



**Coast-R
Network**

ukcoastalresilience.org





**Coast-R
Network**



UNIVERSITY
of **HULL**

Energy &
Environment Institute

Coast-R July 2025 Webinar

Crafting the Shore

Dr Suzi Ilic, Environment Centre, University of Lancaster & Dr Serena Pollastri, ImaginationLancaster, University of Lancaster

The Sustainable Management of UK Marine Resources Programme

Prof David Paterson, Executive Director, MASTS, University of St. Andrews

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Network**

Crafting the Shore

Dr Suzi Ilic, Environment Centre, University of Lancaster &
Dr Serena Pollastri, ImaginationLancaster, University of
Lancaster

A large, stylized teal graphic on the right side of the slide, consisting of three concentric, overlapping curved lines that resemble a stylized wave or a series of arches.

#CoastRNetwork

Coastal Nature Lab – Crafting the Shore

Suzana Ilic
Serena Pollastri

Impact of climate change on coastal communities



Motivation

This project is situated within a working with nature approach to manage the coastline by implementing sustainable and soft engineering techniques (Nature-based Solutions - NbS).

Focus on **saltmarsh stabilisation and regeneration.**

Collaboration with Lancaster City Council and their activities in Our Future Coast project.



Models and their limitations

“As the phenomenon of Katrina's devastation has taught us all too well, the knowledge that is too often missing and is often desperately needed is at the intersection between things and people, between feats of engineering and social structures, between experiences and bodies”

(Tuana 2008)

(image: CNN)



Hyperlocal Scale

Can we design small scale NbS that can be produced and managed by local communities?



Site: Hest Bank, Morecambe Bay



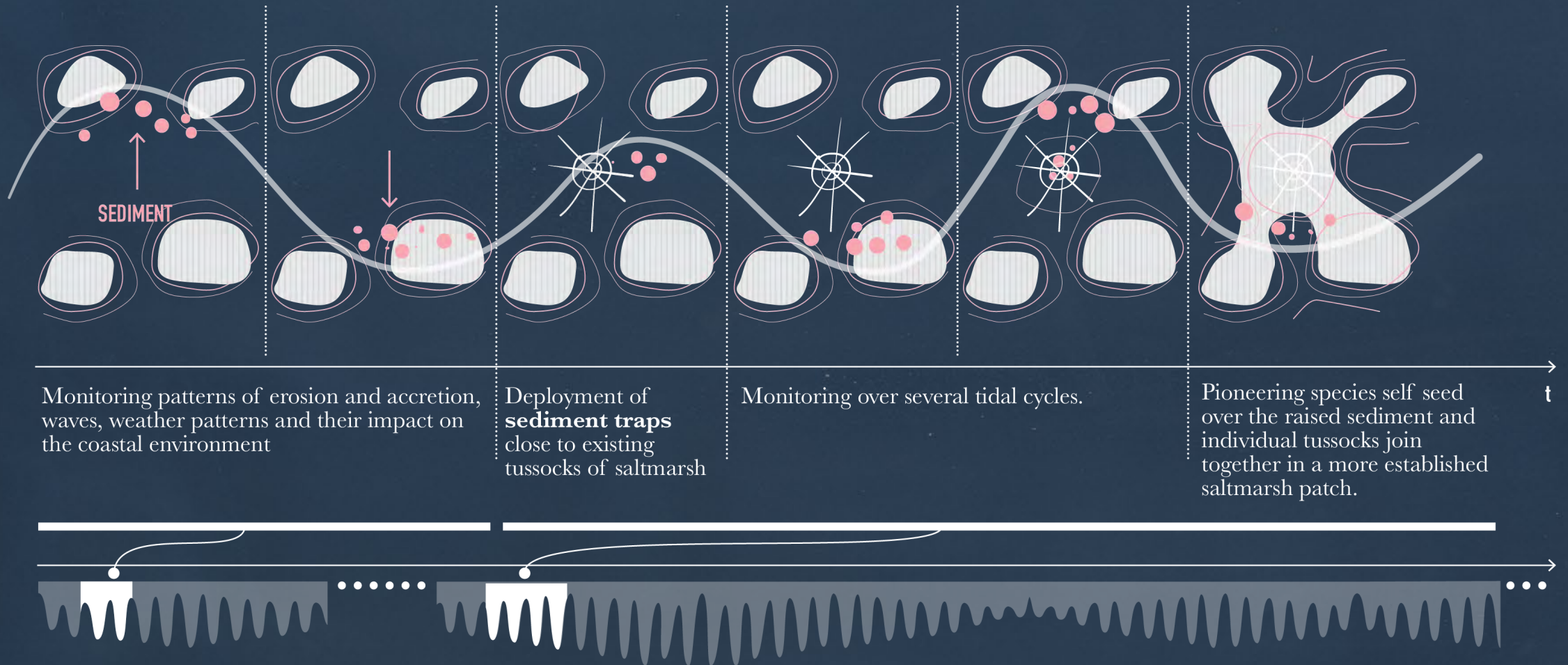
Site: Hest Bank, Morecambe Bay



Dilip Da Cunha – Wetness as a continuum

Approach

Connecting the tussocks



Coastal Nature Lab

Experimenting with Locally Sourced
Materials for Community-Involved
Coastal Protection

Serena Pollastri
Suzana Ilic
Enrico Tubaldi
Keith Torrance
Gloria Castro Quintero

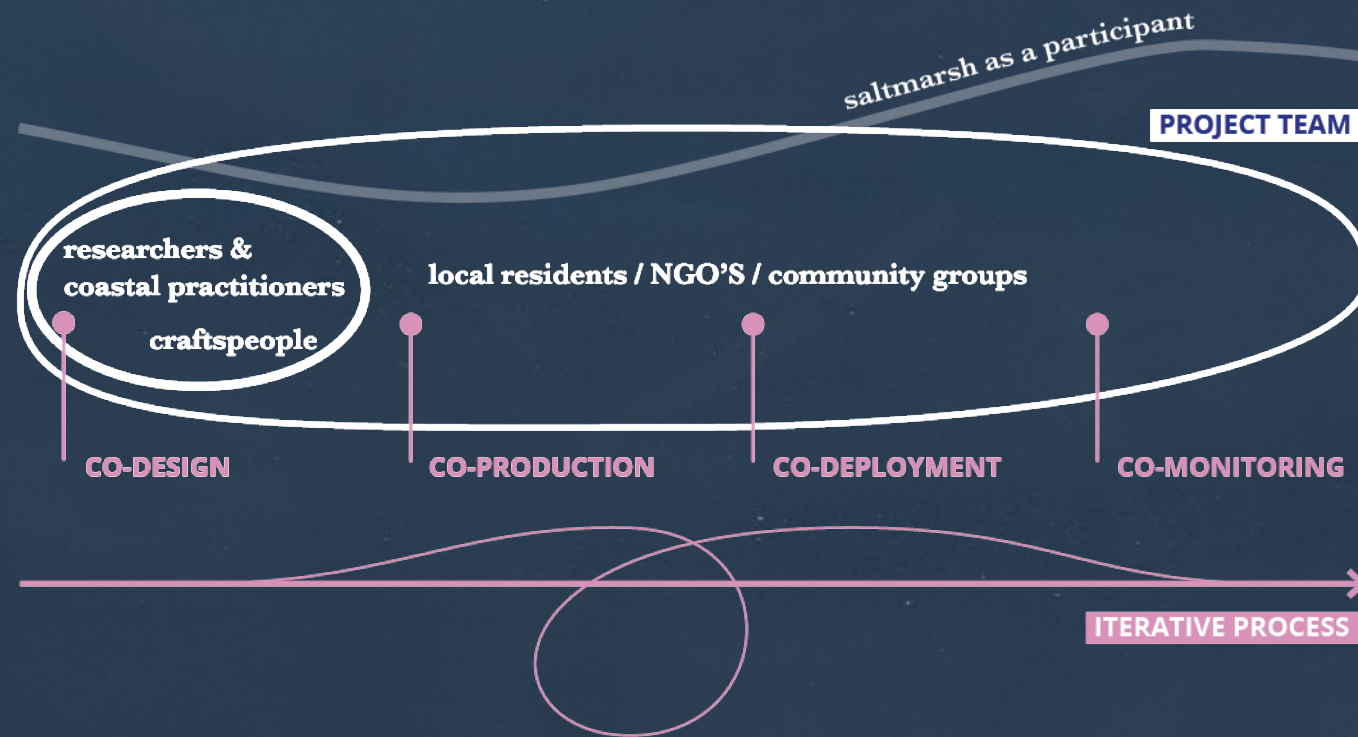
Charlotte Evans
Nicola Parkinson
Stephanie Bracegirdle
Josh Blaike

