

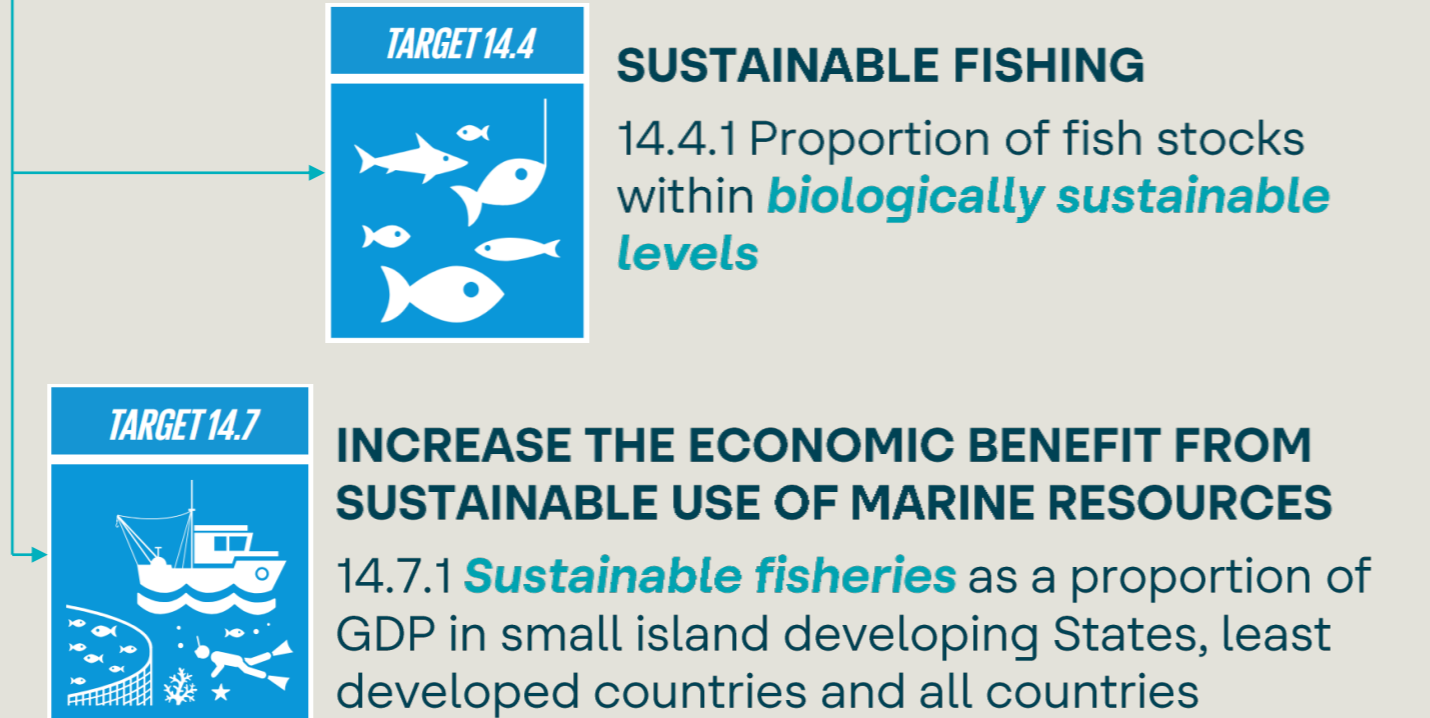
Tackling the challenge of monitoring SDG indicators for fisheries in SIDS

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The concepts defined in SDG indicators for fisheries can be abstract and hard to quantify, detailed in the underlying target:

Target 14.4
 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.

Conserve and sustainably use the oceans, seas and marine resources for sustainable development



During 2026, the EO4SURE project will implement scalable EO-based data production pipeline to contribute to the reporting of SDG indicators 14.4.1 and 14.7.1, with national demonstrations to be performed in Cape Verde and São Tomé and Príncipe.

