

Organisations



Project



Funders

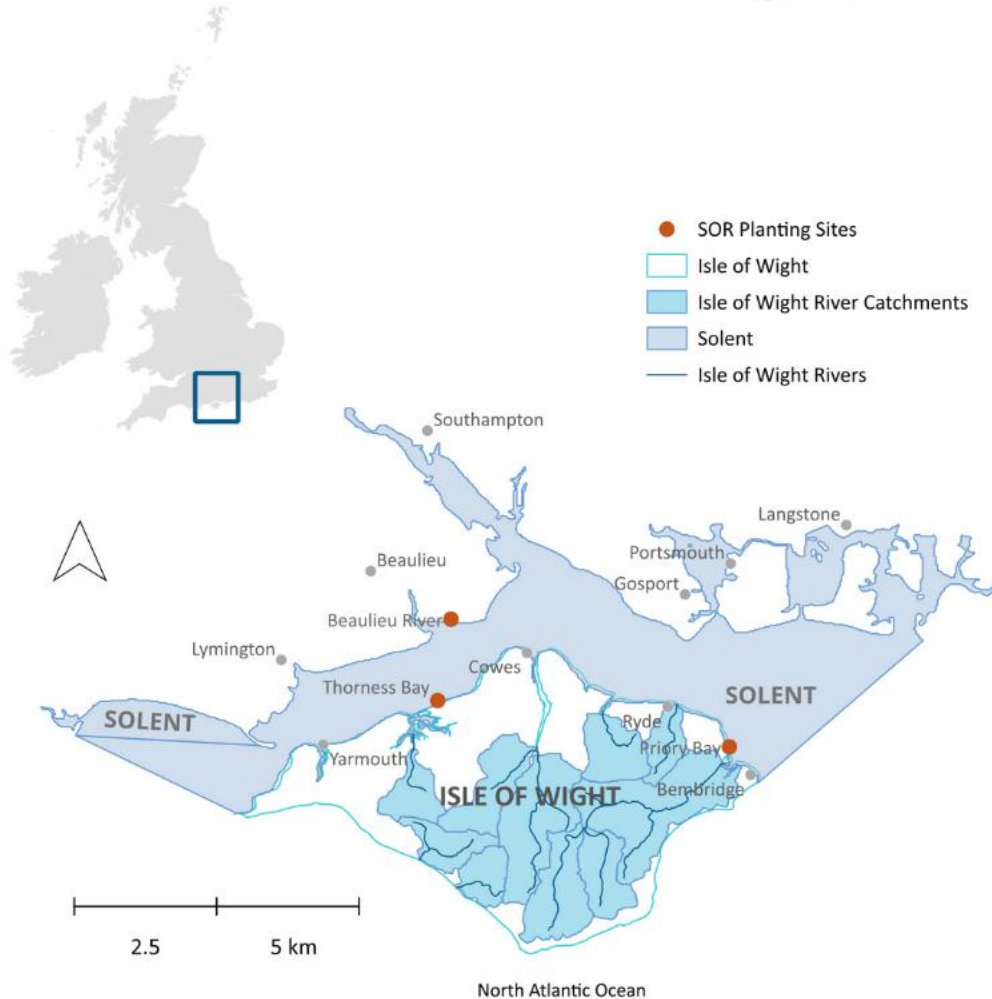


In-field experimental planting-based methodology trials to inform active restoration practices: *Zostera marina*