Ellie Brown
Joseph Earl

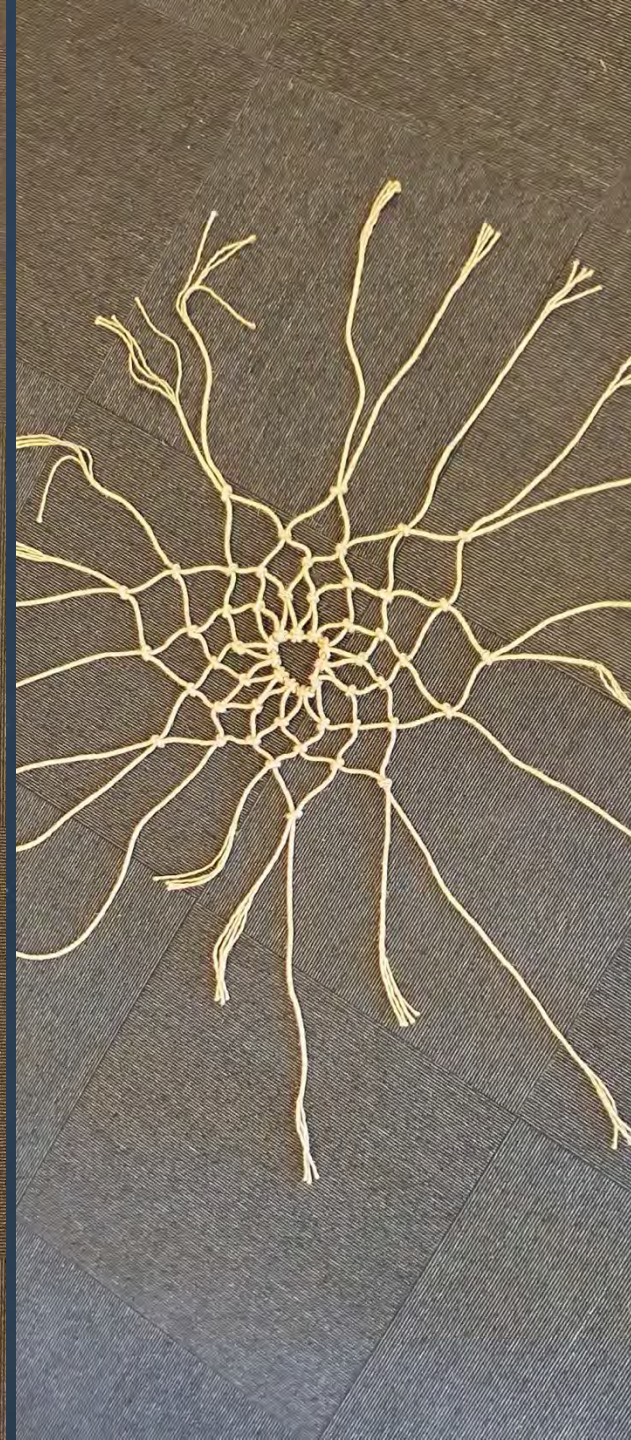


Approach

More than human collaboration



Co-Design



Co-Design

'Our discussions began with an appreciation of the natural structures used by plants and animals such as spiders webs and root networks. We liked how resilient these structures are to individual elements being broken without the collapse of the whole. Our researches included experimenting with different materials including spartina, various grasses, rushes and willow alongside bought materials such as jute, flax and manilla.'

