Global Fishing Watch data for high seas squid fisheries

February 2026

Global Fishing Watch

Speaker

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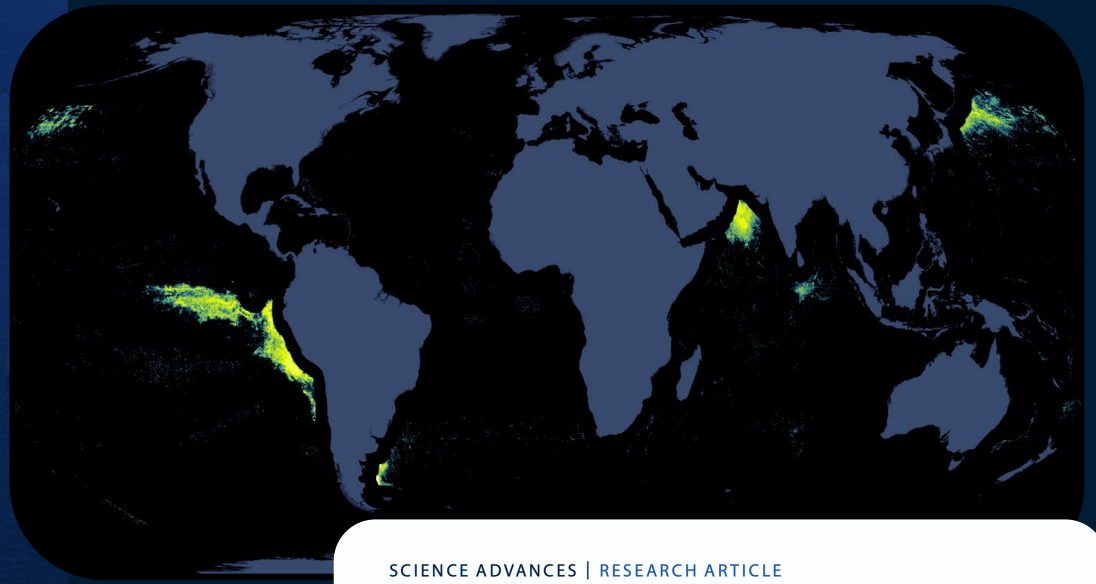
環境政策学講座 海洋経済・政策分野

Global Fishing Watch

- Intro to GFW
- How our data is created
- GFW data to understand the squid fleet:
  - Fishing effort
  - Vessel detections
  - Fleet movements

Seto et. al 2023



SCIENCE ADVANCES | RESEARCH ARTICLE

SCIENCE POLICY

Fishing through the cracks: The unregulated nature of global squid fisheries

Katherine L. Seto[1]*, Nathan A. Miller[2,3], David Kroodsma[2], Quentin Hanich[4], Masanori Miyahara[5], Rui Saito[5], Kristina Boerder[6], Masaki Tsuda[2,5], Yoshioki Oozeki[5], Osvaldo Urrutia S.[7]

Global Fishing Watch

Our Mission

Advance ocean governance through increased transparency of human activity at sea

Use cutting-edge technology to turn big data into actionable information

Create and publicly share map visualizations, data and analysis tools

Accelerate science and drive fairer, smarter policies and practices and assist in protecting biodiversity, fisheries and livelihoods

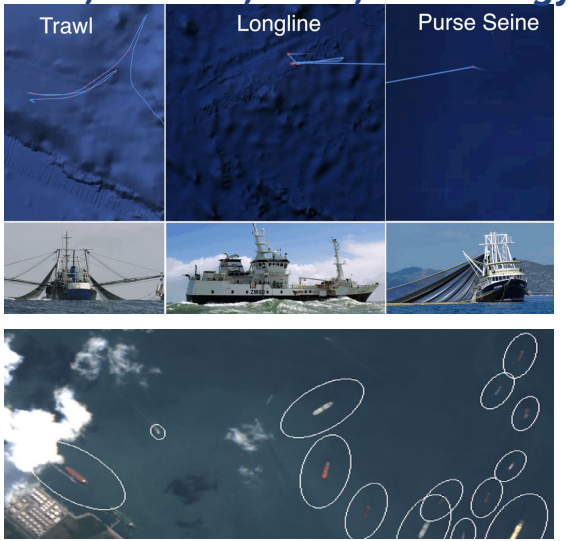
Global team of experts

130+ GFW Staff in 25+ Countries

Policy, program managers

Data scientists, engineers, product roles

Data, science, tools, technology



Petabytes of data processed

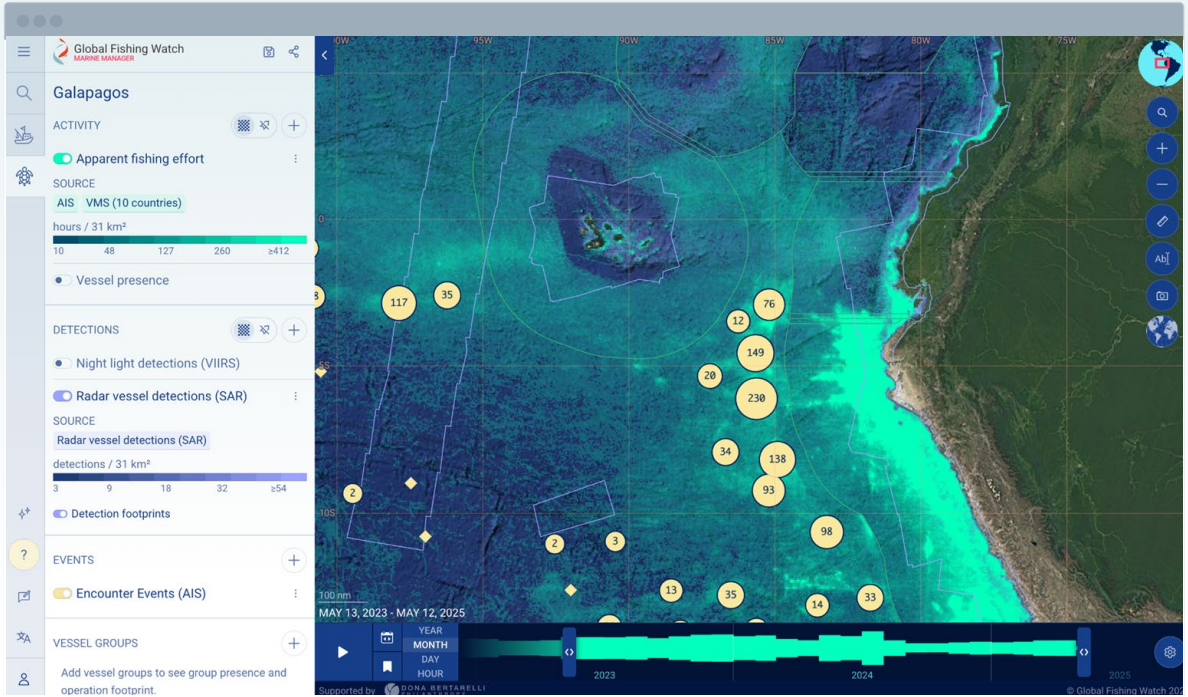
Machine learning pipelines

Digital online tooling and maps

Data accessible via API, python, packages

GFW data is used globally for MCS, policy, and research

Open data and tooling



53K data and platform users from **200+** Countries & Territories

Publications and research partnerships

RESEARCH ARTICLE | MARINE PROTECTED AREAS

Little-to-no industrial fishing occurs in fully and highly protected marine areas

