

Online Joint Workshop: Mission Adaptation and Mission Ocean and Waters

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Integrated Approaches to Build Coastal Resilience

#EUmissions #HorizonEU





Integrated Approaches to Build Coastal Resilience

30 September, 14:00-15:30





Agenda

Duration (min)	Agenda item
15	Welcome & opening remarks
5	Warm-up quiz: 3 questions in 3 minutes!
10	Integrated coastal zone management (ICZM)
10	Tools available for regions and local authorities to use
30	 Lighting round: Practical insights from 3 case studies Monitoring, predicting and forecasting impacts on Coastal Resilience Nature-based solutions for coastal resilience Socio-economic Empowerment of coastal communities
15	Q&A
5	Closing remarks





Opening remarks from EU Missions

John Bell

Healthy Planet' Director at DG Research and Innovation, European Commission Deputy Mission Manager for the Restore our Ocean and Waters Mission





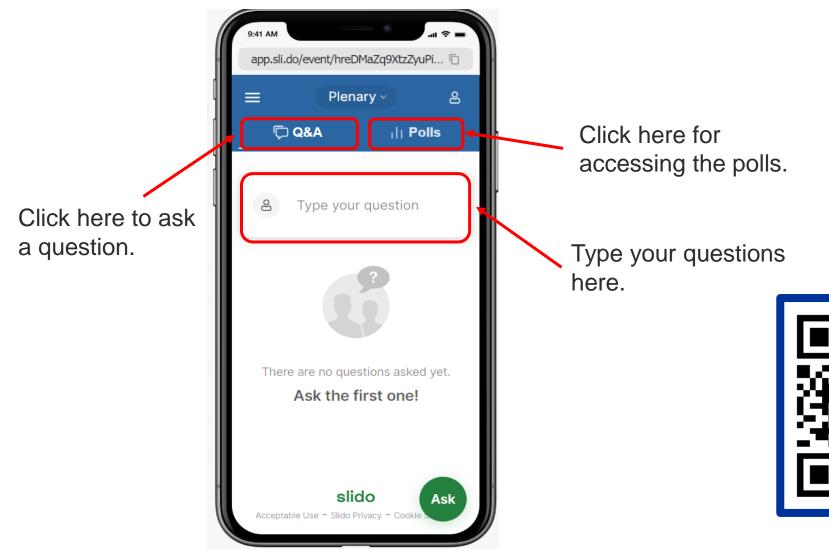
Housekeeping

- The working language of the meeting is English.
- Please note that the meeting is being recorded.
- Please use slido for the Q&A to pose any questions to the speakers.
 Please don't unmute yourself, except for when your question is selected and you would like to ask directly.
- Select "Gallery view" in the top right corner so that you can see the presentation and the main speaker. For this to work, all other cameras and mics must be off, except for the speaker(s).





Slido







Warm-up quiz: 3 questions in 3 minutes!

- Why is coastal resilience crucial in the face of climate change?
- What are some benefits of using nature-based solutions for coastal resilience?
- Which of the following is a major threat to coastal areas exacerbated by climate change?







Integrated coastal zone management (ICZM)

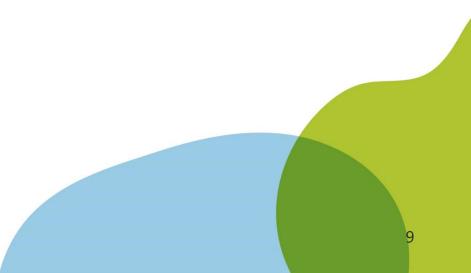
Pierre Failler

MaCoBios





- Overview
- Challenges
- Blue Economy and Marine spatial planning







Overview

COASTAL ZONE MANAGEMENT ACT OF 1972,

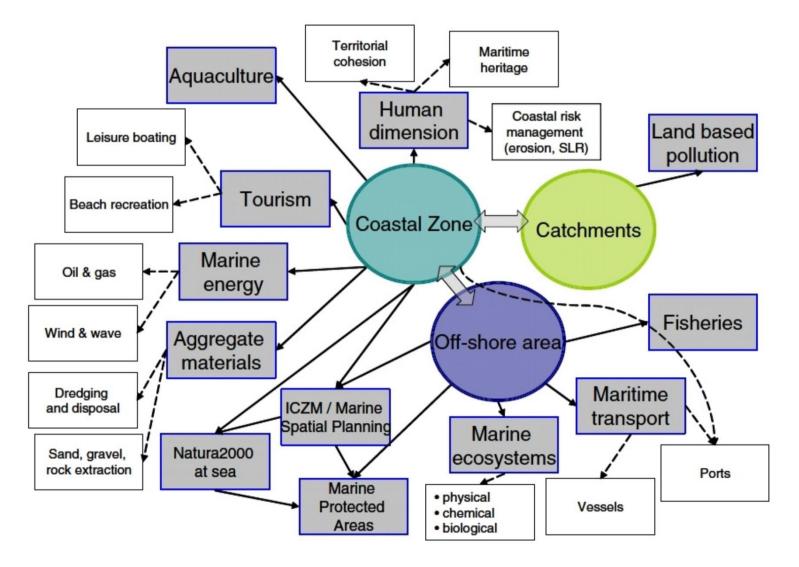
as amended through Pub. L. No. 109-58, the Energy Policy Act of 2005

- ICZM, an idea of 52 year old...
- A coordinated strategy for the conservation and sustainable use of coastal areas is the integrated coastal zone management (ICZM).
- "Integrated" in ICZM refers to the integration of all relevant policy areas, sectors, and levels of administration, and integration of the terrestrial and marine components of the target territory, in both time and space.
- ICZM is a working and continuous process to promote a dynamic balance between economic growth, human use of natural resources and environmental protection of coastal systems. ICZM process must needs to integrate government with community, science with management, and sectoral with public interest in preparing and implementing every single action.
- ICZM aims to preserve coastal resources, their ecological functioning and ultimately their values by applying adequate planning and coordinating process within a social, political, institutional and economic context to achieve a sustainable development of the coastal zone.





ICZM, the connections and the dots



Outline of schematic framework of impacts that influence marine areas with the coast serving as a link between the terrestrial and marine areas (Meiner, 2008. EEA)⁷



Short definition:



Integrated Coastal Zone Management (ICZM) is a process that uses an integrated approach for the management of the coast, regarding geographical and political boundaries. The aim of conducting ICZM is to promote sustainable management of coastal zones.





8 key principles for implementing the ICZM

Principles of good ICZM

Principle 1

A broad overall perspective (thematic and geographic) which will take into account the interdependence and disparity of natural systems and human activities with an impact on coastal areas

Principle 2

A long-term perspective which will take into account the precautionary principle and the needs of present and future generations

• Principle 3

Adaptive management during a gradual process which will facilitate adjustment as problems and knowledge develop. This implies the need for a sound scientific basis concerning the evolution of the coastal zone

• Principle 4

Local specificity and the great diversity of European coastal zones, which will make it possible to respond to their practical needs with specific solutions and flexible measures

• Principle 5

Working with natural processes and respecting the carrying capacity of ecosystems, which will make human activities more environmentally friendly, socially responsible and economically sound

• Principle 6

Involving all the parties concerned (economic and social partners, the organisations representing coastal zone residents, non-governmental organisations and the business sector) in the management process, for example by means of agreements and based on shared responsibility

• Principle 7

Support and involvement of relevant administrative bodies at national, regional and local level between which appropriate links should be established or mantained with the aim of improved coordination of the various existing policies. Partnership with and between regional and local authorities should apply when appropriate

• Principle 8

Use of a combination of instruments designed to facilitate coherence between sectoral policy objectives and coherence between planning and management



