Enhanced Regulation, Monitoring and Control of Global Transshipment Activities

Contributions from the ground
October 2021

Following the framework of the Food and Agriculture Organization of the United Nations' in-depth study, "Transshipment: a closer look," this report outlines a collection of cases that demonstrate a need for enhanced regulation, monitoring and control of transshipment activities. Global Fishing Watch, the International Monitoring, Control and Surveillance Network, The Pew Charitable Trusts and Trygg Mat Tracking have used a combination of satellite technology, machine learning, public authorisation data and experience from the provision of on-the-ground operational support to showcase real-life examples of inadequately regulated, controlled and monitored transshipment activity in relation to illegal, unreported and unregulated fishing. The report further highlights examples of best practice, and opportunities for replication and strengthening.

Executive Summary

To be effective in their aims, the voluntary guidelines for the regulation, monitoring and control of transshipment must be **robust, future-proof** and **operationally achievable**.

The co-authors of this report therefore recommend:

1. Key considerations of the in-depth study "Transshipment: a closer look" are fully reflected in the voluntary guidelines;
2. Existing regional measures on transshipment are reviewed in detail, considered and strengthened by the voluntary guidelines;
3. The use of existing technologies and tools that support comprehensive implementation of measures, and validation of reported information on transshipment is supported and recommended in the voluntary guidelines; and
4. Timely publication of vessel identification, authorisation, tracking data, and transshipment activity, including spatial and temporal details of each authorised event, is encouraged in the voluntary guidelines.

The cases presented in this report assess the activity of carrier vessels, using Global Fishing Watch's carrier vessel portal in combination with each organisations' experience from the provision of technical assistance to the monitoring, control and surveillance of transshipment operations carried out by States and regional fisheries management organisations. The information accessed within the Carrier Vessel Portal provides indications of possible transshipment events by comparing automatic identification system (AIS) data of vessels and determining possible "encounters" and "loitering" events[1].

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1 "Encounter Events" are identified when AIS data indicates that two vessels may have conducted a transshipment, defined as two vessels continuously within 500 meters for at least 2 hours, while at least 10 km from a coastal anchorage. "Loitering Events" are identified when a single carrier vessel exhibits behavior consistent with encountering another vessel at sea, but no second vessel is visible on AIS. Loitering events are estimated using AIS data to determine vessel speed, duration at a slow speed and distance from shore.

Contents

An active part of commercial fishing operations

Transshipment—the transfer of catch between vessels—plays an active role in many commercial fishing operations. Each year thousands of fishing vessels offload fresh catch including tuna, mackerel, squid, crab, and small pelagic fish onto refrigerated cargo vessels, commonly referred to as "carriers" or "reefers," which then take it to port for processing. This allows fishers to avoid a costly and time-consuming trip back to port, increasing the freshness and value of their catch.

While transferring catch from one vessel to another may seem innocuous, it often takes place at sea or in areas of port that are difficult to access for fisheries inspectors—out of sight and reach of authorities. Limitations in effective monitoring and controls allows unscrupulous operators to manipulate or otherwise omit data pertaining to their fishing practices and catches in an effort to gain financial advantage. This lack of transparency enables conditions that can lead to illegal, unreported and unregulated (IUU) fishing and facilitate the introduction of illegally sourced fish into the market. It also opens the door for other maritime crimes to take place, such as the trafficking of weapons, drugs, and even people.

Insufficient data and inaccurate reporting of catch can lead to skewed stock assessments, which can impact conservation and management efforts across valuable fisheries. It can also impede traceability efforts, since illegally caught fish is often mixed with legal catch. Without adequate regulatory management, transshipment remains a major obstacle to ensuring legal fishing.

The international community has recognised a need for enhanced regulation, monitoring and control of transshipment. Originally raised as a concern during the 32nd Session of the Food and Agriculture Organization of the United Nations (FAO) Committee on Fisheries (COFI), Member States encouraged FAO to initiate work on investigating management and control issues related to transshipments that may contribute to higher levels of IUU fishing.

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During subsequent sessions, the Committee welcomed the global and in-depth studies on transshipment and called upon FAO to proceed with developing draft voluntary guidelines for the regulation, monitoring and control of transshipment. They also recommended an expert consultation be convened to review the draft, followed by a member-led negotiation process conducted by a group of technical experts and supported by the FAO Secretariat. The Committee also noted that there are different types of transshipment operations, not all of which have negative impacts on the sustainability of fisheries. Furthermore, the Committee emphasised that the development of the draft voluntary guidelines for the regulation, monitoring and control of transshipment should strengthen existing regional mechanisms, measures and practices.

Global Fishing Watch, the International Monitoring, Control and Surveillance Network, The Pew Charitable Trusts and Trygg Mat Tracking (the co-authors) are working together to provide data, analysis, and policy recommendations to FAO Member States and identify new and emerging technologies, tools and approaches that can improve the understanding and management of global transshipment activities.

This report aims to provide contributions from the ground that can support experts and Member States through future negotiations, ensuring that the voluntary guidelines developed account for the challenges faced by the sector and build upon existing management measures.

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Transshipment: a closer look

The FAO initiated a global review of transshipment regulations, practices and control mechanisms. The study, qualitative in nature, sheds light on the variety of transshipment practices, the coverage of transshipment regulations and the need to reinforce control of transshipment.

The study methodology was designed around five core elements:

1. Field visits, aiming to ensure a broad geographical balance;
2. A global survey, pitched at FAO Member States, regional fisheries management organisations (RFMOs), nongovernmental organisations and industry stakeholders;
3. Case studies looking at tuna and squid fisheries;
4. Bilateral discussions with a broad range of RFMOs; and
5. A comprehensive review of published literature on the subject of transshipment and associated activities.

The study concludes with a discussion centred on identifying those managerial elements which could form the foundation for a discussion on the development of international guidelines based on best practice. It was determined that standardised, consistent guidance across seven areas would enable relevant authorities to minimise the risk of IUU-caught seafood entering into the market and to ensure compliance with national and regional legal frameworks. These seven key considerations are **definitions; authorisations; reporting; monitoring; data and information sharing; use of existing and new technologies** and **traceability.**

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Contributions from the ground - key issues

Definitions

"Transshipment: a closer look", highlights that inconsistencies in definitions of "transshipment", and "landing" mean that they could be open to interpretation by authorities, and that this could contribute to a lack of oversight and control. Currently not all activities associated with fishing operations have a standardized and universally accepted definition, including what constitutes "transshipment" in all its forms, and when a catch is considered "landed". Universal agreement on definitions of these terms will support development and implementation of the voluntary guidelines.

