TechOceanS
TECHNOLOGIES
FOR OCEAN SENSING

Project Overview

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000858 (TechOceanS). This output reflects only the author's view and the Research Executive Agency (REA) cannot be held responsible for any use that may be made of the information contained therein.

Partners (13), 2020-2024

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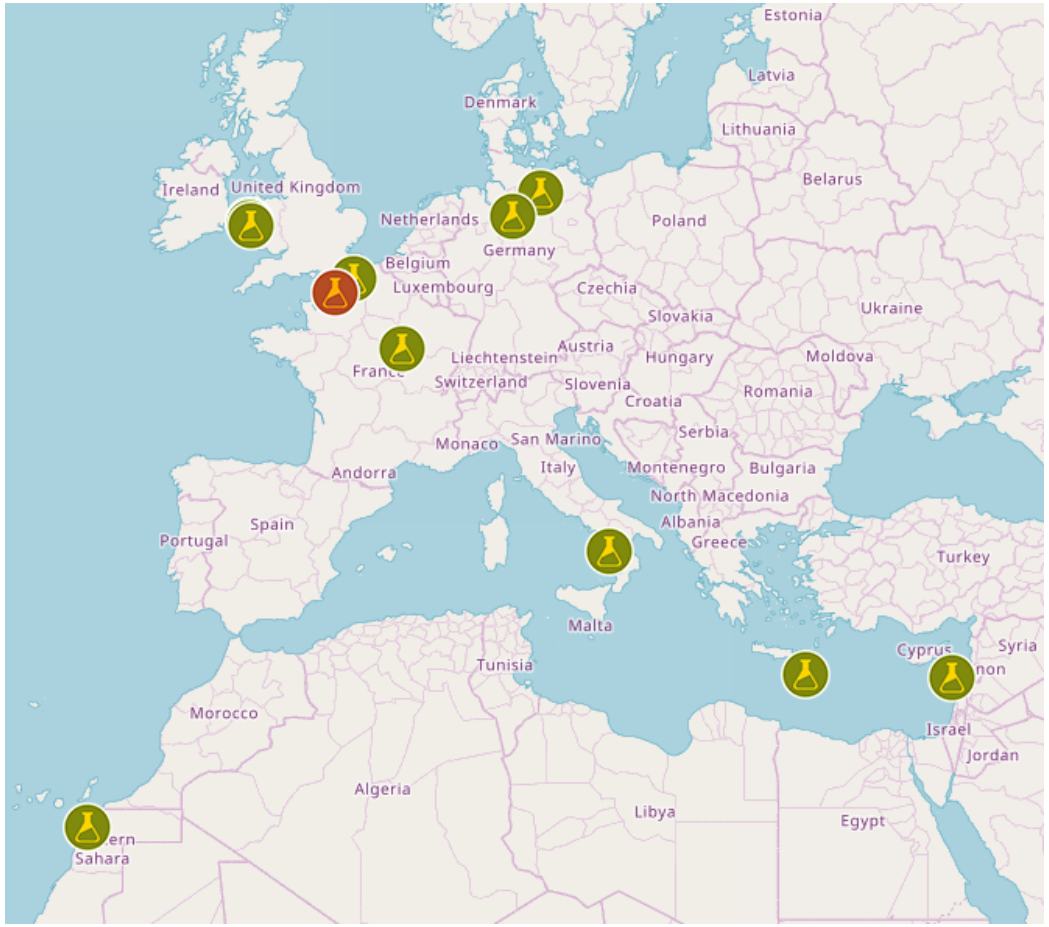

National Oceanography Centre

University of Southampton

GEOMAR

DCU Ollscoil Chathair Bhaile Átha Cliath Dublin City University

PLOCAN consorcio PLATAFORMA OCEÁNICA DE CANARIAS

Gobierno de España

Gobierno de Canarias

FORTH INSTITUTE OF MOLECULAR BIOLOGY & BIOTECHNOLOGY

Chelsea Technologies
A SONARDYNE COMPANY

ERINN INNOVATION

AQUATT
Science. Communication. Knowledge. Innovation.

