

# The Dornoch Environmental Enhancement Project: Successes and Challenges

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# DEEP

Dornoch Environmental Enhancement Project

*c.6,000 year old European flat oyster from the Dornoch Firth*



REACH 2019





*The*  
**GLENMORANGIE**  
**COMPANY**



# DEEP

Dornoch Environmental Enhancement Project  
BIRTH OF A REEF

# Welcome to our susTAINable future



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SUSTAINABILITY is: future proofing our history



176 Years of Tradition and Craft



Anaerobic Digestion Plant 2017

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AND BY CONSEQUENCE .....



## ENHANCED BRAND DESIRABILITY

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## Engage consumers



- Cement loyalty



- Attract new fans

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## BIRTH OF A REEF

### The Dornoch Firth

- SAC
- SPA
- SSSI



OUR SENSE OF PLACE : Glenmorangie will always be on the banks of the Dornoch Firth

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## Our Mission: To Protect and Enhance the Dornoch Firth



The Dornoch Firth : A Haven for Marine Life

Native Oysters were fished out over 100 years ago

## Investing in Environmental Commitments

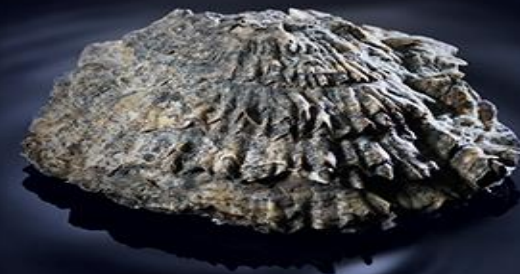
- AD PLANT - 95% Reduction in COD
- COMMISSIONED MAY 2017



- What about the other 5%?

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This is where oysters come in .....

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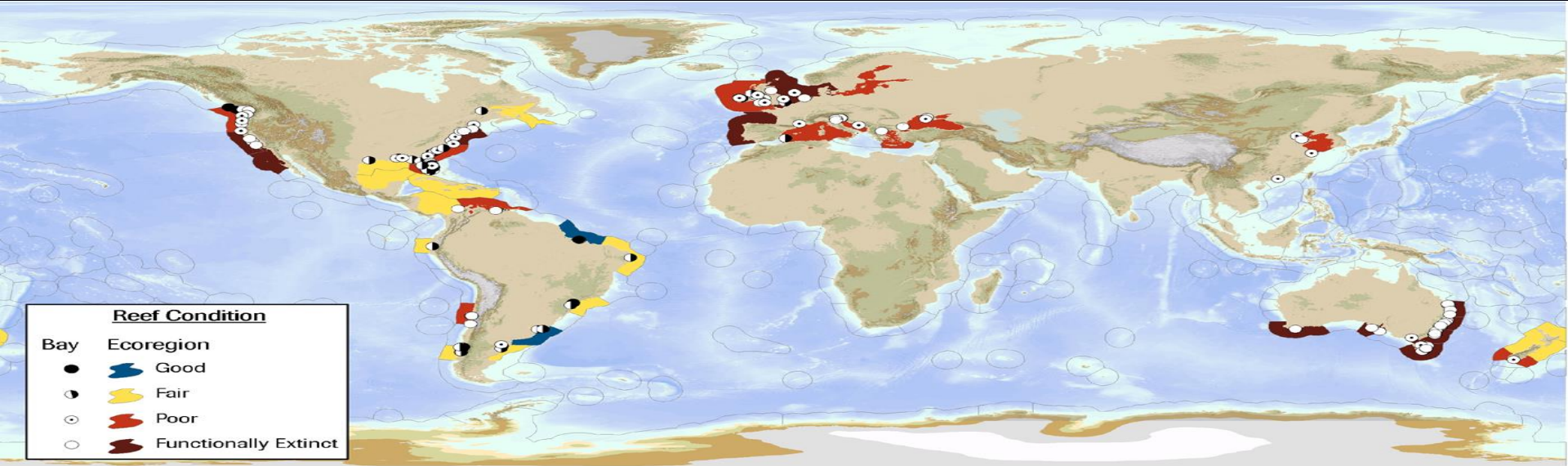
*Historic records of oyster fish oysters*



