



Offshore
Wind Evidence
+ Change
Programme

Offshore Wind Evidence + Change Programme

Programme Steering Group Meeting

Tuesday 23rd May 2023





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Wind Evidence
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Programme

Welcome

Chair: Olivia Thomas

Head of Marine Planning, The Crown Estate



Taking part in today's meeting – for virtual attendees

Please turn your **camera on**

Please mute your **microphone** if you are not speaking

Please use the **Show Conversation** function to ask questions or comment.



Please use the **Raise Hand** function if you would like to speak or ask a question during the meeting

If you experience any technical difficulties then please let us know through the Show Conversation chat function

We will be recording this session for internal use only, we will not publish the recording.



Safety moment

Will Apps, Head of Marine Development, The
Crown Estate



Agenda

Time	Event	Speakers
10.00 – 10.10	Welcome from Chair	Olivia Thomas, Head of Marine Planning, The Crown Estate
	Safety moment	Will Apps, Head of Marine Development, The Crown Estate
10.10 – 10.30	Programme and project updates	Mandy King, OWEC Programme Manager, The Crown Estate Nick Salter, Offshore Renewables Lead, Marine and Coastguard Agency
10.30 – 11.10	Section: Offshore wind policy directions across devolved govts	
	Update on Scottish policy priorities	Mike Palmer, Deputy Director, Marine Planning and Policy, Marine Scotland
	Update on Welsh policy priorities	Alice Teague, Deputy Director, Marine, Fisheries & Biodiversity Division at Llywodraeth Cymru / Welsh Government
	Update on Northern Ireland policy priorities	Dr Koichi Samuels, Offshore Renewable Energy Deputy Principal, Department for Economy NI Dr Liz Pothanikat, Senior Scientific Officer, Department of Agriculture, Environment and Rural Affairs NI
11.10 – 11.25	Q&A and discussion	
11.25 – 11.30	Break	
11.30-12.10	Section: Summer of surveys	
	Project updates on surveys taking place this summer	Hannah Reed, Natural England, Dr Sue O'Brien, Marine Scotland, Dr Francis Daunt, UK Centre for Ecology & Hydrology, Katrien Van Landeghem, Bangor University and Dr Benjamin Williamson, Environmental Research Institute.
	Discussion on fieldwork risks and opportunities	Led by Chair
12.10 – 12.20	Q&A and discussion	
12.20 – 12.30	Chair's closing remarks	Olivia Thomas, Head of Marine Planning, The Crown Estate
12.30	CLOSE	





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Programme & Project updates

Mandy King, OWEC Programme Lead
The Crown Estate



Headlines

Overview

- £44m committed of the £50M budget
- Over 40 projects – see project dashboard
<https://sftp.thecrownestate.co.uk/WebInterface/login.html>
- Programme end date extended to Dec 2028

Since our February meeting

- Two projects kicked off:
 - Protected environmental features risk appraisal – TCE with NIRAS
 - Seabird Census (understanding impacts of avian flu) – led by the RSPB
- Funding agreed and contracts being finalised for 6 others
- £2M increased investment in ECOWind
- Two projects completed:
 - North Sea Prehistory Research and Management Framework Revision - led by Historic England
 - Red Throated Diver Energetics Study - led by JNCC



In the pipeline ...

- A new floating offshore wind marine environment research programme?
- An update to our website
- Another project call in September 2023
- Development of the Offshore Wind Evidence and Knowledge Hub (OWEKH) with a focus on the digital tool and establishment of the Community of Practice ahead of launch in July 2023
- A Navigation Safety project ...



Update on Navigation

Safety project

Nick Salter, Offshore Renewables Lead, Marine
and Coastguard Agency





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Offshore wind policy directions across Devolved Administrations

- **Update on Scottish policy priorities** – Mike Palmer, Deputy Director, Marine Planning and Policy, Marine Scotland
- **Update on Welsh policy priorities** – Alice Teague, Deputy Director, Marine, Fisheries & Biodiversity Division at Llywodraeth Cymru / Welsh Government
- **Update on Northern Ireland policy priorities** – Dr Koichi Samuels, Offshore Renewable Energy Deputy Principal, Department for Economy NI and Dr Liz Pothanikat, Senior Scientific Officer, Department of Agriculture, Environment and Rural Affairs NI

Update on Scottish policy priorities

Mike Palmer, Deputy Director, Marine
Planning and Policy, Marine Scotland



Ambitious development pipeline

Berwick Bank – 4.1GW

ScotWind (20 projects) – 27.6GW

INTOG (13 projects) – 5.4GW



Strategic Policy and Planning Framework

- Energy strategy and just transition plan
 - Iterative Plan Review
 - National Marine Plan 2



Policy focus on:

- Regulatory reform – HRA and EIA
- Streamlining consenting processes
 - Readyng the grid
- Maximising supply chain opportunities
 - Just transition



Update on Welsh policy priorities

Alice Teague, Deputy Director, Marine,
Fisheries & Biodiversity Division at
Llywodraeth Cymru / Welsh Government



Review of Marine Licensing

OWEC 23rd May

Ministers Expectations

- ▶ ENABLING PROCESS
- ▶ QUICKER DECISIONS
- ▶ LEARN BY DOING/ADAPTIVE MANAGEMENT
- ▶ ROBUST APPLICATIONS
- ▶ SHARING DATA AND EVIDENCE

Context



Headline Messages

- ❖ Independent review, informed by stakeholder evidence and review of NRW processes
- ❖ No fundamental issues with the legislative process
- ❖ Areas of good practice in NRW's delivery has been identified
- ❖ Pre-application process facilitates an efficient process and timely decisions
- ❖ Developers have a role to play in providing good quality applications
- ❖ Improvements can be made to make the process more enabling and better understood by applicants

Strategic Recommendations

DISTINCT CORPORATE IDENTITY FOR MARINE LICENSING

STRATEGIC APPROACH TO PLANNING AND RESOURCING TO MEET FUTURE DEMAND

IMPROVEMENTS IN TRANSPARENCY, CLARITY OF PROCESS AND EFFICIENCY

COLLABORATIVE WORKING PRACTICES AND GREATER FOCUS ON CREATING AN ENABLING CULTURE

CLARITY ON ROLES AND FUNCTIONS IN MARINE LICENSING

STRATEGIC FRAMEWORK AND OPERATIONAL GUIDANCE TO INCREASE CONFIDENCE AND COMPETENCE IN USING BEST AVAILABLE EVIDENCE AND SOUND SCIENCE

Next Steps

**HIGH-LEVEL SUMMARY REPORT AND
WRITTEN STATEMENT PUBLISHED** [WRITTEN
STATEMENT: REVIEW OF MARINE LICENSING IN
WALES \(17 MAY 2023\) | GOV.WALES](#)

**ACTION PLAN TO TAKE FORWARD
RECOMMENDATIONS**

NRW REPORTS TO MINISTER ON DELIVERY

Update on Northern Ireland policy priorities

Dr Koichi Samuels, Offshore Renewable Energy
Deputy Principal, Department for Economy NI

Dr Liz Pothanikat, Senior Scientific Officer,
Department of Agriculture, Environment and
Rural Affairs NI





Department for the
Economy
www.economy-ni.gov.uk

Offshore Renewable Energy Action Plan



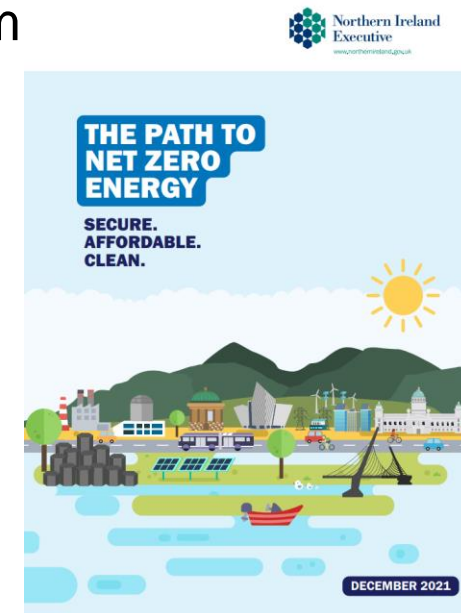
Koichi Samuels – Offshore Renewable Energy Policy Lead
Department for the Economy – Energy Group

Energy strategy for Northern Ireland - Path to Net Zero Energy

Net zero and affordable renewable energy.

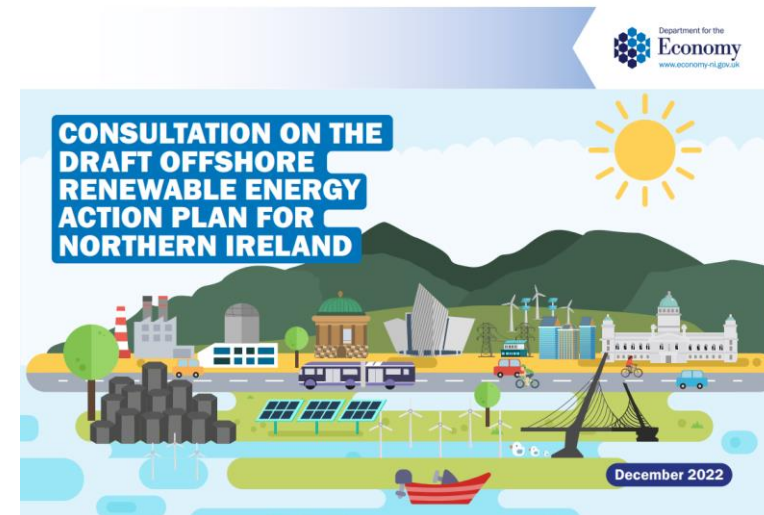
- 56% reduction in Northern Ireland's energy-related emissions
- Double NI's low carbon and renewable energy economy to more than £2bn turnover.
- 70% renewable electricity consumption target raised to 80% by the Climate Change Act (NI) 2022

1GW of offshore wind from 2030 target.

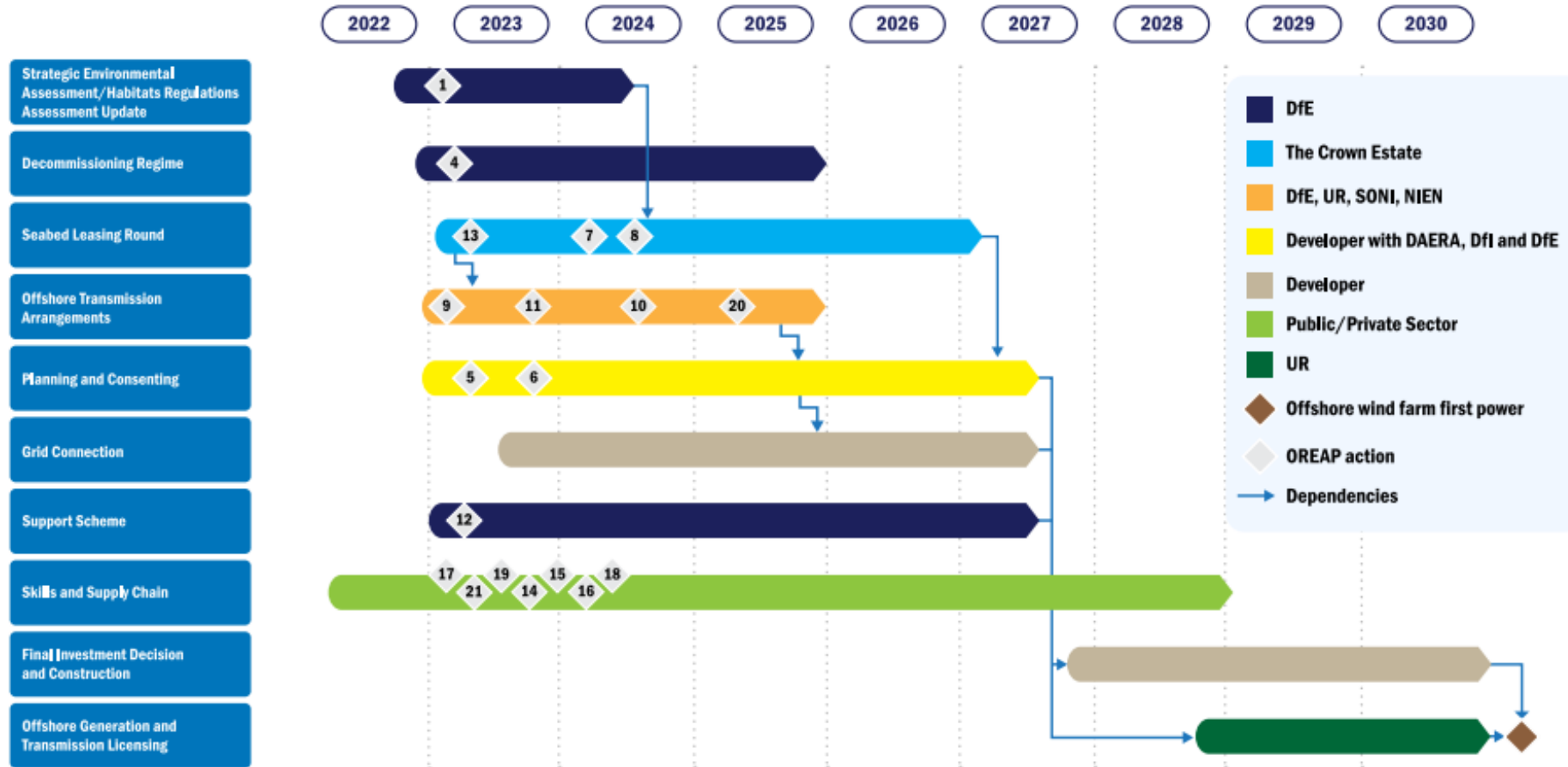


Offshore Renewable Energy Action Plan (OREAP)

- OREAP Steering Group, OREAP Working Groups, OREF, Critical path workshops established and held throughout 2022.
- 56 expert stakeholders from 22 organisations inputted through this engagement.
- Draft OREAP public consultation published 21 December 2022.



Indicative timeline for offshore wind development in Northern Ireland



Marine Planning in Northern Ireland

Liz Pothanikat

Marine and Fisheries Division

Department of Agriculture, Environment and Rural Affairs (DAERA) Northern Ireland

Marine planning in Northern Ireland cont.

- DAERA has also recently developed an Environment Strategy and a Green Growth Strategy and the Marine Plan has been revised to ensure it accords with these publications.
- The future sustainable and self-sufficient production of energy is reflected in the NI Energy Strategy Action Plan 2022. The energy policies of the Marine Plan have been updated to recognise the need to deliver development of offshore renewable energy projects that support the ambition to deliver 1GW of offshore wind from 2030.
- Despite NI political uncertainties, DAERA remain committed to delivering a Marine Plan for Northern Ireland, with associated Assessments and Modification Statement, to be approved by Minister, NI Executive and SoS Defra, for finalisation, publication, and adoption by December 2023.

Marine planning in Northern Ireland

- The Draft Marine Plan for Northern Ireland, and accompanying iterative assessments, was published for public consultation in 2018.
- The draft Marine plan is a material consideration in all planning decisions.
- Received consultation responses have been considered and actioned where appropriate
- Marine Plan has had to reconsider recent introduction of NI key legislation and strategies
- It has been reviewed to ensure it conforms with the NI Executive's 'New Decade, New Approach' document and the climate change duties and obligations that were introduced through the Climate Change Act (Northern Ireland) 2022.

