Stuart McLanaghan

Head of Responsible Sourcing

Seafish

@SAGB

Shellfish Association of Great Britain

THE CROWN ESTATE

Llywodraeth Cymru Welsh Government

Department for Environment Food & Rural Affairs

The Fishmongers' Company's Fisheries Charitable Trust

SEPAmatic

Infrastructure and Environment

Crown Estate Scotland Oighreachd a' Chrùin Alba

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Marine Management Organisation

Here to give the UK seafood sector
the support it needs to thrive.

Seafood Carbon Emissions Profiling Tool

Presentation to: SAGB - 54th Annual Conference

Stuart McLanaghan – 28th May 2024

Industry benefits

One-stop shop

Build understanding

Estimate carbon foot-prints

Identify emissions hotspots (risks)

Wild capture & aquaculture

Product benchmarking

Support reputational messaging

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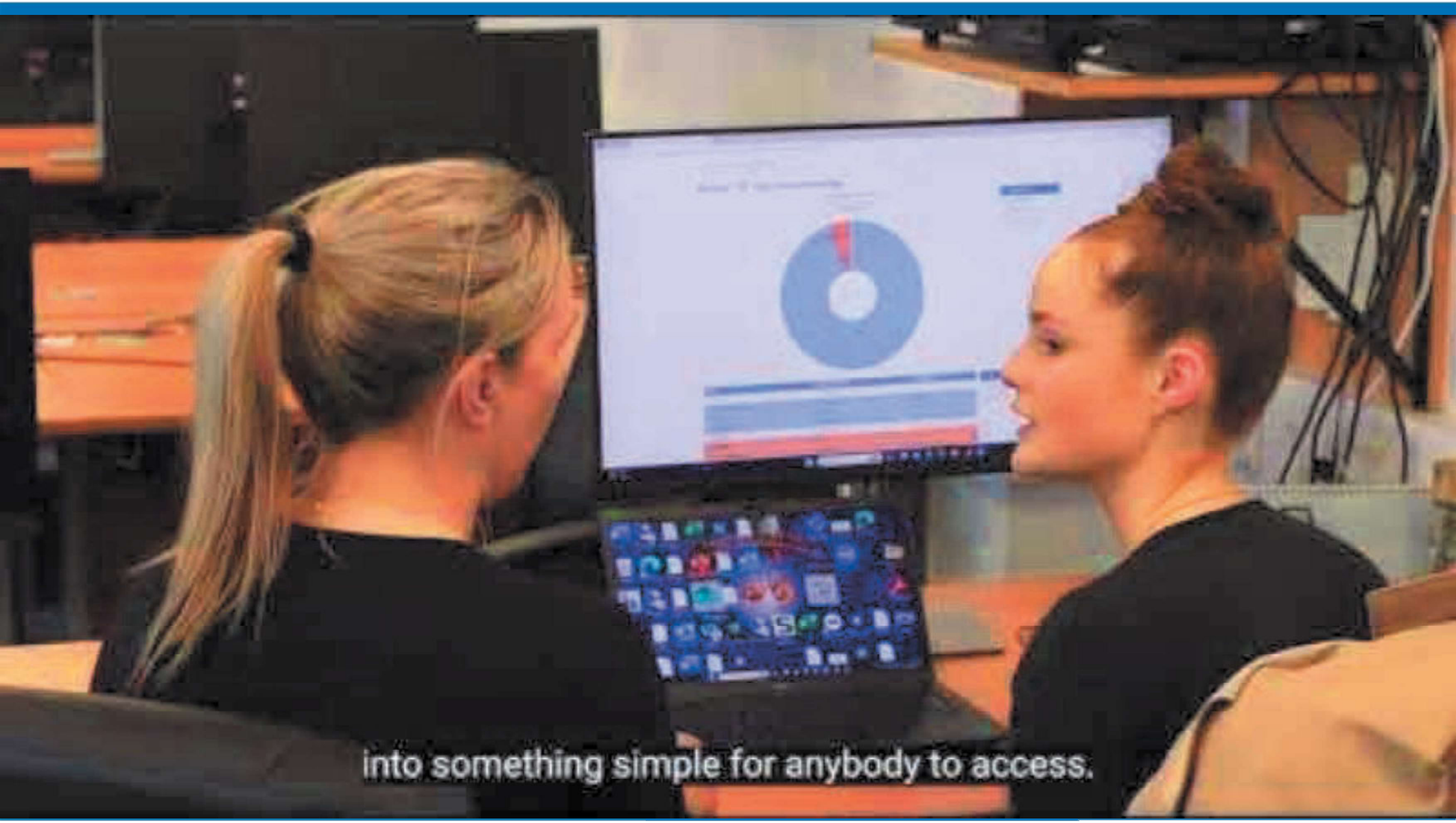
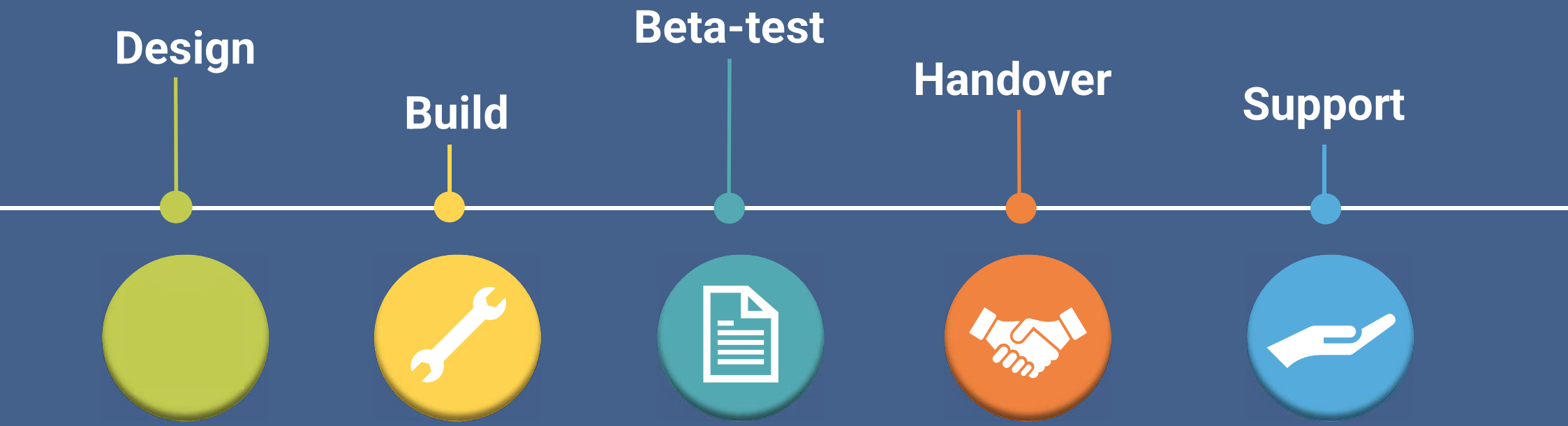

