INTECMAR Applications for Oil Spill and Aquaculture

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Pedro Montero (INTECMAR)

pmontero@intecmar.gal

INSTITUTO TECNOLOXICO
PARA O CONTROL DO
MEDIO MARIÑO DE GALICIA

EUROPEAN UNION

European Regional Development Fund

INTECMAR

- INTECMAR: Public Agency of Regional Government of Galicia (NW Spain).

- Location: Vilaxoán (Vilagarcía de Arousa).

- Goal: To control the quality of the marine environment and the implementation of the regulations as regards the technical and health control of sea products.

- Staff: ~100 people

Collaboration with MeteoGalicia

- MeteoGalicia is in charge of Operational Models

- INTECMAR is mainly focused on:
  - Sea monitoring
  - Add value products for aquaculture, fisheries and contingency plans

- INTECMAR supports MeteoGalicia Operational Models:
  - Validation
  - Results visibility
  - Strategic plan:
    - Biogeochemical model for rias
    - Data assimilation
    - Oil spill tool

Operational Oceanography Schema

MeteoGalicia OO: Regional and Local Level

ROMS
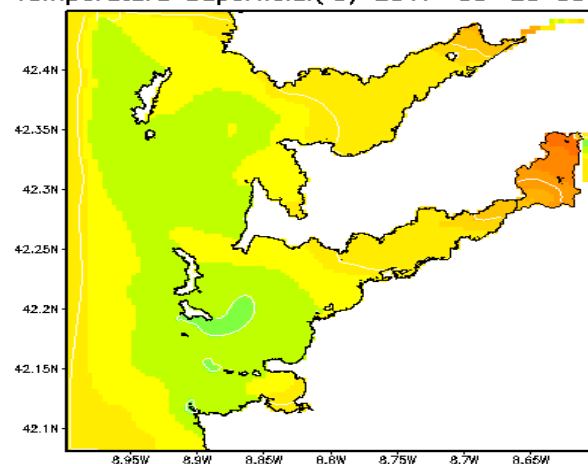Correntes Superficiales (m/s) 2017-09-26 15:00Z
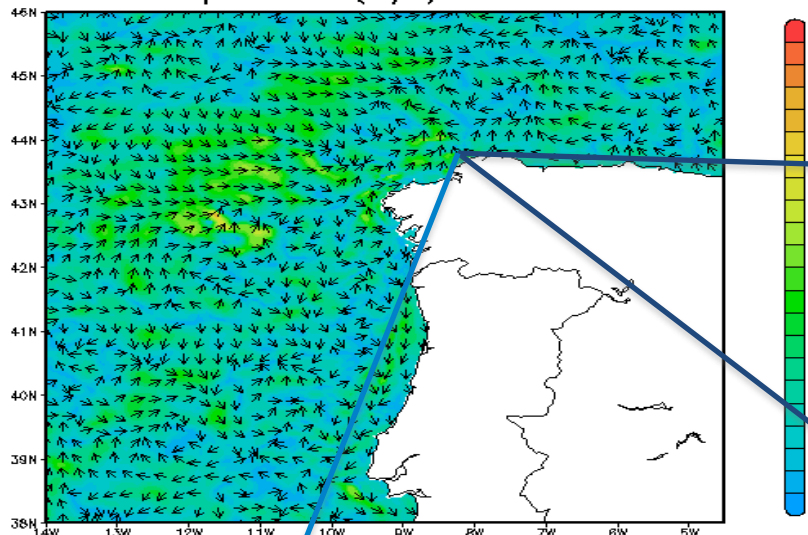
MeteoGalicia — CMAOT — Xunta de Galicia

MOHID
Velocidade Superficial (m/s) 2017-09-24 00:00Z
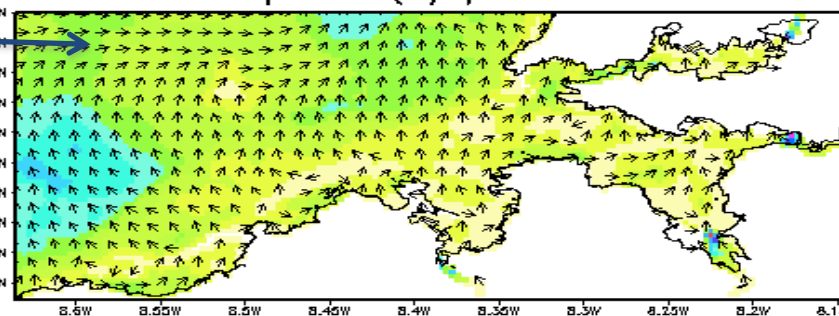
MOHID
Temperatura Superficial(°C) 2017-09-26 09:00Z

MOHID
Salinidade Superficial (psu) 2017-09-26 01:00Z


MOHID
Velocidade Superficial (m/s) 2017-09-24 00:00Z

Model (Local):

MOHID
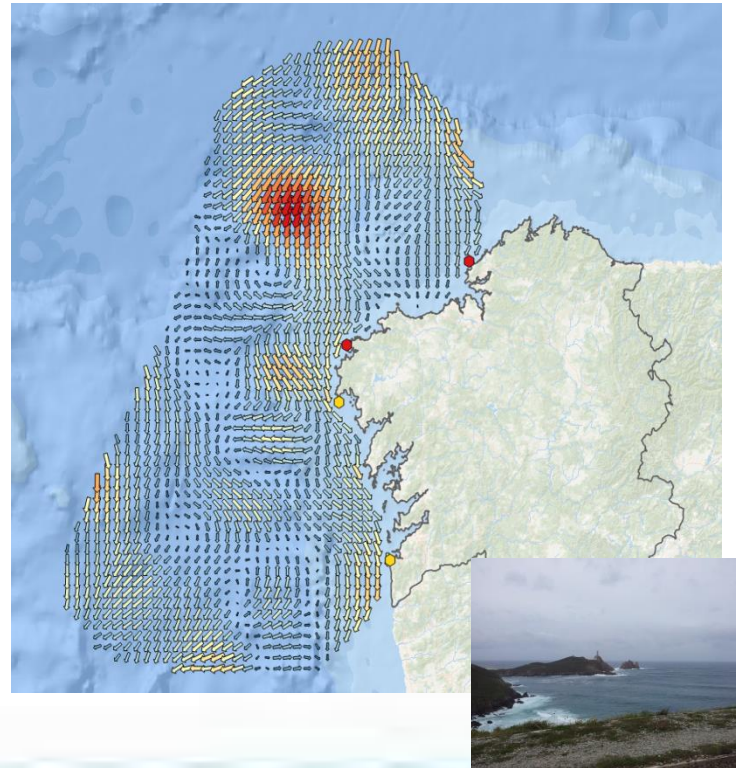- forescast: 3 días
- 4 grid 300m + 2malla 50m