Addressing the increasing use of Containers

An emerging area of concern is the use of containers for transporting fish rather than traditional refrigerated cargo vessels. There are indications that use of this practice is increasing, and recent reports on transshipment in the Western Indian Ocean highlight how this is not always adequately managed. IUU fishing operators exploit gaps or overlaps of responsibilities. It is therefore important that containerisation is reflected in the definitions and categorised as a landing —and that systematic risk assessments and inspections take place, as are required for other landing practices. A study is underway to help ascertain which would be the most appropriate definition to incorporate this growing practice of transshipment directly into containers. In addition, a definition of "landing" would provide clarity for authorities in determining whether containers entering a port should be subject to port controls intended for products being landed for the first time, as opposed to controls intended for the importation of products that have been landed previously.

Authorisations

Access to updated carrier and donor vessel authorisation information is vital to the effective control of transshipment activities. Without it, stakeholders cannot undertake risk assessments necessary to make informed decisions or ensure compliance with relevant management measures. Lists of carrier and donor vessels authorised to transship, in all relevant fisheries, should be made publicly available. Authorisation information should be included in all appropriate RFMO vessel authorisation lists as well as the Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels, including the vessel's The International Maritime Organization Ship Identification Number (IMO number) and other vessel details. For non-RFMO related transshipment—whether in coastal State waters or on the high seas—relevant coastal and flag States should also make authorisations available. All vessels authorised to transship in any fishery should be required to have an IMO number. In addition, it is imperative that these data are overseen by monitoring, control and surveillance (MCS) staff. Any authorisation, monitoring or reporting data will only be of use if it is assessed and acted upon by dedicated professionals. Their role is key to adequate operational oversight of transshipment.

RFMO Authorisations

The publication of transshipment authorisation information that is kept up to date by the Western and Central Pacific Fisheries Commission (WCPFC) means that despite the size of the Convention Area and the scale of fishing effort within it, WCPFC appears to have the fewest instances of potentially unauthorised activity by carrier vessels of all five tuna RFMOs in 2018. This is an example of an existing best practice RFMO measure that should be considered in the development of the voluntary guidelines.

Conversely, the The Inter-American Tropical Tuna Commission (IATTC) Regional Vessel Register does not contain any information on historical authorisations or distinguish between currently authorised and previously authorised vessels, outside of inactive and sunk purse-seine vessels. Lists of all donor and receiving vessels authorised to transship by their respective flag State should be made publicly available, including historical lists and dates of authorisation.

In addition, all entities which flag vessels and provide fishing authorisations should be considered for membership within regional fisheries management bodies, so that reporting is consistently required for all vessels fishing and supporting fishing efforts.

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The transfer of fish from fishing vessel to fishing vessel, including the conversion of fishing vessels to "mini-reefers", has been identified in recent years as a significant new transshipment challenge.

Reporting

Where information relating to transshipment events is shared, vessel tracking data is able to be verified and stakeholder confidence in the compliance of transshipment activities is increased. For example, during a recent analysis of transshipment activities within the International Commission for the Conservation of Atlantic Tunas (ICCAT) Convention Area, the vessel tracking data of potential transshipment activity was able to be matched to trips reported via observer reports for all transshipments. Without access to the detailed observer reports provided through ICCAT's Regional Observer Program (ROP) for carrier vessels this verification would not have been possible, and legitimate transshipment events may have been flagged as suspicious due to a lack of verified information. For a competent authority, this may lead to use of costly resources where they are not needed.

This analysis was only possible as ICCAT has one of the most detailed and transparent carrier vessel ROPs of all five major tuna RFMOs. Voluntary guidelines should consider how positive attributes of the ICCAT carrier vessel ROP could be applied to other regions and expanded upon to ensure data is comprehensive, consistent and shared in a timely manner. Doing so presents an opportunity to ensure monitoring, control and surveillance (MCS) assets are used in the most cost-effective way possible by requiring that notifications/authorisations, declarations, observer reports and landing reports are published on a regular basis, to support verification.

Some RFMO measures are not comprehensive enough. A recent analysis of transshipment activity in the Indian Ocean Tuna Commission (IOTC) Convention Area highlights the challenges of monitoring transshipment activities using limited reporting information provided through the IOTC carrier vessel ROP. For example, high levels of carrier activity were observed in Convention Area waters that overlap with other RFMOs which manage non-IOTC species. As IOTC do not publish up-to-date and detailed information on multi-species transshipments—for example dates of deployment per trip or per transshipment event—or any information on non-target species, it is not possible to determine the IUU fishing risk associated with these transshipment activities. Consistent, global guidelines that require regular and detailed reporting information to be shared on a per transshipment event basis for all species, would help address this concern.

Not all transshipments between carrier vessels and fishing vessels involve the transfer of fish, however as not all reporting data is made publicly available, verification of what is actually occuring on the water is not possible. For example, following a recent analysis of transshipment activity within the IOTC Convention Area, the Fisheries Agency of Japan confirmed that carrier vessels which met donor vessels without an observer on board were conducting activities not related to the transshipment of fish—for example, "the transshipment of bait and/or parcel and fuel supply." Inconsistent reporting requirements limit the ability for audits to be conducted and is a challenge across many RFMOs. Publication of this information will support relevant stakeholder efforts to verify all reported transshipment data from vessels, flag States and observers.