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Main challenges

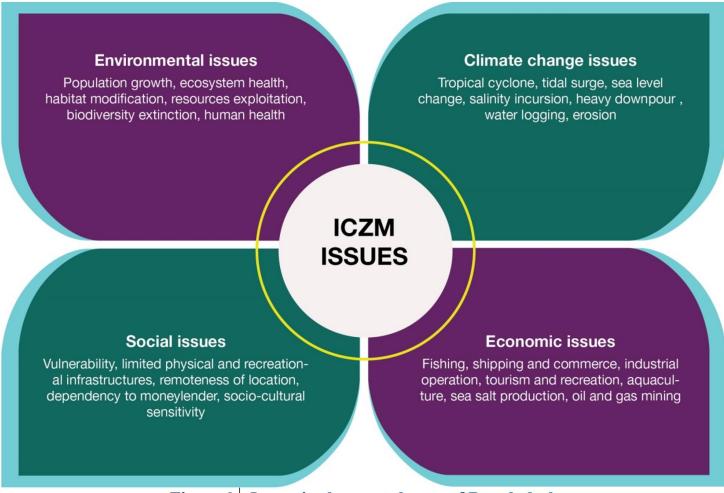
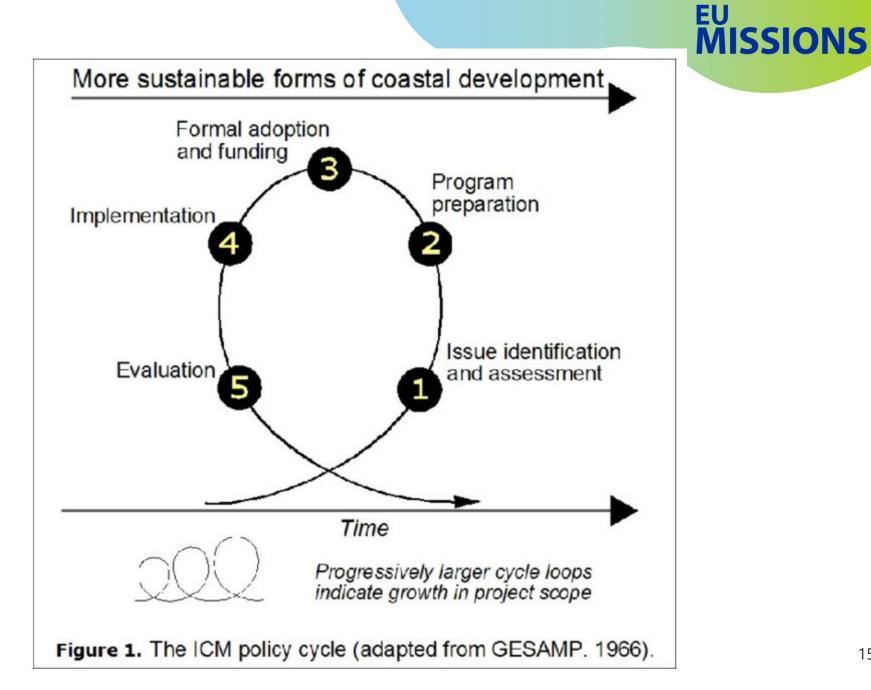


Figure 2 : Issues in the coastal zone of Bangladesh

Source: own conception

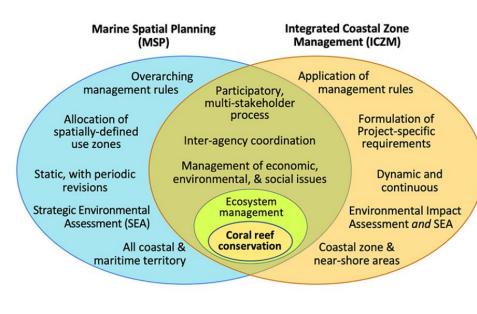


Process: magic word

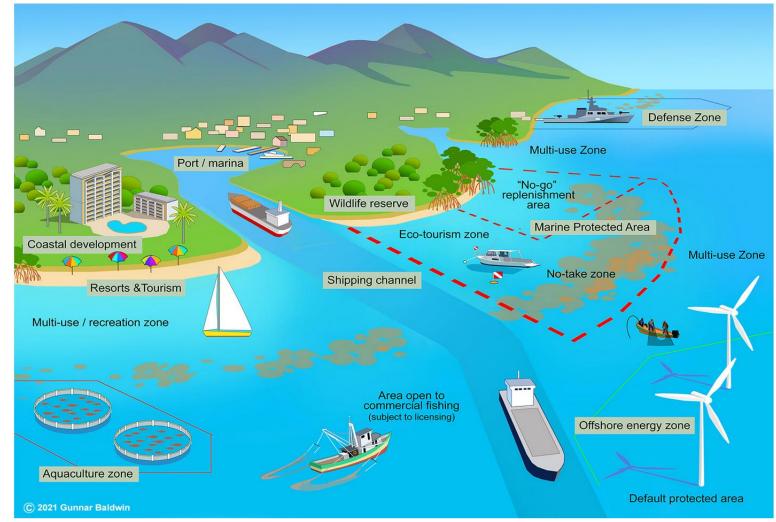




ICZM, Marine special planning, Blue Economy and others...



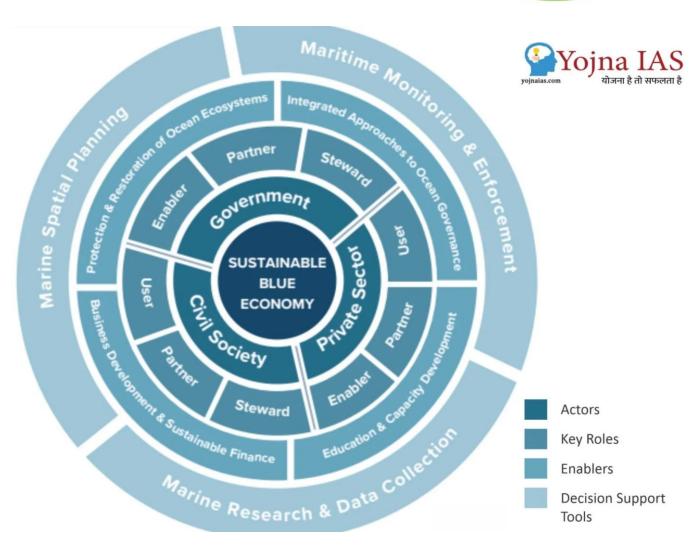








With the blue economy: need new legitimacy





ICZM... conclusions

- Key tool for organising the future of the European coast: but need to be revigorated
- Need articulations with MSP, water directive, Restoration Law, etc.
- Better integration within the BE development







Tools available for regions and local authorities to use

Ida Beathe Øverjordet

CLIMAREST





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Tools for adaption to climate change

Ida Beathe Øverjordet

Climate and Environment, SINTEF Ocean



CLIMAREST



Funded by the European Union





Coastal Climate Resilience and Marine Restoration Tools for the Arctic Atlantic Basin

Climate and Environment, SINTEF Ocean



Mission Ocean Innovation action 2022 - 2025 (3 years) 8.5 M€





CLIMAREST











OLLSCOIL NA GAILLIMHE UNIVERSITY OF GALWAY



Universitat d'Alacant Universidad de Alicante Universidade de Vigo

 \Box NTNU

Norwegian University of Science and Technology

Norwegian Meteorological Institute





SEA





SOCIETY FOR ECOLOGICAL RESTORATION

PART OF THE ISSIONS **RESTORE OUR OCEAN & WATERS**

18 partners in 7 countries

Funded by the European Union





Large scale restoration of coastal ecosystems for climate resilience in coastal communities





Demo sites dedicated to coastal protection



Svalbard, Norway Nature based solutions for coastal erosion



Ireland Seagrass meadow restoration



France Oyster reefs restoration Sea walls built with nature





Y



Coastal protection considerations:

Protect people and property

AND

Reduce environmental and economical costs Enhance biodiversity and ecosystem services

Hard engineering



VS.