Caroline Dear and Martha Orbach



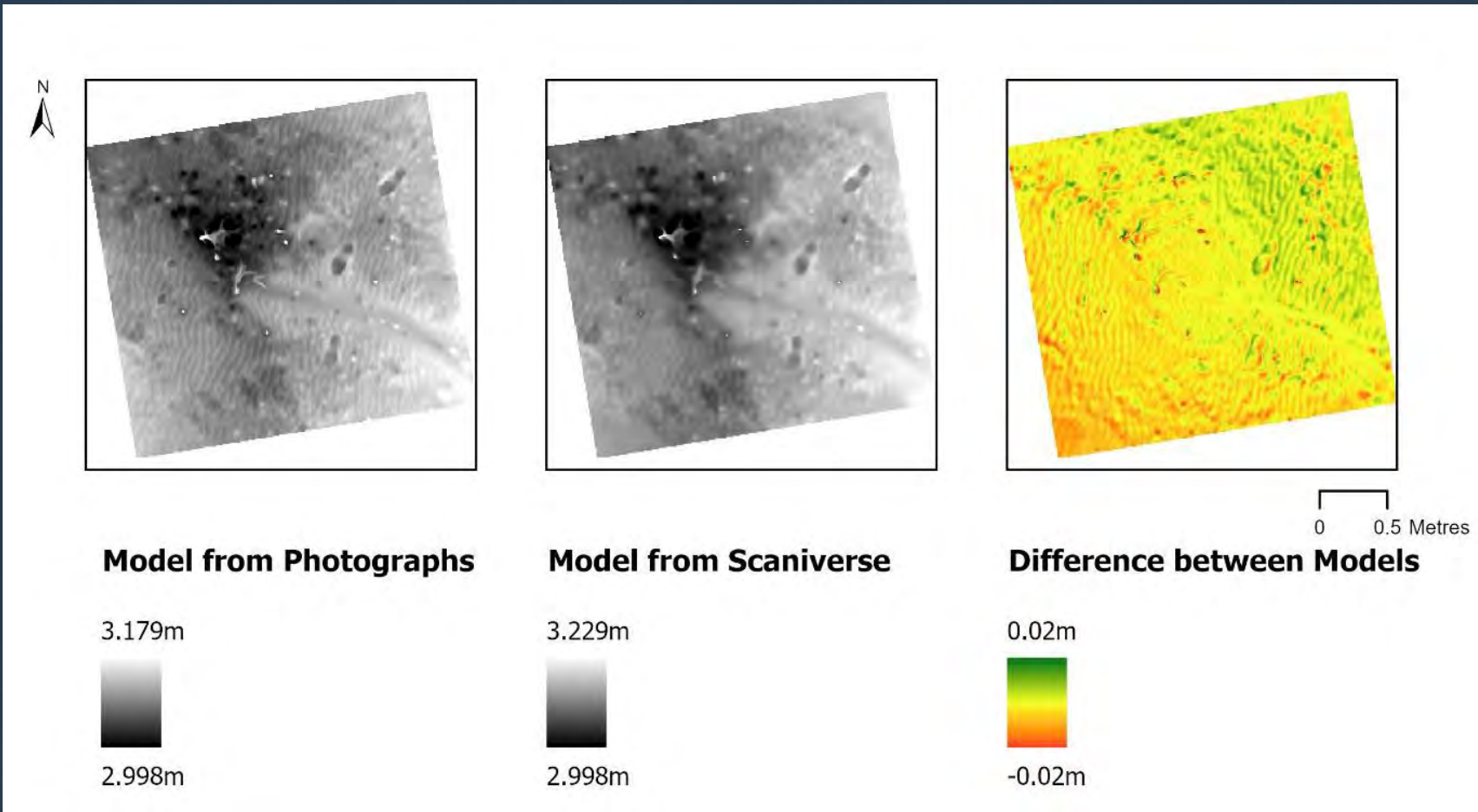
Co-Production



Co-Monitoring: Observing changes through seasons



Co-Monitoring: Observing changes through seasons



Caring

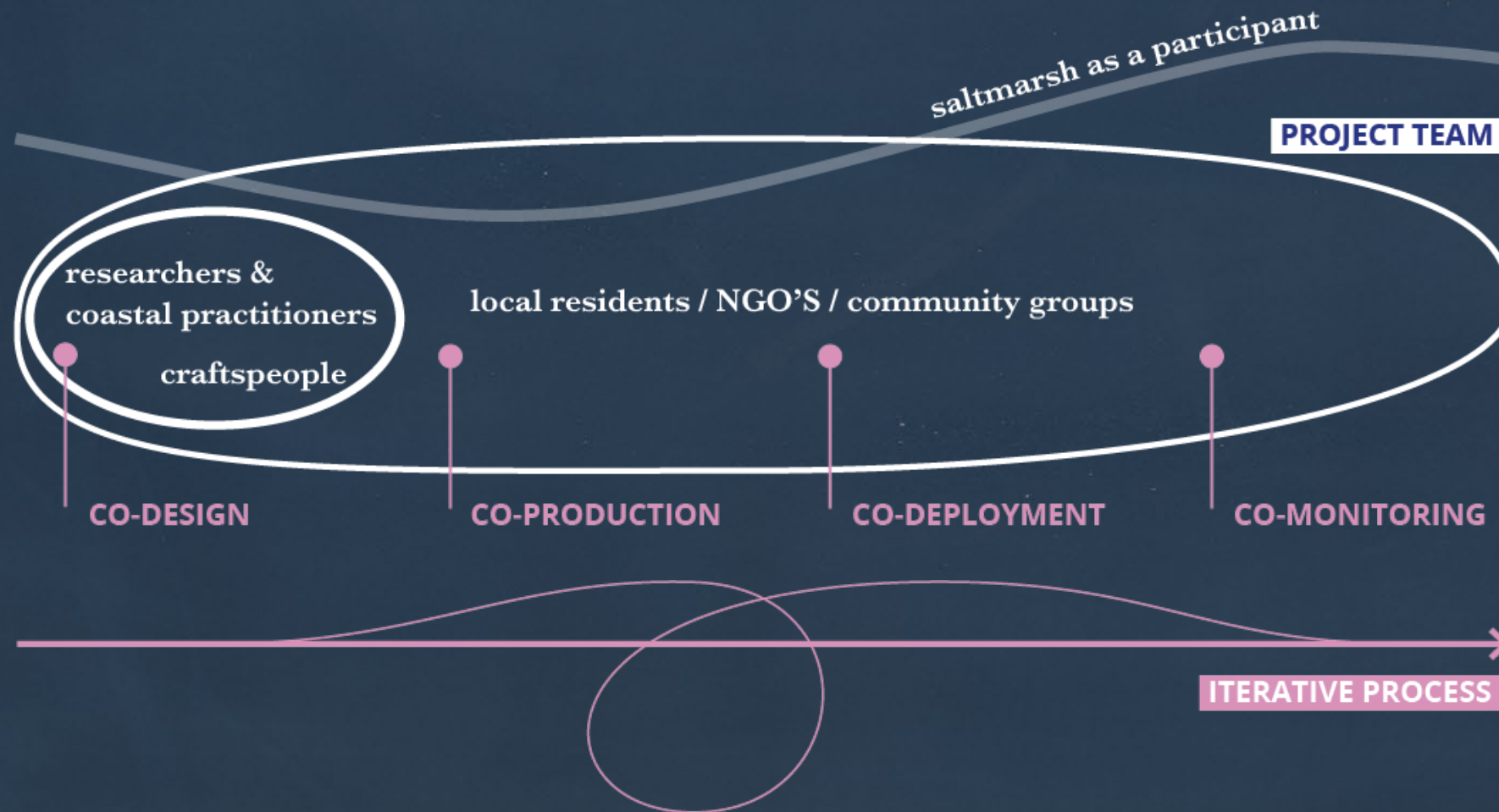
*“Care as a concrete work of maintenance,
with ethical and affective implications, and
as a vital politics in interdependent worlds”
(Puig de la Bellacasa, 2017)*