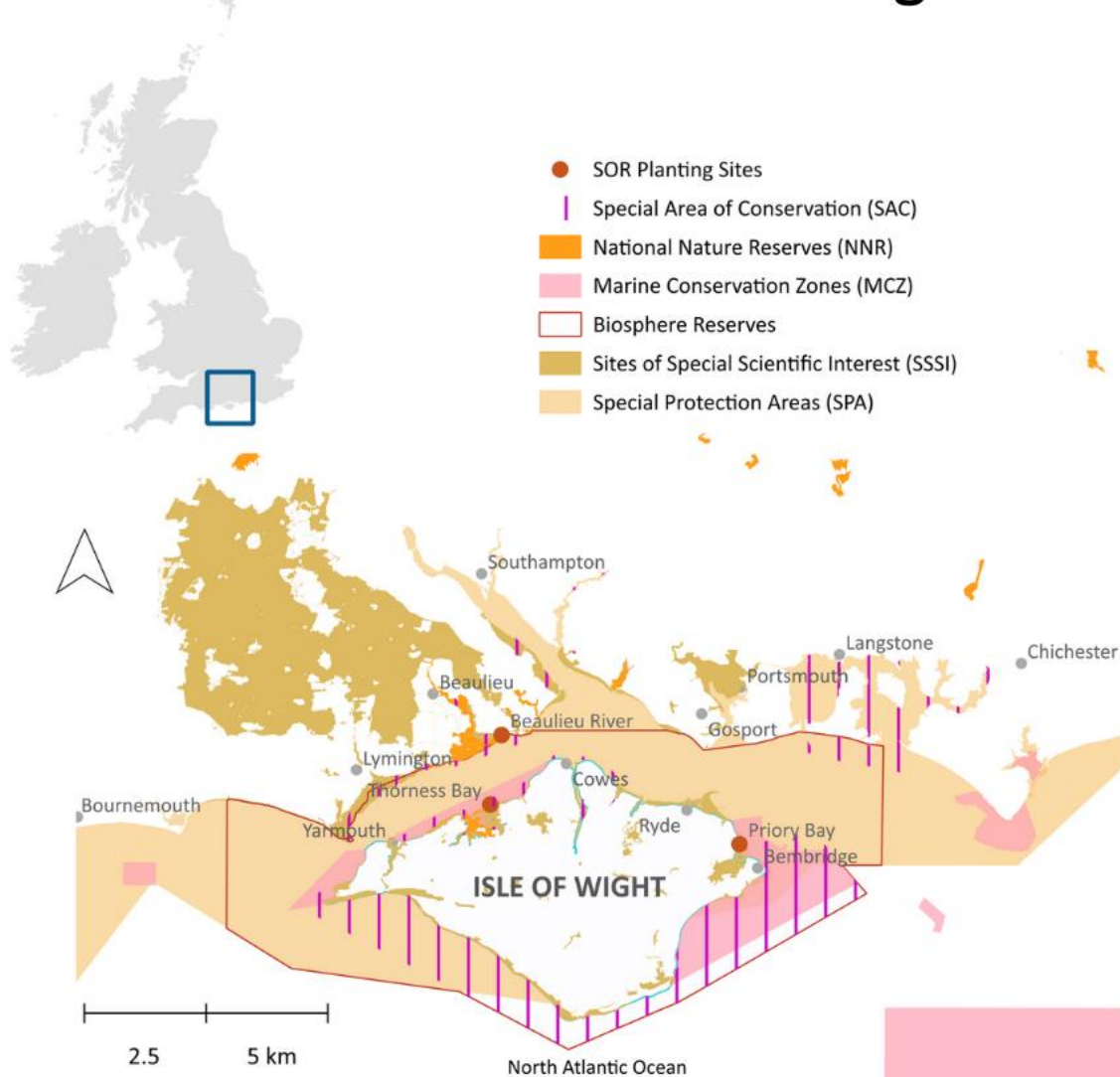
Anouska Mendzil
Swansea University and Project Seagrass

Location: Solent and Isle of Wight, UK



- Solent itself is the channel - 32 km long, 4-8 m wide
- Approximately 250 km² coastline
- Catchment area is 3,360 km²/336,000 ha
- Major shipping lane (military, freight and domestic)
- Sailing area (69 marinas and 24,000 moorings)
- Unique tidal characteristics - double high tides or extended high tides
- Tidal ranges; vary from 2.2 m in the west, 5.1 m in the east

Marine Protected Areas and Designations



- 72 designations (18 featuring seagrass)
- *Zostera sp.* designated feature in its own right (SAC) or for supporting habitat for birds (SPA)
- 117 marine species

Important species include Dark-Bellied Brent Geese, Curlew, Mackerel, Bass, Harbour Seal