Q&A and DISCUSSION

11.10 – 11.20



Break Time

See you in 5 minutes



Welcome Back





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Summary of surveys

- **Project updates on surveys taking place this summer** – Hannah Reed, Natural England, Dr Sue O’Brien, Marine Scotland, Dr Francis Daunt, UK Centre for Ecology & Hydrology, Katrien Van Landeghem, Bangor University and Dr Benjamin Williamson, Environmental Research Institute.
- **Discussion on fieldwork risks and opportunities** – led by Chair

Project updates on surveys taking place this summer

Hannah Reed, Natural England

Dr Sue O'Brien, Marine Scotland

Dr Francis Daunt, UK Centre for Ecology & Hydrology

Katrien Van Landeghem, Bangor University

Dr Benjamin Williamson, Environmental Research
Institute.



POSEIDON

Hannah Reed, Natural England



POSEIDON Summer Surveys

Project aim: To provide tools to inform offshore wind planning, to minimise impacts on the natural environment through avoidance and early awareness of likely mitigation / compensation needs, allowing expansion of offshore wind.

POSEIDON summer surveys:

1. Digital Aerial Surveys (still images) of seabirds and marine mammals in the Celtic Sea and North Sea (May and August).
2. Mobilisation for seabird and marine mammal Digital Aerial Surveys of the east coast of Shetland.
3. Seabed habitat surveys using grab sampling in the English Channel and Celtic Sea. Drop Down Video in 13 priority stations of Milford Haven.

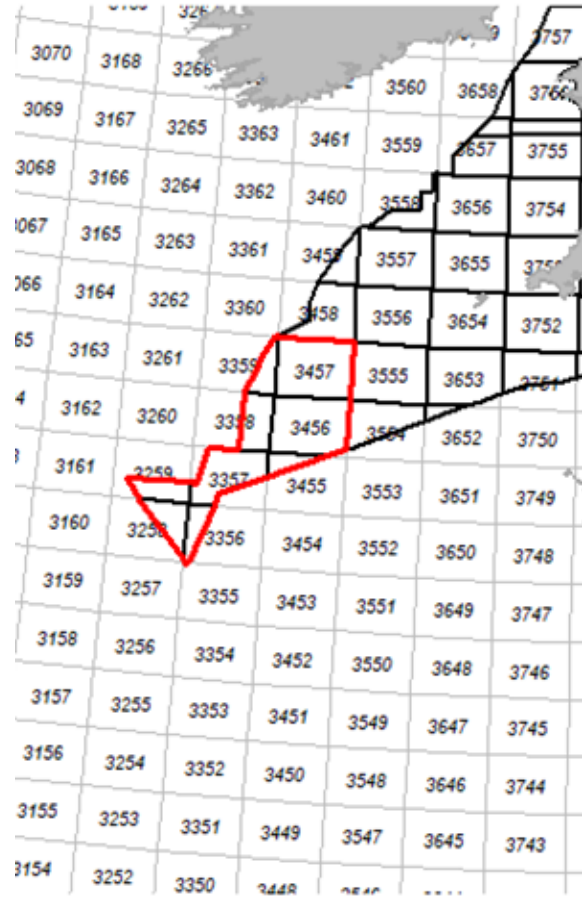
Natural England mNCEA surveys:

- Repeat 2 or 3 digital aerial surveys of Berwick to St Mary's MCZ between May and July 2023 (plus shore-based counts and citizen scientist recording of eiders via Eider Aware app).

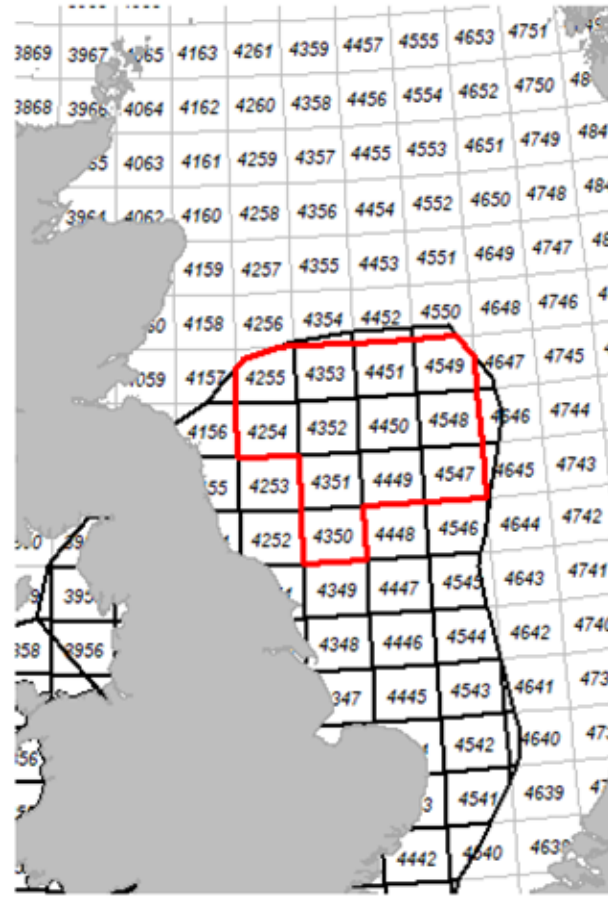


POSEIDON survey areas – Seabirds and Marine Mammals

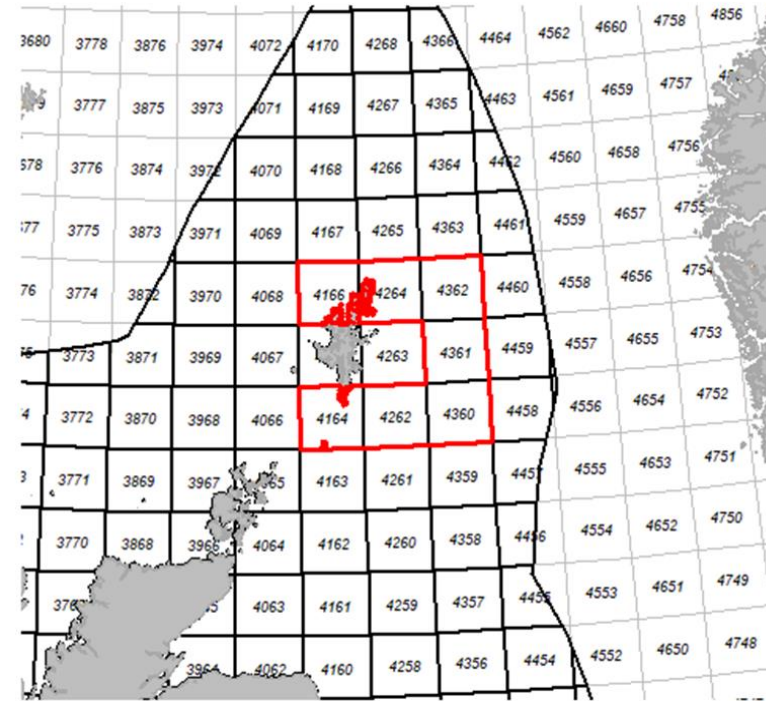
Celtic Sea



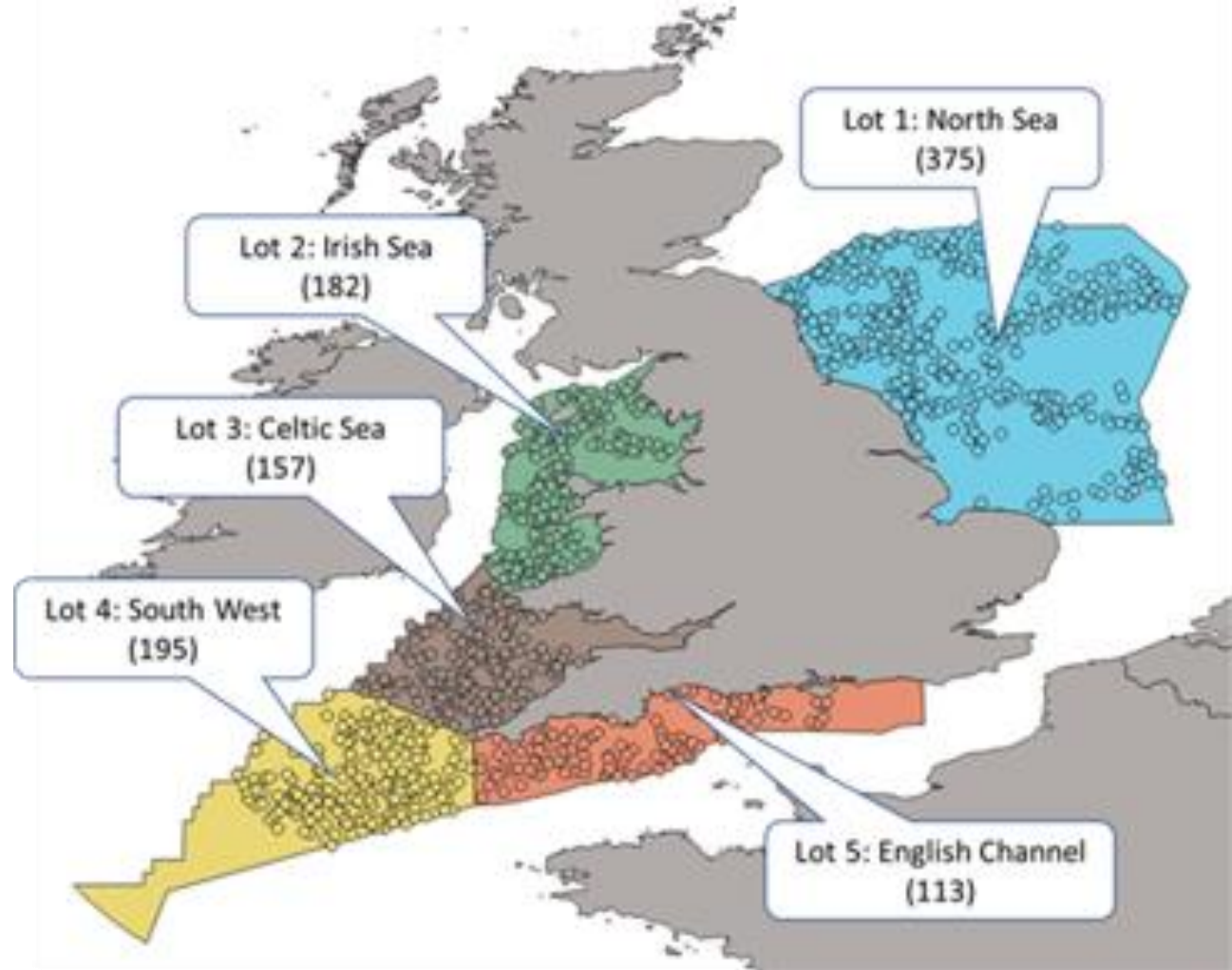
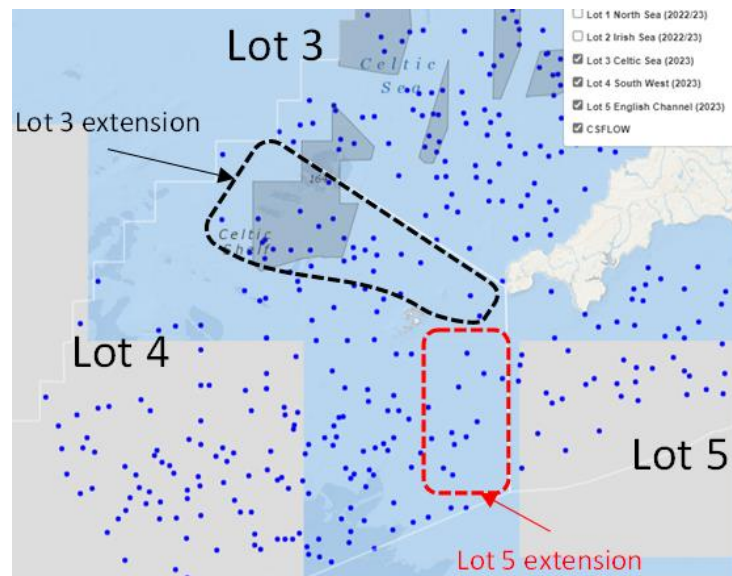
North Sea



Northern Isles



POSEIDON survey areas - Seabed



PrePARED

Dr Sue O'Brien, Marine Scotland



Surveys to be undertaken during Summer 2023 include;



What	Where	When
Fisheries acoustic surveys	Moray Firth Firth of Forth	June – July July
Baited Remote Underwater Video (BRUV)/Fish trap surveys	Firth of Forth	July – August
Unbaited camera surveys	Moray Firth	September
Catch and tag gadoid fish	Moray Firth	March September
Deploy construction Passive Acoustic Monitoring (PAM) array	Moray Firth	Deploy in August Retrieve after Jan 2024

ECOWINGS

Dr Francis Daunt, UK Centre for Ecology &
Hydrology





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Ecosystem Change, Offshore Wind, Net Gain and Seabirds (ECOWINGS): data collection

Francis Daunt¹ & Paul Fernandes²

¹



UK Centre for
Ecology & Hydrology

²



HERIOT
WATT
UNIVERSITY



THE CROWN
ESTATE



Natural
Environment
Research Council



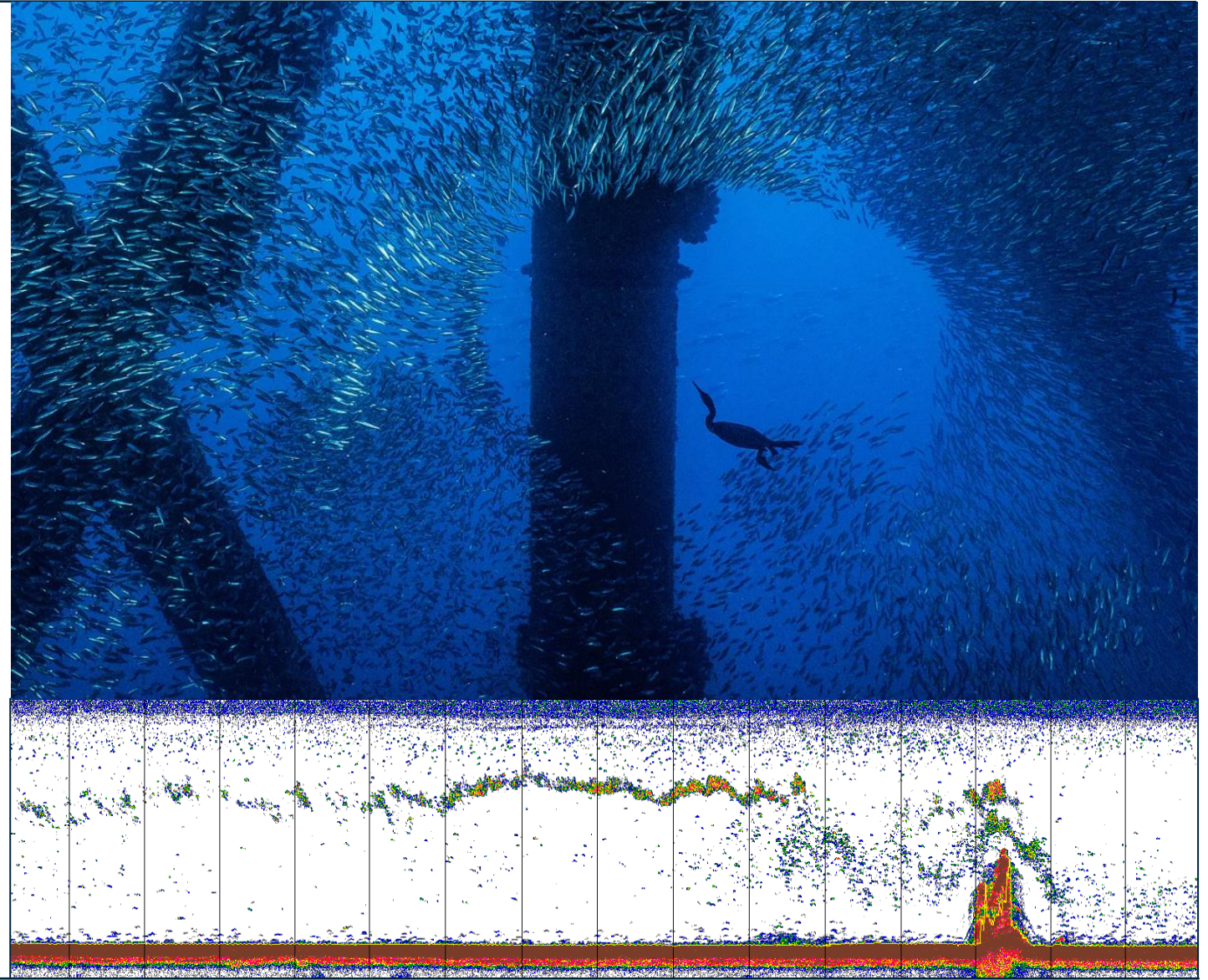
ECOWind

Ecowings WP2: Data collection on seabird prey

Objectives:

To collect **acoustic survey** data, on **fish** density and distribution:

1. As **coincident** as possible, in space and time, with **seabird** data
2. **Inside and outside** operational offshore wind farms;
3. At the **sea surface**, free from localised avoidance effects, to determine fish school structure, patch dynamics, and distribution where seabirds forage.



