Plan Camgal
and marine pollution from land

Pedro Montero
Garbiñe Ayensa

HAZRUNOFF PROJECT

intecmar INSTITUTO TECNOLOXICO PARA O CONTROL DO MEDIO MARIÑO DE GALICIA

HazRunoff Workshop

Vigo, 01-02-2019

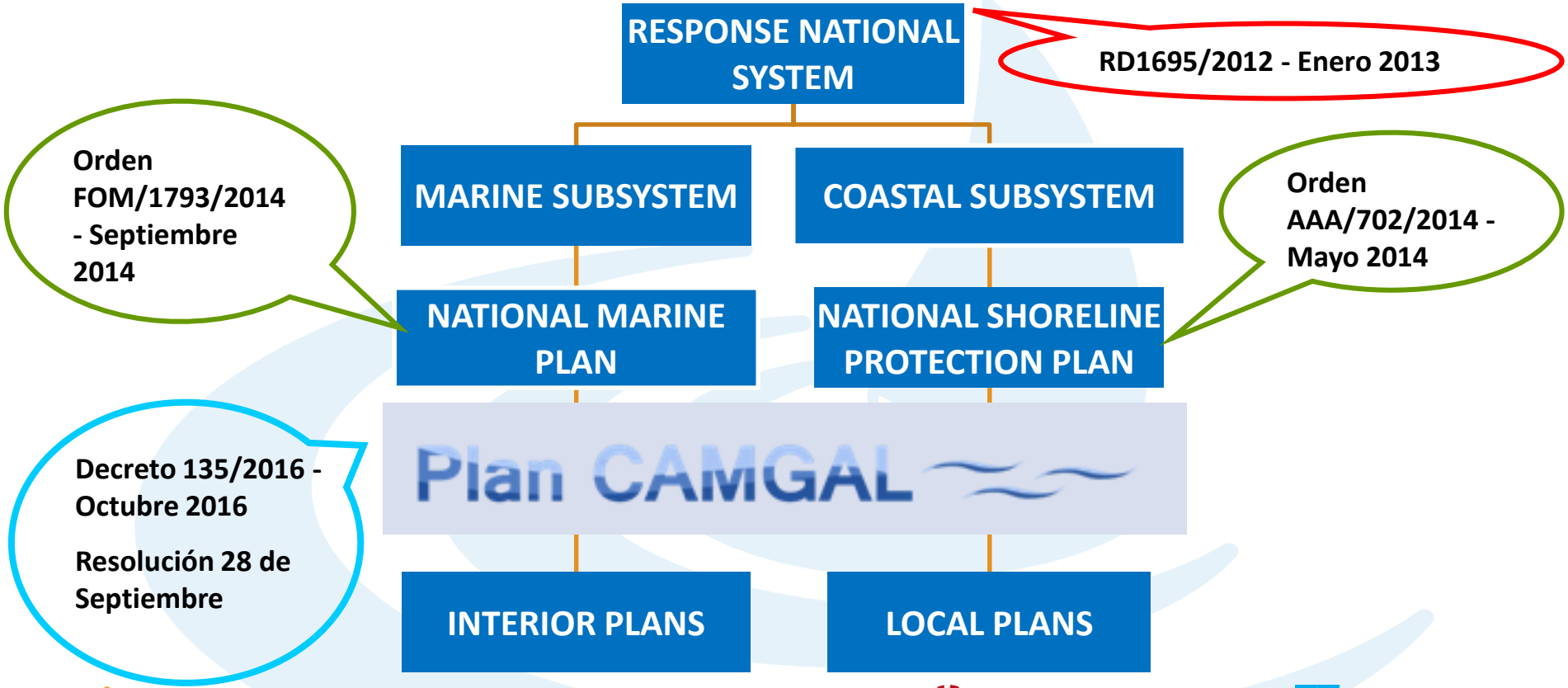
intecmar INSTITUTO TECNOLOXICO PARA O CONTROL DO MEDIO MARIÑO DE GALICIA

