

The Catalan Research Institute for the Governance of the Sea



What is ICATMAR?



Generalitat
de Catalunya



Institut
de Ciències
del Mar

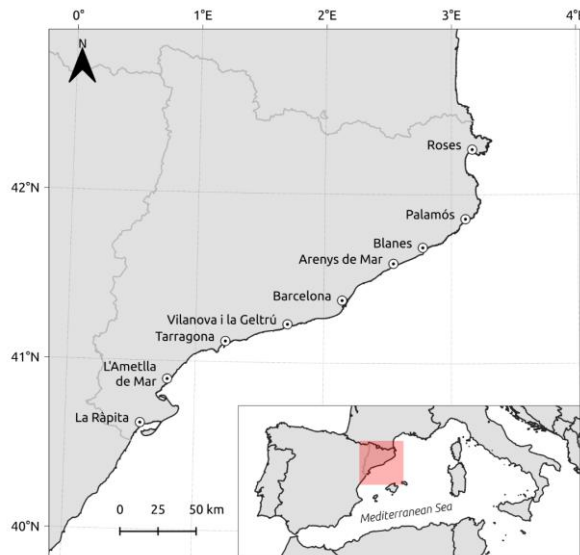


CSIC

CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS



Institut Català de
Recerca per a la
Governança del Mar



- **Sea governance** based on scientific data
- **Knowledge transfer** to stakeholders



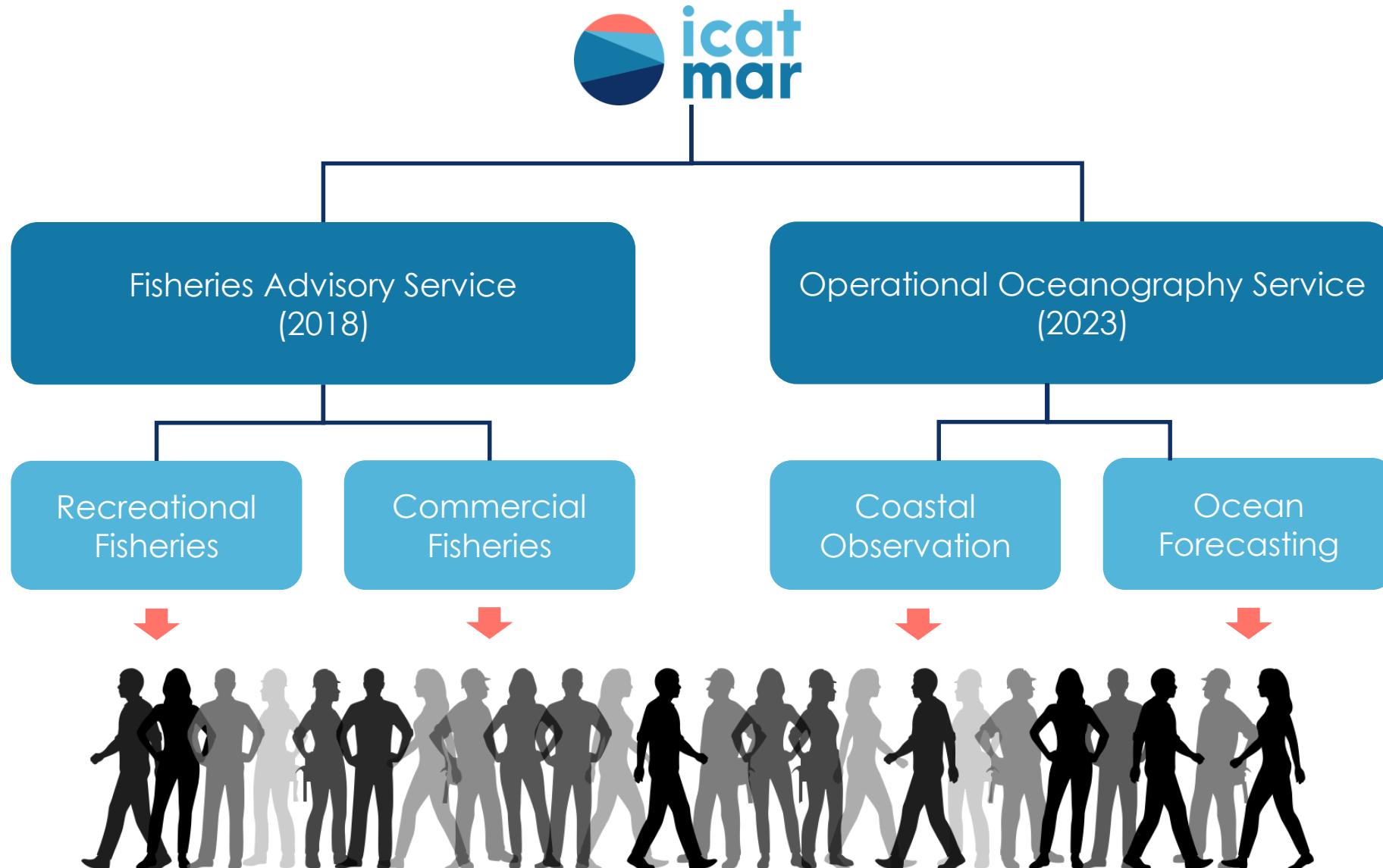
Administrations



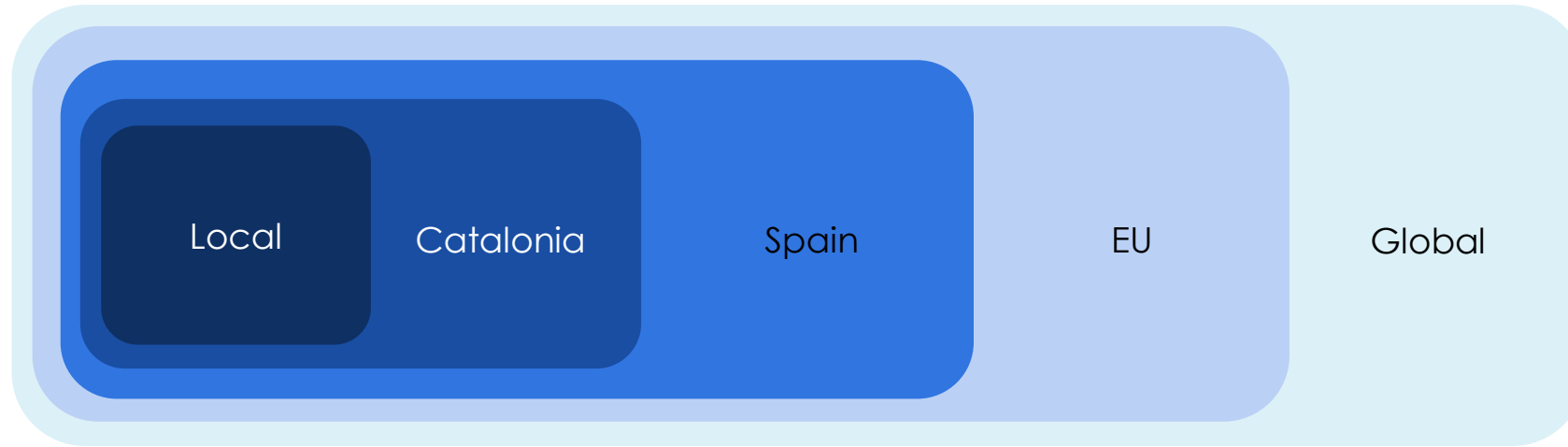
Society



Scientific community



Knowledge transfer



Administrations



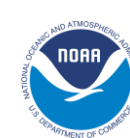
Society



Scientific community



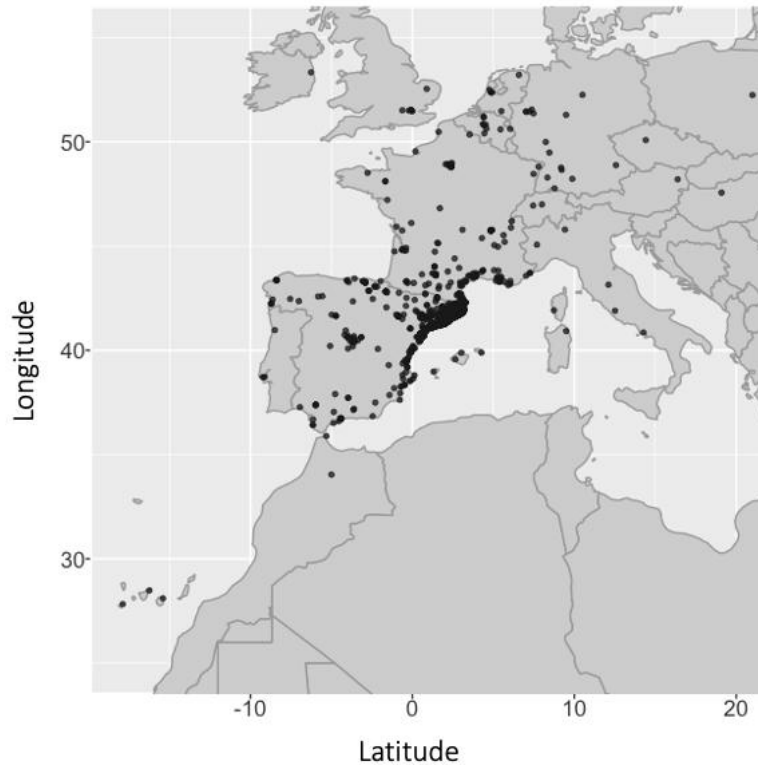
Generalitat de Catalunya
Departament d'Acció Climàtica,
Alimentació i Agenda Rural



