Offshore Low-trophic Aquaculture in Multi-Use Scenario Realisation

Grant agreement number: 101094065

Topic: HORIZON-MISS-2021-OCEAN-04-01

Starting date: 1 January 2023

Duration: 48 months

D9.1
Title: Minutes from the projects kickoff meeting with updated and complete project working plan

Date of delivery: 20 March 2023

Organization name of lead participant for this deliverable:
Havforskningsinstituttet (IMR)

"Funded by the European Union, grant agreement NO 101094065. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them."

Dissemination level		
PU	Public, fully open	
Sen	Sensitive, limited under the conditions of the grant agreement (only for members of the consortium, incl the Commission Services)	X

Deliverable number:	D 9.1
Deliverable title:	Minutes from the projects kickoff meeting with updated and complete project working plan
Work package:	9
Lead participant:	IMR

Authors		
Name	Organisation	E-mail
Anita Jacobsen*	IMR	anita.jacobsen@hi.no
Turid Loddengaard	IMR	turid.loddengaard@hi.no
Øivind Bergh	IMR	Oeivind.bergh@hi.no

*corresponding authors

Keywords
Kickoff meeting, minutes

Executive Summary

The OLAMUR kickoff meeting was organized by the coordinator (IMR) 17 – 18 of January 2023 in Bergen, Norway. Altogether 62 participants attended the meeting (see List of Participants in Appendix 2), representing most of the OLAMUR beneficiaries, members of the Advisory Board, EU Project Officer and policy officers from DG RTD and DG MARE. The main aim of the meeting was to get to know each other, to learn what everyone is doing and their role within the OLAMUR project and plan the work for the next twelve months.
The meeting was devoted to project overview, presentations of each WP, discussions, and planning for the next twelve months.
Deliverable 9.1 represents a summary report of the main discussions and outcomes of the meeting.

"Funded by the European Union, grant agreement NO 101094065. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them."

Table of Contents

MEETING MINUTES 3
INTRODUCTION 3
WORK PACKAGE PRESENTATIONS 4
APPENDIX 6

MEETING MINUTES

All presentations and work scheduled in the agenda (see Appendix 1) was implemented as planned.

INTRODUCTION

In total 58 persons participated 17th of January, where 54 were present in person and 4 digital. On the 18th of January 50 were present in person and 3 digital. All partners were represented except for Beneficiary 14 Lerøy Seafood group ASA.
Four Advisory Board (AB) members were present at the kick-off meeting; Ann-Lisbeth Agnalt (ICES/IMR), Bo Fyring Sørensen (Foga Aps, Foga Consult ApS), Ute Brönner (Sintef Ocean) and Paul Dobbins (WWF) (Appendix 2).
The AB contribution to the project is to provide independent advice and comments on OLAMUR outputs and to support progress. The AB will be involved at the annual meetings and respond to requests from the project, if any.
The kick-off meeting was opened with a welcome speech by the CEO of Havforskningsinstituttet Nils Gunnar Kvamstø.
Policy officers from both DG RTD and DG Mare (Nikos Zampoukas and Maris Stulgis, respectively) presented information about recent policy developments on EU MISSION Restore our ocean and waters by 2030 and EU actions to unlock algae potential in Europe (see Appendix 3).
The EU Project Officer, Loïc Blanchard, presented information about CINEA, call requirements and expectations (Appendix 3). Main expectation is that the project delivers the deliverables on time. Communication with the project officer must go through the coordinator. The coordinator act as the only contact point between the consortium and CINEA. Amendments according to Grant Agreement (GA) Art. 39. Discuss with the CINEA PO any issues that may potentially require an amendment at the earliest possible stage. Reporting will include continuous, periodic, and final reports, GA Art.21. Use the template provided. All deviations must be explained. The project needs to be carried out according to Annex 1 (DoA = key reference and guiding document). Project reviews are organised back-to-back with the reporting periods**.** In-depth review of the progress in implementing the work, with external reviewers (1-2 experts). Prepayments has been paid to the coordinator 53,33 % (5% guarantee funds). Financial aspects according to GA Art. 6. Communication, dissemination and visibility according to GA Art. 17 and Annex 5. Inform the PO about your communication activities

"Funded by the European Union, grant agreement NO 101094065. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them."

(events, launch, results, tweets, articles), can help you spread the word. Before engaging in a communication activity expected to have a major media impact the Agency needs to be informed.
Open Science, see Annex 5 to the GA. Ensure open access, free of charge, online access for any user to all peer-reviewed scientific publications. Only publication fees in full open access venues for peer-reviewed scientific publications are eligible for reimbursement. A Data Management Plan (DMP) must be delivered (M6) and updated during the course of the project.
Cooperation with other projects is expected, especially the sister-project ULTFARMS lead by Deltares (NL).
Then the Coordinator, Dr Øivind Bergh held a short introduction (Appendix 3), before the Work Package leaders (WP-leads) made their presentations, see below.
At the last day (18 January) Dr. Karen de Jong (IMR) also made a presentation of the WindSys-project funded by the Research Council of Norway (Appendix 3).
The workplan for the next 12 months were presented and discussed at the end of the meeting (Appendix 3). Regular WP-lead meeting will be initiated 1 month from now, convened by the coordinator. SharePoint will be used to inform partners. Relevant templates to be used in the project will be developed by the coordinator in collaboration with partners and made available to all on the SharePoint-site.

WORK PACKAGE PRESENTATIONS

The work package leaders presented their respective work packages (all presentations are available in Appendix 3 and on the projects SharePoint-site).
Only the relevant comments and discussions following the presentations are summarized below:

WP1 Multi-use Pilot Farms: Organisation, Implementation and Operation.
Presented by WP-lead Prof. Bela Buck (AWI), see presentation in Appendix 3.
Three pilot cases: A) Meerwind Süd/ost, German pilot case B) Kriegers flak, Danish pilot case and C) Estonian pilot case.
Comment:
There are work that need to be done regarding permits, starting this spring. Germany has stricter rules.

WP2 Optimal siting for multi-purpose use of marine space.
Presented by WP-lead Prof. Marie Maar (AU), and Dr. Jonne Kotta (UTartu), see presentation in Appendix 3.
Comment:
A sub-group meeting will take place 18th January after official meeting has ended, discussing T2.1 and T2.2

WP3 Low trophic aquaculture performance
Presented by WP-lead Øivind Strand and Dr. Antonio Aguera (IMR), see presentation in Appendix 3.

"Funded by the European Union, grant agreement NO 101094065. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them."

Comment:
Question was raised about microplastic and other potential pollutants in a windmill park. Will investigate collaboration with other missions on this issue.

WP4 Environmental monitoring, forecasting and assessment.
Presented by WP-lead Dr. Jun She (DMI), see presentation in Appendix 3.
Comment:
Some errors regarding typos of PMs in this WP. Need to check how much AWI and AU will contribute with and amend GA accordingly, if needed.
Skarv Technologies and Maritime Robotics will start their work in 2023. However, costs have increased since the project budget was made. This need to be addressed and discussed as soon as possible.
Otherwise, forecasting is extremely important. E.g. Extreme events may kill species.

WP5 Data-based service system
Presented by WP-lead Dr. Antonio Novellino (ETT spa), see presentation in Appendix 3.
Comment:
Giulia Dapuet (ETT) will assist the WP-lead. WP5 do not measure data, WP4 will.
WP5 and IMR will collaborate on data management and developing the DMP. A group meeting will be held in near future.
HEREON made a comment that cross-cutting working groups should be established within the project.

WP6 Sustainability - viable concepts for carbon neutral seafood production and market projections
Presented by WP-lead Prof. Marianne Thomsen (UCPH), see presentation in Appendix 3.
Comment:
The deliverables will be at the end of the project period. However, WP-lead wishes to be invited to join other WP meetings and workshops.
The WP needs different types of data.

WP7 Governance of integrated socio-ecological technical system
Presented by WP-lead Dr. Dorothy Dankel (Sintef Ocean), and co-lead J. Hinkel (GCF), see presentation in Appendix 3.

Co-creating tools with science, industry and society. How are systems thinking?
17 sustainable development goals - 169 targets – Relevant for wind. See project WindSys (Appendix 3). However, there is no commonly agreed targets within aquaculture.

WP8 Communication, Dissemination & Exploitation
Presented by WP-lead General Secretary David Basset (Eatip), see presentation in Appendix 3.
Comment:
All partners have communication, dissemination and exploitation (CDE) responsibilities. CDE Activities are considered a principal measure of impact by the European Commission –as much

"Funded by the European Union, grant agreement NO 101094065. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them."

as deliverables and publications are. WP outputs do not relate only to deliverables and end results. Internal communication actions evolving to external communication actions will also be mapped.
A project calendar of Events & Opportunities will be set up. An online communication mapping survey for the OLAMUR partners will soon be sent out.
Also, a draft call text (D8.6) will be due in M7 regarding the engagement of the 5 associated regions in project activities. Only countries that are not partners in the project can apply for <100 000 euros for demonstration activities.

WP9 Management and coordination
Presented by co-lead Dr. Anita Jacobsen, see presentation in Appendix 3.
Comment:
A question about audits was raised. Partners must have an audit if the costs exceed 430 000 euros at the end of the project.

Group picture from OLAMUR kickoff meeting in Bergen.
Photo by: Erlend A. Lorentzen (IMR).

APPENDIX

Appendix 1. Agenda
Appendix 2. List of participants
Appendix 3. Presentations

"Funded by the European Union, grant agreement NO 101094065. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them."

Appendix 1.

Agenda Kick-off

OLAMUR

17 January		
12:00-13:00	Lunch	ALL
13:00-13:15	Welcome	Director IMR
13:15-13:30	EU Mission Ocean	DG RTD
13:30-13:45	Recent policy developments	DG MARE
13:45-14:00	Information from PO	Loïc Blanchard
14:00-14:10	Introduction	Øivind Bergh
14:10-14:30	WP1	WP1 lead
14:30-15:00	WP2	WP2 lead
15:00-15:30	Health break	
15:30-16:00	WP3	WP3 lead
16:00-16:30	WP4	WP4 lead
16:30-17:00	WP5	WP5 lead
17:00-17:10	Health break	
17:10-18:00	General disussion	ALL
19:30	Dinner at Hotel	ALL

18 January		
08:30-09:00	WP6	WP6 lead
09:00-09:30	WP7	WP7 lead
09:30-10:00	WP8	WP8 lead
10:00-10:30	Health break	
10:30-10:45	WindSYS	Karen de Jong
10:45-11:15	WP9	WP9 lead
11:15-11:45	Workplan next 12 months (who's doing what and when, deliverables and milestones)	Øivind Bergh ALL
11:45-12:15	Discussions and wrap up	
12:15-13:00	Lunch and end of meeting	

Appendix 2.

List of participants OLAMUR Kick-off Bergen 17-18 January 2023

Name - First	Name - Last	Organisation	Email	17 January	18 January
Giorgio	Kufoalor	Maritime Robotics	giorgio@maritimerobotics.com	x	x
Ivan	Kingman	Maritime Robotics AS	ivan.kingman@maritimerobotics.com	x	x
Anne	Gaspers	SINTEF Ocean	Anne.gaspers@sintef.no	x	x
Jana	Stahl	GCF	jana.stahl@globalclimateforum.org	x	x
Jochen	Hinkel	GCF	hinkel-admin@globalclimateforum.org	x	x
Joanna	Staneva	Helmholz Zentrun HEREON	joanna.staneva@hereon.de	x	x
Rocio	Castano Primo	Havforskningsinstituttet	rocio.castano.primo@hi.no	x	x
Yvonne	Grünewald	WYK 8 GMBH + NFS GmbH	yg@mytilus-maritime.com	x	x
Cordula	Göke	Aarhus University	cog@ecos.au.dk	x	x
Olanrewaju S	Oladokun	AWI	sulaiman.oladokun@awi.de	x	x
Øivind	Bergh	Institute of Marine Research	oivindb@hi.no	x	x
Jun	She	DMI	js@dmi.dk	x	x
Øivind	Strand	Institute of Marine Research	oivinds@hi.no	x	x
Andro	Ots	Ösel AquaFarms	info@aquafarms.eu	x	x
Lone Thybo	Mouritsen	Kattegatcentret	lm@kattegatcentret.dk	x	x
Carolina	Maiorana	Havforskningsinstituttet	carolina.maiorana@hi.no	x	x
Ann-Lisbeth	Agnalt	Institute of marine research	ann-lisbeth.agnalt@hi.no	x	x
Asbjørn	Christensen	DTU Aqua	asc@aqua.dtu.dk	x	x
Harald	Sveier	Lerøy Seafood Group ASA	harald.sveier@leroy.no		
Helge	Sagen	Havforskningsinstituttet	Helge.Sagen@hi.no	x	x
Antonio	Aguera	Havforskningsinstituttet	antonio.aguera@hi.no	x	x
Louise	Biddle	Voice of the Ocean Foundation	louise.biddle@voiceoftheocean.org	x	x
Ute	Brönner	SINTEF Ocean, Climate & Environment	ute.broenner@sintef.no	x	digital
Andrea	Falldorf	WindMW Service GmbH	andrea.falldorf@windmw.de	x	x
Holger	Huhn	WindMW Service GmbH	holger.huhn@windmw.de	x	x
Martynas	Bucas	Klaipeda University	martynas.bucas@ku.lt	x	x
Anne-Catrin	Adam	Havforskningsinstituttet	aad@hi.no	x	x
Mads	Hecter	Kerteminde Seafarm	mads@hecter.dk	x	x
Trygve	Fossum	Skarv Technologies	tof@skarvtech.com	x	x
David	Bassett	EATiP	david@eatip.eu	x	x
Even	Fjære	Havforskningsinstituttet	efj@hi.no	x	x
Arild	Hepsø	Maritime Robotics AS	arild@maritimerobotics.com	x	x
Antonio	Novellino	ETT	antonio.novellino@ettsolutions.com	x	x
Bela	Buck	AWI	Bela.H.Buck@awi.de	x	x
Janus	Larsen	Aarhus University	janus@ecos.au.dk	x	x
Marie	Maar	AU ECOS	mam@ecos.au.dk	x	x
Turid	Loddengaard	Havforskningsinstituttet	turid.loddengaard@hi.no	x	x

Arne	Duinker	Institute of Marine Research	Arne.duinker@hi.no	x	x
Kristina	Tiivel	Tartu Ülikooli Eesti mereinstituut	kristina.tiivel@ut.ee	x	x
Loic	Blanchard	CINEA - European Climate Infrastructure and Environment Executive Agency	loic.blanchard@ec.europa.eu	digital	digital
Bo	Fyhring Sørensen	Foga Aps, Foga Consult ApS	bfs@foga.dk	x	x
Stein	Mortensen	Havforskningsinstituttet	stein.mortensen@hi.no	x	
Jonne	Kotta	University of Tartu, Estonian Marine Institute	jonne@sea.ee	x	x
Matthieu	Povidis Delefosse	Vattenfall	matthieu.povidis-delefosse@vattenfall.com	x	x
Annette	Bruhn	Aarhus Universitet, Ecoscience	anbr@ecos.au.dk	x	x
Anita	Jacobsen	Havforskningsinstituttet	anita.jacobsen@hi.no	x	x
Erik-Jan	Lock	Havforskningsinstituttet	Erik-Jan.Lock@hi.no	x	x
Henning	Wehde	Havforskningsinstituttet	henningw@hi.no	x	x
Johannes	Pein	HEREON	johannes.pein@hereon.de	digital	digital
Nikos	Zampoukas	DG RTD		digital	
Maris	Stulgis	DG Mare		digital	
Veslemøy	Villanger	IT - Havforskningsinstituttet		**x**	**x**
Marius H.	Hanssen	IT - Havforskningsinstituttet		**x**	**x**
Nils Gunnar	Kvamstø	CEO - Havforskningsinstituttet		**x**	
Dorothy	Dankel	Sintef Ocean	dorothy.dankel@sintef.no	x	x
Anna	Blome	UiB/Sintef Ocean/Lerøy	anna.blome@student.uib.no	x	x
Marianne	Thomsen	University of Copenhagen-UCPH	mth@food.ku.dk	x	x
Paul	Dobbins	WWF	paul.dobbins@wwfus.org	x	x
Giulia	Dapueto	ETT		x	x
Ikram	Belgit	Havforskningsinstituttet	ikram.belgit@hi.no	x	
Jens	Murawski	DMI	jmu@dmi.dk	x	x

Appendix 3.

All presentations from the OLAMUR kick-off meeting 17-18 January 2023.

European research and innovation policy

The Mission Restore our Ocean and Waters by 2030

NIKOS ZAMPOUKAS
EUROPEAN COMMISSION
UNIT HEALTHY SEAS AND OCEANS
DG RESEARCH AND INNOVATION

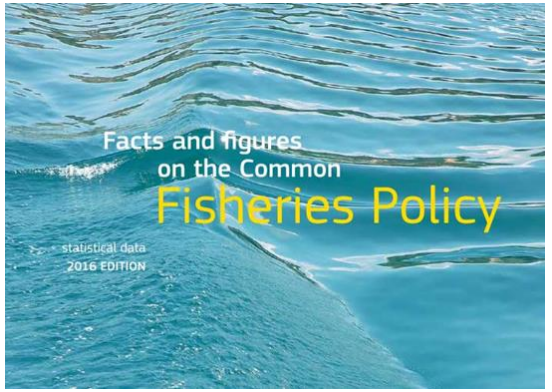
European Commission

The **Healthy Seas and Oceans** Unit within the **Healthy Planet** Directorate

EU Research and Innovation is funded through multiannual Framework Programmes.

Horizon 2020
(from 2014-2020)

Horizon Europe
(2021-2027)



BG-01-2016 - Large-scale algae biomass integrated biorefineries

GENIALG

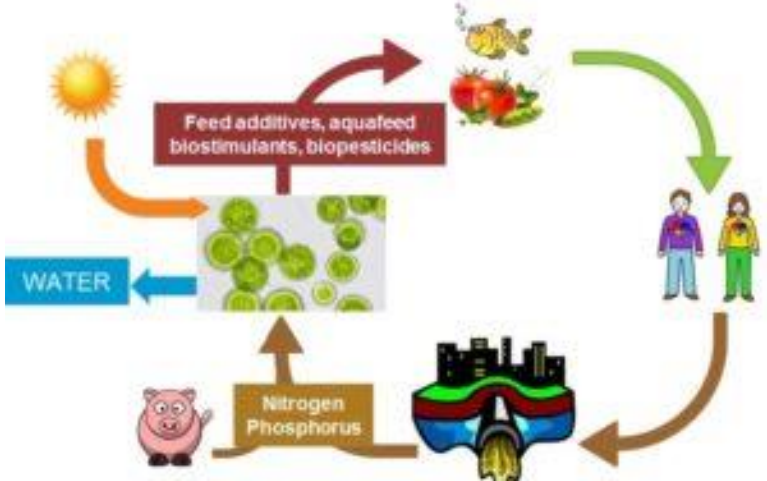
HORIZON 2020

SABANA

Sustainable Algae Biorefinery for Agriculture and Aquaculture

Production and sustainable exploitation of two high biomass yielding species of European seaweed: the brown alga *Saccharina latissima* (sugar kelp) and the green alga *Ulva spp.* (sea lettuce).

- A database of growth rates and metabolic composition of Ulva strains for trait selection in seaweed aquaculture
- A high throughput platform for growth monitoring in Ulva seaweed species



theBlueGrowthfarm

Empowering Offshore Aquaculture

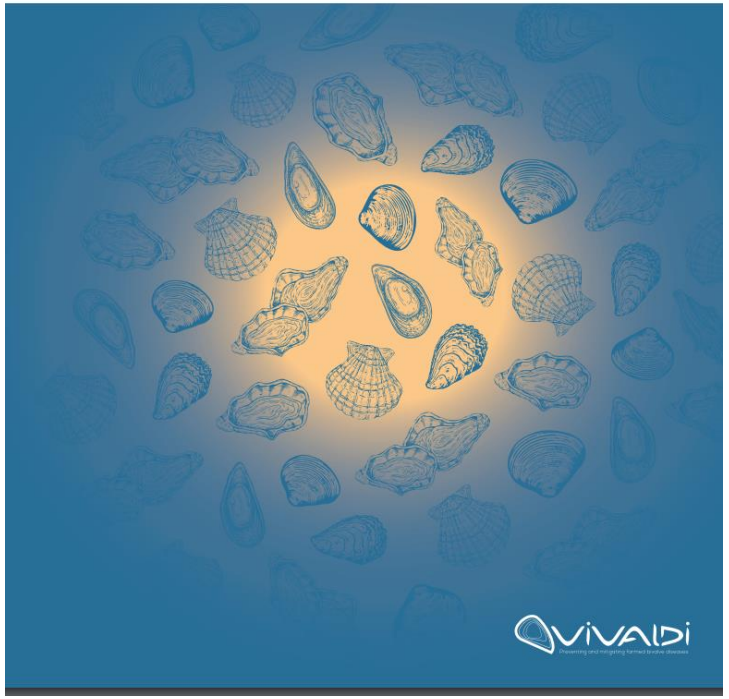
The aim of the Blue Growth Farm project is to produce advanced industrial knowledge with **a fully integrated & efficient offshore multipurpose floating platform**, which provides a central protected pool to **host automated aquaculture system, capable of producing high quality fish, as well as a large storage and deck areas to host a commercial 10 MW wind turbine and a number of wave energy converters** (WEC).

HORIZON 2020

MANUAL

for bivalve disease management and biosecurity

The overarching goal of VIVALDI is to increase the sustainability and competitiveness of the European shellfish industry by improving the understanding of bivalve diseases and by developing innovative solutions and tools for the prevention, control and mitigation of the major pathogens affecting the main European farmed shellfish species: **Pacific oyster** (Crassostrea gigas), **mussels** (Mytilus edulis and M. galloprovincialis), **European flat oyster** (Ostrea edulis), **clams** (Venerupis philipinarum) and **scallops** (Pecten maximus). The project addresses the most harmful pathogens affecting either one or more of these shellfish species: the virus OsHV-1, Vibrio species including V. aestuarianus, V. splendidus, V. harveyi and V. tapetis, as well as the parasite Bonamia ostreae.



MERMAID
Innovative Multi-purpose offshore platforms: planning, Design and operation

CoCoNET
Towards COast to COast NETworks of marine protected areas (from the shore to the high and deep sea), coupled with sea-based wind energy potential

BIVALIFE
Controlling infectious diseases in oysters and mussels in Europe

#HorizonEU

THE EU RESEARCH & INNOVATION PROGRAMME 2021 – 27

Nikos ZAMPOUKAS

European Commission

Unit Healthy Seas and Oceans

DG Research and Innovation

This presentation is based on the political agreement of 11 December 2020 on the Horizon Europe. Information on some parts is pending revision.

19 March 2021

Research and Innovation

HORIZON-CL6-2021-CIRCBIO-01-09

Unlocking the potential of algae for a thriving European blue bioeconomy

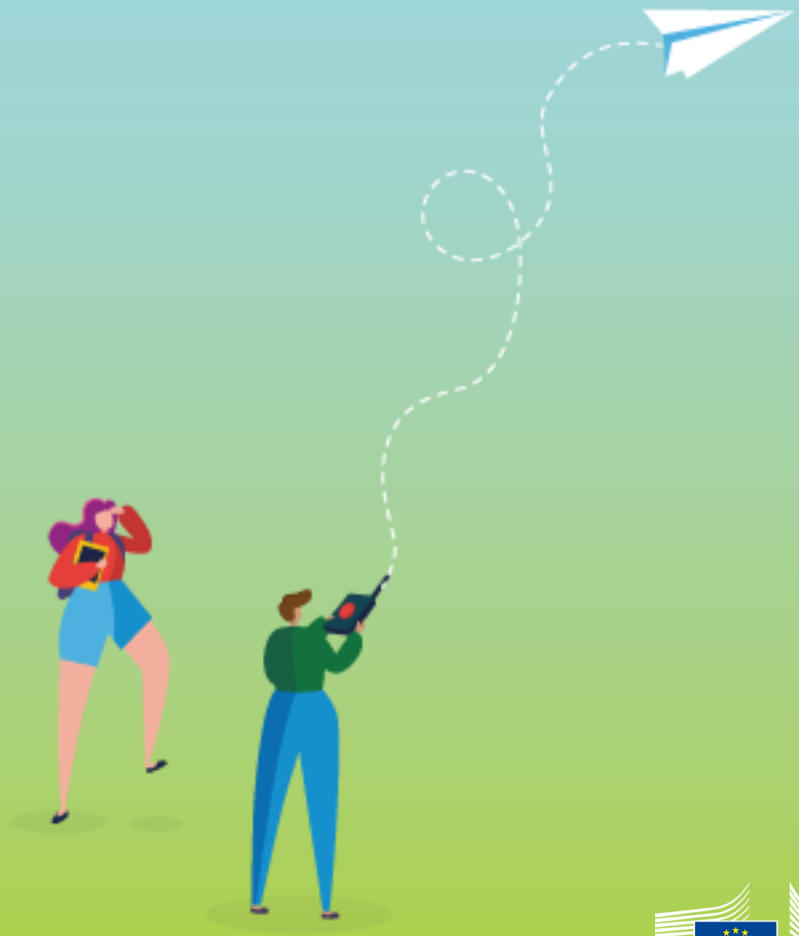
Innovation Actions

CIRCALGAE
Food • Feed • Cosmetic

CIRCular valorization of industrial **ALGAE** waste streams into high-value products to foster future sustainable blue biorefineries in Europe

SEAMARK
Seaweed-based
Market Applications

SeaMark
Seaweed based market applications



European Commission

EUROPEAN UNION

EU MISSIONS

RESTORE OUR OCEAN & WATERS

Concrete solutions for our greatest challenges

#EUmissions #HorizonEU #MissionOcean

EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

The European Commission launched **five new EU Missions** – including the Mission “Restore our Ocean and Waters by 2030”

What are EU Missions?

European Missions are **new broad mobilisation initiatives** to face the greatest challenges of our time

Rooted in the Horizon Europe research and innovation programme, **Missions go beyond R&I** and the existing instruments, cutting across policies, programmes and different levels of governance

They will develop and demonstrate innovative **technological, social, business and governance solutions,** and promote new forms of co-operation, allowing everyone to play an active role

EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

Mission objectives and targets

Restore our Ocean and Waters by 2030

PROTECT AND RESTORE MARINE AND FRESHWATERS ECOSYSTEMS AND BIODIVERSITY	• Protect at least 30% and strictly protect 10% EU's sea areas • Restore 25.000 km free flowing rivers • Marine nature restoration targets (incl. degraded seabeds, coastal ecosystems)
PREVENT AND ELIMINATE POLLUTION OF OUR OCEANS, SEAS AND WATERS	• Reduce by at least 50% plastic litter • Reduce by at least 30% microplastics • Reduce by at least 50% nutrient losses, chemical pesticides
MAKE THE BLUE ECONOMY CARBON-NEUTRAL AND CIRCULAR	• Net zero maritime emissions • Zero carbon aquaculture, • Low carbon multipurpose use of marine space

ENABLERS

Digital Ocean and Waters Knowledge system

Public mobilization and engagement

EUROPEAN UNION

Mission lighthouses: spaces of transformation to pilot, demonstrate, develop and deploy the Mission activities across the EU

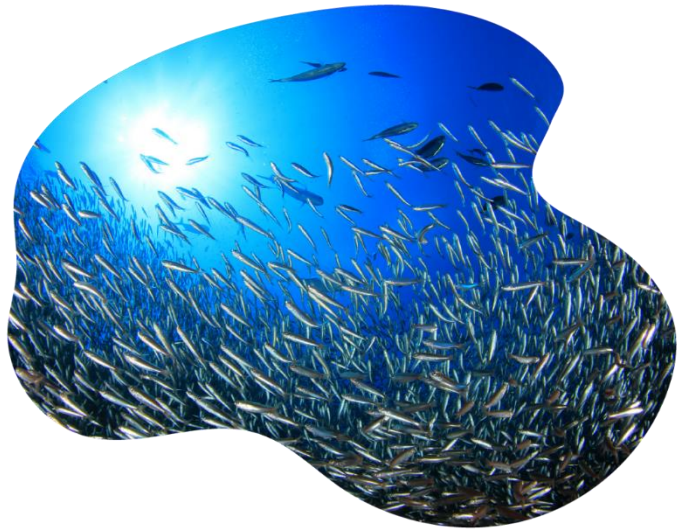
EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

HORIZON-MISS-2021-OCEAN-04-01: Lighthouse in the Baltic and the North Sea basins - Low impact marine aquaculture and multi-purpose use of marine space

AIM

- Show the way to profitable and sustainable seafood farming away from the densely populated coasts, with focus on low trophic level species, no dependence on fossil fuels and sharing space with other offshore economic activities (in accordance with Mission objective 3 as regards low impact and sustainable marine aquaculture and multipurpose use of marine space).
- Implement Mission lighthouse in the Baltic and North sea basins in order to make the Blue economy sustainable, circular and carbon neutral.



INNOVATION ACTION

EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

HORIZON-MISS-2021-OCEAN-04-01

Lighthouse in the Baltic and the North Sea basins - Low impact marine aquaculture and multi-purpose use of marine space

POLICY CONTEXT

- European Green Deal
- Farm to Fork Strategy for a fair
- EU Bioeconomy
- Sustainable Blue Economy Strategy
- Guidelines for sustainable and competitive EU aquaculture
- Marine Strategy Framework Directive
- Maritime Spatial Planning Directive

EXPECTED OUTCOMES

- ✓ Optimal and carbon neutral use of marine space
- ✓ Increase in sustainable & environmentally sound aquaculture production, in particular algae and low-trophic species
- ✓ Safety of farmed seafood and consumer trust
- ✓ Data based systems for market wide monitoring
- ✓ More renewable energy along the aquaculture value chain
- ✓ Enhanced knowledge to minimise the carbon footprint and environmental impact of aquaculture;
- ✓ Advance professional skills and competences of those working and being trained to work within the blue economy

EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

HORIZON-MISS-2021-OCEAN-04-01

Lighthouse in the Baltic and the North Sea basins - Low impact marine aquaculture and multi-purpose use of marine space

SCOPE

- Test and demonstrate **novel aquaculture methods** and techniques
- Provide options for **creating artificial** reefs in or near the wind energy and aquaculture premises
- Work on approaches for efficient and cost-effective monitoring of both the inputs and the outputs of the aquaculture industry
- Carry out demonstration activities in 3 different countries of the Baltic and North Sea
- Identify areas and locations where the solutions are replicable and draw up an action plan and roadmap to replicate and scale up the actions.

INDICATIVE BUDGET

Total: EUR 16 million

Per project contribution: EUR 8 million

Number of grants: 2

IMPORTANT

Case studies both in the Baltic and the North Sea

At least one case study on seaweeds and one on molluscs in wind farms

Scale up emphasis/impact-driven

Multi stakeholder engagement

Additional eligibility conditions

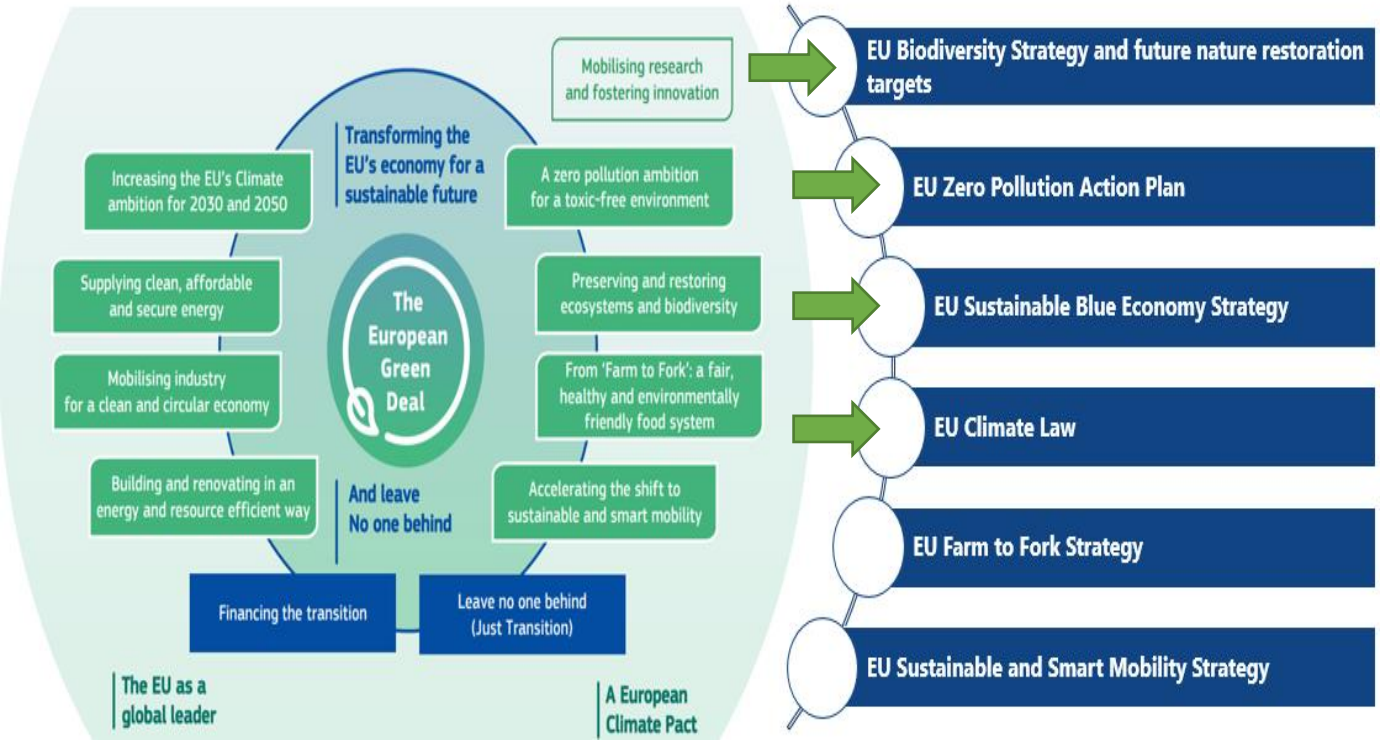
EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

HORIZON-MISS-2022-OCEAN-01-06

Lighthouse in the Baltic and North Sea – bringing sustainable algae-based products and solutions to the market

POLICY CONTEXT



EXPECTED OUTCOMES

- Increased market presence and further development of sustainable algae-based solutions and products for various uses and needs;
- Enhanced knowledge base on algae-based solutions;
- Enhanced public awareness and understanding of consumer acceptance issues of new algae based products:
- Identified and reduced market-entry barriers and barriers to uptake and scale up
- Expansion and integration of innovative and circular industrial ecosystems and industrial

EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

HORIZON-MISS-2022-OCEAN-01-06

Lighthouse in the Baltic and North Sea – bringing sustainable algae-based products and solutions to the market

SCOPE

- Demonstrate new and sustainable algae-based applications for uses e.g.: human consumption, animal feed, agriculture or pharmaceutical applications, waste water treatment, circular and sustainable textiles applications.
- Address technological, regulatory, economic and other barriers to bring algae-based products/solutions into the market and propose measures to overcome them.
- Develop and test commercialisation strategies
- Establish an algae-based community of practice and ecosystem
- Cost-efficiency and cost-reduction of algae processing

INDICATIVE BUDGET

Total: EUR 17 million

Per project contribution: EUR 8.5 million

IMPORTANT

Additional eligibility conditions apply

Scale up and reproduction emphasis

Algae-based products and solutions for energy applications are excluded

Contribute to implementation of existing legislation in relation to Marine Protected Areas

Algae-based products and solutions for energy applications are excluded from the scope of the topic

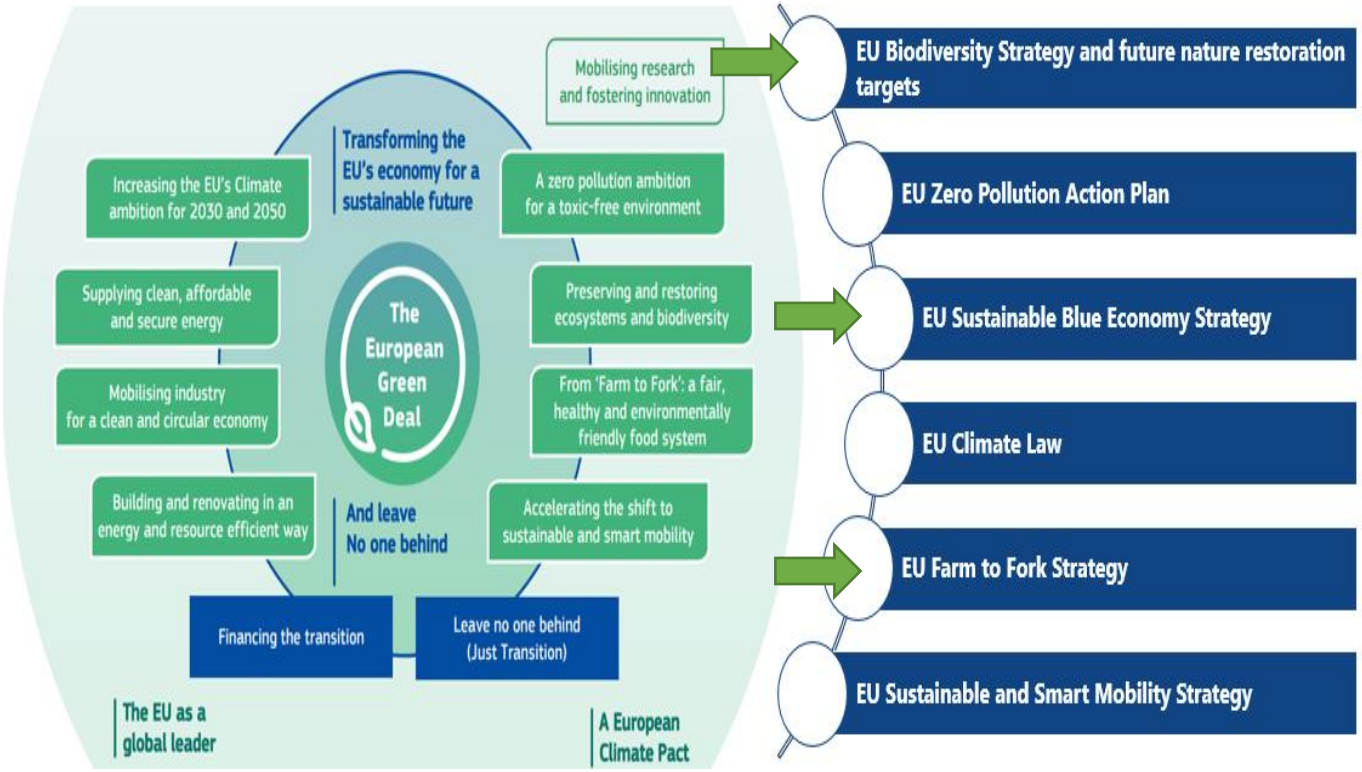
EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

HORIZON-MISS-2022-OCEAN-01-10

Towards local community-driven business models: regenerative ocean farming

POLICY CONTEXT



EXPECTED OUTCOMES

- ✓ **Evidence-based business plans for local community-driven regenerative ocean farming initiatives**
- ✓ Job creation and new skills
- ✓ New ecosystem services from marine and coastal ecosystems
- ✓ Preserved local marine and costal ecosystems, biodiversity and genetic diversity; increased resilience of coastal and marine areas to climate change
- ✓ Improved marine and coastal habitats and increased knowledge on the impact of ocean farming on local marine and coastal environment conditions

EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

HORIZON-MISS-2022-OCEAN-01-10

Towards local community-driven business models: regenerative ocean farming

SCOPE

- assessing the technical and operational feasibility and economic viability of community-driven regenerative ocean farming initiatives
- Establishing partnerships and cooperation to build local expertise
- Address all key issues concerning the technical, organisational, financial, environmental and socio-economic feasibility of new community-driven regenerative ocean farming initiatives
- Deliver thorough technical, organisational and financial plans underpinning the development of community-driven regenerative ocean farming initiatives

INDICATIVE BUDGET

Total: EUR 3 million

Per project contribution: EUR 1 million

IMPORTANT

Additional eligibility conditions apply

“community-driven” approach

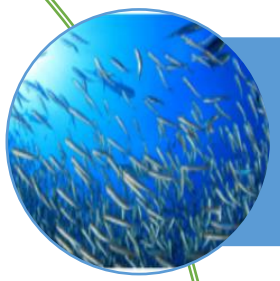
at least three sites, each located in a different Mission sea basin

Support local economy & social/ economic transitions

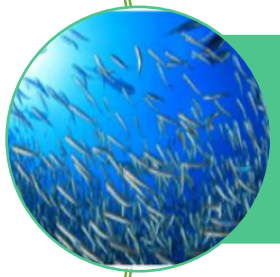
EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

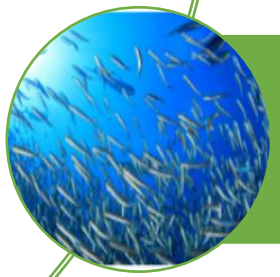
Mission Charter: A joint commitment to Restoring our Ocean and Waters



Sense of ownership: join forces for a **transformational change** for a healthy ocean and waters, thus contributing to the EU Green Deal objectives



Community of practice: a **simple**, **inclusive, efficient** and **inspirational** framework to enhance cooperation to deliver **on Mission objectives**



Non-binding engagement, **open** to any public or private interested parties

EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

Mission Charter action areas

- ✓ **Research and innovation:** mobilise your programmes, instruments and resources for healthy ocean and waters and a sustainable blue economy
- ✓ **Upscaling, deployment and replication of solutions**: support well-functioning innovation ecosystems and its different components: finance, investments, infrastructures, talents, regulations, …
- ✓ Evidence-based **knowledge and data:** generate, use and share authoritative knowledge and data in marine, maritime and biodiversity domains in line with FAIR principles and feed the Mission Ocean Knowledge System and Mission baseline studies
- ✓ **Outreach, public mobilisation and engagement:** promote involvement and citizen-led initiatives; ocean literacy; awareness raising and participatory approaches
- ✓ Establishment of **communities of practice** to serve as fora for co-design, exchanges of experiences, tools and good practice, to coordinate actions and to take stock of progress

EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

How your organisation can support the Mission

- The Mission Charter was launched in June 2022.
- The European Commission is calling on a wide range of stakeholders, including public or private organisations, philanthropists, businesses, civil society, research and academia to adhere to the Mission Charter by submitting actions for achieving the Mission objectives.
- Any actions at European, transnational, national, regional/local level, promoted by public or private funds (including crowd funding), contributing to the Mission objectives are welcome.
- **Encourage your organisation to adhere to the Charter by pledging actions which will contribute to the Mission objectives.**

https://ec.europa.eu/eusurvey/runner/MissionOceanWatersCharter

EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

Thank you!

