DO YOU IUU?

AN ACTIONABLE TOOLKIT TO ASSESS THE RISK OF ILLEGAL, UNREPORTED, UNREGULATED (IUU) FISHING IN INVESTORS' PORTFOLIOS

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Key Takeaways

- Publicly listed companies can undertake **Illegal, Unreported, Unregulated (IUU)** fishing. Planet Tracker found three publicly listed companies presumed to have engaged in IUU fishing.
- Stock exchanges provide investors with little protection against IUU fishing - see page 5. Except for Tokyo, the key stock exchanges exposed to IUU risk have limited regulatory power. Due diligence by investors remains crucial.
- To help investors assess the risk of IUU fishing by listed entities, Planet Tracker provides an **IUU Detection Toolkit** which allows investors to check for potential IUU red flags. A high number of red flags should raise suspicions.
- The toolkit is available either **online** or as Table 3 on page 14. Investors looking for a rapid check should initially focus on the seven 'Highly important' red flags highlighted in red.
- Our online interactive toolkit helps investors compute an IUU score for any listed fishing company. For example, applying our toolkit to Pingtan Marine Enterprise, a company listed in New York (Nasdaq), reveals a high number of red flags with an IUU score of 72% (100% is the riskiest).
- IUU fishing is often associated with other crimes (e.g. money laundering or human trafficking) that can have serious legal and financial repercussions. For instance, since Pingtan was publicly accused of fraudulent activities including IUU fishing, it has lagged the S&P 500 by 93%.

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BRIEFING PAPER
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Fishy Businesses

Illegality and fisheries can be divided into three distinct but overlapping groups - see Figure 1:

IUU fishing (fishing that is illegal, unreported and/or unregulated – see full definition in Appendix 2) is criminality in seafood production.

Fisheries-related crime is closely linked to IUU fishing but not directly linked to seafood production. Examples of fishery-related crime include forged licences, tax crimes, money laundering or inappropriate working conditions.

Finally, the most severe and broadest **crimes associated with the fisheries sector** require, or are facilitated by, fishing vessels or use fishing companies as a front. They can include drugs, human or arms trafficking and piracy.[i]

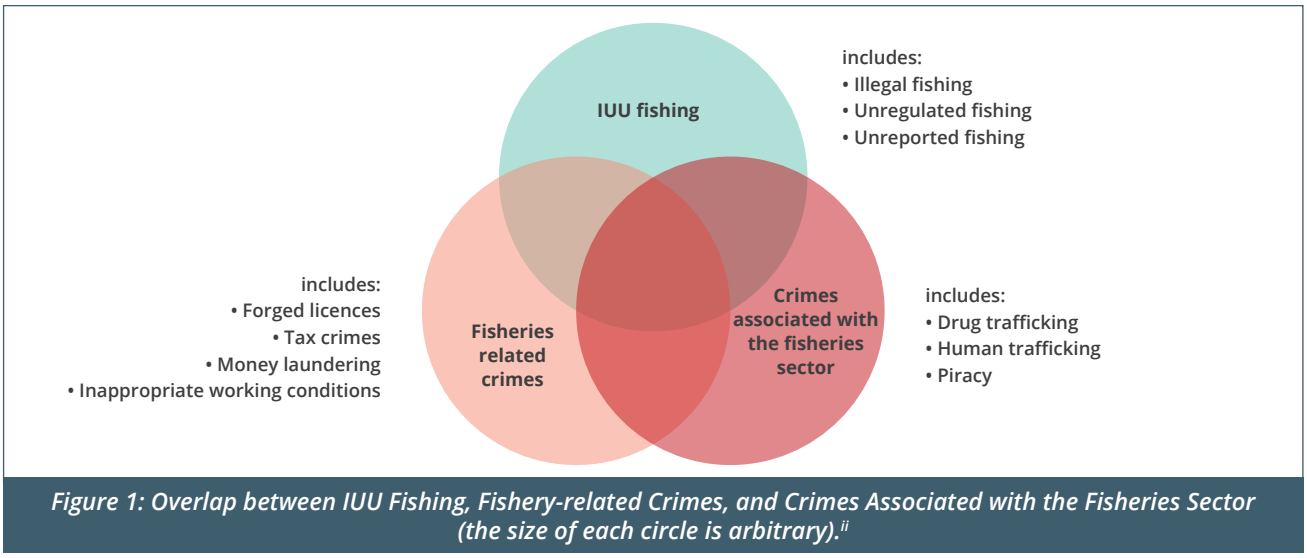


Figure 1: Overlap between IUU Fishing, Fishery-related Crimes, and Crimes Associated with the Fisheries Sector (the size of each circle is arbitrary).[ii]

As wild fish populations decline, companies are looking for novel ways to decrease operating costs to maintain profit margins.[iii] Falling revenues, very largely due to declining fish stocks, coupled with a growing demand for cheap seafood and higher operational costs, have created powerful economic forces, driving down profits in many fisheries and leading to increased abuse of crews.[iv] This means that as seafood production becomes more expensive, IUU fishing or slave labour are likely to become more common[v] as some companies look for illicit ways to supplement revenue. Besides these economic incentives, weak governance and barriers to enforcement are the other key drivers of IUU fishing.[vi]

The Bulk of IUU Fishing comes from Industrial Fleets

Estimating the scale of IUU fishing is difficult by nature. The most often-quoted global estimate is based on data from 2005 and focuses on industrial-scale fisheries.[vii] It suggests that the annual global IUU catch is between 11 million and 26 million tonnes of fish, with a value of USD 10 billion to USD 23 billion. On that basis, IUU fishing is estimated to account for up to 20% of the world's catch.

Reconstructed catches from the Sea Around Us database estimate the gap between reported data by the FAO[1] and total catches (including IUU catches) at 28 million tonnes in 2018, about the same as the total reported catches of China, Japan, Russia, the US and India combined.[viii]

These 28 million tonnes account for an additional 35% of the catch volumes reported by the FAO.[ix] Put differently, **unreported catches accounted for 26% of global catches** in 2018 (i.e. reported and unreported catches).

Although these unreported catches include difficult-to-track sources, such as subsistence or recreational fishing, the vast majority in absolute tonnage comes from industrial fleets - see Table 1

Table 1: Estimated Breakdown of Reported and Unreported Catches (2018).[x]

In tonnes	Reported	Unreported	Unreported/(Reported + Unreported)	Split of Unreported by Type
Landings	80,992,260	19,773,571	20%	
Discards	20,506	8,549,470	100%	
All catches	**81,012,766**	**28,323,041**	**26%**	**100%**
Industrial	61,251,112	19,677,398	24%	69%
Subsistence	458,819	1,947,710	81%	7%
Artisanal[2]	19,280,630	5,768,875	23%	20%
Recreational	22,205	929,057	98%	3%

[1] The Food and Agriculture Organization

[2] Traditional fisheries involving fishing households (as opposed to commercial companies), using relatively small amount of capital and energy, relatively small fishing vessels (if any), making short fishing trips, close to shore, mainly for local consumption (FAO definition).

Listed Entities Are Exposed to IUU Fishing

69% of unreported catches are estimated to come from industrial fleets. Industrial fleets are operated by both private and listed entities. In this paper, we focus on listed companies, but our key findings and detection toolkit are also applicable to private companies.

There is probably a general expectation that listed companies, which are exposed to more disclosure than private ones, are unable to undertake illegal activities, like illegal fishing, while listed on a recognised stock exchange.

This is false: listed companies may knowingly or unknowingly be involved in illegal activities – see Box 1.

Box 1: Tracking Listed Entities on IUU Vessel Lists

Planet Tracker scanned the list of all vessels present on the Combined IUU Fishing Vessel List, a consolidated listing of all the main IUU vessel lists established by Regional Fisheries Management Organisations (RFMOs).[xi] This tool does not exhaustively list all vessels that are engaged, or that are presumed to have engaged, in IUU fishing – some are not detected, some co-operate with the authorities and some operate outside of the remit of RFMOs.[xii]

As of July 2021, information on the ownership of these vessels was available for 141 of them, accounting for 44% of the number of vessels on the list. One of these companies (CNFC Overseas Fisheries Company, Ltd, is publicly-listed (in Shenzhen). See page 6 for more details.

This does not, however, mean that other vessels were not linked to listed entities: they could be associated with, affiliated to, or subsidiaries of, listed entities. Because vessels on the Combined IUU Fishing Vessels List only represent the tip of the iceberg (namely the known vessels presumed to be engaged in, have been engaged in, or supporting, IUU fishing), it is likely that more listed entities are involved in IUU fishing.

There are other instances of vessels belonging to listed companies being accused of IUU fishing, without inclusion on IUU lists. For instance:

- **Pingtan Marine Enterprise**, listed in New York (Nasdaq) was accused of illegal fishing by the US Department of State (see page 19).
- **Dongwon Industries**, listed in Seoul, agreed in 2013 to pay USD 2 million to the Liberian government for reportedly illegally fishing its waters over two years. Dongwon Industries claim they were fraudulently sold a forged licence by the agent hired to secure licenses from the Liberian government and they subsequently took legal action against the agent concerned (Dongwon has informed us this case was settled out of court).[xiii]

Case study: CNFC Overseas Fisheries Corporation

According to analysis by non-profit research organisation C4ADS, the vessel Hua Li 8 was observed illegally fishing in Argentina's exclusive economic zone (EEZ) in February 2016. Upon discovery, the vessel fled Argentine waters, eventually being apprehended in Indonesia on the 22 April 2016. The vessel was owned by Zhoushan Huali Ocean Fisheries, a subsidiary of the Shenzhen-listed CNFC Overseas Fisheries Corporation.

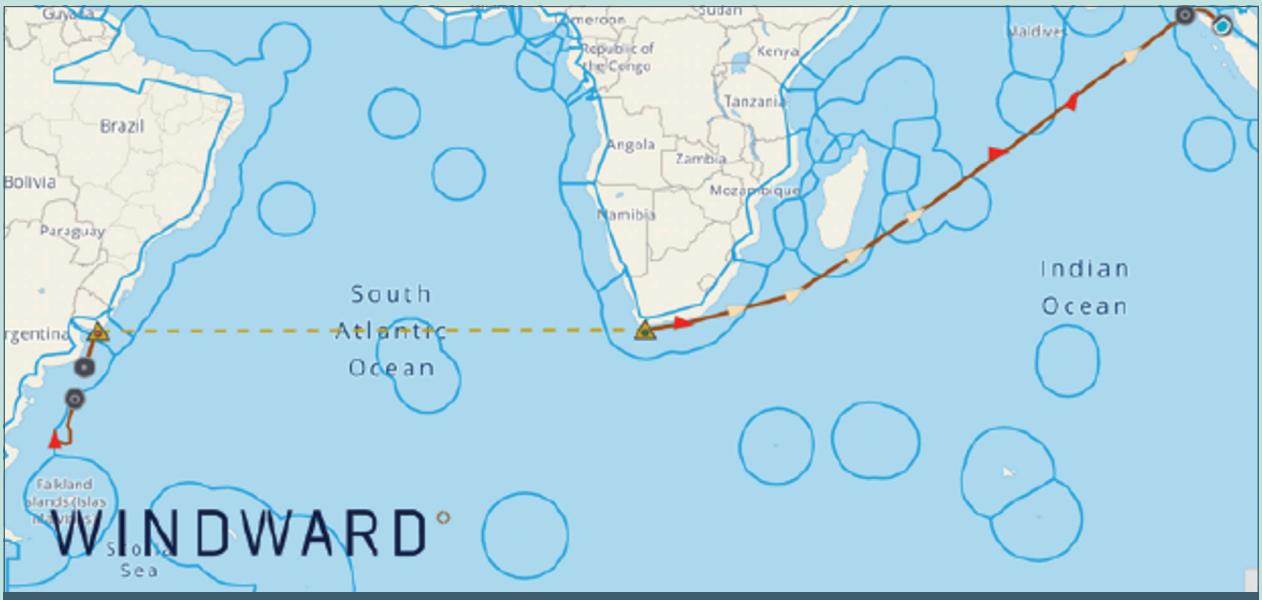


*Figure 2: HUA LI 8 flees South American waters, February 19, 2016 – April 30, 2016 Source, Windward. *Solid red lines indicate confirmed AIS positions, orange dotted line indicated projected travel when AIS systems are inactive.*[xiv]

Upon seizure, the 29 crewmen were arrested and the company was fined over USD 170,000, a fine representing less than 2% of the parent company's sales for that year.[xv]

An Indonesian task force created in 2015 to combat illegal fishing revealed mistreatment of the four Indonesian crew members, indicating issues of forced labour.[xvi]

Another vessel belonging to CNFC Overseas Fisheries Corporation, SHUN CHANG NO. 3, 顺昌3号, is currently on the Combined IUU List. The longliner was seen fishing in the Mediterranean Sea during the closed season.[xvii]

Given that listed entities are exposed to IUU fishing, **how should investors assess the risk of IUU fishing for companies?**

We first examine the role of stock exchanges in providing investors with protection against IUU fishing, conclude that it is limited, and therefore suggest a toolkit for investors to assess the risk of IUU fishing in their portfolios.