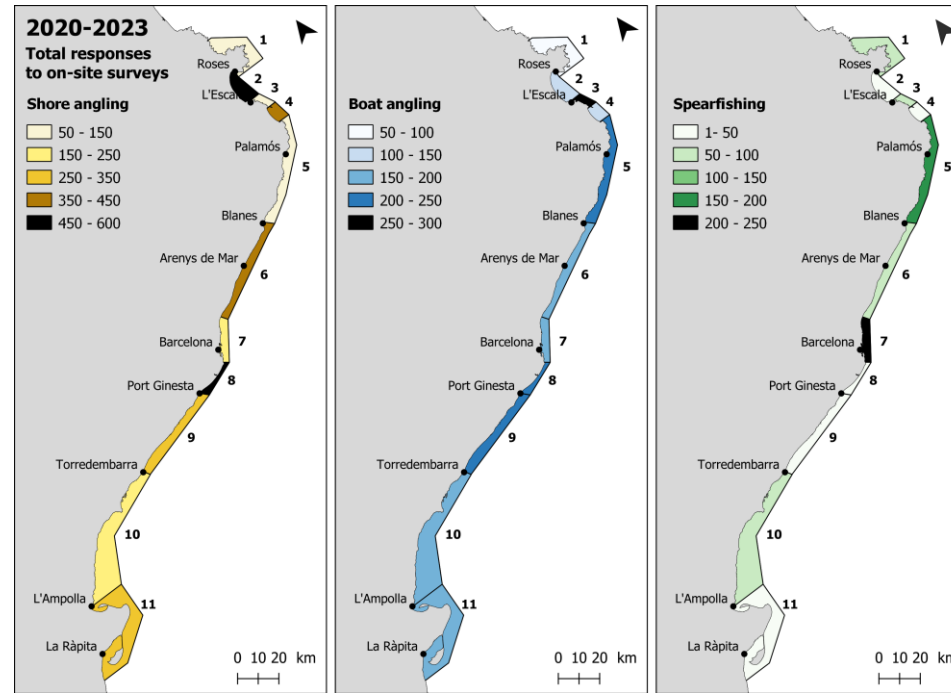
Fisheries monitoring

Marine recreational fisheries

Online surveys



On-site surveys

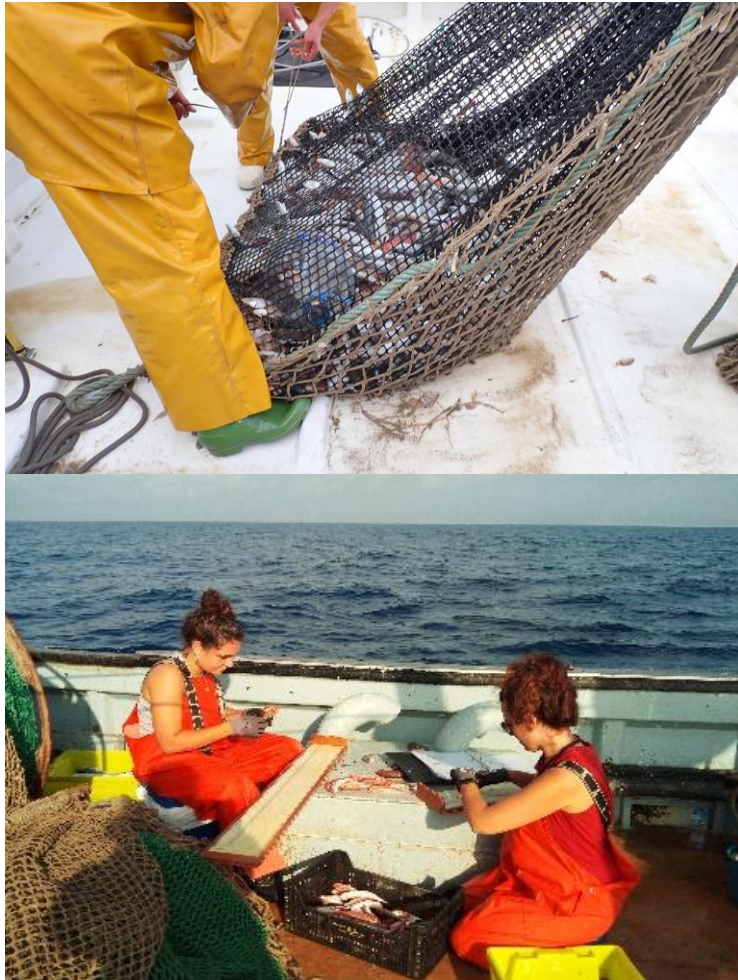


~ **45,000** yearly licences for MRF in Catalonia

~ **25,000** surveys conducted

Commercial fisheries monitoring

Bottom-trawling



Purse seine

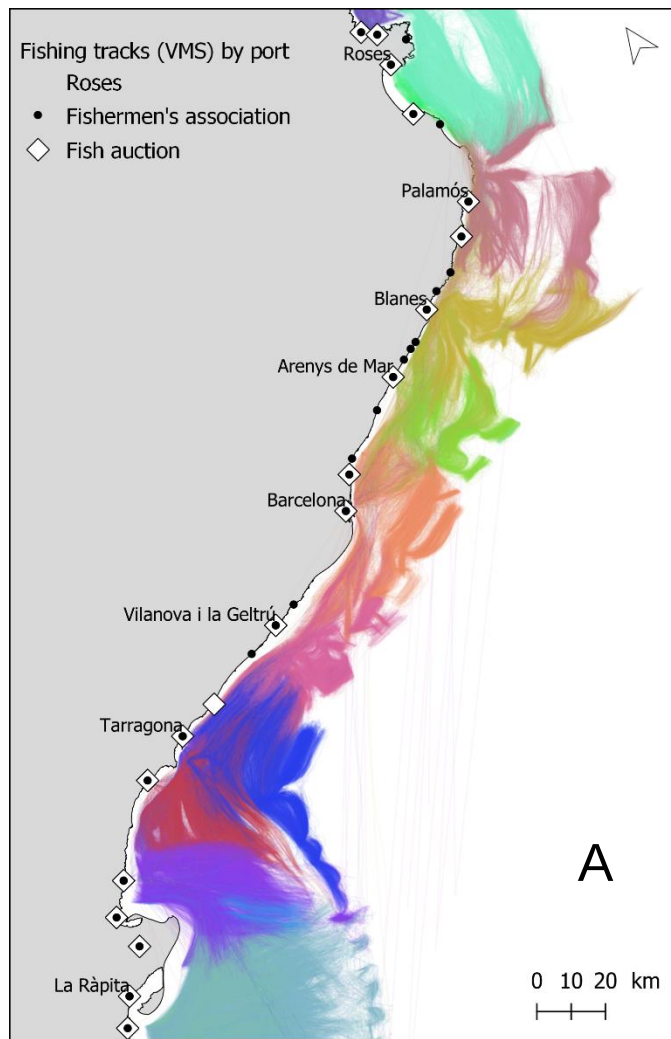


Small-scale fisheries

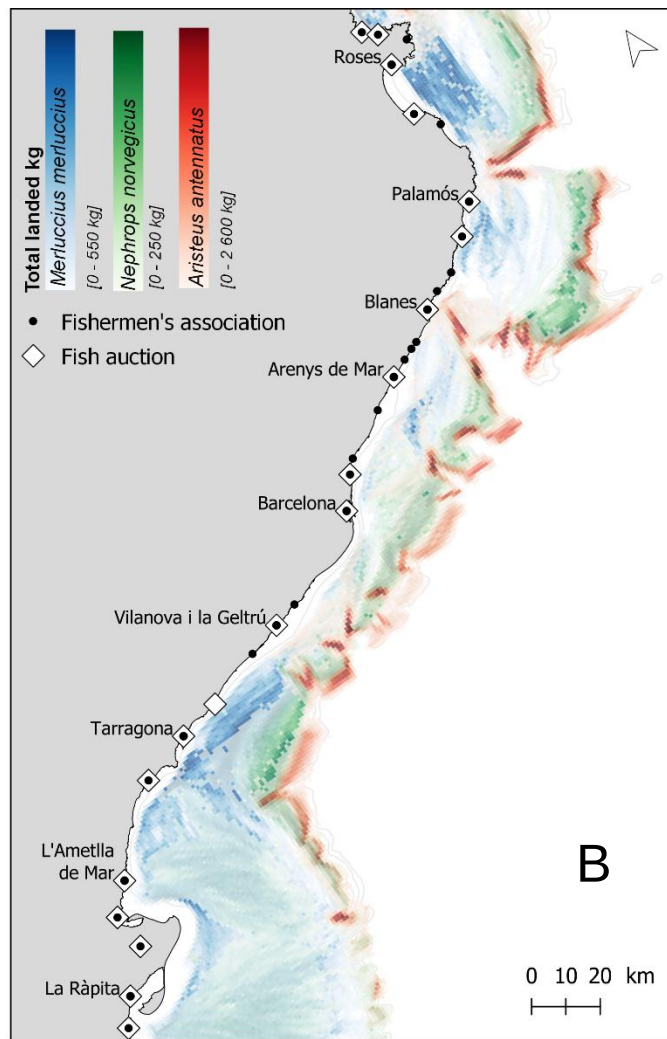


Commercial Fisheries

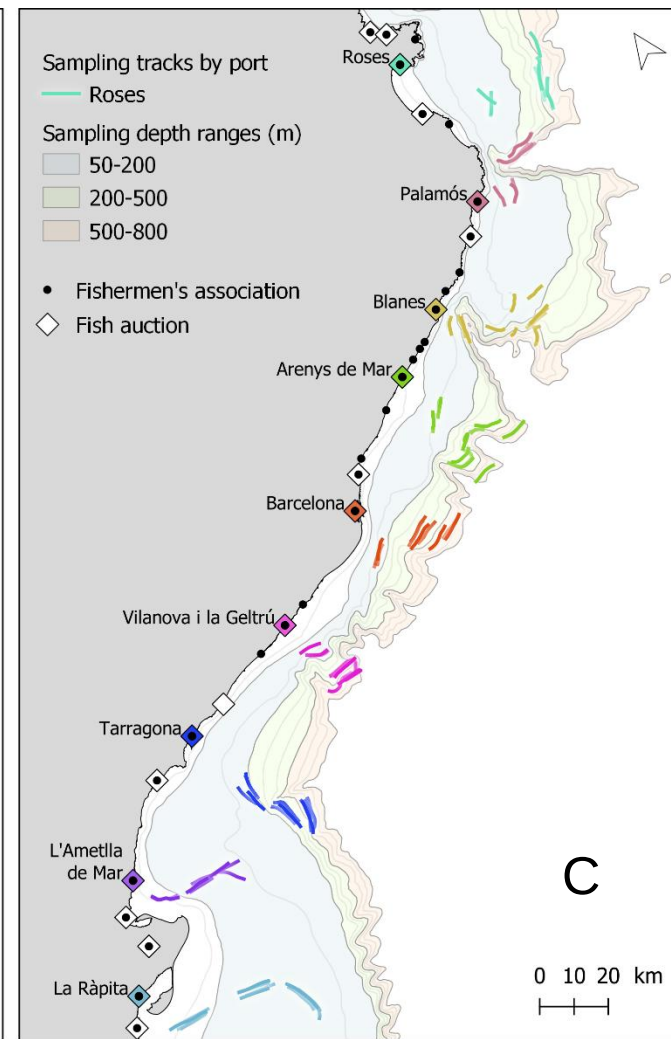
Fisheries are markedly local



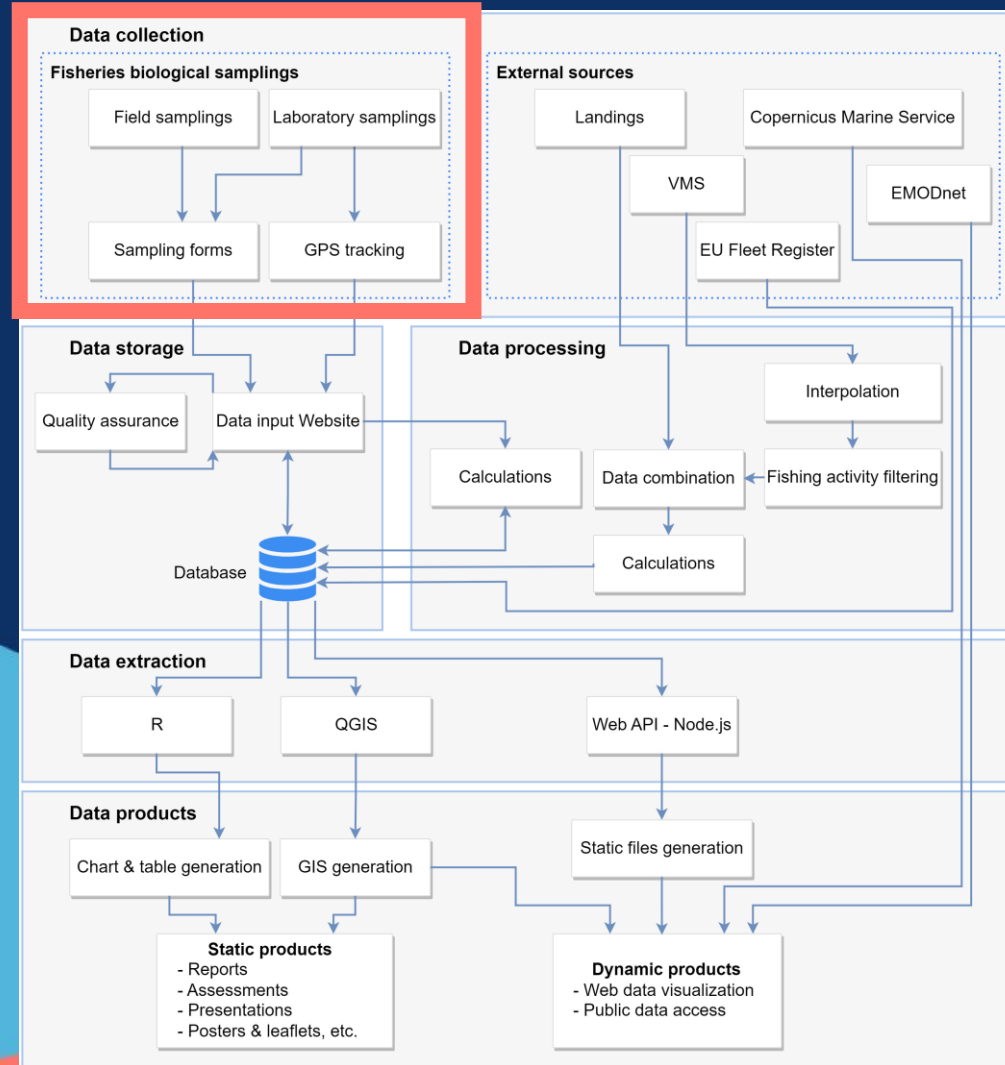
Definition of sampling depth ranges



ICATMAR Sampling tracks 2021



Data collection



Sampling methodology



On-board



On-board sampling



GPS
tracks



Species
identification



Size



Sample of the