# SHELLFISH REEFS ARE IN DANGER

# DEEP

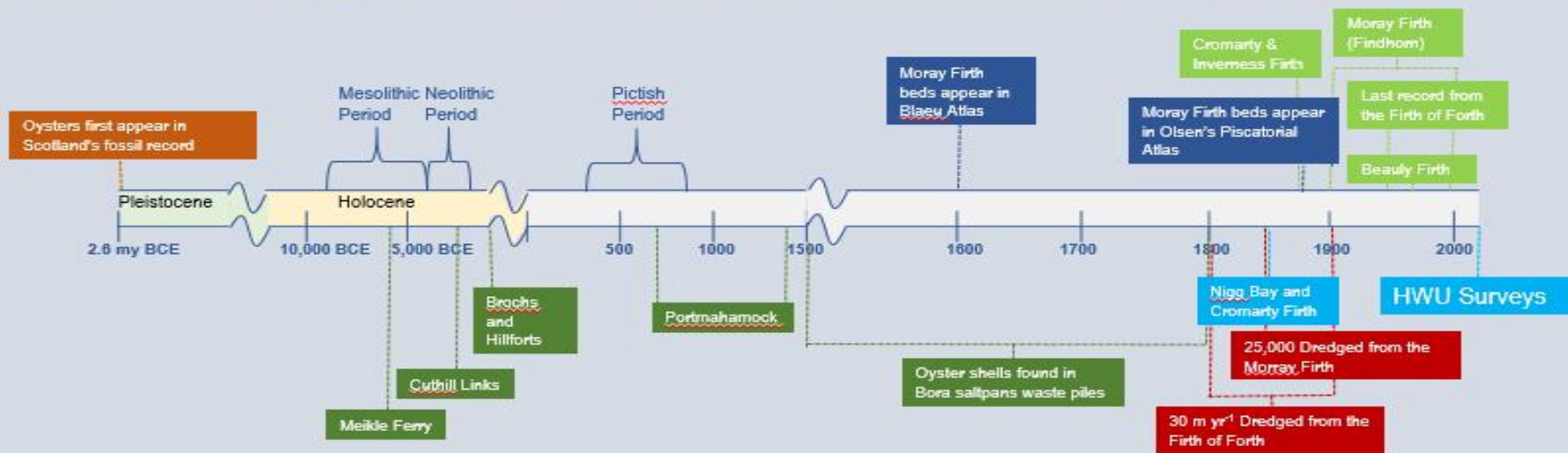
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- “one of, if not the most imperilled marine habitats on earth”
- 85 % of oyster reefs extinct



