Planet Tracker

# Tuna Turner

## Investors must turn up transparency in the tuna industry

June 2025

# Contents

# Executive summary

*By shedding light on corporate activity in the opaque tuna industry, this analysis shows why greater transparency is urgently needed – not just for ocean health, but to reduce investor risk and to support the financial performance of tuna-harvesting companies.*

## Declining tuna populations threaten ocean health and seafood investors

As top predators in the ocean, tuna species move nutrients through the water column, thus fertilising phytoplankton, which produces half of the oxygen on the planet and absorb more than 30% of the carbon dioxide we release. Yet their biomass has declined by 40-80%, several species are threatened with extinction, and major ecological damage expressed in millions of dead sharks and millions of plastic buoys drifting across millions of kilometers persists in numerous tuna stocks. Whilst investors in the food retail, fishing, or seafood processing industries are likely to be exposed to these impacts, they currently cannot assess the contribution of individual companies to these risks due to a general lack of transparency in the tuna fishing industry.

## Bringing transparency to the tuna industry via an innovative methodology

Existing companies' disclosure does not reveal which ones catch the most tuna, threatened species, or overfished populations. This report aims to change that.

Using Global Fishing Watch, Planet Tracker reconstructed catch volumes by tuna species and region for all industrial vessels fishing tuna globally. We matched fishing activity (both tracked by satellite and 'dark'[a]) to vessel owners and mapped fishing locations to species-distribution models.

## Thirty companies catch around half of the world's tuna...

Out of all tuna harvesters identified, the thirty largest together account for an estimated 46% of global tuna catch. Companies headquartered in Spain, Korea, China and Japan catch two-thirds of that estimated total of 2.4 million tonnes, often harvesting more than these countries' entire fleets.[b]

## ... but most disclose very little, increasing investor risk

Only four out of 30 firms report any tuna catch volumes, and just one (Bolton Group) discloses across species, location, gear and certification levels – see more in *our dashboard*. Without this data, investors cannot know which companies - or their clients further down the supply chain - are exposed to risks such as overfishing or unsustainable harvesting methods, which in turn are financially material.

a 'dark' tuna is tuna catch that Planet Tracker was not able to assign to an AIS-tracked vessel, where AIS designates a publicly available satellite tracking system. No wrongdoing is implied, and it is possible that 'dark' vessels are indeed reporting catch data to the relevant authorities using other systems, but that data is not publicly available.

b since many vessels owned by e.g. a Spanish company do not fly the Spanish flag.

## Tuna companies with the highest impact

Based on our catch estimates, Maruha Nichiro and Dongwon are key harvesters of 'at risk' tuna stocks.[c] On average, 13% of global tuna catch comes from such stocks, but some companies including Maruha Nichiro, SAPMER, China National Agricultural Development Group, Albacora or Negocios Industriales Real (NIRSA) derive an estimated greater portion (c. 15%-60%) of their catch from these stocks.

Albacora, Maruha Nichiro, Dongwon, Bolton Group and Sajodaerim are also estimated to be key harvesters of threatened tuna species.[d] *Our dashboard* provides more details.

## Eliminating 'dark' tuna could double transparency and improve profits

An estimated 60% of global catch is "dark", meaning Planet Tracker could not associate it to a company due to missing ownership information or satellite data.

Eliminating AIS gaps[e] could halve "dark" tuna volumes. Together with better data on ownership information, reducing "dark" tuna volumes could improve profits and valuations by an average of c.1% within five years.

## What, where, how, and how much: a call for disclosure

Opacity in catch and ownership data not only threatens marine ecosystems but also impairs due diligence, heightening risks in tuna-dependent portfolios.

Investors should therefore urge all tuna harvesters but especially the largest thirty companies to publish four core metrics—what they catch, where, how (using which gear) and how much (catch volumes in tonnes). Together with greater AIS usage and transparent ownership information, this would restore investor confidence and enable traceable supply chains.

c those that the International Seafood Sustainability Foundation (ISSF) does not rate as green for both abundance and fishing mortality, which are at risk of overfishing or becoming overfished.

d those with a conservation status that is 'Vulnerable' (like bigeye tuna), or worse (like Pacific bluefin tuna and Southern bluefin tuna) as per the IUCN.

e the period when an Automatic Identification System (AIS) transponder onboard a vessel stops transmitting its signal, making it impossible to track the vessel's position.


*Figure 1: Comparative assessment of the transparency and sustainability of the largest tuna harvesters. Source: Planet Tracker, the bigger the branch the better except for volumes.*

Note: 'Volumes' are for own catch volumes only and are rebased to 100% of the maximal value; 'AIS gaps' indicates the ratio of tracked fishing hours compared to the duration of AIS gaps with a speed compatible with fishing, where 100% is the lowest/best ratio and 0% the worst/highest; 'Traceable tuna' indicates the estimated proportion of own volumes that Planet Tracker could link to an AIS-equipped vessel; 'Disclosure' indicates the number of disclosure on volumes, species, location, fishing gear method and sustainability initiatives out of a maximal total of 9, rebased to 100%; 'Healthy catch' indicates the estimated proportion of volumes caught in stocks rated green for both abundance and fishing pressure by the ISSF; 'Threatened' indicates the estimated proportion of catch of tuna species that are not considered to be threatened as per their IUCN status.

# Ball of confusion: transparency is needed in the tuna industry

*Despite recent progress, the tuna industry faces persistent challenges: biomass is only at 20-60% of pre-industrial levels, and the industry causes a major impact on other species. Because transparency remains poor, investors cannot assess individual company risks in this climate-threatened sector.*

## Why tuna?

Tuna are keystone species: they help define an entire ecosystem. Top predators in the ocean food chain, they move nutrients throughout the water column, thus fertilising phytoplankton, a key producer of the oxygen we breathe and absorber of the carbon dioxide we release. For the ocean to be healthy, tuna populations need to be healthy too. Yet they face major threats, from overexploitation to climate change.

## How sustainable is the tuna industry?

Despite recent progress, overfishing persists in the tuna industry, which also has a stark impact on other marine species because of the way it operates. A general lack of transparency prevents investors from correctly assessing individual companies on these risks, further compounded by the negative impact of climate change. This section details different risks.

## Historical biomass decline

Overall, tuna biomass levels have significantly declined since their pre-fished levels. Below, the 'Tuna Stripes' chart shows the long-term evolution of the biomass of a combination of 14 different stocks globally, which more than halved in 40 years. To ensure data consistency, the chart stops in 2015. Since then, biomass has further dropped: it recovered slightly for some stocks (e.g. in the Western Mediterranean Sea) and worsened for others (e.g. in the Indian Ocean).

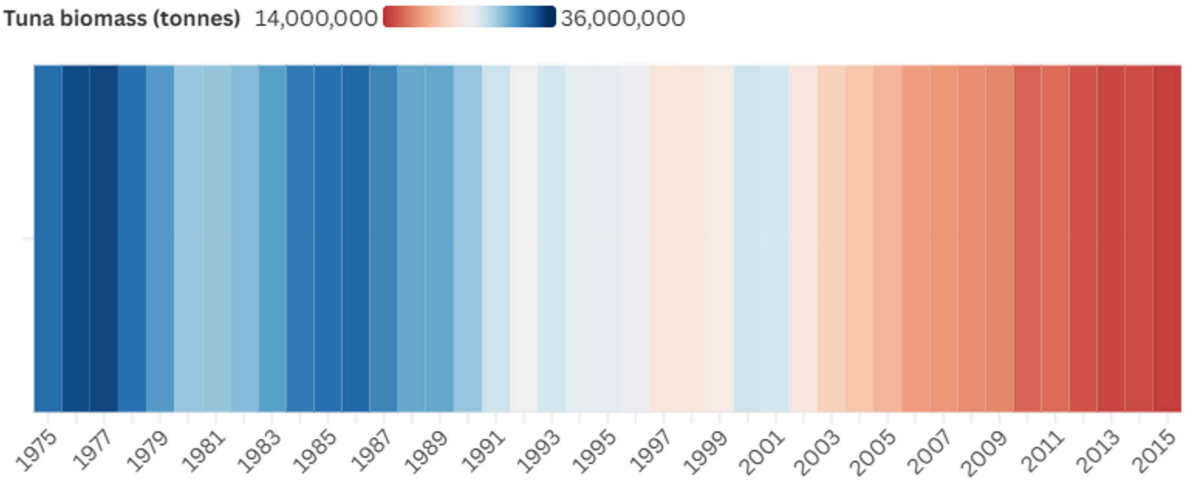


*Figure 2: The Tuna Stripes: combined evolution of the spawning stock biomass of 14 key commercial tuna stocks in tonnes. Source: Planet Tracker, based on RAM Legacy data.*

Currently, the biomass of most tuna stocks tends to be between 20% and 60% of its unfished level (i.e. the biomass of tuna before industrial fishing began).

*Table 1: Latest assessment of current spawning stock biomass as a function of unfished level biomass ($SSB/SSB_0$) for key commercial tuna stocks. Source: ISSF.*[1]

| Tuna Stock | $SSB/SSB_0$ |
|---|---|
| AO ALB S (Atlantic South Albacore) | 0.59 |
| AO ALB N (Atlantic North Albacore) | 0.57 |
| PO-ALB-N (Pacific Ocean Albacore North) | 0.54 |
| IO-SKJ (Indian Ocean Skipjack) | 0.53 |
| WCPO SKJ (Western & Central Pacific Skipjack) | 0.51 |
| PO-ALB-S (Pacific Ocean Albacore South) | 0.48 |
| WCPO YFT (Western & Central Pacific Yellowfin) | 0.47 |
| IO-YFT (Indian Ocean Yellowfin) | 0.44 |
| EPO SKJ (Eastern Pacific Skipjack) | 0.43 |
| AO YFT (Atlantic Ocean Yellowfin) | 0.43 |
| IO-ALB (Indian Ocean Albacore) | 0.36 |
| WCPO BET (Western & Central Pacific Bigeye) | 0.35 |
| AO BET (Atlantic Ocean Bigeye) | 0.28 |
| PO PBF (Pacific Ocean Bluefin) | 0.23 |
| SBT (Southern Ocean Bluefin) | 0.23 |
| AO ALB M (Mediterranean Albacore) | 0.22 |
| EPO YFT (Eastern Pacific Yellowfin) | 0.20 |
| EPO BET (Eastern Pacific Bigeye) | 0.18 |
| AO SKJ E (Atlantic West Skipjack) | NA |
| AO SKJ W (Atlantic East Skipjack) | NA |
| AO BFT E (Atlantic East Bluefin) | NA |
| AO BFT W (Atlantic West Bluefin) | NA |

According to the IUCN, the populations of each tuna species except the Southern bluefin tuna are decreasing.[2]

## General improvement thanks to regulations

Tuna stocks tend to be more depleted if they have high commercial value, are long-lived species, have a small pre-fishing biomass and have been subject to intense fishing pressure for a long time. In terms of solutions, implementing and enforcing total allowable catches (TACs) has the strongest positive influence on rebuilding overfished tuna stocks.[3] Thanks to such measures, in 2021, the IUCN re-assessed upwards the status of four species of tuna.[4]

According to the latest assessment of the International Seafood Sustainability Foundation (ISSF), an industry-funded NGO with key expertise on tuna, despite the decline in tuna biomass, globally "65% of the 23 key tuna commercial stocks are at a healthy level of abundance, 9% are overfished and 26% are at an intermediate level. About 87% of the total global tuna catch comes from healthy stocks in terms of abundance".[1]

According to the ISSF, 91% of tuna stocks are not experiencing overfishing, about 4% are experiencing overfishing and about 4% are at an intermediate level. 98% of the total catches comes from stocks that are not experiencing overfishing (most of the largest stocks are not experiencing overfishing).[3]

The definition of 'healthy' varies between stocks though, and in some cases, it is contested. For instance, there is considerable controversy around the status of yellowfin tuna in the Indian Ocean, rated in early 2025 as not overfished or subject to overfishing after a change in statistical model,[2] even though in July 2024 it was "unlikely to [rebuild] within the next two generations".[5]

## Climate change set to significantly impact tuna species

Looking ahead, scientists forecast that climate change is decreasing tuna species' global potential productivity by 36% by 2050.[6] Planet Tracker explored in detail the consequences of climate change on the tuna industry and what investors can do to mitigate it in a *case study on Indonesia*, the largest producer of tuna globally.

## An industry with a major adverse impact on other species

The industrial harvest of tuna also has a significant, adverse and large-scale impact on many species (seabirds, sea turtles, sharks, rays, marine mammals and other fish species, including other tuna species). For all tuna stocks except bluefin tuna in the Atlantic and Pacific, most of the catch is generated in a way that adversely impacts the population of these 'bycatch' species.[7] This is especially the case for albacore tuna, bigeye tuna and yellowfin tuna, and for purse-seines, longlines and gillnets.[7]

Longline fishing, which is used to catch tuna, has one of the highest bycatch rates of any fishing gear. For instance, in the Western and Central Pacific, Peatman et al. estimated the total catch of sharks by purse seiners to be close to 101,000 individuals a year, while the shark catch of the longline fleet was around 1,800,000 individuals.[8]

Purse seiners, which uses nets to surround tuna, also catch other species, as well as juvenile tuna species, hence impacting future biomass. This can happen because the nets are typically deployed near fish aggregating devices (FADs), which are floating structures thrown in the ocean and designed to attract marine species. Bycatch rates are several times higher for purse seine fishing with FADs (called 'floating objects' in the figure below) compared to purse seine fishing on free schools.[8]


*Figure 3: Relative impact of tuna fishing methods on non-target species in tuna fisheries. Source: ISSF*[7]

As a proportion of the total catch, purse seine fishing generally has a lower bycatch rate than longline, but because the volumes involved are very significant (66% of the global catch is made by purse seining, vs 9% for longline), the quantity of marine species adversely impacted and the area affected are both very high, covering 37% of the Earth's ocean surface.[8] [9]

This is especially the case for purse seine fishing with FADs and explains why FAD set limits are gradually being introduced.

The industry generally opposes a reduction of the use of FADs due to the associated impact on profitability.[10] One study estimated a drop in profitability of 7% associated to a 50% reduction in the reduction of FADs per fishing vessel, vs. a 10% drop in profitability associated to a 72-day closure of FAD fishing.[11] Other scientists have argued that compared to a temporary closure, a reduction in the number of FADs per vessel could yield economic benefits.[12]

**Box 1: The many issues with FADs**

It was argued that global tuna catches more than doubled since the early 1990s primarily due to the introduction of FADs, because their use increased the economic efficiency of the fleet by making it easier to aggregate and locate tuna schools.