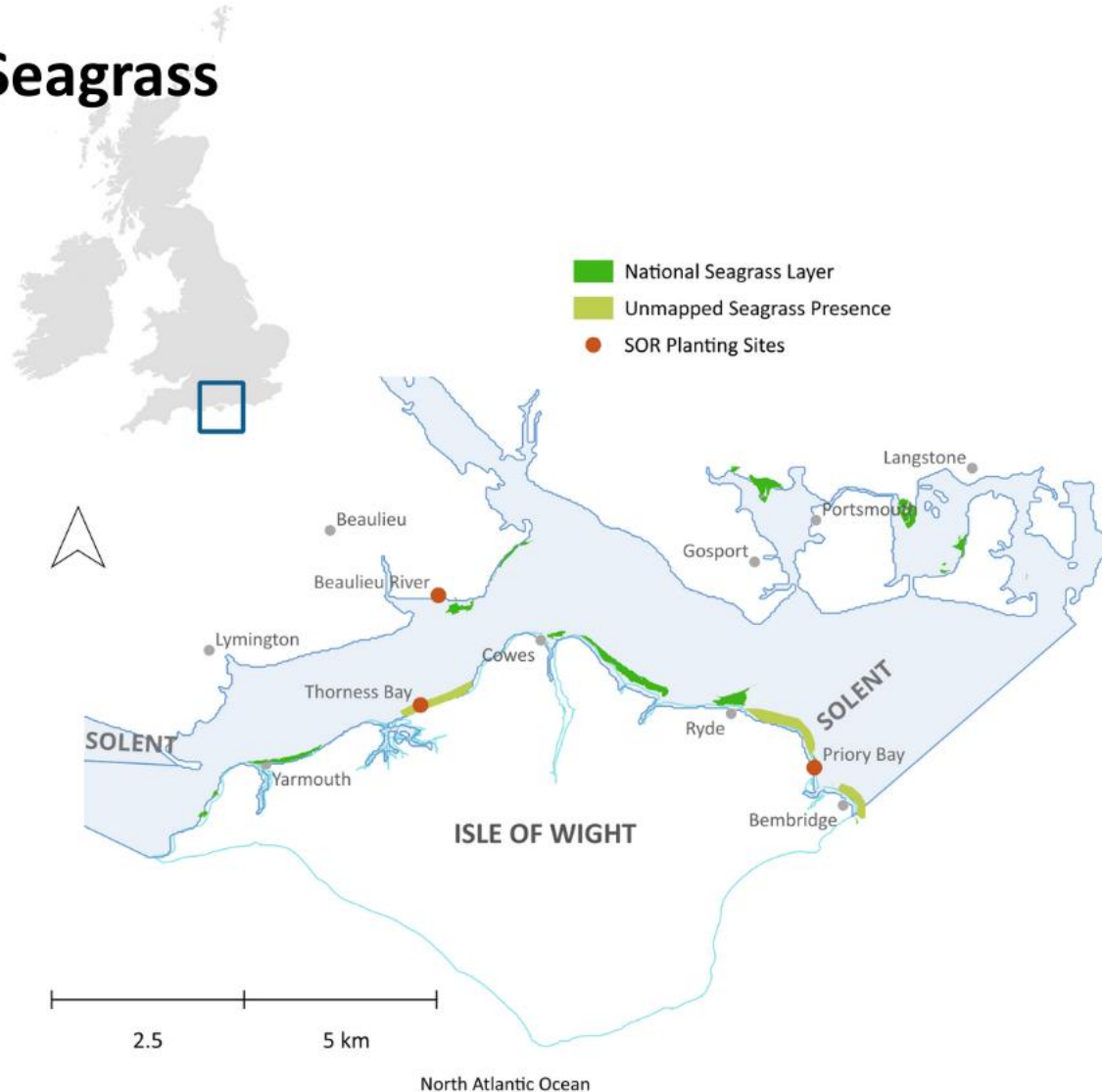
Endangered species include Atlantic Salmon, European Eel, Thornback Ray. Short-snouted seahorse, Spiny seahorse.

Habitats

Key Habitat	Current mapped extent (ha)	Historic trend	Future trend (without restoration/ action)	Current condition
Saltmarsh	1,386	↓	↓	Unfavourable
Mudflat	8,362	↔	↓	Unfavourable
Seagrass	715	↓	↓	Unfavourable
Oyster Reef	0	↓	—	Lost

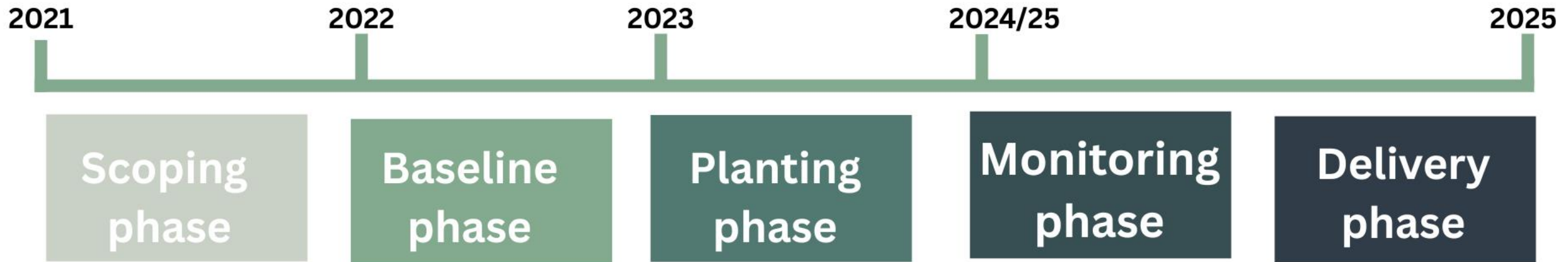
- 18 marine habitats including coastal saltmarsh, vegetated shingle, saline lagoons and seagrass
- Threatened habitats include saltmarsh, seagrass beds, subtidal kelp, intertidal chalk
- Lost habitat, native oyster reefs

Seagrass



- Seagrass extent: 715 ha of mapped seagrass
- Overall extent larger but unmapped and underrepresented
- *Zostera marina* (dominant), *Zostera noltii*, *Zostera marina* ecotype (*Zostera angustifolia*)
- Local threats limiting natural recovery: Anchoring and mooring, sediment dynamics, dredging

Project timeline



- Currently in final stages of the monitoring phase
- Project end = 2024
- Granted 1 year extension until end 2025