into something simple for anybody to access.

Timeline

July 2023-May 2024 ▶



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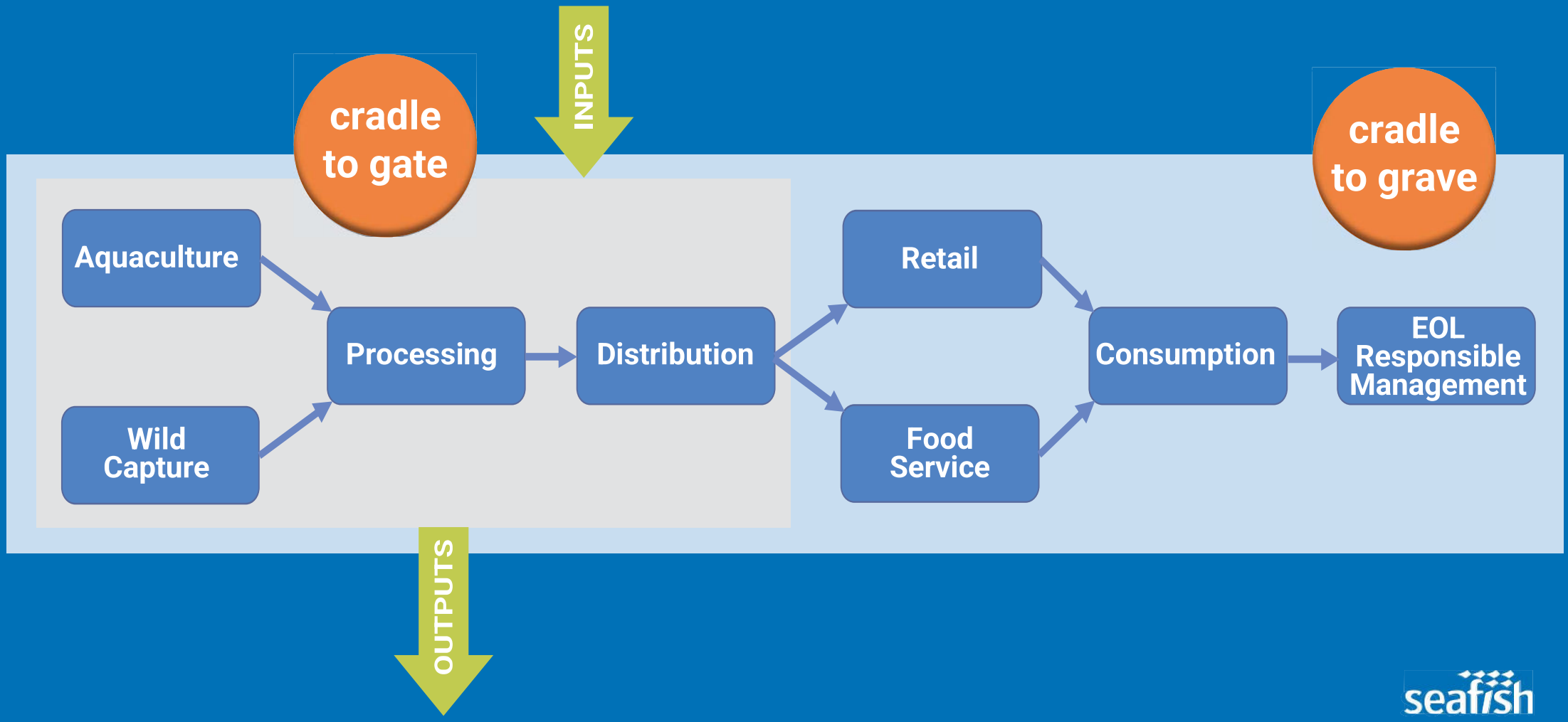
Supply chain – in scope stages



