
@NativeOysterNet
NATIVE OYSTER NETWORK
UK & IRELAND
If you are not yet a member of the Network, please contact NativeOyster@zsl.org to be added
The Native Oyster Network – UK & Ireland Conference
Galway City, Ireland
Tuesday 1st & Wednesday 2nd April 2025
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The Native Oyster Network – UK & Ireland Conference
Welcome from Prof Joanne Preston
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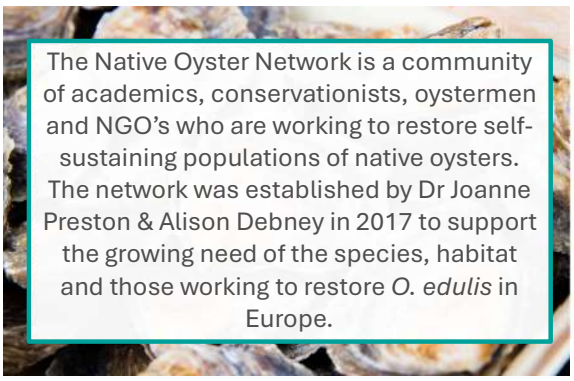
NATIVE OYSTER NETWORK
UK & IRELAND



The Native Oyster Network is a community of academics, conservationists, oystermen and NGO's who are working to restore self-sustaining populations of native oysters. The network was established by Dr Joanne Preston & Alison Debney in 2017 to support the growing need of the species, habitat and those working to restore *O. edulis* in Europe.

NATIVE OYSTER NETWORK
UK & IRELAND

OUR AIMS

- Facilitate an ecologically coherent and collaborative approach to native oyster restoration in the UK & Ireland
- Promote information sharing and effective communication of matters relating to native oyster conservation
- Increase awareness of the cultural and environmental value of native oysters

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NATIVE OYSTER NETWORK
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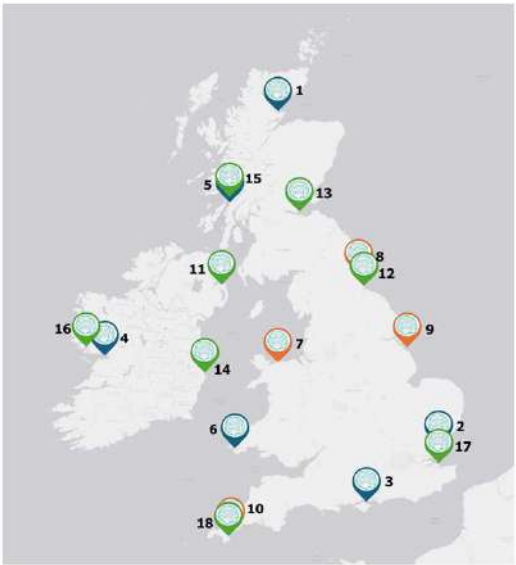
Native oyster restoration project maps



UK and Ireland native oyster restoration projects

Present day

1) DEEP
2) ENORI
3) The Solent Oyster Restoration Project
4) Galway Bay Oyster Restoration
5) Seawilding (previously Loch Craignish Native Oyster Restoration)
6) The Wales Native Oyster Restoration Project
7) Wild Oysters: Conwy Bay
8) Wild Oysters: Tyne and Wear
9) Wilder Humber
10) Saving Ester, Fal Fishery Cooperative CIC
11) NONI, Ulster Wildlife Trust
12) Fish for Tees
13) Restoration Forth
14) NORRI Project
15) Kilchoan Native Oyster Restoration Project
16) Oisre Conamara
17) Restoring the Thamescape
18) Restoring Helford's Native Oysters

Don't see your project on the list? Contact us at NativeOyster@zsl.org to be added to the website.

https://nativeoysternetwork.org/restoration-projects-partnerships/

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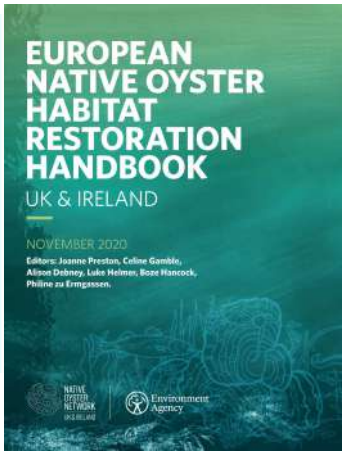
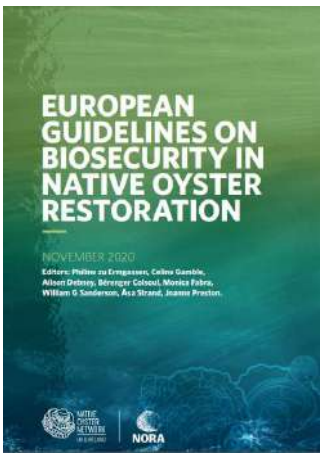
Outputs & achievements:
Native Oyster restoration handbooks





Environment Agency

https://nativeoysternetwork.org/resources/

NORA Native Oyster Restoration Alliance

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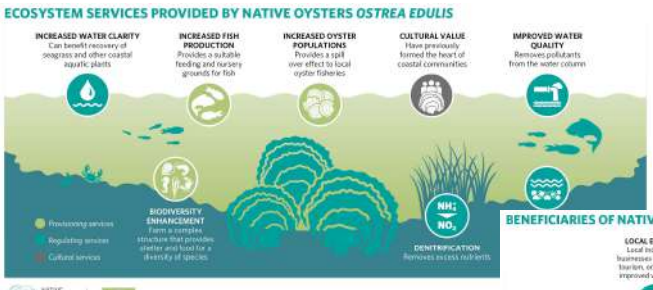
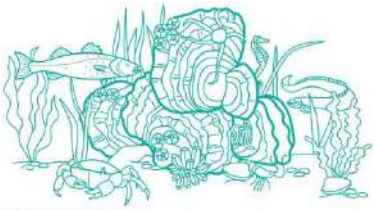
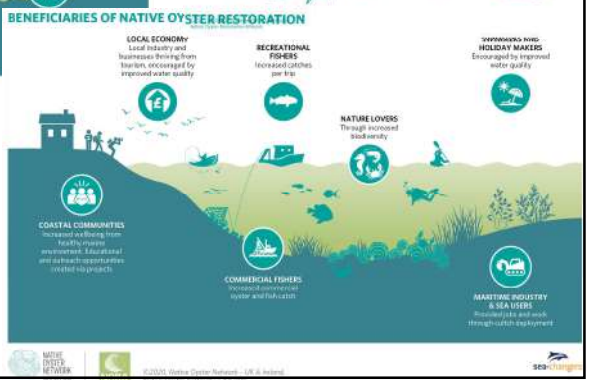
Outputs & achievements:
Infographics & illustrations







https://nativeoysternetwork.org/resources/

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Please complete the questionnaire relevant to you/your business/your project

Oyster supply questionnaire for oyster producers

https://forms.gle/Da1QJ5M34smgPx3k8

Oyster supply questionnaire for restoration practitioners

https://forms.gle/X5eu8reTfBQUgmBV9

Please complete this questionnaire today for the data to be used to inform the native oyster seed supply workshop tomorrow (April 2nd).
Results submitted after that time will still be vitally important for informing the development of the roadmap

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Seascape Symposium II: Reconnecting the Seascape

Wednesday 4th & Thursday 5th June 2025
Hosted in person
Zoological Society of London

Visit https://www.zsl.org/seascape-symposium-ii to book your tickets.

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The Native Oyster Network – UK & Ireland Conference

Plenary Presentation, Oliver Tully

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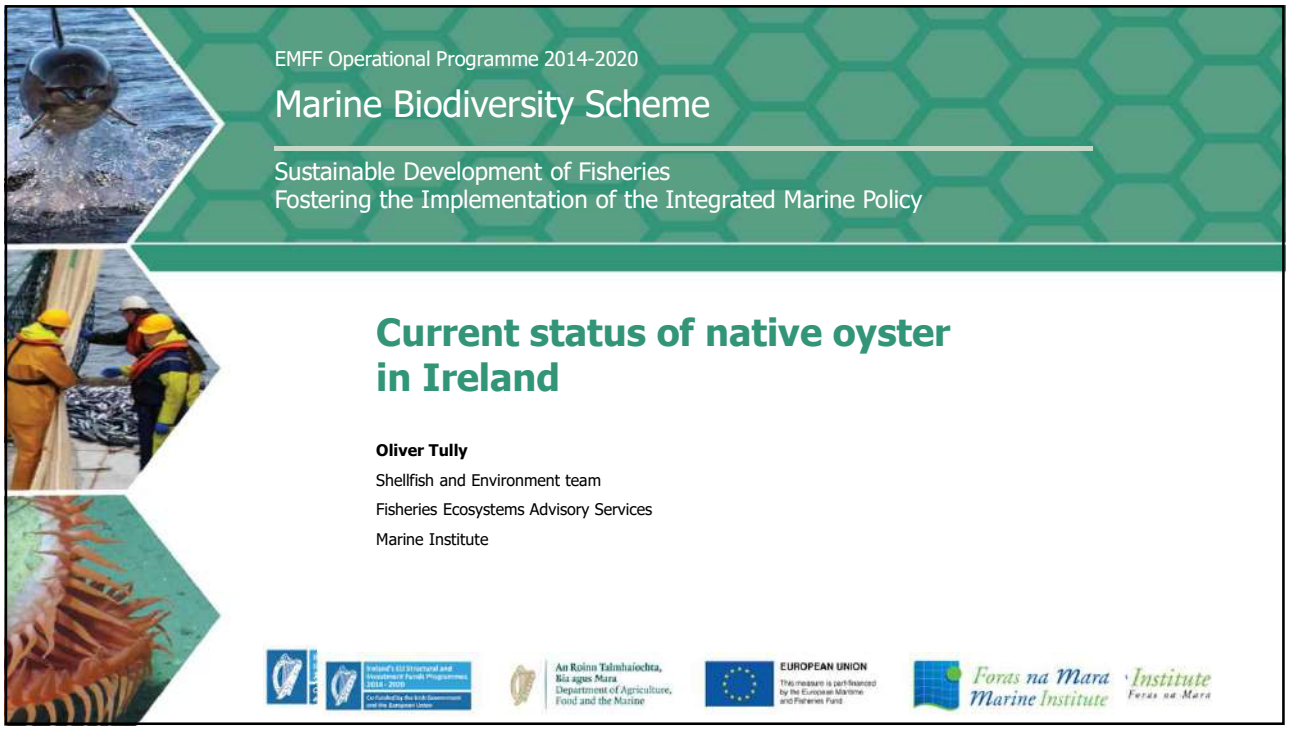

EMFF Operational Programme 2014-2020

Marine Biodiversity Scheme

Sustainable Development of Fisheries
Fostering the Implementation of the Integrated Marine Policy

Current status of native oyster in Ireland

Oliver Tully
Shellfish and Environment team
Fisheries Ecosystems Advisory Services
Marine Institute

An Roinn Talmhaíochta, Bia agus Mara Department of Agriculture, Food and the Marine · EUROPEAN UNION This measure is part-financed by the European Maritime and Fisheries Fund · Foras na Mara Marine Institute

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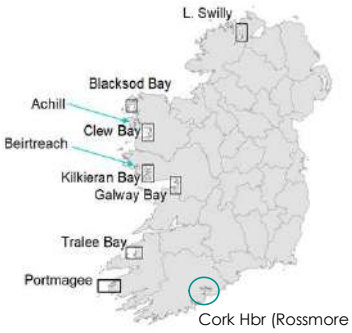
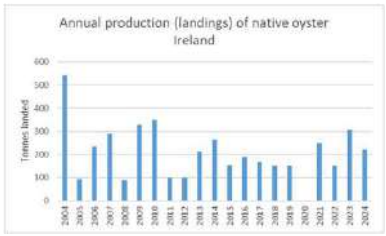
Current known distribution and production of Ostrea in Ireland



Cork Hbr (Rossmore Oysters)



Tralee Bay >80% of national production

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Licencing and management

- Licencing and Governance arrangements emphasise production rather than conservation as such
- Delegated management is to local co-operatives

Area	Delegated management	Licences and management	Status	Bonamia	Fishing	Estuarine
Lough Swilly	No	Public beds	Depleted	Yes	Annually	Yes
Blacksod Bay	Yes	Aquaculture licence	Depleted	Yes	Periodically	No
Clew Bay	Yes	Fishery Order	Depleted	Yes	Periodically	Yes
Achill	Yes	Aquaculture licence	Depleted	Yes	No	No
Kilkieran Bay	Yes	Aquaculture licence	Depleted	Recently	Periodically	No
Beirtreach Bui	Yes	Aquaculture licence	Good	No	Periodically	No
Galway Bay	Yes	Fishery Orders and public	Depleted	Yes	Not since 2016	Yes
Portmagee	No	None		No	No	No
Tralee Bay Fenit	Yes	Fishery Order	Good	No	Annually	Yes
Tralee Bay outer	Yes	Fishery Order	Good	No	Annually	No

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An update on: Bonamia ostreae & Bonamia exitiosa

- **Fish Health Unit** Marine Institute: National reference laboratory for shellfish disease
  - Responsible for monitoring for listed diseases
- Protistan parasites: 2 main sp. described in 1980s
  - Bonamia ostreae - Northern hemisphere
  - Bonamia exitiosa – Southern Hemisphere
- Listed diseases
  - Regulation 2016 / 429 (EU) " the Animal Health law"
  - Category A – present in the community
  - Also notifiable to the World Organisation for Animal Health (WOAH)
- Disease status - Ireland
  - Bonamia ostreae –
    - All coastline Bonamia free EXCEPT: Cork Hbr, Galway Bay, Clew bay, Ballinakill, Achill, Bellmullet, Lough Swilly, Lough Foyle & Kilkieran
  - **Bonamia exitiosa –**
    - Not detected in Ireland to date
    - **Tralee bay – Officially declared free February 2025.**

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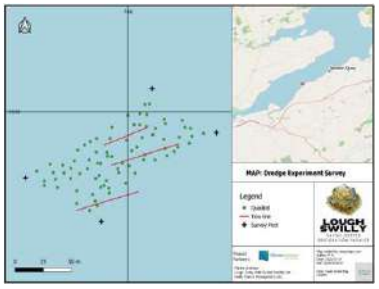
Assessment: oyster dredge surveys

1. Invasive but swept area ratio is <0.2% of the bed area
2. Pragmatic approach when annual estimates are needed for fisheries advice
3. Low oyster densities make point or transect in situ sampling difficult (false zeros)
4. Interpolation methods incorporate spatial autocorrelation
5. Low cost
6. Non invasive methods will be needed for 'highly protected' restoration areas.
7. **Dredge efficiency (catchability)** is the main uncertainty



Estimating dredge efficiency Lough Swilly

Methodology	Hand Gather Survey	Dredge Survey
Area covered m^2	77	150
Total oysters	3027	1522
Total Gigas	2922	1453
Total Ostrea	105	69
% Gigas	96.5	95.5
Oysters/m^2	39	10
Estimated population in survey area	196,558	50,733

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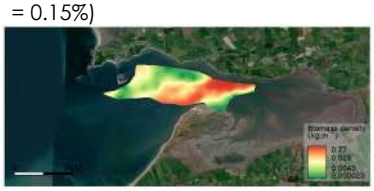
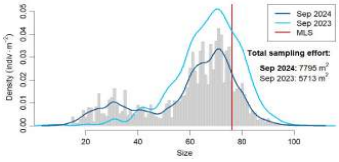
Surveys provide information for development of key indicators

TRALEE BAY (FENIT)

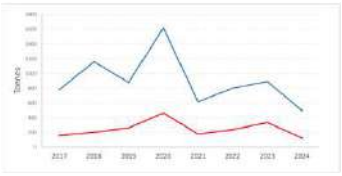
1. Survey plan (Swept Area ratio = 0.15%)



2. Distribution of biomass (geostatistical model)



3. Settlement, growth and mortality from size distributions



4. Trends in biomass

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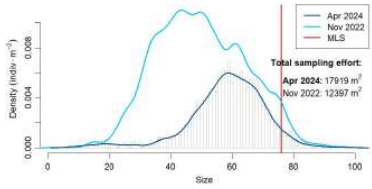
Surveys provide information on biomass, recruitment and mortality

LOUGH SWILLY

1. Survey plan

2. Distribution of biomass (geostatistical model)



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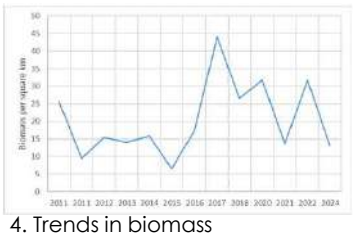

4. Trends in biomass

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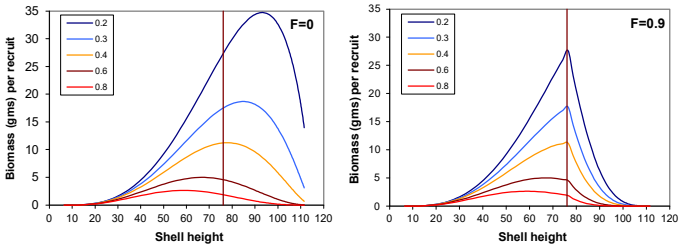
Simulations of biomass development under different rates of mortality

Expectation: in relatively long lived species biomass accumulates in older size classes but the degree to which this happens depends on the mortality rate



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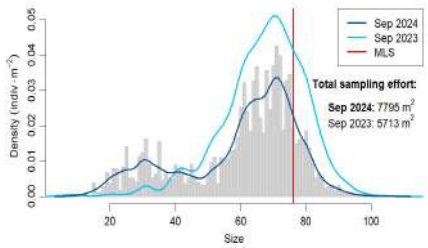
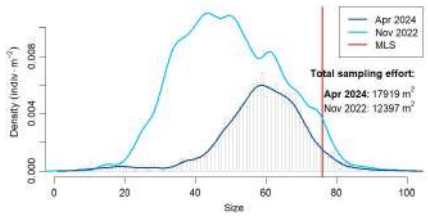
Mortality rate is a key problem



Tralee Bay: 24% of biomass above 76mm

Annual indicators:
- Biomass
- Distribution (extent)
- Settlement 0+
- Growth (modal progression)
- Mortality (length based methods)



Lough Swilly: 9.5% of biomass above 76mm

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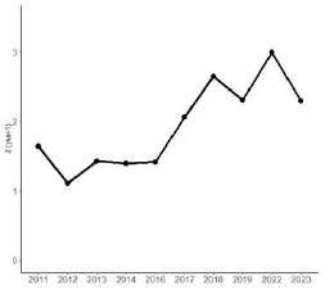
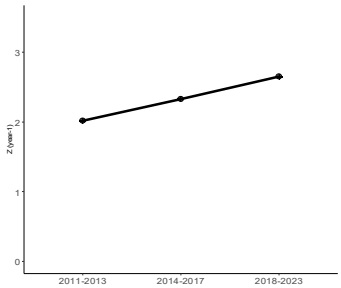
Mortality rate is a key problem

Galway Bay trends in mortality 2011-2023
~80% losses per year over 60mm. No fishing since 2016



Trends in mortality (Z) 2011 to 2023 (Beverton and Holt estimator). A step change to higher mortality occurred in 2017-2018



Length converted catch curve estimates of mortality (Z) in 3 time periods showing an increasing trend

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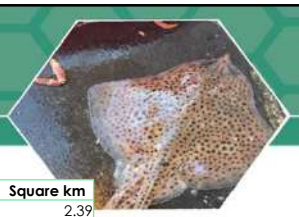
Average spatial extent and biomass of native oyster in Ireland



Foyle & Swilly

Blacksod

Clew Bay

Kilkieran Bay

Galway Bay

Tralee Bay

Oyster bed	Square km
Blacksod Bay	2.39
Cashel Bay	0.04
Cill Chiaráin Bay	1.72
Clew Bay - North	1.51
Clew Bay - Westport Bay	0.43
Tralee Fenit	4.12
Galway Bay	1.10
Galway Bay Oranmore	0.97
Lough Swilly	8.11
Tralee outer	6.10
Total extent	**26.5**

Location	Biomass tonnes
Blacksod Bay	25.4
Cashel Bay	14.5
Cill Chiaráin Bay	61.2
Clew Bay - North	39.8
Clew Bay - Westport Bay	18.7
Tralee Fenit	1189.6
Galway Bay	59.4
Galway Bay - Oranmore Bay	8.5
Lough Swilly	550.0
Tralee outer	229.8
Total average annual biomass	**2196.9**

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Value of the surveys for Oyster Restoration Planning

1. The Nature Restoration Plan (NRP)will set targets for restoration of habitat (such as oyster) that is currently not in good condition
2. Restoration targets are area based eg 30% restoration by 2030
3. If **reference points** for restoration are agreed then the proportion of the distribution not in good condition or in a restored condition can be identified from survey data
4. A number of indicators for settlement, growth, mortality, biomass, biodiversity, ecosystem services could be developed

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Initiatives in response to poor status of oyster stocks

EMFF supported restoration from 2018

Clew Bay Oyster Co-operative

Native Oyster Conservation and Fishery Management Plan for Clew Bay, Co. Mayo 2024-2028

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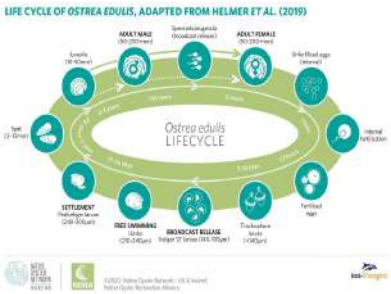
Restoration: some key questions

1. Is there a spawning stock in the area!?
2. Do summer temperatures usually reach 17°C and over?
3. Is the temperature and salinity regime suitable?
4. Is settlement occurring annually (or frequently)?
5. Are the ground conditions suitable for settlement (shell budget)?
6. Is the site physically stable?
7. Does the balance of growth and mortality forecast an increase in biomass or not?