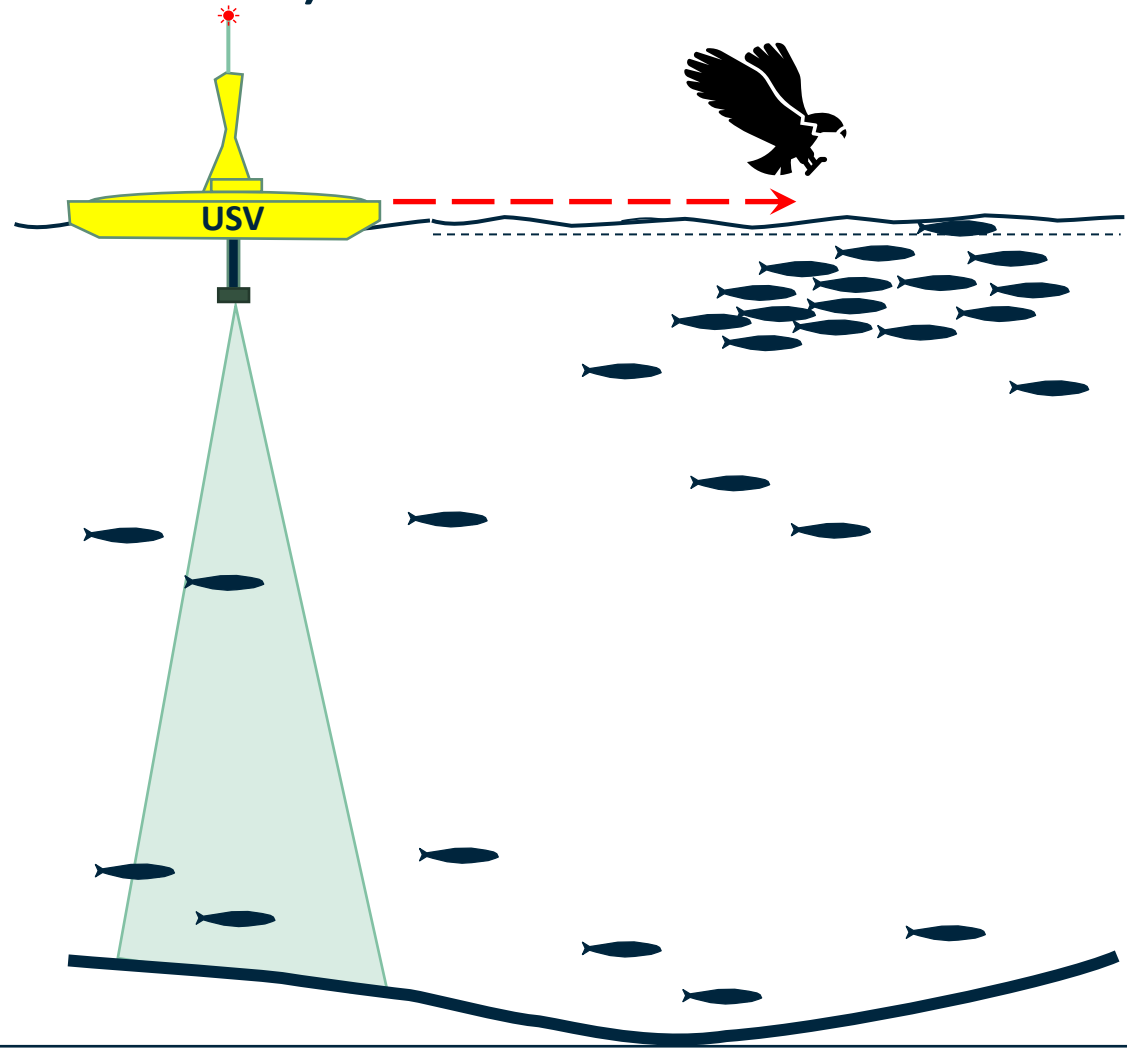
We will use unique sampling platforms: 1) USV

Uncrewed **S**urface Vehicle (USV) “Catriona”

4.2 m long
2.4 m wide
2.8 m high
450 kg



Long range operation (>3 days)



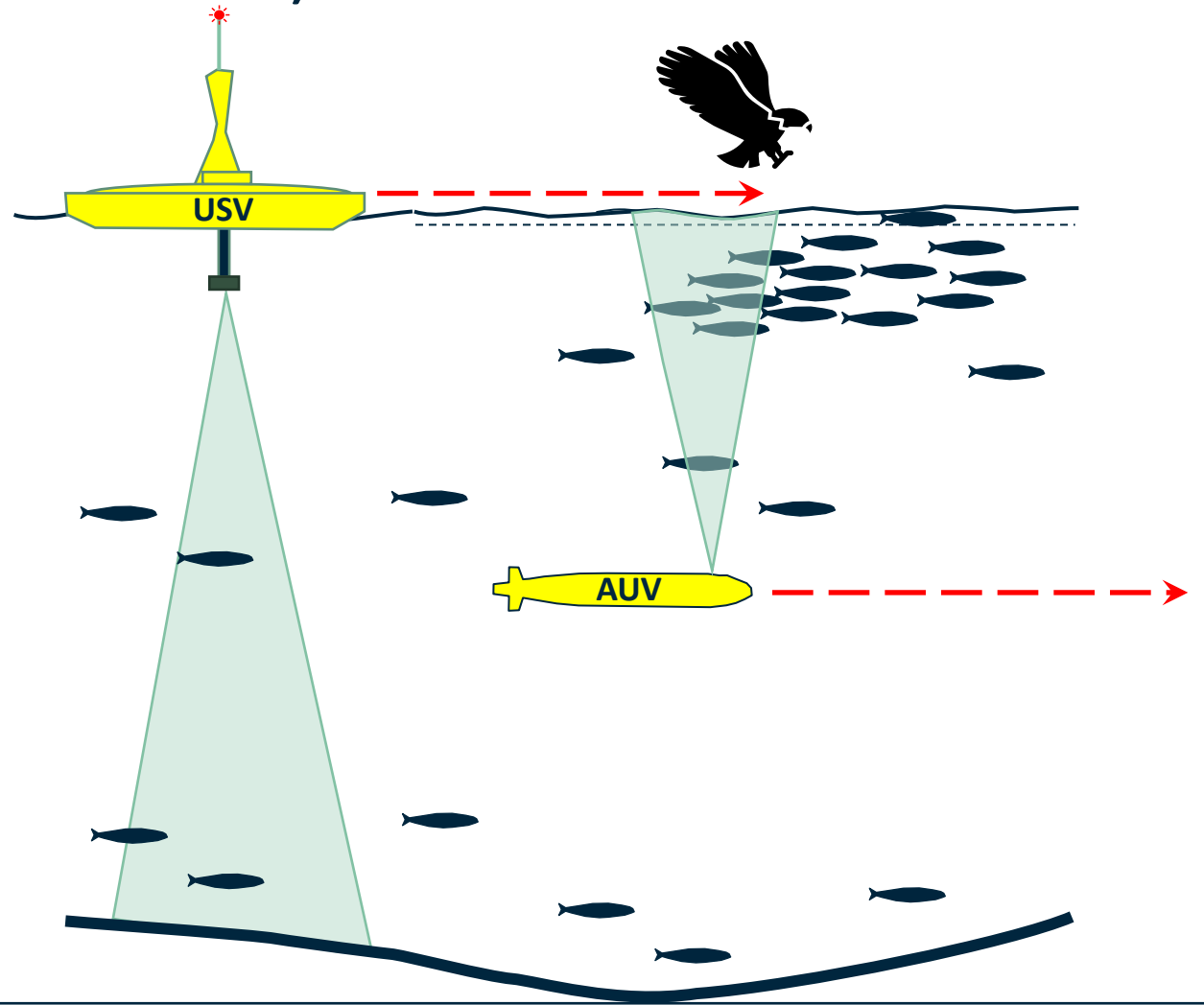
We will use unique sampling platforms: 2) AUV

Autonomous Underwater Vehicle (AUV) Iver-3

2.1 m long
15 cm diameter
40 kg
3 knots

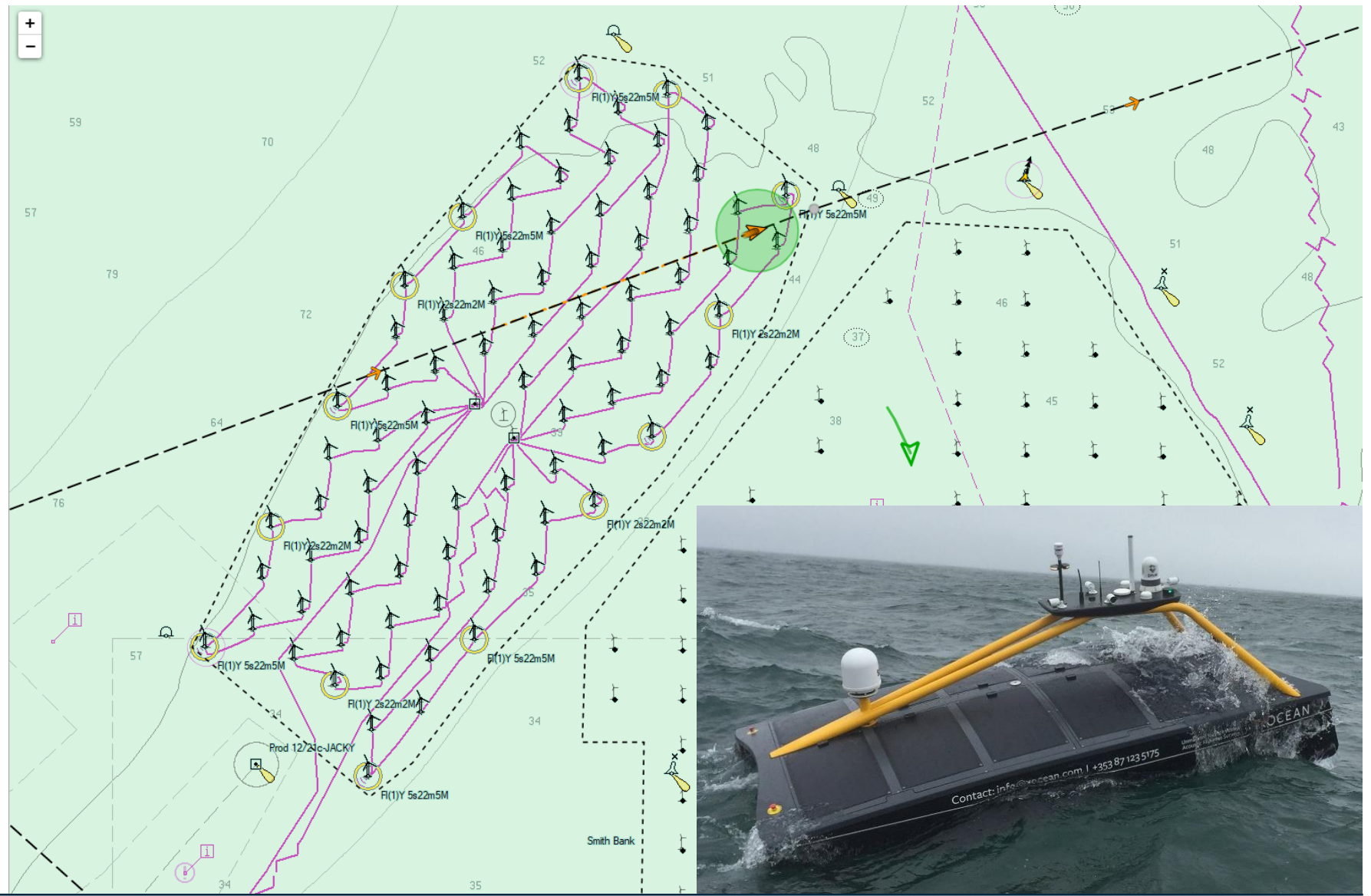


Short range operation (≤ 10 hours)



