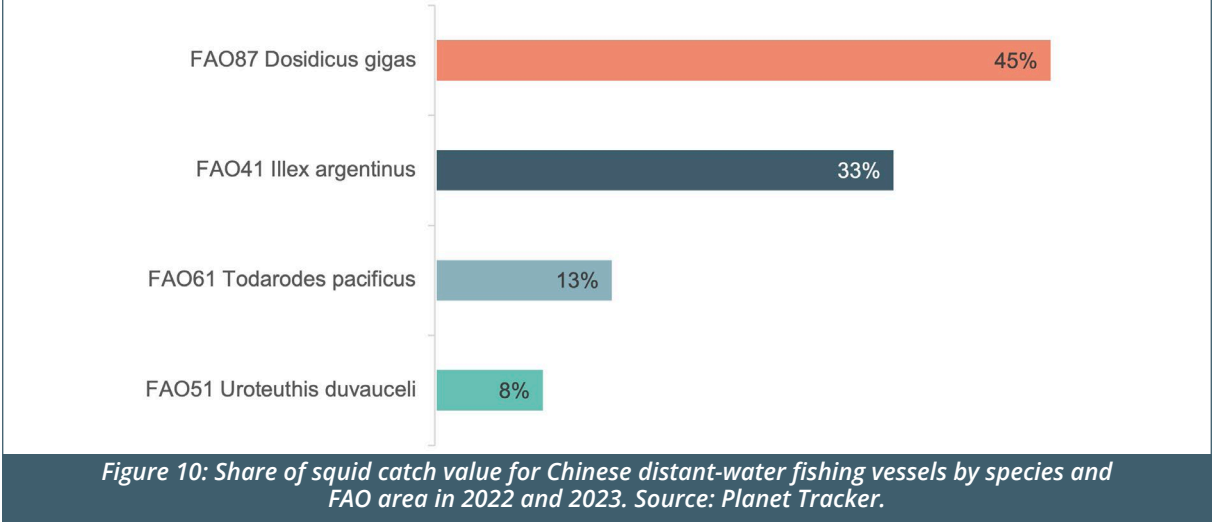
In contrast to tuna, squid is a fragmented, unprofitable sector (estimated gross margin of 8%) and majority-controlled by private entities – see Figure 8 and our [interactive dashboard](#).



Squid fishing is concentrated in a few hotspots in FAO area 41 (Atlantic, Southwest), FAO 87 (Pacific, Southeast), FAO 61 (Pacific, Northwest), and FAO 51 (Indian Ocean, Western) – see Figure 9.



Species targeted by the Chinese fleets are the Argentine shortfin squid (*Illex argentinus*), Jumbo flying squid (*Dosidicus gigas*),<sup>c</sup> Japanese flying squid (*Todarodes pacificus*), and Indian squid (*Uroteuthis duvauceli*).<sup>12</sup> Overall, an estimated 78% of squid revenues are generated around South America, but not in EEZs – see Figures 10 and 11.



<sup>c</sup> Also called Humboldt squid

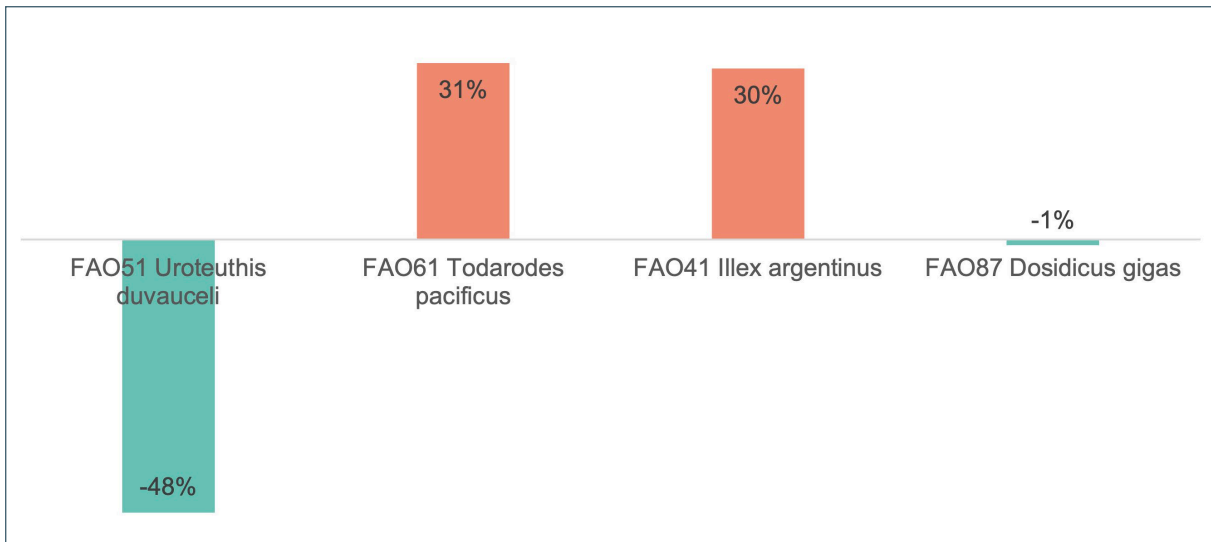


Figure 11: Estimated average gross margin for squid jigging by FAO area in 2022 and 2023. Source: Planet Tracker.

Planet Tracker estimated that the catch of Jumbo flying squid in the Pacific South-East Argentine was both the largest source of squid for the Chinese fleet, and also an unprofitable operation, although not as loss-making as Indian squid in FAO 51(Western Indian Ocean). This could tempt some companies and vessels to catch more squid than reported, or operate illegally, for instance by fishing in EEZs illegally. Many reports suggest that this is the case.<sup>13 14 15</sup>

Unlike tuna fisheries, 97% of the total squid fishing hours detected by AIS occurred on the high seas. This has consequences in terms of monitoring and regulation. Within the Chinese distant-water fishing fleet, squid vessels are responsible for most of the extended (>12 hours), intentional deactivation of AIS systems as tracked by Global Fishing Watch, which can potentially indicate illegal behaviour – see Figure 12.

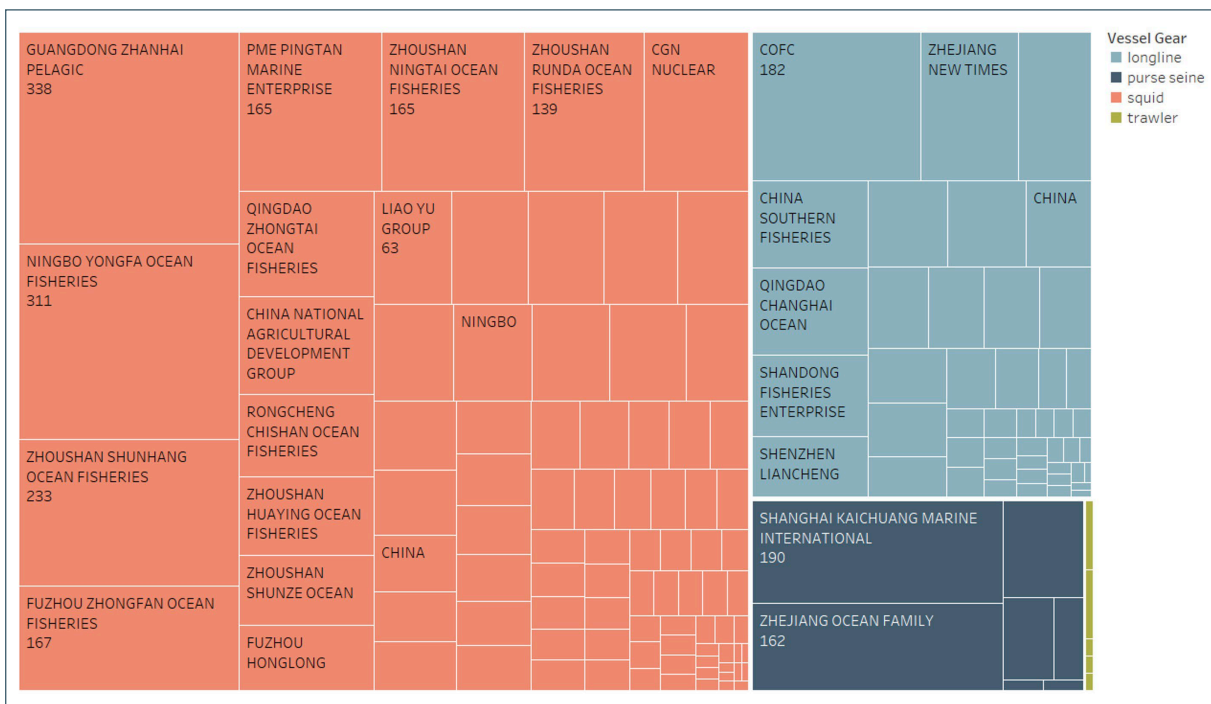


Figure 12. Number of intentional AIS gap events by gear and company. Source: Planet Tracker, based on Global Fishing Watch data.



### The negative consequences of operating uneconomically

Overall, distant-water fishing is not a very lucrative business: fishing companies engaged in tuna and/or squid fishing achieved an average gross margin of 14%, of which nearly half comes from compliance subsidies (margins would be 8% excluding subsidies). Margins are trending down or stable across the industry – see Figure 13.

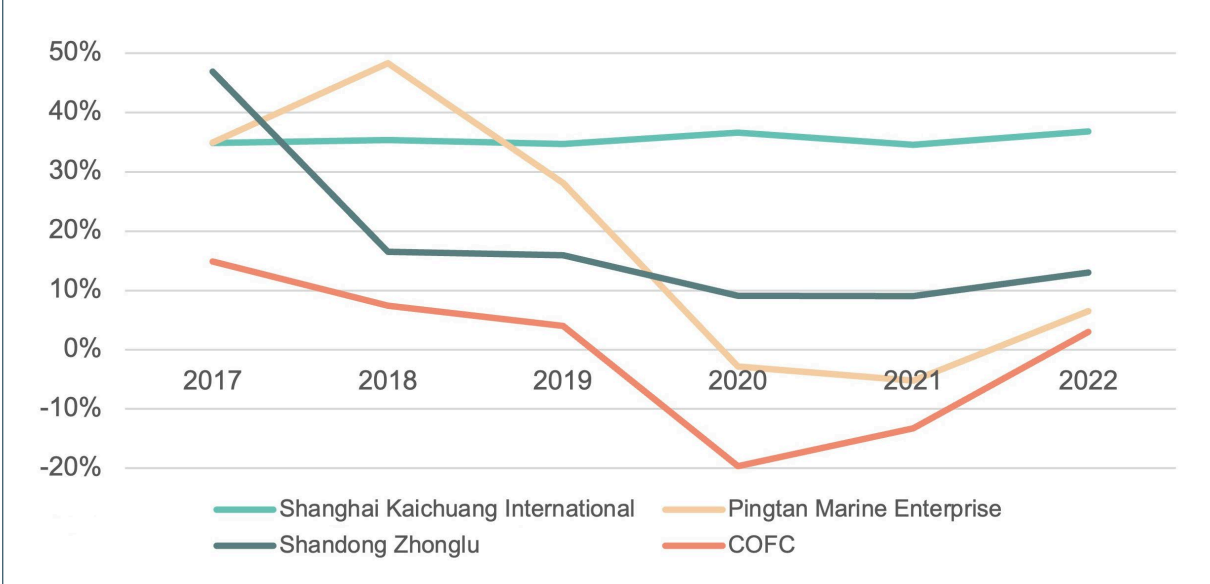


Figure 13: Gross margin of the fishing segment from 2016 to 2022. Source: Company Annual Reports.

This could explain why extreme forms of cost-cutting (underpaid or forced labor) or revenue optimisation (illegal shark finning, transshipment-enabled overexploitation of fish stocks), are often found in the industry.

In particular, we found that tuna longlining and squid jigging are generally not profitable if crew members are paid industry standards – see Going Deeper # 1 overleaf.



## Going Deeper #1: Why Chinese distant-water fishing companies underpay their crew

According to the 'Regulation of the People's Republic of China on Seamen', there are minimum manning and certification standards for crew members on distant-water fishing vessels, for the purpose of strengthening the management of fishing crews, safeguarding the legitimate rights and interests of fishing crews, and ensuring the safety of life and property of fishing vessels and their personnel.<sup>16</sup>

For instance, for a purse seiner with a length (LOA) greater than 45 meters, and a main engine of less than 3,000kW but larger than 750kW, a minimum of 7 senior crews is required on board – a first class captain, a first mate, 2 third mates, 1 first class chief engineer, 1 second engineer, and 1 fourth engineer – as well as around 20-25 deckhands.

Planet Tracker collected and estimated the average salary of seafarers from China Crew's Remuneration index<sup>17</sup> and job advertisements posted on seafarer recruitment platforms.<sup>18</sup> The average monthly salary of senior crews on a large scale distant-water fishing vessel can be more than USD 5,000 per month, and a typical monthly salary for a deckhand is around USD 1,600, comprising base salary and commission per tonne of fish caught. This suggests the average monthly salary of crew member with a team of 22- 30 members on a distant-water fishing vessel (LOA>24 meters) should range from USD 2,300 to 2,700.

Yet the average salary disclosed by public companies was much lower than this number: RMB 7,684 for COFC, RMB 6,377 by Shandong Zhonglu, and RMB 6,656 by Zhejiang Ocean Family, equivalent to approximately USD 945 to 1,138, or about 60% lower than stipulated Chinese wages. This implies that a significant portion of deckhands on board were paid a lower monthly salary. This is likely especially the case for longliner and squid jigger, where less expertise is needed for deckhands to operate when compared to tuna purse seiners – see Figure 14.<sup>19</sup>

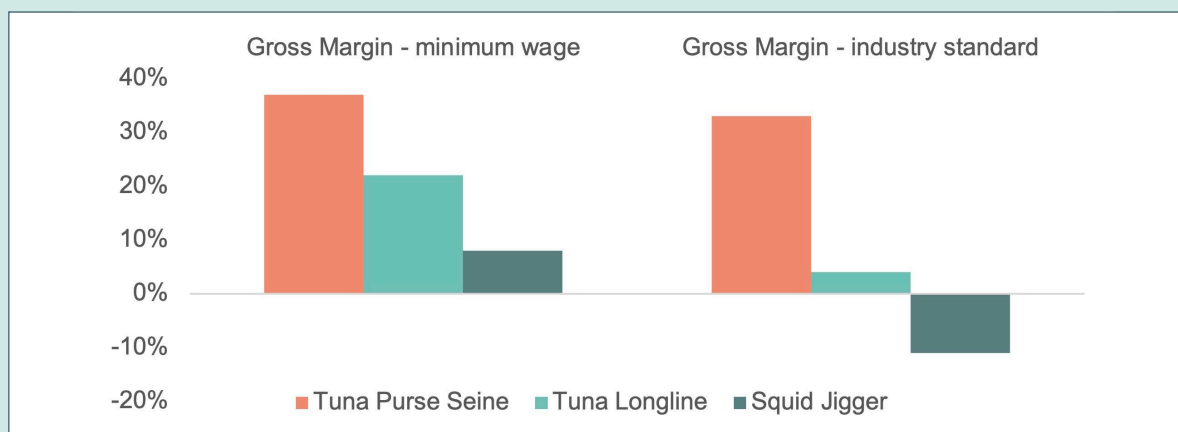


Figure 14: Comparison of average estimated gross margin of fishing vessels by species: minimum labor cost versus industry average labour cost. Source: Planet Tracker.