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Morris et al. 2019

Funded b



ART OF THE **RESTORE OUR OCEAN & WATERS**

France:hard eco-engineering

- Nature inspired solutions
- Protecting coastal area
- Enhancing biodiversity





Svalbard: hybrid eco-engineering

- Nature inspired solutions
- Preventing coastal erosion
- Conserving biodiversity
- Maintaining human needs





Ireland and France: soft eco-engineering

- Re-introduction of engineer species (seagrass and native oysters)
- Enhancing coastal protection by wave attenuation
- Cleaning the water
- Conserving biodiversity
- Stocking carbon



Seagrass transplantation in Galway, Tralee and Killala bays





Deployment of 30 native oyster settlement units in the bay of Quiberon

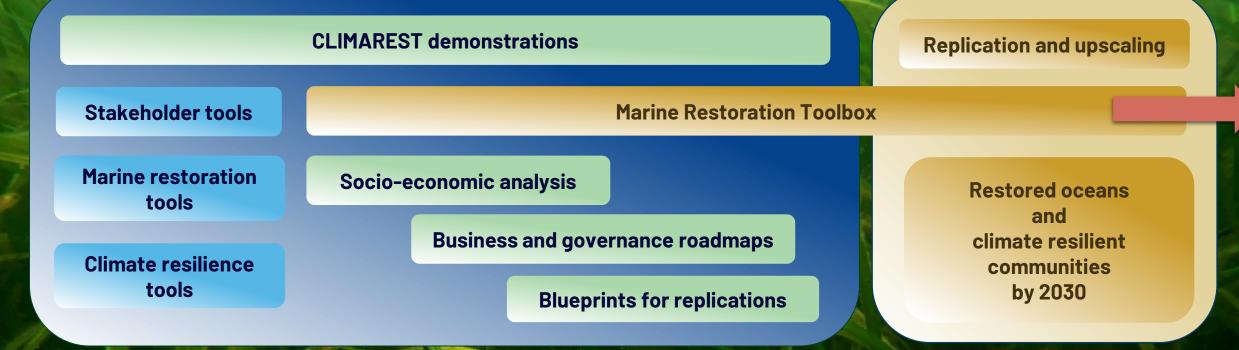




CLIMAREST

CLIMAREST 2022-2025

2026-2030





Welcome to the marine restoration toolbox!

The toolbox is an evolving set of resources which will provide you resources and tools for marine restoration developing, implementing, and monitoring marine restoration actions. If you are unsure where to start, try our Frequently Asked Questions (FAQ) page!



Information on the European Nature Restoration Law





About



What is the CLIMAREST digital toolbox?

A series of interactive applications to support the

development, implementation, and monitoring



of marine restoration and coastal resilience projects.







ART OF THE

SSIONS

OUR OCEAN & WATERS

How does the CLIMAREST toolbox accomplish this?

- Produce new tools and resources for knowledge sharing and decision making
- 2) Direct users to existing resources and networks









CLIMAREST

Users Sta

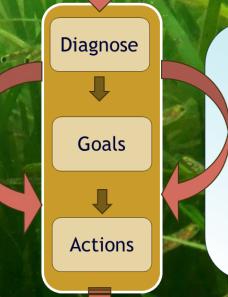
Stakeholders

Databases

Input data: Ecosystem and pressures

Stakeholder involvement

- Stakeholder mapping tools
 - Awareness surveys
- Guides for setting restoration goals
 - Map acceptance of the actions
 - Co-design protocols
 - Citizen involvement tools



Environmental data and recommendations

- Input data requirements
 - Monitoring protocols
- Additional sources of data
- Tools for retrieving and display data
 - Decision trees
 - Restoration Principals

Action plan and tailored restoration protocols





NEWSLETTER SIGN UP

SER SOCIETY FOR ECOLOGICAL RESTORATION ECOSYSTEM RESTORATION UNITED NATIONS DECADE ON ECOSYSTEM RESTORATION 2021-2030

ABOUT MEMBERSHIP

NETWORKING GLOBAL POLICY

RESOURCES CERTIFICATION RESTORATION IN ACTION NEWS & EVENTS

dvances the science, practice, and policy of a changing climate, and re-establish an ec

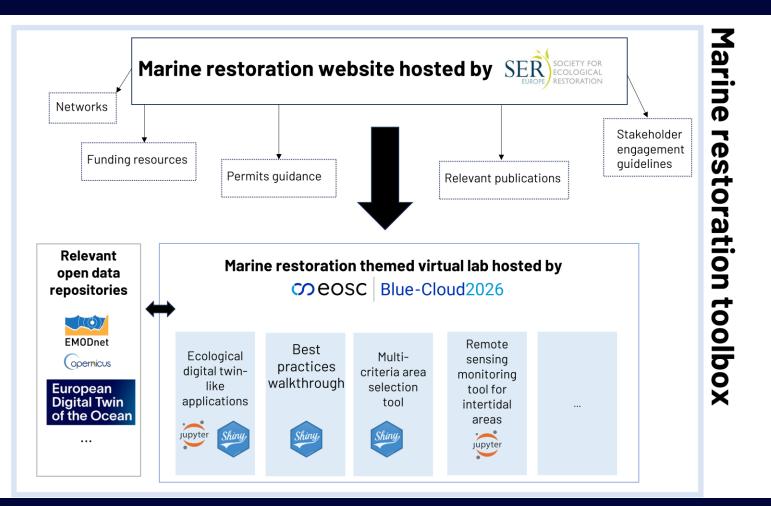
SER E-Learning Course SER Standards Tools Restoration Resource Center Publications Webinars Jobs Bulletin Board Restoration Directory Academic Programs CERP Directory

