THE WEAKEST LINK:

How at-sea trans-shipment fuels illegal fishing and human rights abuses in global fisheries

ENVIRONMENTAL JUSTICE FOUNDATION

Protecting People and Planet

A report by the Environmental Justice Foundation

ENVIRONMENTAL JUSTICE FOUNDATION

Protecting People and Planet

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To protect the marine environment, its biodiversity and the livelihoods dependent on it.

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Abbreviations:

AIS - Automatic identification system
CPUE - Catch per unit effort
DWF - Distant water fishing
EEZ - Exclusive economic zone
EJF - Environmental Justice Foundation
FAO - Food and Agriculture Organization of the United Nations
FoC - Flag of convenience
GIES - FAO Global Information Exchange System (Under the PSMA)
GFW - Global Fishing Watch
IATTC – Inter-American Tropical Tuna Commission
ICCAT - International Commission for the Conservation of Atlantic Tunas
ILO - International Labour Organization
IOTC - Indian Ocean Tuna Commission
ITF - International Transport Workers' Federation
IUU - Illegal, unreported and unregulated (fishing)
MLC - Maritime Labour Convention, 2006
NGO - Non-governmental organisation
PSMA - Port State Measures Agreement
RFMO – Regional fisheries management organisation
VMS - Vessel monitoring system
WCPFC - Western Central Pacific Fisheries Commission

Executive Summary

Global commercial fisheries have become increasingly industrialised over the last 50 years, growing in fleet size as well as sophistication. New fishing and freezing technologies have allowed for fishing fleets to conduct more efficient fishing operations, and their network of supporting carrier vessels to operate at sea for longer periods of time, without spoiling their catch.

A consequence of this rapid growth in the sector is alarming declines in fish populations across the globe. As populations have become exhausted or species have become harder to find, fishing vessels have had to travel further from home in search of fish populations to target. As trips have become longer, trans-shipment – the mechanism of transferring catch to refrigerated cargo ships – has become an attractive means of reducing costs and allowing vessels to remain at sea.

As the practice of at-sea trans-shipment has become more enticing for industrial fleets, especially those targeting high-value species such as tuna, there have been growing concerns that these transfers are enabling both illegal, unreported and unregulated (IUU) fishing as well as labour and human rights abuses.[1/2] This is because transfers often take place hundreds or even thousands of kilometres from shore, far from any oversight or control authorities who might have otherwise detected illegal activity.

While most trans-shipments are legal, the opaque nature of at-sea transfers can enable illegally caught or undeclared seafood products from fishing vessels to be loaded onto carrier vessels already filled with legitimately caught seafood. This can allow vessel operators actively engaged in illegal activities to gain access to markets, as well as facilitate the continued abuse of crew through prolonged periods of time at sea. This is in contrast to in-port trans-shipment which can generally be better regulated and monitored.[3]

Between April 2021 and February 2022, EJF spoke with 96 Indonesian fishers who have worked on a range of distant water fishing vessels (predominantly tuna longliners and squid jiggers) operating across the Atlantic, Pacific and Indian Oceans. 68% of the vessels reportedly had trans-shipped catches to carrier vessels whilst at sea. EJF's findings reveal that these vessels whose crews reported participating in at-sea trans-shipment were more likely to spend longer periods of time at sea, spending on average 13.3 months at sea per trip compared to 3 months for vessels not engaging in at-sea trans-shipment. According to interview testimonies, almost 30% of vessels engaging in at-sea trans-shipment also engaged in IUU fishing compared to 18% for vessels that did not trans-ship. Likewise, for human rights abuses, 79% of vessels engaging in at-sea trans-shipment also reportedly engaged in abuses compared to 63% for vessels that did not trans-ship at sea.

According to fishers' testimonies, the average trip length for fishing vessels involved in trans-shipment was 13.3 months whilst for vessels not engaging in trans-shipment it was just 3 months. 15 crew members told EJF that their vessel never came back to shore for the extent of their two-year contract.

A carrier vessel prepares to dock into Bangkok port to unload tuna. © EJF

These interviews confirm a trend identified through wider analysis of vessel tracking data showing that tuna longliners and squid jigging vessels are some of the most likely types of fishing vessel to engage in at-sea trans-shipment. This is based on analysing available AIS data of detected likely at-sea trans-shipments from 2012 to the present.[4]

Along with a growing body of research globally, such findings emphasise the importance of monitoring the practice by flag, coastal, and port States as well as regional fisheries management organisations (RFMOs). Monitoring efforts should include deployment of human observers alongside electronic monitoring systems such as cameras and satellite-based tracking systems on both carrier and fishing vessels involved in any form of trans-shipment.

Ultimately, barring market access to vessels engaged in unmonitored at-sea trans-shipments can provide a strong impetus for flag States to make substantive reforms to trans-shipment regulations and expand vessel monitoring efforts. Introducing stricter monitoring requirements for vessel access to port States can help provide a strong deterrent against IUU fishing as operators would run a greater risk of losing market access. Such actions would serve to make the practice of at-sea trans-shipment more open to scrutiny and the transfers of the products of IUU fishing activities more easily detectable, thus reducing the attractiveness of engaging in the practice in the first place. They would also be an impetus for flag States to ensure compliance with labour and human rights on board vessels authorised to fly their flags.

Introduction:

A growing fleet requires growing support

Cranes are used to load frozen tuna into waiting trucks. © EJF

Globally, the fishing industry has expanded rapidly, with the number of *recorded* vessels rising dramatically from 1.7 million vessels in 1950 to 3.7 million vessels in 2015 and 4.1 million in 2020 – although over the last few years this figure has begun to decrease.[5/6] The vast majority of these vessels are based in Asia, representing 65% of the total global fleet although Africa's fleet is increasing, comprising 23.5% of the total.[7]

As has been widely documented and recorded, this growth in the global fishing fleet has led to declines in fish populations and marine biodiversity across the world.[8/9] The FAO has also declared that over 34% of global fish populations were classified as overfished in a "continuous increasing trend" since the 1970s.[10] Catch per unit effort (CPUE) – a common measure of the productivity of a fishery, measured in kilograms of seafood caught per hour – across most major fishing nations in 2015 was a fifth of its 1950s value.[11]

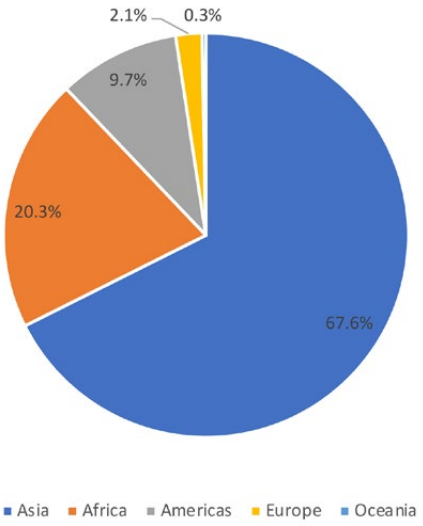


Figure 1. Distribution of Motorized Fishing Vessels by Region, 2018

Such declines in seafood populations on a global scale have resulted in fishing vessels travelling further from shore in search of fresh fishing grounds or more elusive target species. At the same time, improved technologies for the detection of fish populations and seafood preservation through deep freeze technologies on board fishing and carrier vessels have allowed fishing activities to become more efficient and trip lengths to increase. As trip lengths have increased so have fuel costs and wasted transit time where the vessel is not producing revenue.

The practice of at-sea trans-shipment provides a mechanism by which fishing vessel operators can maximise their profits by remaining at the fishing grounds for longer, thus saving time and fuel otherwise lost in transit back to port. A single carrier vessel can also collect seafood from multiple fishing vessels at the same time. It is especially viable for longline fishing vessels which target highly prized migratory seafood species such as albacore, bigeye and yellowfin tuna.[12/13]

The economic benefits of at-sea trans-shipment come with significant trade-offs in terms of traceability and transparency which elevate the risk of allowing illegally caught seafood to slip into global markets. A study in 2020 found that in the Western and Central Pacific Ocean alone, an estimated US$333.5 million worth of seafood per year was undeclared or misreported catches by fishing and carrier vessels.[14/15]

Analysis by Global Fishing Watch (GFW) found that ocean regions yielding higher percentages of seafood caught through IUU fishing were more likely to have a high number of potential vessel encounters – an indicator of possible at-sea trans-shipments.[16] The results were gathered through the analysis of AIS transmissions broadcast by fishing and carrier vessels between 2012 and 2016. These signals were then examined to establish whether they had engaged in possible encounters with one another. Note that GFW's analysis is only able to identify possible encounters rather than being able to confirm at-sea trans-shipment activity.

One study suggests that at-sea trans-shipment can increase the risk of human rights abuses on board fishing vessels, arguing that the practice may allow forced labour, human trafficking and slavery to go unnoticed.[17] This is made possible by fishing vessels sometimes remaining at sea for a year or even longer at a time, reducing the chances for vulnerable crews – often migrant workers – to alert the authorities or their family of abuse.

While many fisheries managers and stakeholders recognize the connection between IUU fishing and the practice of at-sea trans-shipment, there are very few first-hand accounts of these activities. This report seeks to fill that gap and sets out the results of EJF's recent investigations conducted in 2019 and 2020 into the practice of at-sea trans-shipment and its linkages to both IUU fishing, as well as labour and human rights abuses, in predominantly longline and squid jigger fisheries. It also draws on testimonies and evidence gathered by EJF from previous investigations conducted since 2018 across Indonesia, further illustrating that there is indeed a concerning connection between trans-shipment and these crimes.

The report also provides recommendations to address the worrying increase in dependence on the practice, especially through the widespread adoption and implementation of transparency mechanisms which can make at-sea trans-shipment activities and the vessels themselves more open to international scrutiny.

What is at-sea trans-shipment?

The FAO defines trans-shipment as the "*direct transfer of fish from one vessel to another vessel, regardless of location of the event*".[18] Often these receiving vessels are larger cargo ships with refrigeration systems to allow for the long-term storage and preservation of frozen seafood. Trans-shipments can also be used to exchange other forms of cargo, supplies, or personnel, often between vessels at sea and far from port.[19/20] This can allow fishing vessels to fish for longer periods of time, relying on these encounters with other vessels to replenish their supplies and continue operating.

At-sea trans-shipments also provide illegal operators the perfect conduit to maintain seafood market access.[21] This is because once catches are loaded onto carrier vessels it can be effectively mixed in with legitimately caught seafood products originating from legal fishing vessels.[22]

EJF has documented illegal at-sea trans-shipments between Thai fishing vessels and collecting vessels in the past. © EJF