Stock Exchanges provide little protection against IUU Fishing

IUU Fishing as Material Information

The primary roles of stock exchanges are to provide a venue for capital formation and allow for the liquidity of securities in a price-transparent and safe environment.

Regulators of stock exchanges often focus on whether investors have access to all 'material' information to allow for this knowledge to be priced into the listed instruments – i.e. permit an efficient market. In the US, the Supreme Court stated that information 'is material if there is a substantial likelihood that the omitted or misstated item would have been viewed by a reasonable resource provider as having significantly altered the total mix of information'.[xviii]

If a company is aware that it was involved in IUU fishing and if it decides that this information is material, it needs to disclose this. However, this leaves **many possibilities for IUU fishing to take place without being disclosed to investors** (if the company is unknowingly involved in IUU fishing or if the company is aware but decides it is not material information, for instance because fishing represents a marginal part of the company's revenue).

IUU Fishing as ESG Risk

IUU fishing is an example of poor governance with detrimental environmental impact. It is a key ESG (Environmental, Social and Governance) risk for wild-catch companies. Could rules on ESG reporting offer a protection against IUU fishing?

Whilst stock exchanges provide guidelines for disclosure of non-financial metrics alongside disclosure of financial risk, only a minority of exchanges where listed entities are engaged in wild-catch fishing require ESG reporting as part of listing rules. In addition, in many exchanges headquartered in countries where the risk of IUU fishing is higher than the global average – as estimated by the IUU Fishing Index, such as China, Russia, South Korea or Japan - ESG reporting is not required as a listing rule – see Table 2.

Table 2: Exchanges with Listed Entities Engaged in Wild-catch Fishing vs. ESG Reporting as a Listing Rule and IUU Fishing Index of Exchange's Country (the higher the score, the higher the risk of IUU).[xix]

Stock Exchange with companies engaged in wild-catch fishing	ESG Reporting required as listing rule	IUU Fishing Index of Exchange's Country
Lima (Peru)	Yes	2.2
Paris (Euronext, France)	Yes	2.28
Bangkok (Thailand)	Yes	2.33
Johannesburg (South Africa)	Yes	2.43
Kuala Lumpur (Malaysia)	Yes	2.52
Jakarta (Indonesia)	Yes	2.70
Manila (Philippines)	Yes	2.71
Hong Kong	Yes	3.93
Reykjavik (Iceland)	No	1.86
Sydney (ASX, Australia)	No	1.91
Toronto (TMX, Canada)	No	1.97
Wellington (New Zealand)	No	1.99
Santiago (Chile)	No	2.01
Oslo (Norway)	No	2.19
New York (Nasdaq, USA)	No	2.29
Seoul (South Korea)	No	2.49
Tokyo (Japan)	No	2.63
Moscow (Russia)	No	3.16
Shenzhen (China)	No	3.93
Shanghai (China)	No	3.93

Box 2 shows such ESG rules for the Shenzhen stock exchange, where they are **guidelines only**.

Box 2: ESG Rules at the Shenzhen Stock Exchange

The Shenzhen stock exchange has published ESG rules, which provide several means to regulate illegal fishery activity:[xx]

- **Article 2:** *'For the purpose of these Instructions, social responsibilities refer to the obligations listed companies should assume for the social development, for natural environment and resources, and for the interested parties including their shareholders, creditors, employees, customers, consumers, suppliers and communities'.*
- **Article 4:** *'In business operations, Companies should follow the principles of free will, fair trade and good faith, observe moral and business ethics, and be subject to the supervision of the government and the public. They should not seek improper benefits by bribery, smuggling and other unlawful activities, nor infringe upon other people's intellectual properties like trademark, patent and copyright for the purpose of unfair competition'.*
- **Article 7:** *'Companies shall improve their corporate governance structure, treat their shareholders fairly and ensure that their shareholders enjoy all the rights and interests as provided in laws, regulations and rules'.*
- **Article 27:** *'Companies shall formulate environmental protection policies based on their impact on the environment. There shall be dedicated human resources in charge of the establishment, implementation, maintenance and improvement of their environmental protection system, and furnish necessary manpower, resources as well as technical and financial support to environmental protection'.*
- **Article 28:** *'Article 28: 'Companies' environment protection policies normally cover the following areas (see selected clauses):*
  (1) to comply with all the laws, regulations and rules that govern environmental protection
  (2) to reduce resource consumption, including raw materials and fuels
  (6) to minimize the adverse impact of corporate performance on environment
  (8) to create an environment for sustainable development'.

Whilst making ESG reporting a mandatory listing rule for new and existing listings would be a positive for many other ESG-related topics, it would probably not provide a greater incentive for a listed entity to disclose any involvement in IUU fishing. Indeed, companies can pick and choose which ESG reporting guidelines to use and, even then, can choose what they report. In Japan for instance, only 14% of the large companies that use the GRI reporting standard (the most widely-used sustainability reporting standard globally), use it correctly.[xxi] It is therefore unlikely that greater ESG reporting would provide significantly more disclosure on IUU involvement.

A good ESG rating cannot therefore be interpreted as indicating a reduced risk of accusations of IUU fishing involvement. For instance, Seoul-listed fishing company Dongwon Industries[xxii] has an ESG rating that puts it in the top 25% out of c. 25,000 rated companies in the world and yet Dongwon Industries agreed in 2013 to pay USD 2 million to the Liberian government for illegally fishing its waters over two years. Note that the company claims it was the victim of a licence fraud, being sold a forged licence by the agent hired to secure it from the Liberian government. Subsequently, Dongwon took legal action against the agent. The company has informed us that this case was settled out of court.[xxiii]

IUU Fishing and the Sustainable Stock Exchange Initiative

The Sustainable Stock Exchange (SSE) Initiative aims to *"provide a global platform for exploring how exchanges, in collaboration with investors, companies (issuers), regulators, policymakers and relevant international organizations, can enhance performance on ESG [...] issues and encourage sustainable investment, including the financing of the UN Sustainable Development Goals".*[xxiv]

One of them is SDG 12.6: *"Encourage companies, especially large and trans-national companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle". In that respect, one of the SSE's goals is "for all stock exchanges to provide listed companies with guidance on sustainability reporting".*[xxv]

Are stock exchange partners of the SSE better protected against the risk of IUU fishing? This is difficult to substantiate, since only **four stock exchanges in the world are not partners of the SSE**[3] and none of these four are a significant exchange as far as wild-catch fishing is concerned.

Excepting Tokyo, the Key Exchanges Exposed to IUU Risk Have Limited Regulatory Powers

Since rules on disclosure and ESG reporting do not provide significant help to investors against the risk of IUU fishing, could the regulatory powers of stock exchanges offer a better protection?

The regulatory models under which stock exchanges operate vary. They can be either:

- **Government Model:** a public authority performs most or all regulatory functions. This is the case of Paris (Euronext) for instance.
- **Limited Exchange Self-Regulatory Organisation (SRO) Model:** the exchange performs front-line regulatory functions for its market. This model is used by the Nasdaq (New York), the New York Stock Exchange or the Shanghai Stock Exchange.
- **Strong Exchange SRO Model:** the exchange performs extensive regulatory functions. This is the case of the Tokyo Stock Exchange (Japan Exchange Group) or Bombay Stock Exchange.
- **Independent SRO Model:** the exchange is purely a regulator, not a market operator and performs extensive regulatory functions. TMX (Toronto) is an example of such an exchange.
- **Hybrid/Other:** when none of these models is used, like for the Sydney ASX, for instance.

When examining the list of all exchanges where a company involved in wild-catch fishing is listed, it becomes evident that only a handful operate under a model where the exchange performs extensive regulatory functions - see left hand bar chart of Figure 3.

Within those, only Tokyo is an exchange with a large number of listed companies engaged in wild-catch (please see Planet Tracker's report Against the Tide for more details on these companies).[xxvi]

For the majority of other exchanges potentially exposed to IUU fishing, the stock exchange has limited or no regulatory power - see right hand bar chart of Figure 3.

[3] SIX Swiss Exchange, Muscat Securities Market (Oman), Malta Stock Exchange and Cyprus Stock Exchange

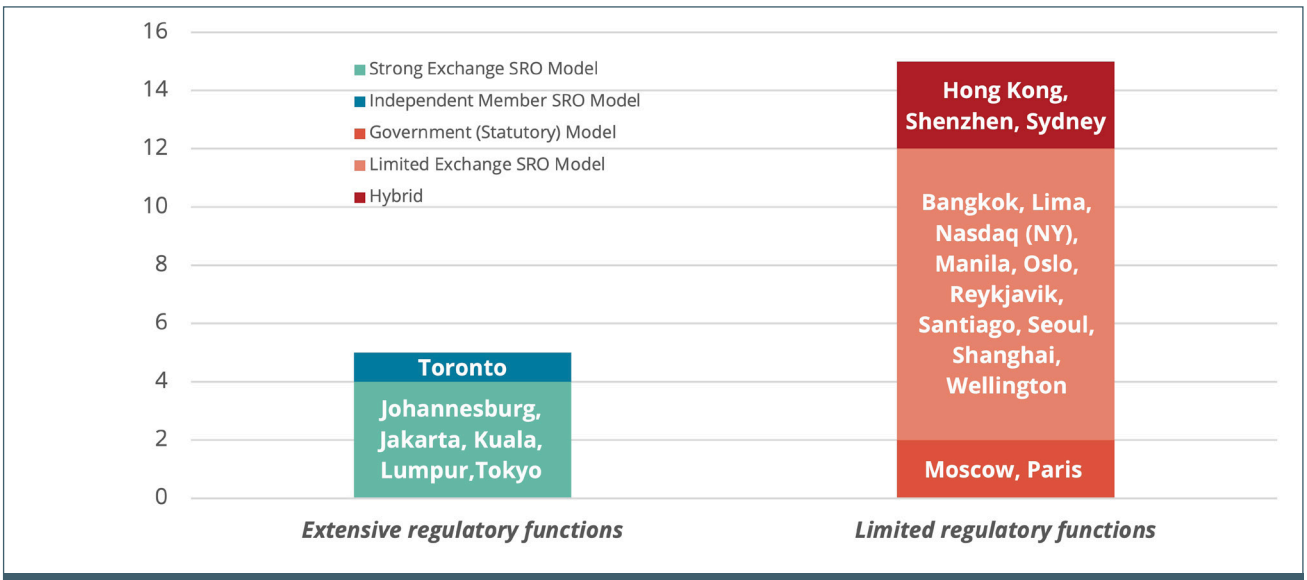


Figure 3: Number of Exchanges with Listed Entities Engaged in Wild-Catch Fishing based on their Regulatory Functions).[xxvii]

Appendix 3 provides more details on the regulatory regime and the regulatory bodies of each of these exchanges.

In summary, whilst stock exchanges have a role alongside regional fisheries enforcement and national policymakers to discourage illegal fishery activities, it appears that this role is currently limited.