This has been corroborated by the Environmental Justice Foundation: many deckhands working onboard Chinese vessels typically earn about USD 300 per month.<sup>20</sup> Without the capability of outsourcing most of the deckhands with cheap labor, fishing vessels would see a significant drop in profitability. In particular, tuna longlining and squid jiggering would not be profitable if companies paid crew members Chinese industry standard salary without resorting to outsourced cheap labour. It is therefore not surprising that many of the labour and human rights issues that plague the industry involve longliners and squid jiggers.

In addition, tuna longlining and squid jigging are much less monitored in general compared to tuna purse seining, with significantly lower observer coverage rates.<sup>21</sup>

### Highest profits in the least overfished areas

Planet Tracker established a sustainability scoring system for Chinese distant-water fishing vessels. It is based on target species stock status, fishing method and corresponding environmental impacts, fishery management, and alignment with science-based best practices, and then adjusted by the presence or not of positive transparency/certification initiatives and that of legal, and social risks – see Table 2.

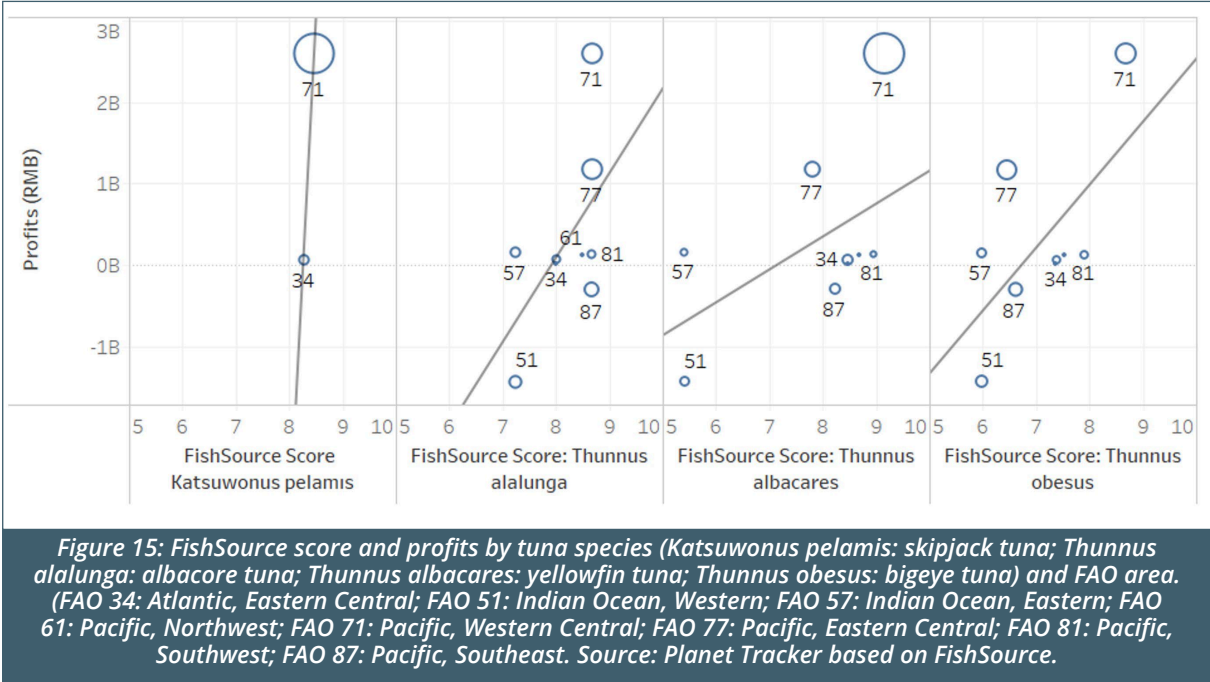
*Table 2: Vessel sustainability assessment indicators. Source: Planet Tracker.*

<b>Status of the target resource</b> – (Source: FishSource)	
Current stock health	What's the most recent biomass estimate, how does it compare to target and limit levels
Future stock health	Whether the current fishing mortality is at the long-term target level
<b>plus: Quality of the management</b> - (Source: FishSource)	
Management strategy	Whether harvest rates are reduced at a low level of catch
Managers' compliance	Whether the catch limits set by the managers are in line with the advice in the stock assessment
Fishers' compliance	Whether the actual catches are in line with the catch limits set by managers
<b>plus: Environmental impacts of the fishery</b> - (Source: FishSource)	
Bycatch	To what extent does the fishery impact main bycatch species, and are there measures in place that aim to minimize the impact
ETP impacts	To what extent does the fishery impact ETP <sup>d</sup> species, and are there measures in place that aim to minimize the impact
Habitat	To what extent does the fishery impact habitats, and are there measures in place that aim to minimize the impact
Ecosystem	To what extent does the fishery impact the ecosystem, and are there measures in place that aim to minimize the impact
<b>equals: Overall FishSource Score</b>	
<b>plus: Transparency/Certification score</b> (Source: ISSF, MSC)	
Large-Scale Purse Seine Vessels	If the vessel is on the record of Large-Scale Purse Seine Vessels (LSPSR) list – large-scale purse seine vessels worldwide fishing tropical tuna
ProActive Vessel Register	If the vessel is registered on the ProActive Vessel Register (PVR)
MSC certification	If the fishery is MSC (Marine Stewardship Council) certified
FIP	If the fishery participates in a fishery improvement project
<b>minus: Social, Legal and Climate Risks score</b>	
IUU fishing	If the vessel is on the illegal, unregulated, and unreported (IUU) fishing vessel lists published by RFMOs and related organizations
Transshipment	Transshipment authorized by RFMO
Energy efficiency	Fuel consumption per tonne of fish caught
Labor wellbeing	Duration of voyage between port stops or encounters
Multiple identities	If the vessel had multiple identities
IMO	If the vessel does not have an IMO number even though it should
<b>equals: Overall Planet Tracker Sustainability score</b>	

<sup>d</sup> Endangered, Threatened and Protected



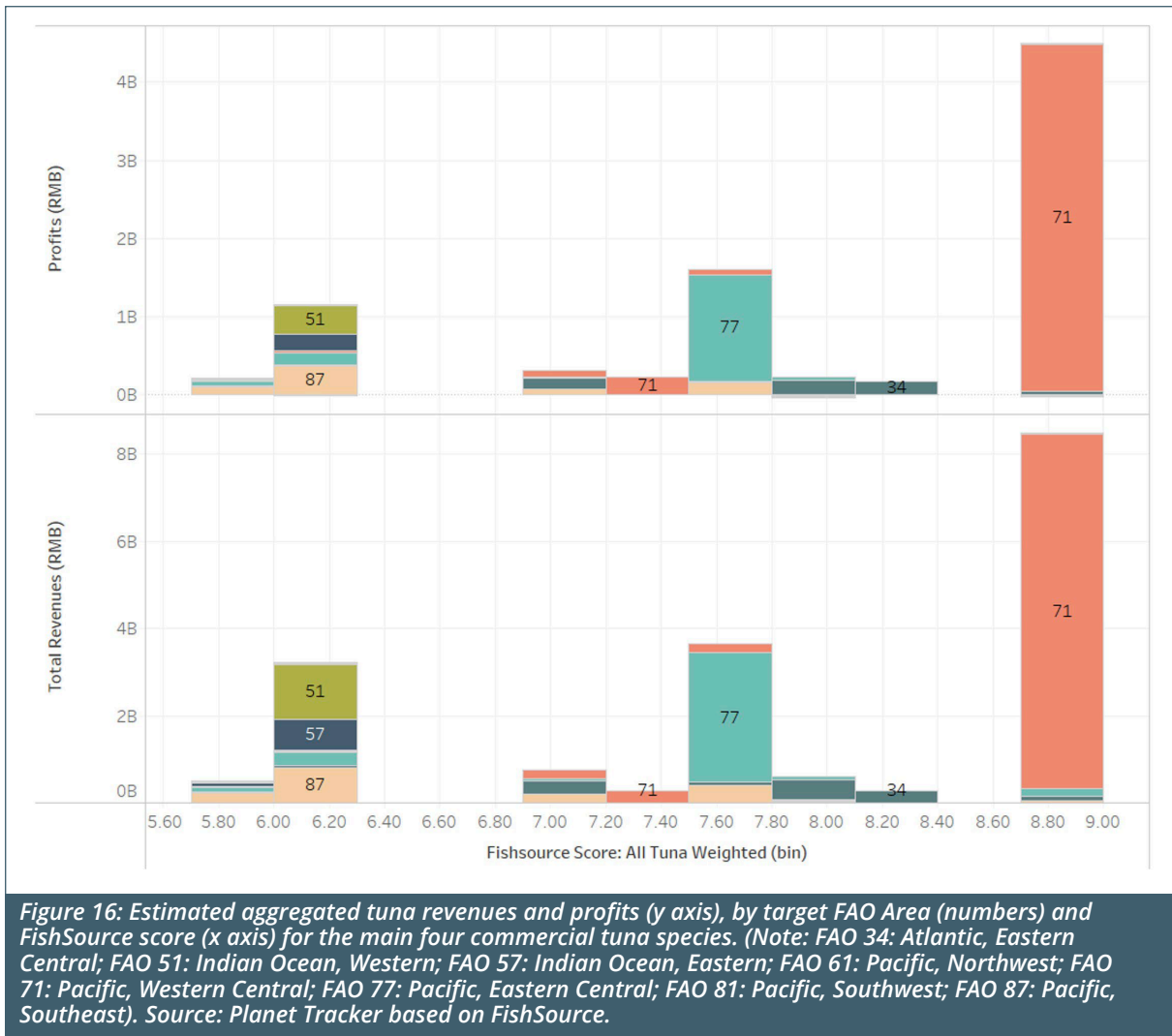
We then compared this score to the estimated financial health of these vessels. There is very little correlation between this overall sustainability score and the estimated financial health of these vessels. However, a limited but positive correlation exists between a sub-set of our sustainability score and profitability for tuna capture. This is based on our estimates which do not factor in any potentially illegally-derived revenue (e.g. shark finning) or illegally-compressed cost (e.g. forced labour) – see Figure 15.



Perhaps more importantly, Planet Tracker found that the majority of estimated tuna profits comes from fisheries that are not overfished: 53% of the profits come from areas with a score higher than 8.5 – see Figure 16.<sup>e</sup>

<sup>e</sup> A score of 8/10 or above generally indicates that a fishery is not overfished





This shows that it is in the interest of the fleet to preserve tuna populations to ensure long-term profitability.

For squid, it is challenging to compare profitability level to overfishing levels since there is often no consensus as to whether squid fisheries are overfished or not, and data availability is poorer than for tuna. The fact that 86% of global squid fishing occurs in unregulated areas does not help.<sup>22</sup> Squid populations fluctuate widely due to short life cycles and environmental changes, limited historical biomass data and the complexity of stock structure further complicate stock evaluations.<sup>23</sup> But many experts worry that squid stocks might be overexploited,<sup>24</sup> including the jumbo flying squid (*Dosidicus gigas*) in the Southeast Pacific and the Argentine shortfin (*Illex argentinus*) in the Southwest Atlantic,<sup>25</sup> which together generate an estimated 78% of the Chinese distant-water fleet's squid catch.

# A bleak outlook if nothing changes

## A drop in subsidies is likely when the WTO Agreement enters into force

The Chinese fleet is likely to suffer from a reduction in subsidies when the WTO Agreement on Fisheries Subsidies enters into force.<sup>26</sup> China's current incentive system does not fully reflect this agreement to ban subsidies linked to IUU fishing, overfished stocks, and fishing on unregulated high seas (see '[China needs to change its incentives](#)' later for more details).

With at least 45% of profits coming from subsidies, any reduction in subsidies is likely to affect profitability. For instance, in 2022, the majority of the Chinese distant-water squid catch came from unregulated areas (i.e. not subject to RFMOs' rules). Once the WTO Agreement enters into force, subsidising these operations will not be possible anymore. If squid fishing ceases in these areas as a result, this would benefit the ocean and possibly profits too, given margins are estimated to be negative. However, if fishing continues but other costs (e.g. salaries) are further compressed, this would be a perverse outcome. In between these two outcomes, another possibility is that China could advocate for the regulation of squid fisheries that are not yet regulated (e.g. in the South West Atlantic <sup>27</sup>) so that the country can continue to subsidise these operations.

## Climate change is disrupting the industry's key profit pool: tuna in the Pacific

In 2022, 46% of the Chinese distant-water fishing tuna activity took place in EEZs. Out of this, 75% was concentrated within the waters of ten Pacific Island nations, led by Kiribati. Together the EEZ of these ten countries are a key driver of profits for the Chinese fleet, accounting for an estimated 49.5% of total tuna profits.

Yet by 2050 the catch of three key tuna species (skipjack, yellowfin and bigeye) within these ten Pacific island nations' EEZs is forecasted to decrease by an average of 3.4% (climate scenario RCP 4.5) to 20.2% (RCP 8.5).<sup>f 28</sup> Overall in the Pacific ocean, tuna fishing will increasingly redirect to the high seas, as opposed to EEZs. This will force the Chinese distant-water fishing fleet to act, as such a drop in catch would result in an estimated 29% decrease in the fleet's profitability.