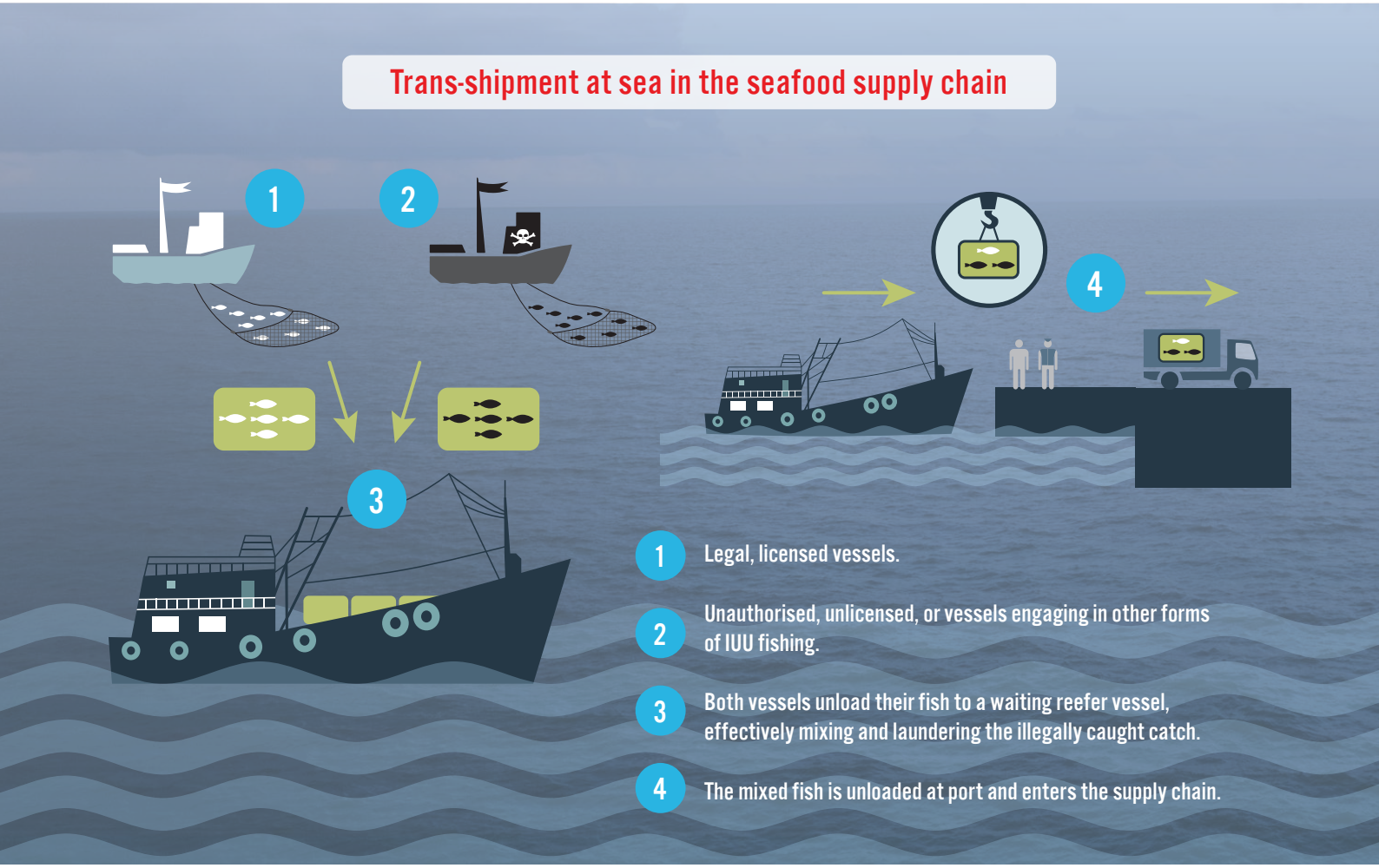


Figure 2. Trans-shipment at sea in the seafood supply chain

> *"[We] transferred to a mother ship once a month... We always transfer squids at sea... Shark fins were also transferred to a mother ship... [During the transfer] only the captain kept an eye on us."*

Interview with an Indonesian crew member working on a distant water fishing vessel.[23]

How prevalent is it?

> *"Our vessel and a sister vessel always transferred catch to the carrier vessel at the same time. Other vessels were also in the queue. It was crowded."*

Interview with an Indonesian crew member working on a distant water fishing vessel.

EJF identifies an unauthorised at-sea trans-shipment via helicopter in West Africa. If trans-shipments are not effectively monitored or controlled, then it can be difficult to accurately determine the global extent of the practice. © EJF

It is difficult to accurately determine the true number of at-sea trans-shipments taking place around the world. However, the FAO estimates that the number of reported trans-shipment events rose from 1,171 events in 2013 to 4,620 events in 2017 – an increase of 294% across 13 RFMOs.[24]

Although there are many coastal States and RFMOs that monitor and authorise trans-shipments in their jurisdictions, there are also jurisdictions where it is not mandatory to report trans-shipments. Trans-shipments can also be conducted illegally, making them all but impossible to detect unless they are observed by a witness.[25]

"The contract stated that (the fishing duration) was 6 – 8 months, however, the vessel never docked at all... Not being able to dock is not good, but if you ask me [the ideal fishing duration] I think it should be 4 months – the longest trip should be 4 months."

Interview with an Indonesian crew member working on a distant water fishing vessel. It should be noted that although this vessel stayed at sea for two years, enabled by the practice of at-sea trans-shipment, such practices are not currently prohibited by any international regulation.

"During the two years [contract], we never docked...I got mixed feelings about it... I lost contact [with my family]."

Interview with an Indonesian crew member working on a distant water fishing vessel.

The role of RFMOs in coordinating trans-shipment oversight

Regional fisheries management organisations (RFMOs) provide a forum for flag States operating distant water fishing (DWF) fleets and coastal States to collaborate on fisheries management in EEZs, high seas areas or overlapping, transboundary ocean regions not governed by just one State.[26] Most RFMOs are able to issue legally binding regulations on fisheries conservation and management measures; however, these are often dependent on full consensus amongst members.

While most RFMOs have some trans-shipment monitoring measures in place, more work is needed to improve their effectiveness. Recognising this, between 2021 and 2022, the International Commission for the Conservation of Atlantic Tunas (ICCAT), Indian Ocean Tuna Commission (IOTC) and Inter-American Tropical Tuna Commission (IATTC) have updated their measures to include increased reporting requirements.[27/28/29]

Analysing AIS data for possible at-sea trans-shipments

Satellite tracking data for fishing and carrier vessel movements based on analysing automatic identification system (AIS) data can provide an indication of at-sea trans-shipment trends. Global Fishing Watch's Carrier Vessel Portal allows for such analysis, using an algorithm to determine whether or not two vessels are engaging in a possible encounter.[30/i]

Since 2012 there has been a considerable increase in *potential* trans-shipment activity with the number of annual global encounters as identified by the Carrier Vessel Portal increasing by 1,844% by 2021.[31] This rate of increase is far higher than the rate of increase for recorded trans-shipments and gives an indication that the practice is gaining popularity. It should be noted that this increase might be partially due to an increase in AIS usage as well as improved satellite coverage.

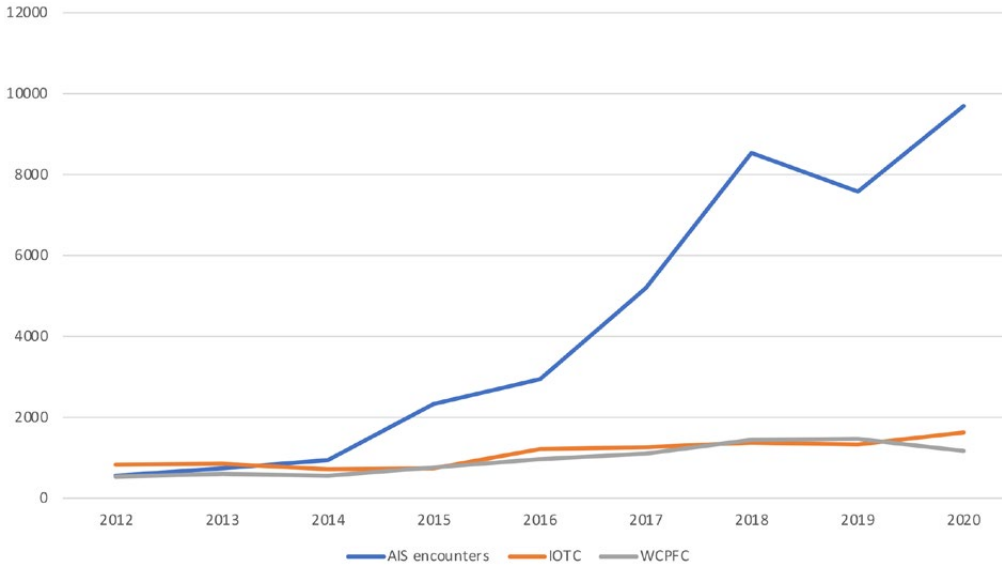


Figure 3. Rates of increase for trans-shipment from 2012-2020 across AIS recorded encounters

i GFW's Carrier Vessel Portal can only identify potential vessel encounters if certain parameters are met. This includes having both carrier vessels and fishing vessels being equipped with AIS transponders, these vessels both having these transponders switched on, signals from these transponders being successfully transmitted to satellites or ground stations. The algorithm also requires vessels to be within 500m of each other for at least two hours and travelling at a median speed of less than two knots, while at least 10km from a coastal anchorage.

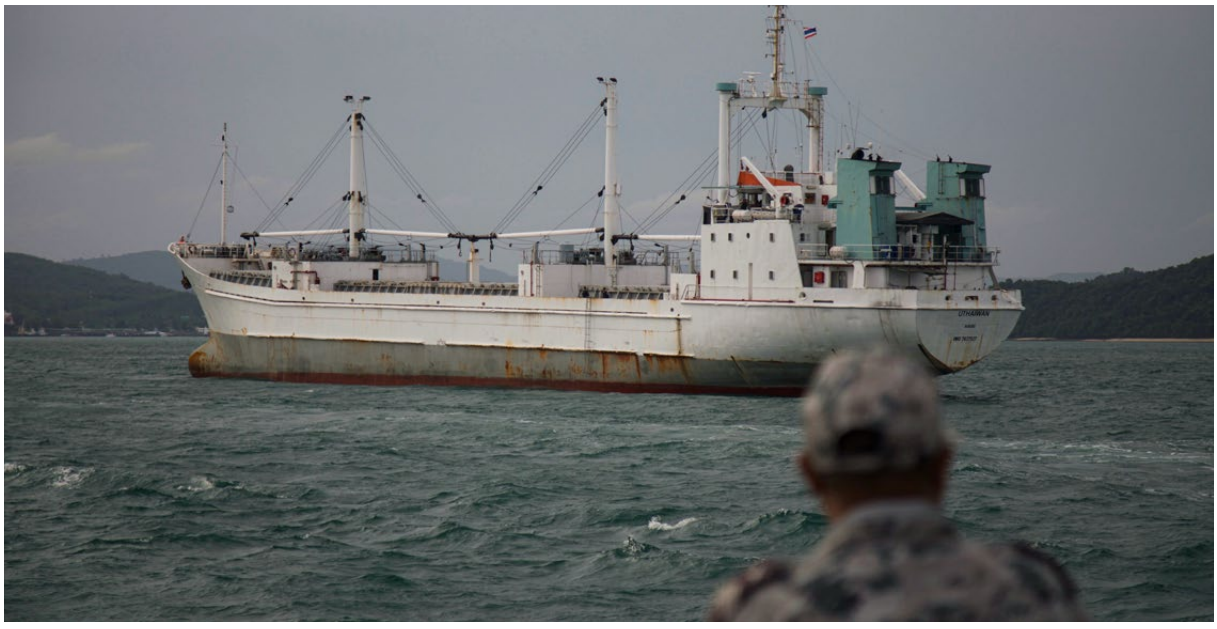
In 2021, there were 10,899 encounters identified by the Carrier Vessel Portal.[32] However, the majority of these encounters are conducted between Russian flagged fishing vessels and carrier vessels. Since these vessels usually operate in a self-contained network, they are not further analyzed for this report. The remaining data show that the number of potential trans-shipments declared by the Portal has increased for all except one carrier flag since 2017.[33]

Flag of carrier vessel	2017	2018	2019	2020	2021	% inc/dec (2017-2021)
Russia	2,865	4,448	4,212	4,664	4,730	65%
Panama*	881	1,707	1,157	2,422	3,001	241%
Liberia*	356	578	393	181	182	-49%
Taiwan	218	319	392	475	388	78%
S. Korea	170	260	191	414	264	55%
China	122	611	418	842	1,402	1,049%
USA	154	234	331	150	210	36%
Total	**5,183**	**8,534**	**7,564**	**9,695**	**10,899**	**110%**

Table 1: Recorded encounters on GFW's Carrier Vessel Portal sorted by main carrier vessel flag from 2017-2021[34]

* Panama and Liberia are two flag states known to have open registries whereby the country of the flag the vessel is flying is different to that of the true beneficial owner.[35] These are sometimes referred to as Flags of Convenience and in some cases, are used by vessel operators seeking to evade all kinds of regulations covering fisheries, safety requirements or labour conditions.[36]

Despite these increases in the number of recorded encounters over the last nine years, and the concurrent increase in AIS and satellite coverage, this may still be far from the true total figure of how many at-sea trans-shipments are taking place across the world. This is due to a tendency for poor information sharing between flag and port States and RFMOs, jurisdictions not mandating recording of trans-shipments, and illegal trans-shipments which are undetected. AIS analysis can also only tell us so much if there are data gaps when vessels switch off their transponder to avoid detection or ocean areas where AIS satellite coverage is not complete.



