North Pacific Fisheries Commission

NPFC-2018-TCC04-OP02

**Abstract:**

The following paper is an extract from a larger publication from PEW Charitable Trusts on the use of AIS for analyzing fish carrier activity in 2016 in the North West Pacific Ocean in the NPFC Convention Are where is overlaps with the Western and Central Pacific Fisheries Convention Area. Received 15 June 2019.

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## Information Paper for the North Pacific Fisheries Commission (NPFC) 4th Technical and Compliance Committee Meeting - July 2019

# Analysis of Carrier Activity in the Northwest Pacific in 2016 Through the Use of AIS Data

Greater Understanding and Transparency of Carrier Vessel Fleet Dynamics Will Help Transshipment Management

Prepared by The Pew Charitable Trusts

## Overview

The transshipment of catch, which allows fresh fish to get to market sooner, is a significant but largely hidden part of the global commercial fishing industry. Transshipment involves hundreds of refrigerated cargo vessels, or carrier vessels, roaming the oceans, receiving catch from thousands of fishing vessels and transporting it to shore for processing. Transshipment touches a wide range of seafood products, led by the major tuna species. North Pacific Fisheries Commission (NPFC)-managed species such as Pacific saury, chub mackerel, Japanese sardine, and neon flying squid also comprise a large portion of transshipped products.

Moving catch from one vessel to another may seem innocuous, but most transshipments take place far out at sea – where, out of the sight and reach of authorities, unscrupulous fishing vessel operators can obscure, manipulate, or otherwise falsify data on their fishing practices, the species or amounts caught or transferred and catch locations. Such illicit activity is believed to be widespread around the world, reflecting a lack of monitoring and control where the tracking of these transfers – and the degree to which they are conducted in line with regulatory requirements – is often lacking. This type of activity undermines fisheries conservation and management efforts and puts both the health of diminishing fish stocks and the economies of countries that are heavily dependent on fishing at risk.[1]

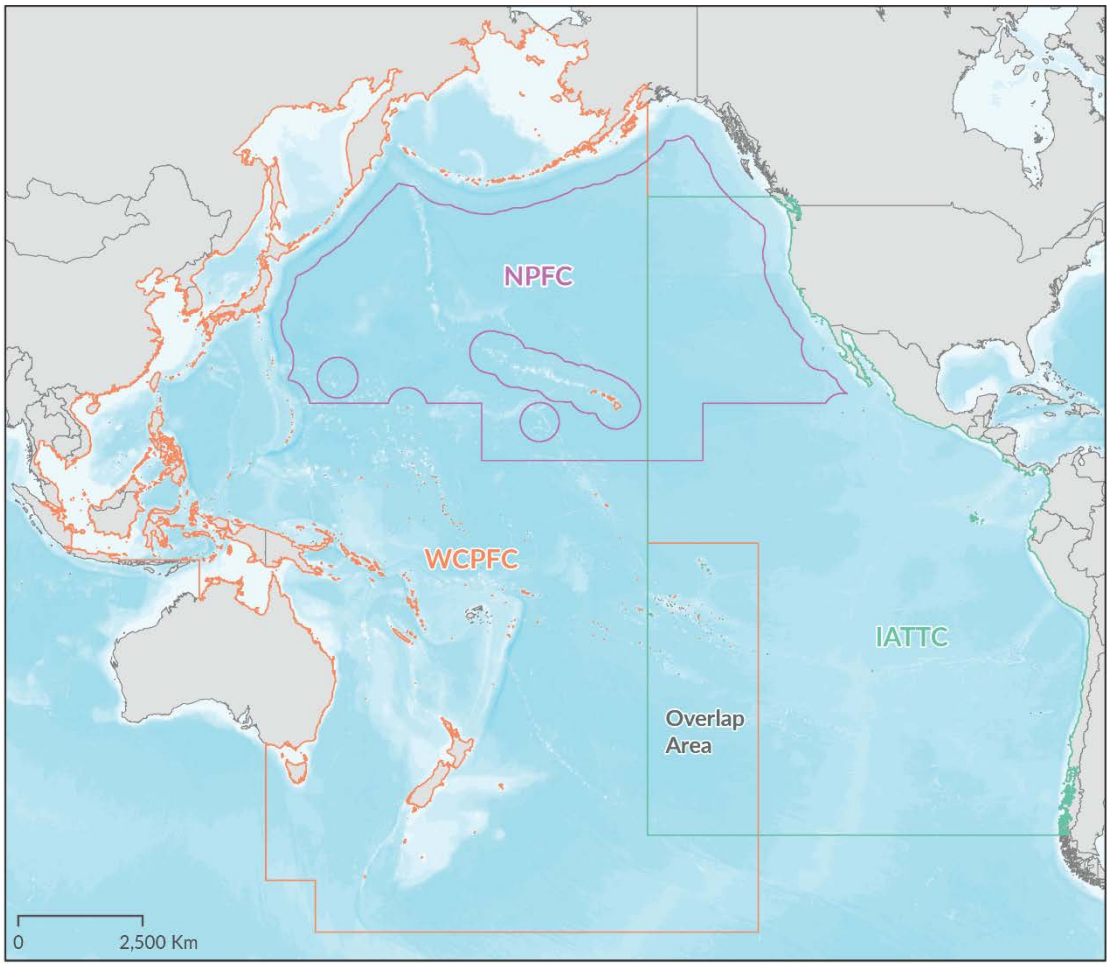
To better understand transshipment operations, The Pew Charitable Trusts combined commercially available satellite Automatic Identification System (AIS) data with the application of machine learning technology to analyze the track histories of carrier vessels operating in the Pacific in 2016. This included waters in the Northwest Pacific where the jurisdictions of the NPFC and the Western and Central Pacific Fisheries Commission (WCPFC) Convention Area overlap (Figure 1). This report summarizes the findings relevant to the NPFC and its members.