galicia

Xacobeo 2021

XUNTA DE GALICIA
CONSELLERÍA DO MAR

Spanish Marine Pollution Emergency Response



Plan CAMGAL

- Chapter I. **General**
- Chapter II. **Support Information**
- Chapter III. **Organizational structure**
- Chapter IV. **Activation**
- Chapter V. **Procedures for action**
- Chapter VI. **Implementation**
- Chapter VII. **Local Plans and Interior Plans**
- Chapter VIII. **Validity**
- **ANNEXES**

SUPPORT UNITS:

- Unit of Documentation and Scientific Support
- Unit of Close Surveillance

http://www.intecmar.gal/Novas/camgal/

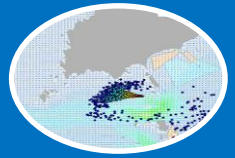
intecmar INSTITUTO TECNOLOXICO PARA O CONTROL DO MEDIO MARIÑO DE GALICIA
galicia
Xacobeo 2021
XUNTA DE GALICIA CONSELLERÍA DO MAR

MARINE ENVIRONMENT → END USERS

Observation

- Mooring Platforms
- Meteo Stations
- Radar HF
- CTD profiles
- Coastal Drifters

Models



- Operational models
  - Atmospheric
  - Hydrodynamic
  - Waves
- Lagrangian models
  - Oilspill,…

Geomatics

- SDI
- OGC protocols
- Inspire
- Data modelling
- Gadgets

Information

- Contingency plans
- Risk Analysis
- EU Directives
- End user tools

Projects:

ARCOPOL series, EASY series, RAIA series, DRIFTER, MARINER, MARRISK, MYCOAST, CLEANATLANTIC