Yet it came at a high ecological cost: significant catches of juvenile tunas, bycatch of many species, ghost fishing, marine pollution, and habitat destruction by abandoned FADs. Indeed, most FADs end up lost, stolen, beached, or abandoned, continuing their negative impacts. It was recently estimated that 1.41 million drifting FAD buoys were released between 2007 and 2021, drifting across at least 134 million square kilometres, or 37% of Earth's ocean surface.[9]

One recent paper argued that since deployed FADs are legally considered to be fishing, when they drift into closed areas or contravene agreements or regulations, they are Illegal, Unreported, and/or Unregulated (IUU), meaning that vessels using such FADs are therefore IUU.[13]

Overall, drifting FADs accelerate all five drivers of biodiversity loss: they contribute to overexploitation, negatively impact marine habitats, constitute a key form of pollution in the ocean, can host invasive species,[14] and are more fuel intensive than free-school purse seining,[15] thereby contributing more to climate change.

*Minimum requirements* around the responsible use of drifting FADs exist and need to be adopted by tuna fishing companies that use them.

## Sustainability initiatives

To mitigate these significant challenges, collaboration among retailers, NGOs, fishers and governments is delivering some results:

- Out of the 5.2 million tonnes of tuna caught globally, 1.6 million are certified by the Marine Stewardship Council, and another 20% of the total tuna catch is in assessment with a view to becoming certified.[16] Only 22% of global tuna catch is neither certified, in assessment or in a FIP (Fisheries Improvement Project)[f].
- 43 tuna Fishery Improvement Projects (FIPs) are actively implementing time-bound workplans to meet MSC standards, of which 23 are rated as making 'Advanced' or 'Good' progress.[17]
- The Global Tuna Alliance now counts over 40 major retailers and supply-chain companies working to drive policy and practice changes.[18]
- The Tuna Transparency Pledge led by The Nature Conservancy has rallied dozens of leading companies and even national governments to commit to 100% observer coverage—human or electronic—by 2027.[19]
- Many brands now promote pole-and-line caught or FAD-free tuna, reducing bycatch and ecosystem impacts while supporting coastal fishing communities.

f multi-stakeholder initiatives that aim to help fisheries work towards sustainability.

However, shortcomings remain, creating confusion and potential greenwashing risks:

- Many FIPs stall at planning stages or fail to deliver on-the-water improvements.[20]
- Many MSC-certified tuna fisheries do not meet global best practices across all criteria at first certification, and even though they enjoy the same market access privileges as fisheries with no conditions, many affected fisheries appear to not improve to best practice levels within a timely manner.[21]
- Half of MSC-certified tuna is caught using FADs (often associated with high rates of bycatch, capture of juvenile tuna, and pollution), according to the French NGO Bloom.[22]
- Forced labour still exists in the industry, including on certified vessels.[23]

### Industry role

The influence of the tuna industry on RFMO[g] negotiations has grown markedly over the past two decades. A recent analysis of Western & Central Pacific Fisheries Commission (WCPFC) meetings between 2005 and 2018 found that relative industry attendance nearly doubled during this period, and that industry members now almost equal government delegates in size. In half of the ten largest national delegations, corporate representatives outnumbered government policymakers. The study also outlines how "bigger" delegations—bolstered by industry actors—tend to coincide with greater fishing rights and outcomes.[24]

Yet opaque delegation records make it difficult to trace which corporate entities are driving agendas—whether to secure higher quotas or to push for stronger or weaker sustainability measures.

### Transparency

That lack of transparency is present throughout the tuna fishing industry. Prior to the release of this report, investors would find it very challenging to identify the largest harvesters of tuna, their market share, where exactly they operate, or to find corporate-specific details on the sustainability risks faced by these companies, because in most cases, this information does not exist.

Catch data is generally reported at the country/flag level. This is largely because this data is much easier to secure from official catch data than ownership by company name. Yet using flags as a key indicator to derive conclusions has many pitfalls, including:

- many vessels use flags of convenience (whereby companies flag their vessels in a jurisdiction with lower transparency requirements, to avoid financial charges or restrictive regulations in the owner's country.

- vessels flagged to a given country are often controlled by foreign-based entities.

For instance, focusing on the top 30 fisheries and flags combination for tuna shows a high proportion of countries from the Global South. Yet our analysis later in this report reveals that 94% of the catch of the thirty largest tuna harvesters is controlled by companies located in countries defined as high-income or upper middle-income country by the World Bank.

g Regional Fisheries Management Organisations, international bodies made up of countries that share a practical and/or financial interest in managing and conserving fish stocks in a particular region.

*Table 2: Top 30 fisheries (by species and region) and flag combinations. Source: ISSF, Planet Tracker. SKJ= skipjack, YFT = yellowfin, BET= bigeye, ALB = albacore, WPO = Western and Central Pacific Ocean, EPO = Eastern Pacific Ocean, IO = Indian Ocean, PO = Pacific Ocean, AO = Atlantic Ocean, N= North, S = South, E = East, W= West.*[1]

| Rank | Flag and stock combination | Total tuna catch in stock by flag country (tonnes, 2022) | % of global tuna catch |
|---|---|---|---|
| 1 | Mixed flags_WPO-SKJ | 1,694,720 | 33% |
| 2 | Mixed flags_WPO-YFT | 695,335 | 13% |
| 3 | Ecuador_EPO-SKJ | 169,853 | 3% |
| 4 | Indonesia_IO-SKJ | 143,333 | 3% |
| 5 | Mixed flags_WPO-BET | 140,448 | 3% |
| 6 | Maldives_IO-SKJ | 126,386 | 2% |
| 7 | Mexico_EPO-YFT | 119,478 | 2% |
| 8 | Spain_IO-SKJ | 88,992 | 2% |
| 9 | Iran_IO-SKJ | 78,598 | 2% |
| 10 | Seychelles_IO-SKJ | 78,553 | 2% |
| 11 | Mixed flags_PO-ALB-S | 77,912 | 2% |
| 12 | Ghana_AO-SKJ-E | 76,751 | 1% |
| 13 | Oman_IO-YFT | 74,801 | 1% |
| 14 | Ecuador_EPO-YFT | 59,823 | 1% |
| 15 | Mixed flags_PO-ALB-N | 49,354 | 1% |
| 16 | Panama_EPO-SKJ | 48,031 | 1% |
| 17 | Indonesia_IO-YFT | 48,025 | 1% |
| 18 | Senegal_AO-SKJ-E | 42,671 | 1% |
| 19 | Spain_IO-YFT | 42,218 | 1% |
| 20 | Panama_EPO-YFT | 39,148 | 1% |
| 21 | Iran_IO-YFT | 38,821 | 1% |
| 22 | France_IO-SKJ | 38,558 | 1% |
| 23 | Venezuela_EPO-YFT | 38,081 | 1% |
| 24 | Seychelles_IO-YFT | 35,967 | 1% |
| 25 | Spain_AO-SKJ-E | 35,732 | 1% |
| 26 | Indonesia_IO-BET | 33,127 | 1% |
| 27 | Sri Lanka_IO-SKJ | 30,652 | 1% |
| 28 | Sri Lanka_IO-YFT | 30,038 | 1% |
| 29 | Ghana_AO-YFT | 29,550 | 1% |
| 30 | Belize_AO-SKJ-E | 29,134 | 1% |

It therefore appears crucial to distinguish the companies responsible for some of these issues from those who advocate for progress, which is the goal of this report.

# Our approach

*Since most companies do not disclose catch, our innovative methodology relies on satellite signals to estimate the catch of large tuna fishing companies on a vessel-by-vessel basis.*

Our goal was to identify the largest tuna fishing companies globally by quantifying their catch and assess the transparency of their operations so that investors can better understand the unique sustainability risks each of them is exposed to.

## Identifying instances of tuna fishing

We chose a vessel-by-vessel methodology, using both a top-down approach (matching known tuna fishing companies to the vessels they own or operate), and a bottom-up one (investigating the owners or operators of tracked fishing vessels).

For the bottom-up approach, we started from the list of all fishing vessels covered by Global Fishing Watch, based on AIS data.[h]

Using the specifics of each of the 258,000 vessels, we then determined which of them fished tuna, based on vessel characteristics (type, gear, speed), and area of operations (matched with habitat maps for each commercial fish species, including non-tuna species).

This enabled us to create a database of 736,000 "likely tuna" fishing events for the year 2022, to zoom in a list of 2,153 vessels catching tuna and to calculate their tuna catch based on vessel characteristics (LOA, gear).

## Identifying tuna fishing companies

We then researched the beneficial owners of each of these vessels, which was often difficult since legal ownership information is unavailable for over 60% of the world's large-scale fishing fleet.[25] When a body of evidence suggested that a given company was likely to own or be associated with a given vessel (e.g. same physical address, same website/email address, same branding, etc.), we assumed this was the case.

We then calculated estimated catch for each company, and whenever available compared this to the data reported by companies in order to calibrate our model (which uses catch by fleet, gear, flag and EEZ based on Sea Around Us[26] data).

h The Automatic Identification System, or AIS, transmits a ship's position so that other ships are aware of its position. The International Maritime Organization and other management bodies require many commercial fishing vessels to broadcast their position with AIS to avoid collisions.

## Calculating tuna catch for each company

Once we calculated the tracked catch for each owner, we then estimated the actual total catch for each owner (or used reported data if available). This is to factor in the fact that a significant portion of tuna catch comes from vessels not equipped with AIS or with AIS switched off, and that we have not been able to link every single vessel to a company.

Further, we calculated the profitability of each AIS-equipped tuna fishing vessel based on catch, price, subsidies, fuel consumption, labour costs, transshipment costs, and EEZ access fees, and used this to make estimates of profitability at the company level.

## Limitations

Our analysis draws conclusions that are mostly based on estimated data, due to the general lack of catch transparency in the industry. It is therefore inherently limited by several assumptions and methodological choices, specified below.

## AIS-linked limitations

Our conclusions are based on catch estimates made based on AIS data only, but not all tuna vessels are equipped with or switch on AIS.

The IMO requires AIS use for all vessels > 500 GT and for any vessel >300GT that is on an "international voyage". In addition, many countries and RFMOs have, are considering or are creating AIS requirements within their waters for vessels flying their flags; for instance the EU requiring AIS use for vessels whose length exceeds 15 meters.[27]

In contrast, VMS (Vessel Monitoring System, a satellite tracking system that automatically transmits a fishing vessel's location, course, and speed to the fisheries monitoring centre of the relevant authority) is generally required for vessels targeting tuna,[28] but the data is normally not publicly available: only nine countries publicly release VMS data, and none of them are key tuna fishing nations.[29]

Our report is not the first to use AIS data to estimate catch data. Recently, AIS data was compared by scientists to reported catch data, suggesting reported catch data might be significantly underreported in the Indian Ocean.[30]

## Model limitations

We assumed that the actual breakdown of a company's total catch by stock was the same as that of the catch we could trace back to an AIS-equipped vessel. This means that we likely underestimate catch from areas not well covered by AIS, such as parts of the Indian Ocean.

Often, it is impossible to verify our estimated volumes, only in some cases the species caught and/or the areas harvested. For instance, our model estimates that the vessels that belong to the Spanish company Txopituna caught 9,421 tonnes of skipjack tuna, 4,910 tonnes of bigeye tuna and 2,293 tonnes of yellowfin tuna in the Eastern Central Pacific Ocean. On its website, the company says it catches skipjack tuna, bigeye tuna and yellowfin tuna in the Eastern Pacific Ocean.[31]

Overall, not many companies publish enough granular data to fully assess the reliability of our model. Yet comparing the reported and modelled catch by species and stock for one of the rare companies that does (Bolton Group) is encouraging (although it shows we underestimate catch in the Indian Ocean), even though only 8% of Bolton Group's tuna sourcing is caught by their own vessels.[32]

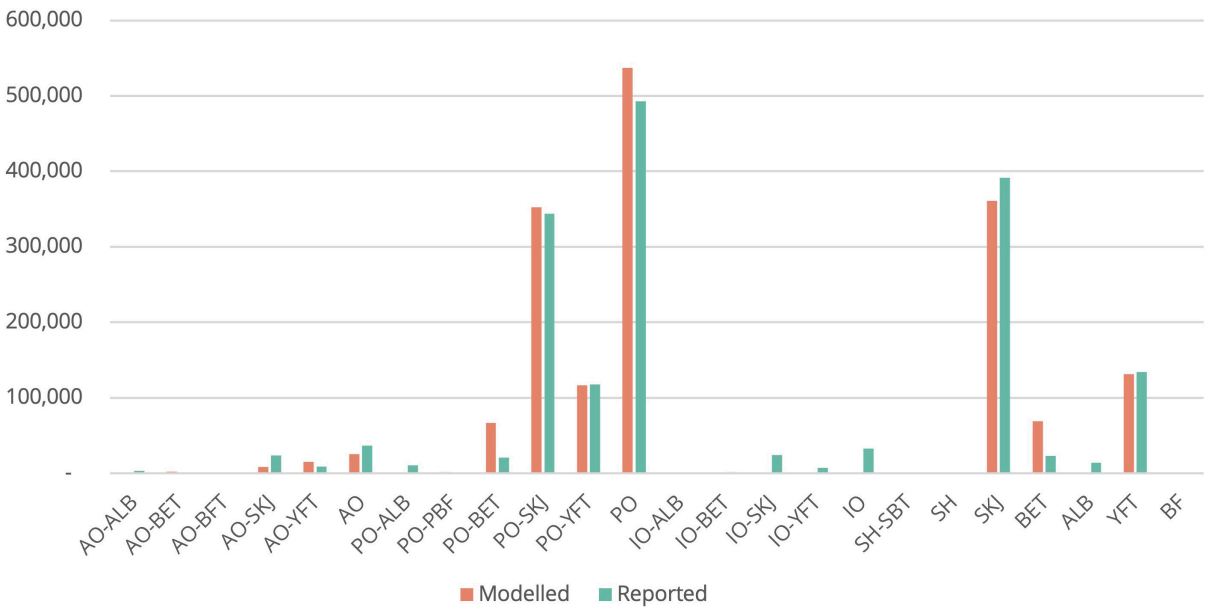


*Figure 4: Modelled vs reported tuna sourcing by ocean and species at Bolton Group. Source: Planet Tracker, Bolton Group. SKJ= skipjack, YFT = yellowfin, BET= bigeye, ALB = albacore, WPO = Western and Central Pacific Ocean, EPO = Eastern Pacific Ocean, IO = Indian Ocean, PO = Pacific Ocean, AO = Atlantic Ocean*

Profitability estimates are even harder to gauge, given the transnational nature of the industry and the general lack of disclosure on key drivers of profitability, such as subsidies per company or vessel. Unfortunately, data rarely exists to corroborate modelled data with reported data.

Yet our *previous work on tuna in Indonesia* showed that the profitability of companies ranking top for sustainability was in line with or above the average.