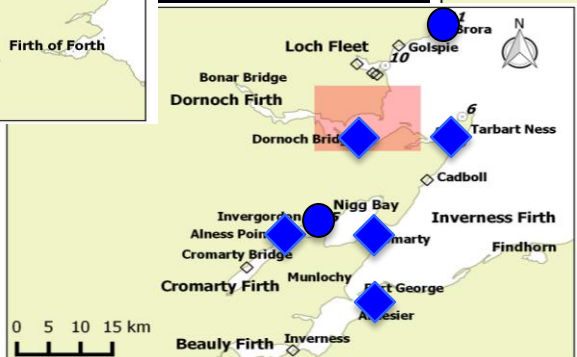
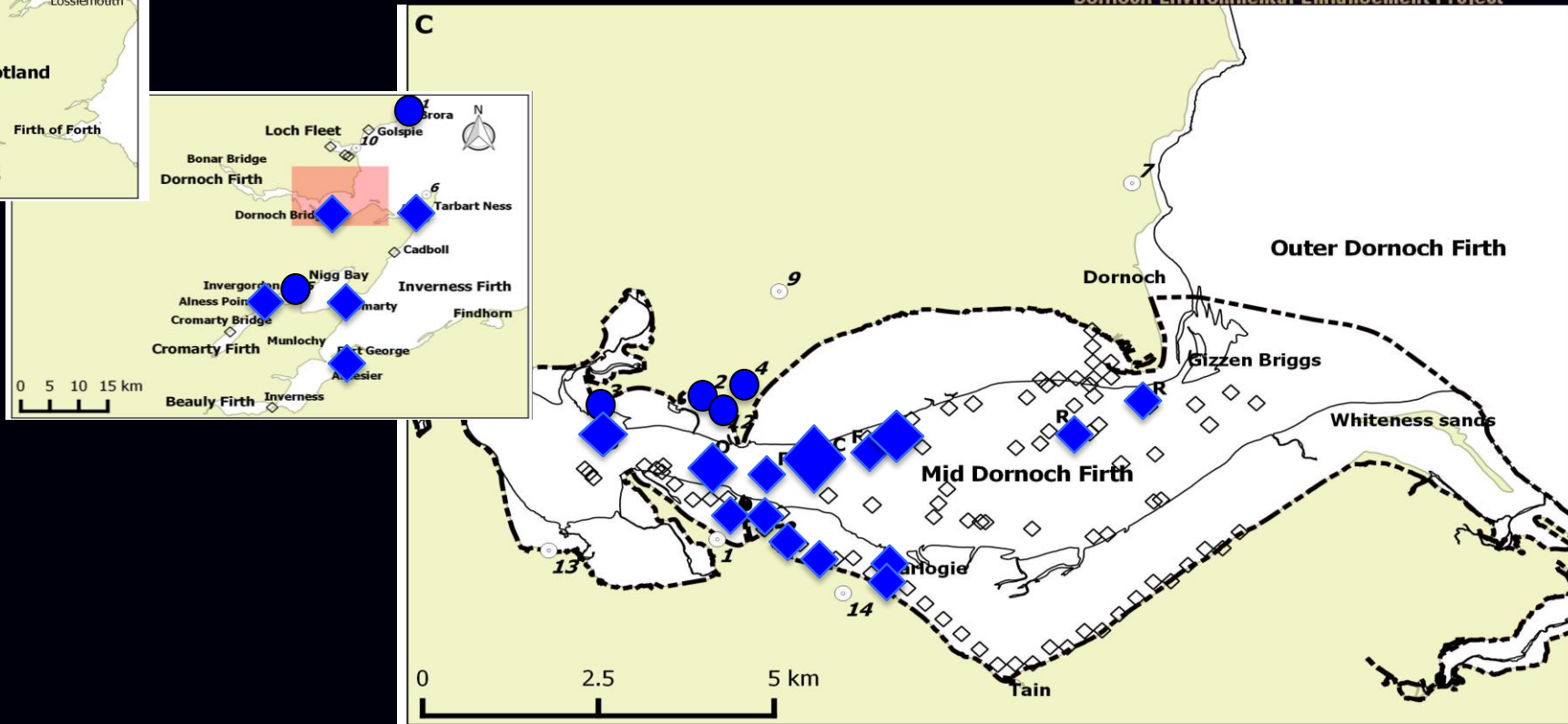
# WERE THERE OYSTERS?



# Oyster shells

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Fariñas-Franco, JM, Pearce, B, Mair, JM, Harries DB, MacPherson RC, Porter, J, Reimer R & Sanderson WG "Missing native oyster (*Ostrea edulis*) beds in a European Marine Protected Area: should there be widespread restorative management?". Biological Conservation, 2018

Missing native oyster (*Ostrea edulis* L.) beds in a European Marine Protected Area:  
Should there be widespread restorative management?

Jose M. Fariñas-Franco<sup>a, f</sup>, Bryony Pearce<sup>a, b</sup>, James M. Mair<sup>a</sup>, Dan B. Harries<sup>a</sup>, Rebecca MacPherson<sup>a</sup>,  
Joanne S. Porter<sup>d</sup>, Paula J. Reimer<sup>c</sup>, William G. Sanderson<sup>a, e, \*</sup>



# Overall:

- *O. edulis* occurred in the inlets and open coast areas of NE Scotland, and specifically in the protected area

Missing native oyster (*Ostrea edulis* L.) beds in a European Marine Protected Area: Should there be widespread restorative management?

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## Overall:

- Since the end of the last glaciation to the late 1800s
- .....when they were likely fished-out.
- Present environmental conditions are suitable for oyster restoration

## OUR PLAN

# DEEP

Dornoch Environmental Enhancement Project

- Restore **Native European oysters** to the Dornoch Firth
- Shifting the **Ambition** of marine conservation
- **Not just Protecting** the resources we have today
- but **Restoring** ecosystems to their full potential



# WHY DOES THIS MATTER?

## - ECOSYSTEM SERVICES

1. Biodiversity hotspots
2. More fish
3. Sustainable livelihoods?
4. Carbon storage
5. Water quality



Oysters are Bio – filters. The project overall has the potential to deliver many societal and economic benefits