  Artabro, Noia_Muros, Arousa, Vigo/Pontevedra
  Bays: Langosteira & Coruna
- OpenMp

- Dx = 300m/ DT = 30s
- Dx =50m, DT= 15
- Ocean forcing – Roms 2km/DT=900s
- Meteo Forcing – WRF 4km
- Rivers – SWAT model
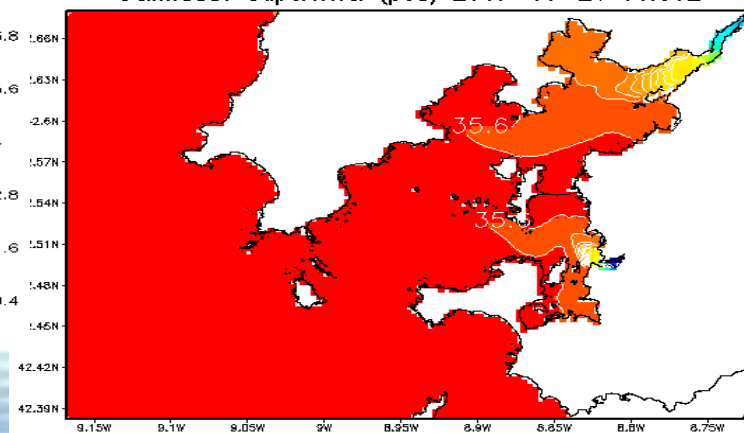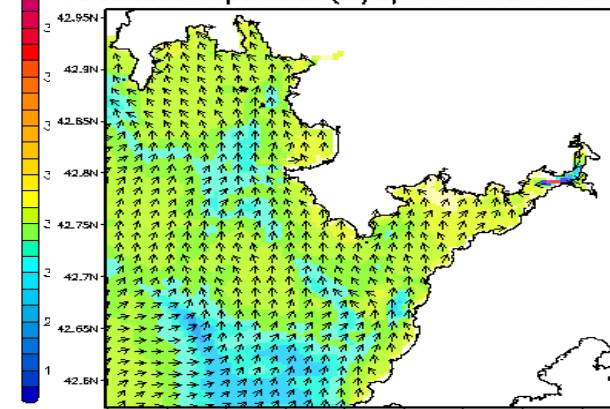
INTECMAR OO: Observation Network

AUTOMATIC PLATFORMS

- 6 mooring platforms
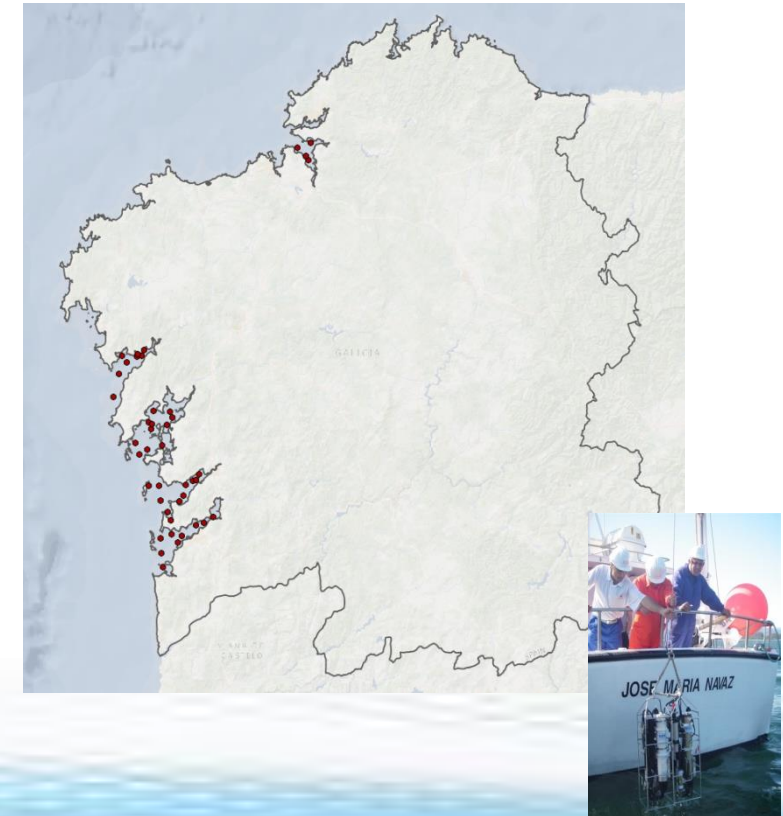- Intecmar, MeteoGalicia, CETMAR
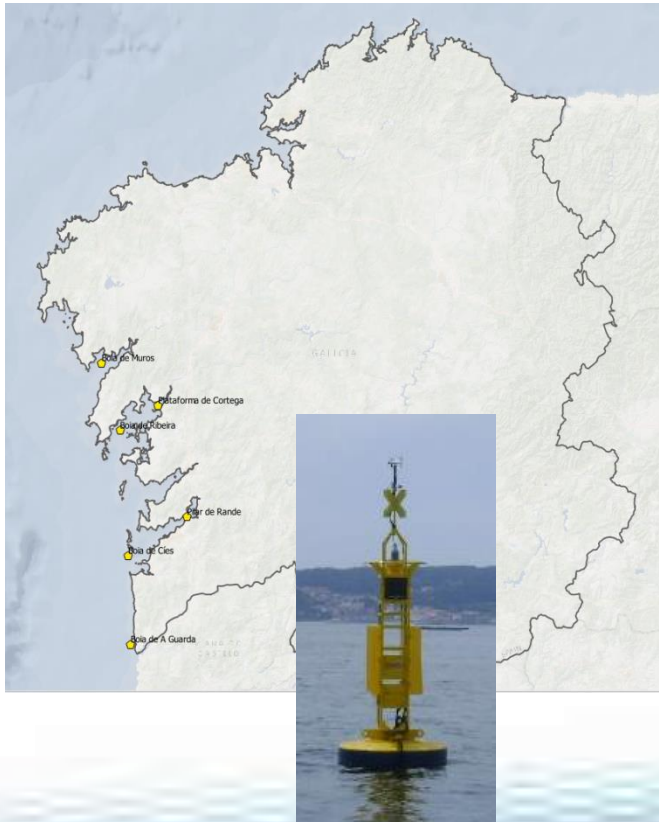
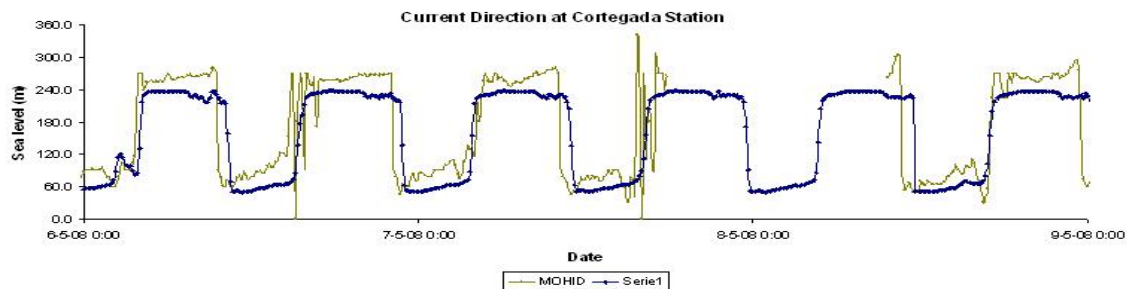## HF RADAR