ion to sustain biodiversity, improve elationship between nature and cul



















Resilient ecosystems for resilient communities







Lighting round: Practical insights from 3 case studies





Monitoring, predicting and forecasting impacts on Coastal Resilience

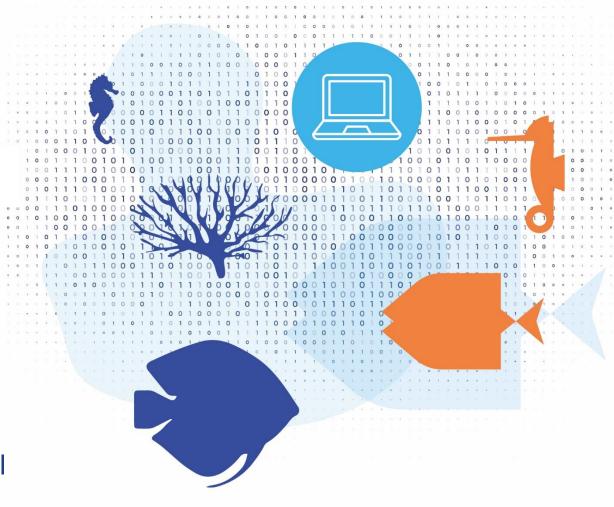
Marina Tonani

Mercator Ocean International and EDITO partners

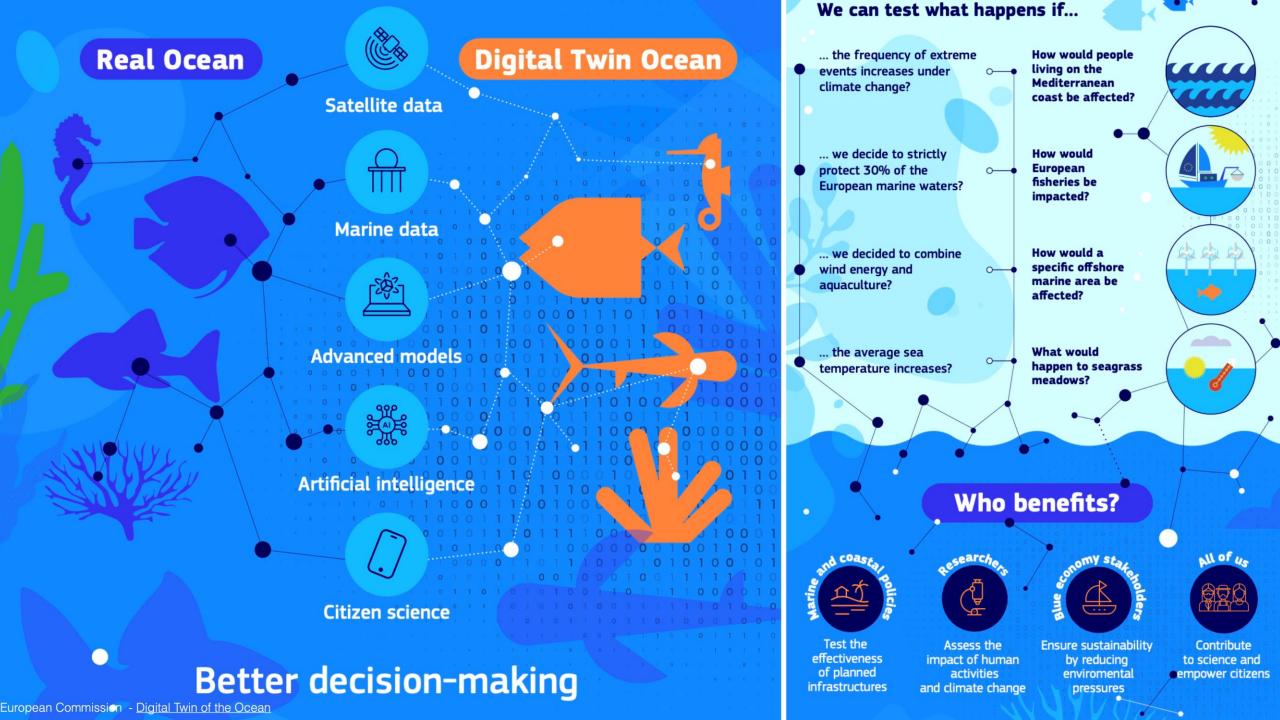
EU Digital Twin of the Ocean

Marina Tonani – Mercator Ocean International and EDITO partners





#MissionOcean #DOF24 #EUDTO #edito_dto





European Digital Twin of the Ocean

ENGIN

A leap in ocean knowledge and sustainable action

The European DTO Offer



EDITO platform overview

https://dive.edito.eu

EDITO Platform

Home Trainings and tutorials Datalab Explore data Integrate data About EDITO Documentation Support 🚯 🔇 English 🗸

European Digital Twin Ocean Core Infrastructure

Explore and share ocean data, models and services in an open and collaborative way



Learn about the ocean data science

Discover how to contribute to reproducible science with trainings and tutorials

Tutoria





Take advantage of near-data computing, collaborate, and build end-user apps and reproducible processes

Datalab

Discover the Datalab



Explore oceanographic data

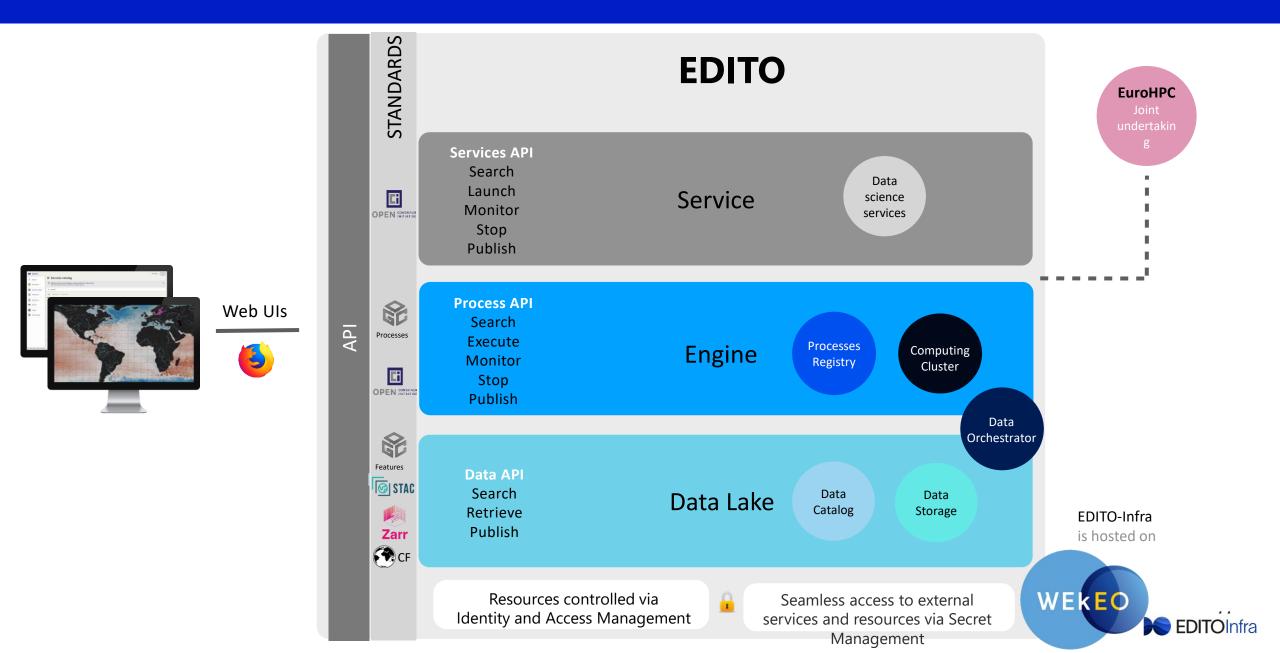
View public data and create private data catalogs

Explore data

Integrate data

Explore Data Reditiona

EDITO architecture





Thanks for your attention



... "This is why we got to the moon and back, it is because people were **inspired**, and people **felt part of it** "

by John Bell, Digital Ocean Forum 2023





Nature-Based Solutions for Coastal Resilience

Massimo Ponti

LIFE NatuReef



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Threats to coastal marine environments

- Natural and anthropogenic subsidence
- Sea level rise
- Increase in the frequency and intensity of extreme events
- Urbanization of the territory
- Overfishing







© Regione Emilia-Romagna





The consequences

- Floodings
- Coastal erosion & habitat loss
- Biodiversity loss
- Ecosystem goods and services loss





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The "engineering" solutions...

- Breakwater dams
- Groins
- Littoral walls
- Low crested structures
- Beach sand nourishment



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... short-term protection of tourism and urbanistic investments





How do natural coastal systems work?





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How do natural coastal systems work?