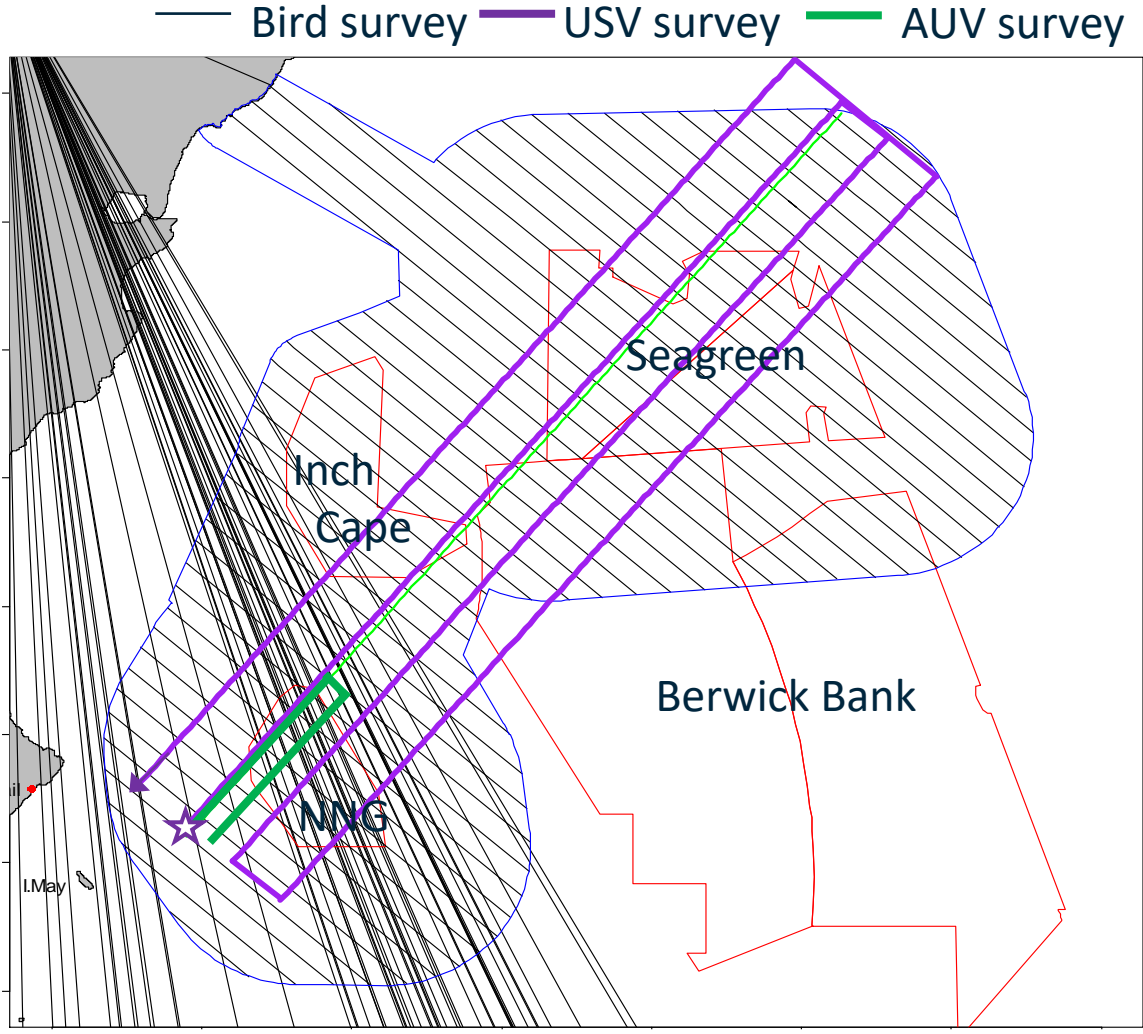
Draws on our previous experience working with these vehicles in offshore windfarms

INSITE



Sampling several windfarms off E. Scotland

Surveys in 2023², 2024¹ & 2025¹
Monthly: April¹/July² – September
3 day survey



ECOWind - ACCELERATE

Katrien Van Langehem, Bangor University

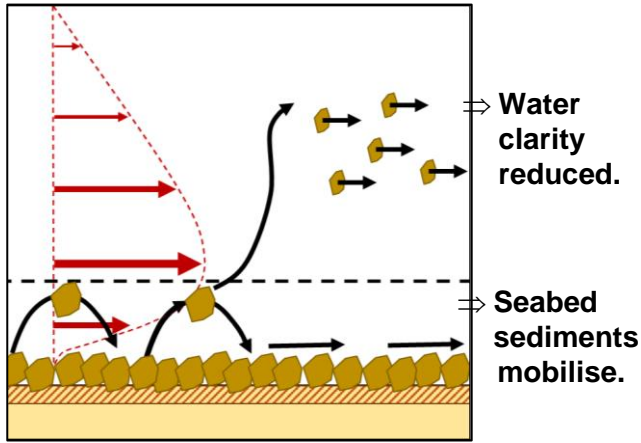




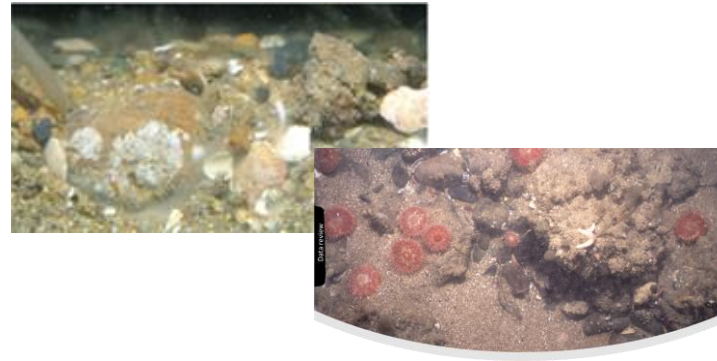
ECOWind-ACCELERATE project (Aug '22 -> Aug '26): Ecological implications of accelerated seabed mobility around windfarms

PI: Katrien Van Landeghem

1. Sea levels + windfarms: Changing bed stress



2. Seabed is often mixture of ≠ grain sizes. Mobilisation brings a change in seabed composition + how it supports habitats.



3. Some animals love mixed bed. Sandeels only like pure sand... => complex impacts on ecosystem.



4. Seabirds dive to seabed for food. Will they get what they expected?... Yes => energy gained No => energy lost => danger to chicks



5. We will discover relationships between seabed mobility – habitat – prey – predator.
=> Future E Irish Sea in 2050 and 2100?



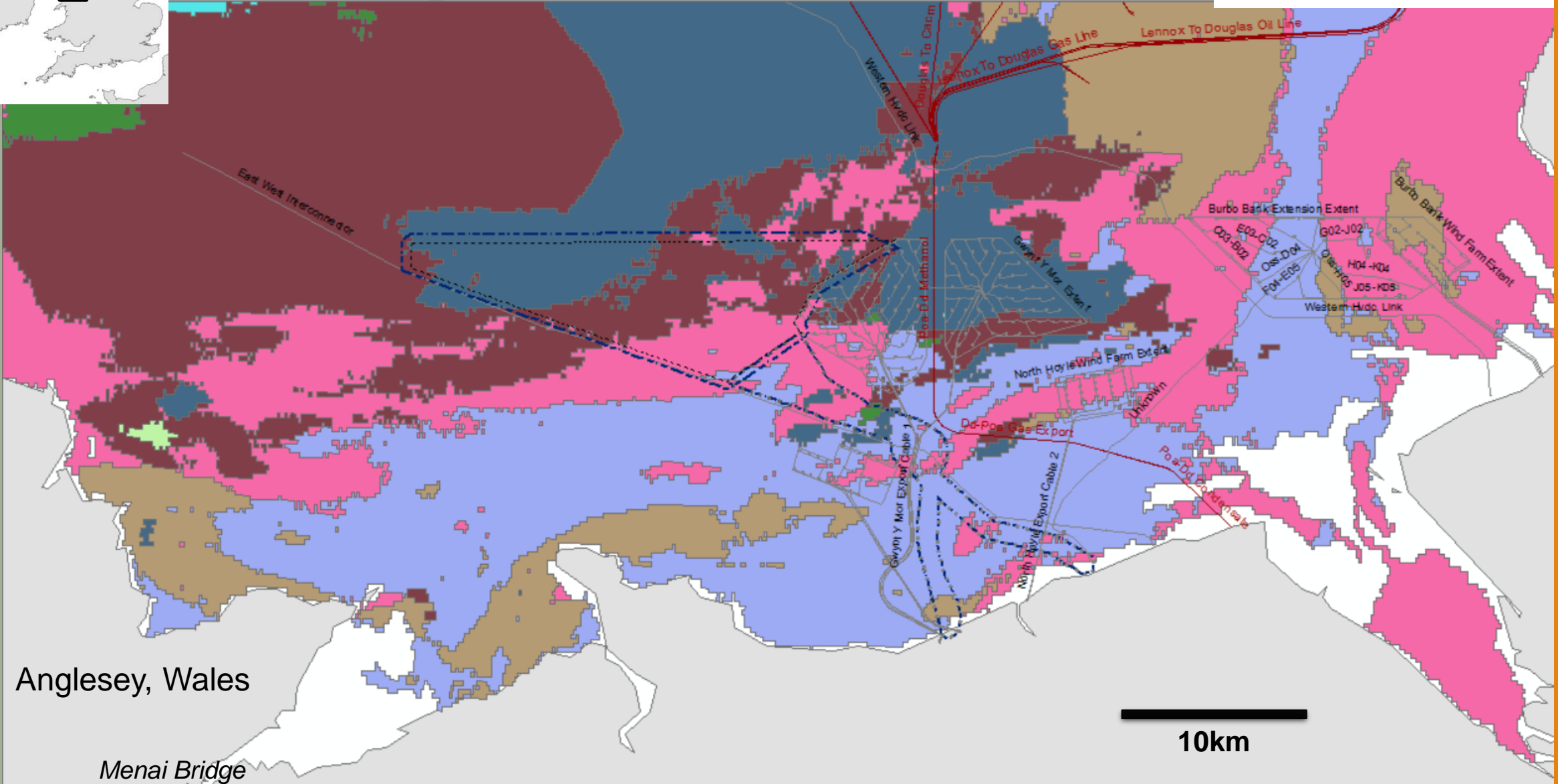


ECOWind-ACCELERATE

Survey activity and plans

OneBenthic habitats

A1	A2a	A2b	B1b	C1a	C1b	D1	D2a	D2b	D2c	D2d



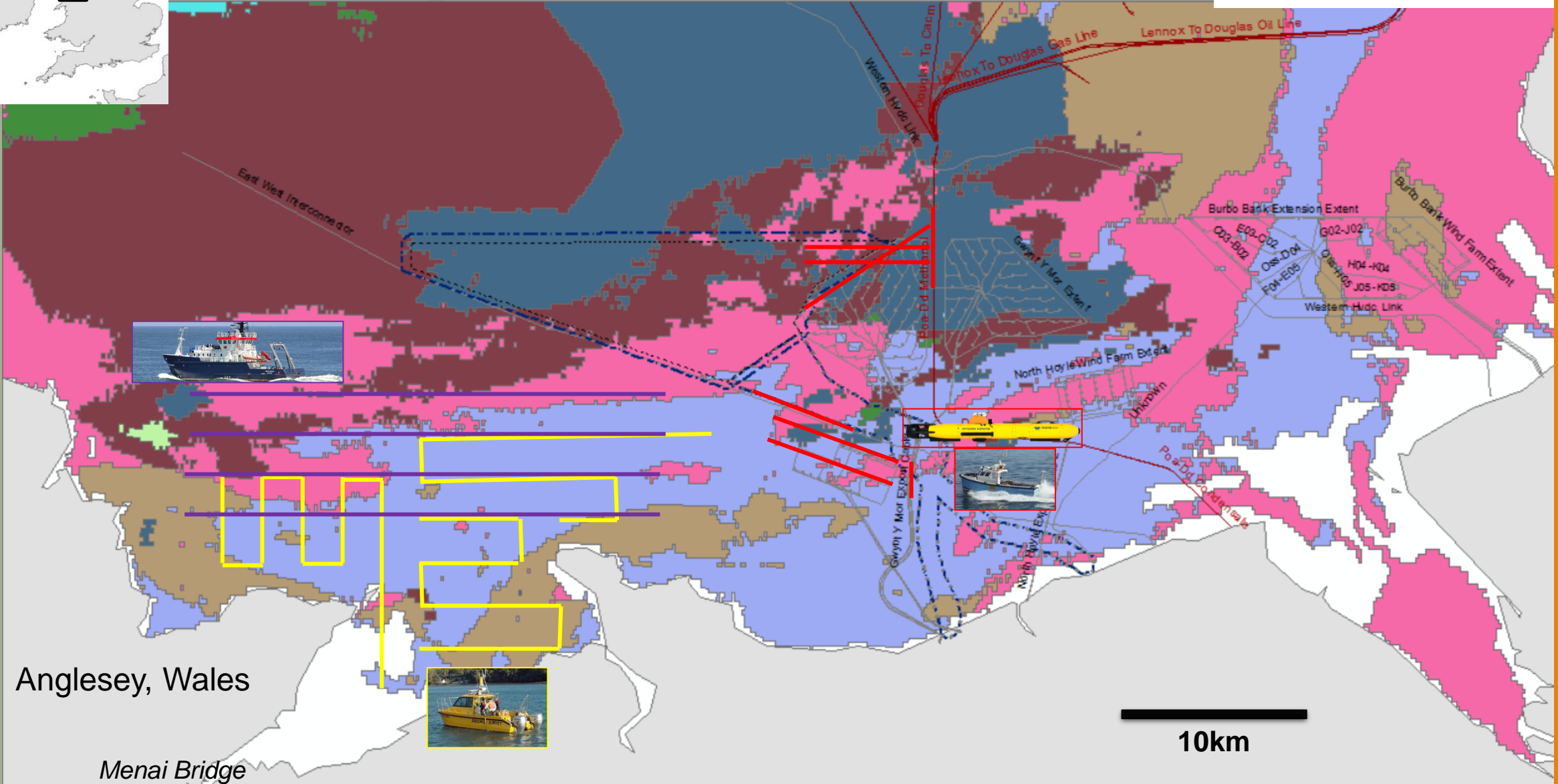


ECOWind-ACCELERATE

OneBenthic habitats

Survey activity and plans

A1	A2a	A2b	B1b	C1a	C1b	D1	D2a	D2b	D2c	D2d



Anglesey, Wales

Menai Bridge

10km

ECOWind-ACCELERATE

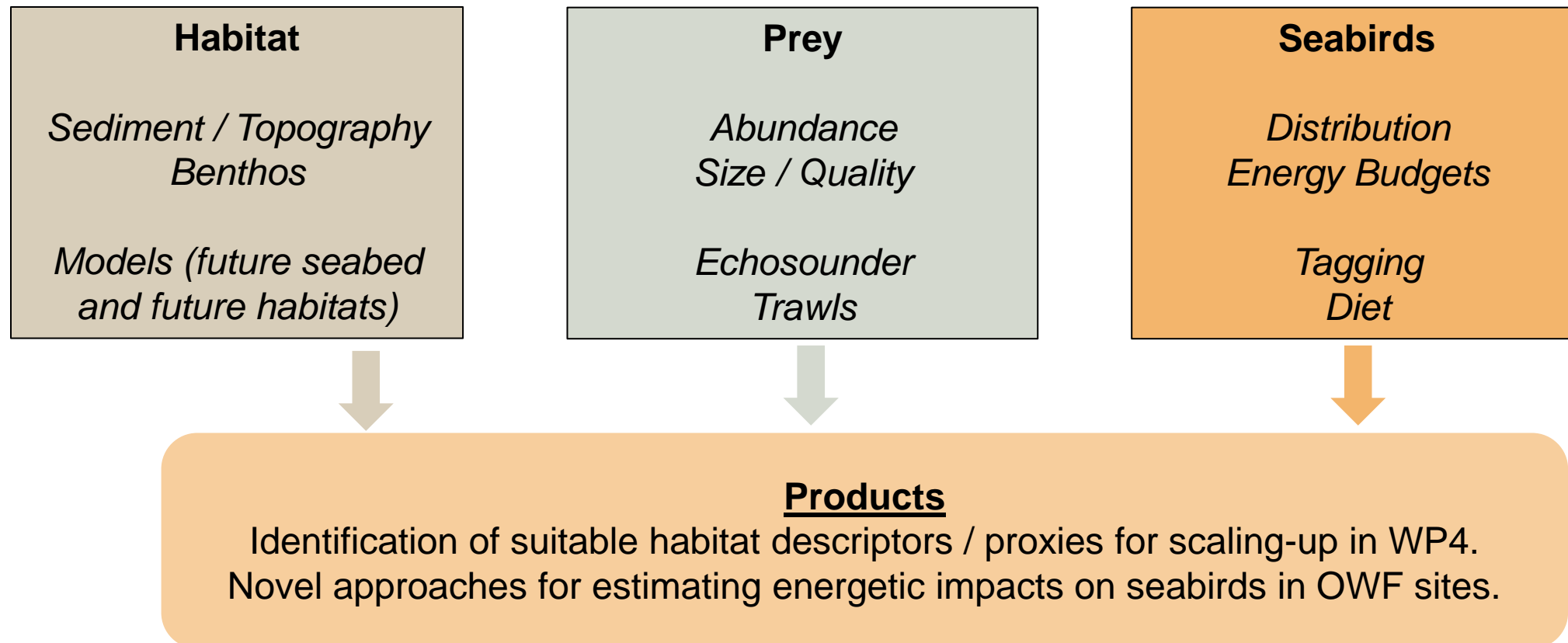
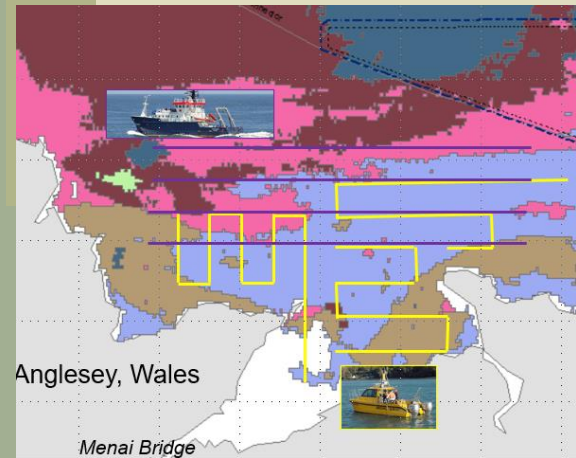
Survey activity and plans: habitat – fish – seabirds

Exploit Puffin Island scenario (small foraging range, convenient, baseline knowledge).