- 4 Stations
- Intecmar, PdeE

CTD

- 43 weekly stations
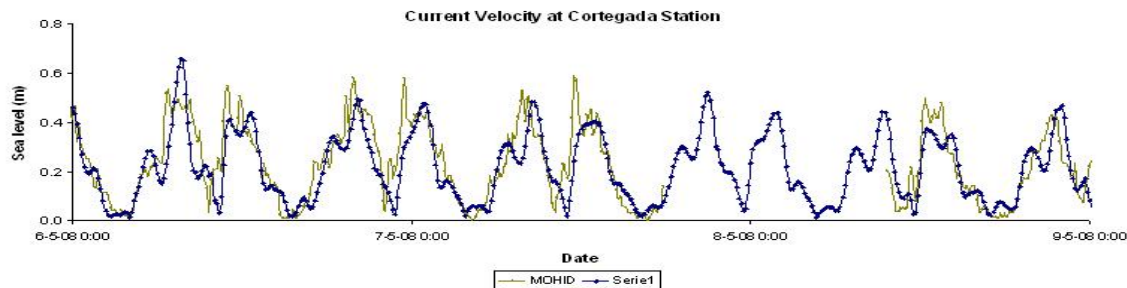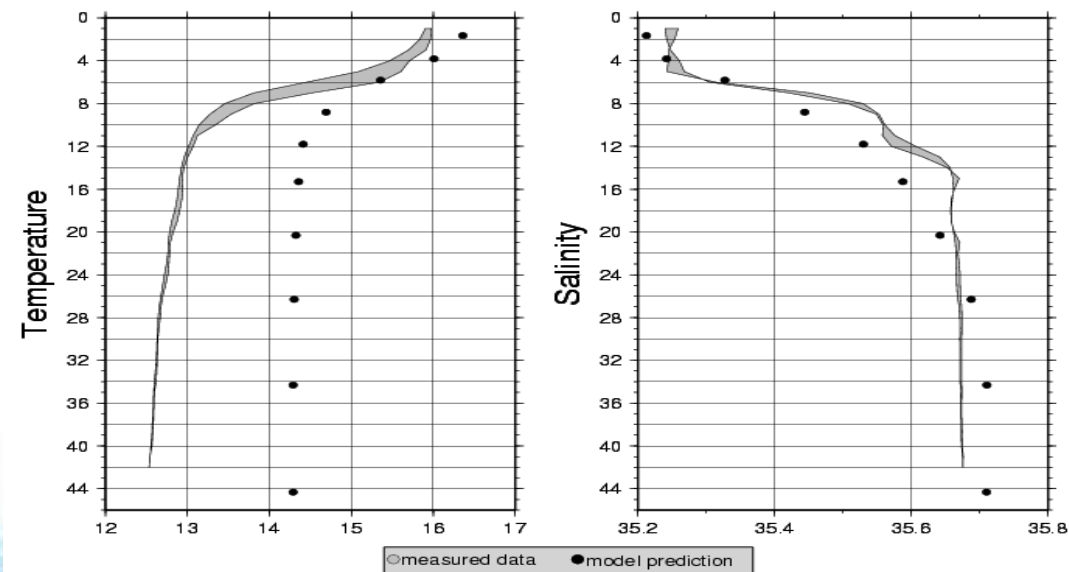- Intecmar

Validation:

Current Velocity at Cortegada Station

Current Direction at Cortegada Station

Current velocity and direction at Cortegada station. Model vs observation.

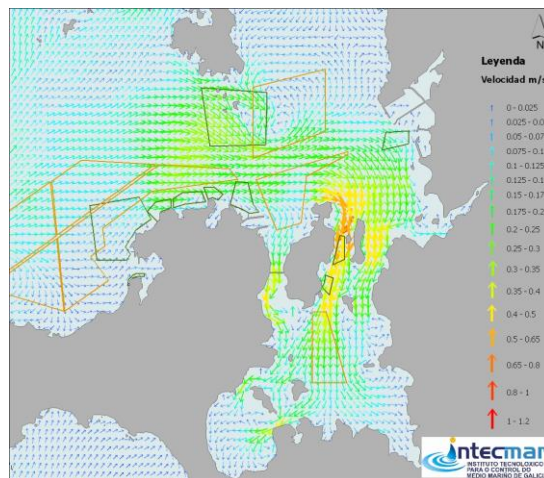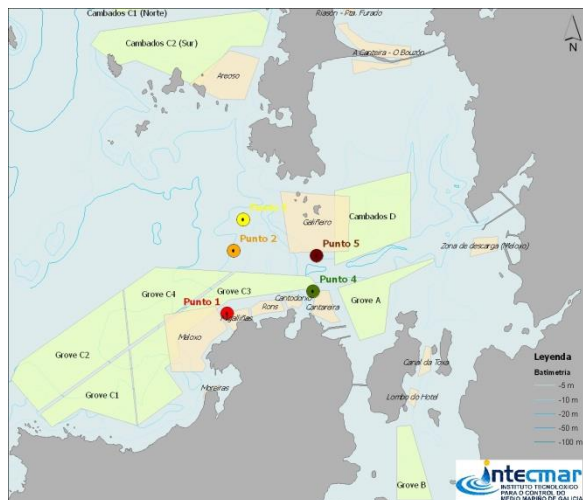Temperature and salinity vertical profile at Rande CTD station
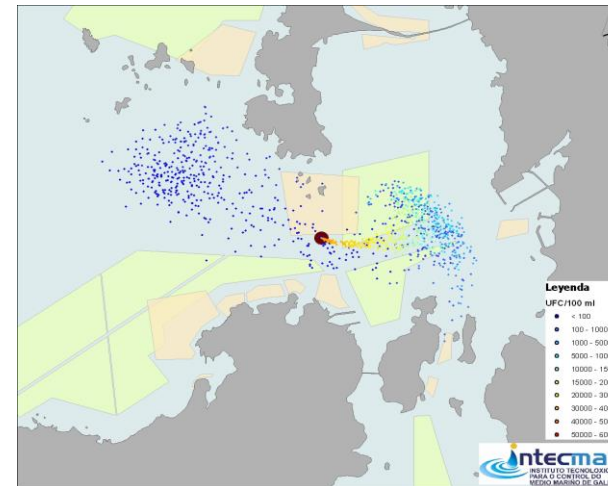
Aquaculture and fisheries