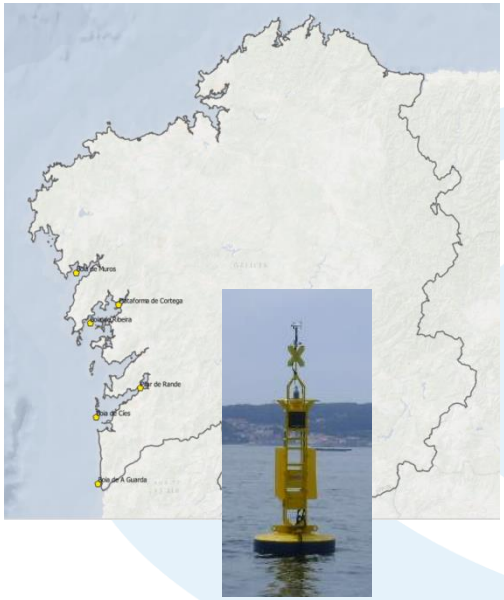
Observation Network

Raia
www.marnaraia.com

AUTOMATIC PLATFORMS

- 6 mooring platforms

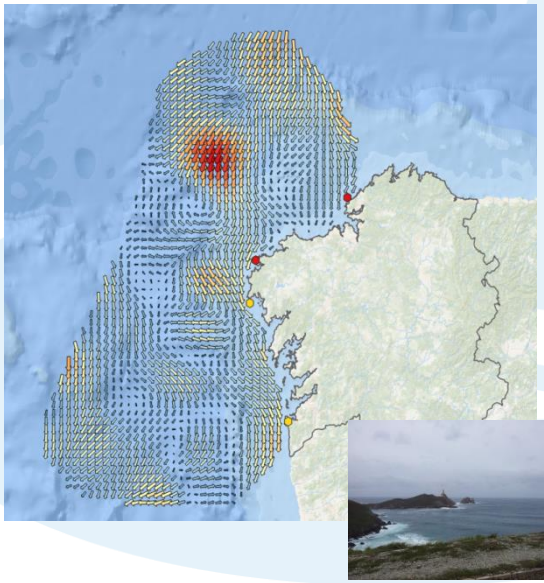
Intecmar, MeteoGalicia, CETMAR



HF Radar

- 4 Stations

Intecmar, PdeE



CTD

- 43 weekly stations

Intecmar

intecmar
INSTITUTO TECNOLOXICO PARA O CONTROL DO MEDIO MARIÑO DE GALICIA

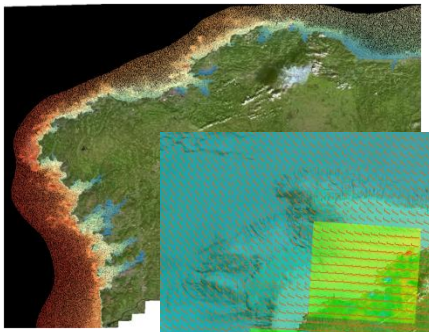
galicia

Xacobeo 2021

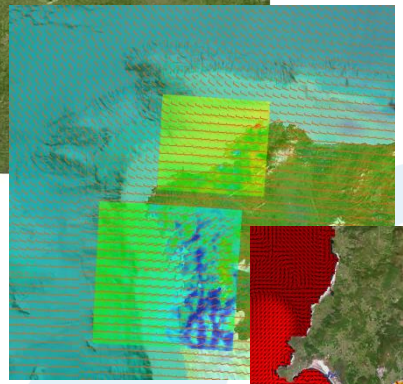
XUNTA DE GALICIA
CONSELLERÍA DO MAR

Model applications

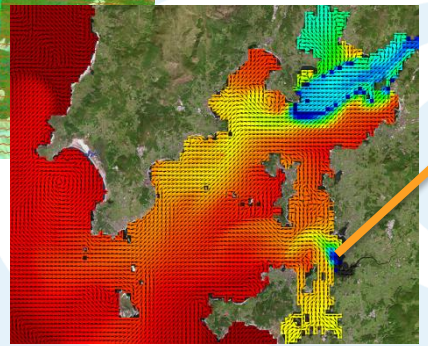
- Based on meteogalicia Operational Models



Waves: SWAN
(Res: Up to 50 m)



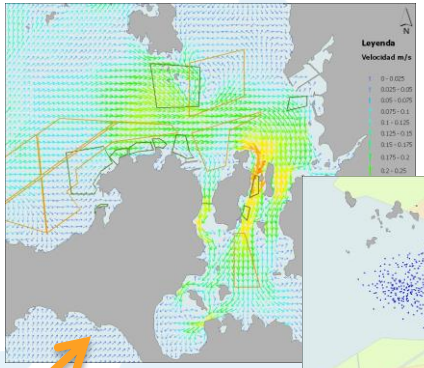
Meteorology: WRF
(Res: Up to 1 km)



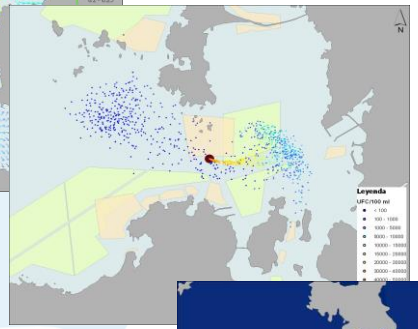
Hydrodynamic:
ROMS and MOHID
(Res: Up to 300 m)