*Further details on our Methodology, which uses the PyMC probabilistic programming language written in Python, alongside a catch-profitability model written in SQL can be available upon request.*

# Introducing the Tuna 30

*We reveal the list of the thirty largest companies fishing close to half of the world's tuna. They are typically Spanish, Korean, Chinese or Japanese.*

### 30 companies harvest an estimated 46% of the world's tuna

Having estimated the tuna catch of every tuna vessel tracked by AIS, we then matched each vessel to its likely owner, operator and ultimate beneficial owner, whenever possible.

This allowed us to identify the key companies that extract tuna from our ocean. Out of these, we focus on the 'Tuna 30', the thirty largest harvesters of tuna globally.

Collectively, we estimate that they catch 2.369 million tonnes of tuna, or 46% of global tuna catches.

*Table 3: The 'Tuna 30': the largest harvesters of tuna globally.*
*Source: Planet Tracker, Global Fishing Watch, companies' disclosure.*

| Rank | Company name | Headquarter | Estimated own company tuna catch (tonnes) |
|---|---|---|---|
| 1 | BRIGHT FOOD GROUP | China | 211,978 |
| 2 | DONGWON INDUSTRIES | South Korea | 210,000 |
| 3 | NAUTERRA | Spain | 192,685 |
| 4 | JEALSA RIANXEIRA | Spain | 186,000 |
| 5 | SILLA CO LTD | South Korea | 172,000 |
| 6 | ALBACORA GROUP | Spain | 156,000 |
| 7 | NISSUI | Japan | 150,000 |
| 8 | SAJODAERIM CORP | South Korea | 145,000 |
| 9 | FRABELLE GROUP | Philippines | 100,000 |
| 10 | FCF GROUP | Taiwan | 81,628 ** |
| 11 | GRUPO PINSA | Mexico | 75,000 |
| 12 | ZHEJIANG OCEAN FAMILY | China | 73,891 |
| 13 | WORLDWIDE FISHING COMPANY | Spain | 71,429 |
| 14 | PARLEVLIET & VAN DER PLAS | Netherlands | 59,091 |
| 15 | NEGOCIOS INDUSTRIALES REAL NIRSA SA | Ecuador | 53,601 |
| 16 | MARUHA NICHIRO | Japan | 47,000 |
| 17 | BOLTON GROUP | Italy | 45,000 |
| 18 | GRUPO PEZATUN | Venezuela | 44,085 |
| 19 | FUKUICHI | Japan | 43,370 |
| 20 | CAROLINE FISHERIES | Micronesia | 36,966 |
| 21 | CHINA NATIONAL AGRICULTURAL DEVELOPMENT GROUP | China | 30,991 |
| 22 | KYOKUYO CO | Japan | 28,000 |
| 23 | GRUPO CIMERA | Ecuador | 25,932 |
| 24 | ATUNSA | Spain | 24,926 |
| 25 | INEPACA | Ecuador | 24,522 |
| 26 | SAPMER | France | 18,182 |
| 27 | GRUPOMAR | Mexico | 16,648 |
| 28 | GRUPO BUITRAGO | Ecuador | 16,000 |
| 29 | FISHECUADOR | Ecuador | 15,437 |
| 30 | THAI UNION GROUP | Thailand | 14,065 *** |

** Note: Bolton Group sources 562,270 tonnes of tuna, of which 8% comes from their own vessels.[32]*
***FCF Group sources an estimated 600,000 tonnes of tuna, of which we estimate 81,628 comes from their own vessels.*
**** Thai Union sources an estimated 456,000 tonnes of tuna, of which we estimate 14,065 comes from their own vessels.*

The Tuna 30 exclude large processers or traders of tuna that do not harvest any of it themselves from the wild. It therefore differs from any existing lists of the largest 'tuna companies', which often predominantly feature processors of tuna or traders.

## Spain, South Korea, China and Japan dominate the Tuna 30

Within the Tuna 30, Spain, South Korea, China and Japan top the list.

Tuna 30 companies headquartered in these four countries account for two-thirds of the total catch of Tuna 30 companies.

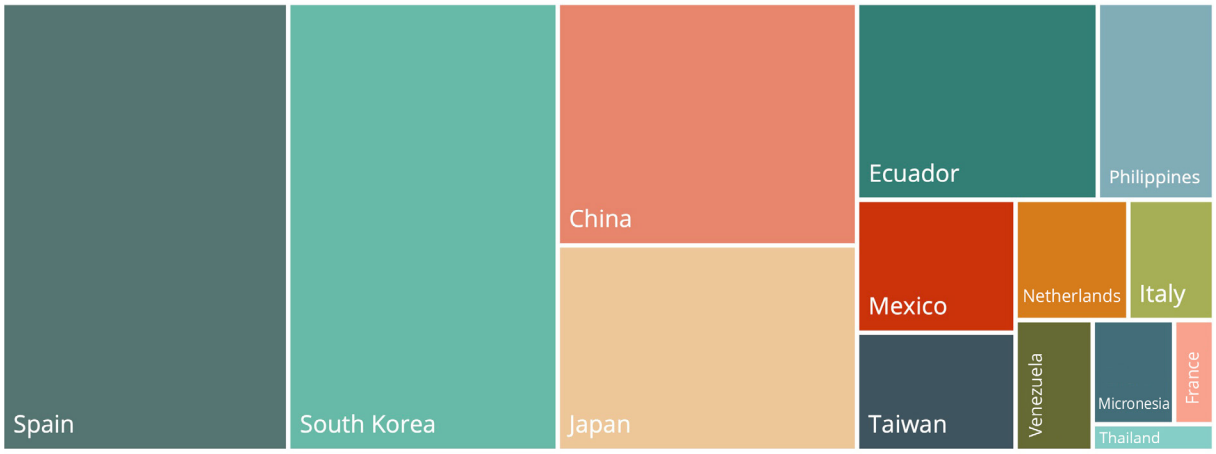


*Figure 5: Breakdown of tuna volumes caught by the Tuna 30, by country of headquarters. Source: Planet Tracker.*

Because in many cases vessels owned by these companies use flags different from that of the country the company is headquartered in (including but not only flags of convenience), the total catch of Tuna 30 companies headquartered in many countries including Spain, South Korea, China, Italy or the Netherlands is higher than that of the entire fleet of these countries.

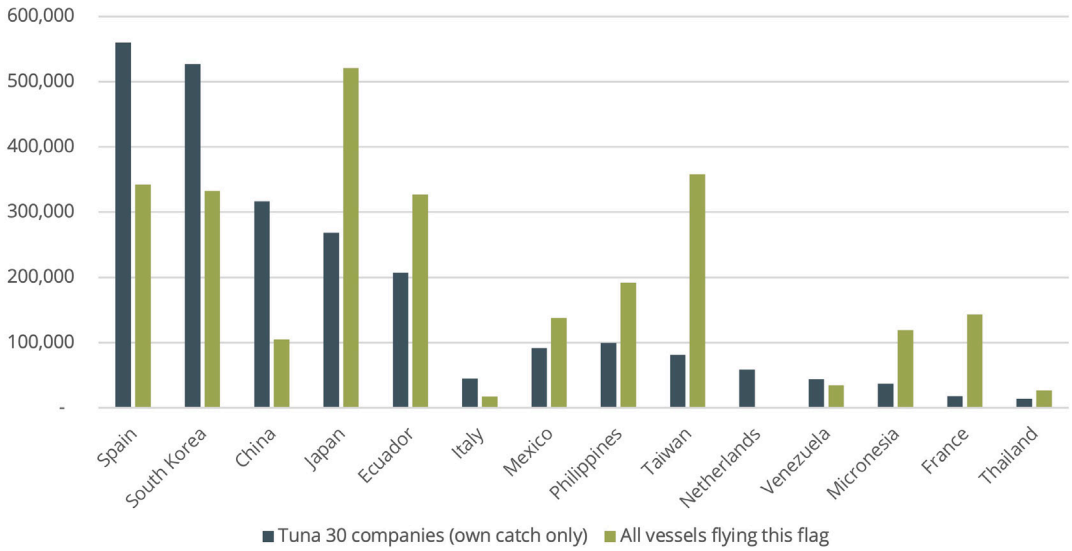


*Figure 6: Tuna volumes caught by the Tuna 30, by country of headquarters vs. total catch of vessels flagged to each of these countries. Source: Planet Tracker.*

# Simply not the best: poor disclosure and catch transparency at the Tuna 30

*Only four out of the thirty largest tuna fishing companies disclose how much tuna they catch. About 56% of the Tuna 30's catch cannot be traced to specific companies because the vessels involved don't use or switch off trackable identification systems.*

## Poor disclosure on tuna catches across the board

Transparency at the Tuna 30 is generally low, which makes it hard to assess their exposure or contribution to risks such as overfishing. For instance, only four out of the 30 companies report how much tuna they source from the ocean, and only one company (Bolton Group) reports on all the indicators we scored. This should be the benchmark for every tuna harvester.

*Table 4: Disclosure information at the "Tuna 30". Source: Planet Tracker, based on company websites and MSC.*

| Company info | | | Does the company report...? | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Name | Country | Own catch volumes (tonnes) | ... its total tuna catch in tonnes? | ... the exact species of tuna it catches? | ... where it catches tuna? | ... how it catches tuna? | ... the catch volume for each species of tuna it catches? | ... the catch volume for each fishing gear? | ... the catch volume for each catch location? | ... whether it catches tuna from either MSC-certified or FIP fisheries? | ... how much tuna it catches from either MSC-certified or FIP fisheries?* |
| BRIGHT FOOD GROUP | China | 211,978 | No | Yes | Yes | Yes | No | No | No | No | No |
| DONGWON INDUSTRIES | South Korea | 210,000 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes |
| NAUTERRA | Spain | 192,685 | No | Yes | Yes | No | Yes [1] | Yes [1] | Yes [1] | Yes | Yes |
| JEALSA RIANXEIRA | Spain | 186,000 | No | Yes | No | No | No | No | No | No | No |
| SILLA CO LTD | South Korea | 172,000 | No | No | Yes | Yes | No | No | No | Yes | No |
| ALBACORA GROUP | Spain | 156,000 | No | Yes | No | Yes | No | No | No | Yes | No |
| NISSUI | Japan | 150,000 | No | Yes | No | No | No | No | No | Yes | Yes |
| SAJODAERIM CORP | South Korea | 145,000 | No | No | No | Yes | No | No | No | Yes | No |
| FRABELLE GROUP | Philippines | 100,000 | No | No | Yes | Yes | No | No | No | No | No |
| FCF GROUP | Taiwan | 81,628 | No | Yes | Yes | Yes | No | No | No | Yes | Yes |
| GRUPO PINSA | Mexico | 75,000 | No | Yes | No | No | No | No | No | No | No |

| Company info | | | Does the company report...? | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Name | Country | Own catch volumes (tonnes) | ... its total tuna catch in tonnes? | ... the exact species of tuna it catches? | ... where it catches tuna? | ... how it catches tuna? | ... the catch volume for each species of tuna it catches? | ... the catch volume for each fishing gear? | ... the catch volume for each catch location? | ... whether it catches tuna from either MSC-certified or FIP fisheries? | ... how much tuna it catches from either MSC-certified or FIP fisheries?* |
| ZHEJIANG OCEAN FAMILY | China | 73,891 | No | Yes | No | Yes | No | No | No | No | No |
| WORLDWIDE FISHING COMPANY | Spain | 71,429 | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| PARLEVLIET & VAN DER PLAS | Netherlands | 59,091 | No | Yes | Yes | Yes | No | No | No | Yes | No |
| NEGOCIOS INDUSTRIALES REAL NIRSA SA | Ecuador | 53,601 | No | No | No | No | No | No | No | Yes | No |
| MARUHA NICHIRO | Japan | 47,000 | Yes | No | No | No | No | No | No | Yes | No |
| BOLTON GROUP | Italy | 45,000 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| GRUPO PEZATUN | Venezuela | 44,085 | No | No | Yes | Yes | No | No | No | No | No |
| FUKUICHI | Japan | 43,370 | No | No | Yes | Yes | No | No | No | No | No |
| CAROLINE FISHERIES | Micronesia | 36,966 | No | Yes | Yes | Yes | No | Yes | No | Yes | No |
| CHINA NATIONAL AGRICULTURAL DEVELOPMENT GROUP | China | 30,991 | No | No | No | Yes | No | No | No | No | No |
| KYOKUYO CO | Japan | 28,000 | Yes | No | Yes | Yes | No | Yes | No | No | No |
| GRUPO CIMERA | Ecuador | 25,932 | No | No | Yes | Yes | No | Yes | No | No | No |
| ATUNSA | Spain | 24,926 | No | Yes | Yes | Yes | No | No | No | No | No |
| INEPACA | Ecuador | 24,522 | No | No | No | No | No | No | No | No | No |
| SAPMER | France | 18,182 | No | Yes | Yes | Yes | No | No | No | Yes | No |
| GRUPOMAR | Mexico | 16,648 | No | No | No | No | No | No | No | No | No |
| GRUPO BUITRAGO | Ecuador | 16,000 | No | No | Yes | Yes | No | Yes | No | No | No |
| FISHECUADOR | Ecuador | 15,437 | No | No | No | No | No | No | No | Yes | No |
| THAI UNION GROUP | Thailand | 14,065 | No | Yes | Yes | Yes | No | No | No | Yes | Yes |

*Note: in almost all 'Yes' cases, MSC-certified volumes are not actually reported by the company but disclosed on the relevant pages of MSC-certified fisheries. The real numbers might be higher.

(1) Nauterra only discloses the proportion of volumes by locations, not the absolute volumes per location.

A low transparency around catch level is problematic since it prevents investors from understanding what specific sustainability risks a given company is exposed to. Worse, it might lead some to believe a company might hide its exposure to some risks, even though it might not be the case.

Instead, disclosing catch volumes by species, location and gear is enough for external stakeholders to estimate with a good margin of error a company's exposure to specific risks such as overfishing or bycatch (since these are location-, species- and gear- dependent). Additionally, any disclosure on the proportion of volumes that are certified and/or in a FIP provide useful indication too (mindful of the shortcomings mentioned earlier).

### AIS catch data vs company catch data

To mitigate the low transparency on catch across the board, we estimated tuna catch using AIS data, as per the methodology described earlier.

However, in most cases, the actual catch of a given company is greater than the sum of the catches of the company's vessels we tracked via AIS. This is expected since:

- Not all catch is derived from vessels tracked by AIS (in particular, some catch can be sourced from artisanal fisheries).
- Some of a company's vessels can be industrial vessels and yet below the threshold that requires implementation of AIS.
- Not all jurisdictions require continued use of AIS.
- AIS signal can be lost due bad weather or satellite connection.
- AIS signal can be switched off for safety reasons (e.g. to avoid piracy), or for competition issues (to avoid signalling good fishing grounds to competitors).[33]
- Some companies do not own any or most of the vessels that supply them (e.g. Thai Union) and do not publish the list of their suppliers.
- In some cases Planet Tracker was not able to link vessels to an owner (the owner is not identifiable or is a shell company).
- There is a margin of error in our catch estimates, which can significantly affect the difference between the proportion of AIS tracked tuna to the total, especially if the latter is estimated.