If trans-shipments are not detected through vessel monitoring technologies or observed by either human or electronic means then it can be difficult to verify the legitimacy of such activities. © EJF

Gear characteristics of at-sea trans-shipment

FAO research into trans-shipment gear trends across 13 RFMOs found that for 2017, 36.4% of fishing vessels authorised to trans-ship at-sea were longliners, 18.2% were squid jiggers, 12.1% were trawlers and 9.4% were purse seiners.[37] EJF's own analysis of Global Fishing Watch's Carrier Vessel Portal data confirms this trend (excluding Russian flagged fishing vessels due to data skewing - see appendix 1) as it shows that longliners and squid jiggers are the most likely types of fishing vessel to engage in at-sea trans-shipment. This is based on available AIS analysis of detected likely at-sea trans-shipments from 2012 to the present.[38]

Fishing gears (excluding Russian flagged fishing vessels)	**Number of trans-shipments involving this gear type**	**% Of total trans-shipments (n=27,140)**
Longliners	8,930	32.9%
Squid jiggers	8,865	32.7%
Purse seiners	2,297	8.5%
Trawlers	1,232	4.5%
Other types of gear*	5,816	21.4%
Total	**27,140**	-

* It should be noted that this data is extracted based on available fishing gear classifications (including unknown gear) provided by GFW's Carrier Portal.[39]

Table 2: At-sea trans-shipments based on fishing gear

As well as being one of the most likely categories to engage in at-sea trans-shipments, longline fishing vessels also spend most of their time operating on the high seas. 84 to 87% of longline fishing effort (measured by hour) is expended on the high seas. Furthermore, 80% of this high seas effort (as of 2016) was carried out by five fishing states - China, Japan, South Korea, Spain and Taiwan.[40]

"We caught three false killer whales. The captain told us to take its teeth and throw away the bodies... We transferred tuna at sea, we did it three times. We transferred to a Japanese carrier vessel..."

Interview with an Indonesian crew member working on a distant water fishing vessel.[41]

A trans-shipment takes place between a fishing vessel and a carrier vessel. © EJF

Operating in the absence of scrutiny

A Royal Thai Navy officer scans the horizon for signs of potential illegal activity including unauthorised trans-shipments. © EJF

Research has shown that between 52-60% of possible at-sea trans-shipments (based on AIS analysis and excluding the Russian exclusive economic zone) take place on the high seas.[42/43/44] FAO surveys sent to 13 RFMOs around the world found that the vast majority of 4,647 recorded at-sea trans-shipment events (98%) in 2017 took place on the high seas either within or outside the RFMO area. These high-seas trans-shipments were responsible for the transfer of 688,876 tonnes (73%) of seafood product out of a total 947,066 tonnes trans-shipped that year.[45]

These high seas areas lie outside of national maritime zones and are therefore difficult and expensive to patrol.[46] They may only be governed by RFMOs with limited enforcement capacity to identify or sanction perpetrators of IUU fishing. The remoteness, logistics and costs of conducting at-sea or airborne patrols in such ocean areas also allows IUU fishing to go undetected.[47]

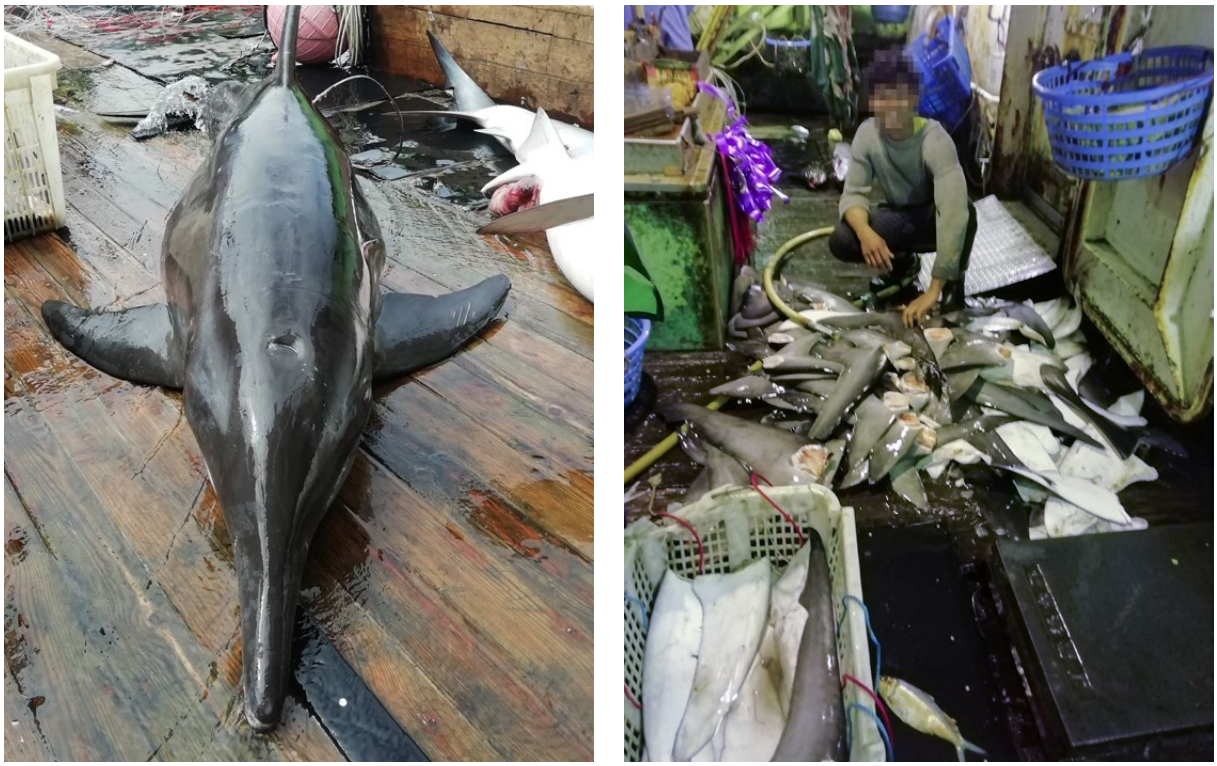
Connecting IUU fishing and human rights abuses

Global economic losses due to IUU fishing are estimated to be between US$ 26 billion and US$ 50 billion per year. This is based on the estimated illegal capture of between 8 to 14 million tonnes of seafood every year.[48] In many cases, these activities cover multiple jurisdictions and stakeholders from different countries. This is especially prevalent in distant water fisheries which may have multiple stakeholders of different nationalities, including beneficial owners, vessel agents, coastal State, port State, carrier vessel flag State and vessel crew.

EJF's ongoing investigations into DWF IUU fishing crimes have revealed that vessels engage in a number of illicit activities.[49/50/51] The predominant fleets identified through these investigations are from China, Taiwan and South Korea. Reported IUU fishing crimes have included finning and disposal of shark bodies whilst at sea; intentional hunting and killing of protected species such as dolphins, false killer whales and turtles; fishing in restricted areas such as marine protected areas or fishing in unauthorised EEZs.

These and other IUU fishing crimes can be closely linked with human rights abuses as EJF, other NGOs and media outlets have shown across multiple geographies around the world.[52/53/54] Often, fisheries mismanagement and a lack of transparency in fishing operations provide the catalysts for both issues and lead to a decline in fish populations and catch per unit effort. In response, fishing effort has increased to maintain catches, resulting in smaller profit margins. Since labour costs can account for up to 60% of vessel operating costs, demand for cheap labour has increased, and with it, the chances of labour exploitation and IUU fishing.[55/56]

The pressure on vessel operators to cut costs to maintain profitability incentivises the use of migrant workers from countries where insufficient domestic employment opportunities push people to seek work abroad.[57/58] Migrant workers may face being paid less and have fewer social protections and labour rights compared to their local national counterparts.[59] This vulnerability to exploitation and a drive for reduced costs increases the risks of forced labour and trafficking for migrant fishers.[60]



(Left) A dolphin is caught by a fishing vessel, (Right) A crew member poses with freshly cut shark fins. © EJF

Chinese vessels rely on Japanese carriers to send tuna to market

EJF has interviewed a number of Indonesian crew members who worked on Chinese-flagged fishing vessels owned by the Dalian Ocean Fishing Co. Ltd. The company came to international attention when one of its vessels, the Long Xing 629, came to port in Busan in April 2020. It emerged that five crew from the vessel had reported illness but were denied modern medical treatment and died over the course of their time at sea. EJF and partner NGOs interviewed all the surviving crew members and uncovered appalling IUU fishing and forced labour practices.[61]

"We took only the fins and threw away the bodies. There were also some sharks that we took the body too, but only a few of them, we used it as bait. We used any kind of sharks, we took a small part of them for bait, then we threw away the rest."

Interview with an Indonesian crew member who had worked on the Long Xing 629.

The interviewees reported having to stay at sea for 13 months without coming to port. During that time, they said they had to drink salty water, often worked up to 18 hours a day and had to endure constant verbal abuse and physical violence. They were promised between US$450 and US$500 for their wages but in reality, almost half of that amount was deducted.[ii] A detailed briefing on the vessel, which also provided details of widespread allegations of IUU fishing including shark finning and hunting of dolphins, was published by EJF and partner organisations in July 2020.[62]

"We cut the fins and tied them into bundles. Some of them got sun-dried first. One bundle of dried fins weighs 60-70kg...[We transferred] to [redacted name] carriers every three months. We could transfer hundreds of bundles in one transfer. Usually for tuna we transfer to Japanese vessels...We transferred to them every 3-4 months."

Interview with an Indonesian crew member working on the Long Xing 629.[63]

Crew members from several of the vessels also told EJF that they had trans-shipped their catches to Japanese flagged or affiliated carrier vessels. Based on crew testimonies, available photos of the transfers taking place and analysis of satellite vessel tracking data, EJF was able to track 10 Japanese flagged carriers bound for Shimizu port in Shizuoka Prefecture, one of the main tuna importing hubs in Japan.[64]

ii All these are potential indicators of forced labour as defined by the ILO: https://www.ilo.org/global/topics/forced-labour/publications/WCMS_203832/lang--en/index.htm

Migrant workers in fisheries are particularly vulnerable to slavery, human trafficking and forced labour due to a variety of factors:[65]

• At sea, escape is difficult and often impossible.

• The isolation and distance from regulatory agencies mean very little oversight, allowing unscrupulous vessel operators to commit crimes and abuses.

• There may not be effective protection against abuses (either because of a lack of appropriate regulation, or because countries are under-resourced or lack political will).

• Migrant workers may have migrated illegally, have been trafficked or be undocumented by flag State or coastal State labour authorities and so lack relevant or legal documents. Such documents might include their passport, work permit, or identification card.

• Migrant workers may also have these documents taken away from them by vessel operators or recruitment agents, making their situation even more precarious if they are stopped or searched by authorities.

• Recruitment agencies in both labour sending and receiving countries are often unregulated or poorly regulated and their operations poorly monitored. Oversight by authorities is rare.

Migrant workers employed on DWF vessels can be at greater risk of experiencing labour abuses including physical and verbal abuse or poor living conditions compared to workers employed on coastal fishing vessels.© EJF

• Workers may not be able to read their contracts in the language they are written in or may have difficulty reading. This could result in workers being deceived or being unclear of what their rights are. Workers may even be forced to sign a new contract with different terms to those previously agreed once they begin their employment. Many workers may not have a written work agreement at all.

• Very few flag or coastal States conduct labour inspections of fishing vessels, in particular those operating on the high seas or out of international ports. There is also a critical lack of transparency and accountability in the recruitment process.

"I was transferred to vessel B in May 2020... There was no [written contract] whatsoever prior to moving to [vessel B], not even verbally... The agency staff told me that working on vessel B was just temporary, due to coronavirus we could not go home yet... [In fact] I stayed on vessel B for a long period of time... I was on vessel B for almost 18 months."