Case: Sewage location plan (2008/04/06)

New sewage outfall close to mussels and shellfish areas. Which will be the best location?
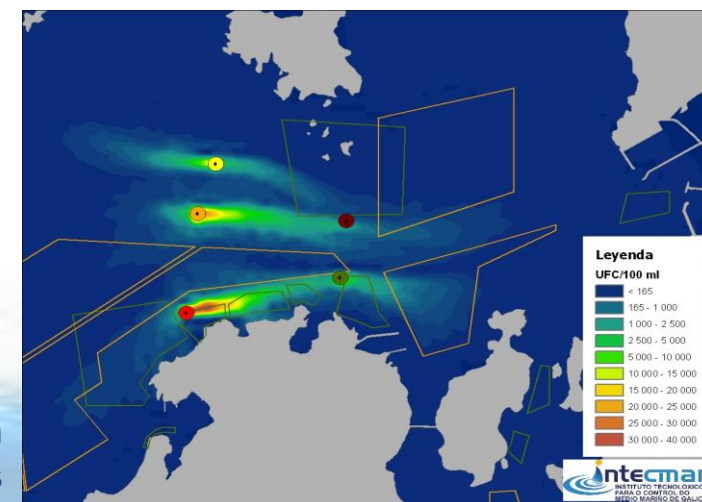
Proposed locations and shellfish areas

Nested Hydrodynamic model

Ecoli Lagrangian Model
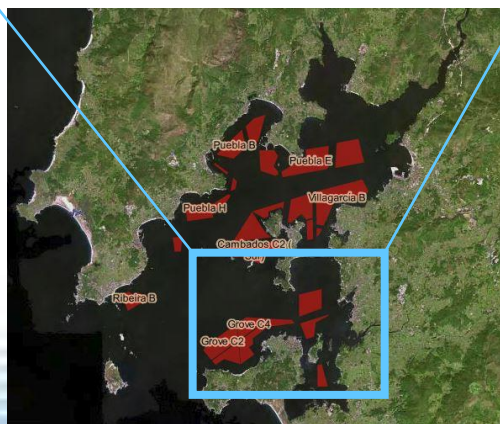
Ria de Arousa and mussels polygons

Ecoli concetration during 2 tidal prims
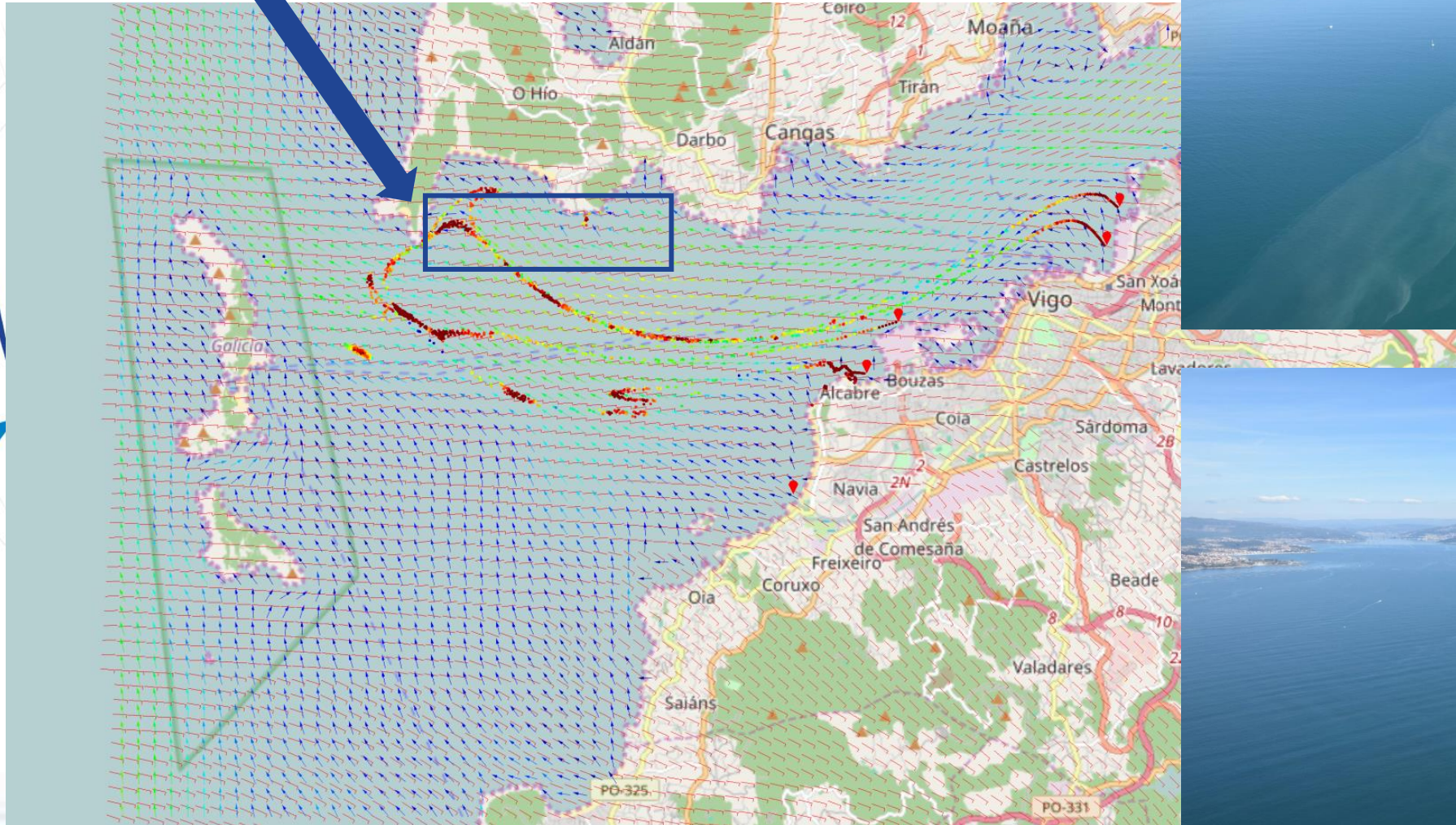
Case: Monitoring design (2017/02/16)