total catch



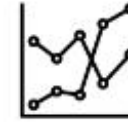
At the lab



Size and
weight



Sex and
reproductive
stage



Biological parameters





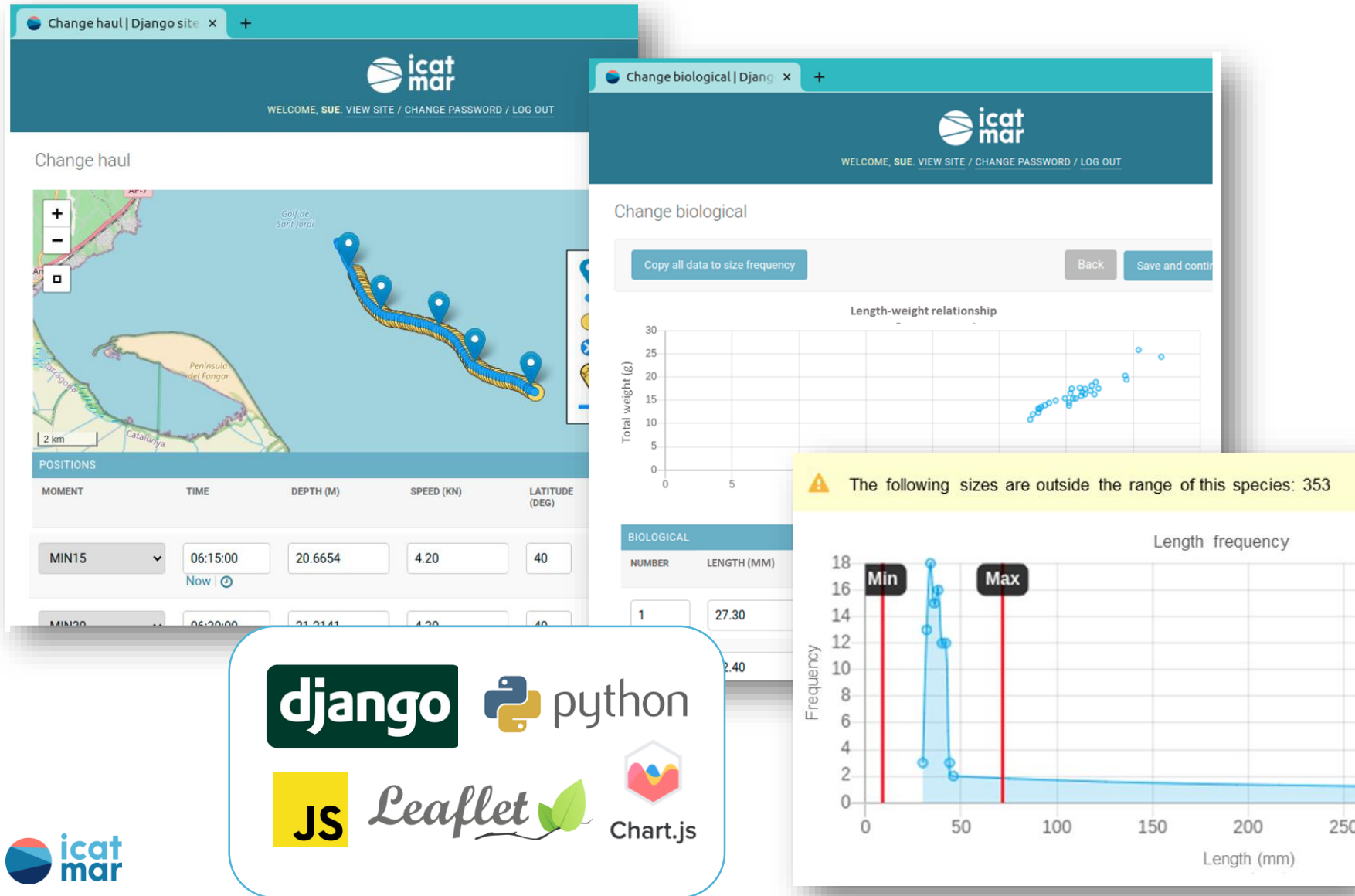
Nom d'usuari:

mostrejador

Contrasenya:

Iniciar sessió

Data input website – Quality assurance & processing



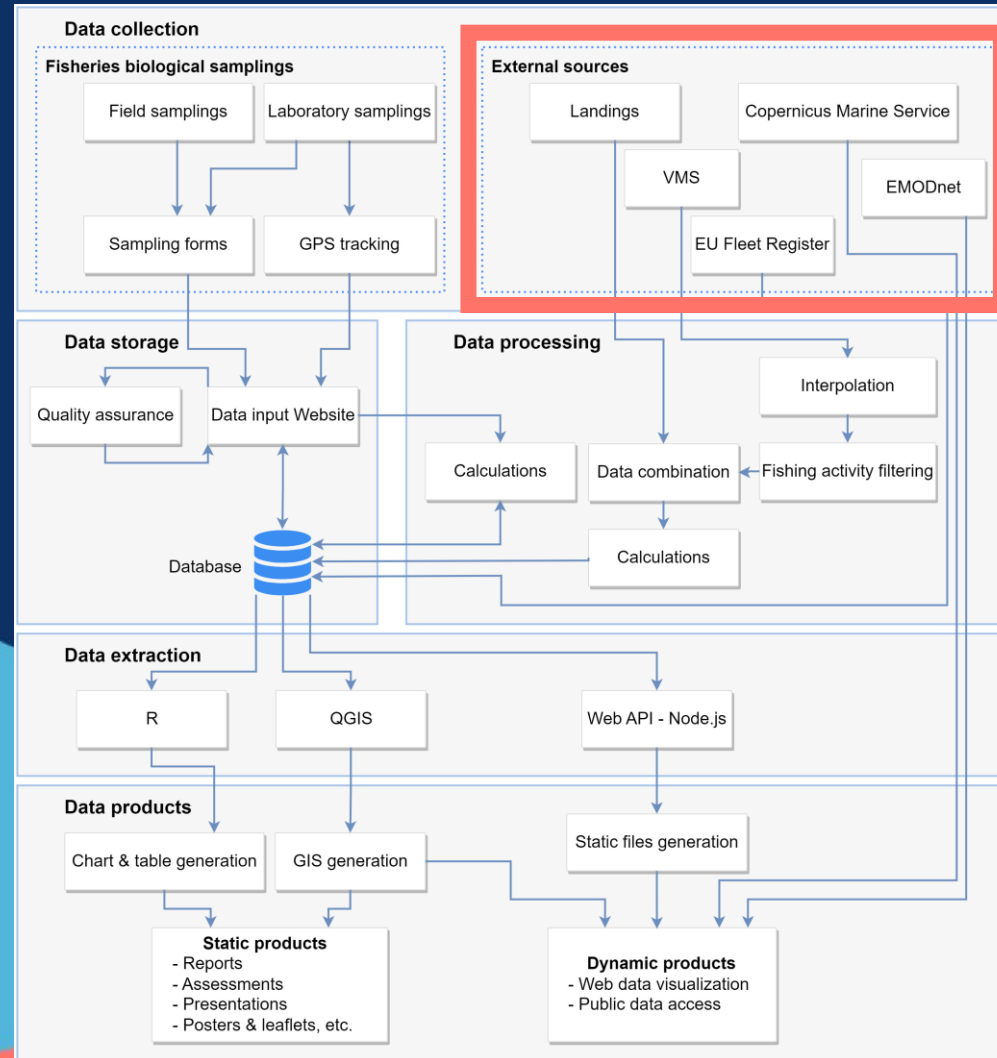
Database



PostgreSQL

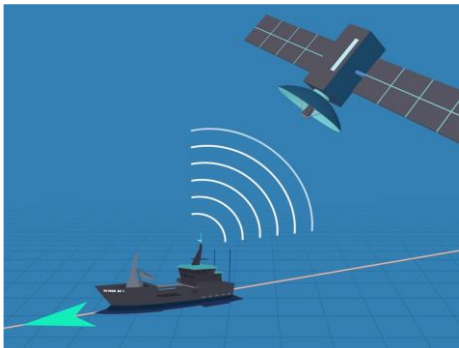


External data sources



External data sources processing

Vessel Monitoring System (VMS)

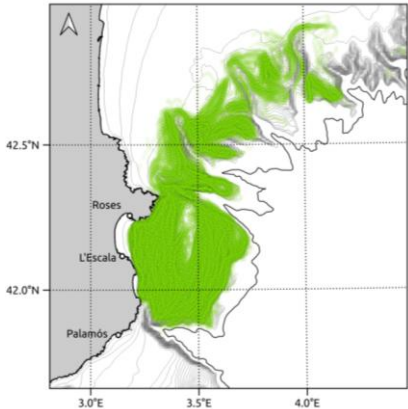
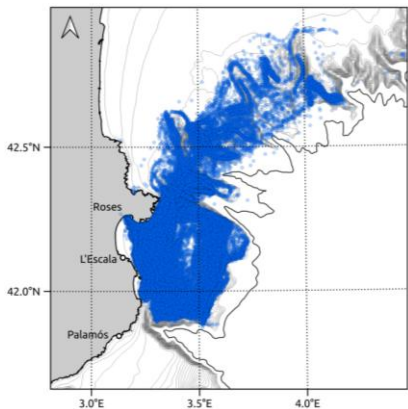


Where are the vessels fishing?



Data validation

Point interpolation



pandas

GeoPandas

scikit learn

Fishing filters
Speed
Machine learning models

Daily fishing landings



What are they fishing?