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Activities in support of Restoration

1. Surveys of distribution biomass (spawning stock) and recruitment
2. Estimation of mortality rates in natural populations
3. Hydrodynamic modelling (habitat suitability, larval dispersal, temperature and salinity distribution)
4. Mortality and variation in temperature and salinity
5. Epidemiology of Bonamia and genetics of resilience
6. Performance of native oyster co-existing with Pacific oysters
7. **Habitat mapping (shell content)**
8. **Sourcing cultch and deployment of cultch**
9. **Settlement, survival and growth on cultch**
10. Outreach and provision of services and advice to co-operatives
11. Contributing to the networks (NORA, UK_IE)

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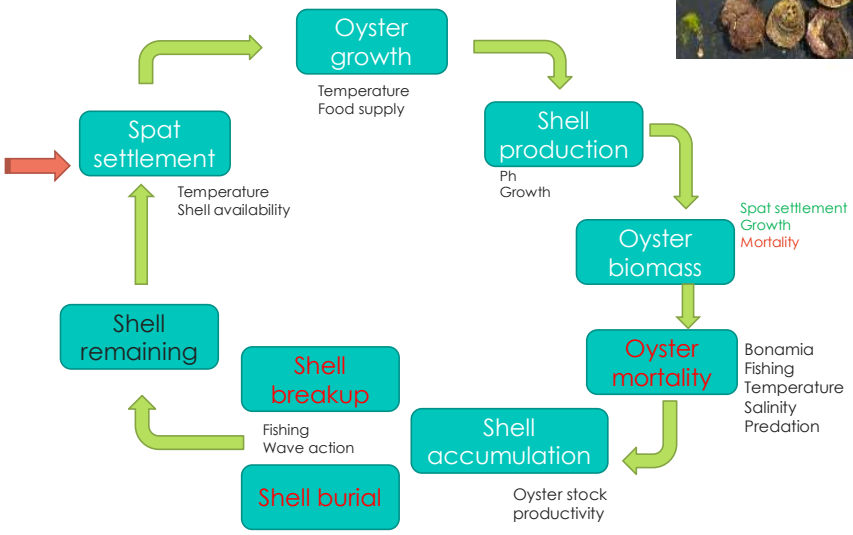
Shell budgets and feedback loops



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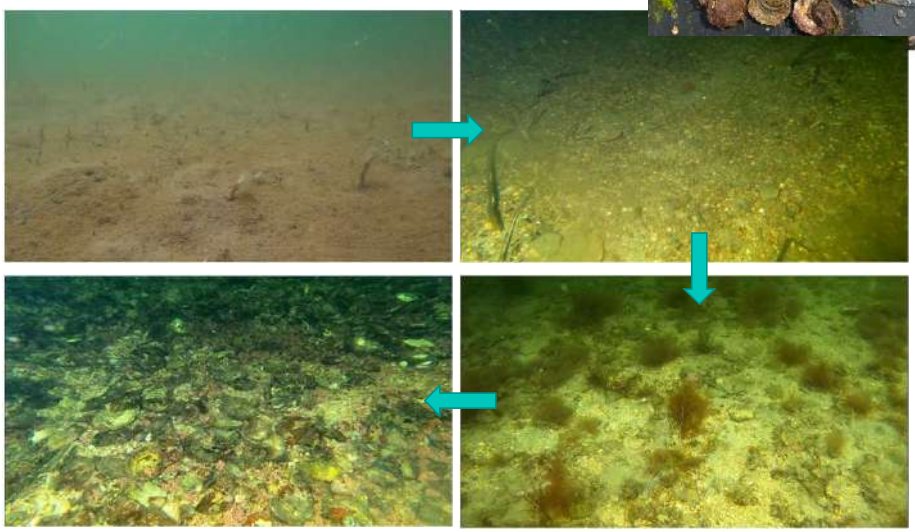
Shell budgets and the seabed



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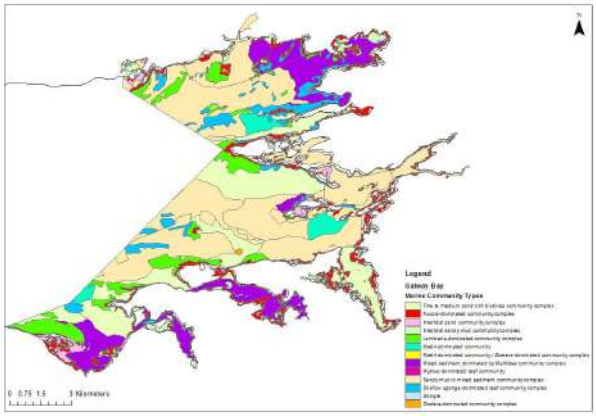
Conservation objectives in SACs



Classification and distribution of marine communities in inner Galway Bay (source:NPWS).

Former oyster beds now defined as sedimentary habitats (with oyster)

NRP objectives will be to restore to some better condition

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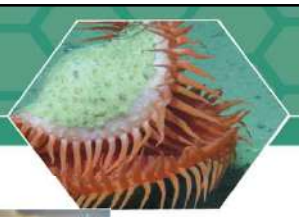
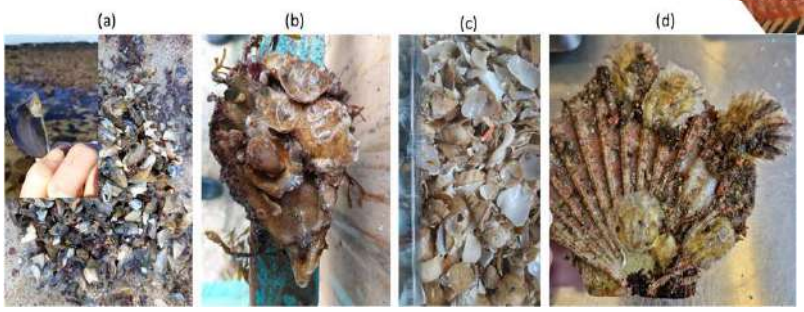
Restoration Action: shell substrate for settlement





Cultch material used in deployments in 2019-2021 in Galway Bay.
(a) Mussel shell used in 2019 showing typical sample taken from the lower intertidal zone and (insert) oyster spat on mussel.
(b) Pacific oyster shell deployed with settlement of native oyster, saddle oyster, variegated scallop and barnacles
(c) Capturing natural settlement: crushed whelk shell prior to deployment and
(d) Scaling up: Capturing natural settlement: flat shell of scallop (*Pecten maximus*) deployed in 2021 and 2024

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From oysters to oyster reefs

Evolution of biodiversity, bed stability, resilience, structure and function

1. Isolated individuals in mixed sediments
2. Mixed sediments featuring oysters. Oysters may occur in pairs and as 1-2 age classes
3. Oysters occurring in small aggregations 5-10 per square meter with several age classes and some additional biodiversity
4. Oysters in large clusters of 10-20 per square meter with many age classes present and high associated biodiversity
5. Large aggregations forming a biogenic reef structure which has high resilience and very high associated biodiversity

Pouvreau *et al* 2021

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Thank you

Acknowledgements
EMFAF and Irish Government: Data Collection Framework, Marine Biodiversity Scheme

Partnerships with Cuan Beo, Clew Bay Oyster co-operative, Comharcumann Sliogeisc Conamara, Swilly Marine Management and Co-op, Tralee Oyster Society, BIM.

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Session 1: Network Member Project Updates
Session Chair: Celine Gamble
1. Anna Kellagher, Sea Synergy
2. Brecht Stechele, Oyster Heaven
3. Brian Rice, Surviving and growing: Positive indications for Native Oyster (Ostrea edulis) restoration in Dublin Bay
4. Danny Renton, Seawilding
5. Eric Holden, Natur am Byth
6. Eric Holden, Restoration Forth
7. Henry Short, Tees River Trust
8. JoseMaria Fariñas-Franco, Oisre Conamara and an upcoming project, BRICONS, with UCD, TCD and QUB
9. Maria Hayden-Hughes, The Wild Oysters Project: Conwy Bay
10. Nick Baker-Horne, Native Oyster Restoration Northern Ireland – progress
11. Philine zu Ermgassen, IUCN Ecosystem Red Listing the European native oyster reef ecosystem.
12. Stefano Carboni, NORA Update
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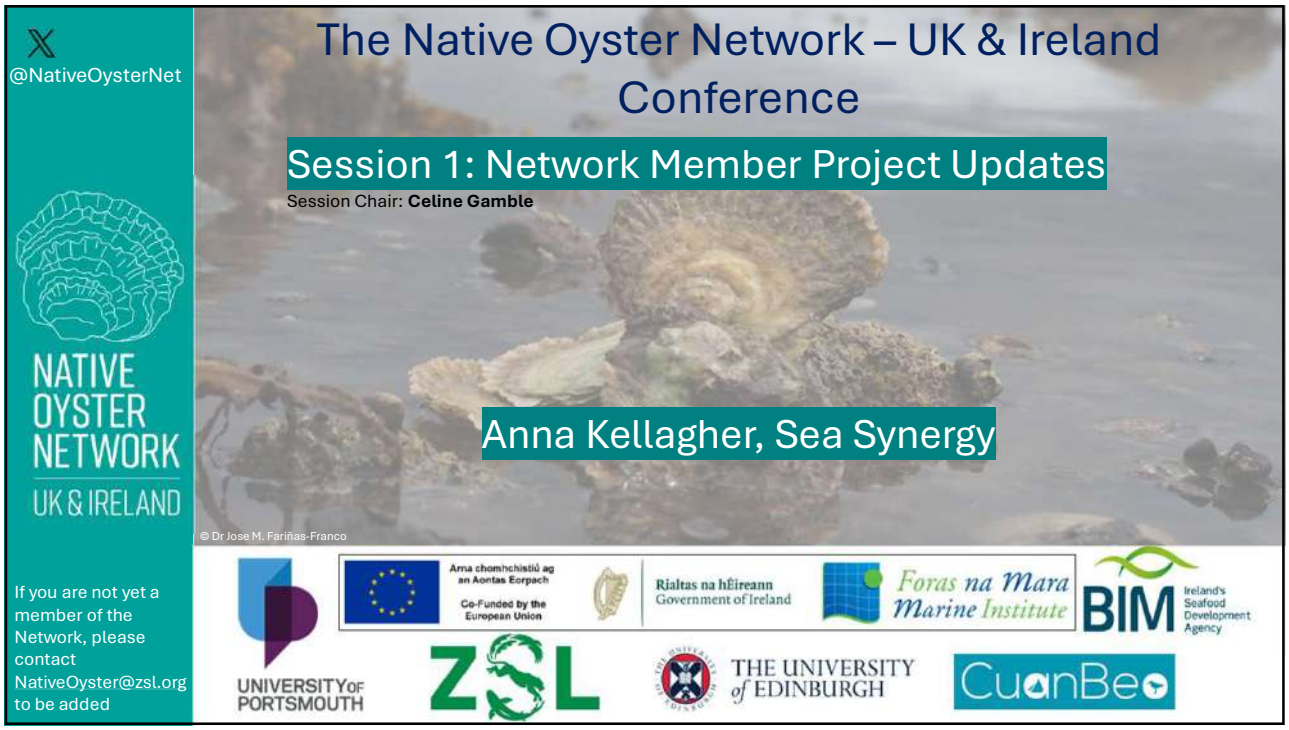
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Marine Institute
BIM
Ireland's Seafood Development Agency
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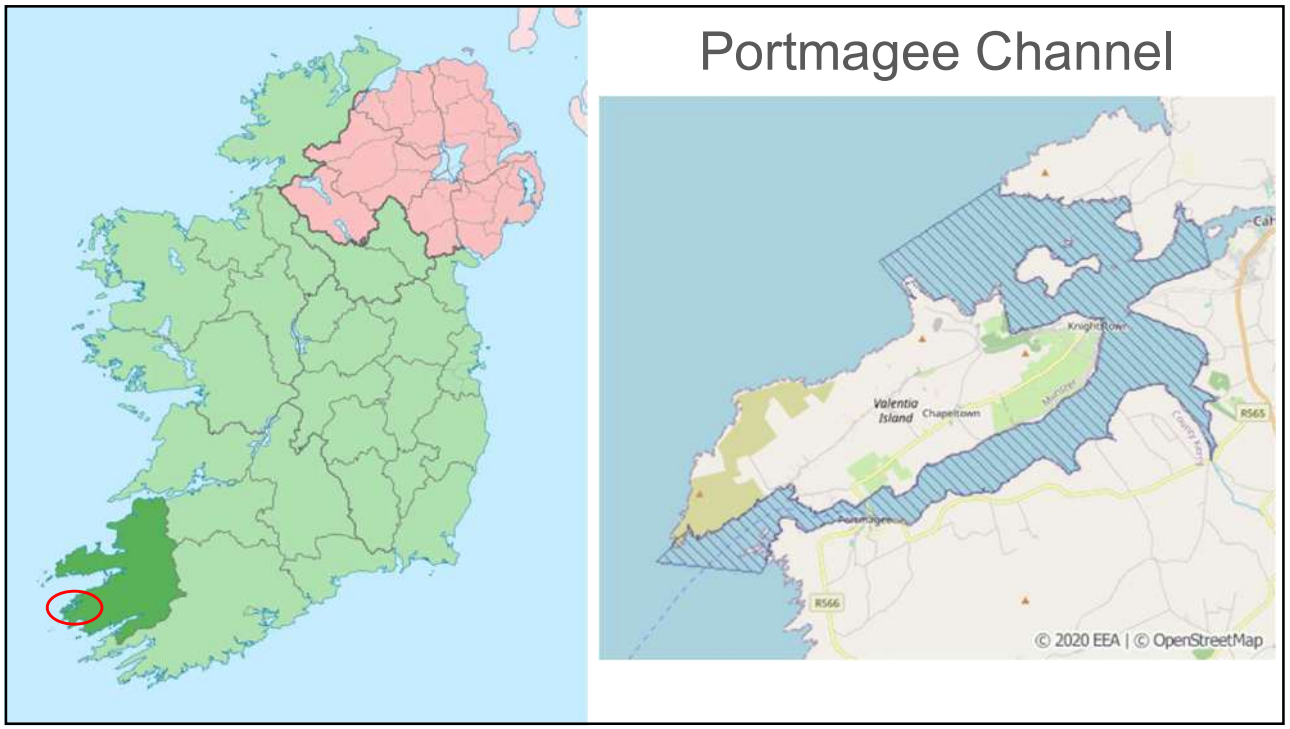
32


Sea Synergy Oyster Project
SEASYNERGY
Marine Awareness and Activities

33


Portmagee Channel
Valentia Island
Chapeltown
Knightstown
R565
R566
© 2020 EEA | © OpenStreetMap

34

Where it began

35

36

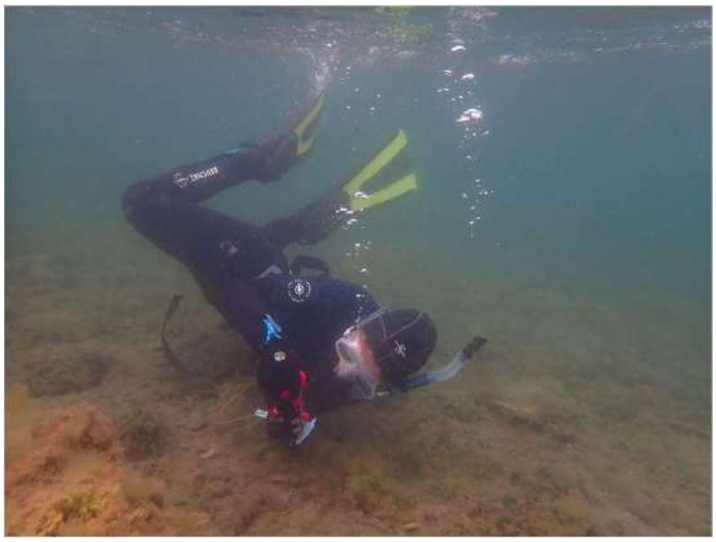

1. Oyster &
Biodiversity Surveys

37

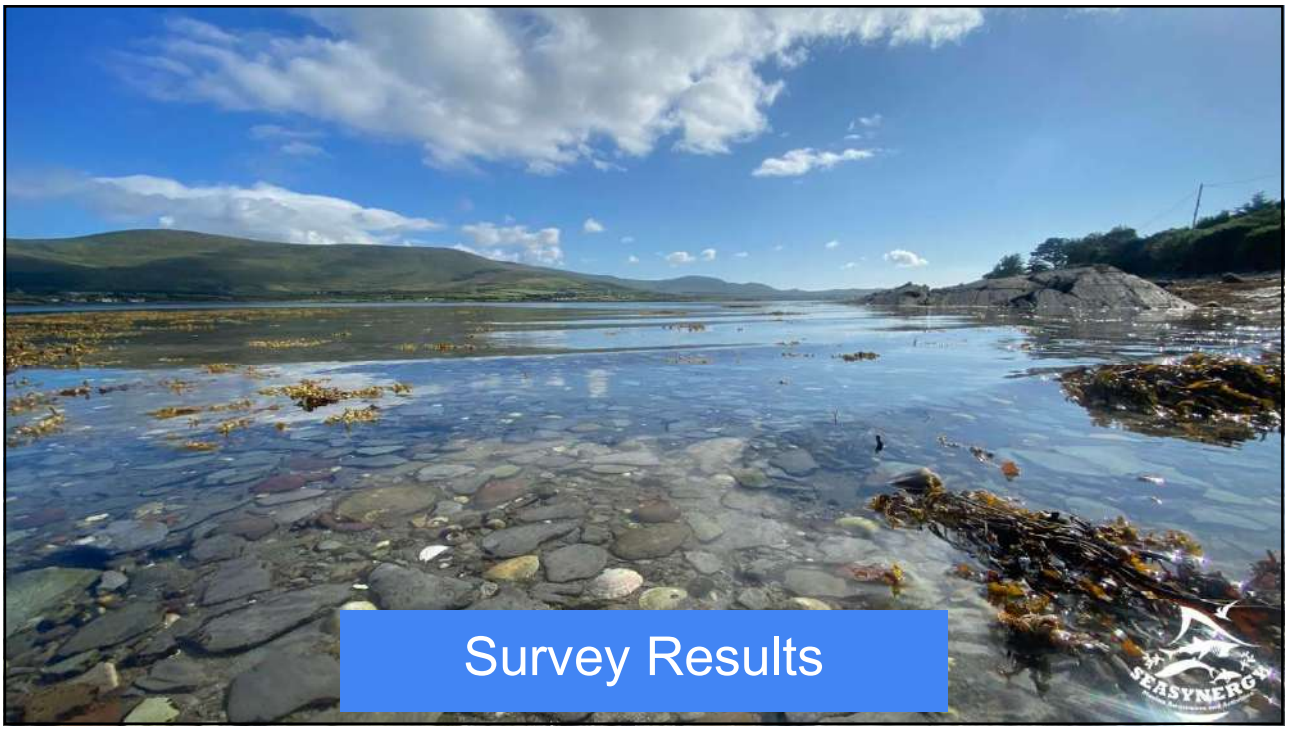

eaghan
Geokaun Mountain
and Cliffs
Valentia Island
Coarha
Beg Upper
Beginish
Knight's Town
Portmagee
Doora Cross
Lative
Ardcost West
Ardcost Cross

38

Intertidal & Subtidal Survey Methods



39



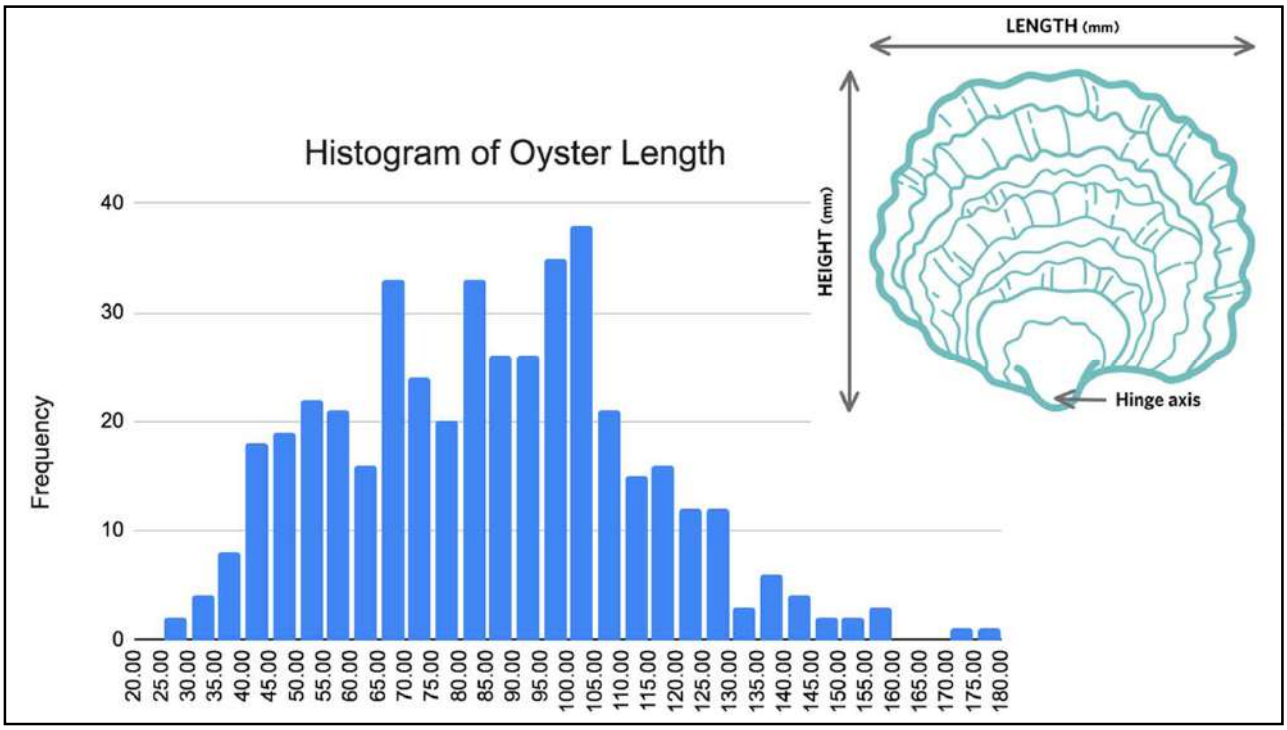
40


782 Oysters Recorded!

41


Valentia Island Lighthouse
Beginish
Geokaun Mountain and Cliffs
Reenard West
Knight's Town
Reenard South
Feighmean East
St. Brendan's Well
Valentia Island
Revenue
Ardcost West
Ardcost East
Ardcost Cross
Derree
R565
Bruff
Portmagee
Doora East