PROJECT SEAGRASS

Introduction

Methods

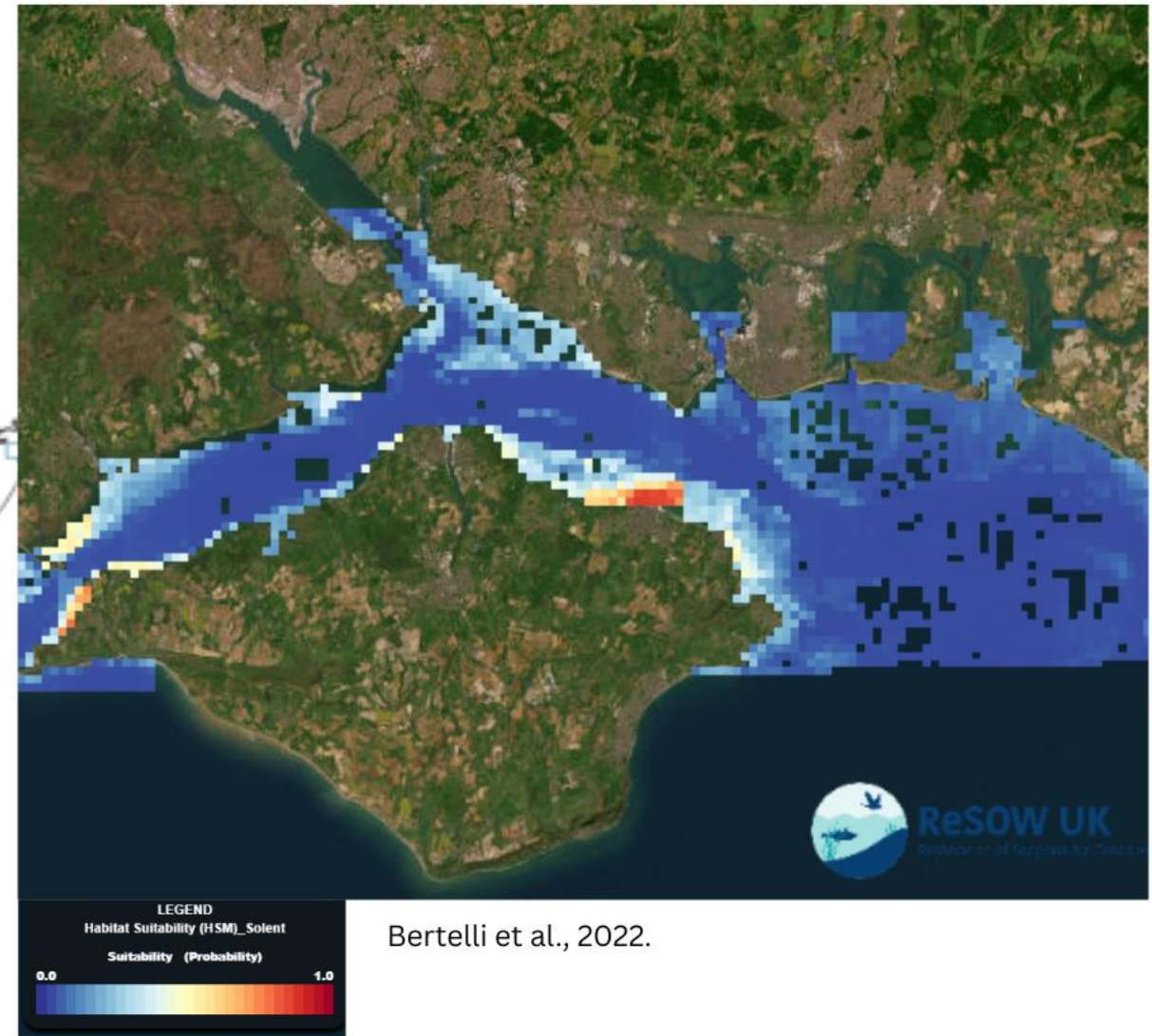
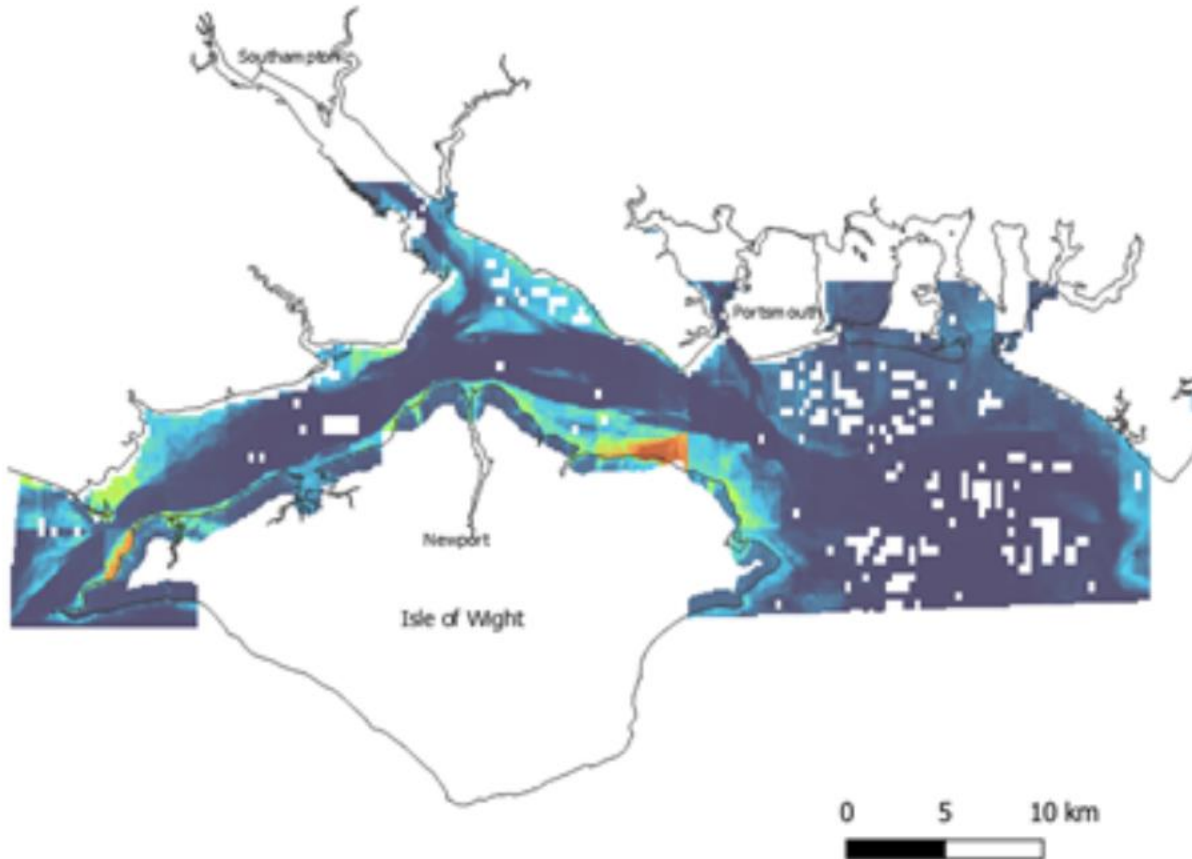
Results