Specifically, the analysis found that 26 carrier vessels authorized by both NPFC and WCPFC conducted nearly 600 potential high seas transshipments in the Northwest Pacific on the high seas off Japan during 2016. This activity does not include the potential high seas transshipment events

of at least 22 carrier vessels that did not appear on the authorized vessel lists of NPFC or WCPFC in 2016 but operated in these waters. Those additional vessels were likely also involved in the high seas transfer of NPFC and/or WCPFC-managed species.

Greater oversight and transparency of transshipment operations will support the growing efforts by responsible governments and seafood suppliers to better track their supply chains.
Improved transparency will also help Regional Fisheries Management Organizations (RFMOs) detect and deter illegal activities, especially in areas where waters are managed by more than one RFMO and carrier vessels authorized under multiple RFMOs operate.

*Figure 1: Regional Fisheries Management Organizations in the Pacific*
WCPFC, NPFC, and Inter-American Tropical Tuna Commission (IATTC) Convention Areas overlap across the Pacific.




Sources: WCPFC and IATTC, via United Nations Food and Agriculture Organization (FAO) http://www.fao.org/geonetwork/srv/en/main.home; NPFC https://www.npfc.int/about_npfc/convention_and_npfc_area_of_application/npfc-shape-file; and Land and Bathymetry from Natural Earth *https://www.naturalearthdata.com/about/terms-of-use/*

In 2017, the NPFC Commission adopted Conservation and Management Measure (CMM) 2016-03 - the Interim Transshipment Measure for the North Pacific Fisheries Commission. This interim measure focuses on initial procedures for monitoring and regulating transshipment conducted by authorized vessels operating in NPFC waters to include reporting of these events strictly to vessel flag State authorities. It also provides obligations for NPFC members to submit annual reports to the NPFC Secretariat documenting transshipment events carried out by their respective flagged vessels. However, the minimal reporting requirements provided by CMM 2016-03 provides no requirements for vessels involved in high seas transshipments to also provide reports to the NPFC Secretariat. In addition, the measure details no regional observer program designed to accompany the activity to provide a measure of independent monitoring. These gaps leave opportunities for illegal, unreported, and unregulated (IUU) fishing to occur and go undetected and undocumented.