PostgreSQL
PostGIS

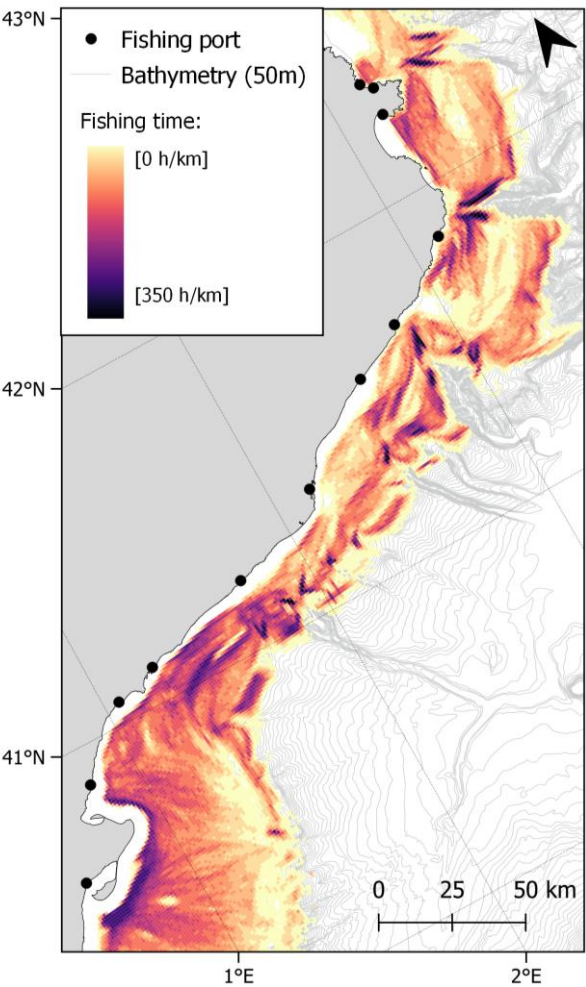


Trigger functions

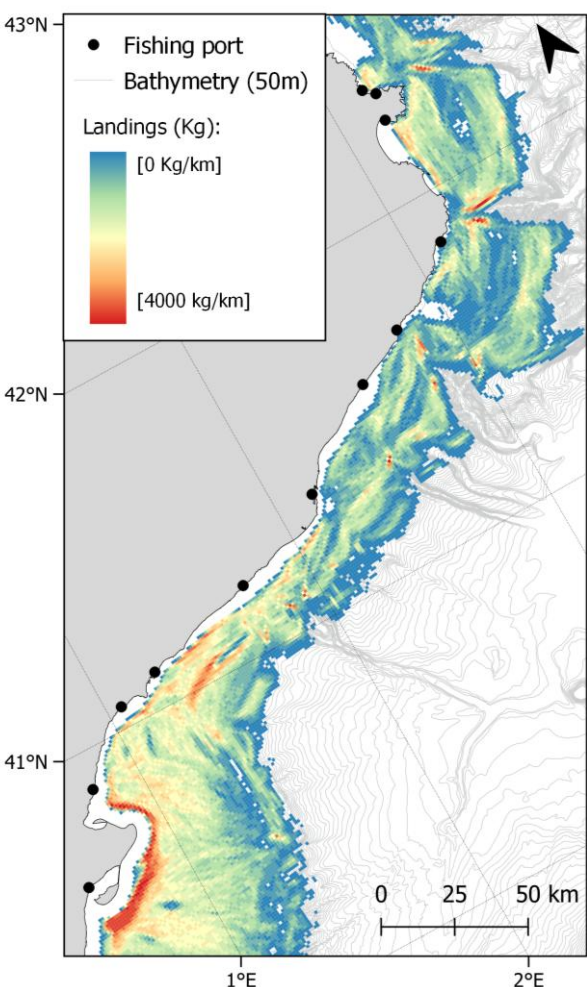
Processed linked data

External data sources processing

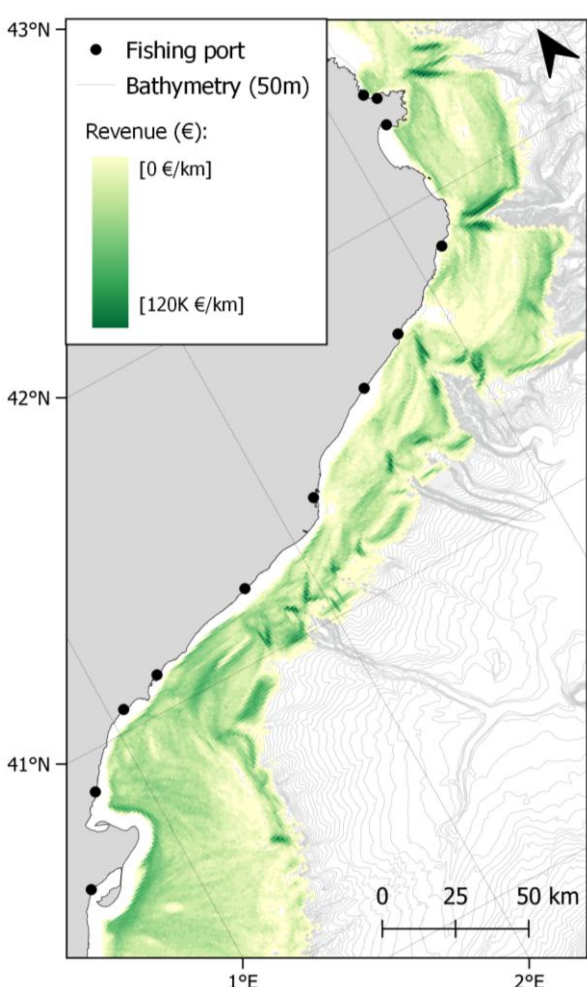
Fishing time (h)



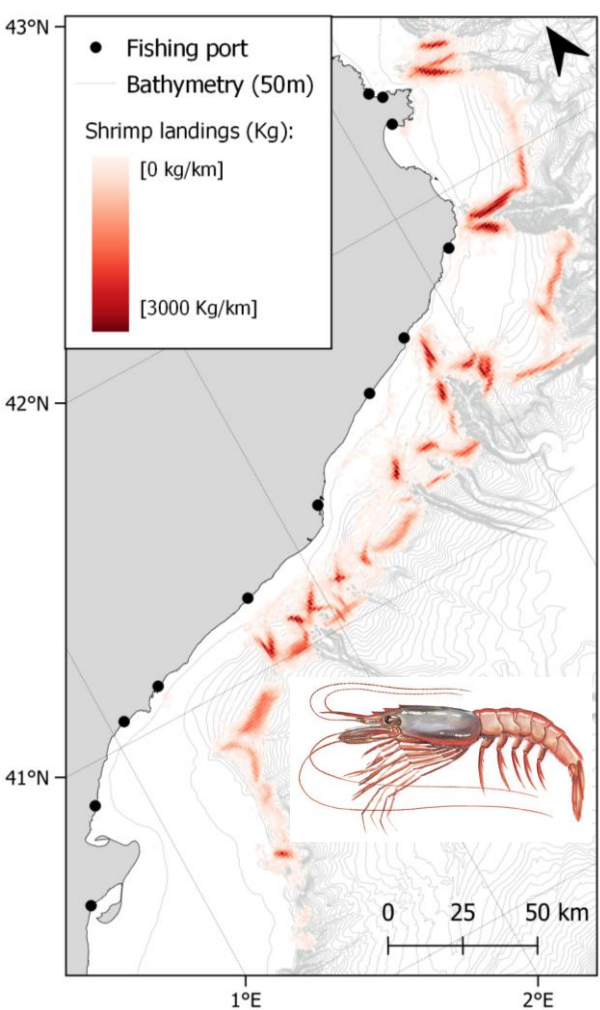
Landings (Kg sold)



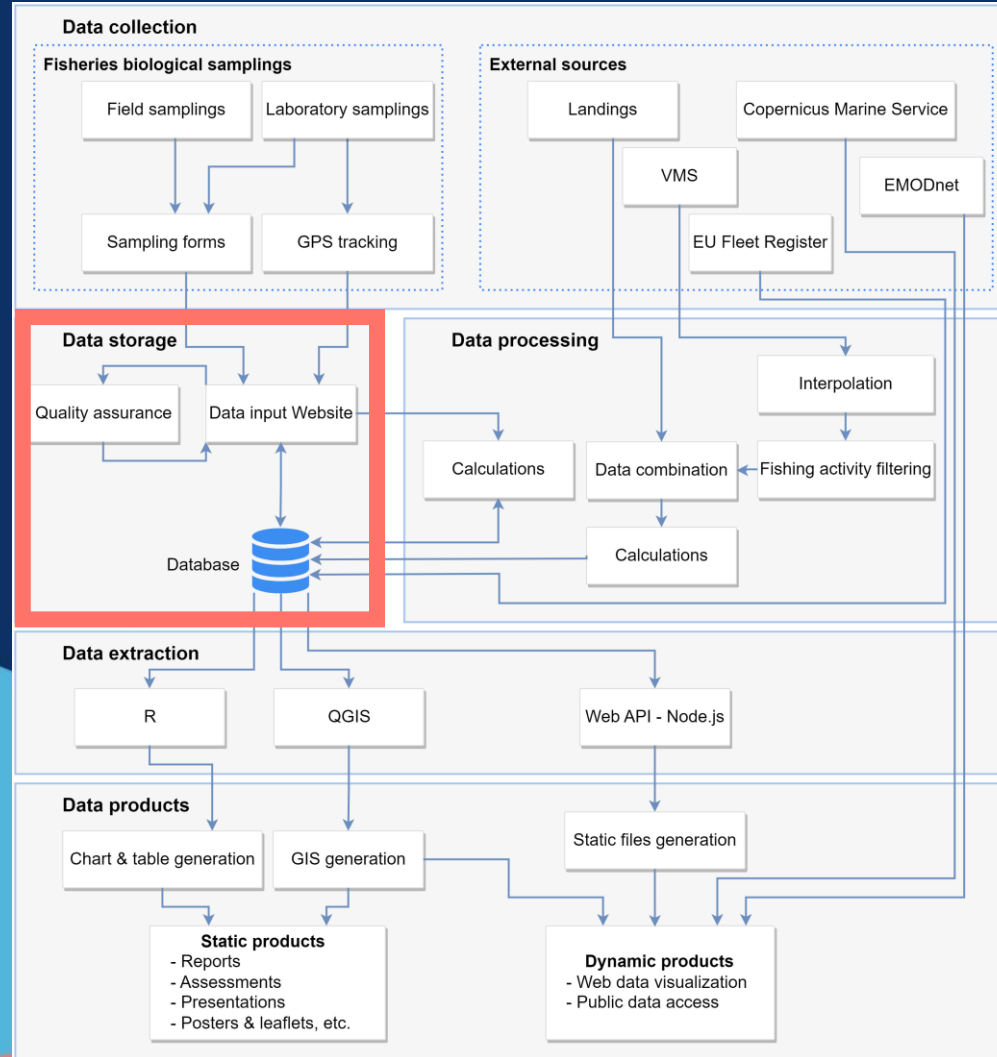
Revenues (€)



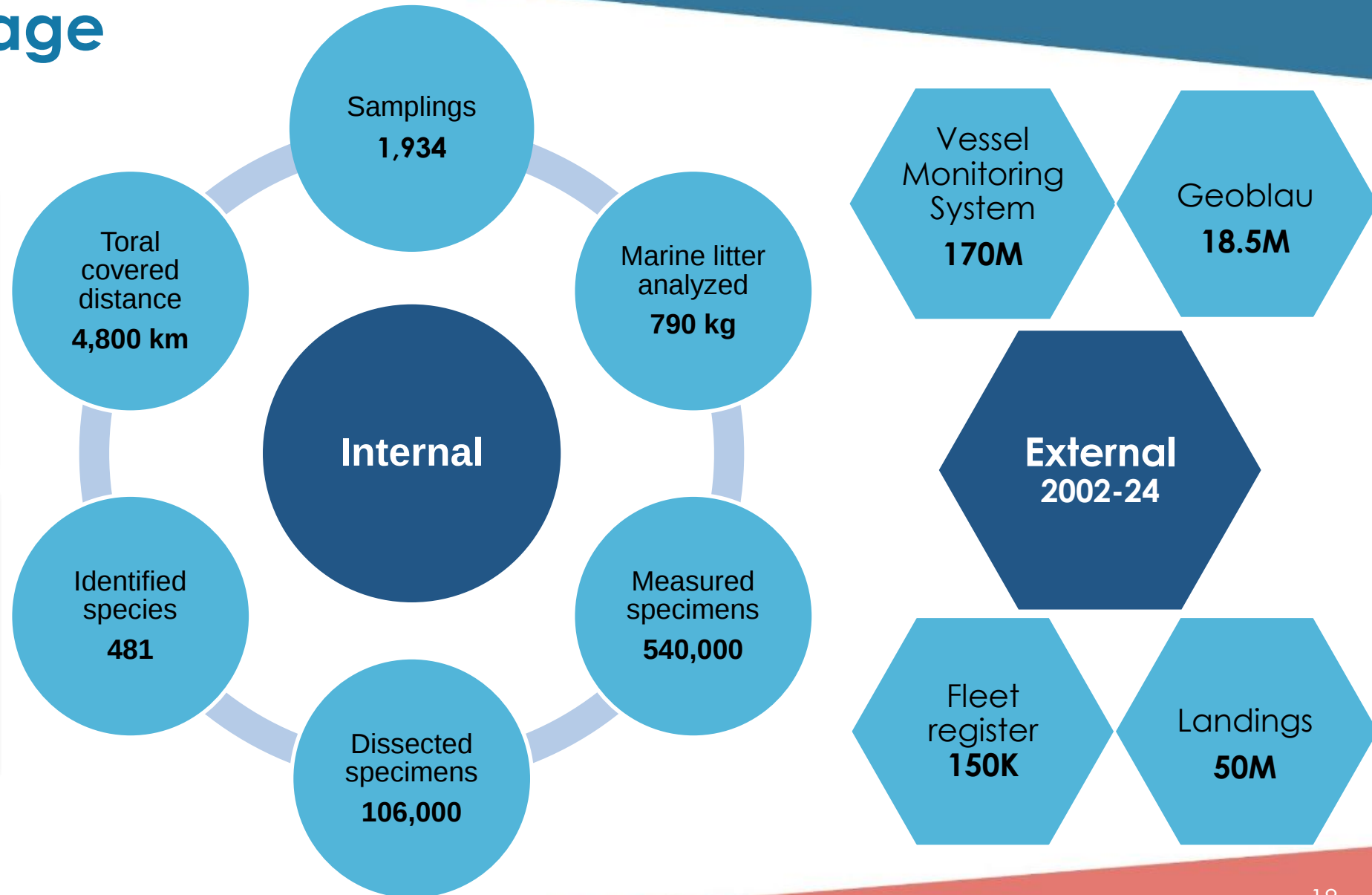
Aristeus antennatus (Kg)



