TRACKING FLOATING MARINE LITTER IN THE COASTAL AREA BY COMBINING OPERATIONAL OCEAN MODELLING AND REMOTE OBSERVATION SYSTEMS.

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COPERNICUS · MARINE ENVIRONMENT MONITORING SERVICE

CMEMS
DEMONSTRATION
COASTAL – IBI

Copernicus
European Union Programme

MERCATOR
OCEAN
INTERNATIONAL

FML-TRACK
Contract 110-DEM5-L1
Until 31 March 2021

1.

Presentation

Company Presentation

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Center Rivages Pro Tech of SUEZ is an operational metocean service provider. It offers real time monitoring, modelling and decision-aid solutions to support coastal management like e.g. water quality, marine litter, coastal risks, MRE, etc. **AZTI** is a marine research center with a long experience in using operational oceanography to support local authorities. It is also an observation network operator (HF radars, ocean buoys, video monitoring, etc.) **TELESPAZIO France** is a leading service provider of space related services, part of the French group Thales and the Italian group Leonardo, supplying value added satellite services and applications for geo-information, navigation and telecommunications.	SUEZ \ Rivages Pro Tech (coordinator) • 40 000 \ 16 collaborators • Worldwide \ Biarritz, Bordeaux, Marseille • 10+ years of expertise

FML-TRACK Overview

SERVICE: FML-TRACK is a decision-aid service supporting the management of floating marine litter in coastal areas
→ Improve knowledge and guide remediation strategies.
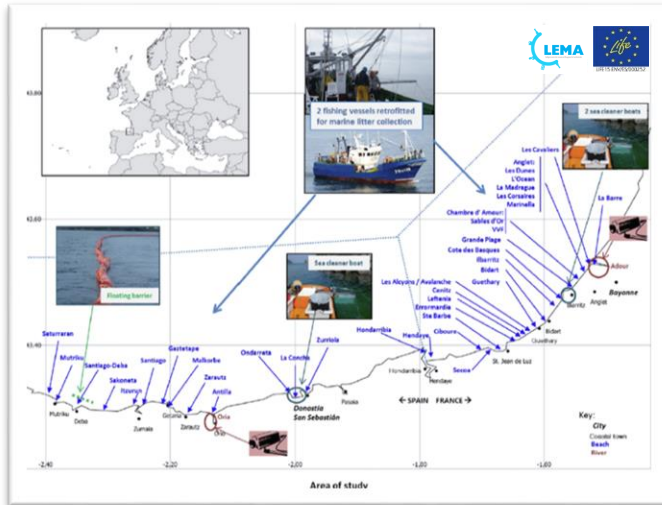
END USERS:

- Public administrations (supports: agglomeration CAPB, Biarritz city, Diputación Foral de Gipuzkoa)
- Waste services companies (e.g. SUEZ Recycling & Valorization)
- Scientific and associative communities (e.g. Univ Pau, Surfrider Foundation)

GEOGRAPHICAL AREAS:

SE Bay of Biscay (coast of Gipuzkoa/Aquitaine)
& French Mediterranean (bay of Marseille)

https://fmltrack.rivagesprotech.fr

Objectives of the demonstrated service

An ensemble of complementary technologies to support knowledge acquisition and remediation actions to reduce FML pollution