Monitoring

Many RFMOs have broad monitoring requirements for transshipment activities conducted by vessels flagged to their Member States, within their Convention Area and related to species they are mandated to manage. However, a recent analysis of transshipment activities occurring within the IOTC Convention Area found a high level of activity by non-Member flagged carrier vessels, especially in areas that overlap with other RFMOs. For example, a large proportion of possible transshipments were conducted by carriers flagged to non-Member States. In addition, some ports visited by carriers flagged to non-Member States were not listed as a designated port of entry under policies such as the relevant IOTC measure or the FAO Agreement on Port State Measures. A high level of carrier activity was also found in areas overlapping with other RFMOs which manage non-IOTC species. Port-to-port tracking data is vital for monitoring but should be made publicly available so that jurisdictional issues and those relating to the mandate of certain RFMOs do not prevent effective MCS of transshipment activities, and so that transshipment of species not managed by RFMOs can be effectively monitored.
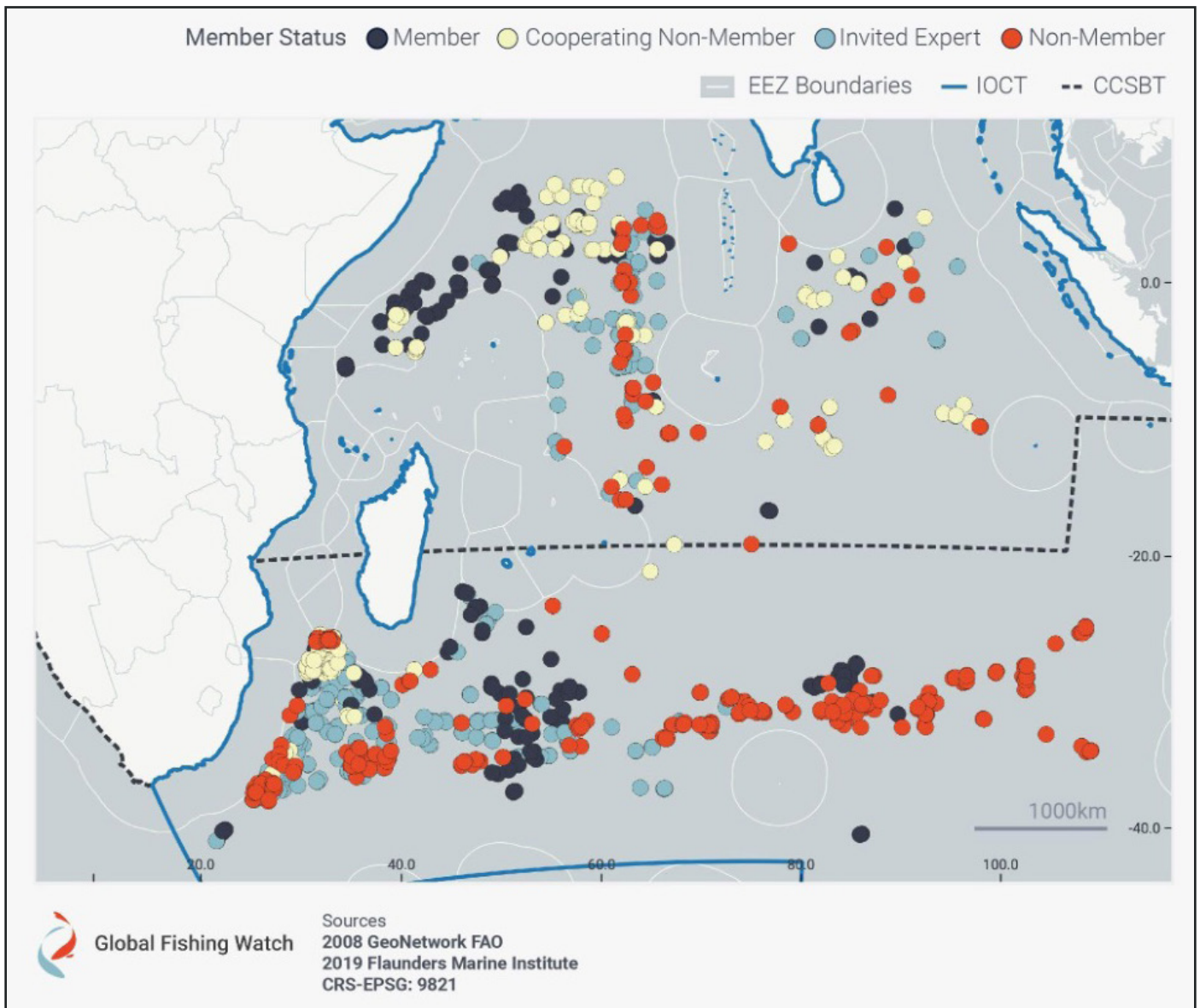