© noaa.gov



© Francesco Ungaro

Tropical coral reef

Temperate oyster reef

© Luca Monteleone

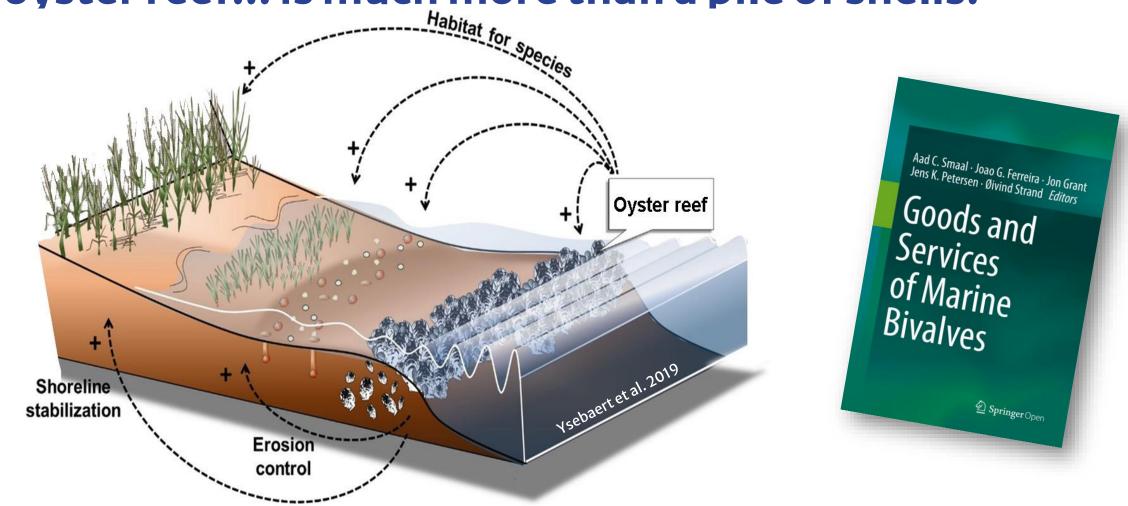
Temperate sabellariid reef

51





An oyster reef... is much more than a pile of shells!



Ysebaert T, Walles B, Haner J, Hancock B (2019) Habitat modification and coastal protection by ecosystem-engineering reef-building bivalves. In: Smaal AC, Ferreira JG, Grant J, Petersen JK, Strand Ø (eds) Goods and Services of Marine Bivalves. Springer International Publishing, Cham, p 253-273. doi: 10.1007/978-3-319-96776-9_13





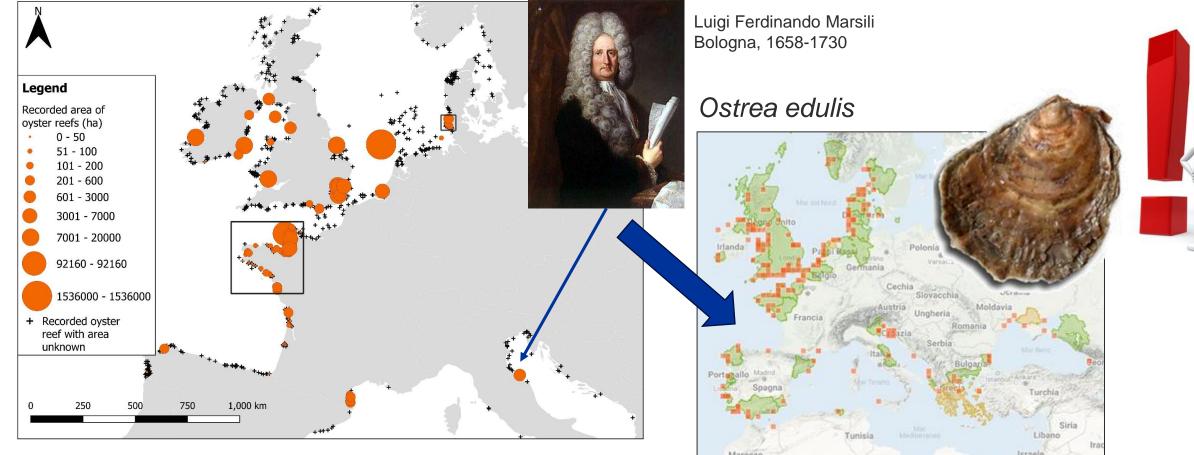
Are there solutions that imitate or exploit natural ones?







We have the chance to restore our ancient natural reefs!



Historical reconstruction at the beginning of the 18th century (courtesy of O. Giovandardi)

Thurstan et al. (2023) The world was our oyster: Records reveal the vast historical extent of European oyster reef ecosystems. doi: 10.32942/x20w43

Today's reports (iNaturalist)





55

We have the chance to restore our ancient natural reefs!



NORA

Oyster restoration project registered by the **Native Oyster Restoration Alliance** (<u>https://noraeurope.eu</u>)

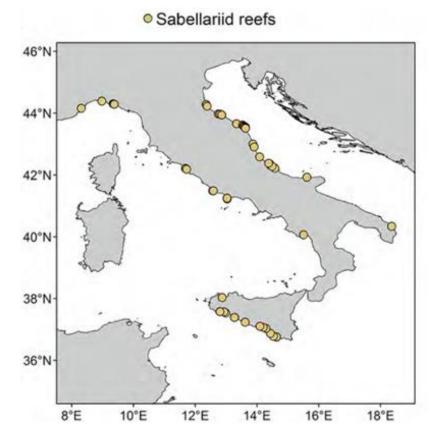


Preston J, Gamble C, Debney A, Helmer L, Hancock B, zu Ermgassen P (eds) (2020) European native oyster habitat restoration handbook - UK & Ireland. The Zoological Society of London, UK, London, UK ISBN 978-0-900881-80-0





We have the chance to restore our ancient natural reefs!





Nowadays Italian sabellariid reefs (Ingrosso et al. 2018)

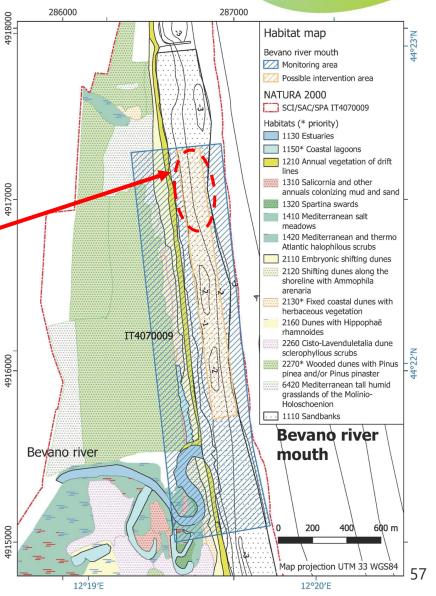
Sabellariid reefs at Marina di Vasto (Abruzzo, Italy)