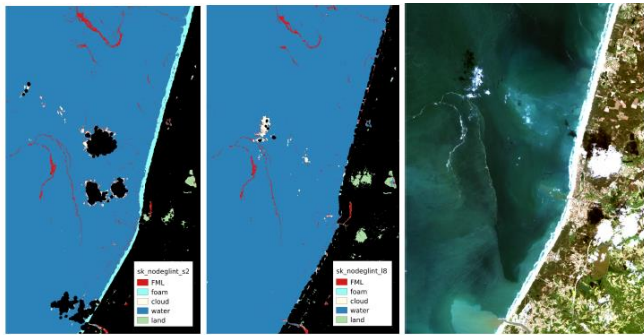FML-TRACK: operational service to support the reduction of Floating Marine Litter in the coastal area
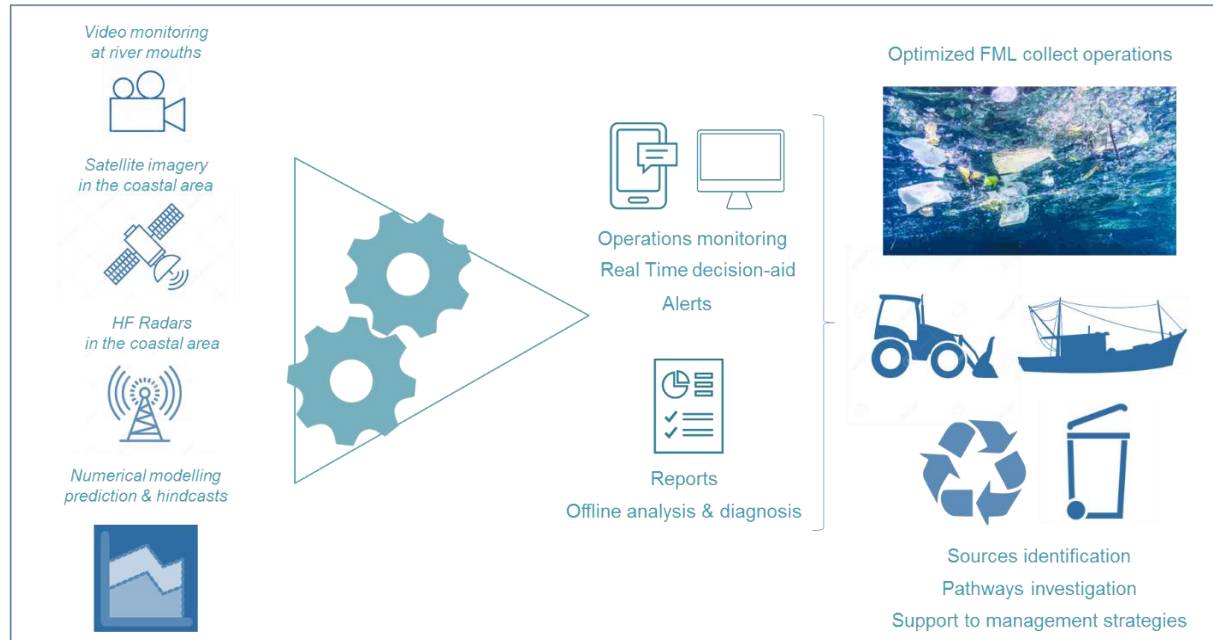
2.

Development & Demonstration

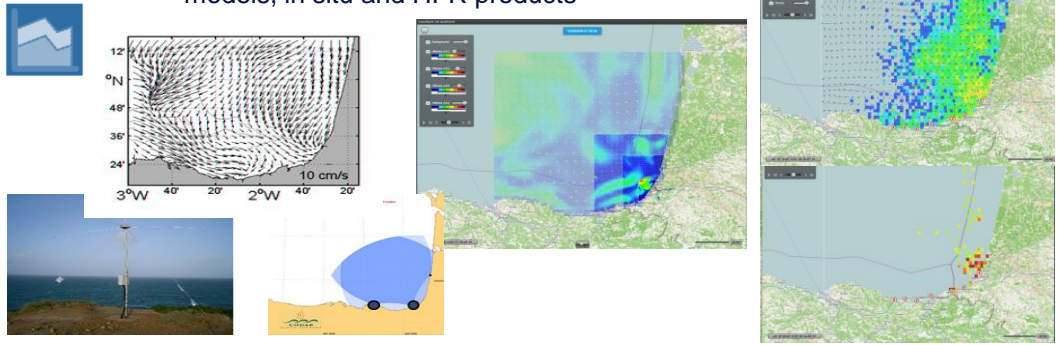# Development of FML multi-observation & transport modelisation plateforme