Sewage releases at 4 points due to initiate the new sewage treatment plant.
Which shellfish area will be affected in order to monitor them first?

Case: Monitoring design

High Level of Ecoli concentration
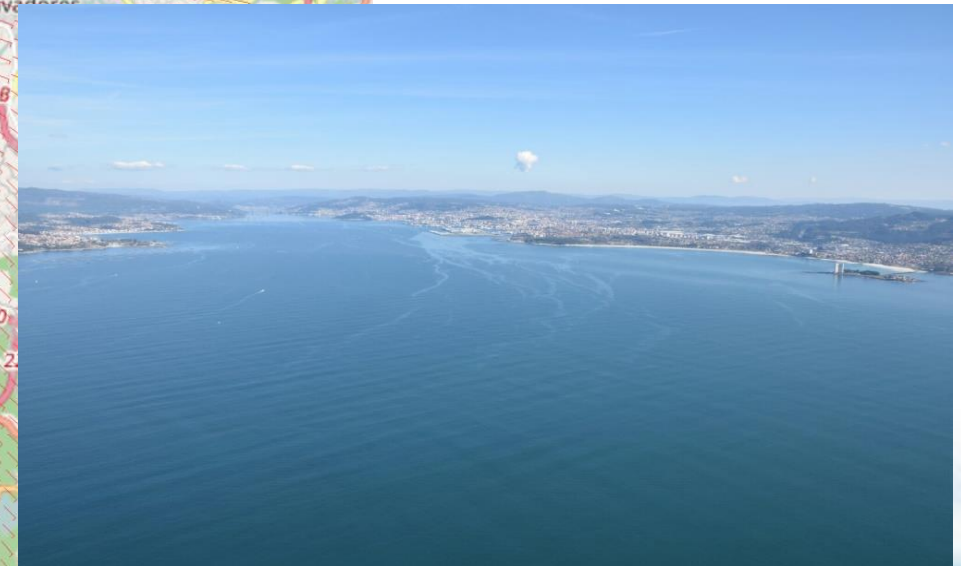
Oil Spill and Galician Contigency Plans

Case: Illegal spill evidence (2013/05/07)

Some oil slicks were observed in the morning. A black list ship on suspicious of spilling oil the night before

Authorities schema:
slicks in the morning -> Red lines
Suspected ship location the night before -> Red star
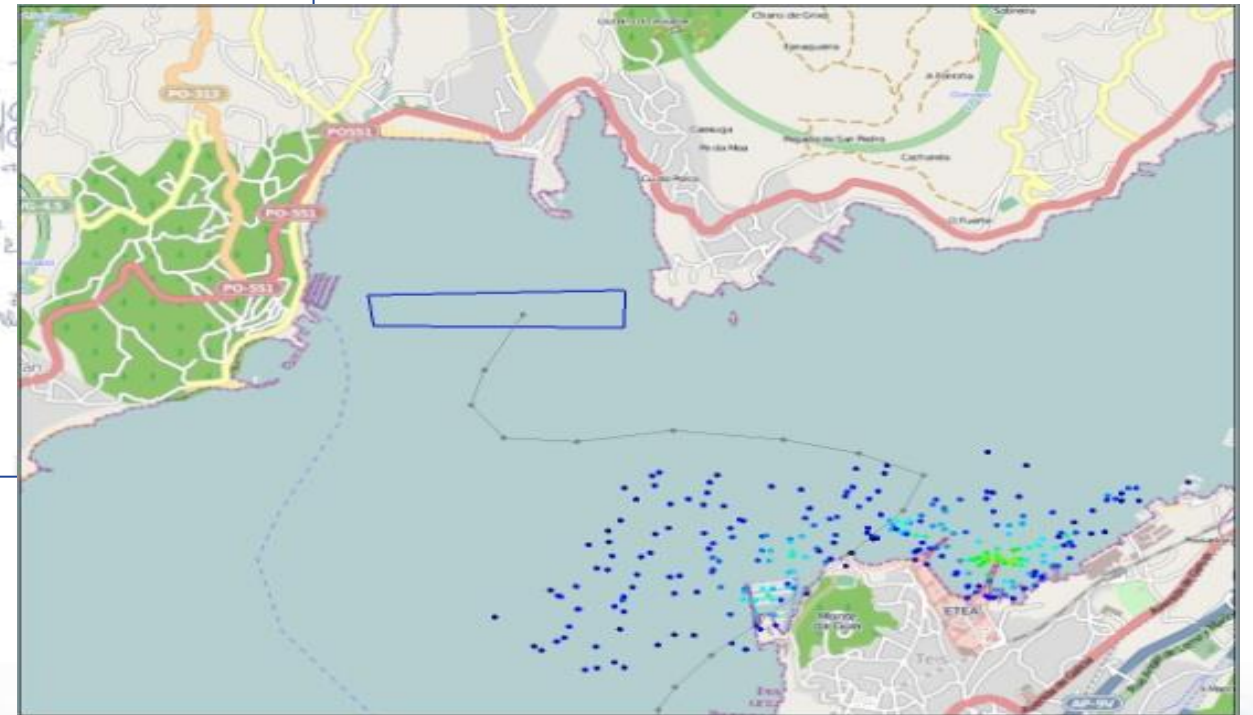
Backtracking simulation as evidence for a trial

Case: Looking for an illegal spill source (2017/06/19)

