WELCOME !

Register for a GFW account while waiting. We'll use it in the session today.

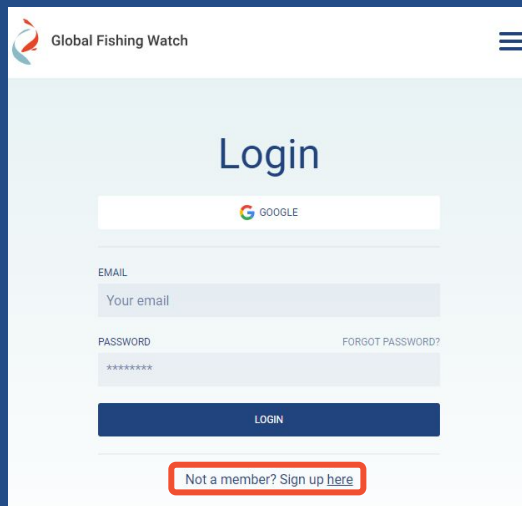Go to
https://globalfishingwatch.org/map

Look for this button
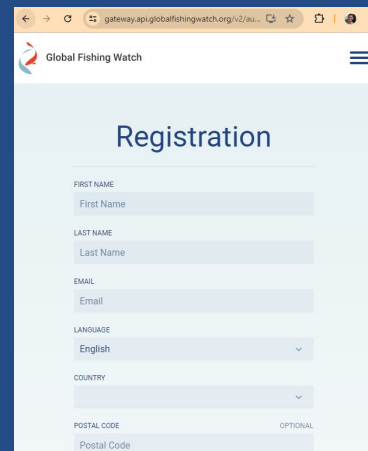(lower left)

1

2

3

Login

GOOGLE

EMAIL
Your email

PASSWORD   FORGOT PASSWORD?
****

LOGIN

Not a member? Sign up here

Registration

FIRST NAME
First Name

LAST NAME
Last Name

EMAIL
Email

LANGUAGE
English

COUNTRY

POSTAL CODE   OPTIONAL
Postal Code

Global Fishing Watch

Innovative Technology Applications for Monitoring, Control, and Surveillance

Aimée Komugabe-Dixson
Lo Ko-Jung

SEAFDEC/TD, Thailand
September 16, 2024

Global Fishing Watch

Session Outline

- Learning outcomes

- Who we are

- Our data & tools

- Interactive exercise

- Reflection Discussion

Global Fishing Watch

Learning Outcomes

By the end of this session, you will be able to:

- Understand who Global Fishing Watch is as an organisation & the suite of tools we offer to support MCS
- Log into the Global Fishing Watch Map and identify the main features
- Identify how the our tools can be used to obtain vessel insights
- Identify how to apply such tools in your own contexts

Who we are

Founded via collaboration between Google, Oceana, and SkyTruth 2015

Established as a nonprofit in 2017

Largely grant funded by philanthropic foundations active in ocean conservation, with a small amount of government funding

Technology and engineering ⟷ Research ⟷ Policy ⟷ Analysis and capacity development

Team composed of:
110+ people; 30 Countries; 14 Time Zones

Our Vision

A healthy, productive and resilient ocean where transparency drives fair and effective governance of marine resources in support of biodiversity and sustainable development.