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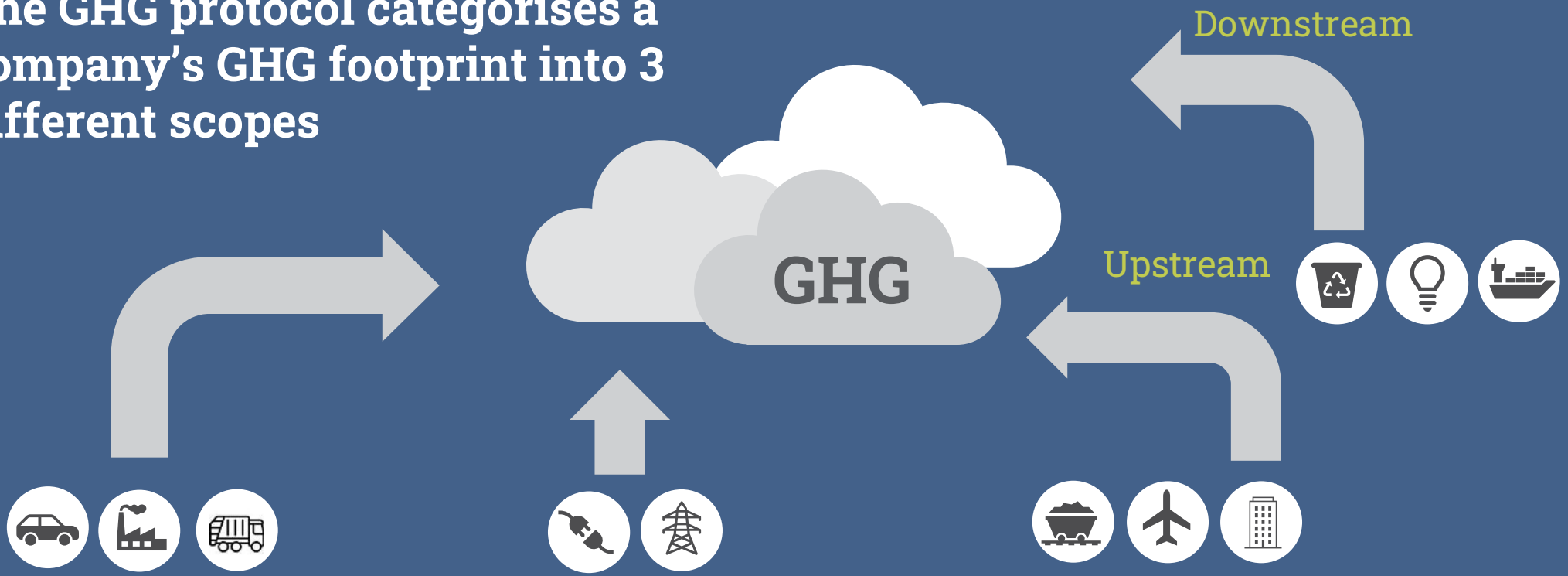
The GHG protocol categorises a company's GHG footprint into 3 different scopes



Scope 1

Direct emissions from owned or controlled sources

Scope 2

Indirect emissions from the generation of purchased energy

Scope 3

Indirect emissions that occur in the value chain of the reporting company, incl. upstream & downstream emissions

