

# Global Fishing Watch

*Vessel tracking and transparency in the fisheries sector*

Luca Marsaglia

Fisheries Analyst

*Fish X Conference, Brussels, Belgium*

# Who we are

Founded via collaboration between  
Google, Oceana, and SkyTruth 2015

Established as a nonprofit in 2017

Unique mix of machine learning  
engineers, data visualization  
experts, fisheries scientists and  
marine policy experts





70+ Staff; 20+ Countries; 22 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 Strategy

- **Map all human activity at sea**
- **Engage national governments to use open data and adopt transparency to strengthen informed and equitable decision making**
- **Promote transparency in international policies and forums**

# Protecting the rights of small-scale fishers

## Emerging areas of work for small-scale fisheries



### Mapping areas designated for small-scale fishers to reduce threats

We will map all the areas designated for small-scale fishers and coastal communities and will support management measures to protect these areas and ensure no illegal intrusions from large-scale vessels happen.



### Optical imagery

We will use optical imagery in highly vulnerable coastal communities to identify patterns of fishing practices and behaviors. This will help small-scale fishers enhance governance mechanisms and plans.



### Transparency principles

We will co-develop Transparency Principles for small-scale fisheries to foster accountability, enhance participation in decision-making, and achieve equity in terms of access to resources.



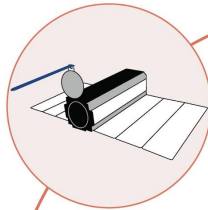
### Monitoring and tracking

We will conduct a large scale pilot of tracking devices in areas where there is demand and need from both governments and communities to complement enforcement and management efforts.

# Combining different vessel tracking & detection technologies

## Optical Imagery

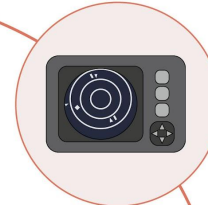
Daytime, high-resolution optical imagery can be used to visually identify vessels



Optical Images

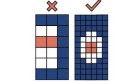


Track movements



## AIS

Automatic Identification Systems (AIS) is a collision avoidance system that constantly transmits a vessel's location at sea and can be used to identify and track fishing vessels



High Resolution



Identify vessels



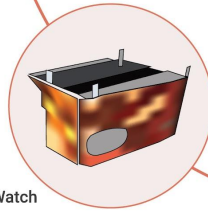
Detect lights



Penetrate clouds

## Night-time Light

Night-time optical imagery (VIIRS) picks up the presence of fishing vessels using lights to attract catch or conduct operations at night



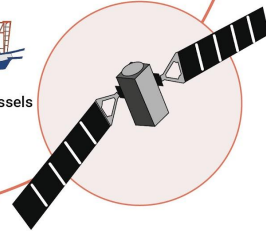
Global daily coverage



Identify metal vessels

## Radar

Radar images (SAR) can identify large metal vessels and penetrate clouds



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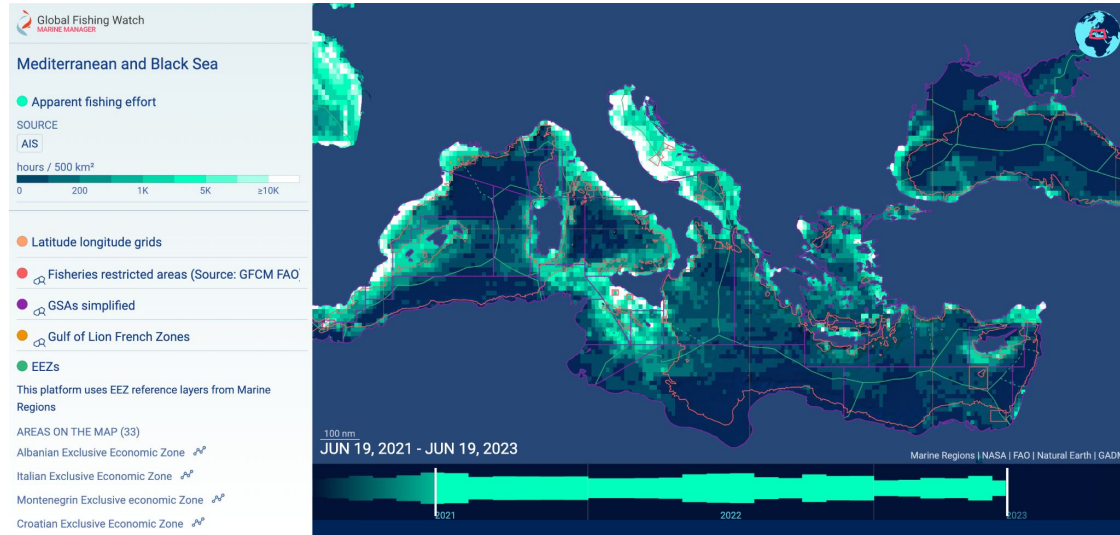
Simulation