Our Mission

Global Fishing Watch seeks to advance ocean governance through increased transparency of human activity at sea. By creating and publicly sharing map visualizations, data and analysis tools, we enable scientific research and drive a transformation in how we manage our ocean.
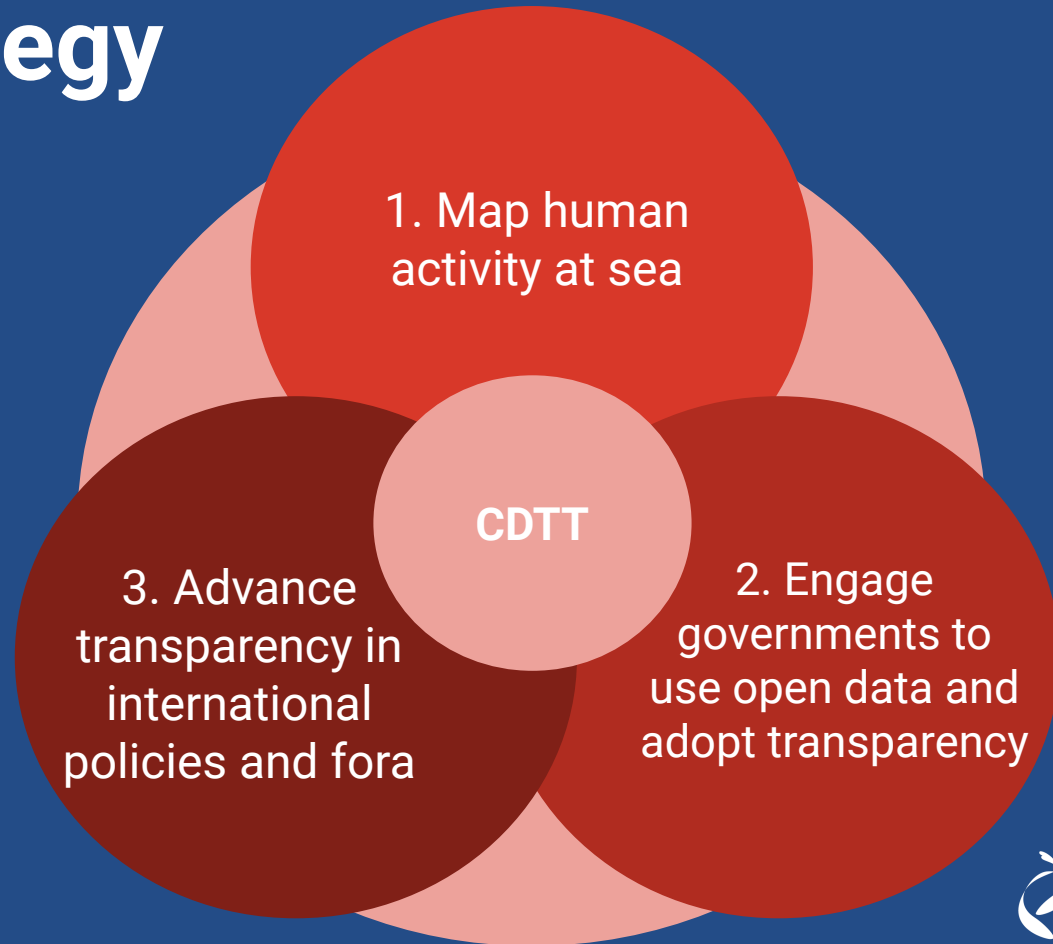
Our Higher Level Goals