Main user requirements

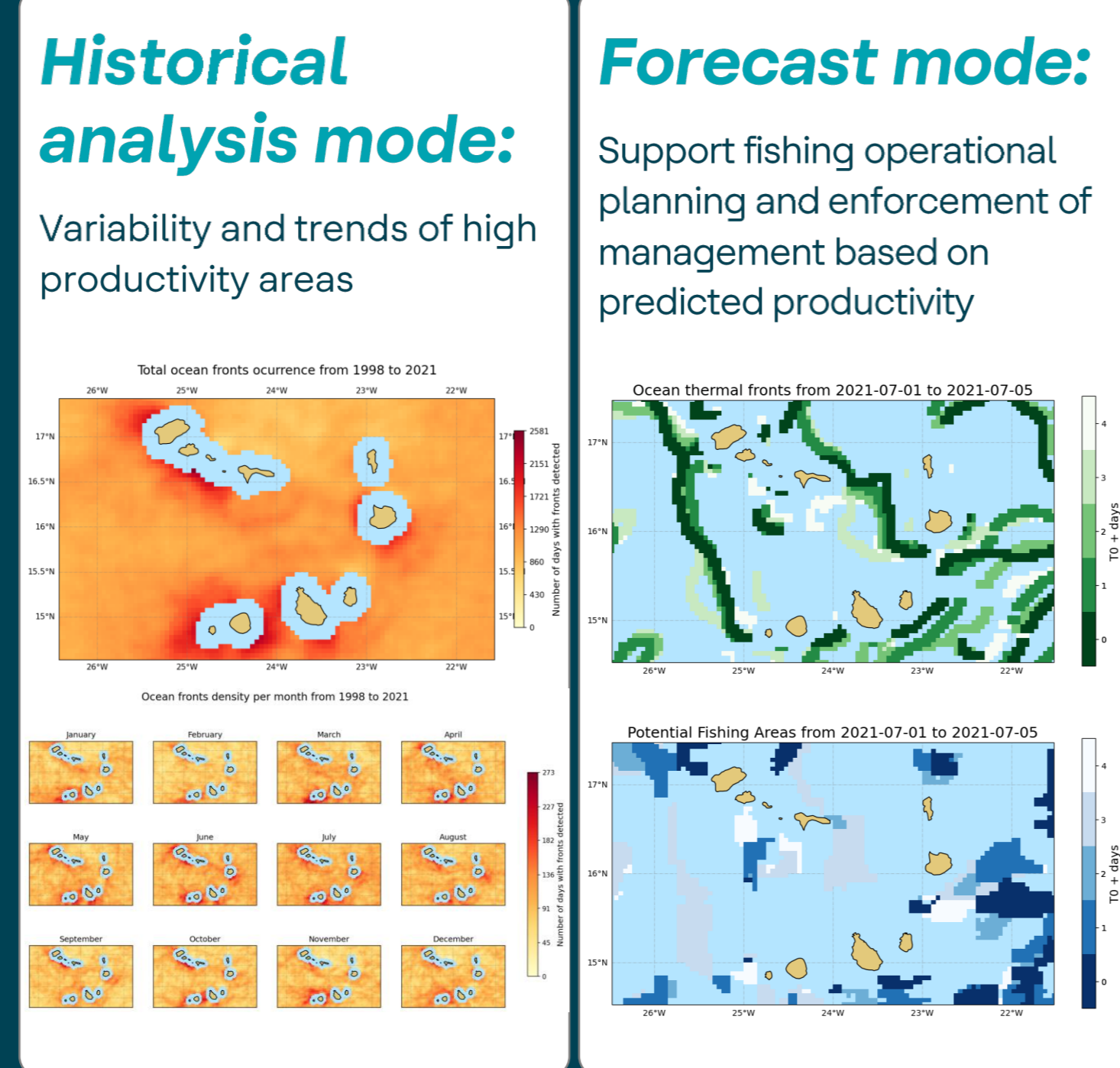
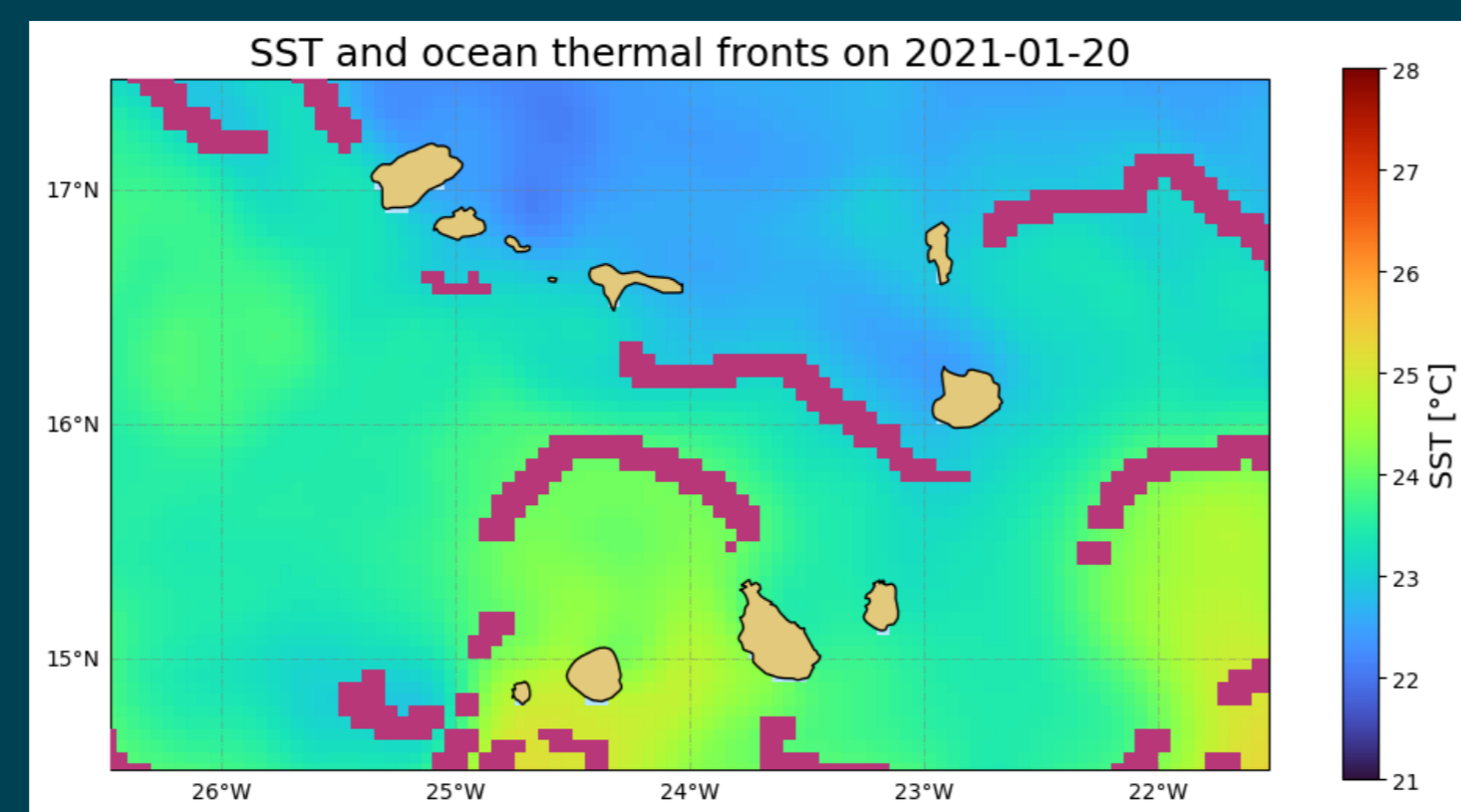
EO4SURE promoted Living Labs with local authorities and scientific bodies responsible for producing data and statistics and management recommendations on fisheries. Priority should be given for solutions focused on effort validation and identification and tracking of potentially productive fishing areas.