Figure 1. GFW-detected possible transshipment events by membership status, including invited experts, within the IOTC Convention Area and partially overlapping with the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) Convention Area. Multiple transshipment events appear to be conducted by non-Members in both areas (in red).
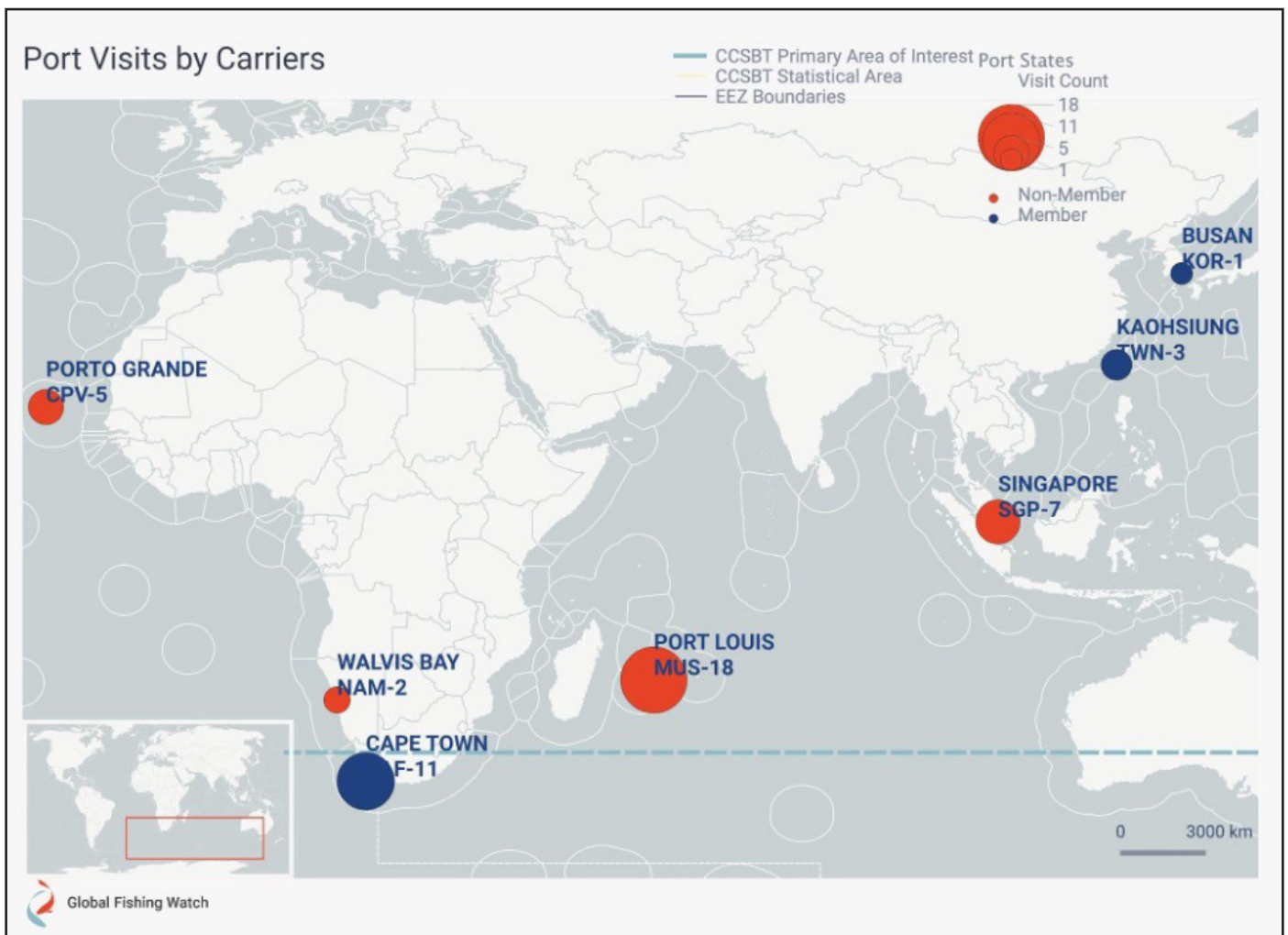
Figure 2. Ports visited by carriers after possible transshipment events within the CCSBT Convention Area. Multiple port visits occur by carriers flagged to Member States which are not a Party to the CCSBT Convention (in red).

Data and information-sharing

Formal procedures for sharing transshipment data between national and regional authorities are vital to ensure activities are authorised and catch is legal. Due to the nature of international fisheries management, there may be multiple stakeholders with a need to access information. For example, a donor vessel may be flagged to one State, while the carrier vessel is flagged to another. The fishing operation may have taken place in waters under the jurisdiction of an RFMO or in an overlap area with another RFMO. In this case, data and information should be shared between both flag States and all relevant RFMOs. While States and RFMOs may intend to share all available information, it is crucial that formally established communication mechanisms that allow for rapid information sharing are put in place, otherwise the process can be too delayed to identify risk transshipments.

This is especially relevant where regional coastal States share common fish stocks and transboundary fishing fleets and corresponding transshipment risks, and where RFMO mandates overlap. One example of the former is present in the Gulf of Guinea, which has significant overlapping fisheries with transshipment risk, while for the latter an example is CCSBT and IOTC, where a 2018 study identified significant numbers of longliners fishing in tandem in the southern areas of the Indian Ocean and subsequently transshipping, many of which held authorisation for either one RFMO or the other, but not both.

Transshipment regulation and the Port State Measures Agreement

The FAO Port State Measures Agreement (PSMA) requires port States to establish measures, including inspection requirements, for foreign-flagged fishing-related vessels (including fishing vessels and carriers) seeking to enter their ports with catch on board that has not previously been landed. The aim of the PSMA is to avoid IUU-caught fish from making its way to markets through ports.

The PSMA requires that port authorities obtain information about vessel activity prior to entering port, and validate it to determine whether IUU operations are likely to have taken place. Port State measures offer a cost-effective opportunity to verify whether transshipment took place according to the relevant regulations and, therefore, transshipment authorisations and reports are critical to ensuring that port authorities can establish full traceability of catch prior to its landing in port.

Whereas States—port States for the most part, supported by flag States—are responsible for the implementation of the PSMA, several RFMOs have adopted binding conservation management measures to enhance port State controls, some of which are fully aligned with the international best practices set out in the PSMA. This ensures that these standards are adopted and applied by relevant RFMO Members, even if they are not a Party to the PSMA. A similar approach—where RFMOs adopt and align their transshipment measures with the voluntary guidelines is critical to ensuring a consistent approach across regions and facilitating the regulation, monitoring, and control of transshipment activities by authorities.


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Figure 3. Number of distinct vessel identities detected over AIS on the Northwest Indian Ocean squid fishing grounds, 2015-2019