1. Reduce IUU fishing and destructive fishing practices

2. Better enforce and protect the rights of 1 million small-scale fishers

3. Improve effective designation and management of marine protected areas (MPAs) and other effective area-based conservation measures (OECMs).
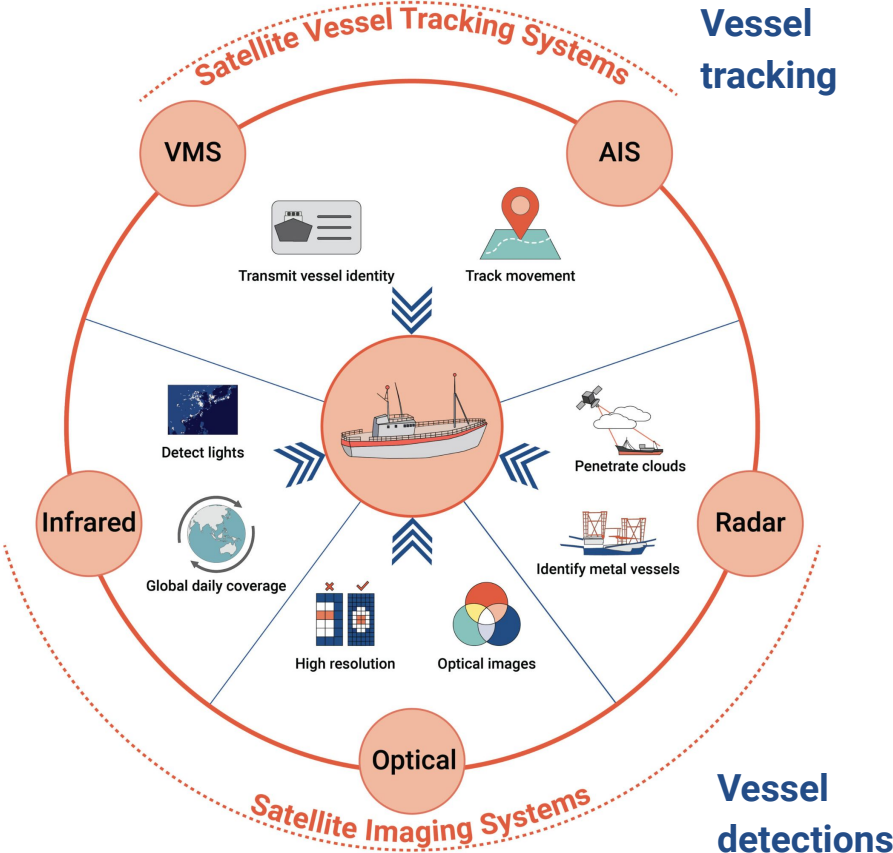
Our Strategy

1. Map human activity at sea

CDTT

3. Advance transparency in international policies and fora

2. Engage governments to use open data and adopt transparency

Global Fishing Watch

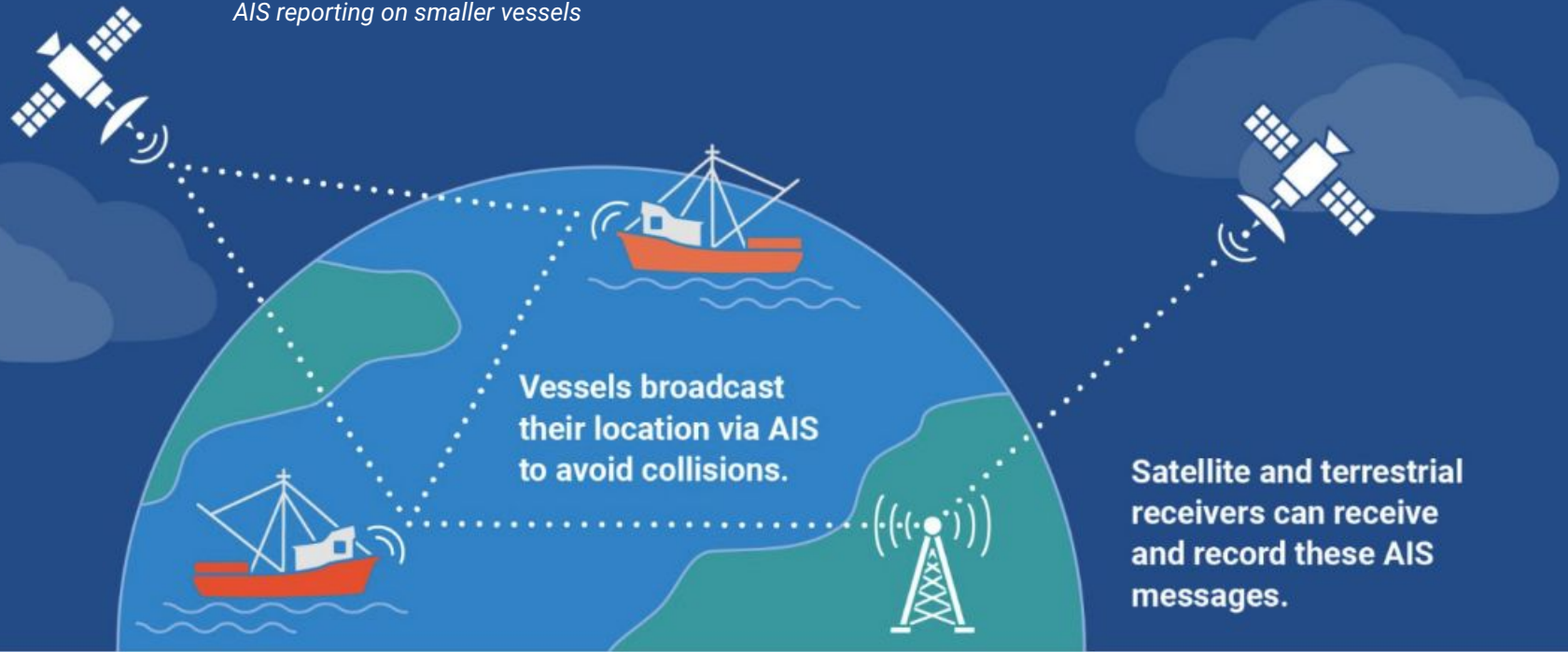# Cooperation with governments and key actors

