

NET ZERO

ISLE OF MAN

THE MANX BLUE CARBON PROJECT



Un aarkey, un traa ry-heet - One ocean, one future

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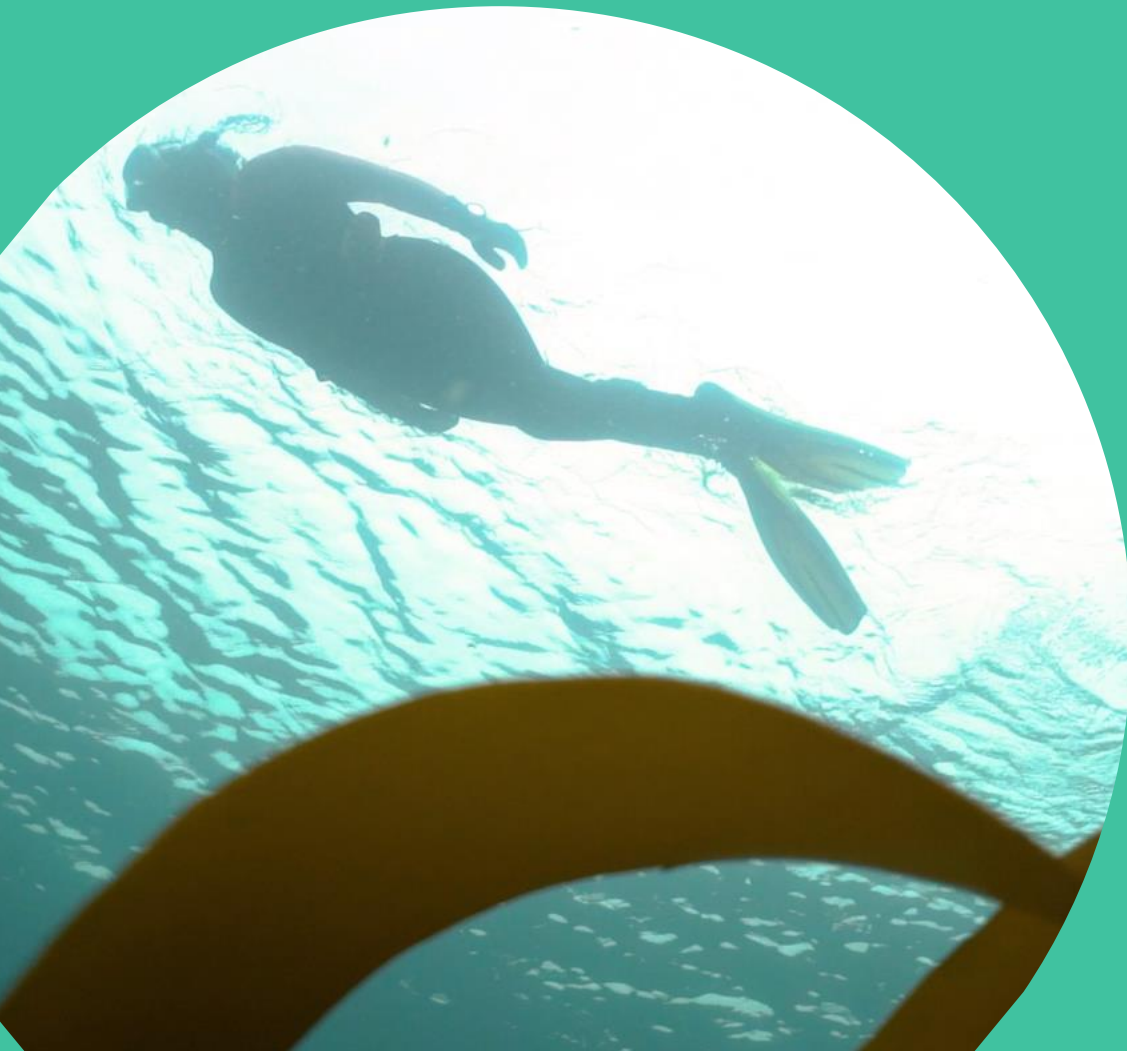
ISLE OF MAN

- **BLUE CARBON**
 - What it is
 - Why it's important
- **THE MANX BLUE CARBON PROJECT**
 - Aims and approach
 - The story so far
 - Next steps



SLEIH NY MARREY – PEOPLE OF THE SEA: A BLUE CARBON JOURNEY

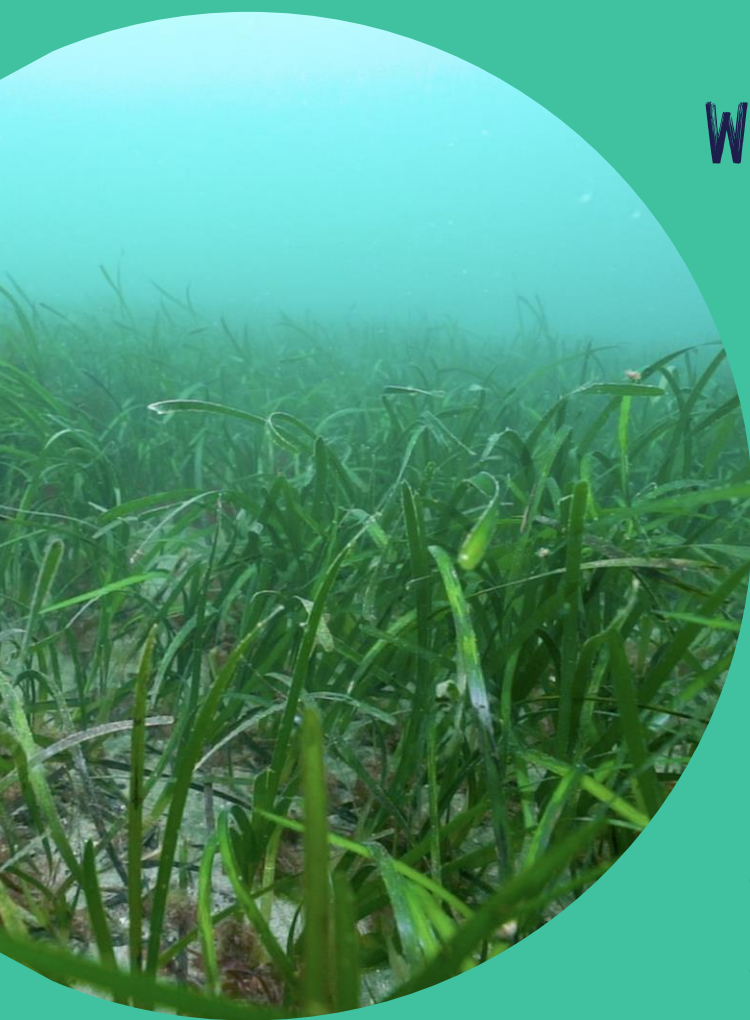
[HTTPS://WWW.YOUTUBE.COM/WATCH?V=L31KCINF2SE](https://www.youtube.com/watch?v=L31KCINF2SE)



WHAT IS BLUE CARBON?