Study climate change effects Provide indicators to monitor the temporal evolution of SST and areas of high productivity national EEZs, allowing for better insights on this effect, and thus supporting local fishery management.	Validation and spatial distribution of fishing effort Validate information from VMS and fisheries declaration for the fishing fleets operating in national EEZs, while also providing the spatial distribution of reported and unreported fishing.	Support stock assessment Generate suitable data to support fishery management. The status of the stocks in SIDS is typically not updated and is mainly based on length-frequency analysis and reference biological points. Major challenges exist in collecting reliable fishery data, oceanographic indicators that can measure fishing potential can be used as proxies.
Identify & track areas of high productivity Detect ocean fronts and areas of high productivity over time and link them with catch data. Frontal systems may influence the distribution of key species and fishing zones.	Identification of PFAs Identify Potential Fishing Areas (PFAs) for species of interest, based on a combination of landing data, vessel tracking and environmental drivers such as temperature, thermal fronts, upwelling, and currents, to fisheries management.	Support control of foreign fleet Provide vessel-tracking analytical workflows can strengthen maritime domain awareness, particularly for detecting unreported activity. While VMS and AIS are available for the foreign fleet fishing operating within SIDS EEZ, capacity to analyse, interpret, and act on is limited.

Inference and monitoring of areas of high productivity

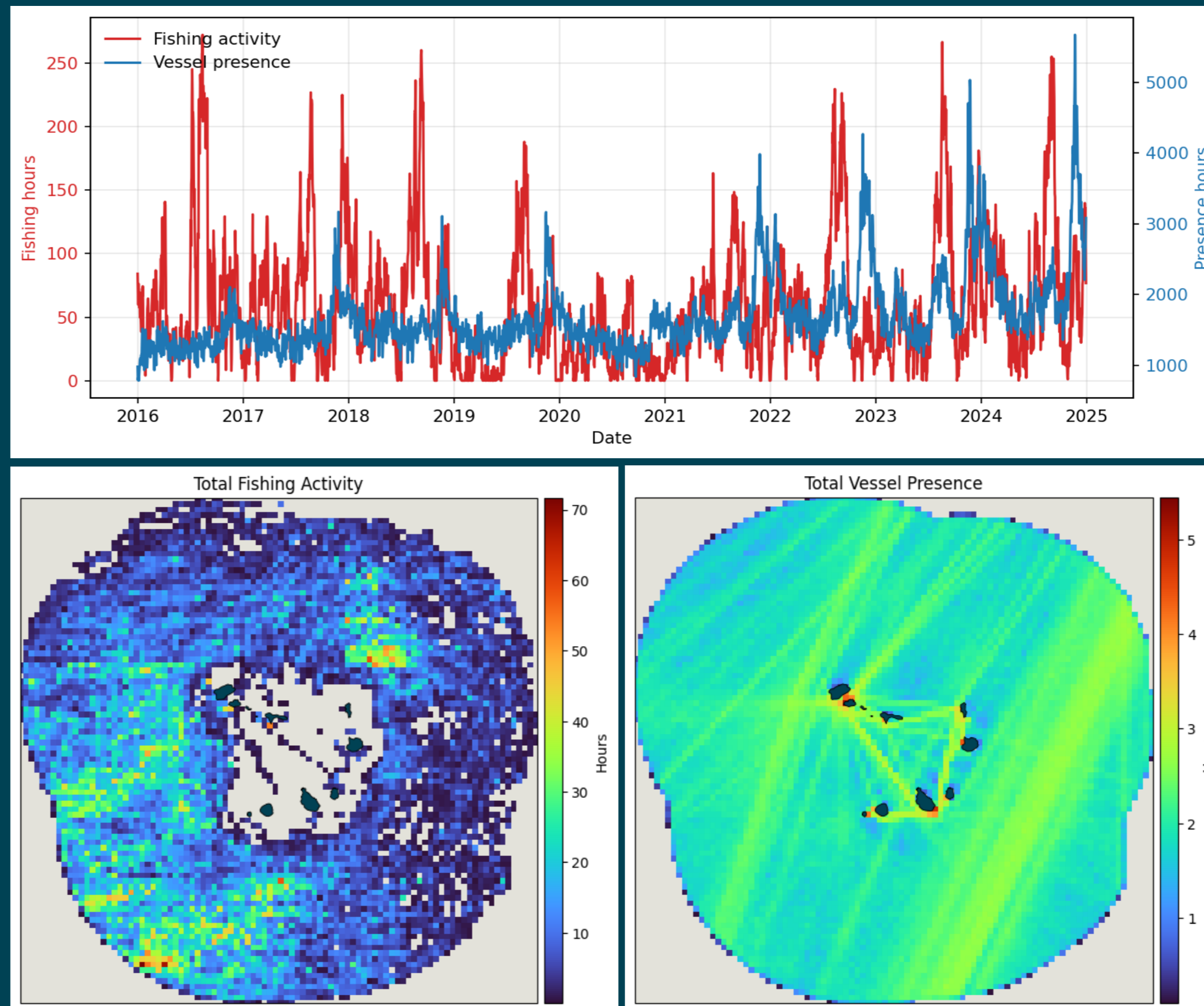
Stock assessment and precise species distribution studies require costly sampling efforts and strict fisheries control.