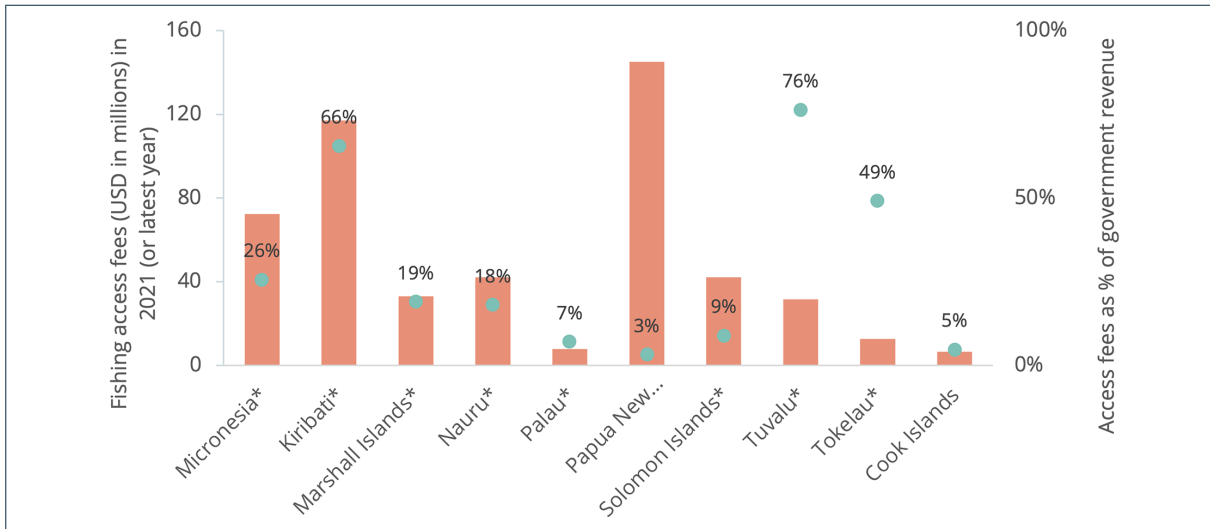
<sup>f</sup> Under a RCP 8.5 scenario by 2050, the total biomass of three key tuna species (skipjack, yellowfin and bigeye) within these nations combined EEZs will decrease by an average of 13% - ranging from -20.3% (maximum change) to -5.1% (minimum change) due to the eastward migration of tuna into the high seas





## From Pacific Islands to African coastal countries

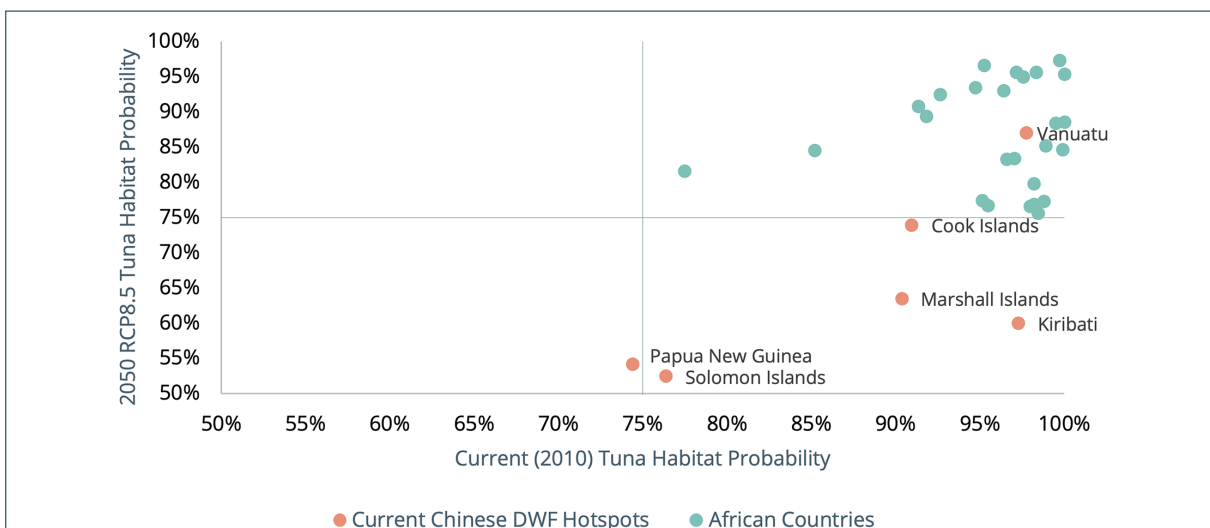
Tuna moving eastward in the Pacific will take a toll on Pacific Island states. It equates to an average annual loss in regional tuna-fishing access fees of USD 90 million and therefore reductions in government revenue of up to 13% for Pacific Island countries – see Figure 17.<sup>29</sup>



**Figure 17: Access fees for offshore fishing.**  
 Source: Pacific Community, 2023. Countries with an asterisk are Parties of the Nauru Agreement, a subregional cooperation agreement that focuses on sustainably managing tuna by agreeing on a limited number of fishing days for the year, which are then allocated by country and sold to the highest bidder.

Whilst a general negative impact of climate change is expected for tuna catches globally, and tropical tuna in particular, warmer temperatures will force them to migrate from tropical to cooler waters and could reduce the maximum body sizes of major tuna species (bluefin, albacore, yellowfin, bigeye, and skipjack) by up to 15% by 2050.<sup>30</sup> However, some areas will fare relatively better than others. Even in a RCP 8.5 scenario, the probability of distribution of the four key species of tuna will remain greater or equal to 90% in many areas.

This will be in particular the case of several African coastal states: Guinea-Bissau, Gambia, Madagascar, Mauritius, Mozambique, Senegal, Somalia, and South Africa, which could therefore become hot spots for tuna fishing fleets. This is of course assuming that the tuna biomass in these countries is high enough for the fleet to target it.



**Figure 18: Average probability of distribution for four tuna species in 2010 and by 2050 under RCP 8.5.**  
 Source: Planet Tracker calculations based on AquaMaps data.

For the Chinese fleet, this could turn into an increase in fuel and transportation costs but crucially, a decrease in access costs. African countries earned an average of USD 128 per tonne between 2010 and 2021, while PNA countries earned USD 307 per tonne, thanks to their successful cooperation arrangement.<sup>31</sup>

The current cost per unit for fishing tuna in African countries is, on average, only 3% higher than in West Central Pacific island nations. We estimate a 6% higher fuel consumption and 8% higher transshipment cost, but significantly, a 64% lower fishing license fee paid to African countries. It is therefore likely that in addition to the shift from Pacific Island states to the Pacific high seas, Chinese distant-water fishing companies will also relocate some of their vessels towards these African countries.

#### **Without any action, this is likely to:**

- increase the risk of future fish resources-related conflicts in these countries. As per WWF's Oceans Futures platform, the EEZ of Somalia, Senegal, Guinea-Bissau, and Gambia are some of the world's riskiest places for such future conflicts.<sup>32</sup>
- increase the risk of overfishing and non-compliance: skipjack, yellowfin, and bigeye tuna stock in Western Central Pacific Ocean are not overfished and likely not experiencing overfishing. That is largely attributed to stringent regulatory oversight and relatively effective enforcement of conservation measures and management strategies, for which national and multinational regulations and collaboration between member states - such as via the Nauru Agreement (see Going Deeper #2 below) -, played an indispensable role. In contrast, African countries sell access and manage marine resources individually.<sup>33</sup> While there are collaborative efforts among African coastal states, such as the Southern African Development Community (SADC) or the Monitoring, Control and Surveillance Coordination Centre (MCSCC) to tackle IUU fishing, comprehensive and robust frameworks are still missing.

### **Going Deeper #2: The Parties to the Nauru Agreement**

The Parties to the Nauru Agreement (PNA) are eight Pacific Island nations – The Federated States of Micronesia, the Republic of Kiribati, the Republic of the Marshall Islands, the Republic of Nauru, the Republic of Palau, the Independent State of Papua New Guinea, Solomon Islands, Tuvalu, plus Tokelau. Together via the Nauru Agreement (effective since 1982) they coordinate the implementation of management measures via a system that brings them in about USD 500 million a year.<sup>34</sup>

Key to that success was the establishment in 2007 of the Vessel Day Scheme, which caps the total annual tuna fishing effort at approximately 45,000 days across the member EEZs, allocates days based on each country's EEZ size and historical fishing effort, and sells them to the highest bidder.<sup>35</sup>

Access for foreign vessels is typically granted through the purchase of fishing days, with fees set at a minimum of USD 8,000 per day since 2015, though actual rates vary between USD 10,000 and USD 20,000 per day depending on the country.<sup>36</sup>

The Parties to the Nauru Agreement (PNA) significantly influence the operations of the Chinese DWF fleet: over a third of its fishing hours for tuna (and just under half of profits) occur within the combined EEZ of the PNA members.

## Increased fishing effort in the high seas comes at a cost

Tuna moving eastwards in the Pacific will lead to increased fishing in the high seas, and less fishing effort in the waters of Pacific Island states.

For the Chinese fleet, this means an increase in transshipment costs but a decrease in fuel costs (due to more frequent transshipments) and a decrease in access fees. As a result, we calculated that fishing for tuna populations that migrate further East in the Pacific Ocean using purse seiners would result in a net reduction in the cost per tonne of tuna by 7%, but only if the fleet is able to secure more exemptions from the fisheries commissions.

Indeed, as per this RFMO regulations, transshipments at sea are normally banned, but exemptions are granted, when “it is impracticable for certain vessels [...] to operate without being able to tranship on the high seas”.<sup>37</sup> (see Going Deeper #3 for more details). Further East in the Pacific Ocean (where tuna biomass is expected to increase on a relative basis), the IATTC also bans transshipment at seas for purse seine vessels.<sup>38</sup>

Without securing these exemptions, either the cost of catching tuna via purse seiners will be higher or transshipments will happen unauthorised.

### Going Deeper # 3: Towards a rise in transshipment costs for the Chinese fleet

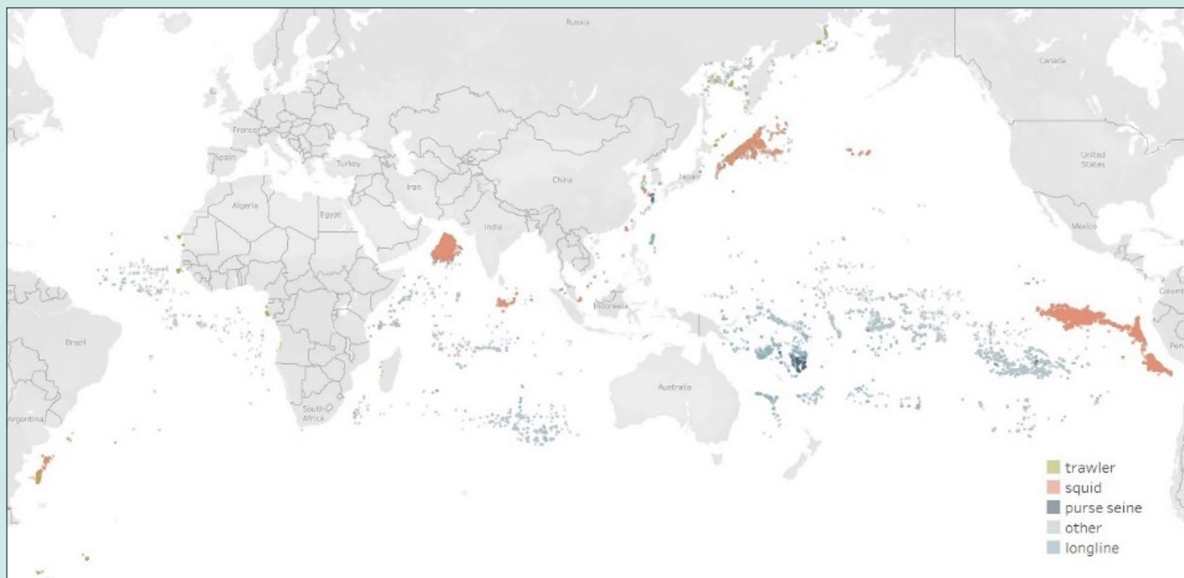
Transshipment refers to the process of transferring cargo and catch from one ship to another, a practice particularly prevalent in the fishing industry. This method can significantly streamline the transfer of seafood, allowing fishing vessels to hand over their catch to cargo ships. As a result, fishing vessels reduce the time they spend traveling to and from fishing grounds, thus optimising their operations at sea.

While transshipments occurring at ports are typically well monitored, it is not always the case for those occurring at sea. Unmonitored transshipment at sea can enable fishing vessels to remain at sea for extended periods, which not only contributes to overfishing but also complicates the monitoring of legal catch limits. Furthermore, it can lead to inaccurate catch reporting and support illegal, unreported, and unregulated (IUU) fishing activities. Extended periods at sea, often under unregulated conditions, can exacerbate poor working conditions and human rights abuses, presenting significant challenges to enforcement and oversight.

China is one of the five countries driving the transshipment of large tuna and sharks, and more recently of squid. The country is responsible for 14.4% of these activities globally, ahead of Japan (13.3%) and the USA (13.3%) but behind Mexico (30.4%), and Taiwan (22.7%).<sup>39</sup>

In 2022 and 2023, 16,380 transshipment events associated with Chinese fishing vessels were captured by AIS data globally. Out of these, 13,239 events (80.8%) involved squid jiggers operating in FAO Areas 61, 87, and 51. This was followed by tuna longliners, with 2,740 (16.7%) recorded encounter events at sea, trawlers recorded 320 (2.0%), and tuna purse seiners, which participated in 81 events (0.5%) – see Figure 19.





**Figure 19: Encountering events of Chinese distant-water fishing vessels in 2022 and 2023, by fishing gear.**  
 Source: Planet Tracker, Global Fishing Watch.

Transshipment practices vary by gear type and regional regulations. For instance, purse seiners are typically subject to stringent transshipment restrictions at sea, especially in regions monitored by the Western and Central Pacific Fisheries Commission (WCPFC), where most Chinese distant water fleet purse seining occurs. Exceptions to these prohibitions are granted only under specific conditions dictated by the Commission, meaning that most transshipments occur in designated ports within national jurisdictions, in compliance with local laws.<sup>40</sup> Transportation fees at designated ports are relatively standardised: typically USD 250-300 per tonne of fish transported back to China.