# DEEP

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1. Water Quality Enhancement that is replicable around the world
2. Restoration of an endangered native species and biodiversity ...
3. New market for Scottish aquaculture



Oyster filtration: DEEP on the BBC One Show

# DEEP IS : TECHNOLOGY AND NATURE

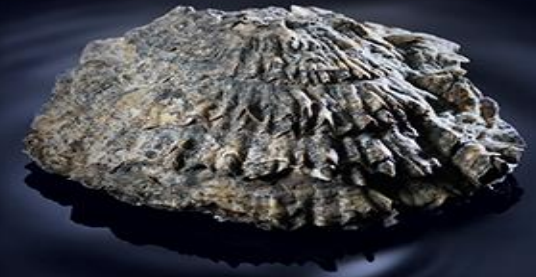
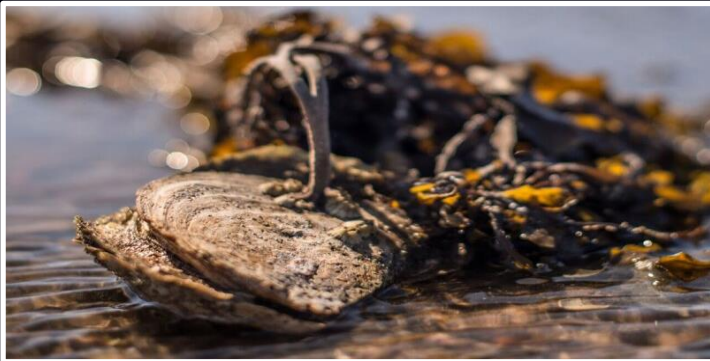
# DEEP

Dornoch Environmental Enhancement Project

- AD PLANT - 95% Reduction in COD



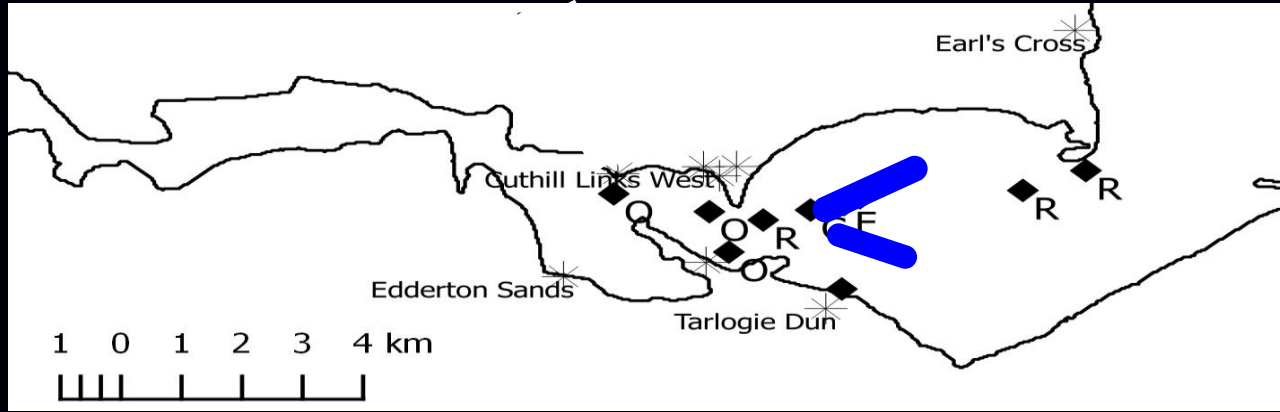
- Oysters – THE FINAL 5%



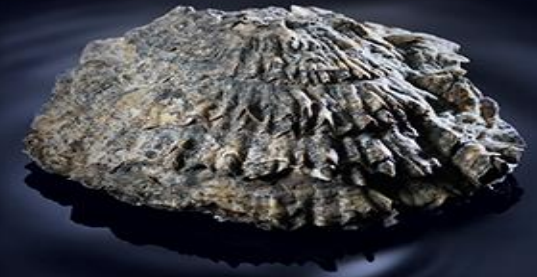
# DEEP – WHAT WILL IT LOOK LIKE?