Stock exchanges provide a platform for risks such as IUU fishing to be openly disclosed and incentivise greater sustainability through disclosure of material financial risks, as well as non-financial information on the sustainability of companies. However, this disclosure in itself does not provide effective protection for investors. Additional due diligence is required to identify and categorise these risks.

The next section provides an investors' IUU Detection Toolkit.

Toolkit:
Assessing the Risk of IUU Fishing for Listed Entities

Identifying IUU risk is necessary

Identifying IUU risk is becoming even more necessary given the strengthening of IUU-related regulations and initiatives across the world, such as:

- Japan's 2020 Domestic Trade of Specific Marine Animals and Plants Act;[xxvii]
- The European Union's Regulation 1005/2008 ("The IUU Regulation");
- The creation of an IUU monitoring network in ASEAN[4] countries;
- Improving governance in Western African fisheries under the PESCAO programme;[xxix]
- Deterring IUU activity in the Indian Ocean under the ECOFISH incentive in the case of the EU IUU Regulation.[xxx]

In addition, several RFMOs require their contracting parties (i.e., countries) to check whether "their nationals or any natural or legal persons subject to their jurisdiction" support IUU activities. **Insurance providers and other financial service providers are explicitly mentioned in the definition of what 'supporting'** IUU activities means.[xxxi] These RFMOs are: CCAMLR, SPRFMO, SIOFA, and GFCM[xxxii] and their members include almost every large economy/financial centre in the world.[5]

[4] Association of Southeast Asian Nations.

[5] Or namely: Albania, Algeria, Argentina, Australia, Belgium, Brazil, Bulgaria, Chile, China, Comoros, Cook Islands, Croatia, Cuba, Cyprus, Denmark (Faroe Islands), Ecuador, Egypt, the EU, France, Germany, Greece, India, Israel, Italy, Japan, Lebanon, Libya, South Korea, Malta, Mauritius, Monaco, Montenegro, Morocco, Namibia, the Netherlands, New Zealand, Norway, Peru, Poland, Romania, Russia, Seychelles, Slovenia, South Africa, Spain, Syria, Sweden, Taiwan, Tunisia, Turkey, Ukraine, the UK, the US, Uruguay and Vanuatu.

Planet Tracker's IUU Detection Toolkit for Investors in Listed Entities

To help investors assess the risk of IUU fishing at listed entities, Planet Tracker identified a list of potential red flags, formulated as true or false statements for easier decision-making. A red flag in the table below is recorded when a statement about a company being assessed by the investor is true (e.g. there is indeed a high IUU risk associated with the fish species targeted by the listed company assessed).

For each of these potential red flags, we suggest one or several means of verification. We accept these are not exhaustive lists, but they provide a useful source for checking. Our suggestions do not constitute an endorsement of the third-party organisations mentioned.

The goal of this IUU Detection Toolkit is to **simplify and harmonise the risk assessment undertaken by investors when it comes to IUU fishing**.

None of these red flags provide evidence of IUU fishing and most fishing companies are likely to be associated with at least one of these red flags. However, it is our belief that **a combination of a high number of these red flags should raise investors' suspicions**. It will be up to each investor to assess which level of risk they are comfortable taking.

In total, our Toolkit comprises 30 true or false statements. We view some of these checks as more serious than others.

As a result, we have attributed a higher importance to some of these statements (illustrated with three red flags in the table below), whilst others are of medium importance (two red flags) or lower importance (one red flag). The maximum score that a company can accumulate (i.e., the highest risk level) is 61, while the lowest is zero. To provide an easier comparison between companies, we have converted this score into a percentage: for example, a company scoring 25 out of 61 red flags would get a 41% score. The maximum (highest risk) score is 100%, the lowest 0%.

We recognise that some investors might need to prioritise those red flags which the easiest/fastest to check. That is why we ranked them both in decreasing order of importance and increasing order of time/easiness to check. We urge investors to consider at the very least the first seven highly important red flags before investing in a company potentially exposed to IUU risk.

For an online interactive version of our IUU Fishing Detection Toolkit, please click the screen below

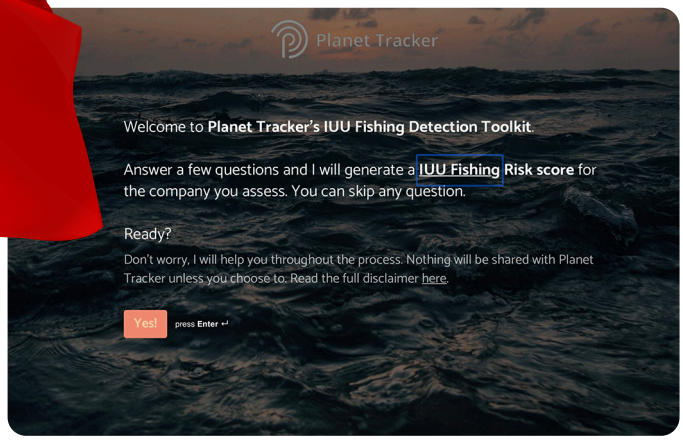


Table 3: Planet Tracker's IUU Detection Toolkit for Investors in Listed Entities.
(for a rapid risk assessment, focus on the 'Highly important' red flags first)

Importance	Potential Red Flag	Means of verification[6]	Score
Highly important and quick to check			
🚩🚩🚩	The company has been accused of IUU fishing	Press articles, NGOs, company disclosure	
🚩🚩🚩	The company has been accused of fisheries-related crimes (e.g. forged licenses, tax crimes, money laundering)	Press articles, NGOs, company disclosure	
🚩🚩🚩	There are allegations of slave labour or human trafficking on vessels affiliated to the company or its subsidiaries	Press articles, NGOs (e.g. Human Rights at Sea, Global Slavery Index, Environmental Justice Foundation, Greenpeace), company disclosure	
Highly important but slightly longer to check			
🚩🚩🚩	There is a lack of transparency around vessel ownership	Company disclosure; e.g. FAO Global Record database or IMO[7]	
🚩🚩🚩	One or several vessels used by or belonging to the company are or have been on a IUU list	Check e.g. Combined IUU Vessel List[8]	
🚩🚩🚩	Vessels have changed their flags or their names several times in the last 10 years	Check e.g. MarineTraffic.com or FleetMon.com	
🚩🚩🚩	Vessels do not have an IMO number even though they should[9]	IMO	
Important and quick to check			
🚩🚩	There is a significant lack of transparency on the species targeted	Company disclosure (or lack thereof)	
🚩🚩	The company does not report the tonnage of fish it catches or sources by species	Company disclosure	
🚩🚩	Fishing gear associated with a high risk of IUU is used[10]	Company disclosure (fishing gear) vs IUU risk by fishing gear	
🚩🚩	The company is registered in a country with a poor IUU ranking	Check e.g. unreported catches by fishing country on Sea Around Us or the IUU Fishing Index	
🚩🚩	The company's governance is poorly rated	Check ESG ratings via e.g. MSCI, Sustainalytics, Bloomberg, FTSE Russell. Also check press articles.	
🚩🚩	The country where the fish is targeted received a yellow or red card from the EU or was listed by the US as a country where IUU activity took place	Check this Report to US Congress and IUU Watch	
🚩🚩	The country where the fish is targeted does not have strong provisions for management and enforcement of fisheries	Check e.g. the Fisheries Legislation score of the Stable Seas Index or country reports by IUU Risk Intelligence	
🚩🚩	There is little or no observer coverage in this area	Check area harvested against rules on observer coverage via Ewell et al or Planet Tracker's Bonding with Observers	

[6] See Appendix 1 for an explanation of these means of verification. Planet Tracker neither endorses nor is affiliated with any of the organisations mentioned.

[7] International Maritime Organization, a specialised agency of the United Nations responsible for regulating shipping

[8] This list only covers RFMOs and some high seas jurisdictions

[9] All fishing vessels with a gross tonnage of 100 GT or more, or a length overall (LOA) greater than 12 meters, need a IMO number

[10] See details in Appendix 1

Importance	Potential Red Flag	Means of verification	Score
Important but slightly longer to check			
🚩🚩	There is a high IUU risk associated with the species targeted or the area where that species is typically targeted	Check species targeted against e.g. WWF based on Agnew et al Check IUU risk by area using e.g. this map from Munro & Sumaila or Sea Around Us	
🚩🚩	The vessels fly flags of convenience	Check e.g. MarineTraffic.com or FleetMon.com using e.g. this list of flags of convenience	
🚩🚩	The ports used by the vessels of the listed entity have a poor IUU ranking	Check ports used with e.g. Global Fishing Watch, MarineTraffic.com or FleetMon.com against ports listed in e.g. Hosch et al	
🚩🚩	The company often changes its auditors	Company disclosure, press articles	
Important but potentially longer to check			
🚩🚩	Most vessels operate in third countries under a foreign flag	Check e.g. MarineTraffic.com or FleetMon.com	
🚩🚩	Vessels routinely use transshipment	e.g. Global Fishing Watch	
🚩🚩	Landings or transhipments take place at EU/UK/US ports not authorised by EU/UK/US or a recognised authority	Check vessel journey using e.g. on Global Fishing Watch, MarineTraffic.com or FleetMon.com against e.g. EU list, UK list	
🚩🚩	There are red flags in the company's financial statements (e.g. revenue manipulation)	Company disclosure, press articles	
🚩🚩	Vessels do not have AIS[11] devices even though they should, or routinely switch off their AIS	Check vessels on Global Fishing Watch, check those gone dark using e.g. HawkEye 360, Windward	
Less important			
🚩	The species targeted sells at a high price in most markets	Check prices of wild-caught seafood on e.g. Ex-vessel Fish Price Database	
🚩	The species targeted is rare	Check species status on IUCN Red List	
🚩	Vessels routinely use ports situated in countries not party to the PSMA[12] agreement	Check ports used via e.g. Global Fishing Watch, MarineTraffic.com or FleetMon.com and compare against countries party to PSMA	
🚩	The crew on board the company's vessels is predominantly from a different nationality than the vessel's owner/operator	Press articles, company disclosure	
🚩	No credible traceability solution is used by the company	Company disclosure, client companies' disclosure	
🚩	There is little or no electronic monitoring in this area	Check area harvested against rules on electronic monitoring, e.g. via Ewell et al	
		Total red flags out of 61	
		Percentage score	

[11] The automatic identification system (AIS) transmits a ship's position so that other ships are aware of its position. The IMO and other management bodies require large ships, including many commercial fishing vessels, to broadcast their position with AIS in order to avoid collisions. There are genuine reasons for temporarily 'going dark' (e.g. to avoid detection by pirates or illegal fishers) but they should be evidenced.

[12] The Port State Measures Agreement, an agreement that allows port states to check and verify that vessels not flying their flags and that seek permission to enter their ports, or that are already in their ports, have not engaged in IUU fishing.

We also recognise that some of these risks are within the control of the company's management team (for instance the species targeted), while others are the remit of governments (for instance "the company is registered in a country with a poor IUU ranking"). However, from the perspective of the investor with a focus on risk assessment, the differential is of limited consequence, except when formulating an engagement strategy, when assessing a company's IUU risk. Therefore, we have weighted these two risk groups equally.

Our detection toolkit also reflects our view that the **absence of company disclosures constitutes a red flag** and therefore will hopefully encourage companies to improve their disclosure.

In Appendix 1, we explain why some of the red flags listed have been chosen in our IUU Detection Toolkit (many are self-evident).

In the next section, we apply it to a concrete example.

Case study: Pingtan Marine Enterprise Applying Planet Tracker's IUU Detection Toolkit

Pingtan Marine Enterprise: 72% score as per our IUU Detection Toolkit

China-based Pingtan Marine is a distant-water fishing firm listed publicly on the Nasdaq Stock Exchange in the United States. The fleet recently launched China's largest support vessel (vessels that perform transhipments[13]), the Fu Yuan Yu 992, at 132 meters, with a gross tonnage of 8,374 tonnes.[xxxiv]

The company has reported enormous growth in capacity, expanding from 40 vessels in 2013 to 143 vessels in 2020 - see Table 4.