Measure **all components** of habitat to seabirds.

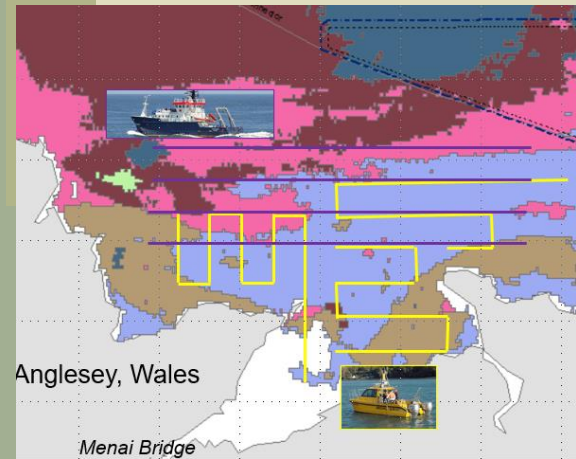
Use prey availability to validate habitat associations.

Estimate net energy-gains across habitats.

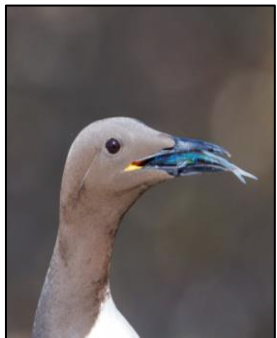


ECOWind-ACCELERATE

Survey activity and plans: habitat – fish – seabirds



Demersal feeding **European shag** and **common guillemot**.
 Concurrent collection of prey and seabird datasets around **Puffin Island**.
 Focussing in areas **known to be exploited** by these populations.
 Activities divided into **2 periods / approaches** based on existing knowledge...



European Shag

May 2023

**10 visits to Puffin Island for tag
 deployments
 9 days offshore, 24 trawls (9-19 May)**

**Conwy Bay & Constable Bank
 RV Macoma**

Common Guillemot

17-25 June 2023

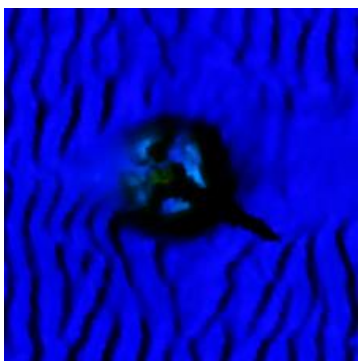
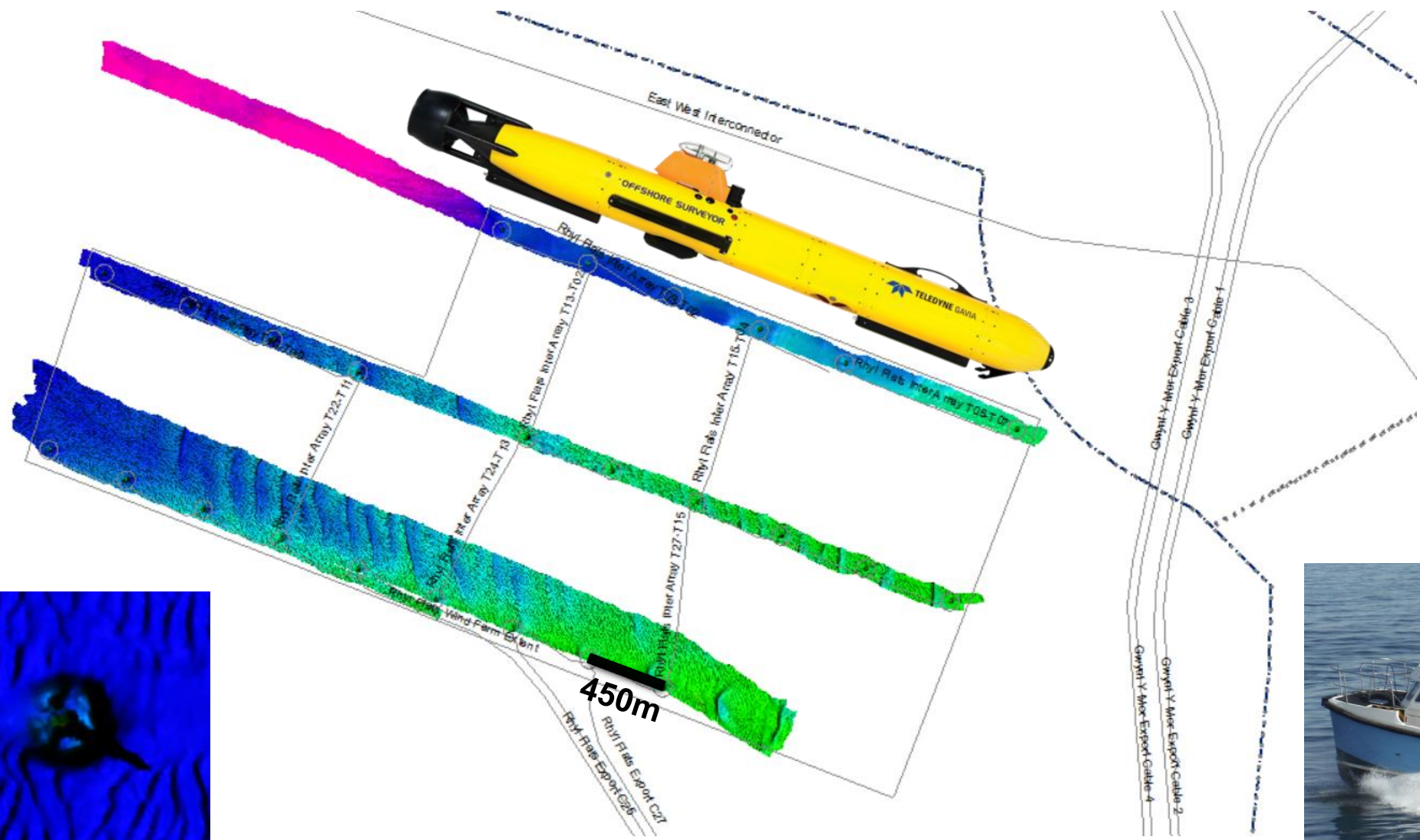
**7d (18-24 June)
 + tag deployments**

**Outer Conwy & Red Wharf Bay
 RV Prince Madog + Sarah Jane Too**

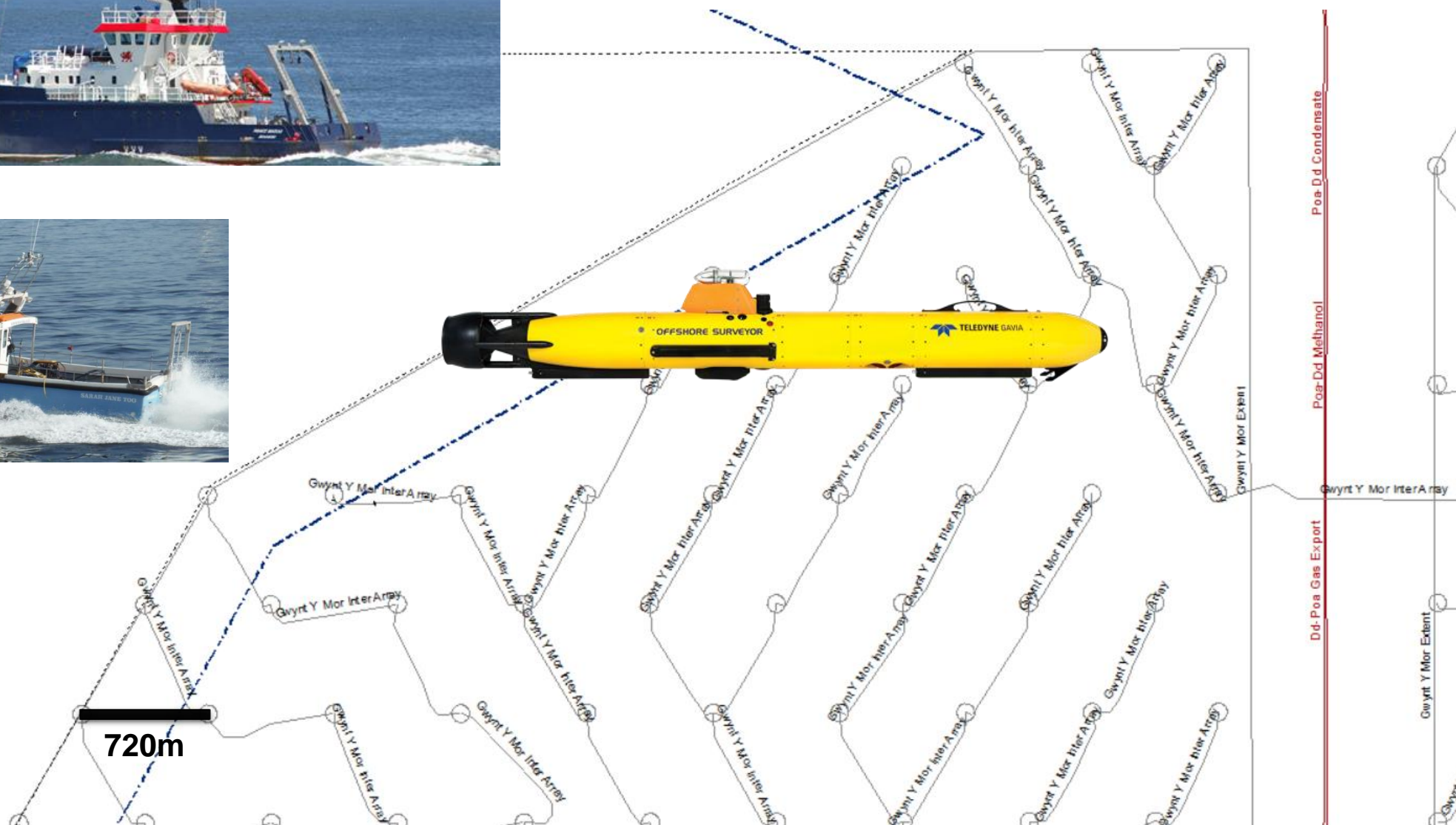


ECOWind-ACCELERATE

Survey activity and plans: AUV Gavia near windfarm infrastructure



Survey activity and plans: AUV Gavia near windfarm infrastructure



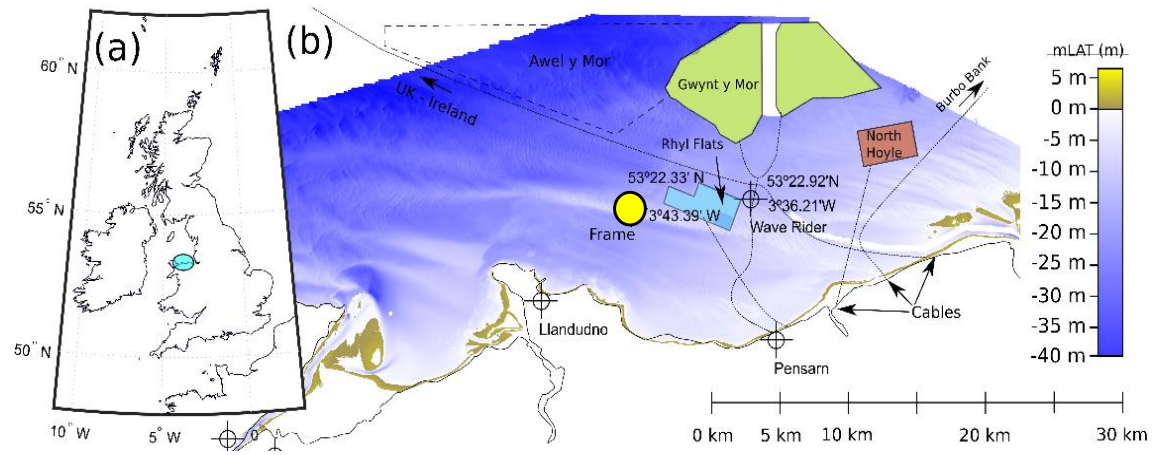
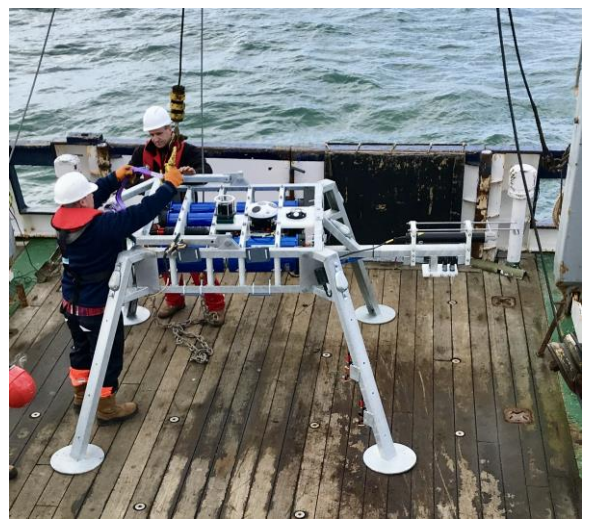
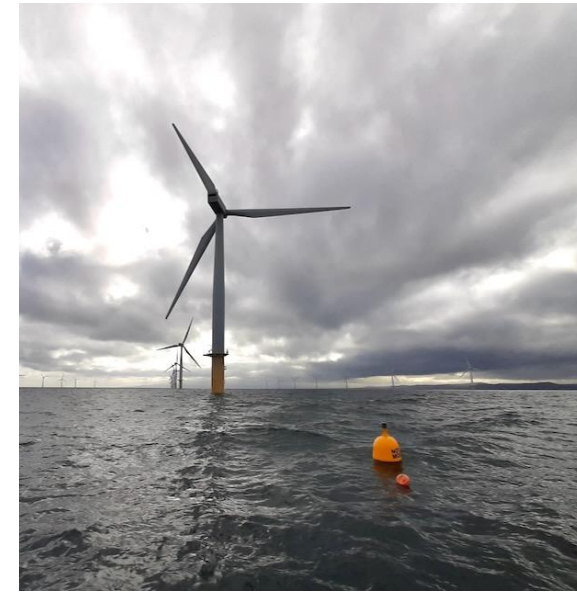
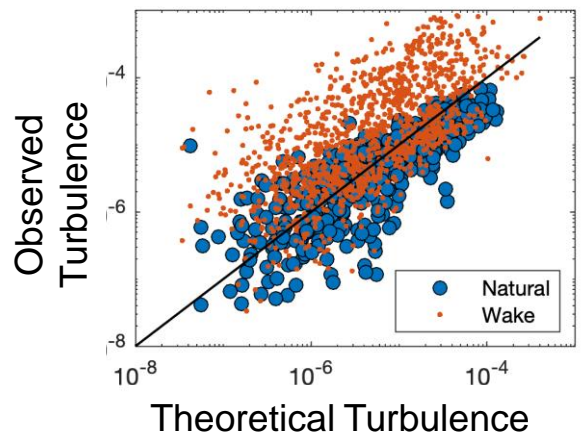