Detection at sea using algorithms built with CMEMS ocean colour products

Local predictive modelling using CMEMS models, in situ and HFR products
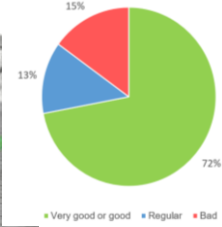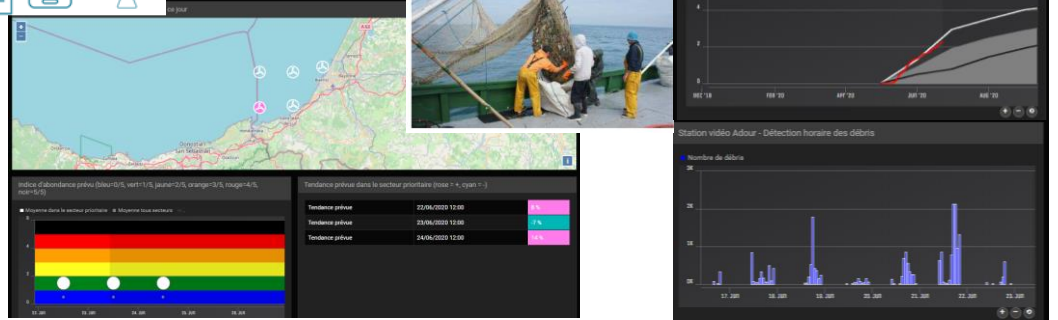
Local video monitoring at river mouths

User-oriented information and decision-aid

Real time monitoring and predictive component : decision-aid for marine litter collect operations

DEMONSTRATION AND ASSESSMENT IN REAL CONDITIONS
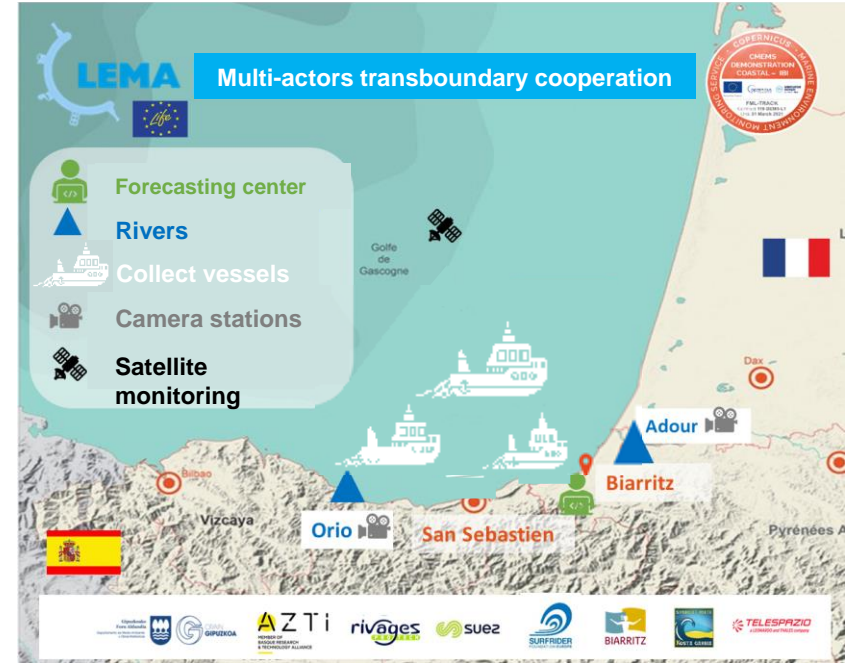
- ❏ **4 COLLECT VESSELS INVOLVED**
    - 2 fishing vessels
    - 2 cleaning vessels

- ❏ **CITIES BEACH CLEANING SERVICES PARTICIPATION**
    - Monitoring litter arrivals daily
    - Biarritz city (FR) + Gipuzkoa Council (SP)