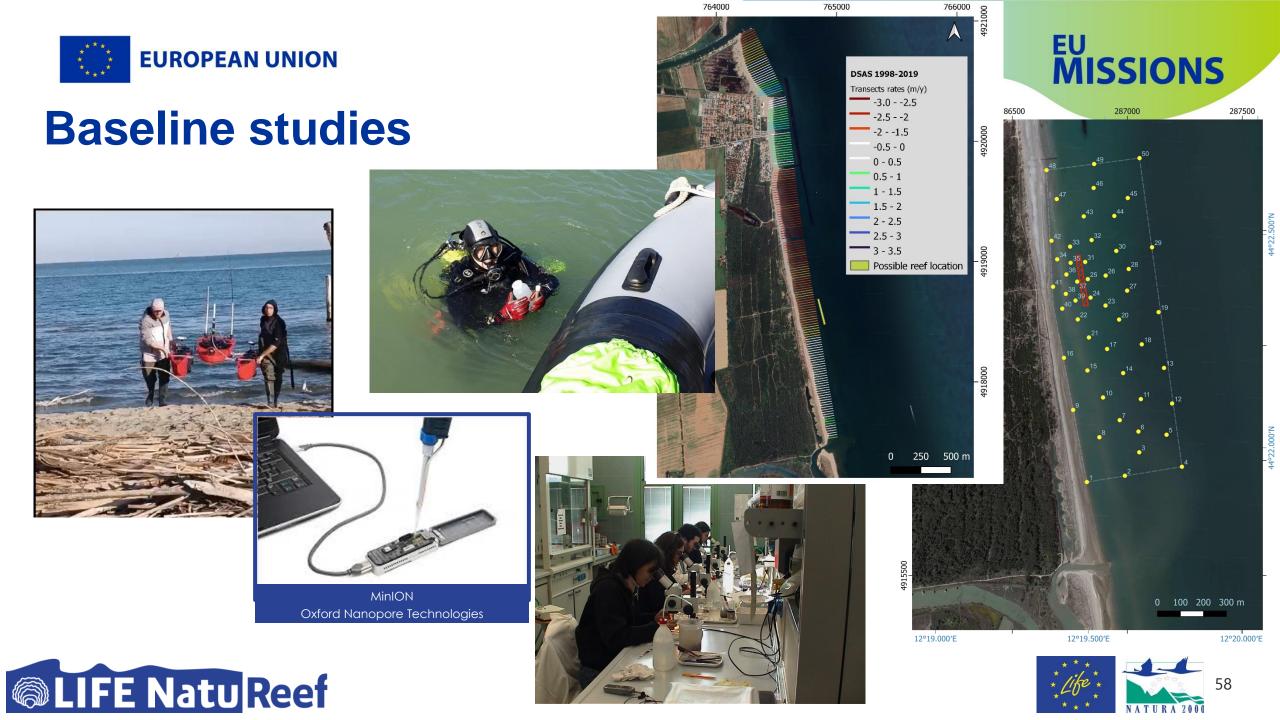
Calife Natu Reef

Nature-based reef solution for coastal protection and marine biodiversity enhancement





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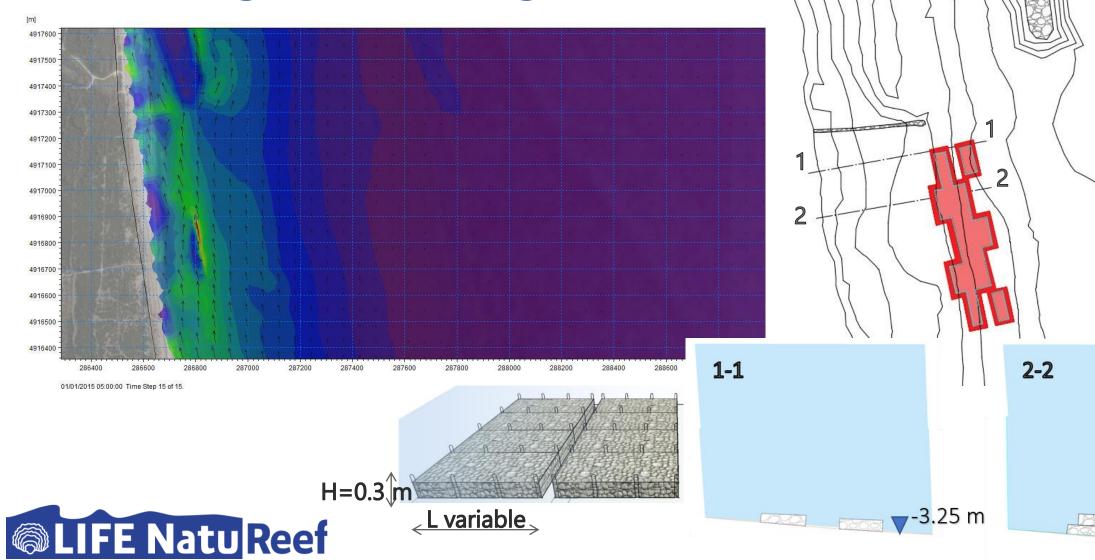




H=0.3 m

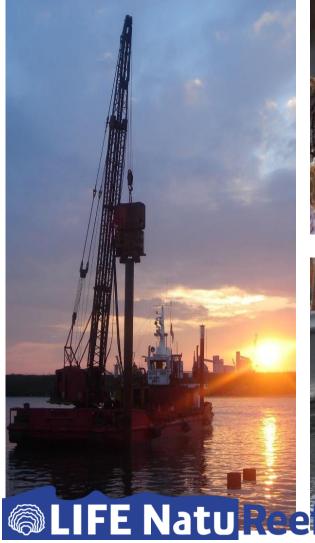
H=0.6 m

Modelling & reef design





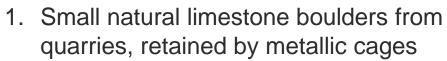
Implementation





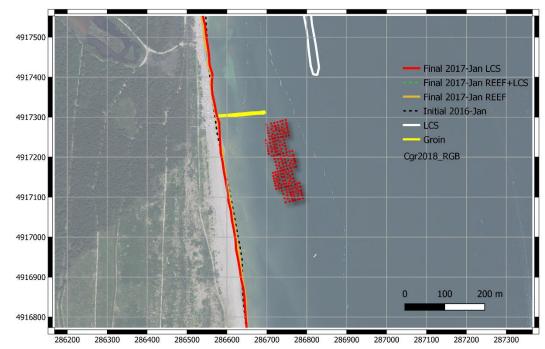
Merche S. Calle * Juan Enrique Gómez





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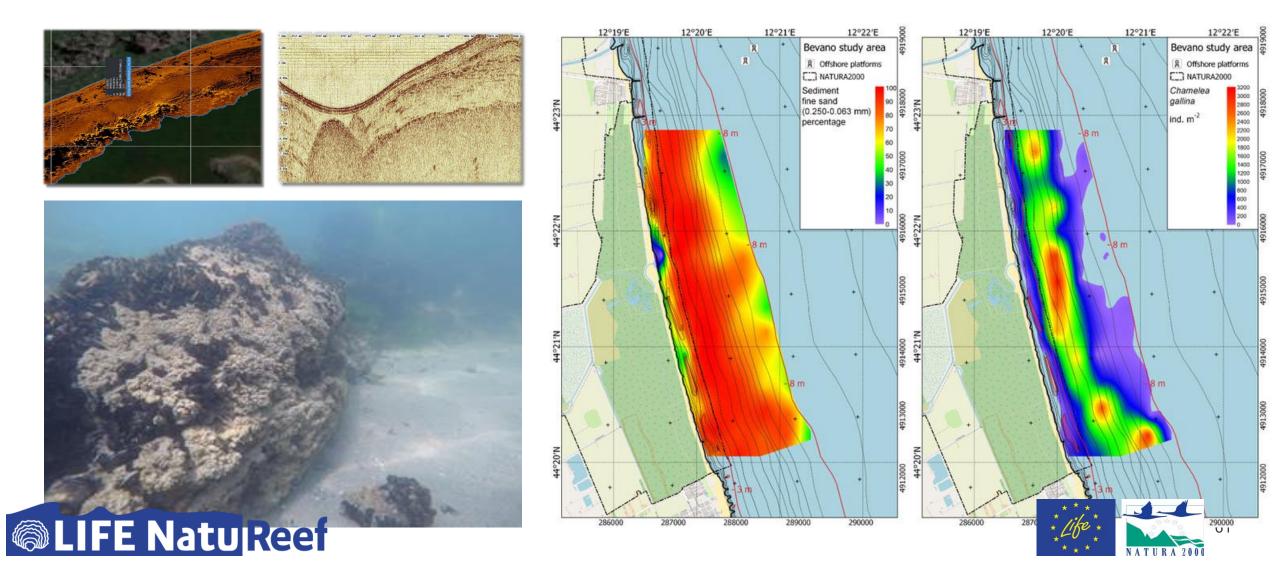
- 2. Native oysters from natural banks in the northern Adriatic or from Mediterranean oyster farms
- 3. Small portions of Sabellaria colonies from local populations





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Key Project Indicator monitoring





Replication



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LIFE NatuReef

Nature-based reef solution for coastal protection and marine biodiversity enhancement



Programme UE: LIFE

LIFE-2022-SAP-NAT - Nature & Biodiversity - Standard Action

Reference: LIFE22-NAT-IT-LIFE-NatuReef/101113742

Period: 1/07/2023 - 30/06/2027



Coordinator: **Prof. Massimo Ponti** – Alma Mater Studiorum Università di Bologna Contact: massimo.ponti@unibo.it



Web: https://site.unibo.it/life-natureef

Unless otherwise specified, images are kindly provided by project participants

















Socio-economic Empowerment of coastal communities as users of the sea to ensure sustainable coastal development

Maiken Bjørkan

EmpowerUs





What is Empowerus

@EmpowerUs_EU

@EmpowerUs EU Project





Funded by the European Union under the Horizon Europe Program, Grant No. 101059957 (EmpowerUs). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.