Run everyday

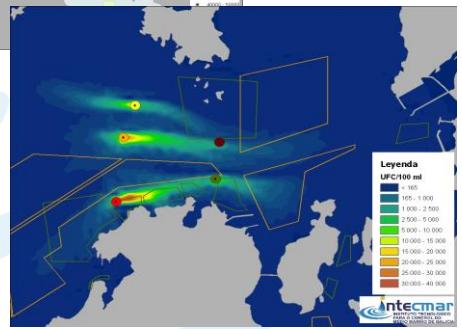
INTECMAR: Simulations on demand



Finer resolution



Lagrangian
models for
spills,…



Eulerian models
for pollution,…

intecmar
INSTITUTO TECNOLOXICO
PARA O CONTROL DO
MEDIO MARIÑO DE GALICIA

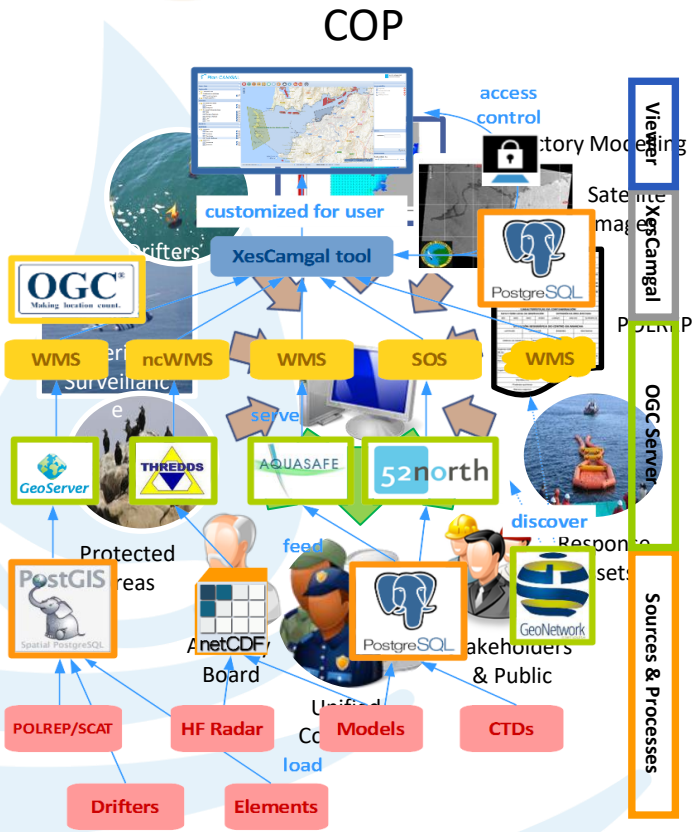
galicia

Xacobeo 2021

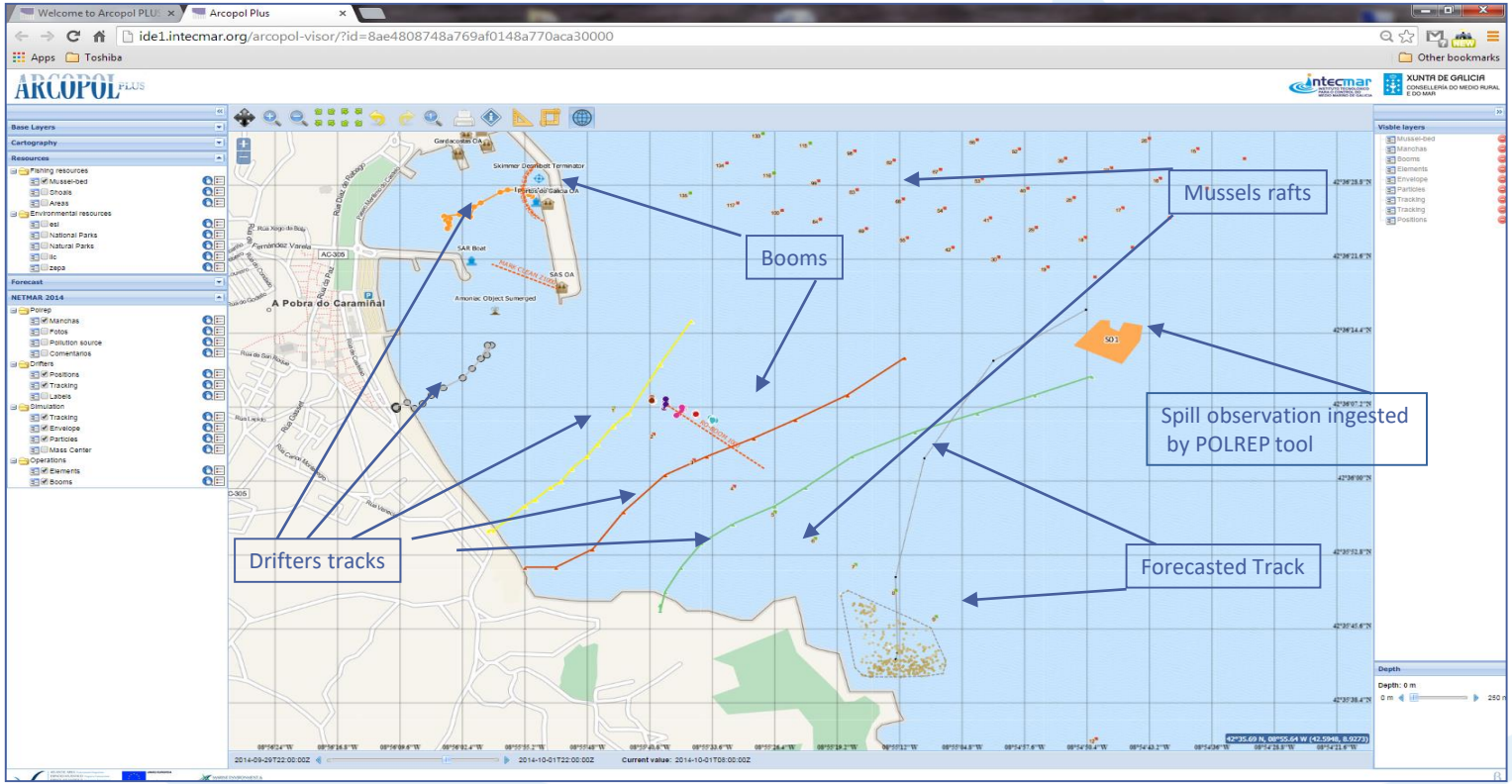
XUNTA DE GALICIA
CONSELLERÍA DO MAR

SDI & COP

- 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



Plan Camgal Viewer: http://mapas.intecmar.gal/plancamgal

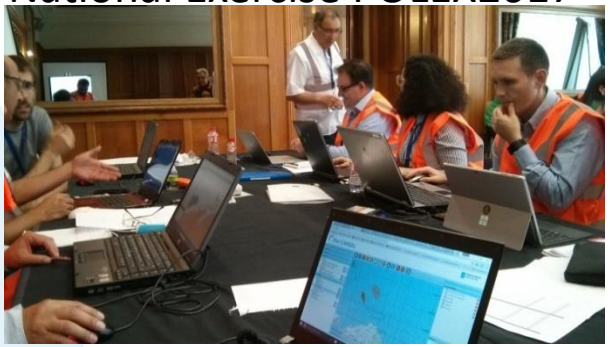


Supporting Galician Coast Guards: Exercises

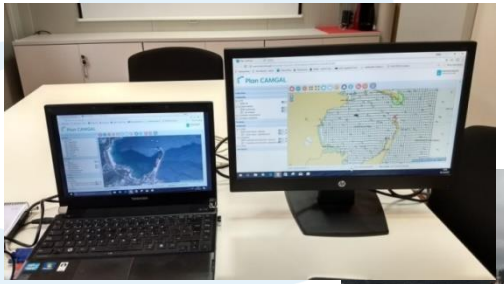