*..or
‘like a garden, not a house’
(Ilic)*



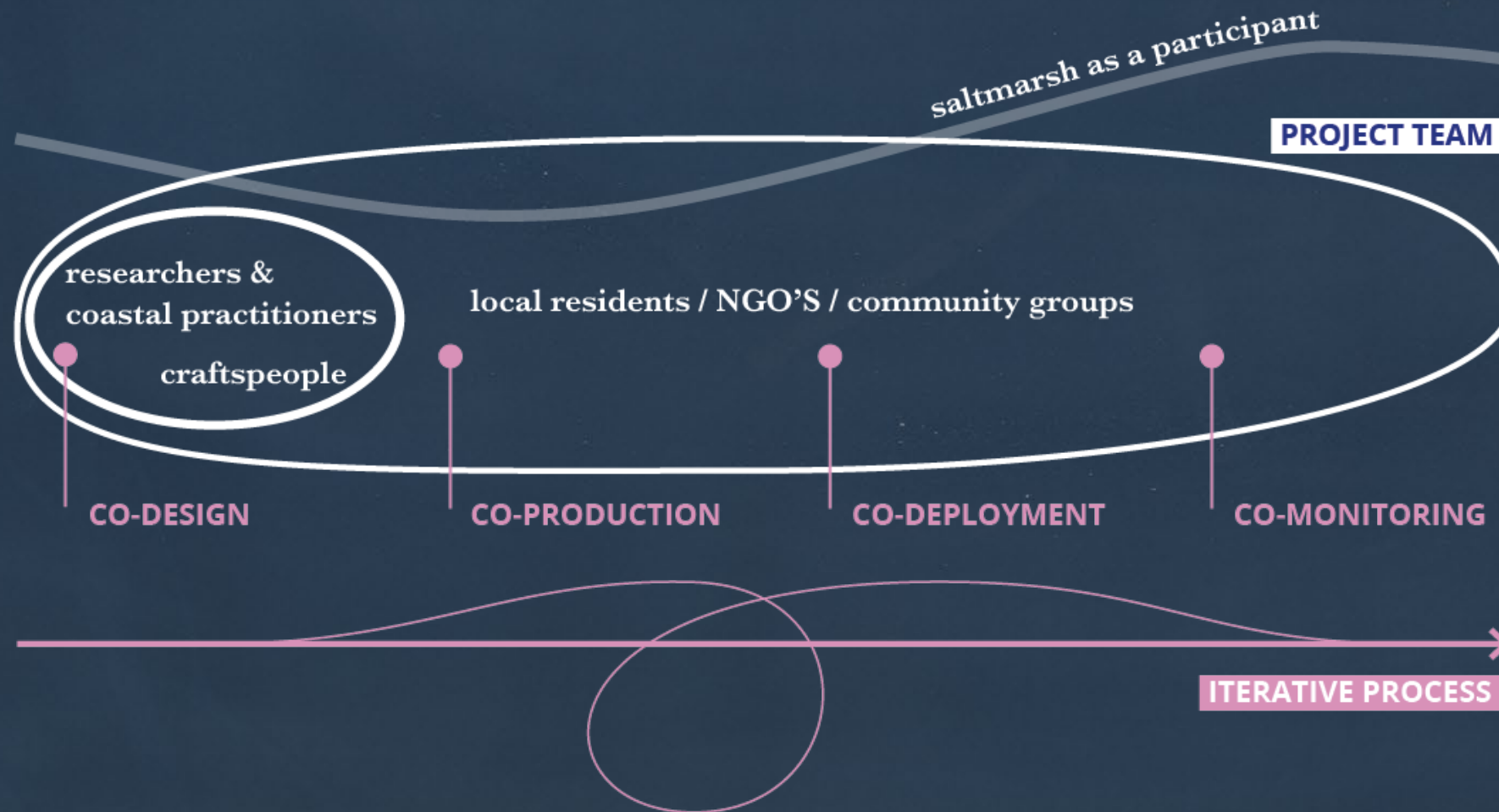
What we learnt

On structures themselves



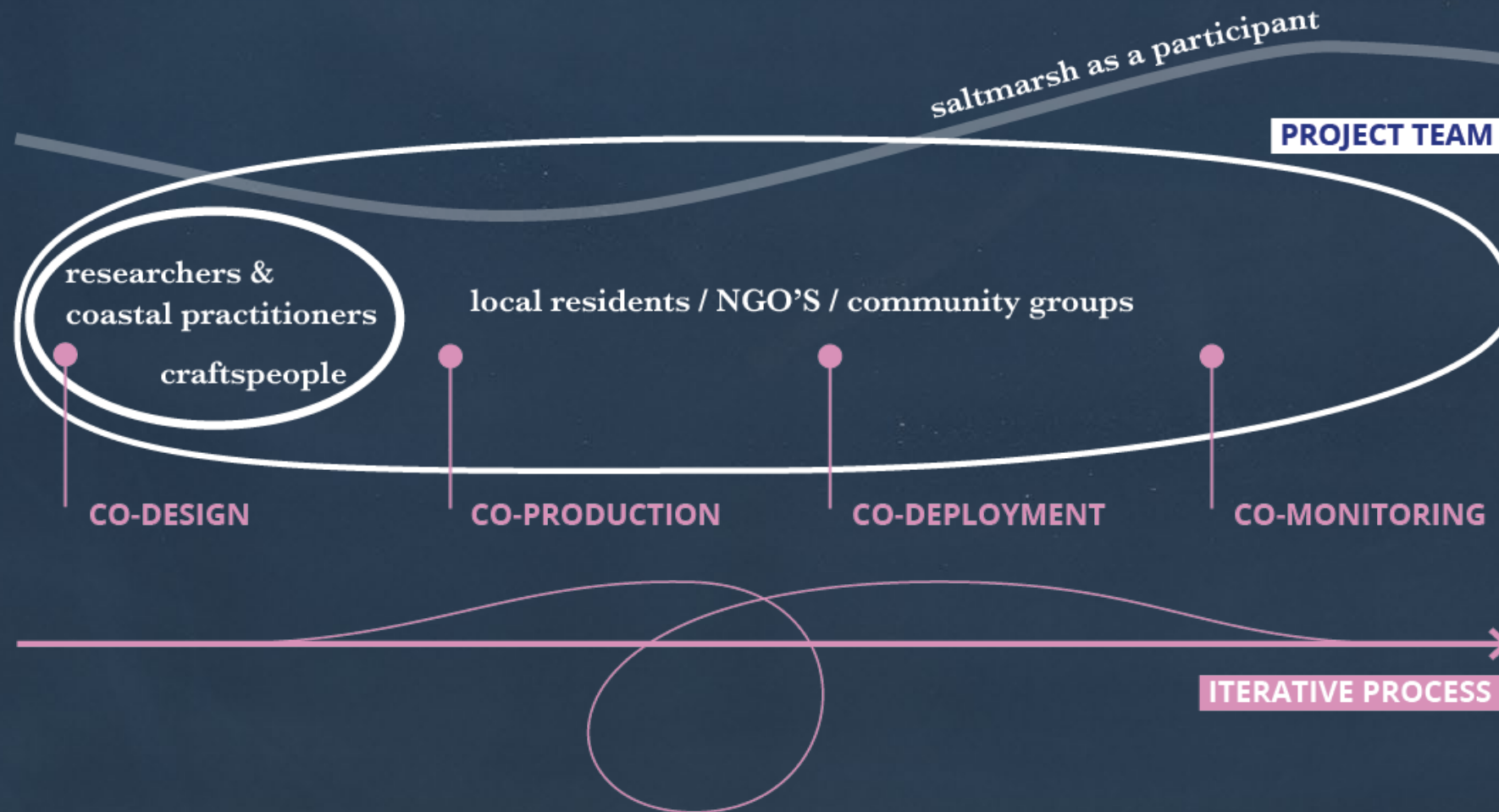
What we learnt

On codesign



What we learnt

On co-monitoring



Handbook (forthcoming)



Coastal Nature Lab **OPEN HANDBOOK**

edited by
Serena Pollastri, Suzanne Ilie,
Alex Bleasdale

CRAFTING THE SHORE

Field observations also need to
not the phase of deployment of the
for their effectiveness but also their
under material dynamics and

of erosion, for example, are
able unintended effects of
sea, as pegs or poles stick in
or tidal waves increase the local
In this case, observations
repeating sites or in different
lead to contrasting results, so
the monitoring over a long

are not securely anchored
need to be retrieved, so it
are visited often, and this
with local communities or



NORMAL HIGH TIDE MARK

LOW MARSH

PIONEER ZONE

MUD FLATS

SEA BED

2b SCANNING

Photogrammetry or LiDAR scans
monitor over time precise spatial
movement of the site and effects of
the structure

2c SEDIMENT LEVELS

Scanning and sediment level
monitoring the structure is
measured with the help of
marking stakes

2d SCANNING

Photogrammetry or LiDAR scans
monitor over time precise spatial
movement of the site and effects of
the structure



2e SCANNING

2f SCANNING

2g SCANNING

2h SCANNING

2i SCANNING

2j SCANNING

2k SCANNING

2l SCANNING

2m SCANNING

2n SCANNING

2o SCANNING

2p SCANNING

2q SCANNING

2r SCANNING

2s SCANNING

2t SCANNING

2u SCANNING

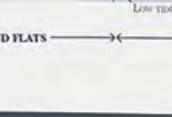
2v SCANNING

2w SCANNING

2x SCANNING

2y SCANNING

2z SCANNING



Thank you

Suzana Ilic

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Serena Pollastri

s.pollastri@lancaster.ac.uk



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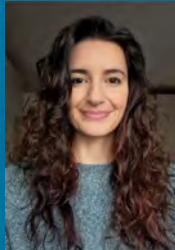
The Sustainable Management of UK Marine Resources Programme

Prof David Paterson, Executive Director,
MASTS, University of St. Andrews

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SMMR Programme



SMMR

The SMMR programme aims to improve understanding of perspectives and behaviours concerning the marine environment and integrate this into systems-based approaches that support the development and analysis of interventions and inform effective decision making for marine management and policy.

Funded by the Strategic Priorities Fund

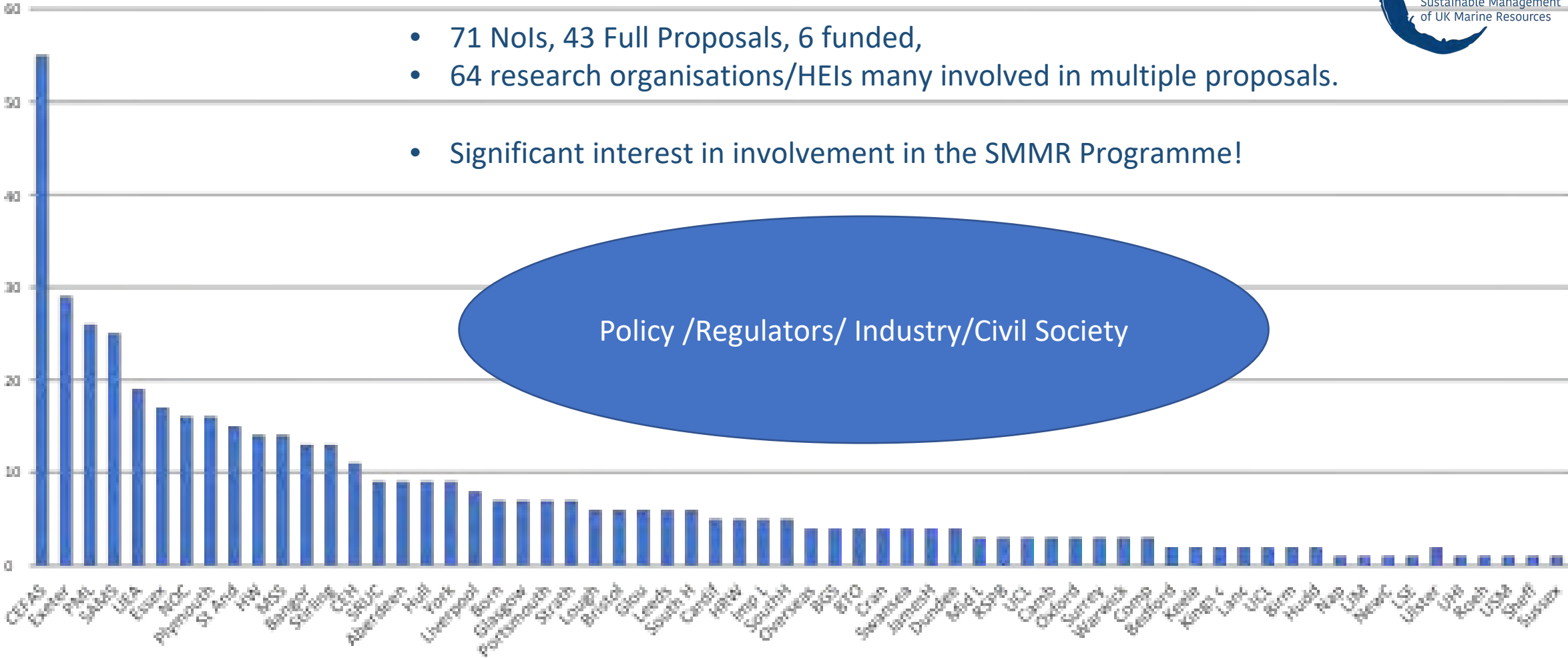
Not “business as usual”

Proportion of Proposals Involving 64 Eligible Research Organisations



Organisations

No Proposals



- 71 Nols, 43 Full Proposals, 6 funded,
- 64 research organisations/HEIs many involved in multiple proposals.
- Significant interest in involvement in the SMMR Programme!