Source: BSR

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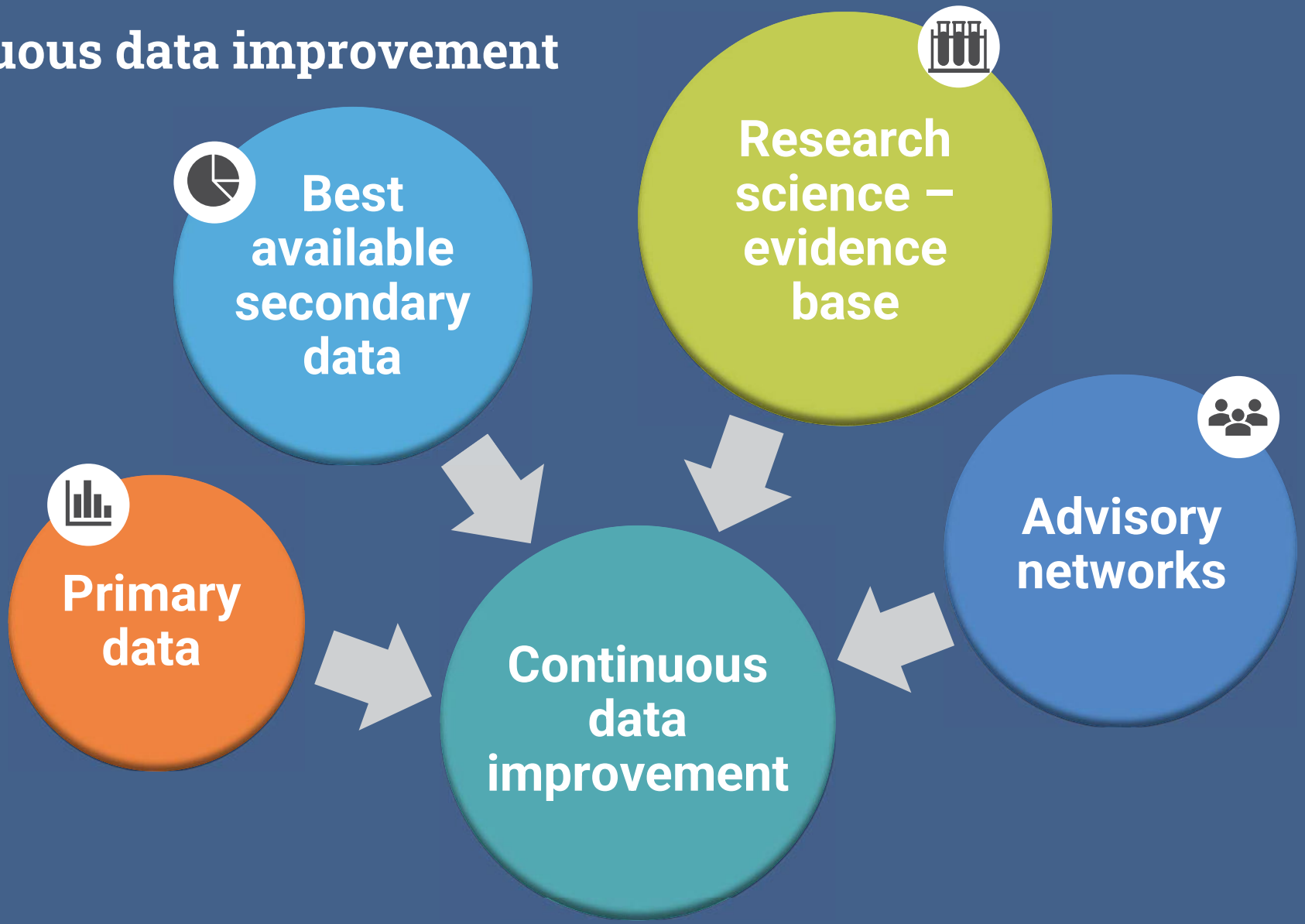
Continuous data improvement