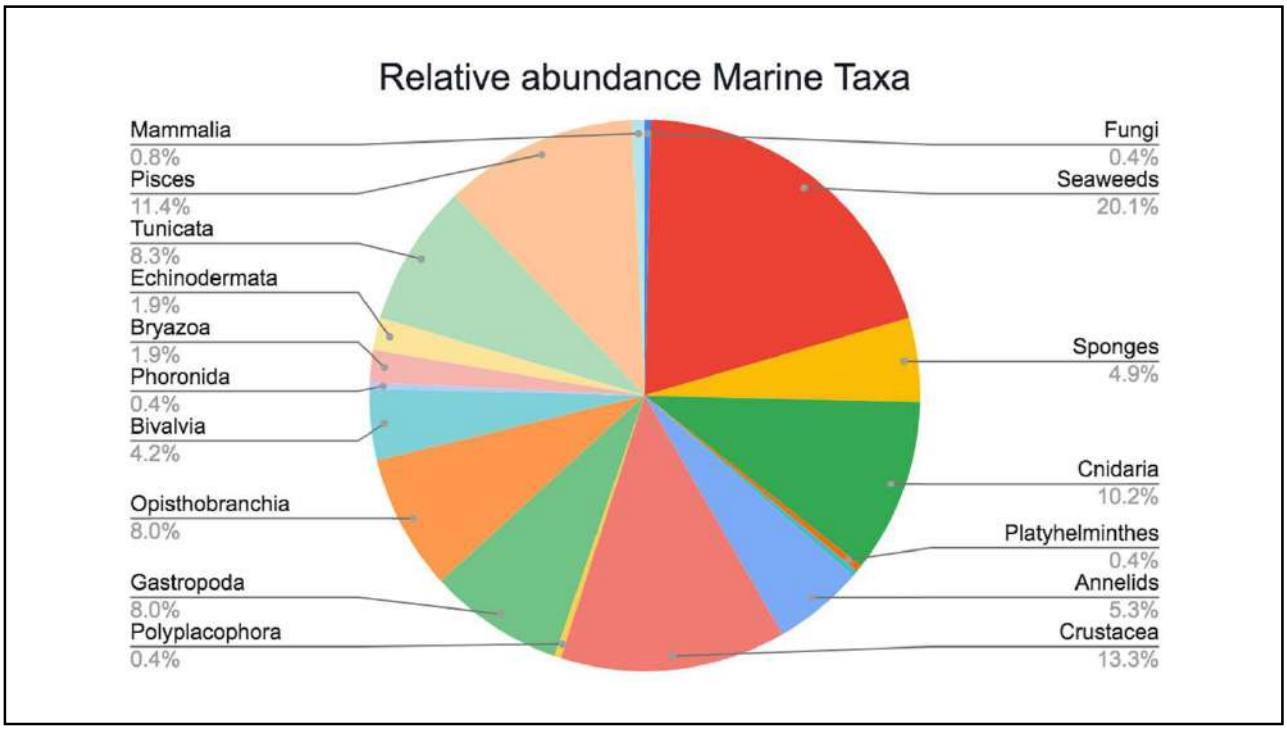
42


Histogram of Oyster Length
Frequency
40
30
20
10
0
20.00
25.00
30.00
35.00
40.00
45.00
50.00
55.00
60.00
65.00
70.00
75.00
80.00
85.00
90.00
95.00
100.00
105.00
110.00
115.00
120.00
125.00
130.00
135.00
140.00
145.00
150.00
155.00
160.00
165.00
170.00
175.00
180.00
LENGTH (mm)
HEIGHT (mm)
Hinge axis

43


Total of 386 species recorded!
264
112

44


Relative abundance Marine Taxa
Mammalia
0.8%
Pisces
11.4%
Tunicata
8.3%
Echinodermata
1.9%
Bryazoa
1.9%
Phoronida
0.4%
Bivalvia
4.2%
Opisthobranchia
8.0%
Gastropoda
8.0%
Polyplacophora
0.4%
Fungi
0.4%
Seaweeds
20.1%
Sponges
4.9%
Cnidaria
10.2%
Platyhelminthes
0.4%
Annelids
5.3%
Crustacea
13.3%

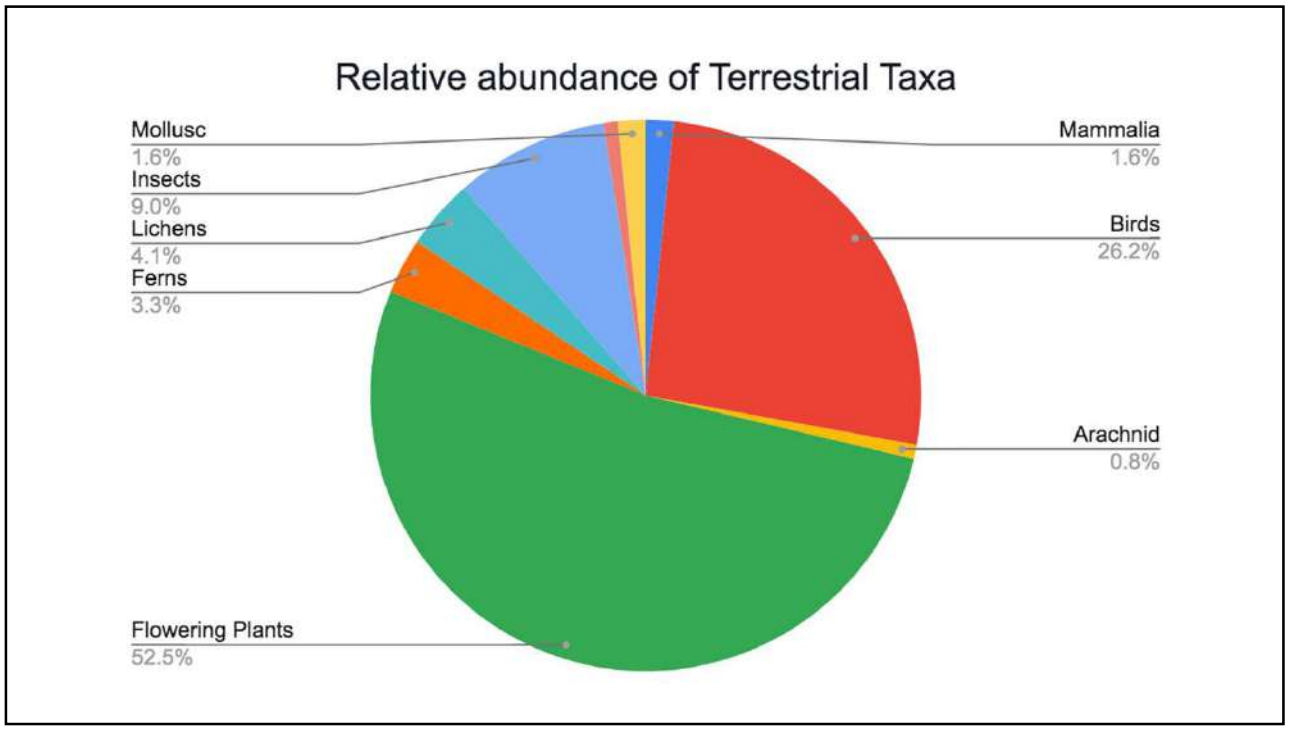
45


SEASYNERGY

46

47

48


Relative abundance of Terrestrial Taxa
Mollusc
1.6%
Insects
9.0%
Lichens
4.1%
Ferns
3.3%
Flowering Plants
52.5%
Mammalia
1.6%
Birds
26.2%
Arachnid
0.8%

49

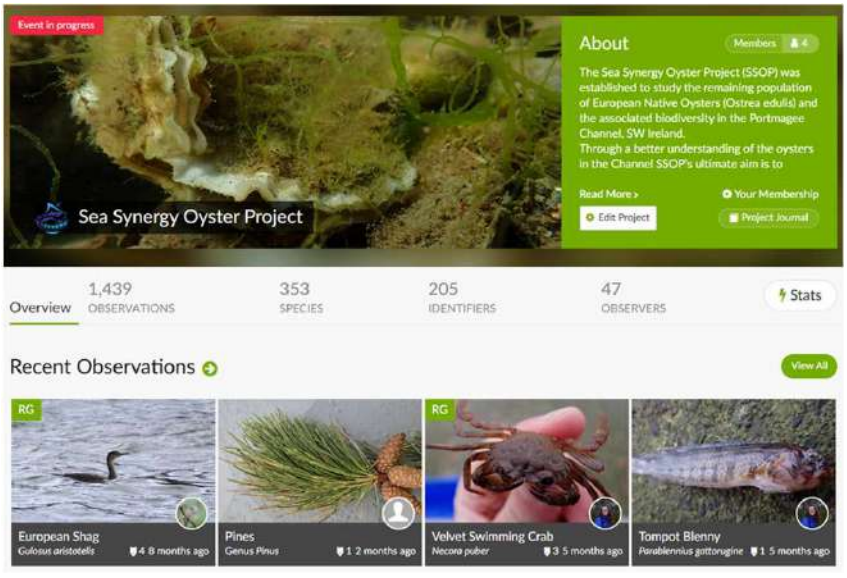
50

51

52

53

Citizen Science



iNaturalist

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The Sea Synergy Oyster Project going forward…
SEASYNERGY
PREP4BLU
METHODS AND TOOLS FOR MISSION OCEAN & WA
Galway Atlantaquaria®
Funded by
An Chomhairle Oidhreachta
The Heritage Council
NPWS

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Session 1: Network Member Project Updates
Session Chair: Celine Gamble
Brecht Stechele, Oyster Heaven
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Brian Rice, Surviving and growing: Positive indications for Native Oyster (Ostrea edulis) restoration in Dublin Bay
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Surviving and growing: Positive indications for Native Oyster (Ostrea edulis) restoration in Dublin Bay.
Brian Rice - Ph.D. Candidate
Supervisor: Dr. Paul Brooks
Enterprise Partner (EPA): Dr. Robert Wilkes
UCD DUBLIN
This research is funded by Research Ireland and the Ireland Environmental Protection agency
with additional funding from Watermark Coffee
Taighde Éireann Research Ireland
epa Environmental Protection Agency

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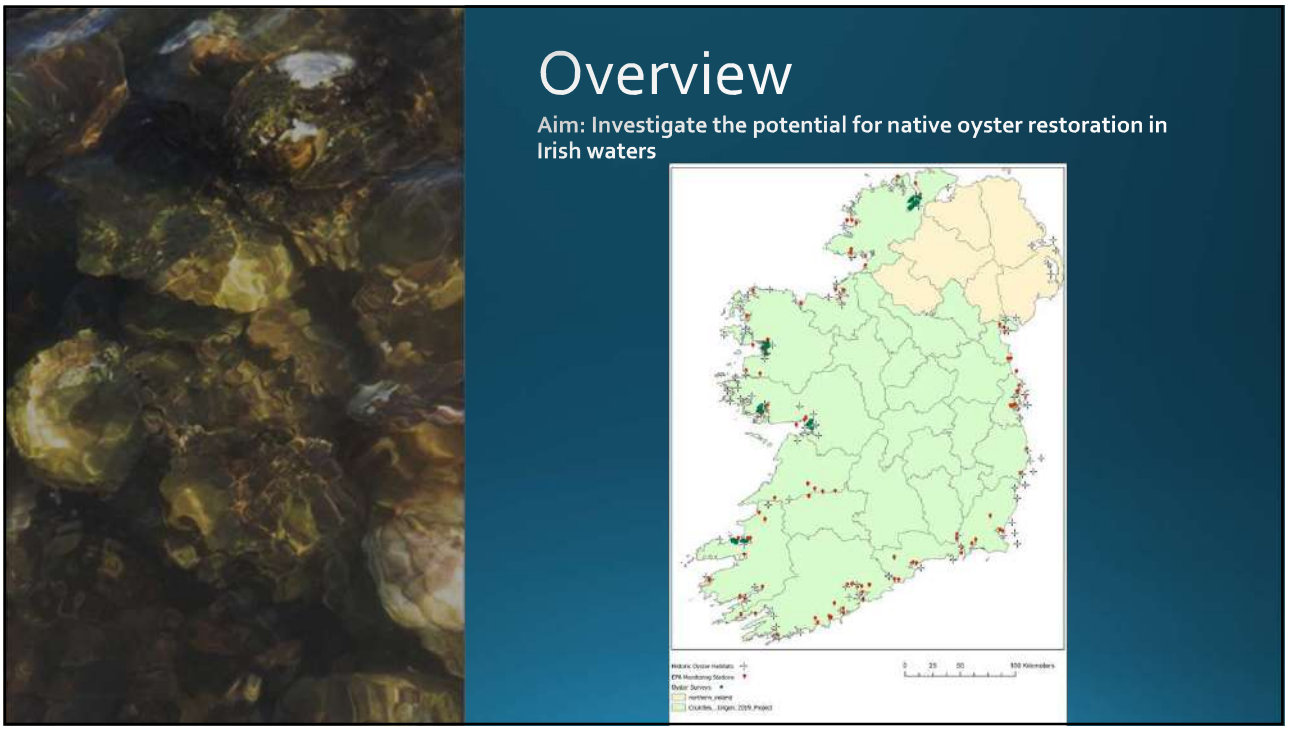

Overview
Aim: Investigate the potential for native oyster restoration in Irish waters

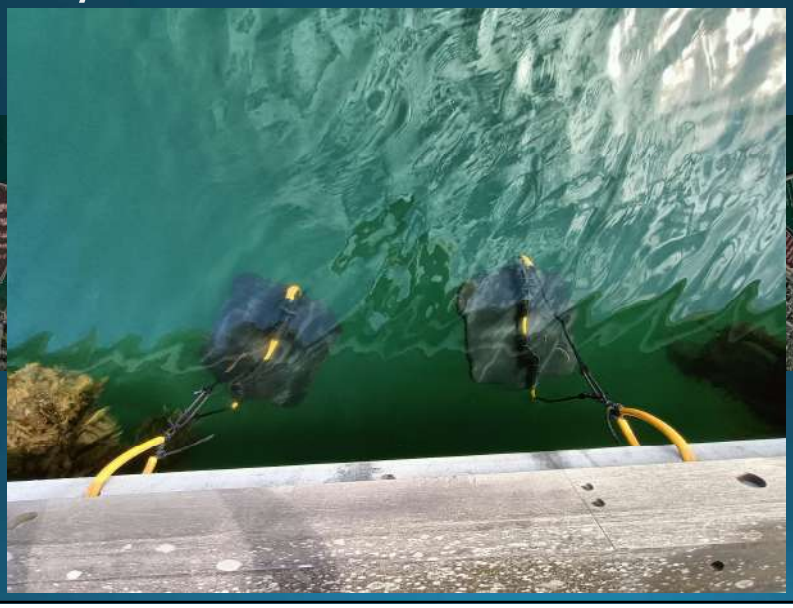
59

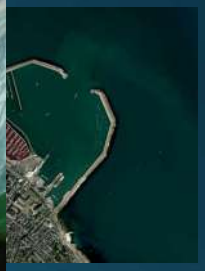

Historic Sites
ZEE

60

Oyster Garden Pilot Sites

Malahide





61

Oyster Garden Site Effects

Site 1
Dun Laoghaire

Site 2
Poolbeg

Site 3
Malahide

N=10 units
(100 oysters)
per site

Spring

Summer

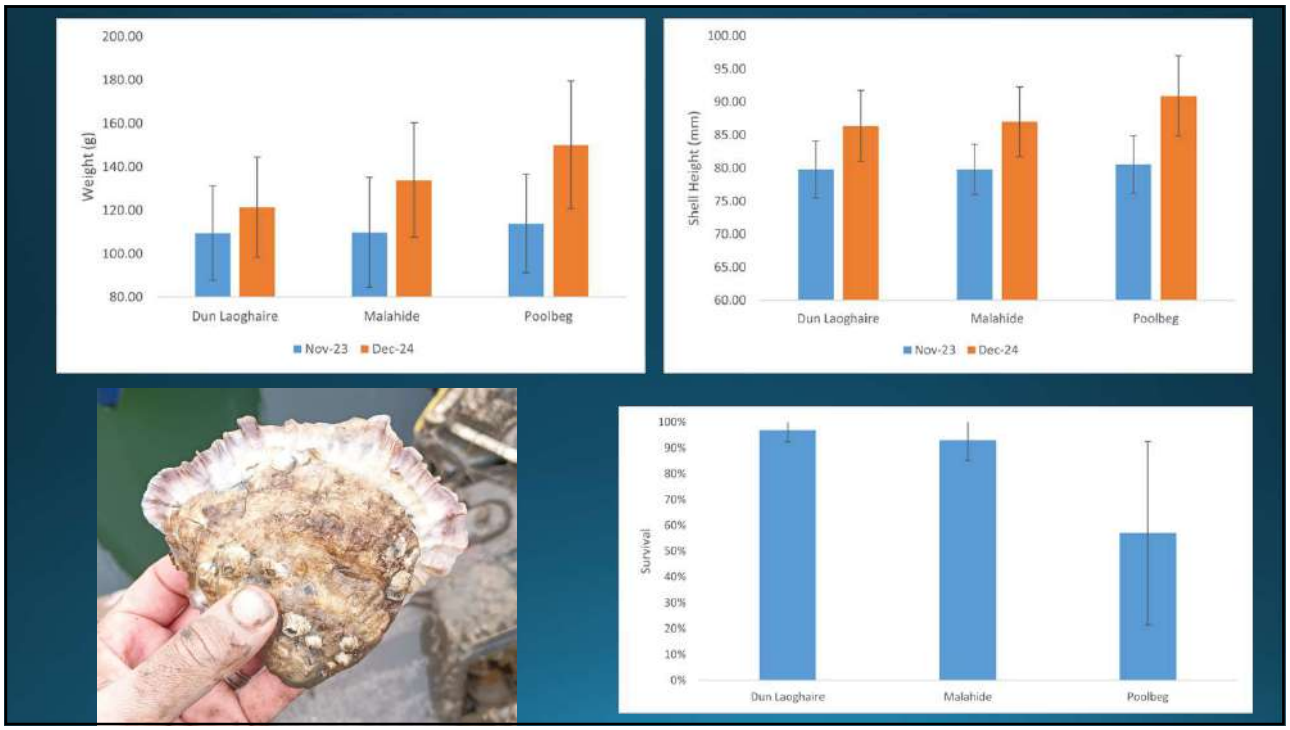
Autumn

Winter

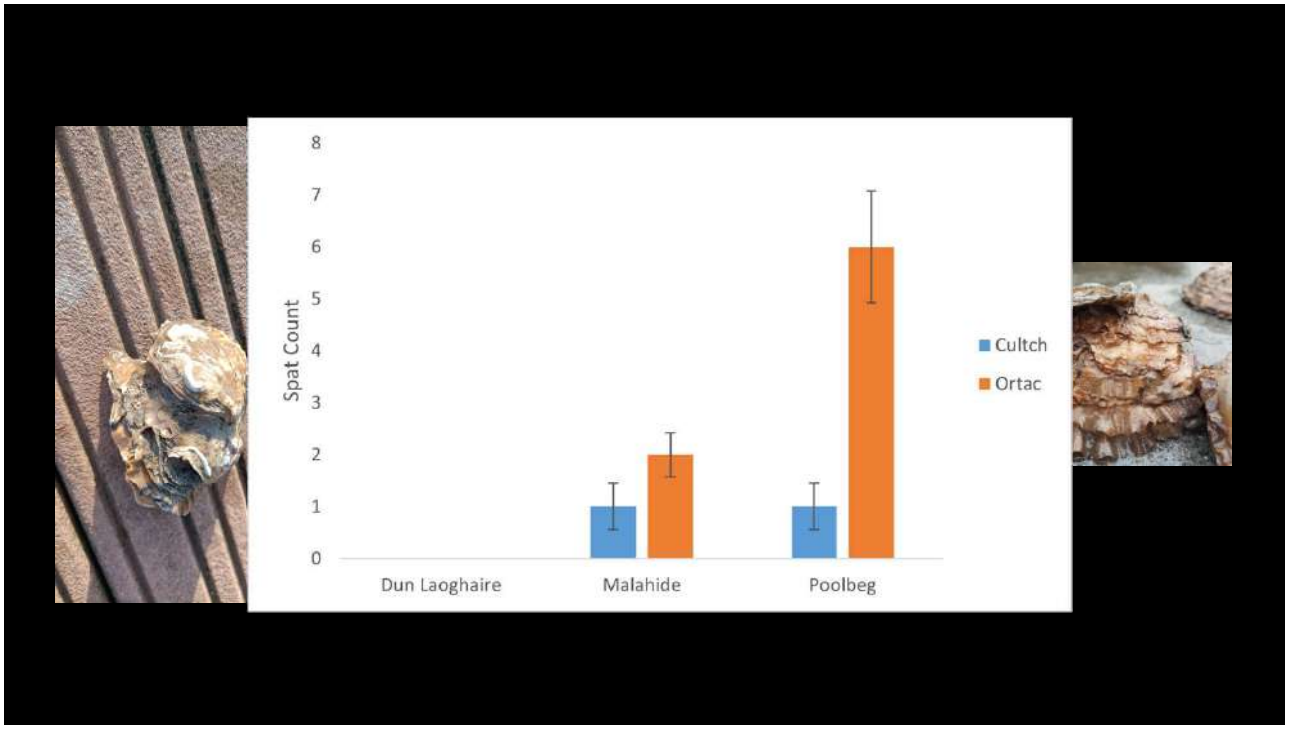
Site Effects On:

