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Piloting innovative services for Marine Research & the Blue Economy

Sea Clearly: a tool to assess ocean plastic impacts on and by aquaculture farms

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Sea Clearly

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HACKATHON
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To summarise our idea

What if….

we could develop an **environmental impact assessment** tool to determine locations for **lowest probability** of:

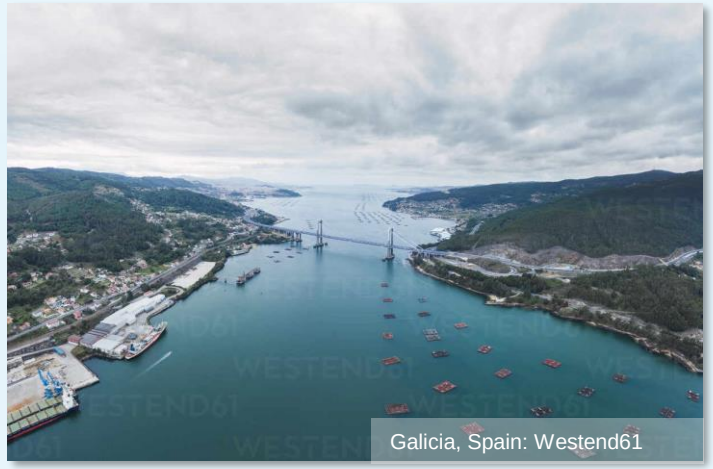
1) plastic pollution reaching aquaculture cages
2) plastic pollution from cages reaching marine protected areas

Stakeholders/end-users

- Aquaculture farm project managers: deciding where to place new cages
- Decision-makers: marine spatial planning officers and accreditation bodies
- General public: interested in whether their food could be contaminated

Combining the Blue-Cloud platform and our framework


Greece, Sofiko: Westend61 / Wolfgang Weinhäupl


Galicia, Spain: Westend61

- Virtual labs: series of applications to support project activities and/or users with development & demonstrative environments
- Copernicus Marine Services: advective fields
  EMODnet: aquaculture cage locations
- Open-access Lagrangian particle-tracking framework: release virtual microplastic particles and track their pathways, following advective fields
- Open Source software for the efficient visualization of Lagrangian scientific data on the web.

Our plan

- Hackathon prize money: 6-month period
  - All aquaculture farms in Mediterranean Sea
  - Stakeholder interviews during hacking trip to France
  - Outreach event
  - Further develop the visualisation tool
    - ParticleViz by Olmo Zavala Romero from FSU https://ozavala.coaps.fsu.edu/particleviz/SeaClearly/

- Take this idea further: convert it into a consultancy to include:
  - All ocean pollutants
  - Local to global scales
  - A customisable service to clients' needs

All thanks to an incredible team of Early Career Ocean Professionals!

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Cleo Jongedijk
PhD researcher
Cleo investigates how plastic litter ends up on beaches.

Darshika Manral
PhD researcher
Darshika investigates how plankton interact with nutrients and plastic in the Atlantic Ocean.

Victor Onink
PhD researcher
Victor investigates the global dispersion patterns of marine plastic pollution.

Claudio Pierard
PhD researcher
Claudio investigates the origin and fate of nanoplastics in our ocean.

Delphine Lobelle
Postdoctoral researcher
Delphine investigates how 3D ocean circulation impacts plastic transport.

Joey Richardson
MSc student
Joey explores how to simulate the transport of oil at the surface of the ocean.

Mikael Kaandorp
PhD researcher
Mikael investigates how to use machine learning to incorporate plastic distribution data into models.

Laura Gomez Navarro
Postdoctoral researcher
Laura investigates how to track floating material in currents from remote sensing.

Olmo Zavala Romero
Assistant Research Scientist
Olmo does Machine Learning and Scientific Visualization for the Earth Sciences at the Center for Ocean-Atmospheric Prediction Studies

For more info on the open-source tools/frameworks:
https://github.com/olmozavala/particleviz
https://github.com/OceanParcels

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