In contrast, reefer (refrigerated cargo ship) transportation fee for vessels on high seas are typically negotiated between parties at the time of signing contracts. The fees can vary significantly, from USD 550 to USD 750 per tonne of fish, depending on the location of the fishing vessels and the distance to the port at the time of transshipment. The cost tends to increase with distance from China: the lowest fees are observed in areas close to China such as the Northwest Pacific Ocean (FAO 61) and the Eastern Indian Ocean (FAO 57) and the highest in more remote areas like the Southeast Pacific (FAO 87) and the South Atlantic Ocean (FAO 41).<sup>41</sup> Transshipment fees typically represent 20% of average tuna sales price, and are even higher for squid, at c.18% for Argentine squid,<sup>42</sup> but up to 50% for Indian Ocean squid.<sup>43</sup>

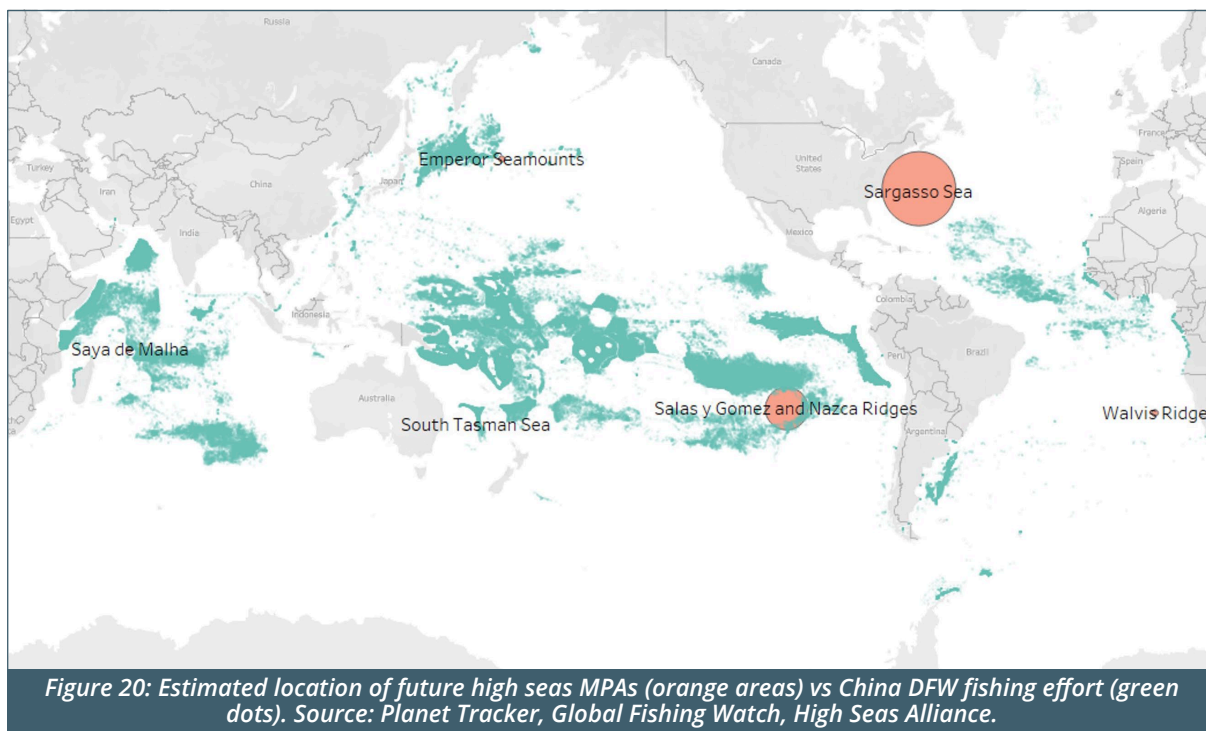
Any rebalancing of the tuna fleet further East in the Pacific (more in high seas, less in EEZ) could therefore lead to more instances of less regulated and more expensive transshipments, assuming China secures more exemptions for its fleet. Otherwise, it would lead to higher costs for the fleet (due to higher fuel consumption), or more frequent instances of unauthorised transshipments.

Given the lack of monitoring of the high seas, this climate change-induced drop in profit is likely to also lead to an increased risk of IUU fishing and forced labour as a way to maximise revenue and compress costs.

Specifically, this is likely to include a higher frequency of unauthorised types of fishing (e.g. shark finning), and increased labour abuse.

## Little overlap between planned high seas MPAs and Chinese distant-water fishing

This should not lead to a significant increase in fishing taking place in marine protected areas (MPAs) though. Indeed, very little overlap exists between current or future estimated fishing effort and the planned location of the future high seas MPAs. Governed by the recently signed BBNJ treaty,<sup>44</sup> the exact location of these future MPAs is not set in stone, and their potential designation date is not known (likely around or after 2030),<sup>45</sup> but for now none of them is host to significant fishing activity by the Chinese fleet<sup>g</sup> - see Figure 20.



## A riskier and less profitable future ahead in the absence of action

Without rapid and radical action now, we are heading towards a future where:

- the Chinese distant-water fleet sees its low profitability eroded due to a drop in subsidies and the impact of climate change.
- the fleet fishes increasingly in the high seas, leading to an increased risk of forced labour, IUU fishing and other environmental and social abuses or crimes.
- Pacific Island states suffer a significant drop in government revenue, further impacting their ability to cope with the costs of the climate crisis.
- African coastal states see their waters increasingly depleted, not just by Chinese trawlers and EU distant-water fleets as is already the case, but also from valuable tuna resources.
- Investors in seafood supply chain are exposed to all of the above.

**It is therefore important to act now.**

<sup>g</sup> Sala Y Gomez and Nazca Ridges is partly an exception to this, but even there fishing activity is low (see <https://marine-conservation.org/wp-content/uploads/2021/09/Wagner-et-al.-2021-Salas-y-Gomez-Nazca-ridges.pdf>)

# Changing the Chinese distant-water fleet

Could the Chinese distant-water fishing fleet radically change to become best-in-class among its peers? It is possible and necessary, but requires immediate, fast action:

- 1 China needs to overhaul its incentive system, to adequately reward traceability, transparency and monitoring and properly penalise environmental and social damage in the distant-water fishing fleet
- 2 China also needs to change the rules, to ensure they are aligned with the new incentive system.
- 3 Financial institutions need to support this transition by engaging with companies on transparency, traceability, monitoring, sustainable sourcing, and labour issues in order to de-risk supply chains and improve future profits.
- 4 A new sovereign bond issued by China could help align incentives of the government and investors, while funding the above transition.
- 5 Separately, to avoid seeing their natural capital being depleted, African coastal states need to significantly raise their access fees and condition access to sustainability credentials. Forming a coalition could help achieve this.

## China needs to change its incentives

China currently uses a formula to compute so-called “compliance subsidies”, which make up the bulk of fishing subsidies received by the distant-water fleet.<sup>46</sup> By assigning multipliers based on species/gear/area, it favors fishing in the high seas relative to EEZs, some species (e.g. Antarctic krill or tuna) relative to others, as well as some gear types (e.g. purse seiners) more than others.

This is broadly in line with the global trend of subsidising fleets operating in the high seas proportionally more than in foreign (and even more so, domestic) EEZs – see Figure 21.

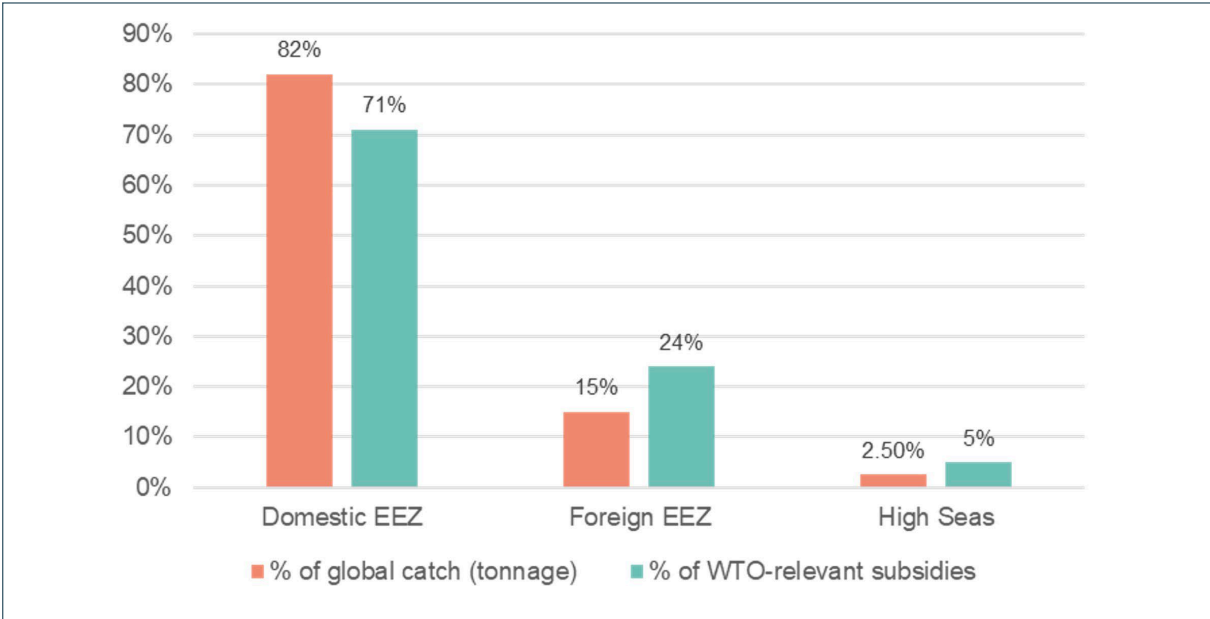


Figure 21: Global distribution of marine catch and WTO-relevant subsidies. Source: IISD.org.<sup>47</sup>

## Going deeper # 4: How subsidies calculations determine the strategies of the Chinese distant-water fishing fleet

In its 14th Five-year Plan (2021 – 2025), China eliminated fuel subsidies for distant-water fishing vessels, pivoting towards the conservation of fisheries resources, industrial restructuring, and the enhancement of international compliance capabilities. This shift aims to foster the long-term sustainable use of fisheries resources and catalyse a new trajectory for development. The restructured subsidy system is anchored by six pillars:<sup>48</sup>

- 1 Construction of national-level marine ranches (建设国家级海洋牧场)
- 2 Construction of national-level coastal fishing ports economic zones (建设国家级沿海渔港经济区)
- 3 Construction of distant-water fishing bases (建设远洋渔业基地)
- 4 Fishery facilities and equipment enhancement (提升现代渔业设施设备水平)
- 5 Continued promotion of green circular development in fisheries (持续推进渔业绿色循环发展)
- 6 Conducting fisheries resources surveys and conservation and enhancing international compliance capacity (开展渔业资源调查养护和国际履约能力提升)

For distant-water fishing vessels, the 'International Compliance Capacity Enhancement' subsidy is the key one received annually. The subsidy is based on an annual evaluation of distant-water fishing enterprises, factoring in management systems, implementation status, resource conservation, scientific and technological innovation, social responsibility, and legal compliance. The process begins with a self-assessment, followed by a preliminary review by local authorities and a final assessment by the national fisheries authority.<sup>49</sup>

The compliance assessment score does not only directly influence administrative approval and policy support, but also determines the subsidy amount a company can receive under the 'International Compliance Capacity Enhancement Subsidy'. The final amount of subsidy is determined as follows:

***Subsidy = Compliance Assessment Score × Vessel Gear Coefficient × Adjustment Coefficient × Jurisdiction Subsidy Coefficient***

The vessel gear coefficient underscores strategic priorities for the Ministry of Agriculture and Rural Affairs (MARA) in subsidy allocation and support for fishery development. For example, all else being equal, a trawler fishing for Antarctic krill would receive over six times the government subsidy compared to a squid jigger operating in the Argentine EEZ.



**Table 3: Main components of the compliance subsidy calculations. (Source: MARA)<sup>50</sup>**

Compliance assessment score	Vessel gear coefficient		Adjustment coefficient	Jurisdiction subsidy coefficient
	Vessel gear	Coefficient		
Company's adherence to legal standards, supervision and management practices, on a scale of 120	Antarctic krill trawler		30	First adjustment coefficient: = Compliance days / 365  Second adjustment coefficient: 0.8 (for vessels reflagged to another country)  = Total compliance subsidy of the jurisdiction / sum of the single vessel base for all vessels in the jurisdiction
	Factory trawler		20	
	Tuna purse seiner		15	
	Tuna longliner	Ultra-low temperature	7	
		Low temperature	6	
		Fresh	2	
	High seas squid jigger	LOA ≥ 65	12	
		55 ≤ LOA < 65	8	
		LOA < 55	5	
	High seas trawler	LOA ≥ 55	8	
		LOA < 55	5	
	High seas midwater seiner		5	
	EEZ squid jigger		4.8	
	EEZ trawler	LOA < 30	3.6	
		30 ≤ LOA < 50	4.8	
LOA ≥ 50		6		
EEZ midwater seiner (LOA ≥ 40)		3.6		
Other EEZ vessel		1.2		

The coefficients used to calculate compliance subsidies need to change, for many reasons. To start with, to respect the WTO Agreement on Fisheries Subsidies from June 2022 (that China has ratified),<sup>51</sup> subsidies cannot be awarded to:

- *IUU fishing activities.* Yet as per our computations based on the point-based calculation of the compliance subsidy, if all Chinese vessels in our sample engaged in illegal fishing, their average score would merely drop by 10 points,<sup>52</sup> (or in this case, 9.5% - see Table 4), with a resulting 9.5% cut in the compliance subsidy they receive. This needs to change.

**Table 4: Change in compliance subsidy linked to illegal fishing**

Average compliance score	104.8 (out of 120)
Penalty for illegal fishing	-10 points <sup>53</sup>
Change in compliance score	-9.5%
Change in compliance subsidy	-9.5%

- the fishing of fish stocks that are clearly assessed as overfished, with no measure in place to rebuild them. Currently this is not apparent in the compliance subsidy calculations.
- fishing activities in unregulated high-seas fisheries. This means for instance that the vessel gear coefficients used for the calculation of the compliance subsidy should be set to zero for high seas squid jiggers (rather than the current 5 to 12) since 86% of this form of fishing takes place in unregulated areas, such as the high seas off the Argentinian coast.<sup>54</sup>

Since these calculations will have to change in order to respect the WTO Agreement, it would make sense to also take the opportunity to change other aspects of the compliance score calculations.

Plenty needs to change indeed. We recommend a minima the following:

- 1** Ensure that the compliance score for vessels engaged in illegal fishing, forced labour, or any other illegal activity is nil (rather than cut by 10 points, as currently the case)
- 2** Increase the penalty linked to unfair treatment of crew so that the compliance score is nil and increase its scope to include evidence of unfair pay
- 3** Improve the calculations of the compliance score in order to eliminate incentives to fish unprofitable and unsustainable areas
- 4** Favour vessels and companies that can demonstrate having implemented traceability
- 5** Favour vessels and companies that can evidence their transparent sourcing.
- 6** Use AIS, rather than VMS to calculate compliance subsidies.