Conclusion



seagrass
ocean rescue

Habitat Suitability Modelling (HSM)



Bertelli et al., 2022.

Pre-planting surveys

Thorness Bay



Seaview



Priory Bay and Bembridge



Yarmouth and Totland



Surveys

● Dropdown camera

● BRUV

● SOR Planting Sites

● Scoping

● Secchi disk

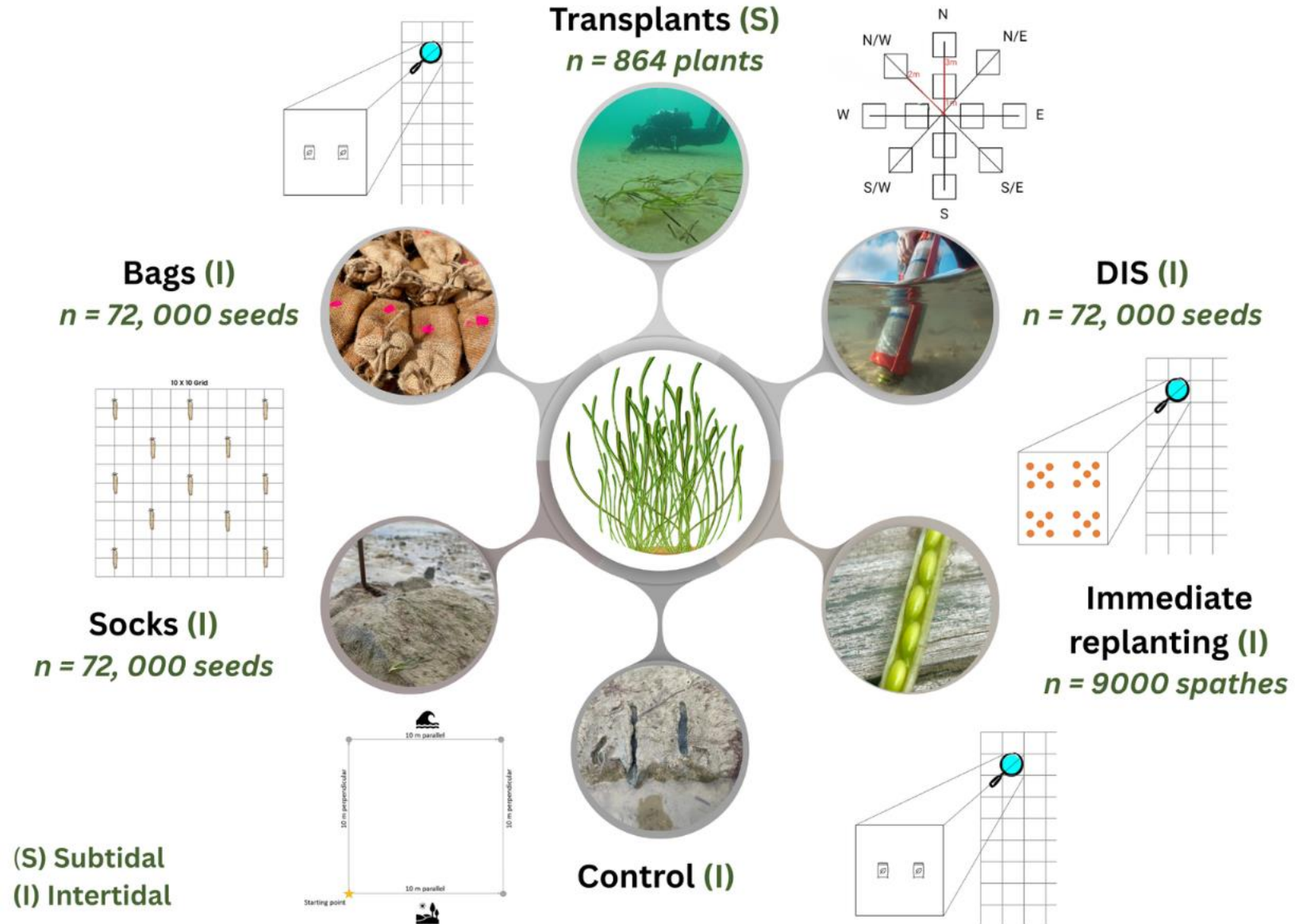
● Habitat

● Trial planting

□ Mean Low Water

Planting methodologies

- Planted in 2023
- 10 x 10 m plots
- 3 replicates of each method
- 18 plots per site
- 54 plots in total



Planting sites

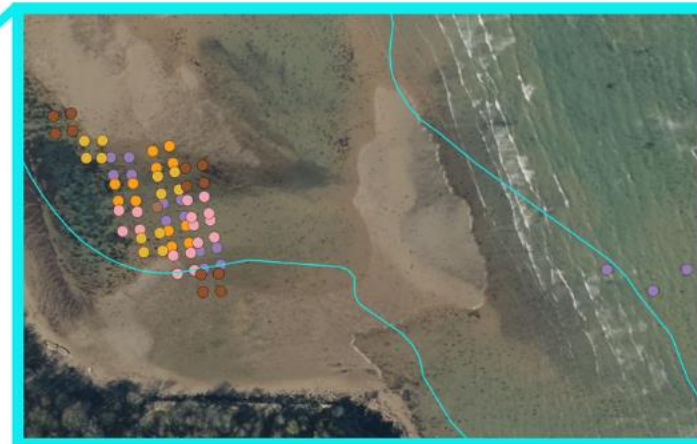
Beaulieu



Thorness Bay



Priory Bay



- HOB0 Logger
- Planting Method: Wildcard
- Planting Method: Socks