## Introducing 'dark tuna'

Comparing estimated company catches to estimated company catches tracked by AIS can be insightful. A company sourcing a large proportion of its tuna from vessels without AIS on and with little or no sourcing from artisanal vessels is more likely to be willingly opaque than one with a high proportion of catches coming from tracked vessels.

We therefore define 'dark tuna' as the difference between a company's reported or estimated catch and the catch that we were able to assign to an AIS-tracked vessel that belong to, are operated by or linked to the company. There is no assumption of wrongdoing in Planet Tracker calling this sourcing 'dark tuna'. All words in this definition are important since:

- We posit that many companies (especially large processors) can trace back catches to an AIS-tracked vessel, but that data is not publicly available (e.g. because the list of their suppliers is not public), or Planet Tracker was not able to find it.
- Some catch is likely to be traceable to a fishery, or even to a vessel, but that vessel is not equipped with AIS.
- Some vessels are at first glance not operated or owned by a company, but there is a body of evidence that suggests they supply that company.

Below we rank the Tuna 30 by their relative level of catch transparency:

*Table 5: Comparison of estimated and tracked tuna catches at the 'Tuna 30' – the largest harvesters of tuna globally. Source: Planet Tracker, Global Fishing Watch, where 'dark tuna' is defined as the difference between a company's reported or estimated catch and the catch that can publicly be traced back to an AIS-tracked vessel owned by, operated by or linked to the company.*

| Company name | Planet Tracker estimate of own tuna catch (tonnes) | Catch traced back to an AIS-tracked vessel (tonnes) | Proportion of 'dark tuna' (own catch only) |
|---|---|---|---|
| FISHECUADOR | 15,437 | 15,437 | 0% |
| INEPACA | 24,522 | 24,522 | 0% |
| CAROLINE FISHERIES | 36,966 | 36,966 | 0% |
| BOLTON GROUP | 45,000 | 45,0000 | 0% |
| THAI UNION | 14,065 | 14,065 | 0% |
| FRABELLE GROUP | 100,000 | 91,481 | 9% |
| ZHEJIANG OCEAN FAMILY | 73,891 | 67,283 | 9% |
| GRUPO CIMERA | 25,932 | 22,614 | 13% |
| NEGOCIOS INDUSTRIALES REAL NIRSA SA | 53,601 | 44,355 | 17% |
| GRUPO PINSA | 75,000 | 91,102 | 18% |
| GRUPO BUITRAGO | 16,000 | 12,457 | 22% |
| GRUPOMAR | 16,648 | 12,486 | 25% |
| FUKUICHI | 43,370 | 32,528 | 25% |
| ATUNSA | 24,926 | 17,805 | 29% |
| PARLEVLIET & VAN DER PLAS | 59,091 | 41,002 | 31% |
| SAJODAERIM CORP | 145,000 | 92,589 | 36% |
| SILLA CO LTD | 172,000 | 94,280 | 45% |
| WORLDWIDE FISHING COMPANY | 71,429 | 30,450 | 57% |
| DONGWON INDUSTRIES | 210,000 | 79,814 | 62% |
| ALBACORA GROUP | 156,000 | 45,772 | 71% |
| CHINA NATIONAL AGRICULTURAL DEVELOPMENT GROUP | 30,991 | 8,529 | 72% |
| GRUPO PEZATUN | 44,085 | 11,021 | 75% |
| BRIGHT FOOD GROUP | 211,978 | 46,956 | 78% |
| KYOKUYO CO | 28,000 | 3,896 | 86% |
| JEALSA RIANXEIRA | 186,000 | 7,818 | 96% |
| MARUHA NICHIRO | 47,000 | 380 | 99% |
| NAUTERRA | 192,685 | 2,888 | 99% |
| NISSUI | 150,000 | 2,160 | 99% |
| SAPMER | 18,182 | - | 100% |
| **Total Tuna 30** | **2,369,427** | **1,048,513** | **56%** |
| **Global Total** | **5,179,918** | **2,065,815** | **60%** |

Some of the largest companies globally are also some of the least transparent on their tuna harvesting, as can be seen below.

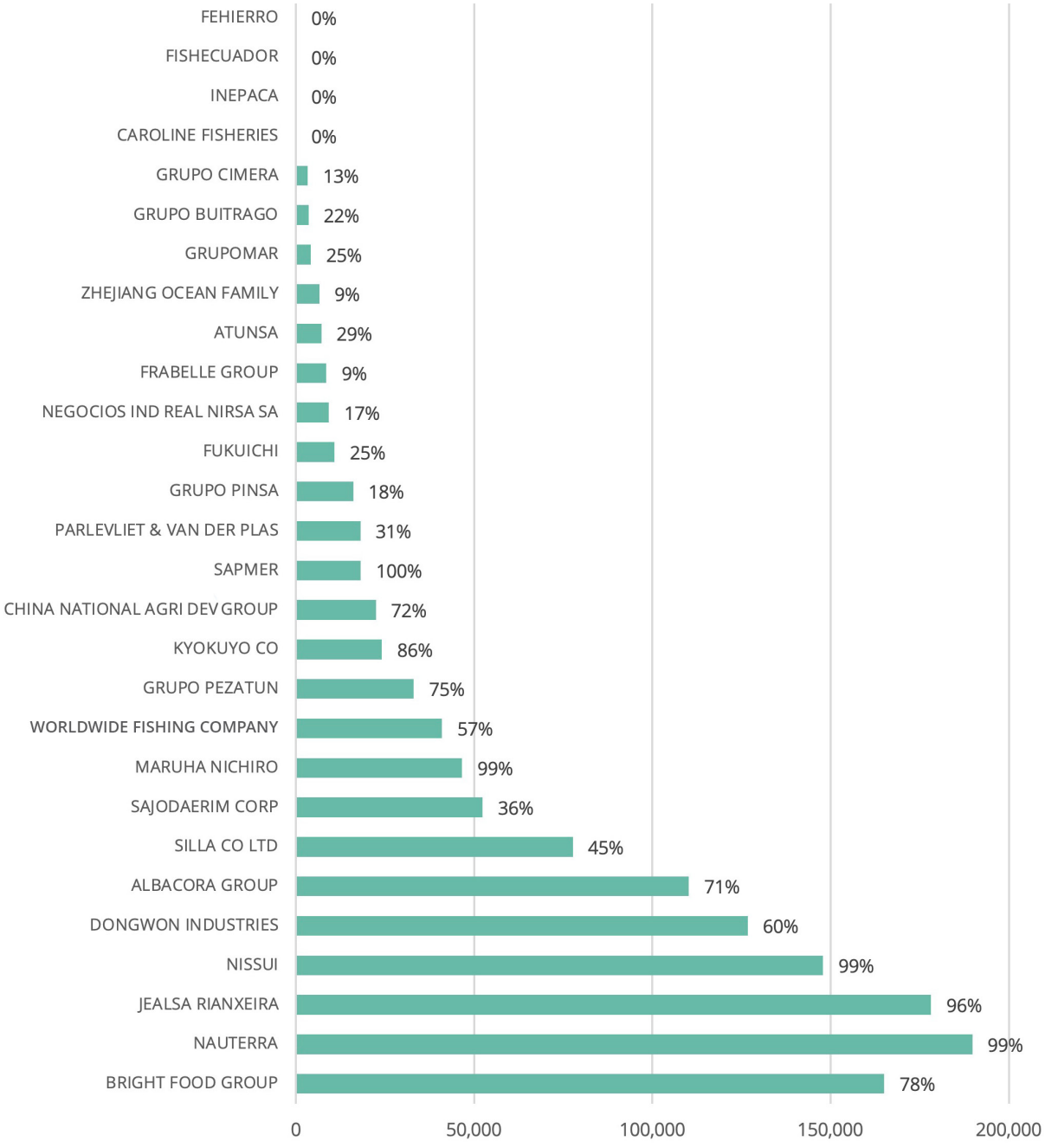


*Figure 7: Largest harvesters of 'dark tuna' among the Tuna 30, with est. 'dark tuna' volumes in tonnes and proportion of total catch. Source: Planet Tracker, Global Fishing Watch, where 'dark tuna' is defined as the difference between a company's reported or estimated catch and the catch that can publicly be traced back to an AIS-tracked vessel owned by, operated by or linked to the company.*

Within the Tuna 30, Spain, South Korea, China and Japan top the list of countries whose companies catch the largest volumes of 'dark tuna'.

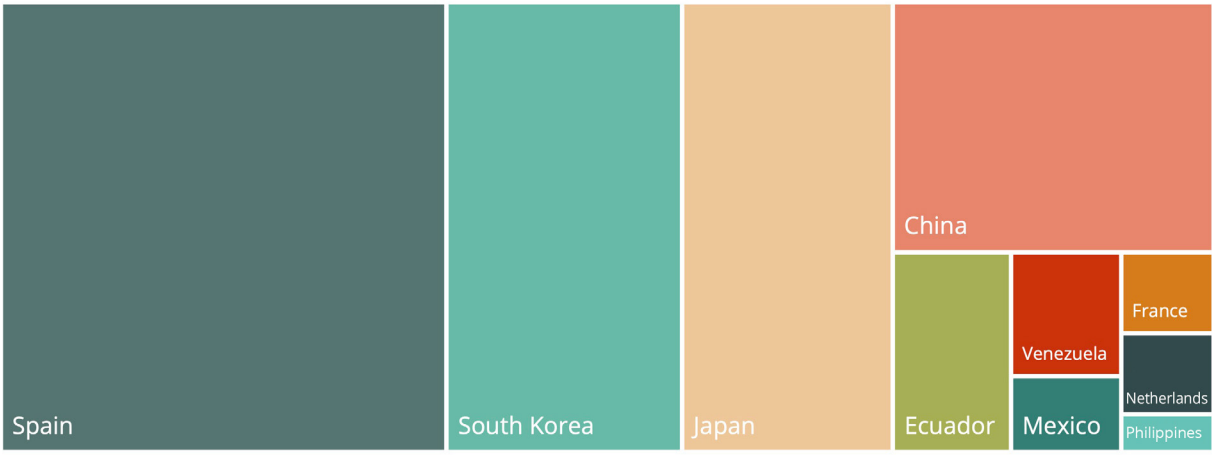


*Figure 8: Breakdown of 'dark tuna' volumes caught by the Tuna 30, by country of headquarters. Source: Planet Tracker.*

Many large tuna companies such as Thai Union or Bolton Group predominantly source tuna from external suppliers, as opposed to catching it themselves (e.g. 92% of Bolton tuna volumes is sourced externally).[32]

For these companies, it is quasi-impossible to determine the proportion of 'dark tuna' since in most cases, the list of suppliers is not disclosed, and even if it is (e.g. Mitsubishi discloses it sources tuna from Dongwon and Sajo among others),[34] it is impossible to know how much tuna is caught from each supplier.

As a result, the proportion of 'dark tuna' might be significant for these companies, because it is impossible for us to link their tuna back to specific vessels, even though in many cases the companies are likely to have this information internally.

However, given their influence on tuna supply chains, we argue that such companies should at least publish the list of their suppliers.

*Table 6: Externally sourced tuna at large processers or traders of tuna predominantly supplied externally. Source: Planet Tracker, companies. These volumes exclude tuna caught by the company.*

| Company | Externally sourced tuna (tonnes, est.) | % of tuna externally sourced (est.) |
|---|---|---|
| FCF GROUP | 518,372 | 86% |
| BOLTON GROUP | 451,431 | 92% |
| THAI UNION GROUP | 441,935 | 97% |
| CENTURY PACIFIC | 199,680 | 100% |
| ITOCHU | 187,500 | 100% |
| FRINSA DEL NOROESTE | 150,000 | 100% |
| CHOTIWAT MANUFACTURING CO LTD. | 135,014 | 100% |
| MITSUBISHI CORPORATION | 100,000 | 100% |
| RD CORPORATION | 64,014 | 88% |
| PT ANEKA TUNA INDONESIA | 60,000 | 100% |
| SOJITZ | 35,000 | 100% |
| HAGOROMO FOODS | 28,280 | 100% |
| PRINCES GROUP | 11,000 | 100% |

Overall, we estimate that 60% of the world's catch and 56% of that of the Tuna 30 is 'dark', meaning we were not able to assign it to an AIS-tracked vessel that belong to, are operated by or linked to a given company.

Since research led by Global Fishing Watch found that 72–76% of the world's industrial fishing vessels are not publicly tracked with AIS,[35] this is not a surprise: tuna harvesting is skewed to large vessels, with a high catch per vessel, so it makes sense that the proportion of dark catches is lower than that of industrial vessels.

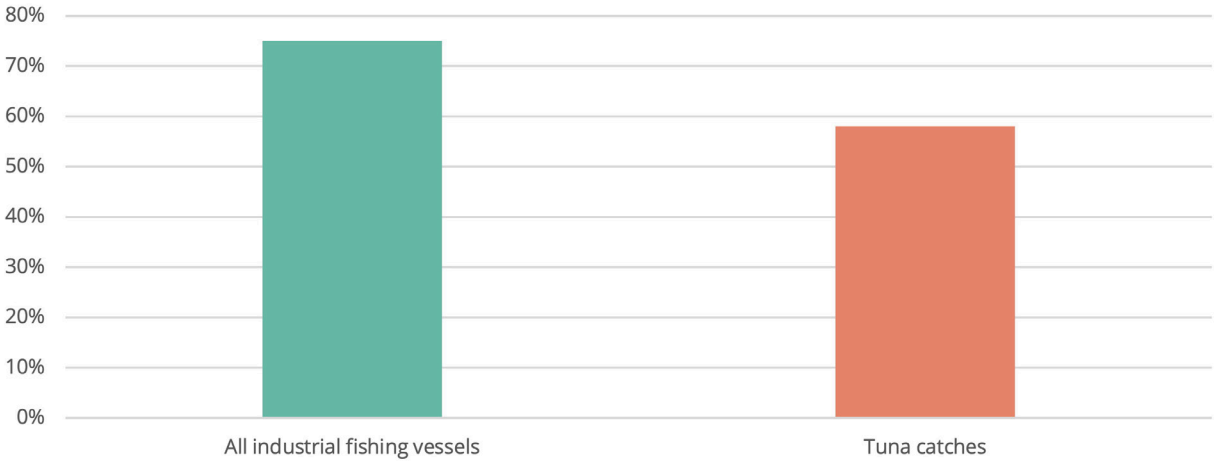


*Figure 9: Proportion of 'dark' industrial fishing vessels and tuna catches. Source: Planet Tracker, Global Fishing Watch.*

A key question arises: what happens when AIS is not in use? To answer this, we have analysed AIS gaps (as defined by Global Fishing Watch)[36] for each fishing vessel and therefore for each company.