### **Going deeper #5: Why basing subsidies calculations on AIS use matters**

According to the MARA, the transmission of vessel position via AIS is not mandatory under Chinese law, but all Chinese distant-water fishing vessels are required to install and maintain VMS (Vessel Monitoring System)<sup>55</sup> Additionally, for the vessels that did transmit AIS data and were included in our sample, the recorded active operating days on AIS can be considerably fewer than the active days reported to MARA through VMS. If compliance subsidies were based on AIS rather than VMS, this would most certainly lead to a more transparent use of the (publicly available) AIS monitoring system. Consider the following vessels as examples of instances where AIS-monitored fishing activity represents only a fraction of the real activity (as traced by VMS). Another option could be to make VMS data public, but these decisions can easily be reversed (Indonesia did just that for instance).



**Table 5: Comparing VMS usage vs AIS usage and how this affects compliance subsidies for a selected number of companies. Source: Planet Tracker based on government website<sup>56</sup> and Global Fishing Watch.**

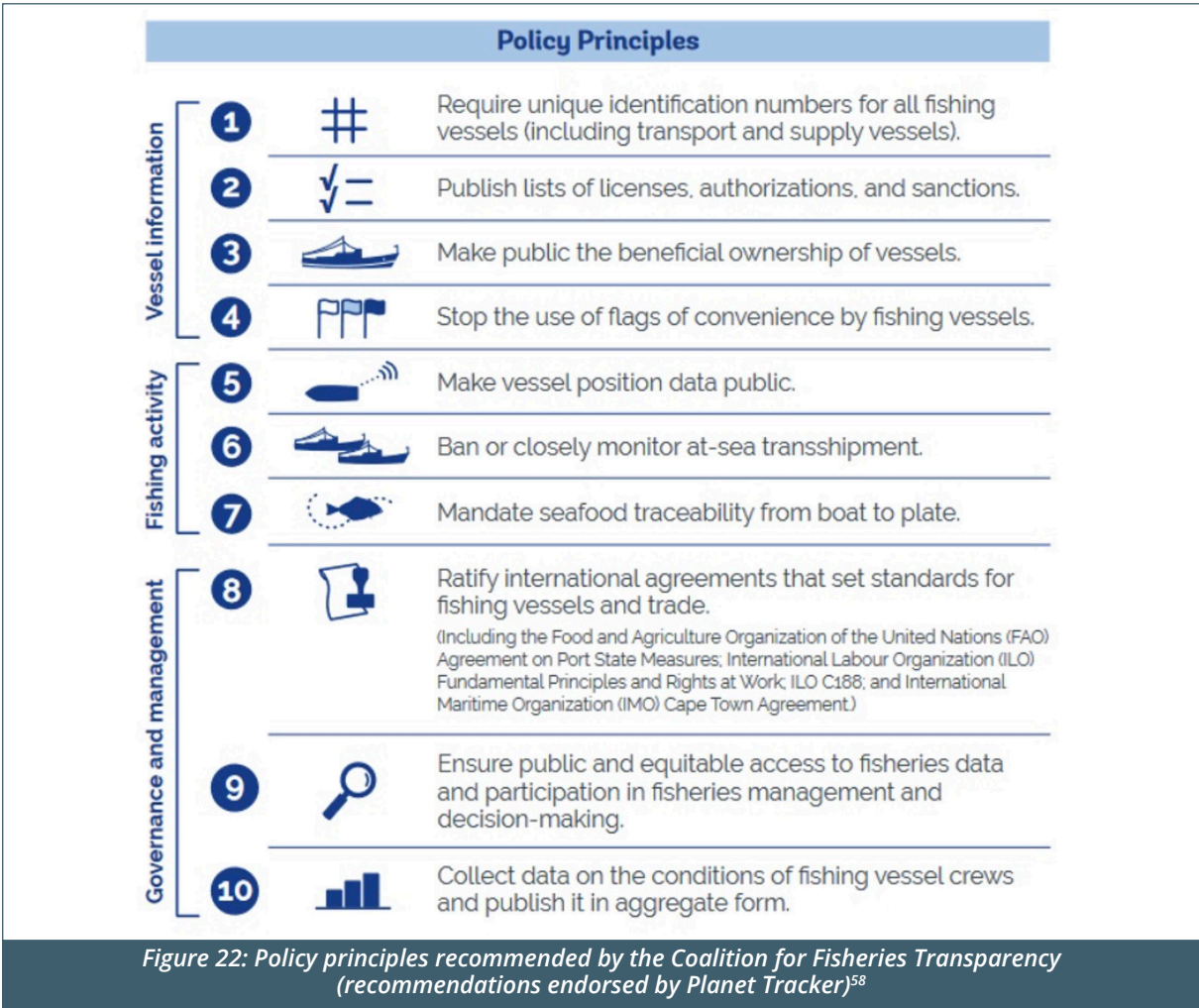
Owner	Vessel name	Days in operation (based on VMS)	Compliance score	Compliance subsidy received, in RMB	Fishing days based on AIS	AIS-tracked fishing days as a % of VMS fishing days
Nantong Changtai Ocean Fisheries	Changtai 801	365	102	7,844,700	133	36.4%
	Changtai 802	312	102		290	92.9%
	Changtai 806	365	102		142	38.9%
	Changtai 807	288	102		260	90.3%
	Changtai 809	326	102		0	0.0%
	Changtai 810	365	102		109	29.8%
	Changtai 811	365	102		134	36.7%
	Changtai 812	365	102		0	0.0%
Fujian Yongfeng Fishery	Fuyuanyu 658	288	102	4,384,019	196	68.1%
	Fuyuanyu 659	288	102		185	64.2%
	Fuyuanyu 666	288	102		0	0.0%
	Fuyuanyu 667	289	102		173	59.8%
Jinxin Ocean Fisheries	Fuyuanyu 079	318	99	6,045,981	192	60.4%
	Fuyuanyu 080	188	99		152	80.9%
	Fuyuanyu 081	293	99		0	0.0%
	Fuyuanyu 082	252	99		0	0.0%
	Fuyuanyu 083	313	99		0	0.0%
	Fuyuanyu 085	272	99		112	41.2%

## China needs to change the rules of fishing

Changing the incentive system is not enough though. There should also be adequate legislation to make sure the spirit of this transition towards traceable and transparent seafood sourcing is respected - and that legislation needs to be properly enforced.



The Global Charter for Fisheries Transparency is an adequate a basis for the necessary changes in legislations – see Figure 22.<sup>57</sup>



For the Chinese distant-water fishing fleet in particular, this means among others:

**Traceability**

- Mandate collection of the necessary catch data to be aligned with GDST<sup>h</sup>, the leading traceability standard for seafood.<sup>59</sup>

**Labour issues:**

- Ratify and implement the ILO Work in Fishing Convention C188<sup>60</sup> and other relevant ILO Conventions to address issues around labour abuses,
- Ratify the Cape Town Agreement for the Safety of Fishing Vessels<sup>61</sup>
- Ratify the STCW-F Convention<sup>i, 62</sup>

**Environmental sustainability**

- Establish clear guiding principles and requirements for fishing agreements to ensure distant-water fishing operations are transparent, legal and sustainable.

<sup>h</sup> Global Dialogue on Seafood Traceability  
<sup>i</sup> International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel



# Financial institutions need to engage with Chinese fishing companies

Any change in incentives and therefore in subsidies matters for investors, given how significant subsidies are for profit generation.

## At least 45% of profits coming from subsidies

In 2022, the combined value of aquaculture and fishery (both domestic and distant-water fishing) in China reached 1,526.7 billion RMB (c. USD 221 billion),<sup>63</sup> with the Fishery Development Fund amounting to 10.6 billion RMB (c. USD 1.57 billion).<sup>64</sup>

It is challenging to calculate the combined impact of all subsidies on profit. By analysing the compliance subsidy based on active fishing days detected by Automatic Identification System (AIS), we found that this subsidy alone represents 8% of the total revenue, and 45% of the total gross profit generated by the industry – see Figure 23.

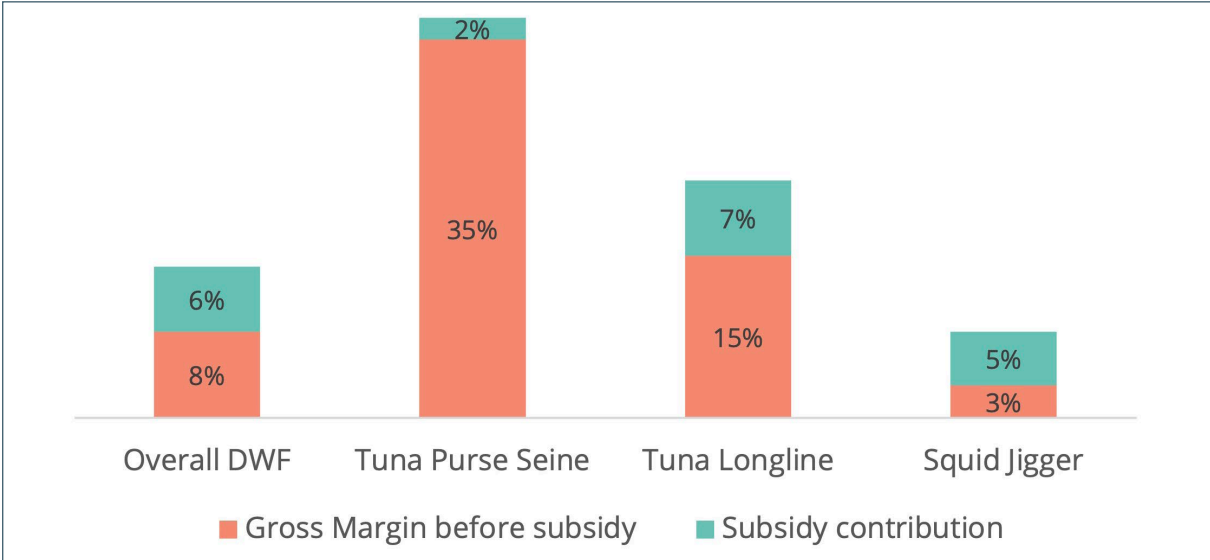
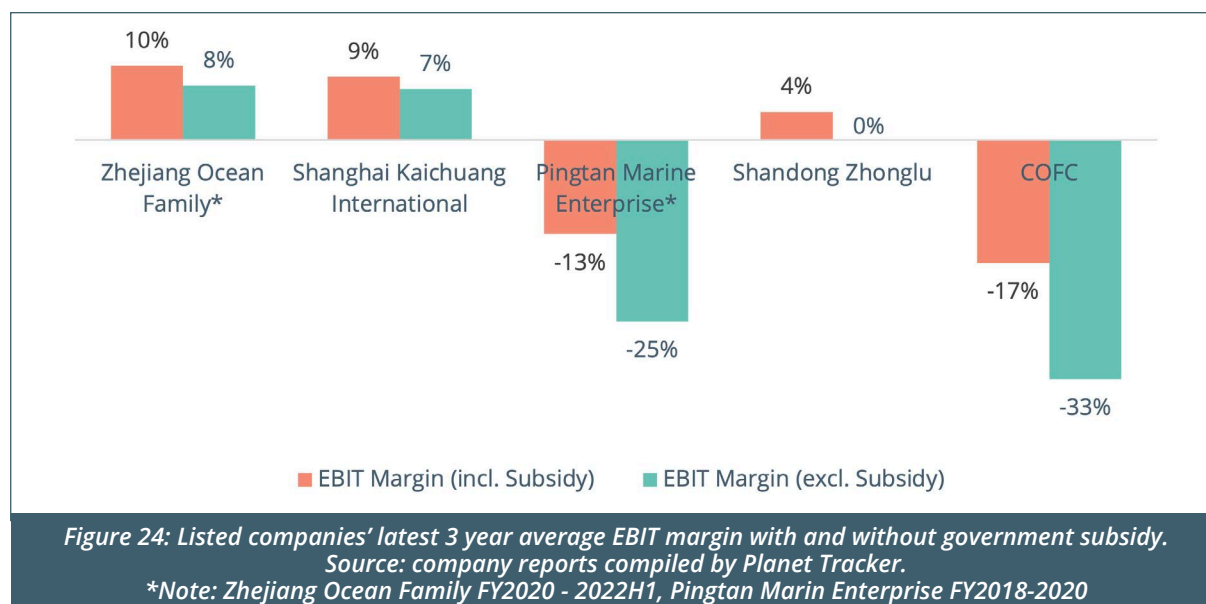


Figure 23: Average gross margin before subsidy of fishing vessels in 2022 and 2023 by target species, and subsidy contribution to the total gross margin. Source: Planet Tracker.

But other subsidies exist too: in addition to granting a corporate income tax exemption, and extending various concessionary loans to support marine fisheries, local governments also provide subsidies to each tonne of seafood harvested by distant-water fishing vessels and transported back to designated domestic ports. These range between RMB 600 and 1,800<sup>65</sup> per tonne of seafood (approximately USD 85 to USD 260) for ultra-low temperature longline caught high value tuna, RMB 200 to 1,300 for purse seiner caught tuna, and RMB 120 to 1,000 for other species including squid, depending on local policies.<sup>66</sup>

## A drop in subsidies ahead

Consider the case of the five publicly traded fishing enterprises. Each year, the total subsidy they receive accounts for an average of 11.4% of fishing revenue, based on company reports. If these subsidies were removed, the average EBIT margin (currently an average of -1.3% for the latest three reporting years) would drop by 7.3%pts – see Figure 24.



When the WTO Agreement on Fisheries Subsidies enters into force,<sup>j</sup> a significant part of this state support will disappear, weighing on companies' profits.

## Rebalancing subsidies towards traceability and transparency benefits companies

Overhauling the compliance subsidy calculations as suggested earlier would allow to mitigate this drop. Depending on the level of positive support decided in favour of transparency, traceability and sustainable sourcing, the net impact could even be positive on companies' profits.

In addition, as demonstrated in previous research, the implementation of traceability systems has the potential to substantially improve profits for companies (we estimated by 35% on average in the fishing sector), even if that implementation is not subsidised.<sup>67</sup>

As for increased transparency (i.e., the public disclosure of some of the data captured by fishing companies via traceability systems), it could also result in a net financial benefit for the Chinese distant-water fleet. This is likely to be the case if the increase in staff time needed to publish this information is more than offset by an improvement in brand image, enterprise valuation or decreased insurance or risk premia.<sup>k</sup>

It is therefore in the interest of financial institutions to support the rebalancing of subsidies towards traceability and transparent sourcing. This could be done at low cost, by rebalancing harmful subsidies (see next section and Planet Tracker's [research on observers](#)). Companies whose financials will be negatively impacted are those engaged in IUU fishing or other dubious practices, but investors are unlikely to want to be associated to these companies anyway.