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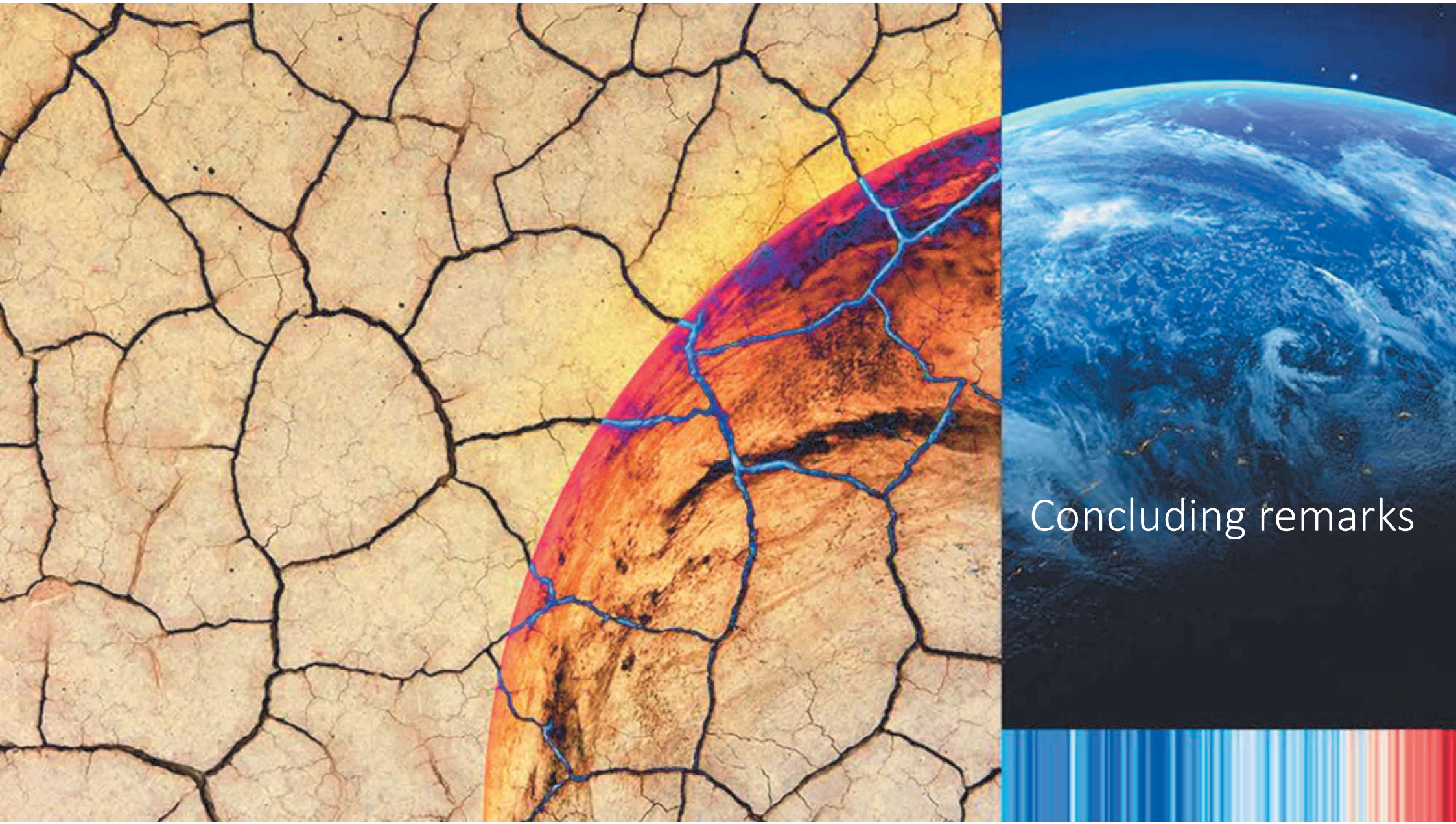
Public area walkthrough

Secure area walkthrough


Concluding remarks

54th Annual Conference

Shellfish Association of Great Britain

#SAGB54

Konstancja Woźniack

Ecosystem Services Researcher

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Marine Management Organisation