ECOWind-ACCELERATE

Survey activity and plans: digital twinning of flow + bed stress in wake

OWF Turbulent Wakes

High variability in turbulent mixing: natural vs wake



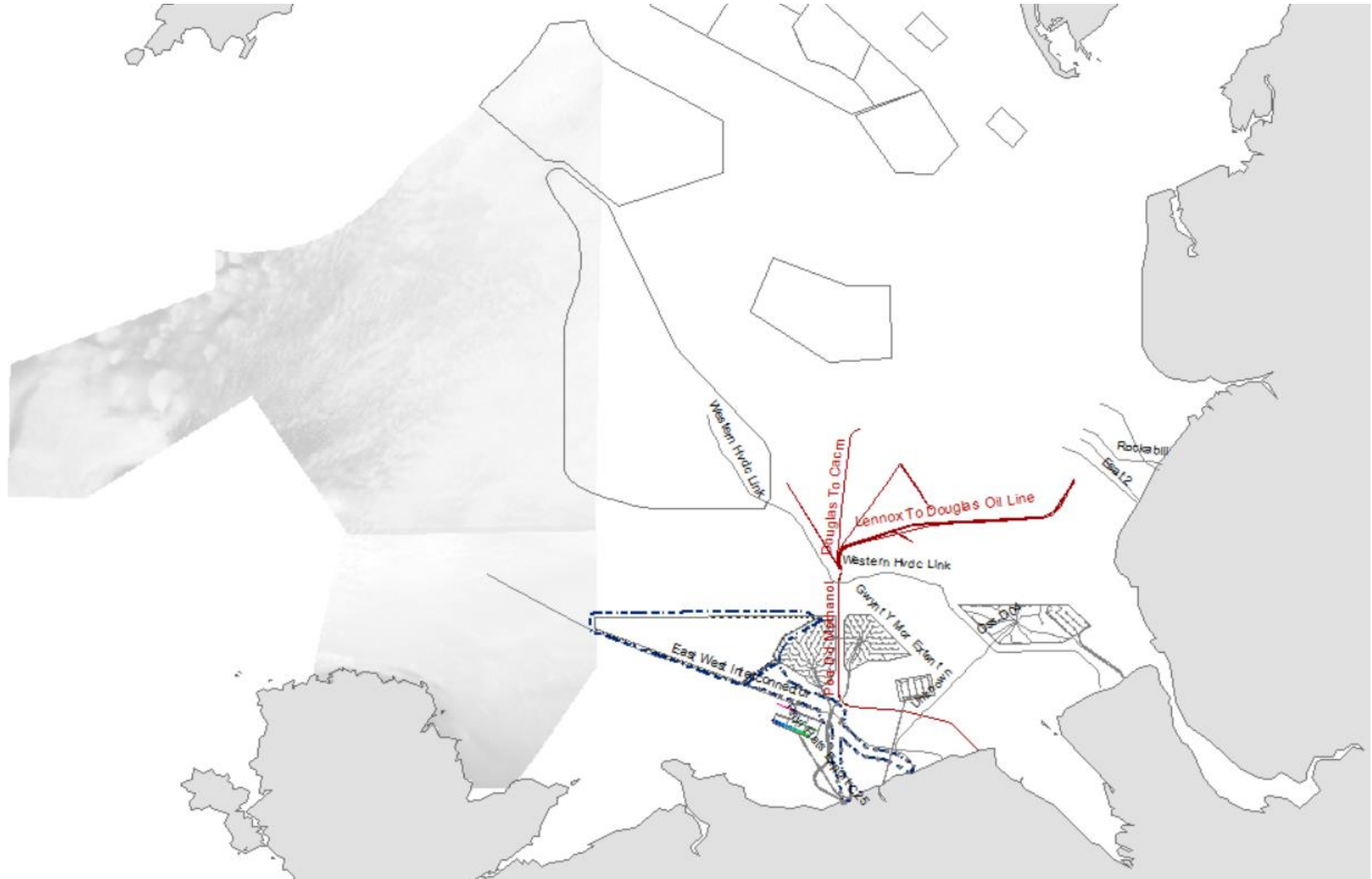
Survey activity and plans: June 2024

June 2024:

Further north into the Irish Sea with RV Prince Madog.

Seabird surveys the same.

No AUV.



ECOWind - PELAgIO

Dr Benjamin Williamson, Environmental
Research Institute



ECOWind PELAgIO

Physics-to-Ecosystem Level Assessment of Impacts of Offshore Wind Farms



Benjamin Williamson, UHI

benjamin.williamson@uhi.ac.uk

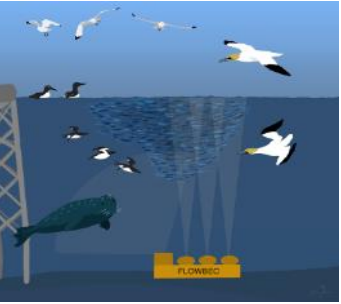
Charlotte Williams, NOC

chwill@noc.ac.uk

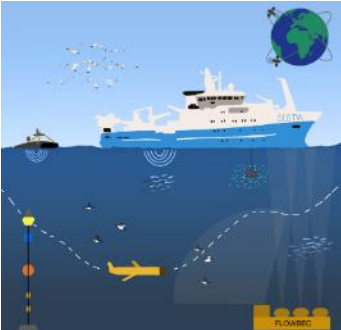


ECOWind

AREA 1 observing inter-species interactions, population dynamics and viability



AREA 2 enhancing marine observations



AREA 3 informing marine policy and management solutions



PELAgIO

WP1 Physical effects from OWFs on primary production and ocean health, **locally, regionally, shelf-wide**, and in response to climate change

WP2 Prey-to-predator understanding of fish availability providing foraging opportunities

WP3 Ecosystem-level cumulative effects on populations and tools for assessing trade-offs to inform policy

Bottom-up
and Climate
Change

Planktivorous
Fish

Direct top-
down: inc
windfarms
and fishing



PELAgIO 1st Field season (Summer 2023 – May Deployments)



Benjamin Williamson, UHI

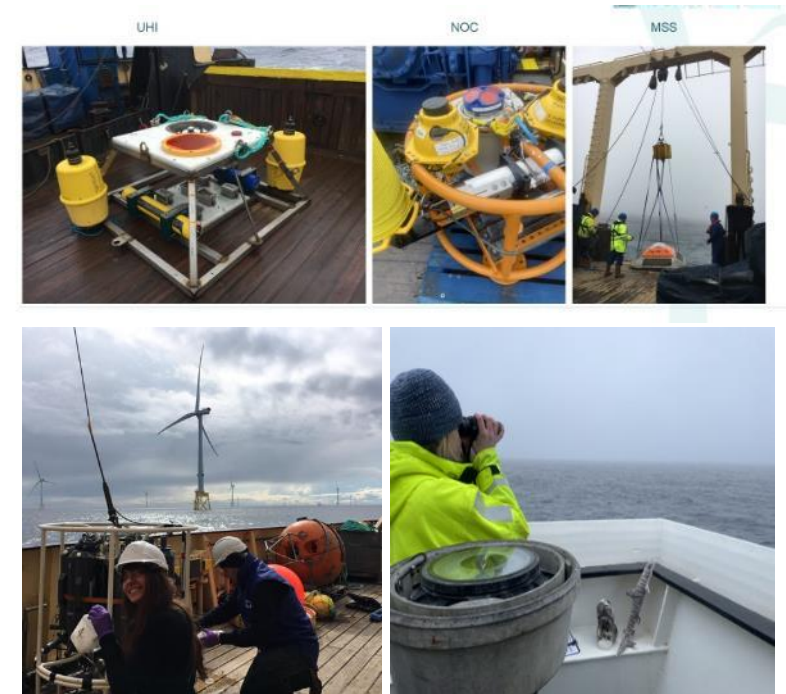
benjamin.williamson@uhi.ac.uk

Survey Rationale

To provide data for WP1 (oceanographic understanding of changes to mixing, and FVCOM + ERSEM parameterisation) and WP2 (temporally predictable prey/fish behaviour)

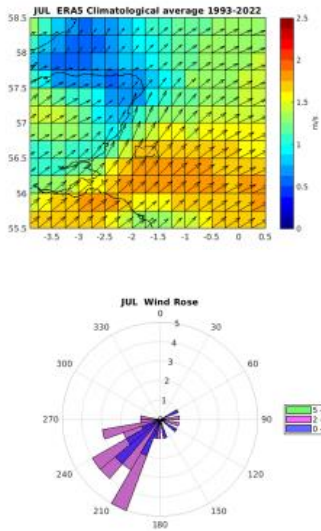


1. Deploy UHI (500 m), MSS and NOC moorings (equidistant between 1 and 3 km)
2. CTD calibrations and water sampling for site understanding and for interpreting glider and moorings data
3. Underway TSG (taking calibration samples for salinity and chlorophyll at selected stations)
4. Underway EK60 echosounder along the CTD survey track
5. Seabird survey during daylight hours along the CTD survey track

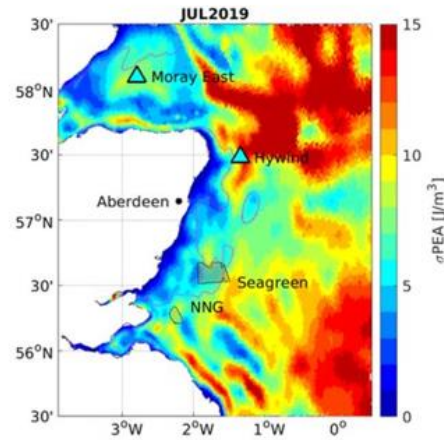


Background data for site selection and survey design

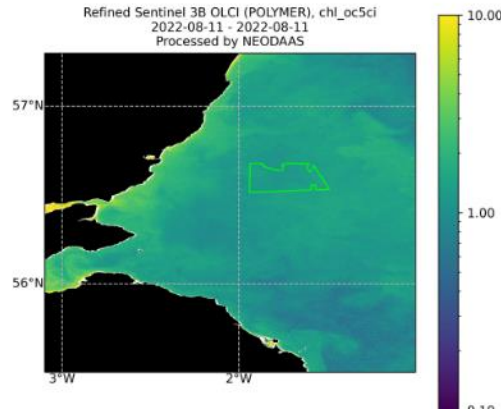
Wind field



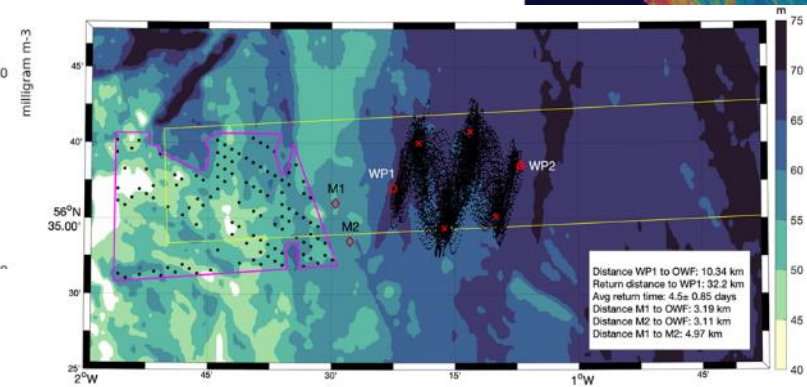
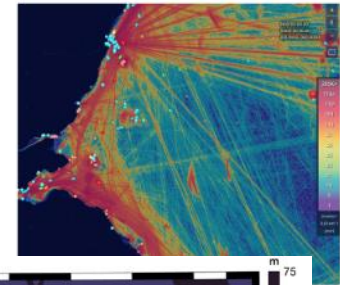
Modelled stratification



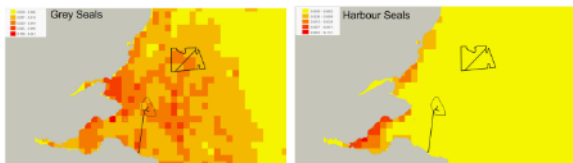
Satellite data of chlorophyll



Marine traffic



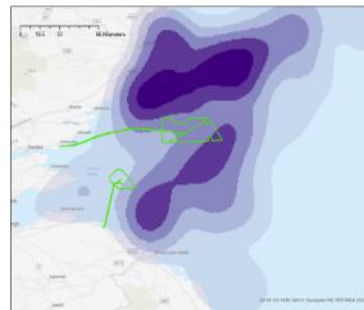
Seal distribution



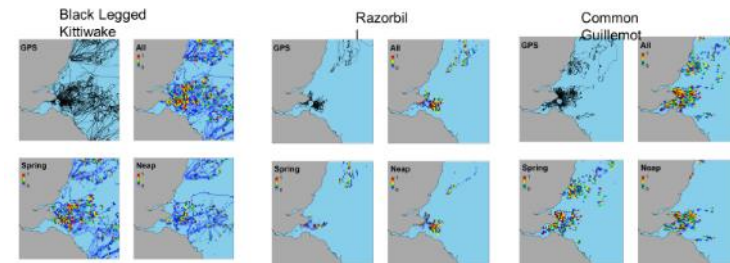
Guillemots Density Present



Kittiwakes Density Present



Seabird distribution -Collation of GPS Logger (RSPB FAME and STAR)