#EUmissions

#HorizonEU

#MissionOcean

EU actions to unlock algae potential in Europe

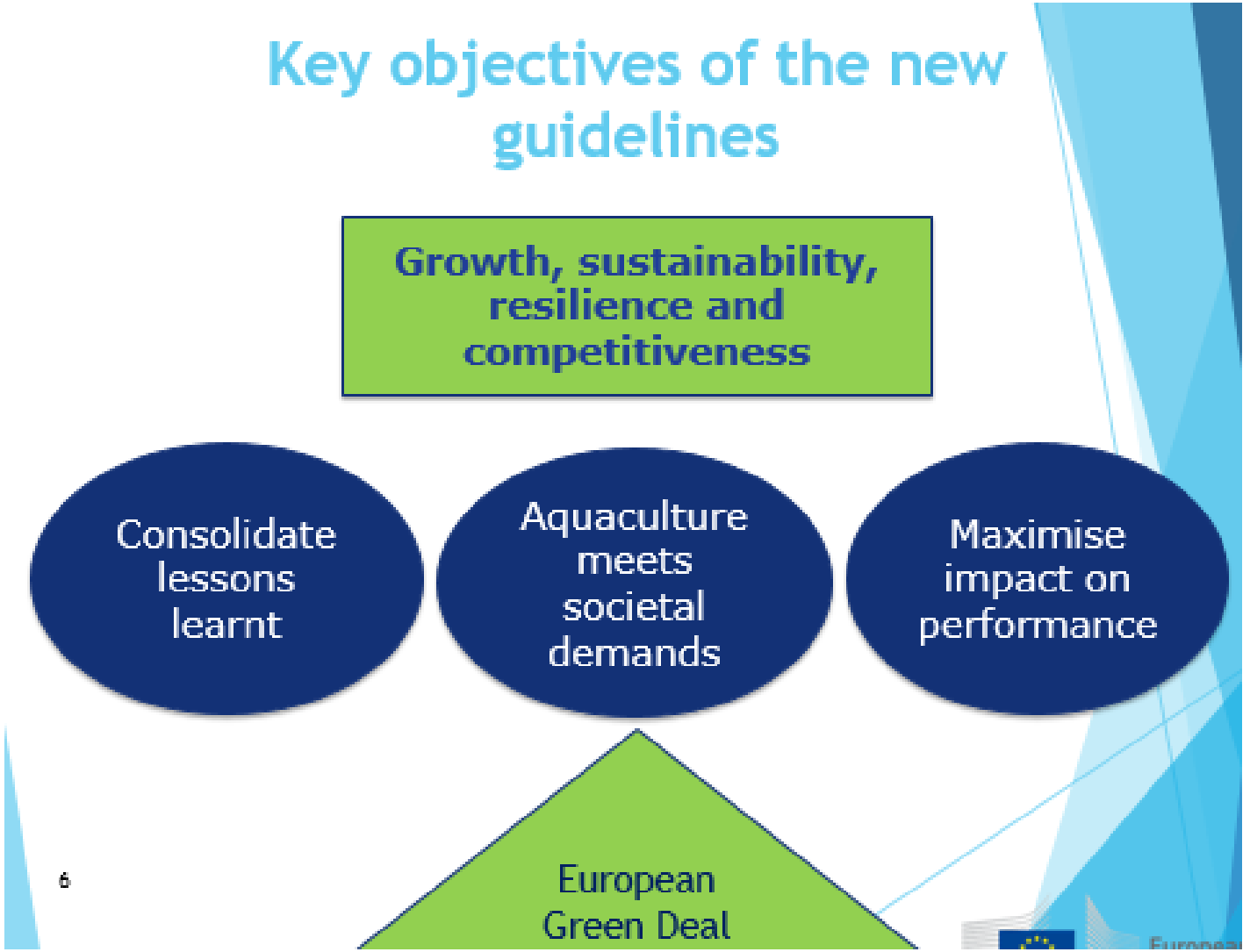
Maris Stulgis

Policy Officer on Blue Bioeconomy, Algae and Marine Aquaculture

DG MARE – European Commission

Press release | 17 May 2021 | Brussels

European Green Deal: Commission adopts strategic guidelines for sustainable and competitive EU aquaculture



EU Aquaculture guidelines

- Specific objective: to improve environmental performance by:

(i) Implement environmental legislation;
(ii) further mitigate impact of aquaculture; and
(iii) promote aquaculture with lower environmental impact and aquaculture that provides ecosystem services

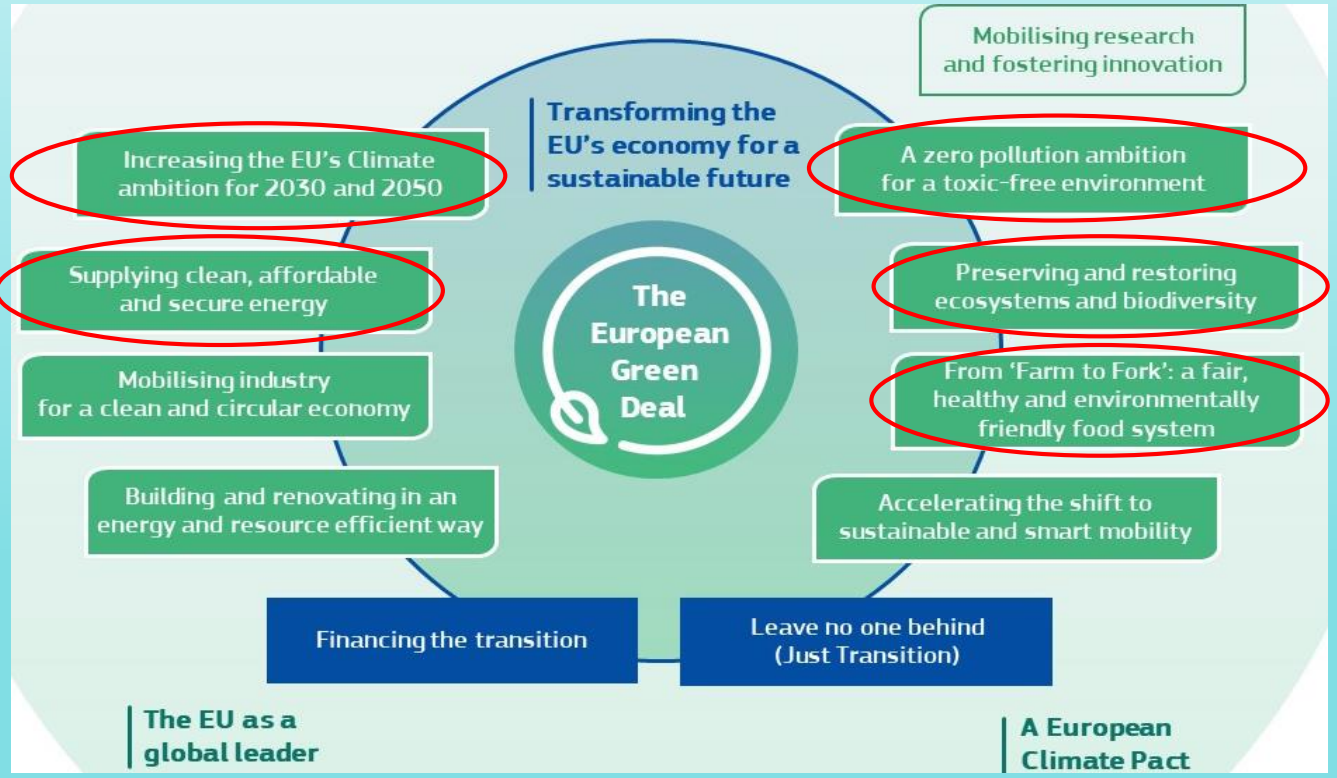
- Promoting the development of integrated multi-trophic aquaculture systems (IMTA), as well as the diversification to lower-trophic species (molluscs and other invertebrates and algae and herbivore fish)

- **EU Aquaculture Assistance mechanism** – under development

European Commission

Algae in the EU policy context

- Seaweed as an alternative protein source Farm-to-Fork
- Sustainable blue Economy Strategy
- EU Sustainable Aquaculture Strategic guidelines
- And more…



What is happening already?

- **Algae related funding calls:**
  Horizon Europe, Circular Bio-based Europe Joint Undertaking, EMFAF, EIT Climate-Kic, EIT Food
- **Algae business support mechanisms:**
  BlueInvest, Aquaculture Assistance Mechanism

- **Ocean literacy and awareness raising:**
  EU4Ocean coalition, Taste the Ocean campaign

Studies to support the European Green Deal

Shellfish and algae (2022 – 2023/4) : assessing the potential of shellfish and algae to recycle nutrients

Algae and Climate (2022 – 2023): examines costs, impact and benefits of scaling up production of marine algae through aquaculture in the EU

European Commission

The EU Algae Initiative – how did we get there?

Problems	Objectives	Action areas
- High production costs - Low scale production - Limited knowledge of the markets and consumers - Limited knowledge of risks and environmental impacts of algae cultivation - Fragmented governance framework	**Unlock the algae potential in the EU by:** • increasing sustainable production, safe consumption and innovative use of algae products, • upscaling regenerative algae cultivation and production • developing and mainstreaming the markets for food and non-food algae applications	1. The improvement of governance framework and legislation 2. Supporting the improvement of business environment 3. Closing knowledge, data, technological and innovation gaps 4. Increasing social awareness and acceptance

Press release | 15 November 2022 | Brussels

Commission proposes action to fully harness the potential of algae in Europe for healthier diets, lower CO2 emissions, and addressing water pollution

23 actions aimed at:

1. improving the governance framework and legislation,
2. improving the business environment,
3. closing knowledge, research, technological and innovation gaps, and
4. increasing social awareness and market acceptance

To be piloted in a coordinated way, in close collaboration with Member States and relevant stakeholders.

The EU Algae Initiative

To be piloted in a coordinated way, in close collaboration with Member States and relevant stakeholders.

Next steps:

- COM will discuss the initiative (implementation) with the EP, EESC and the Council
- COM will coordinate implementation of 23 actions with MS, industry (e.g. via the EU4Algae Forum) and other relevant stakeholders.
- COM – a progress report by the end of 2027.

EU4Algae

EU4Algae

- Create an European algae stakeholder forum (some 650 members today);
- Bring more algae species to the EU market;
- Lots of useful co-created deliverables.

EU4Algae & Algae Initiative

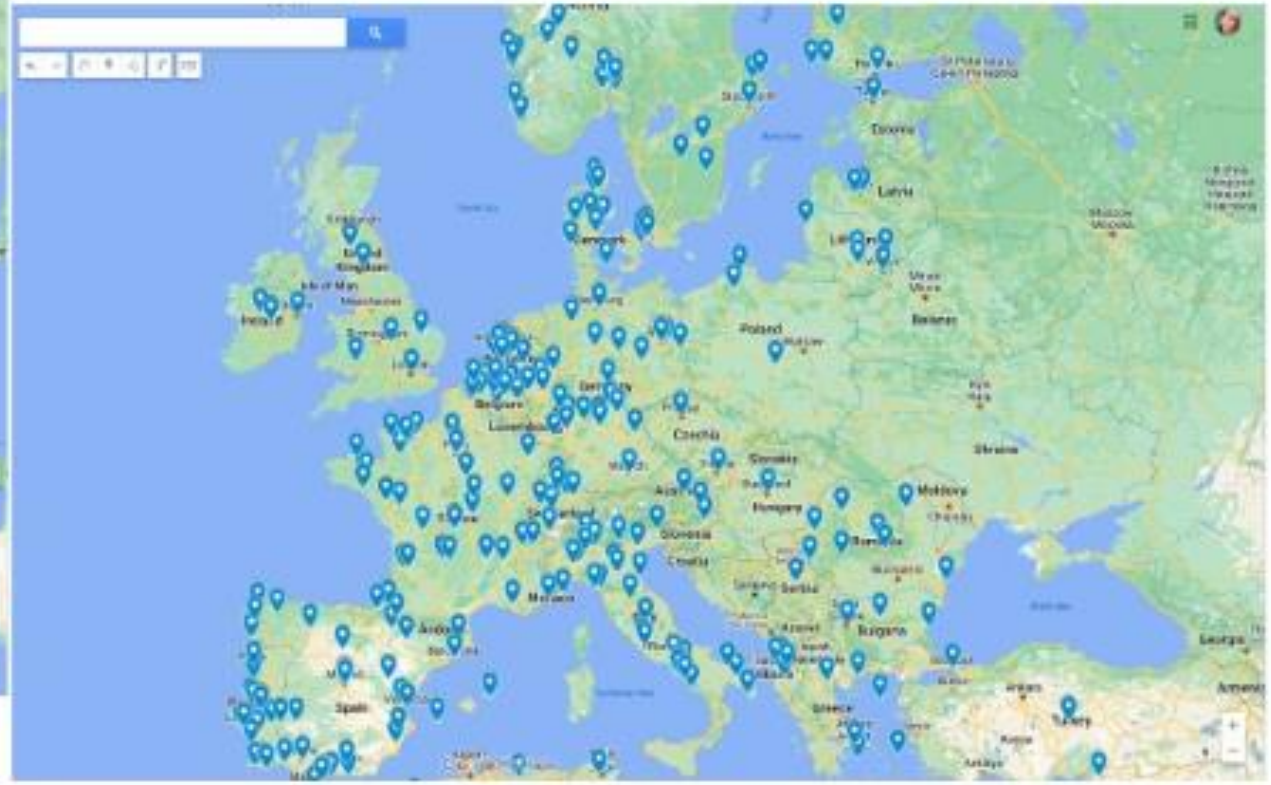
- Complementary, not duplicative;
- Capitalize on the well-established collaborative environment;
- EU4Algae is expected to contribute to the 4 priorities of the initiative;
- E.g. Action 23: Promoting awareness-raising actions for schools and universities, starting in 2023.

European Commission

EU4Algae registered members

Currently there are 650 members registered and participating in WG discussions

To join: https://webgate.ec.europa.eu/maritimeforum/en/frontpage/1727



Thank you
#BeGreenGoBlue

European Commission

OLAMUR

Offshore Low-trophic Aquaculture in Multi-Use Scenario Realisation

EUROPEAN CLIMATE, INFRASTRUCTURE AND ENVIRONMENT EXECUTIVE AGENCY

Loïc Blanchard

Project manager, CINEA C.1

Climate Science

Kick-off meeting, Bergen (NO)

17-18 January 2023

Summary

- CINEA – the agency, its role & programmes
- Horizon Europe Mission Restore our Oceans and waters
- Project implementation
- Additional information

European Commission

CINEA

European Commission

EUROPEAN CLIMATE, INFRASTRUCTURE AND ENVIRONMENT EXECUTIVE AGENCY

CINEA in a nutshell

Started operating 1 April 2021

> 55 billion
period 2021 -2027

> 500 staff by 2027

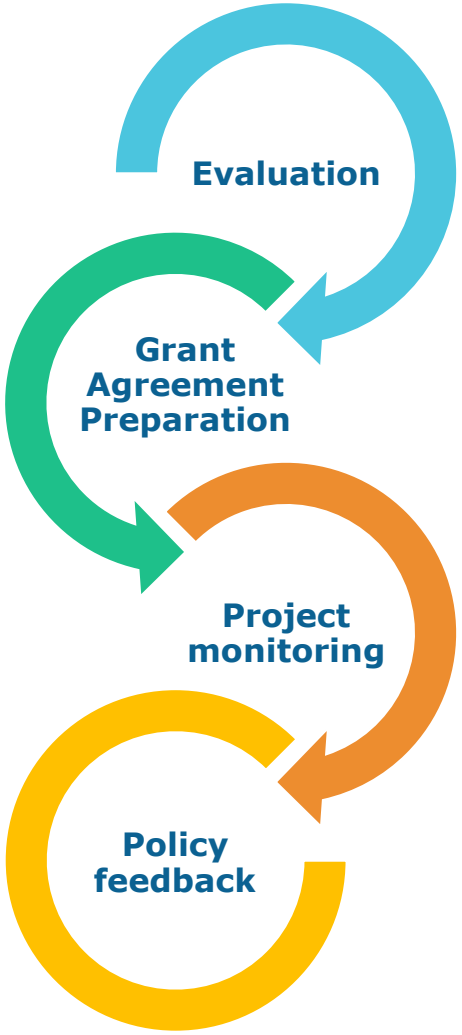
from 2800+ projects in October 2021 to
> 4500 projects by 2027

European Commission

CINEA's role

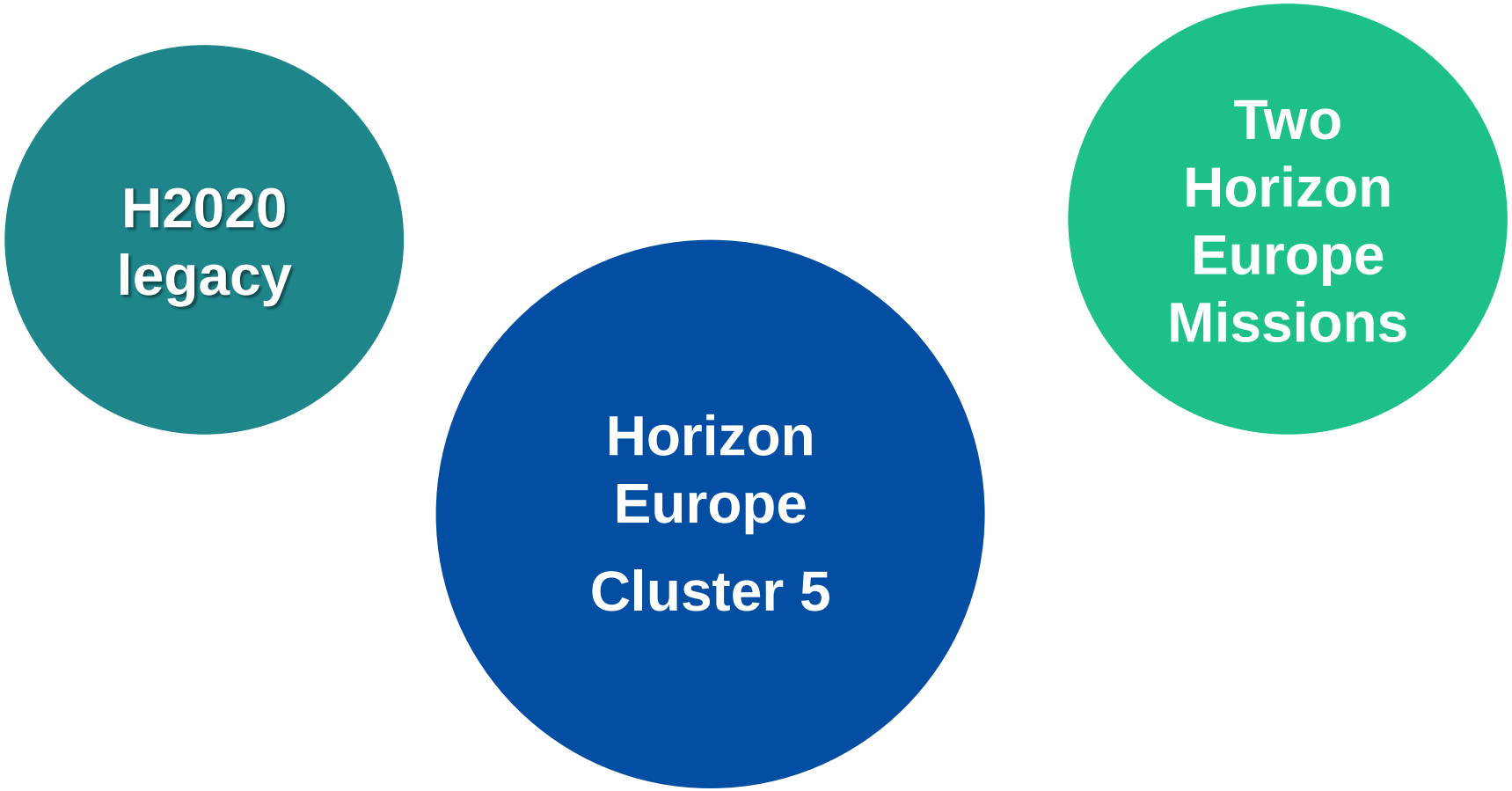
In charge of the whole cycle of project implementation:

- Evaluation of Proposals
- Grant Agreement Preparation
- Scientific/Technical and Financial monitoring of projects
- Supporting exploitation and dissemination of project results
- Policy feedback to DGs
- Exploitation of synergies across programmes



European Commission

CINEA C1- Climate science Unit



European Commission

EU MISSIONS

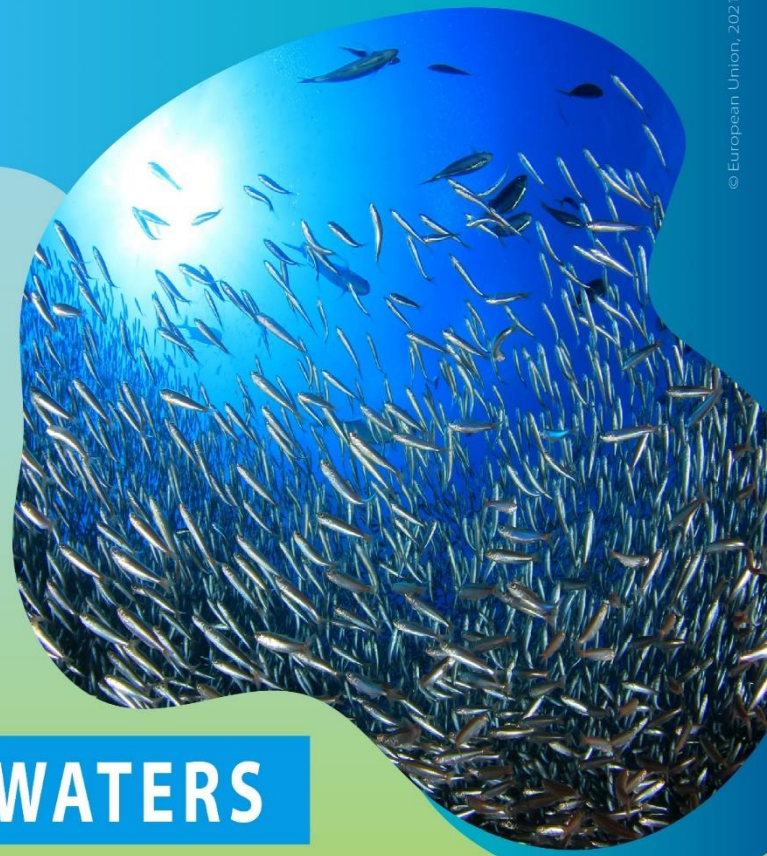
European Commission

EUROPEAN UNION

EU MISSIONS

RESTORE OUR OCEAN & WATERS

Concrete solutions for our greatest challenges



#EUmissions #HorizonEU #MissionOcean

EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

Mission Work Programme 2021-2022

Objective 1
PROTECT and RESTORE MARINE and FRESHWATERS

Blue Parks: 2 IAs (MPA management, degraded ecosystems)

Danube river basin lighthouse
CSA + 2 IAs (restoration of river connectivity, wetlands)

Atlantic and Arctic lighthouse:
CSA + 2 IAs (coastal restoration, climate resilience/adaptation – joint topic with Mission Climate)

Objective 2
PREVENT AND ELIMINATE POLLUTION OF OUR OCEAN, SEAS AND WATERS

Mediterranean sea basin lighthouse

CSA +2 IAs (prevention, reduction and elimination of plastic & litter, prevention, reduction and elimination of chemical pollution,)

Cross-basin topics: plastic free European rivers, low environmental impact fishing gear

Objective 3
MAKE THE BLUE ECONOMY CARBON-NEUTRAL AND CIRCULAR

Baltic and North sea basin lighthouse

CSA + 2 IAs (sustainable aquaculture and multi-use of marine space, bringing algae-based products on the market)

EUROPEAN UNION

EU MISSIONS
RESTORE OUR OCEAN & WATERS

Implementation in 2 phases

2022-2025 – development and piloting

- R&I implementing Missions' objectives
- Increasing citizen participation and engagement
- Transformative and innovative solutions to be tested, piloted & validated

2026-2030 – development and upscaling

- Solutions to be further deployed, replicated and scaled-up

OLAMUR – Project implementation

European Commission

OLAMUR - Expectations

- ✓Deliver optimal and carbon-neutral use of marine space in two European areas with high concentration of maritime activities
- ✓Improve the aquaculture production in terms of increased sustainable and environmentally soundness, particularly of algae and other low-trophic level aquatic organisms
- ✓Offer new solutions for ensuring safety of farmed seafood and increase consumers' trust
- ✓Develop data-based systems enabling a market-wide monitoring and data analysis service for aquaculture by adapting existing European methodologies from CMEMS and EMoDNet.
- ✓Using the energy provided by the co-located wind farms, OLAMUR will increase the share of renewable energy consumption along the full value chain of aquaculture and minimise its dependence on fossil fuel
- ✓Develop automated protocols to survey the system and monitor the impact on the area OLAMUR will contribute to Enhance knowledge to minimise the carbon footprint and environmental impact of aquaculture
- ✓Advance the professional skills and competences of those working and being trained to work within the blue economy by conducting dedicated courses developed for improving the sustainable use of the marine space

Implementation of the Grant Agreement

- **Grant Agreement** (GA) is your key reference (annotated model grant agreement for explanations (AMGA) !)
  - Annex 1 part A & B: Description of the Action (DoA)
    - ➢ Part A - Work plan, tasks, roles, deliverables, milestones, …
  - Annex 2: Estimated Budget
- Deliver on tasks and submit deliverables **in due time**
  - ➢High quality deliverables for internal/external purposes (internal review)
  - ➢Inform CINEA Project Officer (PO) on delays or deviations in advance
- Need for an adjustment of the DoA and GA: **amendment**

Communication with CINEA PO via the coordinator only !

European Commission

Amendments (GA Art.39)

Discuss with the CINEA PO any issues that may potentially require an amendment at the earliest possible stage and in any case prior to the submission of a formal request in COMPASS.

Risk of costs ineligibility in case of retroactive use of subcontracts and in-kind contributions

Reporting (GA Art. 21)

- ✓ Continuous submission of deliverables, milestones, etc.
- ✓ Throughout the action

- ✓ Periodic and final reports to CINEA, payment requests
- ✓ 3 reporting periods

All the public deliverables once accepted by the project officer will automatically be published on **CORDIS** (Community Research and Development Information Service)*

* European Commission's primary source of results from the projects funded by the EU's framework programmes for research and innovation, from FP1 to Horizon Europe

European Commission

Continuous reporting

- **Deliverables** as listed in Annex 1
- Use Deliverables **template** provided
- See IT manual: [Online Manual – Online Manual - Funding Tenders Opportunities (europa.eu)]

European Commission

Periodic reporting

Periodic Technical Report

TEMPLATE

- overview of the progress towards the objectives and milestones of the action
- explanation of the work carried out (in each WP, per beneficiary)
- updated plan for exploitation, dissemination and data management
- follow up on recommendations from previous reviews
- deviations

Periodic Financial Report

- ✓ use of the resources
- ✓ financial statement (individual & summary)

Final report

Final Technical Report

- results and their exploitation & dissemination
- summary for publication by the agency
- conclusions and socio-economic impact
- overview

Final Financial Report

- summary financial statement
- certificate on financial statement (if needed)

Periodic reporting and payments

Start of the project
01/01/2023
48 months

Pre-financing: 53.33%
(5% guarantee fund)

(Max. Grant Amount 8,214,732 €)

End of 1st reporting period
30/06/2024
Month 18

Submission of reports max. 60 days after the end of the reporting period

Paid within max. 90 days of receipt of the periodic report

End of 2nd reporting period
31/12/2025
Month 36

End of 3nd reporting period
31/12/2026
Month 48

Payment of **balance**
Paid within max. 90 days of receipt of final report

European Commission

Checks and project reviews (GA Art. 25)

- The project needs to be carried out according to Annex 1 (**Description of the Action** (DoA) = key reference and guiding document)
- Project reviews are organised **back to back with the reporting periods**
- In-depth review of the progress in implementing the work (plan)
- Generally with **external** reviewers (experts)

Financial aspects (GA Art.6)

- **Keep records and supporting documents**
- **Costs** must be **actually incurred** by the beneficiary: i.e. only what is in the beneficiaries (or TP) books is eligible
- And clearly **related to the project (DoA)**
- Records for personnel costs (except for staff working full time for the project)
- Optional: dedicated meeting with FO on financial matters

H2020/Horizon Europe COORDINATORS' DAY :

Horizon Europe – Grants & reporting (europa.eu)

4-legal_and_financial_aspects.pdf (europa.eu)

All details in: Participant portal → How to participate → Reference Documents →Guidance → AMGA

European Commission

Communication, dissemination and visibility (GA Art.17 + Annex 5)

Communication

- you need a strategy, define in advance: objectives, audiences, messages, channels, etc
- all partners should be involved
- **Inform the PO** about your communication activities (events, launch, results, tweets, articles), we can help you spread the word.
- Before engaging in a communication activity expected to have **a major media impact,** please inform the Agency.

Dissemination

Dissemination is about sharing results with potential users in research, industry, other commercial players and policymakers

European Commission

Communication, dissemination and visibility

Exploitation

Exploitation is about **making use** of project results**:**

- It maximizes the **impact** of research, creates additional value from project results (commercial and non-commercial exploitation).
- Starts during the project lifetime and goes beyond

Integration of users in the project is crucial

You need a plan for that!

- What results can be further exploited (capture and document)
- Who can exploit them further (consortium and beyond)
- How (appropriate means, including Intellectual Property Management)

Co-design with stakeholders & end-user engagement

Get the right expertise and the necessary resources in the project

Communication, dissemination and visibility

Communication		Dissemination		Exploitation
Informing about the project	Informing about its results	Making the results available for use	Facilitating further use of results	Making use of project results
Project website Brochure Social media Press releases …	Project website Newsletter Conference presentation Interviews ….	Scientific publication Policy brief/roadmaps Training/ workshops/ demonstration Sharing results on online repository ….	**Innovation management** **Data management** **Users and stakeholders engagement** …	Further research Commercial products/services Standards New regulations ….

'Communication guide for H2020 projects':
http://ec.europa.eu/research/participants/data/ref/h2020/other/gm/h2020-guide-comm_en.pdf

European Commission

Acknowledgement of EU funding (Art. 17)

- **Use EU emblem**
- High-resolution emblems are available here: http://europa.eu/about-eu/basic-information/symbols/flag/
- “Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or [name of the granting authority]. Neither the European Union nor the granting authority can be held responsible for them.”

Supporting exploitation

- Horizon Results Platform
  - "Turning Europe's research results into innovations which generate value for economy, society and contribute to a sustainable future."
  - showcasing results for exploitation by policy-makers, investors, researchers, businesses, …
  - Upload key exploitable results

European Commission

Open Science (Annex 5 to the GA): Open access to scientific publications

Each beneficiary must ensure open access (free of charge, online access for any user) to all **peer-reviewed scientific publications** relating to its results by

- self-archiving: in online repository (depositing), and
- immediate open access to the deposited publication via the repository under the latest available version of the Creative Commons Attribution International Public Licence

Only publication fees in full open access venues for peer-reviewed scientific publications are eligible for reimbursement

Useful resources and links

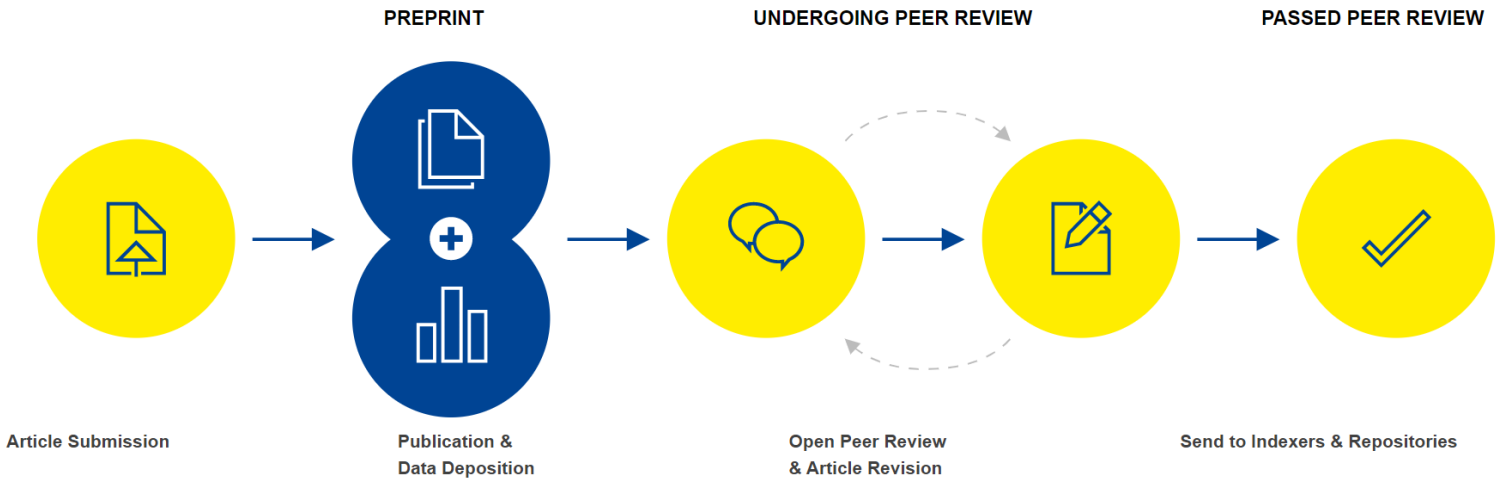
- Open Access Infrastructure for Research in Europe (OpenAIRE): www.openaire.eu
- Registry of Open Access Repositories: http://roar.eprints.org/
- Directory of Open Access Repositories: http://www.opendoar.org/

European Commission

Open Science:
Open access to scientific publications

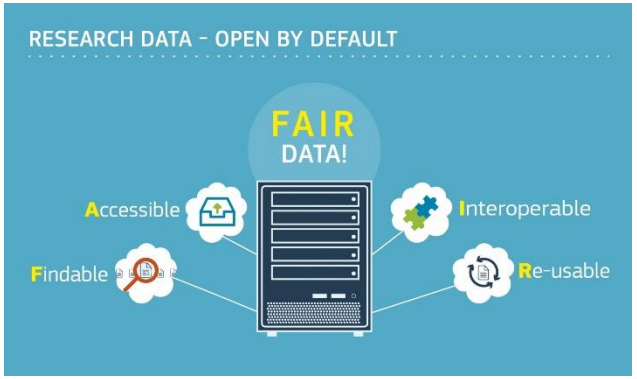
Open Research Europe

- an open access publishing platform managed by EC for fast publication of research stemming from Horizon 2020/Europe funding across all subject areas.
- open peer review publishing model: publication within days of submission, followed by open invited peer review



European Commission

Open science:
Research data management



Data Management Plan

- Describe the data management lifecycle:
  - **What data will be generated, collected, and processed?**
  - **Which data will be shared/made open access; provide reasons for not sharing certain data?**
  - **How will data be curated and preserved?**
- First version to be submitted within first 6 months = Deliverable (month 6) > living document!
- Needs to be updated over the course of the project
- Horizon Europe **Data Management Plan template** > Reference Documents (europa.eu)

European Commission

Open Science:
Research data management

Open data policy

Take measures to enable third parties to access, mine, exploit, reproduce and disseminate (free of charge for any user) the data

- Explain the conditions and the terms of use
- Apply a suitable **open data license**
  - Creative Commons Licences www.creativecommons.org
  - http://opendefinition.org/guide/data
  - EUDAT B2SHARE tool includes a license wizard facilitating the selection of an adequate license for research data.
- Provide metadata; make data citable
- Provide information & methods / software tools to access and use the data

Synergies with other projects

- Related **Horizon Europe** projects funded under the **same topic**

‘HORIZON-MISS-2021-OCEAN-04-01 - Lighthouse in the Baltic and the North Sea basins - Low impact marine aquaculture and multi-purpose use of marine space’) (‘sister projects’)

- **ULTFARMS: circUlar Low Trophic oFfshore Aquaculture in wind farms and Restoration of Marine Space**
  - Contact: Stichting DELTARES (NL) Erik Janse, Director, erik.janse@deltares.nl / +31883358273
  - Duration: 01/2023 – 30/06/2026 (42 months)

European Commission

Synergies with other projects

Search via CORDIS

- Related on-going projects under H2020

Cross-cutting marine and maritime research - BG-05-2019 - Multi-use of the marine space, offshore and near-shore: pilot demonstrators

(See CORDIS.europa. for EU related projects)

- **UNITED : multi-Use platforms and co-locatioN pilots boosting cost-effecTive, and Eco-friendly and sustainable production in marine environments**
  - Coordinator: STICHTING DELTARES
  - Duration: 01/01/2020 – 31/12/2023
- **MUSICA Multiple-use-of Space for Island Clean Autonomy**
  - Coordinator: CONSORCIO PARA EL DISENO, CONSTRUCCION, EQUIPAMIENTO Y EXPLOTACION DE LA PLATAFORMA OCEANICA DE CANARIAS
  - Duration: 01/01/2020 – 31/12/2024

European Commission

Networking and policy feedback

- ✓ **EU Mission: Restore our Ocean and Waters**
- ✓ Knowledge sharing events organized by EU ('clusters')
- ✓ Policy feedback: eg science-policy dialogues, policy briefs etc…

European Commission

ADDITIONAL INFOS

European Commission

Climate-friendly climate research

- **Be as green as possible**
- Adhere to the principles of sustainability also in the way you run the project
- Reduce the carbon footprint of the research system
  - E.g by organizing "green meetings", teleconferences instead of physical meetings, taking the train instead of flying, etc.
  - Find out more: http://www.jpi-climate.eu/jpi-themes/climatefriendlyclimateresearch
  - In the way you manage your project (virtual meetings versus face to face…)
  - In the communication support material
- **Be an ambassador for EU research and innovation**
- **Be a Mission OCEAN ambassador**

European Commission

Reporting fraud

Information/definitions:

https://anti-fraud.ec.europa.eu/olaf-and-you/report-fraud_en

You can report fraud **anonymously** to OLAF (the European Anti-Fraud Office) by using the online Fraud Notification System (with secured document transmission).

There are no formalities. Just give as precise and detailed information as possible, including documents when available. You can communicate with OLAF in any of the 24 official EU languages.