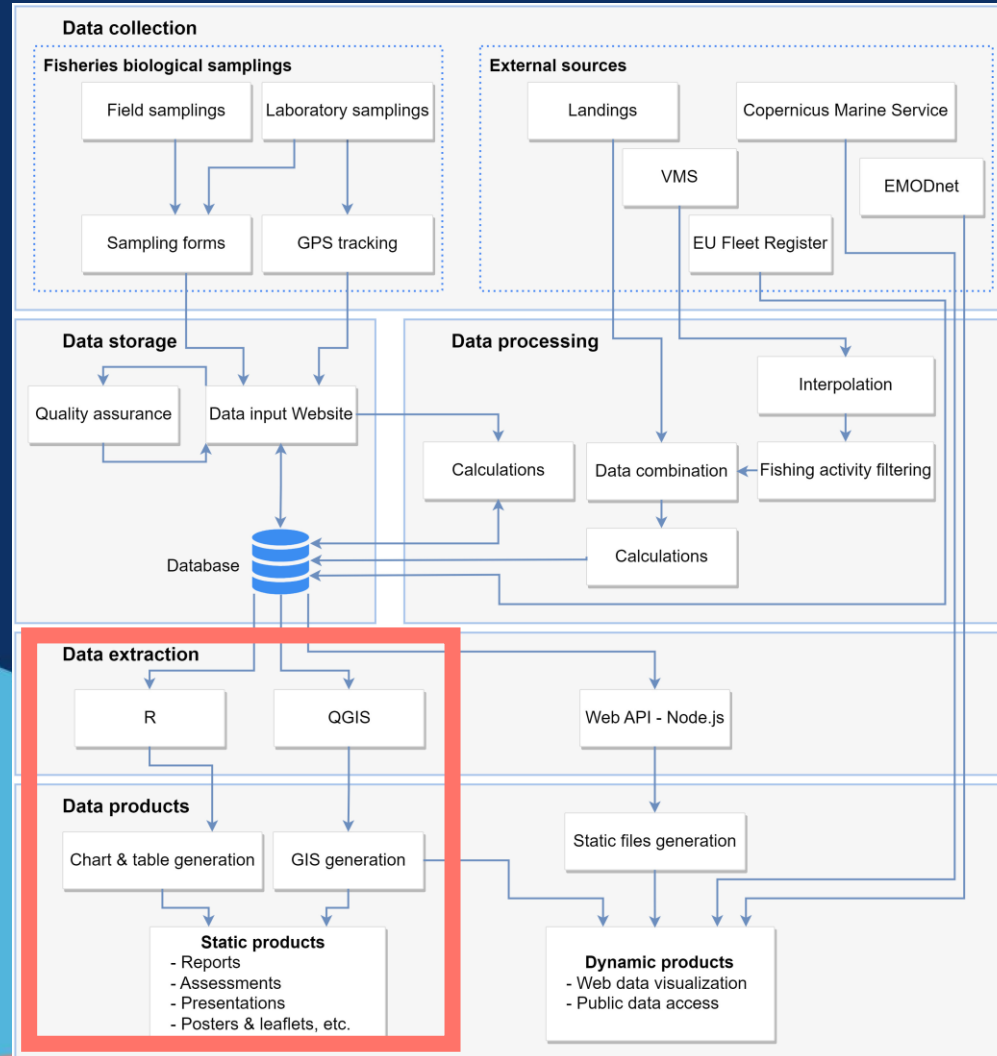
Storage



Database storage 2019 - 2024

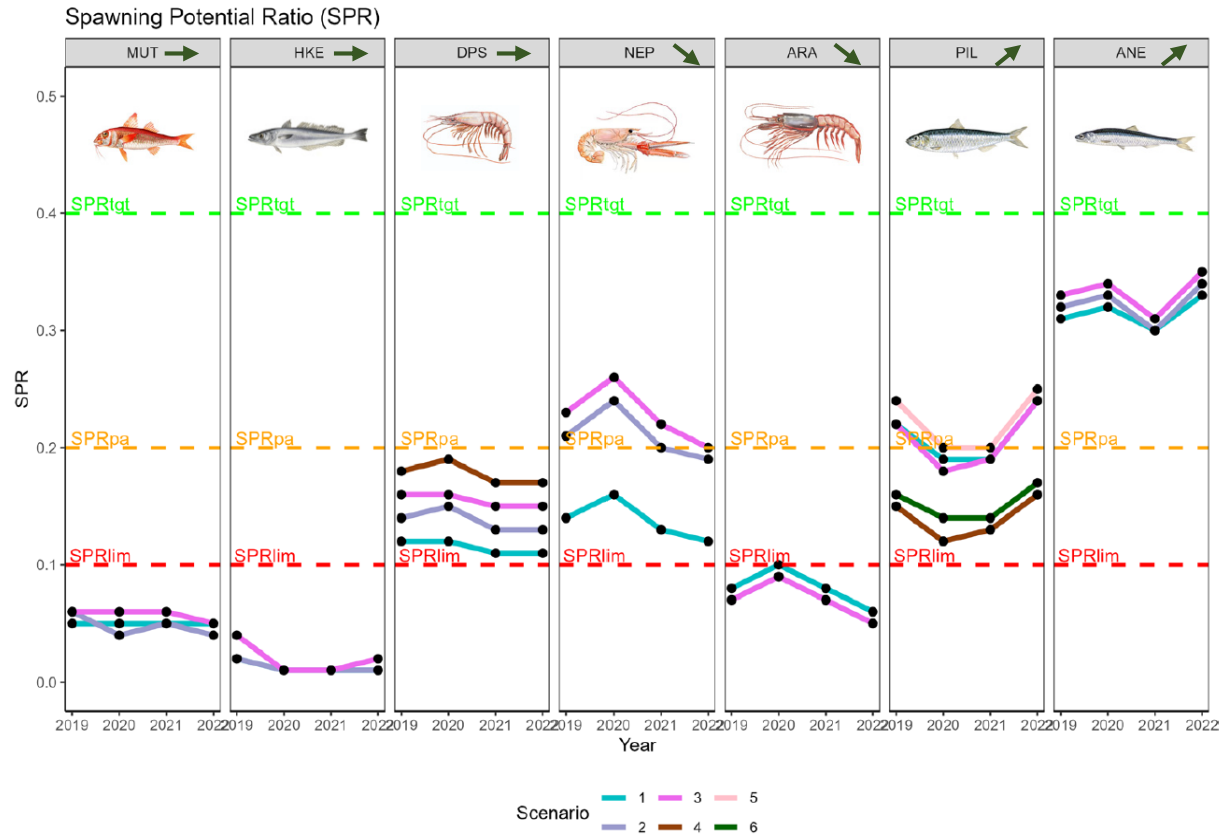


Data analysis

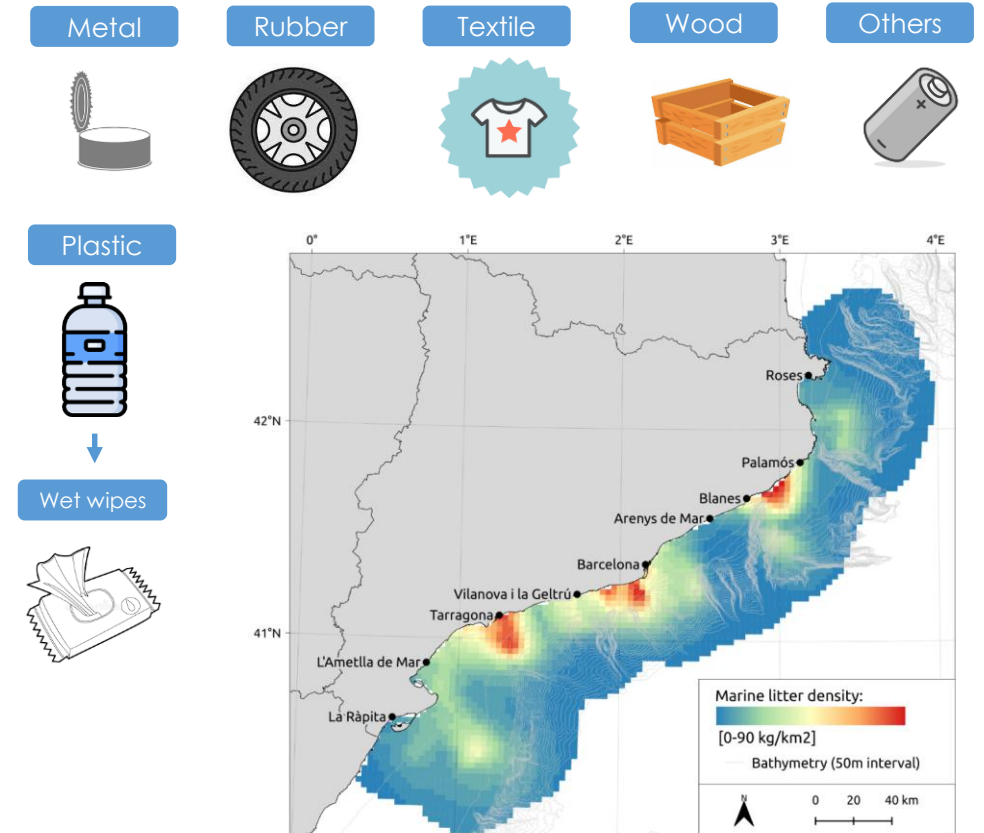


Data products

Stock assessment

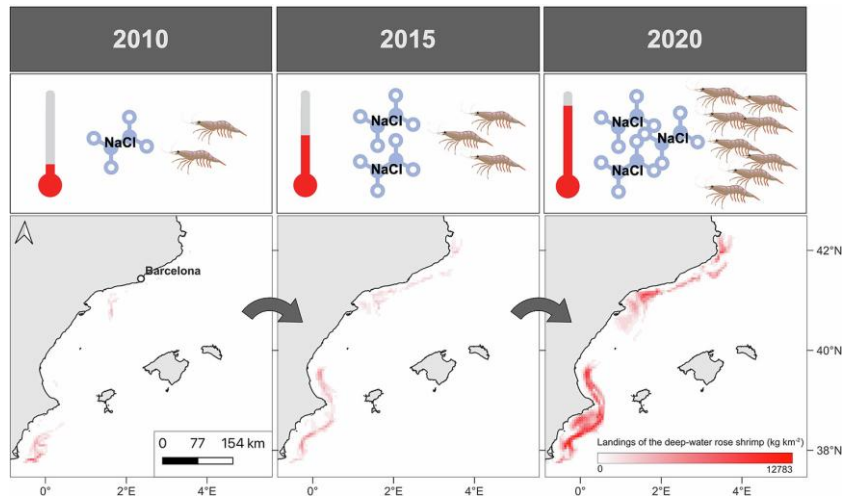


Marine litter characterization and distribution



Potential climate impacts

Deep-water rose shrimp



Northern brown shrimp

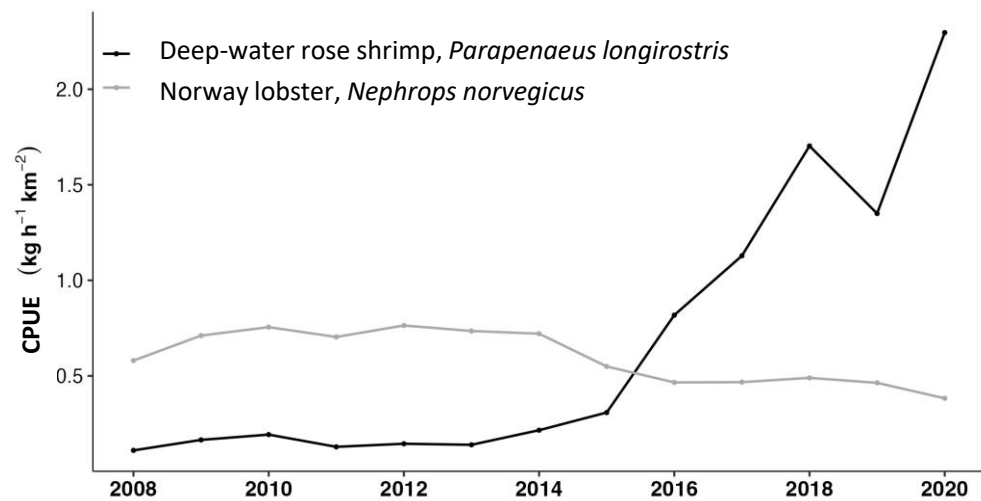


Blue crab



Our program allows to quickly detect changes in the distribution and abundance of species and the appearance of invasive species related to different factors, including