About the Network

**RESTORATION OF
SEAGRASS FOR
OCEAN WEALTH
(RESOW UK)**

**SUSTAINABLE AND
RESILIENT COASTAL
COMMUNITIES**

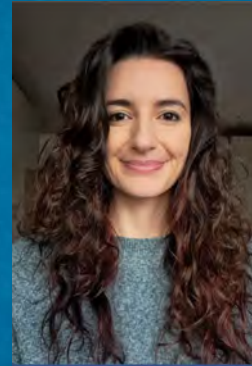
**MARINE SPATIAL
PLANNING
ADDRESSING
CLIMATE EFFECTS
(MSPACE)**

**PYRAMIDS OF LIFE:
WORKING WITH
NATURE**

**CO-BENEFIT
SOLUTIONS FOR
RESILIENT COASTS
(CO-OPT)**

**INTEGRATING
DIVERSE VALUES
INTO MANAGEMENT**

- Six major projects funded ~£10m
- SMMR-Net launched and program of events
- Annual SMMR Conference –
- 2025- MASTS ASM 18-20th Nov
- Good engagement from MS Policy Stakeholders
- Second tranche – “delivery” phase



SMMR-Net

Gaining momentum as focus for wider SMMR community engagement
Ringfenced budget of £200k to support SMMR Net development

Three strands –
Establishing a networking platform through the SMMR website
Interdisciplinary/transdisciplinary training and development
Mobility – especially for ECRs

OCEAN PARTNERSHIPS

Ocean Partnership provides a network to connect with scientist, artists, policy makers, public venues, economists and more... to meet and inspire collaborations surrounding ocean topics!



OPT IN NOW

CONNECT MONTHLY SPEED NETWORKING

- Join in for the monthly speed networking where you will be able to meet multiple people from different disciplines/sectors in a single session.

INSPIRE THEMED DISCUSSION MONTHS

- Monthly networking sessions will be themed around topics of interest, such as Scotland's Blue Economy Vision and opportunities such as upcoming research funding.
- Host your own networking session around a specific topic to inspire new collaborations around your area of interest.

COLLABORATE MEET NEW PEOPLE

- Exploring key challenges together through different disciplinary lenses is a great way to get new insights, spark novel ideas and future collaborations.

IMPACT HELP SHAPE THE NETWORK

- Work together to provide feedback on the impact of collaborations and projects and help shape the future of the Ocean Partnerships and improve the network





Natural
Environment
Research Council



Economic
and Social
Research Council

Upcoming SMMR 2023 Events

SMMR-NET Events



SMMR Training: Skills for Inter-Disciplinary Research. Held 9th & 10th Feb 2022 for 36 people (cost £1k). Places oversubscribed, so will run again in August 2022.

“Very useful to understand perspectives, barriers and opportunities for interdisciplinary working within academic - I work with different sectors (public, private, third) and would like to bring academia into the fold to a greater degree”

“The broad range of people participating made the discussions very interesting. The presented material was good. All the interactive parts were very good”





**RESTORATION OF
SEAGRASS FOR
OCEAN WEALTH
(RESOW UK)**



**SUSTAINABLE AND
RESILIENT COASTAL
COMMUNITIES**



**MARINE SPATIAL
PLANNING
ADDRESSING
CLIMATE EFFECTS
(MSPACE)**



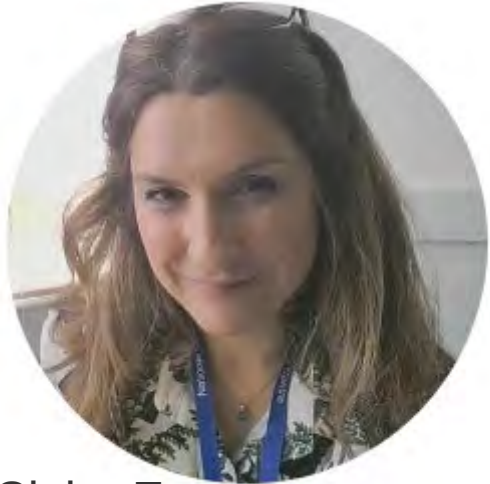
**PYRAMIDS OF LIFE:
WORKING WITH
NATURE**



**CO-BENEFIT
SOLUTIONS FOR
RESILIENT COASTS
(CO-OPT)**



**INTEGRATING
DIVERSE VALUES
INTO MANAGEMENT**



Claire Evans



LOUISA EVANS



ANA QUEIRÓS



John Pitchford

Laurent Amoudry



PROF STEVE
FLETCHER





This research will be the first to develop a nexus perspective on resilience, wellbeing, and sustainability to acknowledge that any solution for one objective must equally consider the other two in the nexus.



Introducing the Marine Planning Trade-off Analysis (MaPTA) tool

Marine Planning Trade-off Analysis (MaPTA) is a low-tech, participatory tool designed to lead stakeholders step-by-step through a process to identify the trade-offs arising from management interventions. It will help you to assess and decide the extent to which trade-offs are acceptable, or unacceptable, to different stakeholders. It will also support you to identify response options to address potentially harmful and unacceptable outcomes.



How to access and use MaPTA

MaPTA is freely available to use. Facilitator instructions for implementing MaPTA offline or online can be **downloaded here**.

The University of Exeter team that developed MaPTA would be delighted to hear from you. Contact Matt Fortnam at m.fortnam@exeter.ac.uk

Key Policy Recommendations:

1. Innovate with more streamlined and integrated policy to reduce the regulatory 'pressure' on marine users to increase their adaptive capacity.
2. Develop tailored support for marine users and facilitate access to social support networks and organisations that can support their coping responses.
3. Establish thresholds for unacceptable trade-offs that breach environmental boundaries and social foundations and employ deliberative trade-off tools (like MaPTA) to improve the transparency and acceptability of decisions.

Marine Spatial Planning Addressing Climate Effects (MSPACE)

[← Back to Funded Projects](#)



MSPACE
Marine Spatial Planning
Addressing Climate Effects

The highly integrated, multidisciplinary MSPACE project aims to drive forward the capability of the four UK nations in designing and implementing economically viable and socially acceptable climate-smart marine spatial plans (MSP). The project is designed to support ambitions of government policy, the industrial sector, and communities to ensure sustainable management of marine resources and improve the marine environment for the next generation.

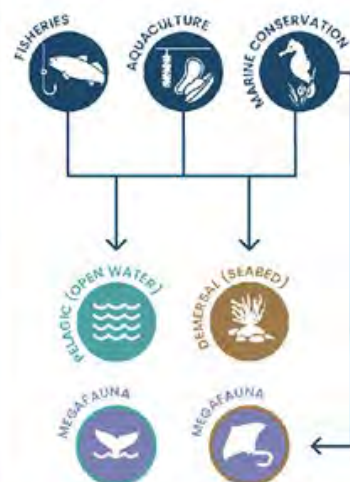
CLIMATE-SMART MANAGEMENT OF UK SEAS

Climate change is already affecting species and habitats in UK seas. These effects are set to markedly increase if greenhouse gas emissions continue to rise and accelerate global warming. Given this urgency, more specific guidance and support is needed to enable planners and other marine managers to implement climate-smart solutions.