European Commission

Further guidance

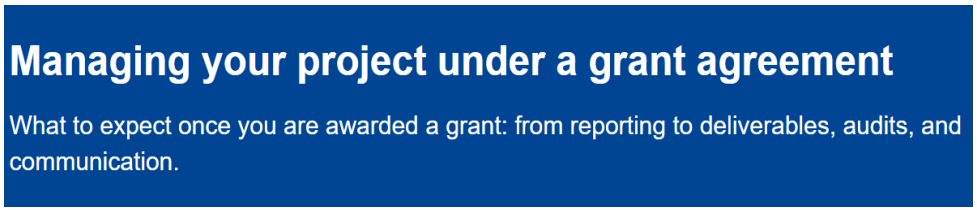
- **Funding and Tenders portal– online manual:** om_en.pdf (europa.eu)

- **Annotated model grant agreement**

aga_en.pdf (europa.eu)

- **Reporting and deliverables**

Managing your project under a grant agreement | European Commission (europa.eu)



European Commission

Public consultation on the past, present and future of the European Research & Innovation Framework programmes 2014-2027

EU-survey:

https://ec.europa.eu/eusurvey/runner/Horizon2020HorizonEuropeStrategicPlan2025-2027

European Commission

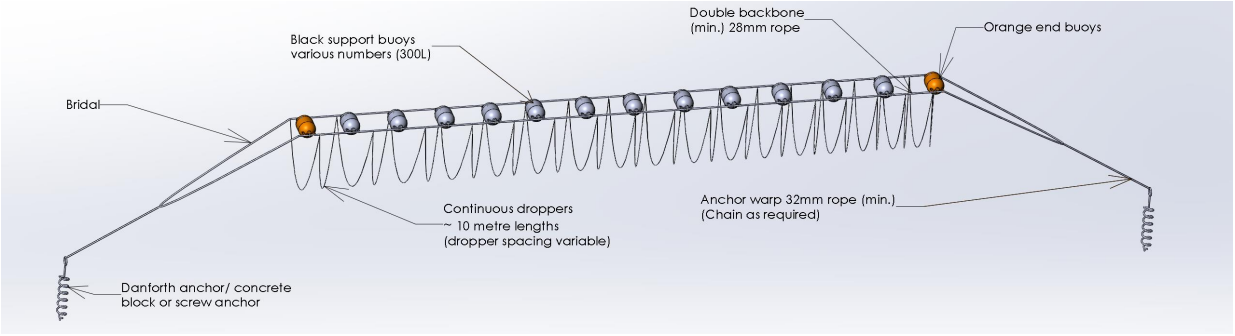
Thank you

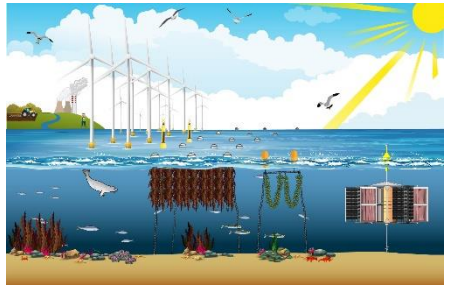
European Climate, Infrastructure and Environment Executive Agency (CINEA)
Established by the European Commission
Unit C.1 – Horizon Europe Climate

+32 2 29 62894
Loic.blanchard@ec.europa.eu
http://cinea.ec.europa.eu/
Follow CINEA on Twitter, Linkedin and YouTube

European Commission

AARHUS UNIVERSITY
DEPARTMENT OF ECOSCIENCE





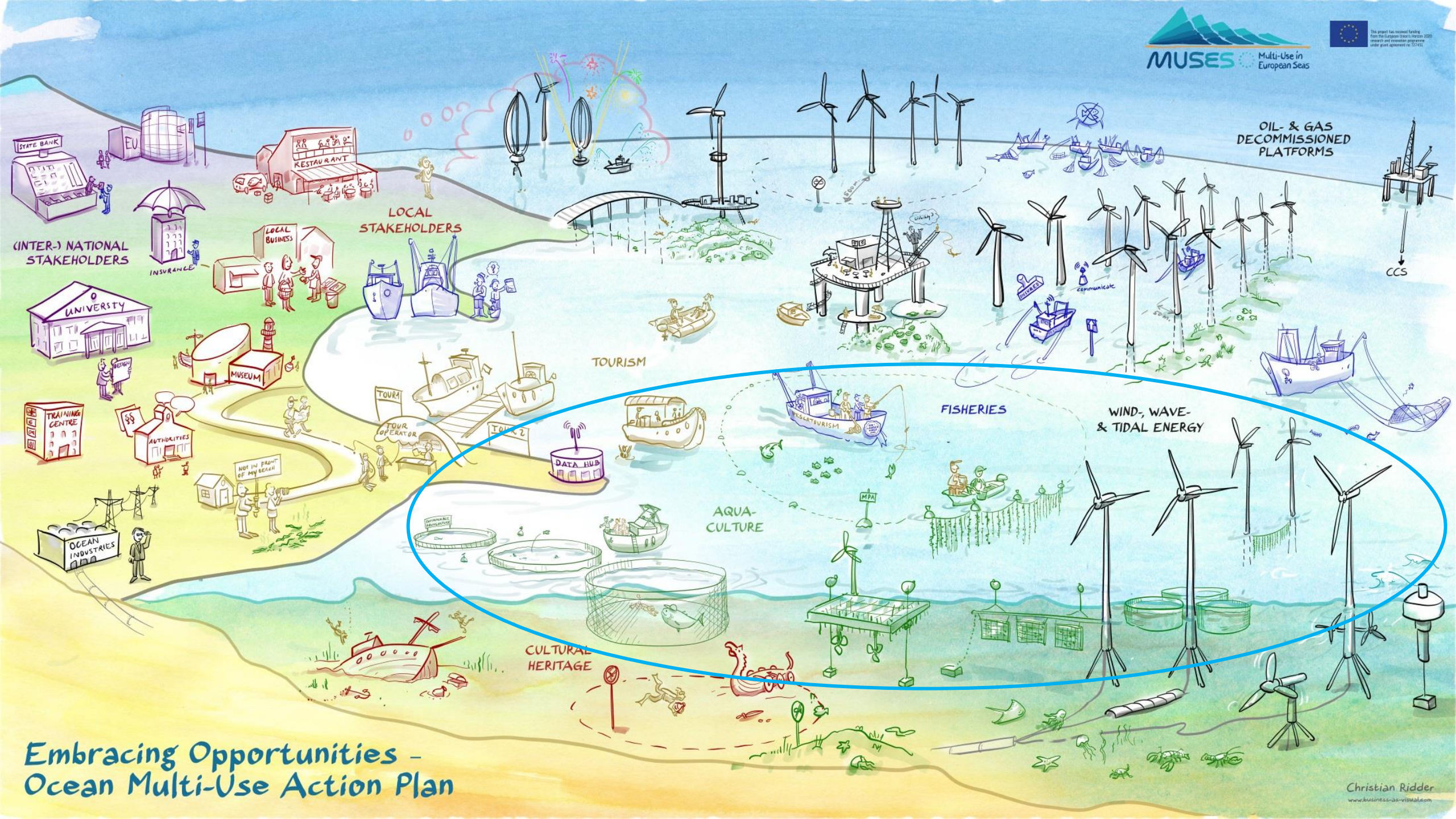
WP 1 - OLAMUR

Buck – Bruhn - Martin

Kick-Off OLAMUR - 17th January 2023, Bergen (Norway)

Horizon 2020
European Union Funding
for Research & Innovation

HORIZON-MISS-2021-OCEAN-04-01
Project ID: 101094065


MUSES
Multi-Use in European Seas
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 727451.
STATE BANK
EU
RESTAURANT
(INTER-) NATIONAL STAKEHOLDERS
INSURANCE
LOCAL BUSINESS
LOCAL STAKEHOLDERS
OIL- & GAS DECOMMISSIONED PLATFORMS
CCS
UNIVERSITY
MUSEUM
TOURISM
TOUR
TOUR OPERATOR
DATA HUB
TRAINING CENTRE
AUTHORITIES
NOT IN FRONT OF MY BEACH
OCEAN INDUSTRIES
RESTAURISM
FISHERIES
WIND-, WAVE- & TIDAL ENERGY
AQUA-CULTURE
MPA
CULTURAL HERITAGE
Embracing Opportunities – Ocean Multi-Use Action Plan
Christian Ridder
www.business-as-visual.com

AARHUS
UNIVERSITY
DEPARTMENT OF ECOSCIENCE

oil & gas & hydrogen

offshore wind & floating shipping terminal

offshore wind & desalination

offshore wind & seaweed aquaculture

aquaculture & environmental monitoring

offshore wind & MPA

offshore wind & fish aquaculture

oil & gas & fish aquaculture

offshore wind & shellfish aquaculture

tourism & underwater cultural heritage

tourism & wave energy & desalination

tourism & fishing

tourism & MPA

offshore wave & desalination

hydrogen & offshore wind

offshore wind & MPA

Floating shipping terminal & shellfish aquaculture

offshore wind & wave

offshore wave & shellfish aquaculture

AARHUS
UNIVERSITY
DEPARTMENT OF ECOSCIENCE

multi-purpose

symbiotic use

co-location

co-use

multi-purpose

co-location

co-existence

multi-use

symbiotic use

subsequent use

co-use

symbiotic use

multi-functional

co-location

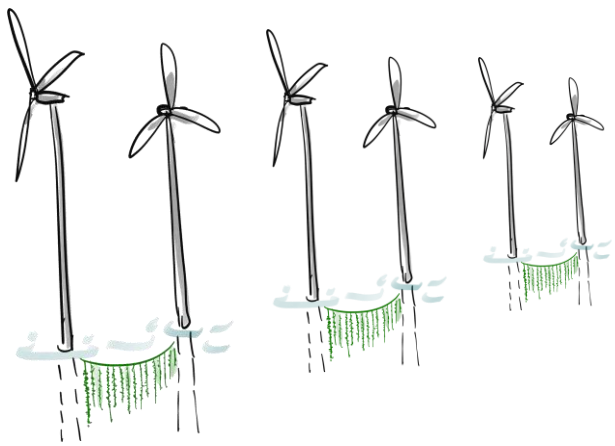
co-existence

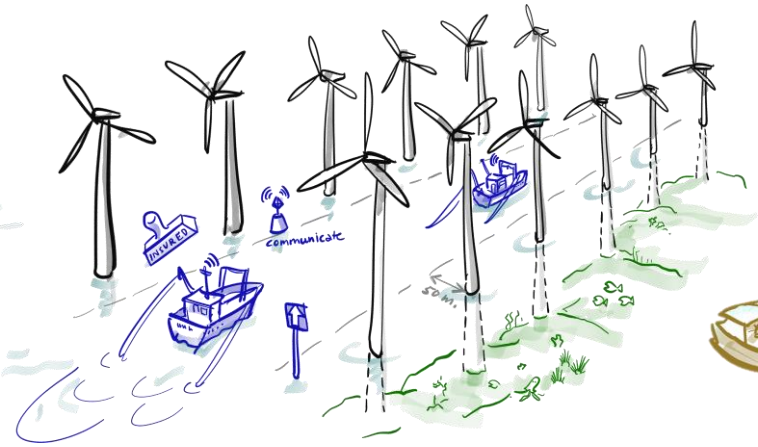
repurposing

multi-use

co-existence

Synergetic coopeartion





Type 1

Spatial	✓
Temporal	✓
Provisioning	✓
Functional	✓

Type 2

Spatial	✓
Temporal	✓
Provisioning	✓
Functional	

Type 3

Spatial	✓
Temporal	✓
Provisioning	
Functional	

Type 4

Spatial	✓
Temporal	
Provisioning	
Functional	

Schupp et al., 2019 – Frontiers - https://doi.org/10.3389/fmars.2019.00165

frontiers in Marine Science

HYPOTHESIS AND THEORY
published: 02 April 2019
doi: 10.3389/fmars.2019.00165

Toward a Common Understanding of Ocean Multi-Use

Maximilian Felix Schupp[1,2], Martina Bocci[3], Daniel Depellegrin[4], Andronikos Kafas[5], Zacharoula Kyriazi[6], Ivana Lukic[7], Angela Schultz-Zehden[7], Gesche Krause[1], Vincent Onyango[2] and Bela H. Buck[1,8]*

[1] Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Bremerhaven, Germany, [2] School of Social Sciences, University of Dundee, Dundee, United Kingdom, [3] Thetis SpA, Venice, Italy, [4] CNR – National Research Council of Italy, ISMAR – Institute of Marine Sciences, Venice, Italy, [5] Marine Scotland Science, Aberdeen, United Kingdom, [6] Hellenic Centre for Marine Research, Institute of Marine Biological Resources and Inland Waters, Athens, Greece, [7] SUBMARINER Network for Blue Growth EEIG, Berlin, Germany, [8] Faculty 1, Applied Marine Biology and Aquaculture, Bremerhaven University of Applied Sciences, Bremerhaven, Germany

The "open ocean" has become a highly contested space as coastal populations and maritime uses soared in abundance and intensity over the last decades. Changing marine utilization patterns represent a considerable challenge to society and governments. Maritime spatial planning has emerged as one tool to manage conflicts between users and achieve societal goals for the use of marine space; however, single-sector management approaches are too often still the norm. The last decades have seen the rise of a new ocean use concept: the joint "multi-use" of ocean space. This paper aims to explain and refine the concept of ocean multi-use of space by reviewing the development and state of the art of multi-use in Europe and presenting a clear definition and a comprehensive typology for existing multi-use combinations. It builds on the connectivity of uses and users in spatial, temporal, provisional, and functional dimensions as the underlying key characteristic of multi-use dimensions. Combinations of these dimensions yield four distinct types of multi-use with little overlap between them. The diversity of types demonstrates that there is no one-size-fits-all management approach, but rather that adaptive management plans are needed, focusing on achieving the highest societal benefit while minimizing conflicts. This work will help to sharpen, refine and advance the public and academic discourse over marine spatial planning by offering a common framework to planners, researchers and users alike, when discussing multi-use and its management implications.

Keywords: multi-use of space, marine spatial planning, synergistic use, co-existence, ocean governance

OPEN ACCESS

Edited by:
Di Jin,
Woods Hole Oceanographic Institution, United States

Reviewed by:
Talya Tenbrink,
The University of Rhode Island, United States
Elizabeth Mendenhall,
The University of Rhode Island, United States

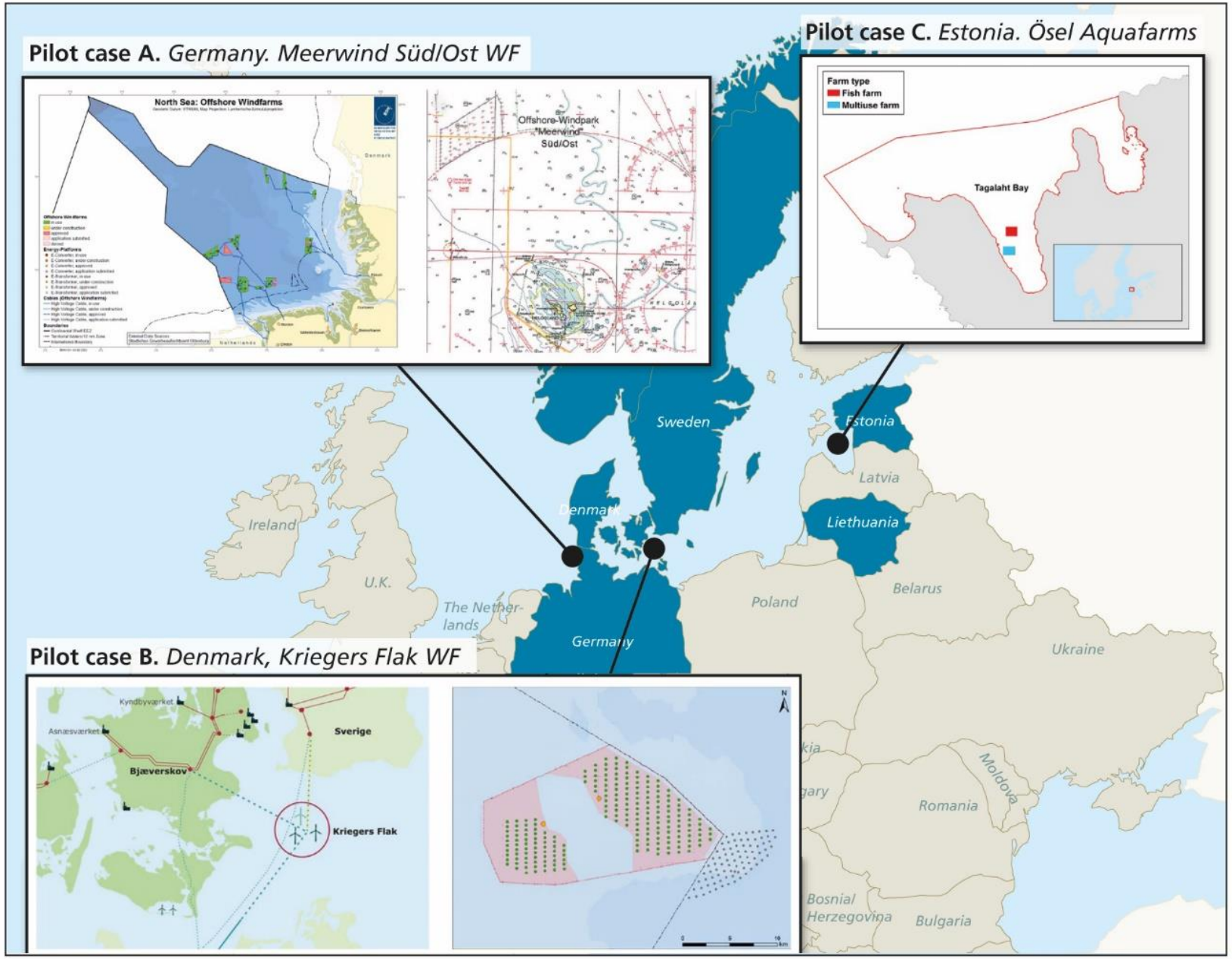
****Correspondence:***
Maximilian Felix Schupp
maximilian.felix.schupp@awi.de

Specialty section:
This article was submitted to Marine Affairs and Policy, a section of the journal Frontiers in Marine Science

AARHUS UNIVERSITY
DEPARTMENT OF ECOSCIENCE

Schultz-Zehden et al. (2018) Ocean Multi-Use Action Plan, MUSES project. Edinburgh. 132 p.

HELMHOLTZ



OOA in OWF/AQ

Extractive species only

Case Studies:

- A: Germany (North Sea)
- B. Denmark (Baltic Sea)
- C: Estonia (Baltic Sea)

Pilot farms: parameter			Case Study A Germany	Case Study B Denmark	Case Study C Estonia
sea basin			North Sea German EEZ (offshore)	Baltic Sea Danish EEZ (offshore)	Baltic Sea Estonian Sea (nearshore)
Case Study lead			AWI	AU	UT
condition of water column			open ocean/ extremely exposed	open ocean/ exposed	Sheltered
water depth			28 m (TR 4.5 m)	16-30 m (TR 0.5 m)	25 m (TR 0.2 m)
multi-use partner	co-use partner	type of partnership	low-trophic aquaculture candidates: blue mussel (*M. edulis*) Eur. Oyster, (*O. edulis*) sugar kelp (*Saccharina latissima*) sea lettuce (*Ulva sp.*)	low-trophic aquaculture candidates: blue mussel (*M. edulis*) sugar kelp (*Saccharina latissima*) sea lettuce (*Ulva sp.*)	low-trophic aquaculture candidates: blue mussel (*M. edulis*) sea lettuce (*Ulva intestinalis*)
		technology	longline/"SF Tower"	longline	longline
		location at the host partner	in the area of the OWF, to be defined in T1.1		within 500 m
	host partner	type of partnership	OWF Meerwind Süd/Ost (WindMW)	OWF Kriegers Flak (Vattenfall)	fish farm (RedStorm OÜ, Ösel Aquafarms)
		distance to next harbour	12.4 nautical miles (Helgoland)	8 nautical miles (Klintholm Havn)	2 nautical miles (Port of Veere)
		n turbines/ fish farms	80	72	1
		coordinates	54°23′0″ N, 7°41′0″ E	55°1′34″ N, 12°56′20″ E	58°27′41″ N, 22°4′30″ E

TR = tidal range, SF = Shellfish

From "duck pond" to high energy environment

Extractive Species (LTA only)

German Case Study: Meerwind Süd |Ost

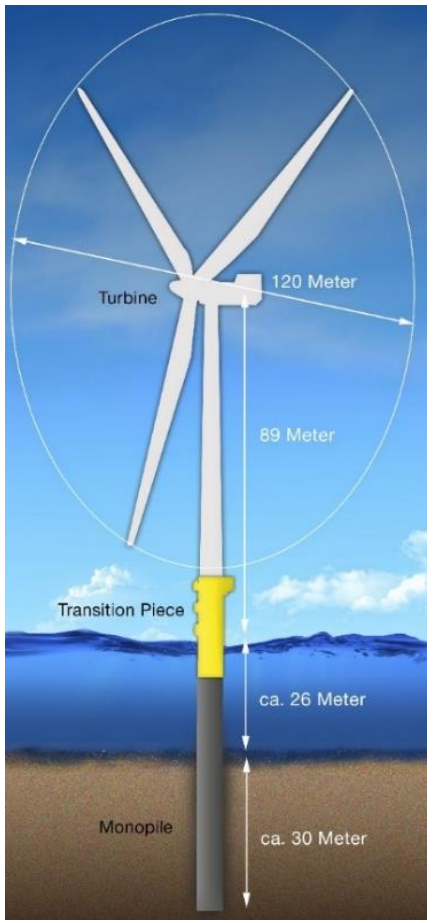
- Meerwind is located in the German North Sea
- MU
  - Blue mussel (*Mytilus edulis*)
  - Oysters (*Ostrea edulis*)
  - Sugar kelp (*Saccharina latissima*)
  - Sea lettuce (*Ulva sp.*)

WindMW

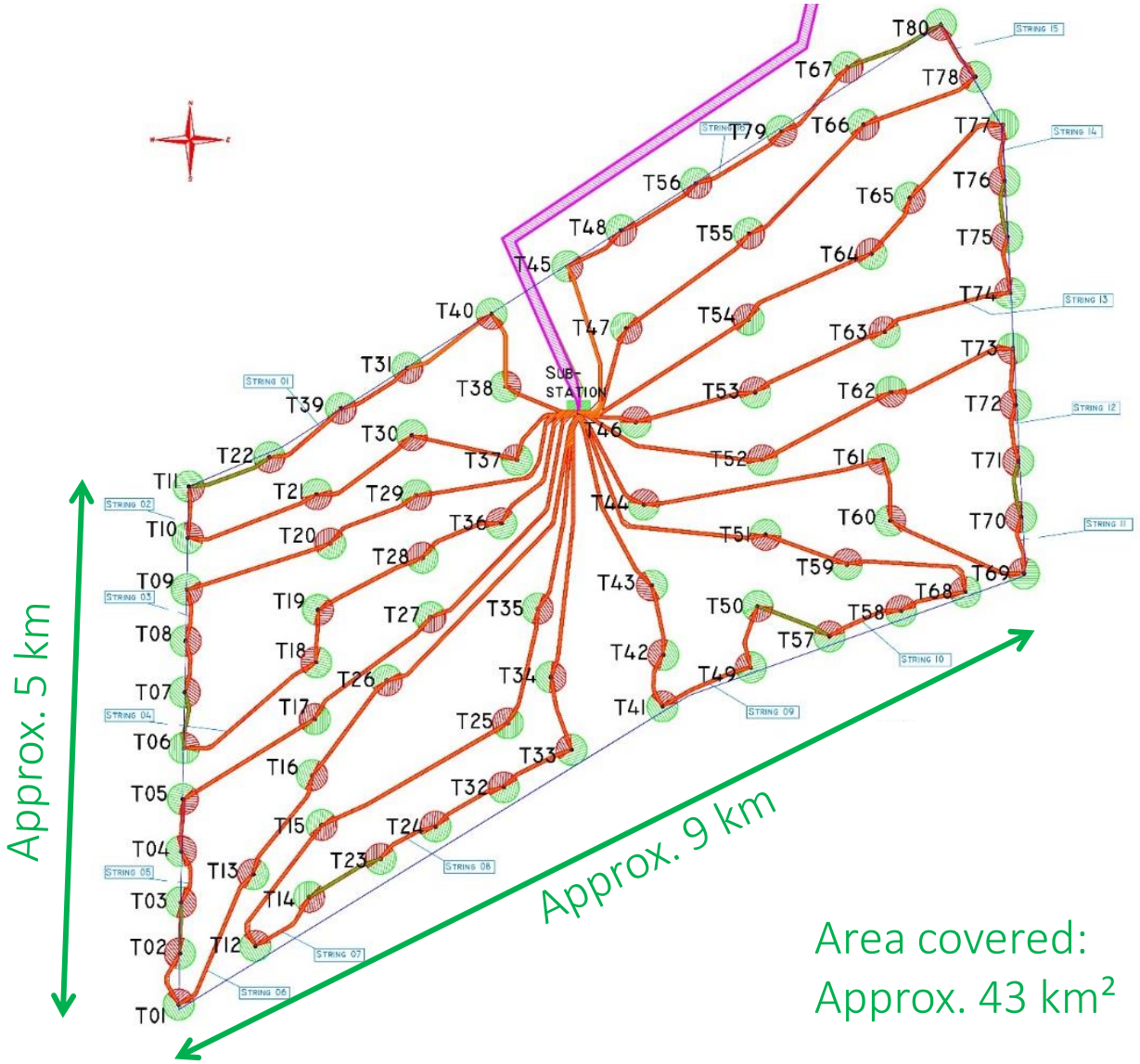
Wyk 8
Muschelfischereibetrieb
GmbH

Nordfriesische
Seemuschel GmbH (NFS)

Meerwind Süd |Ost – Basic Data



- 80 Wind Turbine Generators
- 1 Offshore Substation
- Capacity: 288 MW
- Water Depth: 22 – 26 m
- Mean distance between turbine rows: approx. 1,150 m

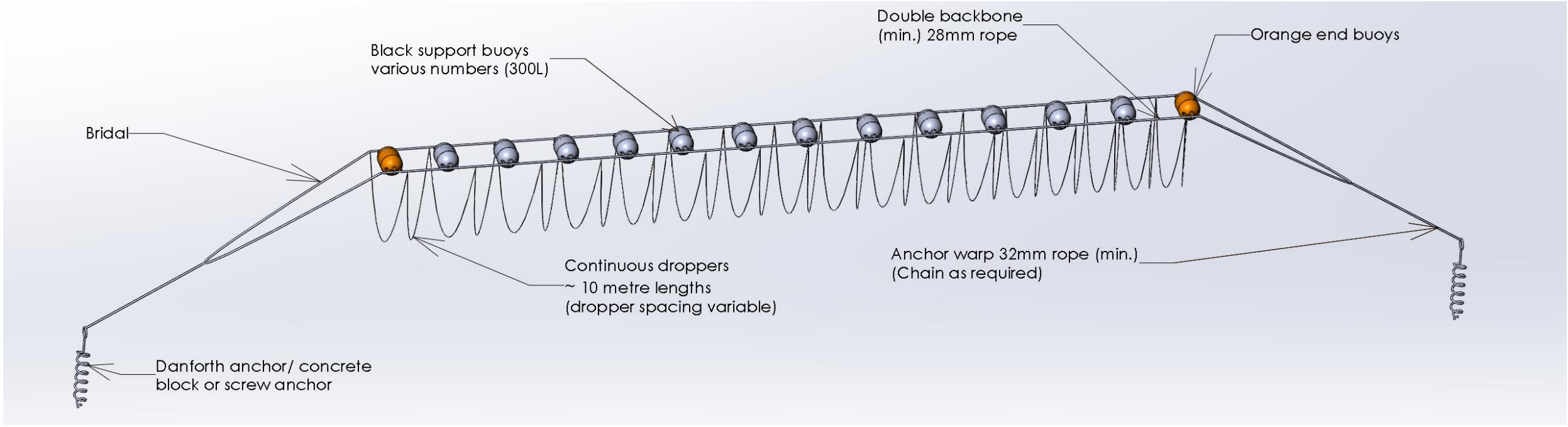


Area covered:
Approx. 43 km²

AARHUS UNIVERSITY
DEPARTMENT OF ECOSCIENCE

Planned System Design:

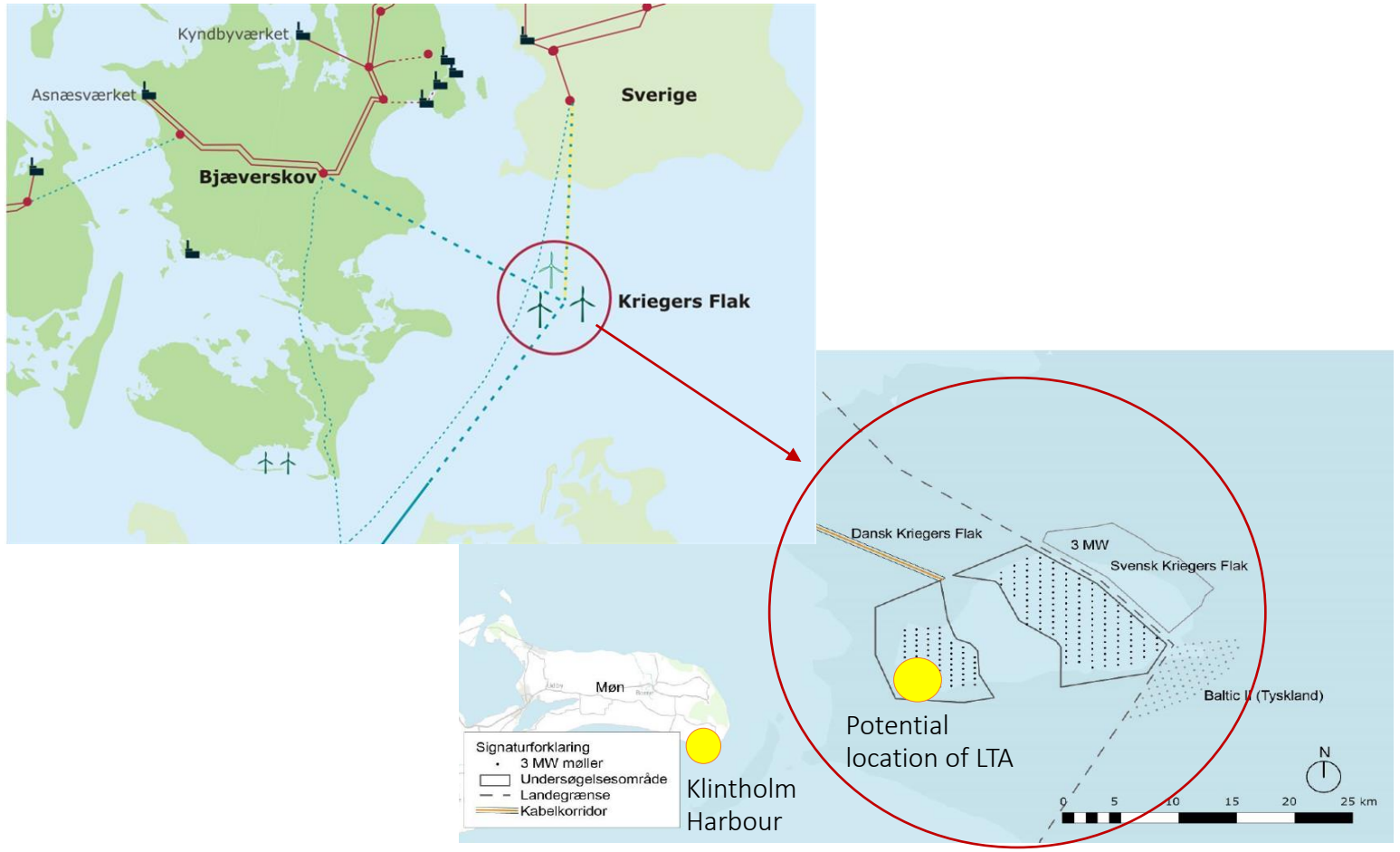
- 1-2 x Shellfish Tower (NZ)
- Longtube/longline device (smart) with flexible and/or rigid mooring devices



Kriegers Flak – Danish pilot case

MU between

- Largest offshore windfarm in Scandinavia
  - Running since 2021
  - 604 MW (0.6 mio households)
  - 72 turbines
  - 15-40 km from land
- Low trophic aquaculture
- Marine monitoring programme
- Nature-based solutions (boulder reefs, scour protection)



Kerteminde Seafarm

Low trophic aquaculture

Organisms

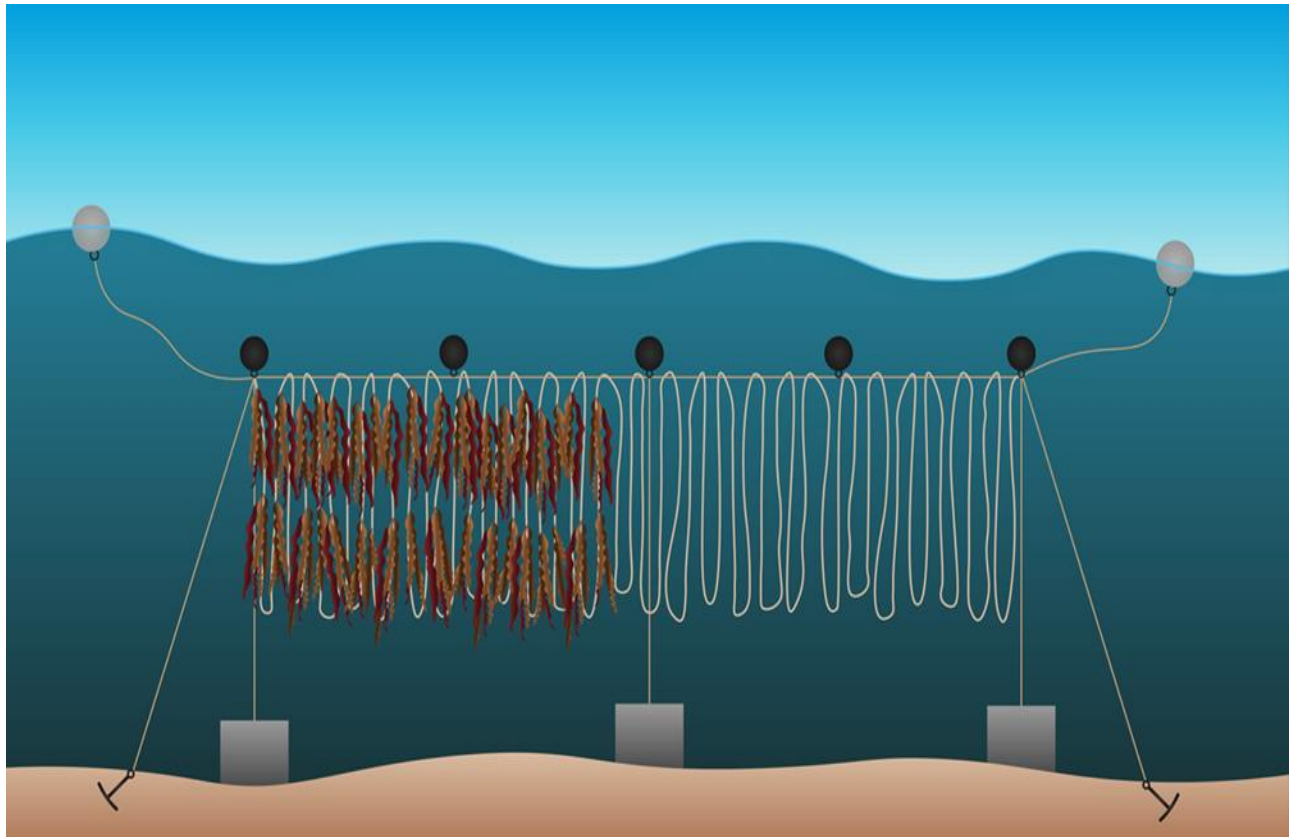
- Blue mussels and seaweed (*Saccharina*, *Palmaria* and *Ulva*)

Cultivation structures/technology

- Longlines of ~ 200 m (4)
- Drill anchors or concrete blocks

Challenges

- Low salinity - *Saccharina* breeding for low salinity tolerance
- Exposure
- Depth (19-31 m)



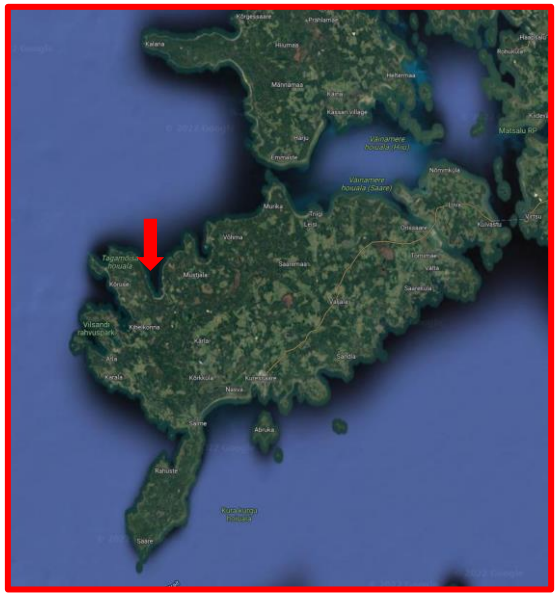
Kerteminde Seafarm

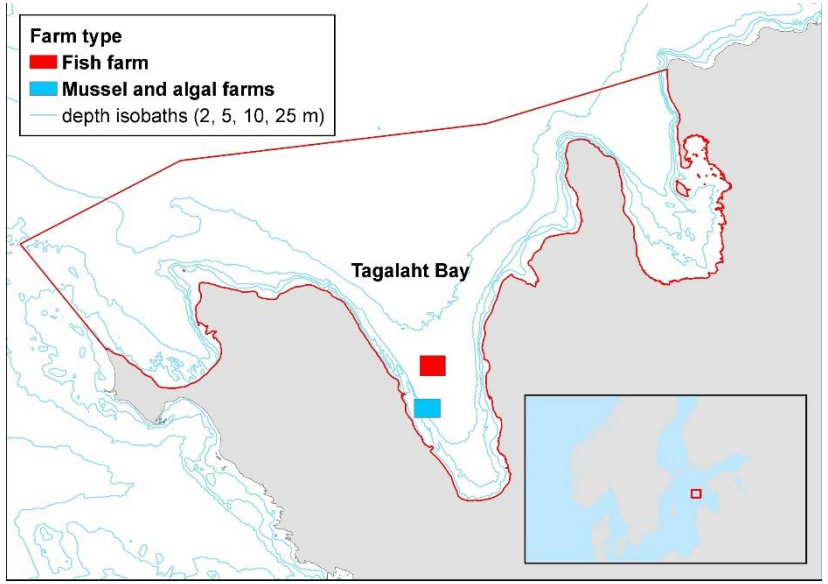
Kattegatcentret

UNIVERSITY OF COPENHAGEN

VATTENFALL

Estonian pilot case



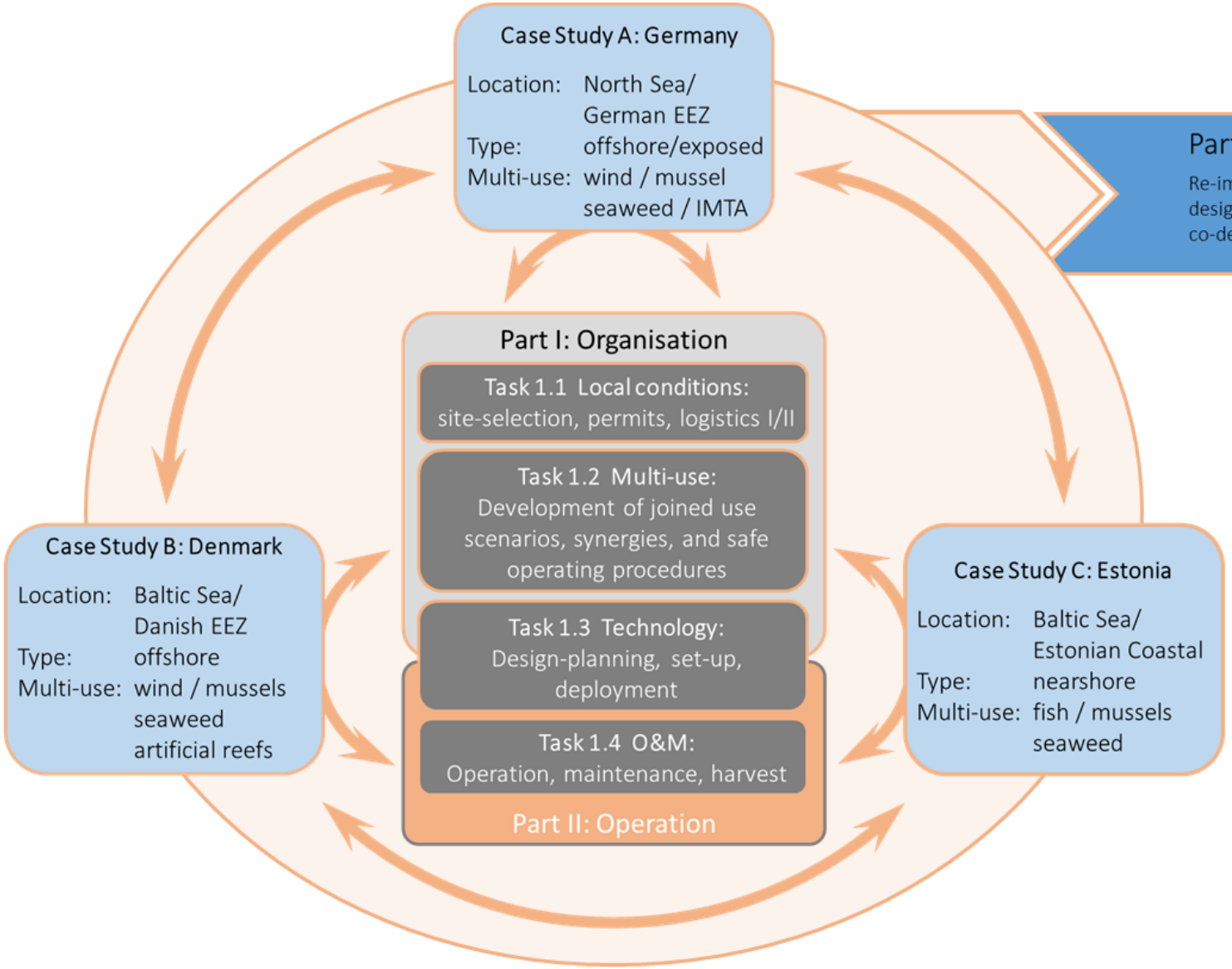


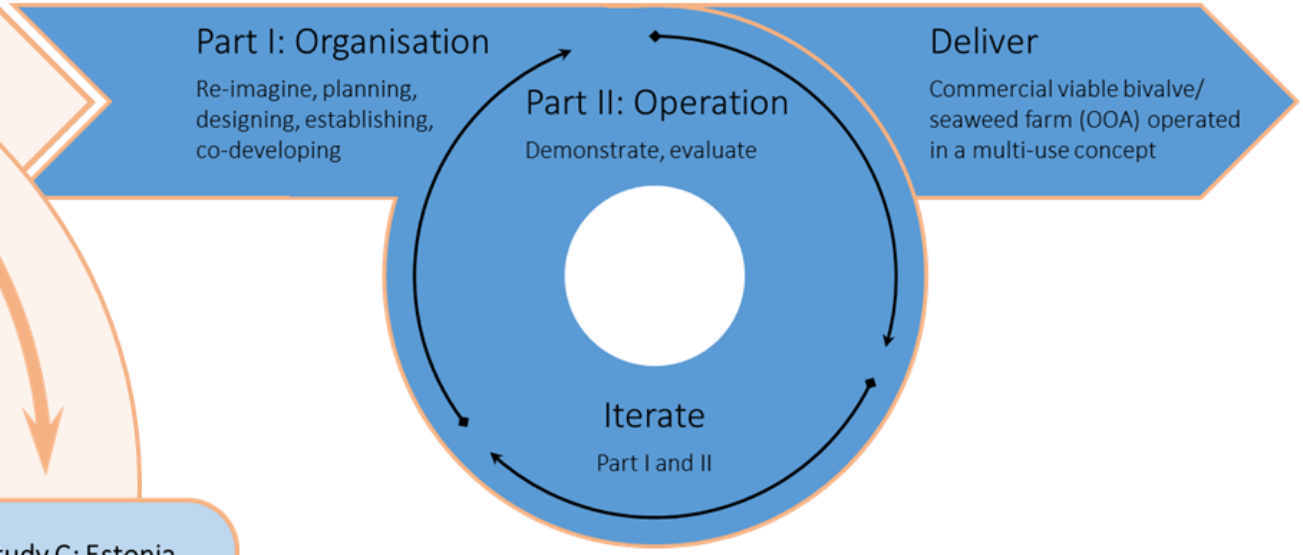
Partners:

1. Estonian Marine Institute, University of Tartu
2. RedStorm OÜ
3. Ösel Aquafarms OÜ

MU

- Existing Fish farm – existing
- Mussel farm – existing/experimental
- Macroalgae farm - experimental





T1.1 Lead: AU, Partners: VATTENFALL, KERTEMINDE, AWI, WMW, NFS, WYK 8, UTARTU, Redstorm, OÜ, ÖAF - M1-M12, 25-30

T1.2 Lead: AWI, Partners: WMW, NFS, WYK 8, AU, VATTENFALL, KERTEMINDE, KCD, UTARTU, Redstorm OÜ, ÖAF, HEREON - M5-M12

T1.3 Lead: AWI, Partners: NFS, WYK 8, AU, VATTENFALL, KERTEMINDE, UTARTU, Redstorm OÜ, ÖAF, DTU - M1-M24

T1.4 Lead: UT, Partners: Redstorm OÜ, ÖAF, AWI, WMW, NFS, WYK 8, AU, VATTENFALL, KERTEMINDE, KCD - M7-M42

Deliverables and Milestones

D1.1: Report of the validation criteria (M6)

D1.2: Guidelines for safe multi-use operations and input for future multi-use roadmap for WP7&8 (M35)

D1.3 Data on site-specific LTA, initial crop, production yields and biomass for analyses to WP3 (M35)

D1.4 Data on site and systems specific CAPEX and OPEX of LTA operations for WP6 (M24)

Emerging issues:

AARHUS UNIVERSITY
DEPARTMENT OF ECOSCIENCE

What is the status of obtaining a permit?