climate change, thus proving its usefulness as a tool for the assessment of climate impacts on marine resources.

Potential climate impacts

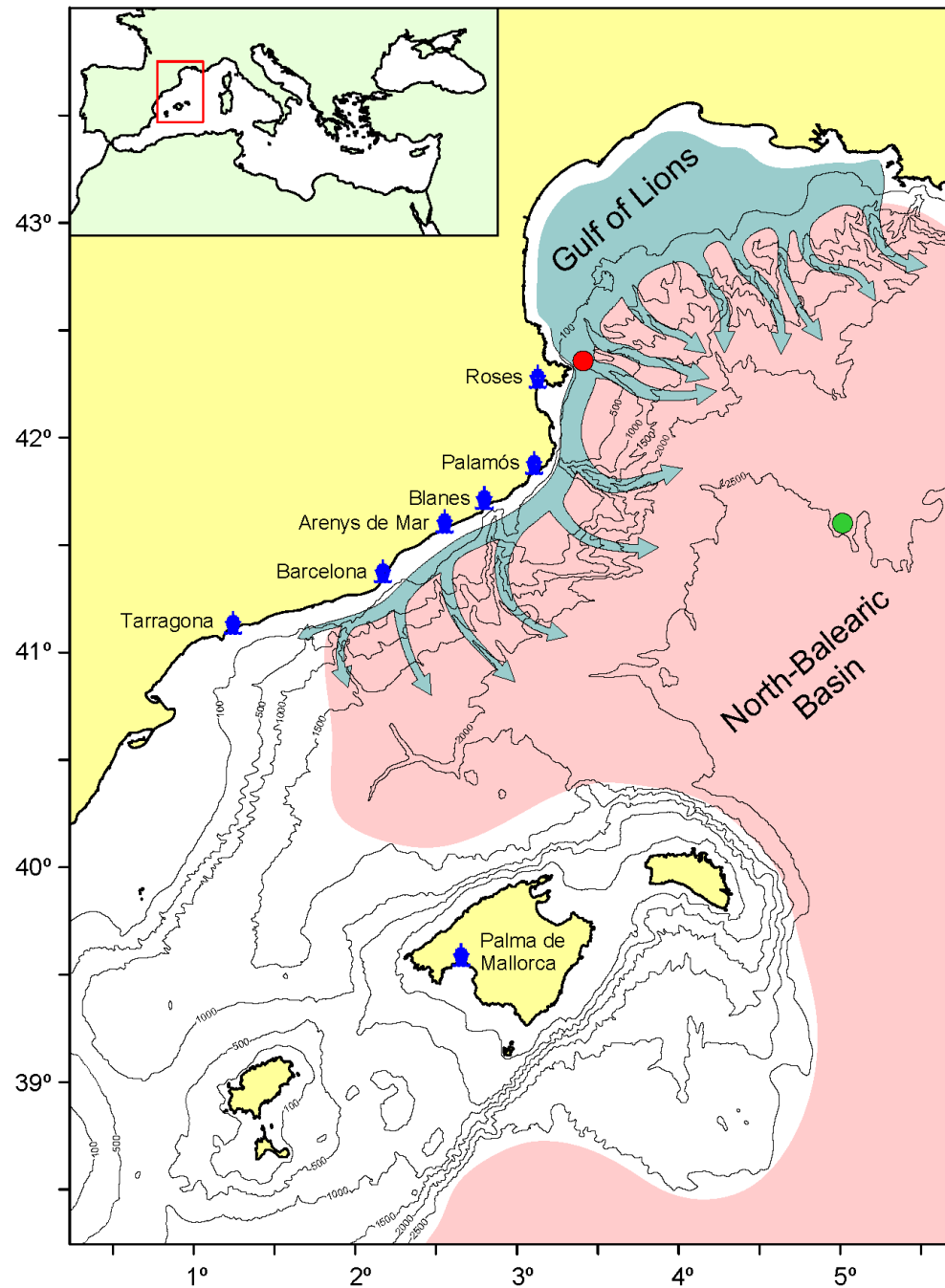


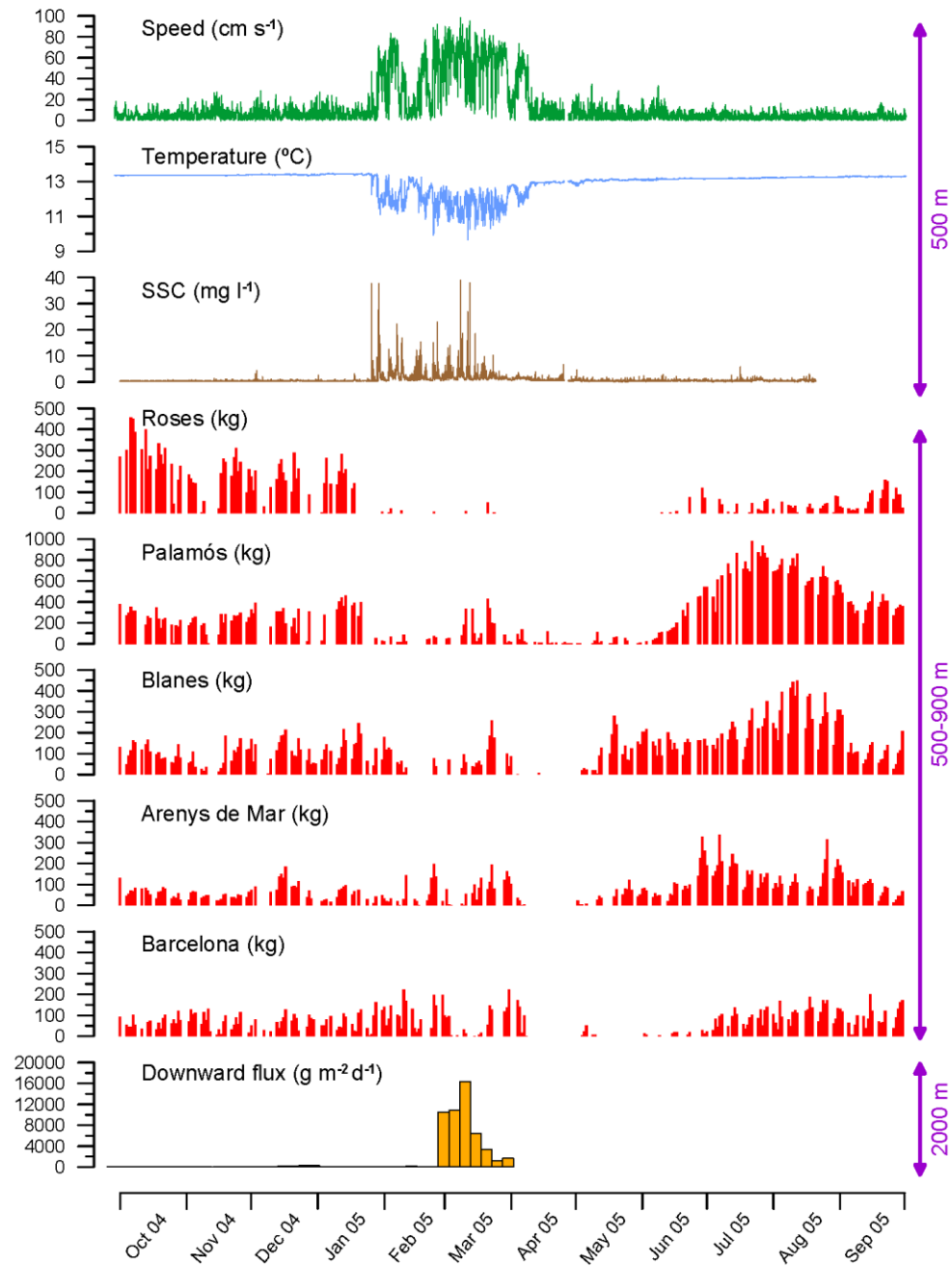
T₄₀₀ [°C]



Comparison between N. norvegicus landings and a mode for temperature at 400 m depth

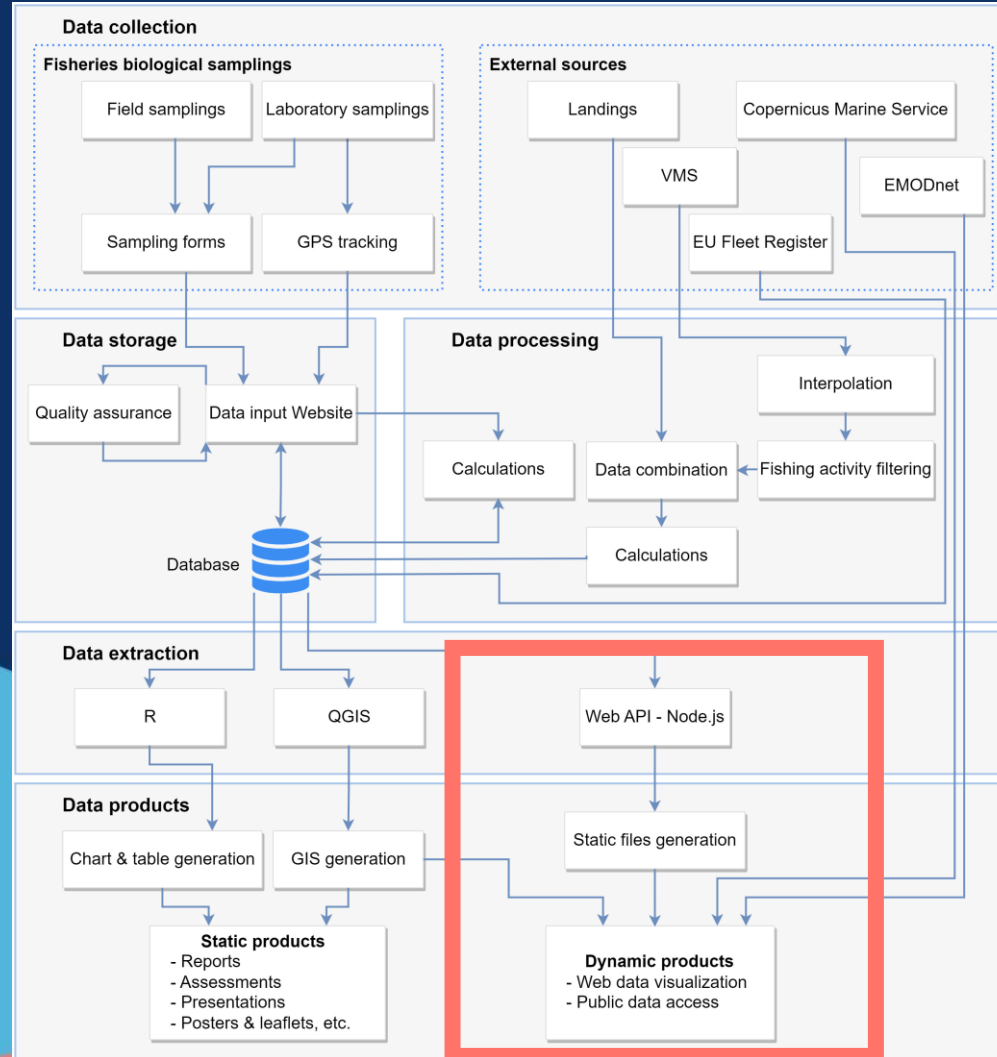
Dense deep water cascades





*Temporal collapse of
blue and red shrimp*

Web visualization



www.icatmar.cat



[who are we?](#) [fisheries](#) [operational oceanography](#) [news](#) [publications](#) [contact](#) [viewers](#) [en](#)