# On silent wings: an AIS gap analysis

*Analysing with over 5,000 intentional disablings of satellite tracking systems shows that many major tuna companies likely spend significantly more time fishing with their tracking systems turned off than on. This lack of transparency makes it difficult for investors to assess risks and verify sustainable fishing practices in the supply chain.*

An AIS gap is a temporary gap in the reception of AIS signal. It can indicate intentional disabling of AIS by vessels, for instance to avoid attracting competitors to fishing grounds, to avoid being detected by potential pirates or to fish in an area a vessel is not supposed to. But it can also be caused by technical issues like poor satellite coverage or signal interference.

Planet Tracker only analysed intentional disabling events.

Each AIS gap event (as per Global Fishing Watch data) contains the distance travelled during the AIS gap, as well as its duration. From this, we calculated the average speed of each vessel during the AIS gap and interpreted possible behaviour. If the speed is inferior or equal to 2.5 knots, we have assumed the vessel could have been fishing or stayed idle. For average speeds greater than 6 knots, we have assumed the vessel was likely in transit. Speeds between these two thresholds were considered to be indicative of an unclear behaviour. This interpretation contains many limitations and is therefore only useful when applied to many AIS gaps, as opposed to individual events. Overall, we tracked more than 5,400 AIS gaps and assigned 1,739 of them to Tuna 30 companies.

There is no assumption of wrongdoing in Planet Tracker's analysis of these AIS gaps, since in many cases AIS is not required and since any fishing activity that might have occurred during these gaps is likely to have been tracked via VMS data (which authorities can access but the public cannot).

Still, analysing why the vessels of certain companies potentially spend as much as three to sixty times with AIS signal off compared to fishing with AIS on might be illuminating.

Overall, most Tuna 30 companies are possibly spending more time fishing with AIS switched off than with AIS on.

*Table 7: AIS gap analysis at the Tuna 30. Source: Planet Tracker, Global Fishing Watch.*

| Company | # of AIS gaps | Of which likely behaviour is Idle / Fishing | Likely behaviour: Transit | Unclear behaviour | Total AIS Gap duration (hours) | Total fishing hours | AIS gap duration / fishing hours ratio |
|---|---|---|---|---|---|---|---|
| KYOKUYO CO | 27 | 78% | 11% | 11% | 9,437 | 158 | 59.7 |
| JEALSA RIANXEIRA | 68 | 54% | 16% | 29% | 11,104 | 648 | 17.1 |
| ATUNSA | 71 | 52% | 20% | 28% | 12,881 | 897 | 14.4 |
| GRUPOMAR | 10 | 80% | 10% | 10% | 8,235 | 952 | 8.7 |
| ALBACORA GROUP | 86 | 44% | 29% | 27% | 25,132 | 3,186 | 7.9 |
| FUKUICHI | 30 | 73% | 10% | 17% | 8,312 | 1,102 | 7.5 |
| WORLDWIDE FISHING COMAPNY | 23 | 70% | 22% | 9% | 22,293 | 3,313 | 6.7 |
| CAROLINE FISHERIES | 21 | 71% | 0% | 29% | 9,822 | 1,840 | 5.3 |
| GRUPO BUITRAGO | 27 | 67% | 15% | 19% | 6,200 | 1,496 | 4.1 |
| NEGOCIOS INDUSTRIALES REAL NIRSA SA | 195 | 26% | 41% | 33% | 24,464 | 6,250 | 3.9 |
| GRUPO PINSA | 124 | 49% | 18% | 33% | 39,813 | 11,890 | 3.3 |
| THAI UNION GROUP | 17 | 59% | 12% | 29% | 5,947 | 2,165 | 2.7 |
| FISHECUADOR | 18 | 67% | 11% | 22% | 4,794 | 2,128 | 2.3 |
| BOLTON GROUP | 90 | 53% | 24% | 22% | 38,654 | 18,304 | 2.1 |
| INEPACA | 15 | 93% | 0% | 7% | 6,012 | 3,171 | 1.9 |
| PARLEVLIET & VAN DER PLAS | 266 | 48% | 21% | 30% | 33,105 | 23,873 | 1.4 |
| FONG KUO FISHERY GROUP | 57 | 60% | 25% | 16% | 7,301 | 9,764 | 0.7 |
| ZHEJIANG OCEAN FAMILY | 46 | 74% | 15% | 11% | 9,271 | 17,858 | 0.5 |
| SILLA CO LTD | 68 | 57% | 24% | 19% | 19,195 | 40,218 | 0.5 |
| GRUPO CIMERA | 13 | 46% | 0% | 54% | 1,279 | 4,027 | 0.3 |
| SAJODAERIM CORP | 112 | 64% | 18% | 18% | 25,961 | 134,259 | 0.2 |
| CHINA NATIONAL AGRICULTURAL DEVELOPMENT GROUP | 115 | 61% | 14% | 25% | 11,551 | 190,682 | 0.1 |
| DONGWON INDUSTRIES | 92 | 71% | 13% | 16% | 15,440 | 131,576 | 0.1 |
| FRABELLE GROUP | 8 | 88% | 0% | 13% | 1,598 | 10,670 | 0.1 |

Reducing the proportion of 'dark tuna' and improving use of AIS is key to increase investor confidence and reduce risks. For fishing companies, greater transparency on fishing vessels ownership and operations and improved use of AIS are both needed.

This would also enable verifiable traceability further down the supply chain (VMS data enable traceability too but cannot be obtained without the company or the regulator's approval, unless it is publicly available, like in the case of Peru, Chile, Panama or Norway – none of them being key tuna fishing nations).

# What's location got to do with it?

*Sustainability issues vary considerably within tuna stocks. Yet most tuna fishing companies do not report where they fish. We therefore estimated the top harvesters of tuna per stock.*

Reducing the proportion of 'dark tuna' would improve data quality regarding volume, location, species and gear, which in turn would help investors prioritise engagement on key sustainability issues for each company.

This is because conservation and management issues differ significantly based on the stock of tuna, and different companies are affecting each stock in different proportions.

## Different oceans, different harvesters

For instance, the two estimated largest harvesters of tuna globally (Bright Food Group – via Shanghai Kaichuang Marine International - and Dongwon Industries) do not appear in the top 10 when looking only at the Atlantic Ocean.

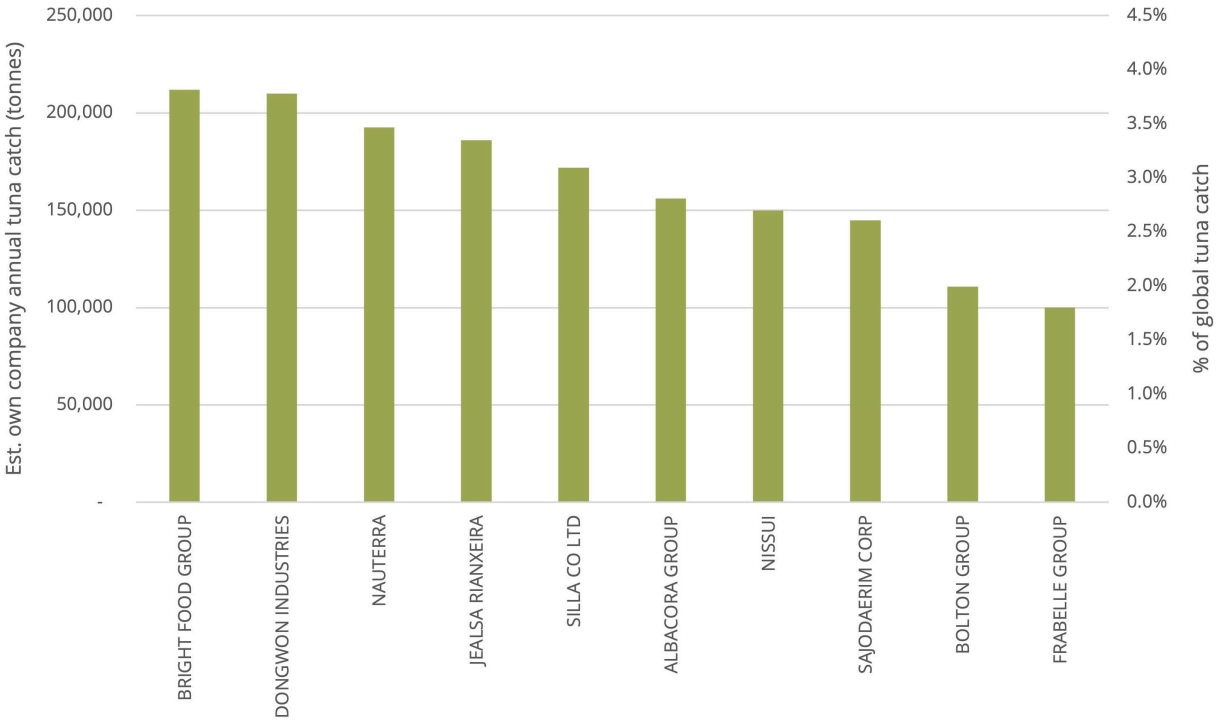


*Figure 10: Estimated annual catch of the ten largest harvesters of tuna globally. Source: Planet Tracker.*

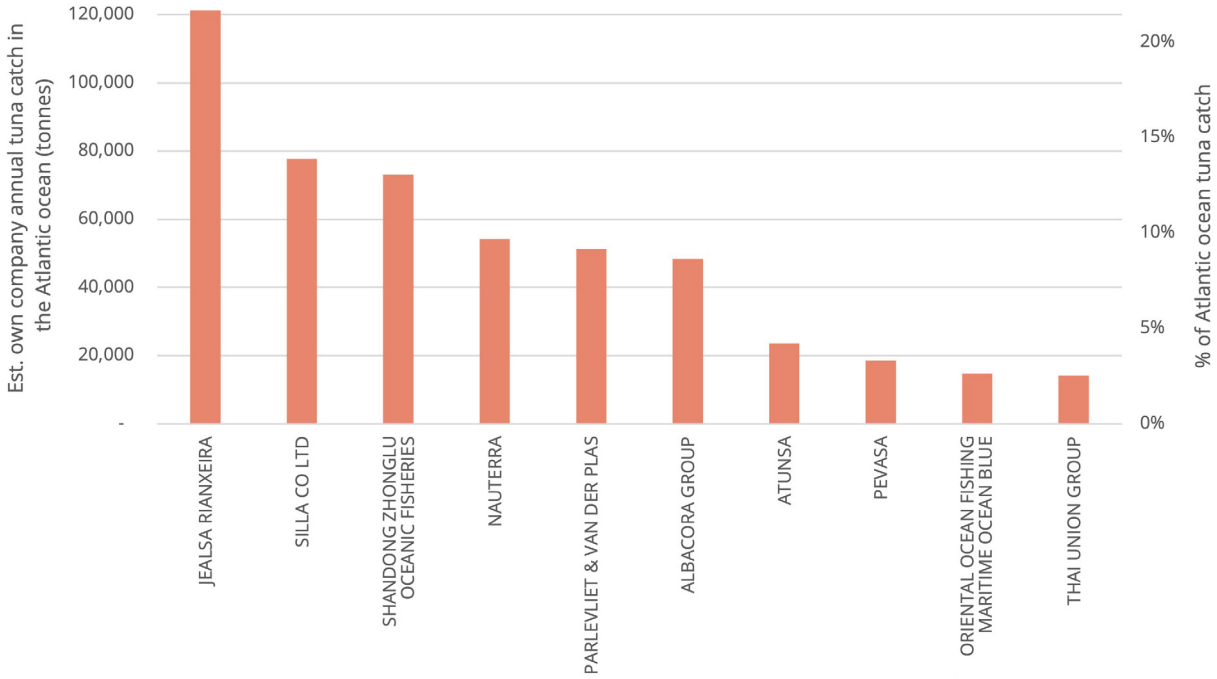


*Figure 11: Estimated annual catch of the ten largest harvesters of tuna in the Atlantic Ocean. Source: Planet Tracker.*

And whilst Nissui and Sajodaerim Corp (Sajo) comes only at the seventh and eighth places globally, we estimate they are the largest harvesters of tuna in the Pacific Ocean.

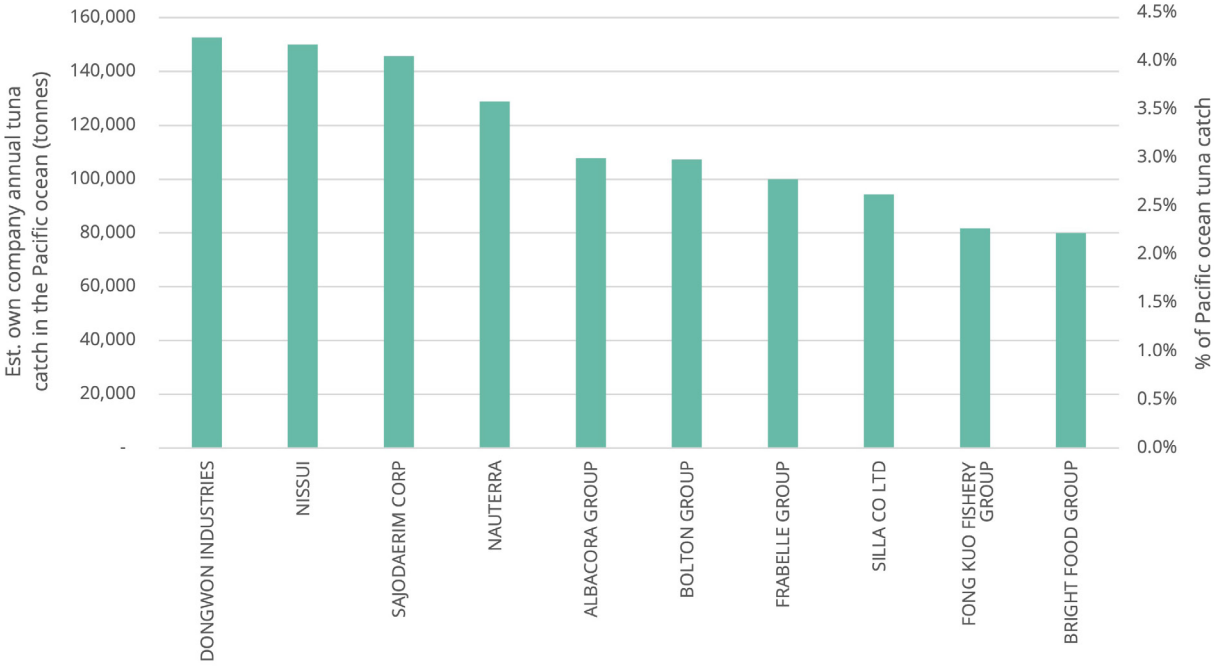


*Figure 12: Estimated annual catch of the ten largest harvesters of tuna in the Pacific Ocean. Source: Planet Tracker Note: Fong Kuo Fishery Group is part of FCF Group.*