Boiro 2013

Netmar 2014

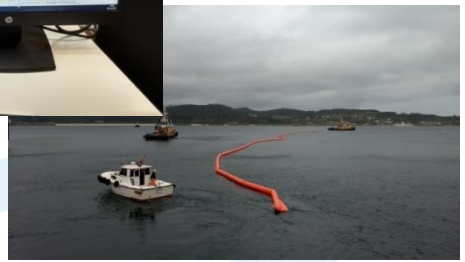
National Exercise POLEX2017



Cangas 2016



San Cibrao 2017



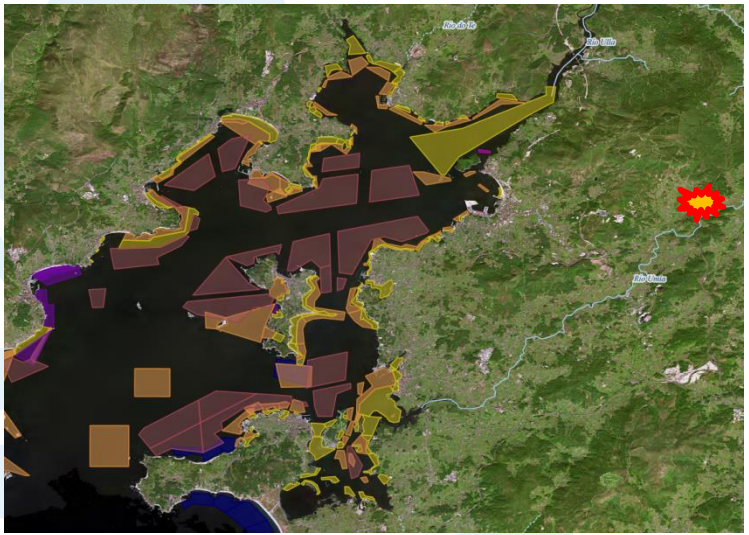
Case: Brenntag Chemical plant fire (2006/09/1)

- A fire broke out in a Chemical plant in Caldas de Reis, upstream of the Umia River.

- Several HNS were released to Umia.

- A monitoring survey to be prepared to the pollution into the sea, near shellfish banks.

- Coastal model was used to forecast the affected area



Case: Brenntag Chemical plant fire (2006/09/1)

Finally, the pollution didn´t arrive to the coast.

Needs:

- Which HNS and its behaviour. Risk analysis and list of substances
- When and where the pollution was arriving into the sea: River model
- Outflow and pollution concentration:Pollution model
- Dispersion in the ria and affected area: Monitoring, modelling. Coupled model.

Case: Forest fires in Galicia (2006 and 2017 summers)

- Every summer there are several forest fires in Galicia, but 2006 and 2017 were extreme.
- In autumn, floods because of the eroded soil
- Ashes are swept away by the rain.
- Ashes were very dangerous for shellfish banks by choking hazard.
- Needs:
  - Inventory of likely discharges locations
  - Modelling and monitoring