Plants and animals in coastal areas can **capture and store carbon** from the atmosphere. This is known as 'blue carbon'

Blue carbon habitats are a type of **nature based solution** could be an important way of **reducing the impact of climate change** on the Isle of Man



BLUE CARBON ECOSYSTEMS



SEAGRASS

MANGROVES



SALTMARSH

ISLE OF MAN'S BLUE CARBON POTENTIAL



SEAGRASS



SALTMARSH

ISLE OF MAN'S BLUE CARBON POTENTIAL



SEAGRASS



MUD



SALTMARSH

KELP



MAERL



HORSE MUSSELS



WHY IS IT IMPORTANT?



CLIMATE AND BIODIVERSITY RESPONSIBILITIES



CO-BENEFITS & OPPORTUNITIES

3 GOOD HEALTH AND WELL-BEING



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



11 SUSTAINABLE CITIES AND COMMUNITIES



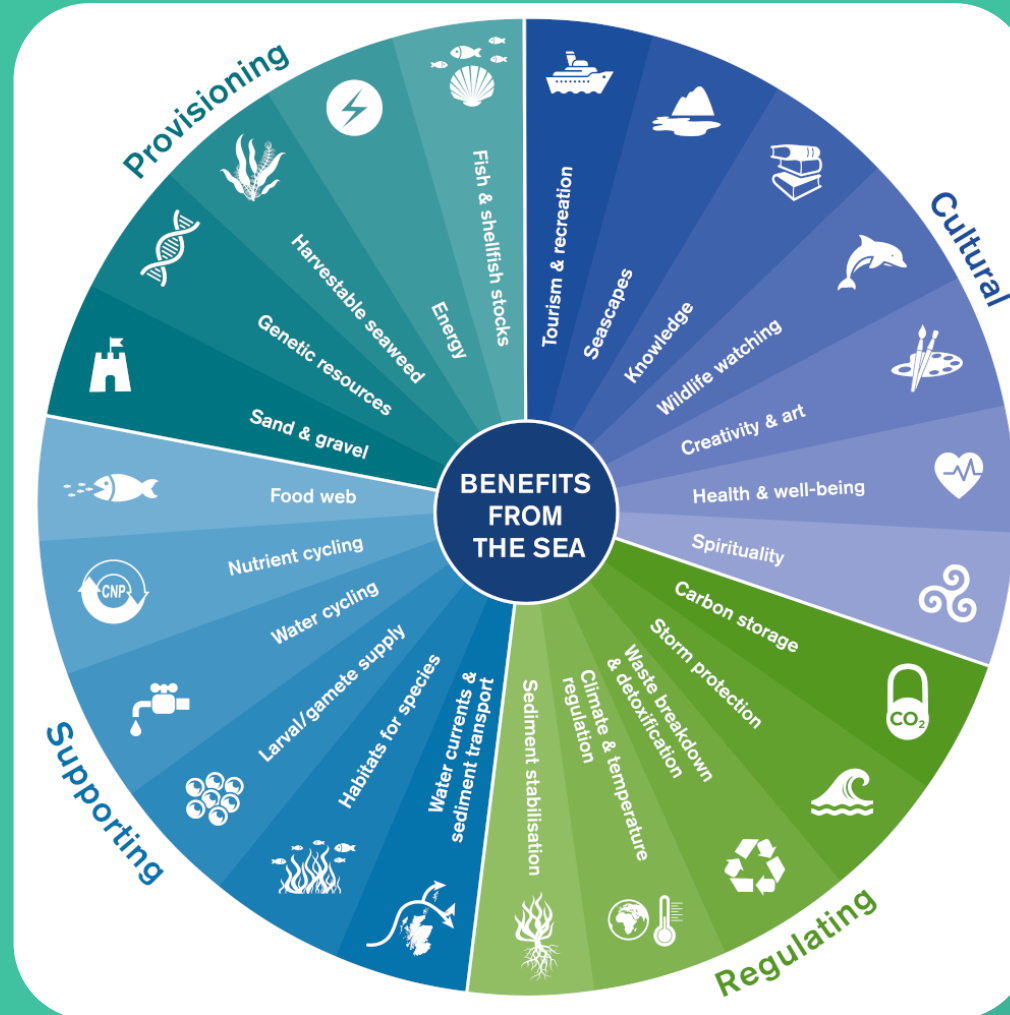
12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



Department of Health and Social Care

Rheynn Slaynt as Kiarail y Theay

DEPARTMENT FOR
ENTERPRISE *im*



ISLE OF MAN
TREASURY
Vn Tashrey

infrastructure
bun-troggalys



Department of Environment, Food and Agriculture

Rheynn Chymmyltaght, Bee as Eirynys



MANX BLUE CARBON PROJECT



THE PROJECT

The Manx Blue Carbon Project aims to understand **how much carbon is stored** in and around Manx territorial waters

With this information we can create a plan to **maximise the amount of carbon** our coastal habitats can naturally store



OUR AIM

“Develop a comprehensive **blue carbon management plan** to maximise the carbon stored and captured in Manx waters, whilst maintaining and restoring biodiversity and ecosystem services”