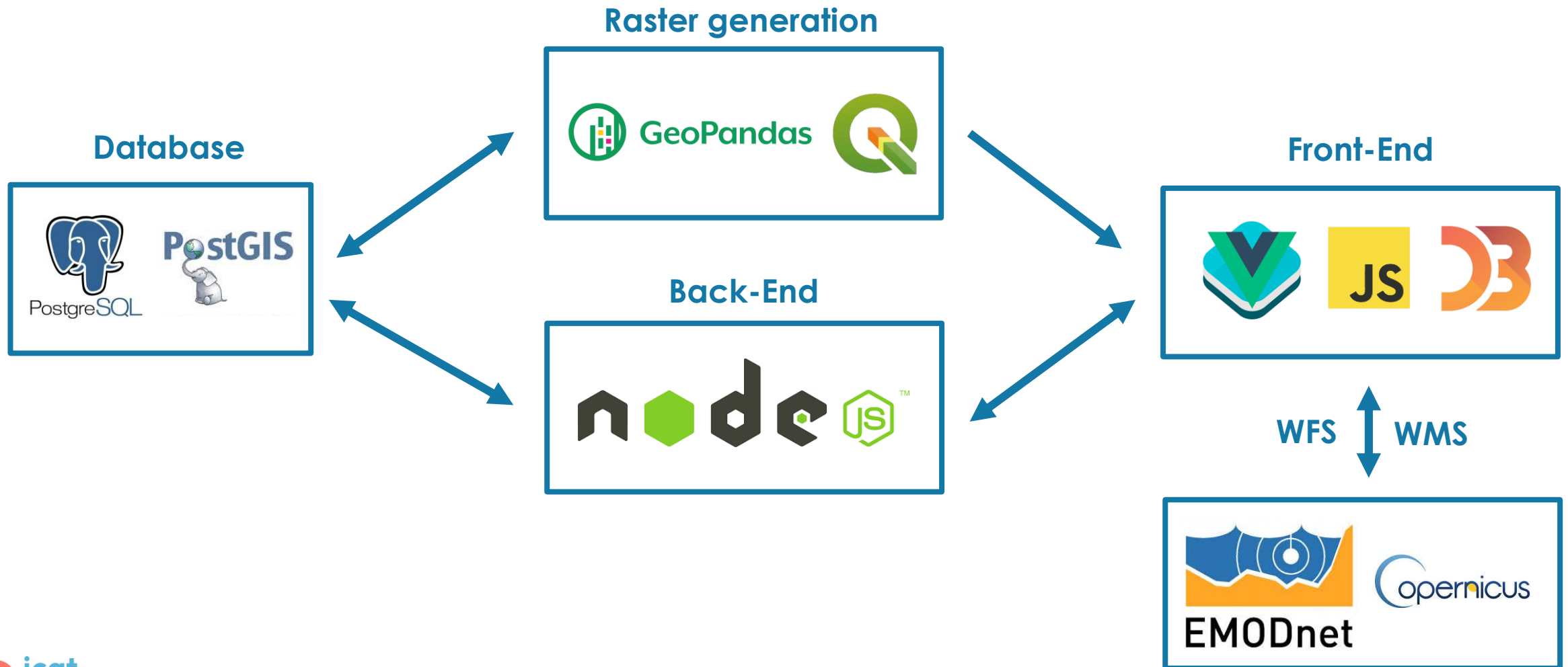
We study the fishing
resources present along
the Catalan coastline