- Growth
- Survival
- Spat production
- Sex Ratios
- Clearance/ Respiration Rates
- Oyster Condition

62


Weight (g)
200.00
180.00
160.00
140.00
120.00
100.00
80.00
Dun Laoghaire
Malahide
Poolbeg
Nov-23
Dec-24
Shell Height (mm)
100.00
95.00
90.00
85.00
80.00
75.00
70.00
65.00
60.00
Dun Laoghaire
Malahide
Poolbeg
Nov-23
Dec-24
Survival
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Dun Laoghaire
Malahide
Poolbeg

63


Spat Count
8
7
6
5
4
3
2
1
0
Dun Laoghaire
Malahide
Poolbeg
Cultch
Ortac

64

Thank You

Taighde Éireann Research Ireland

Fingal County Council
Comhairle Contae Fhine Gall

epa Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

Malahide Marina

Dublin City Council
Comhairle Cathrach Bhaile Átha Cliath

Dún Laoghaire-Rathdown County Council Comhairle Contae Dhún Laoghaire-Ráth an Dúin

Dun Laoghaire Marina

GREEN OCEAN

POOLBEG YACHT & BOAT CLUB
DUBLIN CITY | IRELAND

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Danny Renton, Seawilding

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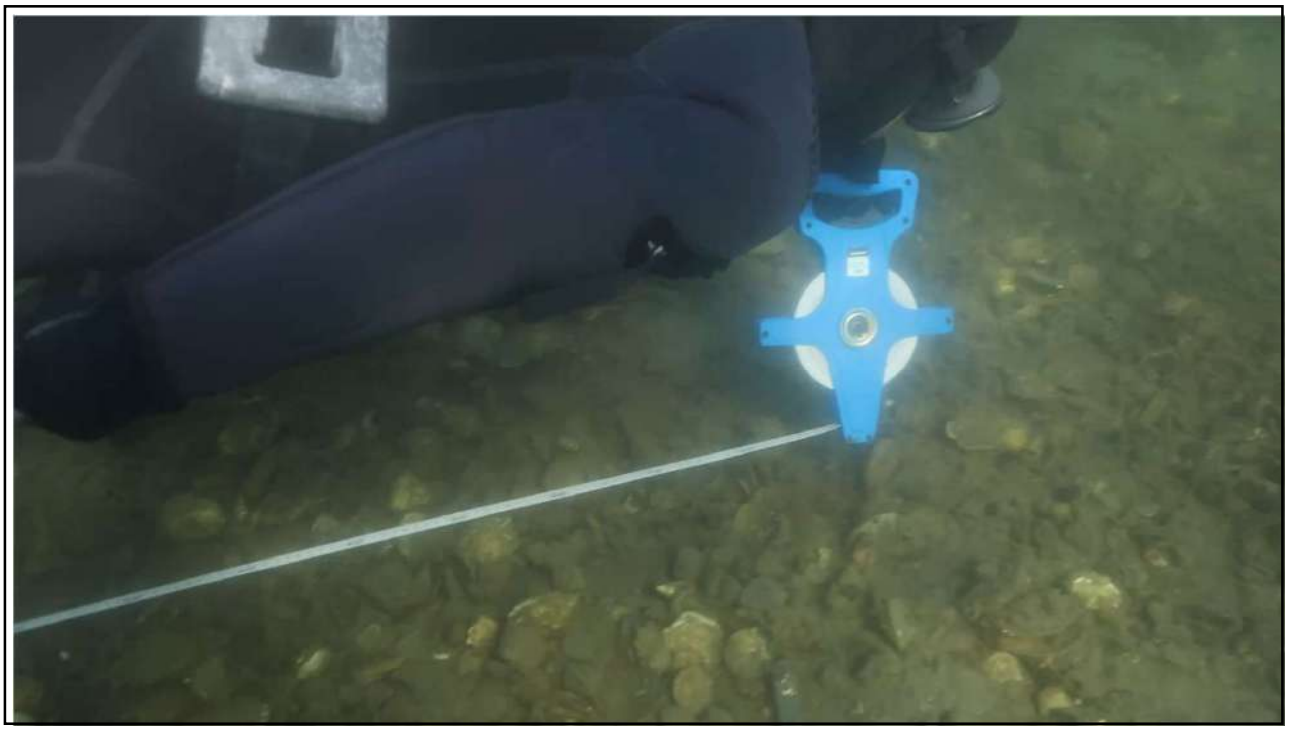
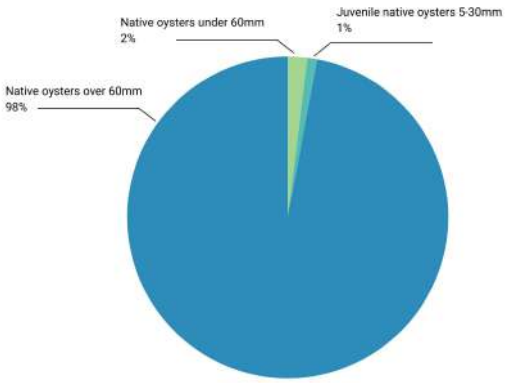


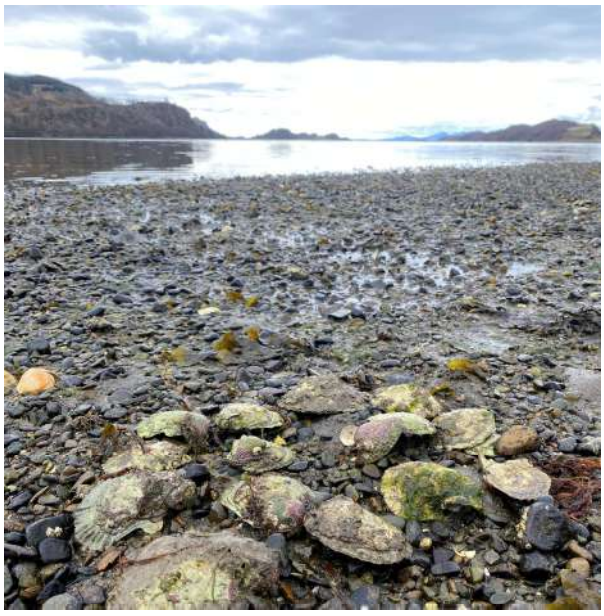
72

Sub-tidal Survey Results across all Native Oyster release sites, Loch Craignish October 2024



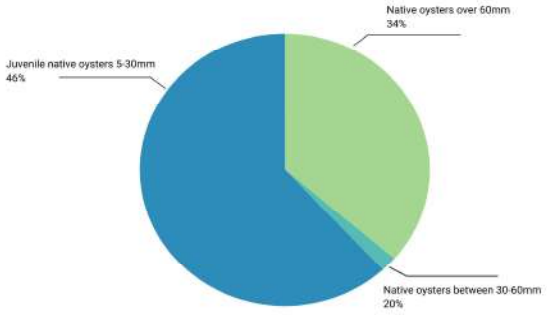
- The majority were over 60mm suggesting they're at least 3 years old, and of a breeding age
- On average, oysters could be found at a density of approx. 10/m2 and at best, at 34 oysters/m2
- Across all sub-tidal release sites, 142 native oysters were recorded under 30mm of size. These were fused to stones and shells.

73



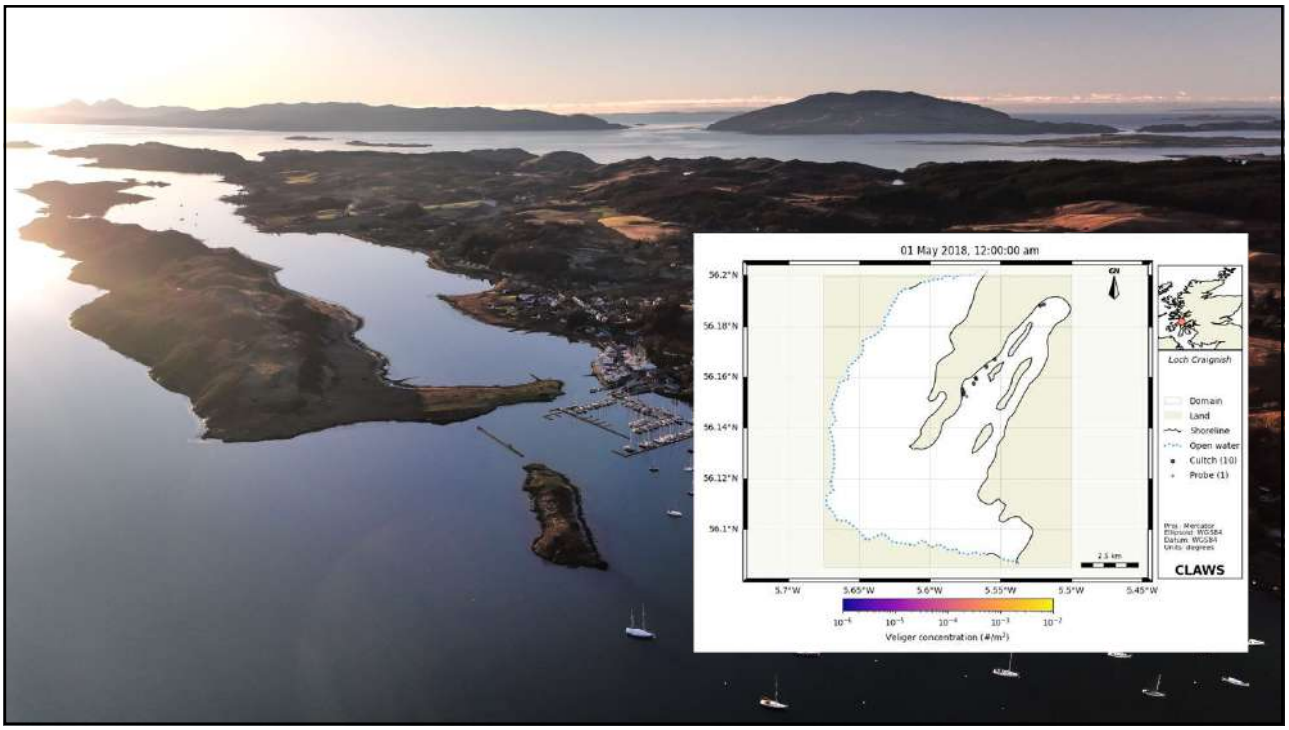
74

Intertidal Native Oyster Survey, Kintraw October 2024



- Two transect surveys were undertaken, each covering an area of 100 m2. 41 native oysters were identified.
- 66% of these oysters were under 60mm (under a breeding size) and 46% were stuck to shell or rock and were under 30mm in size.

75



76

77

78

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HABITAT RESTORATION IN PROGRESS
LOCH CRAIGNISH IS A NATIVE OYSTER RESTORATION AREA
This is a community based project to restore our deteriorating marine habitat
Native oysters are protected
If you see any, please don't pick up
Thank you
SEAWILDING

80

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Eric Holden, Natur am Byth & Restoration Forth

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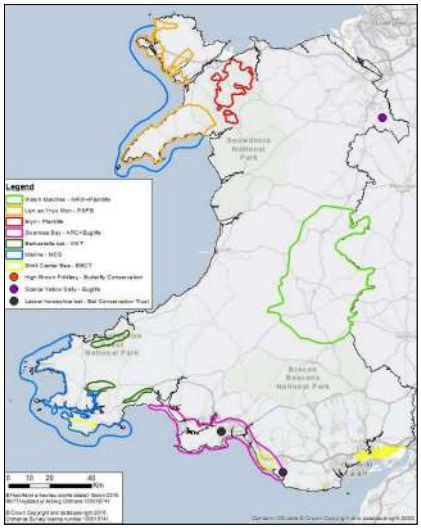
Natur am Byth!

Natur am Byth! Adfer rhywogaethau dan fygythiad yng Nghymru / Saving Wales' threatened species
Cronfa Treftadaeth Heritage Fund

Programme of 11 projects, 10 organisations, led by NRW. 4-year delivery phase 2023-2027



MARINE CONSERVATION SOCIETY

Natur am Byth! Môr

- Seagrass
- **Native Oyster**
- Pink Sea Fan
- Water quality

Bridget Orchard, Project Manager, Marine Conservation Society

Hanna Nuuttila, Project Manager, Marine Conservation Society

Alison Hargraves, Llŷn & Môn Regional Coordinator
Gwynedd Council, seconded to Marine Conservation Society

Sue Burton, Pembrokeshire Regional Coordinator
Port of Milford Haven, seconded to Marine Conservation Society
sue.burton@mhpa.co.uk 07881 334047

82

Natur am Byth! Môr

Deployment of Native Oysters

May 2024 - first deployment of 20,000 mature native oysters (Tethys Oysters - Andy Woolmer)
April 2025 - deployment of 20,000 mature native oysters (Tethys Oysters - Andy Woolmer).
2026 - 50,000 native oysters (Car-y-Môr)
2027 - 50,000 native oysters (Car-y-Môr)




Bangor University School of Ocean Sciences

Separate project funded by Pembrokeshire Coast National Park Authority grant is aiding restoration efforts by Natur am Byth! Môr.

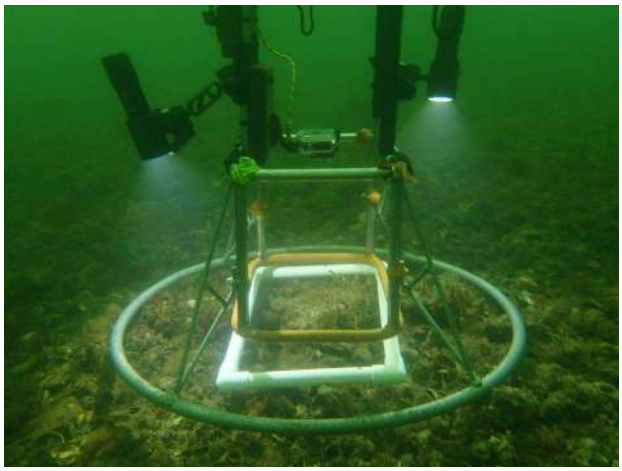
This forms part of the Blue Carbon Strand of the Pembrokeshire Coast National Park Authority's Wild Coast! Sustainable Landscapes, Sustainable Places Programme, funded by the Welsh Government and co-ordinated by Tirweddau Cymru Landscapes Wales.

Nov 2023 - 148 *Ostrea edulis* broodstock collected from Milford Haven Waterway.
Apr 2024 - First oyster larvae released. Multiple spawnings followed.
Feb 2025 - 200,000 spat on shell deployed back into the Waterway.
Mar 2025 – We are looking to fund a continuation of the rearing project.



Natur am Byth! Môr

Monitoring: 787 screen-shot 'quadrats' (30cm x 20cm) obtained from the seabed for analysis from fieldwork in 2024. Annual report from 2024 now available.



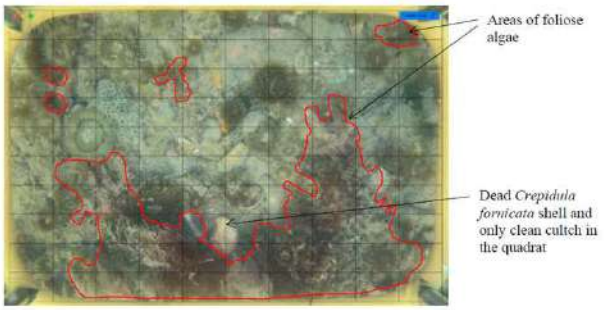


Figure 14 A screenshot quadrat (667-6) shown with a 10x10 grid overlay to assist with estimates of percentage cover

Natur am Byth! Môr

Native Oyster 'hotels' Installed Nov 2024 at Rudder's Boatyard pontoon within the upper reaches of the Milford Haven Waterway.

First citizen science sessions underway.

Huge thanks to the Wild Oyster Project for lessons learnt and resources.

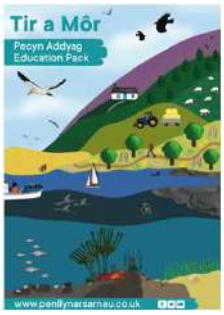
Thank you to Andy Woolmer, Tethys Oysters, for the ortacs.

Natur am Byth! Môr

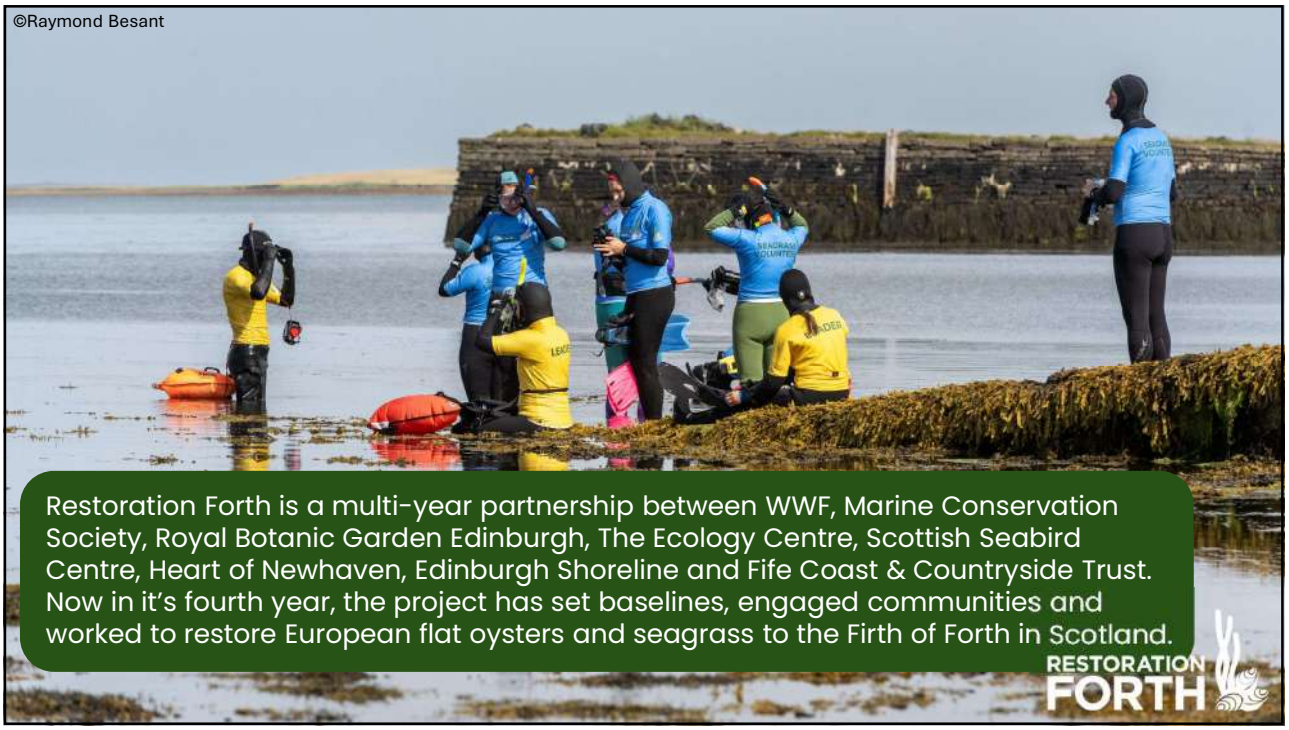
Education and engagement

We are working with local educational charity **The Darwin Centre** to deliver education and community engagement activities – on good low tides.

We have also developed a native oyster section for the bilingual Tir a Môr education pack – coming soon!