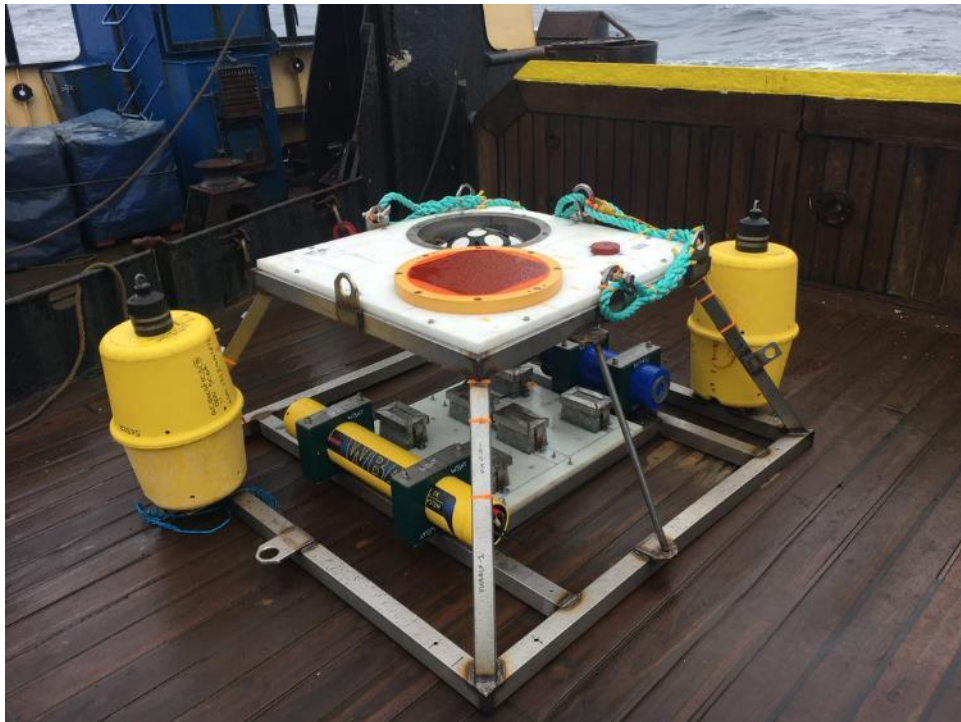


Moorings: Duty cycled 10-20 minutes/hour to last until Aug

* UHI fish mooring to move to 50 m away from turbine in July



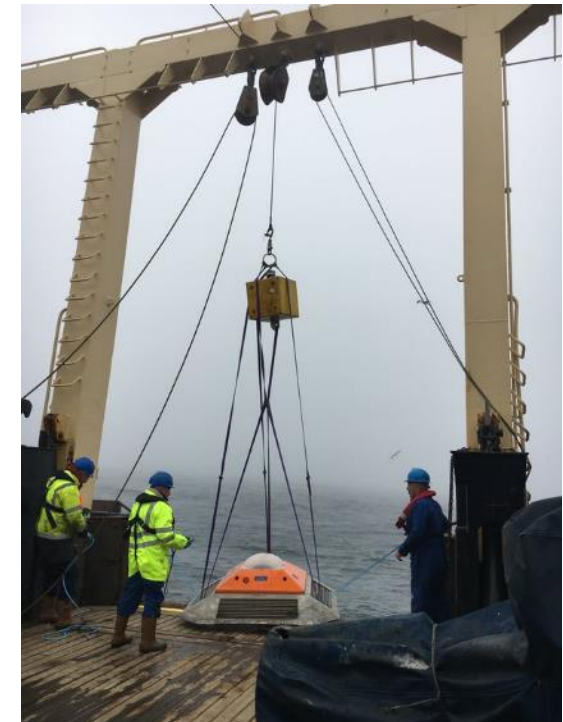
UHI



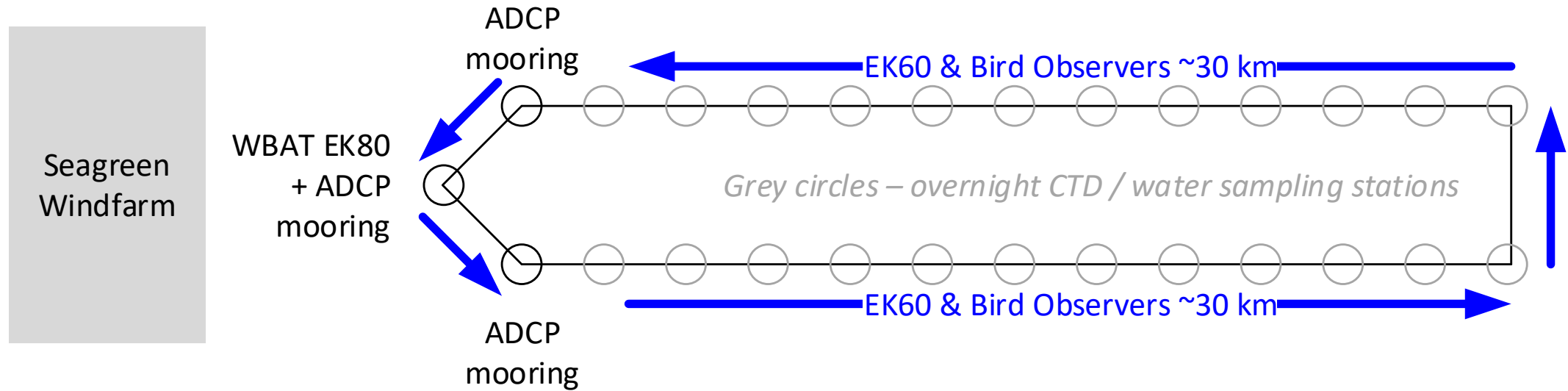
NOC



MSS



Ship-based EK60 and Observers (*spatial*) plus upward-facing EK80 lander (*temporal*)

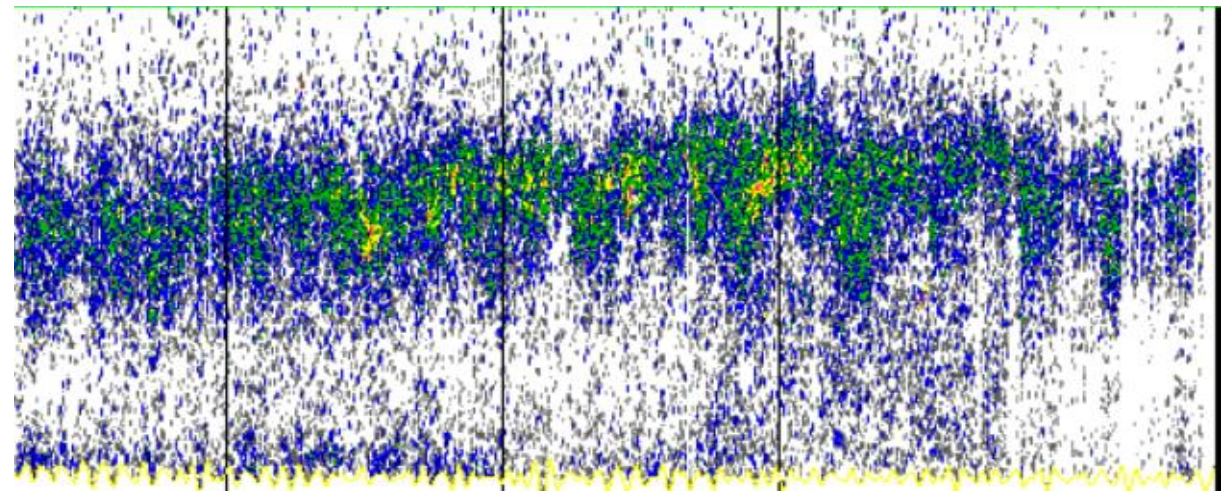


~25 EK60 + Observer ship-based transects

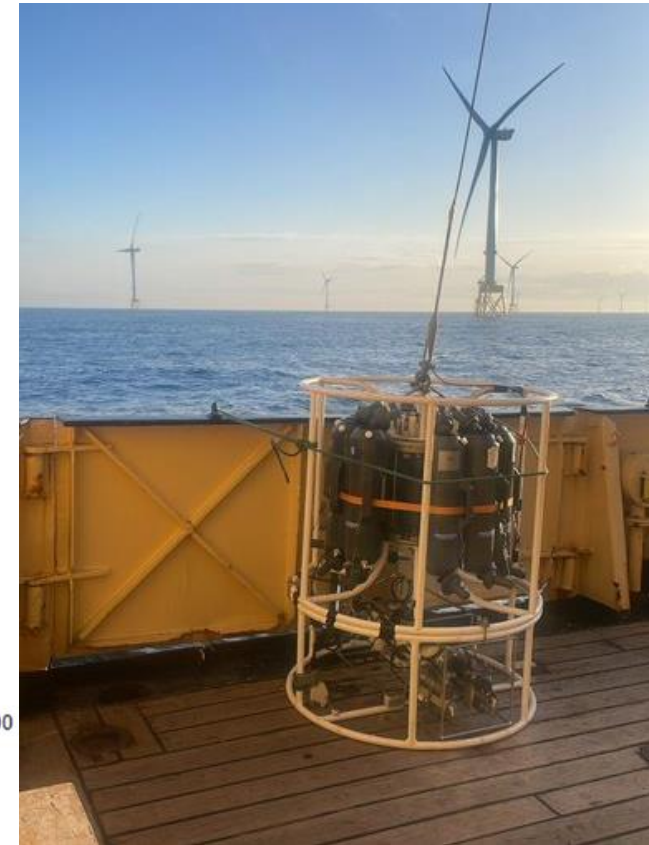
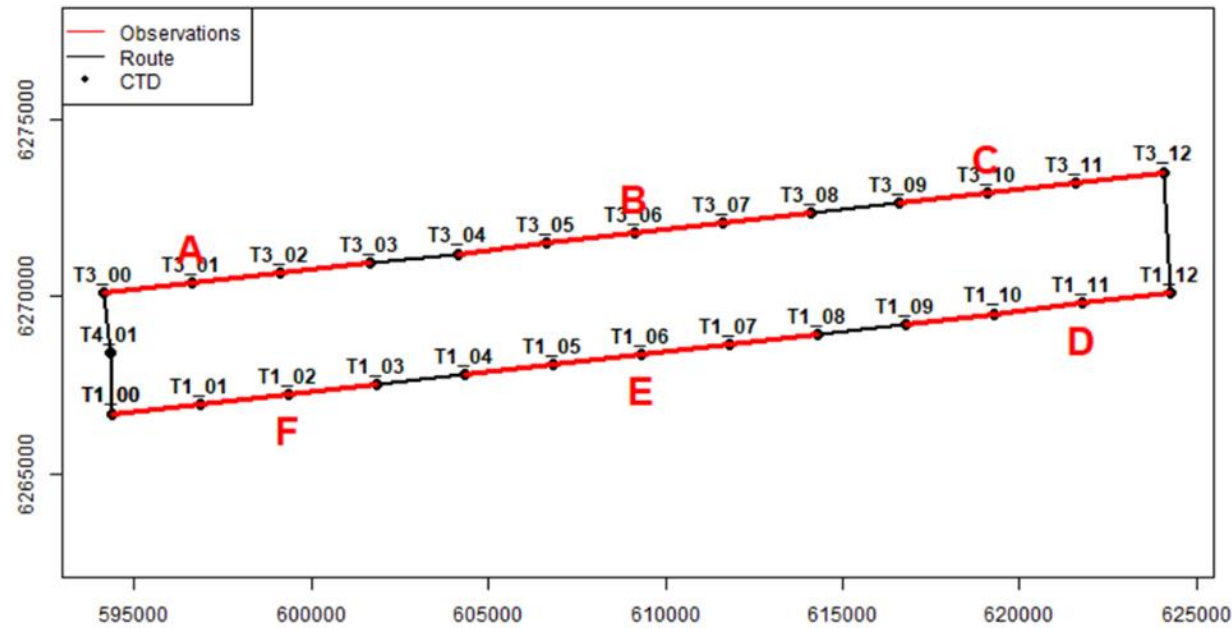
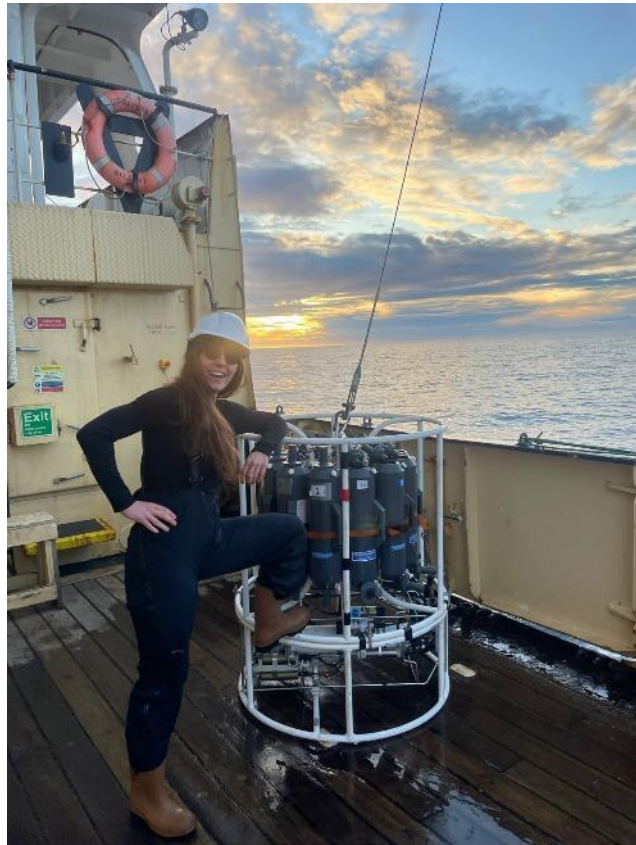
Coverage across time-of-day and time-of-tide