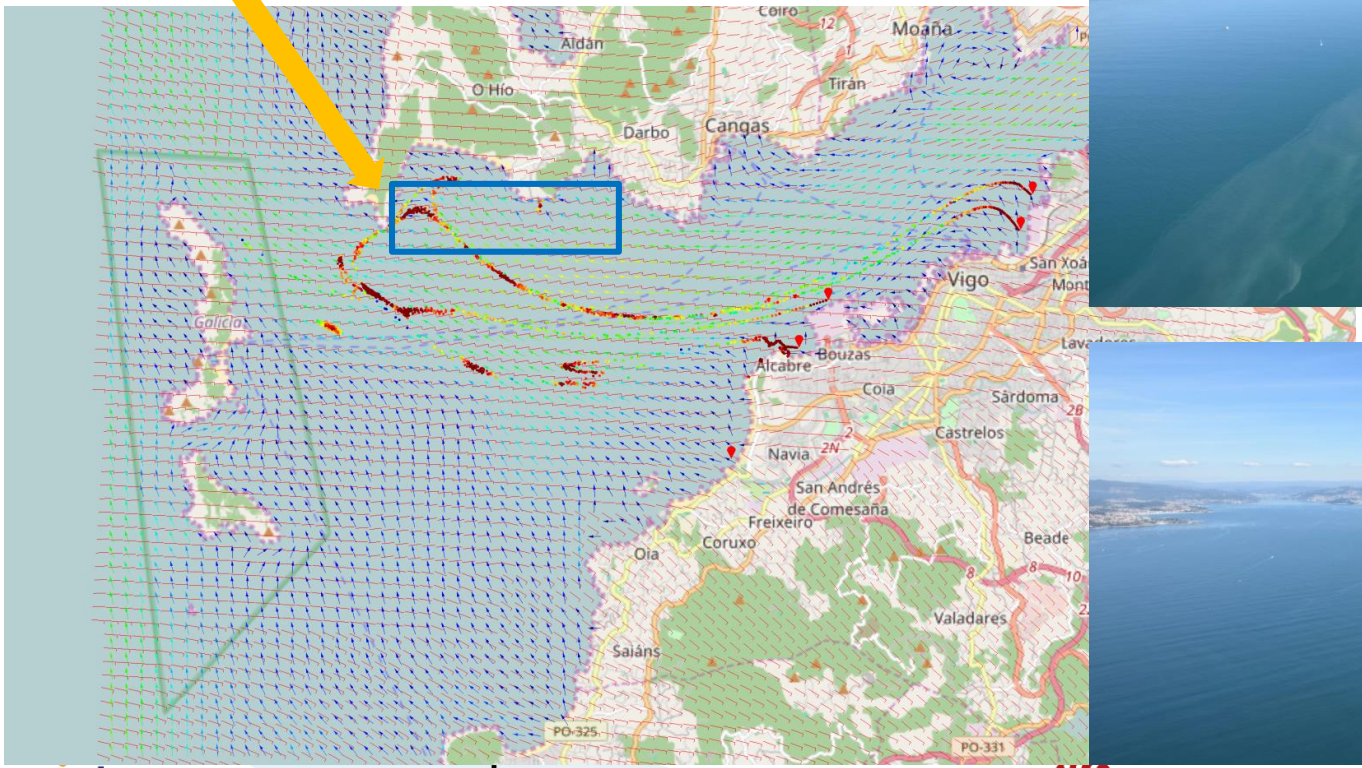
Case: Monitoring design (2017/02/16)

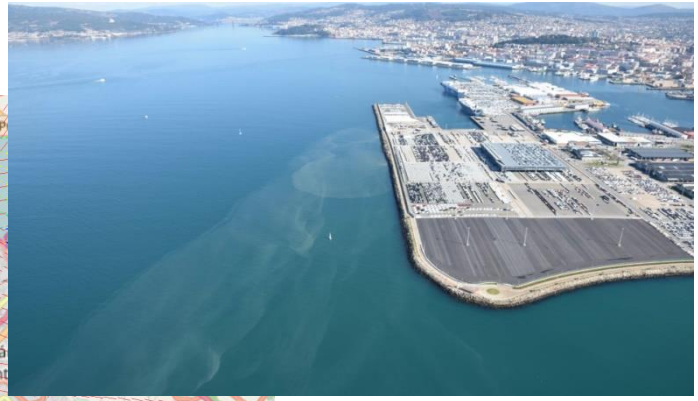
Faecal release at 4 points due to initiate the new sewage treatment plant.
Which shellfish area will be affected in order to monitor first?