- ❏ **2 RIVERS MONITORED IN REAL TIME BY VIDEO STATIONS**
    - Adour, french coast
    - Orio, spanish coast

Real time monitoring and predictive component : decision-aid for litter collect operations

EXEMPLE OF SERVICE TECHNOLOGIES ASSESSMENT

– Prediction of Marine Litter accumulation at sea

- Observed abundance reported by vessels collection each day
- Monitoring of each trawling, litter collected and hotspots

Abundance reporting from observations [Itsas Belarra 2020]

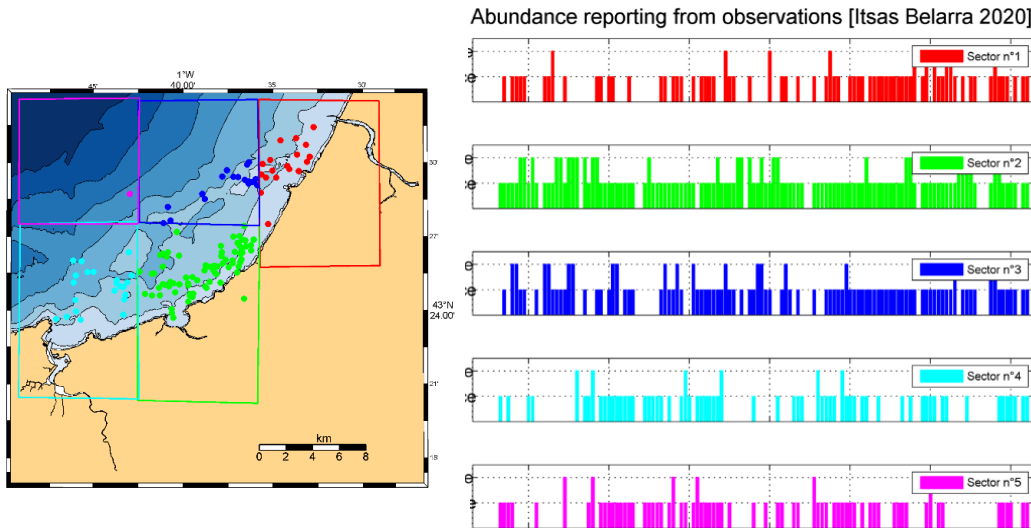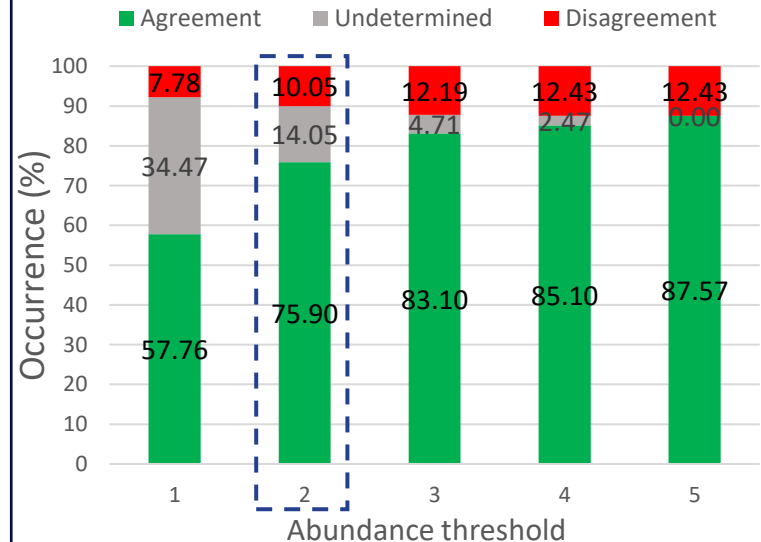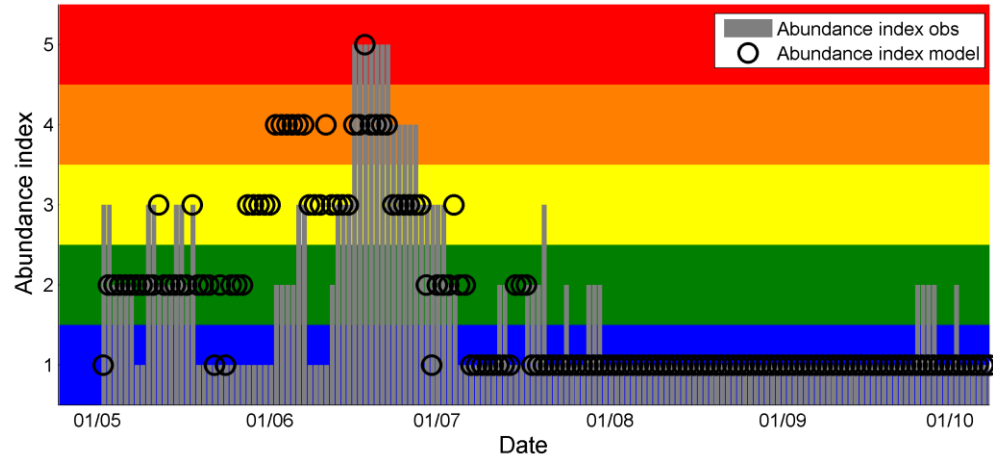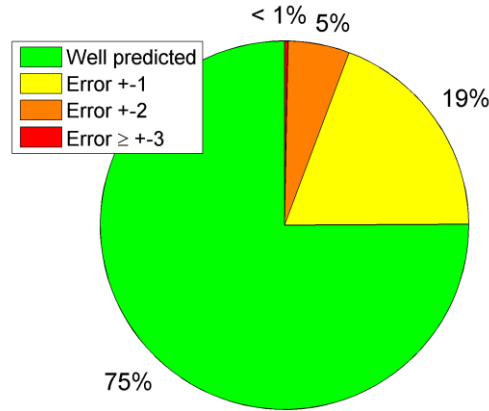Forecasted class of abundance of litter at sea consistent with observations up to 75%