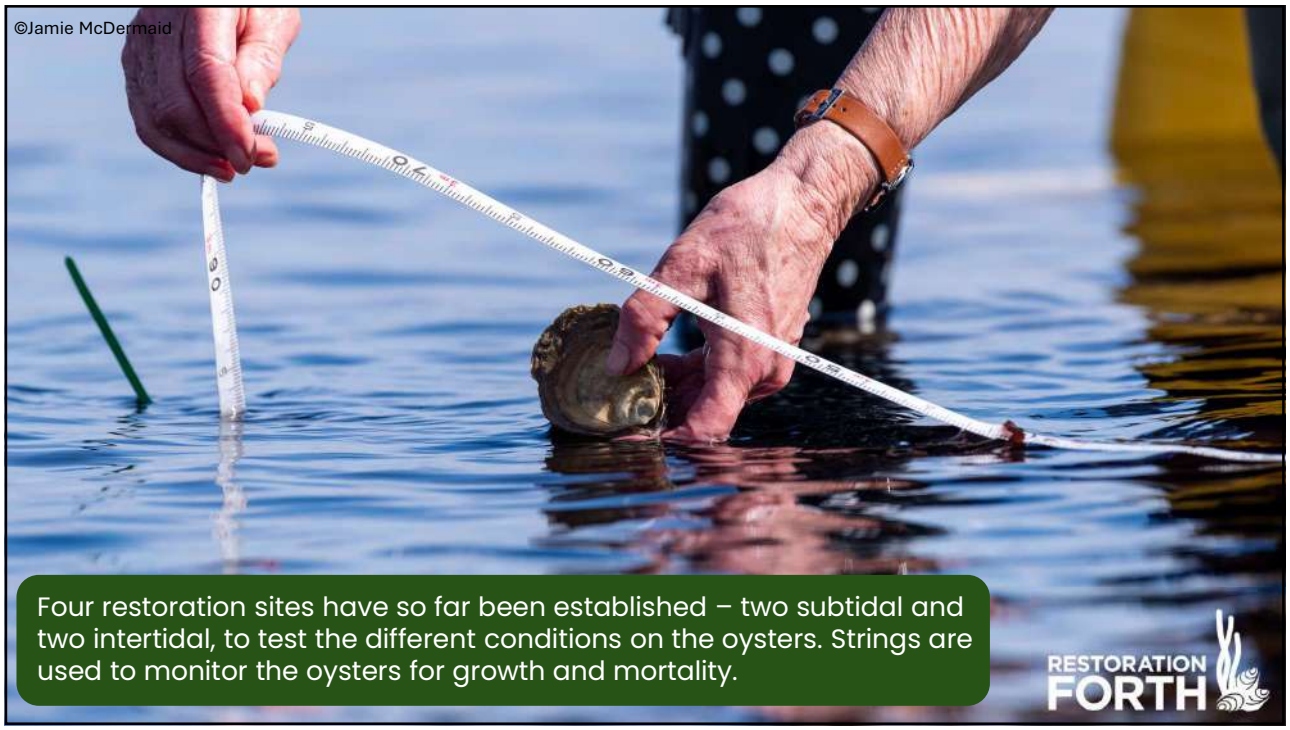
87



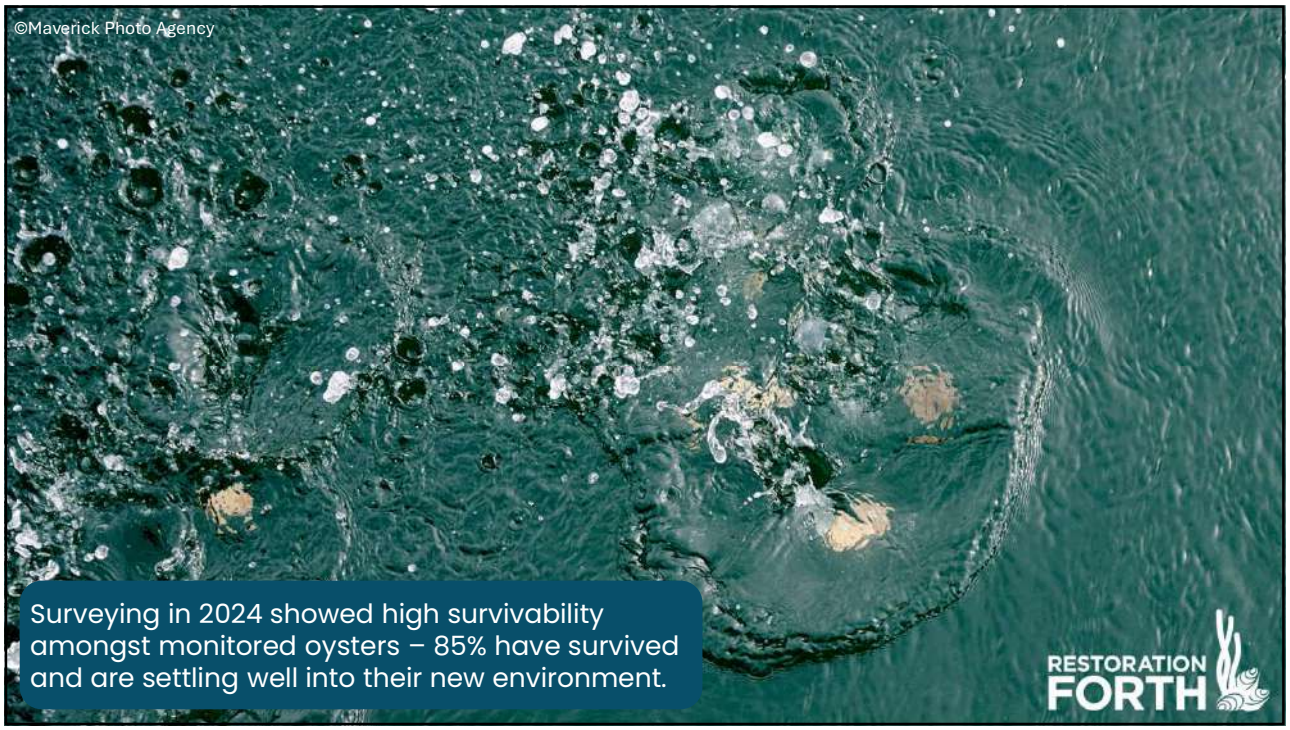
88


©Maverick Photo Agency
30,000 European flat oysters have been sourced, processed and re-introduced to the Firth of Forth. European flat oysters had been locally extinct in the area for over a decade and have huge cultural significance.
RESTORATION FORTH

89


©Jamie McDermaid
Four restoration sites have so far been established – two subtidal and two intertidal, to test the different conditions on the oysters. Strings are used to monitor the oysters for growth and mortality.
RESTORATION FORTH

90


©Maverick Photo Agency
Surveying in 2024 showed high survivability amongst monitored oysters – 85% have survived and are settling well into their new environment.
RESTORATION FORTH

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©Maverick Photo Agency
100s of volunteers have been engaged in practical activities to assist with restoration including biosecurity processing, oyster monitoring and deployment. The project has also run a variety of educational, social, arts and heritage events.
RESTORATION FORTH

92


©Caitlin Godfrey
A new suite of citizen science surveys have been developed to help assess habitat, better understand biodiversity and monitor the oysters in their new home.
RESTORATION FORTH

93


©Jamie McDermaid
What's next in 2025...
A further 10,000 oysters to be released into the Firth of Forth.
Extensive oyster monitoring to better understand how the oysters are getting on.
A third season of seagrass seed planting at 2 sites around the Forth.
Community events to celebrate the project achievements and upskill local people.
RESTORATION FORTH

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Henry Short, Tees Rivers Trust
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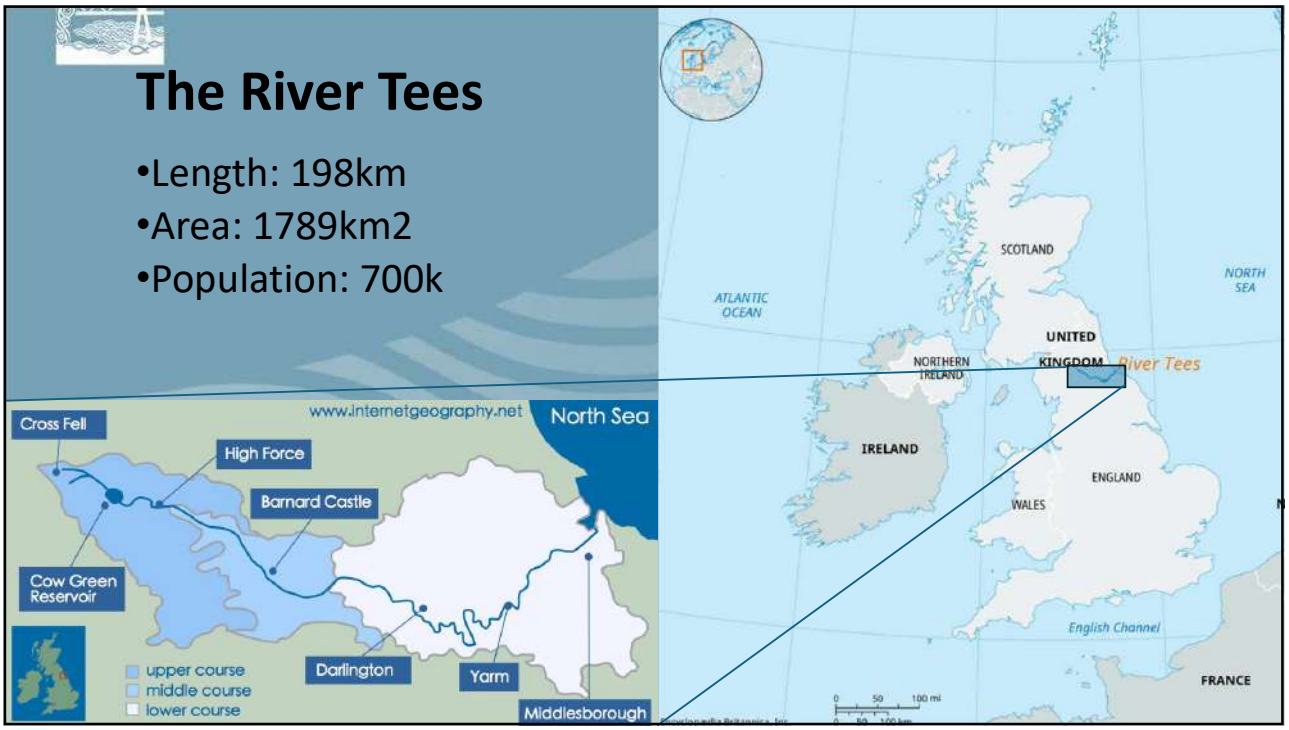
Tees Oyster Restoration
Henry Short - The Tees Rivers Trust
Henry@teesriverstrust.org

96

The River Tees

- Length: 198km
- Area: 1789km2
- Population: 700k



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The Tees Estuary – A world of contradictions

- High nutrient loads
- Land Reclamation
- Heavy Industry

- SSSI
- SPA
- RAMSAR Site

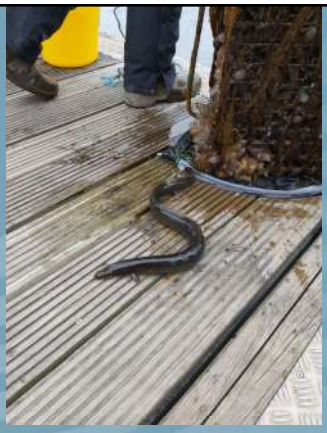
98

Oysters on the Tees – Redcar Beach

From a film about Redcar beach in the Ironstone Museum - Cleveland

99






- Oyster nurseries in Hartlepool Marina + Docks
- 36 Cages
- Over 1200 Oysters
- Over 90% survival in the first year
- Over 40 species associated with the nurseries

100

Spatting Tank

- 500 Oysters
- 123000L Tank
- 0.3t of Scallop shell
- 2000 Spat produced

Improvements

- Add Aeration
- Manually Feed

101

Next Steps

- Nursery in the main channel of the Tees
- More spatting tank trials
- A Reef?
- Ecosystem Restoration

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Thank You!

henry@teesriverstrust.org

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Jose Maria Fariñas-Franco, Oisre Conamara and an upcoming project, BRICONS, with UCD, TCD and QUB

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The Native Oyster Network – UK & Ireland Conference
Session 1: Network Member Project Updates
Session Chair: Celine Gamble
Maria Hayden-Hughes, Wild Oysters
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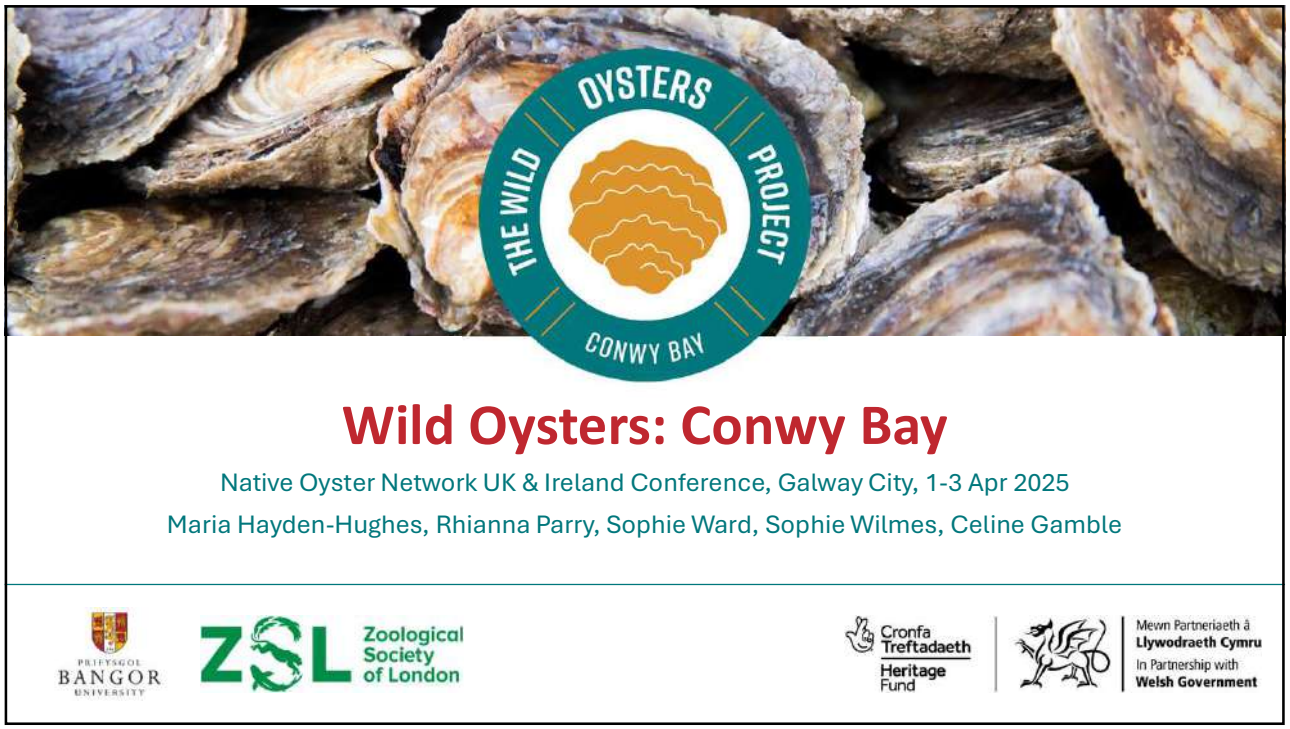
THE WILD OYSTERS PROJECT
CONWY BAY
Wild Oysters: Conwy Bay
Native Oyster Network UK & Ireland Conference, Galway City, 1-3 Apr 2025
Maria Hayden-Hughes, Rhianna Parry, Sophie Ward, Sophie Wilmes, Celine Gamble
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Project Overview

#NNF2 Restoring Wild Oysters to Conwy Bay

Restoration hub located in Conwy Bay, North Wales

Started May 2023, until July 2025

Key activities:
- Monitor oyster nurseries set up in marinas
- Seabed restoration plan development
- Outreach & engagement

Working groups with key local representatives from different sectors

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SUSTAINABLE DEVELOPMENT GOALS

UNITED NATIONS DECADE ON ECOSYSTEM RESTORATION 2021-2030

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Oyster nurseries | Seabed restoration | Outreach & education

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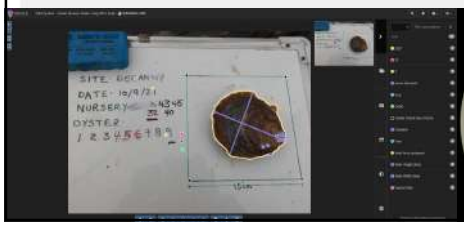
Lessons learnt: Oyster nurseries

- **Oyster nurseries** are an effective engagement tool
- **Require project staff time and capacity** for setup, maintenance and monitoring
- **Supply-chain issues** for equipment
- Marinas are **secure, easily accessible location** to assess oysters
- Using a closed local **Facebook and WhatsApp groups** are effective for communicating with volunteers.
- **Online volunteer sign-up** mechanisms to reduce admin, e.g., Volunteersignup.org
- **Scoping out pre-existing marine citizen science opportunities**- there are limited marine citizen science opportunities in North Wales.





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Lessons learnt: Seabed restoration

- **Cultch storage and deployment** is costly, time consuming and challenging, and local logistical availability can be limiting.
- Acquiring **marine licenses are costly and time-consuming** and restoration activities are weather dependent. Include seabed levelling into MLA; clear communication with marine licensing authority
- Regular **meetings with key representatives from different sectors** have been **beneficial and vitally important**. Use a variety of meeting formats, engagement methods to share information.
- **Involving fishers in planning provides valuable insights**; engagement should be ongoing, and strategically prioritise on-the-ground interactions, utilise contact networks, and partner with fishers if feasible.
- **Seasonality:** oyster fishing season, weather and water visibility for monitoring. These should be factored into project timeline.



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Lessons learnt: Outreach & Education

- **Education materials linked to national curriculum**. Beneficial to have a **team member with an educational background, or support** from education department to review materials
- **Some schools require funding for travel** to site, therefore useful to factor into funding application budget.
- It is good practice to **adapt the materials** for different student groups to **address barriers to learning** due to language and specific educational needs.
- **Requires dedicated staff member** to organise and deliver public outreach and education activities
- **Oganising or collaborating with community events and codeveloping activities with local groups share** project key messages through meaningful engagement, connecting people with the marine environment








Project Overview:
#NNF3 Connecting Conwy

A plan for seascape scale recovery of coastal habitats in Conwy Bay and the Menai Strait

Restoration hub located in Conwy Bay, North Wales

Started August 2024, until March 2026

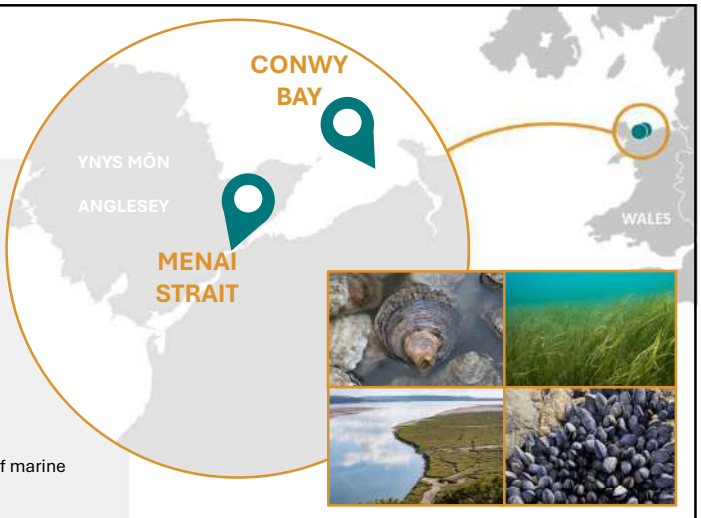
Key activities:

Continue oyster restoration monitoring and trial new sites

Consolidate knowledge & planning to increase connectivity of marine habitats

Outreach & engagement

Working with existing partnerships and build-on research



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Wild Oysters: Conwy Bay

Maria Hayden-Hughes (Research Lead)- m.hayden-hughes@bangor.ac.uk
Rhianna Parry (Engagement Officer)- rhianna.parry@bangor.ac.uk
Celine Gamble (Project Manager)- Celine.Gamble@zsl.org

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Session 1: Network Member Project Updates

Session Chair: **Celine Gamble**

Nick Baker-Horne, Native Oyster Restoration Northern Ireland - Progress

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Native Oyster Restoration in NI – Progress Update

Nick Baker-Horne
Native oyster Network Conference – Galway

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Project Overview

- DAERA funded until 2028
- Oyster nurseries
- Surveys
- Blue Carbon

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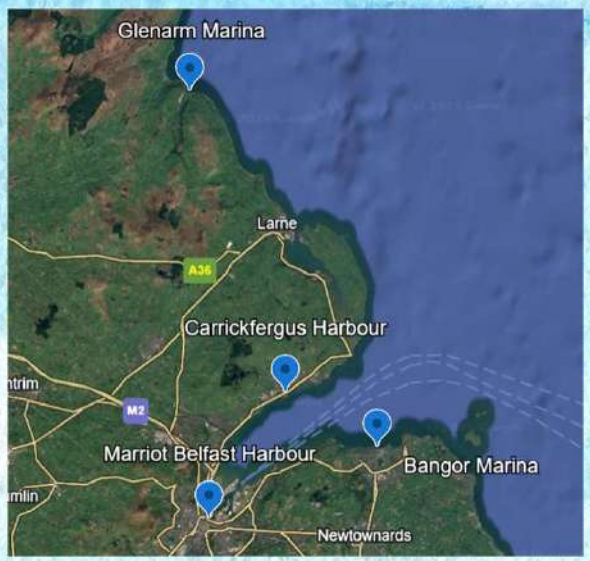
NURSERY NETWORK

Seabed Pontoon



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Seabed deployment

- Pilot deployment
- First in NI
- Awaiting protected area consents
- Urban…

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Spat-on-shell

- 150 scallop shells from TORC – AVE 3 per shell
- 3 Nurseries and Marine Lab (QML)
- Survival – 14 lost from 237 across nurseries (2 weeks)

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Larval Modelling

- Simulations underway
- Forward and backward
- Belfast and Larne Lough
- To inform surveys and seabed deployments

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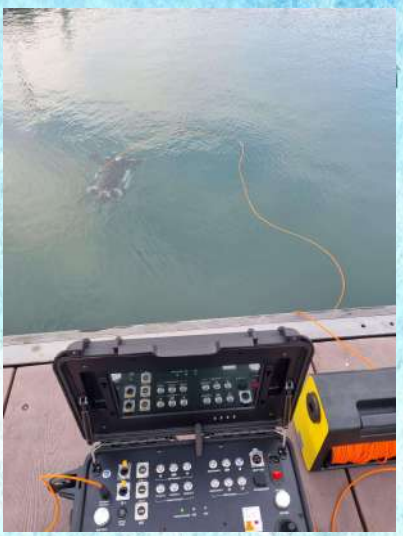
Next steps

- Finalise seabed deployment
- Larval modelling results
- Intertidal and subtidal surveys (ROV)
- Plan larger scale seabed deployment



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Thanks!