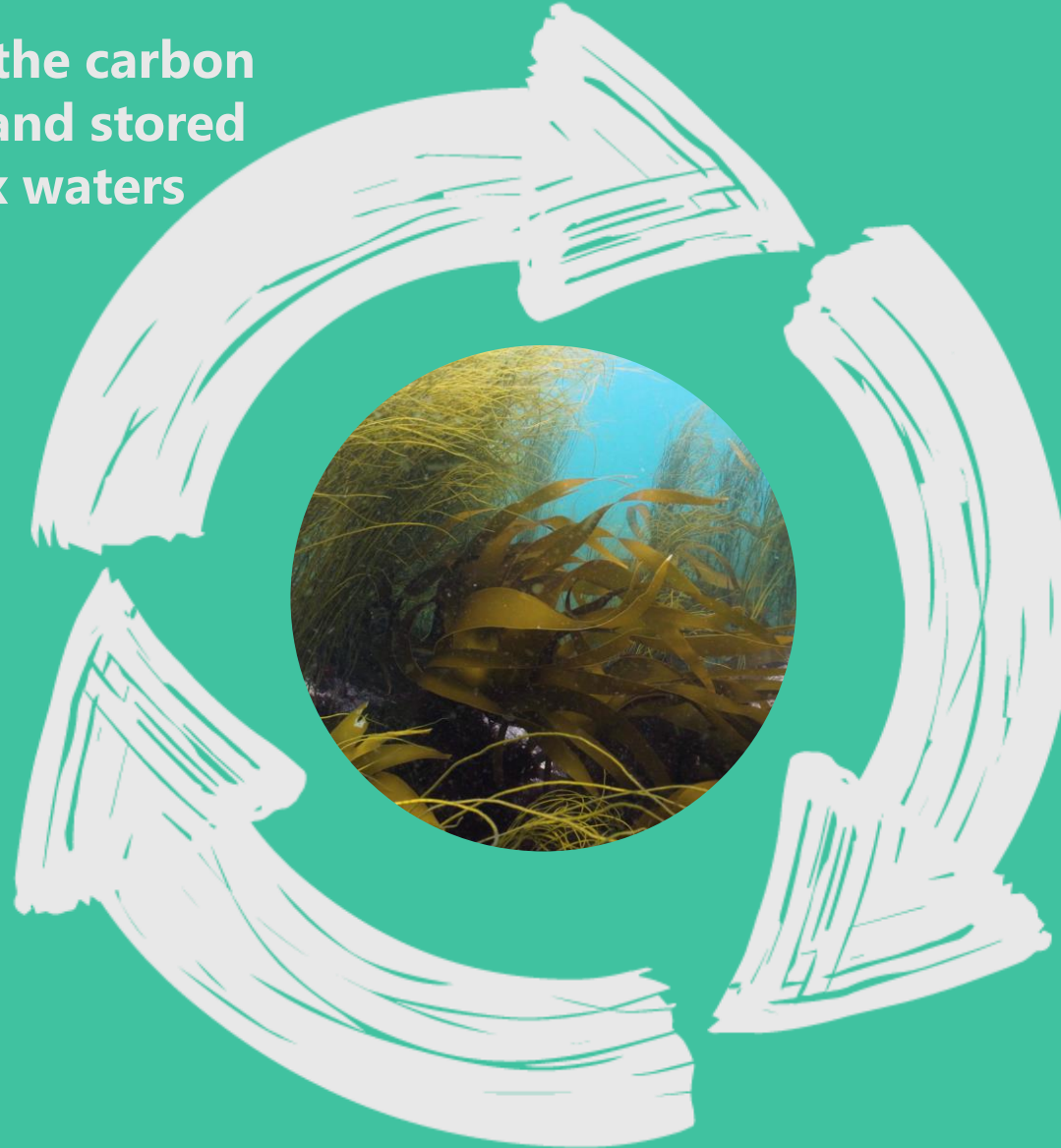


OUR AIMS

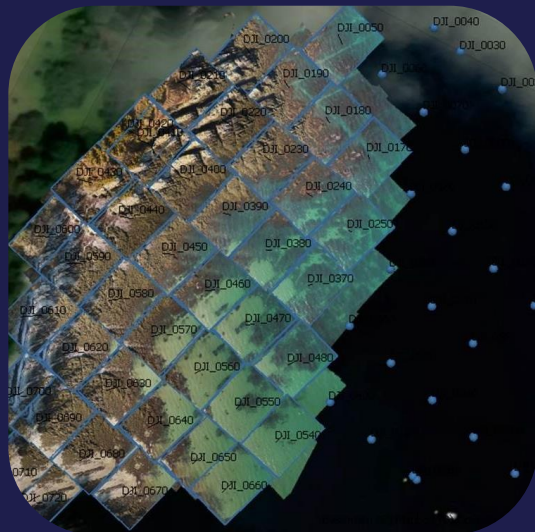
**Maximise the carbon
captured and stored
in Manx waters**

**Maintain
and restore
wider ecosystem
services/functions**

**Maintain
and restore
biodiversity**



HOW?



Map what we have



Quantify capture
and storage

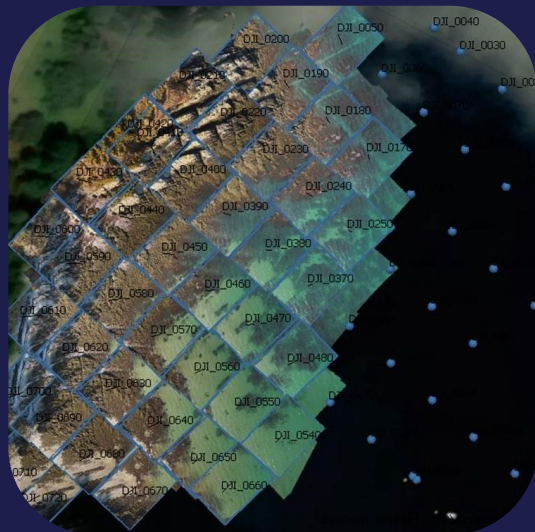


Determine the
key threats -
mitigate against
them



Explore
restoration
potential

HOW?