- Germany
  - approx. 6 months + x (BSH) (worst case click detectors)
- Denmark
  - approx. 6 months for seaweed
  - mussel farming under current regulation not possible. Authorities are presently investigating if this will be possible.
- Estonia
  - Existing permit can be used

What technologies are used and why - in exposed waters?

- Germany
  - Shellfish tower
  - floating, rigid suspended system
- Denmark
  - longlines using drill anchors
- Estonia
  - Mussels: longtube system (smart)
  - Seaweed: onland tanks and longlines in combination with fish farm and mussel farm

Emerging issues:

AARHUS UNIVERSITY
DEPARTMENT OF ECOSCIENCE

What do you expect from the other partners or WPs?

Direct

- WP2 on site selection
- WP3 on LTA
- WP4 on monitoring tools (i.e. robotics) and forecasts => smart
- WP8 on dissemination

Indirect

- All other WPs

What is your timetable?

- Germany/Denmark: Siting incl. authorities => permit (submission by February/March)
- All: Report on identification of challenges in co-use between LTA and WF (late spring)
- Germany/Denmark: License for LTA obtained (early summer, autumn)
- Germany/Denmark/Estonia (2023): Deployment of structures (DE: late autumn/2024; DK: summer respectively; ES: spring)
- Denmark: Deployment of seeded seaweed lines (October)

AARHUS
UNIVERSITY
DEPARTMENT OF ECOSCIENCE

Open questions (will not be discussed within the presentation time):

- Scientific Board – Cawthron
- Cooperation with ULTFARMS
- EU-logo
- Caution when publishing data/information to the public

WP2 Optimal siting for multi-purpose use of marine space

Lead: Aarhus University (AU) Marie Maar

Co-lead: IMR Øivind Strand

Participants: CGF (T2.1), DTU (T2.2), UT (T2.3), ETT, NHS, W8F, +others

AARHUS UNIVERSITY
DEPARTMENT OF ECOSCIENCE

SCOPE & OBJECTIVES

WP2 contributes to the call by identifying suitable locations for multi-purpose uses of marine space that can support the future development of low-impact and low-carbon uses in the North Sea and Baltic Sea.

i) co-develop a protocol and a tool for determining future optimal co-locations together with stakeholders in WP1 and WP7

ii) demonstrate and map different scenarios of micro-siting of multi-uses within the pilots

iii) identify suitable multi-use locations (OWF, LTL aquaculture, IMTA, artificial reefs) using a publicly available web tool for site-selection in the North Sea and Baltic Sea

WP2 will receive data from WP1 (pilots), WP3 (LTA), WP4 (monitoring), WP5 (data portal) and provide data to WP5, WP6 (sustainability) and WP7 (governance).

TASKS

Duration: month 1-36

T2.1. Co-creation of a tool and a protocol for multi-use (Lead: GCF, Jochen Hinkel)

T2.2. Micro-siting of multi-use within the pilots (Lead: DTU Aqua, Asbjørn Christensen)

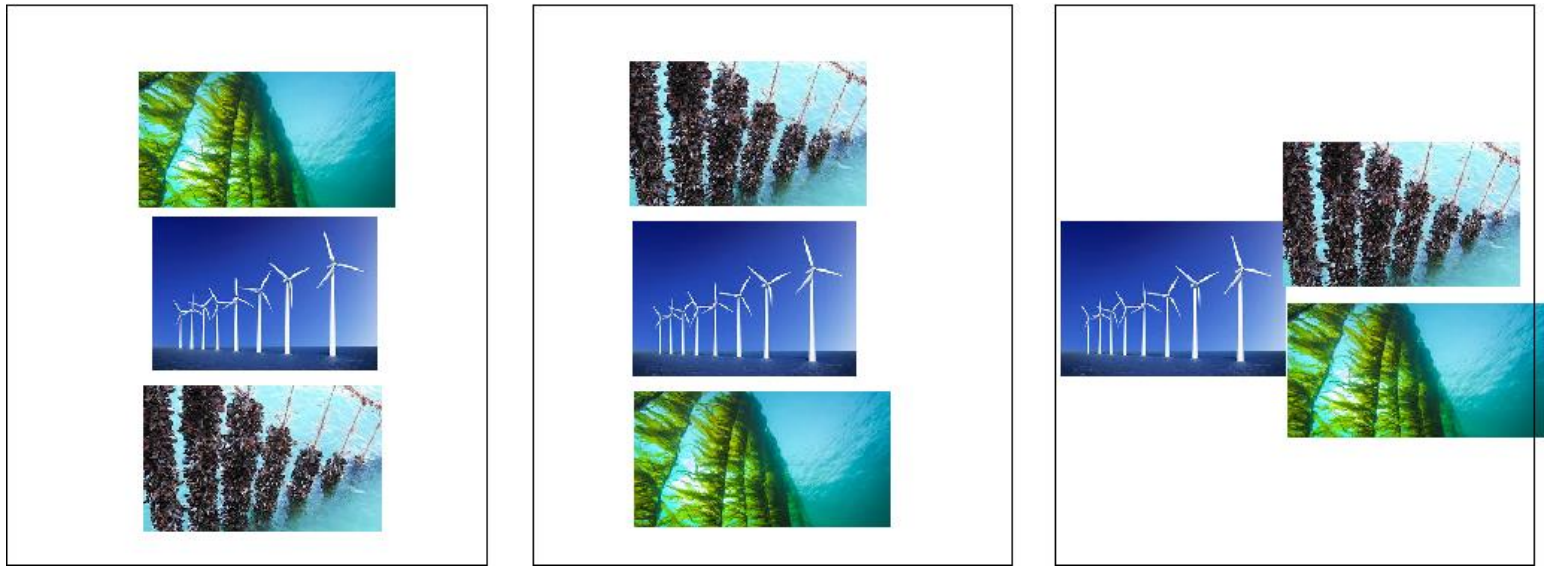
T2.3. Potential multi-use locations in the North Sea-Baltic Sea (Lead: Utartu, Jonne Kotta)

Deliverables
D2.1. A protocol for multi-use planning to stakeholders (M36)
D2.2. Report on micro-siting criteria and mapping of co-location scenarios within the pilots (M36)
D2.3. Report on the basin-scale siting potential for multi-use of LTL aquaculture, OWFs, artificial reefs, and IMTA in the North Sea and Baltic Sea (M24)

T2.1 Co-creation of tool and protocol

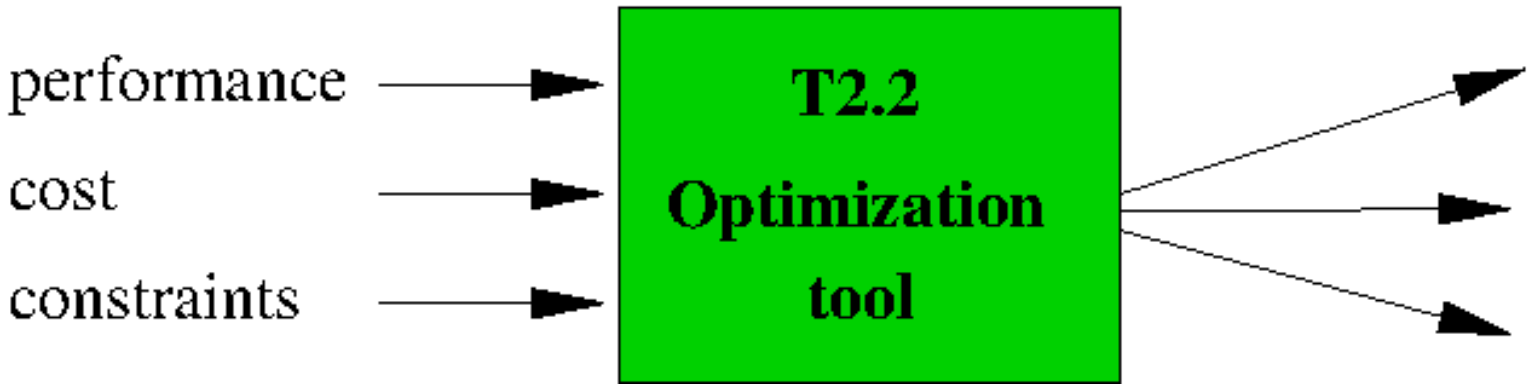
- 4 Steps
  1. Co-design: requirements and use-cases for the tool
  2. Co-develpment: Stakeholders will be confronted with early prototypes of the tool in order to refine specifications.
  3. Co-evaluation: for two potential sites in the pilot demonstrations
  4. Protocol: The experiences gathered from this process will be written up as a protocol (or guideline) for optimal micro-siting of multi-use.
- Criteria for ”optimal” location: logistics, performance, impacts of on winds, waves and ocean, cost-benefits, legal, policy issues, joint uses of equipment, etc.

T2.2 Micro-siting of multi-uses



- Basic challenge: a spatial optimization problem
- High spatial resolution

How can this be solved ?



Objectives

	?	?	?	?
layout 1	12	3	7	5
layout 2	6	11	7	7
layout 3	1	5	12	9

- Identify relevant objectives
- Scoring table is discussion product for stake holders
- Layouts selected by hand or emergent from tool

Stakeholder interaction cycle

1) We suggest inital set of alternative usage layouts
2) Quantitative evaluation (using T2.2 tool)
3) Stakeholder dialogue
4) Augmented layout set
5) Augmented quantitative evaluation (using T2.2 tool)

Overall considerations

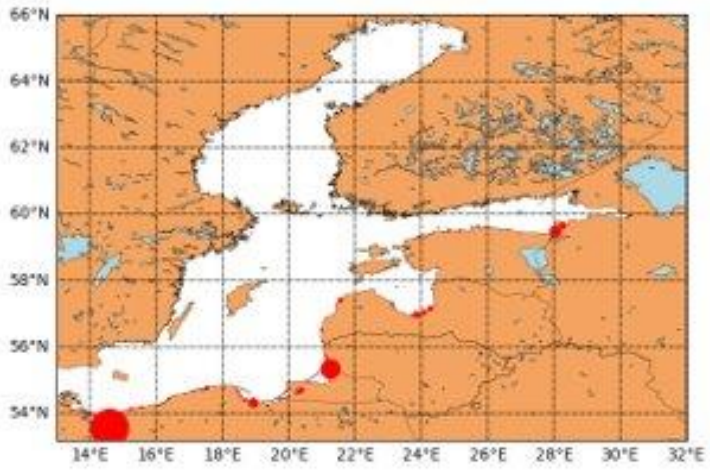
- Choose technical implementation (numerical platform) for trade-off simulation
  - Can we reuse existing MSP software tools for high-resolution analysis ?
  - Are existing MSP software tools flexible enough for our purpose ?
- Make objectives simple and transparent to stakeholdes

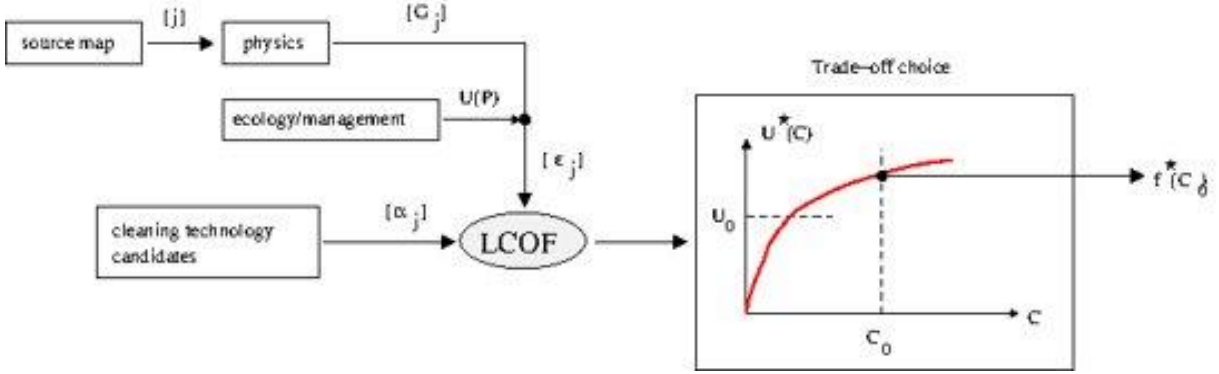
Technical steps

1) Quantify performance of LTA and other usages in relation to layout
2) Identify constraints on each usage that affect site layout
3) Assess cost estimates of alternative layouts
4) Data acquisition needed for 1 and 2 above

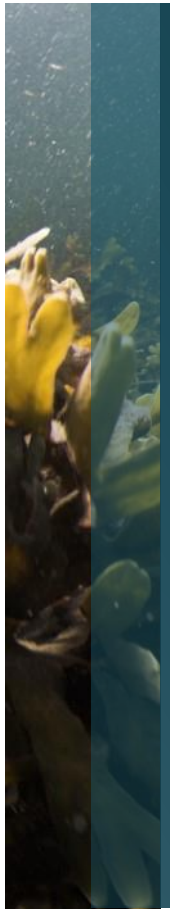
Cost-benefit tool for marine clean-up prioritization

- Plastic transport by currents, wind and waves in the Baltic Sea
- Which pollution sources are most optimal to clean (if all can not be cleaned) ?
- **LCOF**: Cost-benefit tool for investment prioritization: best-value or cheapest-deployment solution





Optimal multi-use problem is mathematically similar: solved by Karush–Kuhn–Tucker conditions



T2.3. Potential multi-use locations in the North Sea-Baltic Sea

Jonne Kotta

Lead: UTARTU| Partners: AU, AWI |M1-M30| D2.3

ODSS – Operational Decision Support System

http://www.sea.ee/bbg-odss

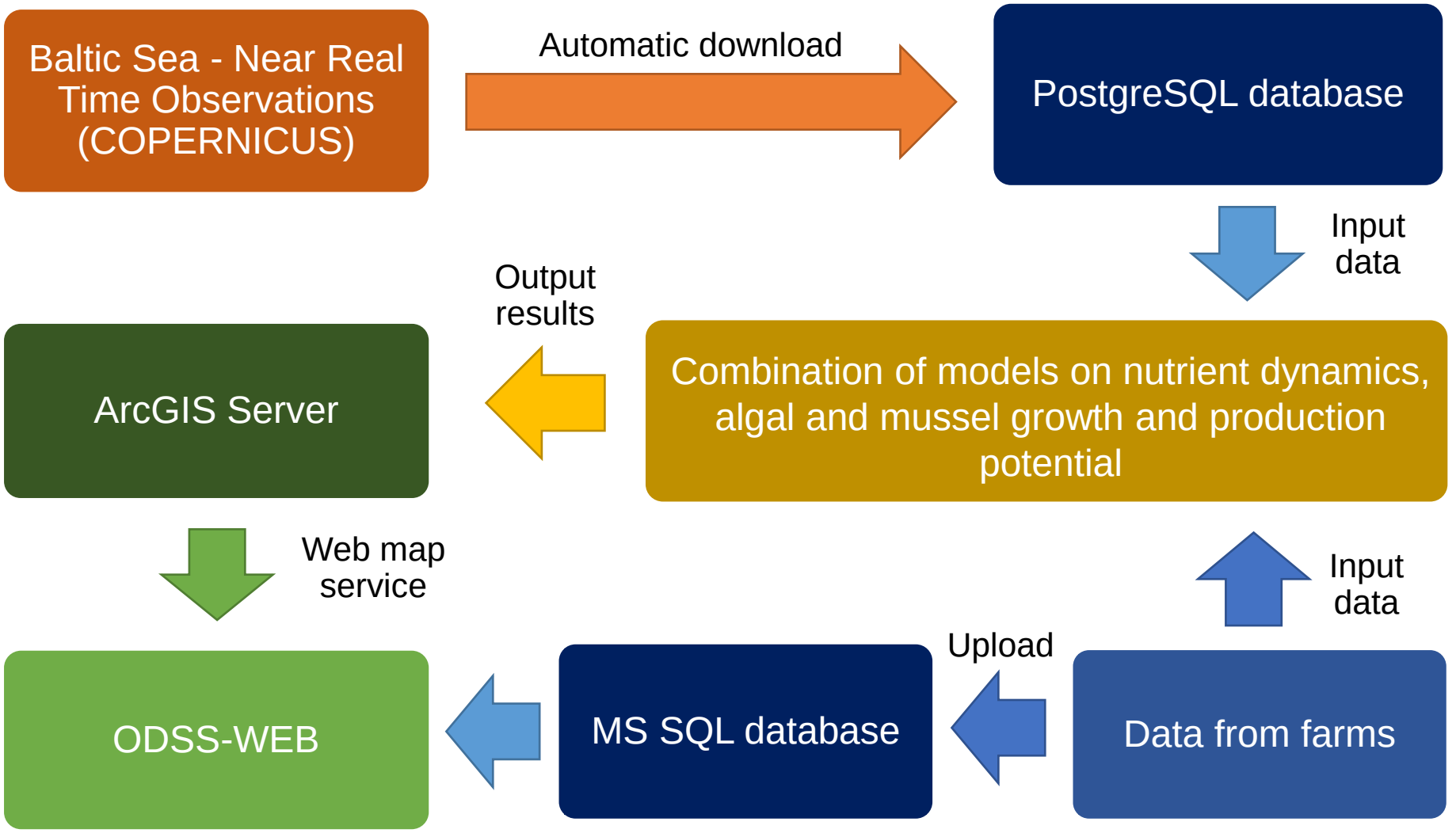
ODSS – Operational Decision Support System

Helps different end-users to **make effective decisions about algal and mussel farming in the Baltic Sea**

These decisions are **based on the best monitoring and modelling data**

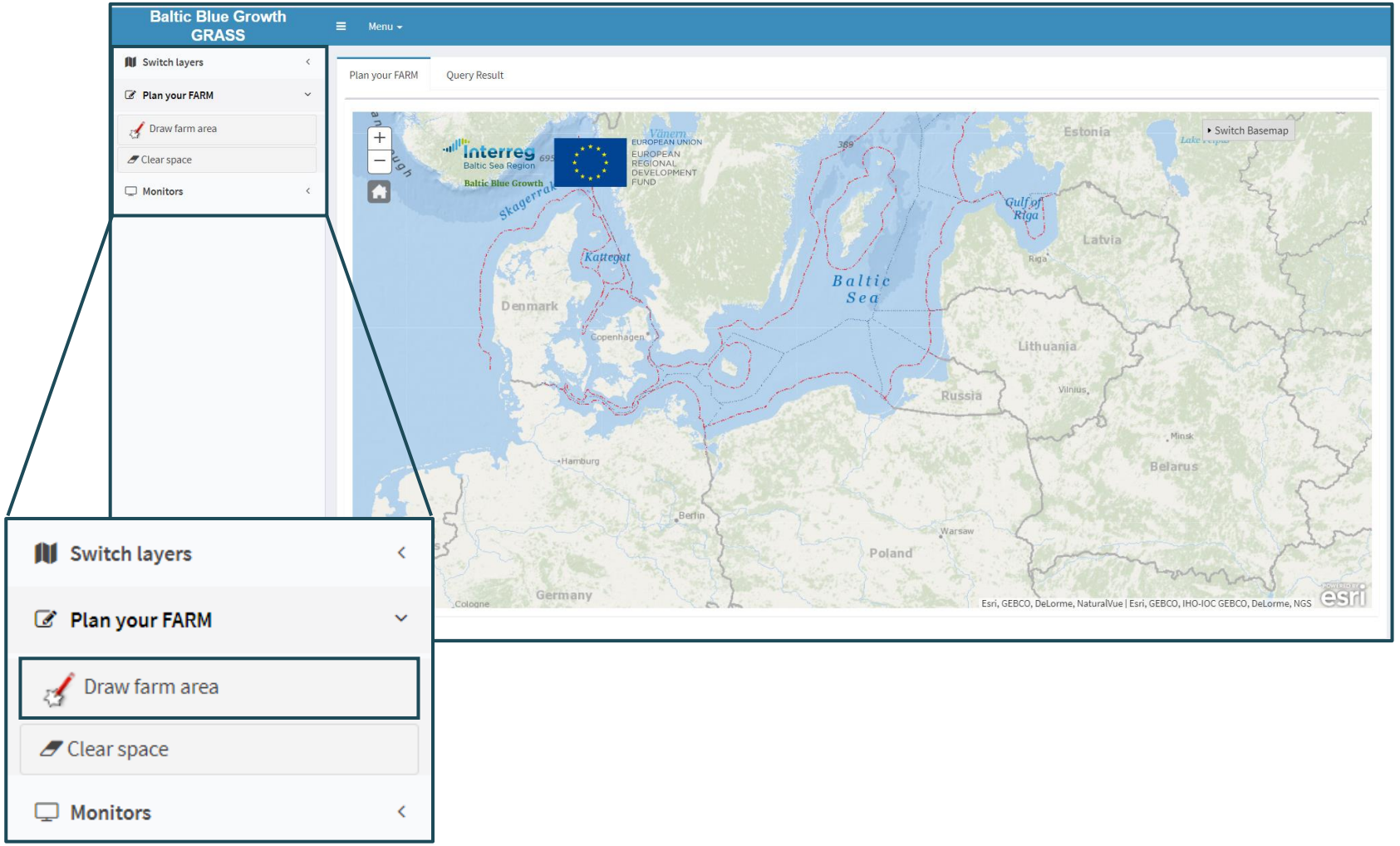
Raises the capacity of different users to **make decisions along the environmental, economic and socio-economic dimensions of LTA**

ODSS data flow



ODSS in action

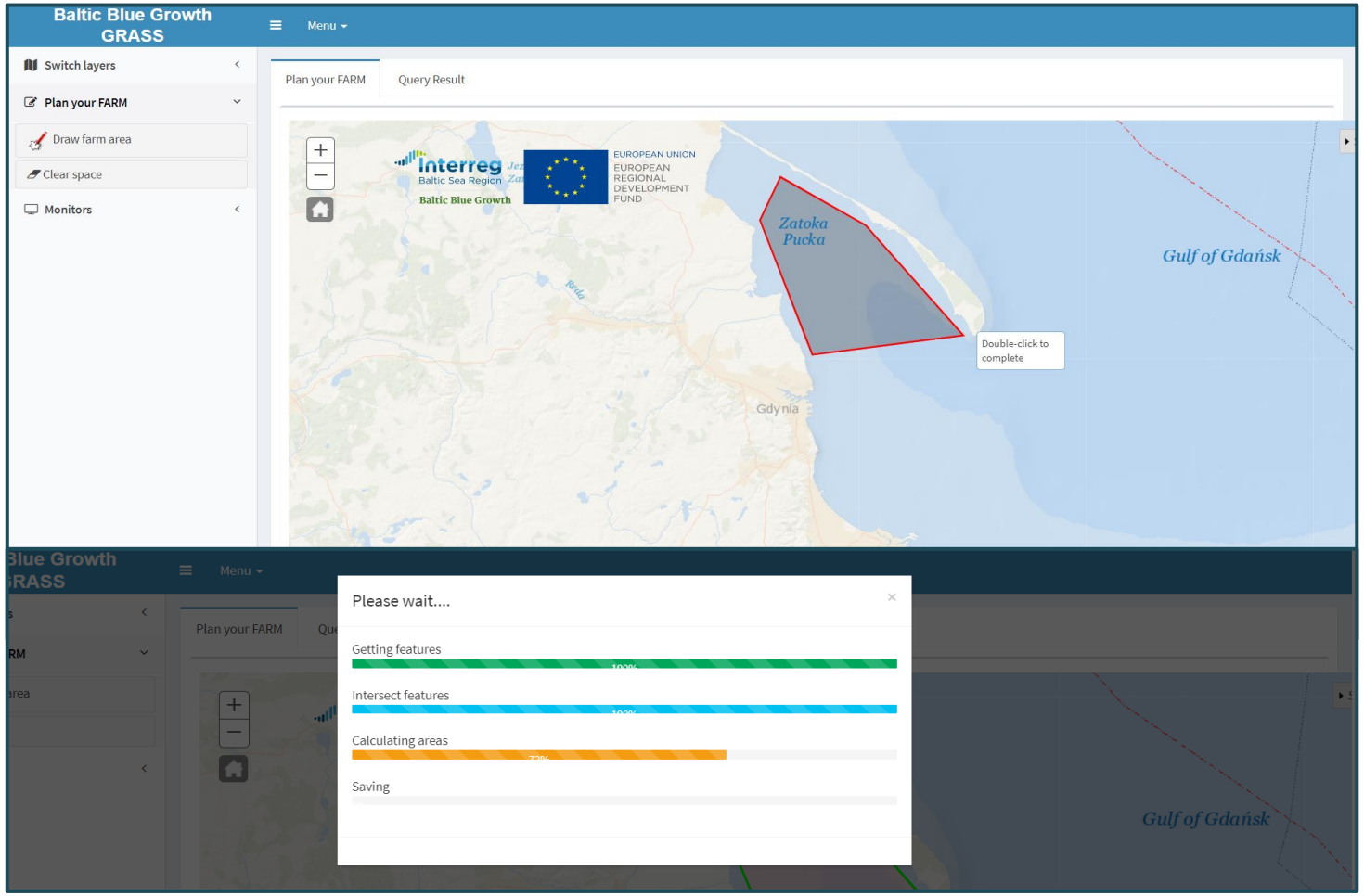
Draw the area of the farm using the integrated tool



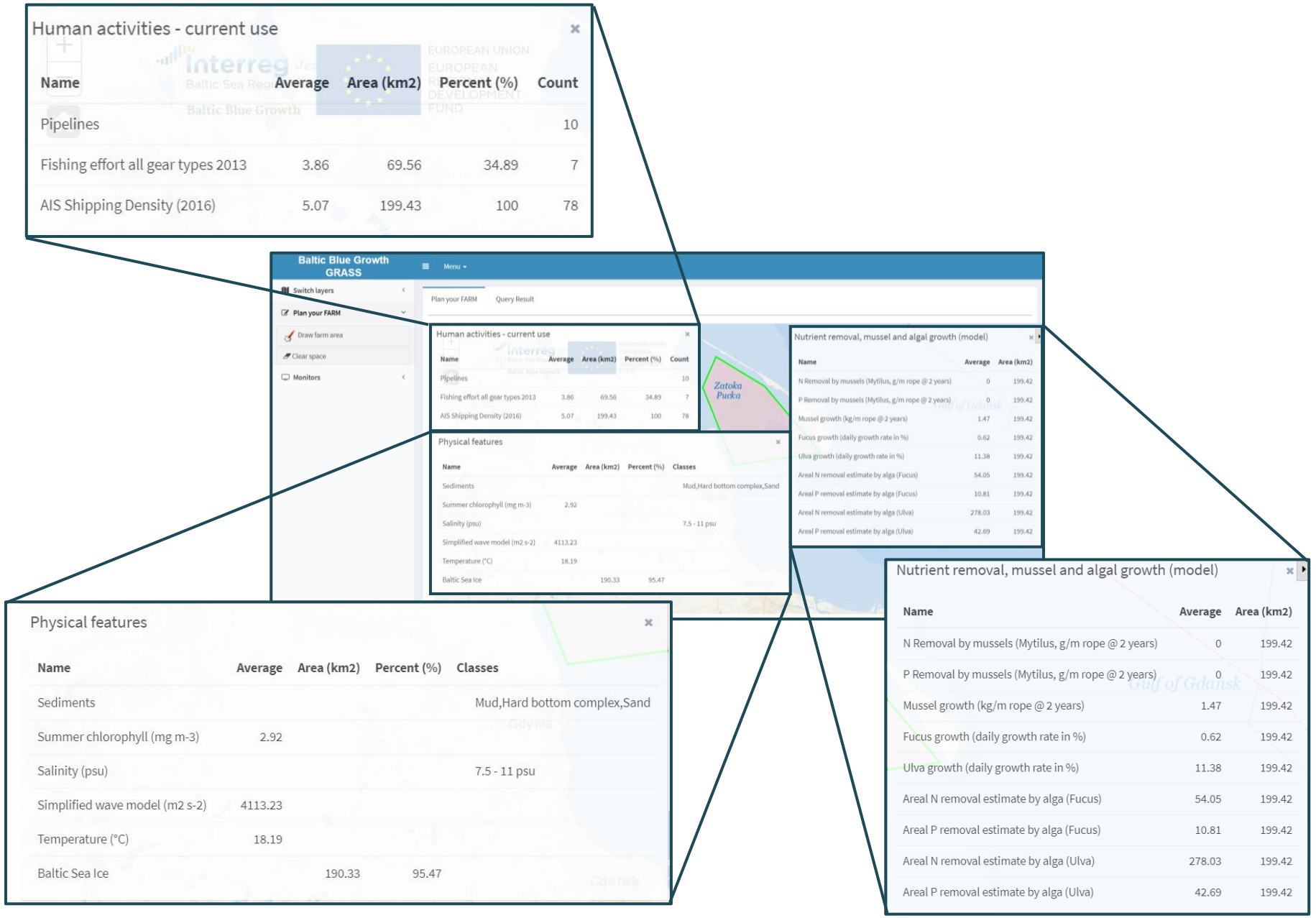
http://www.sea.ee/bbg-odss/Map/MapMain

ODSS in action

Given the selected area the tool will gather the associated information and calculate the features of the planned farm



ODSS in action



Planned activities under T2.3

- Extending the ODSS tool to the North Sea
- Updating data (e.g. OWF sites) and models (e.g. mussel and algal DEB)
- Develop new tool features (farm upscaling with no significant effects of nutrient/food limitation on biomass yields)
- Quantify ecosystem services provided by the LTA (e.g. food and feed provisioning, nutrient removal and carbon sequestration)
- Identify suitable co-locations of LTA with existing and planned OWFs

T2.1 and T2.2 sub-group meeting
Wednesday 13-14h in meeting room at the hotel

WP 3 - Low trophic aquaculture performance

Lead IMR - Øivind Strand/Antonio Aguera
Co-lead AU - Marie Maar

Partners - IMR, AU, HERON, VT, UT, ETT

Objectives

- Assess
  - production potential of the different species cultured at the pilots (WP1) and the use of technology to monitor crop status
  - how local environment, set-up, co-use micrositing impact productivity and carrying capacity
  - quality of the LTA products (food/feed safety)
  - biodiversity impact of including artificial reef structures
  - ecosystem services of low trophic activities
  - risks of disease and invasive species

Tasks and aims

- **T3.1 LTA farming performance** (Lead: AU | Partners: IMR, HEREON, AWI, UT) The aim of this task is to demonstrate the production capacity of low trophic farms and the efficiency of co-use scaled farming scenarios
- **T3.2. Quantification of ecosystem services of LTA** (Lead: IMR| Partners: AU, HEREON, UT) Apply the 3D ecological-DEB-IBMs developed in T3.1 to access ecosystem services
- **T3.3 Food and feed safety** (Lead: IMR) This task aims to assess food safety risks of farming LTA in OWF and IMTA.
- **T3.4 Artificial reefs ecosystem services and impact assessment** (Lead: AU | Partners: VF) The aim of this task is to document and quantify biodiversity and fish abundance of benthic habitats associated with artificial reef structures

	Person involved		PM	Tasks (lead in bold)
IMR	Øivind Strand, Antonio Aguera, Stein Mortensen, Arne Duinker		13	T3.1 **T3.2** **T3.3** T3.4
AU	Marie Maar		8	**T3.1** T3.2 T3.3 **T3.4**
HEREON	Joanna Staneva		4	T3.1 T3.2 T3.4
VF			2.7	T3.4
UT	Jonne Kotta		4	T3.1 T3.2
ETT	Antonio Novellin		1	

	2023	2024	2025	2026
T3.1 LTA farming performance		M1 D1		
T3.2. Quantification of ecosystem services		M2	D2	
T3.3 Food and feed safety		M3	D3	
T3.4 Artificial reefs ecosystem services			M4 D4	

Milestones

MS3.1 Ecosystem models established for pilots
Models are up and running

MS3.2 Transfer of modeled data on farm performance and related ecosystem services to WP2 and WP6
Data quality is validated and available on project workspace

MS3.3 Samples of seaweeds and mussels received from T1.4 for composition analysis
Data quality is validated and available on project workspace

MS3.4 Composition & contaminants analyses finalised

Deliverables

D3.1 Data on farming productivity for different scenarios

D3.2 Report on assessment of carbon and nutrient uptake, and quantification of ecosystem services

D3.3 Report on protocols for disease and invasive species control

D3.4 Report on protocol for food and feed safety

DMI
Vejr, klima og hav

WP4: Environmental monitoring, forecasting and assessment
implementation plan in M1-M12

Jun She (lead) and Joanna Staneva (Co-Lead)
on behalf of WP4 partners
DMI, HEREON, MR, ST, UT, KLU, AU, AWI, ETT, IMR

150 Danmarks Meteorologiske Institut 1872 2022

Objectives

- **Overall objective**:
  - To develop a robotics and model-based monitoring, forecasting and assessment capacity for enabling corresponding services for LTA and decision makers.
- **Objectives breakdown**
  - Existing and emerging robotic monitoring technology will be further optimized and demonstrated to fit-for-the-purposes of the farms and fill gaps of existing data, combined with traditional monitoring.
  - Advanced basin- and local-scale forecasting technology will be developed to resolve the impacts of OWF and LTA farms on the weather and the sea;
  - The impacts of LTA on physical, biogeochemical and ecological state will be assessed by combining modeling and local observations.

Partners

	Person involved (bold as contact point)	Email	PM	Tasks (bold as lead)
DMI	Jun She, Eigil Kaas, Henrik Vedel, Jacob Woge Nielsen, Jens Muraswki	js@dmi.dk; ek@dmi.dk; hev@dmi.dk; jw@dmi.dk; jmu@dmi.dk	24	T4.4, T4.5, T4.6
HEREON	Joanna Staneva,	joanna.staneva@hereon.de;	25	T4.1, T4.2, T4.3, T4.4, T4.5, T4.6
MR	Stephanie Kemna	stephanie@maritimerobotics.com;	32	T4.1, T4.2, T4.3,
ST	Trygve Olav Fossum	tof@skarvtech.com;	30	T4.1, T4.2, T4.3,
UT	Jonne Kotta	jonne@sea.ee;	8	T4.2, T4.3,
AU	Marie Maar	mam@ecos.au.dk;	5*	T4.2, T4.6
ETT	Antonio Novellin	antonio.novellino@ettsolutions.com;	1*	T4.2,
VOTO	Louise Biddle	louise.biddle@voiceoftheocean.org;		T4.1, T4.2, T4.3,
IMR	Oivind Strand	oivind.strand@hi.no	1	T4.6
KLU	Martynas Bucas	martynas.bucas@jmtc.ku.lt	2	T4.2
AWI	Bela H. Buck, Sulaiman Oladokun	Bela.H.Buck@awi.de; sulaiman.oladokun@awi.de;	??	T4.1, T4.2, T4.3,

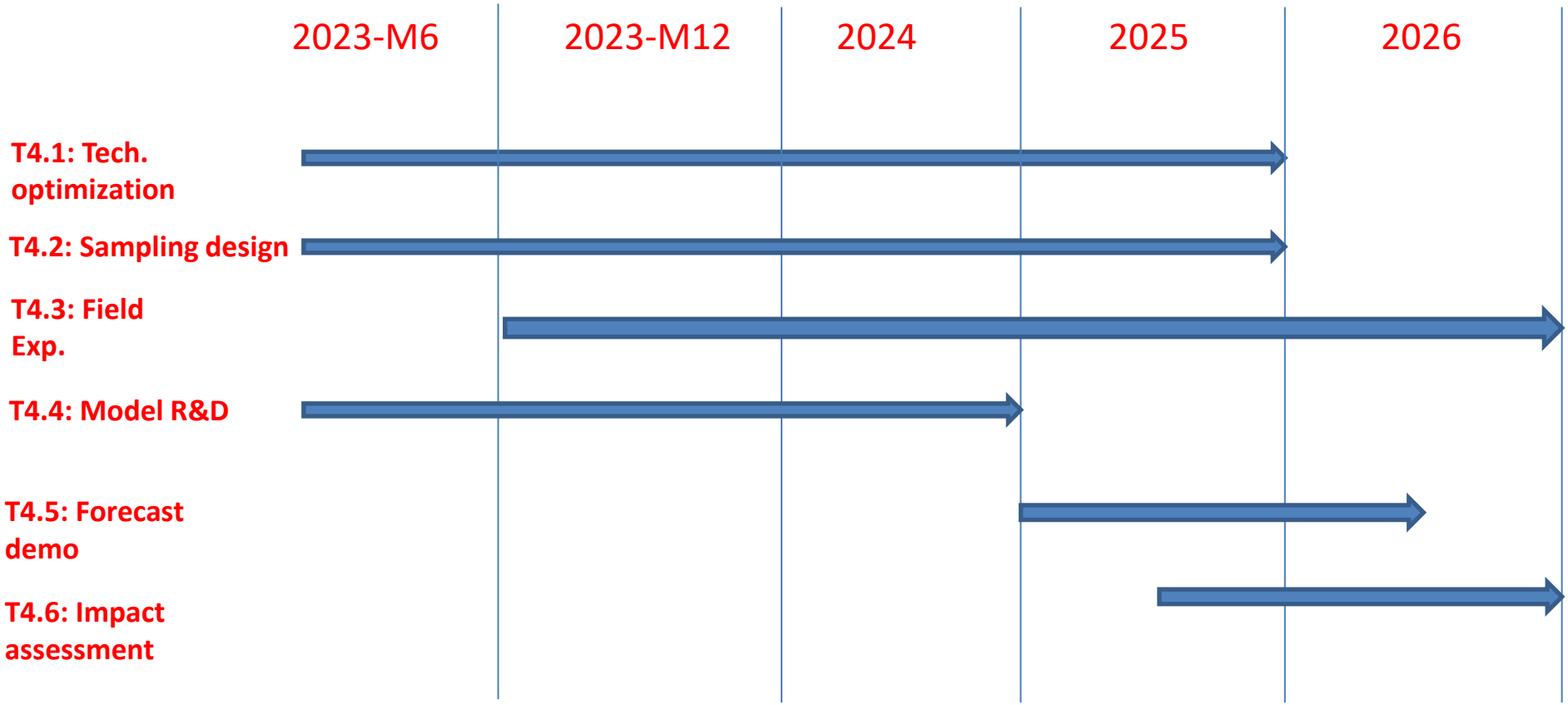
Milestone & deliverables

DMI
Vejr, klima og hav

Milestone/ deliverable number	Milestone/Deliverable name	Due date
MS4.1	Monitoring strategies and schemes designed	M12, M24
MS4.2	Forecast system developed with resolving impacts of offshore farms	M24
MS4.3	Robotics-based monitoring technology optimized for field demonstrations in operational environment, and field monitoring sampling strategy finalized	M36
MS4.4	Physical and environmental impacts of the farms assessed and transferred to WP2 and WP6	M42
D4.1	Emerging autonomous monitoring solution for co-located, low impact aquaculture farms (incl. prototype ASV+AROV system for autonomous subsea surveys and drones, ferrybox)	M36, MR
D4.2	Integrated monitoring solution for offshore LTA farming (incl. monitoring standards, sampling design, integration of robotic and classic monitoring and field campaign demonstration)	M36, UT
D4.3	Environmental forecast solutions for co-located, low impact aquaculture and wind farms	M39, DMI
D4.4	Common protocols for environmental impact assessment of LTA	M44, HEREON

150 Danmarks Meteorologiske Institut 1872 2022

Tasks & timeline



T4.1 implementation plan

DMI
Vejr, klima og hav

Tasks	Activities in GA	Partners involved	Timeline (M1-M12)
T4.1 Robotic technological development	A review on existing/emerging robotics-based monitoring tech. & app. & potential further advances for aquaculture.	HEREON: Drones & ferrybox; VOTO, MR, ST: ASV, UUV, UHI MR, ST: ASV+LARS +UUV solution	
	Improve ASV situational awareness and navigation software	MR	
	Develop methods for efficient coordinated data collection for the UUV-system (+ASV+LARS)	ST	
	Combining UHI and stereo-camera data for farm inspection and monitoring	ST	

T4.2 implementation plan

DMI
Vejr, klima og hav

Tasks	Activities in GA	Partners involved	Timeline (M1-M12)
T4.2 sampling design	T4.2.1 identify monitoring and data needs,	UT, HEREON AU, MR, AWI, ST, VOTO, ETT, KLU - To identify partners for each subtask Meetings: - with OWF+LTA partners - with R&D partners (WP2, 3) - with monitoring partners To identify meeting organizers	
	T4.2.2 Identify existing data available		
	T4.3.3 Identify monitoring gaps, existing monitoring capacity		
	T4.4.4 co-design the sampling strategy (planned and reviewed yearly).		
	Special issues on monitoring standards, shared logistics between OWF and LTA for monitoring, low carbon monitoring methods & integration between classic and robotics monitoring will be considered.		