UK participants in EmpowerUs are supported by UKRI Grant No. 10040189 (QUB).

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CYPRUS

MARINE &



DEVELOPMENT AGENCY OF

lemesos...

LUDWIG

MÜNCHEN

MAXIMILIANS UNIVERSITÄT

UNIVERSITAT Autonoma de Barcelona

Nordland Research Institute -NRI (Norway)

Aalborg University (Denmark) Atlantic Technological University Sligo (Ireland)

Bulgarian Biodiversity Foundation

Bulgarian Biodiversity Foundation (Bulgaria)

MARITIME INSTITUTE Cyprus Marine and Maritime

Institute (Cyprus)

Kunnskapsparken Helgeland

Development Agency of Lemesos LTD (Cyprus)

Autonomous University of Barcelona (Spain)



ERINN Innovation (Ireland)



Natural Resources Institute Finland - Luke (Finland)





Gaeltachta

EmpowerUs Consortium



Helmholtz Centre for Environmental Research - UFZ (Germany)

Kunnskapsparken Helgeland (Norway)

Ludwig-Maximilians-Universität in Munich (Germany)



Queen's University Belfast

(UK)



Ruralis (Norway)

6

(Finland)

Government of Åland

The Fisheries Agency at the (Ireland)

Údarás na Gaeltachta

66









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.................

Six transition coastal labs

2. NORTHERN NORWAY Growing conflict between aqu and other marine users TCL host: Kunnskapsparken H Academic lead: Nordland Res	elgeland
1. ATLANTIC COAST, IRELAND Rural fishing villages with traditional sectors under pressure from Blue Growth and mass tourism TCL host: Údarás na Gaeltachta Academic lead: Queen's University Belfast	4. BURGAS PROVINCE, BULGARIA
6. NORTHWESTERN MEDITERRANEAN, SPAIN Poor marine governance and spatial planning leading to stakeholder conflicts TCL host: Autonomous University of Barcelona Academic lead: Autonomous University of Barcelona	Poorly paid and seasonal employment from low-market marine tourism development that is in conflict with nature TCL host: Bulgarian Biodiversity Foundation Academic lead: Ludwig-Maximilians-Univer in Munich
e e e e e e e e e e e e e e e e e e e	5. EASTERN LIMASSOL REGION, CYPRUS Competition for coastal and marine space and declining employment opportunities TCL host: Development Agency of Lemesos LTD Academic lead: Cyprus Marine and Maritime Institute

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How can we empower local communities in a coastal context?





Empowerment defined

Capacity to mobilise resources along three dimensions

- access to resources and institutions,
- strategies to mobilise them,
- and the willingness to do so
 - (Avelino, 2017):



Empowerment defined

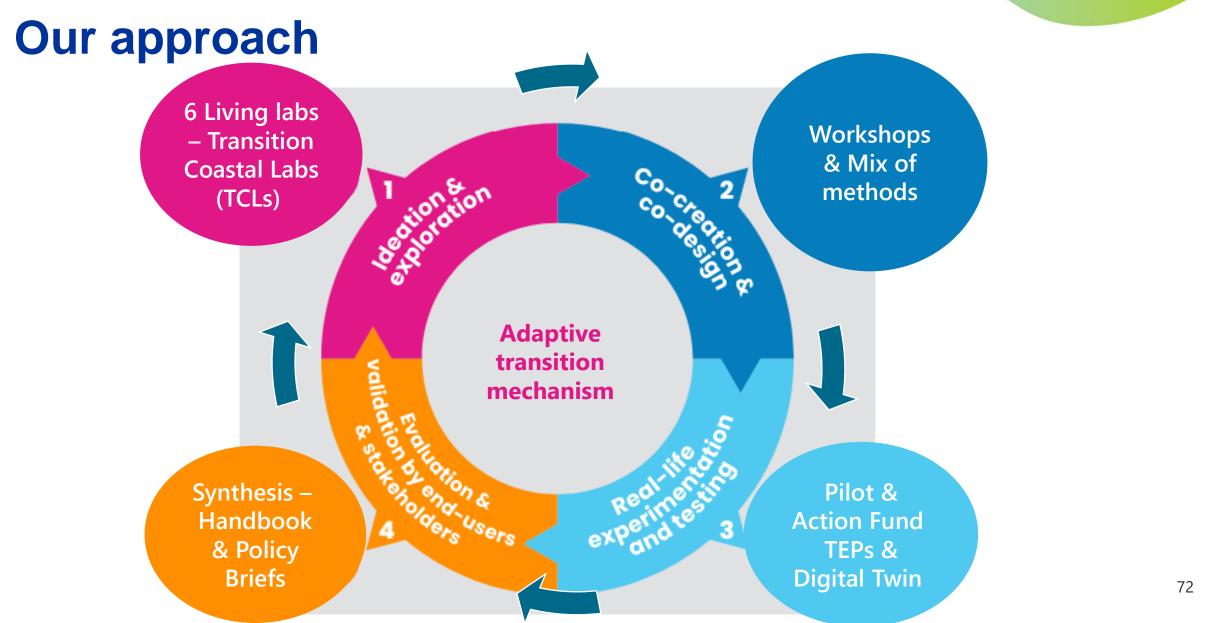
- Empowerment as a process:
 - increased organizational membership, relationship building within a community, and dialectical action and reflection between organization members.
 - (D4.2 annex EmpowerUs)
- Empowerment processes can have several outcomes:
 - knowledge of power, an emotional connectedness between community members, and participation within the organization
 - (Speer and Hughley 1995; Bengle 2015).