Map what we have

Feb 2022 - 2023



Quantify capture
and storage



Determine the
key threats -
mitigate against
them



Explore
restoration
potential

Feb 2023 - 2025

OUR APPROACH – RESEARCH



Interactions between fisheries and
blue carbon

PhD to started June 2023



National
Oceanography
Centre



Swansea University
Prifysgol Abertawe

Mapping blue carbon habitats;
quantifying carbon content and
sequestration

PhD started Feb 2022

OUR APPROACH – COLLABORATION

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Business & innovation



Climate change



Fisheries & fisheries
management



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THE MANX BLUE CARBON WORKING GROUP

Biodiversity &
conservation



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Science & research



Spatial planning &
infrastructure
management



THE STORY SO FAR



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University
Prifysgol
Abertawe



DATA COLLECTION

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Prifysgol Abertawe

Mapping blue carbon habitats;
quantifying carbon content and
sequestration

PhD started Feb 2022

Coastal sediments

Offshore sediments



Coastal mapping



COASTAL MAPPING

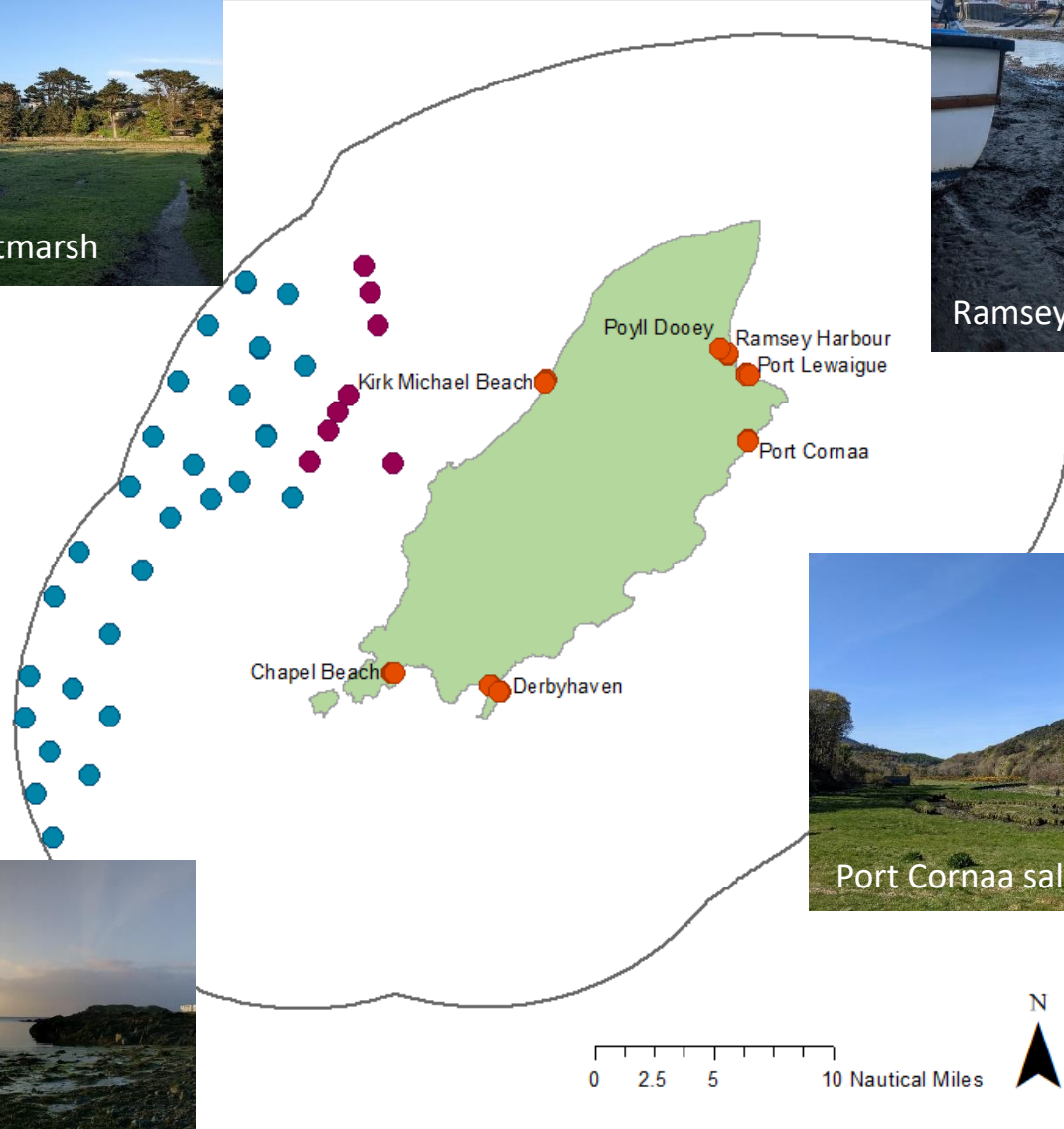
- Carbon levels + map = how much carbon is stored
- Focus so far on seagrass
 - Drone - aerial images
 - Side scan sonar – underwater imagery
 - Manx Wildlife Trust – MEG underwater dive/snorkel surveys