JENNIFER RAYNOR, SARA OROFINO, CHRISTOPHER COSTELLO, GAVIN MCDONALD, JUAN MAYORGA, AND ENRIC SALA Authors Info &

Article | Open access | Published: 24 November 2024

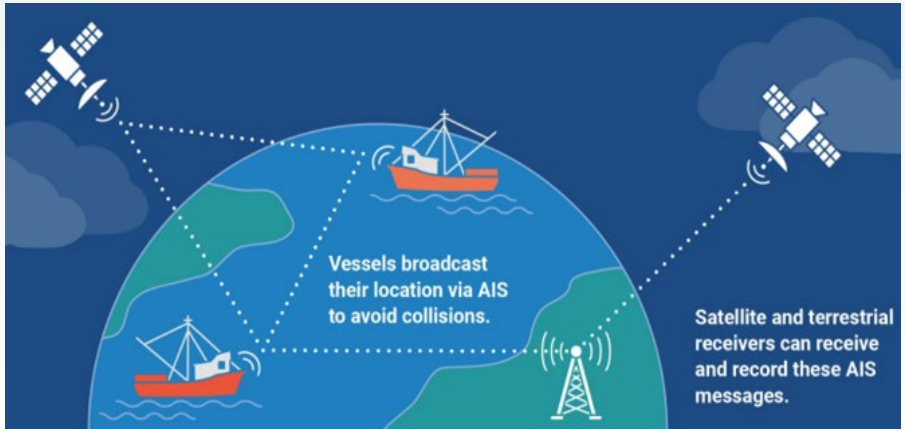
A global assessment of preferential access areas for small-scale fisheries

Xavier Basurto, John Virdin, Nicole Franz, Sarah DeLand, Bea Smith, Jesse Cleary, Tibor Vegh & Patrick Halpin

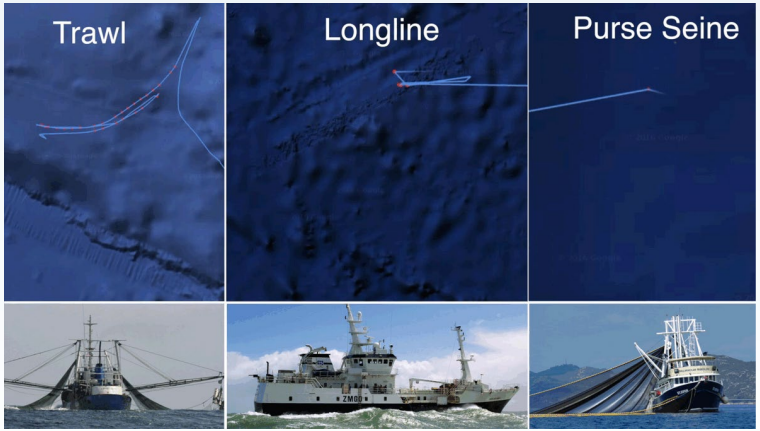
73+ publications and **6,500+** citations

Vessel positions are at the core of GFW's data

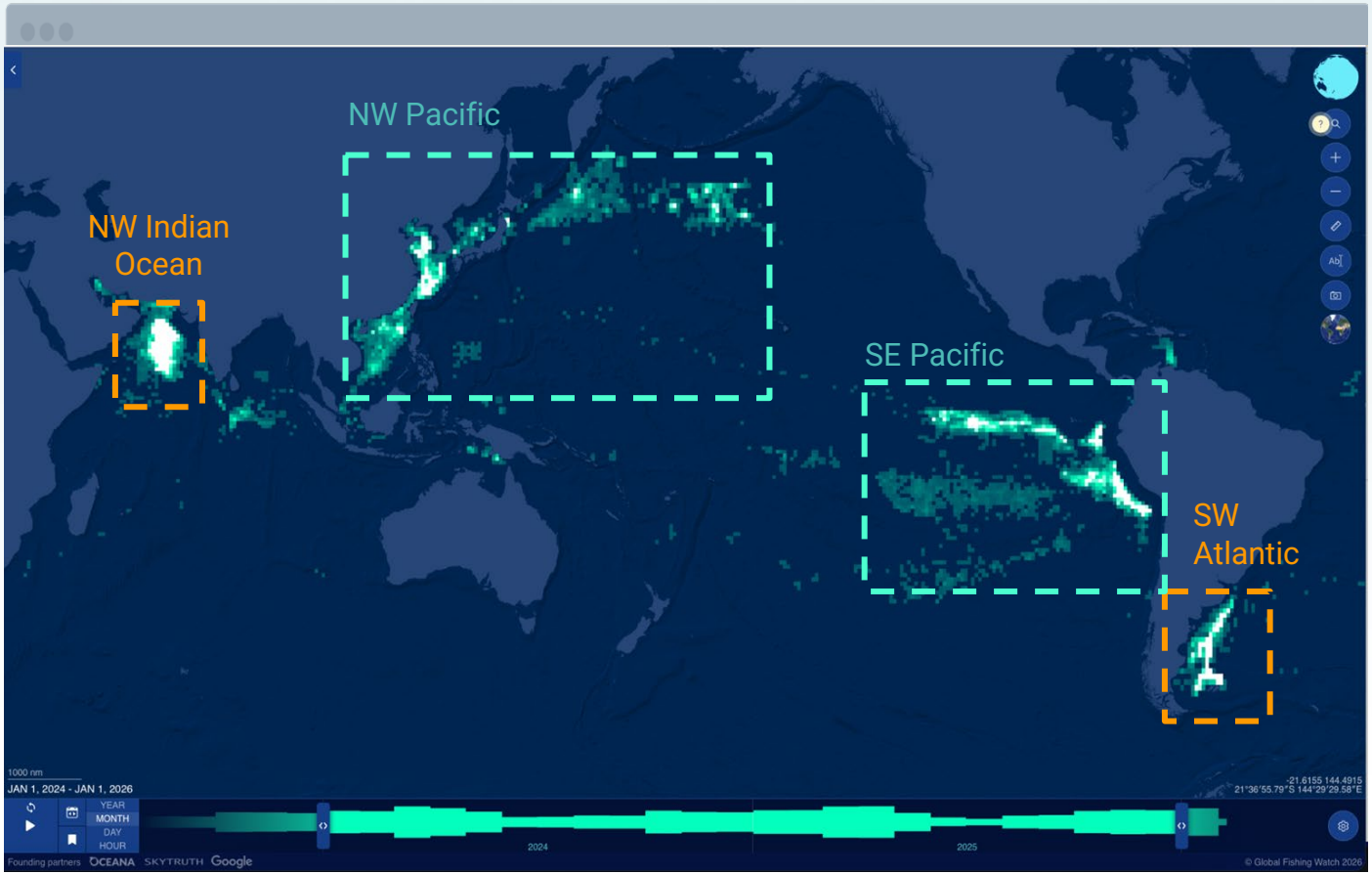
Vessels broadcast their location- satellite and terrestrial **receivers record positions**