What do we do?

Data Sources

AIS - Automatic identification system

- Collision avoidance system

- Vessels fitted with AIS transceivers broadcast short-range signals alerting other vessels to their presence. AIS devices: Class A, B, B+

- Mandatory use declared by the International Maritime Organisation (IMO) at the 2002 Safety of Life at Sea (SOLAS) convention

  - *Vessels 300 gross tonnes or greater; all passenger vessels, some national regulations may require AIS reporting on smaller vessels*

Vessels broadcast their location via AIS to avoid collisions.

Satellite and terrestrial receivers can receive and record these AIS messages.

AIS - VMS comparison

Attribute	AIS	VMS
Signal reception frequency	Every 2 to 180 seconds	Varies by regulation, but usually every hour to every 4 hours
Data availability	Publicly-accessible Visible for vessels	Usually confidential and restricted access Other vessels do not have ready / direct access
Positive points	• Very high transmission rates (real-time tracking), allows for differentiating activity and not just vessel tracking • Accessible by control units at sea • Relatively low cost	• Reliable system with limited risk of manipulation • Designed specifically for fishing vessels • Can be customized with other features (e.g., electronic logbook, geofencing, etc.)
Negative points	• Easy to manipulate • High volume but noisy data • Not optimized for fishing vessels • Variable reception and device quality limits relevance in some places and for some fisheries	• Can have long periods between signals • High cost and proprietary software by provider

AIS - Automated Identification System

VMS - Vessel Monitoring System
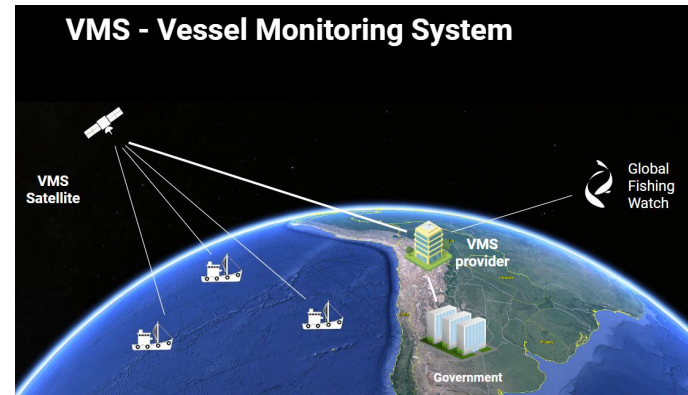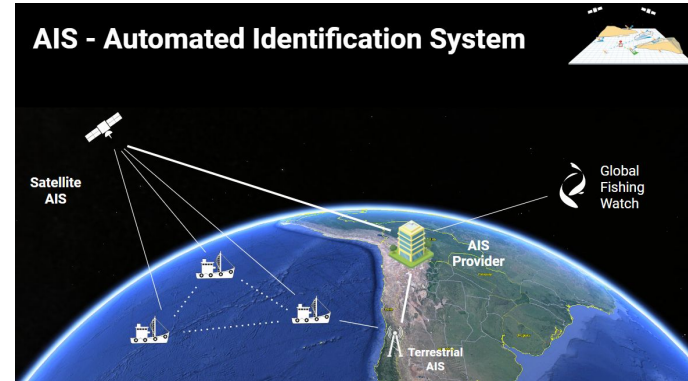
Trawl Longline Purse Seine