Interview with an Indonesian crew member working on a distant water fishing vessel.[66]

Potential links between IUU fishing and at-sea trans-shipments

Global Fishing Watch's study of ocean regions, the percentages of seafood originating from IUU fishing sources and the number of potential vessel encounters – indicating a possible at-sea trans-shipment – found evidence of a relationship between the three.[67] This is despite some notable outliers from the Northwest Pacific (high number of encounters due to Russia's common practice of using at-sea trans-shipment) and Eastern Indian Oceans (low coverage of AIS signals from vessels).[68]

It should be noted that the majority of vessels included in EJF's investigations operated in several of the sections of the Atlantic, Indian and Pacific Oceans reported to have the highest percentage of seafood product thought to be caught through IUU fishing.[69]

FAO fishing area[70]	**Estimated percentage of product originating from IUU fishing as per most recent assessment (%)[71]**	**Number of recorded vessel encounters as determined by Global Fishing Watch's analysis (in thousands)[72]**
Eastern Atlantic	37	8.2
Western central Pacific	34	6.2
North west Pacific	33	34
South western Atlantic	32	7.5
Eastern Indian	32	0.6
South eastern Pacific	19	7.5
Western Indian	18	3.2
Eastern central Pacific	15	3.8
Western Atlantic	10	0.6
North eastern Atlantic	9	2.8
North western Atlantic	9	0.1
South eastern Atlantic	7	1.5
Antarctic Atlantic	7	0.8
Antarctic and Southern Indian	7	0
Antarctic Pacific	7	0
North east Pacific	3	0.1
South western Pacific	3	0.3
Arctic Ocean	N/A	N/A
Mediterranean Sea and Black Sea	N/A	N/A

Table 3: Estimated products originated from IUU fishing and number of vessel encounters in each FAO fishing area.

Risk calculations for both prevalence of IUU fishing and human rights abuse at sea have also shown that there is a correlation between fishing vessel flag, gear type, time at sea and carrier vessel characteristics.[73] For example, drifting longliner, trawler, set longliner and squid jigger vessels as well as beneficially owned carrier vessels have been found to be more at risk of being connected to either IUU fishing or labour abuses.[74] These findings further demonstrate that the practice of at-sea trans-shipment is linked to increased incidences of both IUU fishing and human rights abuses.

"There was no effort to hide it [shark finning] because there was never an inspection at sea. Often when the freezer [is] full, fins often overlap with other fish."

Indonesian crew member working on a distant water fishing vessel which trans-shipped catches to Japanese-flagged carrier vessels whilst at sea.[75]

A worker guides a load of frozen tuna at port. © EJF

Potential links between human trafficking, slavery and at-sea trans-shipment

At-sea trans-shipment can facilitate human rights abuses by enabling indicators of forced labour or human trafficking such as physical, verbal and psychological abuse to stay undetected far out at sea. It can also be used to prevent trafficked or slave crew from escaping or alerting the authorities by keeping them at sea. This has been widely documented in Thailand and more recently on board Chinese DWF vessels.[76/77]

In 2021, for example, EJF spoke to 13 crew from a fleet of such vessels fishing illegally in Somalian waters who reported being forced against their will to move to a carrier vessel which then served as a makeshift detention centre for the crew.[78] All 13 crew had finished their two-year contracts but were told by the vessel broker that due to Covid-19 travel restrictions it was impossible to repatriate them back to Indonesia.

"I requested to go home a long time ago. I even ran away but I was taken back to the vessel. I insisted on being sent home by protesting and stopping work but instead they moved me to a carrier vessel... The vessel was used as a shelter for crew who were already unemployed. Also maybe because the captain did not like the crew, so he moved them to the carrier vessel."

Interview with an Indonesian crew member working on a distant water fishing vessel operating in Somalia.[79]

A crew member poses with five dolphins caught by a Chinese-flagged trawler vessel operating in the western Indian Ocean. © EJF

EJF interviewees from other distant water vessels have also described how crew transfers would take place between vessels on the high seas, often in precarious conditions. These transfers can be used to replace crew who have finished their contract, pick up sick or injured crew or rotate crew members between vessels perpetually so as to prevent them from returning to shore in conditions akin to modern slavery.

Crew transfers at sea – A dangerous practice

Workers are transferred between vessels using a Styrofoam box. Their possessions are kept in plastic bags to prevent them from damage during the transfer. © EJF

"I took a rubber boat to get on board the vessel. Using a rubber boat is quite dangerous, especially when the waves are high - I was afraid the boat would capsize..."

Interview with an Indonesian crew member working on a distant water fishing vessel.[80]

Transfers between longline fishing vessels and carrier vessels can be notoriously dangerous even in calm seas. The height difference between these vessels can amount to around 6-8 metres, approximately the same height as a two storey building.[81] Many of these transfers take place on the high seas, meaning that if crew were to fall, they would be several days or even weeks away from receiving professional medical attention.

In rough weather, other methods may be used to transfer crew such as deploying a dinghy or by so-called 'flying fox' whereby the crew member sits in a seat suspended from a rope which is then pulled across the gap between vessels. EJF has also heard from interviews of crew being made to sit in metal grated containers whose primary purpose is to transfer frozen tuna.

Crew have also told EJF of how they were forced to swim between vessels with only a guide rope to stop them from drifting away in the current. All their possessions were kept in a plastic bag which they tied around their waist, they reported.

EJF investigations reveal how trans-shipment enables fisheries crimes

From April 2021 to February 2022, EJF conducted interviews with 96 Indonesian crew members who worked across 79 different vessels including tuna longliners, squid jiggers and trawlers. 40 (51%) of these vessels were Chinese-flagged, 27 (34%) were Taiwanese-flagged, and the rest (12 vessels) were flagged to Vanuatu, Oman, Côte d'Ivoire, Federated States of Micronesia, Kenya, Fiji, and Mozambique (see figure 4 below). EJF has found that these 12 vessels are mostly owned by individuals based in China, Taiwan or other flag States according to relevant RFMO records.

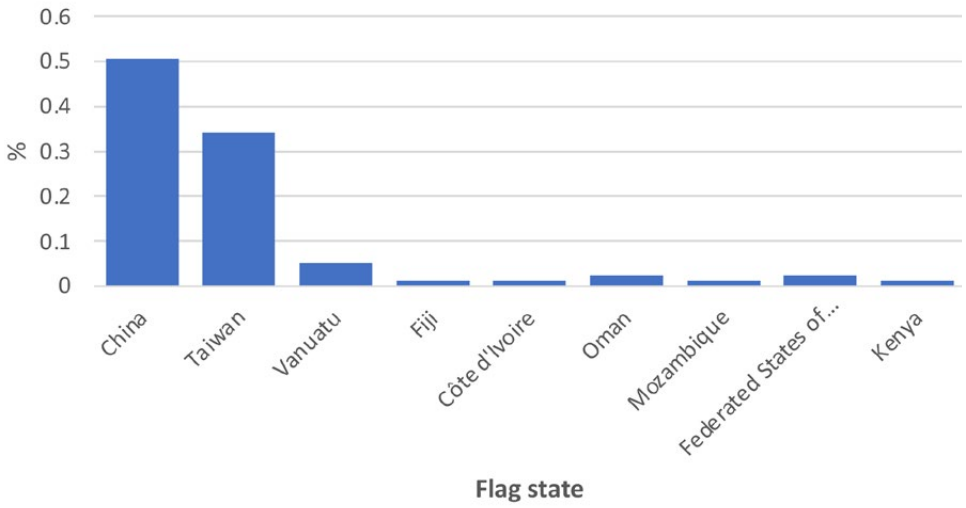


Figure 4. Flag state reported by interviewees that EJF spoke to between April 2021 - February 2022.

Interviews were conducted according to screening criteria rather than through random sampling. This screening criteria analyses how recently the fisher worked on the vessel(s) as well as the scale and severity of IUU fishing and/or human rights abuses observed or inflicted on the fisher. EJF places an emphasis on finding more recent cases (taking place within at least the last two years) due to fisheries and labour legislative changes being made in flag and coastal states. Fishers were not screened for whether or not their vessel had engaged in trans-shipment nor based on length of time spent at sea. Additional information about EJF ethics, safety and security considerations is found in Appendix 2.

Of the 79 fishing vessels identified, 61 vessels (77.22%) were longliners, 17 vessels (21.52%) were squid jiggers, and one vessel (1.27%) was a trawler.

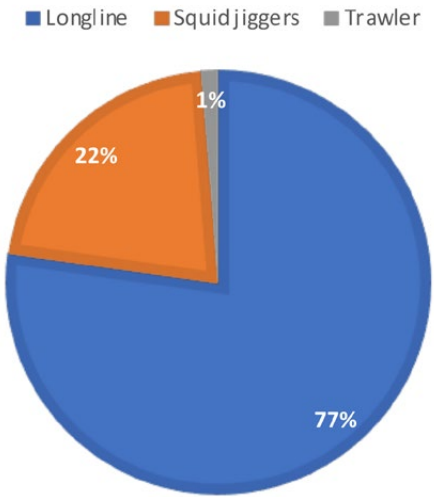
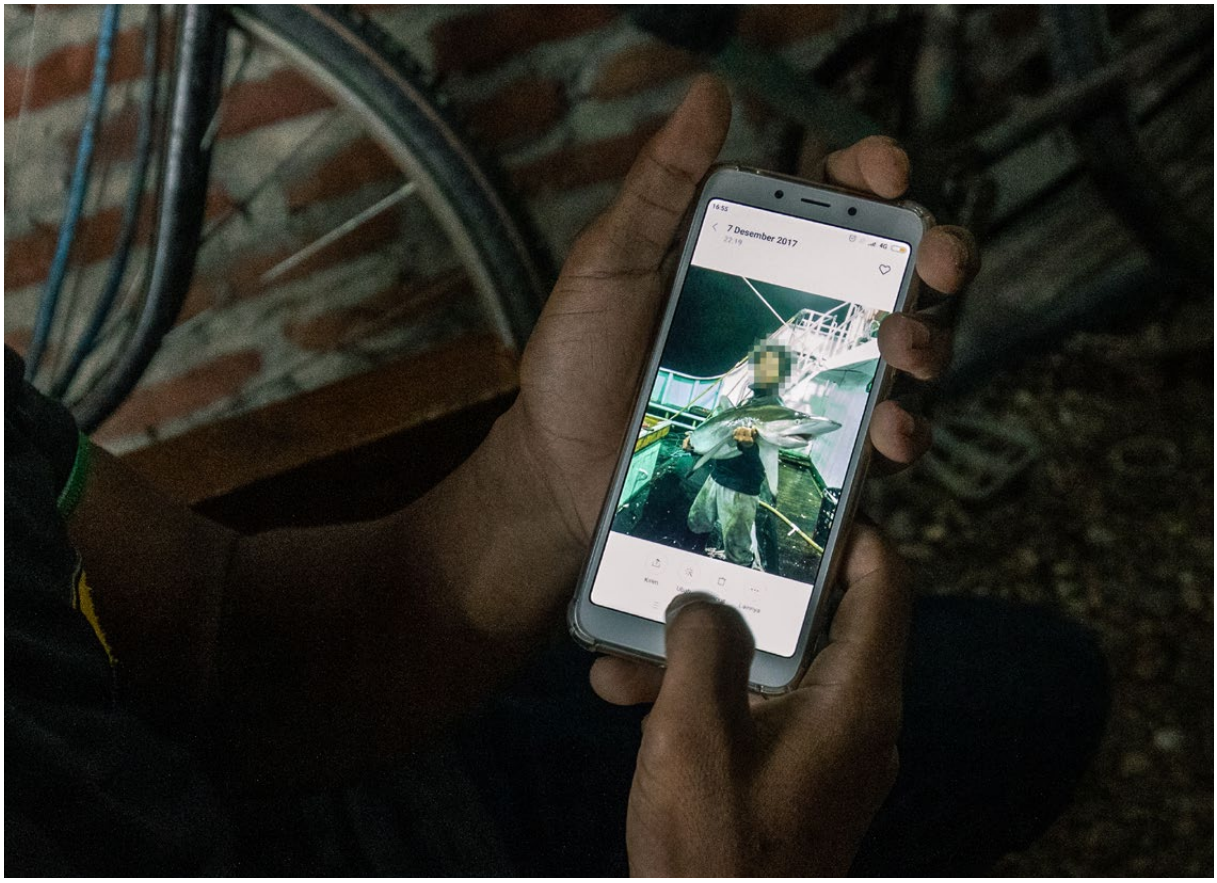


Figure 5. Types of fishing vessels identified by interviewees.