Machine learning models interpret tracks, identify when apparent fishing is happening, and what gear is likely being used



Apparent squid jigging fishing effort from AIS data



Satellite images allow us to “see” vessels not transmitting positions, and track changes separate from AIS adoption/reception

Best data sources depend on what we are looking for, and where

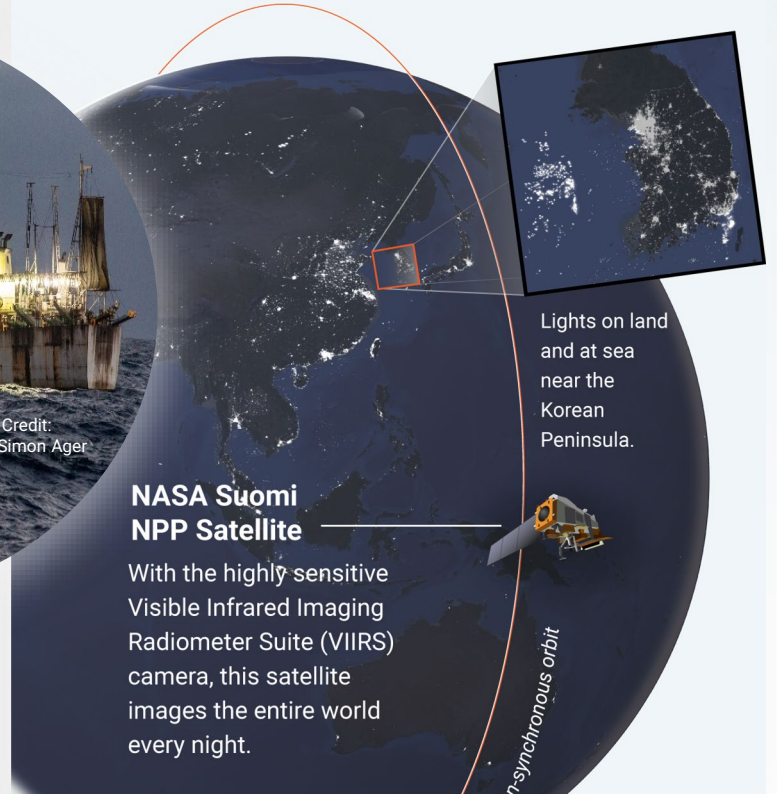
RADAR-
Able to see through clouds

Night Lights-
Daily, global coverage

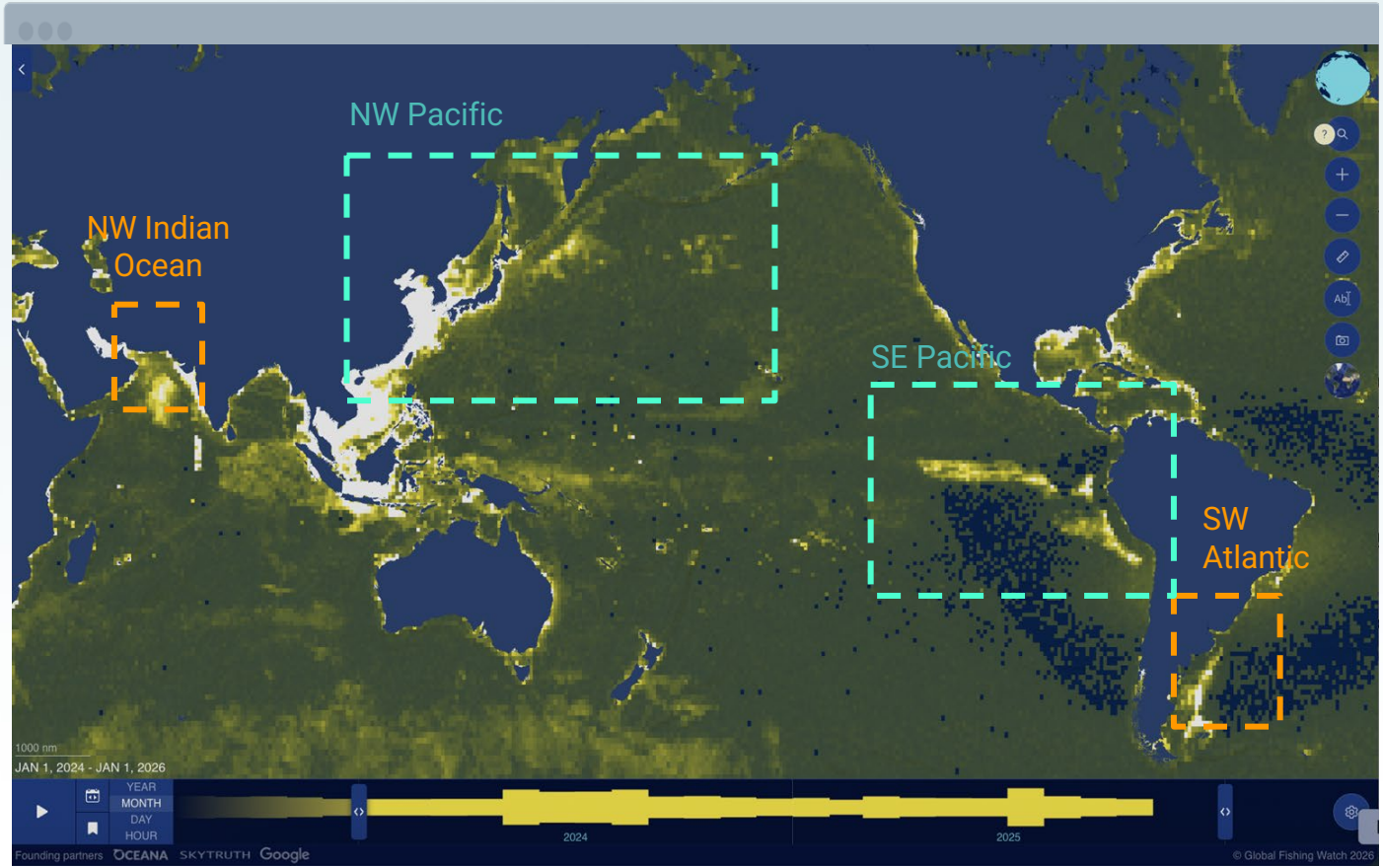
Optical Imagery-
Available in very high-resolution