This infographic illustrates the projected impacts of climate change on the marine conservation, fisheries, and aquaculture sectors in the UK Exclusive Economic Zone (EEZ), by showing where, and for how long, environmental conditions remain favourable for these sectors over this century.

1

The effects of climate change on fisheries, aquaculture and marine conservation were explored for pelagic (open water) and demersal (seabed) environments. Megafauna were analysed for marine conservation only.



2

State of the art climate modelling was used to simulate two emissions scenarios:

1. **2°C global warming future**
moderate emissions scenario

2. **4°C global warming future**
high emissions scenario

3

Each area of the UK EEZ was then categorised according to whether they would become 'Climate Change Hotspots' or 'Climate Change Refugia'

• **Climate Change Hotspots**
= areas where climate-related pressures drive the natural ecosystem into a different state (a negative effect).

• **Climate Change Refugia**
= areas that exhibit long-term climate change resilience (remaining similar to present day).

5

Conclusions:

- Spatially explicit strategies are now needed to address the effects of climate change through marine planning and other spatial management mechanisms across the UK nations and regions.
- Identified marine Climate Change Refugia could be used as part of those strategies, focused on sites that exhibit natural climate change resilience. The location of identified marine Climate Change Hotspots may be used, in turn, to inform the development of spatially explicit climate change adaptation strategies.
- Impacts may arrive earlier and be more widespread under high emissions. Strong curbs to greenhouse gas emissions represent the best hope for UK marine ecosystems, and a sustainable blue economy.

The summary report and full report can be found [here](#).

4



Identified widespread long-term Climate Change Refugia could support pelagic fisheries under a moderate emissions scenario, but are greatly reduced under high emissions.

Climate change impacts are expected to be widespread by mid-century under both emissions scenarios. Management measures may support more resilient target species (e.g. hake and saithe).



Under both emission scenarios, Climate Change Hotspots would emerge throughout the UK EEZ and may reduce the growing potential of currently farmed species in coming decades.

Under both emissions scenarios, widespread Climate Change Refugia could support sector expansion for shellfish aquaculture.



Under a moderate emissions scenario, Climate Change Refugia are expected to be widespread, but are substantially reduced by the next decade under high emissions.

Climate Change Hotspots are expected to encompass many existing conservation sites, but some long-term climate change refuges could be identified. Other uses of the marine environment may exacerbate climate effects.

Under both emissions scenarios, Climate Change Hotspots are widespread as early as the 2030s.

Under a moderate emissions scenario, Climate Change Refugia are expected to be widespread, but are substantially reduced under high emissions.



This map illustrates the location of sites identified as long-term marine Climate Change Refugia, with high confidence (both emissions scenarios assessed).

Map key:

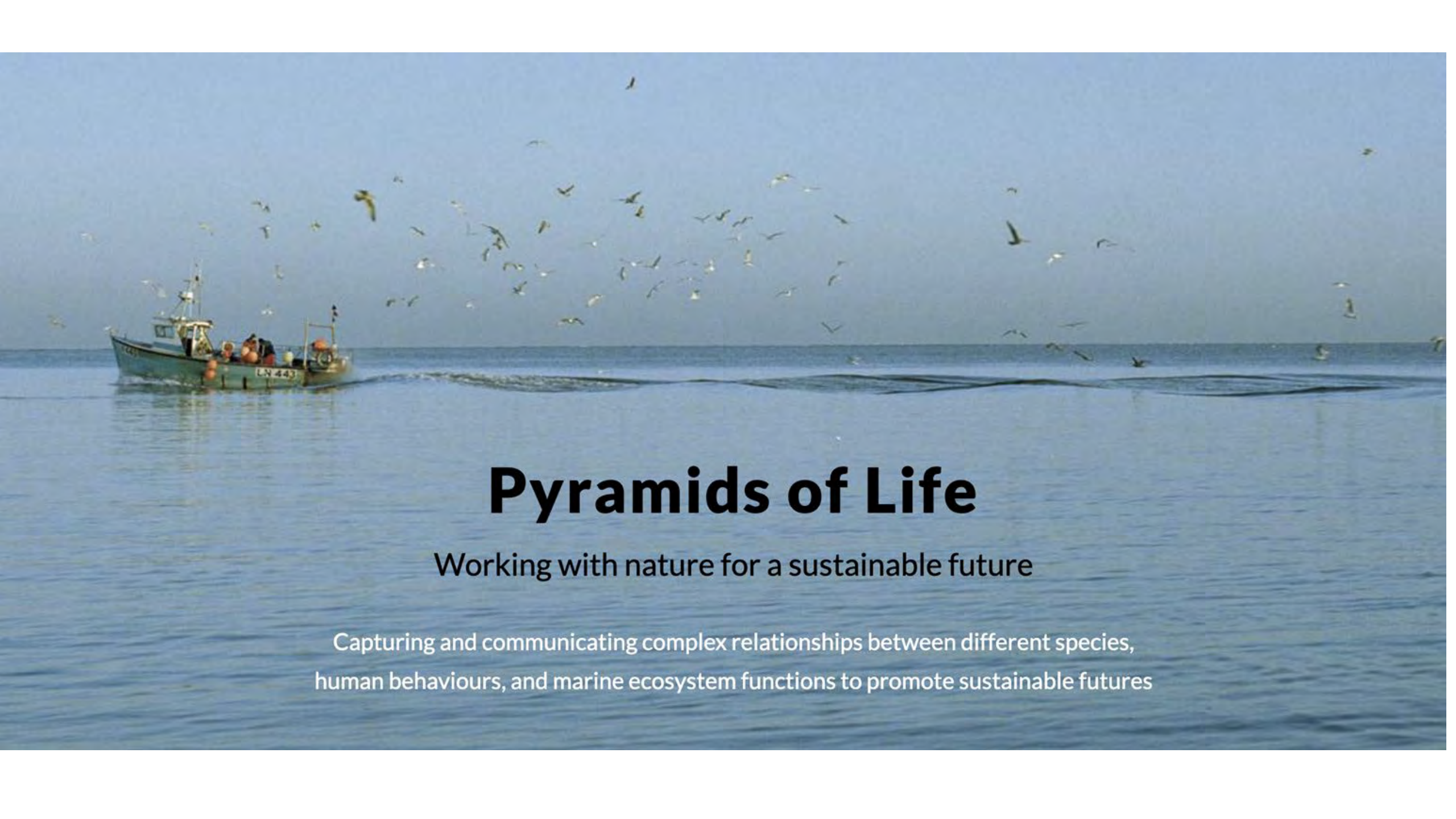
- PELAGIC FISHERIES
- DEMERSAL FISHERIES
- PELAGIC MEGAFUNA
- DEMERSAL MEGAFUNA
- PELAGIC AQUACULTURE
- DEMERSAL AQUACULTURE
- DEMERSAL HABITATS

*Pelagic habitats were not visualised from this analysis because there were no long-term Climate Change Refugia when both emissions scenarios were assessed together.



Key Policy Recommendations

- 1. Make Marine Plans Spatial:** UK marine plans must be empowered with spatial authority to directly influence sectoral decisions and licensing processes, enabling effective implementation of climate-smart policies.
- 2. Integrate Marine Planning into Sectoral Policy:** Marine planning should be a central driver of climate adaptation across all marine sectors. Closer coordination between planning authorities, Defra and industry regulators is essential.
- 3. Build a UK Community of Practice:** Establish a national platform for knowledge-sharing, data integration, and coordinated action on climate-smart MSP across UK nations and regions.