In the Indian Ocean, transparency is amongst the lowest of all, especially on ownership of fishing vessels (see 'owners' of vessels in the chart below, many of which are unknown to us and not related to any company as far as we could find). This means that whilst we estimate that Parlevliet & Van der Plas (via Compagnie Francaise du Thon Oceanique), SAPMER and Nauterra are the largest harvesters of tuna locally based on tracked AIS data, it is possible that other companies catch more tuna, and that some of the companies below catch more as well: many parts of the Indian Ocean, including South Asia, Southeast Asia, and the western coasts of Africa are hotspots of 'dark' fishing activity.[35] [37]

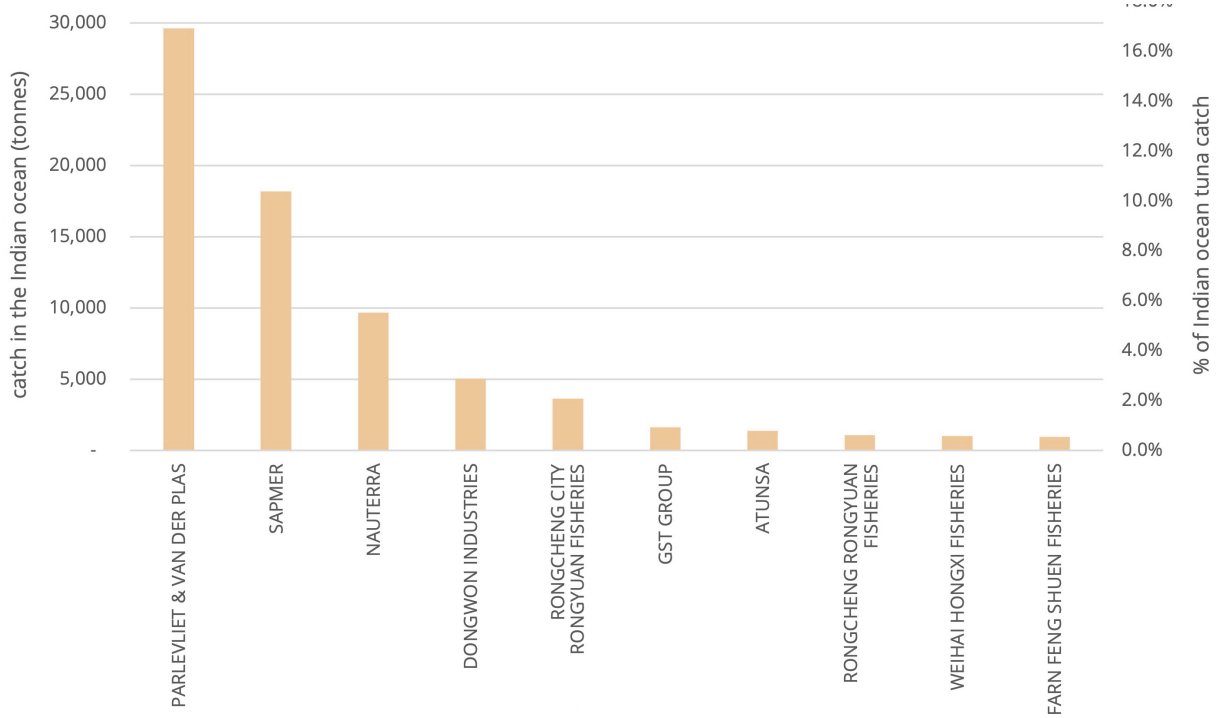


*Figure 13: Estimated annual catch of the ten largest harvesters of tuna in the Indian Ocean. Source: Planet Tracker.*

## Stock-based disclosure is needed

Yet just looking at a given ocean is not enough, since sustainability issues vary considerably within specific locations and most importantly depending on the exact species. For instance, skipjack tuna is not considered at risk in the Indian Ocean, but bigeye tuna is. We define 'at risk' stocks as those that the International Seafood Sustainability Foundation (ISSF) does not rate as green for both abundance and fishing mortality (i.e. they are at risk of overfishing or becoming overfished).

In the table below, stocks where either fishing pressure or abundance level is not green are considered 'at risk'. We also highlight the presence or absence of total allowable catch and harvest strategies, which when set in line with the latest science are key tools to rebuild stock biomass.

*Table 8: Status of commercial tuna stocks.*
*Source: ISSF – Green/Orange highlights indicate that the stock is not / is subject to overfishing (F/FMSY) or not overfished (SSB/SSBMSY), Yellow highlights indicate intermediate levels or uncertainty.*

| Tuna stock | 5-year average catch (tonnes) | Total Allowable Catch (tonnes) | Harvest strategy | Maximum Sustainable Yield (MSY, tonnes) | Fishing pressure ratio ($F/F_{MSY}$) | Abundance level ($SSB/SSB_{MSY}$) |
|---|---|---|---|---|---|---|
| EPO-BET | 83,000 | N/A | No | 105,000 | 0.79 | 1.05 |
| EPO-YFT | 268,000 | N/A | No | 288,000 | 0.67 | 1.57 |
| EPO-SKJ | 332,000 | N/A | No | N/A | 0.42 | 1.43 |
| WPO-BET | 135,000 | N/A | No | 165,000 | 0.59 | 1.83 |
| WPO-YFT | 717,000 | N/A | No | 700,000 | 0.50 | 2.30 |
| WPO-SKJ | 1,753,000 | N/A | Yes | 2,648,000 | 0.32 | 2.98 |
| PO-ALB-N | 50,000 | N/A | Yes | 121,880 | 0.59 | 3.02 |
| PO-ALB-S | 77,000 | N/A | No | 101,000 | 0.18 | 3.02 |
| PO-PBF | 15,000 | N/A | No | N/A | N/A | N/A |
| AO-BET | 61,000 | 73,000 | No | 87,000 | 1.00 | 0.94 |
| AO-YFT | 140,000 | 110,000 | No | 122,000 | 0.89 | 1.37 |
| AO-SKJ-E | 235,000 | N/A | No | 217,000 | 0.63 | 1.60 |
| AO-SKJ-W | 22,000 | N/A | Yes | 35,000 | 0.41 | 1.60 |
| AO-ALB-N | 31,000 | 47,300 | Yes | 37,000 | 0.45 | 2.19 |
| AO-ALB-S | 21,000 | 28,000 | No | 27,000 | 0.40 | 1.58 |
| AO-ALB-M | 2,600 | 2,500 | No | 3,600 | 1.22 | 0.58 |
| AO-BFT-E | 35,000 | 41,000 | Yes | N/A | 0.81 | N/A |
| AO-BFT-W | 2,400 | 2,730 | Yes | N/A | 0.53 | N/A |
| IO-BET | 88,000 | 80,600 | Yes | 96,000 | 1.43 | 0.9 |
| IO-YFT | 428,000 | N/A | No | 421,000 | 0.75 | 1.32* |
| IO-SKJ | 625,000 | 629,000 | Yes | 585,000 | 0.49 | 2.30 |
| IO-ALB | 40,000 | N/A | No | 45,000 | 0.68 | 1.56 |
| SH-SBT | 17,000 | 20,600 | Yes | 31,000 | 0.46 | 0.85 |

*The ISSF rates IO-YTF yellow for abundance since it is unclear whether the stock's abundance is healthier than it was or if the improved change is due to a recent change in the methodology used for assessment.

It is also important to factor in bycatch and other impacts on ecosystems. For instance, 13 of 26 tuna longline fisheries and 9 of 25 tuna purse seiner stocks were rated as not adequately meeting national and international requirements for the protection of endangered, threatened and protected species.[8]

## Key harvesters by tuna stock

For all these reasons, we display below the estimated top three harvesters in each stock.

*Table 7: AIS gap analysis at the Tuna 30. Source: Planet Tracker, Global Fishing Watch.*

| Stock Name | 5-Year Avg Catch (tonnes) | #1 harvester | #1 catch | #2 harvester | #2 catch | #3 harvester | #3 catch |
|---|---|---|---|---|---|---|---|
| EPO-BET | 83,000 | ALBACORA GROUP | 22,045 | MARUHA NICHIRO | 20,108 | NAUTERRA | 19,282 |
| EPO-YFT | 268,000 | GRUPO PINSA | 72,000 | SEATECH INTERNATIONAL | 19,290 | BOLTON GROUP | 16,097 |
| EPO-SKJ | 332,000 | BRIGHT FOOD GROUP | 81,363 | NAUTERRA | 75,993 | BOLTON GROUP | 60,390 |
| WPO-BET | 135,000 | NAUTERRA | 9,941 | BRIGHT FOOD GROUP | 5,508 | SAJODAERIM CORP | 4,005 |
| WPO-YFT | 717,000 | FRABELLE GROUP | 32,301 | DONGWON INDUSTRIES | 25,108 | BRIGHT FOOD GROUP | 16,825 |
| WPO-SKJ | 1,753,000 | BRIGHT FOOD GROUP | 87,295 | DONGWON INDUSTRIES | 72,020 | SAJODAERIM CORP | 70,803 |
| PO-ALB-N | 50,000 | NISSUI | 2,292 | KYOEI SUISAN | 570 | PING TAI RONG OCEAN FISHERIES GROUP | 507 |
| PO-ALB-S | 77,000 | CHINA NATIONAL AGRICULTURAL DEVELOPMENT GROUP | 11,643 | MARUHA NICHIRO | 6,661 | BRIGHT FOOD GROUP | 4,867 |
| PO-PBF | 15,000 | NISSUI | 3,403 | GRUPO PINSA | 1,529 | FUKUICHI | 952 |
| AO-BET | 61,000 | JEALSA RIANXEIRA | 16,652 | CHINA NATIONAL AGRICULTURAL DEVELOPMENT GROUP | 8,840 | MARUHA NICHIRO | 6,045 |
| AO-YFT | 140,000 | PARLEVLIET & VAN DER PLAS | 27,879 | GRUPO PEZATUN | 24,948 | JEALSA RIANXEIRA | 22,052 |
| AO-SKJ-E | 235,000 | JEALSA RIANXEIRA | 82,664 | SHANDONG ZHONGLU OCEANIC FISHERIES | 47,503 | ALBACORA GROUP | 37,433 |
| AO-SKJ-W | 22,000 | SILLA CO LTD | 20,635 | SHANDONG ZHONGLU OCEANIC FISHERIES | 5,099 | ORIENTAL OCEAN FISHING\|OCEAN BLUE MARITIME | 5,067 |
| AO-ALB-N | 31,000 | HASBRO FISHERIES GROUP | 650 | PESQUERIAS MAPA\| MAPA PESQUERIAS | 472 | PESQUERAS CANOURA\|CANOURA PEQUERAS | 460 |
| AO-ALB-S | 21,000 | MARUHA NICHIRO | 2,220 | YUN MAO OCEAN ENTERPRISE | 1,113 | CYUN MAO CING FISHERIES | 964 |
| AO-ALB-M | 2,600 | NATURAL PERSON | 289 | MICHAILOU EMMANOUIL MICHAILOU KONSTANTINOS | 38 | JESMOND BALDACCHINO\| BALDACCHINO J | 36 |
| AO-BFT-E | 35,000 | MARUHA NICHIRO | 1,357 | HISHAM MOHAMED ELKHARRAZ\| ELKHARRAZ HM | 518 | PESCABONA | 399 |
| AO-BFT-W | 2,400 | GENUINE RISK FISHERIES | 93 | ALS FISHERIES\|WESLEY HENNEBERRY\| HENNEBERRY WL | 92 | SNOWFALL FISHING | 61 |
| IO-BET | 88,000 | RONGCHENG CITY RONGYUAN FISHERIES | 1,162 | DONGWON INDUSTRIES | 711 | KANZAKI SUISAN | 344 |
| IO-YFT | 428,000 | SAPMER | 9,319 | DONGWON INDUSTRIES | 3,524 | RONGCHENG CITY RONGYUAN FISHERIES | 1,208 |
| IO-SKJ | 625,000 | PARLEVLIET & VAN DER PLAS | 29,543 | SAPMER | 8,863 | ATUNSA | 903 |
| IO-ALB | 40,000 | RONGCHENG CITY RONGYUAN FISHERIES | 1,263 | GST GROUP | 1,239 | DONGWON INDUSTRIES | 795 |
| SH-SBT | 17,000 | DONGWON INDUSTRIES | 2,856 | SAJODAERIM CORP | 1,705 | MARUHA NICHIRO | 732 |

## Concentration vs exploitation

Based on the above estimates, we investigated whether there might be a link between the level of exploitation of a fish stock and the concentration of economic actors operating in that stock. Within tuna stocks, we find little correlation between the two. Whilst stocks with the worst status (bottom right corner of the chart below) are not very concentrated (the share of the top 3 harvesters is relatively low), the same goes for sectors in the best state (top left corner).