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- DEEP will restore 40 ha of oyster reef
- Channel beds

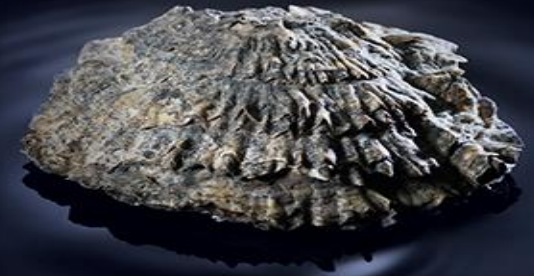


# DEEP – CHALLENGES

# DEEP

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- 4 million oysters required
- Requires development of supply chain
- Unlock the bottle-neck



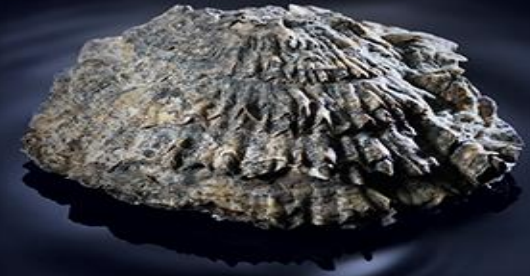
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Dornoch Environmental Enhancement Project

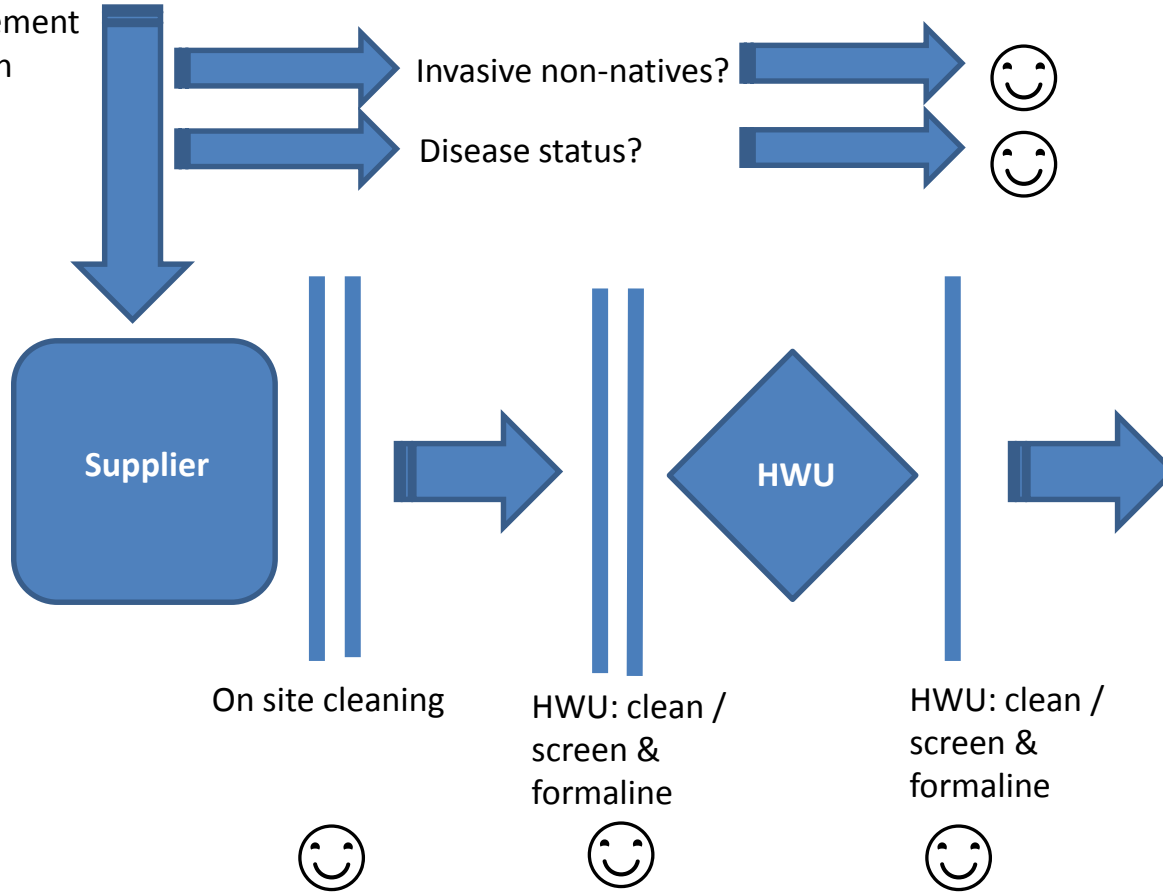


- 40 ha of oyster restoration
  - 4,000m<sup>3</sup> of waste shell 'cultch'
- 100% cover
- Waste to co-product