Ecosystem Services of Bivalve Shellfish

The Shellfish Association of Great Britain 54th Annual Conference

28 May 2024

Bivalve Ecosystem Services project collaboration

afbi AGRI-FOOD & BIOSCIENCES INSTITUTE

GAIN Green Aquaculture Intensification

LONGLINE ENVIRONMENT

The FISHMONGERS' Company

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

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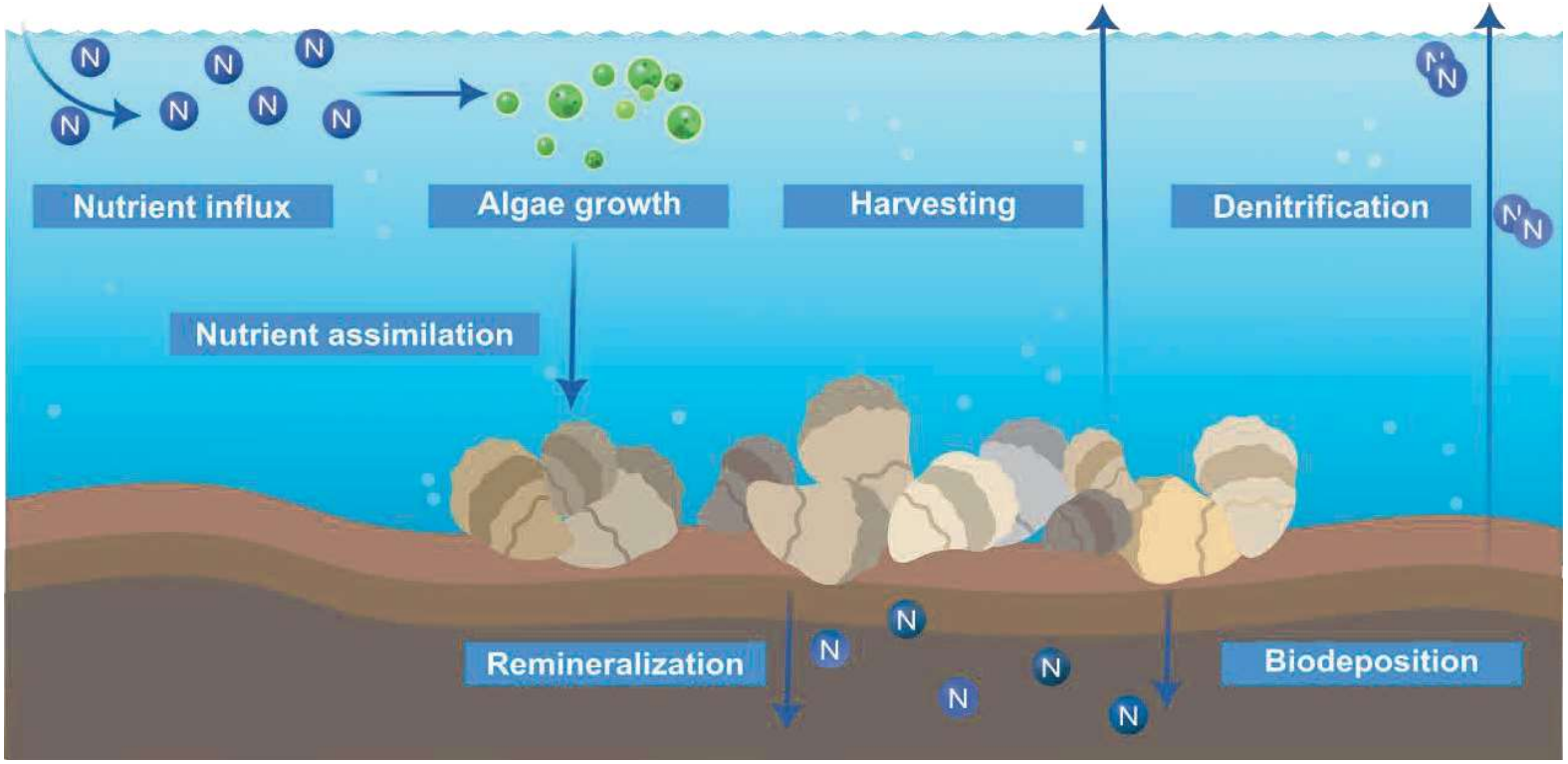
Aquatic Ecosystem Services

Any positive benefit that ecosystems provide to people

£ **211 billion** – value of UK marine ecosystem services and the societal benefits

Supporting & maintaining bivalve ecosystem services:

- Water quality maintenance and improvement
- Carbon sequestration



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What did we do?

- **Question 1**: How much Nitrogen can bivalves remove from their environment?
  - **Bonus**: How much Carbon can they remove?

- Commercially important bivalves:

Blue mussels

(*Mytilus edulis*)

European flat oysters

(*Ostrea edulis*)

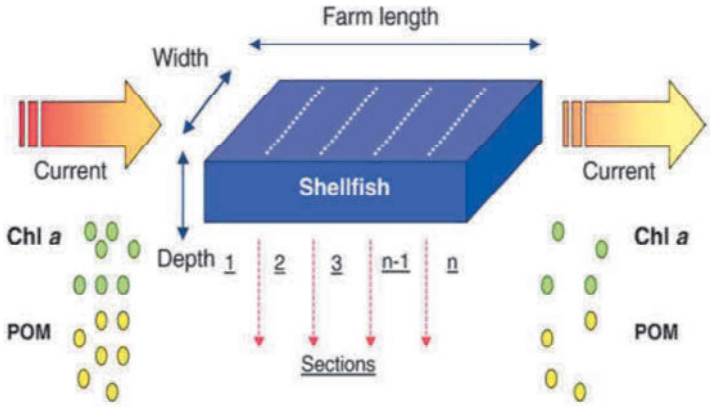
Manila clams

(*Ruditapes philippinarum*)

Pacific oysters

(*Magallana gigas*)

- Two analyses:
  - Proximate analysis (PA)
  - Modelling using FARM population model