Industrial Squid Jiggers

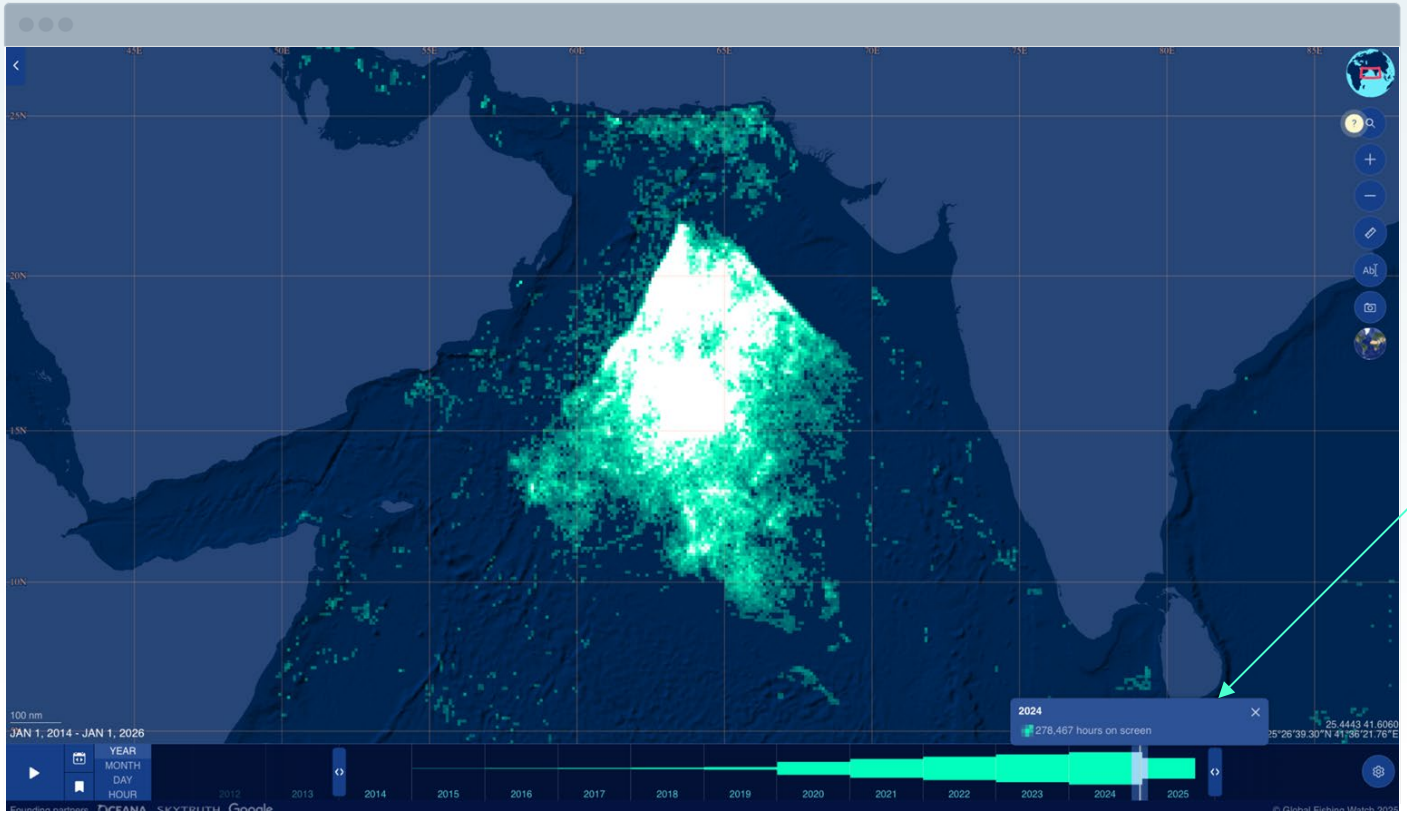
Large, metal vessels that use bright lights as attractants