SEDIMENT CORES

- Over 80 cores collected
- 9 coastal sites and across Western Mud Belt

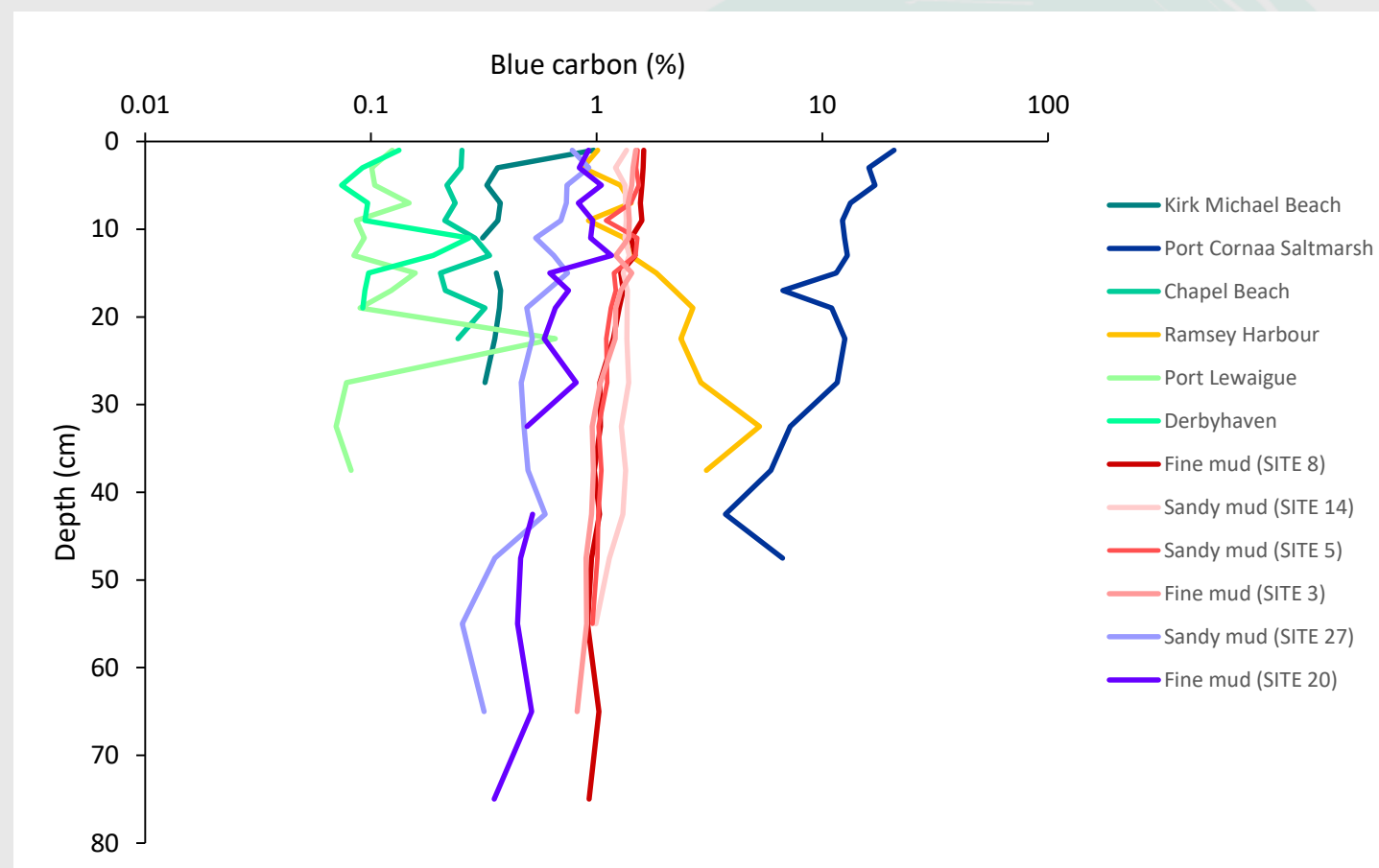
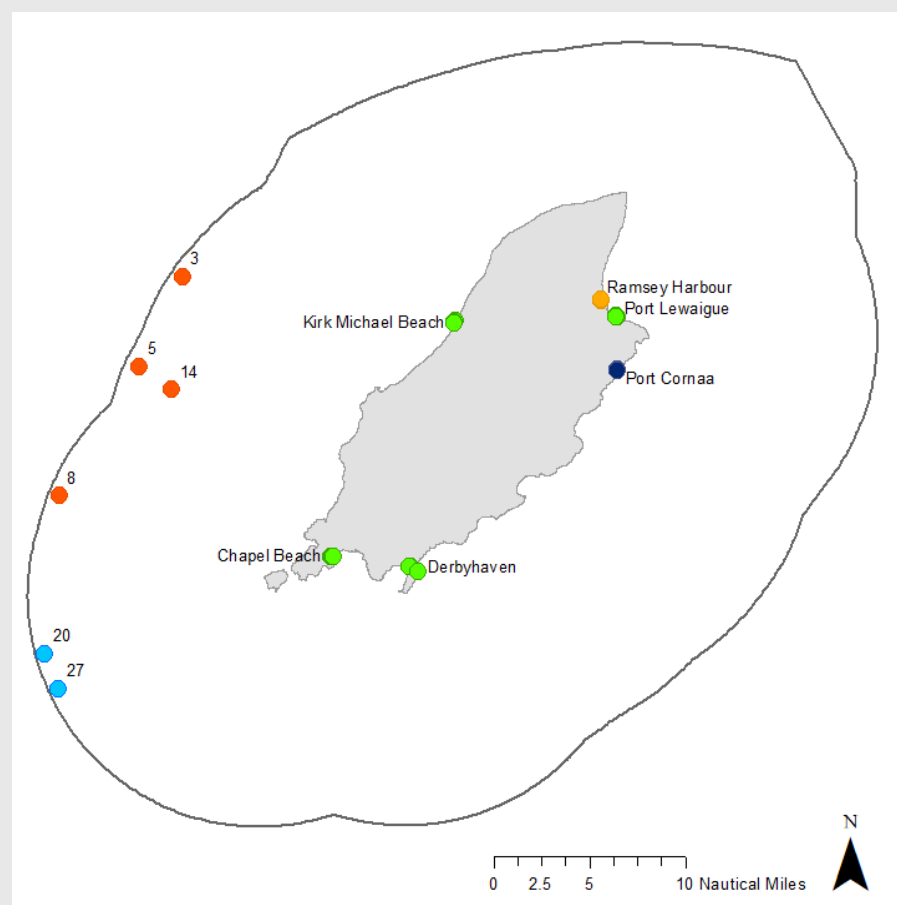