Table 4: Pingtan's Reported Fleet.[xxxvi]

Number of Vessels	Fishing Method	Gross Tonnage	Average Remaining Useful Life (Years)
51	Squid Jigging	62,669	18
33	Drift Net	8,085	13
25	Light Luring Seine	25,950	18
4	Longline Fishing	2,152	16
26	Trawling	7,670	13
3	Refrigerated Transport	18,384	19

In December 2014, Indonesia introduced a six-month moratorium on issuing new fishing licences and renewals to combat IUU activity.

By February 2015, Pingtan Marine's fishing operations in Indonesia had ceased and the licences obtained through the local Indonesian companies PT Avona and PT Dwikarya had been revoked. Prohibition of entry for Pingtan's vessels led to a significant drop in revenue, 74% between 2014 and 2015 - see Figure 4. 117 of Pingtan's vessels were reported to be fishing in Indonesia.[xxxvii]

[13] See Appendix 1 for more details on transhipments. Note: Global Fishing Watch explains the issues related with transhipment as follows: Transhipment at sea, the offloading of catch from a fishing vessel to a refrigerated cargo vessel far from port, obscures the actual source of the catch and is a significant pathway for illegally caught fish to enter the legitimate seafood market.

Occurring out of sight and over the horizon, the practice enables other nefarious activity, ranging from smuggling to human trafficking. Increasing the transparency of transhipment could improve fisheries management and reduce human rights abuses. (Source: https://globalfishingwatch.org/wp-content/uploads/GlobalViewOfTransshipment_Aug2017.pdf)

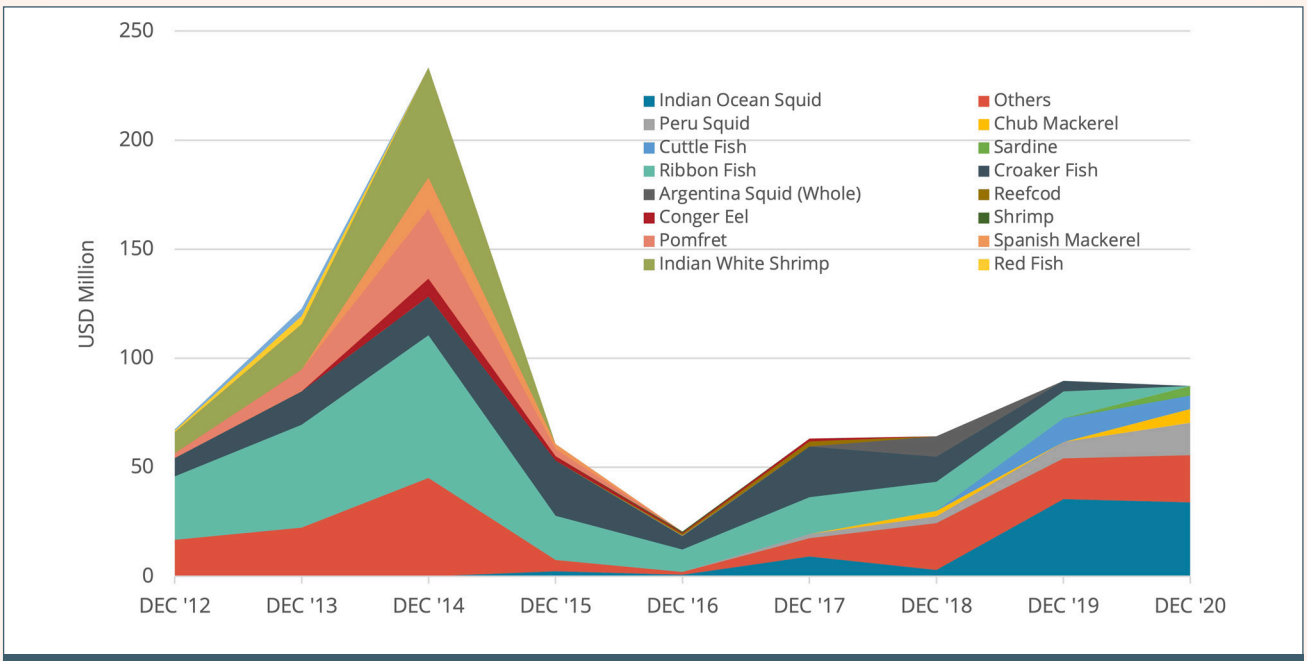


Figure 4: Pingtan Marine Revenue by Segment, 2012-2020.[xxxix]

Analysis by C4ADS identified potential illicit activity by the firm in 2017, tying four fishing vessels to the reefer Fu Yuan Yu Leng 999, which was seized by the Ecuadorian coastguard with approximately 270 metric tonnes of fish – more than half of which were illegally caught hammerhead and silky sharks[xl] Analysis of vessel monitoring data indicated that transhipment from Pingtan-linked vessels may have supplied the illicit catch - see Figure 5.

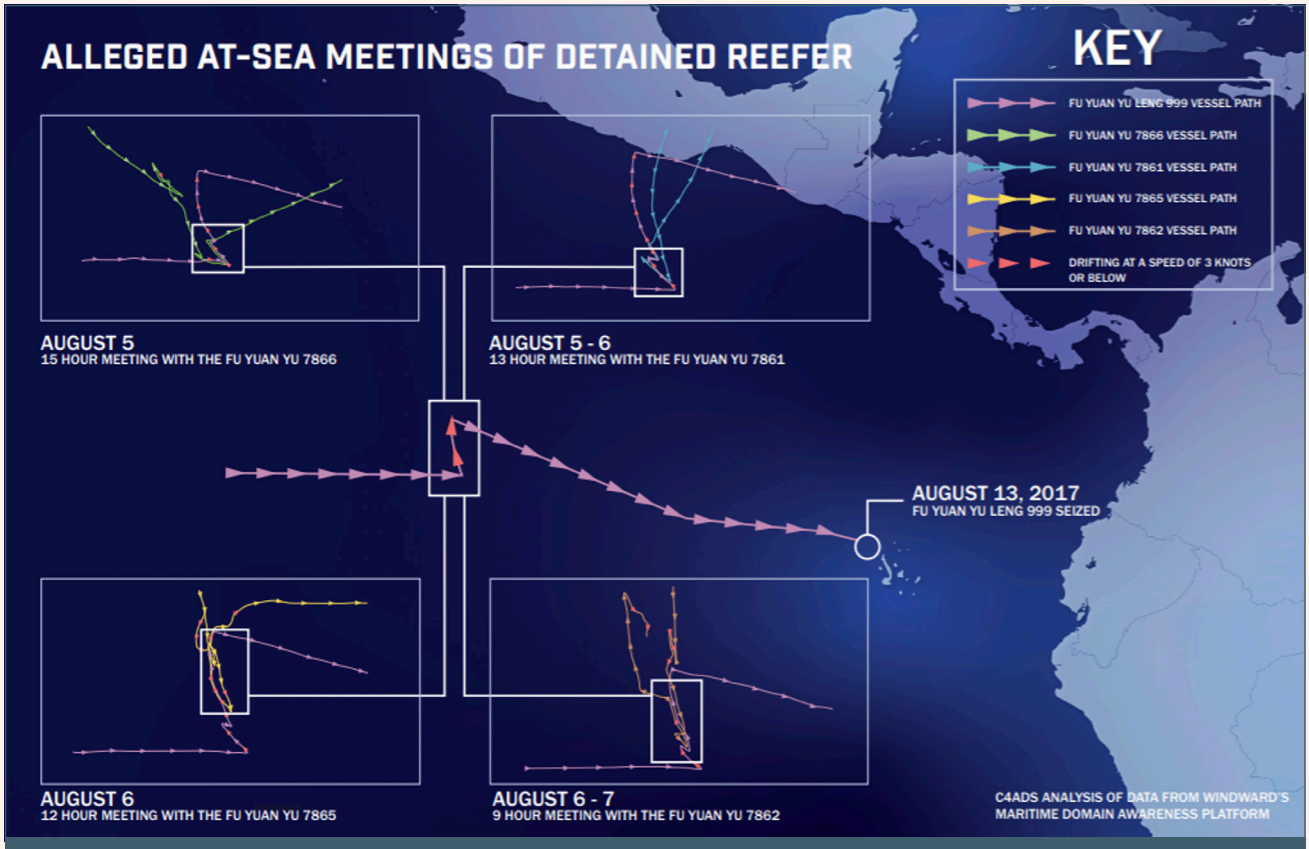


Figure 5: Alleged at-sea Meetings between Fu Yuan Yu Leng 999 and Pingtan-linked Vessels in 2017.[xli]

On 7 December 2020, the U.S. Department of State issued a notice that it had taken action against officials from the company for alleged involvement in IUU fishing.[xlii] The company has previously been accused of human trafficking, slavery, money laundering, financial crime[xliii] and illegal fishing.[xliv]

Previous allegations have had strong negative impacts on share price - for instance in May 2017, the release of a report by Marcus Aurelius Value alleging fraudulent and illegal activities such as money laundering, poaching and human trafficking by Pingtan Marine[xlv] led to an immediate 28% decline in price of the stock.[xlvi] Since the release of that report, the share price of Pingtan Marine Enterprise has underperformed the S&P 500 by 93% - see Figure 6.

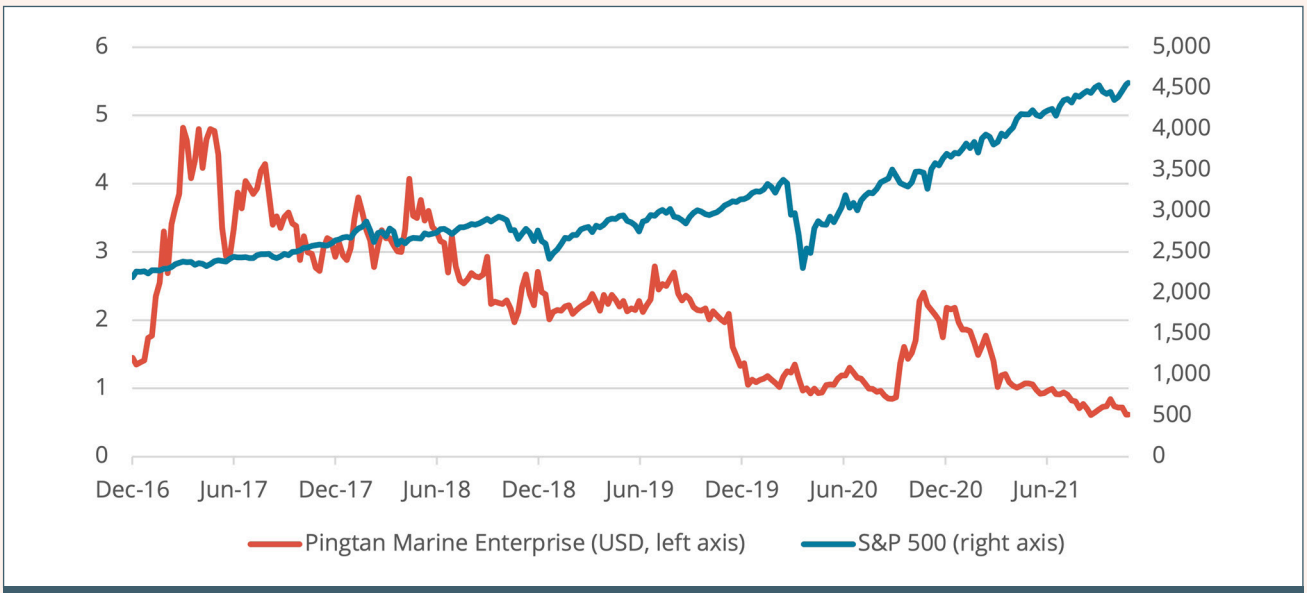
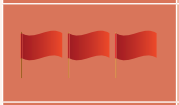
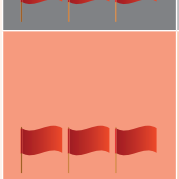
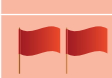


Figure 6: Price Per Share of Pingtan Marine, 2016 to 2021.[xlvii]

Applying our IUU Detection Toolkit, we calculate a score of at least 44 red flags associated with Pingtan Marine, out of 61 in total (72%) - see Table 5.