T4.3 implementation plan

DMI
Vejr, klima og hav

Tasks	Activities in GA	Partners involved	Timeline (M1-M12)
T4.3 Field monitoring	T4.3.1 Robotics-based monitoring for the impact assessment (incl. a baseline survey and one or more impact surveys) and also demonstrations of emerging technologies developed in T4.1.	VOTO, MR, ST, HEREON	
	T4.3.2 Moorings (ADCP, wave rider) in Pilots A and B, the wave monitoring will be adjusted to complement existing wind farm monitoring activities;	HEREON (A), VOTO (B)	
	T4.3.3 Routine monitoring in the Pilot sites and nearby areas on key parameters	UT	
	T4.3.4 Make existing observations available, e.g., MARNET/FINO1-3 for Pilots A+B.	HEREON?	
	Data management is in T5.1: ETT, All		

150 Danmarks Meteorologiske Institut 1872 2022

T4.4 implementation plan

DMI
Vejr, klima og hav

T4.4 Develop impact-resolving models	**T4.4.0 Identify input parameters & collecting existing observations in Pilots A and B for selected periods (turbine positions, power potential curve, production curve etc)**	**DMI, HEREON. support from OWFs & AU: holger.huhn@windmw.de; matthieu.povidis-delefosse@vattenfall.com**	**M3**
	T4.4.1 HARMONIE: a. Implement OWF parameterizations (Done) b. Test run and calibration c. Validation use OLAMUR field data	DMI	T4.4.1a: M1 T4.4.1b: M6 T4.4.1c: M12, M24
	T4.4.2 HBM-WAM: a. Baseline configuration & OWF impact test runs, incl. cal/val. b. Implement LTA farm parameterizations in HBM+WAM c. Test run and calibration d. Validation use OLAMUR field data	DMI	T4.4.2a: M3 T4.4.2b: M12 T4.4.2c: M18 T4.4.2d: M24
	T4.4.3 SCHISM-WWM: a. Baseline configuration & OWF impact test runs, incl. cal/val. b. Implement LTA farm parameterizations in SCHISM-WWM c. Test run and calibration d. Validation use OLAMUR field data	HEREON	T4.4.2a: Mxx T4.4.2b: Mxx T4.4.2c: Mxx T4.4.2d: Mxx

Meteorologiske Institut 1872 2022

DMI
Vejr, klima og hav

THANKS FOR YOUR ATTENTION!

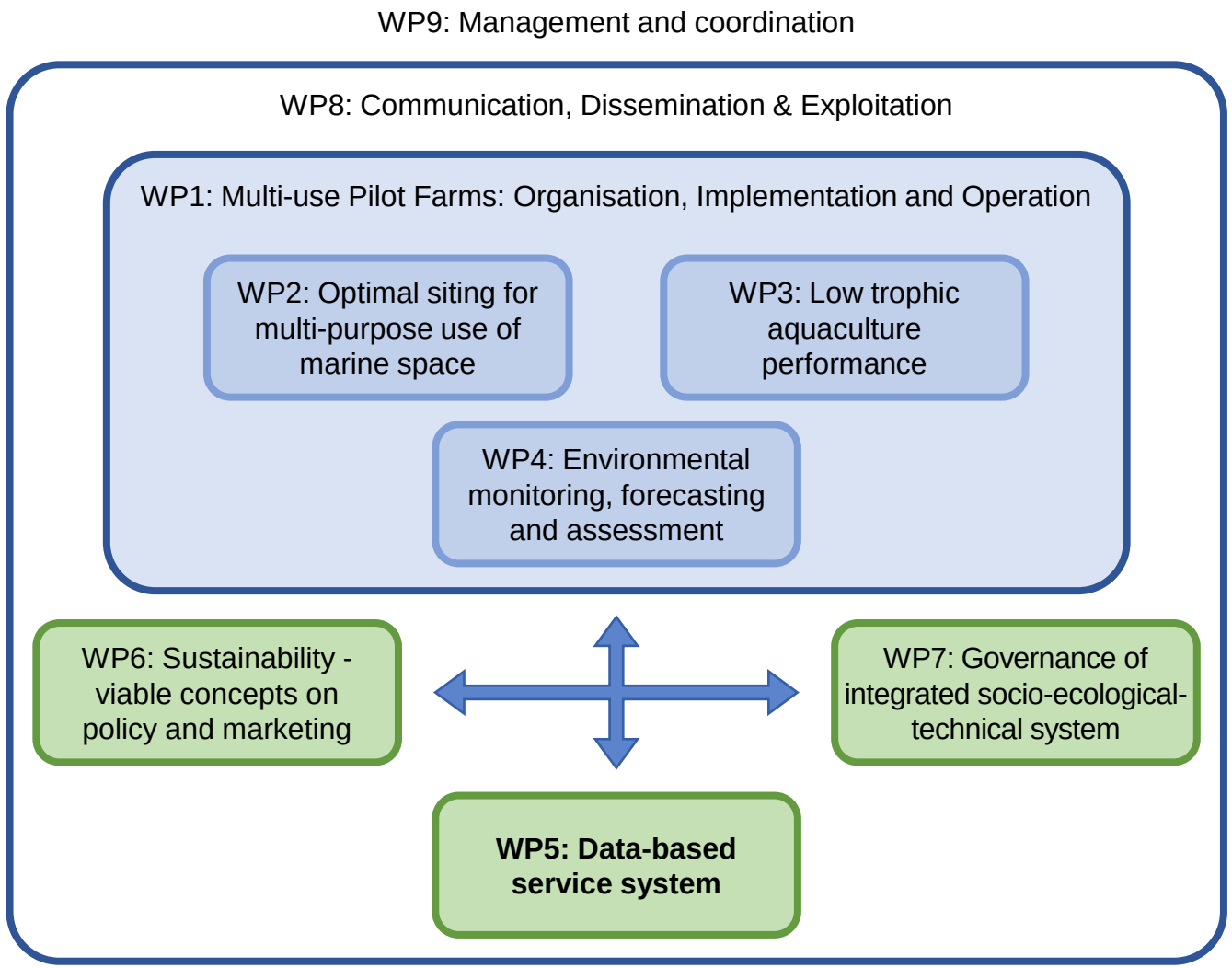
150 Danmarks Meteorologiske Institut 1872 2022

Data-based service system (WP5) overview

OFFSHORE LOW-TROPHIC AQUACULTURE IN MULTI-USE SCENARIO REALISATION

WP5: ETT, IMR, DTU + MANY (ALL) OF YOU!

Data-based service system



WP5: to develop a data-based management support system for monitoring, data analysis and offering services to aquaculture producers

⬇

to manage data flow to and from WP1-9, to develop and implement targeted data service according to WP2-WP4 (backend and frontend), to demonstrate and validate the Data Service Portal

Months: 1-48

Data-based service system

- To develop the OLAMUR backend data management infrastructure
- To set up the OLAMUR web page to access and provide users with the designed services and pilots
- To develop the machine-to-machine interoperability interfaces to interact, connect and harvest data and products from local services and EMODnet, Copernicus CMEMS, ICES, HELCOM, OSPAR

Tasks & Deliverables

- Task 5.1 Data management (IMR)
- Task 5.2 Targeted data service development (DTU)
  - 5.2.1: EWS - Event Warning Service
  - 5.2.2: OOP - Offshore Operation Planner
  - 5.2.5: FPC - Farm Performance Control - Farm health condition assessment
- Task 5.3 Implementation of Data Service Modules (ETT)
  - 5.3.1 - Module 1: local farm design and planning
  - 5.3.2 - Module 2: deployment, operation and monitoring (including remote robotics monitoring)
  - 5.3.3 - Module 3: product, marketing and capacity building
  - 5.3.4 - Module 4: Large scale multi-use MSP and impact assessment
- Task 5.4 Demonstration and validation of Data Service Portal: KPIs will be given (ETT)

- Deliverable 5.1 - OLAMUR datasystem and service platform v.1.0 (M18) v.2.0 (M36)
- Deliverable 5.2 - Service tool Description (EWS, OOP, ASR, DPR, FPC) (M18)
- Deliverable 5.3 - OLAMUR Data Service Modules description (M24)
- Deliverable 5.4.- Definition of KPI (M24) - KPI monitoring report (M36)

Principles

- FAIR principles
  - Findable, Accessible, Interoperable, Reusable
- Sharing of outputs as early and widely as possible
- Interoperable/compliant with EMODnet, CMEMS, ICES, HELCOM, …

Which Data? Which Role

- Local monitoring
  - Traditional monitoring
  - Robotics and special sensors → to monitor, forecast and assess the environmental conditions
- Satellite observations
- Forecasting models

  → to resolve the impacts of wind and aquaculture farms on weather and sea
- EU meteo-ocean observations and forecasts initiative
  - Copernicus - CMS, CAMS, C3S, EMODnet in-situ, ICES, Helcom, PANGAEA

Which Target?

- **Five Associated regions** that can benefit from the project
  - access to project data, products and knowledge
- **Decision makers** to support a distributed regenerative blue economy
  - access to feasible areas for seaweed and mussels, overlapped with OWF and environmental, biodiversity conditions for MSP; legal, administration, policy and socioeconomic data
- **LTA industry** - farmers and wind farm operators
  - access to information for LTA design and operations, for ensuring proper risk mitigation actions, for designing adaptive cultivation and optimal use of the existing infrastructure
- **Research institutes and academia**
  - international collaboration and knowledge transfer
- **University and high school students**
  - training of future leaders, internal collaboration and network
- **General public**
  - make aware regarding ocean resources climate change, aquaculture, OWF, environmental impacts, monitoring technology, and the use of European money

T5.1 Data management

Management of data from:

- Other WPs (WP 1, 2, 3, 4, 6, 7 and 9)
- Other sources (Copernicus - CMS, CAMS, C3S, EMODnet in-situ, ICES, Helcom, PANGAEA)

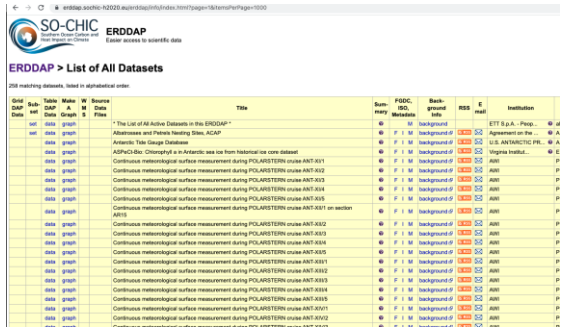
Appropriate controlled vocabularies for metadata and data description (e.g. CF convention, SeaDataNet vocabularies, etc.)

Data publishing systems: ERDDAP (and ncWMS) and GeoServer

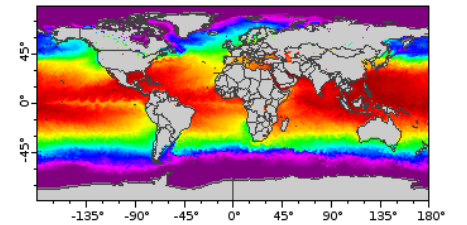
Regular backups

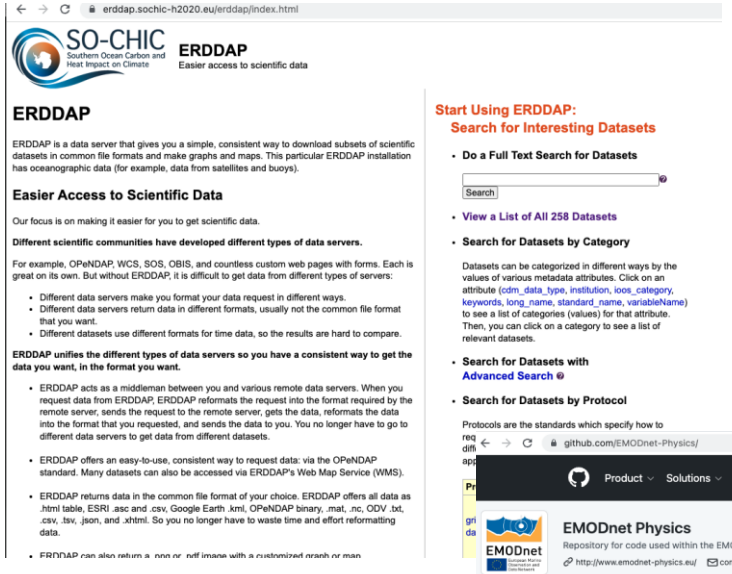
ERDDAP

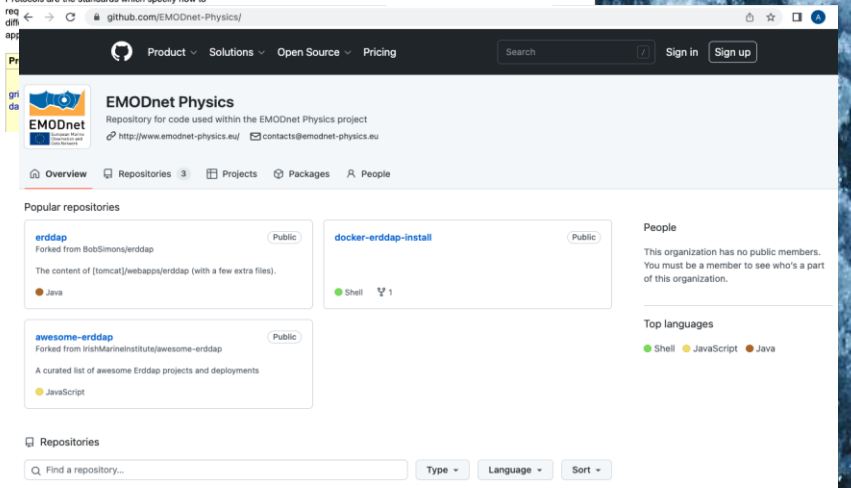
- Improve each dataset's metadata
- Generate ISO 19115 metadata
- Standardize the format of time data
- Easy unified user search for datasets
- Standard way to request data
- Both Gridded and tabular data
- Let users specify the response file format
- ***Make life easier for data providers and for users***



RESTful Web Services
a single request URL specifies an entire request

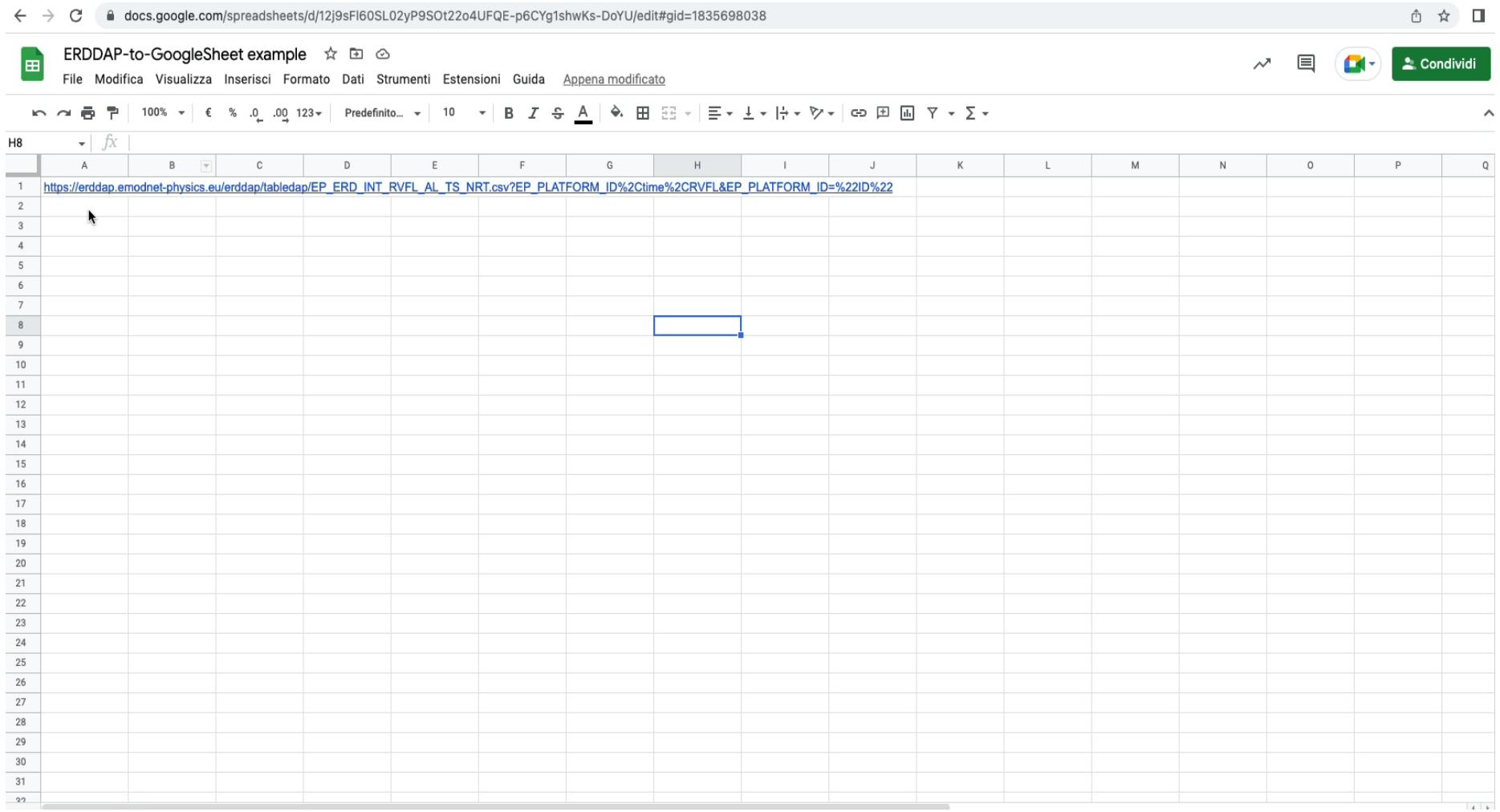






https://github.com/EMODnet-Physics
you can get your docker (ready to use installation package) and we're at your service for HD

ERDDAP


docs.google.com/spreadsheets/d/12j9sFl60SL02yP9SOt22o4UFQE-p6CYg1shwKs-DoYU/edit#gid=1835698038
ERDDAP-to-GoogleSheet example
File Modifica Visualizza Inserisci Formato Dati Strumenti Estensioni Guida
Appena modificato
Condividi
H8
https://erddap.emodnet-physics.eu/erddap/tabledap/EP_ERD_INT_RVFL_AL_TS_NRT.csv?EP_PLATFORM_ID%2Ctime%2CRVFL&EP_PLATFORM_ID=%22ID%22

GeoServer


GeoServer
About | Blog | Download | Documentation | Community
Fork me on GitHub
What is Geoserver?
GeoServer is a Java-based server that allows users to view and edit geospatial data. Using open standards set forth by the Open Geospatial Consortium (OGC), GeoServer allows for great flexibility in map creation and data sharing.
Open and Share Your Spatial Data
GeoServer allows you to display your spatial information to the world. Implementing the Web Map Service (WMS) standard, GeoServer can create maps in a variety of output formats. OpenLayers, a free mapping library, is integrated into GeoServer, making map generation quick and easy. GeoServer is built on GeoTools, an open source Java GIS toolkit.
There is much more to GeoServer than nicely styled maps. GeoServer conforms to the Web Feature Service (WFS) standard, and Web Coverage Service (WCS) standard which permits the sharing and editing of the data that is used to generate the maps. GeoServer also uses the Web Map Tile Service standard to split your published maps into tiles for ease of use by web mapping and mobile applications.
GeoServer is a modular application with additional functionality added via extensions. An extensions for Web Processing Service open up a wealth of processing options, you can even write your own!
Enable others to incorporate your data into their websites and applications, freeing your data and permitting greater transparency.
Use Free and Open Source Software
GeoServer is free software. This significantly lowers the financial barrier to entry when compared to proprietary GIS products. In addition, not only is

T5.2 Targeted data service development

Organization of data in support of WP2-4, development of the algorithms according to protocols and methodology of WP2-4, development of the decisional support methodology (backend)

5 modules (tools):

- EWS - Event Warning Service: early warming for high impacts events
- OP - Offshore Operation Planner: optimized local forecast, also for daily operations by combining user-defined criterions for offshore operations
- ASR - Alien Species Risk: alien species dispersal risk assessment in support of farms
- DPR - Disease Propagation Risk: spatial risk assessment for aqua farms for selected parasites
- FPC - Farm Performance Control: farm health conditions assessment

T5.3 Implementation of data service modules

Integration of T5.2 modules into a web system offering a user experience (frontend)

- Search, interact, download and visualize of pre-processed data (T5.1) and implementation of service protocols (T5.2 and other WPs)
- Selection of tools according to user's decisional support needs

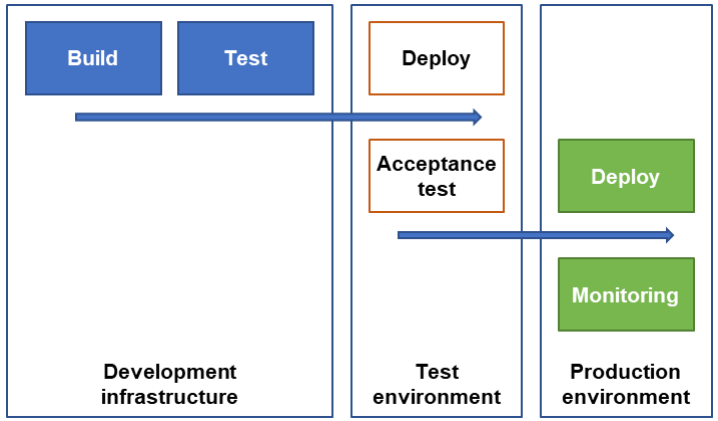
4 modules:

- Local farm design and planning: implementation of products and protocols (WP2), sustainability, legal, administrative and policy related outcomes (WP6-7)
- Deployment, operation and monitoring: recommended farm and environment monitoring standards (WP1-3-4) in support of OLAMUR operators
- Product, marketing and capacity building: data and information on potential products, marketing, capacity building, LTA farm technologies, knowledge groups, training
- Large scale multi-use MSP and impact assessment: data and information on potential impacts of a LTA farm and MSP in support of stakeholders and policy makers

T5.4 Demonstration and validation of Data Service Portal

Move designed services into their production phase following an agile methodology where the service provider and stakeholders (other WPs and partners) continuously interact.

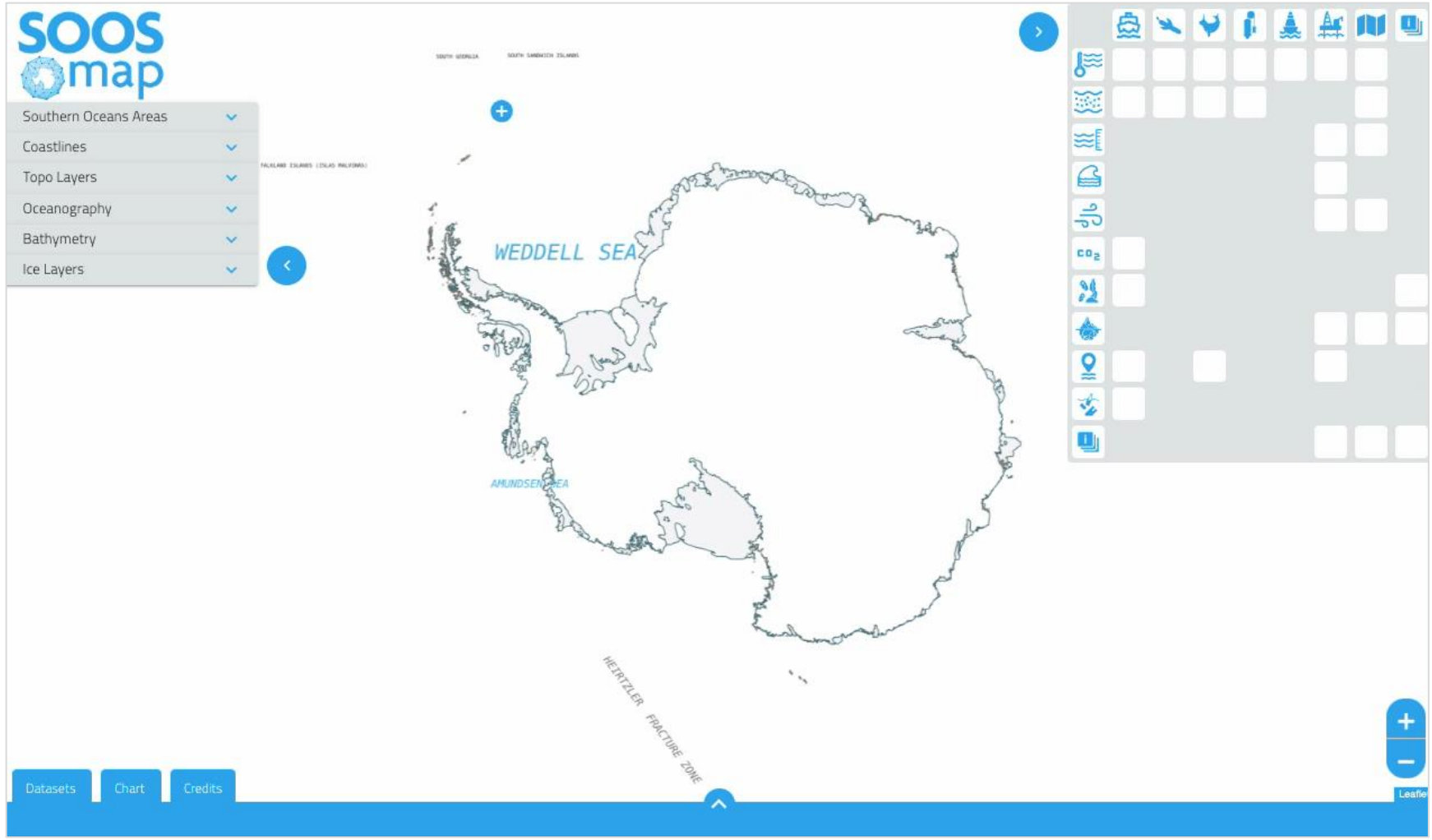
The backend infrastructure will host both a development/testing environment and a production environment.



Development of KPIs for system validation with the users that will be provided an objective measure of the system performance.

Example of output: SOOSmap

http://www.soosmap.aq/

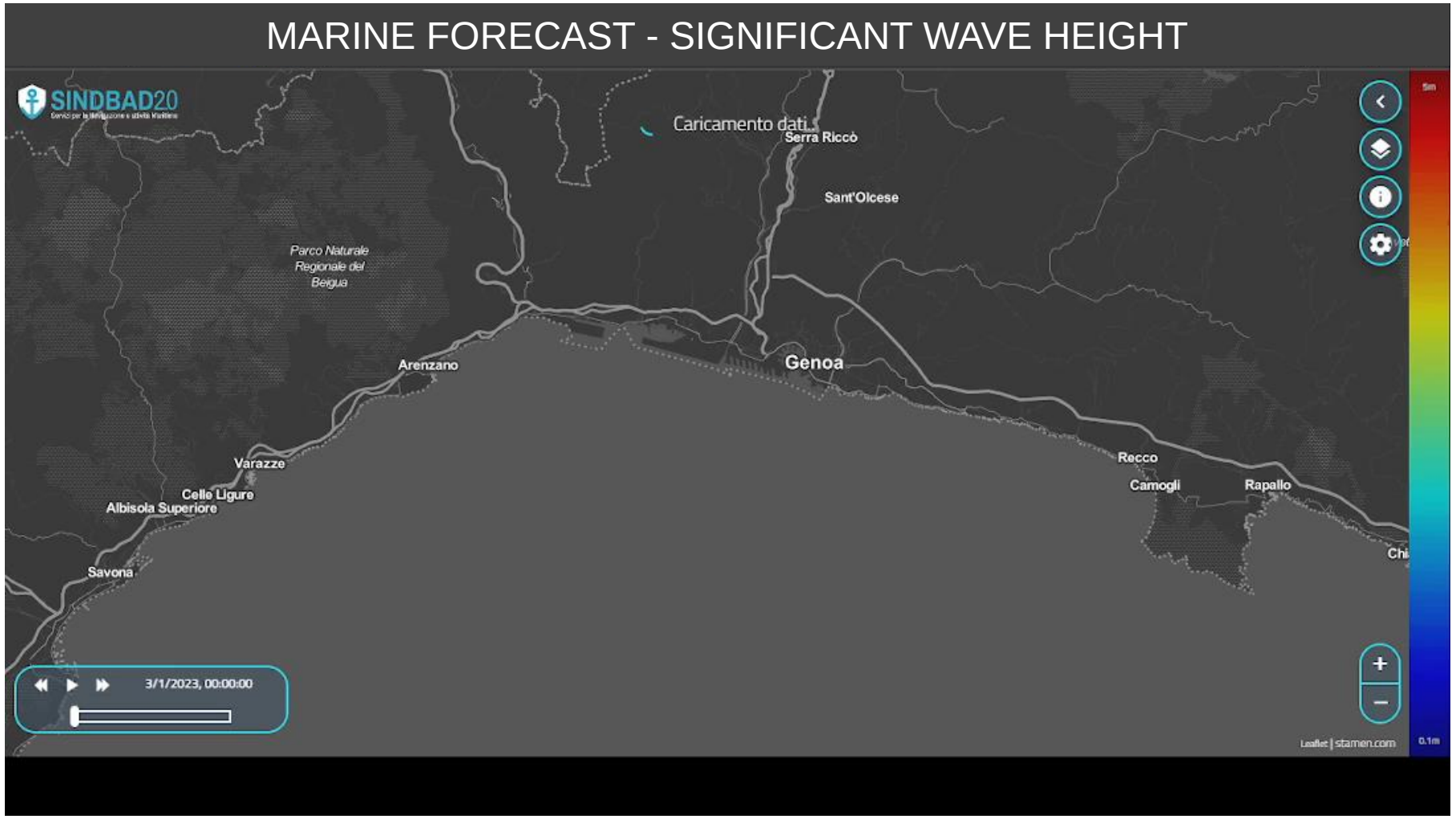


Example of output: SOOSmap

http://www.soosmap.aq/

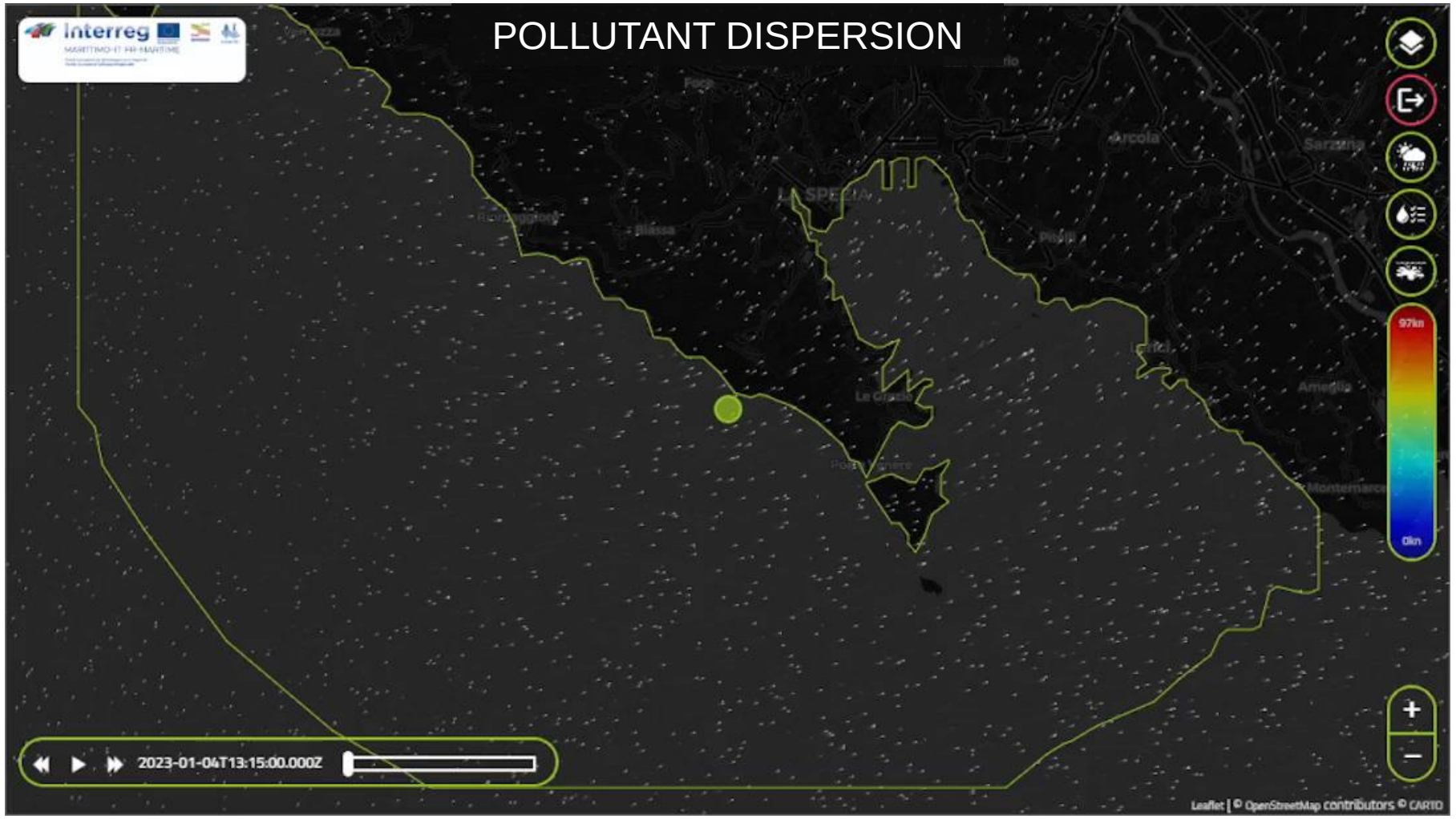
Example of output: Sinbad

https://www.sindbad-liguria.it/



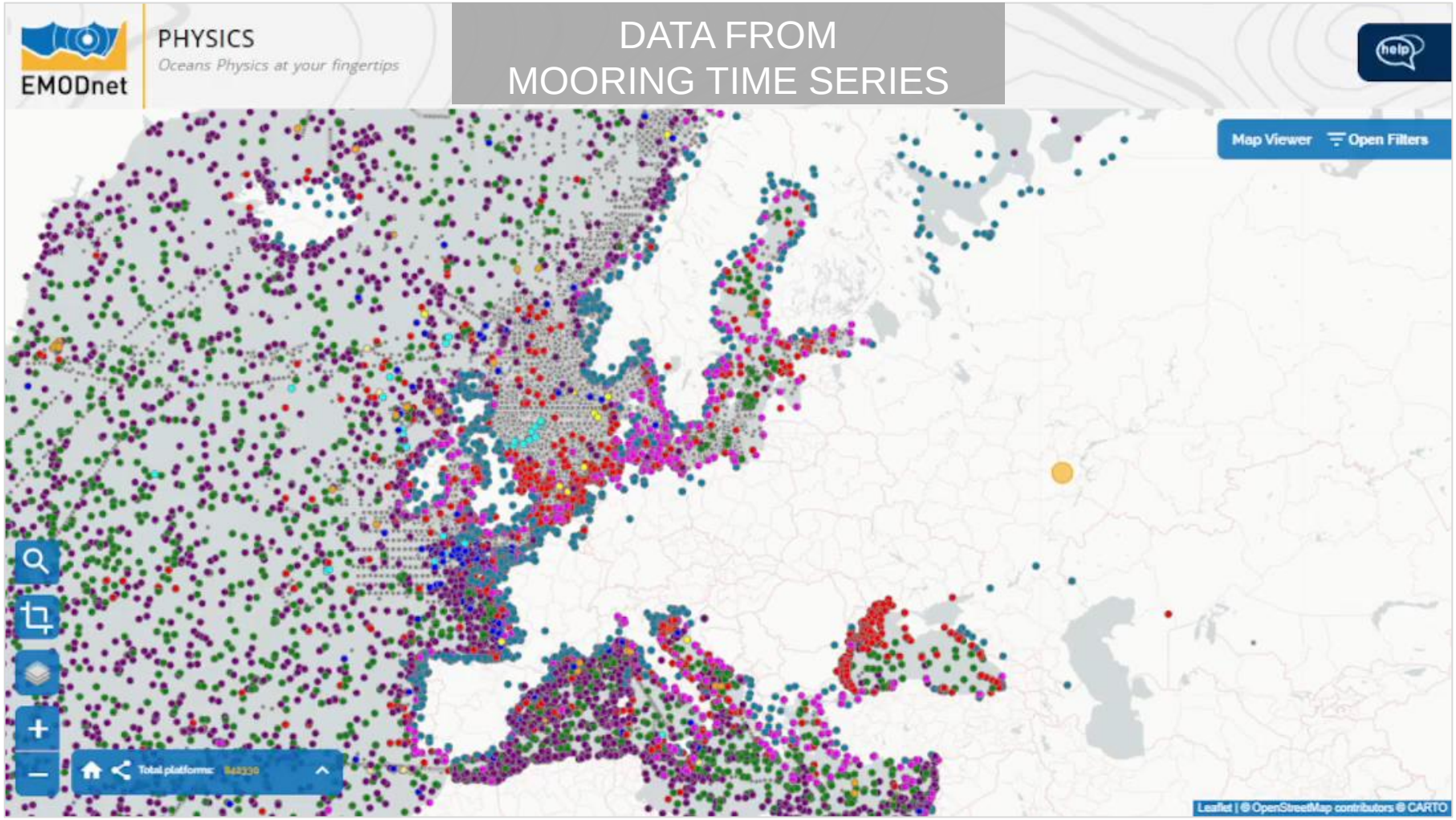
Example of output: Geremia

https://www.dss-geremia.it/



Example of output: EMODnet Physics

https://map.emodnet-physics.eu/



OLAMUR

THANK YOU!

WP6: Sustainability

- viable concepts for carbon neutral seafood production and market projections

Marianne Thomsen

University of Copenhagen

Lerøy Seafood Group ASA (co-lead), Havforskningsinstituttet

WP number			**6**	**Lead beneficiary**		**KU**		**Co-Lead**		**LS**		
Work package title			**Sustainability - viable concepts for carbon neutral seafood production and market projections**									
Participant #	**19**	**14**	**1**									**TOTAL**
Short name	**KU**	**LS**	**IMR**									
PMs	**34**	**4,5**	**1**									
Start month			**1**	**End month**				**48**				

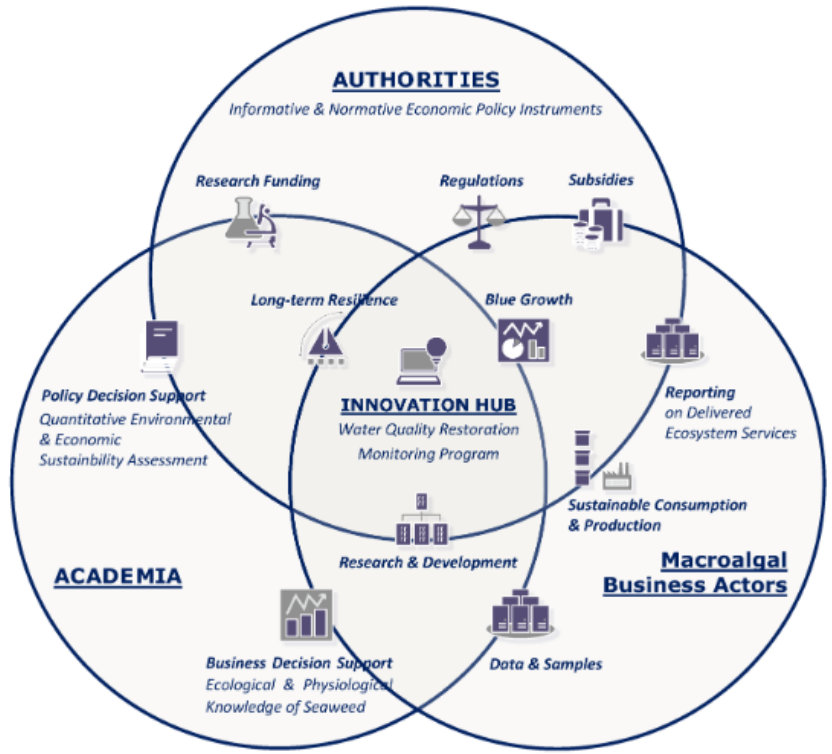
WP6 Objectives

i. to quantify the **restorative and regenerative services** from implementation of MU-LTA,

ii. deliver **business and policy decision support** in synergy with WP7

iii. **hybrid-LCA** approach aiming at quantifying the **cost and benefits** of innovative inclusive blue circular economy solutions

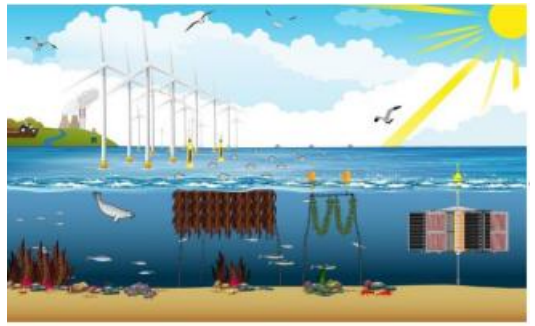
Figure 15. An ecosystem-based framework consisting of a triadic interrelationship between academia, industry and government with the common objective of implementing a sustainable blue economy delivering provisional (biorefinery products), supporting (nutrient recycling), and regulating (climate change mitigation) services, thereby restoring the balance between marine ecological integrity and ecosystem service utilization.