Monitoring outside of RFMOs

Where fisheries are not managed by an RFMO, the responsibility for monitoring and reporting transshipments must fall on the coastal and/or flag State of the vessel involved. This is of particular importance in high seas fisheries that are currently unregulated. A good example of this is the squid fishery in the Northwest Indian Ocean. First highlighted in 2017 as a new but growing fishery, a 2020 report on unregulated fishing in the Indian Ocean found that the number of vessels in this fishery grew 830% in five years, with the entire catch being transhipped to a growing fleet of carrier vessels at sea. The overwhelming majority of the vessels belonged to a single flag State and all catch was transported to and landed in that same State. With no stock assessment of the fishery being conducted, the transshipment reports would provide valuable insights into species composition, biological characteristics and harvest levels that are not otherwise available and that should inform potential management measures.
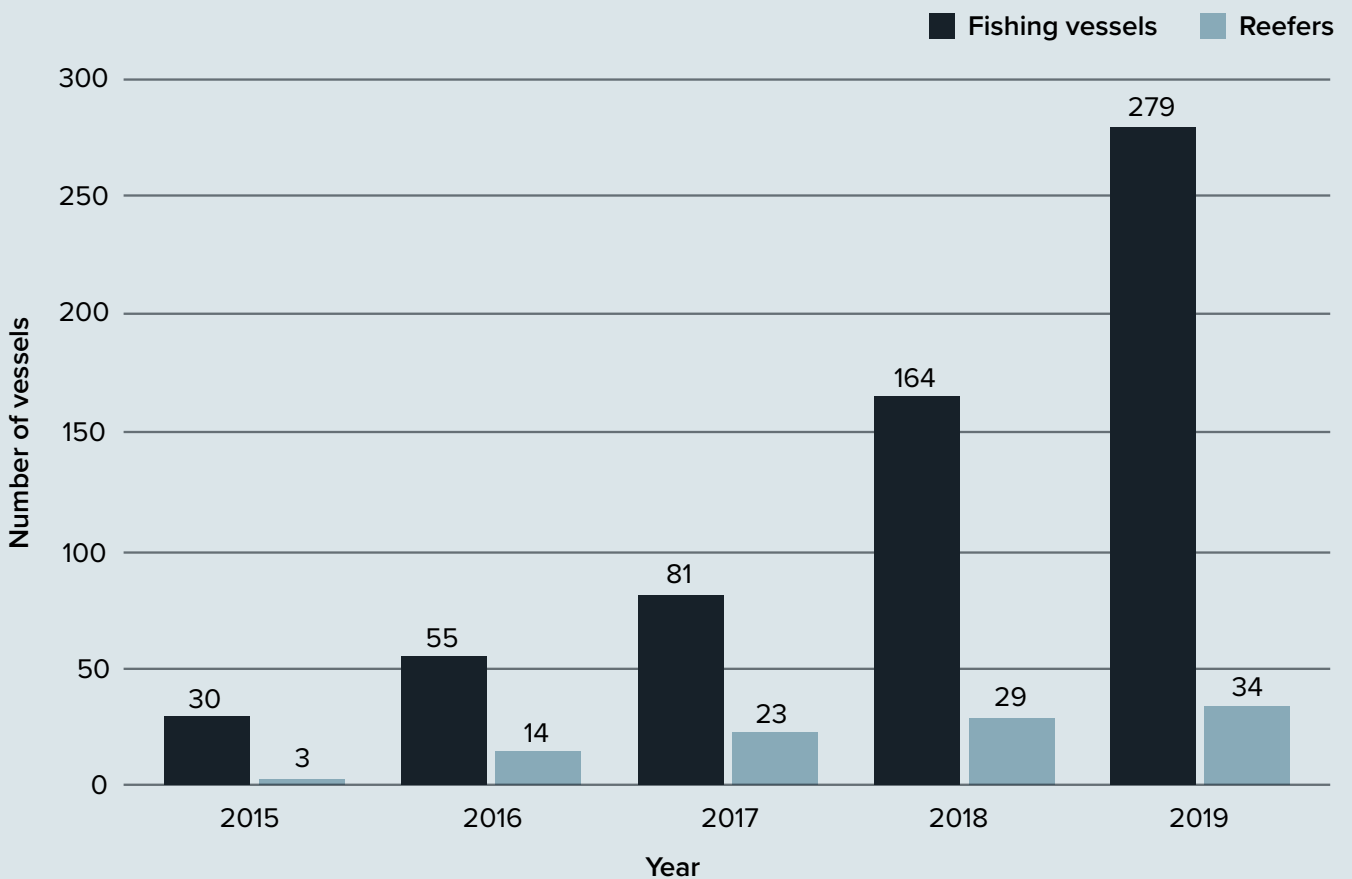
Challenges relating to transshipment activities occurring within overlap areas of RFMOs are not unique to CCSBT and IOTC. Similarly, a recent analysis found that a significant amount of the detected carrier activity occurred in the IATTC-WCPFC overlap area. These RFMOs do have an information sharing agreement, but its scope does not extend to include all transshipment and carrier vessel activities. Overlap areas present such challenges as currently, fish stocks are managed by a patchwork of measures set by geographically defined RFMOs. Species under management differ, as do the management measures set by each fisheries body, and bodies do not have a mandate to govern outside of these parameters. Publication of key information would facilitate more effective data and information-sharing.

Addressing the need for harmonised approaches and regional cooperation on transshipment outside RFMOs