Machine learning algorithms can differentiate types of vessels based on their GPS tracks, including fishing and non-fishing vessels

What does our platform provide?

Historic data

Several years of data across all datasets: Fishing effort, encounters between vessels, night-light vessel detections, vessel events and identity.

Near real-time data

Data published with a 72-hour delay and access to historical vessel tracks and fishing activity back to January 1, 2012.

Easy to use

Designed so both experts and non-experts can see and assess fishing activity and track individual vessels over time.

Accessible and free

Freely available to anyone with an internet connection; easy to access and use, developed to run on mid-level computers and with a low data consumption.

Our data

Vessel activity

Fishing effort, ports and voyages and transhipment identified from AIS/VMS data by GFW algorithms.

Vessel identity

Comprehensive vessel information (MMSI, flag, gear type, length, authorizations, etc.) for all vessels listed on public vessel registries.

Vessel insights

Potential risks such as IUU blacklisting, forced labour, incursions into MPAs, potentially unauthorized events.
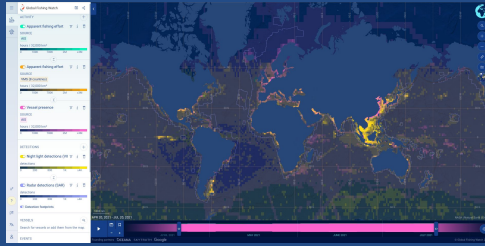
Vessel detection

AKA dark targets. Detection of vessels not broadcasting AIS or VMS through use of satellite imagery.
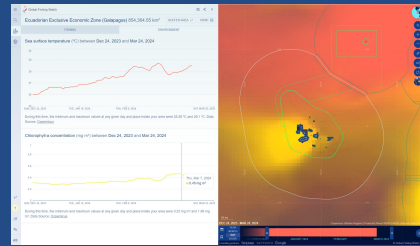
Global Fishing Watch
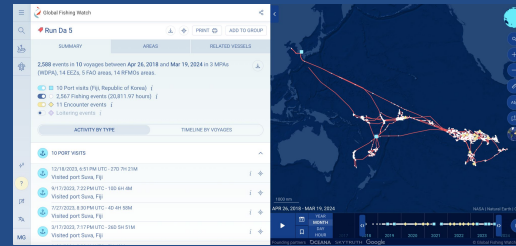
Our Tools - Platform

Global Fishing Watch Map

Open-access online tool for visualization and analysis of vessel-based human activity at sea.
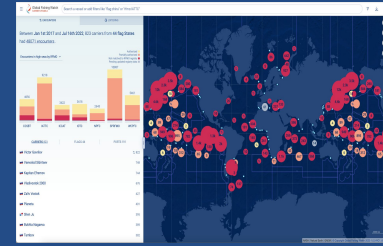
Marine Manager

Dynamic, and interactive data on ocean conditions, biology, and human-use activity to support MPA management.

Vessel Viewer

Vessel identity and history profiles, in collaboration with TMT.