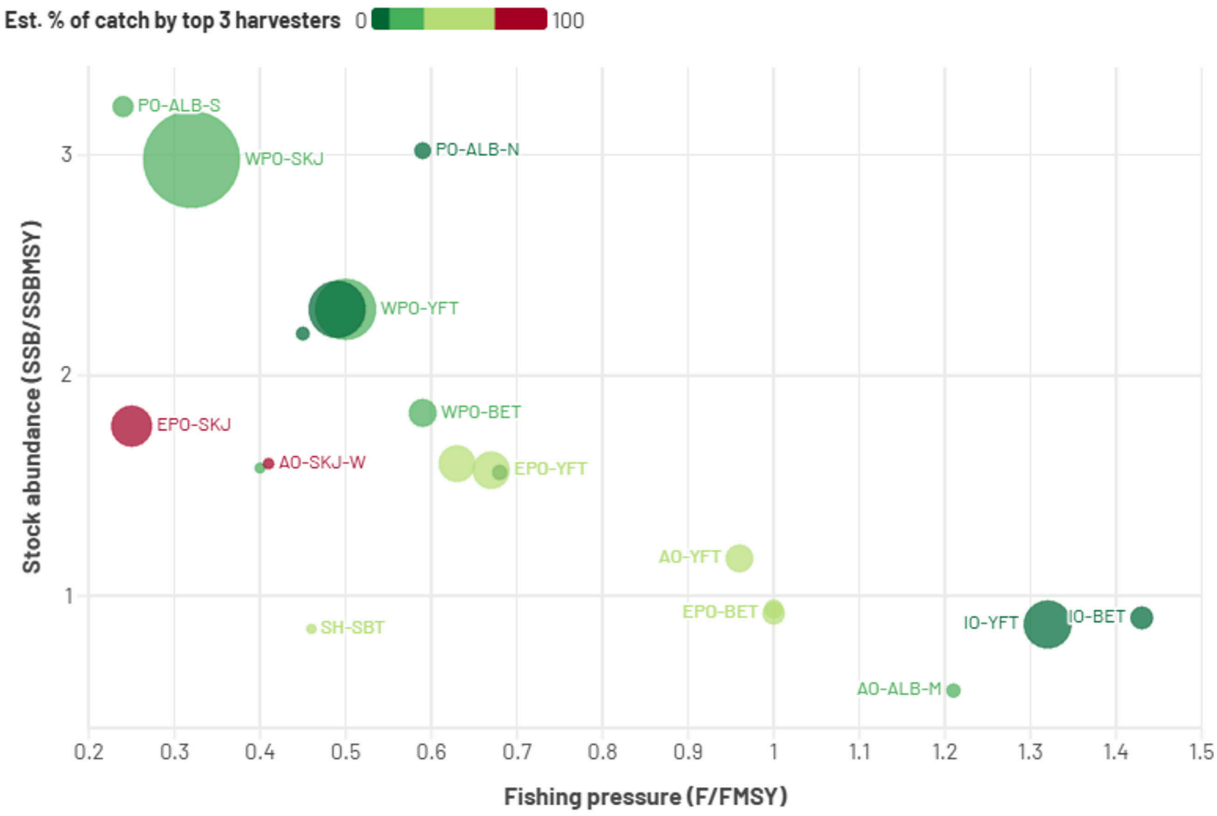


*Figure 14: Fishing pressure (x-axis) and abundance of commercial tuna stocks (y-axis) vs 5-year average catch (bubble size) and estimated volume share of top 3 harvesters (bubble colour). Source: ISSF, Planet Tracker.*

# I don't wanna lose you: the Tuna 30 rely on 'at risk' stocks and threatened species

*Maruha Nichiro and Dongwon are the likely key harvesters of 'at risk' stocks. In addition, Albacora, Maruha Nichiro, Dongwon, Bolton Group and Sajodaerim are estimated to be key harvesters of tuna species threatened with extinction.*

## Impact: key harvesters of 'at-risk' stocks

Zooming in on the eight stocks that are not at healthy levels of abundance or that are experiencing or might experience overfishing (yellow or orange rating as per ISSF for either biomass level or fishing pressure), we find that Maruha Nichiro and Dongwon Industries are among the five largest harvesters of respectively four and three out of these 'at risk' stocks.

*Table 10: Estimated top 5 harvesters of 'at risk' tuna stocks.*
*Source: Planet Tracker, ISSF. Tuna 30 companies are highlighted in bold.*

| Tuna stock | #1 harvester | #2 harvester | #3 harvester | #4 harvester | #5 harvester |
|---|---|---|---|---|---|
| AO-BET | **JEALSA RIANXEIRA** | **CHINA NATIONAL AGRICULTURAL DEVELOPMENT GROUP** | **MARUHA NICHIRO** | **PARLEVLIET & VAN DER PLAS** | **SILLA CO LTD** |
| AO-ALB-M | NATURAL PERSON | MICHAILOU EMMANOUIL MICHAILOU KONSTANTINOS | JESMOND BALDACCHINO \| BALDACCHINO J | LOAMAR | _UNKNOWN |
| AO-BFT-E | **MARUHA NICHIRO** | HISHAM MOHAMED ELKHARRAZ \| ELKHARRAZ HM | PESCABONA | AMWAJ SHAMAL AFRICA \| MIDDLE MEDITERRANEAN FOR MARINE SERVICES \| MILADEE M | EBCON GROUP |
| AO-BFT-W | GENUINE RISK FISHERIES | ALS FISHERIES | SNOWFALL FISHING | F A S SEAFOOD PRODUCERS | _UNKNOWN |
| IO-BET | RONGCHENG CITY RONGYUAN FISHERIES | **DONGWON INDUSTRIES** | KANZAKI SUISAN | RONGCHENG RONGYUAN FISHERIES | I NYOMAN MORIS |
| PO-PBF | **NISSUI** | **GRUPO PINSA** | **FUKUICHI** | **MARUHA NICHIRO** | **KYOKUYO CO** |
| IO-YFT | SAPMER | DONGWON INDUSTRIES | RONGCHENG CITY RONGYUAN FISHERIES | I NYOMAN MORIS | RONGCHENG RONGYUAN FISHERIES |
| SH-SBT | **DONGWON INDUSTRIES** | **SAJODAERIM CORP** | **MARUHA NICHIRO** | BANDAR NELAYAN | USUFUKU HONTEN |

The largest harvesters of stocks such as albacore in the Mediterranean (AO-ALB-M), or bluefin tuna in the Atlantic East (which includes the Mediterranean) tend to be small companies. They include companies that catch wild juvenile bluefin tuna to fatten them and farm them, such as Malta-based Ebcon Group, the owner of Malta Fish Farming Ltd,[38] which was allegedly involved in the illegal export of tuna to Spain.[39]

For these two stocks as well as for those in the Indian Ocean in particular, it is very possible that other, larger operators extract larger volumes of tuna but are not tracked with AIS.

## Companies most reliant on 'at-risk' stocks

On average, the Tuna 30 extract 12% of their catch from stocks that are 'at risk'. This is in line with the global average, with 87% of tuna catches coming from stocks at healthy levels of abundance.[40]

There is, however, a key difference between some companies like Frabelle Group, Kyokuyo, or Fukuichi, with a minimal reliance on stocks that are at risk, or others like SAPMER, China National Agricultural Development Group or Maruha Nichiro, with an estimated >40% of their catches coming from such stocks.

However, for many companies the proportion of 'dark tuna' is high. For these companies, such as Maruha Nichiro or SAPMER, there is a high margin of error for the proportion of catches that we estimate comes from stocks at risk.

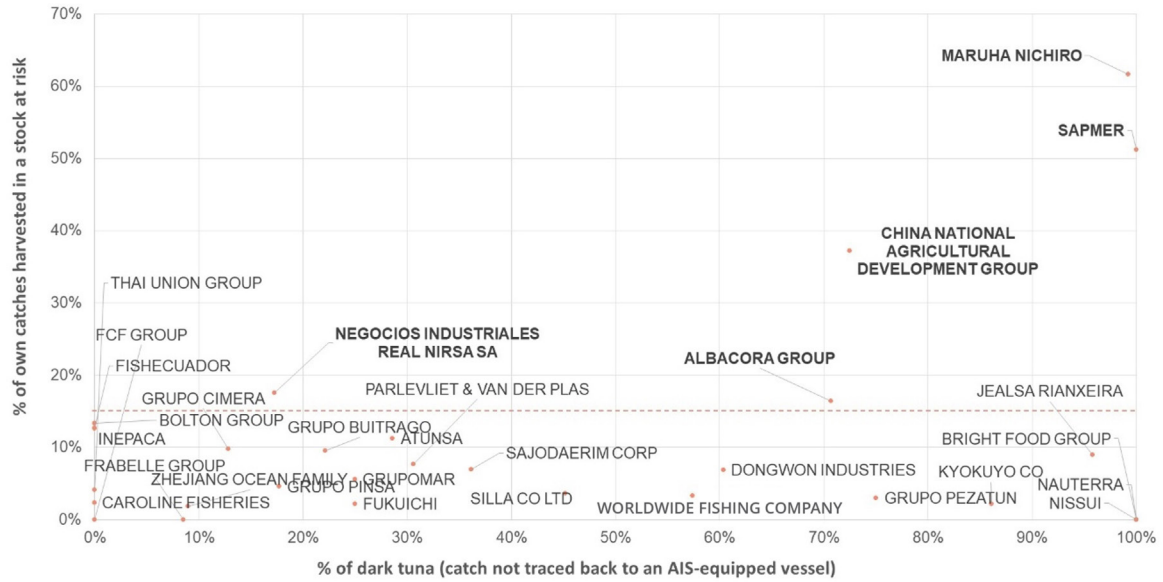


*Figure 15: Reliance on stocks at risk (y-axis) vs proportion of catch that is not traced back to an AIS-equipped vessel (x-axis). Source: Planet Tracker, ISSF – the dotted line indicates the global average, companies in bold are above the global average.*

## Impact on threatened tuna species

Our catch model allows us to also estimate the largest harvesters of tuna by species, therefore enabling us to determine which companies have the largest impact of the future of each of these. According to the IUCN, the populations of each of these species except the Southern bluefin tuna is decreasing.[2]

Their conservation status is generally *'Least concern'*, with the key exception of bigeye tuna (Vulnerable), Pacific bluefin tuna *(Near threatened)* and Southern bluefin tuna (Endangered).[2]

Looking through the list below, Albacora, Maruha Nichiro, Dongwon, Bolton and Sajo appear to be key harvesters of threatened species (the three on the right below).[i] The reality might be different, which is why better transparency is needed.

*Table 11: Estimated top 10 harvesters of tuna in 2022 by IUCN conservation status. Source: Planet Tracker, IUCN.*

| Species | Skipjack tuna | Albacore tuna | Yellowfin tuna | Atlantic bluefin tuna | Bigeye tuna | Pacific bluefin tuna | Southern bluefin tuna |
|---|---|---|---|---|---|---|---|
| **IUCN Status** | Least Concern | Least Concern | Least Concern | Least Concern | **Vulnerable** | **Near Threatened** | **Endangered** |
| |  |  |  |  |  |  |  |
| **#1** | **BOLTON GROUP** | MARUHA NICHIRO | BOLTON GROUP | MARUHA NICHIRO | **ALBACORA GROUP** | **NISSUI** | **DONGWON INDUSTRIES** |
| **#2** | BRIGHT FOOD GROUP | BOLTON GROUP | NAUTERRA | HISHAM MOHAMED ELKHARRAZ\| ELKHARRAZ HM | **MARUHA NICHIRO** | **GRUPO PINSA** | **SAJODAERIM CORP** |
| **#3** | SILLA CO LTD | **CHINA NATIONAL AGRICULTURAL DEVELOPMENT GROUP** | DONGWON INDUSTRIES | PESCABONA | **BOLTON GROUP** | **FUKUICHI** | **MARUHA NICHIRO** |
| **#4** | **NAUTERRA** | **PING TAI RONG OCEAN FISHERIES GROUP** | **GRUPO PEZATUN** | **AMWAJ SHAMAL AFRICA\|MIDDLE MEDITERRANEAN FOR MARINE SERVICES\| MILADEE M** | **DONGWON INDUSTRIES** | **MARUHA NICHIRO** | **BANDAR NELAYAN** |
| **#5** | SAJODAERIM CORP | NISSUI | NISSUI | EBCON GROUP | **CHINA NATIONAL AGRICULTURAL DEVELOPMENT GROUP** | **KYOKUYO CO** | **USUFUKU HONTEN** |
| **Top 10 as a % of total catch** | 49% | 26% | 31% | 10% | **45%** | **48%** | **48%** |

i Species are threatened when their conservation status is Vulnerable or worse as per the IUCN.

Once again, we find that the level of concentration does not seem to indicate much: around half of skipjack tuna and bigeye tuna catches are caught by ten companies (of which seven are the same), but the former is in a much better conservation status than the latter.

## Reliance on threatened tuna species

Looking at dependence rather than impact, we estimate that for threatened tuna species, several Tuna 30 companies including Maruha Nichiro, China National Agricultural Development Group, Bolton Group, Albacora, or NIRSA are likely to be highly dependent on such species (bigeye tuna, southern bluefin tuna and Pacific bluefin tuna), with >15% of their estimated catch coming from such species, vs. a global average of 8%.

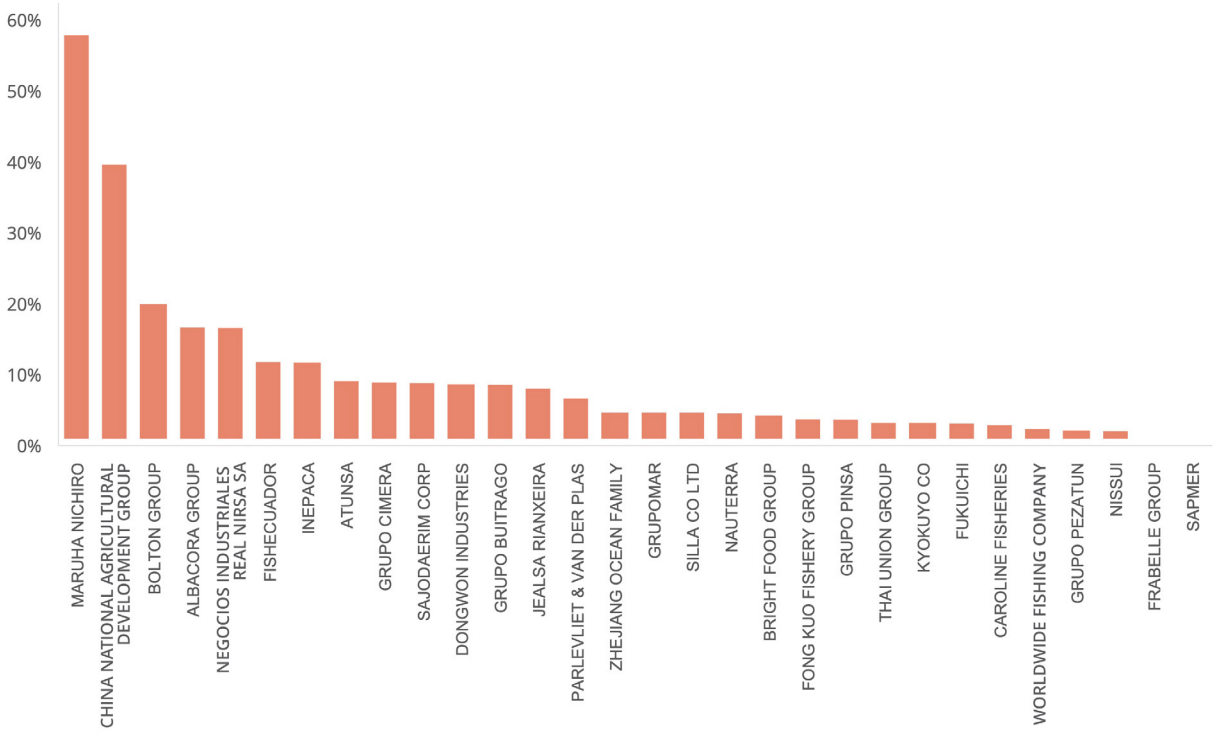


*Figure 16: Proportion of estimated tuna catch coming from threatened tuna species (bigeye, Southern bluefin and Pacific bluefin). Source: Planet Tracker.*

# When the darktake is over: the financial benefits of catch transparency

*Calls for improved disclosure and transparency are often met with concerns over competitive advantage and the associated costs. We find out that on average, over five years, the net financial outcome of improving AIS transparency and catch disclosure is positive.*

Whilst the catch estimates provided by Planet Tracker throughout this report help mitigate the absence of disclosed data on catch, they remain estimates. Actual corporate data is needed. From the industry perspective, concerns around improved disclosure and transparency are an increase in associated costs and competitive risks.