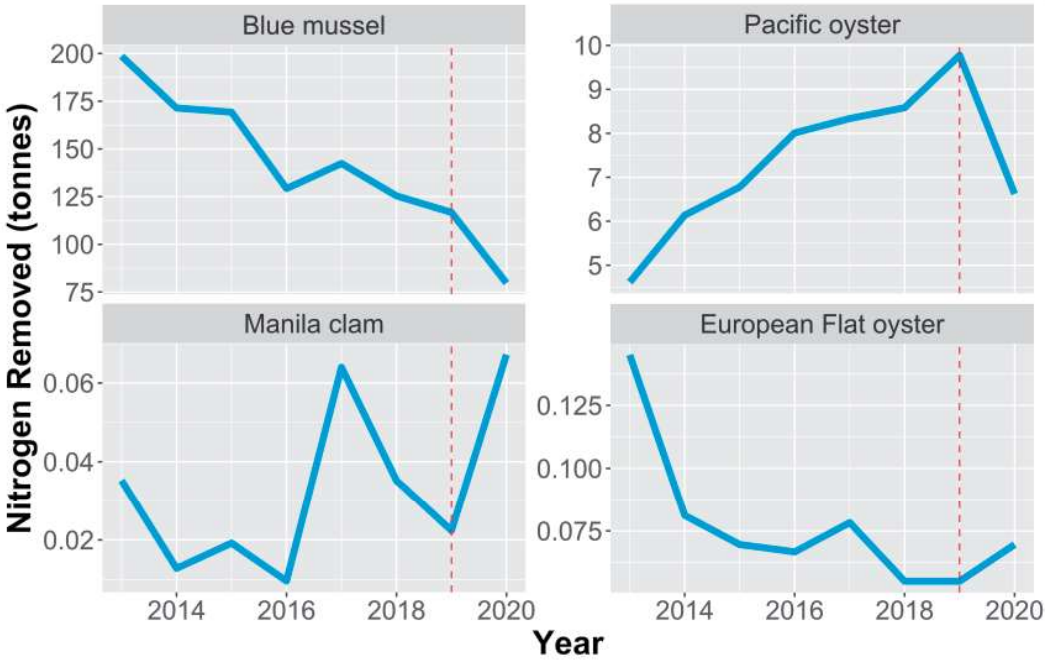
The Farm Aquaculture Resource Management Model (FARM, Ferreira et al. 2007)

Previous evaluation (for UK region):

- Shellfish in nutrient management at Dundrum Bay | GAIN 2021

Nitrogen Removal

- Total Nitrogen Removed (*2019*) – **126.57 t** (PA) – **285/362 t** (FARM)
- Total Carbon Removed (2019) – **1762.5 t** (PA)



Proximate analysis 2013-2020

Nitrogen loadings (tonnes; 2014) and nitrogen removal (tonnes) based on 2019 bivalve production data.

Country	N-Total input	N-removal	
		Proximate analysis	FARM
England	266 088.31	30.47	~68.6 - 88.1
Northern Ireland	9 206.83	10.01	~22.2 - 29.9
Scotland	72 305.60	60.27	~136.4 - 171.3
Wales	21 561.33	25.82	~58.5 - 73.20
Total	369 162.10	126.57	~285.7 - 362.5

Based on shellfish production data 2015 -2020 data from Cefas

2020 data – interpret with caution (COVID)

NTB – Different Y scales

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Value of bivalve water bioremediation

- **Question 2:** What is the potential economic value of the water quality improvement services provided by bivalves?

- Value estimated based on the cost of alternative Nitrogen removal strategies (avoided cost)

(not the compensation paid to growers)

- **Nitrogen removal through sand filters and Methanol dosing:**
  - Wessex Water data
  - £58,300 / tonne of Nitrogen removed annually
    - Estimated saving – **£7 to £16/ £21 million annually**

- **Replacement and Abatement:**
  - Solent Case study (Watson et al., 2020)
  - £295,000 /tonne of Nitrogen removed annually (average)
    - Estimated saving – **£37 - £84/ £100 million annually**