Get in touch...

Nick.bakerhorne@ulsterwildlife.org

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Session Chair: **Celine Gamble**

Philine zu Ermgassen, IUCN Ecosystem Red Listing the European native oyster reef ecosystem

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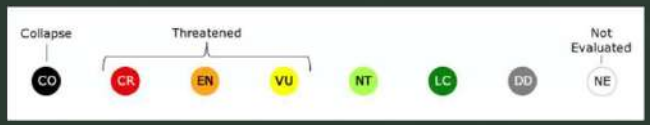
NORA

IUCN ecosystem red listing for *Ostrea* ecosystems in Europe



Native Oyster Network UK & Ireland, March 2025

Philine zu Ermgassen, Ruth Thurstan, Hannah McCormick, Jo Preston, Stéphane Pouvreau, Jose Fariñas-Franco, Bill Sanderson, Åsa Strand, Chris Gillies, Boze Hancock, Celine Gamble, Alison Debney

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Take homes

Ecosystem definition

Definition of ecosystem collapse

Ecosystem Red Listing Assessment

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Table 1.1: Oyster habitat definition and description (modified from Pouvreau *et al.* 2021b).

Criteria	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4
Oyster habitat descriptor	Mixed sediments	Mixed sediments featuring oysters	Functioning oyster habitat reefs and beds		
Example					
Max density	0-1 ind/m²	1 to 5 ind/m²	5 to 10 ind/m²	10 to 20 ind/m²	> 20 ind/m²
Aggregation	None	Single/pair	Several individuals	Many individuals	Maximal
Size spectrum	1 cohort	1 or 2 cohorts	Several cohorts	Several cohorts	Many cohorts
Recruitment	< 0.1 ind/cm²	< 1 ind/cm²	< 10 ind/cm²	< 100 ind/cm²	> 100 ind/cm²
Oyster composition	Rolling - Buried	Fixed - Emerging	Small clusters	Big clusters	Biogenic reef structure
Habitat resilience	Minimal	Minimal	Low	Medium	High
Biodiversity	Low	Low	Medium	High	Very high
SER label	★	★★	★★★	★★★★	★★★★★

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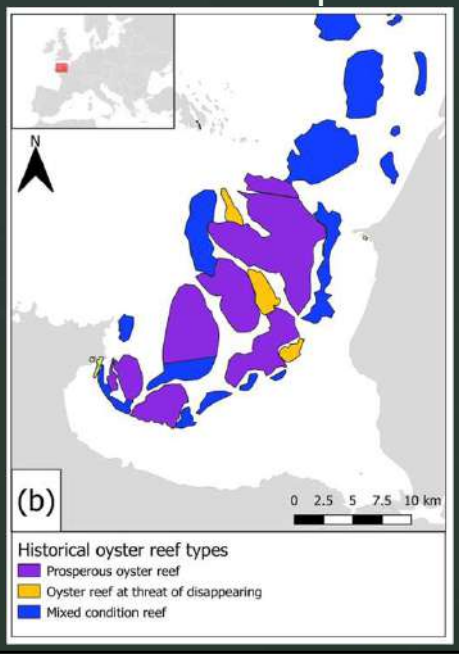
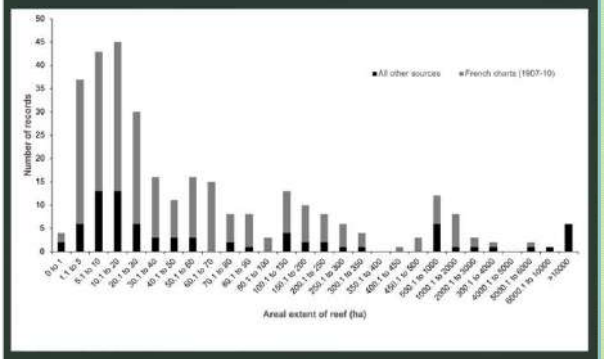
Historical spatial extent





>300 records reported area or length

Reefs occurred at multiple scales, mainly >1 ha

Bay of Cancale as mapped by Joubin (1910)

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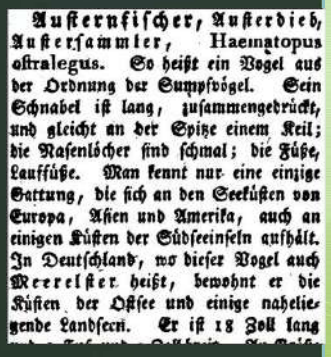
Associated community

"Oyster catcher, oyster thief, oyster collector…. So named is one bird out of the order of marsh birds….

.. During the end tide he seems particularly happy; then he runs around making cheeping noises, and seeks his food, which is **primarily made up of oysters**. The bird **knows how to expertly break open the shells**, without injuring its beak on the sharp edges. If they are too firmly closed, then it hits it on a rock, so that they pop open. **If it cannot find any oysters**, then it enjoys blue mussels, snails and other worms, also discarded dead animals."

Lippold 1801



Austernfischer, Austerdieb, Austersammler, Haematopus ostralegus. So heißt ein Vogel aus der Ordnung der Sumpfvögel. Sein Schnabel ist lang, zusammengedrückt, und gleicht an der Spitze einem Keil; die Nasenlöcher sind schmal; die Füße, Lauffüße. Man kennt nur eine einzige Gattung, die sich an den Seeküsten von Europa, Asien und Amerika, auch an einigen Küsten der Südseeinseln aufhält. In Deutschland, wo dieser Vogel auch Meerelster heißt, bewohnt er die Küsten der Ostsee und einige naheliegende Landseen. Er ist 18 Zoll lang

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Ecosystem definition in numbers

TABLE 1 | Proposed reef attributes (physical form and functional features) of the European native oyster reef e

Attribute	Fully functional reef ecosystems	Partially functional reef ecosystems	Oyster populations within alternate ecosystems
1. Oyster density and size frequency	> 20 live oysters m^{-2} representing multiple size classes	5–20 oysters m^{-2} representing multiple size classes	< 5 oysters m^{-2} multiple size classes may not be represented
2. Shell cover	> 25% cover		< 25%cover
3. Shell budget and reef height	Increasing or stable spatial extent and/or height.		Little or no evidence of shell substrate
4. Patch size and number	Multiple patches of reef (> 5 m^2), which may be separated by a few m to cover an area > 1 ha	Multiple patches of reef (> 5 m^2), which may be separated by a few m to cover an area < 1 ha	Few or no patches of oyster reef

Images by Maria Eggertsen

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Description of collapsed state - Europe

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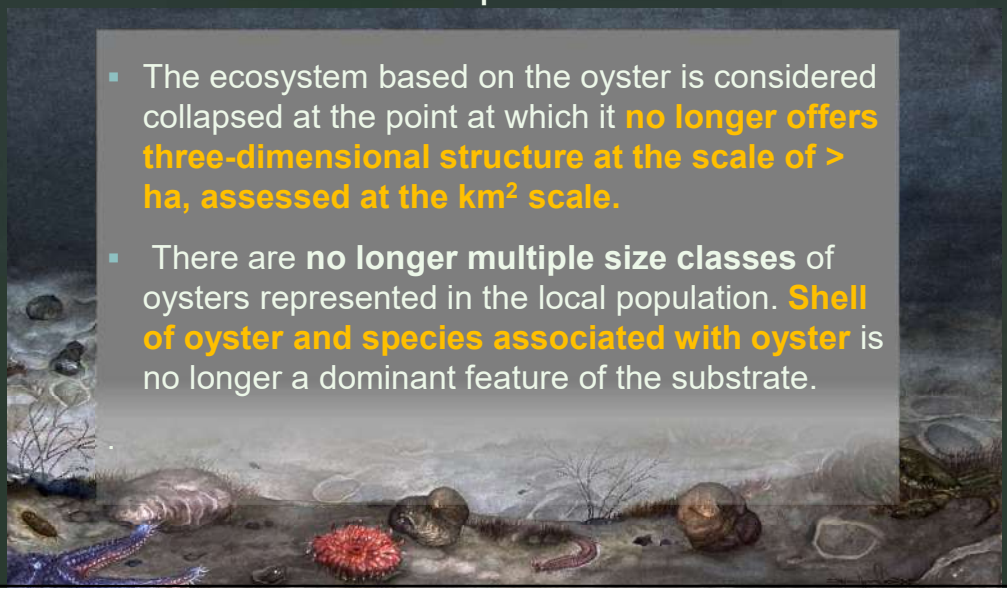
Threshold of collapse



- The ecosystem based on the oyster is considered collapsed at the point at which it **no longer offers three-dimensional structure at the scale of > ha, assessed at the km² scale.**
- There are **no longer multiple size classes** of oysters represented in the local population. **Shell of oyster and species associated with oyster** is no longer a dominant feature of the substrate.

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Current extent

GBIF.org (06 October 2022) GBIF Occurrence Download https://doi.org/10.15468/dl.636syr

Instead:
Extensive country by country literature review

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Red listing criteria

Summary of Criterion: (A,C,D relative to <50yrs, next 50 years, any 50 years, or since 1750)

A: Change in distribution

B: Restricted distribution

C: Degradation of abiotic/non-living parts of the ecosystem

D: Disruption of biotic processes and interactions

E: Quantitative analysis of probability of collapse

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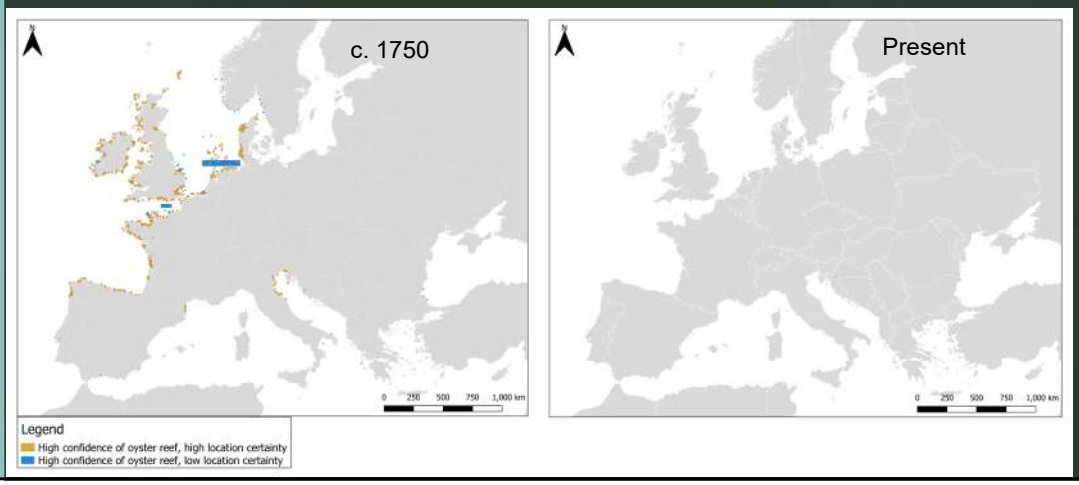
Ecosystem red listing criteria

A: Change in distribution

Subcriterion	*Time frame*	CR	EN	VU
A3	Historical (since approximately 1750)	≥ 90%	≥ 70%	≥ 50%



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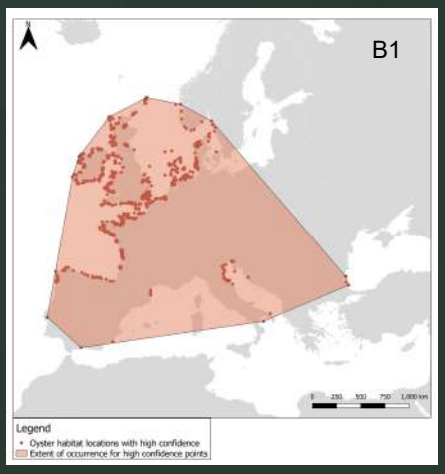
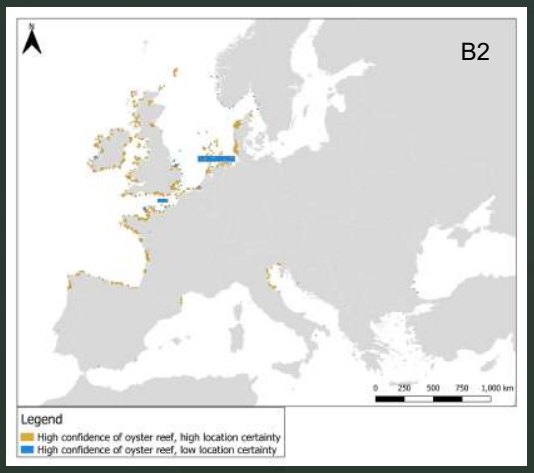
Ecosystem red listing criteria

B: Restricted distribution



Past (c.1750) Extent of Occurrence (EOO)



Past (c.1750) Area of Occupancy (AOO).

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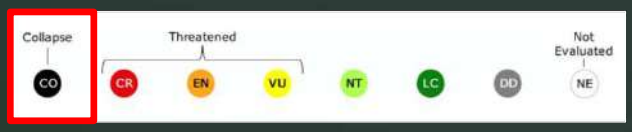
Conclusion



- Assessment results

Based on the best current knowledge, European *Ostrea* reef ecosystems are collapsed across the entirety of their range. This is despite the species being widely distributed.

- Red listing criteria
- A: Change in distribution (since 1750) CO
- B: Restricted distribution CO
- C: Degradation of abiotic/non-living parts of the ecosystem (since 1750) DD
- D: Disruption of biotic processes and interactions (since 1750) CO
- E: Quantitative analysis of probability of collapse. NE

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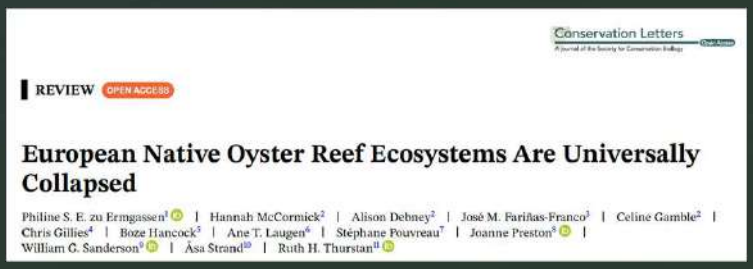
Acknowledgements

Conservation Letters, 2024; 0:e13068
https://doi.org/10.1111/conl.13068



Conservation Letters

REVIEW OPEN ACCESS

European Native Oyster Reef Ecosystems Are Universally Collapsed

Philine S. E. zu Ermgassen | Hannah McCormick | Alison Debney | José M. Fariñas-Franco | Celine Gamble | Chris Gillies | Boze Hancock | Ane T. Laugen | Stéphane Pouvreau | Joanne Preston | William C. Sanderson | Åsa Strand | Ruth H. Thurstan

Acknowledging the NORA Historical Ecology Working group dataset soon to be submitted as both a paper and a data paper.

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Stefano Carboni, NORA Update

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The Native Oyster Network – UK & Ireland Conference
Galway City, Ireland
Tuesday 1st & Wednesday 2nd April 2025
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Session Chair: Philine zu Ermgassen
1. Luke Helmer, Solent Oyster Restoration
2. Paul Brooks, Restoration of native oysters in Ireland: New and current projects and barriers to implementation
3. Emma White, Monitoring of settlement, growth and mortality of oysters on scallop shell in Galway Bay
4. Jon Dickson, Who lives in a pear tree under the sea? Tree-reefs to induce top-down predation for crab control
5. Molly Hughes, Adapting oyster restoration to the scale of offshore energy development in the North Sea
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SOLENT OYSTER
RESTORATION PROJECT
BLUE MARINE
FOUNDATION
NATIVE OYSTER NETWORK
UK & IRELAND
Dr Luke Helmer
Restoration Science Manager

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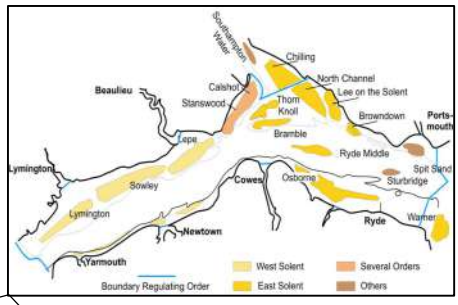
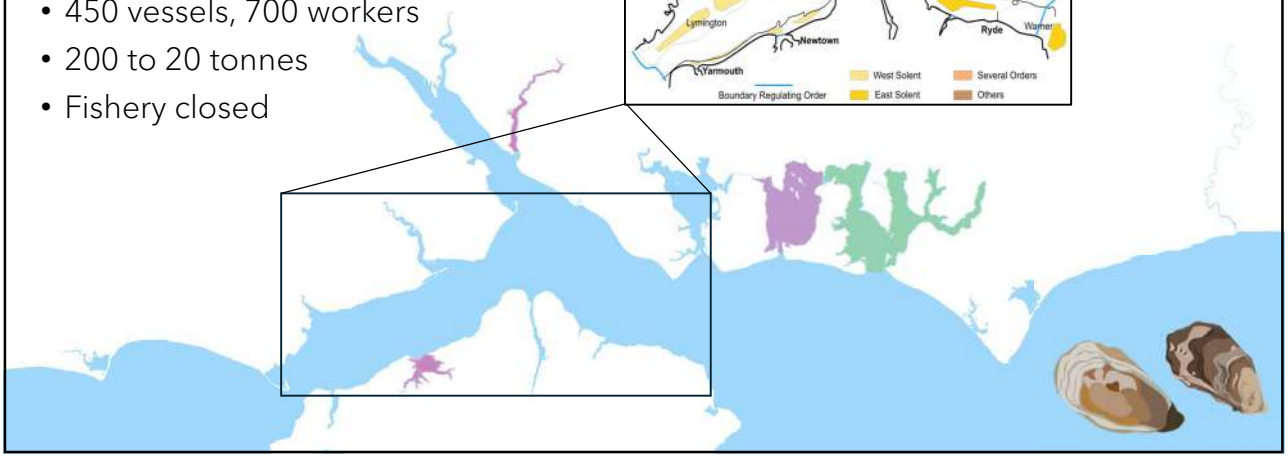
The Solent

- Rich cultural heritage
- 1970s/80s "Europe's largest fishery"
- 15 million or 840 tonnes / yr
- 450 vessels, 700 workers
- 200 to 20 tonnes
- Fishery closed





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Solent Oyster Restoration Project

2013

SIFCA approached Blue Marine after fishery collapse

2014

University of Portsmouth contacted by Landrover BAR to improve biodiversity in Portsmouth Harbour

Blue Marine commissioned feasibilty report and created working group

2016-2019

Research and development:

- Suspended nurseries
- Biodiversity
- Site suitability
- Licence application

September 2021

- First cultch and oyster deployment
- 0.1 ha
- 15,000 oysters
- Launch Nursery Handbook

2021

First Marine Licence granted

- River Hamble
- Langstone Harbour
- Newtown Harbour

Feb 2022

- 21,227 oysters added

2023

Second reef deployment

- 0.25 ha
- 15,393 oysters

April 2024

- 5,135 oysters onto Hamble Reef

PRESENT

April 2025

- 0.25 ha extension Hamble Reef
- Licence application
- 3.84 ha in Chichester Harbour