We therefore modelled on each line of the P&L, balance sheet and cash-flow statements the financial impact of an increase in AIS usage and associated catch disclosure for a fictive tuna fishing company owning 10 purse seiners that each catch 5,000 tonnes of tuna every year.

Based on the benefits and costs outlined in the table below, we found out that on average, over five years, the net financial outcome of improving AIS transparency and catch disclosure is positive.

*Table 12: Costs and benefits associated to greater AIS usage and catch disclosure. Source: Planet Tracker.*

| Costs | Benefits |
|---|---|
| **Internal labour** | **Reputation & Market access** |
| Internal time spent by finance, legal & sustainability teams in planning disclosure | Improved brand image |
| Meetings to align on disclosure strategy | Positive media coverage |
| Training sessions on new reporting requirements | Preferred supplier status with sustainability–focused buyers |
| **Systems & process upgrades** | Potential price increase |
| IT spend for vessel-tracking software, AIS integration & data platforms | **Risk reduction** |
| Additional transponders | Reduced litigation risk |
| Consultancy or implementation fees | **Cost of capital, insurance and valuation** |
| Competition | Lower borrowing costs |
| Reduction in catch through AIS-spying-based competition | Lower insurance costs |
| **Compliance & legal** | Improved perception in enterprise value |
| External legal advice on regulatory alignment | |
| Ongoing compliance monitoring & audits | |
| Potential fines if new disclosures reveal past non-compliance | |
| Increased risk of piracy | |
| **Communications/PR** | |
| Increased PR/communication expenses | |

One of the key variables driving the profitability or lack thereof of improved AIS transparency is the associated drop in catches due to increased competition (other fishing vessels 'spying' on a company's vessel via AIS). Actual data on this is hard to come by, so we have assumed a best case of no impact and a worst case of a 2% drop in volumes.

Together with the other key costs and benefits listed above, this is likely to result in an average increase in net profit and valuation of 0.6% and 1% respectively over five years, with a net negative impact on profit in Year 1 and a positive impact thereafter.

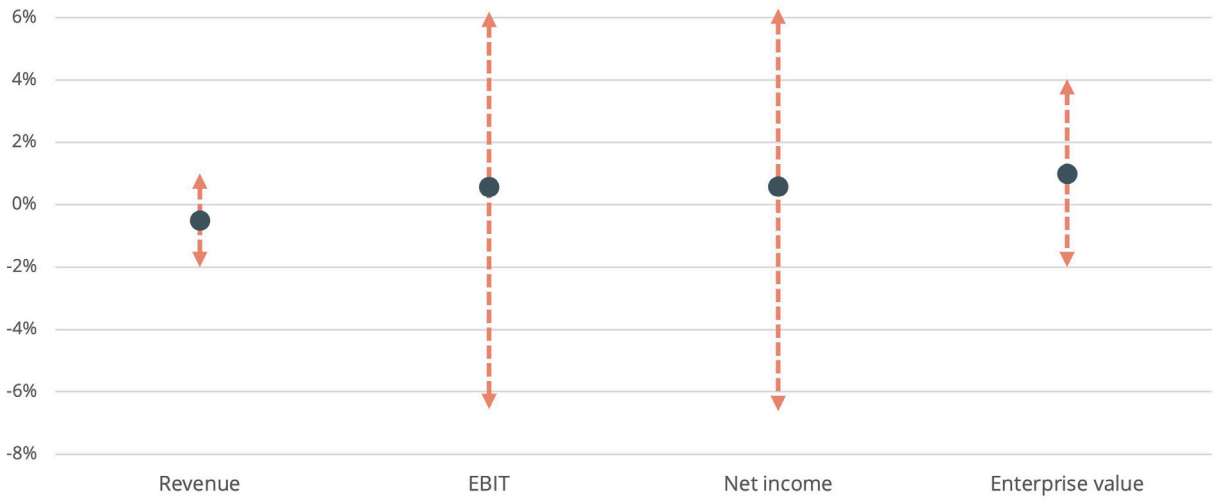


*Figure 17: Estimated average (green dots), minimal and maximal impact of improving AIS transparency on the financials of a typical tuna harvester after 5 years. Source: Planet Tracker.*

This is yet another reason why greater verifiable transparency is needed in the tuna industry.

# Call for action: we do need another hero

*Investors should urge all tuna harvesters but especially the largest thirty companies to publish four core metrics—what they catch, where, how (using which gear) and how much (catch volumes in tonnes).*

Opacity in catch and ownership data not only threatens marine ecosystems but also impairs due diligence, heightening risks in tuna-dependent portfolios.

Whilst the catch estimates provided by Planet Tracker help mitigate the absence of disclosed data on catch, they remain estimates and should be treated as such.

Only **improved, verifiable transparency in the form of corporate disclosure on catch and generalised AIS usage** would help external stakeholders including financial institutions understand the exact risks a given company is exposed to.

## Improved corporate disclosure

Only one company (Bolton Group) publishes enough catch data to assess the company's exposure to different sustainability risks. This is laudable. Others must follow.

Investors should therefore urge all tuna harvesters but especially the largest thirty companies to publish four core metrics—what they catch (which species), where, how (using which gear) and how much (catch volumes in tonnes). Adding the proportion of catch that is certified would be beneficial too.

## Verifiable AIS-based transparency

Corporate disclosure is greatly needed but can become out-of-date or wrong, since tuna catches can be underreported.[41]

If combined with improved ownership information, greater AIS usage would enable external stakeholders to verify the catch data disclosed by corporates. This would restore investor confidence and improve supply chain traceability, which itself is likely to improve profitability in the industry.[42]

## Beyond transparency

Once catch transparency is achieved, corporate engagement should then focus on reducing overfishing risks and impacts on threatened species, in particular via bycatch reduction and the use of more selective fishing gear. For purse seiners, ensuring that *minimal requirements around drifting FADs* are implemented is key.

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# References


1 ISSF (2025) Status of the World Fisheries for Tuna. Available from https://www.iss-foundation.org/about-issf/what-we-publish/issf-documents/issf-2025-01-status-of-the-world-fisheries-for-tuna-march-2025/. Accessed on 18/04/2025.

2 IUCN Red List (2025). Available from: https://www.iucnredlist.org/ja/search?query=albacore%20tuna&searchType=species. Accessed on 17/04/2025.

3 Pons, M., Branch, T., Melnychuk, M., et al. Effects of biological, economic and management factors on tuna and billfish stock status (2016). Available from: https://doi.org/10.1111/faf.12163. Accessed on 17 April 2025.

4 IUCN (2021). Tuna species recovering despite growing pressures on marine life - IUCN Red List. Available from: https://iucn.org/news/species/202109/tuna-species-recovering-despite-growing-pressures-marine-life-iucn-red-list

5 SeafoodSource (2024). ISSF report finds more tuna stocks are sustainable. Available from https://www.seafoodsource.com/news/environment-sustainability/issf-report-finds-more-tuna-stocks-are-avoiding-overfishing

6 Erauskin-Extramiana, M., Chust, G., Arrizabalaga, H. (2022). Implications for Global Tuna Fishing Industry of Climate Change-Driven Alterations in Productivity and Body Sizes. Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4059543

7 IISSF (2023). Status of the World Fisheries for Tuna. Available from https://www.bmis-bycatch.org/system/files/zotero_attachments/library_1/U64DIDV5%20-%20ISSF-2023-01-Status-of-the-World-Fisheries-for-Tuna-March-2023-1.pdf

8 ISSF (2025). Tuna Fisheries' Impacts on Non-Tuna Species and Other Environmental Aspects. Available from: https://www.iss-foundation.org/about-issf/what-we-publish/issf-documents/issf-2025-02-tuna-fisheries-impacts-on-non-tuna-species-and-other-environmental-aspects-2025-update/

9 Schiller, L., D'Costa, N., Worm, B. (2025). The global footprint of drifting fish aggregating devices. Available from: https://www.science.org/doi/10.1126/sciadv.ads2902

10 The Fishing Daily (2024). ICCAT reduces FAD moratorium. Available from: https://thefishingdaily.com/latest-news/iccat-reduces-fad-moratorium-tuna-industry-eyes-recovery/

11 Guillotreau, P., Salladare, F., Capello, M., et al (2023). Is FAD fishing an economic trap? Effects of seasonal closures and other management measures on a purse-seine tuna fleet. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1111/faf.12799

12 Holmes, G., Hanich, Q., Soboil, M. (2019). Economic benefits of FAD set limits throughout the supply chain. Available from: https://www.sciencedirect.com/science/article/abs/pii/S0308597X18308194

13 Gomez, G., Farquhar, S., Bell, H., et al (2020). The IUU Nature of FADs: Implications for Tuna Management and Markets. Available from https://doi.org/10.1080/08920753.2020.1845585

14 Churchill, R. (2021). Just a Harmless Fishing Fad—or Does the Use of FADs Contravene International Marine Pollution Law? Available from: https://www.tandfonline.com/doi/full/10.1080/00908320.2021.1901342#abstract

15 Basurko, O. (2022). Fuel consumption of free-swimming school versus FAD strategies in tropical tuna purse seine fishing. Available from: https://www.sciencedirect.com/science/article/abs/pii/S0165783621002678

16 Marine Stewardship Council (2025). Sustainable Tuna Yearbook 2024. Available from: https://www.msc.org/docs/default-source/default-document-library/stakeholders/tuna-news/msc-sustainable-tuna-yearbook-2024.pdf

17 Fishery Progress (2025). FIP Directory. Available from : https://fisheryprogress.org/

18 Global Tuna Alliance. Available from: https://www.globaltunaalliance.com/

19 The Nature Conservancy (2024). Tuna Transparency Pledge. Available from: https://www.nature.org/en-us/what-we-do/our-priorities/provide-food-and-water-sustainably/food-and-water-stories/eyes-on-tuna/

20 Sampson, G., Sanchirico, J., Roheim, C., et al (2015). Secure sustainable seafood from developing countries. Available from https://www.science.org/doi/abs/10.1126/science.aaa4639

21 Baumgartner, U., (2025). Certifying 'not yet sustainable' fisheries—the uncertain journey to global best practice. Available from: https://link.springer.com/article/10.1007/s44312-024-00043-0

22 Bloom (2023). The Death Label. Available from: https://bloomassociation.org/wp-content/uploads/2023/09/msc-tuna-fisheries.pdf

23 Nakamura, K. (2024). Is tuna ecolabeling causing fishers more harm than good? Available from https://www.nature.com/articles/s44183-024-00074-6

24 Schiller, L., Auld, G., Hanich, Q., Bailey, M. (2023). Increasing industry involvement in international tuna fishery negotiations. Available from: https://www.sciencedirect.com/science/article/pii/S2590332222006297#ack0010.

25 Oceana (2025). Beyond the Flag. Who Really Owns the World's Large-Scale Fishing Fleet? Available from: https://oceana.org/wp-content/uploads/sites/18/2025/05/Beyond-the-Flag-Policy-Brief_Oceana-CFT_reduced-size.pdf

26 SeaAroundUs. Available from: https://www.seaaroundus.org/

27 Official Journal of the European Union (2011). COMMISSION DIRECTIVE 2011/15/EU. Available from https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011L0015

28 Global Fishing Watch (2024). Sustainable Fisheries Management Begins with Vessel Tracking. Available from : https://globalfishingwatch.org/fact-sheet/sustainable-fisheries-management-begins-with-vessel-tracking/#:~:text=VMS%20is%20required%20on%20all,beyond%20jurisdiction%20of%20the%20flag

29 Global Fishing Watch Map (2025). Available from https://globalfishingwatch.org/map

30 Cappa, P., Andreoli, V., et al (2024). Estimating fisheries catch from space: Comparing catch estimates derived from AIS fishing effort with reported catches for Indian Ocean industrial fisheries. Available from: https://www.sciencedirect.com/science/article/pii/S2352485524002652?via%3Dihub#sec0075 Accessed on 12/05/2025.

31 Txopituna (no date). Our activity. Available from: https://txopituna.com/nuestra-actividad/

32 Bolton Group (2024). Sustainability Report 2023. Available from: https://www.bolton.com/sites/default/files/2024-09/Bolton%20Sustainability%20Report_2023_LOW.pdf . Accessed on 05/01/2025

33 Heather Welch et al., Hot spots of unseen fishing vessels. Sci. Adv.8 , eabq2109 (2022). DOI:10.1126/sciadv.abq2109

34 Mitsubishi Food & Consumer division (no date). Available from: https://www.mitsubishicorp.com/kr/en/bg/food-and-consumer-industry.html.

35 Paolo, F.S., Kroodsma, D., Raynor, J. et al. Satellite mapping reveals extensive industrial activity at sea. Nature 625, 85–91 (2024). Available from https://doi.org/10.1038/s41586-023-06825-8

36 See for instance: https://globalfishingwatch.org/data/characterizing-gaps-in-the-data/

37 Estimating fisheries catch from space: Comparing catch estimates derived from AIS fishing effort with reported catches for Indian Ocean industrial fisheries (2024). Available from: https://www.sciencedirect.com/science/article/pii/S2352485524002652?via%3Dihub#sec0075

38 Malta Today (2016). Operator at Munxar fish farm operating 14 extra cages with permit covering five. Available from : https://www.maltatoday.com.mt/news/national/69116/operator_at_munxar_farm_operating_14_extra_cages_with_permit_covering_five. Accessed on 17/04/2025

39 Malta Today (2019). Spanish investigators link Maltese tuna rancher to illegal trade. Available from : https://www.maltatoday.com.mt/news/national/93278/spanish_investigators_link_maltese_tuna_rancher_to_illegal_trade. Accessed on 17/04/2025.

40 ISSF (2025). 87% of Global Tuna Catch Comes from Stocks at Healthy Abundance Levels. Available from https://www.iss-foundation.org/about-issf/what-we-publish/2025/03/12/87-of-global-tuna-catch-comes-from-stocks-at-healthy-abundance-levels/. Accessed on 15/04/2025

41 See for instance Pacific Islands Forum Fisheries Agency (2021). Illegal Unreported Unregulated Tuna Fishing IUU. Available from: https://www.ffa.int/2021/12/illegal-unreported-unregulated-tuna-fishing/

42 Planet Tracker (2022). How to Trace $600 billion. Available from: https://planet-tracker.org/wp-content/uploads/2022/09/How-to-Trace-USD600-billion.pdf

# 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.


## ACKNOWLEDGEMENTS

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## WITH THANKS TO OUR FUNDERS

This report is funded by the Gordon and Betty Moore Foundation through the Finance Hub, which was created to advance sustainable finance.



*Suggested citation: Mosnier.F., Tuna Turner: Investors Must Turn Up Transparency in the Tuna Industry. Planet Tracker (2025).*

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