Detections of vessels from night lights

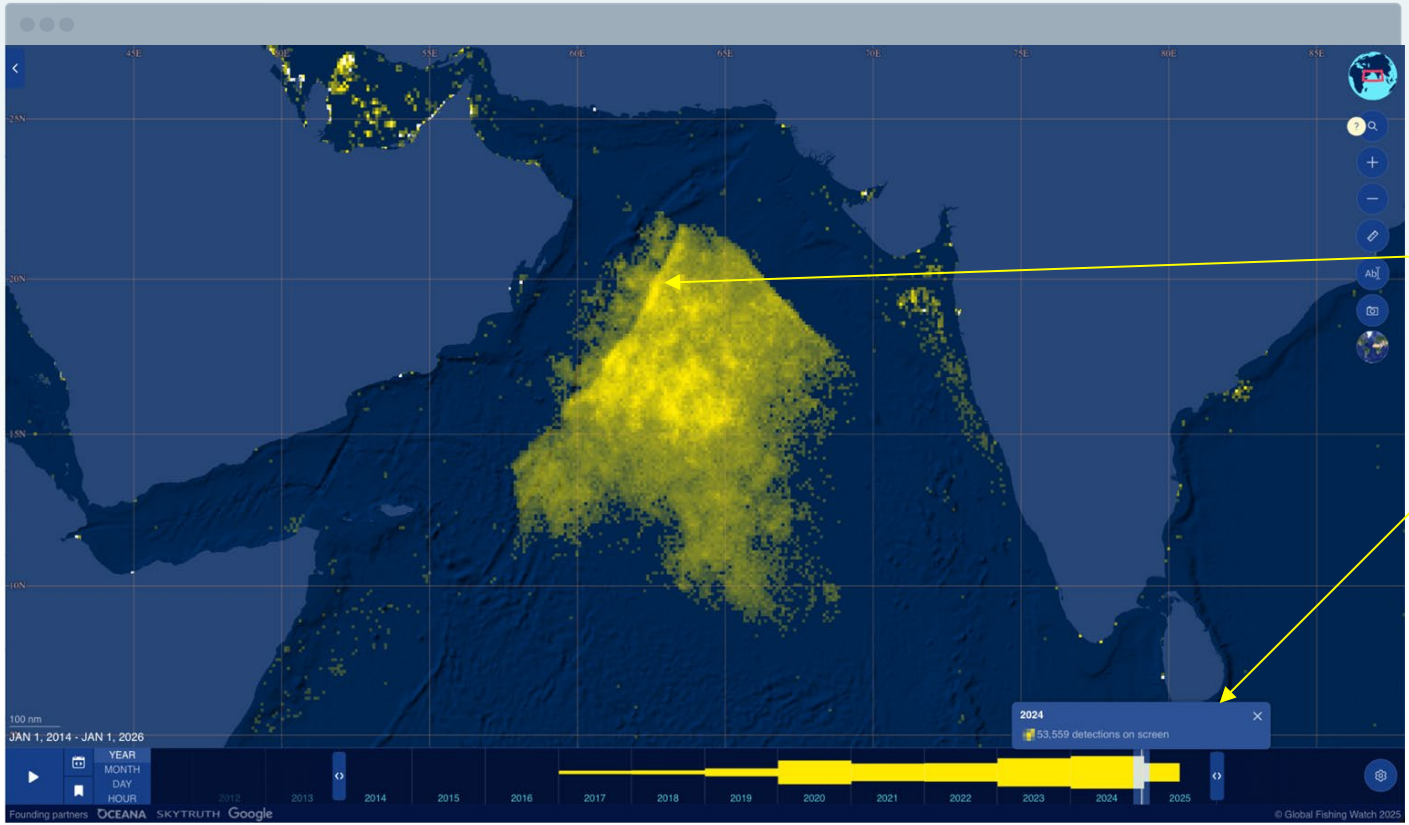


Apparent fishing effort in NW Indian ocean based on AIS data is focused within the high seas, and appears to be increasing over time



Increasing apparent fishing effort, driven by a mix of AIS adoption/ reception and new vessels

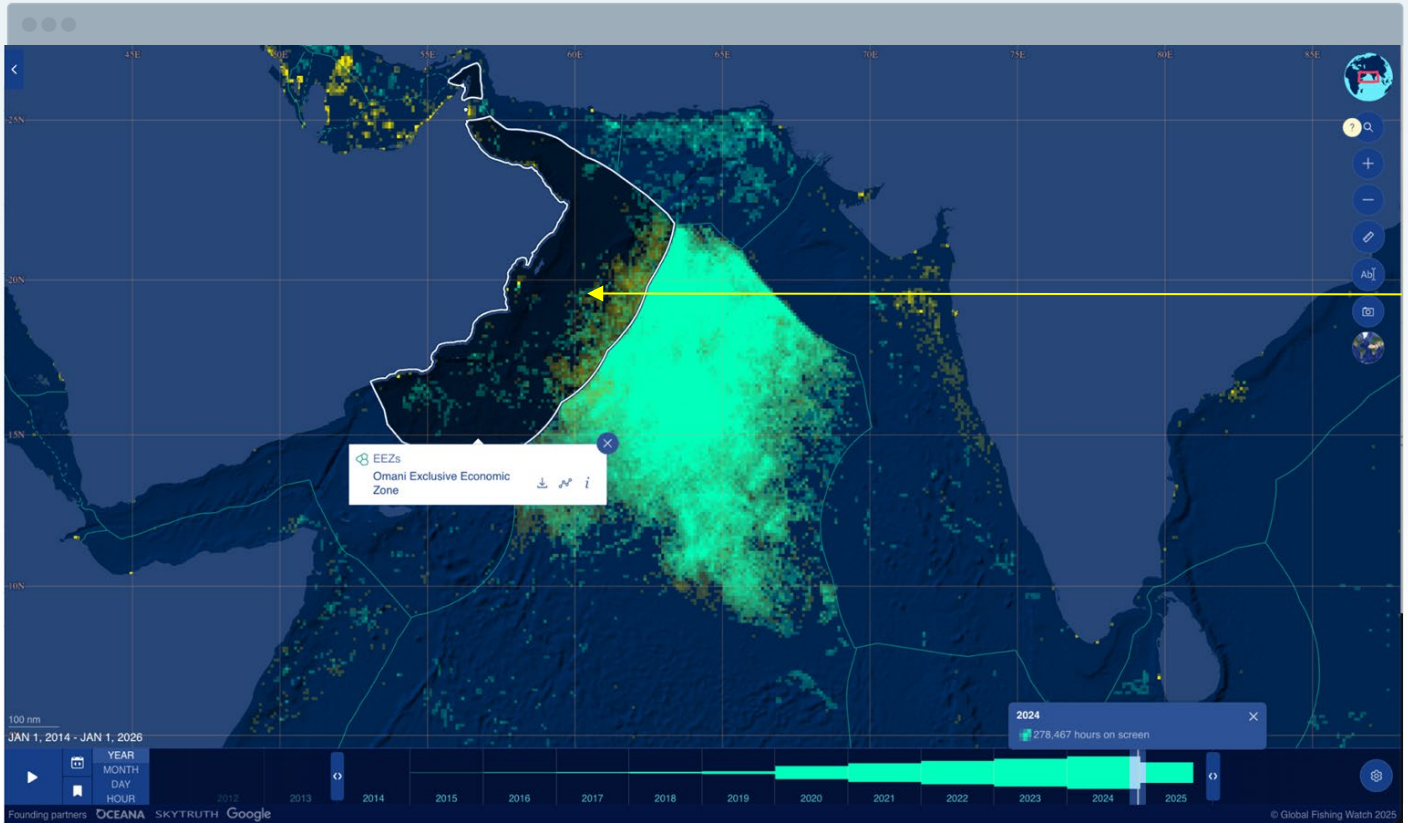
Looking at vessel detections based on night lights (likely squid jiggers), a larger “footprint” appears