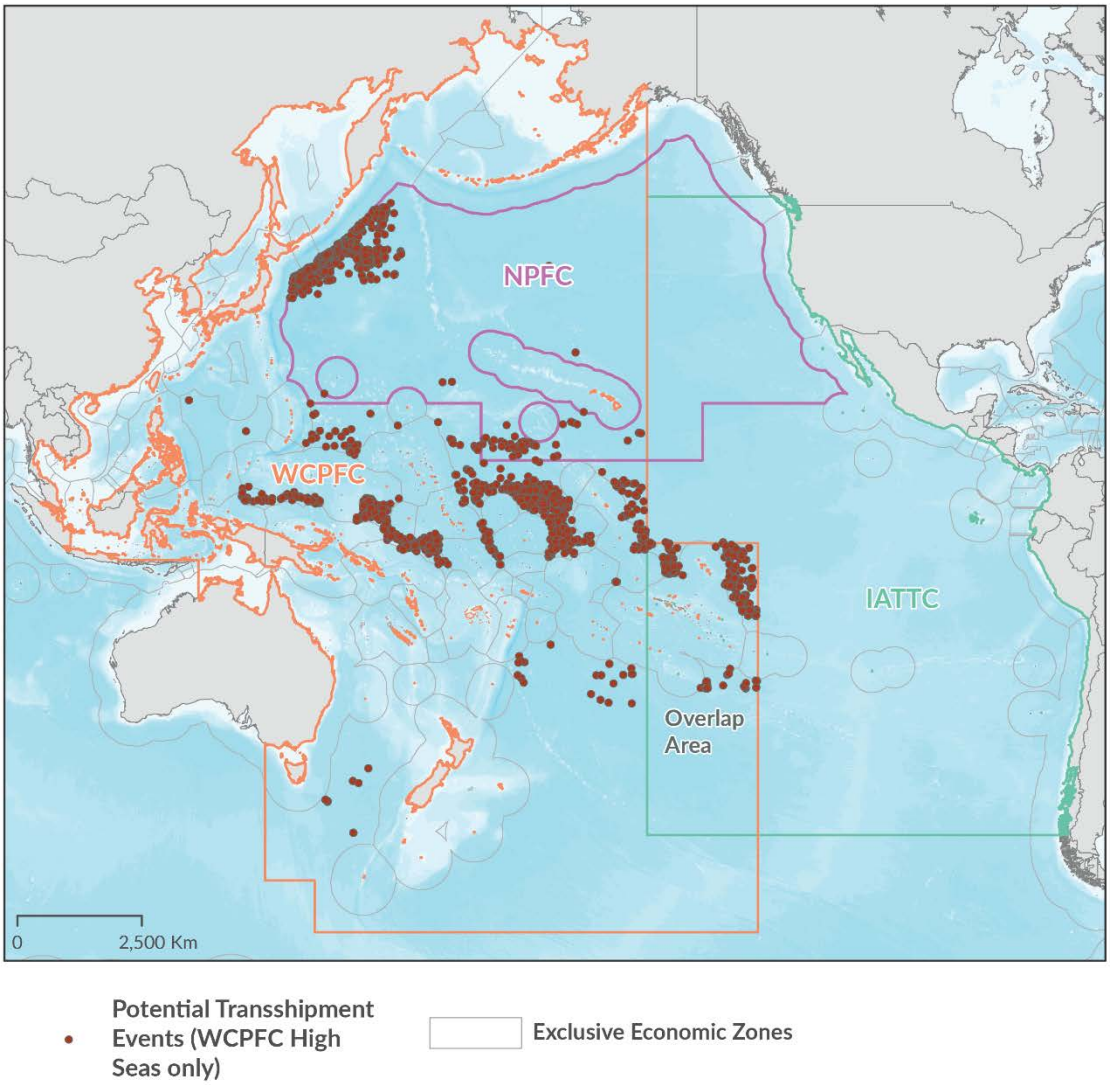
## Carrier Vessel Activity and Potential High Seas Transshipments in the WCPFC/NPFC Overlap Area off Japan