Pyramids of Life

Working with nature for a sustainable future

Capturing and communicating complex relationships between different species, human behaviours, and marine ecosystem functions to promote sustainable futures

DESIRED CHANGE

Increase the **sustainability** of UK fishing
Nudge fish consumption demand
Improve communication of complex information

CURRENT SITUATION

Fisheries **management** relies on **single species modelling**
UK fisheries are overfished, bar undervalued species
UK consumers favour mostly imported 'Big 5' species

OUTCOMES

Fisheries management using **best available science**
Educating & **inspiring** university **chefs**
Simplifying evidence on interactions among fish species in multi-species fisheries & linking biomass pyramids to fishing pressure & options to enhance local fishing & nutrition

PROJECT IMPACT

Proof of Pyramids of Life **concept** linking fish: stocks, catch, revenues, nutrition
Informed Celtic Sea/Southwest **FMPs** through multi-species modelling support and advice
Updated evidence of UK consumer fish **preferences** and **effectiveness** of behavioural **nudges**

Utilise novel **data & Mizer** to improve multi-species **modelling** of on UK fisheries

Survey the drivers of UK consumers' fish **preferences** & effectiveness of **nudges**

Collaborate with retailers, fisher groups, chefs, MMOs, ICES, Defra + others to **shift** status quo

LEVERS OF CHANGE

- **Co-development** of Fisheries Management Plans (**FMPs**)
- **Co-design** of Mizer-modelling-based user-friendly **Shiny App**
- **Working with** university **chefs** & food outlets to **nudge** younger consumers' (**students'**) fish-eating habits
- **Accessible communication outputs** for the public, fishers, regulators, consumers, e.g., Q, science snippets, graphics



Key Policy Recommendations

1. **Embed Ecological Models in Fisheries Policy:** Move beyond single-species frameworks to integrated, ecosystem-based management tools.
2. **Support Behavioural Interventions for Consumers:** Encourage policy that enables retailers and institutions to nudge consumers toward more sustainable seafood.



ReSOW UK

Restoration of Seagrass for Ocean Wealth

[About](#)

[Study locations](#)

[People](#)

[Partners](#)

[Outputs](#)



The ReSOW UK Project

Restoration of Seagrass for Ocean Wealth



UK Government has recognised the need for nature-based solutions to climate change as part of the UK's target of reaching Net Zero emissions by 2050.

Seagrass meadows create a highly efficient and long-term store of carbon in their marine sediments; their restoration allows them to become a key contributor to these solutions.



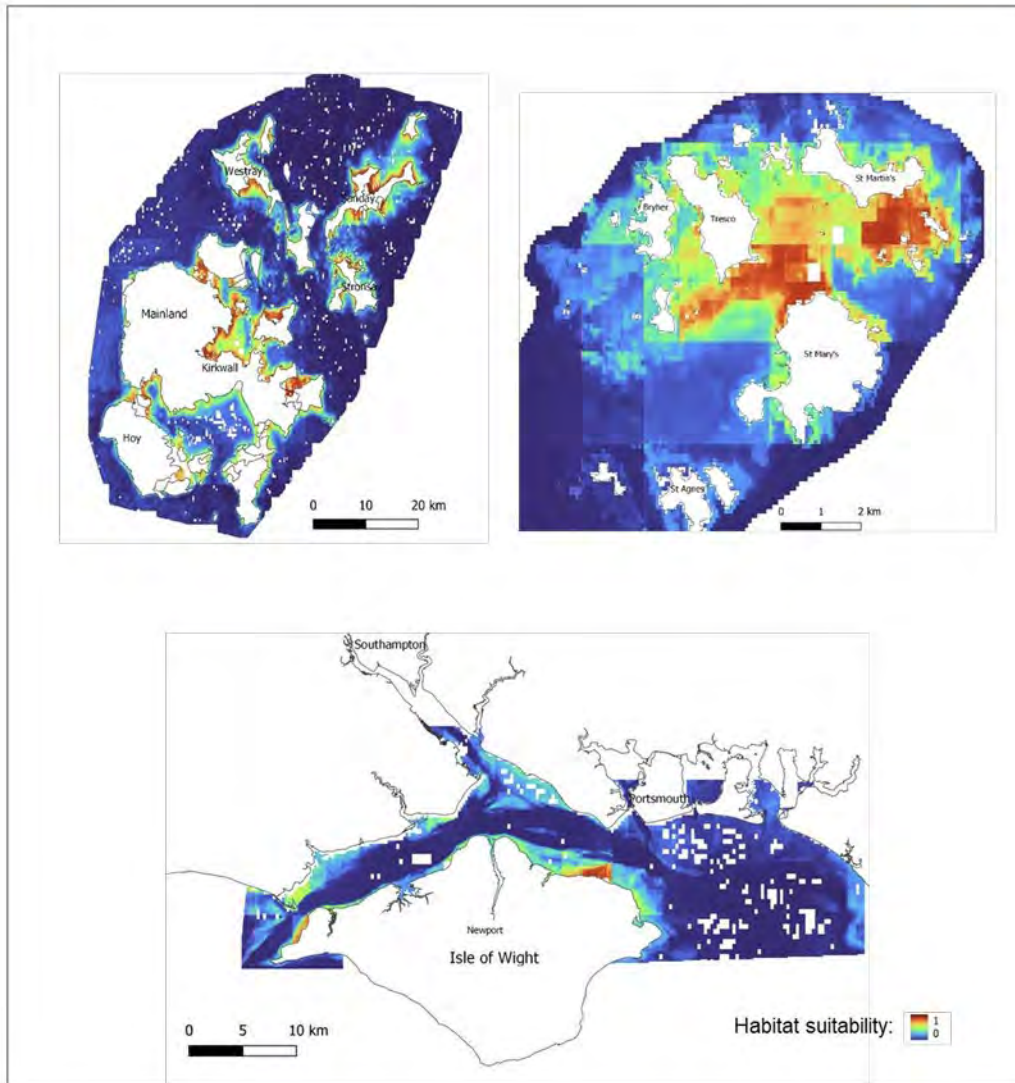


Figure 3 Example results from 3 case study site HSMs, Orkney Isles (top left), Isles of Scilly (top right) and the Solent (bottom). Probability of suitability is from 0-1 displayed as a heat map output.

All results are made available on the ReSOW CEEDS tool which can be found here: <https://ceeds.resow.uk/>



Figure 1 Case study sites around the UK chosen to encompass environmental gradients and locations in which seagrass is found and, in some cases, already being restored.

Key Policy Recommendations

- **Address Barriers to Restoration:** Bottlenecks hindering seagrass restoration, such as complex licensing processes and conflicting coastal uses, must be actively addressed.
- **Increase Financial Investment in Restoration and Protection:** Increased financial support for seagrass restoration initiatives is crucial, alongside efforts to address the root causes of seagrass loss, such as poor water quality. Alongside this, holding polluters accountable for negative impacts on seagrass health is essential for long-term success.

Integrating Diverse Values into Marine Management

Funded Projects



Diverse Marine Values

Integrating Diverse Values into Marine Management

This research project is helping to create a step-change in the transdisciplinary capability of the UK marine policy and research community in order to use diverse values in decision making to support the sustainable management of the UK's marine resources.



Photo Essays

MAY
2024

Landscape to Seascape

[View](#)

MAY
2024

Tides of Change: Shetland

[View](#)

MAY
2024

Island City: Portsmouth

[View](#)

Key Policy Recommendations

- 1. Integrate Diverse Values into Decision-Making:** Move beyond economic valuation to consider cultural, ecological, and community-held values.
- 2. Build Structural Capacity for Transdisciplinarity and Co-Creation:** Embed inclusive engagement and creative methodologies into institutional marine governance frameworks. Empower communities through participatory methods like CVM and theatre to meaningfully shape policy outcomes.
- 3. Reform Governance Structures:** Address the fragmentation of marine policy that hinders the inclusion of non-economic values.

Co-benefit Solutions for Resilient Coasts (Co-Opt)

› Funded Projects



Co-Opt will deliver a new integrated and interdisciplinary system-based framework that will effectively support the required transition from hard 'grey' defences to softer 'green' solutions in coastal and shoreline management.



Using Soft Systems Modelling to understand decision-making about coastal schemes

Compiled by

Dr Tim Stojanovic, University of St Andrews
Dr Marta Meschini, University of Liverpool



This work has been sponsored by the NERC-ESRC Sustainable Management of Marine Resources Programme as part of the CoOpt Research Project [NCR10332]. [CoOpt website](#)



UNIVERSITY OF
LIVERPOOL



National
Oceanography
Centre

Key Policy Recommendations

- Better integration of system complexity and interactions, e.g. multiple types of flooding.
- Improved treatment of uncertainty in planning.
- More nuanced consideration of future scenarios in the design of soft defences.