Zhang, X., & Thomsen, M. (2019). Biomolecular composition and revenue explained by interactions between extrinsic factors and endogenous rhythms of Saccharina latissima. Marine drugs 17(2), 107. doi:10.3390/md17020107

WP6 Deliverables

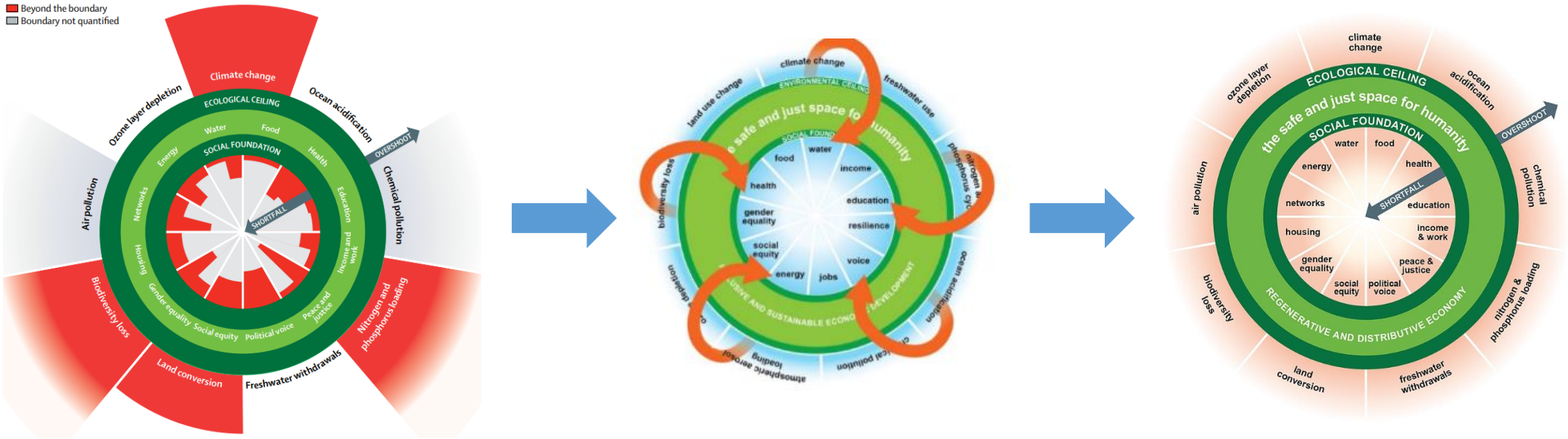
- D6.1 Catalog of circular blue bioeconomy opportunities towards climate neutral seafoods (M46)
- D6.2 Life cycle sustainability assessment of OLAMUR systems and associated restorative food production and supply systems (M44)
- D6.3 System value from growth positive targets - OLAMUR market entry scenarios (M48)



Services to ecosystems

SCOPE of WP6

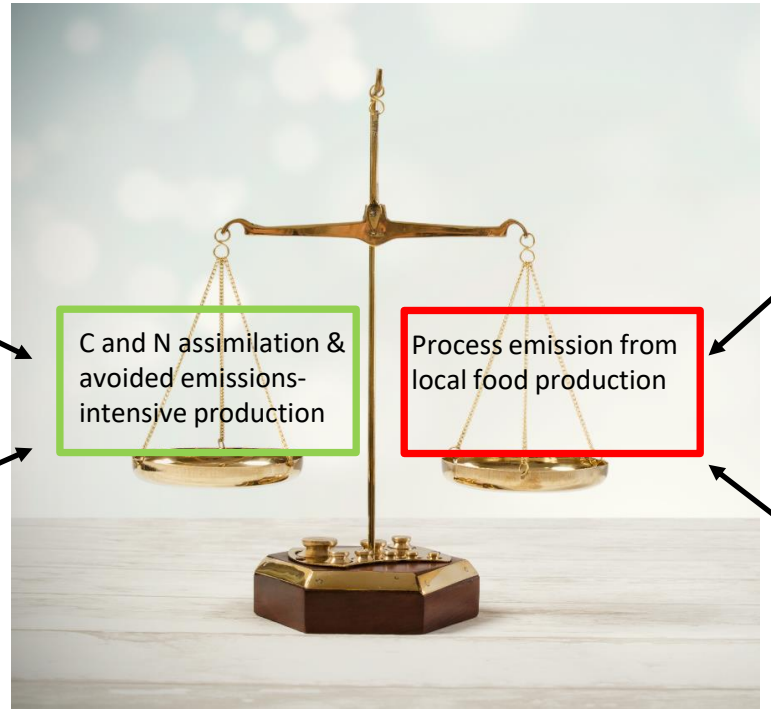
- Combined multi-actor system level LCA and TEA
  1. ensure **economic viability** for all actors along the value chains
  2. quantifying **system value** of the OLAMUR circular resource management systems **beyond financial profits**
     - delivering environmental restoration and climate change mitigation services

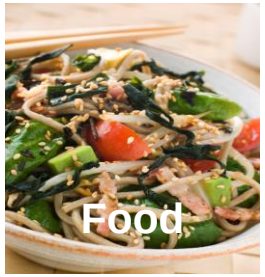


WP6 Task 6.1 Circular Business Models

- Lead: KU | Partners:Lerøy | M18-M48 | D6.1.
  - Map the business actors involved in the circular value **chains from emissions capture at sea to final blue biomass food products**
  - Setup **LCI database** template for each MU-LTA location
    - specific environmental parameters, productivities and cultivation designs
      - Input **data from former WPs monitoring, verifying and reporting** on the environmental quality data, cultivation technology designs, productivities and expected restorative impacts on natural ecosystem services.
  - A micro-scale system descriptions of the substance, material and energy input and output data for the three pilot cases and downstream business actors will be developed as input for **ex-ante system level LCA**

Climate neutral (sea)food production





Emission Capture & Utilization (CCU)

Scope I to IV data from former WPs

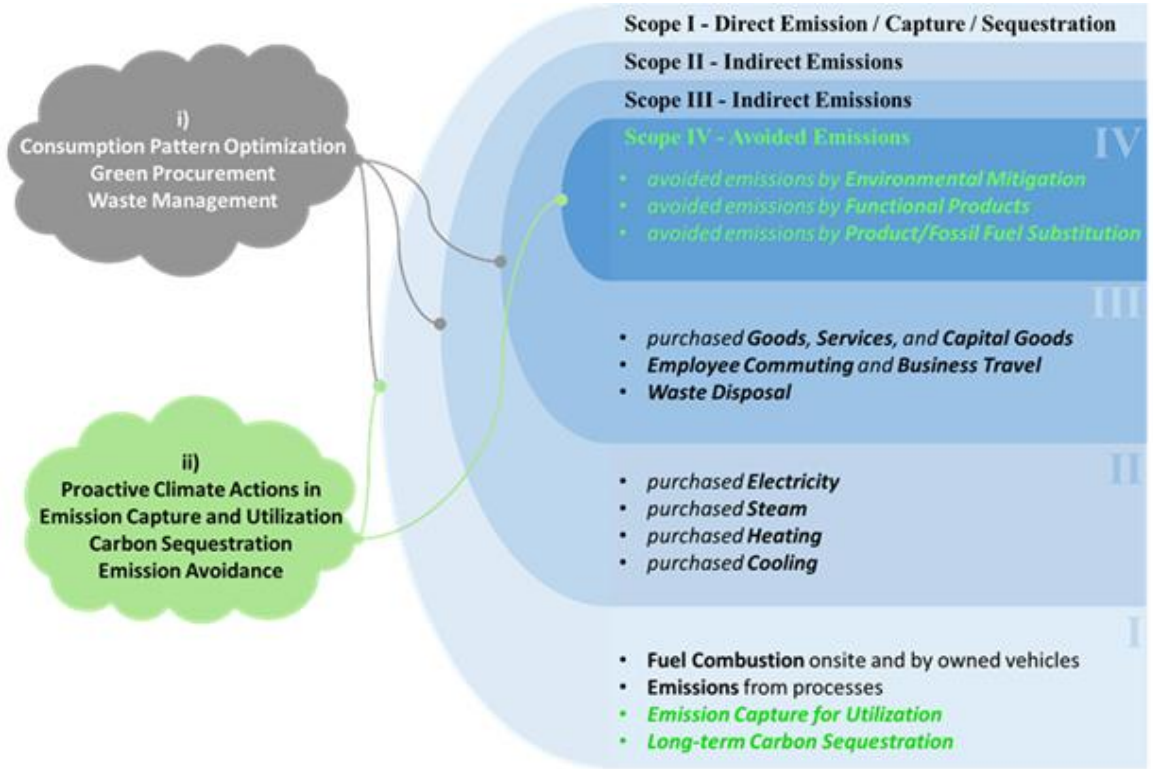


Figure 38 Proposed carbon footprint accounting framework with an extended scope. Green entries are the added GHG flows that are not included in the GHG Protocol Corporate Accounting Standard (Zhang, 2021)

Data needs - example

Table 2. Yield and composition of the harvested biomass from the nine *S. latissima* cultivation systems.

Yield and composition	L1A		L4B		H2A		H3A		H4B		H6C		H7C		G4B		G5I
Fresh biomass (kg fresh weight (fw)/ha/year)	11,111.0	a	1600.0	c	7100.0	d	12,750.0	f	1000.0	c	13,581.0	f	18,350.0	f	2363.0	f	100
Dry matter (DM) (% of fw)	9.0	b	11.7	c	22.1	d	13.5	f	18.9	c	16.0	f	8.1	f	28.9	f	17.4
C (% of DM)	29.0	b	27.3	c	35.4	e	28.8	f	35.1	c	29.0	f	32.2	f	40.4	f	33.2
N (% of DM)	3.3	b	5.1	c	2.3	d	2.0	f	0.7	c	3.6	f	2.1	f	0.7	f	0.7
P (% of DM)	0.11	b	0.13	c	0.30	d	0.31	f	0.13	c	0.13	f	0.18	f	0.11	f	0.16

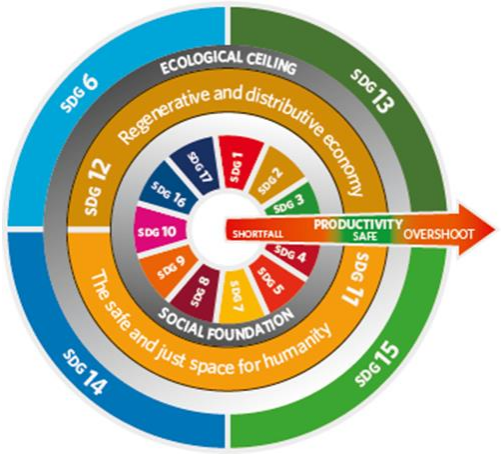
WP6 Task 6.2 Multi-criteria Sustainability Assessment

- Lead: KU | Partners: Lerøy| M18-M46 | D6.2
  - **System level life cycle assessment** of the Pilot cases at specific cultivation sites and associated value chains with a focus on quantifying whole system value from regenerative and therefore growth positive targets (SDG 12, 13, 14)
  - System **level Life Cycle Impact Categories, i.e. carbon, land, water and health footprint,** will be translated into **quantitative sustainability measures quantifying specific SDGs and planetary boundaries**.
  - Specific value chains and end products will be input to T6.4.

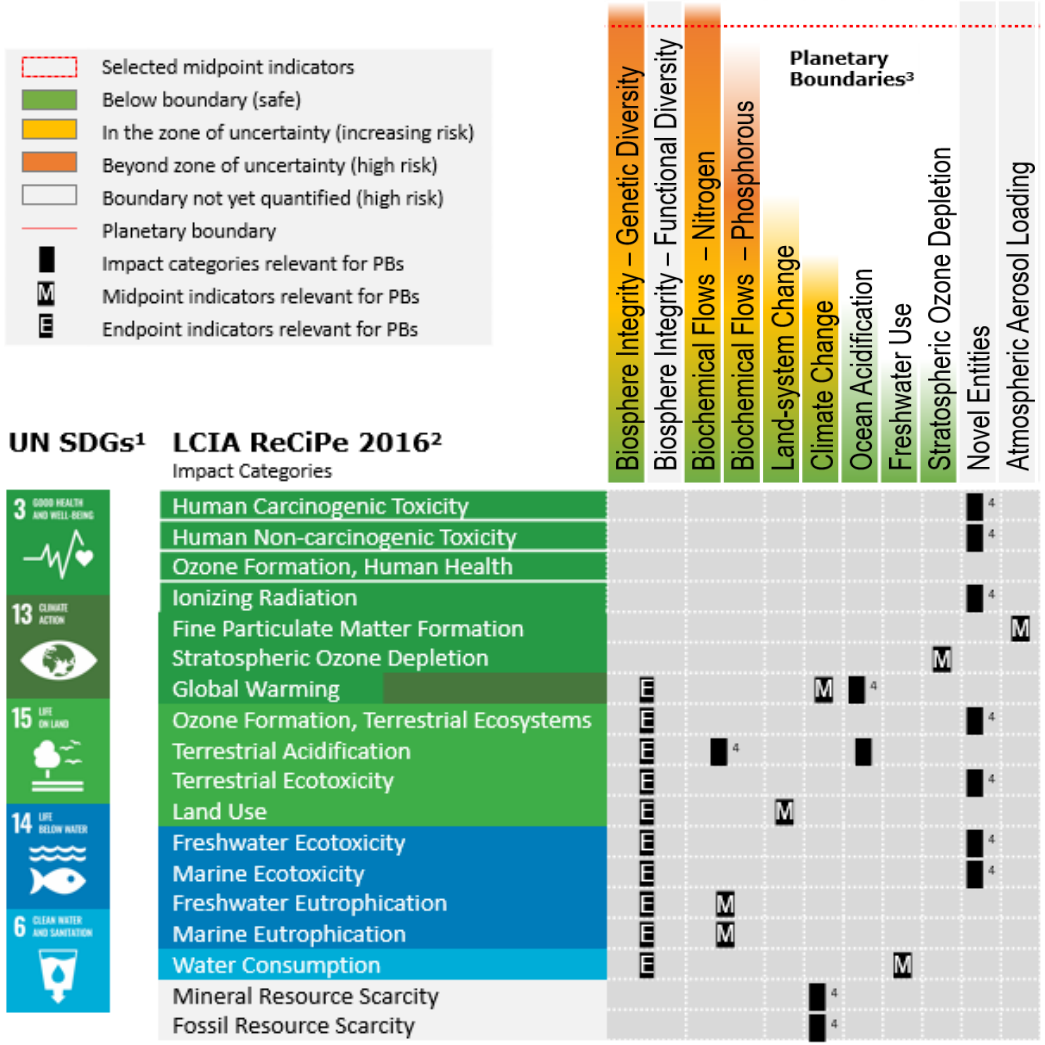
Quantitative Sustainability Measures

- Connecting

1. LCIA impact categories
2. the Sustainable Development Goals (SDGs)
3. the planetary boundaries (PBs)



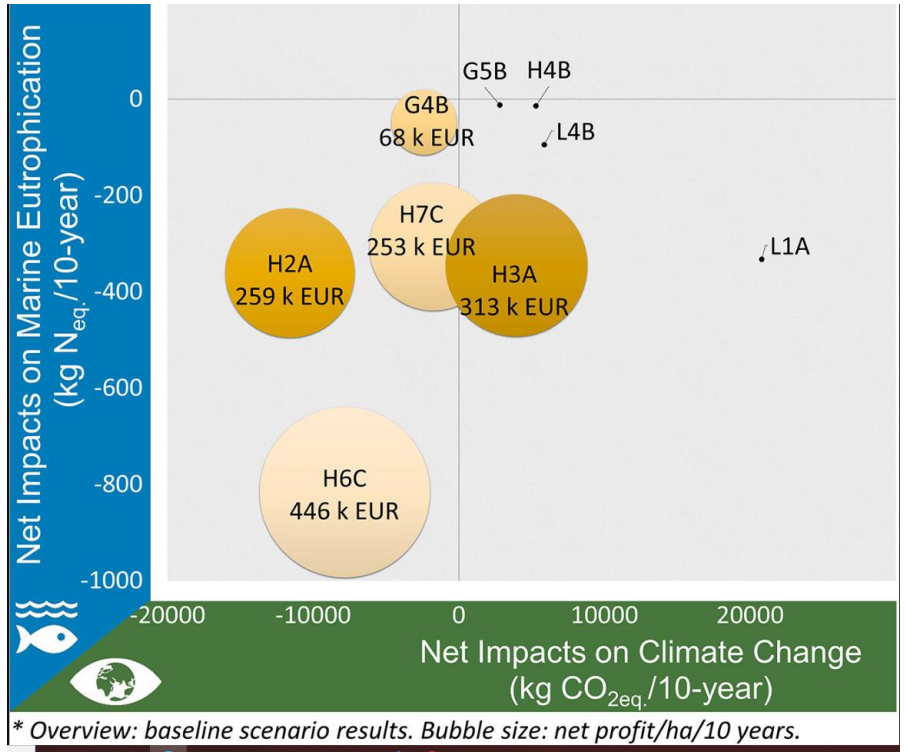
Adapted from Kate Raworth's 'Doughnut of social and planetary boundaries' (2017) www.kateraworth.com/doughnut



Modified from: Sala et al., 2020. Environmental sustainability of European production and consumption assessed against planetary boundaries. Journal of Environmental Management. Volume 269, 1 September 2020, 110686

WP6 Task 6.3 Economic viability of environmental sustainable blue biomass value chains

- Lead: Lerøy | Partners: KU| M24- M44 | D6.2
  - Assessment of the monetary value of non-marketed services (e.g. water quality restoration and climate change mitigation)
  - Identify potential hotspots within the multi-actor circular business ecosystems that are in need of subsidies in the short term.
  - **Net Present Value calculations** include marketed and non-marketed value projections.



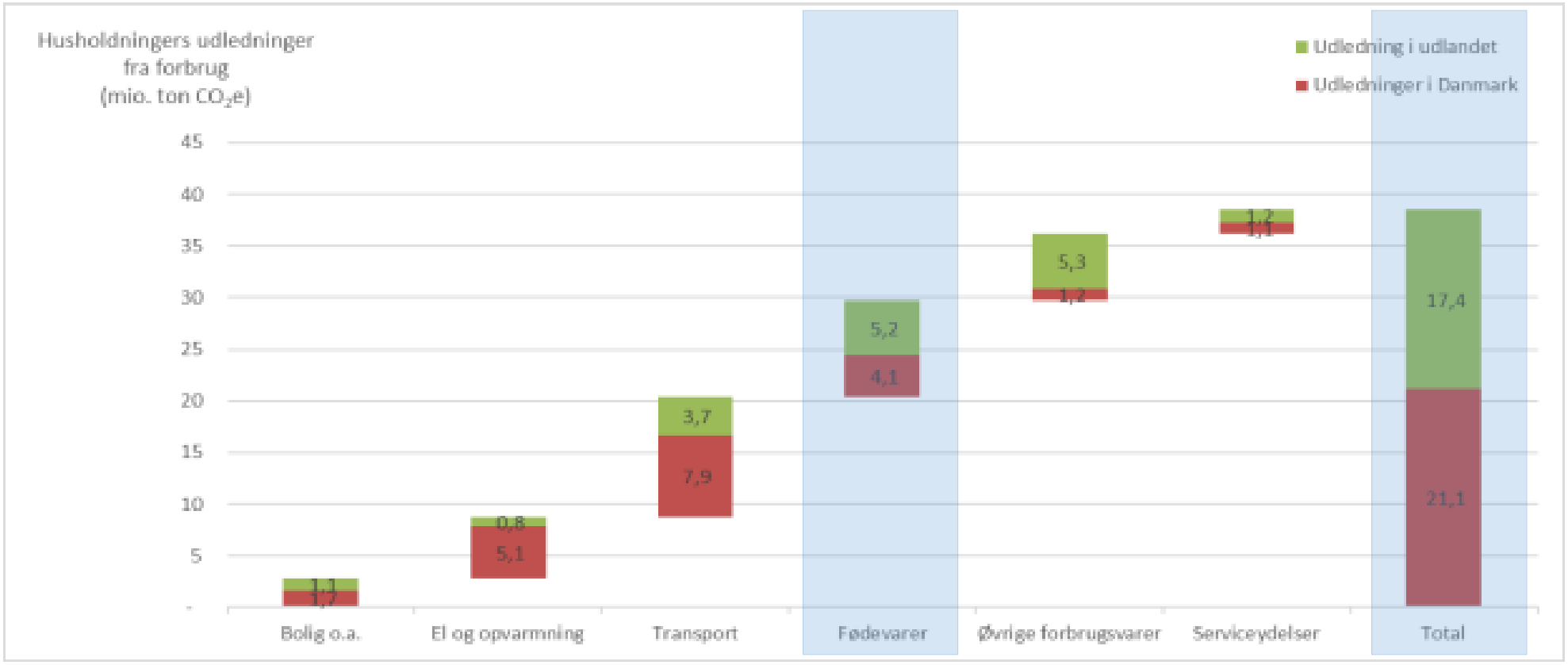
** Overview: baseline scenario results. Bubble size: net profit/ha/10 years.*

Zhang, X, Boderskov, T, Bruhn, A., Thomsen, M., 2022. Blue growth and bioextraction potentials of Danish Saccharina latissima aquaculture — A model of eco-industrial production systems mitigating marine eutrophication and climate change., Algae Research, https://doi.org/10.1016/j.algal.2022.102686

WP6 Task 6.4 Market entry projections and dietary change transitions

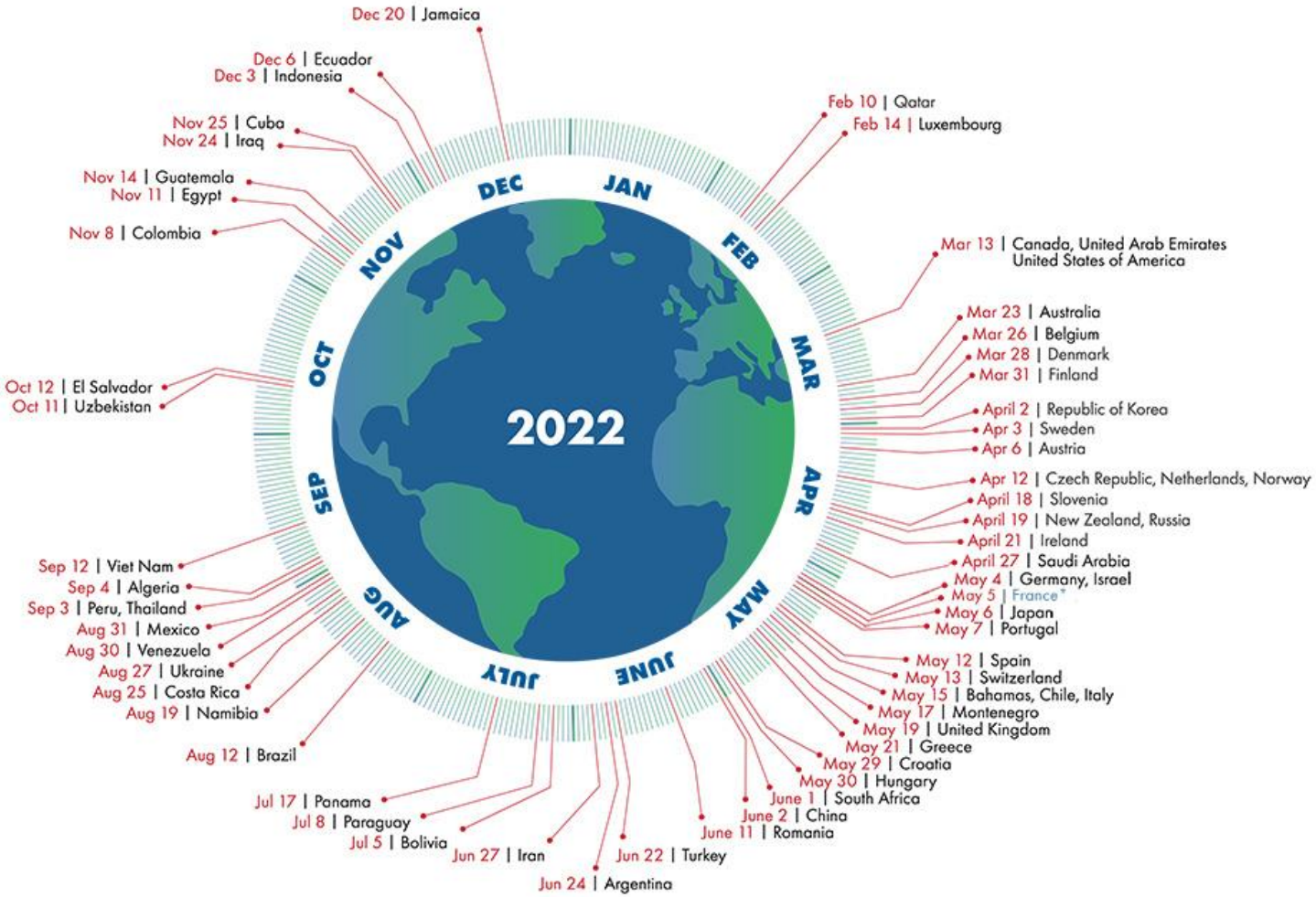
- Lead: KU | Partners: Lerøy | M37-M48 | D6.3
- adopt the Planetary Heath Diet recommendation as a 2030 goal
- Evaluate the need for alternative policy measures to enable a scale-out of local circular blue bioeconomies
- Estimate the potential of OLAMUR to deliver on the PHD 2030 goal and the associated financial and non-financial system value
  - decarbonization of the European economy and climate system while restoring the oceans

How big a fraction of GHG emissions comes from our food intake – DK case



Country Overshoot Days 2022

When would Earth Overshoot Day land if the world's population lived like...



For a full list of countries, visit overshootday.org/country-overshoot-days.
*France Overshoot Day updated April 20, 2022 based on nowcasted data. See overshootday.org/france.

Source: National Footprint and Biocapacity Accounts, 2022 Edition
data.footprintnetwork.org

EARTH OVERSHOOT DAY

Global Footprint Network
Advancing the Science of Sustainability

Personal Boundary Allowance

Plantary system damage	Rockström planetary boundary	PBA'05 Allowance Per Capita.Yr
Climate change	≤ +1 W/m^2	1150.7 kg CO_2-Eq
Loss of biodiversity	≤ 10 extinctions per million species.yr (E/MSY)	0.0000281 species.yr reversible eliminations
Nitrogen cycle	≤ 35 Mt N /yr fixation	3.5 kg N-Eq emissions
Phosphorus cycle	≤ 11 Mt P /yr emitted to ocean	0.0011 kg P in ocean
Land occupation	≤ 1995 Mio ha cropland land occupation	1995 m^{2}yr cropland occupation
Global freshwater use	≤ 4000 km^3 / yr blue water use	400'000 liter
Stratospheric ozone depletion	≤ 14 reduction of Dobson Units	0.0409 kg ODP-Eq
Atmospheric aerosol loading	*undefined*	1.457 kg PM_{10}-Eq
Chemical pollution	*undefined*	*undefined*
Ocean acidification	≤ 20% reduction aragonite saturation	*undefined*

Hauser, Andreas: Policy Interest in Relating Footprint Indicators to Planetary Boundaries. https://doi.org/10.5446/45347

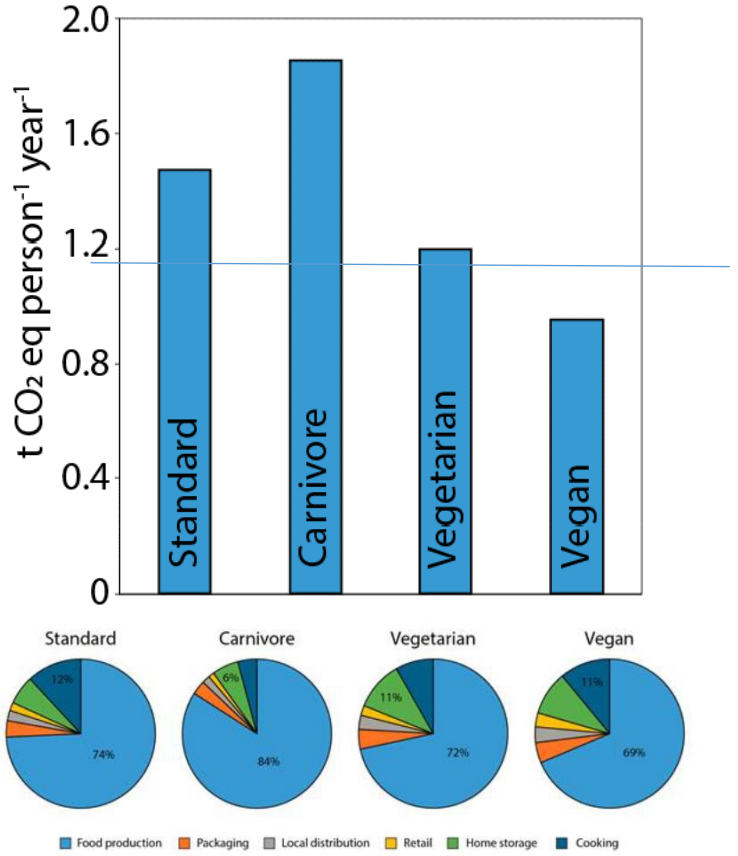
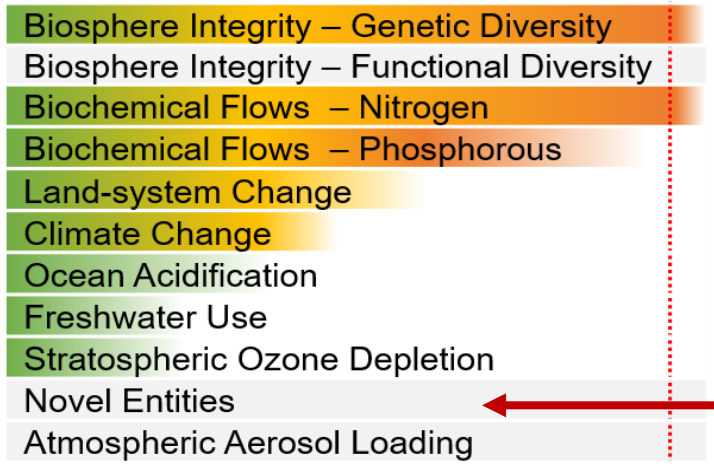


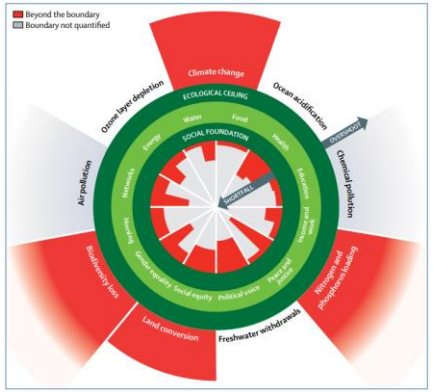
Figure 3: Percentage contribution of each lifecycle phase to the carbon footprint of each diet scenario.

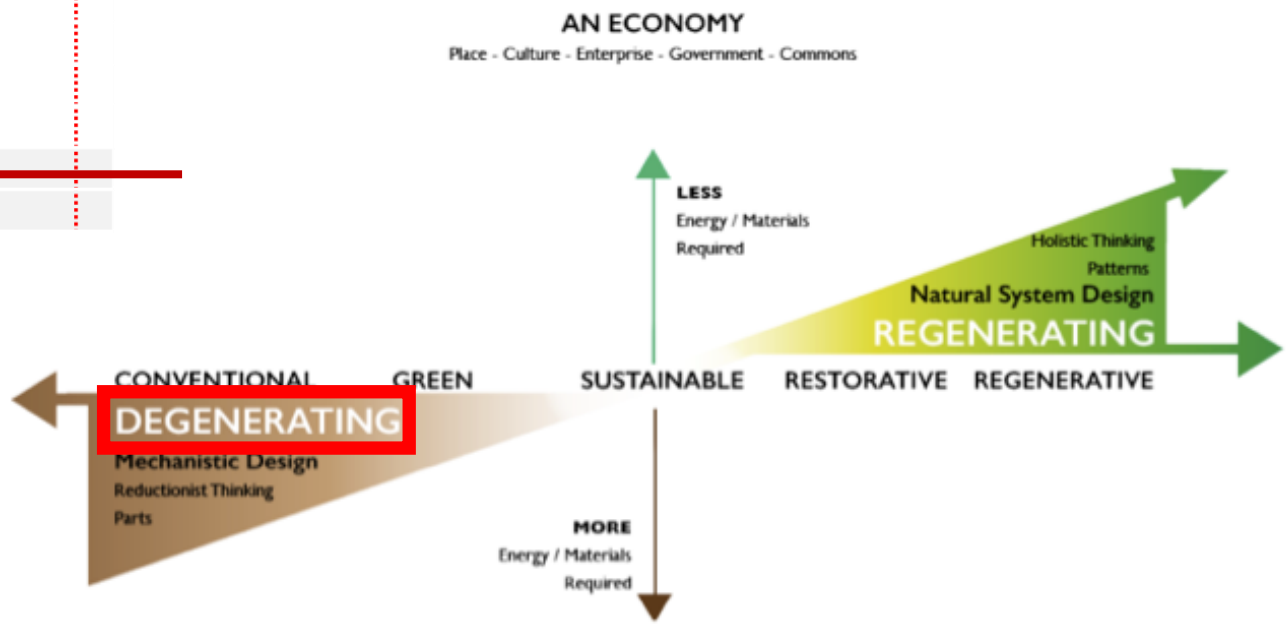
Personal Boundary Allowance

Bruno, M., Thomsen, M., Pulselli, F.M. et al., 2019. The carbon footprint of Danish diets. Climatic Change 1-19. doi.org/10.1007/s10584-019-02508-4

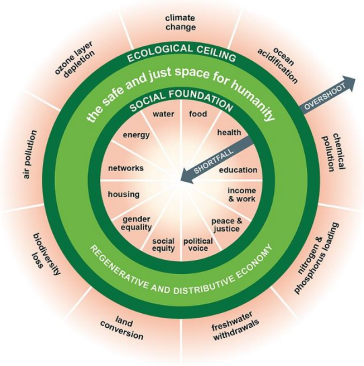
Circular Blue Food Systems Economies







A distributive economy

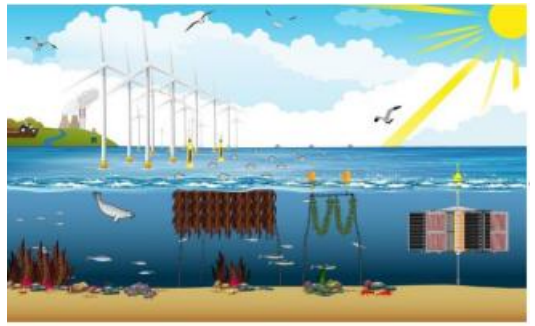


System value from growth positive targets

Thomsen, M., Ahrne, L., Ohlsson, T., 2022. Sustainability and Food Systems. In: Food safety management - A practical guide for the food industry (Eds. Lelieveild, H. and Motariemi, Y.). Academic Press, Elsevier, in review.

WP6 Deliverables

- D6.1 Catalog of circular blue bioeconomy opportunities towards climate neutral seafoods (M46)
- D6.2 Life cycle sustainability assessment of OLAMUR systems and associated restorative food production and supply systems (M44)
- D6.3 System value from growth positive targets - OLAMUR market entry scenarios (M48)



OLAMUR WP7 Governance of integrated social-ecological-technical system

Dorothy Dankel, SINTEF Ocean (SO)
Jochen Hinkel, Global Climate Forum (GCF)

Technology for a better society

Objectives for WP7

- Ensure **co-production of knowledge with stakeholders** to better inform the science-policy-industry- community interface and achieve **legitimate** and **inclusive outcomes** so that compliance with regulations after implementation is successful

- Provide a comparative assessment of the governance structures across the three pilots in terms of **performance**, **bioregional fit**, potential **barriers** and **enablers** as well as ***innovative solutions***

- Summarize **multi-level governance overlap and interplay** within the fragmented landscape of political processes at different layers of analysis

SINTEF Team

Global Climate Forum (GCF)

Dorothy Dankel, T7.1

Rachel Tiller, T7.3

Jochen Hinkel, WP Co-Lead, T7.2 &7.4

Anne Gaspers, T7.1

Thea Lurås Oftebro, T7.1 and T7.3

Emily Cowan, WP Lead, T7.3

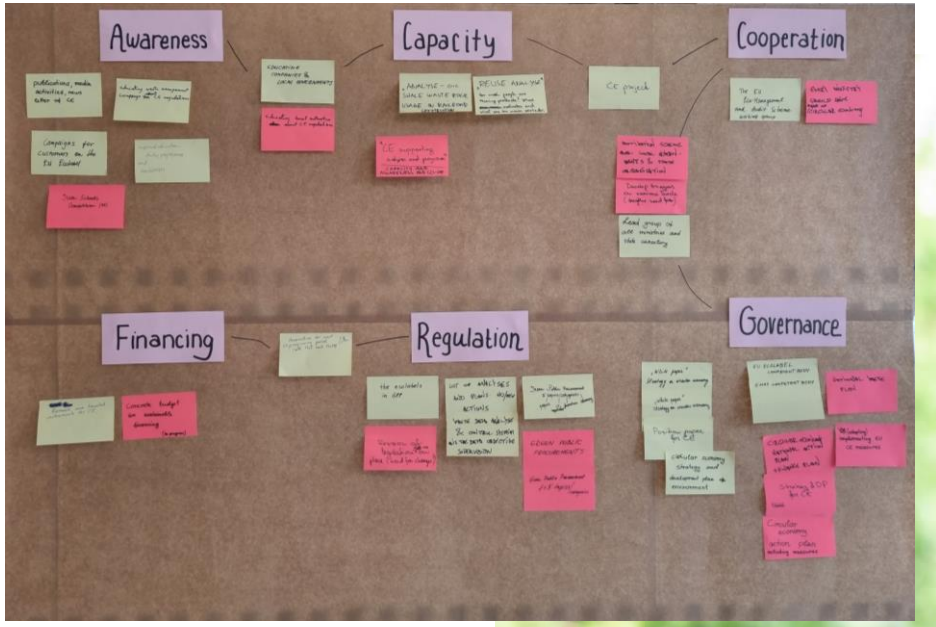
?

PhD or Post-doc to be hired in 2023, T7.2 &7.4

Bridging the gap between data and decision-making

Aim: co-creating tools with science, industry and society

- Stakeholder engagement
- Regulatory integration
- Social and political science expertise



SCIENTIFIC RESEARCH + STAKEHOLDERS' KNOWLEDGE → DECISION-MAKING

Key Concepts for WP7

Systems thinking: as a step-wise problem solving approach, allowing to understand problems from the underlying system feedback structure by eliciting this information interactively from stakeholders who live and work in the given system (here the stakeholders of the pilots).

Collaborative event ethnography: understand multilateral political and international negotiations and to make sense of a variety of research problems, including the politics of low impact marine aquaculture (LIMA) and multi-purpose use of marine space (MPMS)

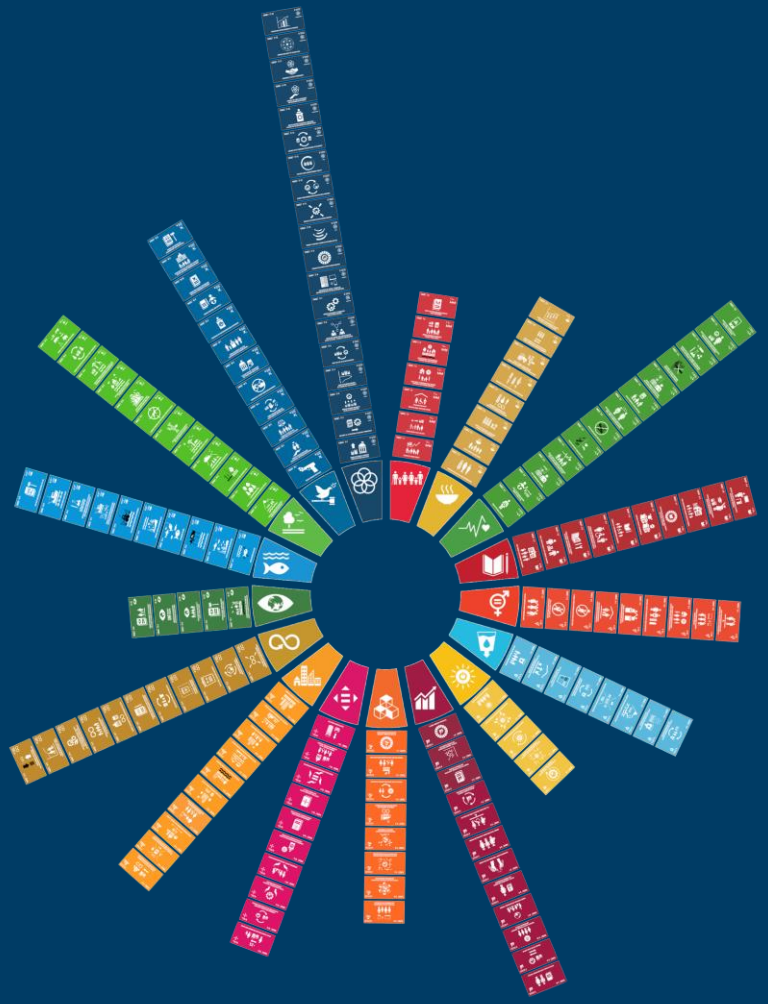
Responsible Research and Innovation (RRI): Science and technology advances should be with and for society.