Plus night-time EK60 across CTD stations

Spatial coverage to complement moorings



CTDs to calibrate moorings, gliders and site understanding



PELAgIO 2023 NOC Gliders & Mooring update



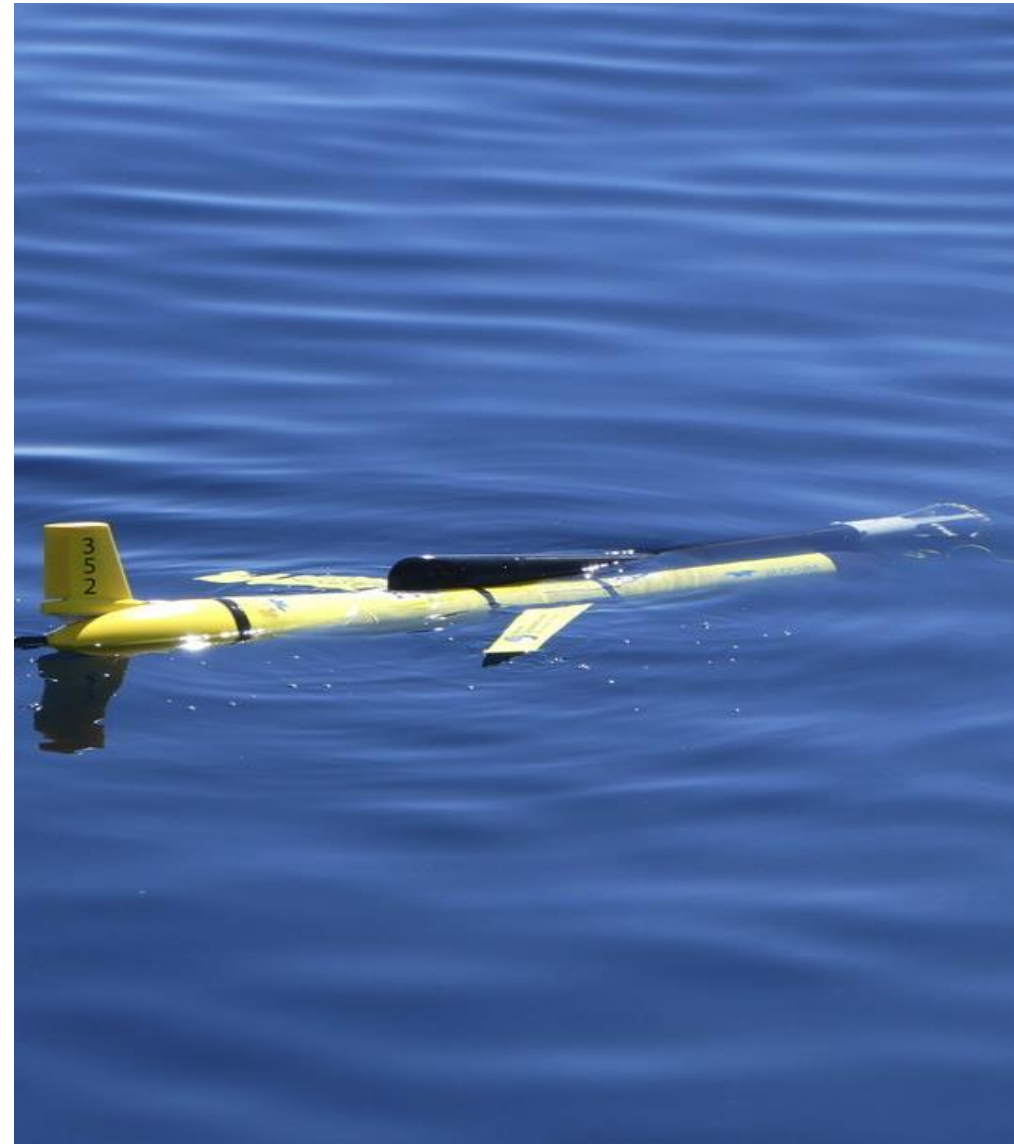
National
Oceanography
Centre

Glider 1

CTD
TKE dissipation rate
(turbulence)
Oxygen

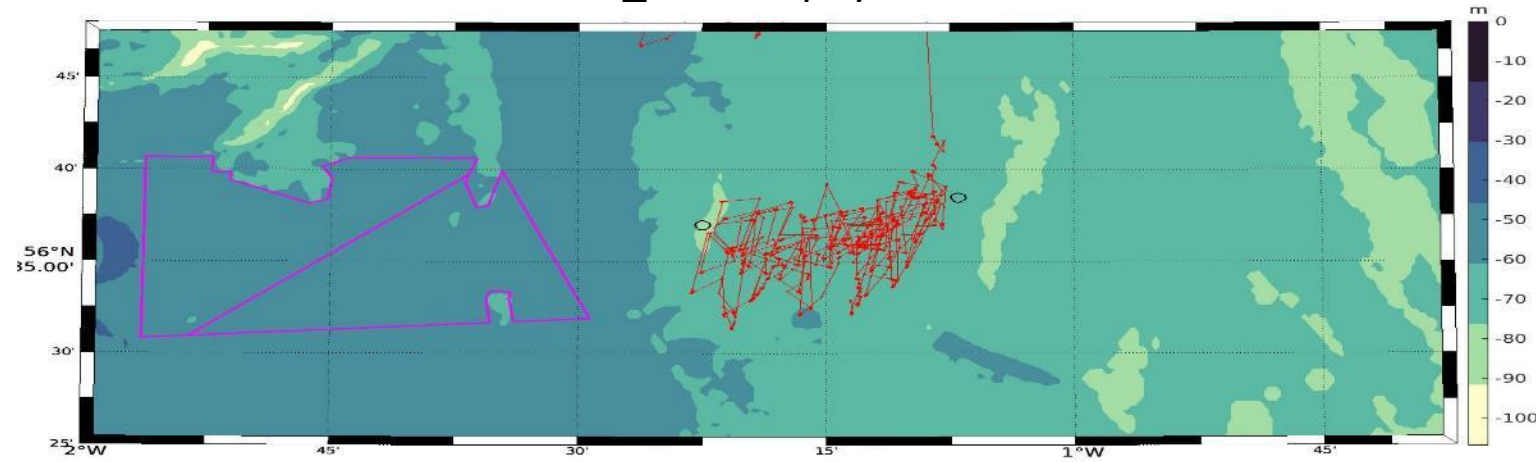
Glider 2

CTD
Chl-a fluorescence, CDOM
OBS
PAR

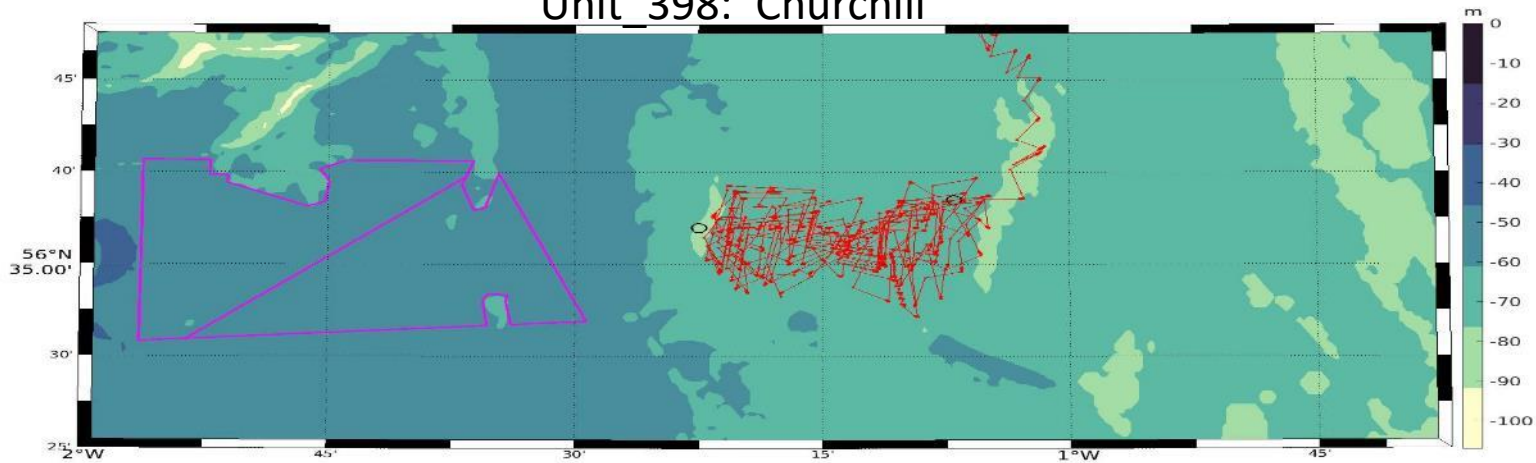


Glider missions

Unit_306: 'Zephyr'



Unit_398: 'Churchill'



- Both gliders flying reasonably well
- RT data being sent back lower resolution than we started with (now 3 dBar vertical and 1 profile every 3 hrs)
- RT also being sent to Met Office.

<https://mars.noc.ac.uk/missions/pelagio-1>

MARS Portal

PELAGiO_1

Physics-to-Ecology Long-term Assessment of Impacts of Growing OWF (PELAGIO)

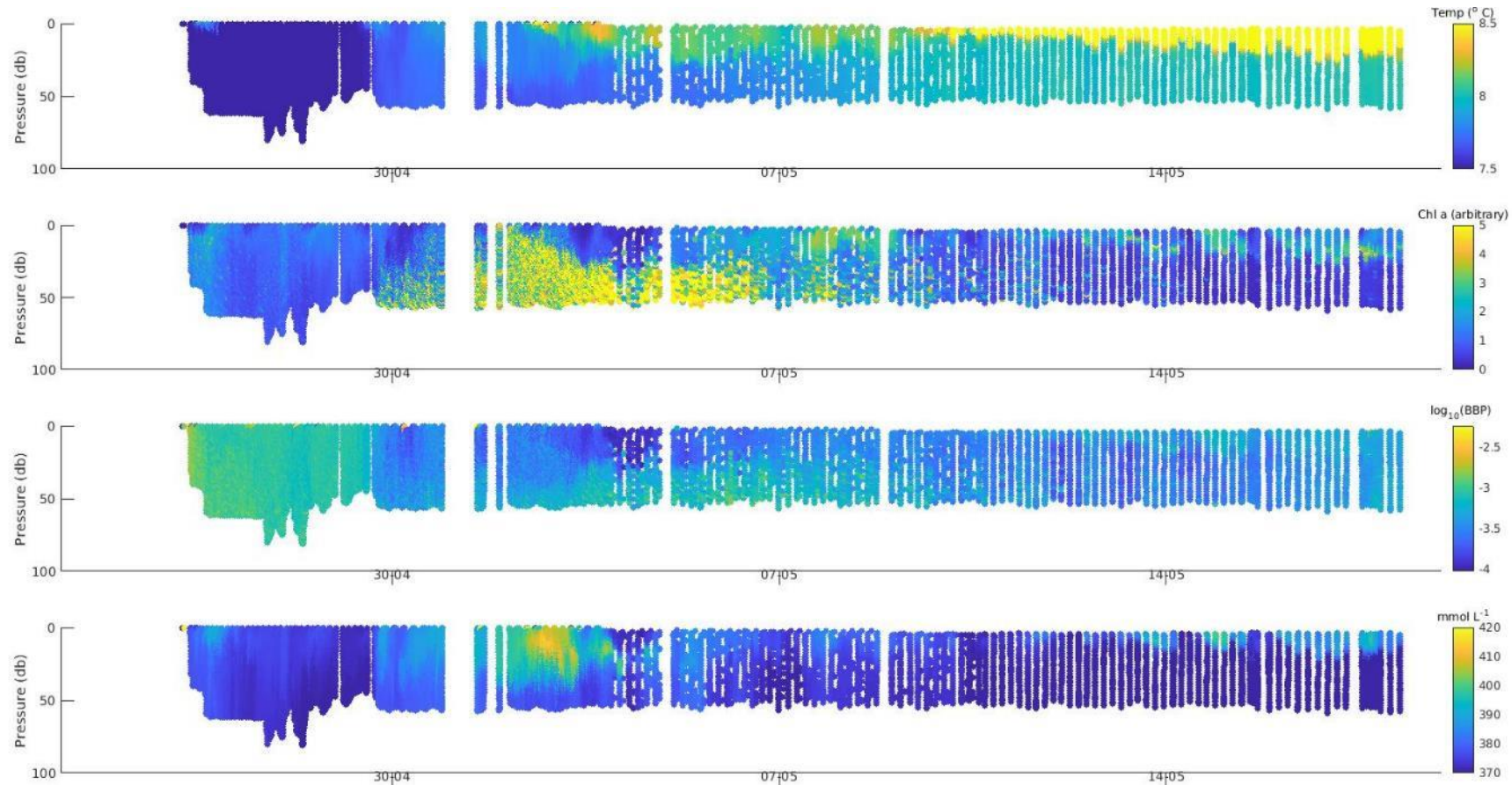
- Public Mission
- PI: Charlotte Williams
- Part of PELAGIO
- Began on 2023-04-24 (24 days ago)
- Last Updated 2023-05-15 08:58:42
- Ongoing

Vehicle Activity

Vehicle	Last Update
• Zephyr	2023-05-15 08:58:42 (3 days ago) No Public Data Available



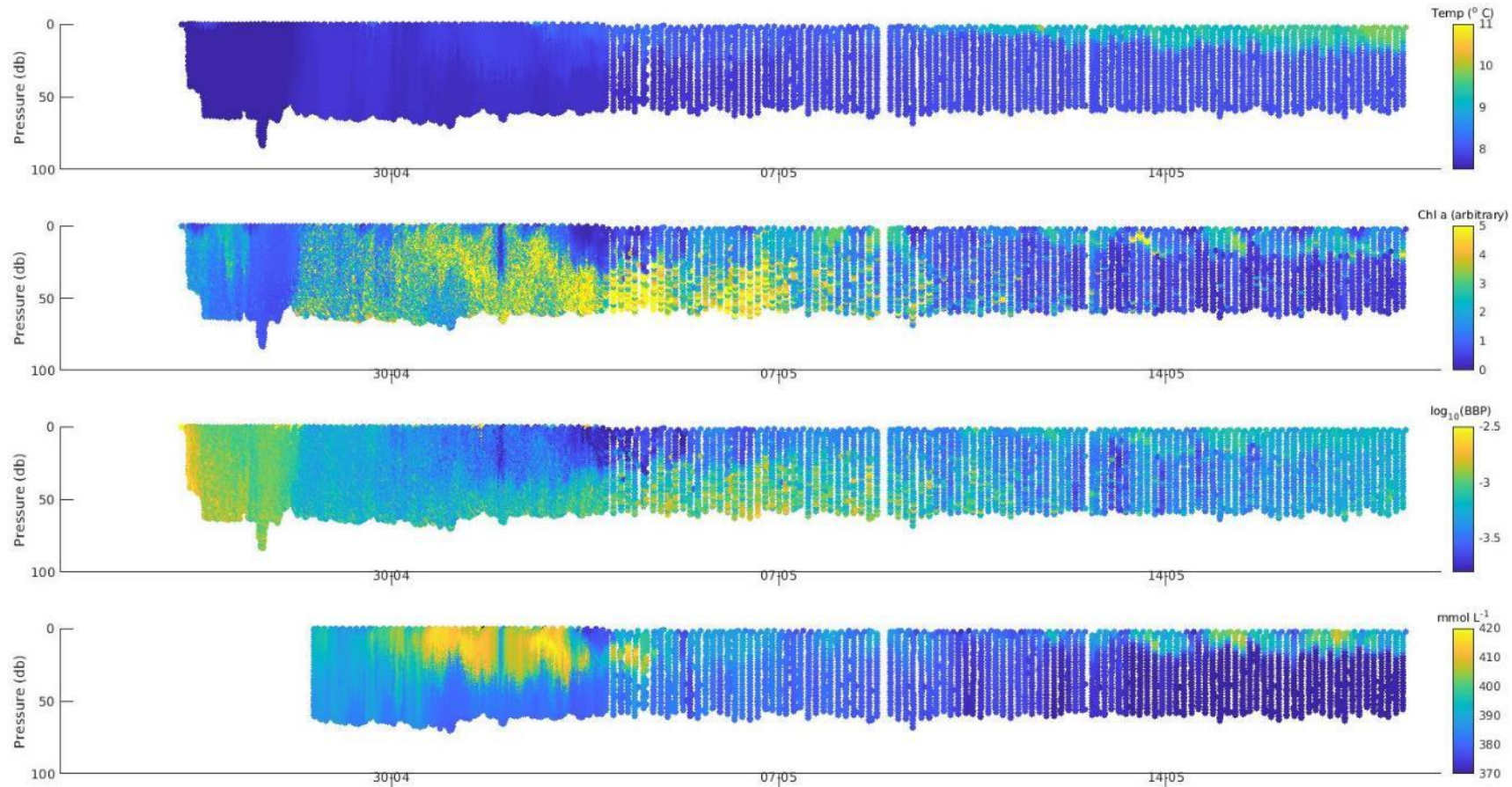
Data: unit_306 Zephyr (Microrider glider)



- Potential short-lived bloom at onset of stratification, indicated by enhanced fluorescence and oxygen.
- High backscattering in BML (log scale) indicates lots of 'stuff' in BML (spring tides 5th May combined with winds). Also shown in CTDs at onset of PELAgIO cruise.



Data: Churchill



- Potential bloom at onset of stratification, indicated by enhanced fluorescence and oxygen. SCM evident from this glider.
- High backscattering in BML (log scale) indicates lots of 'stuff' in BML (spring tides 5th May combined with winds).



ECOWind PELAgIO

Physics-to-Ecosystem Level Assessment of Impacts of Offshore Wind Farms



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Charlotte Williams, NOC

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Discussion on fieldwork risks and opportunities

Led by Chair



Q&A and DISCUSSION

12:10 – 12:20





Offshore
Wind Evidence
+ Change
Programme

Thanks and close

Olivia Thomas

Head of Marine Planning, The Crown Estate