Pew's analysis of AIS data specific to carrier vessels operating in the Pacific in 2016 found that over 100 carriers authorized by WCPFC may have conducted almost 2,240 transshipments at sea. Figure 2 highlights the spatial distribution of 1,538 of these transshipment events that may have occurred on the high seas in the WCPFC Convention Area as detected through AIS data. The patterns of high seas events in the tropical zone proved very similar to Figure 3, the WCPFC Secretariat's visualization of high seas transshipments in its Annual Report on Transshipment for 2016.[2]

The one notable difference is on the high seas off Japan, where NPFC- and WCPFC-managed waters overlap. The Pew analysis of AIS data indicated a high level of carrier vessel activity occurred in this region; however, zero transshipment events involving the at-sea transfer of WCPFC-managed species were reported by carrier or fishing vessels to have occurred in this area as indicated in the WCPFC Annual Report on Transshipment. These potential events occurred on high seas waters dually managed by both NPFC and WCPFC by 26 distinct carriers authorized by both NPFC and WCPFC. It is unclear whether these carrier vessels conducted transshipments involving only NPFC-managed species, only WCPFC-managed species, or a combination of both, potentially even during a single voyage.

*Figure 2: Potential 2016 Transshipment Events on the High Seas, Detected in this Study*

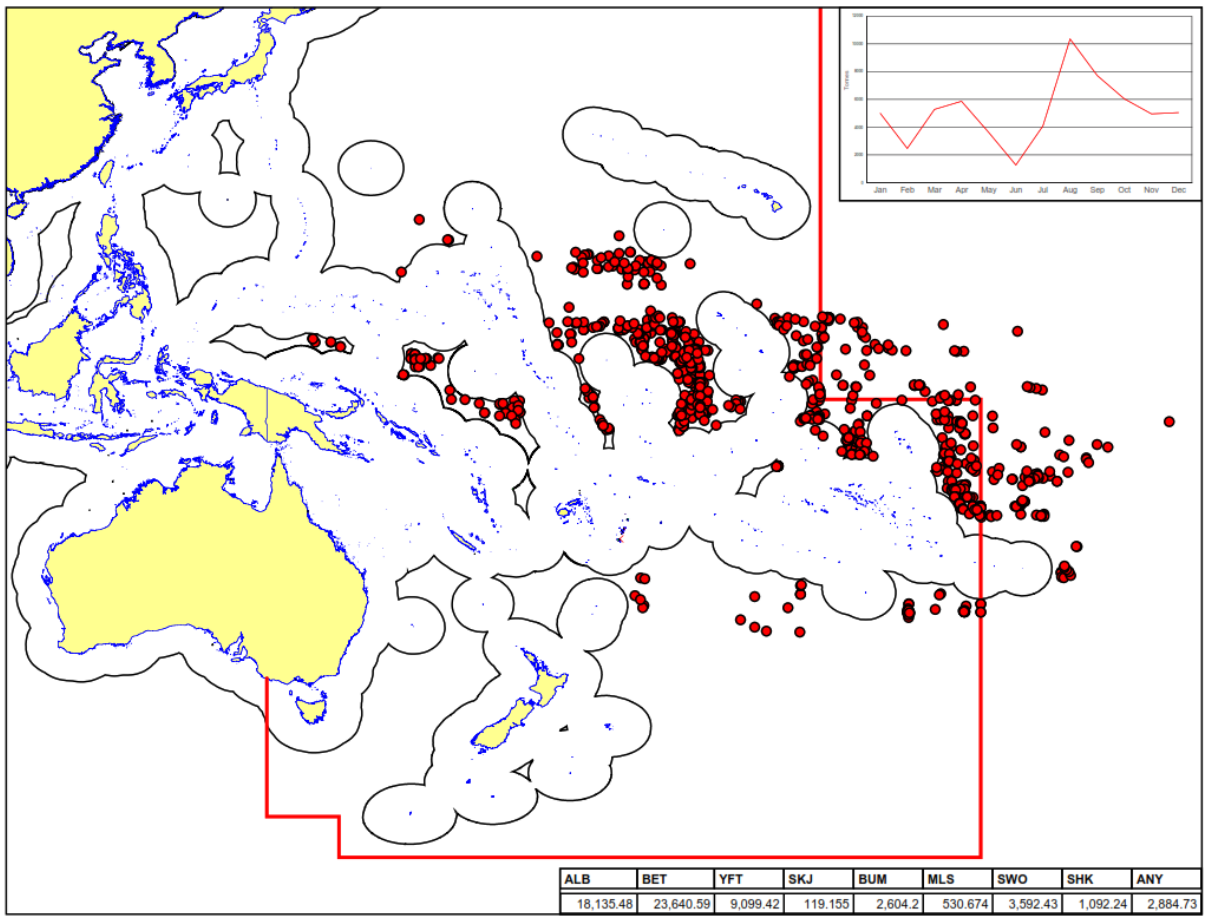
**Spatial Distribution of Potential High Seas Transshipment Events**