- Planting Method: Controls
- Planting Method: Immediate Replanting
- Planting Method: Transplants
- Planting Method: DIS
- Planting Method: Bags

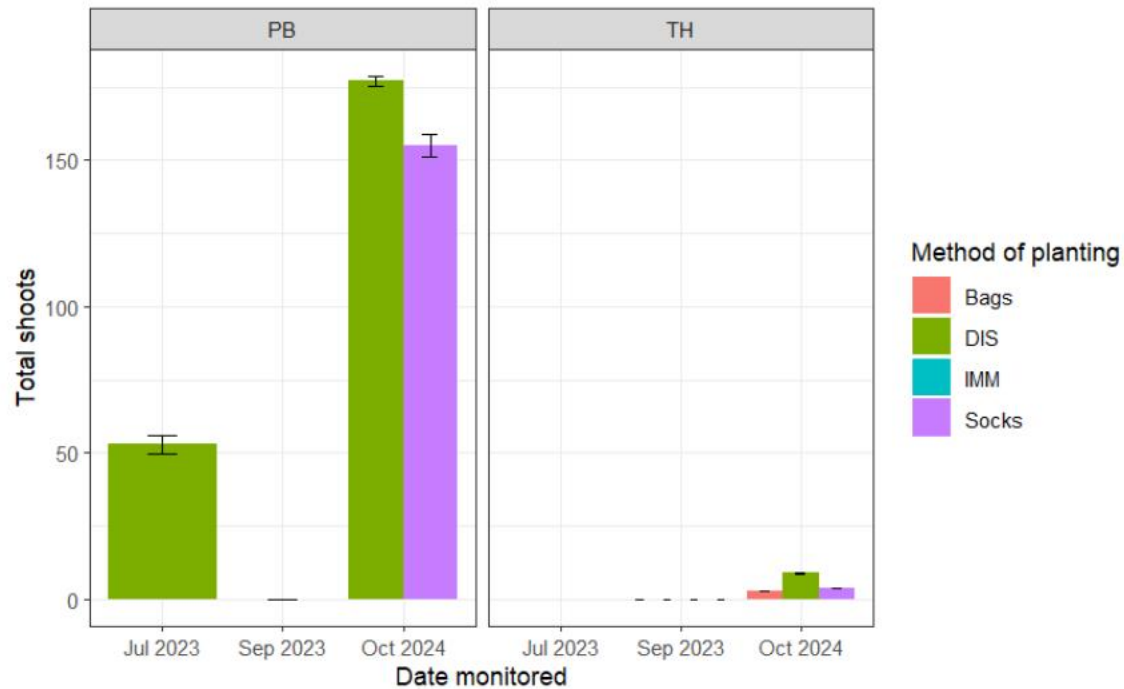
Methodology summary

Species	<i>Zostera marina</i>
Seed and plant source	Local (Solent)
Sediment source	Local (Natural mud)
Seed density (per m ²)	80
Plant density (per m ²)	8
Total number of seeds	216, 000
Total number of plants	864
Plot area (m ²)	100 (10x10 m)
Total area planted (m ²)	5, 400 (0.54 ha)
Number of sites	3
Number of planting methods (including controls)	6
Number of plots	36
Number of replicates (per method)	3
Number of plots per site	18
Distance between method	5 m