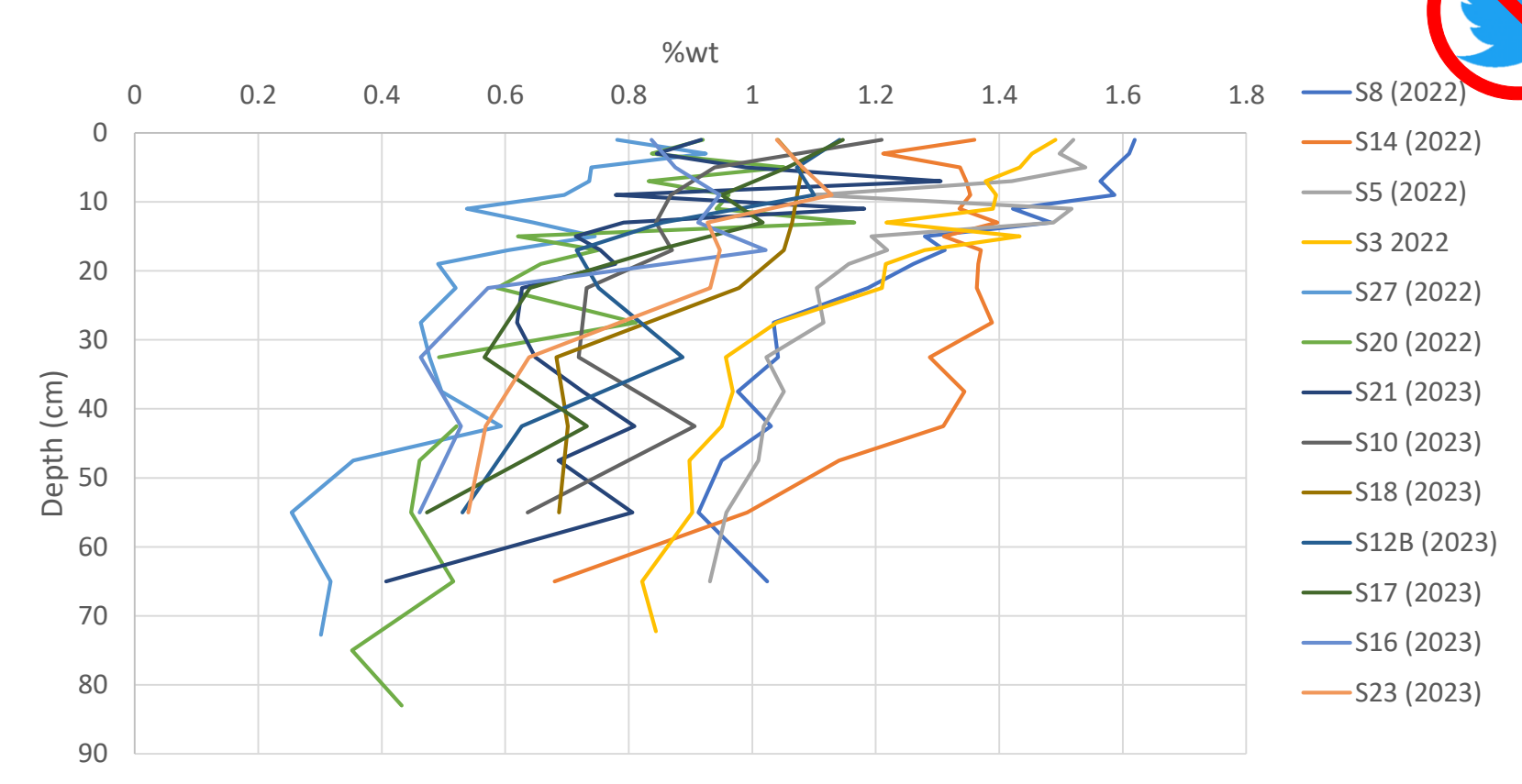


PRELIMINARY RESULTS – YEAR 1

- How much carbon is stored in the sediment?



Offshore sites - Organic carbon (%wt)



| Sediment depth (cm) | %OC content (wt%) ^a | %OC content (wt%) ^{b,c} | OC stock (MgC/ha) ^a | OC stock (MgC/ha) ^{b,d} |
|---------------------|--------------------------------|----------------------------------|--------------------------------|----------------------------------|
| 0 – 10 | 1.15 ± 0.27 | 1.10 | 10.84 ± 1.35 | 8.61 ± 0.98 |
| 0 – 50 | 1.00 ± 0.31 | | 47.88 ± 6.62 | |

