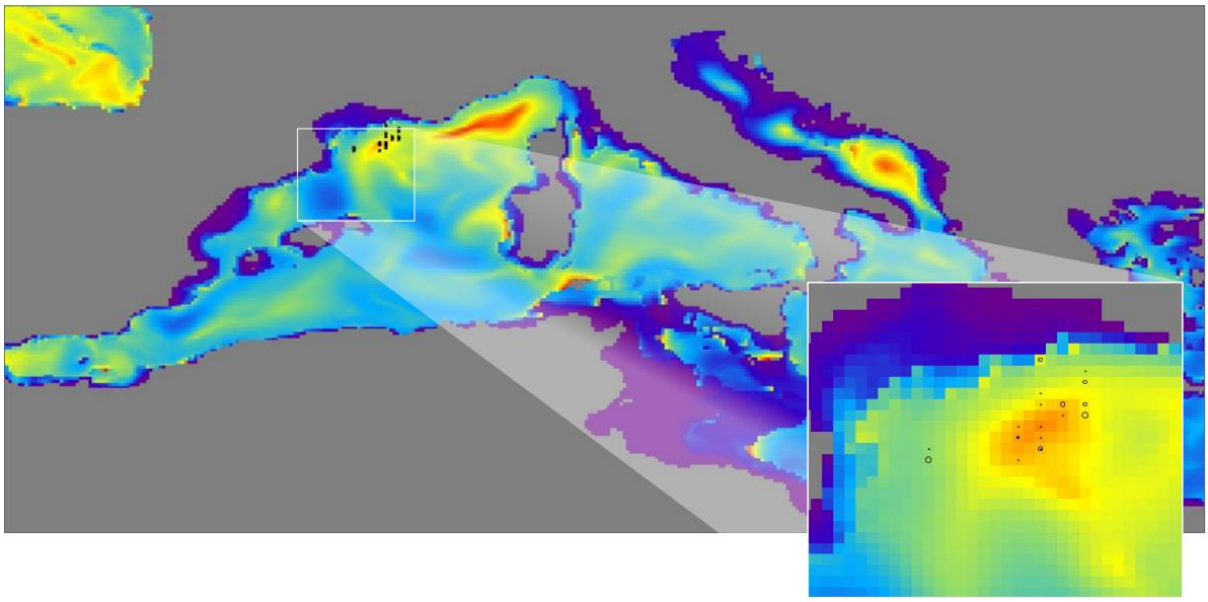
EO-FIN

Fish Stock Assessment



The image shows conditions for Bluefin tuna feeding, ranging from unfavourable (blue) to favourable (red) in the Mediterranean Sea (Source: ESA)

Product Category

☐ Land Use	☐ Natural Disaster	☐ Coast Management	☐ Earth's Surface Motion
☐ Land Cover	☐ Climate Change	■ Marine	

Financial Domain(s)

■ **Investment management** ☐ **Risk analysis** ☐ **Insurance management** ☐ **Green finance**

User requirements

UN9: Understanding stock levels and monitoring supply chains

Description

The EO data can be employed to estimate fish stocks by analysing ocean conditions, temperature, and chlorophyll concentrations, helping in making informed decisions on fishing quotas and seasons. Data on water surface temperature, which exhibits a strong correlation with the presence of certain fish species, and ocean colour, characterized by distinct spectral signatures indicating chlorophyll pigments' concentration linked to phytoplankton biomass (the main food source in the sea), can assist in selecting optimal fishing locations. The combination of two fundamental factors—knowing the marine environment and knowing where fishing takes place—can be powerful: leading to more productive, better-managed, and more sustainable fisheries. Financial planners and investors can use this information to identify regions with the potential for profitable fishing operations.

Spatial Coverage Target

Seas and Oceans

Data Throughput

Rapid tasking	☐ High	■ Low
Data availability	☐ High	■ Low

Product specifications	
Main processing steps	Remote sensing data from Sentinel-3 like Sea surface temperature and ocean/sea reflectance can be used to generate easy-to-read maps. These maps can be delivered to fishing companies to have a good idea about the most susceptible regions of fish stocks. As water surface temperature exhibits a strong correlation with the presence of certain fish species, and ocean colour, characterized by distinct spectral signatures indicating chlorophyll pigments' concentration linked to phytoplankton biomass (the main food source in the sea).
Input data sources	Optical: Sentinel-3 Radar: N.A Satellite-based products: Sea surface temperature of Sentinel-3 Supporting data: AIS
Accessibility	Sentinel-3: freely and publicly available from ESA.
Spatial resolution	Sentinel-3: 300 m
Frequency (Temporal resolution)	Sentinel-3: 1-2 days
Latency	Sentinel-3: ≤ Day
Geographical scale coverage	Globally
Delivery/ output format	Data type: Raster File format: GeoTIFF
Accuracies	Thematic accuracy: NA Spatial accuracy: NA
Constraints and limitations	■ Cloud presence ■ Sentinel-3 data primarily focus on the sea surface, which may not provide information about fish species that inhabit deeper waters. ■ The data may not distinguish between mixed species
User's level of knowledge and skills to extract information and perform further analysis on the EO products.	Skills: Ample Knowledge: Essential