EJF gathers first-hand accounts and photographic evidence from fishers who have observed IUU fishing and/or experienced labour abuses. © EJF

EJF investigators were equipped with an animal identification guide with photos of common shark species as well as charismatic species (marine megafauna)[82] such as dolphins, false killer whales and turtles that are commonly found in DWF fisheries. This guide is provided to all interviewees to allow them to point out the species that they may have encountered during their time on board the vessel. This guide is available upon request. For the purposes of this report EJF defines shark finning as the removal of shark fins and the disposal of bodies whilst the vessel is still at sea. EJF also classifies the intentional hiding of detached fins as shark finning due to the implied intent to commit an illegal act. A compilation of photos of different vessel types and vessel flags is also provided to fishers to aid in identifying carrier vessels.[83]

In addition to interview findings, EJF collected and analysed other evidence to further corroborate interviewee testimony.[84] These sources included copies of employment contracts, passports, visa information as well as verified vessel identification from official vessel databases.

EJF defines human rights and labour violations in accordance with indicators of human trafficking and forced labour as defined by the ILO.[85] These include but are not exclusive to physical abuse, intimidation and threats, retention of identity documents, withholding of wages, debt bondage, abusive living conditions and excessive overtime.[86] IUU fishing activities are defined according to FAO guidelines, relevant flag state and RFMO regulations. This includes unauthorised fishing without the permission of coastal States, and/or RFMOs; fishing in violation of national and international obligations; unreported or misreported catches in contravention of national or regional regulations; amongst others.[87]

Results and analysis

Based on crew testimonies, 53 vessels were reportedly engaged in trans-shipment activities. However, one vessel which was initially reported to have not engaged in trans-shipment was detected using Global Fishing Watch's Carrier Vessel Portal.[iii] As such, this vessel was added to the list of trans-shipment vessels, resulting in a total of 54 trans-shipment vessels (68.35%). Furthermore, 25 vessels which were reported to not have engaged in trans-shipment activities and were not detected on the Global Fishing Watch's Carrier Vessel Portal are classified as non-trans-shipment vessels.

Vessel activities based on fishers' testimonies	Total number of fishing vessels	%
Trans-shipment fishing vessels (TF)	54	68.35%
Non-trans-shipment fishing vessels (NTF)	25	31.65%

Table 4: Breakdown of fishing vessels by whether they engaged in potential trans-shipment or not.

Crew testimonies from all vessels were matched with available fishing vessel tracking records from Exact Earth, Global Fishing Watch and its Carrier Vessel Portal in order to corroborate potential encounters between vessels. This was important to verify crews' claims that their vessels did or did not engage in trans-shipment. Several of the crews' fishing vessels did not broadcast AIS data during their time on board meaning that such analysis was sometimes unavailable.

Based on available AIS data, 39 out of the 54 fishing vessels suspected of engaging in at-sea trans-shipment as per crew interviews (hereby referred to as TF vessels) were found to have had an encounter with a carrier vessel.[88] Of these 39 fishing vessels, 61.54% were flagged to China, 28.21% to Taiwan, 7.69% to Vanuatu, and 2.56% to Oman. EJF found a total of 176 potential encounters between the 39 fishing vessels and 58 carrier vessels flagged to Panama (26), China (15), South Korea (4), Taiwan (9), Japan (1), Liberia (1), Malaysia (1), and Caribbean Netherland (1). Carrier vessels flagged to Panama dominated the encounters, followed by Chinese-flagged carriers. Of the 39 fishing vessels, 20 vessels (51%) had fewer than 5 encounters during fishers' time on board, 8 vessels (21%) had five encounters, and 11 vessels (28.21%) had more than 5 encounters during the fishers' time on board their fishing vessel.

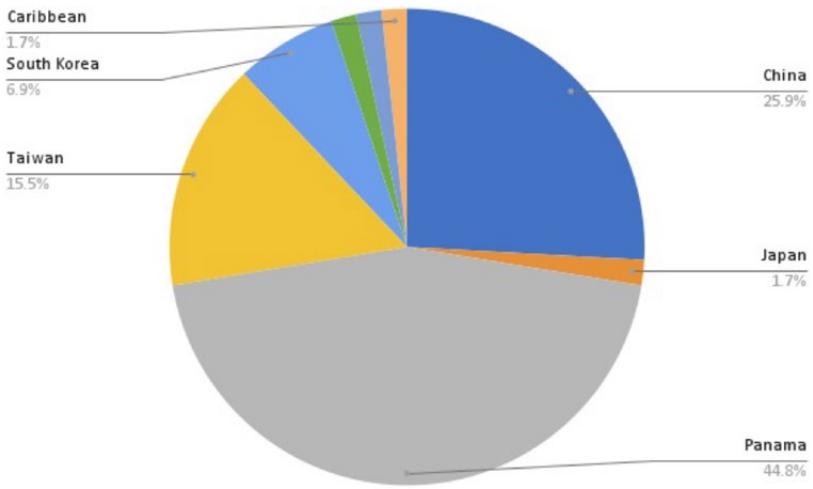


Figure 6. Flag state of carrier vessels which potentially had an encounter with the 39 TF vessels according to GFW's Carrier Vessel Portal.

[iii] Detection by Global Fishing Watch's Carrier Vessel Portal confirms vessel encounters but not the activity that takes place e.g. transfer of catch, bait, crew supplies, etc.

Furthermore, of the 39 vessels potentially engaged in trans-shipment activity, 25 vessels (64%) were tuna longline

vessels, while the remaining 14 vessels (36%) targeted squid. No purse seine or trawler vessels were identified.

According to fishers' testimonies, the average trip length across the full sample size of 54 TF vessels was 13.3 months whilst for 25 NTF vessels it was just 3 months. Of the TF vessels, as many as 51.85% potentially remained at sea for over 12 months. However, 22.22% remained at sea for 6-12 months. 15 crew members told EJF that their vessel never came back to shore for the extent of their two-year contract, with the vessel being resupplied by other fishing vessels and carrier vessels. None of the NTF vessels remained at sea for more than 6 months. The majority of these vessels (64%) stayed at sea for 0-3 months, and the rest (36%) were fishing for 3-6 months.

36 out of the 39 vessels allegedly conducted encounters in the overlapping jurisdictions of at least two RFMOs, such as the WCPFC and South Pacific Regional Fisheries Management Organisation (SPRFMO), IATTC and SPRFMO, and WCPFC, IATTC and SPRFMO overlapping areas. Only three vessels potentially conducted trans-shipments in the jurisdiction of a single RFMO. A prevalence of trans-shipment activities in overlapping jurisdictions can allow vessel operators to circumvent stricter regulations or trans-shipment bans of some RFMOs.

Alleged IUU fishing linked to vessels potentially engaged in at-sea trans-shipment

Fishers that EJF spoke to reported the finning of sharks and disposal of shark bodies, the intentional hunting and killing of dolphins, false killer whales and turtles, as well as fishing in prohibited areas. Rates of IUU fishing recorded on vessels engaging in at-sea trans-shipment varied considerably compared to NTF vessels, with higher rates of shark finning but lower rates of intentional hunting and killing of charismatic species. This could be partially explained by the type of vessel involved as well as the main area of fishing operation. For example, the catching of seals and walruses tended to be reported on squid jigging vessels. Out of our NTF vessel sample, none of the vessels were squid jiggers – potentially influencing the zero cases of catching seals and walruses onboard these vessels. In addition, the higher rates for catching of false killer whales on NTF vessels could potentially be influenced by the composition of NTF vessels being predominantly longliners.

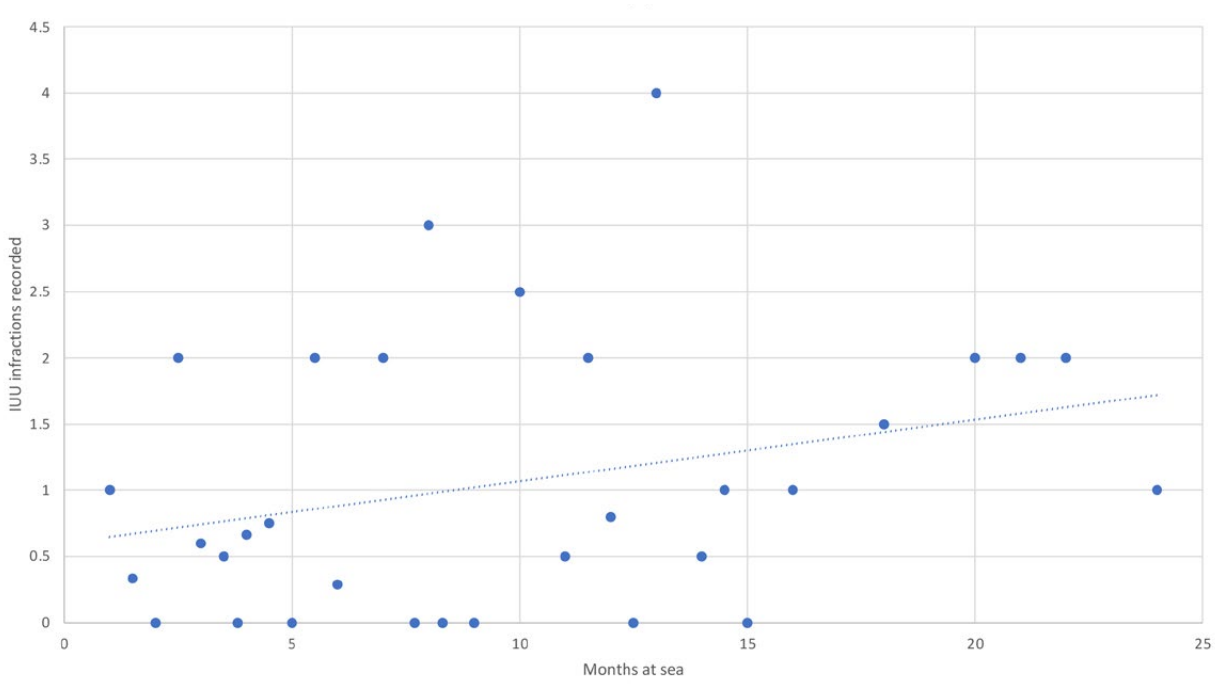


Figure 7. Prevalence of alleged IUU fishing plotted against months at sea, using the average recorded incidences of alleged IUU infractions across all 79 vessels (both TF and NTF vessels).

The tables below provide EJF's analysis of IUU fishing allegations reported by the interviewees:

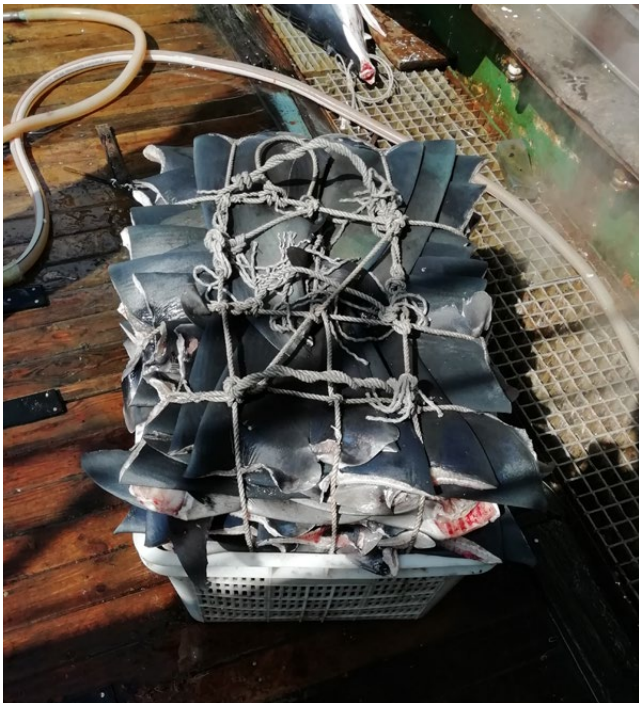
Alleged IUU fishing	% Total TF vessels engaged in IUU fishing (n= 54 vessels)	% Total NTF vessels engaged in IUU fishing (n= 25 vessels)
Shark finning	57.41%	28.00%
Intentionally targeting, taking, and/or killing false killer whales	25.93%	28.00%
Intentionally targeting, taking, and/or killing dolphins	11.11%	20.00%
Intentionally targeting, taking, and/or killing seals/walruses	20.37%	0.00%
IUU fishing in unauthorised areas	27.78%	16.00%

Table 5: Alleged IUU fishing committed by TF vessels and NTF vessels.