# Mediterranean Projects

# The Mediterranean Marine Manager

[Global Fishing Watch Mediterranean Marine Manager](#) is an innovative technology portal that seeks to improve insight into marine areas of the Mediterranean region. By monitoring the quality, efficiency and impact of long-term measures, such as GFCM Fisheries Restricted Areas, the Marine Manager aims to ensure robust and science-based management of protected areas and acknowledge the vital contributions they make to our ocean.



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# Analyses of Vulnerable Marine Ecosystems FRAs in GFCM area

Global Fishing Watch carried an analysis for the three VMEs Fisheries Restricted Area in GFCM area application using a combination of AIS and satellite imagery data.

The reports are available [Med page on GFW website](#)

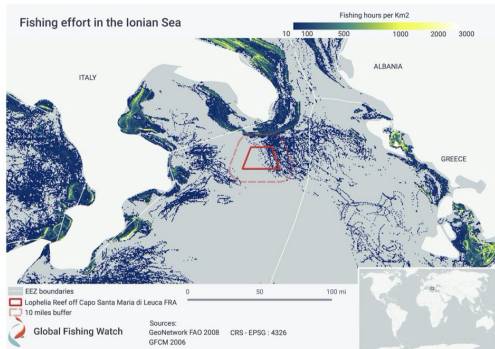


Figure 1. Level of fishing effort from AIS data represented by fishing hours per square kilometer. The red square in the figure corresponds to the borders of the Lophelia reef FRA while the lighter red dashed box corresponds to a 10-mile buffer area around the FRA.

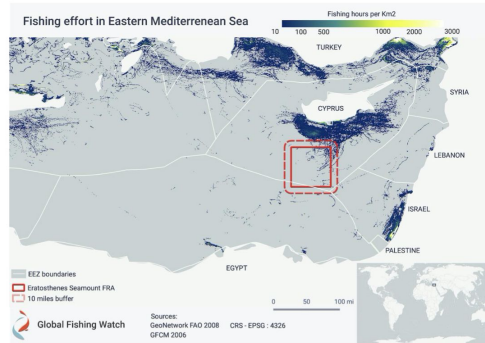


Figure 1. Level of fishing effort from AIS data represented by fishing hours per square kilometer. The red square in the figure corresponds to the borders of the Eratosthenes Seamount FRA while the lighter red dashed box corresponds to a 10-mile buffer area around the FRA.

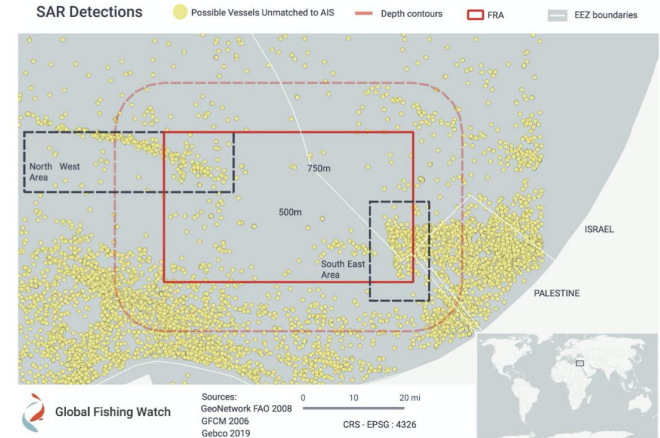


Figure 4. SAR detections that are unmatched to any AIS records for the Nile Delta FRA. The red rectangle represents the Nile Delta FRA whereas the lighter red dashed box corresponds to a 10-mile buffer around the FRA.