SINTEF

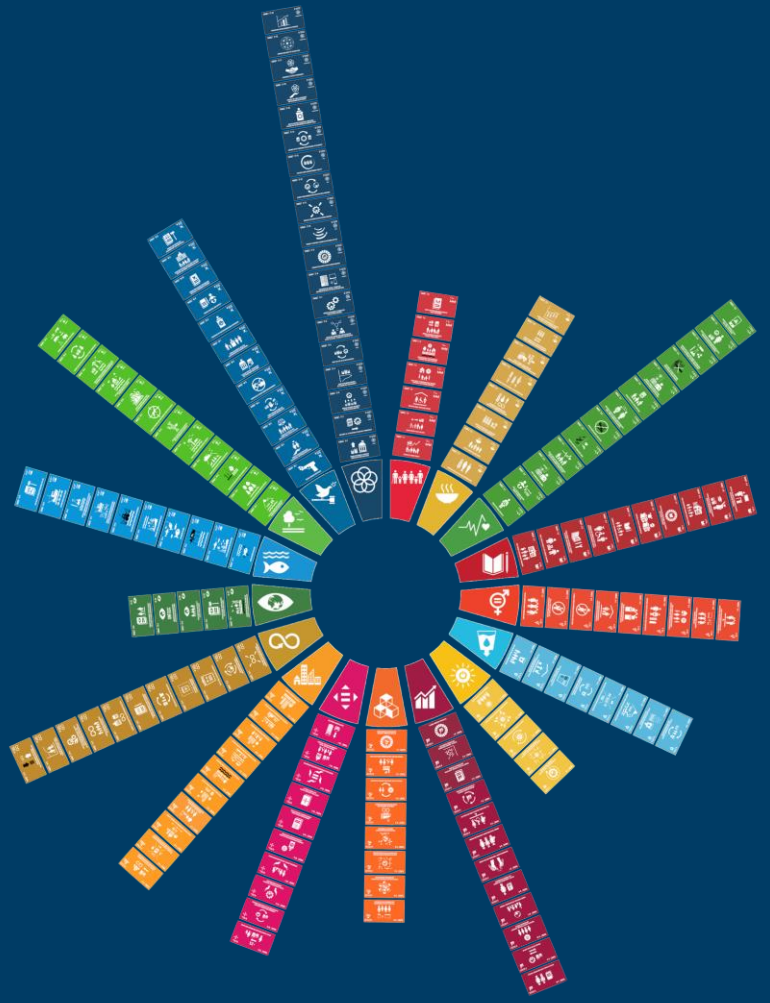
How do we know if OLAMUR technologies are sustainable?

Technology for a better society

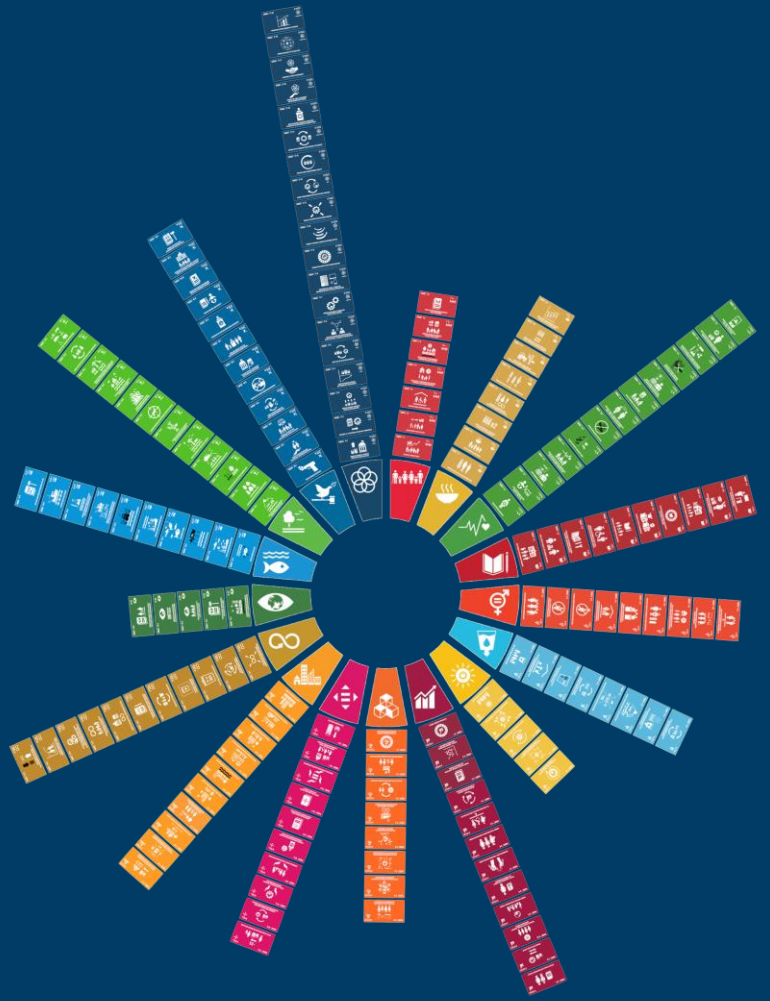
SINTEF



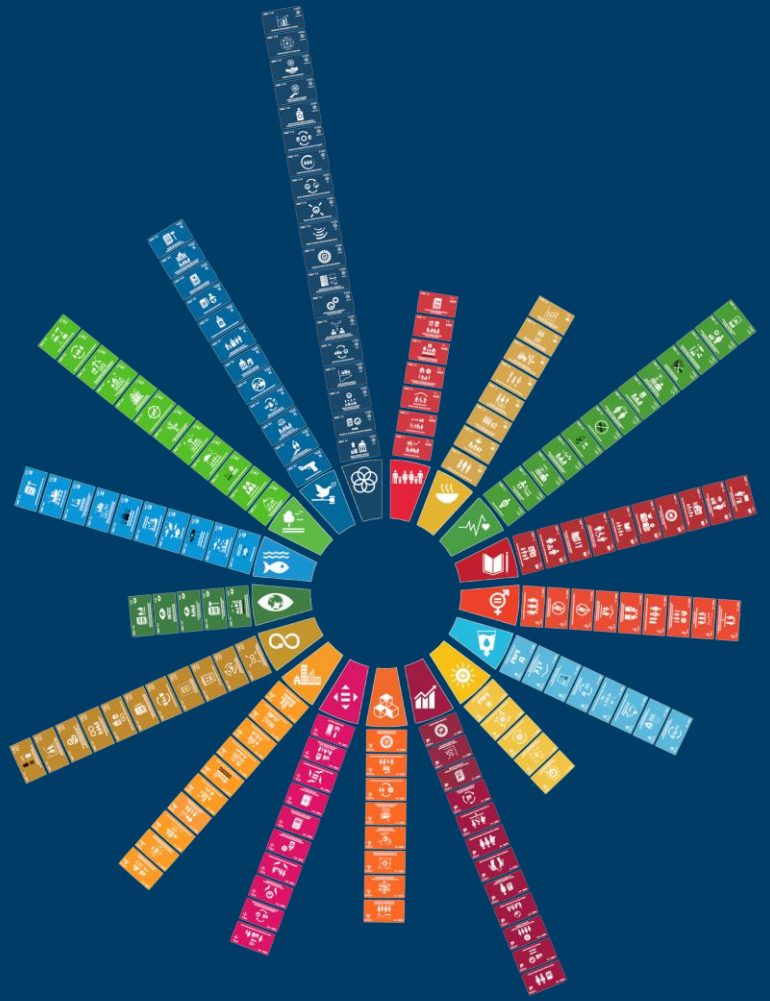
Which of the 169 targets and which of the 17 Sustainable Development Goals are relevant for offshore wind?



Which of the 169 targets and which of the 17 Sustainable Development Goals are relevant for offshore wind?



Task 7.1: Example of SDG Target Relevance-Tracing



Which of the 169 targets and which of the 17 Sustainable Development Goals are relevant for offshore wind?

Task 7.1: Example of SDG Target Relevance-Tracing

85 targets are relevant for offshore wind value chains, across all 17 of the Sustainable Development Goals

WindSys: Effects of floating wind farms on the marine ecosystem, focus on pelagic fish (2023–2025)
Havforskingsinstituttet (HI), Norwegian Institute for Nature Research (NINA), SINTEF, Runde Environmental Center, Directorate of Fisheries, Fiskebåt, Equinor, Norwegian Fishermen's Association (Fiskarlaget)

Feedback på SDG Target Relevance-Tracing

"When we write research proposals, we just say 'this looks relevant', but most of us don't really know what's behind those SDGs, so this is a very nice exercise to do both with regards to applications, but also our strategy plans for the group, etc."

KSP22PD – do not remove this tag

WindSys: Effects of floating wind farms on the marine ecosystem, with a focus on pelagic fish.

0. Relevance to the call

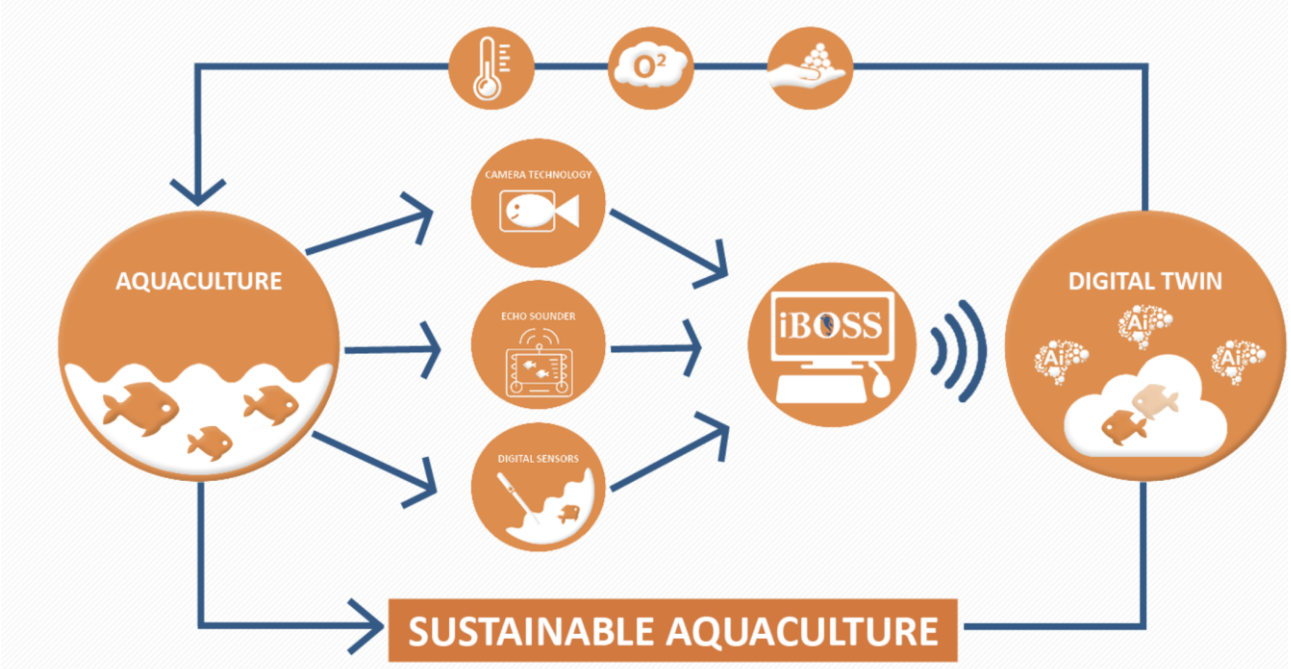
This proposal is a collaboration between key scientific, private and governmental actors that wish to investigate and document the impacts of the placement of floating wind turbines at sea. The development of offshore wind farms (OWF) is a crucial climate measure, and a major focus area worldwide, but with limited knowledge about effects on marine life. This answers the call for proposals that will *gain knowledge to meet challenges in Norway related to sustainable use and management of offshore areas.* This proposal is placed under the theme "Energy, transport and low emissions- research on energy politics, economics and sustainability", and is particularly related to the call for *sustainability and resource efficiency perspectives.* We will investigate whether and how a floating OWF (FOWF) will impact the natural resources and environment in comparison to available data on bottom-mounted OWFs. Our proposal also answers the call for studies on *emissions from the energy system and their impact on biological diversity, ecosystem services* and to *assess and compare various types of environmental impact*, by investigating how the sound from wind turbines impacts the pelagic ecosystem in terms of species composition and resource availability. Our proposals addresses issues raised in all major **priorities** in the **portfolio**; For **thematic priorities**: *the need to establish an environmentally friendly construction and operation of FOWF as well as assessing how these may influence both environment and society* is addressed by i) examining the impact on marine ecosystems and ii) providing the necessary cross-sectoral (industry-fisheries-regulators) information to be the basis for marine spatial planning to allow co-existence. For **research priorities:** *scientific research contributing to a sustainable management of natural resources* and *an interdisciplinary research for combination of new perspectives, disciplines and approaches,* are addressed by the focus on scientific understanding of the effects of offshore energy production with novel methodology, stakeholder involvement and influence and with a main objective to provide knowledge to management. Since OWFs have become a controversial issue, with high temperature debate in the media between e.g. fisheries and industry hence we also address the **prioritized usage area** of *research on controversial issues with the need for independency by users*.

Norway has high hopes to be a principal player in FOWF and in the new government agreement[1] it is stated that *the government will facilitate a large-scale investment in offshore wind through an ambitious national strategy which includes investment in the Norwegian supplier industry, good regulations and the development of grid infrastructure on the Norwegian shelf.* To develop a sustainable OWF industry in Norway we need to understand how they impact fish and other ecosystem components. To ensure a scientific basis that will be used when establishing regulations for new FOWF in Norwegian waters, the project will be organized to involve both industry and society throughout all phases, and use natural science to understand potential impact on commercial fish stocks, ecosystems and area-use. Relevance for the UN sustainability goals will be examined in one of the projects work packages. Through annual meetings with all stakeholders, this will be addressed with the "SDG Wizard" Target Relevance-Tracing method. This method was also applied in the proposal preparation (Figure 1).

Figure 1: The "SDG Rose". The WindSys Consortium including expertise from the Institute of Marine Research, Equinor, Norges Fiskarlag and Runde Miljøsenteret completed a SDG Target Relevance-Tracing workshop on November 12, 2021. Of the 169 SDG Targets, 85 were identified by the WindSys Consortium as relevant to OWF (not greyed out). The SDGs with most relevant targets were SDG 9 (Industry and Infrastructure; orange), SDG 11 (Sustainable Cities and Communities; light orange), SDG 12 (Responsible Consumption and Production; gold) SDG 13 (Climate Action; dark green), SDG 14 (Life under Water; Blue), SDG 15 (Life on Land; light green) and SDG 17 (Partnerships for the Goals; dark blue).

H2020 iFishIENCi.eu

Intelligent Fish feeding through Integration of Enabling technologies and Circular principles



T7.2: Comparative assessment of governance arrangements in the Pilots (and beyond)

- Goal: Attain an in-depth understanding on which institutional factors enable or hinder sustainable governance of multi-use in the three pilots (and beyond)?
- Governance is an effort to solve social conflicts (or exploit mutual gains) through establishing appropriate institutions.
- What do we look at?
  - All actors (stakeholders, interest groups) involved in and being affected by multi-use
  - Formal institutions (laws, policies, regulations, plans, etc.): e.g., coherence between policy goals and instruments
  - Informal institutions (norms, conventions, etc.), e.g., planning cultures, perception of legitimacy of formal institutions
- Work programme
  - Review of the wider literature on marine governance of multi-use
  - Identify innovative cases from around the world, conditions of their transferability
  - Classification of governance arrangements (using IAD of Ostrom 2005)
  - Document analysis and semi-structured interviews in the three pilots

GCF
Global Climate Forum

Task 7.3: SINTEF

- Event Ethnography
  - A type of deep observation methodology
    - Used to assess narratives and actions around how various actors come together to facilitate agreements.
  - Our team develops a comprehensive database of negotiation specific narratives from state and NGO delegates on the topic of plastics
  - In future studies we can use this database to structure and discern shifts in global environmental politics.

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	Country	In person	Organization/NGO or similar	M/F/NB	Name/Title	MTG - IGC - COP nr	Date	Year	Session - plenary? High level? Parallell?	Parallell session title	Order	Notes by Emily	Notes by Lacie	General opening statements	Align opinions with	Topic 1 -	Topic 2 -	Topic 3 -	Topic 4 -
3			UNEA	M	Co-facilitator	OECPR5	feb.22	2022	Informal c	Cluster 1	1	Introduction to disccussing tw		2 hours to continouning the discussions					
4			UNEA	M	Robert - co-fa	OECPR5	feb.22	2022	Informal c	Cluster 1	2	We recomence our work at OPT		2 hours on the co-facilitators text, imperative to complete first reading					
5	United Kingdc	P		F	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	3	Thank yous... We wanted to make a suggestion on how to move forward without duplicating discussior							
6	Antigua & Bar	P		F	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	4	We completely agree with the suggestions fron		UK					
7	Brazil	P		M	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	5	Thank yous... we also support the USA proposa		USA					
8	Thailand	O		F	Teeraorn Wir	OECPR5	feb.22	2022	Informal c	Cluster 1	6	Insert word in OP2 to insert ' at least hte following provisions, but not limited to. Thailand will like to							
9	Canada	P		F	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	7	It is the first time Canada takes the floor, and our support for a new legally binding a agreement. We w							
10	Japan	P		M	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	8	On this OP2 support, there is a point we would like to make which is what canada said with manageme							
11	Chile	P		F	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	9	Yesterday we were in support of a LBI, please a		UK					
12	EU	P		M	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	10	I think that a lot of good proposal have been made, but not all are reflected on screen. We feel that the							
13	Republic of Kc	O		F	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	11	Thank you, on OP2 I would like to support UK suggestion to not repeat yesterdays work. I also uspport							
14	Brazil	P		M	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	12	We are not in the position to support micoplastics under a LBI							
15	Algeria	O		M	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	13	Good afternoon, we would like to ask our brazilian colleuge to give clarification on definition on MLD,							
16	Peru	P		M	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	14	We have conerns in regards to brazils proposa		Thailand					
17	Norway	P		M	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	15	Thank you, regarding OP2 we would like to underline that it is criticaly important to include the full lif							
18	Sri Lanka	O		F	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	16	We support the proposal from Japan and Braz		Brazil & Japan					
19	Thailand	O		F	Teeraorn Wir	OECPR5	feb.22	2022	Informal c	Cluster 1	17	Would like to support Japan, EU, Norway to delete reference to Rio declaration as it is misplaced here.							
20	Australia	O		F	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	18	Supports deletion of rio, and support thailands to not limit discussions of INC							
21	Equador	O		M	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	19	We agree with algeria that brazils suggestion is too vauge.							
22	Iceland	P		M	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	20	We cannot support a generic document. Rio declaration should be included but not in the paragraph it							
23	Costa Rica	P		F	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	21	We support Brazil in rio, but it should be placed elsewhere. We support Chiles prevent, minimize, and							
24	Argentina	P		M	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	22	We would like to support the inclusion of the wording about the Rio principals. Regarding the inclusio							
25	Columbia	P		M	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	23	In line with what we said yesterday, we would		Peru & costa rica					
26	Switzerland	P		F	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	24	Thank yous... we were content with the origional lanugage with OP2 that discuss the entire life cycle ar							
27	Fiji	O		F	Kamaiwaqa -I	OECPR5	feb.22	2022	Informal c	Cluster 1	25	This is the first time we have taken the floor, and we are fully in support of a LBT, and we agree with inc							
28	USA	P		F	Elizabeth Nicl	OECPR5	feb.22	2022	Informal c	Cluster 1	26	We can support UK suggestion, we appreciate the suggestions from Antigua to streamline the text in th							
29	Djibouti	P		F	Houssein Ism	OECPR5	feb.22	2022	Informal c	Cluster 1	27	We would like to delete the term 'marine plastic pollution' and keep plastic pollution. We would also l							
30	Antigua & Bar	P		F	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	28	We want to replace finanical assistance with 'support for its implementation through new, additional							
31	Cuba	P		F	Delegate	OECPR5	feb.22	2022	Informal c	Cluster 1	29	We support the mention of the Rio principal, any new LBT should follow this. We support the addition							

OECRP5 | UNEA5.2 | Acronyms

ety

T7.4: Multi-level governance

- Goal: co-development of holistic, multi-level governance structures that foster sustainable multi-use in the Baltic and North Sea.
- Marine governance is multi-layered
  - Local/national level as analysed in T7.2
  - Regional seas arrangements (e.g., OSPAR, HELCOM),
  - European legislation (e.g., Marine Strategy Framework Directive, the Biodiversity Strategy, etc.)
  - Global regimes (e.g. UNCLOS, CBD, etc.).
  - Overlapping mandates and jurisdictions
- Work programme
  - Identify fragmentation, overlaps, gaps, etc.
  - Co-develop suggestions with stakeholders for improved multi-level governance structures
- Product: white paper on sustainable multi-level governance models for multi-use (D7.4).

Deliverables

- **D7.1** Workshop Report of the SDG Target Relevance-Tracing across all three pilot sites (**SO, M28**) (Dorothy & Anne)
- **D7.2:** Comparative report of governance systems in the Pilots (GCF, M36)D7.3: White-paper: Mapping of significance of international negotiations and development of global treaties for areas of co-existence of OWF and low-impact aquaculture. (SO, M46)
- **D7.3** White paper: Mapping of significance of international negotiations and development of global treaties for areas of co-existence of OWF and low-impact aquaculture (**SO, M46**) (Rachel & Emily)
- **D7.4**: White-paper: innovative sustainable multi-level governance models for multi-trophic aquaculture (GCF, M48)

WP7 Milestones

MS7.1	Initial WP workshop to develop the WP Task data-gathering strategy and framework to integrate task results	7	M6	Workshop report
MS7.2	All pilot case stakeholder SDG workshops completed	7	M26	Workshop reports
MS7.3	First round of data gathering in the pilots has been completed	7	M14	Data quality is validated and available on project workspace
MS7.4	Comments on an extended outline of the white-paper on innovative sustainable multi-level governance structures (D7.4) have been received	7	M42	Report available on project workspace
MS7.5	Final Stakeholder workshop	7	M46	Workshop report

SINTEF

Technology for a better society

OLAMUR

- **HORIZON-MISS-2021-OCEAN-04-01:** Lighthouse in the Baltic and North Sea basins – low impact marine aquaculture and multi-purpose use of marine space
- Innovation Action (IA) – TRL7
- 23 PMs in WP7 only
- WP 7 Lead with 2 deliverables
- 8 million Euro
  - **Start**: Dec 2022
  - **End:** 2026
- **Project number:** 302007376
- **2 proposals have been submitted and accepted.**

Conceptualization

- Efficient co-use of marine spaces
- Monitoring offshore sites
- Need for energy-efficient and carbon neutral monitoring methods
- Remote access to data
- Regulatory frameworks

OLAMUR

Funded by the EU

The OLAMUR project is funded by the European Union, grant no. 1011094065. Views and opinions expressed are however those of the author only and do not necessarily reflect those of the European Union or the CINEA. Neither the European Union nor CINEA can be held responsible for them.

European Aquaculture
Technology and Innovation Platform

Work Package 8:
Communication, Dissemination & Exploitation (CDE)

David Bassett – EATiP, General Secretary

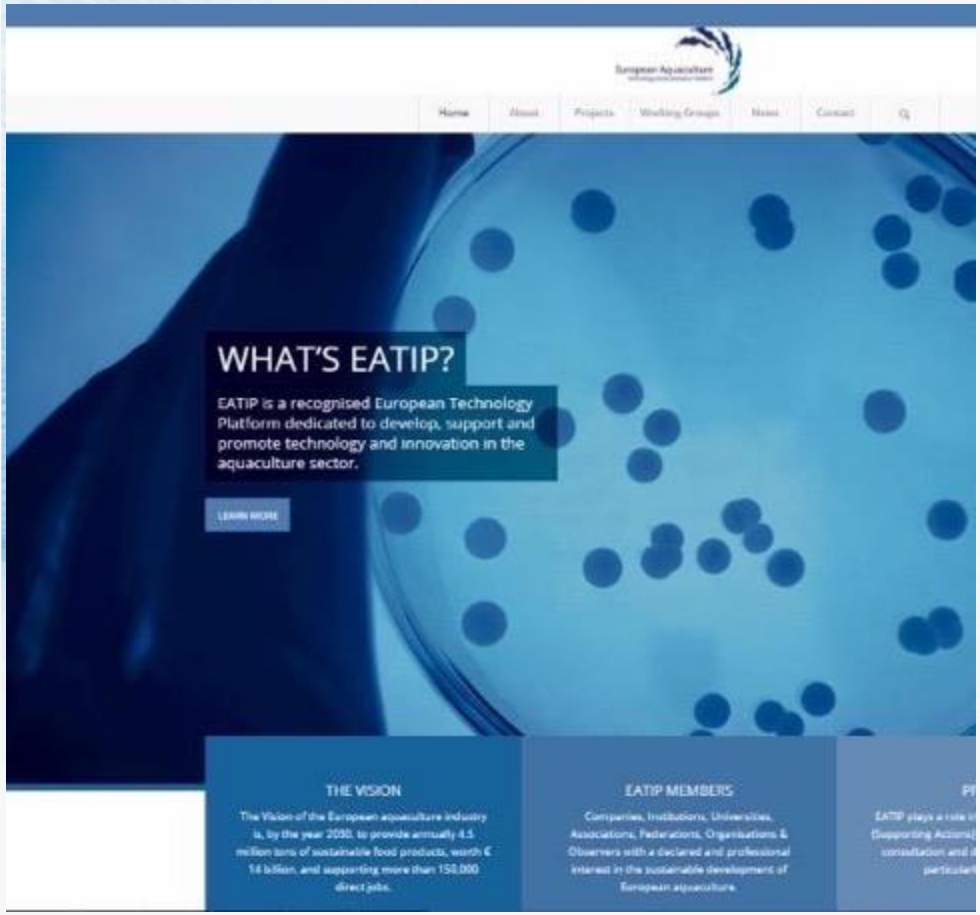
david@eatip.eu

18 January 2023

OLAMUR

European Aquaculture
Technology and Innovation Platform

What is EATiP?



- One of 39 ETPs
- Established 2008
- Registered in BE / governed by statute.
- ASBL (Not for profit)
- Membership funded
- Multi Stakeholder
- Industry led
- Finfish, Shellfish, Algae
- Marine, FW, RAS

- SRIA & Recommendations

- www.eatip.eu / @eatip_eu

OLAMUR

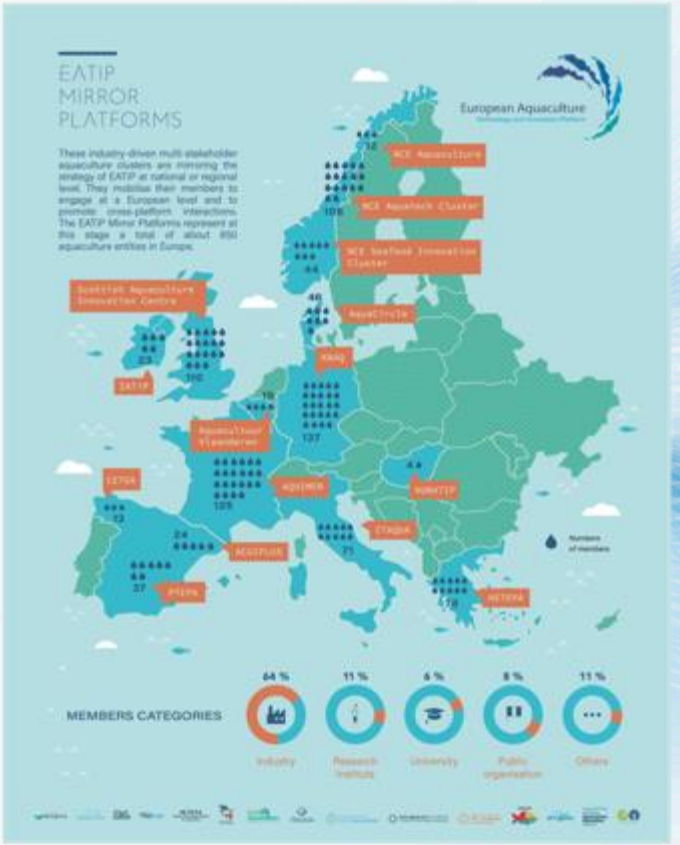
European Aquaculture
Technology and Innovation Platform

EATiP Mirror Platform Network:

16 National Mirror Platforms / Clusters:

- 11 Countries, 800+ members
- av. 65% industry membership
- Vehicles to mobilise SMEs
- Drives "bottom up" approach
- Access funds / R&D investment
- Dissemination / Surveying / Communication / Consultation / Policy Development
- Stakeholder representation / mapping
- International Collaboration

"The total is greater than the sum of each part"



OLAMUR partners may be a member.

Collaborations & Projects:

European Aquaculture Technology and Innovation Platform

- Communication / Dissemination:
  - EATiP Thematic Forums
  - On the Horizon Project Results

EMODnet European Marine Observation and Data Network

Copernicus Marine Service

- EMODNet & Copernicus
  - Marine Data for Aquaculture / MSP / Ocean Observation

AQUA EXCEL 3.0 AQUAculture infrastructures for EXCELlence in European fish research 3.0

OLAMUR

- Advisory Boards:
  - SCAR Fish, Blue Bio Cofund, European Partnerships

- Projects:
  - AquaExcel 3.0
  - Aquaculture Assistance Mechanism
  - Advisory Role on Project Boards

Policy Linkage:

- European Green Deal & F2F Strategies
- Sustainable Blue Economy & EU Strategic Guidelines (COM 2021 – 240 & 236)
- Sustainable EU Algae Sector (COM 2022 – 592)
- EU MSP Platform
- EU4Algae Platform
- Aquaculture Assistance Mechanism
- Aquaculture Advisory Council
- Mission Ocean Charter
- Blue Economy Smart Specialisation
- Horizon Europe Framework Programme

Objectives

CDE ambitions will be centred on furthering a **multi-stakeholder approach**, engaging all relevant actors in the **blue economy quadruple helix**. WP8 will:

- Establish an active online and social media presence for the OLAMUR project
- Promote visibility of OLAMUR actions through involvement in dissemination events
- Organise multi-stakeholder workshops; sites visits, field trips and pertinent, identified training needs, stakeholder consultations and surveys
- Gather stakeholder feedback on (draft) project results / initiatives / protocol development through consultations among established 3rd party networks (e.g. aquaculture associations FEAP, EMPA, EAS, Mirror Platforms alongside the AAC in addition to like minded multi stakeholder organisations such as European Technology & Innovation Platform Wind Energy , Wind Europe and the European MSP Platform
- Undertake outreach activities at regional level
- Engage in an appropriate fashion with the European Partnerships, specifically those relating to the Blue Economy, Sustainable Food Systems
- Engage in an appropriate fashion with the Smart Specialisation (S3) Platform for aquaculture, created as part of the EU Blue Economy Strategy (currently in development / consideration with EC DG MARE)
- Interact with linked and established blue economy networks – e.g. Blue BioEconomy CoFund, EFARO, JPI Oceans etc.

OLAMUR

European Aquaculture Technology and Innovation Platform

Target Audiences:

- Five associated regions
- Decision Makers
- LTA Industry
- Research Institutes / Academia
- University and High School Students
- General Public

CDE Measures

- National and international stakeholder involvement integrating knowledge needs and knowledge produced into policies on co-use of maritime space. Workshops, webinars, dialogue meetings. Policy briefs.
- Target group dissemination to LTA actors on technology development - workshops, expo's, conference stands
- Target group dissemination to WF operators/aquaculture operators on technology development,
- Target group and public dissemination of potentials for using LTA and artificial reefs as Nature-based Solutions in co-use areas
- Training of WF/LTA operators in monitoring of LTA at different levels, enabling synergy in human resources
- Involvement, dialogue and dissemination to associated regions
- Website with news, contact info, calendar of events
- Breakout session(s) at conferences
- Scientific publications
- Social media updates for the project, and via consortium partner's social media channels

WP8: CDE Deliverables

- D8.1 Project DEP and plan for communication infrastructure completed (M6)
- D8.2 Associated regions identified and assigned (M18)
- D8.3 Stakeholder Engagement Report, including workshop/seminar reports & CD&E log, including recommendations and suggestions for remaining project activities. (M24)
- D8.4 Stakeholder Engagement Report, including workshop/seminar reports & CD&E log (M47)
- D8.5 Evaluation of the project (M47)
- D8.6 Draft call text associated partners submitted to EC (M7)
- D8.7 Document on how OLAMUR will actively engage and use interest groups in the project (M2)

Proposed Communication Channels:

Channel (Target Audience)	Purpose	Key performance indicators
Project website (ALL)	Key communication tool to support OLAMUR, providing an overview of the project,, news and resources.	Due: M6; Target: Over 8000 visits by the end of the project
Social media e.g. Twitter/LinkedIn (ALL)	To build an online community and to raise awareness among followers	Due: M8 -M48; Target: At least 200 subscribers on Twitter and 80 followers on LinkedIn by the end of the project.
Infographics and factsheets (ALL)	To appeal to a wide audience and present results in a visually attractive way	Due: M12-M48; Target: Over 200 views by the end of the project
Scientific publications (A)	To disseminate the project results within the research and scientific community	Due: M3-M48; Target: At least 25 journal and 25 conference contributions by the end of the project.
Workshops, Webinars (ALL)	A series of workshops and webinars will be held to address key outputs from across the 7 WPs of the OLAMUR project,	Due - M24 - 48 Target; x7 events across all WPs with a reach of 75 - 150 participants per event (depending on thematic area.)
Project Reporting (ALL)	To present project findings, outputs and recommendations	Due: M48; Target: At least 200 participants
Events (IND, STU, A, DM)	Key events: EMD, AE, Baltic Science etc.	Due: M24 – 48 Target: Participation during event programmes, network enlargement and information communication.

Task 8.1:
Establish Communication Infrastructure
Lead: EATIP – Contributors, All Partners, M1 – 48

- A range of communication tools (including: project website (M6), project social media channel (M8) and relevant information updates throughout the lifetime of the project including newsletters, infographics, video clips / podcasts (M12-48)
- Dissemination and Exploitation Plan (DEP) (intended for the use of OLAMUR partners)
- Communication Mapping (both of partners, associated networks and including wider civil society & stakeholders working on CO2 reducing measures along the feed/food value chain)
- The DEP will be reviewed at project meetings to ensure it remains a dynamic document accommodating those engaging with the Baltic Lighthouse development process.
- A CD&E log (to be updated by all partners) will record and monitor CD&E activities including estimated reach and impact of WP activities
- The DEP is required consider aspects of gender balance and wider equality issues to ensure the communication and dissemination of project outputs in an equitable and accessible way.

Task 8.2:
Establishment & Assignation of Associated Regions
Lead: IMR - Contributors: All Partners, M6- M48:

- To ensure that CD&E remains a dynamic and engaged process rather than a top down supply of retrospective information, 5 associated regions will be invited to engage in project activities, to allow for transfer of information and experience to other geographical regions, networks and stakeholders.
- Associated regions will be based both within Europe (i.e. Mission Basins including Black Sea / Mediterranean / Atlantic) but also on a wider global basis.
- Aim to ensure a broad information exchange both within and external to the project consortium, maximising opportunities for identifying best practice, innovations and shared knowledge.

Task 8.3:
Stakeholder Engagement & Stakeholder Workshops
Lead: EATIP – Contributors, All Partners M1 – 48)

- *"…OLAMUR partners will engage in specific stakeholder engagement activities to ensure outreach to an appropriate and relevant multi-stakeholder network of interested parties, in addition to ensuring wider citizen engagement…"*

- 8.3.1 (Lead – EATIP, Contributors: All Partners) European Events: European Maritime Day, Industry Events Aquaculture Europe, Wind Europe Technology Workshops / Baltic Sea Science Congress.
- Regional events and activities: considered by the EATiP Mirror Platform network, specifically NO, DE, DK, BE, UK and cross referenced to mirror platform networks of other linked European technology platforms.
- OLAMUR project partners, through development of the DEP, will lead on agreed CD&E activities within their own organisation reach and network, including the identification of a calendar of events to be incorporated into the DEP
- 8.3.2 (Contributors: AWI, WMW, NFS, WYK 8, AU, VATTENFALL, KERTEMINDE, KCD, UTARTU, Redstorm OÜ, ÖAF, HEREON, DTU) Outputs of WP1 will be addressed by a series of site visits/technical tours, made open and accessible to the network of the consortium partners and associated regions.
- 8.3.3 (Contributors: AU, UTARTU, DTU, GCF, IMR, AWI, ETT SPA) D2.3 (M24), an event including application of the report on micro siting and pilot mapping / co location scenarios D2.2 (M36) and the application of the protocol developed within D2.1 (M36) relating to multi use planning for stakeholders. Invited participants identified through WP2 will present and consider findings to an open workshop to provide recommendations for future use

Task 8.3: - continued.
Stakeholder Engagement & Stakeholder Workshops
Lead: EATIP – Contributors, All Partners M1 – 48)

- *8.3.4* (Contributors: IMR, AU, HEREON, AWI, UTARTU, ETT SPA, VATTENFALL) D 3.1 – 3.5 An industry led, multi-stakeholder event (M 38) will address aspects of the aquatic environment and aquatic food production in relation to IMTA,
- *8.3.5* (Contributors: DMI, HEREON, MR, SKARV, AWI, UTARTU, AU, ETT SPA, VOTO, IMR, UCPH) D4.1 – 4.4 will be shared through appropriate online / in person webinar / seminar event(s) with identified industry stakeholders in addition to being made openly available to a wider audience.
- *8.3.6 (*Contributors: ETT SPA, IMR, DMI, HEREON, MR, SKARV, DTU, UCPH, UTARTU, KU_LT, SO, AU) WP5 During the second half of the project (M36) data services developed by the OLAMUR consortium within WP5 will be considered at a specifically focused workshop.
- *8.3.7 (KU, LS) WP 6 – D 6.1 – 6.3* stakeholder engagement will be undertaken to consider circular blue economy aspects of climate neutral, low carbon aquatic foods, including aspects of LCA and market potential.
- *8.3.8 (SINTEF, GCF) WP7 – D7.1 – 7.4 – by invitation event, liaison with MSP Platform, AAC and others.*

CD&E activity will be reviewed (M24) and optimised during the second phase of the project (M25 - 48).

WP8 – Kick off Meeting CDE Considerations

- In terms of communication mapping, note the emphasis placed on projects, networks and actions that are already active and reporting.
- Scrutiny and reputation of projects and outputs driven as much by CDE & Social Media as publications (although this can present challenges to partners).
- CDE Activities are considered a principal measure of impact by the European Commission – as much as deliverables and publications are.
- WP Outputs do not relate only to Deliverables and end results – activities, articles, planning meetings, delays… everything and anything can be presented as a news item…
- The cycle of "boom and bust" communication must be avoided – not everything should be published in M36 & 48!
- Internal communication actions evolving to external communication actions will also be mapped.

Kick Off Meeting: Initial Partner Actions

- Internal Communication Mapping

(Contact person, social media handles, introduction to comms team, etc.)

- External Communication Mapping

(Case study contacts, Register of Interested Parties, Clusters, contacts, recommended journals etc.)

- Communication Network Recommendations

(Platforms, projects, clusters, interested parties, including 3rd Country / international)

- Calendar of Events & Opportunities (Individual WP and EU wide relevance.)
- Input to & comment on draft DEP
- Identification from WP Leads for opportunities relating to Citizen Science.
- Consideration of project consortium internal communication system.
- WP Specific: e.g. WP5 and Data Management plan / potential products.

Kick Off Meeting: Partner Duties

- A gentle reminder that all partners have CDE responsibilities (and PM allocations to facilitate this!)

WP number	8	Lead beneficiary	EATiP	Co-Lead	GCF													
Work package title	Communication, Dissemination & Exploitation																	
Participant #	22	1	3	4	5	6	7	9	10	13	15	16	17	18	20	21	23	24	TO
Short name	EATiP	IMR	DMI	AU	GCF	HEREON	MR	KCD	Skarv	KS	RS	UT	DTU	ÖAF	ETT	KU_LT	NFS	WYK8	TAL
PMs	36	4	2,5	2	2	3	5	1	5	1	1	2	2	1	4	1	2	2	76,5
Start month	1	End month 48					48												

- I look forward to being in touch! 😊

Funded by the EU

The OLAMUR project is funded by the European Union, grant no. 1011094065. Views and opinions expressed are however those of the author only and do not necessarily reflect those of the European Union or the CINEA. Neither the European Union nor CINEA can be held responsible for them.