# DEEP – CHALLENGES

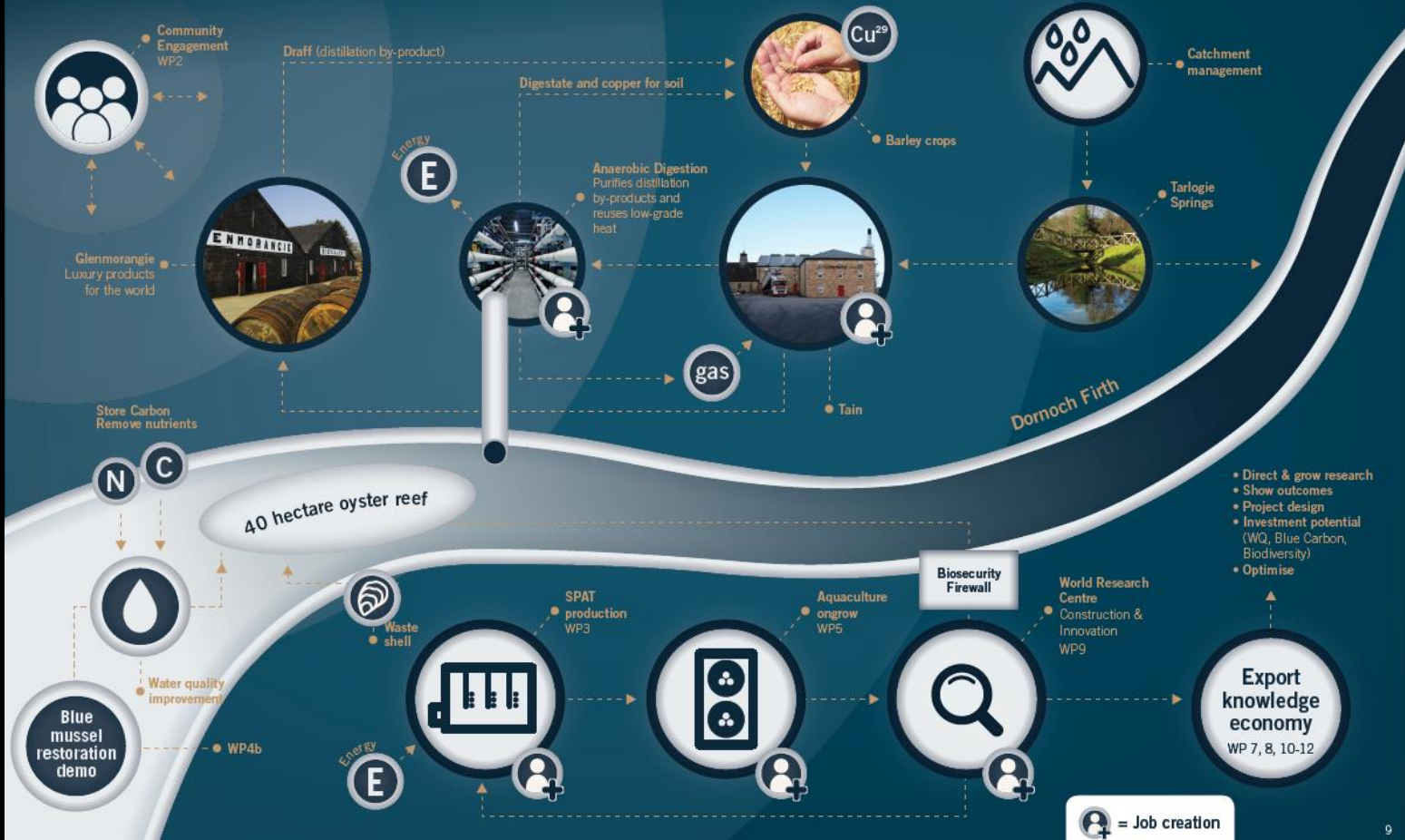
Pre-movement  
inspection  
(HWU)