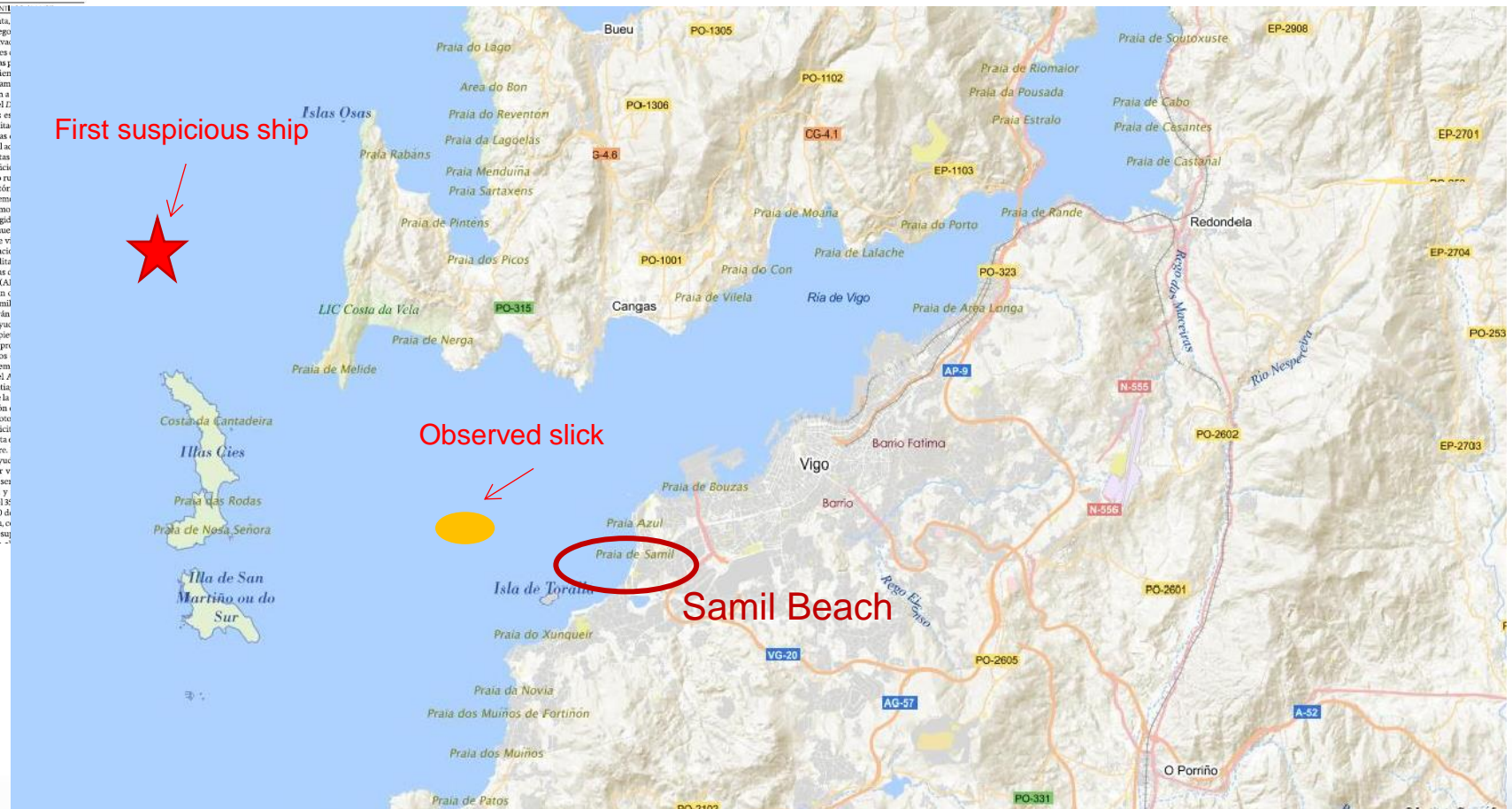Some oil slicks shown up in a beach near Vigo. The authorities want to know who was the polluter
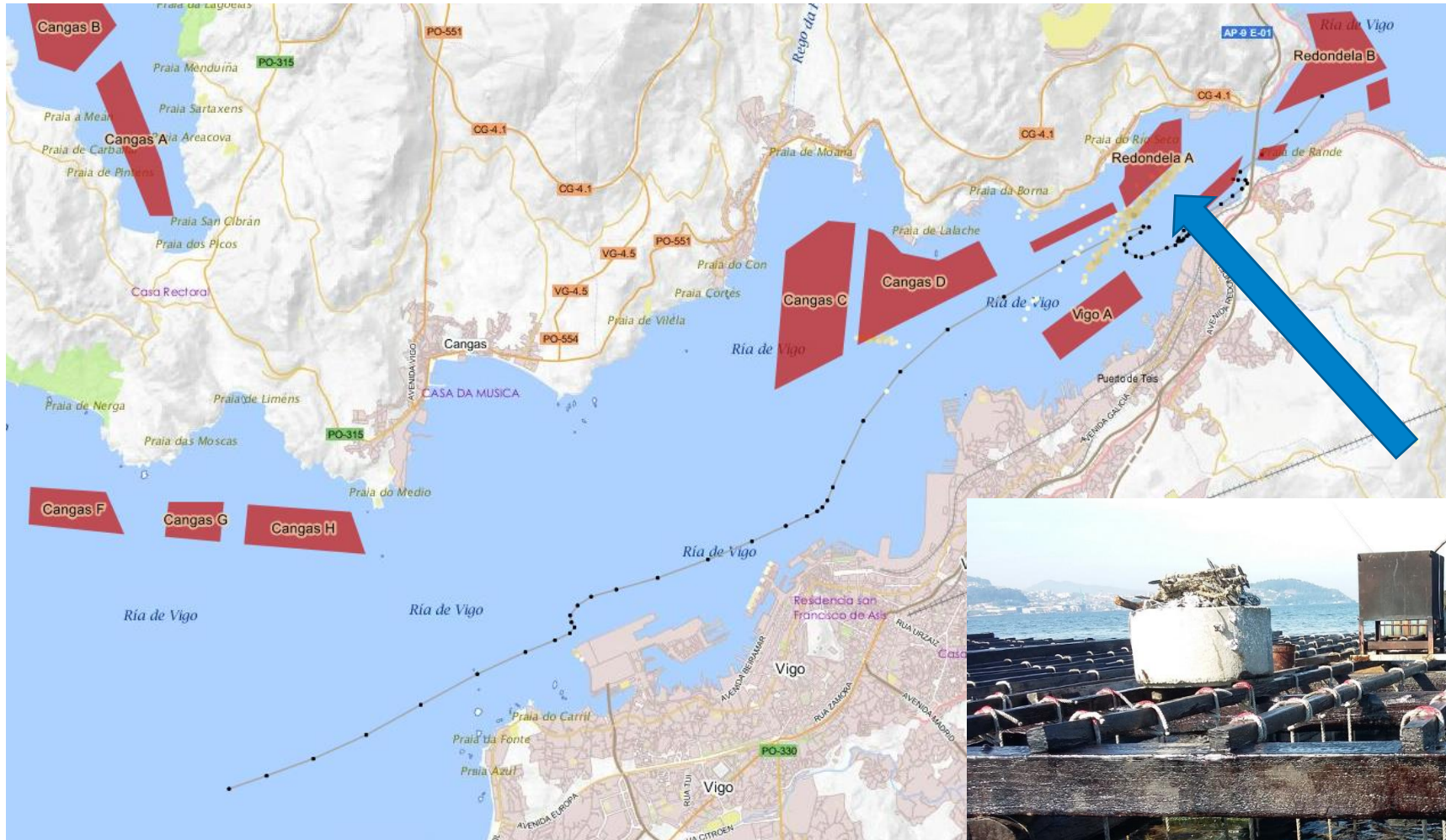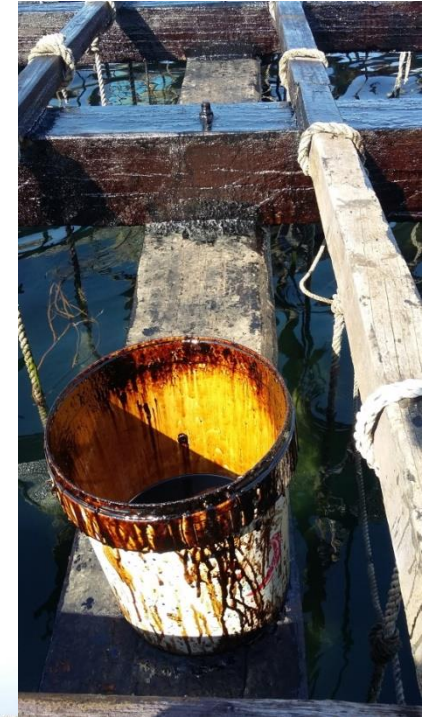