Lack of information in some instances (e.g., full list of species harvested) means that the potential number of red flags could be higher.

This does not constitute any accusation, judgement of value, recommendation of the company or view on its share price, but simply an illustration of how our toolkit could be used on a concrete example.

Table 5: Applying Planet Tracker's IUU Detection Toolkit for Investors to Pingtan Marine Enterprise.[xlviii]			
Importance	**Potential Red Flag**	**Comments and Sources**	**Score**
Highly important and quick to check			
	*The company has been accused of IUU fishing*	*Pingtan acknowledges in its 2020 annual report that it has been accused of illegal fishing. Also, the US State Department stated that it "revoked more than 15 visas for those complicit in IUU fishing [...], including associates of Pingtan [...]"*	3
	*The company has been accused of fisheries-related crimes (e.g. forged licenses, tax crimes, money laundering)*	*Research bureau Marcus Aurelius Value accused Pingtan's subsidiaries of falsification of boats certificates and bribery*	3
	*There are allegations of slave labour or human trafficking on vessels affiliated to the company or its subsidiaries*	*The US State Department stated that it "revoked more than 15 visas for those complicit in IUU fishing, who also have links to human trafficking, including associates of Pingtan [...]"*	3
Highly important but slightly longer to check			
	*There is a lack of transparency around vessel ownership*	*Most of the vessels that Pingtan lists on its website are not found on the IMO website.We are not alone in finding it hard to identify Pingtan vessels.*	3
	*One or several vessels used by or belonging to the company are or have been on a IUU list*	*No vessel owned or leased by Pingtan appears on IUU lists to the best of our knowledge.*	-
	*Vessels have changed their flags or their names several times in the last 10 years*	*At least 25 of Pingtan vessels changed their names as per company disclosure. Fu Yuan Yu 7882, which belongs to Pingtan as per company disclosure and the IMO, changed its name 3 times since 2019 as per FleetMon. Many vessels listed by Pingtan on its website are not found anywhere else (e.g. on IMO, Marine Traffic or Fleetmon), which makes a more detailed analysis complicated.*	3
	*Vessels do not have an IMO number even though they should*	*Many vessels listed by Pingtan on its website are not found anywhere else (e.g. on IMO website, Marine Traffic or Fleetmon). Those listed on IMO do have an IMO number.*	-
Important and quick to check			
	*Significant lack of transparency on the species targeted*	*Pingtan discloses only 15 out of the 30 species it targets*	2
	*The company does not report the tonnage of fish it catches or sources by species*	*Pingtan reports the tonnage of some of the species it catches (e.g. squid).*	-
	*Fishing gear associated with a high risk of IUU is used*	*Pingtan operates mainly trawlers and sells shrimps, likely to be caught with shrimp trawls, which carries a high level of Unreported Catches in Absolute Tonnage and as a Percent of Total Catches.*	2
	*The company is registered in a country with a poor IUU ranking*	*Pingtan is registered in China, ranked worst on the IUU Fishing Index*	2
	*The company's governance is poorly rated*	*It was alleged that Pingtan's Chairman & CEO is "using an alias that conceals his identity from investors" and that Pingtan massively overpaid for the acquisition of vessels sold by the Chairman's family.*	2
	*The country where the fish is targeted received a yellow or red card from the EU or was listed by the US as a country where IUU activity took place*	*Pingtan operates in China, identified by the US National Marine Fisheries Service as a country where IUU fishing took place in the last three years.*	2
	*The country where the fish is targeted does not have strong provisions for management and enforcement of fisheries*	*Pingtan operates in the Bay of Bengal (India), which has suboptimal monitoring, control and surveillance capabilities*	2
	*There is little or no observer coverage in this area*	*Observer coverage is low or non-existent in the area where Pingtan operates.*	2

Importance	Potential Red Flag	Means of verification	Score
Important but slightly longer to check			
	*There is a high IUU risk associated with the species targeted or the area where that species is typically targeted*	*Pingtan does not declare to target any species carrying a high IUU risk, but discloses only 15 out of the 30 species it targets, plus tuna, which might include high IUU risk species of tuna. In addition, 37 of Pingtan vessels operate in the Arafura sea, an area with high level of IUU fishing*	2
	*The vessels fly flags of convenience*	*All of the vessels we checked fly the Chinese flag.*	-
	*The ports used by the vessels of the listed entity have a poor IUU ranking*	*All the seafood caught by Pingtan is landed in China, which has the worst Port score in IUU Fishing Index*	2
	*The company often changes its auditors*	*The company changed its auditors three times over four years and changed again in 2021.*	2
Important but potentially longer to check			
	*Most vessels operate in third countries under a foreign flag*	*Pingtan vessels fly the flag of China.*	-
	*Vessels routinely use transshipment*	*Pingtan owns support vessels used for transshipments, including the FuYuanYuyun992. It was alleged multiple times by the Indonesian government that Pingtan-affiliated vessels engaged in illegal transshipments*	2
	*Landings or transhipments take place at EU/UK/US ports not authorised by the EU/the UK/the US or a recognised authority*	*We have not been able to find examples of such port calls, mostly due to a lack of transparency on vessel ownership.*	-
	*There are red flags in the company's financial statements (e.g. revenue manipulation)*	*There are multiple red flags in the company's statements, including "material weakness in internal controls over financial reporting" (as reported by Pingtan).*	2
	*Vessels do not have AIS[14] devices even though they should, or routinely switch off their AIS*	*We have not been able to find an instance of Pingtan vessel switching off their AIS device as we have not been able to track its vessels.*	-
Less important			
	*The species targeted sells at a high price in most markets*	*Most species sold by Pingtan retail at less than USD 2 per kg as per Pingtan disclosure.*	-
	*The species targeted is rare*	*Within the list of species disclosed by Pingtan, only the silver pomfret has a Vulnerable status as per IUCN. All the others are either Least Concern or data deficient. Some species of tuna are rare too, but Pingtan does not disclose which ones they target. However, Marcus Aurelius Value argued that Pingtan also targets rare and endangered species*	1
	*Vessels routinely use ports situated in countries not party to the PSMA[15] agreement*	*Pingtan vessels land their catch at Chinese ports. China is not party to the PSMA*	1
	*The crew on board the company's vessels is predominantly from a different nationality than the vessel's owner/operator*	*It was alleged that an Indonesian subsidiary of Pingtan "imported boat laborers from the Philippines"*	1
	*No credible traceability solution is used by the company*	*The word 'traceability' is not used by Pingtan in its SEC filings or its website.*	1
	*There is little or no electronic monitoring in this area*	*No electronic monitoring is mandated in the areas where Pingtan operates.*	1
		Total red flags out of 61	44
		Percentage score	72%

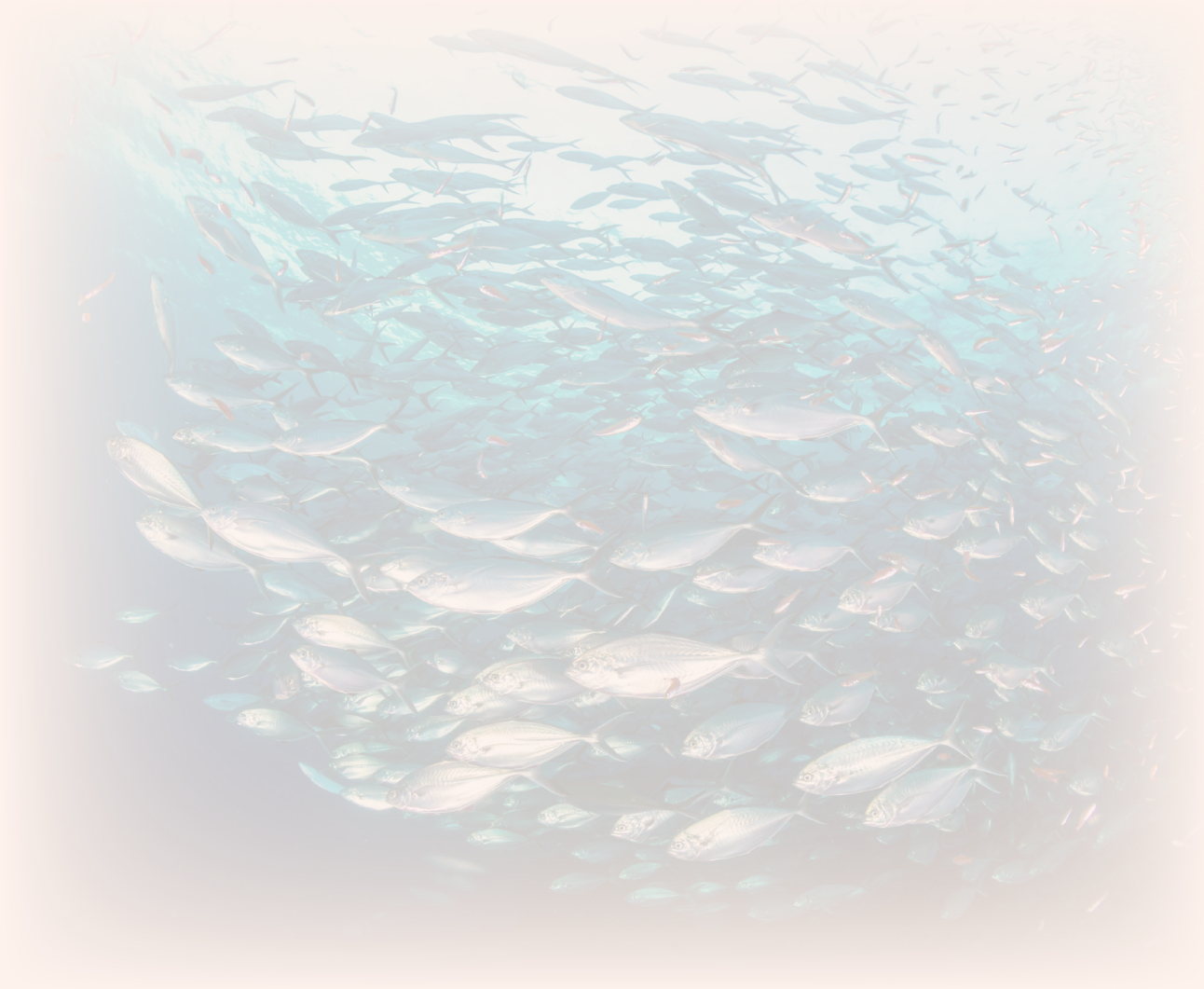
[14] The automatic identification system (AIS) transmits a ship's position so that other ships are aware of its position. The IMO and other management bodies require large ships, including many commercial fishing vessels, to broadcast their position with AIS in order to avoid collisions. There are genuine reasons for temporarily 'going dark' (e.g., to avoid detection by pirates or illegal fishers) but they should be evidenced.

[15] The Port State Measures Agreement, an agreement that allows port states to check and verify that vessels not flying their flags and that seek permission to enter their ports, or that are already in their ports, have not engaged in IUU fishing.

Overall, there is a high number of red flags related to IUU risk at Pingtan Marine Enterprise. Institutional investors do not typically invest in the company - see Table 6.

Table 6: Pingtan Marine Ownership as of June 30th, 2021.[xlix]

Investor	% Ownership	Position (000)	Market Value (USD mn)
Zhou Xin Rong (Chairman and CEO)	52.83	45,402	28
Renaissance Technologies	0.47	457	0
Citadel Advisors	0.10	86	0
Geode Capital Management	0.05	41	0
HRT Financial	0.01	11	0
City National Rochdale	0.01	11	0
Yung Li Ming (CFO)	0.00	1	0



Appendix 1: Why We Chose These Red Flags

In some cases, the red flags we have chosen are self-evident (e.g., "The company has been accused of IUU fishing"). Below we list all those red flags we believe are self-explanatory:

- The company has been accused of IUU fishing
- The company has been accused of fisheries-related crimes
- There is a lack of transparency around vessel ownership
- One or several vessels used by or belonging to the company are or have been on a IUU list
- Vessels have changed their flags or their names several times in the last 10 years
- Vessels do not have an IMO number even though they should
- There is a significant lack of transparency on the species targeted
- The company is registered in a country with a poor IUU ranking
- The company's governance is poorly rated
- The country where the fish is targeted does not have strong provisions for management and enforcement of fisheries
- The ports used by the vessels of the listed entity have a poor IUU ranking
- The company often changes its auditors
- There are red flags in the company's financial statements
- Vessels do not have AIS devices even though they should, or routinely switch off their AIS
- The species targeted sells at a high price
- The company does not report the tonnage of fish it catches or sources by species

In the following section we provide an explanation for those red flags in our IUU Detection Toolkit which are not immediately self-evident.