When such conditions are not met, identification of potential areas of large natural capital, in the form of high primary productivity, and presence of ocean thermal fronts can support science-based management with operational models. Further EO data allows for customized models to detect Potential Fishing Areas for a particular species of interest.



Fleet monitoring & behaviour detection

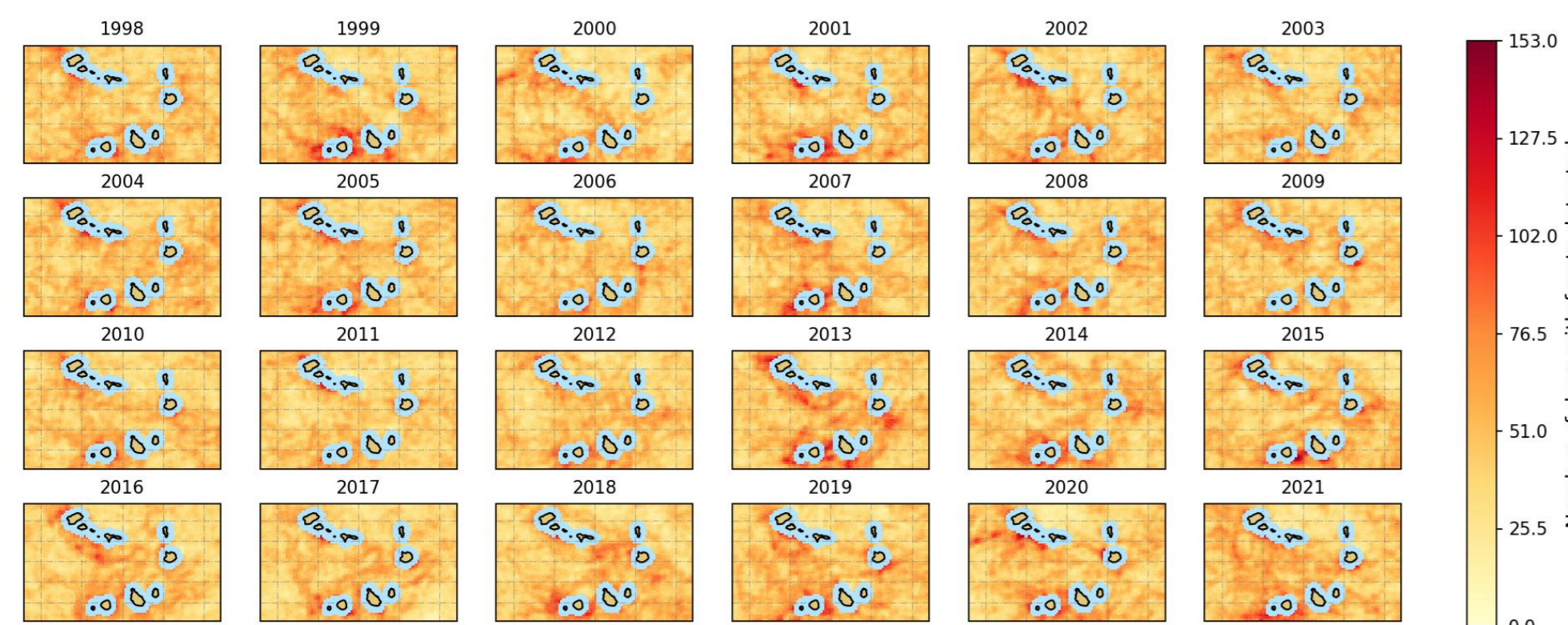
Inferring a proxy of fishing effort from vessel tracking and behaviour analysis can contribute to assess the fisheries under overexploitation, support regulations and Monitoring, Control and Surveillance