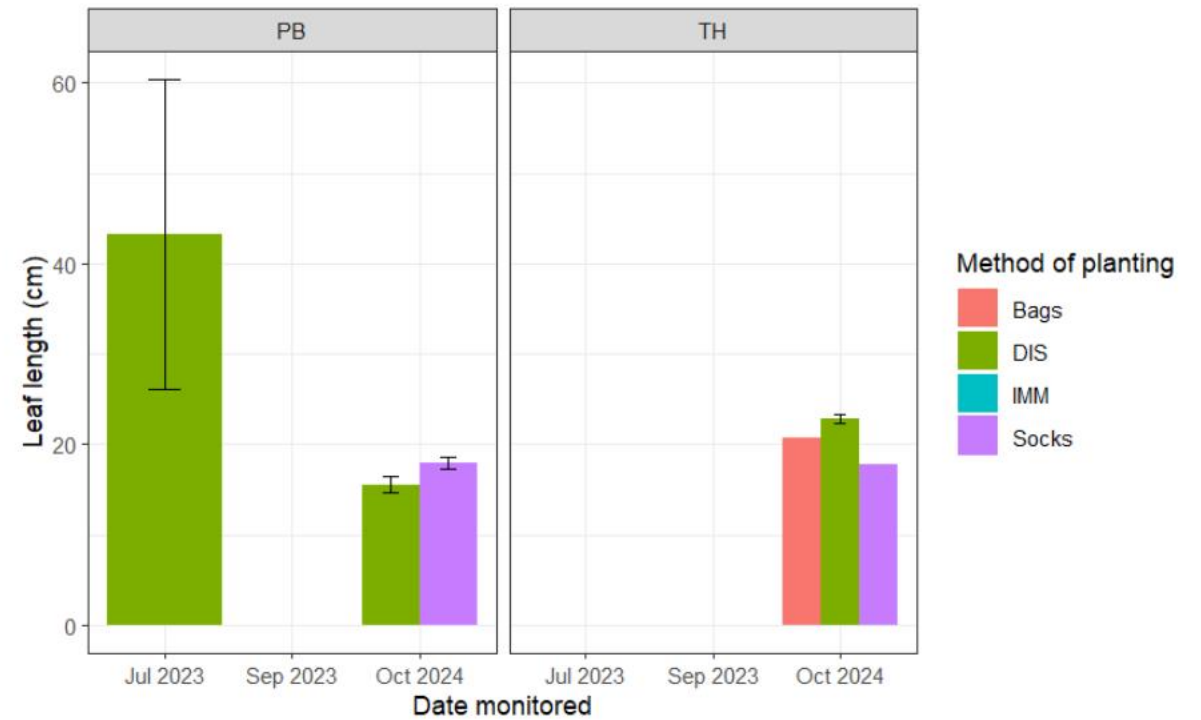


Seed Methods

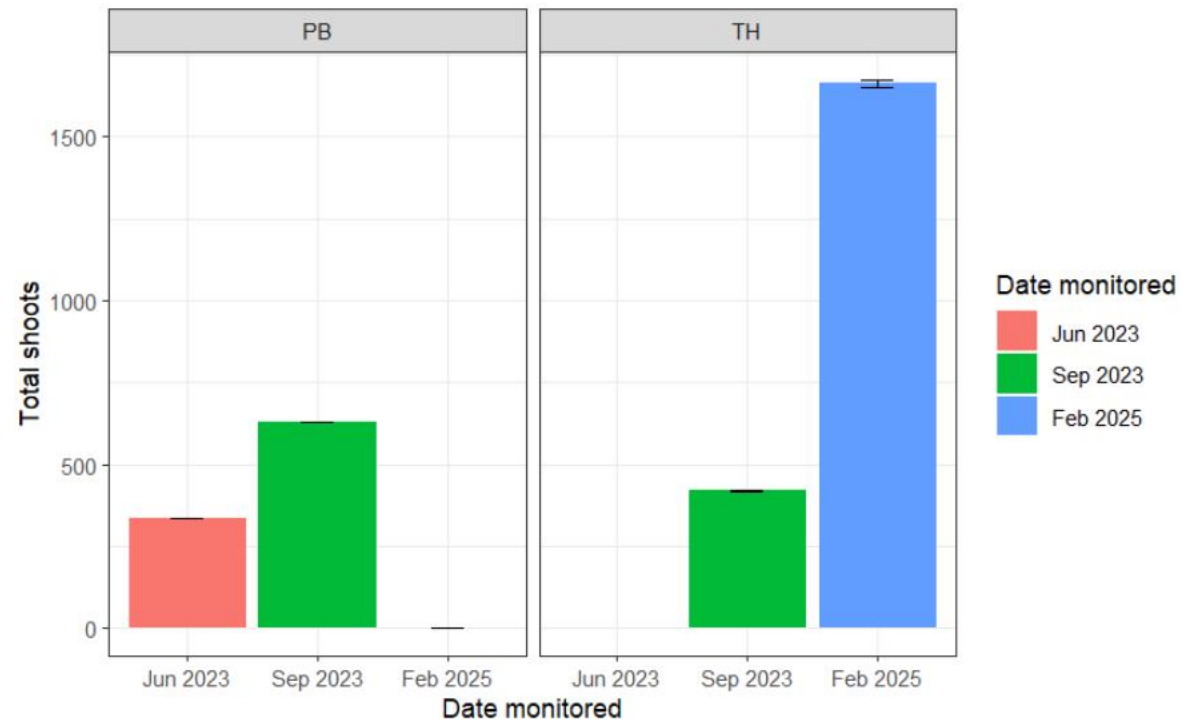
Total shoots



Leaf length per method



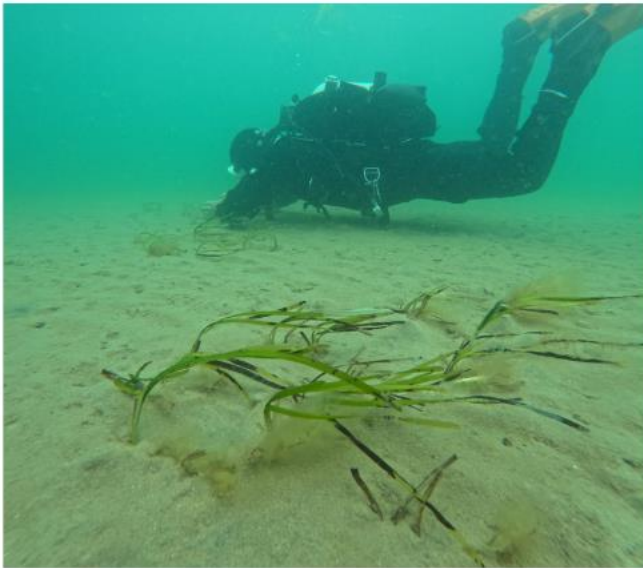
Transplant Methods



- June 2023 missing for Thorness, inaccessible tide preventing monitoring
- February data incomplete for PB

Transplants

Site: Thorness



Before

June 2021: 64 planted bare-root transplants



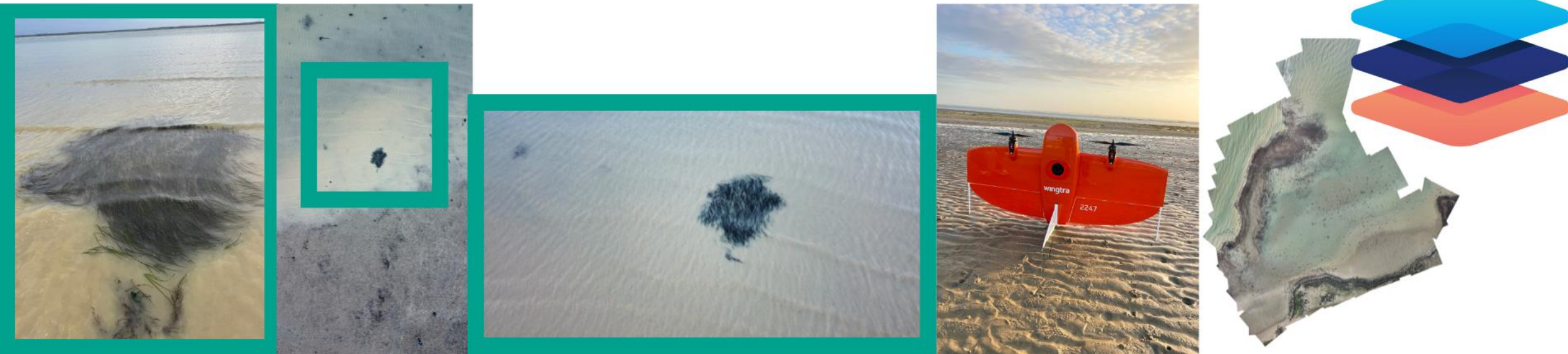
After

February 2025: 1081 shoots
(339 shoots shoots within 1 m outside plot)

Looking ahead:

- UAV surveys - RGB and multispectral to capture seagrass extent
- Final monitoring surveys

Call to action: Longer project timescales and/or funding to cover future monitoring



Active Restoration

Action: Taking forward two seagrass planting methods; DIS and transplants for active restoration building on trials.

Target: 3.5 hectares of *Zostera marina* restored by 2027



Project



Funders



Project partners



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Thank you



Get in touch



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.....and more!