Fishing Activity Indicator

Monitoring the location and intensity of fishing activities for sustainable fisheries management and provenance certification for ecolabelling

Fishing Activity Indicator offers cost-effective near real-time monitoring of both individual vessel fishing trips as well as the aggregated potential fishing effort for a very large area. The fishing trips data can be used as an independent and credible source of information for provenance certification for ecolabelling purposes. The aggregated 'fishing footprint' provides insights for sustainable fisheries management.

The Fishing Activity Indicator service can benefit the following users:

Certification Organisations

- ☑ Certify fish provenance using a reliable and independent source of data, remotely monitoring activity without human intervention (onboard observers).
- ☑ This in turn benefits the fishing companies since they can achieve a higher price for certified catch.
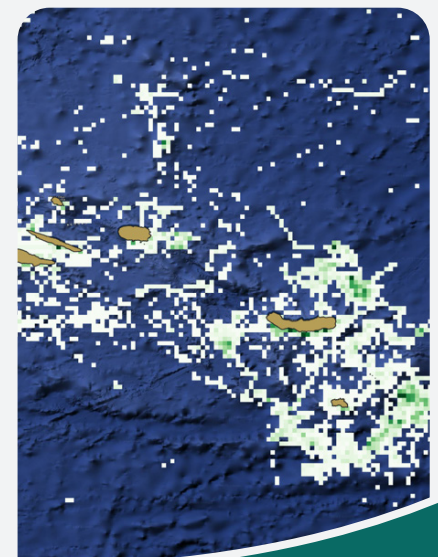
Fisheries Management Organisations

- ☑ Cost effectively monitor large areas of ocean for levels of fishing intensity historically and in near-real-time, supporting sustainable fisheries management.
- ☑ Additional ability to investigate individual vessels or fleets.

Commercial Fishing Companies

- ☑ Monitor individual vessels within the fishing fleet, to track catch locations and time spent fishing.
- ☑ Aggregated historical analysis can help to understand the most efficient areas over time (in combination with their own catch data).
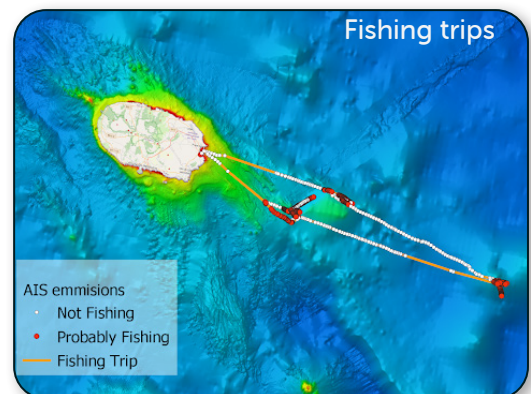
Policing and Conservation

- ☑ Monitor the intensity of fishing activities, highlighting areas of potential overfishing and protecting MPAs (identifying potential illegal fishing).

Fisheries Consultants

- ☑ Represent the interests of the fishing industry when analysing potential locations for offshore wind farms.
- ☑ Assess the areas at risk of conflict.

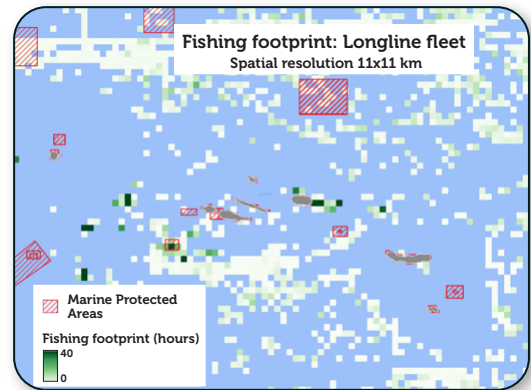*Example Fishing Footprint from the Fishing Activity Indicator service.*
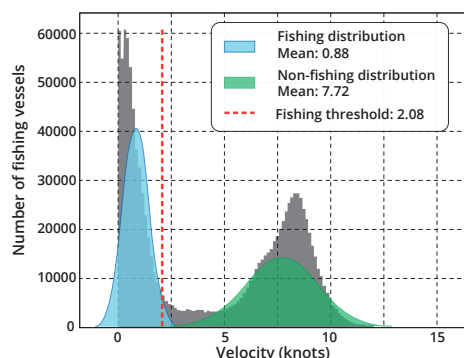
Scan or click to access NextOcean services

NextOcean v1 release. January 2024.

Service specifications

Key specifications	Fishing Activity Indicator
Temporal coverage	Currently 2012-2018 Future releases will employ near real-time AIS data for operational use
Temporal resolution	Fishing Trips provide individual vessel tracks with resolution dependent on the AIS emission rate. Fishing Footprint is a single map with all the accumulated data within the time of interest.
Spatial coverage	Portuguese EEZ with other areas available on request
Spatial resolution	Fishing Trips: pointwise Fishing Footprint: set by the user, from 1km to 50km
Downloadable data files from NextOcean store	Yes Fishing Trips - ESRI shape file Fishing Footprint - GeoTIFF raster file
Visualisation in NextOcean portal	Available
Data feed via API	Available
Data used	Automatic Identification System (AIS) data

Fishing footprint: Longline fleet
Spatial resolution 11x11 km

Marine Protected Areas

Fishing footprint (hours)
40
0

Fishing trips

AIS emmisions
- Not Fishing
- Probably Fishing
— Fishing Trip

NextOcean uses Automatic Identification System (AIS) data to identify vessels that are fishing.

The velocity profiles of vessels clearly show two modes. When the vessel is travelling slowly (blue peak in graph) it is identified as fishing and when moving faster it is usually travelling to and from fishing grounds (green peak).

These clear modes enable a fishing threshold to be set, which is calculated as the mean plus two standard deviations of the lower velocity mode.

Legend:
- Fishing distribution Mean: 0.88
- Non-fishing distribution Mean: 7.72
- Fishing threshold: 2.08

The map-based outputs (above) can be viewed in the NextOcean portal as well as downloaded as shapefiles (fishing trips) or raster files (fishing footprint).

The service can be used to access historical data as well as for regular ongoing monitoring.

Watch

...explanatory videos

Fish Provenance and Ecolab...

Fish Provenance and Ecolabelling

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