The Fisheries Committee for the West Central Gulf of Guinea (FCWC) was established in 2007 between Benin, Côte d'Ivoire, Ghana, Liberia, Nigeria and Togo. In 2015 the Member States of the FCWC established and formally adopted the West Africa Task Force (WATF) as the regional MCS cooperation mechanism. The WATF has identified at-sea transshipment in three forms—industrial vessel to carrier, industrial vessel to industrial vessel, and industrial vessel to canoe—as a major sub-regional challenge to the sustainable management of fisheries resources, a key facilitator of illegal fishing and a means for illegally caught fish to enter national supply chains. In response, the FCWC Member States have adopted a joint Strategy to Combat Illegal Transhipment At Sea. Key approaches of the strategy include strengthening cooperation with relevant coastal, port, flag and market States, and utilising the rapid communications platform established by the WATF to regularly share information of relevance between the FCWC Member States, and between relevant agencies (fisheries, port, maritime, coast guard, navy and others) within each country.
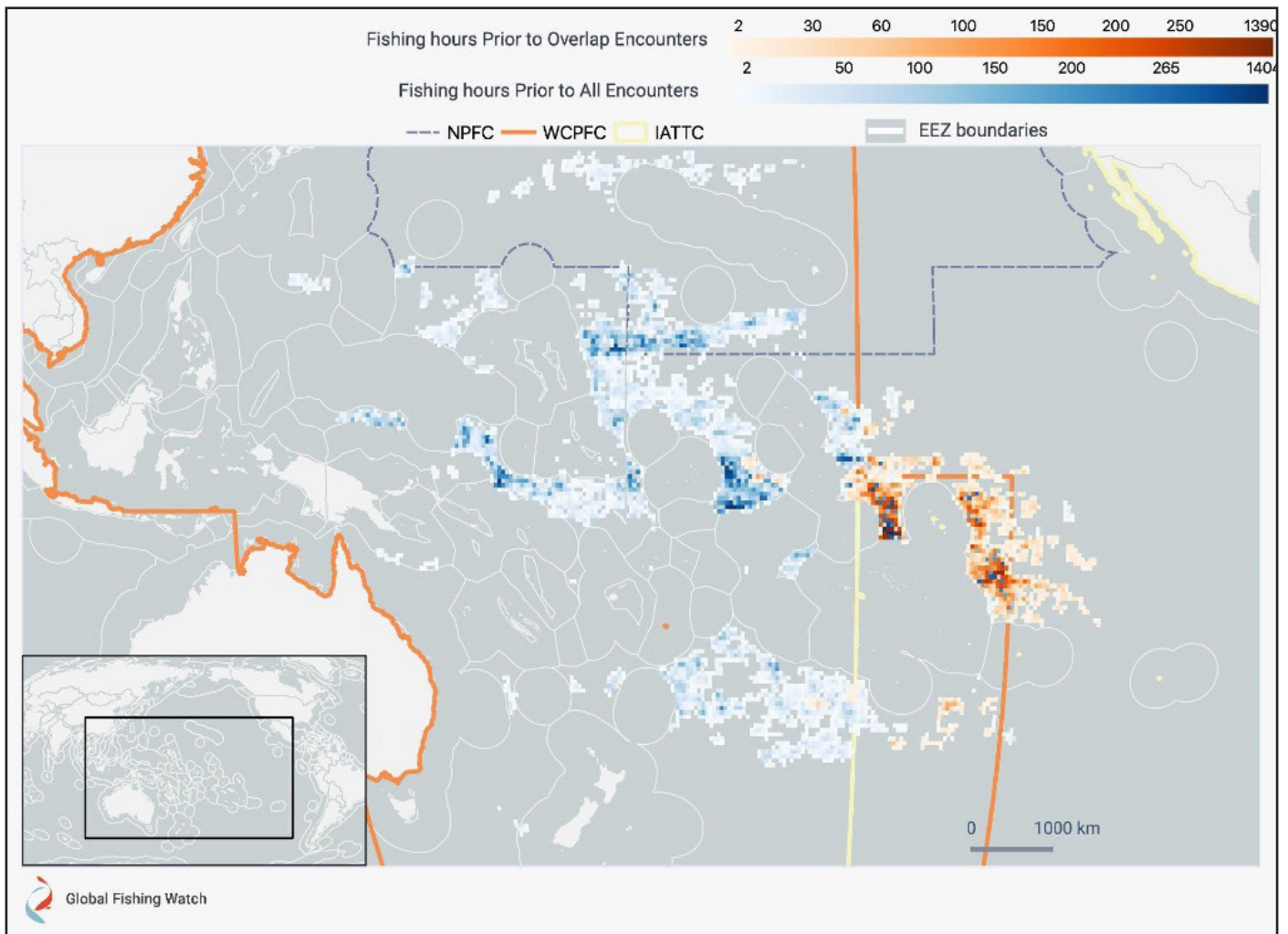

FCWC
Fisheries Committee for
the West Central Gulf of Guinea

STRATEGY TO COMBAT
ILLEGAL TRANSHIPMENT
AT SEA

December 2017

Figure 4. Apparent fishing activity prior to potential transshipment events occurring in overlap areas across multiple RFMOs.

In addition, no single source of information exists which outlines the rules regarding management and control of transshipment, as defined by each RFMO. This means authorities must understand and follow developments of each measure separately, which can present challenges for competent authorities attempting to ensure flagged and foreign vessels are compliant with all relevant measures.

Table 1 on the following page outlines a number of measures that already exist, while highlighting the inconsistencies in the rules and transparency of data across multiple RFMOs.

Table 1

RFMO[2]	Authorized vessel lists - carrier vessels		Authorized vessel lists - donor vessels		Observer Deployment information			Transshipment reporting resolution			Species (spp) information		Transshipment location information		Summary frequency
	Up to date	Historical	Up to date	Historical	Dates of deployment	Carrier vessel unique identific action number	Ports visited	Per annum	Per trip	Per trans-shipment event	Target spp	Non Target spp	Map image	Lat / Long Coordinates	
Recom-mended	Yes NRT	Yes NRT	Yes	Yes NRT	Yes NRT	Yes NRT IMO/MMSI	Yes NRT	Yes AR	Yes AR	Yes NRT	Yes NRT	Yes NRT	Yes AR	Yes NRT	Annually all species
CCSBT	Yes	Yes	Yes also here	Yes	No	No	No	Yes	No	No	Yes	No	No	No	Annually
IATTC	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	No	Annually
ICCAT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Annually
IOTC	Yes	Yes	Yes	Yes	Upon request	Upon request	Upon request	Yes	No	No	Yes	No	Yes	No	Annually also here
NPFC	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	None
SPRFMO	Yes	No	Yes	No	No	No	No	No	No	No	Yes	No	No	No	Annually specific species
WCPFC	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	Annually

AR - Information is provided in Annual Reports, usually in the following calendar year

NRT - Information is available in near real time and available for fisheries MCS operations (recommended within one week of a transshipment event)

The challenge of transshipment and coastal State waters

Where fishing activity occurs inside coastal State waters, a further layer of complexity exists. In these instances, the authorities validating the activity will also need to understand the regulations of the coastal State. The example below demonstrates the complexity of managing transshipment activities relating to fishing activities which have occurred within coastal State waters. Vessel identities have been anonymised.

The donor vessel in Figure 5 operates as a longliner inside the exclusive economic zone of Madagascar, before encountering a carrier vessel, on the high seas within the IOTC Convention Area. The donor vessel reaches port 45 days after the encounter. The carrier vessel makes a stop at an anchorage in Mauritius 3 days after the encounter, before finally reaching the offload port 25 days after the encounter.

To address risk of IUU fish being transshipped through this encounter, multiple documents will have to be checked, including authorisations and licences for the fishing activity in a coastal State, authorisations issued by IOTC, coastal State transshipment permits, IOTC transshipment declaration signed by the observer. To do this, three port States and two flag States will require access to these documents and the vessels movement data to validate what has been reported. Currently, only the IOTC authorisations and vessel movement data (through AIS platforms) are publicly available and accessible to authorities within the timeframe of the port visits. Some, but not all, of the information listed above should be submitted by the vessels through the advanced request for entry into port (AREP) system and verified with the flag States, which can be time consuming and sometimes unsuccessful within the time window available for a commercial port visit.