<sup>j</sup> Once two-thirds of WTO members will have completed their domestic ratification processes

<sup>k</sup> Detailed calculator available upon request, see <https://planet-tracker.org/wp-content/uploads/2022/07/Carrefour-report.pdf> for more details

## A 'Hai Feng Bond' to mark the turnaround of the Chinese distant-water fleet

Both financial institutions and China need to act. For China, the launch of the 15<sup>th</sup> five-year plan (covering 2026-2030) would provide a perfect opportunity to announce these changes. For financial institutions, an investment opportunity that aligns their interests with that of the ocean and China could be such an option.

### The Hai Feng Bond

China could indeed issue a sovereign bond instrument aiming at funding the implementation of a 100% observer coverage and/or remote electronic monitoring and 100% traceability across its distant-water fleet. A combination of a blue bond (the proceeds would be used to fund increased monitoring and traceability in the ocean) and a sustainability-linked bond (the interest rate depends on the monitoring and traceability coverage reached), we call this instrument the Hai Feng Bond (Hai Feng/ 海丰债 means "Sea Abundance").

### The rationale

Only about 2% of the wild fish that is caught globally is monitored by fisheries observers.<sup>68</sup> These are people that work on fishing vessels, sometimes risking their lives to ensure that rules are respected. Observers are precious (they gather critical data used to assess and monitor fisheries), rare (one for every thousand motorised fishing vessels globally), and endangered (they can spot illegal activities and shockingly their death rate is high, including on board Chinese-owned fishing vessels).<sup>69</sup>

Planet Tracker [previously estimated](#) that this 2% global observer coverage could be multiplied by ten at a low cost, equivalent to only 1% of the harmful fisheries subsidies.<sup>70</sup> Given its heavy fleet of tuna longliners and squid jiggers (which are typically little monitored as per RFMO regulations)<sup>l,m</sup>, China showing voluntary ambition on reaching a 100% observer coverage would send a very strong signal that would most likely be emulated and help lead to improved coverage within RFMOs.

It would also help change the perception of the Chinese distant-water fleet, which is now generally negative outside of China, for environmental and social reasons. It would also help China demonstrate that it is taking monitoring and traceability seriously.

### The precedents

In 2022, Uruguay issued a sovereign sustainability-linked bond based on the concept of a deforestation-linked sovereign bond introduced by Planet Tracker.<sup>71</sup>

In the corporate world, a very similar concept exists already: in 2021, Thai Union issued three sustainability-linked bonds (SLBs), linked to three performance indicators, of which one was the percentage of fishing vessels equipped with either an electronic monitoring system or human observer. Thai Union recently announced it had achieved all three performance targets linked to these SLBs, which resulted in a 10bps coupon step-down across all three bonds – a first<sup>n</sup>.<sup>72</sup>

<sup>l</sup> Example: 5% observer coverage for longline vessels vs 100% for purse seiners in the WCPFC and IATTC, and 5% for jumbo flying squid in the SPRFMO.

<sup>m</sup> Meaning that bondholders received a coupon 0.10% lower than anticipated.

<sup>n</sup> Although two of the previous key performance indicators had been achieved prior to issuance

### **Pre-requirements: AIS, subsidy recalculation and change in legislation**

As mentioned earlier, a pre-requirement to ensure transparency of this initiative is to ensure that fishing vessels switch from Vessel Monitoring Systems (VMS) to Automatic Identification Systems (AIS) in order to qualify for subsidies as this would allow better public scrutiny of the fleet.

In addition, subsidies also need to be recalibrated to incentivise traceability and transparency: vessels demonstrating adherence to enhanced monitoring and reporting standards should receive higher subsidies, encouraging widespread compliance within the fleet.

Lastly, the changes in legislation mentioned earlier need to happen before the issuance of the bond, to ensure it is issued in a supportive and derisked legal framework (from the perspective of investors).

### **Use of proceeds**

The proceeds from the Hai Feng Bond will be allocated to fund the implementation of an observer programme, remote electronic monitoring program and traceability systems across the entirety of the Chinese distant water-fishing fleet (Chinese-flagged and Chinese-owned vessels). Achieving a 100% coverage rate would ensure comprehensive monitoring and data collection, strongly reducing IUU fishing risks, labour abuse and other forms of fisheries crimes, while de-risking seafood supply chains.

This should be done via an independent observer program, where observers are employed and managed by an independent organisation to maintain objectivity and credibility (i.e., not be employed or influenced by the Chinese central or provincial governments). This organisation will be responsible for training, deploying and compensating the observers, ensuring impartial oversight of fishing operations.

### **How much is needed?**

Based on an estimated average cost of [USD 400](#) per observer day, Planet Tracker previously estimated that monitoring 3.2 million tonnes of seafood globally cost USD 300 million per year, equivalent to USD 95 per tonne of seafood caught.<sup>73</sup> We also estimated that the investment necessary to implement traceability in the Asian fishing industry was USD 951 million for 48.1 million tonnes of seafood harvested, or USD 20 per tonne.<sup>74</sup> Assuming similar costs per tonne for a Chinese monitoring and traceability program, a three-year program covering the capex needed to implement traceability as well as three year worth of opex for the monitoring of the distant-water fishing fleet could cost a minimum of USD 711 million. Based on this simple estimate, a possible amount for the Hai Feng Bond could be RMB 5.5 billion (USD 759 million, including some additional costs – e.g., third party, verification, legal, etc.) – see Table 6.



*Table 6: Quantifying a potential Hai Feng Bond*

Chinese distant-water seafood production	2.33 million tonnes (2022)
Chinese distant-water fleet size	2,551 vessels (government data)
Estimated traceability investment	USD 20 per tonne
Minimum traceability investment needed	USD 47 million
Estimated monitoring cost	USD 95 per tonne per year
3-year monitoring opex	USD 664 million over three years
Minimum total cost of monitoring and traceability implementation programme	USD 711 million
<b>Illustrative amount of Hai Feng Bond</b>	<b>RMB 5.5 billion</b> (USD 759 million, or about RMB 2.1 million per vessel)

### Coupon structure

The bond features a coupon step-up mechanism, where the interest rate increases if the target of 100% observer and/or remote electronic monitoring coverage and traceability implementation is not met. Conversely, a step-down option could be considered if intermediate targets lower than 100% are achieved, providing financial incentives to meet or exceed goals.

### Third-party verification

All aspects of the program, including AIS implementation, observer programme conception and deployment, as well as data reporting need to be verified by an external third party, in a way that eliminates conflicts of interest.

### Challenges

There are numerous challenges for such a bond to be a success, as is often the case with new instruments.

The biggest one is that it requires a change in subsidies and additional legislation to support increased monitoring and traceability. China has often opposed calls for greater monitoring of the ocean, especially where its distant-water fleet operate, such as in the South Pacific, in search for squid.<sup>75</sup> Yet the country has recently started to crack down on the wrongdoings of its fleet more seriously than before.<sup>76</sup> But other challenges remain.

Given the current low base in terms of coverage, a 100% monitoring and traceability target could be seen as too ambitious. While China has a history on delivering on the targets it sets, such as stabilising the total number of distant-water fishing vessels and output,<sup>77</sup> the nature of these targets is often more suggestive, lacking stringent requirements and penalties for non-compliance. The absence of hard regulations means adherence to sustainable fishing practices remains voluntary, which may hinder consistent application of these standards across the industry.

The lack of ‘traceability-readiness’ of Chinese seafood is also a problem. In previous research, Planet Tracker estimated that only 6% of the country’s seafood production (including its colossal aquaculture industry) was traceability-ready,<sup>o</sup> whilst another 18% was not. For the remainder 76%, a lack of data availability prevented us from making an assessment.<sup>78</sup>

Trust by international financial institutions is another issue. Credible third-party verification and confirmation that the central and provincial governments are taking the overhaul of the subsidies program and the change in the legislative framework seriously is key to maximise this trust.

Geopolitical tensions are also problematic: the Chinese distant-water fishing fleet is sometimes closely associated with the Chinese navy, especially in areas subject to maritime border disputes.<sup>79</sup> This could make an objective of publicly disclosing the position of Chinese vessels via AIS – a satellite-based system ultimately controlled by Western interests- very naïve. However, vessel detection for military reasons is not reliant on AIS anyway but uses more performant technologies.

Nonetheless, these challenges can be mitigated and/or reflected in the risk profile of the bond. Unless China comes to the conclusion that securing food for its population at all costs<sup>80</sup> is more important than ensuring this supply of food remains available in the long-term by managing it sustainably.

**Possible term sheet**

To illustrate how a Hai Feng Bond could look, we provide the illustrative abbreviated term sheet below – see Table 7. In particular, we would expect the tenor to be short (e.g., three years). This is because most Chinese sustainable sovereign debt is short-dated – in 2023 64% of this debt matured before 2027.<sup>81</sup>

<i>Table 7: Example of abbreviated term sheet for a Hai Feng Bond</i>	
Issuer	People’s Republic of China
Title of security	Hai Feng Bond due 2031
Listing	Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE)
Tenor	3 years (August 8th, 2031)
Currency / Amount	RMB 5,500,000,000
Status	The Hai Feng bond will rank equal in right of payment with all of China’s existing and future unsecured and unsubordinated external indebtedness.
Principal and interest	Payable in RMB
Interest and payment dates	1.895% + [•] bps, where [•] indicates the level of specific risk
Coupon step-up/step-down	[••] bps step up if the performance target is not achieved, [•••] bps step-down if the interim target is exceeded
Performance target	100% observer coverage and traceability implementation on the Chinese distant-water fleet with interim target of 60% at the end of year 2
Use of proceeds	Implementation of third-party-verified monitoring and traceability programme on Chinese distant-water fleet
Governing law	The Hai Feng Bond is governed by the laws of the People’s Republic of China

<sup>o</sup> When existing data suggests that there are currently more incentives than disincentives for the harvester of the fish to be associated with its production

Yet despite a short tenor, the maturity of the bond would be relatively far away in the future (2031), one year after the end of the next five-year plan starting in 2026 since it requires considerable change before issuance and data collection and verification at the end of the bond programme to verify targets have been reached.

Overall, a Hai Feng Bond could be a landmark moment for China, symbolising the turnaround of an industry currently seen by many foreign observers as one of the largest sources of ocean health deterioration.<sup>82</sup>

### The Chinese distant-water fishing fleet needs to respect the rules

At the Chinese pavilion at the Seafood Expo Global 2024, out of the 130 Chinese seafood companies present,<sup>83</sup> no distant-water fishing company mentioned anything about sustainability or traceability in their promotional materials. Planet Tracker found one such claim, but it was from Qingdao Haoda Foods Co., Ltd, a seafood importer, exporter and processor – see Figure 25.



Figure 25: Selected booths of Chinese seafood companies at Seafood Expo Global 2024. Source: Planet Tracker.

Yet these companies' products make their way internationally. For instance, squid produced by Weihai Haibo Ocean Product Co., Ltd (pictured page 37) is purchased by at least five US- or Canada- based companies.<sup>84</sup>

Many of these international buyers have shown that they can react quickly to suspected wrongdoing at their Chinese suppliers. For instance, along with others like Sysco,<sup>85</sup> Ruggiero Seafood- one of the US clients of Weihai Haibo Ocean Product Co., Ltd - cut its ties with Chishan Group,<sup>86</sup> after the Outlaw Ocean Project accused this Chinese seafood group, responsible for 17% of the supply of processed squid in the US, of forced labour.<sup>87</sup>

For Chinese distant-water fishing companies, this means a loss of revenue if no action is taken to improve the situation. Chinese exports of seafood to the US were down by 21.6% in value in 2023.<sup>88</sup> Importantly, even companies not involved in any illegal activities or other wrongdoings could suffer, either due to reputation risk, or through increased regulation targeted against Chinese suppliers,<sup>89</sup> which could even potentially take the form of a ban.<sup>90</sup>

Properly implementing existing environmental and social rules and regulations is therefore a must for Chinese distant-water fishing companies if they want to avoid further financial hardship.

## Engagement throughout the supply chain

Companies further down the supply chain also need to ensure that the Chinese distant-water fishing fleet respect existing rules and regulations. It is in the interest of these companies to ensure that traceability is in place at their suppliers, which therefore need to be properly monitored.

### Going deeper #6: Could consumers shun squid if they were aware of related sustainability risks?

In the UK, sales of squid products took off sharply at the beginning of the 2010s,<sup>91</sup> mostly thanks to a trend of seafood-heavy Mediterranean-inspired diets.<sup>92</sup> Yet even at seafood sustainability-conscious UK food retailers such as Waitrose<sup>93</sup> or Marks and Spencer,<sup>94</sup> little is known or shared with consumers about the origin of the squid present in calamari rings or other productions. 'Caught in the Pacific Ocean'<sup>95</sup> or '*Dosidicus gigas*'<sup>96</sup> could well mean 'this product was caught by the Chinese distant-water fleet in relatively opaque conditions'. An increased awareness among consumers of the environmental and social impact associated with some of these squid products could well weigh on future sales.

From China to international investors, from the Chinese distant fleet to European supermarkets, all actors along the Chinese seafood supply chain have an interest in making sure the Chinese distant-water fleet respects existing rules and in helping improve these rules and incentives. In some cases, the associated environmental and social improvement can even be monetised.

The same goes for many African countries.

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p The scientific name of Humboldt squid, typically caught in the Eastern Pacific



## An African coalition to preserve marine natural capital

As mentioned [earlier](#), in addition to already trawling the waters of African coastal states, the Chinese distant-water fishing fleet is likely to also target tuna in many of these countries (Guinea-Bissau, Gambia, Madagascar, Mauritius, Mozambique, Senegal, Somalia, and South Africa) in the future. To avoid seeing their natural capital depleted without a proper compensation, these countries could raise their access fees and demand a significant improvement of environmental and social conditions in which the distant-water fishing fleet operates in return for access to their waters.

Rapidly forming a coalition could help these countries achieve this since research has showed it would allow them to collectively negotiate higher access fees and implement stricter management measures to control fishing activities in their waters.