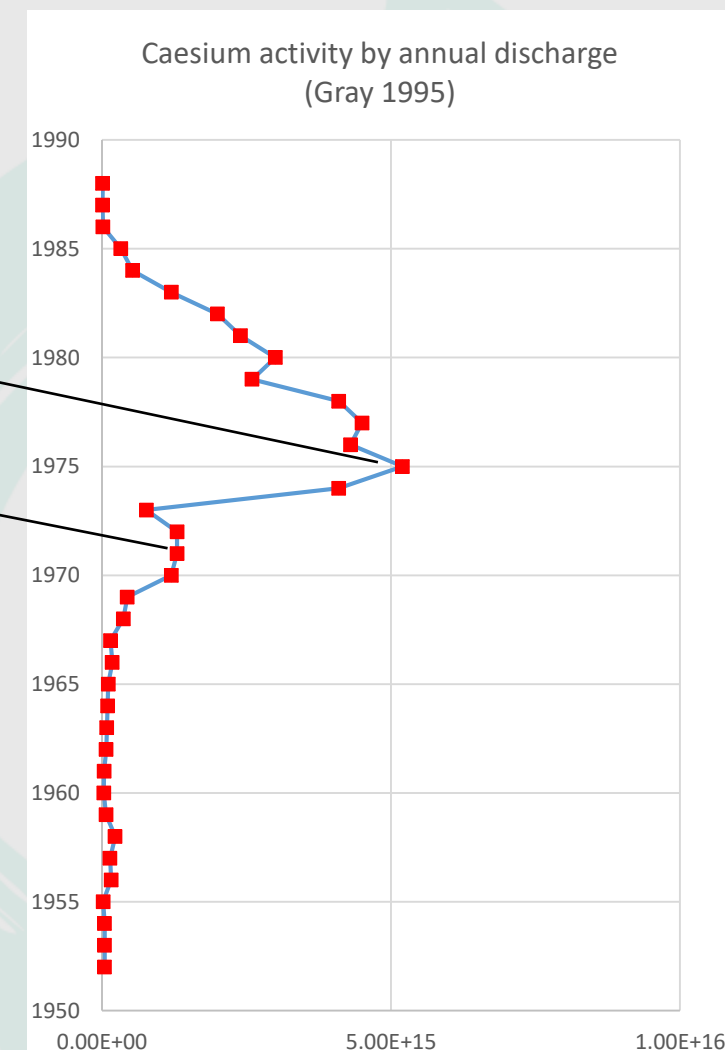
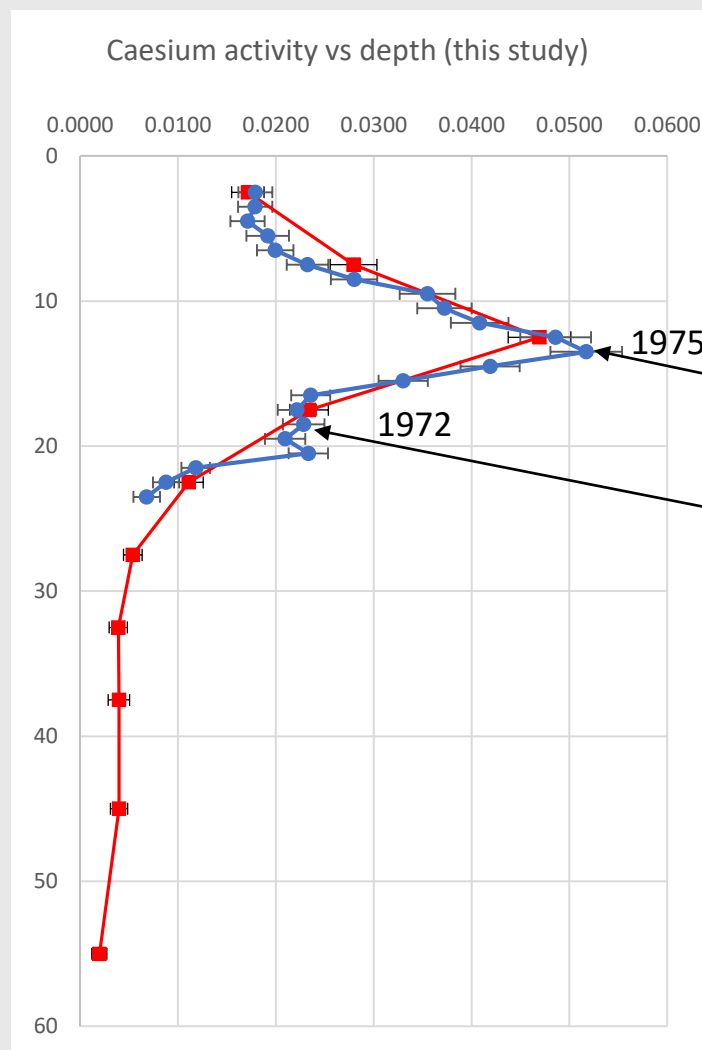
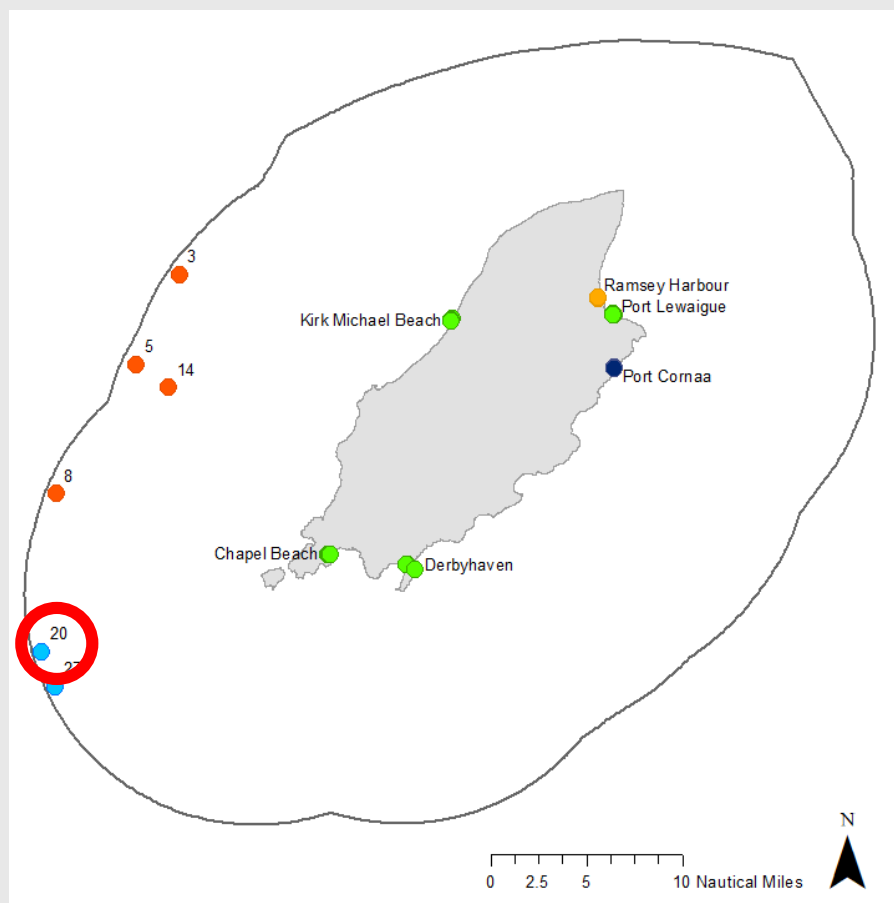
Sediment organic carbon (OC) content (wt%); Sediment organic carbon stock (MgC/ha). ^aThis study; ^bLiterature [1], top 10 cm; ^cUK EEZ continental shelf sediments; ^dIsle of Man continental shelf sediments.

1. Smeaton, C. *et al.* (2021) Marine Sedimentary Carbon Stocks of the United Kingdom’s Exclusive Economic Zone, *Frontiers in Earth Science*. 9:593324.



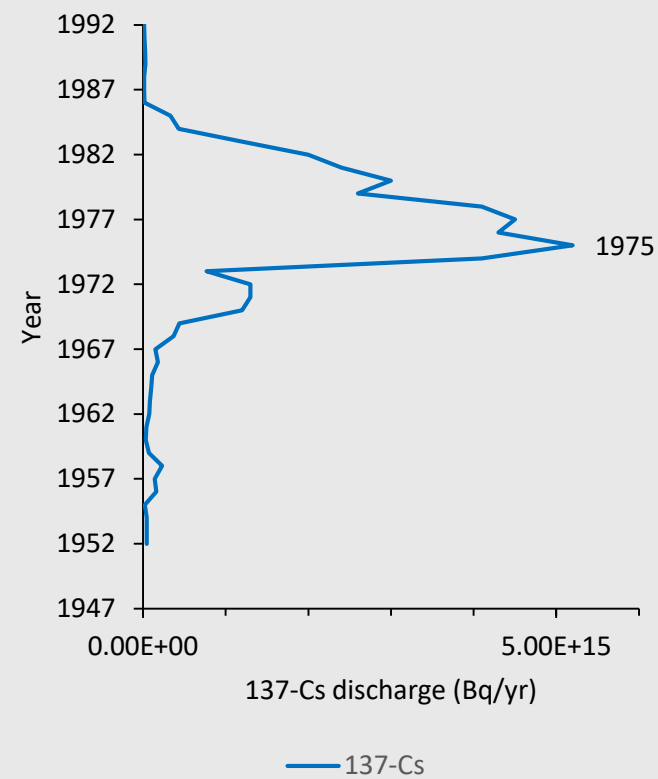
Preliminary results – year 1

- How much carbon is deposited over time?