Contact info

secretariat@eatip.eu
Tel: +32 (0) 4 338 29 95

EATIP ASBL
Square de la Paix 28, B-4031 Liège, Belgium

http://eatip.eu/

https://twitter.com/eatip_eu

https://www.linkedin.com/company/eatip/about/

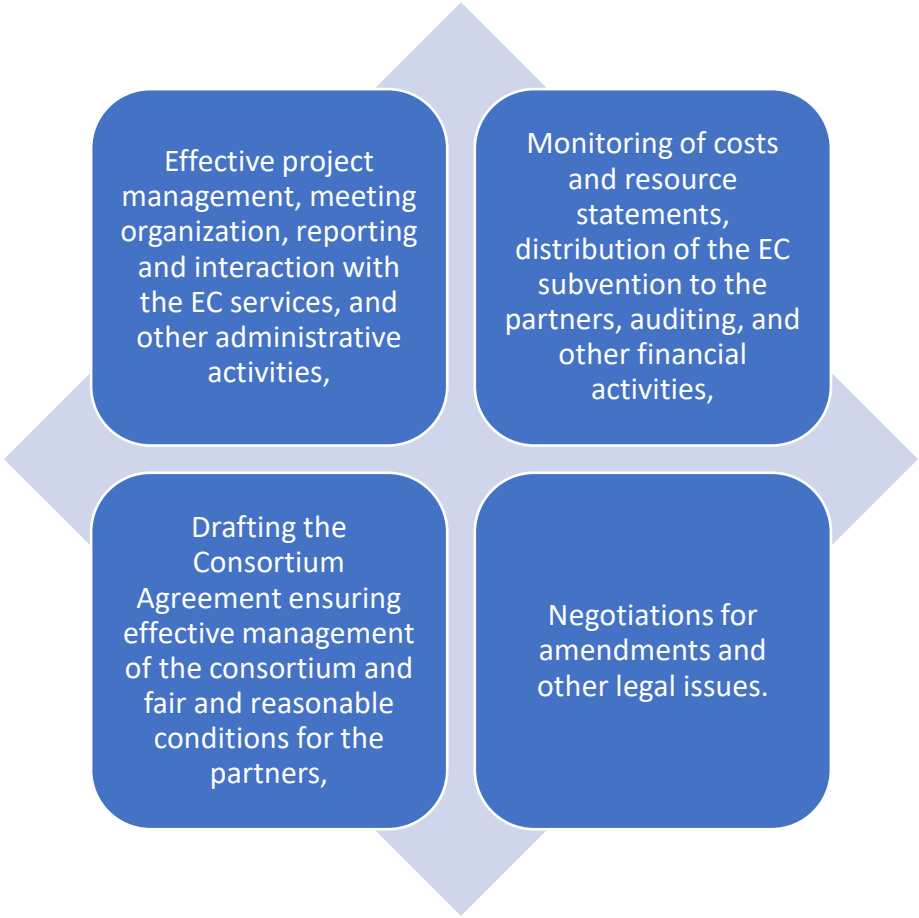
WP9

- Management and coordination
- Anita Jacobsen, Turid Loddengaard and Øivind Bergh
- Institute of Marine Research

"Funded by the European Union, grant agreement NO 101094065. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them."

The overall objective:

ensure efficient coordination and management of OLAMUR and towards the European Commission services:



OLAMUR

Task 9.1 Operational and financial project management and reporting

- Coordinate all operational management and project administrative tasks

  incl. IPR management, handling of conflicts and critical risks review and monitor the CA at regular intervals during the project's lifetime

- Establish a project intranet (M3) to enable secure and realtime information exchange and collaboration between partners

- Financial and technical reporting
  - 18/18/12-month basis

OLAMUR

Task 9.2 Scientific Management and Monitoring project progress

- The WP and task leaders will be responsible for the technical reporting and management of their WPs and tasks.
- The development of the WPs will be monitored through regular communication with WP - and tasks leaders.
- Each WP leader will on a bi-annual basis report on status progress to the Coordinator and the Executive committee (ExC) at the ExC meetings, to assess progress off the project including monitoring of milestones and deliverables and identifying delays and any potential challenges and risks to the Work Plan.
- The ExC will consist of the WP leads and co-leads and will act on any deviation to work plan and initiate mitigation strategies when necessary.
- Any changes in the work plan will be reported in the corresponding parts of the Periodic Reports to the EC.

OLAMUR

Task 9.3 Project meetings

- Regular physical and virtual project meetings
  - organized and convened by the Coordinator, incl. agendas and minutes of meetings

- The kick-off meeting
- 4 annual project meetings (with Governing Council, Advisory Boards) M13, M25, M37, M46

review progress, share results and discuss challenges and new opportunities, ensure integration and collaboration

Thematic workshops - linked to the project meetings

- Executive committee (ExC) meetings: bi-annual basis

- Virtual WP and cross-WP meetings will be organized *ad hoc* or at least every 3 months to help foster the internal communication between the project partners.

Task 9.4 Data management Plan (DMP)

- The DMP will be drafted at the start of the project (M6) and updated at the end of the project (M48).

- DMP will guide the consortium to manage the data quality and protection issues that will arise
- will identify the type of data to be generated by the project team,
- the standards that will be used to ensure the quality and scientific relevance and impact (through WP5), conciliating with the Open Research requests of Horizon Europe, respecting IPRs and ensuring FAIR principles under the philosophy of making data “as open as possible, as closed as necessary”.
- Special care will be taken with personal data protection, ensuring that the project data gathering, curating, and storing complies with the EU and national regulations.

OLAMUR

Deliverables

	Title	WP	Lead	Type	Dissemination level	Due Date (month)
D9.1	Minutes from the projects kickoff meeting with updated and complete project working plan	9	IMR	R	SEN - Sensitive	3
D9.2	Data Management Plan 1	9	IMR	DMP	PU - Public	6
D9.3	Minutes of GC meeting year 1	9	IMR	R	SEN - Sensitive	14
D9.4	Minutes of GC meeting year 2	9	IMR	R	SEN - Sensitive	26
D9.5	Minutes of GC meeting year 3	9	IMR	R	SEN - Sensitive	38
D9.6	Minutes of GC meeting year 4	9	IMR	R	SEN - Sensitive	47
D9.7	Evaluation of the project - public report	9	IMR	R	PU - Public	47
D9.8	Data Management Plan 2	9	IMR	DMP	PU - Public	48

OLAMUR

Milestones

#	Title	WP	lead	Mean of verification	Due month
27	Project workspace established	9	IMR	Workspace is up and running	3

Risk register

- The Coordinator will maintain a Risk Register
- Will be part of the reporting
  - updated prior to each ExC meeting and each partner meeting.
- WP leaders will be required to indicate before these meetings whether there are any risks to their WP
- The partner(s) responsible for causing and solving those risks will be identified in good time and mitigation measures will be put in place.
- The WPLs will then be required to report on the solution, whether the risk has been removed and any residual problems

OLAMUR

Templates

- Project templates will be developed

- E.g:
    - Deliverables
    - Dissemination/communication activities

OLAMUR

Grant Agreement - GA

- Signed
- Advice you to have a look at it
- Sets the terms and conditions for the project
  - E.g.
    - Duration
    - Grant amount
    - Eligible and non-eligible costs
    - Rights and obligations
    - + +

OLAMUR

Some obligations:

- Comply with GA and CA
- Must implement the action as described in Annex 1 (DoA)
- Any breaches may lead to reduced grant or other measures
- Provide information upon request
- Keep information up to date
- Inform coordinator of changes in legal, financial, technical, organisational or ownership situations

OLAMUR

Obligations cont.

- Keep records and other supporting documentation (5 years)
- Submit deliverables and reports on time
- Cooperate
- Must ensure open access
- Must deposit research data in a data repository

OLAMUR

Obligation to disseminate and promote the action and its results

Must acknowledge EU support and display the European flag and funding statement (translated into local languages, where appropriate):

- Must indicate the following disclaimer :

"Funded by the European Union, grant agreement NO 101094065. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them."

Reporting

- Internal: 6-M status - WPLeads at each ExC meeting

- Continuous reporting

The beneficiaries must continuously report on the progress of the action (e.g. deliverables,

milestones, outputs/outcomes, critical risks, indicators, etc Portal Continuous Reporting tool

Periodic reports:

Coordinator must submit on behalf of the beneficiaries technincal and financial reports within 60 days following the end of each reporting period

- Reporting period 1 (RP1): M1 – M18 (ends 30 June 2024 – deadline 29 Aug 2024)
- Reporting period 2 (RP2): M19 – M36 (ends 31 Des 2025 – deadline 1 March 2026)
- Reporting period 3 (RP3): M37 – M48 (ends 31 Des 2026 – deadline 1 March 2027)

The management team will have an information course on "Financial reporting" in the funding and tenders portal.

OLAMUR

Eligible costs – Article 6.1 and 6.2 - GA

Costs incurred for the sole purpose of achieving the objective of the project as described in Annex I

Must be actual costs

Incurred by the beneficiary

Recorded in the accounting systems

Costs must be incurred during the duration of the project

Ineligible costs – Article 6.3 GA

Costs unrelated to OLAMUR's activities

Exchange losses (EUR v. local currencies)

Duties

Costs reimbursed in respect to another project

Excessive or reckless expenditure

OLAMUR

Possible audit & records to keep - years after final payment

- Confidentiality: 5
- Record-keeping: 5
- Reviews: 2
- Audits: 2
- Impact evaluation: 5

OLAMUR

Keep all records and other supporting documentation for 5 years after Final Payment to prove proper implementation of the action

E.g.:

- Timesheets/fulltime declarations
- Salary slips
- Receipts and invoices for consumables, travels, equipment etc.
- Agreements with contractors
- Other underlying documentation, e.g. attendance lists from project meetings, reports

OLAMUR

Reviews

- Planned meetings (probably in Brussels or online):
  - RV1 – M21 tbd
  - RV2 – M39 tbd
  - RV3 – M51 tbd (NB after project has ended)

- Can also be on-the-spot reviews

OLAMUR

Roles of the different bodies

- Governing Council
- The Excecutive Committee
- Advisory Board
- Project Management Team

OLAMUR

Governing Council - GC

- The **overall** decision-making body
- Constitutes 1 representative from all partners
- The Coordinator shall chair all meetings
- Formal in-person meetings of the GC will be held during the annual project meetings
- The Coordinator and the ExC will propose major decisions to the GC
- At the GC, each partner will have one vote
- Decisions will be taken by a majority of 2/3
- All rights and obligations of partners in the consortium are described in detail in the CA.

OLAMUR

Executive Committee - EXC

- Chaired by the Coordinator and every WPL and co-WPL is a member
- Responsible for the strategic research planning and monitoring the progress
  - a) defining and updating the work plan
  - b) monitoring WP progress and delivery
  - c) ensuring the timeliness and quality of project deliverables to the EC.
- Each party holds one vote
- Decisions will be reached by consensus as far as possible.
- ExC may decide to delegate decisions to the GC if deemed necessary.

OLAMUR

Advisory Board - AB

- Provide advice and feedback
- Encourage the promotion and wide awareness of **OLAMUR**
- Attend and meet at the annual project meetings

Project management team - PMT

- Øivind Bergh – Coordinator
- Anita Jacobsen – Administrative project manager
- Turid Loddengaard – Financial manager

PMT – tasks:

- Overall management of the project
- Responsible for all administrative, financial and legal matters

“project office”

Sharepoint – project room - intranet

- Keep contact lists up to date.
- Share relevant meeting information/documentation.
- Upload completed Deliverables, Milestones and Technical Reports.
- Share documentation between WP and Task partners.
  - Allow partners to work on shared documents
- Project templates
- Project administrative documents

OLAMUR

OLAMUR - Home

https://havforskningsinstituttet.sharepoint.com/sites/hi/OLAMUR

SharePoint

Search this site

HI Home Meeso OLAMUR

OLAMUR

Following

Home

Pages

WP1

WP2

WP3

WP4

WP5

WP6

WP7

WP8

WP9

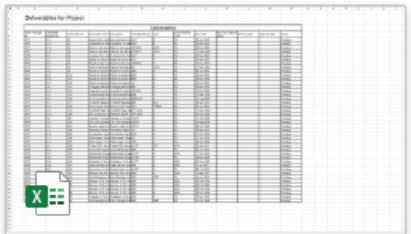
Site contents

Edit

New Discard changes Page details Analytics

Draft saved 11/25/2022 Edit Republish

Activity



Deliverables

Deliverables_Olamur

Jacobsen, Anita
Edited 2 days ago

Grant Agreement

Grant Agreement-101094065-OLAMUR

Jacobsen, Anita
Added 2 days ago

Consortium Agreement

OLAMUR_CA_signed

Jacobsen, Anita
Added November 25, 2022

Quick links

Learn about a team site

Learn how to add a page

Documents

News

Add

Keep your team updated with news on your team site

From the site home page you'll be able to quickly author a news post - a status update, trip report, or...

Something went wrong

13:27
15.01.2023

Payment

- Maximum grant amount from EU - € 8 214 732,88
- The prefinancing payment is € 4,380,918.17 (53%)
- BUT 5% (€ 410 736,64) will be kept back at the Mutual Insurance Mechanism (the Guarantee Fund).
- The prefinancing payment (48% of the maximum grant amount) will be distributed by the end of January 2023.

Please contact us if any questions or issues arise

We will try our best to help you!

olamur@hi.no

OLAMUR

OLAMUR

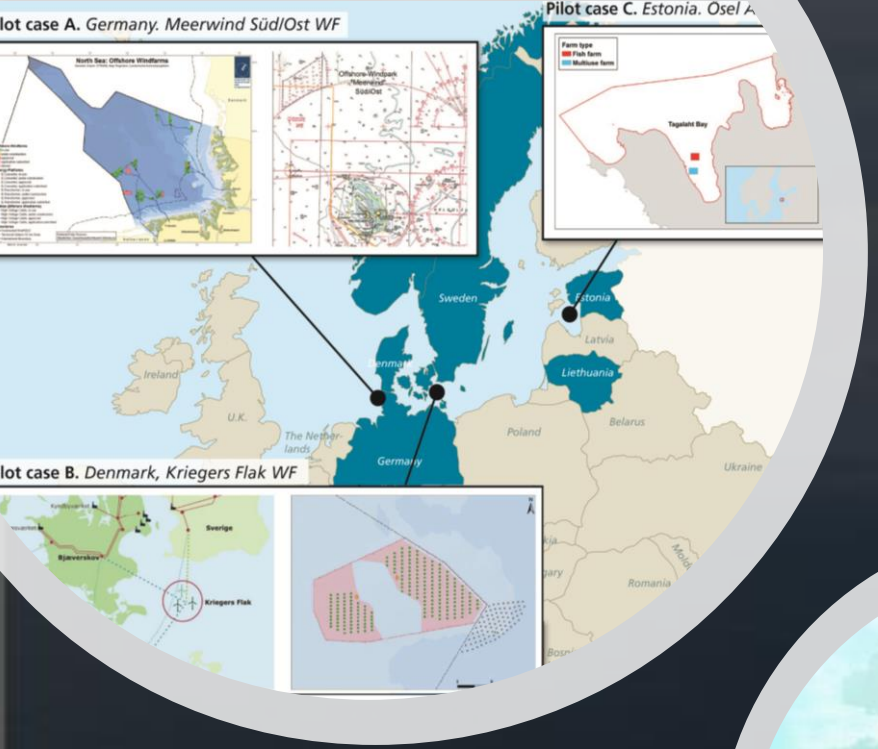
Offshore **L**ow-trophic **A**quaculture
in **M**ulti-**U**se scenario **R**ealisation

1st Jan **2023** – 31st Dec **2026**

European Commission

EU grant 101094065

Photo: Vattenfall



Large EU project on kelp and mussel farming within offshore wind farms

Ambition

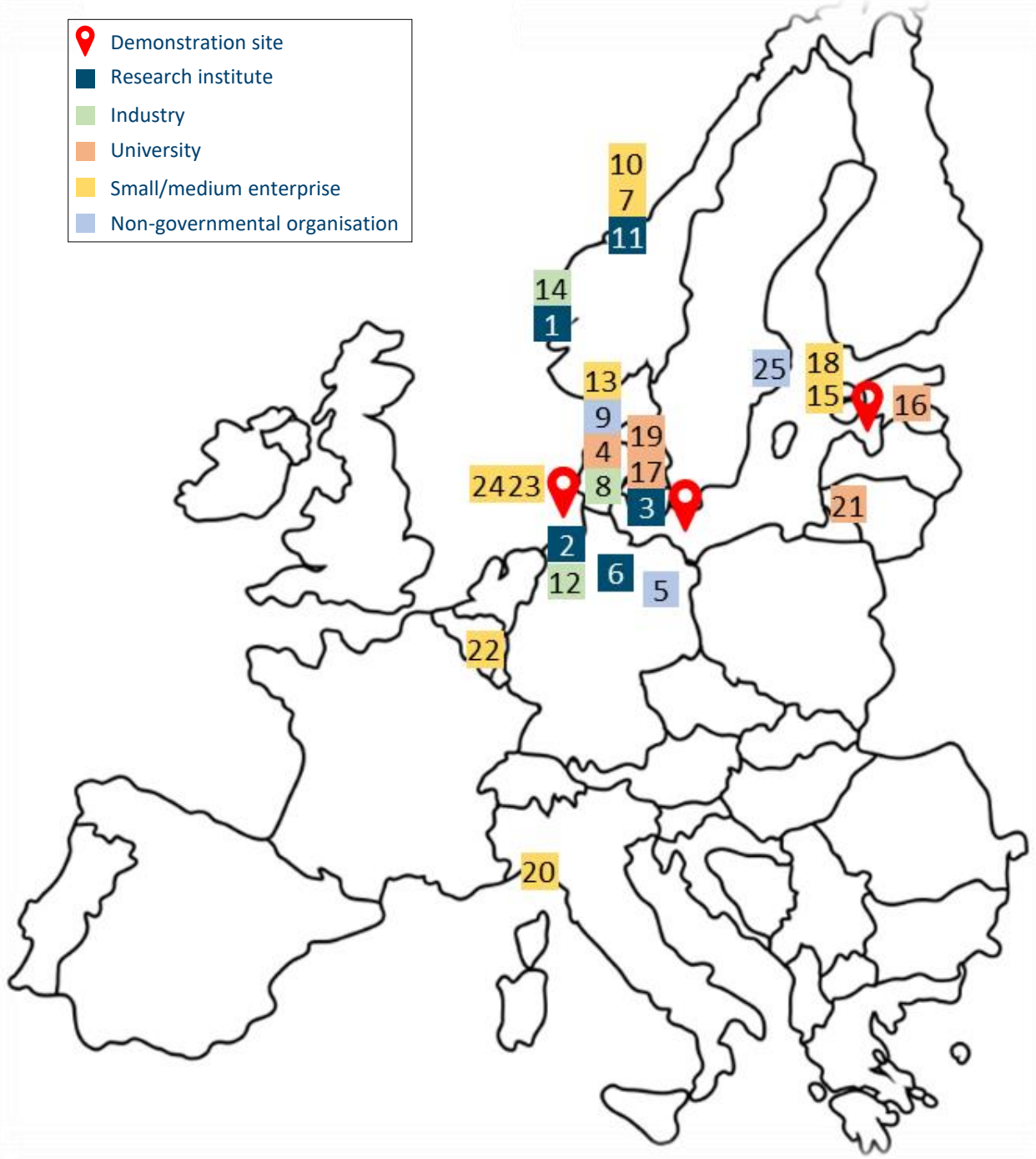
OLAMUR will address and solve key bottlenecks hampering the development of commercially viable and sustainable offshore low-trophic aquaculture (LTA) in wind farms or fish farms and thereby enhancing a sustainable LTA production in the EU.

OLAMUR

Photos: Vattenfall, IMR (Erling Svensen), WindMW, BSH

25 partners from research, organisations and industry

1 Havforskningsinstituttet , Norway
2 Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research , Germany
3 Danmarks Meteorologiske Institut , Danmark
4 Aarhus Universitet , Danmark
5 GCF - Global Climate Forum EV , Germany
6 Helmholtz-Zentrum Hereon , Germany
7 Maritime Robotics AS , Norway
8 Vattenfall Europe Windkraft AS , Danmark
9 Kattegatcentrets Driftsfond , Danmark
10 Skarv Technologies AS , Norway
11 SINTEF Ocean AS , Norway
12 WindMW GmbH , Germany
13 Kerteminde Seafarm Aps , Denmark
14 Lerøy Seafood Group ASA , Norway
15 RedStorm OÜ , Estonia
16 Tartu Ulikool , Estonia
17 Danmarks Tekniske Universitet , Danmark
18 Ösel Aquafarm OÜ , Estonia
19 Københavns Universitet , Danmark
20 ETT Spa , Italy
21 Klaipedos Universitetas , Lithuania
22 Platforme Technologique et de l'innovation de l'aquaculture Europeenne ASBL , Belgium
23 Nordfriesische Seemuschel GmbH , Germany
24 Wyk 8 Muschelfischereibetrieb GmbH , Germany
25 Stiftelsen Voice of the Ocean , Sweden



OLAMUR

Agenda Kick-off

17 January		
12:00-13:00	Lunch	ALL
13:00-13:15	Welcome	Director IMR + County deputy major
13:15-13:30	EU Mission Ocean	DG RTD
13:30-13:45	Recent policy developments	DG MARE
13:45-14:00	Information from PO	Loïc Blanchard
14:00-14:10	Introduction	Øivind Bergh
14:10-14:30	WP1	Bela Buck
14:30-15:00	WP2	Marie Maar
15:00-15:30	Health break	
15:30-16:00	WP3	Øivind Strand
16:00-16:30	WP4	Jun Shi
16:30-17:00	WP5	Antonio Novelino
17:00-17:10	Health break	
17:10-18:00	General disussion	ALL
19:30	Dinner at Hotel	ALL

OLAMUR

18 January		
08:30-09:00	WP6	Marianne Thomsen
09:00-09:30	WP7	Dorothy Dankel
09:30-10:00	WP8	Dave Basset
10:00-10:30	Health break	
10:30-10:45	WindSYS	Karen de Jong
10:45-11:15	WP9	Øivind Bergh
11:15-11:45	Workplan next 12 months (who's doing what and when, deliverables and milestones)	Øivind Bergh ALL
11:45-12:15	Discussions and wrap up	
12:15-13:00	Lunch and end of meeting	

OLAMUR

olamur@hi.no

Funded by the European Union

The OLAMUR project is funded by the European Union, grant no. 101094065. Views and opinions expressed are however those of the author only and do not necessarily reflect those of the European Union or the CINEA. Neither the European Union nor CINEA can be held responsible for them.

Photos: Vattenfall, IMR (Erling Svensen)

OLAMUR

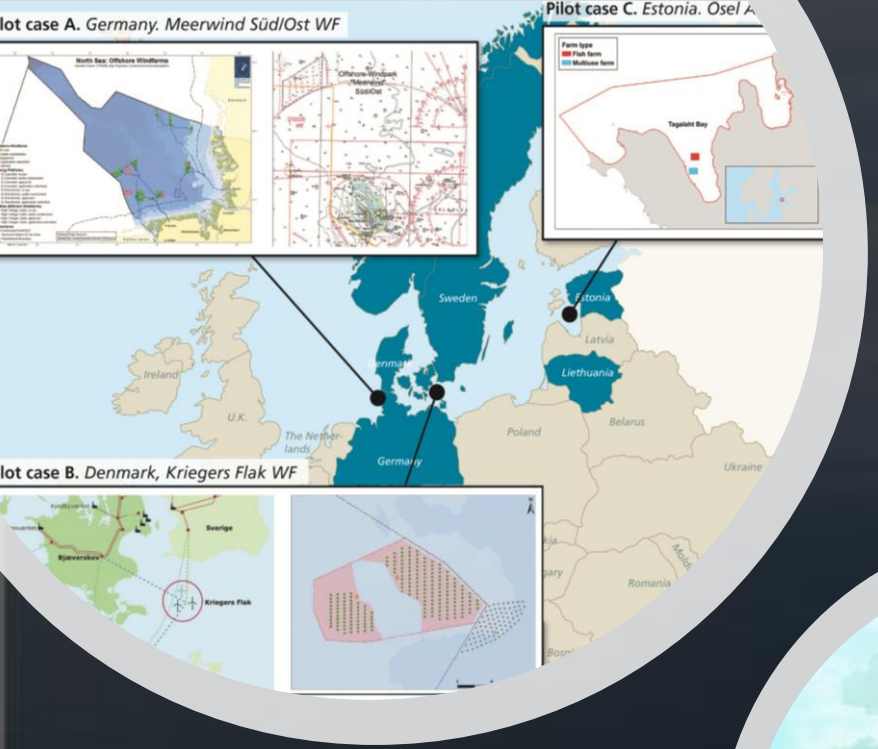
Offshore **L**ow-trophic **A**quaculture
in **M**ulti-**U**se scenario **R**ealisation

Kickoff meeting, Bergen 17-18.1.2023
Øivind Bergh

European Commission

EU grant 101094065

Photo: Vattenfall



Large EU project on kelp and mussel farming within offshore wind farms

Ambition

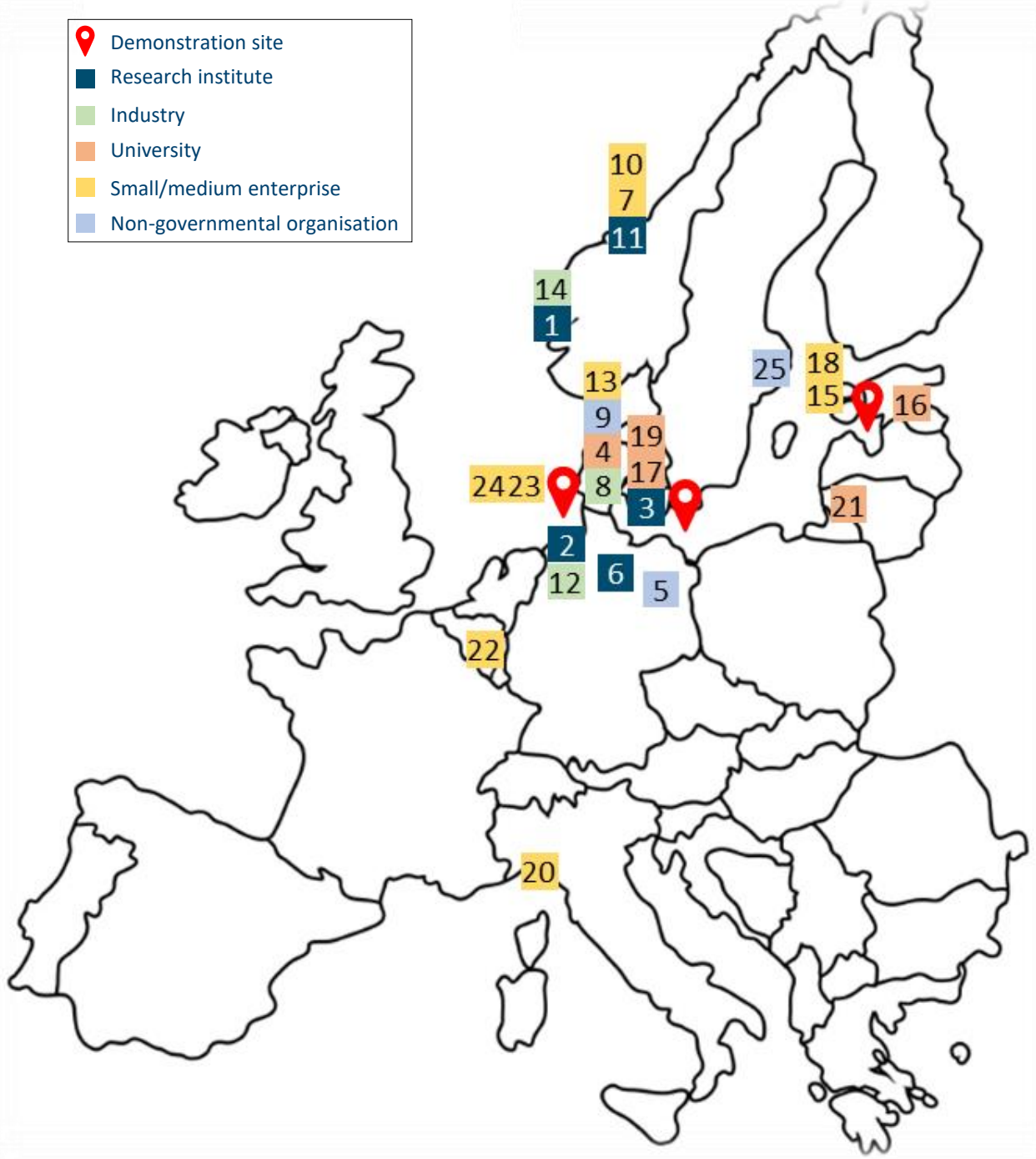
OLAMUR will address and solve key bottlenecks hampering the development of commercially viable and sustainable offshore low-trophic aquaculture (LTA) in wind farms or fish farms and thereby enhancing a sustainable LTA production in the EU.

OLAMUR

Photos: Vattenfall, IMR (Erling Svensen), WindMW, BSH

25 partners from research, organisations and industry

1 Havforskningsinstituttet , Norway
2 Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research , Germany
3 Danmarks Meteorologiske Institut , Danmark
4 Aarhus Universitet , Danmark
5 GCF - Global Climate Forum EV , Germany
6 Helmholtz-Zentrum Hereon , Germany
7 Maritime Robotics AS , Norway
8 Vattenfall Europe Windkraft AS , Danmark
9 Kattegatcentrets Driftsfond , Danmark
10 Skarv Technologies AS , Norway
11 SINTEF Ocean AS , Norway
12 WindMW GmbH , Germany
13 Kerteminde Seafarm Aps , Denmark
14 Lerøy Seafood Group ASA , Norway
15 RedStorm OÜ , Estonia
16 Tartu Ulikool , Estonia
17 Danmarks Tekniske Universitet , Danmark
18 Ösel Aquafarm OÜ , Estonia
19 Københavns Universitet , Danmark
20 ETT Spa , Italy
21 Klaipedos Universitetas , Lithuania
22 Platforme Technologique et de l'innovation de l'aquaculture Europeenne ASBL , Belgium
23 Nordfriesische Seemuschel GmbH , Germany
24 Wyk 8 Muschelfischereibetrieb GmbH , Germany
25 Stiftelsen Voice of the Ocean , Sweden



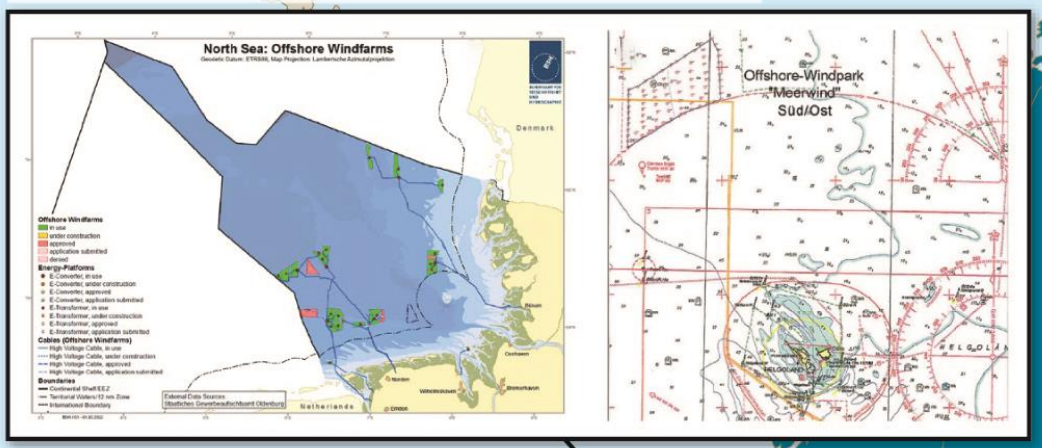
OLAMUR

1

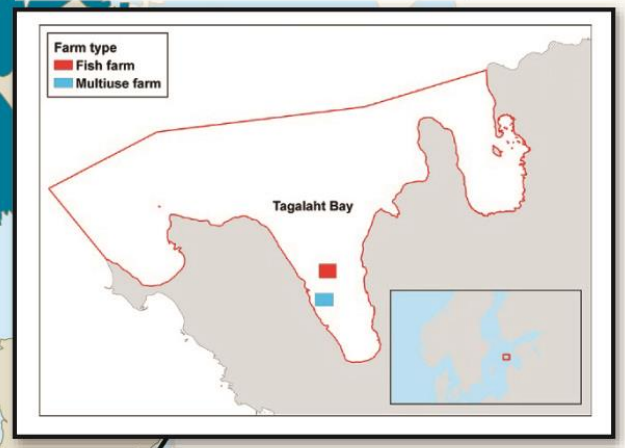
Establishment of 3 pilot **demonstration sites** where **seaweed** and **bivalves** will be farmed within an offshore wind farm (Germany/North Sea and Denmark/Baltic) or in combination with finfish aquaculture (Estonia/Baltic)

OLAMUR

Pilot case A. *Germany. Meerwind Süd/Ost WF*



Pilot case C. *Estonia. Ösel Aquafarms*



Pilot case B. *Denmark, Kriegers Flak WF*

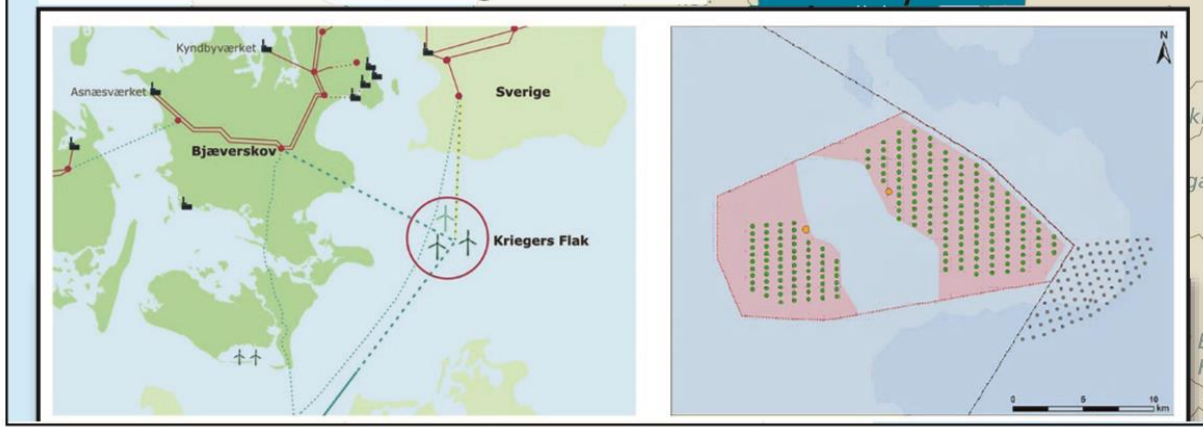
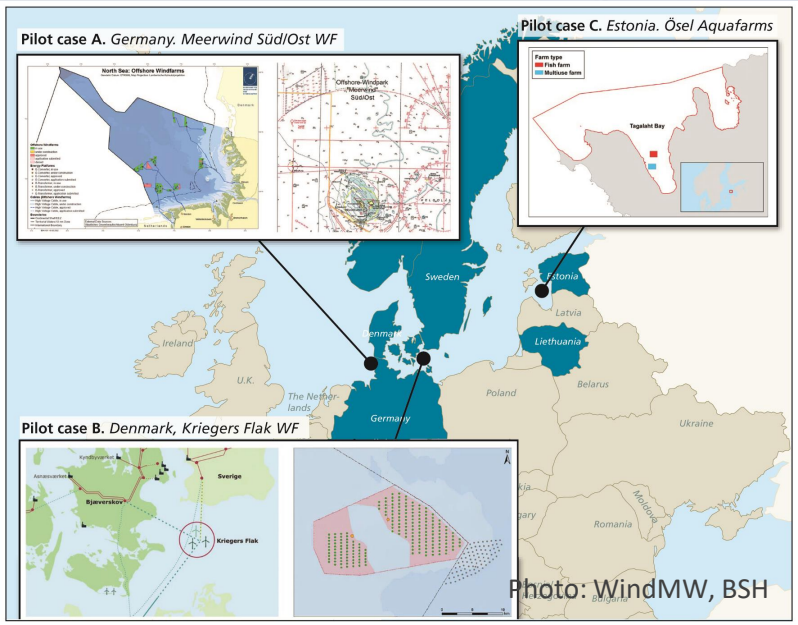


Photo: WindMW, BSH

Target audience

- Regional, national and EU agencies
- LTA farmers and wind farm operators
- Technology providers
- **5 associated regions**
- Climate research community



- **Five associated regions** in EU Member States/Associated countries, as areas with ecosystems that can **benefit from the demonstration activities** and/or less developed regions, with the need to build capacity to implement MU-LTA.
- **The five regions will be identified during the project**, with granted access to project data, products and knowledge.
- Joint activities with project partners will be made to **identify potential, feasibility, and barriers in the regions** for making MU-LTA farms, and on how to overcome similar barriers in the associated regions.

OLAMUR

Photo: Vattenfall

Milestones – the first year (1)

27. Project workspace established. Month 3 (1.IMR)

Workspace is up and running

1. The LTA farm design has been subjected to various tests and finally agreed with all partners of WP1. Month 6 (2. AWI)

The catalogue is available on project workspace, including a report with the validation outcomes

6. Prototype of the micro-siting tool is ready for testing. Month 6 (4.AU)

Beta version of the (micro-siting) tool is available and submitted to the EU

21. Initial WP workshop to develop the WP task-data-gathering strategy and framework to integrate task results. (WP7) Month 6 (11.SO)

- Workshop report

2. LTA Farms of A-D are assembled, in place and operating. Month 12 (2. AWI)

Pilots are up and running M12

Total: 28 milestones 2023-2027

Milestones – the first year (2)

- 21. Initial WP workshop to develop the WP task-data-gathering strategy and framework to integrate task results. (WP7) (11.SO) Month 6
  - Workshop report

Deliverables – first year (1)

- D 1.1 Report of the validation criteria provided (2. AWI) Month 6
  - Site selection criteria gathered, evaluated summarised in a criteria catalogue. This deliverable relates to T 1.2 and T 1.3
  - PUBLIC
- D 8.1 Project DEC and pklan for communication infrastructure completed (22. EATiP) Month 6
  - DEC (Websites patent filings videos etc).
  - SENSITIVE

Deliverables – first year (2)

- D 8.6 Draft call text associated partners submitted to EC (1. IMR) Month 7
  - Draft call text associated partners. The deliverable will include call guidelines and outline including criteria and conditions. The deliverable will be upoloaded in the Funding and Tenders portal 2 months before publication. This deliverable relates to T.8.2
  - SENSITIVE
- D 8.7 – Document on how OLAMUR will actively engage and use interest groups in the project (22.EATiP) Month 2
  - Detailed plan on how we want to actively engage and use interest groups in the project and include a non-exhausitive list of stakeholder groups that will be approached and how links with the Mission implementation monitoring System, the Support Platform or the Lighthouse support Facility and Platform are to be established. The deliverable relates to task 8.1
  - PUBLIC

Deliverables first year (3)

- D 9.1 Minutes from the project´s kickoff meeting with updated and complete project working plan (1. IMR) Month 3
  - Minutes from the project´s kickoff meeting with updated and complete project working plan. This deliverable relates to T 9.3
  - SENSITIVE
- D 9.2 Data Management Plan 1 (1. IMR) Month 6
  - Data management Plan. This deliverable relates to T 9.4
  - PUBLIC

WP-leaders virtual meetings.

I suggest virtual WP leader meetings one month from now.

As a starter: once a month.

When we feel it is ”safe”, increase interval to every second month

Some (virtual) working groups

1. Data format. WP 5 lead?
2. Data quality. WP 2/3 lead?
3. Robotics MR/Skarv lead?
4. Data management plan (IMR led?)

- Suggest “open” structure:
  - Ensure key partners (for the purpose) participate
  - Be open for others
  - Important that these processes are led by key partners on the particular issue
  - Write minutes, use our internal Sharepoint to inform your partners

Internal communication of posters, oral presentations, articles etc.

- A need to inform your partners about your publication plans.
- “Forthcoming publications” – should be on our internal website.
- Suggestion: one month in advance, if possible.

- General presentation of the project (more to come):
  - Euromarine General Assembly, Lisbon Feb 1, 2023
  - EAS Aquaculture Europe, Vienna, Sept, 2023

A language challenge:

- We have different languages.
- *Monitoring* does not mean the same for biologists as for meteorologists and oceanographers.
- There are plans for *investigations* prior to establishment of LTA farms

JOURNAL ARTICLE

Multiple interests across European coastal waters: the importance of a common language

Jorge Ramos ✉, Katrine Soma, Øivind Bergh, Torsten Schulze, Antje Gimpel, Vanessa Stelzenmüller, Timo Mäkinen, Gianna Fabi, Fabio Grati, Jeremy Gault

Author Notes

ICES Journal of Marine Science, Volume 72, Issue 2, January/February 2015, Pages 720–731, https://doi.org/10.1093/icesjms/fsu095

Published: 13 June 2014 **Article history** ▾

OLAMUR

olamur@hi.no

Funded by the European Union

The OLAMUR project is funded by the European Union, grant no. 101094065. Views and opinions expressed are however those of the author only and do not necessarily reflect those of the European Union or the CINEA. Neither the European Union nor CINEA can be held responsible for them.

Photos: Vattenfall, IMR (Erling Svensen)