[Fisheries](#) →



Explore ICATMAR data with
our different viewers and

Web application architecture



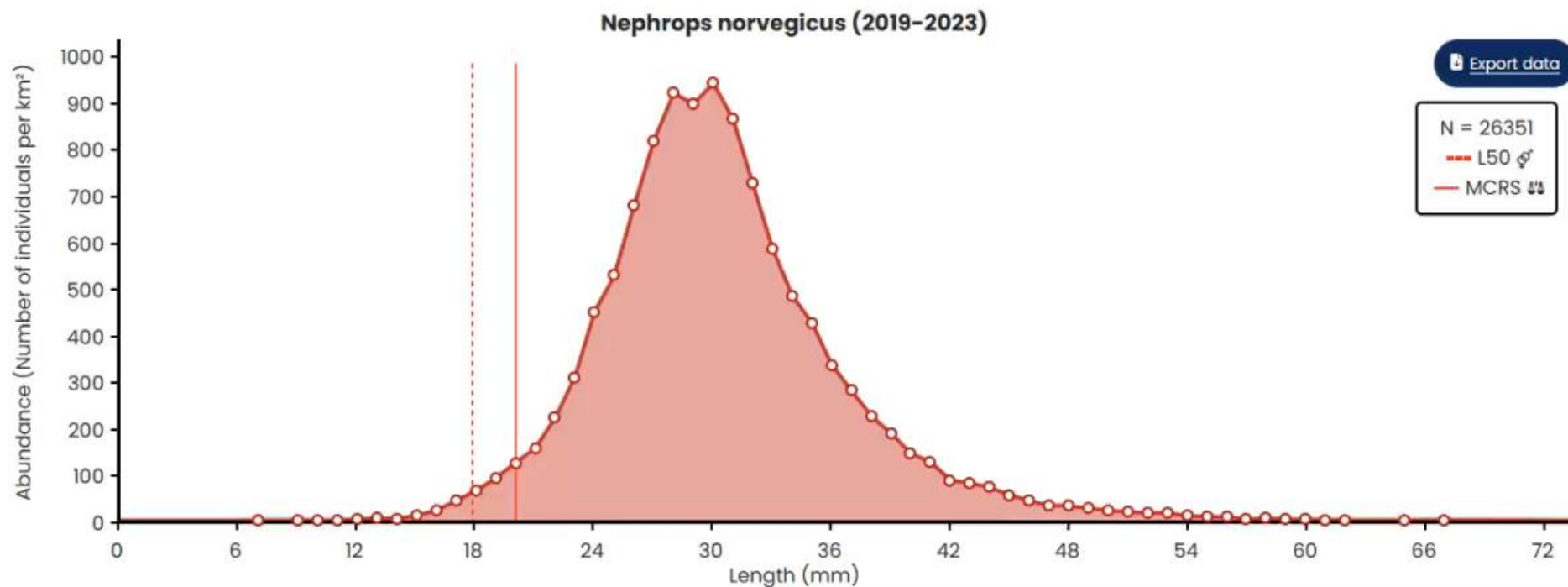
Web visualization

Catch composition
per port/season



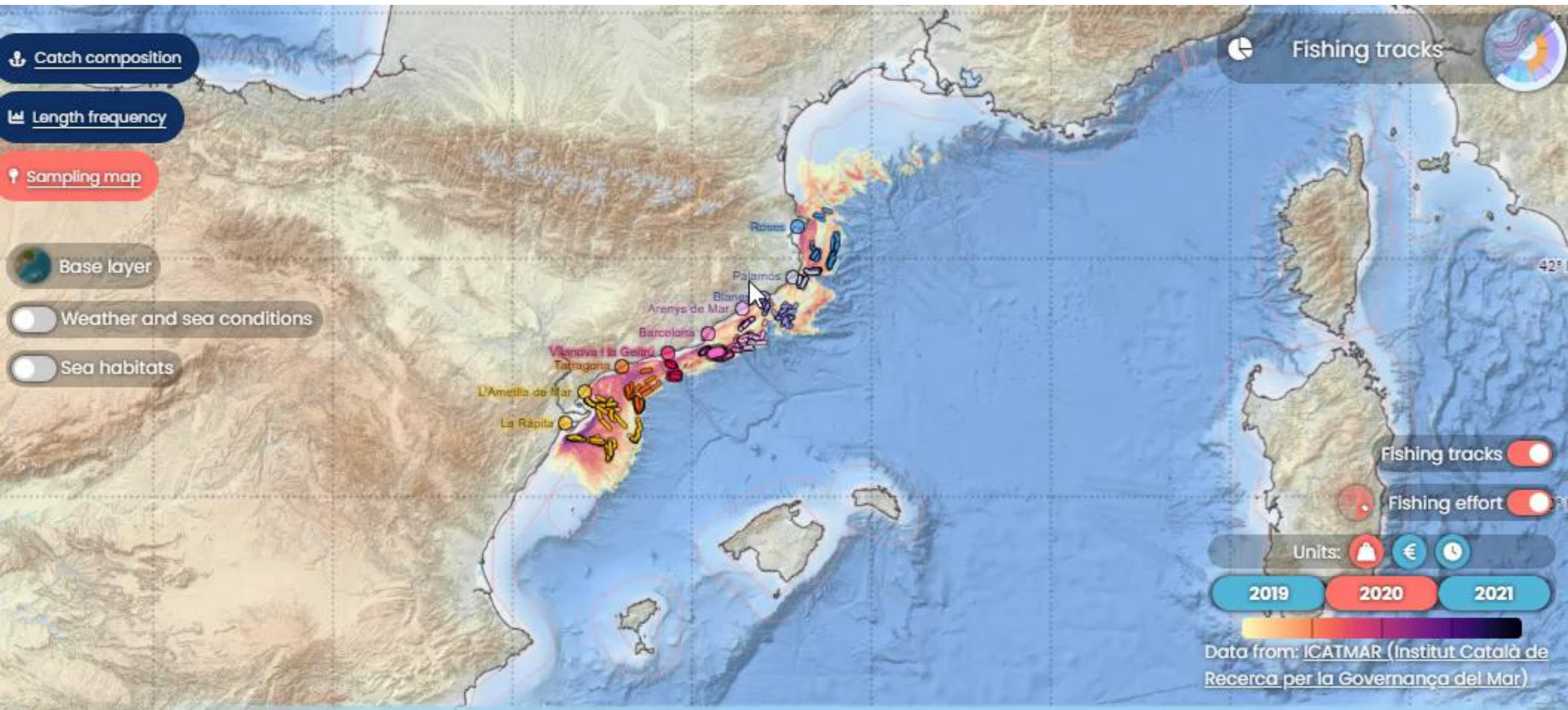
Web visualization

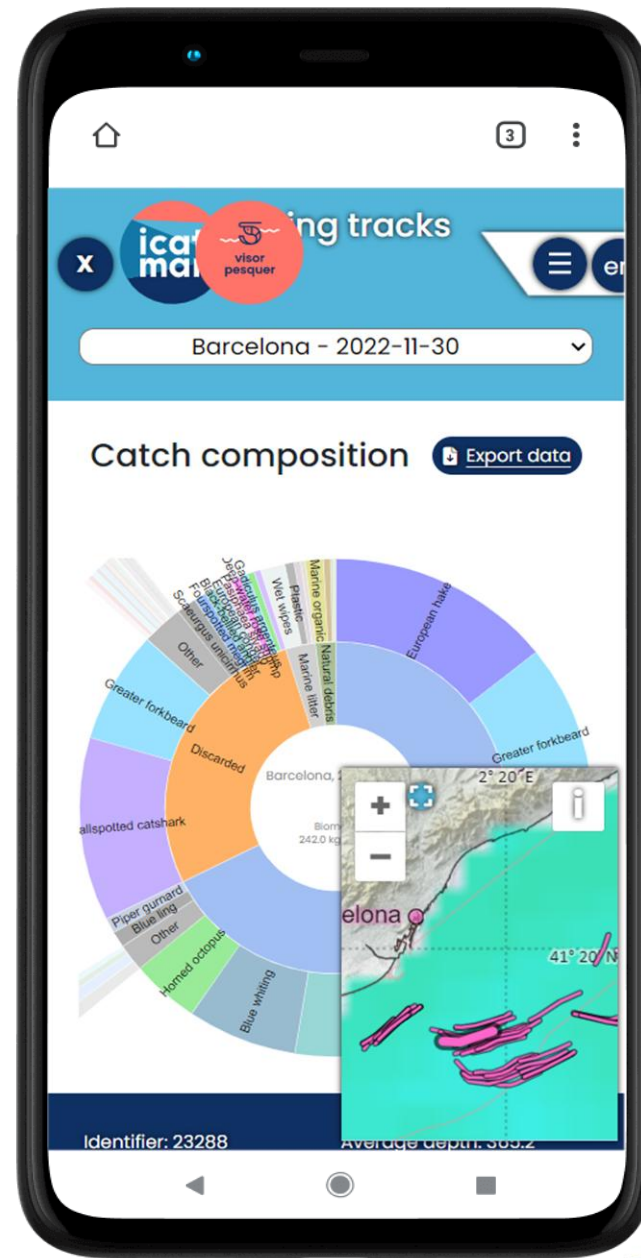
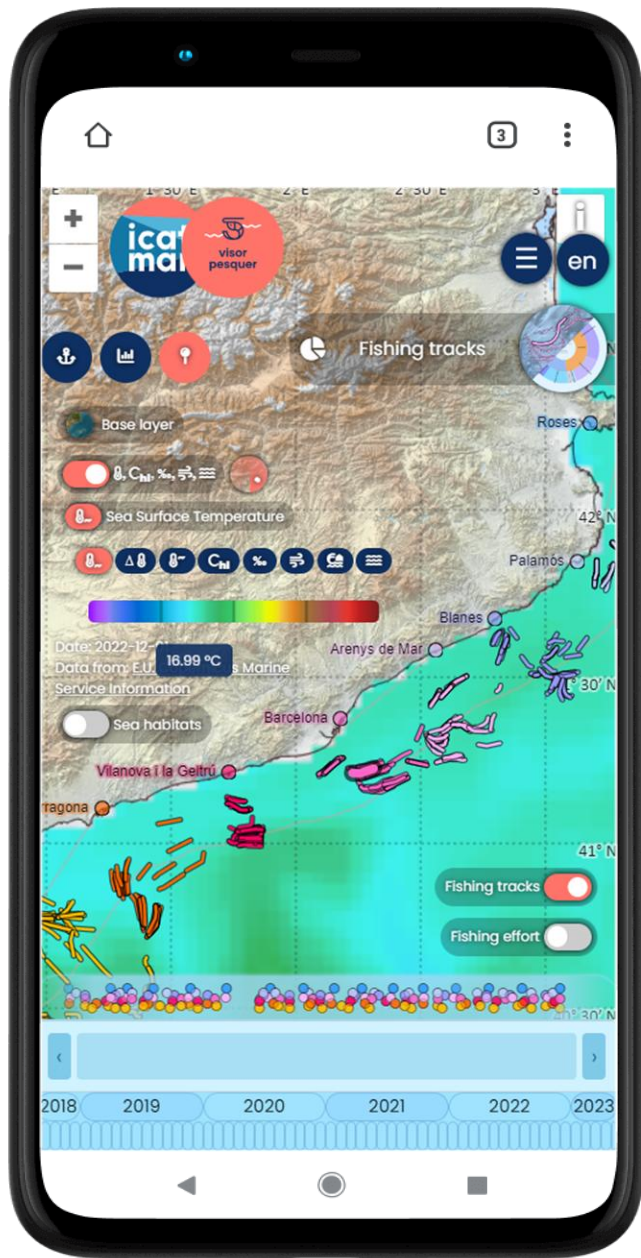
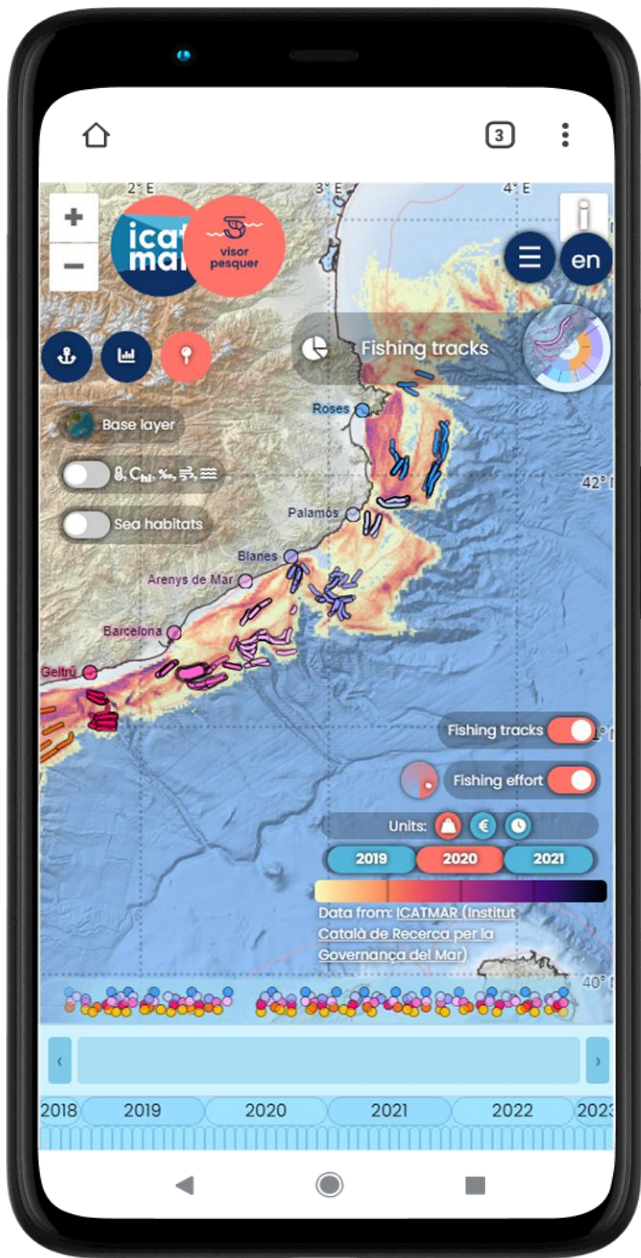
Length distribution per year, season, región and métier



Web visualization

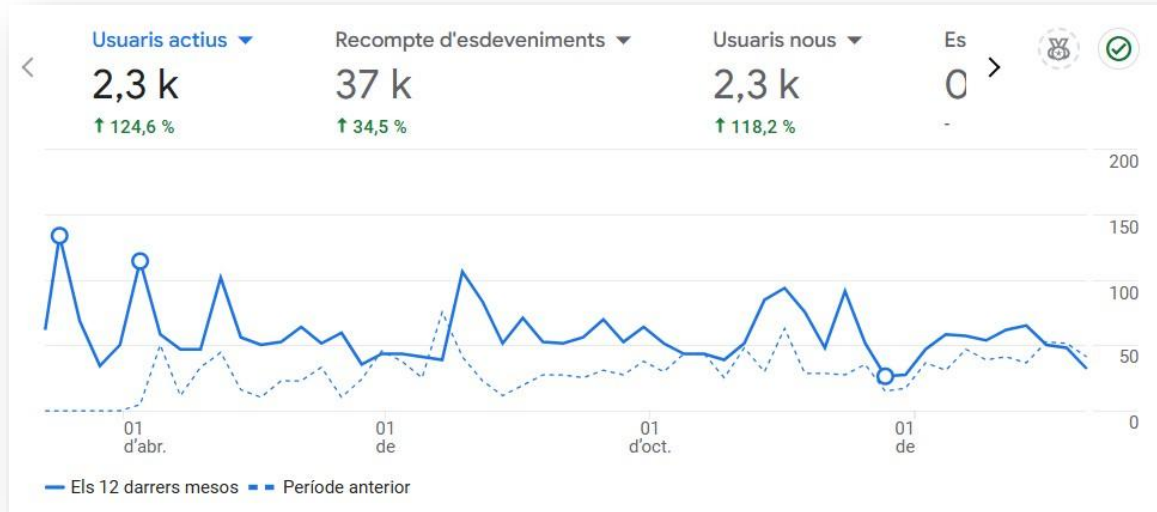
Geolocalized fishing catch & Environmental variables





Web traffic (last 12 months)

Evolution of users on the web



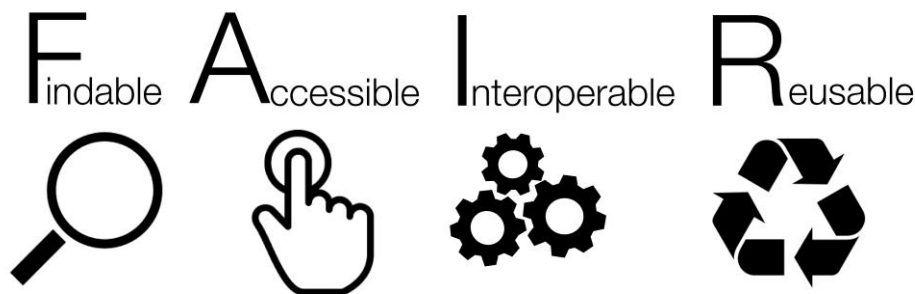
- **13,000** visits from **2,300** different users
- **> 400** visits to technical reports
- **2 minutes** average stay per user

Users by country



- **> 2,500** visits to viewers
- **> 600** data downloads

FAIR principles



sFTP

ERDDap



ERDDAP > griddap > Data Access Form

Dataset Title: **Near Real Time Surface Ocean Velocity**

Institution: Catalan Institute of Research for the Governance of the Sea (Dataset ID: netcdf_6034_3e68_cb99)

Information: [Summary](#) | [License](#) | [FGDC](#) | [ISO 19115](#) | [Metadata](#) | [Background](#) | [Files](#) | [Make a graph](#)

Dimensions	Start	Stride	Stop	Size	Spacing
☒ time (UTC)	2025-06-11T07:00:00Z	1	2025-06-11T07:00:00Z	300	1h 7m 1s (uneven)
☒ depth (m)	0.0	1	0.0	1	(just one value)
☒ latitude (degrees_north)	39.5851	1	43.0681	130	0.027 (even)
☒ longitude (degrees_east)	0.06352	1	4.26898	120	0.03534 (even)

Grid Variables (which always also download all of the dimension variables)

- ☒ u (Surface Eastward Sea Water Velocity, m s-1)
- ☒ v (Surface Northward Sea Water Velocity, m s-1)
- ☒ stdu (Standard Deviation Of Surface Eastward Sea Water Velocity, m s-1)
- ☒ stdv (Standard Deviation Of Surface Northward Sea Water Velocity, m s-1)
- ☒ gdop (Geometrical Dilution Of Precision, 1)
- ☒ cov (Covariance Of Surface Sea Water Velocity, m2 s-2)
- ☒ qcflag (Overall quality flag, 1)
- ☒ vart_qc (Variance threshold quality flag, 1)
- ☒ gdop_qc (GDOP threshold quality flag, 1)
- ☒ ddns_qc (Data density threshold quality flag, 1)
- ☒ cspd_qc (Velocity threshold quality flag, 1)

Thank you

 www.icatmar.cat

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 linkedin.com/company/icatmar

 github.com/ICATMAR