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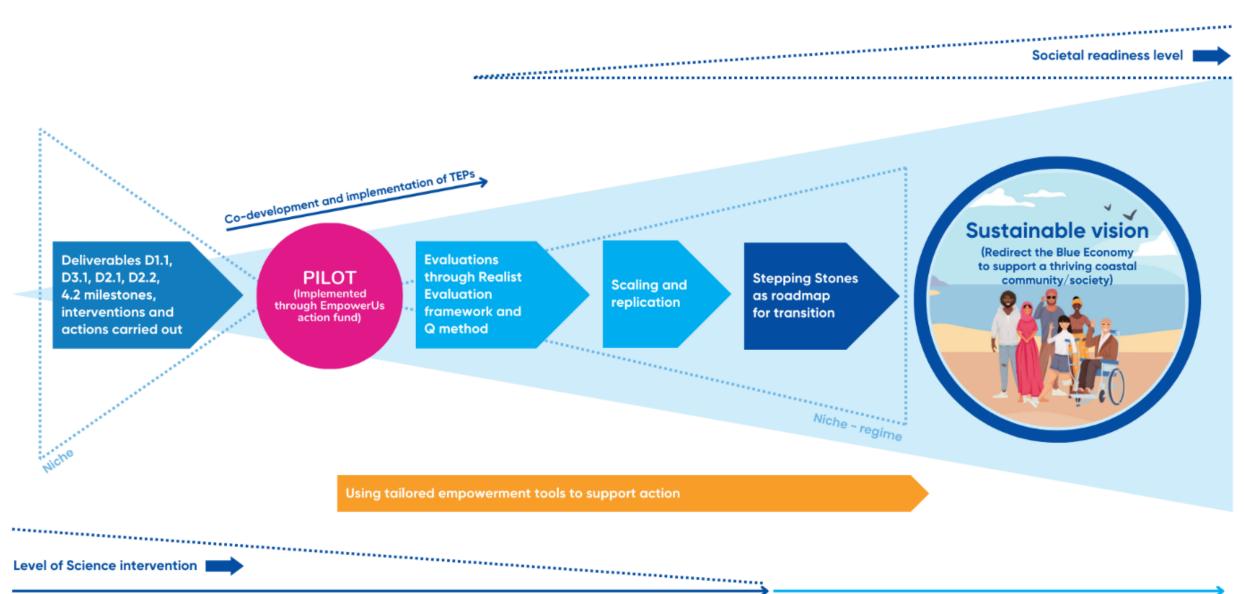




Operationalizing Tailored Empowerment Programs







Duration of EmpowerUs

Further implementation of TEPs through empowered communities





Transition Coastal Labs - Experiences















Bulgaria





Expected Outcomes

The **Burgas on Three Lakes** Ecotourism and Ocean Literacy initiative that integrates ecotourism offerings, educational programmes, and community empowerment activities.

Key activities include:

- Establishing a series of citizen science and engagement initiatives for the local community.
- Relocation of the existing symBiotic exhibition space to a more accessible and permanent location as part of an Atanasovsko Lake information centre, fostering greater connectivity between the community and the lake.
- Development of further ecotourism activities, educational courses, and guided tours.

Improved nature-based solutions based on the Atanasovsko Lake and a better societal integration for these solutions through empowerment and transition mechanisms.

Establishment of socio-ecological economic development models for the Bulgarian Black Sea coast that can serve as alternatives to current dependence on lower-end mass tourism in the region.

0

Improved ocean literacy and better community-driven political support for natural conservation as a sustainable development model through the tailored empowerment program. 0

Enhanced socio-economic resilience and well-being of the local community.

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Cyprus



The **Cape Dolos Strategic Community Development Plan** to engage local community members, groups and authorities to better understand and map the ecological, social, and cultural values of the coastal area.

The key activities involve creating a strategic plan with specific timelines and actions to enhance the social, ecological and economic sustainability of the coastal area. The organisation of participatory workshops, surveys and consultations will inform the plan and integrate inputs from different community members, incorporating ideas for smaller meaningful interventions, community engagement activities, and infrastructure improvements. The goal of the plan is to create a coastal space in the Eastern Limassol Region that can be studied, (re)discovered and re-lived.

Expected Outcomes

TCL Host: Development Agency of Lemesos LTD Academic Lead: Cyprus Marine and Maritime Institute

A better understanding of the coastal and marine ecosystems of the area.

Sensitisation and increased protection of these coastal and marine ecosystems.

Improved nature-connectedness between the local communities and the coast in the region. Stronger relationships built between societal and governmental actors in the region.





Ireland



The **Social Enterprise Support Pilot Programme** to create a stronger enabling environment for the social enterprise and co-operative sector in the Gaeltacht region.

Key activities include:

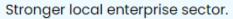
- An online modular programme to inform and inspire community and voluntary sector organisations about the potential of the social economy.
- A technical assistance programme to support local groups to develop projects. In addition to providing strategic and legal advice, this programme will upskill local communities in conducting feasibility studies, digital transformation, developing markets and creating social impact.
- Additional provision of support for local social entrepreneurs with high growth potential, via site visits, lectures and provision of resources.

Expected Outcomes

TCL Host: Údarás na Gaeltachta Academic Lead: Queen's University Belfast



Enhanced coastal and marine tourism.



New policies and strategies for social enterprises.



Spain



The **NaturCap** digital initiative that will offer engaging digital resources to strengthen conservation efforts and meaningful collaboration among local communities in Cap de Creus.

The initiative will:

- Foster stronger ecological and cultural values in the community to promote care and preservation for the environment in Cap de Creus.
- Provide participatory tools and resources for both residents and visitors to engage in environmental conservation initiatives in the area, and to increase local knowledge about the Marine Protected Area of Cap de Creus.
- Strengthen the social fabric and collaborative capacity of local actors in the region, through a digital knowledge exchange platform on the NaturCap website.

Expected Outcomes

TCL Host: Autonomous University of Barcelona Academic Lead: Autonomous University of Barcelona

Stewardship measures will ensure that small-scale fishers engage voluntarily in sustainable resource management as part of their livelihood.



More effective governance comanagement models.

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The co-creation of nature-based solutions will bridge divergent values and interests between the different stakeholder groups in the area. Improved awareness of tourists practising maritime activities.



Finland



The **Åland Fisheries Appeal** that will evaluate local opportunities for fisheries revitalisation, building on local involvement and co-governance.

The initiative will host interactive workshops, community engagement events and interviews to empower local interest groups, including the fisheries community, water owners and local residents, and to increase local understanding of the ecological, cultural, social and economic importance of the fisheries sector in Åland.

Expected Outcomes

TCL Host: The Fisheries Agency at the Government of Åland Academic Lead: Natural Resources Institute Finland (Luke)

New understanding about the role of participatory methods in natural resource governance and their potential for policy development.



Increased community resilience and a decline in human-wildlife conflicts.

Empowerment of local communities to overcome barriers that have hindered local action to mitigate the seal- and cormorant-induced losses.



Local communities' ability to understand the Sea and coastal contexts through Ocean literacy training and planetary health awareness through a gender, intersectional and intergenerational approach.

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Establishment of the **Blue-Green Development Arena**, engaging the local community and co-designing solutions to existing challenges.

Key activities include:

- Mapping of the current transportation system and identification of alternative innovative solutions to improve connectivity.
- Onboarding initiatives to welcome new inhabitants to the community, including interactive workshops, career days and start-up courses.
- Strategy development and implementation to establish Culture Hubs in the community.
- Strategies for cultivating local produce, and enhancing local knowledge
 about food from natural resources.
- Establishment of coastal pathways that reflect the islands' history and culture.

TCL Host: Kunnskapsparken Helgeland Academic Lead: Nordland Research Institute

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Norway

Economic diversification, new business opportunities and growth in public services.

Expected Outcomes

Increased opportunities for nature-based tourism.

0

Growth in cultural development and competence due to high diversity of immigrants, tourism and more permanent residents.





Q&A Session

Erlend Hansen MIP4Adapt







Closing remarks

Erlend Hansen MIP4Adapt





Feedback

Has this first joint workshop given you interesting insights on coastal resilience?







Feedback

What other themes would you like us to address in other joint activities and synergies between the two EU Missions?





Closing remarks

- **Recording** of the event and its **PPT** to be shared this week.
- A summary report with key findings and lessons learnt will be developed and share in the upcoming weeks.
- Registration for the second cycle of the Peer Learning Programme has been extended until the 6th of October. <u>Secure your spot now</u>!
- Upcoming October events:
 - Building Tomorrow Today: Selecting Adaptation Measures (16.10)
 - From Europe to local: building a local community of practice (24.10)

 The Community of Practice and associated services are now on <u>Futurium</u>! Make sure you have access



EU







Thank you!

#EUmissions #HorizonEU

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