First suspicious ship

Observed slick
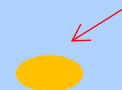
Samil Beach

Case: Looking for an illegal spill source

Backtracking simulation reveals the illegal spill comes from the inner part of the Ria de Vigo

Illegal use of tar for painting a raft

Plan Camgal: Galician Spill Contingency Plan

- A Common Operating Picture, COP, was built in order to produce the cartography of oil or HNS spill crisis

- Management of data from different sources (external and internal)

- Different users of COP have access to different information based on access control

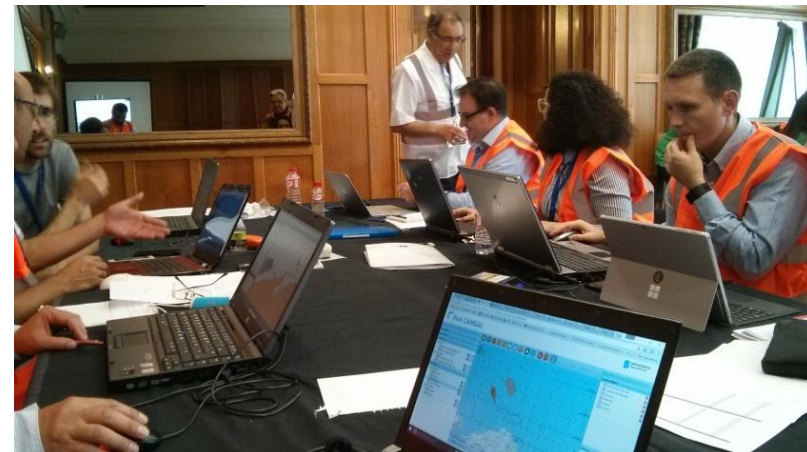- Based on Open Source, OGC protocols (WMS, SOS, CW) and INSPIRE Directive