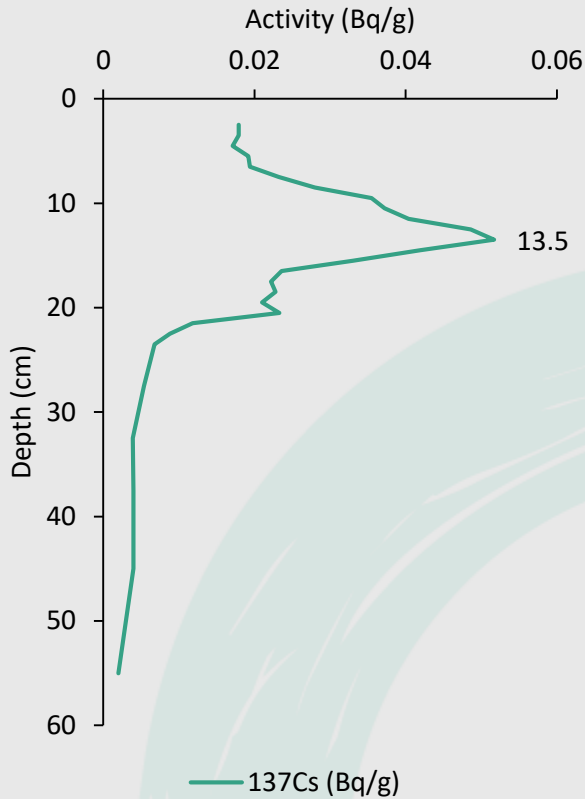


SEDIMENTATION RATES

Discharges of ¹³⁷-Cs radionuclide to the Irish Sea from Sellafield, 1952-1992¹



Study site 1



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| Depth | Year |
|---------|------|
| 0 cm | 2022 |
| 13.5 cm | 1975 |

| Sedimentation rate (cm yr ⁻¹) | 1975 – 2022 |
|---|-------------|
| Study site 1 (S20) | 0.29 |
| Study site 2 (S8) | 0.37 |
| Study site 3 (S4) | 0.31 |
| Literature ² | 0.8 – 1.0 |

1. Gray, J. *et al.* (1995). Discharges to the environment from the Sellafield site, 1951-1992, *Journal of Radiological Protection*. 15(99).

2. Coughlan, M. *et al.* (2015). Record of anthropogenic impact on the Western Irish Sea mud belt, *Anthropocene*. pp. 56–69.

NEXT STEPS



WHAT ARE WE WORKING ON NOW?



**Continue to map,
quantify, and
determine
management
strategies to
maximise blue
carbon**



**Identify and
mitigate
threats both
on land, and at
sea**



**Work with
stakeholders
on
experimental
ways to
protect and
restore blue
carbon**



**Protect
existing
vulnerable
blue carbon
habitats**

WHAT'S NEXT



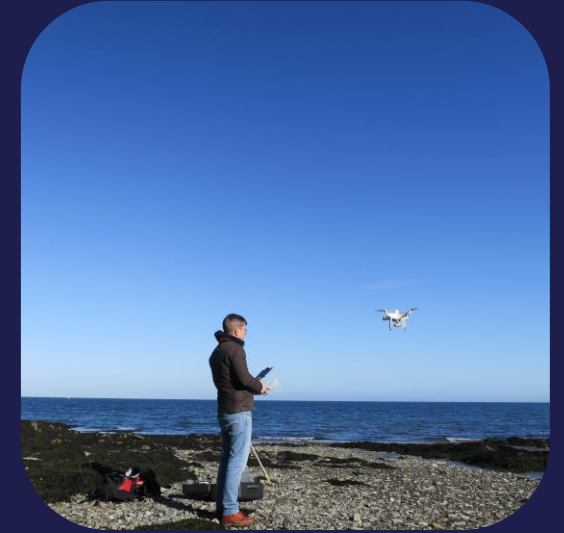
Engage the community on the importance of a healthy sea



Work collaboratively to find innovative ways to fund blue carbon conservation



Develop a management plan that puts the island at the forefront of holistic marine management



Develop monitoring schemes to assess the success of our management approach

QUESTIONS?



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RESEARCH

HANNAH MUIR, PHD STUDENT

SWANSEA UNIVERSITY & NATIONAL OCEANOGRAPHY CENTRE



National
Oceanography
Centre



Swansea
University
Prifysgol
Abertawe



RESEARCH AIMS (PHASE 1A)

- to investigate blue carbon around the Isle of Man
- to provide a blue carbon inventory
- to inform decision making

RESEARCH PROGRESS

- methods used for investigating blue carbon
- preliminary findings



WHY DO WE NEED MANX BLUE CARBON RESEARCH?

- blue carbon is one tool for adapting to and mitigating climate change
- local data collection is essential because blue carbon varies *between and within* countries and habitats
- data collection from different locations around the island → comprehensive and meaningful information

RESEARCH QUESTIONS (PHASE 1A)

- where is the majority of the Manx blue carbon?
- how much carbon is currently stored around the Isle of Man?
- how much blue carbon is added to and stored in the system every year?



MANX BLUE CARBON PROJECT – RESEARCH

BLUE CARBON FIELDWORK

- sample sediments using sediment corers
- over 60 cores have been collected
- special thanks to the crew of fisheries vessel Barrule



BLUE CARBON ANALYSIS

- National Oceanography Centre (NOC), Southampton
 - research facilities and expertise
- British Ocean Sediment Core Research Facility (BOSCORF)
 - split and sample sediment cores
- started to analyse how much carbon is in the sediments and how much is being added over time