SORBONNE UNIVERSITÉ

AWI

Stazione Zoologica Anton Dohrn Napoli

CYPRUSUBSEA
Consulting and Services C.S.C.S. Limited

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Technology/EOV

Technology	Dual assay LOC sensors	Bio-assay enabled LOC	Ecogenomic sensing & sampling	Imaging (BioCam)	Imaging (Underwater Vision Profiler)	Micro-cytometer	MuSTAF
Lead Partners / EOV or MSFD descriptor	NOC, UoS	DCU, NOC, UoS	FORTH, DCU, NOC, UoS, AWI, SZN	UoS, NOC, GEOMAR	SU, GEOMAR, NOC	UoS, NOC	Chelsea, NOC
Nutrients	x						
Inorganic carbon	x						
Particulate matter					x	x	
Phytoplankton biomass and diversity			x		x	x	x
Zooplankton biomass and diversity			x	x	x		
Fish abundance and distribution			x	x			
Marine turtles, birds, mammals abundance and distribution			x				
Hard coral cover and composition			x	x			
Seagrass cover and composition			x	x			
Macroalgal canopy cover and composition			x	x			
Mangrove cover and composition			x	x			
Microbe biomass and diversity			x	microbial mats		x	x
Invertebrate abundance and distribution			x	x			
MSFD: Water contaminants		x					
MSFD: Toxigenic phytoplankton		x	x		x	x	
Microplastics/ Marine litter			sampling	x	x	x	

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Theme 1 Genomics - in situ DNA/RNA surveillance with sensors and samplers

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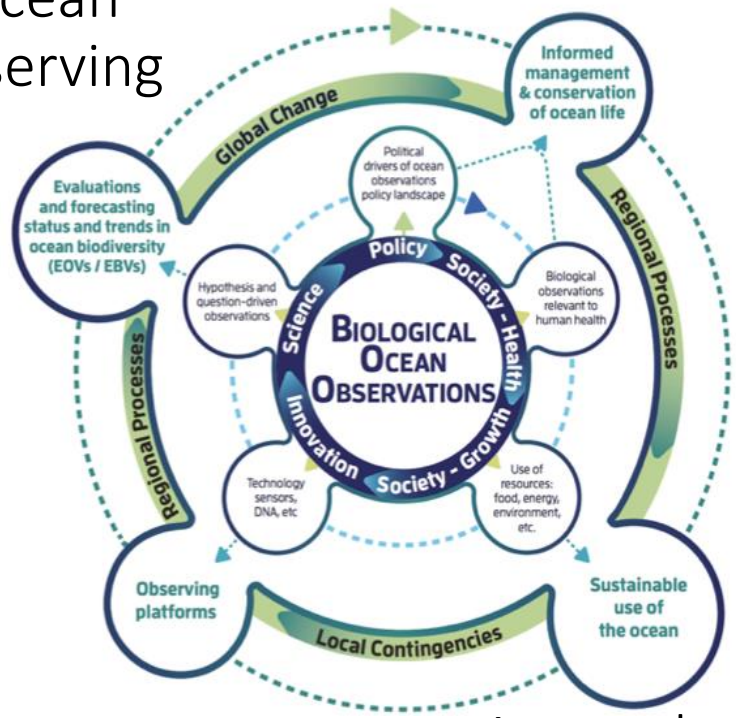
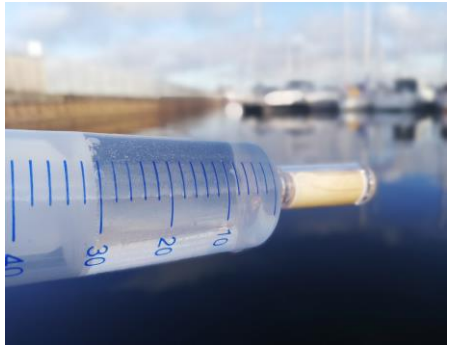
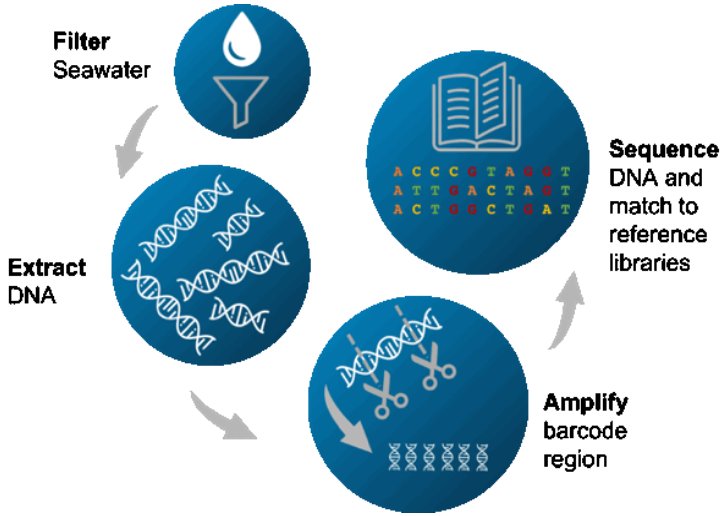
Offshore infrastructure