This would eventually lead to a reduction in allowed catch, an increase in fish biomass, and an increase in government revenue.<sup>97</sup>

A coalition between African countries would also help them secure fairer agreements with EU distant-water fishing fleets, who are often accused of plundering these countries' waters.<sup>98 99 100</sup>

Crucially, in addition to only demanding higher access fees, such a coalition should also demand that access to its members' waters is conditional to respecting environmental and social conditions. This would contribute to the preservation of their natural capital, whilst ensuring sustainable use for fleets that access the countries' resources. In practice, these conditions should be as consistent as possible between countries and validated by an external third party.

For such a coalition to materialise and be effective, key next steps include:

- Find the best organisational framework to establish such a coalition<sup>q</sup>
- Adopt the measures recommended in the Coalition for Fisheries Transparency's 'Global Charter for Fisheries Transparency'
- Effectively implement the FAO Agreement on Port State Measures (and in the case of Guinea-Bissau, ratify it first).<sup>101</sup>

Of course, all of this costs money.

### Could (African) investors help secure a coalition to protect African waters?

Forming a coalition on fisheries that would in time improve monitoring efforts over several countries' waters is costly, both in political efforts and in monetary terms. If indeed the involved countries agree that this could help protect fish biomass and increase government revenue in the medium term, there could be a case of asking investors (possibly complemented by philanthropic money) for financial support to help form the coalition and deploy the necessary monitoring efforts to ensure it brings increased government revenue later. Such an increase in revenue could then be partly used to repay investors down the line, with the rest of the increase in proceeds benefitting local populations. A 2016 report estimated that developing and protecting Africa's fisheries could lead to around USD 3 billion (additional revenue and the creation of 300,000 jobs created).<sup>102</sup> And West Africa loses up to USD \$9.4 billion each year to IUU fishing.<sup>103</sup>

To minimise the risk of neo-colonialism, African investors would be best placed to lead on such an initiative.

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q None of the many organisations aimed at reinforcing cooperations between African countries is likely to be currently well adapted to be the vehicle through which such a coalition operates.

## Challenges abound, but a clear desire to regain possession of their waters exists in many African coastal states

Would China (or the EU) agree to the formation of such a coalition, or would they use their influence to undermine it?

China currently has a certain economic and political influence on the African countries identified as targets for its distant tuna fleet. But that influence is not greater than that it has on other African countries on average, or that it has on PNA countries – see Figure 26.

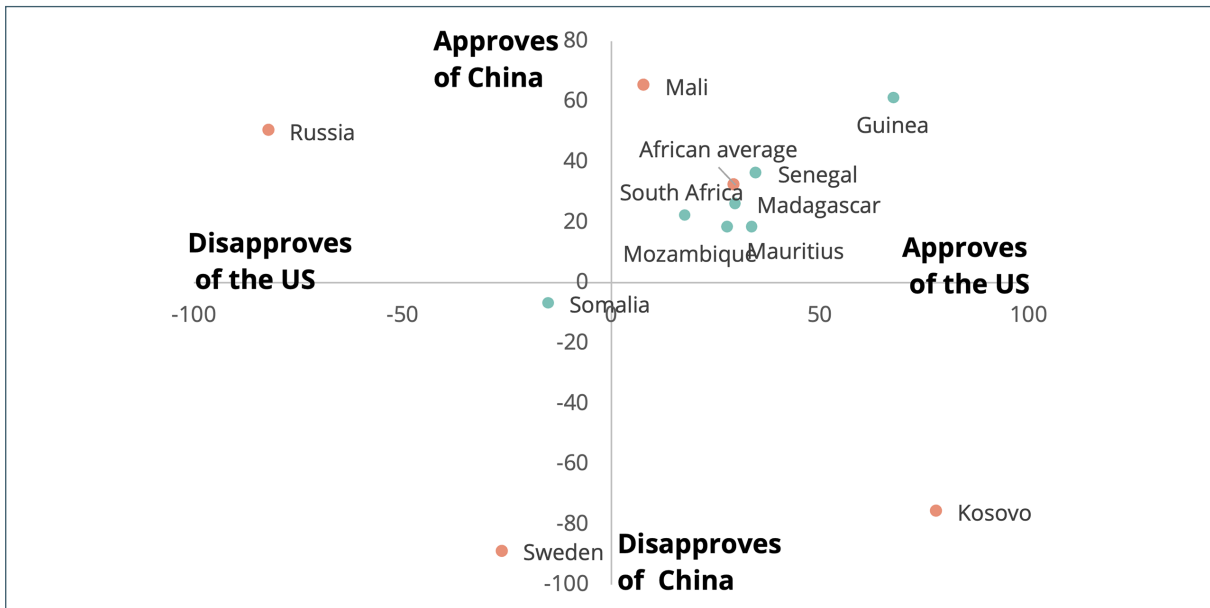


Figure 26: Approval score of China vs the US in African coastal countries potentially targets of the Chinese distant-water fishing tuna fleet (green dots). Source: Gallup, based on surveys in local populations. A score of +/-100 respectively means that everyone in the country approves of/disapproves of the US/China. Countries with highest/lowest approval scores and African average represented too for illustrative purposes.<sup>104</sup>

The economic influence China has on these countries is also comparable to that it currently has on PNA countries, or lower – see Figure 27.

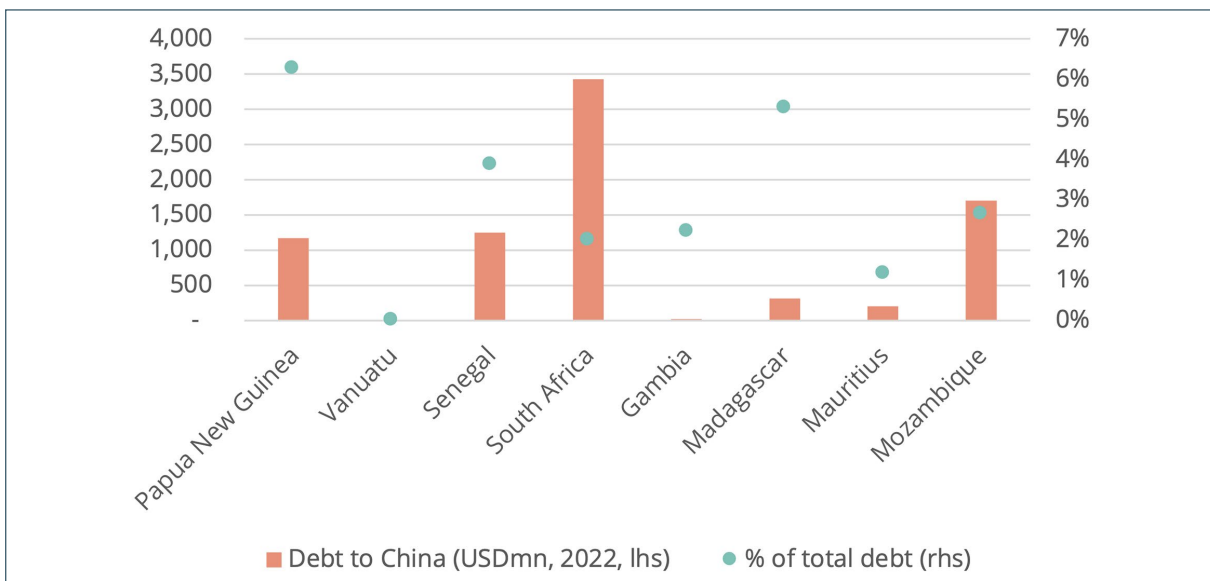


Figure 27: Debt to China for selected PNA countries and African coastal states. Source: World Bank.<sup>105</sup>

But as seen above, the influence of the West on these countries is comparable to that of China. And in many of these countries, EU-owned fleets benefit from arrangements ('Sustainable Fisheries Partnerships Agreements') that allow them to fish in African countries' waters: in 2015-2020, European companies have operated nearly 200 fishing vessels in Africa under these agreements, harvesting c. 285,000 tonnes of fish annually. The EU pays c. USD 91 million, while European fishing companies pay around USD 33 million in annual access fees.<sup>106</sup>

Yet with mounting evidence that both EU and Chinese fleet exploit African waters while paying only a limited share of the value of the seafood caught, many countries want to renegotiate the terms of these deals.<sup>107</sup> For instance, Senegal's new president was elected in March 2024 on a program that included proposing to suspend the Sustainable Fisheries Partnership Agreement with the EU.<sup>108</sup>

Other key challenges include the possibility that vessels reflag as being domestic (in that case they could not be charged an access fee). For instance, after the EU-Senegal deal expired in 2006, many Spanish-owned vessels reflagged as Senegalese, in order not to be subject to EU regulations or future fisheries deals any longer.<sup>109</sup>

In addition, whilst PNA countries have a clear focus on tuna species, African fisheries involve many non-tuna species, making it harder to create and sustain such a coalition compared to how it was in the Pacific. Existing regional blocs that cooperate on fisheries issues (the Sub-Regional Fisheries Commission in West Africa, ATLAFCO across the whole western African coast, and the Southwest Indian Ocean Fisheries Commission) have established minimum standards on access agreements or planning to do so, but adherence to these standards is weak.<sup>110</sup>





## Conclusion

This report found that the large-scale environmental and social harm caused by the Chinese distant-water fishing fleet can partly be explained by its mediocre financial health, with an average 14% gross margin, of which 45% at least comes from subsidies. As climate change is poised to weigh on future profits and subsidies are likely to shrink once the WTO Agreement enters into force, the situation is likely to get worse.

There is a solution: China needs to overhaul the calculations that drive its 'compliance subsidy', a key component of its incentive system, in order to adequately reward traceability, transparency and monitoring, and properly penalise environmental and social damage in the distant-water fishing fleet. Depending on the level of positive support decided in favour of transparency, traceability and sustainable sourcing, the net impact could be positive on companies' profits.

To achieve that, China also needs to change the rules, to ensure they are aligned with the new incentive system.

Financial institutions need to support this transition by engaging with companies and governments on transparency, traceability, monitoring, sustainable sourcing, and labour issues in order to de-risk supply chains and improve future profits.

A new blue sustainability-linked sovereign bond issued by China could help align incentives of the government and investors, while funding the above transition.

In parallel, to avoid seeing their natural capital being depleted, African coastal states need to significantly raise their access fees and condition access to sustainability credentials. Forming a coalition could help achieve this, and investors could help fund it.

None of these solutions are easy to implement, and might sound like wishful thinking to some. But the status quo does not benefit anyone, certainly not the ocean. It needs to change.



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# References

- 1 SeaAroundUs
- 2 FAO SOFIA 2024
- 3 SeaAroundUs
- 4 White Paper on Development of China's Distant-Water Fisheries, released on October 24, 2023
- 5 <https://ejfoundation.org/reports/tide-of-injustice-exploitation-and-illegal-fishing-on-chinese-vessels-in-the-south-west-indian-ocean>
- 6 <https://www.pnas.org/doi/full/10.1073/pnas.1616583114>
- 7 <https://www.sciencedirect.com/science/article/abs/pii/S0308597X12001224>
- 8 Overseas Development Institute, "China's Distant-Water Fishing Fleet: Scale, Impact and Governance," Miren Gutierrez et al., (2020)
- 9 [https://www.stimson.org/wp-content/uploads/2023/09/final2\\_REPORT\\_Charting-a-Blue-Future\\_STIMSON-09-14-2023.pdf](https://www.stimson.org/wp-content/uploads/2023/09/final2_REPORT_Charting-a-Blue-Future_STIMSON-09-14-2023.pdf)
- 10 Global Fishing Watch, compiled by Planet Tracker
- 11 <https://www.qcc.com/>
- 12 <https://www.fishsource.org/>
- 13 <https://en.mercopress.com/2020/04/28/argentina-s-eez-flooded-by-chinese-jiggers-catching-tons-of-squid>
- 14 <https://insightcrime.org/investigations/argentina-plunder-danger-atlantic-sea-shelf-iuu-fishing/>
- 15 <https://www.theguardian.com/environment/2021/jun/02/fishing-fleets-go-dark-suspected-illegal-hunting-study>
- 16 [http://www.moa.gov.cn/govpublic/CYZCFG/202201/t20220127\\_6387842.htm](http://www.moa.gov.cn/govpublic/CYZCFG/202201/t20220127_6387842.htm)
- 17 <https://www.sse.net.cn/index/singleIndex?indexType=ccri>
- 18 <https://www.crewcn.com/zhaopin/>
- 19 Zhejiang Ocean Family Co.,Ltd. [https://pdf.dfcfw.com/pdf/H2\\_AN202106281500540089\\_1.pdf](https://pdf.dfcfw.com/pdf/H2_AN202106281500540089_1.pdf)
- 20 <https://ejfoundation.org/reports/murky-waters>
- 21 <https://planet-tracker.org/wp-content/uploads/2021/07/Observers-Briefing-Paper.pdf>
- 22 <https://www.science.org/doi/10.1126/sciadv.add8125>
- 23 [https://www.fishsource.org/stock\\_page/1186](https://www.fishsource.org/stock_page/1186)
- 24 <https://www.seafoodsource.com/news/premium/environment-sustainability/uptick-in-unregulated-squid-fisheries-increase-concern-over-resource-overexploitation>
- 25 [https://news.mongabay.com/2023/03/fishy-business-of-squid-vessels-needs-stronger-regulation-study-says/#:~:text=While%20some%20research%20suggests%20that,argininus\)%20in%20the%20Southwest%20Atlantic.](https://news.mongabay.com/2023/03/fishy-business-of-squid-vessels-needs-stronger-regulation-study-says/#:~:text=While%20some%20research%20suggests%20that,argininus)%20in%20the%20Southwest%20Atlantic.)
- 26 [https://www.wto.org/english/tratop\\_e/rulesneg\\_e/fish\\_e/fish\\_e.htm](https://www.wto.org/english/tratop_e/rulesneg_e/fish_e/fish_e.htm)
- 27 <https://www.seafoodsource.com/news/environment-sustainability/falklands-fisheries-rep-calls-for-creation-of-southern-atlantic-rfmo>
- 28 Bell, J.D., Senina, I., Adams, T. et al. Pathways to sustaining tuna-dependent Pacific Island economies during climate change. *Nat Sustain* 4, 900–910 (2021)
- 29 Bell, J.D., Senina, I., Adams, T. et al. Pathways to sustaining tuna-dependent Pacific Island economies during climate change. *Nat Sustain* 4, 900–910 (2021)
- 30 Erauskin-Extramiana, M. et al., 2023, Implications for the global tuna fishing industry of climate change-driven alterations in productivity and body sizes, *Global and Planetary Change*, Volume 222, 2023, 104055, ISSN 0921-8181, <https://doi.org/10.1016/j.gloplacha.2023.104055>.
- 31 <https://doi.org/10.1038/s41467-023-42886-z>