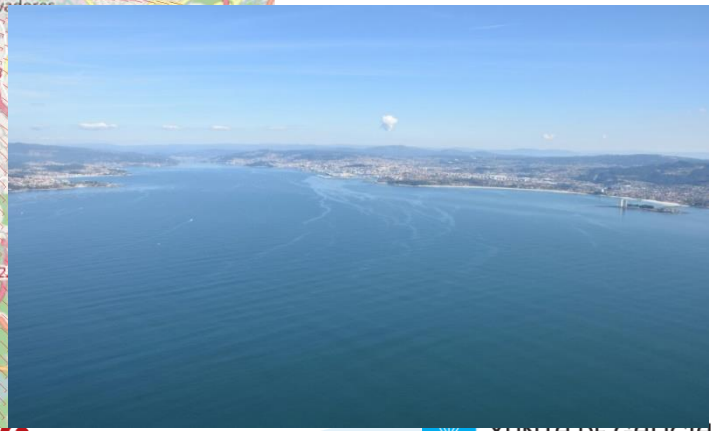
Cangas B
Cangas C
Cangas D
Cangas F
Cangas G
Cangas H
Vigo
Vigo A
Vigo
Casa Rectoral
Casa do Ouro
Praia do Vao
Praia de Barra
Praia de Mogor
Praia de Nerga
Praia de Melide
Praia de Rodeira
Praia de Balea
Praia de Con
Praia de Meira
Praia de Vigo
Praia de Lagoa
Praia de Mende
Praia de Areamilla
Praia de Fanequeira
Praia de Barreiro
Praia de Limens
Praia de Areal
Praia de Rodas
Praia de Nerga
Praia de Cies
Praia de Figueiras
Praia de Fora
Praia de Melide
Praia de Vilarino
Praia de Pinten
Praia de Pedra
Praia de Area Brava
Praia de Alada
Praia de Melide
Praia de Cantareira
Praia de Cangas
Praia de Bouzas
Praia de Samil
Praia de Canido
Praia de Burraceiro
Praia de Cunchido
Praia de Travesos
Praia de Toralla
Praia de Xunqueiro
Praia de Meira
Praia de Borna
Praia de Cocho
Praia de Arnoas
Praia de Moa
Praia de Cabanas
Praia de Cangas
Praia de Tiran
Praia de Masso
Praia de Balea
Praia de Areeiro
Praia de Areeiro
Praia de Areeiro

Case: Monitoring design (2017/02/16)

High Level of Ecoli concentration

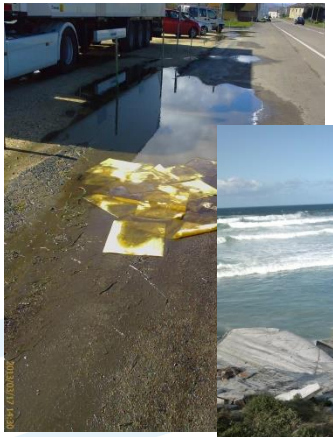




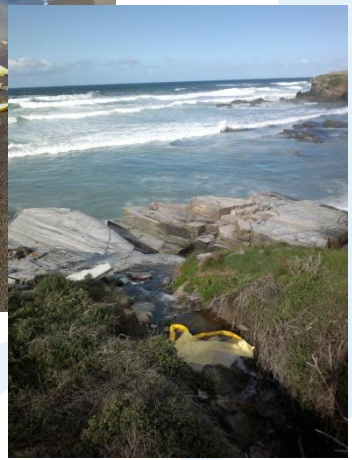


Other cases:

Heating boiler of a High School
Corcubion 2016



Sabotage ,
Ribadeo 2013



Drains study for FDA,
Aldán 2015

Vandalism,
Vilaxoan 2013

Vegetable debris
Illa de Arousa, 2018

Needs

- Inventory of the outflows and likely places of drains.
- List of priority substances, behaviour and fight.
- Modelling to answer:
  - When?
  - Where?
  - Flow?
  - Concentration? Hazard? Affected area?
- Interoperability with actual COPS.
- Satellite and aerial images to support monitoring.

Thank you!

Pedro Montero pmontero@intecmar.gal
Garbiñe Ayensa gayensa@intecmar.gal

http://www.intecmar.gal

intecmar INSTITUTO TECNOLOXICO PARA O CONTROL DO MEDIO MARIÑO DE GALICIA
galicia
Xacobeo 2021
XUNTA DE GALICIA CONSELLERÍA DO MAR