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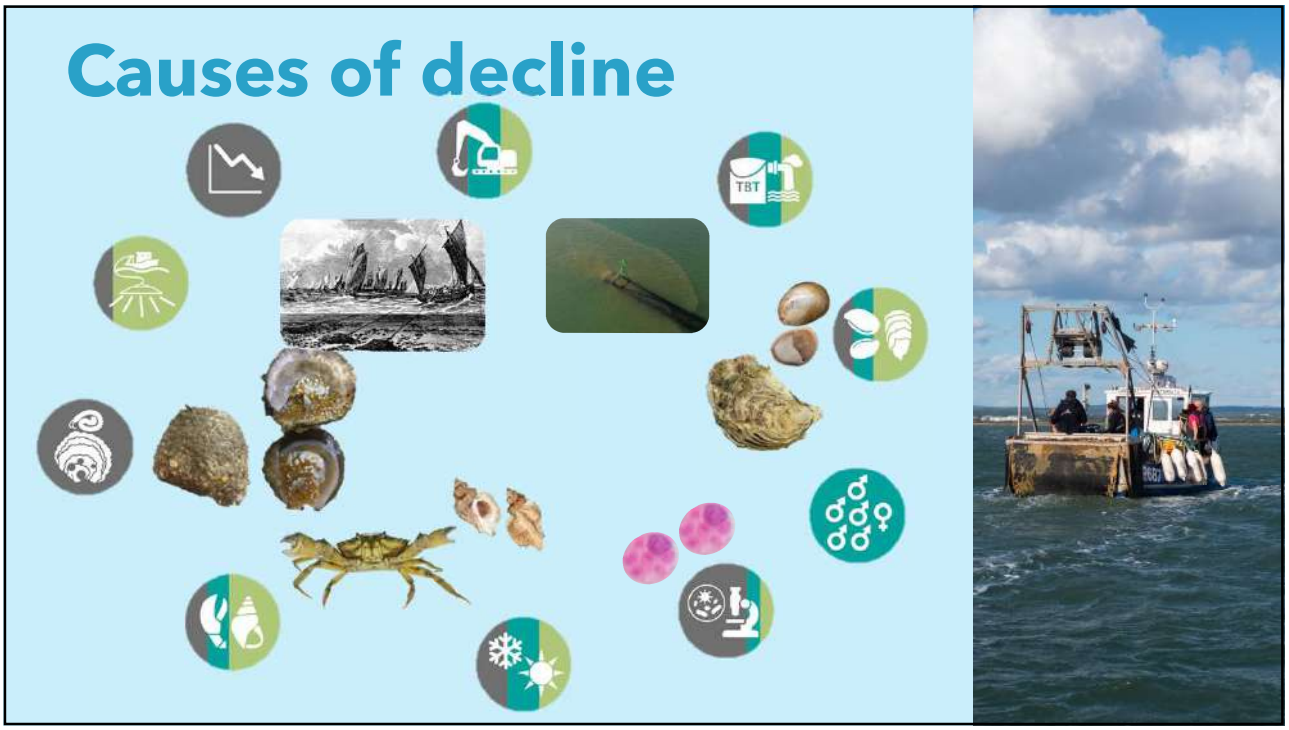
Causes of decline
TBT

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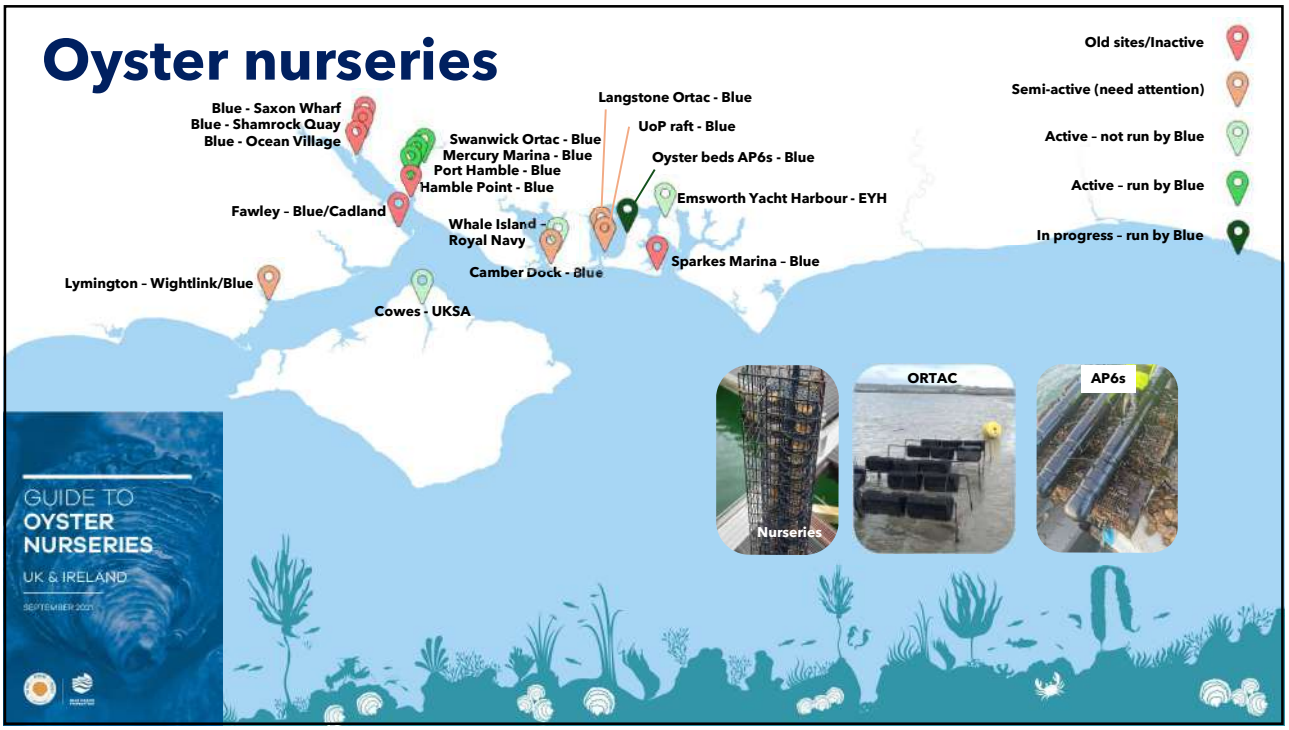
Oyster nurseries
Old sites/Inactive
Semi-active (need attention)
Active - not run by Blue
Active - run by Blue
In progress - run by Blue
Blue - Saxon Wharf
Blue - Shamrock Quay
Blue - Ocean Village
Swanwick Ortac - Blue
Mercury Marina - Blue
Port Hamble - Blue
Hamble Point - Blue
Fawley - Blue/Cadland
Langstone Ortac - Blue
UoP raft - Blue
Oyster beds AP6s - Blue
Emsworth Yacht Harbour - EYH
Whale Island - Royal Navy
Camber Dock - Blue
Sparkes Marina - Blue
Lymington - Wightlink/Blue
Cowes - UKSA
Nurseries
ORTAC
AP6s
GUIDE TO
OYSTER
NURSERIES
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SEPTEMBER 2021

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Oyster Reefs

Main Goals

Restoring native oyster habitat

Increase larval output/recruitment

Create broodstock sanctuaries

Total of 4ha across the Solent

Increase the number of native oysters in the Solent

Establish self-sustaining populations, tolerant of the conditions

Provide ecosystem services to benefit people and nature

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Site selection

Biological, environmental, logistical, legal

Historical presence

Areas closed to bottom towed gear

Sublittoral mixed sediment

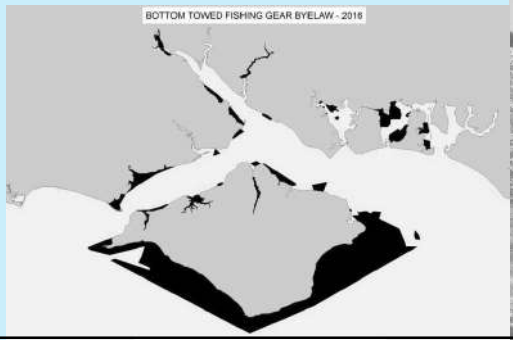
Depth

Navigation

Access

Designations

Byelaws



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Langstone

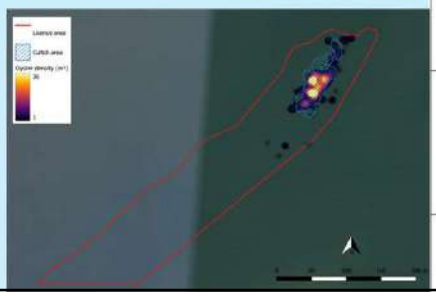
Langstone Harbour

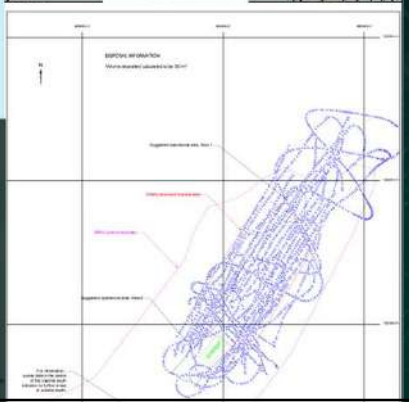
0.1ha

361m³ of shell and gravel cultch

7 barge loads

36,000 native oysters





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Hamble

River Hamble

0.25ha phase 1 March 2023

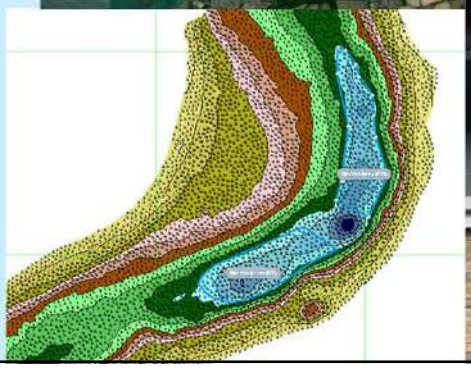
0.25ha phase 2 (this month!)

Phase 1

468m³ of shell and gravel cultch

2 barge loads

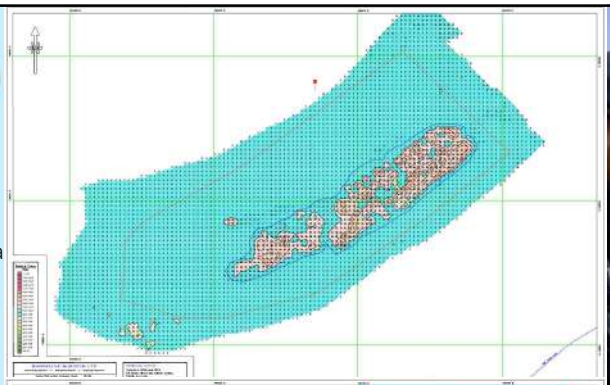
20,528 native oysters



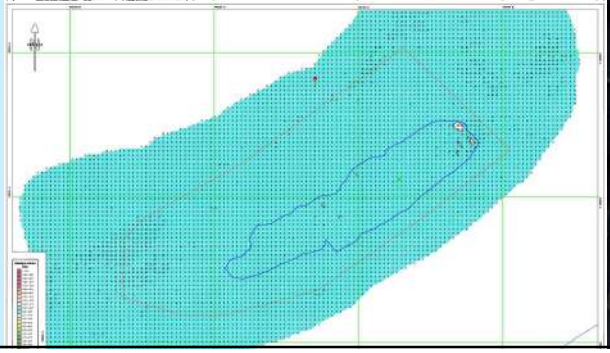
150

Hamble

Baseline - Year 1
Deployment within target area



Year 1 to Year 2
Little/negligible movement of cultch



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Monitoring

Main indicators
Reef area/extent
Change in profile
Oyster density
Biodiversity
- Changes in benthic community assemblage
- Mobile fauna
- Species presence

Total suspended solids
Nutrient (N) levels
Larval recruitment

Methods
Multibeam bathymetry
Grab sampling – particle size/benthic community
Video quadrats
BRUVs
eDNA – sediment and water
Coupelles/spat collectors

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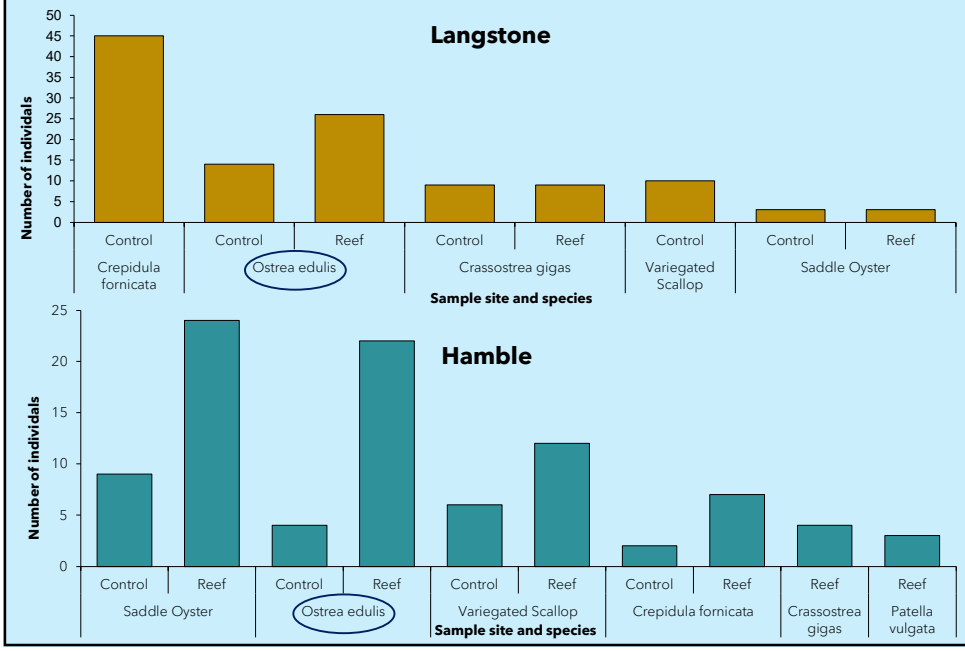
Recruitment



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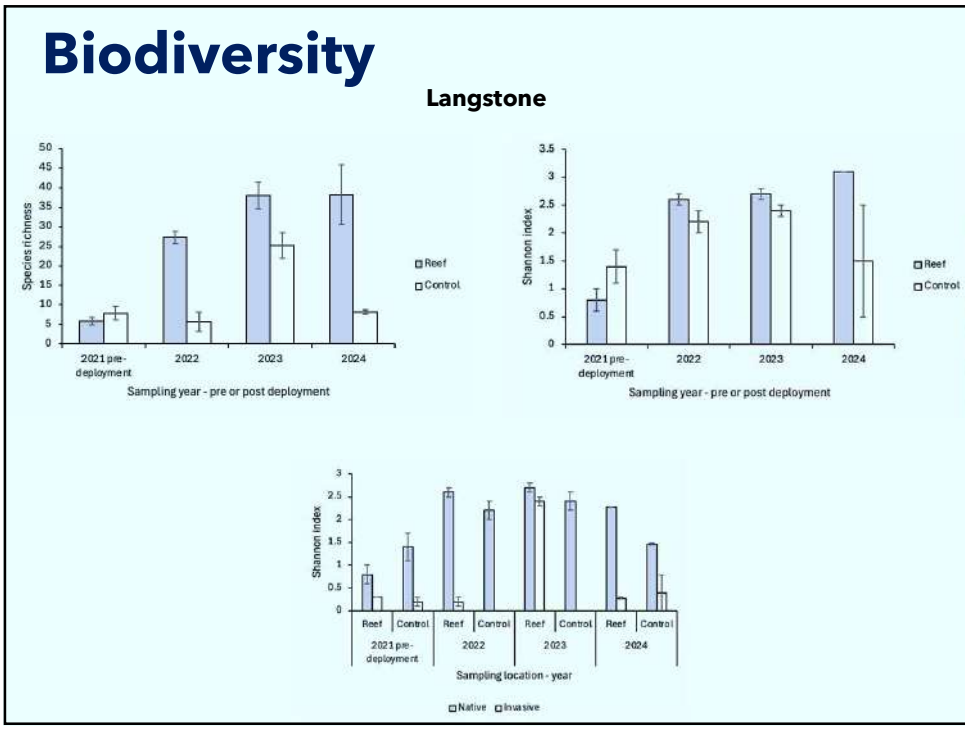
Biodiversity



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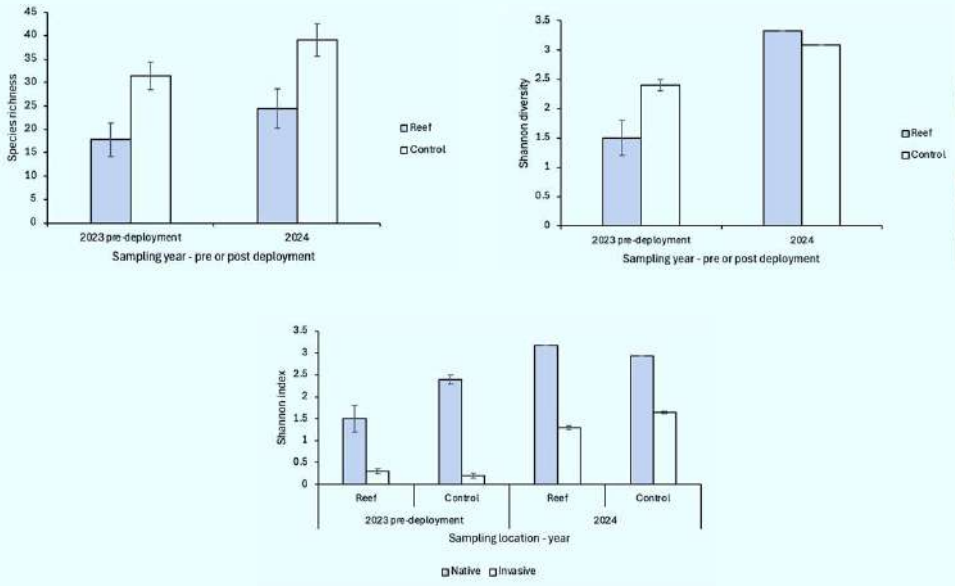
Biodiversity

Hamble



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What works, What doesn't

Challenges

- Langstone - Staff changes before deployments – issues
- Langstone - Poor mapping
- Langstone - Contractors
- Both sites - Monitoring oyster density – poor vis, oyster translocation, video assessment
- Sedimentation, maybe
- Oyster biosecurity capacity – how to scale up?
- Oyster availability
- Logistics – there are many moving parts

- **LICENCES** – cost, process, time, land ownership issues, reporting, feature based management
  - The whole system is a mess and needs reforming for restoration in the UK to progress, quicker than it currently is!

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What works, What doesn't

Successes

- Lessons learned from challenges!
- Hamble reef deployment and mapping
- Recruitment onto cultch!!
- Oyster biosecurity process – well oiled machine (10-20k capacity)
- Number of oysters deployed – nearly 150,000 total
- Handbooks produced
- Biodiversity associated with nurseries 130+ species
- Larval production (1 billion + in 2017)
- Nursery handbook used locally and nationally
- Community based projects establishing
- Larger-scale Seascape approach developed

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What next

SOLENT SEASCAPE PROJECT

Seascape scale restoration

5 Workstreams

1. Better protection and management of existing habitats
2. Active Restoration
3. Scientific Monitoring
4. Policy Advocacy and Sustainable Financial Mechanisms
5. Community Engagement

Maybe see you at Seascape Symposium II in June!

Endangered Landscapes & Seascapes Programme

East Head IMPACT

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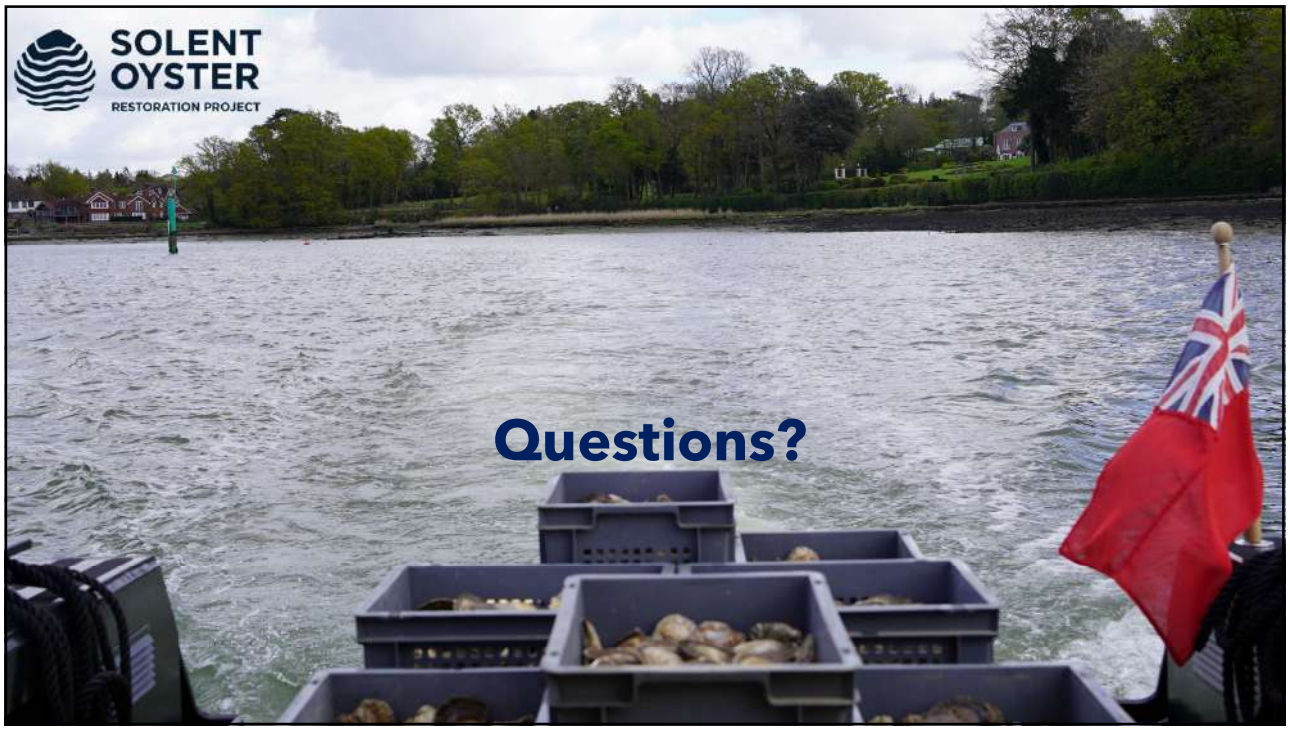

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Session 2: Restoration Monitoring & Advances in Methods

Session Chair: **Philine zu Ermgassen**

Paul Brooks

Restoration of native oysters in Ireland: New and current projects and barriers to implementation

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Restoration of native oysters in Ireland: new and current projects and barriers to implementation.