EJF also identified alleged IUU fishing activities conducted across 12 vessels (five TF and seven NTF vessels) flying the flag of Oman (two vessels), Vanuatu (four vessels), Federated States of Micronesia (two vessels), Côte d'Ivoire (one vessel), Mozambique (one vessels), Kenya (one vessel), and Fiji (one vessel).

1. Shark finning

Shark finning continues to be widely practiced on DWF vessels across the globe. Shark finning refers to the act of removing shark fins and throwing the body back into the ocean.[89] Often the finned sharks will still be alive when they are dumped, causing them to suffer a slow and painful death. Shark fins are collected due to their high monetary value and demand.[90] Dumping the less valuable bodies allows for a more efficient use of the vessel's fish holds as well as a reduced chance of detection.[91]



A photo taken by an Indonesian crewmember shows a bundle of shark fins ready for transfer. © EJF

"For [blacktip sharks] and [white tip sharks], the fins were taken while the bodies were discarded... Thresher shark' fins were (also) taken, while the body was discarded... [Once the fins had been sliced] they were stored in a freezer, cleaned, and sun-dried... They were put in a box, that way the police would not find them. The fins [which were put in a box] were put under a layer of fish."

Interview with an Indonesian crew member working on a distant water fishing vessel.[92]

Based on crew members' testimonies, of the 54 TF vessels, 31 vessels (or 57.41%) were allegedly involved in shark finning. Rates of shark finning were lower on NTF vessels, with seven vessels (28.00%) involved in the practice. Four of these vessels were flagged to Taiwan, two to China, and one to Vanuatu.

Across both vessel groups, crew members reported that they would attempt to hide shark fins by putting them inside sacks, and then placing them under piles of catch, bait, or the crew's food supply. These fins were hidden to avoid being discovered during any potential inspection. Crew also described how the vessel captain might order them to begin discarding bodies once the freezer was full.

A former crew member on a Chinese longline vessel described the process of shark finning on board the vessel:

"[We] only harvested the fins, the body was discarded... Once the shark was brought aboard, the fins were sliced off, then the fins were tied together. The head and body were thrown back into the ocean, the fins were collected, packed, and stored in the freezer... Usually the fins were sun-dried... The fins were stored in the bottom part of the freezer under piles of bait, so the fins would not be visible."

Interview with an Indonesian crew member working on a Chinese -flagged fishing vessel.[93]

Although shark fishing tends to be associated with longline vessels, the practice also takes place on board squid jiggers, as reported through crew interviews. Crew use harpoons to spear sharks and bring them up on deck.

"[The vessel] caught sharks, only the fins were kept... the bodies were discarded... The sharks were harpooned. The sharks were lured first, once they got near, they would be harpooned... Plenty of sharks were caught."

Interview with an Indonesian crew member working on a distant water fishing vessel.[94]

According to some crew members of TF vessels that EJF spoke to, the vessels' target species (tuna, tuna-like species or squid) were transferred to carrier vessels while shark fins would be unloaded at the vessel's home port. However, several crew members reported that shark fins were also transferred to a carrier vessel allegedly owned by the same company as the fishing vessel. NTF vessel crews described how they would mix the fins in with other fish so as to not be discovered by the authorities.

"[The vessel] transferred the catch at sea ... Sometimes the fish were transferred first, followed by shark fins."

Interview with an Indonesian crew member working on a distant water fishing vessel.[95]

2. Charismatic megafauna

Crew members described how charismatic species (marine megafauna)[96] such as seals or walruses, false killer whales, and dolphins would be caught and killed by their vessels. These animals would often be intentionally caught. Crews also described how dolphin meat and blood was used as an especially potent lure for sharks. Vessel crews would use harpoons and electrocution devices to bring animals on board.

Amongst the 54 TF vessels, 14 (25.93%) reportedly targeted, captured, and/or killed false killer whales. Of these 14 vessels, nine were flagged to China and five others were flagged to Taiwan. Furthermore, as many as six vessels (11.11%) – three Chinese-flagged and three Taiwanese-flagged vessels – were allegedly engaged in targeting, capturing, and/or killing dolphins. Lastly, 11 vessels (20.37%) reportedly targeted, caught, and/or killed seals or walruses, with the majority of vessels (10 vessels) flagged to China and one to Taiwan.

Of the 25 NTF vessels, seven vessels (28.00%) flagged to China (three), Taiwan (two), Vanuatu (one), and Federated States of Micronesia (one) allegedly targeted, captured, and/or killed false killer whales. In addition, five vessels (20.00%), all flagged to Taiwan, reportedly targeted, captured, and/or killed dolphins. The number of cases for these two species appear to be higher than those of TF vessels. Zero cases for the capture and killing of seals or walruses were reported on board NTF vessels. This may be due to the operational geographies of the vessel during the crew member's time onboard.

Crew also described how the meat or body parts (e.g. teeth, tusks, whiskers, etc) of these charismatic animals were not transferred to carrier vessels. False killer whale teeth, for example, were kept by the captain and/or the crew for themselves or sold as souvenirs. Similar findings have been highlighted in EJF's previous reports.[97]

> ***"Dolphin teeth were harvested. When the teeth were not harvested, they [the body] would usually be thrown back to sea... False killer whale teeth were harvested, and the body was discarded."***

Interview with an Indonesian crew member working on a distant water vessel.[98]

3. Fishing in unlicensed areas

Crew members from both groups of vessels reported potential IUU fishing activities within restricted zones such as unauthorised EEZs. 15 TF vessels (27.78%) and 4 NTF vessels (16%), were reported to have conducted IUU fishing in unauthorised areas such as the Argentinian and Somalian EEZs. The majority of the TF vessels (12 vessels) were flagged to China, while the remaining 3 vessels were flagged to Taiwan. Additionally, most of the TF vessels were squid vessels (10 vessels), while the remaining 5 were longliners. Of the 4 NTF vessels, 2 were flagged to Taiwan, 1 to Mozambique, and 1 to Kenya with 3 of these being longliners and 1 being a trawler.

According to crew reports, certain activities indicative of IUU fishing activities took place during these intrusions. On six TF squid jigger vessels, crew members were instructed to paint or cover the name and/or identification number of the vessels whilst at sea to mask the vessel's true identity – a common practice deployed by vessel operators engaging in IUU fishing. Five TF crew members (33.33%) also mentioned that the vessels were chased or inspected by the authorities, with three of these remembering the locations to be Argentina and Uruguay. Other activities include turning off the AIS transponder, and specifically for squid vessels – turning off the lights and pulling up the lines. Most crew members also stated that the captain showed suspicious behaviours, such as getting anxious, nervous, and vigilant during these fishing periods.

"[The vessel] entered a non-fishing zone [Unlicensed area], it was still within the Argentinian area but it was not our zone of operation... The timeline was that in the late afternoon we were told to paint the body of the vessel, secondly the captain turned off the GPS [Sic: Likely referring to the vessel's AIS]. Lastly - it was what made me sure that our vessel stole from that prohibited area - that evening, our vessel was chased by (some sort of) local military or police."

Interview with an Indonesian crew member working on a distant water fishing vessel.[99]

Alleged human rights abuses linked to vessels

EJF documented a total of 69 cases (identified by 66 individuals) of labour and human rights abuse across 54 TF vessels. The number of cases is higher than interviewees because three interviewees worked on several vessels and experienced abuse on all vessels. This is compared to 35 cases of abuse recorded from 30 interviews across 25 NTF vessels.

Human rights abuses by trans-shipment status	TF cases (n=69)	NTF cases (n=35)
Insufficient working/living condition	73.91%	31.43%
Long working hours	92.75%	94.29%
Document retention	94.20%	88.57%
Physical abuse	47.83%	22.86%
Verbal abuse	85.51%	77.14%

Table 6: Human rights abuses reported or observed on TF and NTF vessels as defined by the International Labour Organisation.[100]

As seen in Table 6 above, interviewees reported extremely high rates of exploitation and abuse in the form of providing poor living/working conditions, withholding the crews' documents, and making crews endure long working hours (over 14 hours at a time across multiple days) [iv] across both vessel groups.[v] Reports of verbal abuse were also very high. Across most labour indicators, TF vessels recorded a higher percentage of abuses than NTF vessels, with only long working hours being reported more frequently on vessels that did not trans-ship.

EJF has defined physical abuse as anything that caused physical pain to the fisher such as slapping, punching, kicking or throwing something at the fisher. We excluded anything that was interpreted by the fisher as playing around or jesting.

100% of TF vessels and 96.67% of NTF vessel crews reported withholding or deduction of wages or charging of guarantee money.

iv Pursuant to Article 14 paragraph 1 (b) of the ILO C188 - Work in Fishing Convention, fishers shall be given a period of rest no less than 10 hours in any 24-hour period and 77 hours in any 7-day period. As such, the authors consider working hours exceeding 14 hours a day to be in violation of this convention.

v It should be noted that high prevalence rates were in part due to the interviewee screening and selection process used by EJF.

EJF also asked all fishers if they ever had an opportunity to report abuses to the authorities, non-profit organisations or other stakeholders. Amongst 33 cases of physical abuse (47.83%) experienced or observed by interviewees on TF vessels, 81.82% cases remained unreported. Many TF crew members reported that since their vessels remained at sea for their entire service duration and never returned to port, they were unable to report abuses even though they wanted to. The interviewees expressed that they did not know how to report abuses whilst at sea. This is made even more difficult by the fact that far out at sea, vessels are out of range of cell phone coverage. The only time interviewees would ever have an opportunity to report such abuse was when they finished their contract and returned home.

"No [We could not report abuse]. The vessel never docked. And when I finally was able to set foot on land, I was going home - I took the bus directly to the airport."

Interview with an Indonesian fisher working on a distant water fishing vessel.[101]

On NTF vessels, eight physical abuse cases (22.86%) were identified. Among these, two interviewees mentioned that they were able to report the abuse to either their Indonesian manning agency or their worker association respectively. Two other crew members reported that they were reluctant to report their abuses – one mentioned that he was afraid and could not speak English well, while the other was sceptical about the response.