- *Validation sampling*
  - *No disease*
  - *No invasive non natives*

# “From Source to Sea”

An exemplar water quality project for Scotland



# Our big opportunity

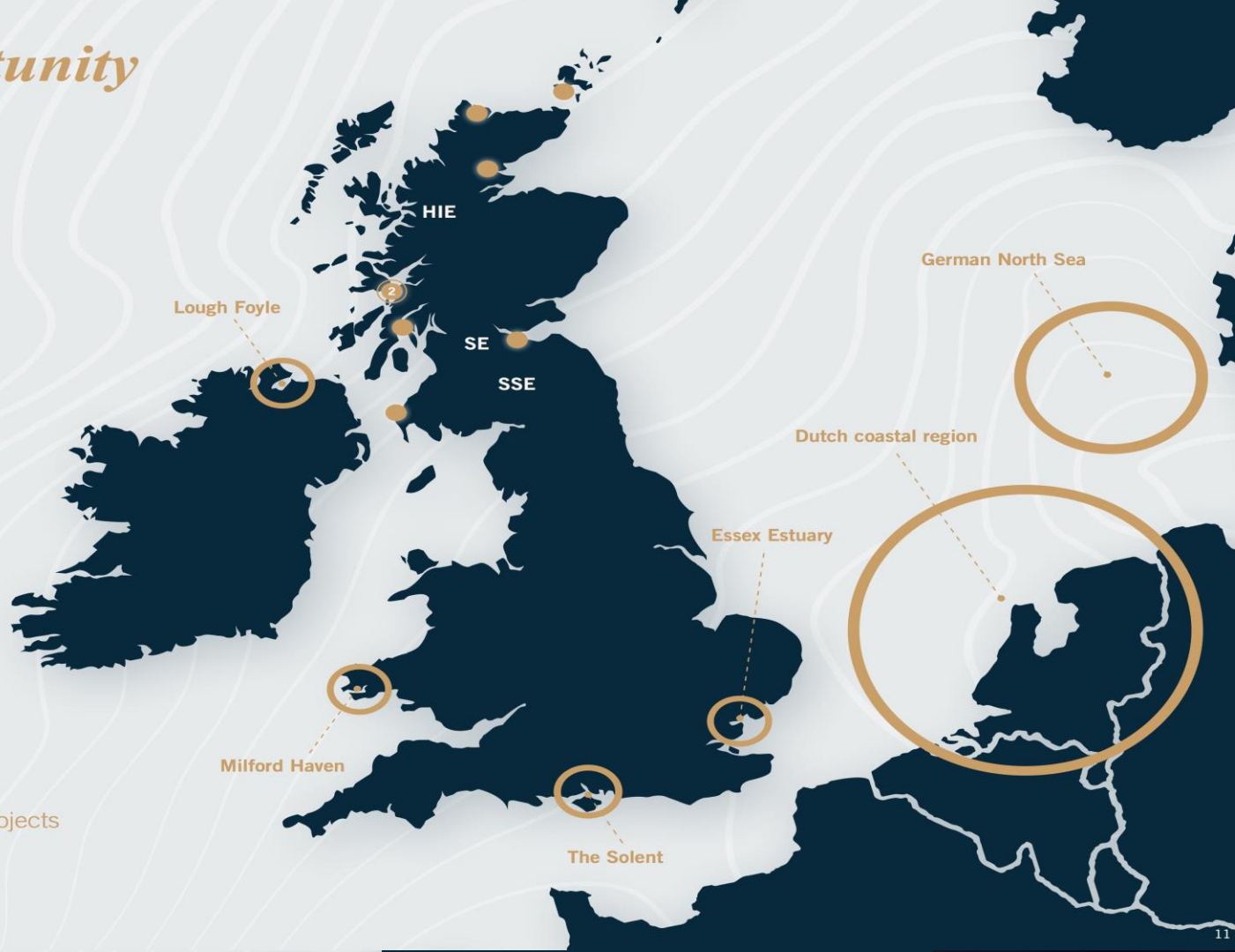
Since 2013, when DEEP started its development, the idea of oyster restoration has caught on across Europe, with some competitors looking to take the 'number 1' slot. Other projects also present market opportunities for DEEP.

With the number of restoration projects increasing, we estimate demand will be upward of 50 million native oysters.

**Scotland can leverage huge commercial and reputational benefits from this world-leading project. The moment to act is now!**

## Key:

- Emerging oyster restoration projects
- DEEP supply chain partners



# DEEP

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THANK YOU!