- 32 <https://www.oceansfutures.org/>
- 33 Englander, G., Costello, C. A fish cartel for Africa. Nat Commun 14, 7124 (2023). <https://doi.org/10.1038/s41467-023-42886-z>
- 34 <https://www.theguardian.com/world/2021/jun/16/the-mice-that-roared-how-eight-tiny-countries-took-on-foreign-fishing-fleets>
- 35 <https://www.pnatuna.com/content/tae-decisions-and-advisories>
- 36 <https://pitiviti.org/storage/dm/2022/11/rmi-fy22-brief-final-sep2022-digital-remediated-20221107214523802.pdf>
- 37 <https://www.wcpfc.int/transshipment-regulation>
- 38 [https://www.iattc.org/GetAttachment/241076b4-3ac9-4ead-91f9-1665a9e39ae9/C-22-03\\_Amendment-C-12-07-Transshipments.pdf](https://www.iattc.org/GetAttachment/241076b4-3ac9-4ead-91f9-1665a9e39ae9/C-22-03_Amendment-C-12-07-Transshipments.pdf)
- 39 [https://www.europarl.europa.eu/RegData/etudes/STUD/2022/733101/IPOL\\_STU\(2022\)733101\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2022/733101/IPOL_STU(2022)733101_EN.pdf)
- 40 <https://cmm.wcpfc.int/measure/cmm-2009-06>
- 41 Zhejiang Ocean Family Co.,Ltd. [https://pdf.dfcfw.com/pdf/H2\\_AN202106281500540089\\_1.pdf](https://pdf.dfcfw.com/pdf/H2_AN202106281500540089_1.pdf)
- 42 COFC major asset purchase and transaction independent financial advisor report CICC . [https://file.finance.sina.com.cn/211.154.219.97:9494/MRGG/CNSESZ\\_STOCK/2023/2023-6/2023-06-15/9291949.PDF](https://file.finance.sina.com.cn/211.154.219.97:9494/MRGG/CNSESZ_STOCK/2023/2023-6/2023-06-15/9291949.PDF)
- 43 Zhejiang Ocean Family prospectus. [https://file.finance.sina.com.cn/211.154.219.97:9494/MRGG/CNSESH\\_STOCK/2023/2023-3/2023-03-03/8865803.PDF](https://file.finance.sina.com.cn/211.154.219.97:9494/MRGG/CNSESH_STOCK/2023/2023-3/2023-03-03/8865803.PDF)
- 44 [https://treaties.un.org/doc/Treaties/2023/06/20230620%2004-28%20PM/Ch\\_XXI\\_10.pdf](https://treaties.un.org/doc/Treaties/2023/06/20230620%2004-28%20PM/Ch_XXI_10.pdf)
- 45 Planet Tracker estimate based on conversations with experts
- 46 <https://czt.hunan.gov.cn/czt/sqczczc/202111/21027495/files/4ab7439bf92742c98e662b0dc74d11a3.pdf>
- 47 <https://www.iisd.org/system/files/2024-05/world-trade-organization-fisheries-subsidies-update.pdf>
- 48 [http://www.moa.gov.cn/govpublic/CWS/202205/t20220512\\_6399051.htm](http://www.moa.gov.cn/govpublic/CWS/202205/t20220512_6399051.htm)
- 49 [https://www.moa.gov.cn/govpublic/YYJ/202203/t20220321\\_6393084.htm#:~:text=%E4%B8%BA%E8%BF%9B%E4%B8%80%E6%AD%A5%E6%8F%90%E9%AB%98%E8%BF%9C%E6%B4%8B,%E4%B8%9A%E5%B1%A5%E7%BA%A6%E8%AF%84%E4%BC%B0%E5%B7%A5%E4%BD%9C%E3%80%82](https://www.moa.gov.cn/govpublic/YYJ/202203/t20220321_6393084.htm#:~:text=%E4%B8%BA%E8%BF%9B%E4%B8%80%E6%AD%A5%E6%8F%90%E9%AB%98%E8%BF%9C%E6%B4%8B,%E4%B8%9A%E5%B1%A5%E7%BA%A6%E8%AF%84%E4%BC%B0%E5%B7%A5%E4%BD%9C%E3%80%82)
- 50 [http://www.moa.gov.cn/govpublic/CWS/202205/t20220512\\_6399051.htm](http://www.moa.gov.cn/govpublic/CWS/202205/t20220512_6399051.htm)
- 51 [https://www.reuters.com/business/environment/china-ratifies-wto-deal-fisheries-subsidies-2023-06-27/#:~:text=GENEVA%2C%20June%2027%20\(Reuters\),trade%20watchdog%20said%20on%20Tuesday.](https://www.reuters.com/business/environment/china-ratifies-wto-deal-fisheries-subsidies-2023-06-27/#:~:text=GENEVA%2C%20June%2027%20(Reuters),trade%20watchdog%20said%20on%20Tuesday.)
- 52 [http://www.moa.gov.cn/nybg/2019/201911/202001/t20200110\\_6334727.htm](http://www.moa.gov.cn/nybg/2019/201911/202001/t20200110_6334727.htm)
- 53 [http://www.moa.gov.cn/nybg/2019/201911/202001/t20200110\\_6334727.htm](http://www.moa.gov.cn/nybg/2019/201911/202001/t20200110_6334727.htm)
- 54 <https://www.science.org/doi/10.1126/sciadv.add8125>
- 55 <http://www.moa.gov.cn/govpublic/YYJ/202011/P020201121409928539645.pdf>
- 56 <http://www.haimen.gov.cn/hmsnyj/gggs/content/8bc44e47-aea5-4751-9a80-8c032628aed4.html>
- 57 <https://fisheriestransparency.net/monitoring-vessels-at-sea-a-crucial-first-step-to-achieving-transparency-in-fisheries/>
- 58 <https://fisheriestransparency.net/monitoring-vessels-at-sea-a-crucial-first-step-to-achieving-transparency-in-fisheries/>
- 59 <https://thegdst.org/>
- 60 [https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100\\_ILO\\_CODE:C188%20](https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C188%20)
- 61 <https://www.imo.org/en/MediaCentre/HotTopics/Pages/CapeTownAgreementForFishing.aspx#:~:text=What%20is%20the%202012%20Cape,or%20equivalent%20in%20gross%20tons.>
- 62 <https://www.imo.org/en/ourwork/humanelement/pages/stcw-f-convention.aspx>
- 63 [http://www.yyj.moa.gov.cn/kjzl/202306/t20230628\\_6431131.htm](http://www.yyj.moa.gov.cn/kjzl/202306/t20230628_6431131.htm)
- 64 [https://yss.mof.gov.cn/2022zyjs/202308/t20230825\\_3904170.htm](https://yss.mof.gov.cn/2022zyjs/202308/t20230825_3904170.htm)

- 65 [https://pnr.sz.gov.cn/xxgk/zcwj/gfxwj2/content/post\\_10582810.html](https://pnr.sz.gov.cn/xxgk/zcwj/gfxwj2/content/post_10582810.html)
- 66 <http://www.zsdwf.com/shownews2.asp?newsid=1162>
- 67 <https://planet-tracker.org/wp-content/uploads/2022/09/How-to-Trace-USD600-billion.pdf>
- 68 <https://planet-tracker.org/wp-content/uploads/2021/07/Observers-Briefing-Paper.pdf>
- 69 <https://planet-tracker.org/wp-content/uploads/2021/07/Observers-Briefing-Paper.pdf>
- 70 <https://planet-tracker.org/wp-content/uploads/2021/07/Observers-Briefing-Paper.pdf>
- 71 <https://planet-tracker.org/uruguays-new-financial-instrument-to-combat-deforestation-references-planet-trackers-recommendations/>
- 72 <https://anthropocenefii.org/slb/thai-union-meets-its-first-slb-target-like-shooting-fish-in-a-barrel>
- 73 <https://planet-tracker.org/wp-content/uploads/2021/07/Observers-Briefing-Paper.pdf>
- 74 <https://planet-tracker.org/wp-content/uploads/2022/09/How-to-Trace-USD600-billion.pdf>
- 75 <https://www.undercurrentnews.com/2021/02/09/catch-limits-dispute-leaves-giant-squid-fishery-without-new-rules/>
- 76 <https://www.rusi.org/explore-our-research/publications/commentary/cracking-down-chinas-distant-water-fishing-fleet-what-impacts-closer-home>
- 77 White Paper on Development of China's Distant-Water Fisheries, released on October 24, 2023
- 78 <https://planet-tracker.org/wp-content/uploads/2022/09/How-to-Trace-USD600-billion.pdf>
- 79 [https://www.oni.navy.mil/Portals/12/reading\\_room/20210616\\_Congressional%20Report\\_Final%20-%20%2019AUG21.pdf](https://www.oni.navy.mil/Portals/12/reading_room/20210616_Congressional%20Report_Final%20-%20%2019AUG21.pdf)
- 80 The Grab (2024), Gabriela Cowperthwaite
- 81 [https://www.climatebonds.net/files/reports/china\\_sustainable\\_debt\\_state\\_of\\_the\\_market\\_report\\_2023.pdf](https://www.climatebonds.net/files/reports/china_sustainable_debt_state_of_the_market_report_2023.pdf)
- 82 See e.g. Environmental Justice Foundation (2022). Global Impact Of Illegal Fishing And Human Rights Abuse In China's Vast Distant Water Fleet Revealed
- 83 <https://www.seafoodsource.com/news/supply-trade/cappma-vice-president-wang-xueguang-china-s-seafood-exports-will-grow-7-to-8-percent-in-2024>
- 84 <https://importkey.com/i/weihai-haibo-ocean-product-co-ltd>
- 85 <https://www.seafoodsource.com/news/supply-trade/sysco-called-out-for-sourcing-seafood-from-chinese-processors-accused-of-using-uyghur-labor>
- 86 <https://www.seafoodsource.com/news/supply-trade/ruggiero-seafood-cuts-ties-with-chishan-group>
- 87 <https://www.seafoodsource.com/news/premium/supply-trade/outlaw-ocean-project-reveals-additional-information-on-uyghur-labor-as-some-implicated-companies-remain-silent>
- 88 <https://www.seafoodsource.com/news/supply-trade/cappma-vice-president-wang-xueguang-china-s-seafood-exports-will-grow-7-to-8-percent-in-2024>
- 89 <https://www.seafoodsource.com/news/premium/supply-trade/european-union-mulling-crackdown-on-chinese-exports>
- 90 <https://www.intrafish.com/trade/growing-number-of-us-lawmakers-demanding-ban-on-seafood-imports-from-china/2-1-1569320>
- 91 <https://www.seafoodsource.com/news/foodservice-retail/waitrose-s-squid-sales-skyrocket>
- 92 <https://www.independent.co.uk/life-style/food-and-drink/features/squid-treasure-of-the-deep-2036770.html>
- 93 <https://www.waitrose.com/ecom/content/sustainability/responsible-sourcing/fish-and-seafood#:~:text=We%20work%20only%20with%20well,with%20respect%20for%20the%20environment.>
- 94 [https://corporate.marksandspencer.com/sites/marksandspencer/files/2022-08/ms\\_sourcing\\_standard\\_seafood.pdf](https://corporate.marksandspencer.com/sites/marksandspencer/files/2022-08/ms_sourcing_standard_seafood.pdf)
- 95 See for instance: <https://www.ocado.com/products/m-s-chargrilled-calamari-rings-516009011>
- 96 <https://www.waitrose.com/ecom/products/true-tide-salt-pepper-squid/803180-813766-813767>



- 97 <https://doi.org/10.1038/s41467-023-42886-z>
- 98 <https://theconversation.com/african-countries-must-protect-their-fish-stocks-from-the-european-union-heres-how-177095>
- 99 <https://thebftonline.com/2023/11/23/the-dark-seas-of-deceptionunmasking-eu-fisheries-in-west-africas-troubled-waters/>
- 100 <https://www.theguardian.com/environment/2021/mar/05/eu-accused-of-neocolonial-plundering-of-tuna-in-indian-ocean>
- 101 <https://www.fao.org/port-state-measures/background/parties-psma/en/>
- 102 <http://www.africaprogresspanel.org/300000-new-jobs-if-western-africa-invests-in-fisheries-industry-new-report/>
- 103 <https://financialtransparency.org/wp-content/uploads/2022/10/FTC-fishy-Network-OCT-2022-Final.pdf>
- 104 <https://news.gallup.com/poll/644753/china-winning-hearts-minds.aspx>
- 105 <https://datatopics.worldbank.org/debt/ids/countryanalytical/gnb/counterpartarea/wld#>
- 106 <https://news.mongabay.com/2024/05/to-renew-or-not-to-renew-african-nations-reconsider-eu-fishing-deals/#:~:text=Under%20the%20deals%2C%20called%20Sustainable,the%20African%20countries%20get%20cash.>
- 107 <https://news.mongabay.com/2024/05/to-renew-or-not-to-renew-african-nations-reconsider-eu-fishing-deals/#:~:text=Under%20the%20deals%2C%20called%20Sustainable,the%20African%20countries%20get%20cash.>
- 108 [https://www.lemonde.fr/afrique/article/2024/03/20/senegal-bassirou-diomaye-faye-le-plan-b-d-ousmane-son-ko\\_6223100\\_3212.html](https://www.lemonde.fr/afrique/article/2024/03/20/senegal-bassirou-diomaye-faye-le-plan-b-d-ousmane-son-ko_6223100_3212.html)
- 109 <https://news.mongabay.com/2024/05/to-renew-or-not-to-renew-african-nations-reconsider-eu-fishing-deals/>
- 110 <https://news.mongabay.com/2024/05/to-renew-or-not-to-renew-african-nations-reconsider-eu-fishing-deals/>



## ABOUT PLANET TRACKER

Planet Tracker is an award-winning non-profit financial think tank aligning capital markets with planetary boundaries. Created with the vision of a financial system that is fully aligned with a net-zero, resilient, nature positive and just economy well before 2050, Planet Tracker generates break-through analytics that reveal both the role of capital markets in the degradation of our ecosystem and show the opportunities of transitioning to a zero-carbon, nature positive economy.

## OCEAN PROGRAMME

Planet Tracker's Ocean Programme investigates the impact that financial institutions can have on sustainable corporate practices through their funding of publicly listed wild-catch and aquaculture companies. Our aim is to align capital markets with the sustainable management of ocean and coastal marine resources.

Ocean Programme is a part of the wider Planet Tracker Group of Initiatives.

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