Source: Events from © 2019 OceanMind Limited; Includes material © 2016 exactEarth Ltd.; EEZs from MarineRegions.org

*Figure 3: Officially Reported 2016 Transshipment Events on the High Seas as Reported to WCPFC*

**Spatial Distribution of Reported High Seas Transshipment Events**



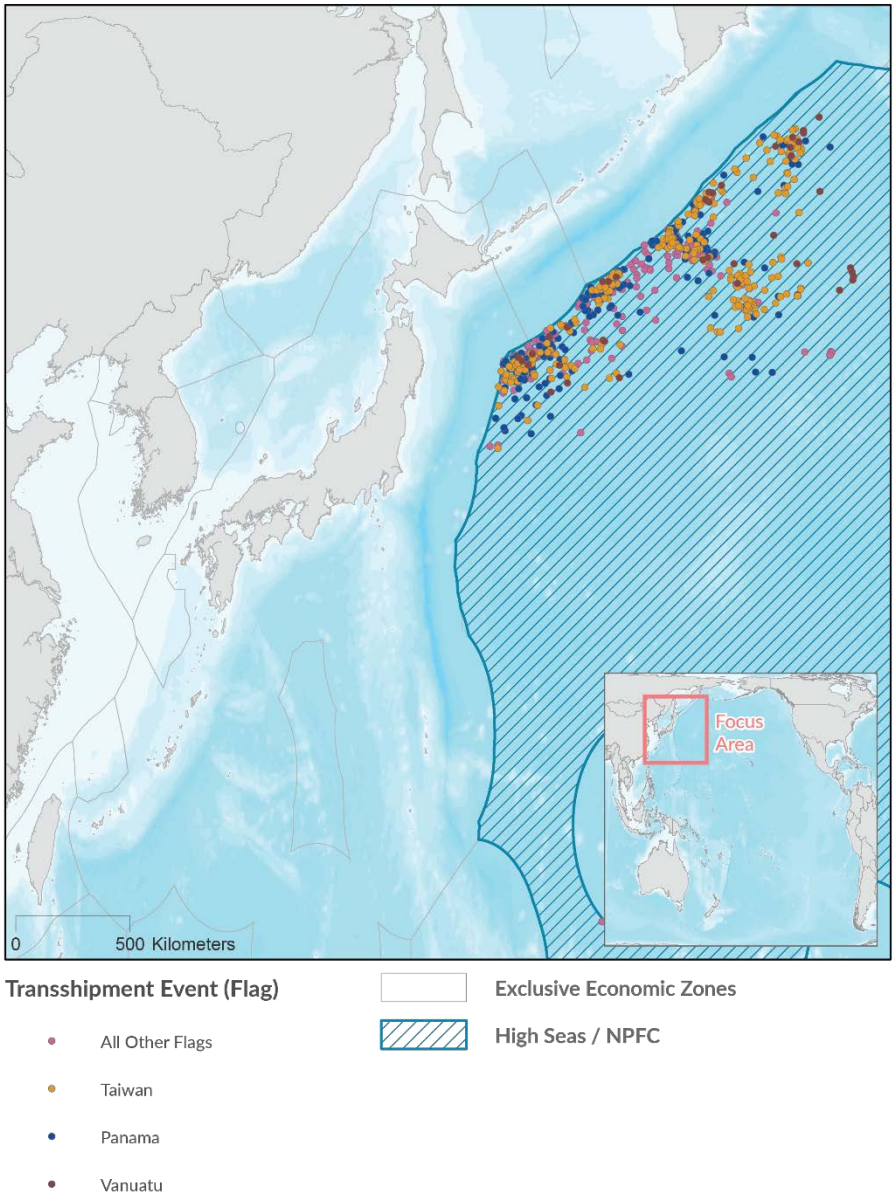

Source: Western and Central Pacific Fisheries Commission Technical and Compliance Committee, "Annual Report on WCPFC Transshipment Reporting, With an Emphasis on High Seas Activities" (2017) https://www.wcpfc.int/node/29898

Figure 4 provides greater detail of an AIS analysis of potential high seas transshipment events on the high seas off Japan in 2016 by these 26 carriers. Vessel movements indicated that these carriers conducted nearly 600 potential high sea transshipping events on the high seas off Japan, waters managed by both NPFC and WCPFC (see Table 1).

These events took place primarily in the third quarter of 2016. As compared with detected activity in other regions of the Pacific, the relatively high number of potential transshipment events in this small area by these dually authorized carrier vessels provides greater risk that events may not be well documented or reported to either RFMO. It is entirely possible that the carrier vessels operating on the high seas off Japan exclusively transshipped NPFC-managed species, especially given the