Total N Removed by shellfish (2019)
126 - 285/362 tonnes

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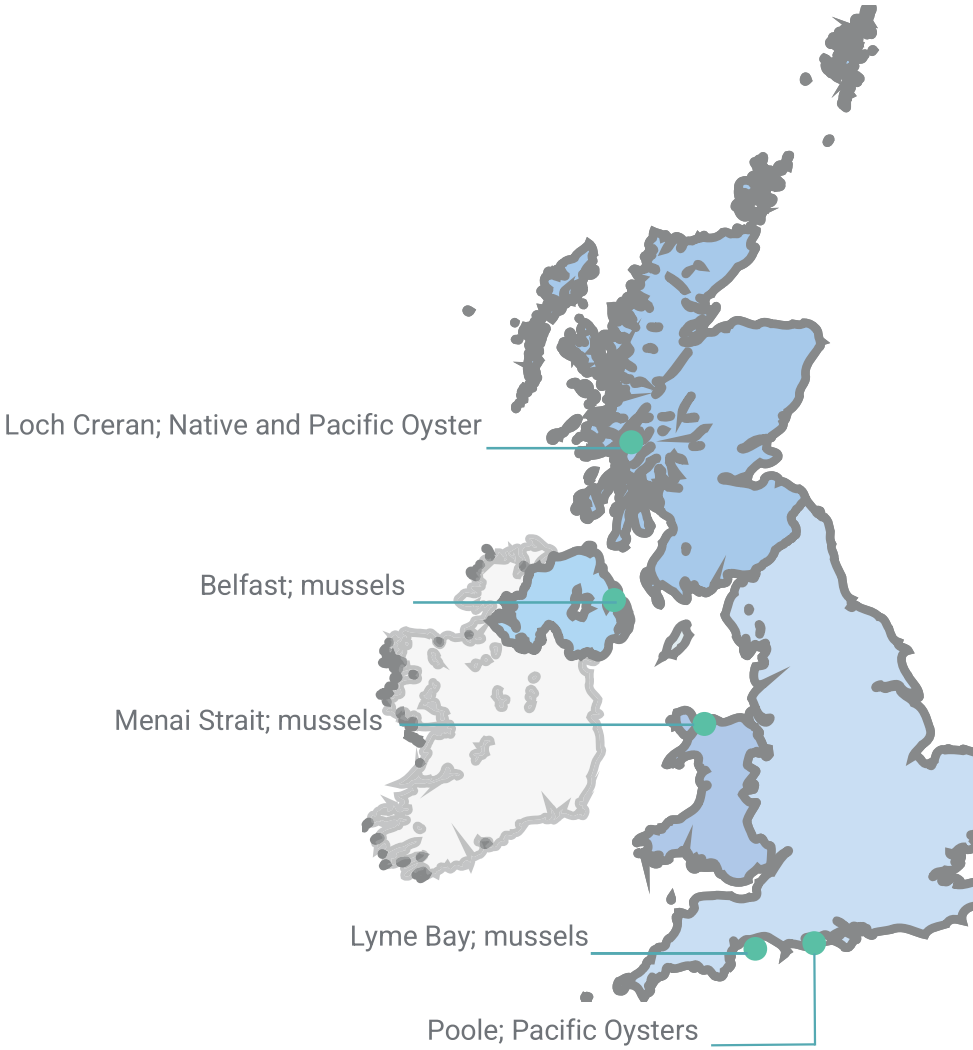
Stage 2 – Case Studies

- **Aims**:
  - Offer **more detailed estimates for case studies** around UK (nutrient removal, value).
    - Elemental analysis, FARM model
    - Investigation of Nitrogen, Carbon and Phosphorus
  - Help inform the **development of best practice guidance** for bivalve-related nutrient removal management programmes.
  - Based on case studies results
  - Supported by research and interviews with experts involved in other bivalve bioremediation projects.



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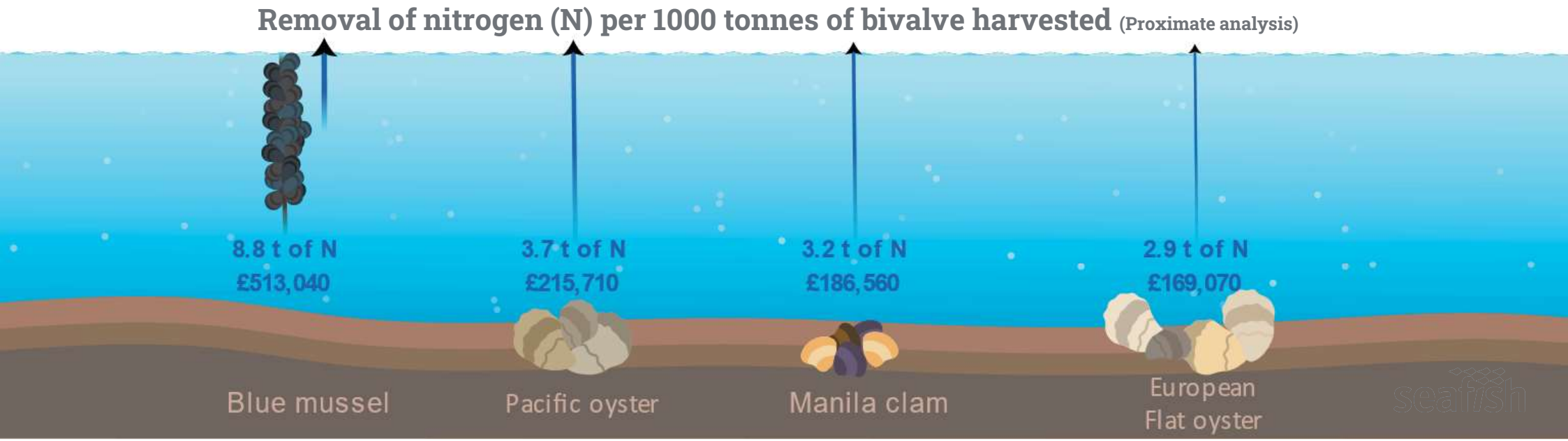
Key Facts

- **126-285/362 tonnes of nitrogen** removed by the UK bivalves aquaculture (estimated for 2019).
- **£7 to £21 million** annually of potential cost savings.
- Nitrogen uptake does not affect the safety of consumption.
- **The greater the future bivalve production, the higher the nitrogen removal.**



Thank you

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Ecosystem Services Researcher