PlanCamgal Viewer: http://ww3.intecmar.gal/plancamgal
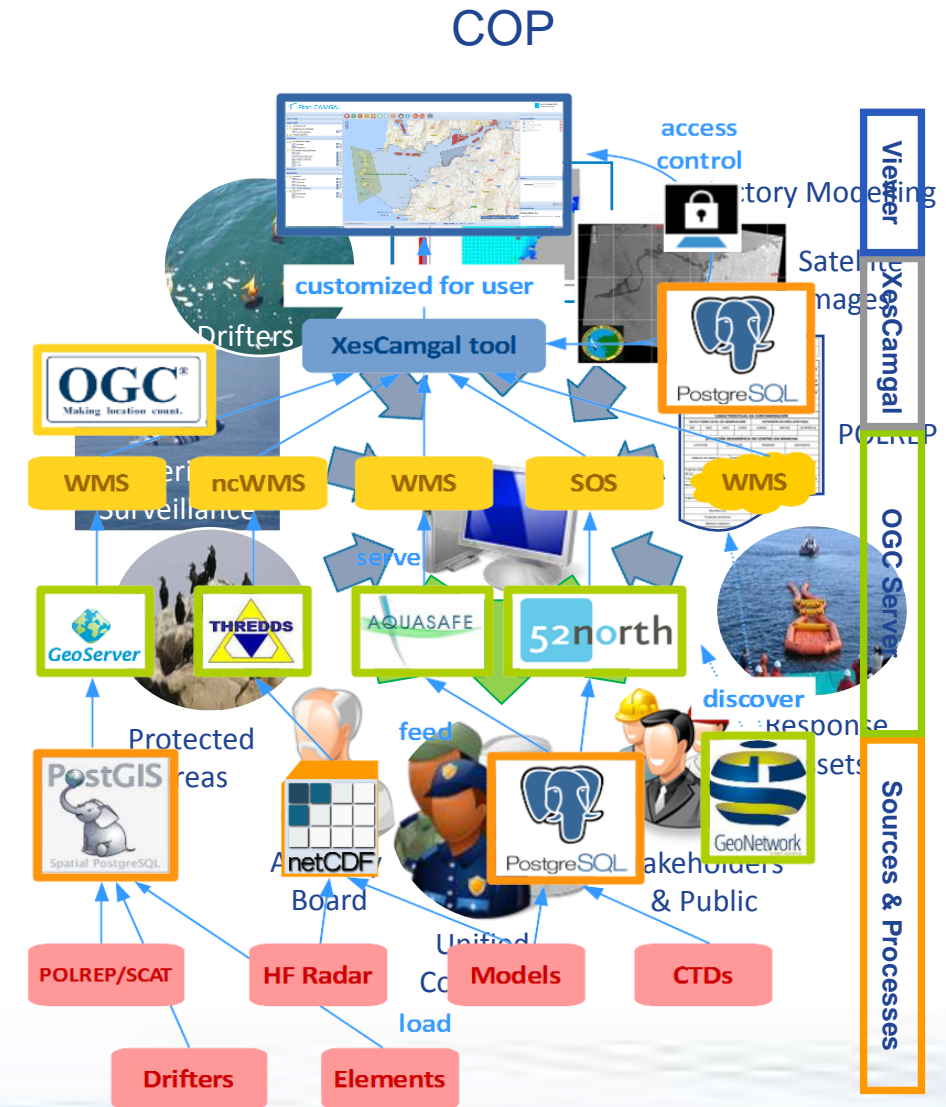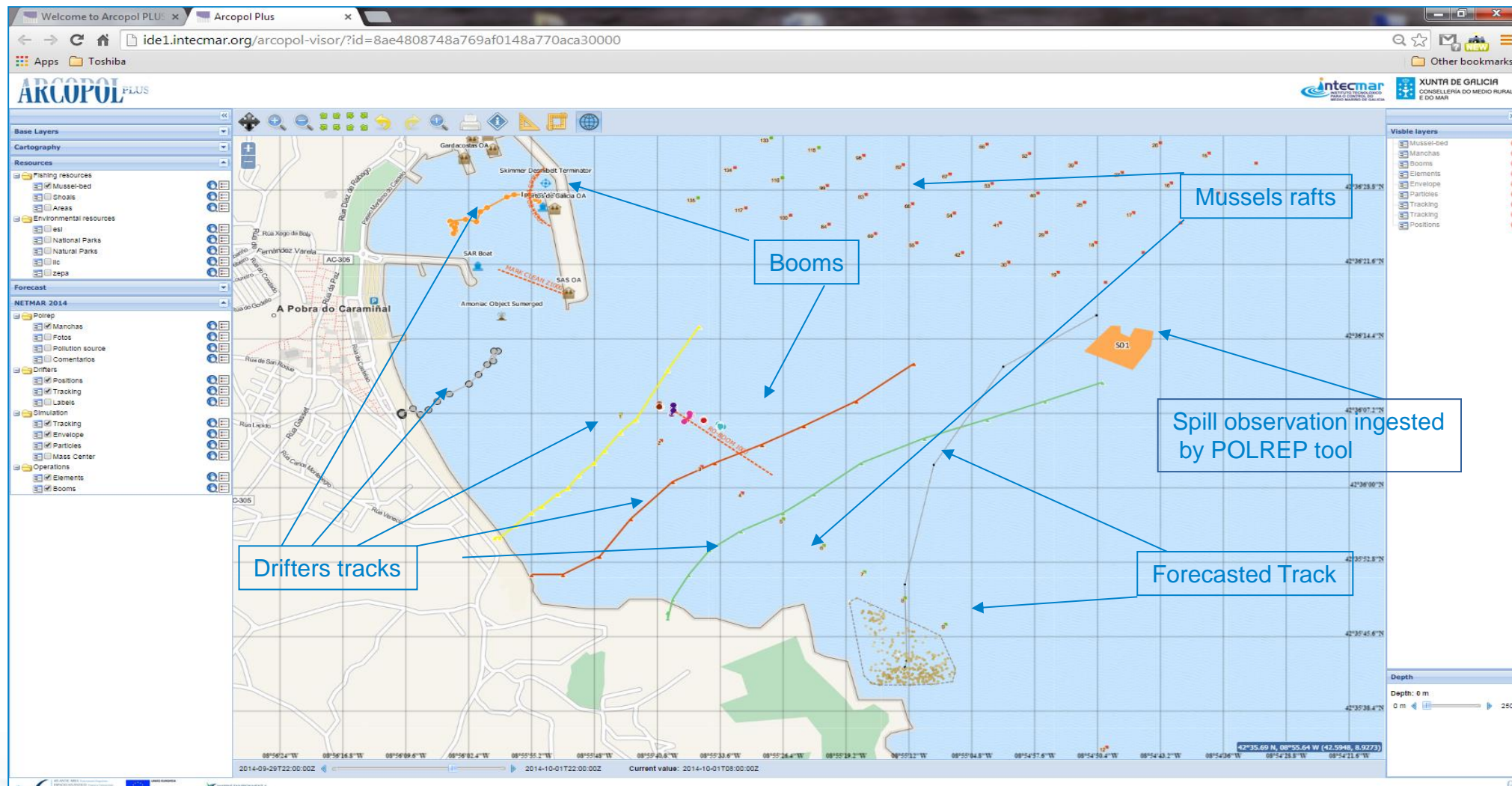
Supporting Galician CoastGuards

Boiro 2013
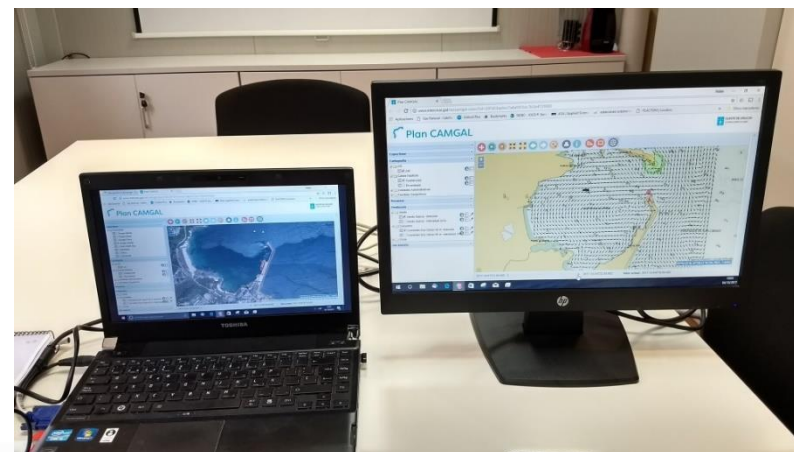
Netmar 2014

National Exercise POLEX2017

Cangas 2016

San Cibrao 2017

THANK YOU

OBRIGADO – GRACIAS - GRAZAS