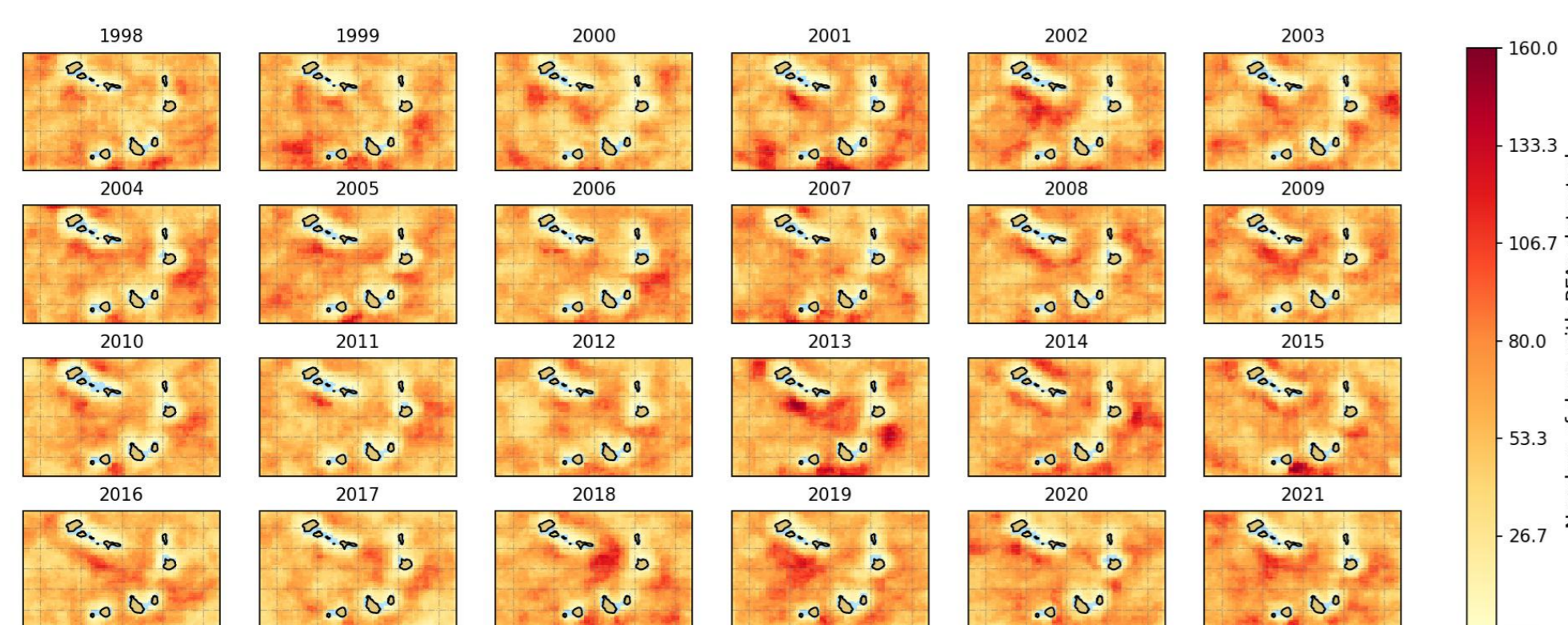
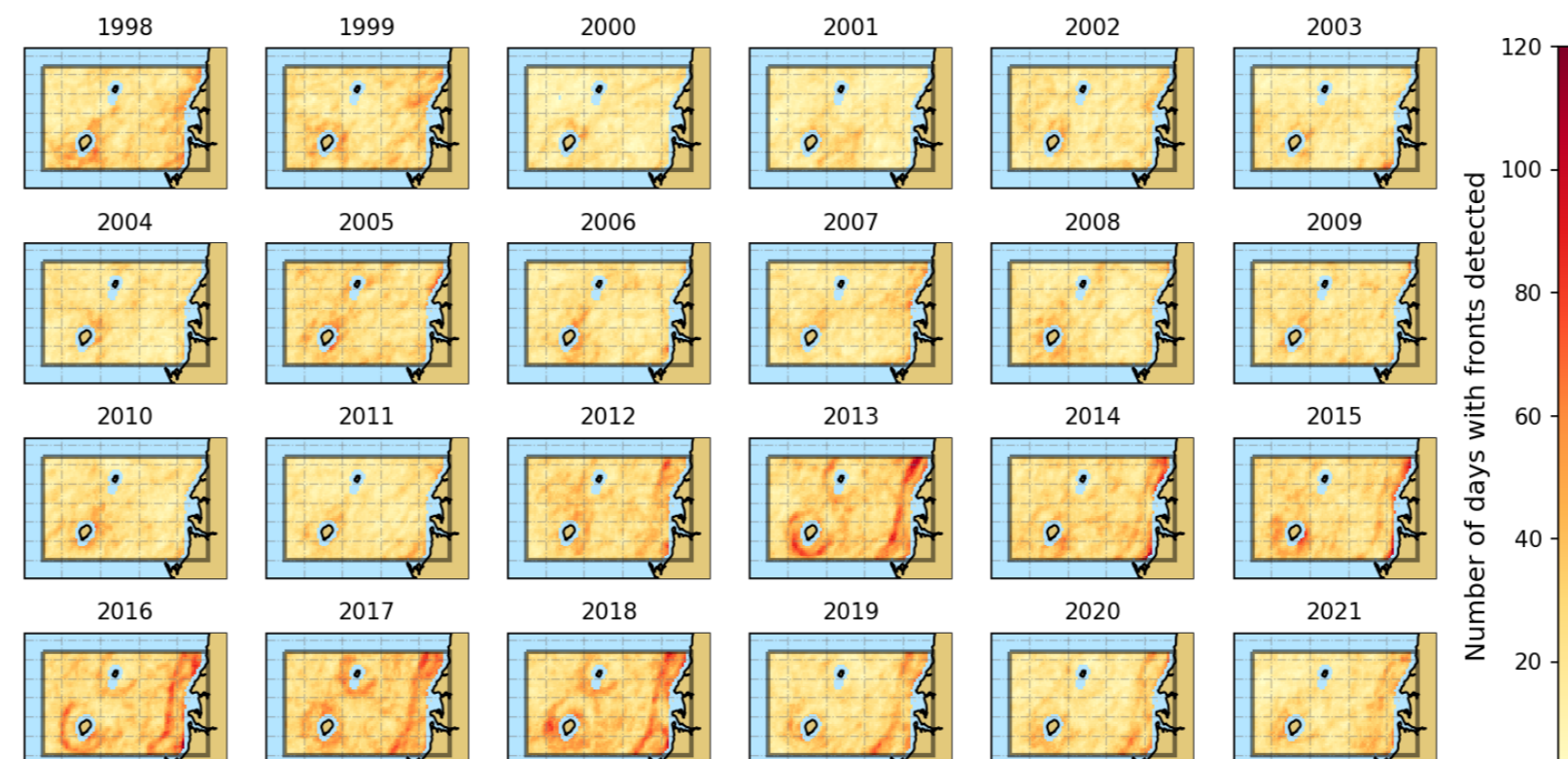
Main contributions from EO for reporting fisheries SDGs in SIDS