Carrier Vessels

Providing greater transparency of transshipment at sea.

Global Fishing Watch

Interactive exercise
Part 1

Global Fishing Watch

Vessel Viewer

- Launched in 2021 with TMT and developed with a group of pilot countries.

- Objective to provide authorities with the information needed to conduct a rapid review of the recent operations and compliance risk of a fishing vessel entering port (e.g., Advanced Request for Entry to Port, or 'AREP', process)

Ports **Supply chain** **Insurance**

Vessel Identity

Number of changes and historical data

- Name
- IMO
- MMSI
- Call Sign
- Flag
- Photo
- Owner
- Operator
- Vessel Type

- Gear Type
- Gross tonnage
- Length
- Depth
- Authorizations
- Transmission Dates
- Year built

Vessel activity

Encounters

Loitering

Fishing activity

Port visits

Likely disabling events (AIS)

TMT　Global Fishing Watch

Transshipment Indicators

Encounters

Loitering

Behaviour that could indicate transshipment activity can be checked against authorisation information

Fishing Indicator

Fishing activity

The location of fishing activity identified from the vessels tracking data can be used to cross check reported catch locations and fishing authorisations

TMT   Global Fishing Watch

Port Visit Indicator

Port visits

Vessel port visit history can be used to cross check what is reported by the vessel

AIS Disabling Event

Likely disabling events (AIS)

AIS switching off events can be considered a risk indicator and long unexplained switching off events can be prioritised for inspection in port

TMT Global Fishing Watch

Flag Change

ID

Vessel identity changes

AIS switching off events can be considered a risk indicator and long unexplained switching off events can be prioritised for inspection in port

TMT Global Fishing Watch

Global Fishing Watch

🏴 Lake Aurora, a.k.a. Sh[...]

PRINT 🖨   ADD TO VESSEL GROUP

Registry info

REGISTRY   AIS *i*

AIS info

DATES
Dec 28, 2019 - Sep 9, 2024

Identity information sent by vessel

NAME	FLAG
Lake Aurora	Republic of Korea

MMSI	IMO	CALL SIGN
441258000	9194892	D7UQ

GFW VESSEL TYPE *i*   GFW GEAR TYPE *i*
Carrier   Carrier

Predicted type of fishing from GFW modeling

Dec 28, 2019 - Sep 9, 2024

SUMMARY	AREAS	RELATED VESSELS	INSIGHTS

2 events in 2 voyages between May 1, 2024 and Sep 1, 2024 in 2 EEZs, 2 FAO areas, 4 RFMOs areas.

- 2 Port visits (Republic of Korea, Papua New Guinea) *i*
- Fishing events *i*
- 0 Encounter events *i*
- Loitering events *i*