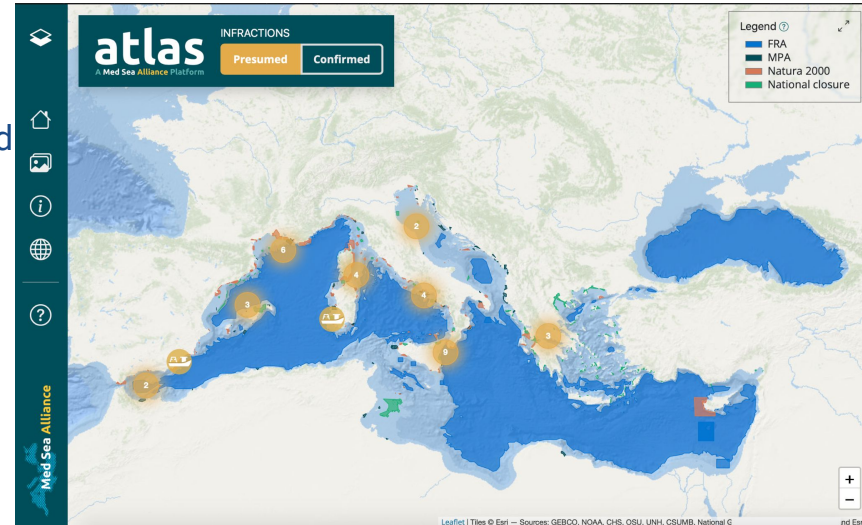
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# Med Sea Alliance Atlas

Global Fishing Watch played a key part in the creation of the Med Sea Alliance [ATLAS](#) and presented this new tool at UN Ocean Conference in Lisbon.

We have carried AIS apparent fishing analysis of over 700 protected areas in the Mediterranean where bottom trawling is prohibited.



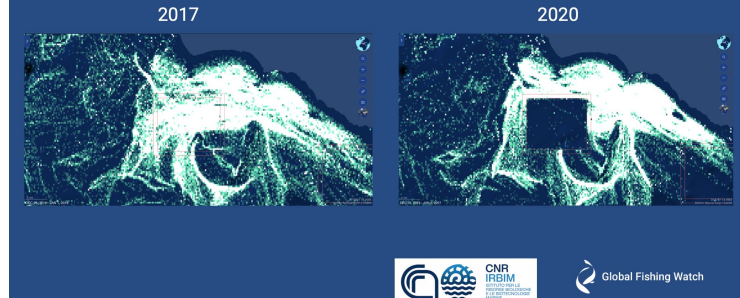
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## Preliminary analysis of bottom trawling fishing effort and abundance of HKE and DPS inside and outside the East of Adventure Bank FRA

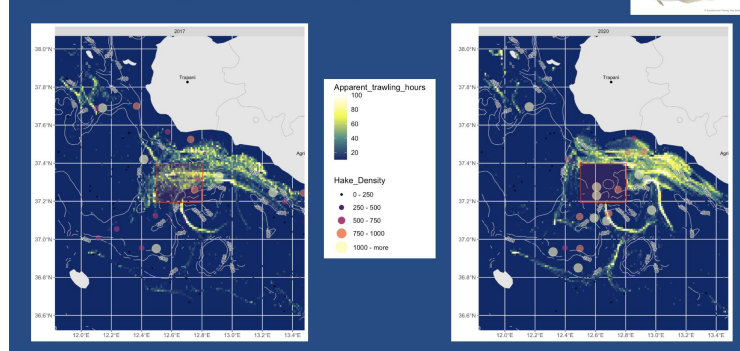
Partnered with [CNR \(Italian Research Institute\)](#) to present technical outputs at Sub - Regional Committees a Preliminary analysis of bottom trawling fishing effort and abundance of commercial species inside and outside the East of Adventure Bank Fisheries Restricted Area. There is interest from GFCM and CNR to continue collaborating on this and other aspects of applied fisheries science research such as:

- Creating a complex framework to evaluate the effectiveness of Fishery Restricted Areas at an ecological, and socio - economic level
- Perform analysis of spatial effort analysis of deep sea shrimp bottom trawling fleet in the Mediterranean particularly in relation to VME