- ✓ Study spatial distribution and historical trends of areas of high productivity
- ✓ Identification of historical trends in areas of potential high productivity and risks associated with climate change
- ✓ Knowledge of the spatial distribution of the activity of the national semi-industrial fleet and the foreign fleet, and the evolution of this activity over time
- ✓ Validate fishing declarations from the national semi-industrial fleet & assess the sustainability of foreign industrial fleet
- ✓ Define an index that relates fishing activity and the distribution of areas with high productivity potential
- ✓ Provide information on fishing effort and environmental conditions, and optimize the planning of research cruises for stock assessment studies
- ✓ Study of the evolution of incomes associated with fishing in Cape Verde and its relationship with areas of potential high productivity
- ✓ Contribute to the preparation of the Biennial Executive Fisheries Plans

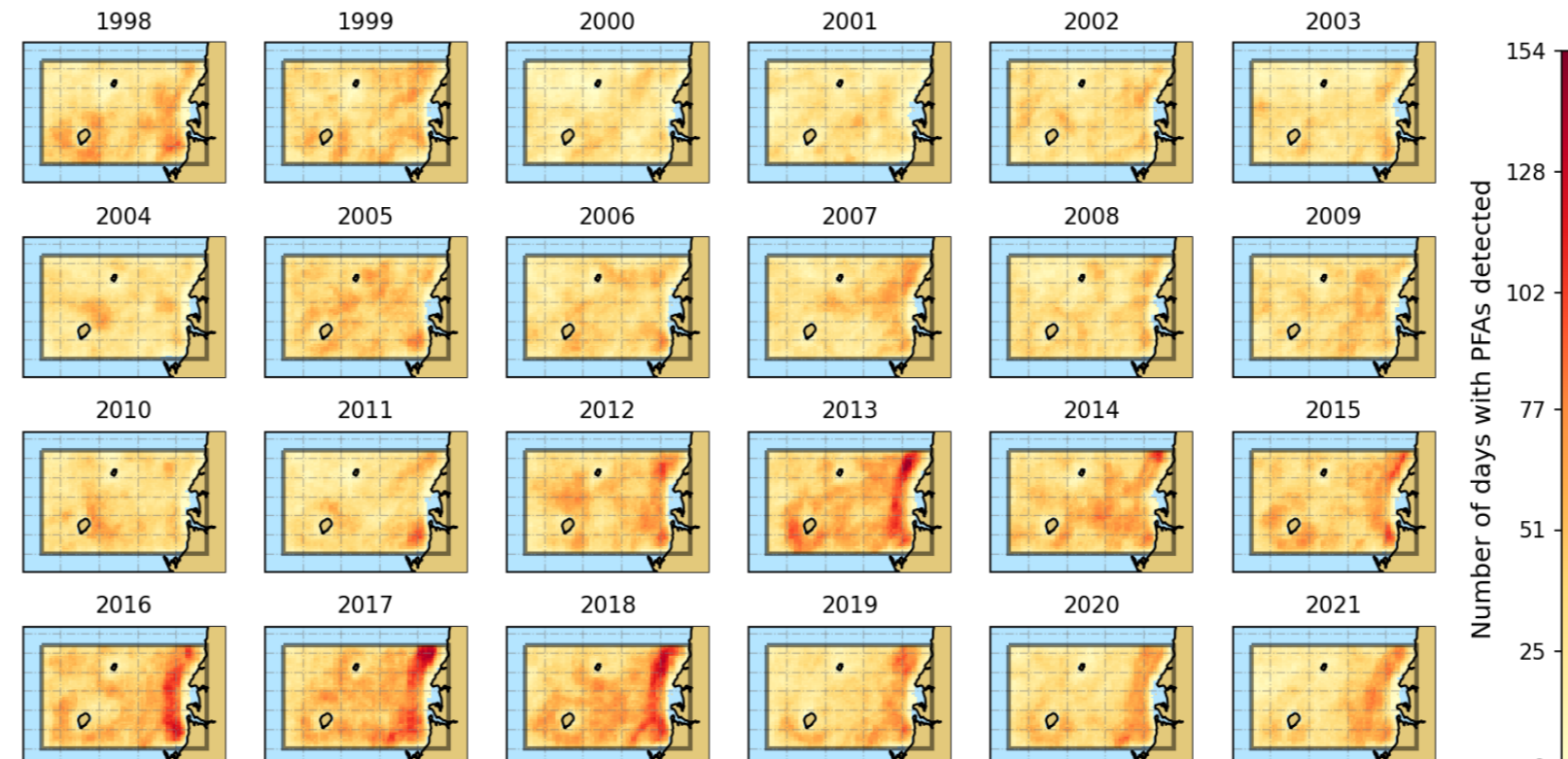
Preliminary results and planning for demonstration



Annual occurrence of ocean fronts (upper panels) and PFAs, defined for big pelagic fish (lower panels), for Cape Verde (left) and São Tomé and Príncipe (right).



Results demonstrate the strong interannual variability of such potentially productive areas, to be further customized in EO4SURE.



During the demonstration in 2026, key inputs for and SDG indicators 14.4.1 and 14.7.1 shall be provided with national extent, with particular attention to areas of special interest for local fisheries managers.

Reference data as fisheries statistics, VMS, landings and related socio-economic topics are being compiled to inform the design and development of the solutions, and support its targeted validation.

The quantitative information to be derived in EO4SURE aims to contribute to the achievement of target 14.4 and 14.7 in SIDS, providing cost-effective and innovative alternatives to traditional high-investment methods.