Champions





Champion – PI Group Meetings

Important interdisciplinary – interproject relationships have developed

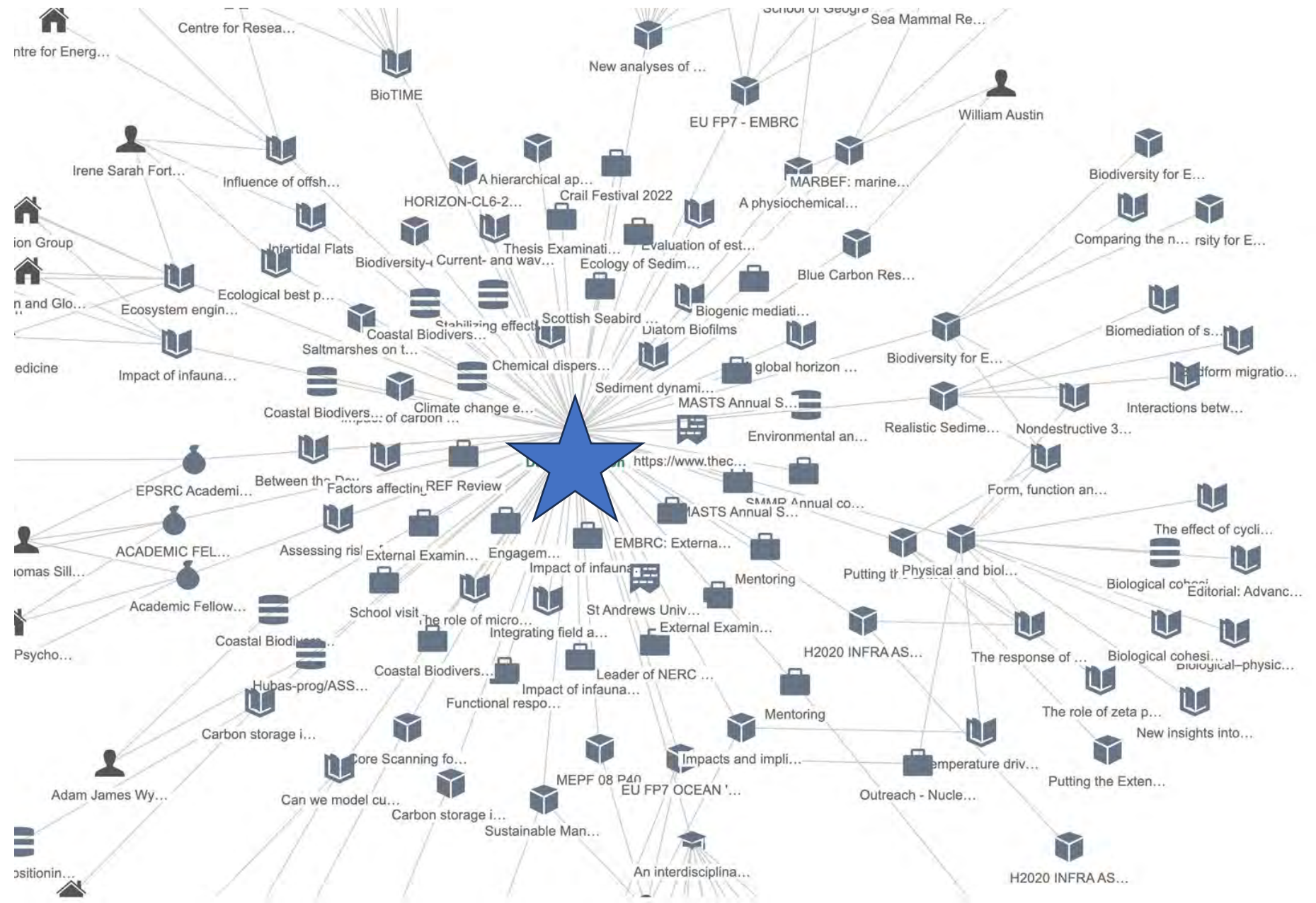
Direct collaboration in some case studies – joint working (examples....MSPACE-ReSOW...others...???)

Indirect collaboration through joint learning – through PI Group meetings

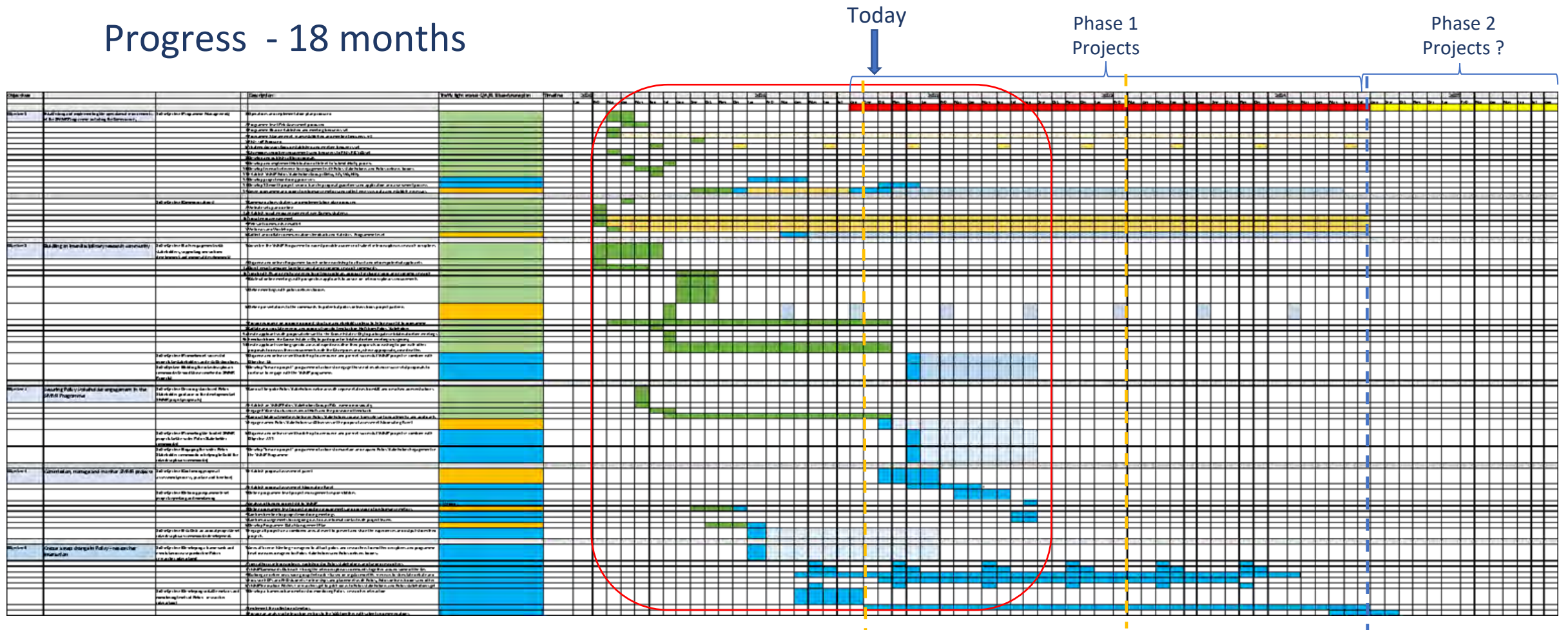
Reflected in desire of projects to work together under second tranche funding applications

Champions have reiterated throughout – the need to focus outputs on useful, usable products (interventions and tools).

For second tranche funding – PIs understand that they need to have a defined user or user group for their project outputs.



Progress - 18 months



18 month
Programme
review

18 month
Project
review

Feb/Mar 2023 – 18 month Project Review?
Late 2023/early 2024 – proposals for 2nd tranche?

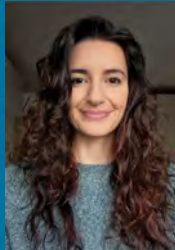
Most risks have declined most remain neutral two risks have increased:

- Insufficient funding
(associated with higher than budget costs) _____

[illegible]



SMMR Programme





**Coast-R
Network**

Our next Webinar takes place on 17 September 2025

‘Strategic Coastal Monitoring – a Resource for Resilience’

Dr. Charlie Thompson, Director of the Channel Coastal Observatory at the University of Southampton

ukcoastalresilience.org

[#CoastRNetwork](https://twitter.com/CoastRNetwork)



**Coast-R
Network**

Thank you for joining us

Have you joined the Network?

ukcoastalresilience.org



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