Red Flags Relative to the Seafood Species Harvested by the Listed Entity or its Subsidiaries

Some species carry a higher risk of IUU fishing as they are known to be intentionally targeted by illegal fishers. Figure 7 below presents a risk score attributed by Petrossian et. al to a selection of species (the higher the score, the higher the risk). It shows that **several tuna species are high-risk**.[l]

A more exhaustive list was published by WWF in 2015 (see Appendix 2 of this report).[li]

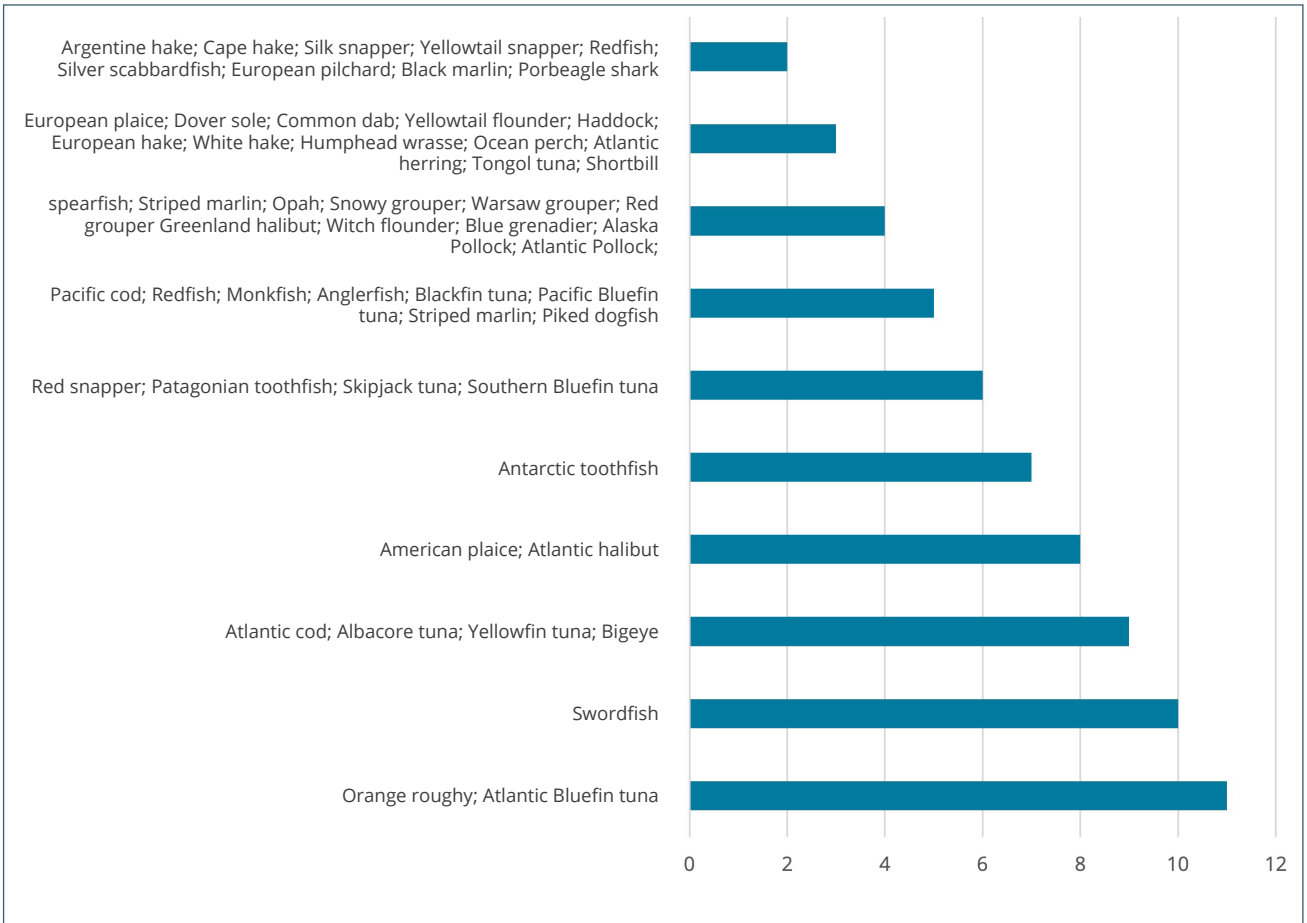


Figure 7: IUU Risk Score of Selected Fish Species (the higher the score, the higher the risk).[lii]

For species not on that list, it is possible to assess the risk of IUU fishing by combining assessments of IUU risk by region with the distribution of that species. For instance, given that much of the fishing of southern bluefin tuna takes place in the Western Indian Ocean – see Figure 8, and given that the IUU risk of that basin is high, there is a significant IUU risk for southern bluefin tuna caught in the Western Indian Ocean – indeed it has a high IUU score, see Figure 8.

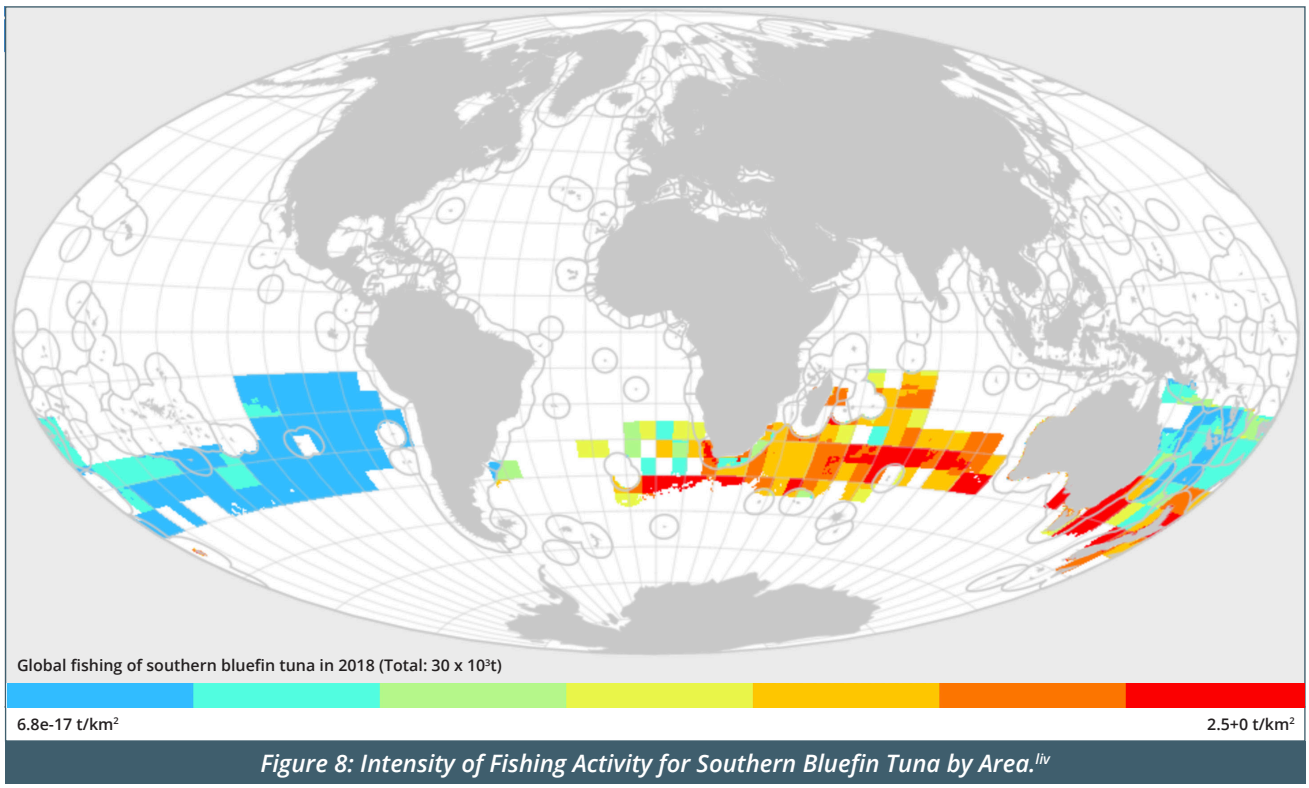


Figure 8: Intensity of Fishing Activity for Southern Bluefin Tuna by Area.[liv]

Of course, none of this work is possible if the listed entity does not disclose the species it targets (for instance by only referring to "bluefin tuna" or even just "tuna", rather than "Southern bluefin tuna").

For this reason, and also to ascertain to what extent companies harvest our oceans sustainably or not, **it is extremely important for listed entities to reveal which species they harvest.**

Red Flags Relative to the Way the Fish is Harvested by the Listed Entity or its Subsidiaries

Some types of fishing gear carry a lower IUU risk than others. Pole and line, for instance, is estimated to carry a minimal risk whilst beam trawl, dragged gear or shrimp trawl are estimated to carry a very high IUU risk: the estimated tonnage of unreported catches using such gear is higher than the reported ones[lv] – see Figure 9.

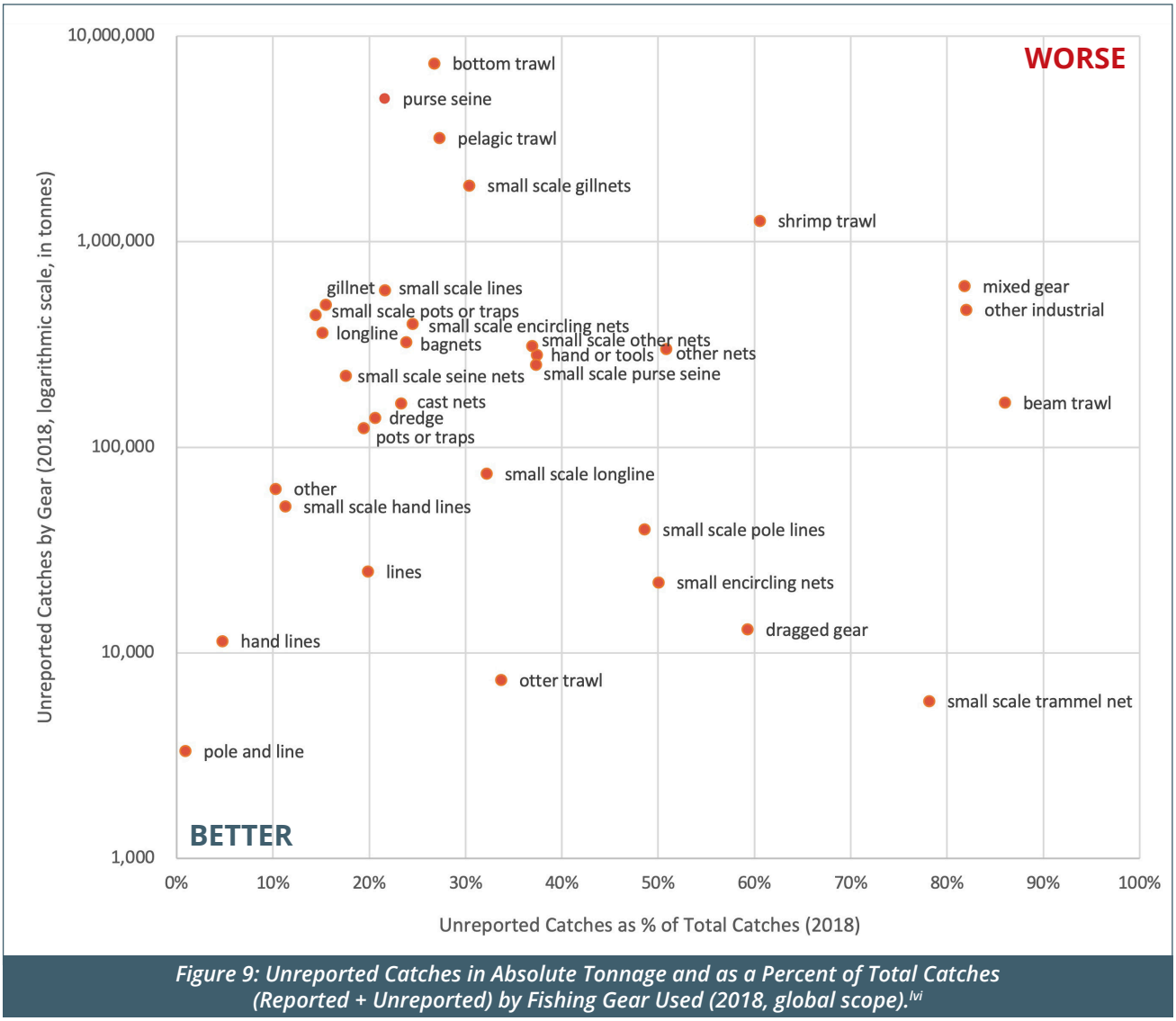


Figure 9: Unreported Catches in Absolute Tonnage and as a Percent of Total Catches (Reported + Unreported) by Fishing Gear Used (2018, global scope).[lvi]