Ocean observing



Aquaculture





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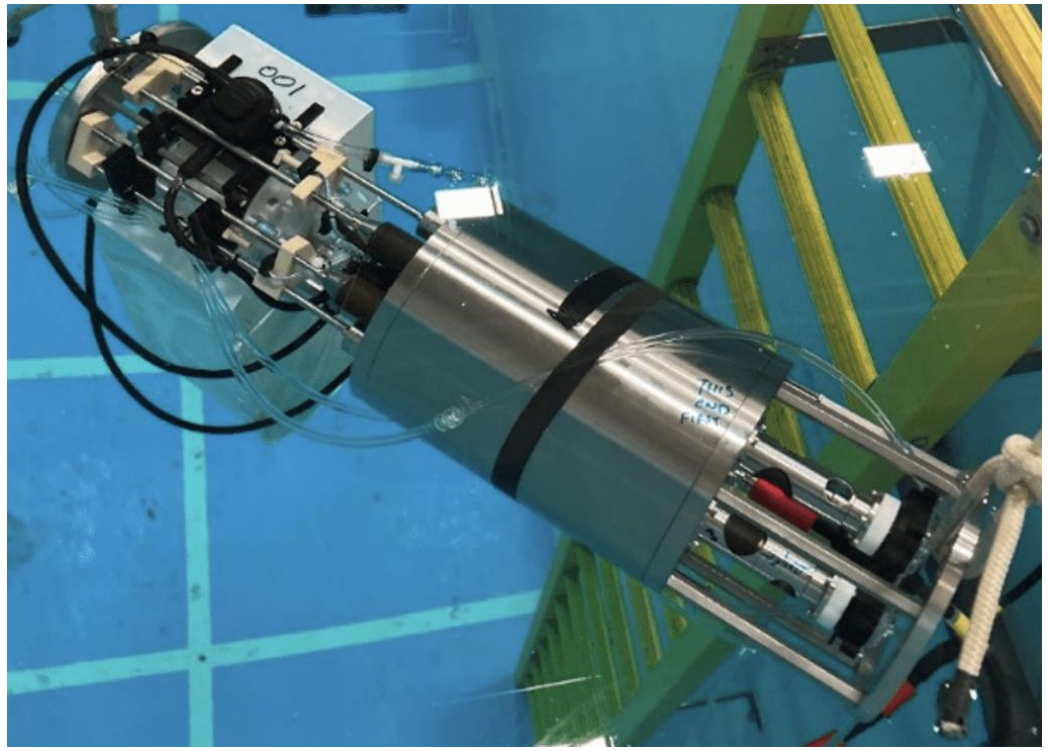

Robotic Cartridge Sampling Instrument (RoCSI)

- Developed by the National Oceanography Centre (NOC)
- Autonomous filter based sampler
- 6000 m depth rated
- Multiple samples, user defined intervals
- User defined volumes (typically >5L sampled)
- eDNA Preservative applied in situ
- TechOceanS extending
  - microplastics
  - in situ a priori nucleic acid quantification (gene sensor)