### Evolution of apparent fishing effort inside East of Adventure Bank FRA



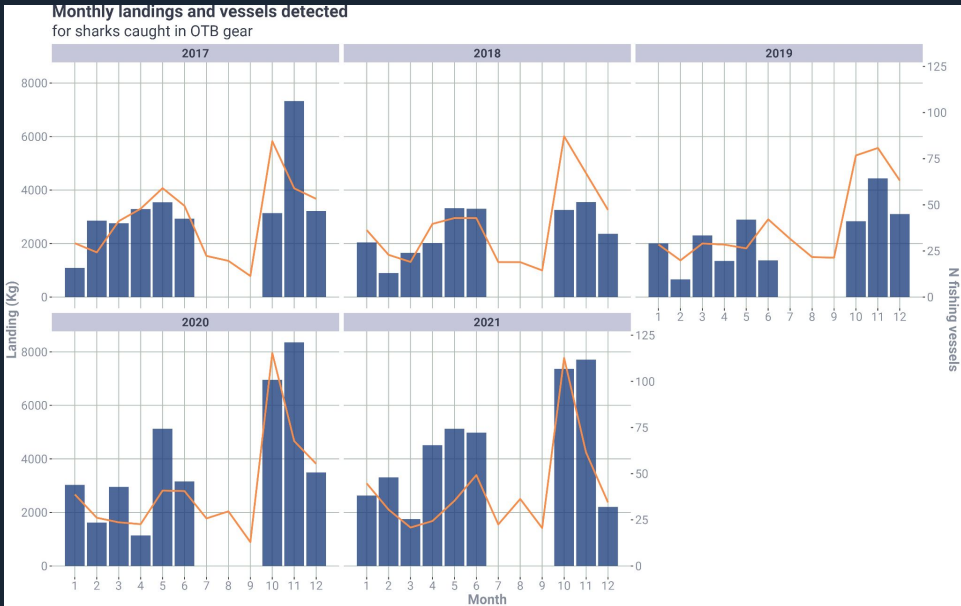
### Apparent trawling effort and density of *Merluccius merluccius*



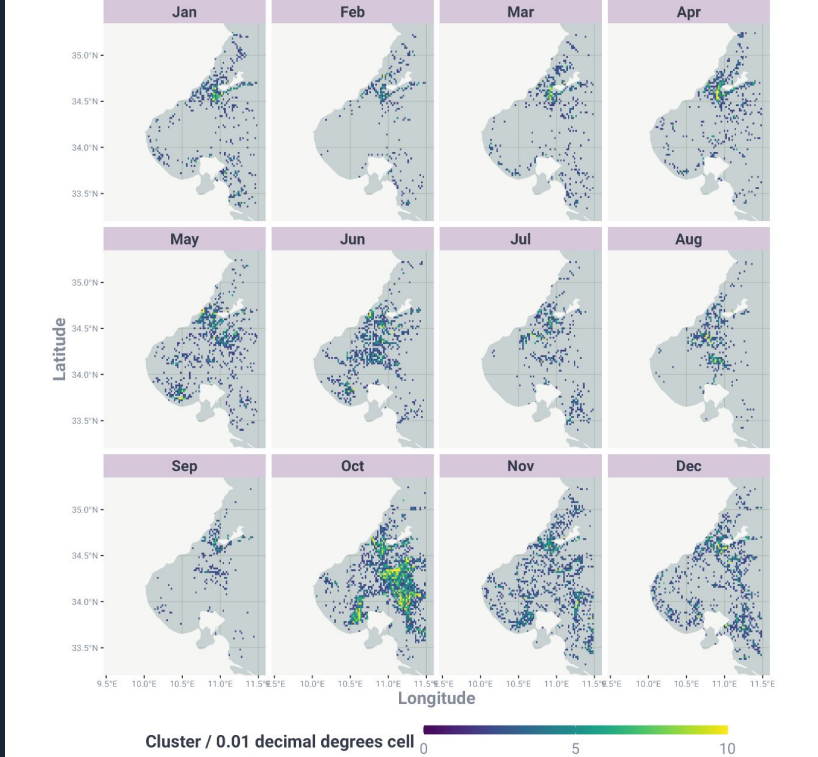
# Combining elasmobranchs landings and SAR vessel detections

## Collaboration with INSTM (Tunisia National Research Institute)

### Landing by port



### Vessel detections from SAR





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# Contributed to ICES Small Scale Fisheries and Geo-Spatial Data 2023 workshop and report

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The aim of the Workshop on Small Scale Fisheries and Geo-Spatial Data 2 (WKSSFGEO2) was to continue the work developed during WKSSFGEO, namely on analysis of the high-resolution geo-spatial data in small-scale fisheries (SSF), as well as large-scale fisheries (LSF) taking into consideration low duration fishing events.

During the workshop:

- An open database of examples of SSF across the EU with 9 full case studies from different countries, gears, geo-position recordings and temporal intervals was created
- Based on available data sources (EU FDI, ICES VMS/Logbook Data Call, Global Fishing Watch AIS) an overview of small-scale fisheries (SSF) in EU Waters, visualized in figures, maps and tables was included in the report.

## WORKSHOP ON SMALL SCALE FISHERIES AND GEO-SPATIAL DATA 2 (WKSSFGEO2)

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# Thank you

Global Fishing Watch is an international nonprofit organization dedicated to advancing ocean governance through increased transparency of human activity at sea. By creating and publicly 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.

**Discover more at [globalfishingwatch.org](https://globalfishingwatch.org)**