time of year. If so, the activity should be verified with NPFC member annual reports on transshipping. However, it is also possible that these transshipments included longline-caught and WCPFC-managed North Pacific albacore, yellowfin, bigeye tuna, and swordfish. The implementation of a formal information-sharing protocol between NPFC and WCPFC specific to transshipment data and information would greatly assist the NPFC and WCPFC and their members in ensuring the proper reporting and documentation of the transfer of the species and amount involved, especially in cases where the event involves carriers authorized by both RFMOs.

*Figure 4: Potential Transshipment WCPFC/NPFC Overlap Area on High Seas off Japan*
**High concentration of potential transshipment events in relatively small area**




*Source: OceanMind © 2019 OceanMind Limited*

*Table 1: Carrier Vessel Activity in the WCPFC/NPFC Overlap Area in the High Seas Off Japan*
**Potential Transshipment Events by Carrier Vessels Authorized by Both NPFC and WCPFC**

| Flag State | Distinct Carrier Vessels | Detected Potential Transshipment Events |
|---|---|---|
| **China** | 1 | 25 |
| **Panama** | 15 | 266 |
| **South Korea** | 1 | 23 |
| **Taiwan** | 8 | 252 |
| **Vanuatu** | 1 | 32 |
| **Total** | 26 | 598 |

Source: Pew analyzed exactEarth AIS data using OceanMind algorithms.