The Robotic Cartridge Sampling Instrument (RoCSI). Image courtesy NOC

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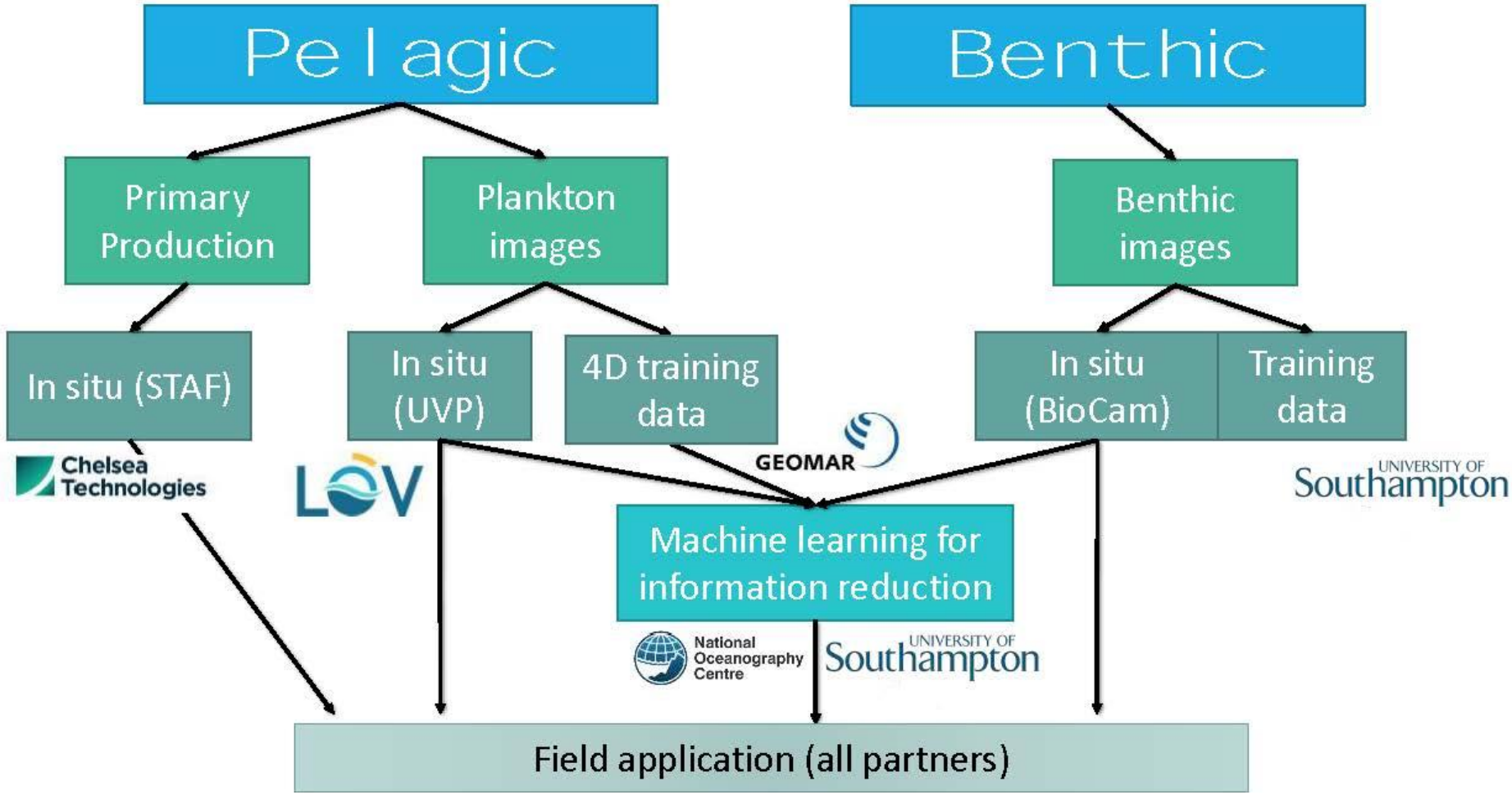
Theme 2: Imaging – automating data extraction from images



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Theme 3: Microsensors– in situ high performance water analysis.

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Our overall goal: Small, autonomous sensors for biogeochemistry, cytometry, and (non-genomics) biological assays. Targeting some EOVs for biogeochemistry, small particulates/phytoplankton, MSFD targets

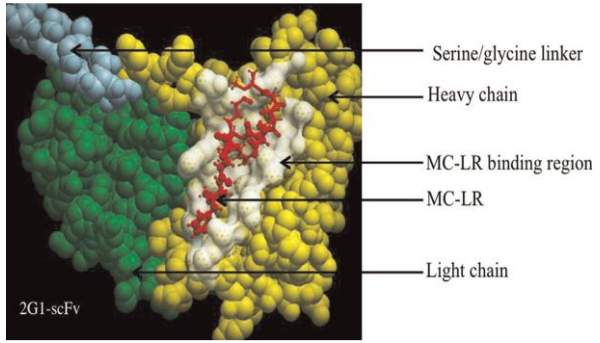
3.1: Biogeochemical sensors

- Nutrients, inorganic carbon
- Improving cost, performance, usability, and reliability

National Oceanography Centre (NOC) + DCU + UoS + IMBB

3.2: Biological sensors

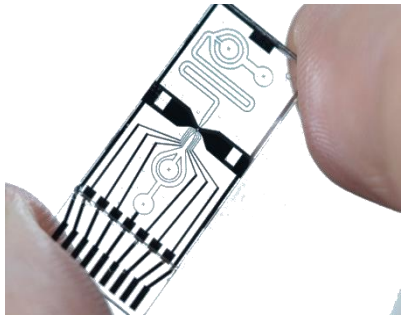
- Toxins, pharmaceuticals, organic pollutants
- Development of new assays
- Implementation on autonomous devices



Dublin City University (DCU) + NOC

3.3: (Micro)Cytometry

- Microplastics, phytoplankton, other particles



Uni. of Southampton (UoS) + NOC

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Links for the project

www.techoceans.eu

@TechOceanS

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Thank you!

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