Strong “border effect” along EEZ and spillover

Increase in night lights also seen in imagery data, but slower

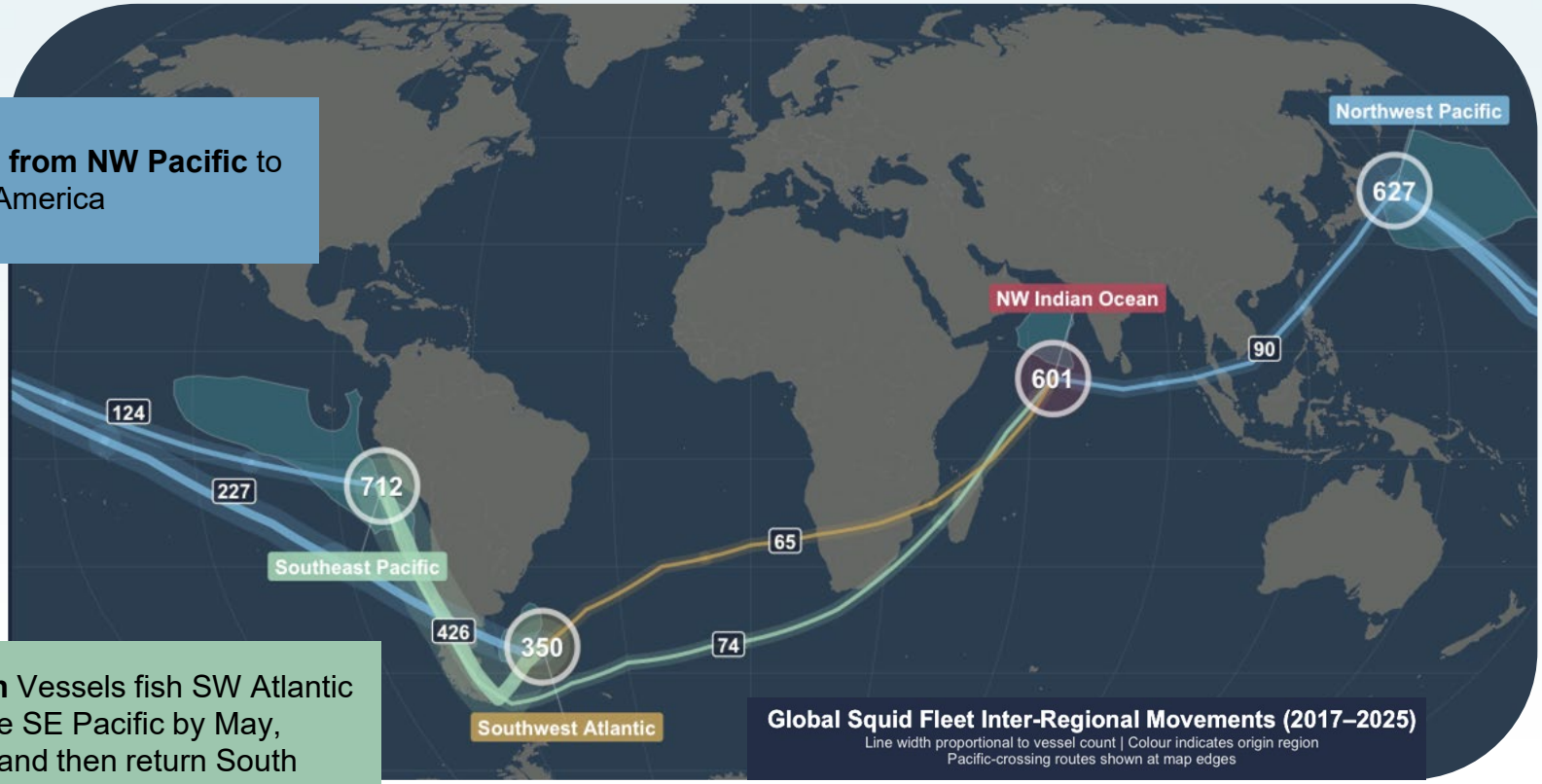
When you overlap the two…



Likely fishing in EEZ by ships with their AIS off

A global distant water fleet, with cross-regional and seasonal movements

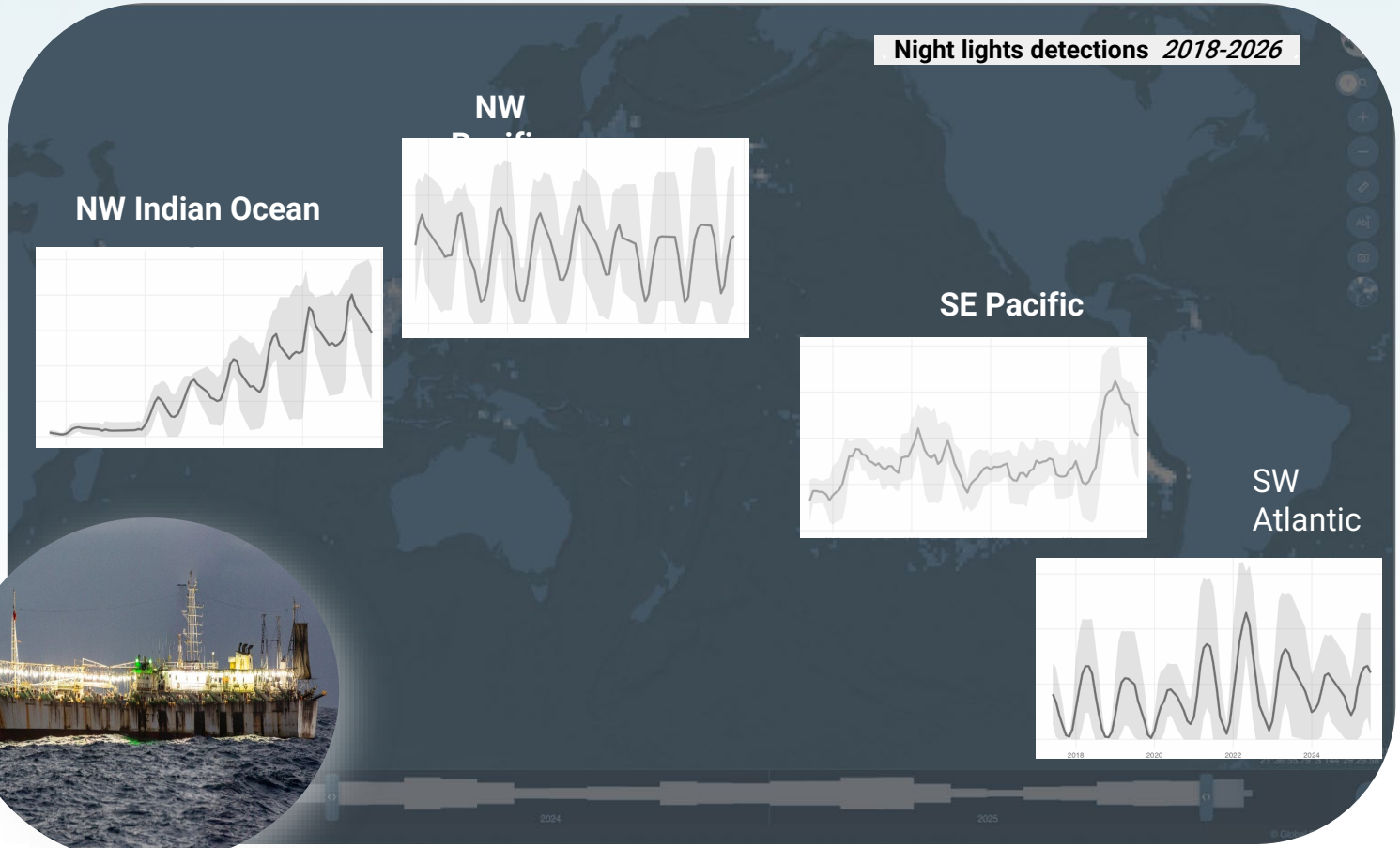
Influx of vessels from NW Pacific to waters off South America



Seasonal pattern Vessels fish SW Atlantic Jan-Apr, reach the SE Pacific by May, travel N by Sept, and then return South