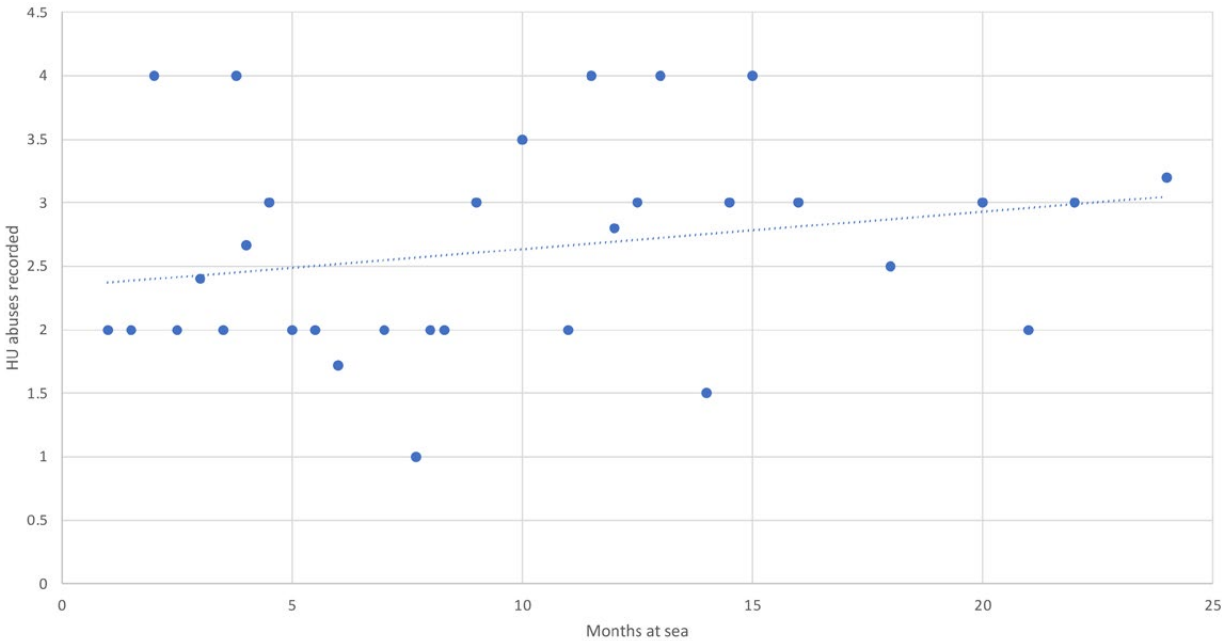


Figure 8. Prevalence of alleged human rights abuses plotted against months at sea through measuring average recorded incidents of alleged human rights abuses across all 79 vessels (both TF and NTF vessels). Alleged human rights abuses include verbal and physical abuse, long working hours and insufficient living conditions.

Discussion

EJF's interviews with crew reveal a worrying correlation between the practice of at-sea trans-shipment and the prevalence of IUU fishing and human rights abuses across some DWF vessels operating across the Pacific, Indian and Atlantic oceans. Interviews also provide indications that vessels spending longer periods of time at sea are more likely to engage in IUU fishing or abuse of workers. Considerably higher rates of illegal shark finning on TF vessels for example, 57.41% compared to 28% for NTF vessels, demonstrates a significant degree of noncompliance across these vessels.

Recorded incidents of serious forced labour and labour exploitation such as physical (47.83% vs. 22.86%) and verbal abuse (85.51% vs. 77.14%) were both higher across TF vessels than NTF vessels. Other forms of labour exploitation such as withholding of wages, insufficient living and working conditions and document retention were cited more by interviewees on TF vessels than NTF counterparts. As interviewees stated to EJF, long periods at sea prevented them from reporting their abuses to the authorities.

EJF's analysis shows that there is a potential relationship between months at sea and the average number of total IUU fishing infractions (shark finning, catching of charismatic species and fishing in prohibited areas) as well as total human rights abuses (verbal and physical abuse, long working hours and insufficient living conditions) recorded by interviewees. The correlation between human rights abuses and time at sea was weaker than that for IUU fishing, indicating that these abuses occur on NTF vessels as well. This result is supported by findings from other studies.[102] EJF acknowledges that additional data are required to strengthen the observed correlations between these issues and time at sea.

EJF's investigations from speaking to Indonesian fishers support a growing international body of evidence that the practice of at-sea trans-shipment requires urgent review in both national and regional fisheries jurisdictions. Furthermore, other studies have indicated that the opaque nature of the practice means that monitoring and enforcement agencies are at a great disadvantage when it comes to identifying, monitoring and observing at-sea trans-shipments to ensure their compliance with regulations.

Indonesian workers employed on TF vessels consistently reported appalling living and working conditions. © EJF

Solutions

There are a range of solutions available to flag, port, coastal and market States to address such deficiencies. Many of these are aimed at enhancing transparency, accountability and scrutiny of trans-shipment activities. It should be noted that some of these mechanisms do require a substantial degree of political will and resources to achieve, and therefore in fisheries where such scrutiny may not be possible due to a lack of resources authorities may have to consider outlawing the practice entirely.

1. Monitoring or banning at-sea trans-shipment

Tuna is trans-shipped from a fishing vessel to a refrigerated cargo ship. © EJF

Campaigners from environmental and human rights organisations alike have called for the practice of at-sea trans-shipment to be banned in numerous fisheries around the world unless it is fully authorised and monitored either through human observers and remote electronic monitoring, linked to independent verifications and checks.[103/104] Several coastal states[105/106] and corporations[107/108] have already implemented such bans in their waters or their supply chains in order to minimise the chances of seafood laundering or human rights abuses.

On a regional and international scale, there is widespread agreement that the high seas areas covered by RFMOs are a prime candidate for such a ban. Even though most RFMOs have increasingly recognised the risks associated with at-sea trans-shipment there is little consistency, with only six having mandated a limited ban and only one having introduced a total ban on the practice. It should be noted that this ban - introduced by the South East Atlantic Fisheries Organisation in 2015 - only covers seven member States, of which a number have already banned at-sea trans-shipment for their flagged vessels. The Convention itself also does not cover highly migratory species such as tuna.[109]

2. Increased monitoring of vessel movements and encounters whilst at-sea

Where international bans on at-sea trans-shipment may not currently be possible due to political opposition, the implementation of the FAO's 2022 adopted 'Voluntary Guidelines for Transshipment' can help flag and coastal States with raising standards for monitoring and enforcement.[110]

The introduction of mandates for AIS (both installation and mandatory operation during fishing trips) and Vessel Monitoring System (VMS) installations by flag States of DWF fleets and carrier vessels can also facilitate improved monitoring of vessel movements. Such efforts would provide flag, coastal States and RFMOs with more accurate data to determine whether or not fishing vessels have engaged in lawful fishing. It would also provide port States a greater understanding of whether receiving vessels transporting trans-shipped seafood to port were engaging in authorised encounters with such vessels. However, it is important to note that most VMS data (although there are exceptions such as Global Fishing Watch's agreements with a number of flag States) may only be shared unilaterally.[111]

RFMOs including ICCAT, IOTC and IATTC updated their measures to include increased reporting requirements between 2021 and 2022.[112/113/114] The updates include requirements for VMS installations and IMO numbers across all vessels (ICCAT and IATTC). The IOTC restricts the practice even further by limiting all trans-shipments to those carried out in ports.

Another mechanism that flag, coastal, port and market States (as well as RFMOs) could implement would be limits on the number of allowable days at sea for fishing vessels before they are required to return to shore. Such limits could be imposed according to vessel gears or the size of the vessel and could restrict vessels to only 6 months or 12 months at sea. Restricting fishing trips would help reduce the reliance of fishing vessels on the practice of at-sea trans-shipment and increase the potential detection rate of labour violations by giving vessel crews greater opportunities to connect with authorities, their families or civil society organisations.[vi]

Improved global transparency of both fishing and at-sea trans-shipment operations would give a multitude of other concerned stakeholders such as market States, seafood buyers and non-governmental organisations the ability to observe and analyse such activities. It would also improve the accuracy of services such as Global Fishing Watch's Carrier Portal by expanding available reporting and consistency of data from both fishing vessels and carriers.

Vessel monitoring technologies for fishing vessels and carriers alike are essential for lifting the lid on opaque trans-shipment practices. © EJF

vi This is dependent on there being robust labour inspection protocols at ports and/or workers having the ability and/or knowledge to notify authorities, their families or relevant civil society organisations if they require assistance.

3. Verifying when encounters take place

AIS and VMS data can only be truly effective if they are used in conjunction with other transparency mechanisms that can verify if vessel activities are as reported, and if product transfers between vessels are taking place. As Global Fishing Watch's Carrier Vessel Portal has shown, the technology can only give us an indication of a possible encounter between vessels rather than proving that a trans-shipment took place.

Compliance with basic reporting requirements by coastal States and RFMOs (and enforcement of those requirements through cross checking information across platforms and cooperating states) is essential for ensuring the credibility of such information. Flag State authorisations and notifications by both fishing and carrier vessels are notable examples of the kinds of information that should be expected to be shared amongst fisheries stakeholders.

One method of verifying trans-shipment information is through the deployment of human observers alongside the installation of on-board cameras and electronic sensors. EJF emphasises the importance of deploying these systems in conjunction with one another due to the current technological limitations which still restrict the usability, reliability and coverage of purely electronic systems. For example, cameras can still have blind spots or satellite coverage for transmitting data from on-board cameras can be cost prohibitive or unreliable.

While these systems are still not able to stand on their own it is important to use them alongside human observers. However, it is important to acknowledge that this comes with its own risks and limitations, especially as concerns the safety and security of such human observers. Between 2010 and 2020 there were at least 14 reported cases of human observers being lost at sea, sometimes in suspicious circumstances, illustrating again the dangers of working in this field.[115] Covid-19 has, of course, presented a challenge to the existing practice of deploying observers on carrier and fishing vessels. This has been noted by several RFMOs including the IOTC and WCPFC. Travel restrictions, physical distancing regulations and observers becoming unavailable due to illness have all reduced the percentage of fishing activities and at-sea trans-shipments that have received monitoring.

A photo taken aboard a distant water fishing vessel. The crew member told EJF that he experienced physical abuse, unpaid wages and poor living conditions while onboard. © EJF

4. Wider ratification and implementation of the PSMA to elevate global inspection standards

The FAO's Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA) entered into force in June 2016. The Agreement is designed to prevent, deter and eliminate IUU fishing by preventing vessels engaging in IUU fishing from using ports and landing their catches.[116] It applies to all fishing vessels and carrier vessels seeking entry into a designated port of a state which is different to their flag State. As of March 2022, 70 countries were party to the agreement.[117]

Further implementation of the PSMA in major port states would represent an important step forward in elevating fisheries inspection regimes around the world according to a standardised protocol. This is important to verify the origin and legality of tuna coming from opaque fisheries dependent on at-sea trans-shipment, such as longline fisheries. It is important that this implementation is coupled with the development of a list of high-risk fishing vessels to ensure that vessel inspections can be prioritised. Evidence of at-sea trans-shipment as documented in AIS or VMS tracks should elevate this risk and warrant inspection.

Two caveats attached to the PSMA are that, firstly, its standards and requirements are focused purely on fisheries aspects of the fishing or carrier vessel. Labour conditions, or crew welfare, are not currently included in its framework due to both regulatory limitations and inspection capacity issues for port state authorities.[118] It is required therefore to complement its ratification must be complemented by adoption of labour inspection protocols such as those covered in the ILO's Work in Fishing Convention (C188).

Secondly, as with all international treaties, PSMA ratifications can only be regarded as a success if they are followed by effective enforcement. If implementation of the PSMA into domestic legislation by port states is lacking or there are compliance issues with the standards as set out by the agreement then this can jeopardize the overall effectiveness of the network. This can result in countries or individual ports being branded as ports of convenience whereby lax regulations or lack of scrutiny make them ideal landing sites for IUU fishing operators.

5. Strengthening labour standards on fishing and carrier vessels

Wider ratification of labour conventions such as the ILO's Work in Fishing Convention (C188) and the Protocol of 2014 to the Forced Labour Convention (P29)[119/120] for fishing and port states to match the current ratification level of the Maritime Labour Convention, 2006 (MLC – 101 countries as of August 2022) 121 – which covers carrier vessel flag states - would help elevate national labour standards for living and working conditions on board both types of vessels. Although the ratification of C188 provides the legal basis for inspections of foreign-flagged fishing vessels that arrive into port if a complaint is made against the vessel (Article 43), a clear policy of labour inspection of foreign fishing vessels should be put in place.

The ratification of such instruments must be followed by robust enforcement and victim screening or identification mechanisms. These can come in the form of port-side and at-sea labour inspections for both DWF vessels and carriers conducted by both flag and port states. These inspections should be conducted by trained and well-briefed officials from a relevant labour protection agency rather than fall to the responsibility of maritime enforcement or fisheries agencies. As a standard, crew interviews – conducted with a victim-centred approach – should be carried out wherever possible and with the use of a translator if necessary.[122] For example, most crew employed on Chinese or Taiwanese vessels originate from Indonesia and would require translation services. Although some emerging technologies such as real-time translation services via mobile application or web browser have been trialled in ports these still require additional testing to improve reliability (in cell coverage poor areas) and dependability (trusted by both workers and inspectors alike).