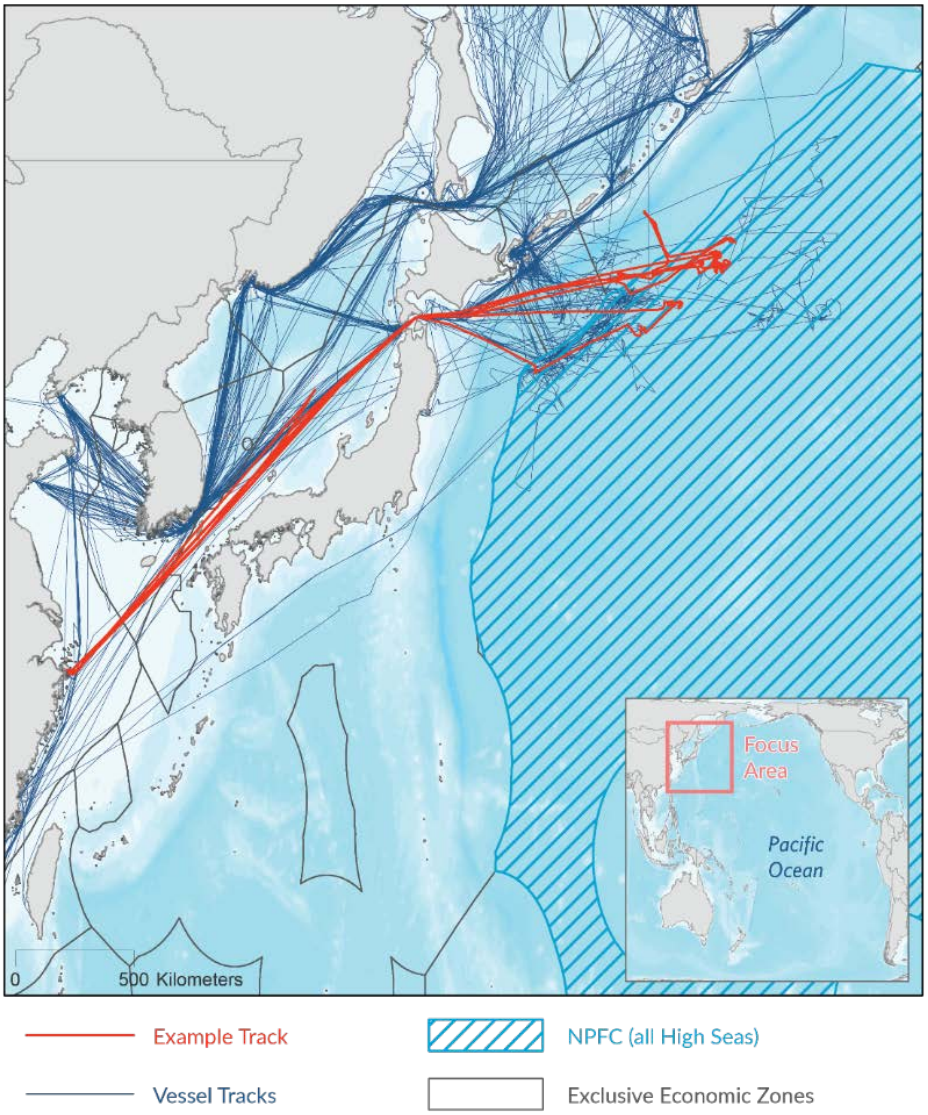
## Unauthorized Carrier Vessel Activity on the High Seas off Japan

Thirty-five carrier vessels that were not listed on either the NPFC or WCPFC authorized vessel lists in 2016 were also observed on AIS operating in the Northwest Pacific that year. The name and flag of these unauthorized carrier vessels was determined by referencing the Global Fishing Watch global list of carrier vessels.[3] Of these, 22 of the carrier vessels operated in the overlapping WCPFC/NPFC waters on the high seas off Japan and appear to have conducted high seas transshipments. Fourteen carriers of this group were flagged to Russia, four to China, three to Panama and one to the Cook Islands. Figure 5 shows the 2016 AIS tracks of these unauthorized carrier vessels and highlights in red one of the 22 carrier vessels which demonstrated a voyage pattern that was consistent with high seas transshipment.