Red Flags Relative to the Vessels Used by the Listed Entity or its Subsidiaries

Transhipment at sea, i.e., the offloading of catch from a fishing vessel to a refrigerated vessel far from port, can hide the actual source of the catch. This impedes the sustainable management of fisheries and can allow IUU catch to enter the legitimate seafood market.

Transhipments are often associated with regions and flag states displaying limited oversight: **47% of them occurred on the high seas and 42% involved vessels flying flags of convenience** in an analysis of transhipments over 2012-2017.[lvii]

These flags of convenience, i.e., 'where beneficial ownership and control of a vessel is found to be elsewhere than in the country of the flag the vessel is flying',[lviii] can provide safe havens for IUU offenders, since:[lix]

- Corporate structure in flag of convenience states can conceal the beneficial owner of IUU fishing activities.
- The flag of convenience system actually perpetuates IUU fishing because unscrupulous operators can choose and pick their flags to avoid rules and oversight. Our research "Beached, not Stranded" sheds light on another reason why vessel owners use flags of convenience.

Indeed, the proportion of IUU vessels flying flags of convenience is high: within the 164 vessels on the Combined IUU Vessel List for which the flag is known, 35% fly a flag a convenience (in red in Figure 10 below).[lx] Another 17% bear the flag of China, meaning that **more than half of identified IUU vessels are registered in a flag of convenience state or in China**.

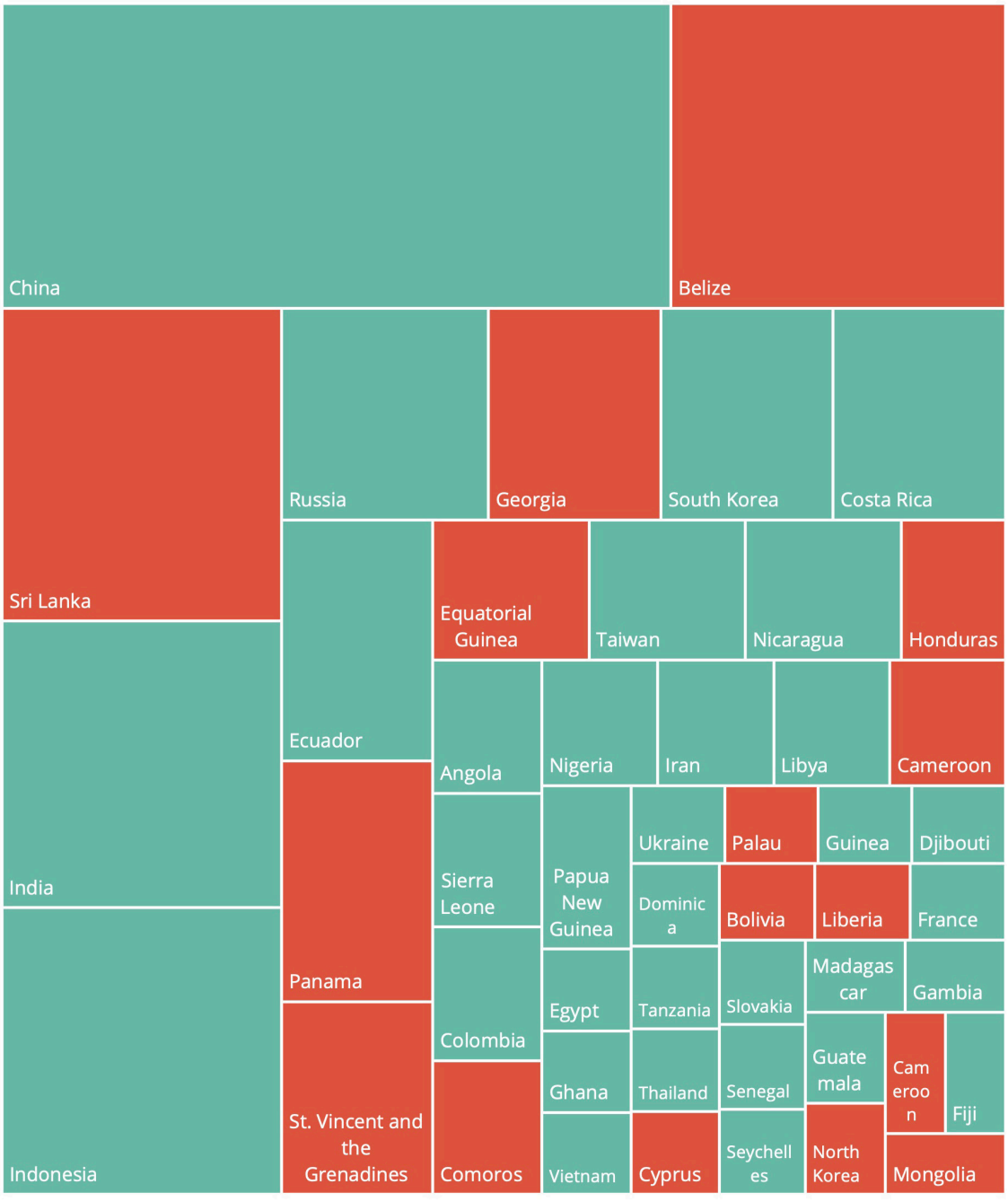


Figure 10: Breakdown of Current and Past Vessels on the Combined IUU List as of 28 July 2021 by Flag (in red: Flags of Convenience), Excluding Vessels with Unknown Flags.[lxi]

Red Flags Relative to the Ports Used by the Listed Entity or its Subsidiaries

Not all fishing ports have the same oversight and regulations. In fact, some of them are known as 'ports of convenience', where IUU fishing vessels can avoid proper inspection due to a lack of capacity, poor recording systems and/or corruption among inspectors. Some private or free trade ports (or free economic zones) with favourable customs regulations and few or no controls on landings or transhipment can be classified as ports of convenience.[lxii]

For this reason, a number of governments, such as the EU or the UK, have established lists of **designated ports, where catch must be landed**. China is also working on its own list of designated ports.[lxiii]

Ports of convenience are likely to be located in countries which are not parties to the **Port State Measures Agreement** (PSMA). PSMA is an agreement that allows port states to check and verify that vessels not flying their flags and that seek permission to enter their ports, or that are already in their ports, have not engaged in IUU fishing. **Countries not party to PSMA include for instance China, Taiwan, India, Mexico, Colombia, Argentina, Brazil, Morocco or Iran**.[lxiv] Note that the flag state of a vessel is the jurisdiction under whose laws the vessel is registered or licensed and is deemed the nationality of the vessel. Even landlocked countries can be flag states (in some cases, like Mongolia, they are flags of convenience). What PSMA essentially does is to enable port authorities to check and verify that vessels of a different nationality to the state in which the port is located are not engaged in IUU fishing.

Red Flags Relative to the Staff of the Listed Entity or its Subsidiaries

Many jurisdictions have laws requiring entities operating within regional fisheries to have local crews when fishing within an EEZ in order to get a licence to operate within it. In Indonesia, for example, the Fisheries Act makes it **illegal to have a predominantly foreign crew** on a fishing vessel. This is to protect local jobs and natural resources and prevent exploitation from foreign entities.[lxv]

Analysis by Walk Free identified **China, Japan, Russia, Spain, South Korea, Taiwan and Thailand as being at high-risk of modern slavery** in their respective fishing industries, characterised by a high proportion of catch taken outside their own waters at a greater distance from home waters than average, by poor governance (high levels of unreported catch), and by higher-than-average levels of harmful fishing subsidies.[lxvi]

In addition, Chile, India, Indonesia, Malaysia, Mexico, Morocco, Peru, the Philippines and Vietnam, countries with low value catches, low GDP and high levels of unreported catch, are vulnerable to having forced labour in their own national fishing industries and also to being a source for fishers who become victims of modern slavery aboard foreign-flagged vessels that fish in their waters.[lxvii]

Red Flags Relative to the Listed Entity or its Subsidiaries

The **absence of traceability solutions at a company means that it is more exposed to IUU risk**. The World Benchmarking Alliance (WBA) scored how seafood companies commit to and implement robust traceability systems and mitigate risks of illegal, unreported and unregulated fisheries – see Figure 11, where we show only listed companies. Our previous research 'Traceable Returns' explains how traceability solutions can reduce IUU risk while increasing profitability.[lxviii]

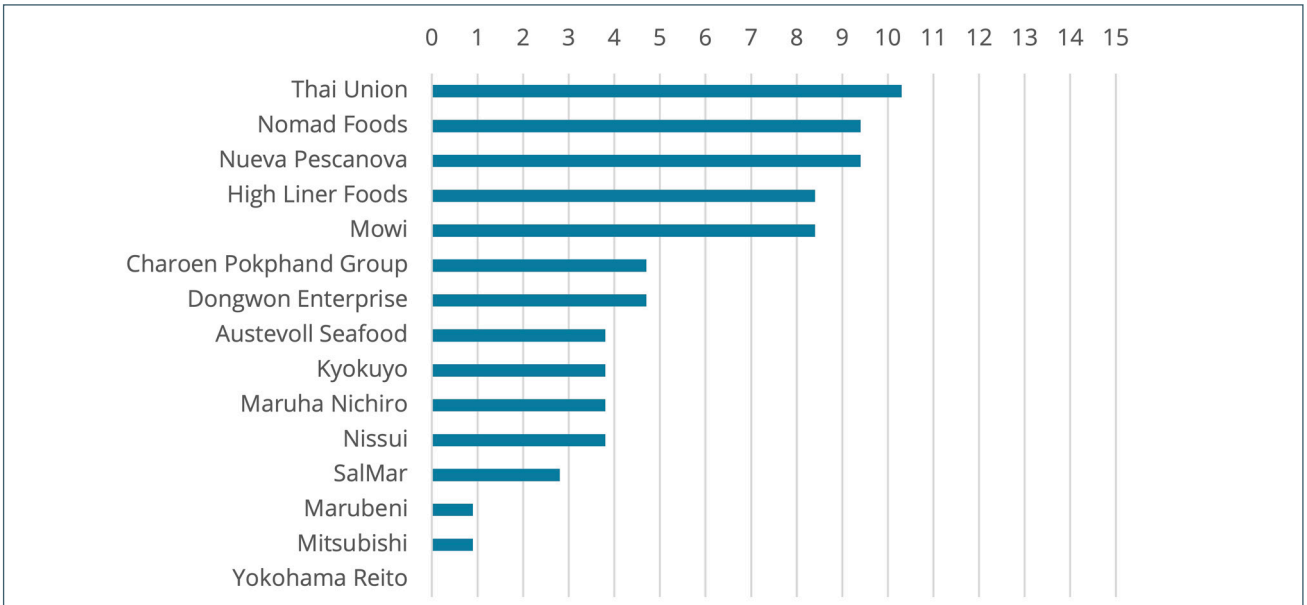


Figure 11: Traceability Score by Listed Company based on the World Benchmarking Alliance's Assessment (out of a maximum score of 15).[lxix]

In addition, the country where a listed entity is registered can provide a first indicator of IUU risk. The IUU Fishing Index provides a measure of the degree to which states are exposed to, and effectively combat, IUU fishing.[lxx] It provides a combined score for vulnerability, prevalence and response to IUU risk. **China, Taiwan, Cambodia, Russia and Vietnam are the countries with the poorest score**.