6. Consistent application of international market instruments that restrict access

International instruments are increasingly applying pressure on fishing vessel operators and fishing companies to ensure that vessels are screened for indicators of forced labour and human trafficking. Instruments such as the European Commission's IUU Regulation are an effective means of working with fishing nations and seafood exporting countries to ensure that their seafood supply chains are adequately monitored and controlled to prevent illegal fishing.[123] Countries that cannot meet these standards are given a so-called 'yellow card' warning. If the situation cannot be resolved, then this may result in a 'red card' whereby seafood exports from that country's fishing fleet would be barred from entering the European Union market.

This regulation focuses purely on incidences of IUU fishing and does not consider labour abuses on board vessels. The European Union does seek to address this through Labour Dialogues with countries whereby labour issues in industries such as fishing can be assessed.[124] There are future plans for the creation of a similar legislative framework that would seek to ban products originating from conditions of forced labour from entering the European Union.[125]

The Customs and Border Protection Agency (CBP) of the USA does have such an instrument, designed to prevent products originating from forced labour from entering the US market.[126] CBP can issue Withhold Release Orders (WROs) against products suspected of originating from companies or individual fishing vessels, barring any associated product from entering the US market. The first time a WRO was issued against a fishing vessel was in February 2019 against the Taiwan-owned but Vanuatu-flagged Tunago No.61.[127] Another notable example of a WRO was in 2021 when all 32 fishing vessels operated by the Dalian Ocean Fishing Co Ltd were barred from US market access – the first time that a WRO had been issued against an entire fishing company.[128] As EJF investigations over the last two years have discovered, several vessels owned by this company had potentially engaged in trans-shipment activities with a fleet of Japanese-owned carrier vessels whilst also conducting IUU fishing operations and forced labour abuses.

Seafood market actors such as retailers and processors could also develop their own market instruments which require all vessels within their supply chain to broadcast AIS transmissions. This would elevate transparency of supply and make platforms such as Global Fishing Watch and its Carrier Vessel Portal more effective and accurate at assessing fishing and trans-shipment activities.

Consistent application of these international instruments would serve to apply urgently needed pressure on flag and coastal states that currently benefit the most from the lucrative practice of at-sea trans-shipment.

7. Adoption of EJF's Transparency Charter alongside international standards

EJF has formulated a set of 10 principles for transparency in global fisheries which are designed to be both realistically achievable and economically deliverable. These principles address the core transparency gaps of fishing operations which traditionally prevent robust scrutiny and accountability of fishing vessels. Namely, they attempt to shed light on the identities of both vessels and their owners, divulge information on where seafood products originate from and where they are landed, as well as uncover who is working on vessels and ensure that they are being treated fairly.[129]

EJF's principles are primarily for flag, port and coastal states to implement. They may also require the support of or complementary efforts from other stakeholders such as the private sector, civil society organisations, fishing associations and trade unions.

The ten principles for global transparency

1. 

Give all vessels a unique number

2. 
Make vessel tracking data public

3. 
Publish lists of fishing licences and authorisations

4. 

Publish punishments handed out for illegal, unreported and unregulated fishing, and fisheries crimes

5. 
Ban transferring fish between boats at sea – unless carefully monitored

6. 
Set up a digital database of vessel information

7. 
Stop the use of flags of convenience for fishing vessels

8. 

Publish details of the true owners of each vessel – who takes home the profit?

9. 
Punish anyone involved in illegal, unreported and unregulated fishing

10. 

Adopt international measures that set clear standards for fishing vessels and the trade in fisheries products

Conclusion

There is a growing body of evidence from around the world that demonstrates how at-sea trans-shipment is contributing to and even exacerbating existing incidences of IUU fishing, human rights abuses and labour rights violations in tuna and squid fisheries in the Pacific, Indian and Atlantic oceans. EJF's findings show that shark finning, physical and verbal abuse, and labour rights violations are more likely to take place on vessels that stay at sea for long periods of time and may have engaged in trans-shipment. These results also show how trans-shipment can even allow cases of human trafficking and slavery to continue by trapping crews in a never-ending cycle of rotation amongst vessels in order to limit their chances of escape.

Progress to adequately address at-sea trans-shipment is currently slow and inconsistent. Although several RFMOs, such as ICCAT, IATTC and IOTC, have taken steps towards stricter regulation, inconsistencies across other jurisdictions and oceans mean that fishing vessels and their carrier vessels can simply move their operations to less stringent RFMO jurisdictions.

Market states and international seafood buyers can provide the impetus for change, applying pressure to both flag and coastal states as well as RFMOs. Stronger import regulations which restrict at-sea trans-shipments in key seafood markets such as the European Union, United States and Japan would serve to reduce the incentives for vessels engaging in the practice. It is essential that global seafood stakeholders act now to harmonise international regulations that address the transparency gaps that at-sea trans-shipment enables if we are to effectively combat both illegal fishing and human rights abuses in the fishing industry.

A carrier unloads its tuna cargo into Bangkok port. © EJF

Recommendations

Flag and coastal States should:

- Uphold their obligations under Article 94 (1) and Article 94 (3) of the United Nations Convention on the Law of the Sea (UNCLOS) to ensure that vessels are seaworthy, manning of ships is safe and that labour conditions and training are appropriate.[130]

- Review trans-shipment policies already in place for domestic fisheries and distant water fishing fleets with a view to banning at-sea trans-shipments and restricting the practice to those which are fully monitored or are carried out in or near port areas as long as they are monitored by fisheries inspectors.

- Advocate for and vote in favour of stronger regulations and eventual bans on the practice of at-sea trans-shipment in RFMO jurisdictions unless fully monitored and/or carried out in or near port areas as long as they are monitored by fisheries inspectors.

- Review current basic reporting requirements for both fishing and carrier vessels operating under their flag or in their jurisdiction and ensure that all such vessels are in compliance with said requirements.

- Implement the FAO's voluntary international guidelines on addressing the risks of inadequately regulated, controlled and monitored at-sea trans-shipments.[131]

- Deploy human observers on board fishing vessels and carriers alongside electronic monitoring systems such as cameras and sensors to ensure that monitoring coverage is as consistent and robust as possible. Such deployment should be carefully managed to focus on high-risk vessels first, such as those with a track record of committing IUU fishing or human rights violations.

- Install VMS on board all fishing vessels and carriers engaging in both high-risk or high-value fisheries or in distant water fisheries and share this data with RFMOs, other countries or other international bodies. Ensure that resulting VMS data are sent consistently by vessels and that monitoring agencies have the capacity to analyse and use VMS data effectively.

- Devise specific policies for the implementation of labour inspections for fishing and carrier vessels.

- Establish national labour standards and ratify relevant international conventions such as the ILO's Work in Fishing Convention (C188) for vessels authorised to fly their flag.

- Review current basic reporting requirements for both fishing and carrier vessels operating under their jurisdiction and ensure that all such vessels are in compliance with said requirements.

- Mandate for the continuous broadcasting of AIS transmissions from all fishing vessels and carriers to ensure that vessel monitoring efforts are as accurate as possible and that all potential vessel encounters can be recorded.

Market and port States should:

- Introduce seafood import regulations which can effectively screen seafood products for their origin and risk of association with IUU fishing, forced labour and other forms of human rights abuses. Such regulations should be able to facilitate barring shipments of tainted seafood from entering the market and banning offending vessels or companies from market access in the future.

- Such regulations should identify and screen seafood shipments for the original catching vessel and its IUU fishing and human rights compliance, consistent use of vessel monitoring systems, vessel flags (requiring additional checks for vessels flying FOCs, companies, owners, beneficial owners and captains with a record of non-compliance with labour and human rights regulations for example), trans-shipment locations and ports of landing.

- Ratify the FAO's PSMA in order to harmonise port State measures in accordance with international standards and to prevent ports of convenience from developing.

- Advocate for the FAO to expand the Global Information Exchange System (GIES) scheme so that human rights issues on vessels can be flagged and shared with the next port of call of vessels.[132] The GIES has recently been launched as a way of assisting PSMA ratifying countries in exchanging information about potential IUU fishing activities. This should also be advocated for at the regional and international level.

- Implement the FAO's voluntary international guidelines on addressing the risks of inadequately regulated, controlled and monitored at-sea trans-shipments.[133]

- Advocate for the adoption of an international binding convention that sets out trip limits for fishing vessels, preventing them from being at sea for overly extended periods of time.

It is imperative that market and port States have adequate protocols in place to screen tuna landings or imports for indicators of IUU fishing and/or labour abuses. © EJF

RFMOs should:

- Seek to ban the practice of at-sea trans-shipments within RFMO jurisdictions unless fully monitored and/or carried out in or near port areas and under the observation of a fisheries monitoring agency.
- Impose limits on the maximum number of days at sea without coming back to port for fishing vessels to reduce the reliance on at-sea trans-shipment. All fishing vessels should be restricted from operating at sea for more than 12 months at a time.
- Require all vessels operating within the RFMO jurisdiction to be fitted with AIS and to have this system activated at all times. This should be in addition to the mandatory installation and use of vessel monitoring systems.
- Deploy human observers on board fishing vessels and carriers alongside electronic monitoring systems such as cameras and sensors to ensure that monitoring coverage is as consistent and robust as possible. Such deployment should be carefully managed to focus on high-risk vessels first such as those with a track record of committing IUU fishing or human rights violations.
- Ensure that observers can communicate effectively with the crew on board the vessel and are given appropriate training and resources to be able to check authorisation permissions for at-sea trans-shipments.
- Introduce minimum labour standards into RFMO Conservation and Management Measures in order to harmonise fisher labour regulations across distant water fleets. Indonesia, for example, submitted a set of labour standards for fisher crews to the WCPFC in 2020, however, this received opposition from major flag states such as China.[134]
- Review, strengthen, and approve the FAO's international guidelines on addressing the risks of inadequately regulated, controlled and monitored at-sea trans-shipments.

RFMOs should implement regulations that protect workers whilst at sea including through restricting fishing vessel time at sea. © EJF

Appendix 1

EJF's own analysis of GFW's Carrier Vessel Portal data (including Russian flagged fishing vessels). This is based on available AIS analysis of detected trans-shipments from 2012 until present.[135]

Fishing gears (including Russian flagged fishing vessels)	Number of trans-shipments involving this gear type	% of total trans-shipments (n=51,634)
Trawlers	16,066	31.1%
Fishing*	11,029	21.4%
Longliners	9,642	18.7%
Squid jiggers	8,888	17.2%
Not applicable*	2,947	5.7%
Purse seiners	2,360	4.6%
Other gears	702	1.4%
Total	**51,634**	**-**

* It should be noted that this data is based on available fishing gear classifications provided by GFW's Carrier Vessel Portal.

Appendix 2

Upon receiving written and informed consent from fishers, EJF investigators then conduct an audio-recorded and/or filmed interview with the fisher to gather testimony according to a standardised open-ended interview format. In order to validate interviewee reports EJF always seeks to corroborate findings through interviews with additional crew members from the same vessel wherever possible. EJF also corroborates testimony against available historic vessel positional data from satellite monitoring facilities including ExactEarth and GFW.

EJF takes the safety and security of its staff, interviewees, informants and local contacts extremely seriously. EJF will never release the identity of an interviewee unless the individual has given **explicit** and **informed** consent. EJF always prepares a release form that all interviewees must read and sign. This release form lays out the purpose of the interview, who will use the material and whether or not the interviewee would like to remain anonymous (not use their real name, obscure their face and distort their voice). If the fisher has difficulty reading or writing then EJF can facilitate oral consent through narration of EJF's consent form and recording interviewee responses.

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"We transferred to the collecting vessel every 3 to 4 months... The fish were unloaded first, the fins were last... During the transfer, nobody supervised us."

Interview with an Indonesian crew member working on a distant water fishing vessel.

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