IOTC requires a high level of observer coverage across transshipment activities conducted within the Convention Area. In a study which will be submitted to IOTC in 2022, almost all AIS observed encounters did indeed have an observer onboard. However, analysis of the encounter shown in Figure 5 based upon IOTC's provision of information regarding observer deployments, shows there is no record of an observer deployment on the carrier vessel in this case. Without an observer on board, it is possible that this transshipment activity was not in compliance with IOTC transshipment measures. Without access to all of the information in near-real time, it would not have been possible for authorities to identify this potential IUU risk and take targeted inspection action based on this information. Annual RFMO reports are therefore extremely helpful to determine overall compliance, but are not timely for MCS operations that happen in port or by a flag or coastal State. IOTC is implementing an electronic Port State Measures system that facilitates the exchange of information. The initiative however, does not cover all ports where vessels operating in IOTC visit and not all the information pertinent to cases like this are required in an AREP process. Publication of information relating to observer coverage, transshipment declarations and coastal State authorisations, in line with the existing IOTC publication of authorisation information, would significantly increase the capacity of MCS officers to make effective compliance determinations.

Figure 5. AIS tracks of a donor vessel (orange) encountering a carrier vessel (green) on the high seas in the IOTC Convention Area. It is understood one year after the event that no observer was deployed on this trip.

A cost-effective and inclusive solution is the publication of information related to transshipment activities outlined in Table 1. By making data publicly available it can be reviewed for compliance purposes by all relevant stakeholders, including flag and port States.

The challenge of in-port transshipment

Recent assessments in both East and West Africa have identified that the majority of identified transshipment events within these regions that were not subject to monitoring took place in port rather than at sea. In the Western Indian Ocean it has been identified that only 13% of tuna is transhipped at sea, with the remaining 87% taking place in port. However while the IOTC requires 100% observer coverage for at-sea transshipments, in-port transshipments were found to have very low monitoring levels.

There are a variety of reasons for low levels of in-port transshipment observation. In many cases these events take place at anchor, or in other port areas that are not accessible to fisheries inspectors. Available resources also play a key factor; while at-sea transshipment monitoring is paid for by flag States, in-port transshipments are the financial responsibility of port States that frequently are not in a position to provide adequate observer coverage. This imbalance needs to be addressed.

This issue is further complicated by the key issue raised in this brief and in "Transshipment: a closer look," namely the need for much better operational definitions for what constitutes a landing versus a transshipment in port.

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In-port transshipment frequently takes place at anchor or in other parts of ports that are not easily accessible to fisheries inspectors, resulting in many not being adequately monitored.

Use of existing and new technologies

The publication of analyses conducted through the use of existing technologies facilitates discussion at RFMOs. For example, after submission of analyses conducted in this manner to ICCAT, the Fisheries Agency of Japan reviewed the contents and conducted internal investigations into transshipment activities within the ICCAT Convention Area and encouraged other ICCAT Members to follow suit.

Figure 6. Screenshot from the carrier vessel portal showing the authorisation status of potential transshipment activity by carrier vessels flagged to Panama, 2018-2021. The portal uses publicly available authorisation and tracking data and supports Panama's efforts to monitor and control their carrier vessel fleet. Click the image to be taken to the portal view.

An innovative approach

A significant flag State responsibility is the verification of all transshipment activities which take place between flagged and foreign donor and carrier vessels. Panama is a flag State to hundreds of carrier vessels. Established domestic regulations allow Panama to monitor the carriers under their jurisdiction but, without access to activity information of foreign-flagged donor vessels, it is difficult to effectively control transshipment.

To help tackle this problem, Panama is piloting the use of satellite technology to analyse publicly shared data. Using Global Fishing Watch's carrier vessel portal, potential transshipment activities can be observed via the analysis of publicly available tracking data. Encounters between carrier and donor vessels are identified and vessel registry information provided by Panama is matched to the AIS data to verify the authorisation of carrier vessels, while vessel registry data shared by the South Pacific Regional Fisheries Management Organisation (SPRFMO) is matched to the identify the authorisation of donor vessels. In this way, the use of new technologies that draw on publicly available data supports Panama's efforts to control the transshipment activities of their carrier fleet.

The use of new satellite technologies in isolation does not, however, provide a magical solution to the enhanced regulation, monitoring and control of transshipment activities. However improved machine learning and AI techniques are revolutionising how data can be combined and interpreted—it has helped change the understanding of what is happening on the water. The observed characteristics of vessel tracks can increasingly be accurately translated into operational behaviour such as fishing or transshipment activities. The analysis presented in this report relies on commercially available AIS data and publicly available information. Therefore, the AIS data is limited to those vessels that transmit AIS data and do so by providing accurate vessel identity information. While originally intended as a collision avoidance system, AIS, and its subsequent analysis, is increasingly being used as an additional data source to support fisheries MCS efforts. The FAO Global Atlas of AIS-based Fishing Activity outlined that from 2017 and onwards, AIS was able to be considered a valid technology for estimating certain fishery indicators. While the majority of carrier vessels report their position via AIS, there is no global requirement to do so. As such, many donor vessels choose not to transmit their position on AIS, although many competent authorities increasingly do require fishing vessels to transmit AIS should they leave national waters.

Poor AIS reception limits the ability to monitor fleets in some regions. In particular, satellite AIS reception is weakest in Southeast Asia, followed by East Asia, the northern Indian Ocean, the Gulf of Mexico and Europe, although terrestrial receivers along coastlines can, in some of these regions, compensate for poor satellite reception. The reception quality also depends on the specific type of AIS device in use—Class A or B. As Class A transceivers are given transmission priority and therefore provide a more comprehensive positional picture, the use of Class A AIS should be recommended for all donor and carrier vessels in transshipment guidelines.

There are legitimate reasons a vessel operator may wish to turn off their AIS device, one of them being the threat of piracy. Requirements for AIS reporting must consider this threat and enable tracking to be switched off as necessary with the evidence for gaps provided to competent authorities, in line with the International Convention for the Safety of Life at Sea.