An alternative means of verification is via the website Sea Around Us, where the level of unreported catch by each fishing nation has been estimated – see Figure 12.[lxxi]

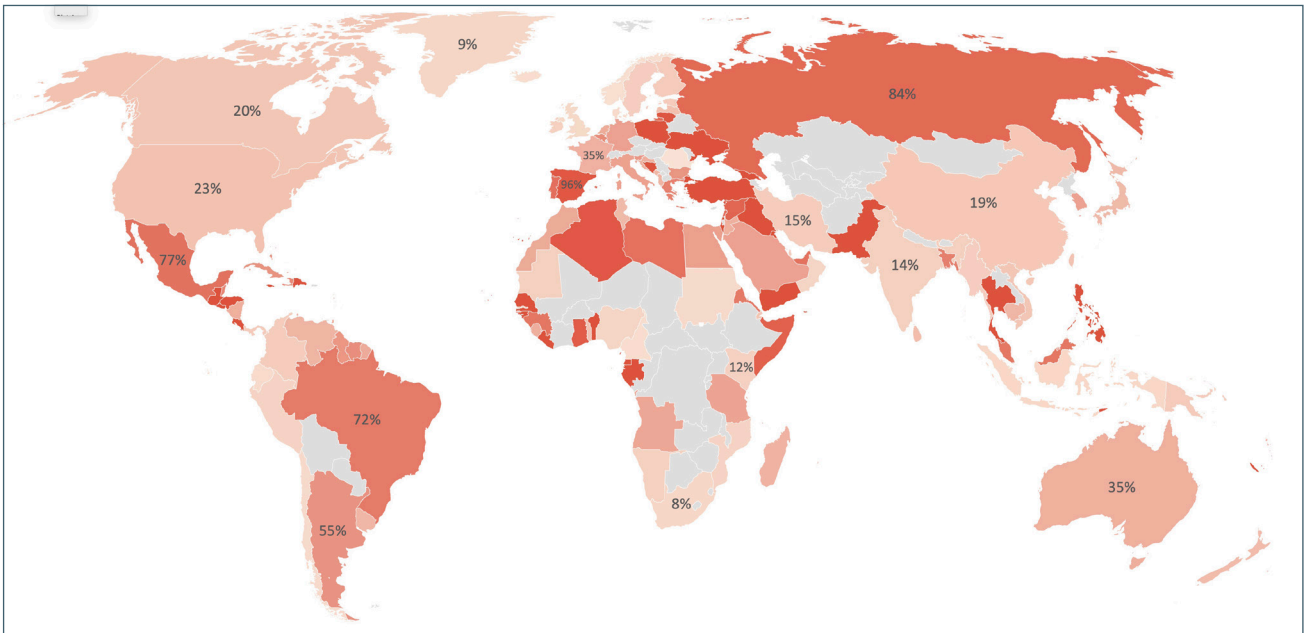


Figure 12: Unreported Catch as a Proportion of Total Catch by Fishing Entity (the darker the higher.[lxxii]

Red Flags Relative to the Area where the Listed Entity or its Subsidiaries Operate

Sea Around Us also shows the fishing intensity of fleets of a given country by area, which could help identify where a company operates, in the absence of company disclosure – see, for instance, where Thai fleets operate in Figure 13.

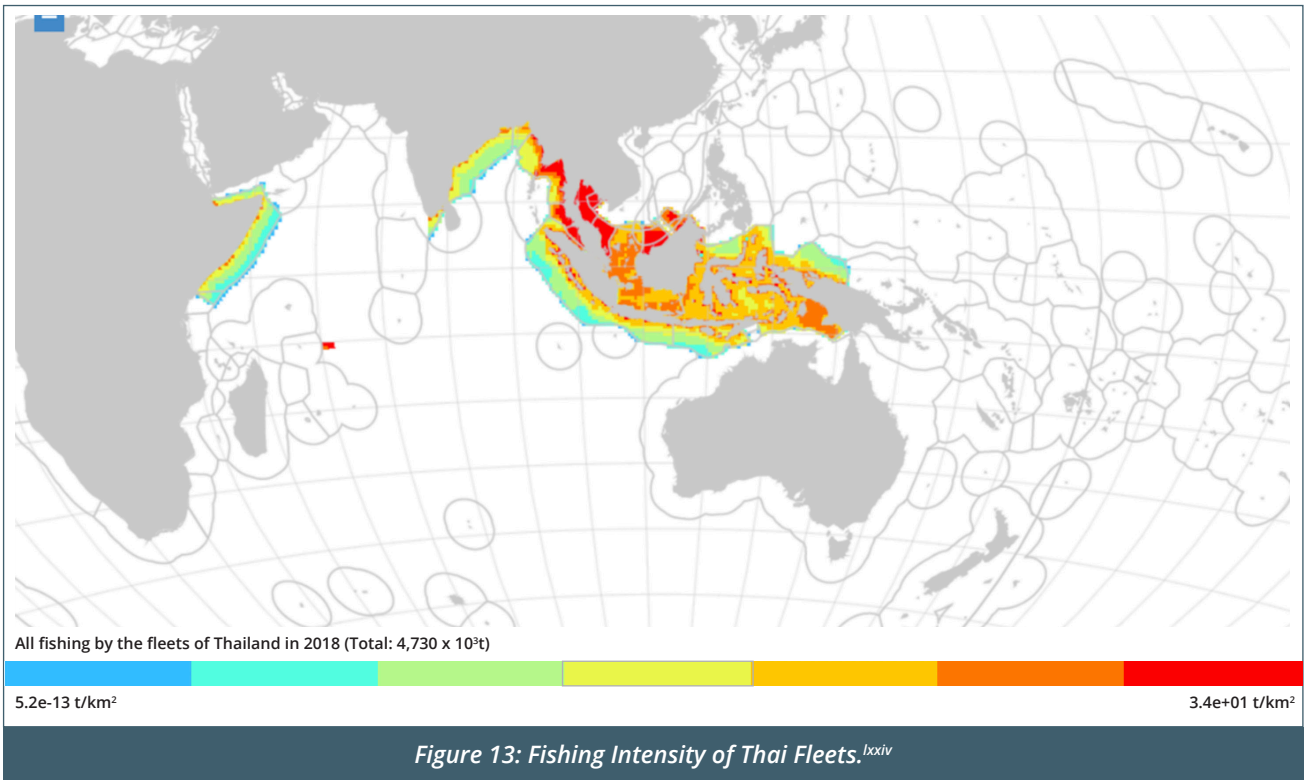


Figure 13: Fishing Intensity of Thai Fleets.[lxxiv]

A quick way to identify IUU risk, based on the country from where fish is harvested, is to check the list of non-EU countries that were identified by the EU as having inadequate measures in place to prevent and deter IUU fishing. These countries are issued with a formal warning (yellow card). **Yellow cards are currently in place for Panama, Ecuador, St. Kitts and Nevis, Trinidad and Tobago, Liberia, Sierra Leone, Cameroon and Vietnam**. Countries that do not improve their oversight of IUU face the risk of being banned from the EU market (red card).[lxxv] **Red cards are active for St Vincent and the Grenadines, Comoros** (both are also flags of convenience countries) and **Cambodia**.[lxxvi]

In the US, the National Marine Fisheries Service identified seven countries in which IUU fishing took place over the last three years.[lxxvii] These are **China, Costa Rica, Guyana, Mexico, Russia, Senegal and Taiwan**.

In the absence of information of the exact EEZ where a company operates, the **degree of monitoring of fleets** that operate in certain areas can also indicate the vulnerability of such fleets to IUU risk.

For instance, industrial harvesters of Alaska pollock in the US Bering Sea, Aleutian Islands and Gulf of Alaska are subject to full observer coverage,[lxxviii] whilst vessels fishing in the Mediterranean sea are not required to have observers on board.[lxxix] 'Bonding with Observers' outlines the observer coverage rate by area and explains how it could be increased. 'Pollockonomics' shows how the sustainability of Alaska pollock (including its low IUU risk) makes it a profitable proposition.

Appendix 2: Definition of IUU Fishing

The IPOA-IUU (International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing) provides the following definition of IUU fishing.

Activities are classified as illegal fishing if they are:

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

Unreported fishing refers to activities which:

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

Finally, a catch is considered unregulated if fishing is conducted:

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

Appendix 3: Regulatory Models of Stock Exchanges

The two tables below split stock exchanges with listed entities engaged in wild-catch based on their regulatory functions: extensive in Table 7 and limited in Table 8. See also Figure 3.

Table 7: Exchanges that Perform Extensive Regulatory Functions with Listed Entities Engaged in Wild-catch Fishing, Ranked by Increasing Risk of IUU Fishing in the Exchange's Country.[lxxxi]

Stock Exchange	Regulatory model	Regulatory bodies
Sydney (ASX)	ASX responsible for compliance with listing rules and publishes principles/ recommendations that set standards of corporate governance (Hybrid model)	Australian Securities and Investments Commission; Reserve Bank of Australia
Toronto (TMX)	Independent Member SRO Model	Ontario Securities Commission; Investment Industry Regulatory Organization of Canada (IIROC); Autorité des marchés financiers
Johannesburg	Strong Exchange SRO Model	Registrar of Securities Services; Financial Services Board
Kuala Lumpur	Strong Exchange SRO Model	Securities Commission
Tokyo	Strong Exchange SRO Model	Financial Services Agency
Jakarta	Strong Exchange SRO Model	Indonesia Financial Services Authority

Table 8: Exchanges that Perform Extensive Regulatory Functions with Listed Entities Engaged in Wild-catch Fishing, Ranked by Increasing Risk of IUU Fishing in the Exchange's Country.[lxxxii]

Stock Exchange	Regulatory model	Regulatory bodies
Reykjavik	Limited Exchange SRO Model	Icelandic Financial Supervisory Authority
Wellington	Limited Exchange SRO Model	Financial Markets Authority
Santiago	Limited Exchange SRO Model	Comisión para el Mercado Financiero (CMF)
Oslo	Limited Exchange SRO Model	The Financial Supervisory Authority of Norway
Lima	Limited Exchange SRO Model	Superintendencia de Mercado de Valores (SMV) (Peruvian Superintendency of Securities Market)
Paris (Euronext)	Government (Statutory) Model	ACPR; The Ministry of Economics and Finance; Autorité des Marchés Financiers (AMF); European Union (ESMA)
New York (Nasdaq)	Limited Exchange SRO Model	Securities and Exchange Commission
Bangkok	Limited Exchange SRO Model	The Securities and Exchange Commission of Thailand (SEC)
Seoul	Limited Exchange SRO Model	Korean Financial Investment Association
Manila	Limited Exchange SRO Model	Republic of the Philippines Securities and Exchange Commission
Moscow	Government (Statutory) Model	The Central Bank of Russia
Shenzhen	A self-regulatory legal entity under the direct administration of the CSRC (Hybrid model)	China Securities Regulatory Commission (CSRC)
Shanghai	Limited Exchange SRO Model	China Securities Regulatory Commission (CSRC)
Hong Kong	Recognised exchange controller. Responsible for ensuring that markets are fair, orderly and informed (Hybrid model)	Securities and Futures Commission

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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.

SEAFOOD TRACKER

Seafood Tracker 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.

This report focuses on illegal, unreported and unregulated (IUU) fishing.

Seafood Tracker is a part of the wider Planet Tracker Group of Initiatives.

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