Paul R. Brooks [1] , Brian Rice [1] , the RESET project team [1, 2, 3] and the BRICONS project team [1, 2, 4, 5, 6]

[1] Earth Institute, and School of Biology and Environmental Science, UCD, [2] Earth Institute, and School of Civil Engineering UCD, [3] National University Galway, [4] Trinity College Dublin, [5] Atlantic Technogical University (ATU), [6] Queens University Belfast.

Outline:

- Current projects
  - IRC/EPA funded PhD
    - Progress to date
  - RESET Project Overview
  - BRICONS Project Overview
- Barriers to and restoration implementation

Native Flat Oyster (Ostrea edulis) Restoration using Artificial Reef Methods

Brian Rice - Ph.D. Scholar (SBES)
Supervisors: Dr. Paul Brooks and Prof. Tasman Crowe
Enterprise Partner (EPA): Dr. Robert Wilkes

This Research is Funded by the Irish Research Council and the Ireland Environmental Protection agency
with additional funding from Fingal County Council and collaboration with Green Ocean Foundation and Watermark Coffee.

Native Flat Oyster (Ostrea edulis) Restoration using Artificial Reef Methods

Project aims and objectives

Aim: Investigate the potential for active native oyster restoration in Irish waters with enhancements from artificial habitat devices.

Obj. 1: Characterize abiotic and biotic conditions at the proposed restoration sites

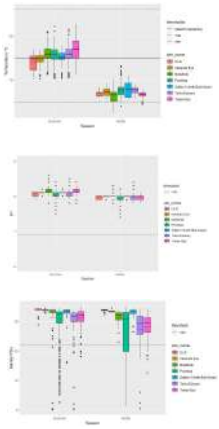
Obj. 2: Experimentally test existing and novel oyster deployment methods in sites along the Dublin coastline to determine differences in growth and reproduction

Obj.3: Evaluate the efficacy of restored reefs and its potential for biodiversity increase and ecosystem service provision.

Native Flat Oyster (Ostrea edulis) Restoration using Artificial Reef Methods

Project progress

- Mapping and habitat suitability



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epa Environmental Protection Agency

Comhairle Contae Fhine Gall
Fingal County Council

Native Flat Oyster (Ostrea edulis) Restoration using Artificial Reef Methods

Project progress

- Testing feasibility of oyster relocation – survival and growth rates

Malahide

Poolbeg

Dun Laoghaire

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Fingal County Council

Oysters from Tralee Cleaned and Quarantined





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Oysters Successfully Deployed 20/11/2023!

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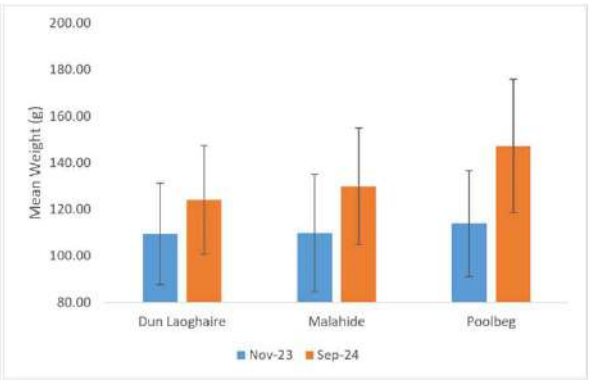

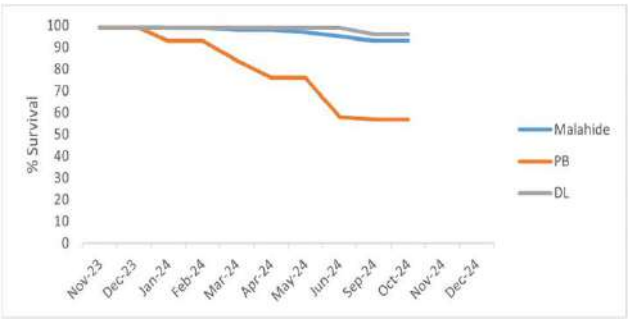

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Native Flat Oyster (Ostrea edulis) Restoration using Artificial Reef Methods

Project progress

- Testing feasibility of oyster relocation
  - first phase complete with final sampling completed and data gathered to evaluate Condition Index

Malahide

Poolbeg

Dun Laoghaire

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New batch of Oysters from Tralee Cleaned and Quarantined (last Friday)

Oysters will be deployed at our three marina sites this Friday !

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RESET
Integrated Restoration in Irish Coastal Waters

GAILLIMH 1845 GALWAY

RESET project

2023-NE-1224 – Enhancing Blue Carbon and Ecological Services through Nature-Based Solutions: Integrated Restoration in Irish Coastal Waters

epa Research

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Project PIs

RESET
Integrated Restoration in Irish Coastal Waters

- Dr Paul Brooks (Lead/PI)
- Prof. Dagmar Stengel (Co-Applicant/PI)
- Dr Md Salauddin (Partner/PI)
- Dr Pedro Beca-Carretero (Partner/PI)




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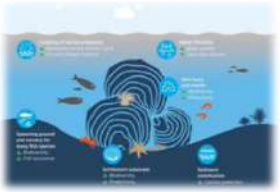
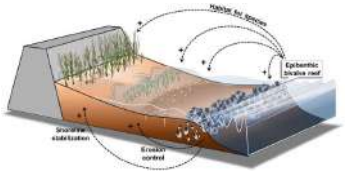
RESET project aim

- Evaluate how **nature-based solutions (NbS)** can enhance and improve **biodiversity and ecosystem services** protection, in terms of, the role that these species play …..
  - in **carbon capture** and **sequestration**
  - **buffering capacities** for **predicted climatic change scenarios**.





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Main objectives:

RESET
Integrated Restoration in Irish Coastal Waters

- Produce for stakeholders a synthesis of the current knowledge on the importance of oyster reefs and seagrass beds (WP1).
- Carry out a detailed literature review of the most appropriate quality elements, metrics, methods and frequencies to be included in a restoration programme for Irish coastal waters (WP2-WP5)
- Compile and analyse existing data on oyster reefs and seagrass beds in Ireland to inform the study sites (WP2 & 3).
- Determine the carbon capture potential of restored habitats (WP2 & 3).
- Determine the contribution of restored oyster reefs and seagrass beds to coastal biodiversity (WP2 & 3).
- Determine the potential of combined restoration of oyster reefs and seagrass beds in enhancing benefits (WP4).
- Evaluate the effectiveness (engineering benefits) of nature-based solutions (proposed restoration measures) in mitigating wave energy using novel physical and numerical tools (WP5)
- Identify and quantify how individual and combined species restoration techniques influence current and future wave hydrodynamic scenarios (WP5)
- Ensure effective communication of project outputs, including communication and sharing of the programme results with the EPA and other relevant stakeholders (WP6)

Project website: https://www.ucd.ie/civileng/research/reset/

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For more details check out Victoria's poster !!

RESET
Integrated Restoration in Irish Coastal Waters

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Poster title: Ecological and societal benefits of combined restoration along coastlines.

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BRICONS project

BRICONS: **B**uilding **R**esilient **I**rish **C**oasts through **O**yster Restoration: A **N**ature-Based **S**olution for Enhancing Marine Biodiversity and Ecosystems

The Changing Use of Ireland's Ocean Call 2024

The BRICONS Project (Grant-Aid Agreement No. PBA-BIOD-24-11), is carried out with the support of the Marine Institute under the Marine Research Programme, and funded by the Government of Ireland.

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Project PIs

Dr Paul Brooks (Lead/PI)

Prof. Nessa O'Connor (Partner/PI)

Dr Md Salauddin (Partner/PI)

Dr Anneka Clements (Partner/PI)

Dr JoseMaria Farinas-Franco (Partner/PI)

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BRICONS
Building Resilient Irish Coasts through Oyster Restoration

Project objectives

- Conduct baseline study of native oyster restoration techniques applicable in port and harbour contexts, and analyse previous experiences, map networks and engage with stakeholders and policymakers through workshops. (WP1)
- Carry out a detailed literature review of the most appropriate quality elements, metrics, methods and frequencies to be included in a restoration programme as a nature-based solution for Irish coastal waters. (WP2-WP4)
- Compile and analyse existing data on oyster reefs in Ireland to inform the study sites. (WP2 & 3)
- Determine the potential of restored habitats to provide a relevant nature-based solution for ports and harbours. (WP2 & 3)
- Identify and quantify how oyster restoration techniques influence current and future larval transport under changing climate scenarios. (WP3)
- Develop and refine indicators of oyster reef restoration success as a nature-based solution and apply them in monitoring surveys to establish convergence of 'de novo' reefs towards reference oyster habitats. (WP3)
- Quantify the biodiversity and describe the faunal communities associated with remnant native oyster beds in Ireland used as reference habitats for restoration. (WP3)
- Evaluate the effectiveness (engineering benefits) of nature-based solutions (proposed restoration measures) in sediment stabilisation and mitigation of wave energy using novel physical and numerical tools. (WP2 & 4)
- Ensure effective communication of project outputs, including communication and sharing of the programme results with the MI and other relevant stakeholders. (WP4)
- Produce guidance and toolkits for stakeholders for native oyster restoration as a nature-based solution in ports and harbours. (WP4)

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BRICONS
Building Resilient Irish Coasts through Oyster Restoration

We are hiring !!

- 2 PhD researchers
  - Open till April 18th
- 3 PDRAs (2 ecological/1 engineering)
  - Advertising soon

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Projects funding investment

- Circa €2,400,000 invested in projects outlined

...driven by legislation.....

- The Nature Restoration Regulation is an unprecedented EU law. It requires Member States to jointly restore at least 20% of the EU's land and sea areas by 2030. In addition, all ecosystems in need of restoration must be restored by 2050.
  - Regulation came into force on 18 August 2024

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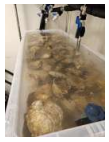
Barriers to implementation

- Permissions
  - Long, difficult and costly process
  - foreshore license application ongoing (> 2 years)
    - pre- application docs submitted March 23
    - Notified that new pre-application to MARA required Oct 2023
    - Pre-application docs submitted to MARA Oct 2023
    - Pre-application meeting Jan 2024
    - Full application submitted Nov 2024
- Sourcing oysters
  - Oysters from Tralee
    - relatively straight forward
    - Suitable for small scale experiments (Oyster Garden project)
  - For scaled-up work at restoration sites
    - Oysters from Tralee not a viable option
    - Need source for spat/or import of larvae



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Thank you……any questions ??

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The Native Oyster Network – UK & Ireland Conference

Session 2: Restoration Monitoring & Advances in Methods

Session Chair: **Philine zu Ermgassen**

Emma White

Monitoring of settlement, growth and mortality of oysters on scallop shell in Galway Bay

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Monitoring of settlement, growth and mortality of oysters on scallop shell in Galway Bay

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Cuan Beo

EUROPEAN UNION
This measure is part-financed by the European Maritime and Fisheries Fund

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

Emma White, Marta Domingos, Oliver Tully
Marine Institute

Owen O Connell
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Cultch Deployments

- King scallop shells
- Galway Bay in 2021
- Clew Bay, Cill Chiaráin Bay and Galway Bay in 2024
- Approx. 348 tonnes

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Galway Bay Cultch

- South area:
  - Deployed 200 tonnes of cultch in 2021
  - 5,500 scallop shells sampled
  - >13,500 native oyster spat measured
  - Recorded 4 year classes
- North area:
  - Deployed 28 tonnes of cultch in 2024
  - 420 scallop shells sampled
  - >1,000 native oyster spat measured
  - Recorded 1 year class

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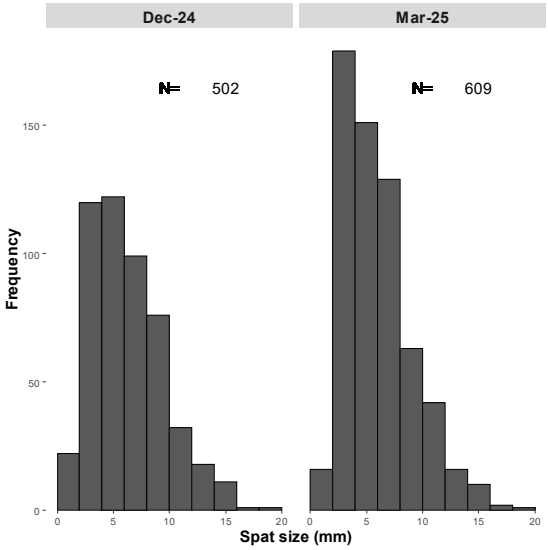
Samples - North

- No change in size range
- Expect growth around May
- Signs of over-wintering mortality

	Number of Samples	Average density (Spat/kg cultch)
Dec-24	8	51.8
Mar-25	16	42.9



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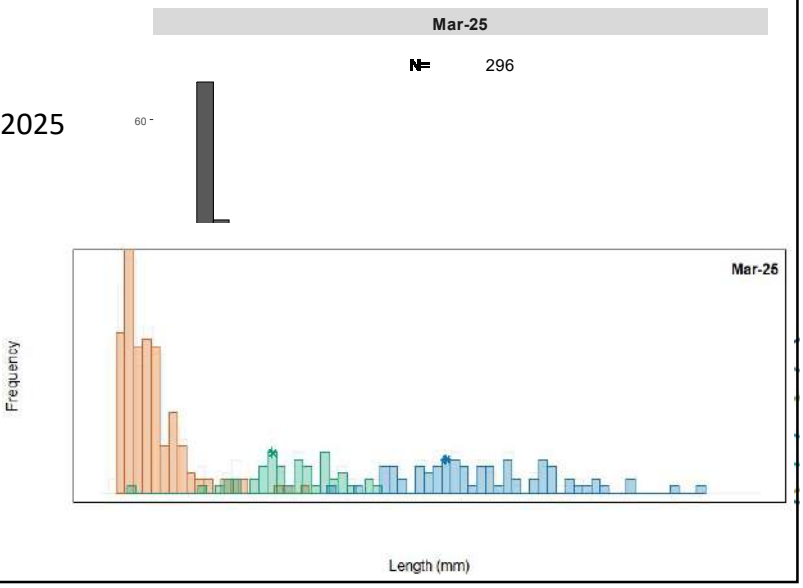
Samples - South

- Most recent sample – March 2025
- Four year classes present
- Mixture distribution model

	Proportion	Mean Length
2021/2022	0.252	42
2023	0.171	21
2024	0.577	5



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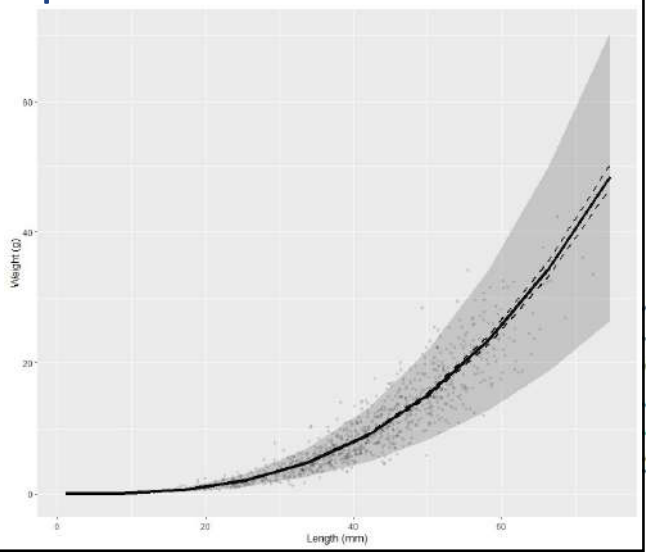
Length-Weight Relationship

- Continuing to build on the length-weight relationship
- $W = 0.000167L^{2.92}$
- Working on biomass estimates



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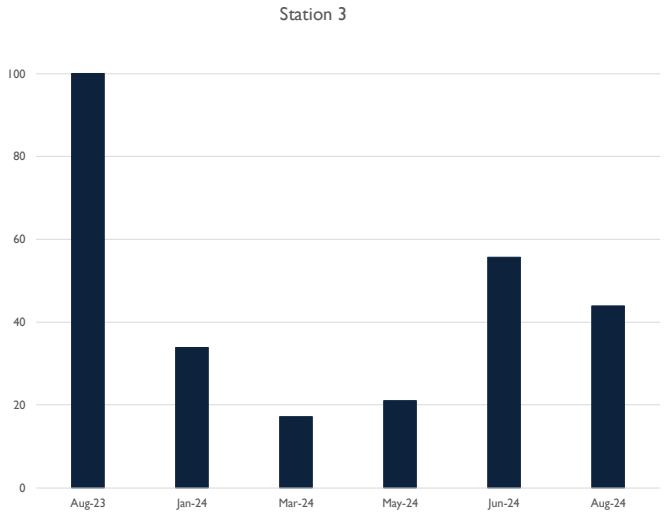
Mortality

- Individual year classes
  - Year 1 of the 2022 year class
  - 56% mortality
- Repeat sampling
  - For 2021 year class between 2nd and 3rd year
  - 53% mortality



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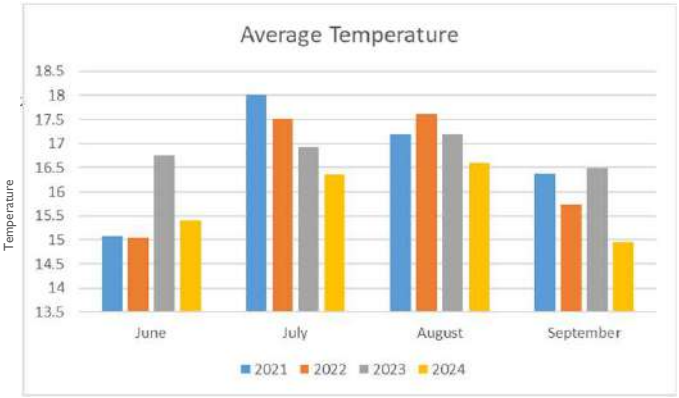
Estimate of spat population

- A count of oyster spat is recorded from each scallop shell sampled
- Including scallop shell with 0 spat
- Spat frequency per shell is raised to the total estimate number of scallop shells deployed

Year class	Sample Site	Sample Month	Cultch deployed (ton)	Spat estimate (millions)
2021	St Georges South	October 2021	200	10.4
2022	St Georges South	January 2023	200	7.8
2023	St Georges South	October 2023	200	0.75
2024	St Georges South	October 2024	200	3.15
2024	St Georges North	December 2024	28	1.69

Where does this variation come from?

- Increased colonisation from other species over time
- More predators attracted to the site over time
- Environmental conditions
- Average Monthly Temperature Data from 2021-2024
- Focus on summer months



24 April 2025

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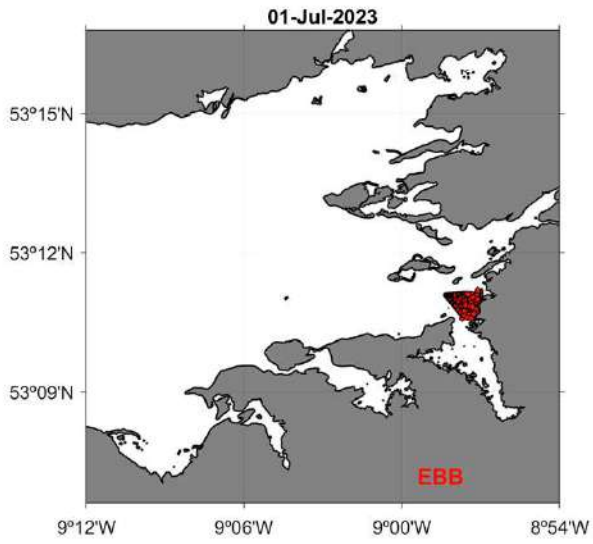
Larval Dispersal



Scallop cultch area and Gigas shell reef areas

- Where will larvae go if we concentrate spawning stock in certain areas?

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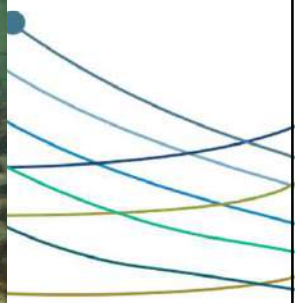
Pictures by Owen O'Connell



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Continued monitoring

- Continued sampling - Quarterly
- Spatially sampling the area
- Biodiversity survey



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The Native Oyster Network – UK & Ireland Conference
Session 2: Restoration Monitoring & Advances in Methods
Session Chair: Philine zu Ermgassen
Jon Dickson
Who lives in a pear tree under the sea? Tree-reefs to induce top-down predation for crab control
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Molly Hughes
Adapting oyster restoration to the scale of offshore energy development in the North Sea
Pre-recorded presentation
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Please complete the questionnaire relevant to you/your business/your project

Oyster supply questionnaire for oyster producers

https://forms.gle/Da1QJ5M34smgPx3k8

Oyster supply questionnaire for restoration practitioners

https://forms.gle/X5eu8reTfBQUgmBV9

Please complete this questionnaire today for the data to be used to inform the native oyster seed supply workshop tomorrow (April 2nd).
Results submitted after that time will still be vitally important for informing the development of the roadmap

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Seascape Symposium II: Reconnecting the Seascape

Wednesday 4th & Thursday 5th June 2025
Hosted in person
Zoological Society of London

Visit https://www.zsl.org/seascape-symposium-ii to book your tickets.

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Day 1 Close from Alison Debney

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