Since these carrier vessels appeared to have never been authorized to operate by either NPFC or the WCPFC in 2016, it is doubtful that the transshipment of any species made by these carriers were reported to, and documented by, the relevant RFMO and flag State authority. The activities of these carrier vessels--likely without an embarked carrier observer and proper flag State oversight--suggests that NPFC and WCPFC may need stronger controls related to carrier vessel authorizations and monitoring and reporting of transshipment activities.

*Figure 5: Activity of 22 Unauthorized Carrier Vessels – Northwest Pacific*

**Example Vessel Tracks of Unauthorized Carrier Vessels in 2016**




*Source: Events from © 2019 OceanMind Limited; Includes material © 2016 exactEarth Ltd. All Rights Reserved; EEZs from MarineRegions.org*

## Conclusion

Transshipment of catch between vessels plays an enormous role in the Pacific. As this report describes, the activities of authorized and unauthorized carrier vessels operating in the overlapping waters of the NPFC and WCPFC Convention Areas are likely of high interest to NPFC Members to ensure that all transshipment of catch is legal and verifiable—and that opportunities for IUU

fishing are greatly reduced. These findings may provide NPFC additional insight into transshipment activities that may have not been historically well documented.

Undoubtedly, current RFMO transshipment management procedures could be improved. Neither NPFC nor WCPFC requires authorized carrier vessels to provide pre-notification of their intent to transship when the vessels enter Convention Area waters. The RFMOs also have different reporting and observer requirements, making it difficult for the respective Secretariats to determine which RFMO rules and procedures a carrier vessel is operating under while in dually managed waters at any given time. As a result, there are opportunities for the amount and type of species transshipped by carrier vessels operating in such waters to go unreported. The lack of transshipment pre-notification requirements limits both RFMOs' full understanding of carrier vessel activities and transshipments in this region of the Pacific. This also likely results in the lack of comprehensive data on the amounts and types of species that are being transferred between vessels at sea and how these species are potentially mixed.

This overlap area is a concrete example of a dually managed region whose respective RFMO authorities would benefit from the establishment of an information-sharing Memorandum of Understanding (MOU). A data-sharing MOU that includes transshipment-specific information would enable both RFMOs to gain greater insight into transshipping activities occurring in these overlapping waters and would undoubtedly help to minimize risks of misreporting or nonreporting of managed species sourced from this region. The discrepancies found through Pew's review of publicly available reports and AIS data makes clear that monitoring of transshipments in these RFMO waters is inadequate. Improving this function of NPFC and WCPFC is critical as misreporting or not reporting catches can result in the laundering of millions of dollars' worth of illegally caught fish each year.

The at-sea activities of the 22 unauthorized carrier vessels detected operating on the high seas in the Northwest Pacific may be something that the NPFC Secretariat or its Members wish to further investigate. This revelation may reflect the lack of proper flag State oversight that should be addressed as a matter of urgency given the amount of NPFC product that may have gone unreported. Unauthorized carrier vessels operating in the NPFC Convention Area and transshipping NPFC and/or WCPFC-managed species should be a matter of concern for all NPFC Members.

Establishing clear rules for transshipment in the Convention Area waters can help ensure a strong, legal, and verifiable seafood supply chain for the species it manages and reduce the likelihood that

illicit activities will occur. This report represents just a starting point for making vessel operations in the NPFC more transparent. With continued research, analysis, and action, the NPFC could become a model for effective transshipment management for other regions of the globe.

## Endnotes

1 David J. Agnew et al., “Estimating the Worldwide Extent of Illegal Fishing,” PLOS ONE 4, no. 2 (2009): e4570, https://doi.org/10.1371/journal.pone.0004570.

2 Western and Central Pacific Fisheries Commission, Technical and Compliance Committee, “Annual Report on WCPFC Transshipment Reporting, With an Emphasis on High Seas Activities” (2017), https://www.wcpfc.int/node/29898.

3 David Kroodsma, Nate Miller, and Aaron Roan, “The Global View of Transshipment: Revised Preliminary Findings” (2017), http://globalfishingwatch.org/wp-content/uploads/GlobalViewOfTransshipment_Aug2017.pdf.