Summary of different vessel activities automatically detected from GFW models

ACTIVITY BY TYPE   TIMELINE BY VOYAGES

⚓ 2 PORT VISITS

Vessel track visualization with different types of events

300 nm

MAY 1, 2024 - SEP 1, 2024

29.4409 156.5488
29°26'27.11"N 156°32'55.83"E

▶   YEAR / **MONTH** / DAY / HOUR   APRIL   MAY   JUNE   JULY   AUGUST   SEPTEMBER

Founding partners   OCEANA   SKYTRUTH   Google   © Global Fishing Watch 2024
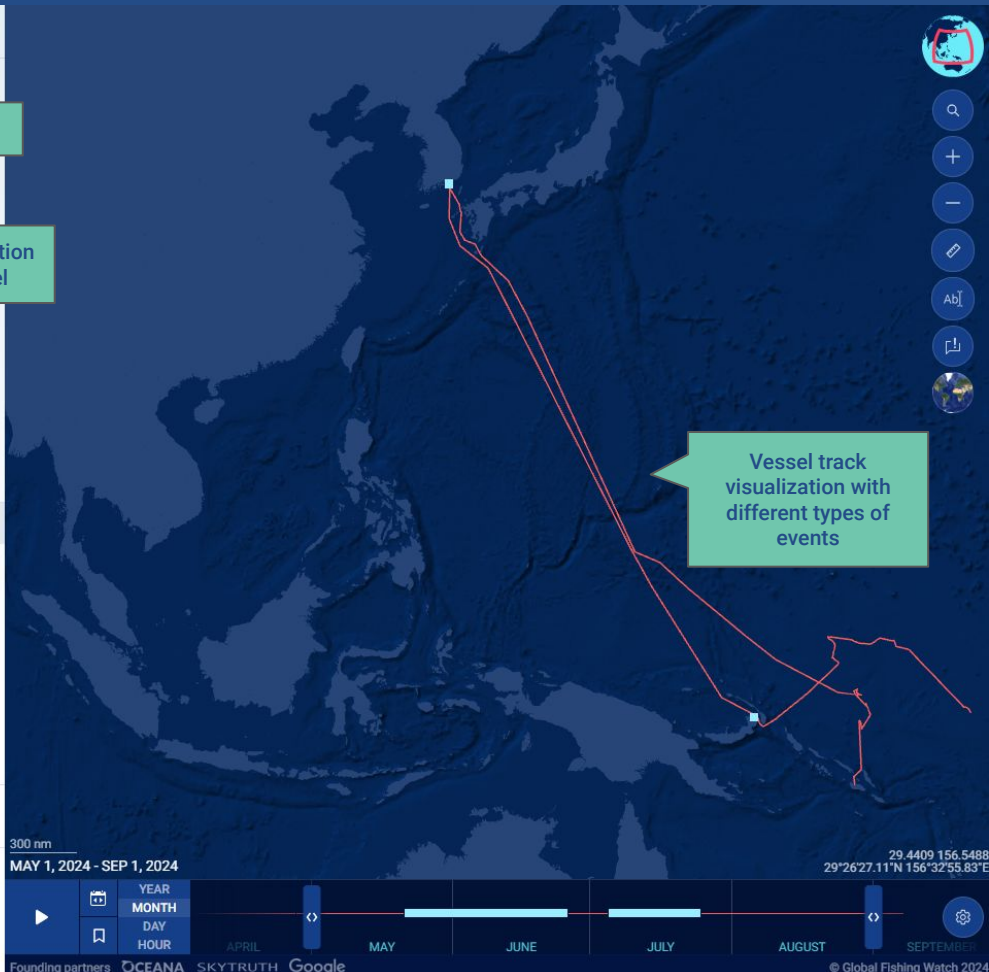
Our open data and tools are being used to strengthen key areas of fisheries monitoring, control and surveillance (MCS)

IUU fishing risk assessment

Transshipment monitoring

Port control implementation

Marine protected area monitoring

MCS operational support

Capacity Development & Technology Transfer

Needs driven

Produced collaboratively with country partners and regional agencies

Examples:

- Helping establish mechanisms for interagency collaboration
- Development of SOPs for Panama
- Improvement of PSMA implementation in Africa and Latin America
- Training to apply tools effectively in PNG, Latin America, Africa and Mediterranean

REPÚBLICA DE PANAMÁ
— GOBIERNO NACIONAL —

MINISTERIO DE
DESARROLLO AGROPECUARIO

ARAP
Autoridad de los Recursos Acuáticos de Panamá

11-10-2022

REPÚBLICA DE PANAMÁ

AUTORIDAD DE LOS RECURSOS ACUÁTICOS DE PANAMÁ

Joint Analytical Cell: A transformative collaboration

Recognises that collaborations were happening but in isolation of each other.

Seeks to use available data, tools and technologies more effectively to provide higher quality and more powerful analysis

Drives more cost-efficient mechanisms to ensure actionable data is available to those who need it most to improve ocean stewardship.

Thank you

Global Fishing Watch

Interactive exercise
Part 2

Global Fishing Watch