Real time monitoring and predictive component : decision-aid for litter collect operations

EXEMPLE OF SERVICE TECHNOLOGIES ASSESSMENT

– Prediction of Marine Litter arrivals onshore

3.

Conclusion & Future

Conclusion & Future

- SUEZ, AZTI and TPZ develop the FML-TRACK service to **support the reduction of FML** in coastal areas

- **CMEMS products** are used to provide boundary conditions, input and control data to the system

- **Main benefits** for FML-TRACK to use of CMEMS products are: **concentrate monitoring and modelling a complementary effort at the local scale**

- Concrete results obtained: **generate unprecedented information about FML** in the pilot coastal area, derive **useful guidance** for remediation actions

- Prospect for new application sites: ongoing **replications on other areas** (e.g. bay of Marseille)

Credits & Acknowledgments

The FML-TRACK service is generated using E.U. Copernicus Marine Service Information

The FML-TRACK service demonstration is conducted as part of the user uptake program of the Copernicus Marine Environment Monitoring Service (110-dem5-l1)
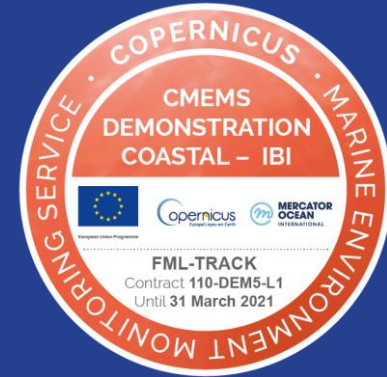
- The FML-TRACK User Uptake proposal was supported by the following end users
    - Communauté d'Agglomération Pays Basque
    - Ville de Biarritz
    - Deputacion Foral de Gipuzkoa
    - Surfrider Foundation Europe

- FML-TRACK components related to video monitoring and numerical modelling tool benefit from previous work conducted as part of **LIFE LEMA project** funded by the European LIFE program (2016-2019)