2020 January

Looking for changes in night lights to see long-term trends



Credit:
Simon Ager

High seasonal variability

Increase in night lights in NW Indian ocean

Recent surge in SE Pacific in 2025

GFW transparency tools: map, reports, and vessel information

Custom regions & time periods

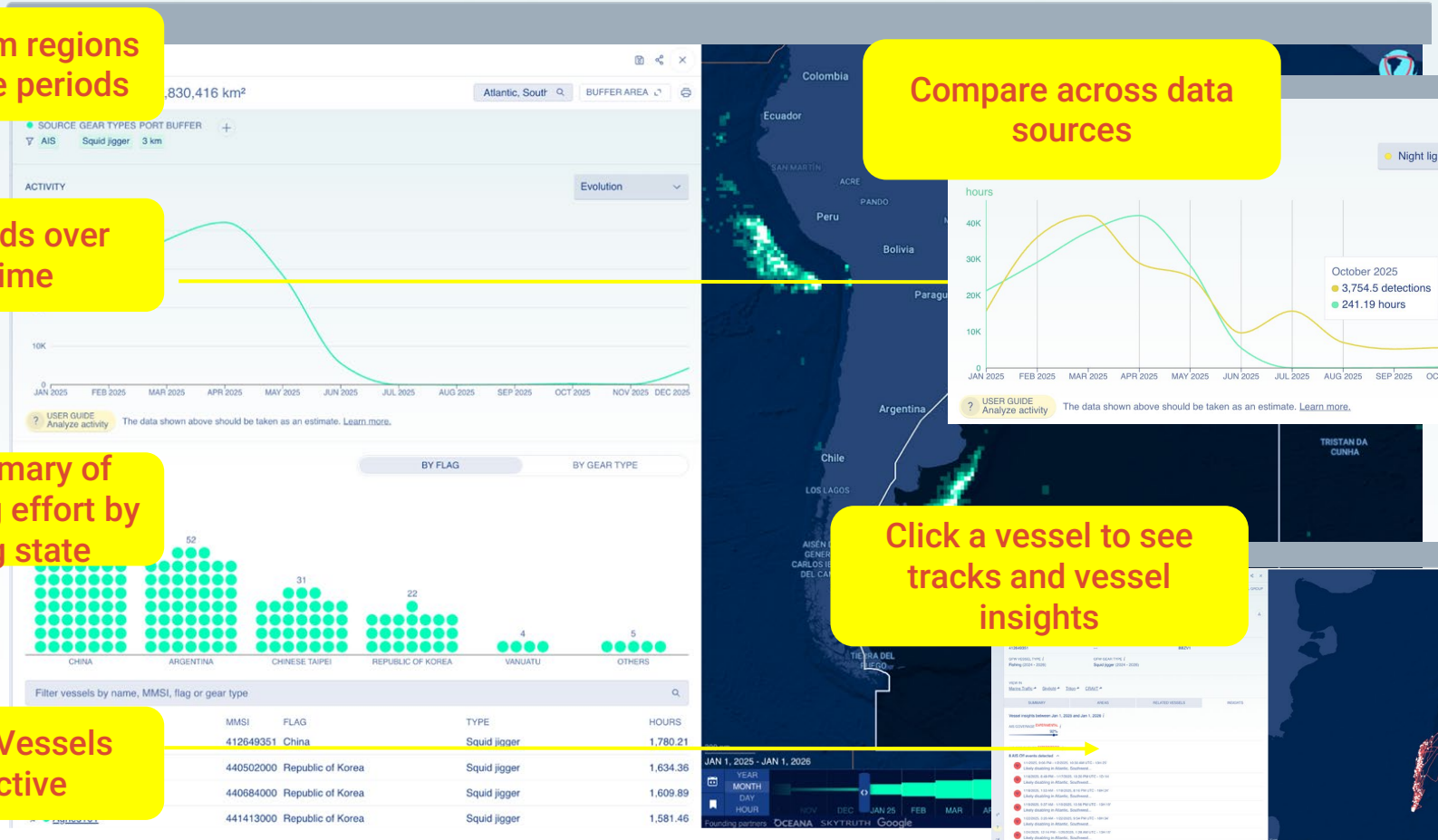
Trends over time

Summary of fishing effort by flag state

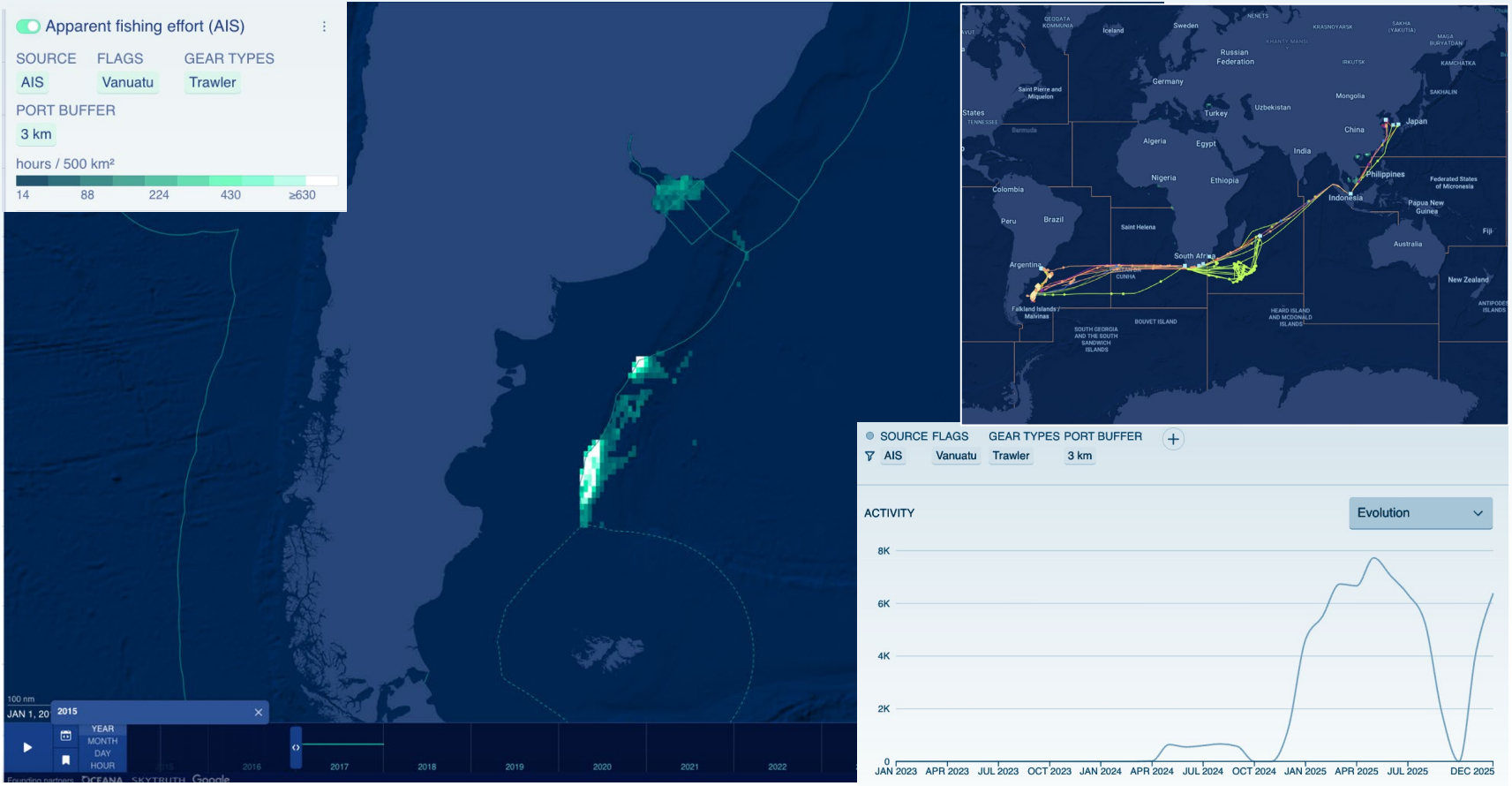
Top Vessels Active

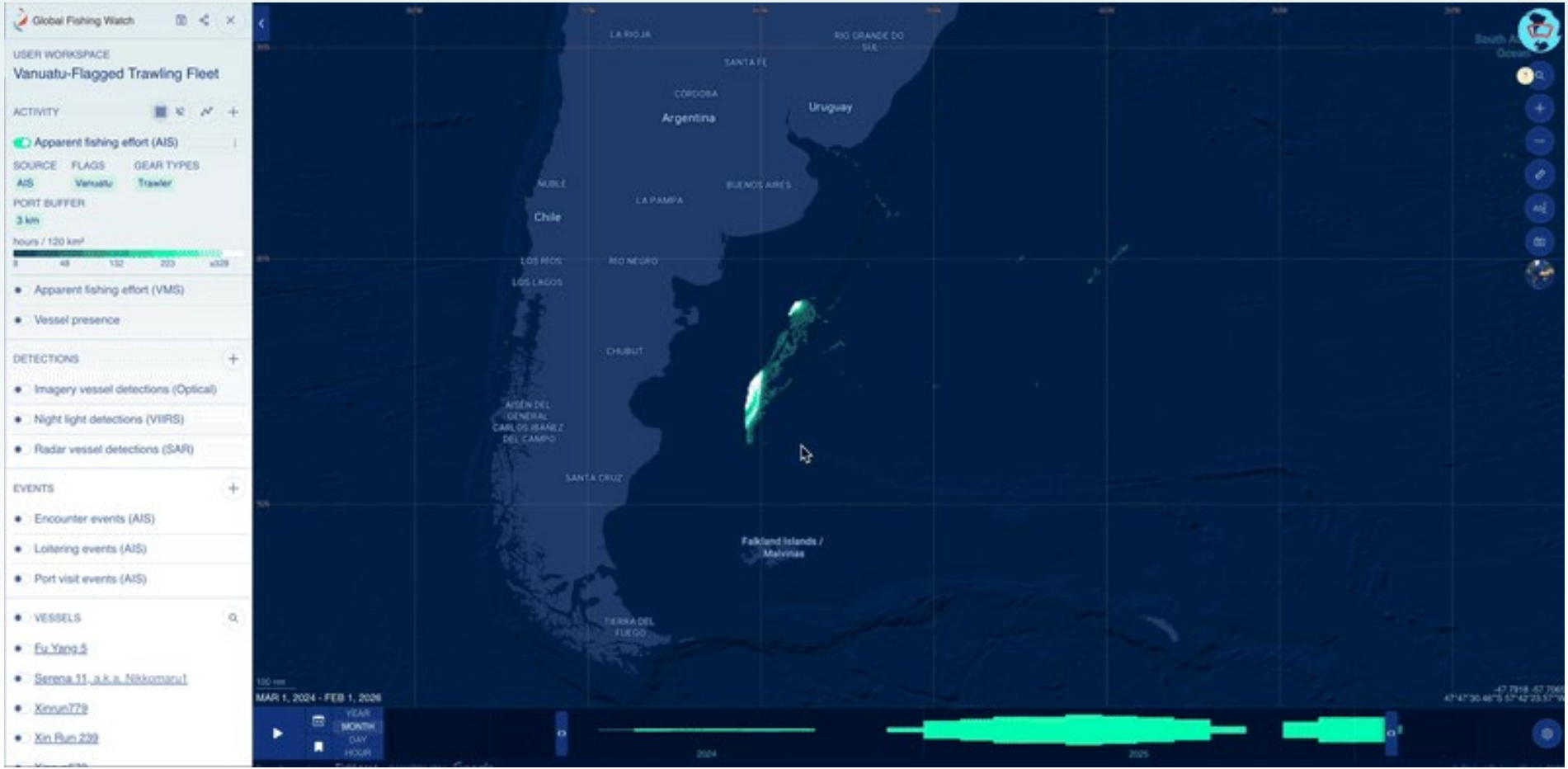
Compare across data sources

Click a vessel to see tracks and vessel insights



A new trawler fleet is now operating in the SW Atlantic, flagging in open registries such as Vanuatu




Global Fishing Watch
USER WORKSPACE
Vanuatu-Flagged Trawling Fleet
ACTIVITY
Apparent fishing effort (AIS)
SOURCE
AIS
FLAGS
Vanuatu
GEAR TYPES
Trawler
PORT BUFFER
3 km
hours / 120 km²
0
48
132
223
≥328
Apparent fishing effort (VMS)
Vessel presence
DETECTIONS
Imagery vessel detections (Optical)
Night light detections (VIIRS)
Radar vessel detections (SAR)
EVENTS
Encounter events (AIS)
Loitering events (AIS)
Port visit events (AIS)
VESSELS
Fu Yang 5
Serena 11, a.k.a. Nikkomaru1
Xinyun779
Xin Run 239
LA RIOJA
RIO GRANDE DO SUL
SANTA FE
CÓRDOBA
Argentina
Uruguay
ÑUBLE
BUENOS AIRES
LA PAMPA
Chile
LOS RIOS
RIO NEGRO
LOS LAGOS
CHUBUT
AISÉN DEL GENERAL CARLOS IBÁÑEZ DEL CAMPO
SANTA CRUZ
Falkland Islands / Malvinas
TIERRA DEL FUEGO
100 mi
MAR 1, 2024 - FEB 1, 2026
YEAR
MONTH
DAY
HOUR
2024
2025

Thank you

For questions, and to receive a link to a workspace showcasing these vessel movements, please follow up with us:

research@globalfishingwatch.org

Global Fishing Watch