Understanding fishing activity using AIS and VMS data

What’s the difference between AIS and VMS?
The Automatic Identification System (AIS) and Vessel Monitoring System (VMS) both use satellite tracking to transmit vessel locations. We use these complementary vessel tracking systems to track global fishing activity. AIS was designed as a collision avoidance tool and is required for vessels over a certain size by international law and some smaller vessels by national regulation. VMS is a bespoke fisheries management system regulated at the national and regional level. VMS data have traditionally been proprietary but governments are increasingly sharing these data publically for greater fisheries transparency.

How can I view AIS data?
Under ‘Layers’ in the toolbox, open ‘Activity Layers’ to view options for vessel activity to be displayed on the map. Fishing effort refers to AIS data.

- To activate a layer, click on the toggle to the left of the layer. The toggle will appear colored once the layer is activated.
- To change the color of the layer on the map, click the paint can, and to get more information about the layer, click the ‘i’ icon.

How can I view VMS data?
VMS data are also available under ‘Activity Layers’ and listed by country. The nature of VMS sharing means that the periodicity of each country’s data differs. Click the ‘i’ icon to learn more.

- You will see that with some of the VMS data specific vessel identifiers have been redacted. This data can only be released publically with the permission of the flag state.

What can I do with fishing activity data?

- View historic vessel tracking and fishing activity data as far back as January 2012
- Overlay with MPA, EEZ, RFMO, or other static layers to monitor fishing activity in your region of interest
- Download reports of fishing activity in your area of interest
- Filter fishing activity by flag state or gear type
- Compare AIS and VMS data
Example: Comparing AIS and VMS data

Individual vessel tracks for AIS and VMS data can be compared by pinning the vessel under both layers:

1. Turn ‘Fishing effort’ on and all other activity layers off. (A vessel search will only yield results from activity layers selected.)

2. Open the Vessels tab and search for and pin Liafjord.

3. Open the 'Layers' tab again and turn ‘Peruvian VMS Fishing Activity’ on and all other activity layers off.

4. Open the Vessels tab again and search for and pin Liafjord.

5. Open the Activity Layers and deactivate Peruvian VMS data. This will provide a clearer view of the vessel tracks.

6. In the Vessels tab, click the compass icon to center your map around the Liafjord’s activity.

7. Hit play on time slider to play the vessel tracks and AIS/VMS data.

OCCASIONAL SPURIOUS AIS TRACKS

AIS vessel tracking is an open system without encryption. Positional messages sent by vessels can be manipulated, either intentionally or through a fault in the signal. When this occurs a vessel may appear on a map in a different location to where it really is, often this is called ‘spoofing’. It is important to note that this only occurs in a very small percentage of transmissions and there are some clear signs when it does occur.

These corrupted and/or spurious positions will be seen on our map because they are being broadcast by a vessel and can inform us of an AIS transmission problem or possible ‘spoofing’ event, which can then be investigated further. Please consider any unusual fishing activity carefully to reduce the risk of any misinterpretation of the data.