Traceability

Traceability is increasingly important to consumers, and understanding what is happening with transshipment is one of the keys to that. Industry recognises that it has a role to play in asking the right questions in order to ensure that they are providing sustainably and legally caught fish products. Earlier this year, the global dialogue on seafood traceability (GDST) published its traceability standards (1.0) critically identifying key data elements that should be common across the industry irrespective of the system used or accreditation standard applied. A number of these are related to transshipment. While they may inform discussion on guideline development, they also clearly demonstrate the demand for traceability and transparency. Transparency of both carrier and donor vessel identification and tracking data, as well as transshipment deployment information, will support the verification of any standards and it is recommended that GDST 1.0 is considered when developing the guidelines.

Conclusions and recommendations

To be effective in their aims, voluntary guidelines for the regulation, monitoring and control of transshipment must be **robust, future-proof** and **operationally achievable**.

Voluntary guidelines must be robust

"Transshipment: a closer look" presents a detailed overview of the complexities of transshipment. The analyses presented in this report could not have been conducted without up-to-date information on transshipment authorisations, reporting, monitoring, data and information sharing, demonstrating a clear need for these key considerations to be considered, as outlined in the in-depth study.

1   **Recommendation one:** Key considerations of the in-depth study, "Transshipment: a closer look", are fully reflected in the voluntary guidelines.

Some regional measures to monitor transshipment have been effective, and the Committee has recognised the central role of regional fisheries bodies in the implementation of international fisheries instruments. Many of the contributions from the ground demonstrate good practices that are already being put in place by Member States, such as those outlined in the ICCAT regional observer programme.

2   **Recommendation two:** Existing regional measures on transshipment are reviewed in detail, considered and strengthened by the voluntary guidelines

Voluntary guidelines must be future-proof

The process to develop and adopt international policy is extensive, thorough and measured, often leading to requirements that are acceptable to Member States and therefore widely implemented. However, these policies can take extensive periods of time to put in place. Many of the contributions from the ground highlight the role that existing technological tools can play in implementation of transshipment measures in the short term that will remain relevant in future. The voluntary guidelines should consider the use of existing and new technologies—such as Panama's use of satellite data analysis—to ensure that the significant investment made by experts and Member States during the development of the voluntary guidelines remains worthwhile for decades to come. However, these tools are not a panacea, and they must complement and enhance the use of independent, professionally trained and supervised observers at the cost of the fishing vessel owners.

Existing tools allow all stakeholders to gather, filter and synthesise public data to inform management and policy efforts, including necessary regular risk assessment and inspection procedures. New tools that innovate these practices will no doubt continue to be developed. These need to be integrated into dedicated national and regional transshipment monitoring systems, that in turn support the validation of transshipment monitoring information between States and supporting partners.

3   **Recommendation three:** The use of existing technologies and tools that support comprehensive implementation of measures, and validation of reported information on transshipment is supported and recommended in the voluntary guidelines.

Voluntary guidelines must be operationally achievable, adaptable to the different types of transshipment and use data that is accessible to all.

Traditional methods to monitor and control transshipment activities can be costly and resource intensive. However, to ensure the sustainability of international fisheries, operations on the global commons must be effectively governed—an understanding of the urgent need for such management is reflected by the concern expressed on the risks of inadequately regulated, controlled and monitored transshipment in relation to IUU fishing by the Committee during the 34th Session of COFI.

To ensure success, any measures developed must be able to be implemented by all stakeholders, and adaptable to all forms of transshipment. It is recognised that developing States may have specialist requirements in relation to the application of transshipment regulations. It is therefore vital that all States, including developing States, have equitable access to data, analysis and tools that can support their efforts.

The current system of high seas fisheries governance benefits those that can afford expensive vessels and cutting-edge technologies which allow them to fish for months at a time in biodiverse waters far from their country of origin. In turn, this places a significant burden on States that cannot adequately oversee or enforce transshipment policies either through costly at-sea patrols or undertake the robust risk assessment necessary for effective port controls. This is particularly significant for those regions where the majority of transshipment takes place in port—whereby the port State is responsible for observation, as opposed to the high seas, where the flag State is responsible.

Many of the contributions from the ground have used publicly available vessel identification, authorisation and tracking data and machine learning techniques to pinpoint encounters between vessels, collate fishing authorisations and identify frequently-visited ports to build a picture of risk. A transshipment event is a key opportunity for compiling information about the fishing operation, vessels, catch and crew, but the real benefits come when this information can be correlated with other MCS information to provide a more accurate overview for relevant stakeholders. In this way, authorities' efforts can be more targeted and cost-effective, increasing opportunities for those with limited resources to ensure the guidelines are respected.

4 **Recommendation four:** Timely publication of vessel identification, authorisation, tracking data, and transshipment activity, including spatial and temporal details of each authorised event, is encouraged in the voluntary guidelines.

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Key resources

Further resources can be found within the International Monitoring, Control and Surveillance Network Library.

Data caveats

For further analysis of Global Fishing Watch's AIS data quality, see Taconet, Kroodsma, and Fernandes 2019. AIS device class often depends on flag State regulations, vessel length, and vessel purpose. Because of the limitations of AIS data, lack of complete and accurate public vessel databases and registries, and limitations of modeling estimations, the AIS detected encounter, and loitering data are represented as accurate as possible but should be considered restrained estimates based on these limitations (see Kroodsma et al. 2018, Miller et al. 2018 for further discussion).

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Global Fishing Watch

Global Fishing Watch is an international nonprofit organization dedicated to advancing ocean governance through increased transparency of human activity at sea. By creating and sharing map visualizations, data and analysis tools, we aim to enable scientific research and transform the way our ocean is managed. We believe human activity at sea should be public knowledge in order to safeguard the global ocean for the common good of all.

International Monitoring, Control and Surveillance Network

The Mission of the International MCS Network is to promote and facilitate cooperation and coordination among its Members through information exchange, capacity development and collaboration in order to achieve the improved effectiveness and efficiency of fisheries MCS activities.

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TMT provides national fisheries authorities and international organisations with fisheries intelligence, analysis, and capacity building, targeting a reduction of illegal fishing and broader improvements in ocean governance.

For more information on the data used in this report or its recommendations, please contact Courtney@globalfishingwatch.org.