# The Offshore Wind Evidence and Change Programme

Impact Report 2026

Offshore Wind Evidence + Change Programme

HM Government

THE CROWN ESTATE

A peaceful coexistence
Credit: Lewis Michael Jefferies /UPY 2022

# Contents





Offshore Wind Evidence + Change Programme | HM Government | THE CROWN ESTATE

# The Crown Estate Foreword

The UK’s seas are becoming more important, and the demands on them are growing. They are central to our energy future, sustain important habitats and species, and support fishing, navigation, cables, defence and coastal communities. As demands on the seabed grow, the quality of the choices we make will matter more than ever.

**Gus Jaspert CMG**
Managing Director, Marine,
The Crown Estate

The Offshore Wind Evidence and Change Programme (OWEC) was established in December 2020 to support those choices. Through OWEC, The Crown Estate is investing £50 million, alongside contributions from partners, in evidence that supports better decisions and delivers practical impact. In practical terms, that means helping to make consenting faster, more proportionate and less exposed to risk, while strengthening the evidence that supports nature alongside offshore wind. Its role is to help build the confidence needed for the next phase of offshore wind: confidence in the evidence used in planning and consenting, in our understanding of environmental impacts, and in the ability to deliver clean energy alongside nature recovery and other uses of the seabed. As well as being an evidence programme, OWEC has become a community of practice. It brings together environmental NGOs, industry bodies, governments into a unique forum, helping to turn shared evidence into practical responses to the issues facing the sector.

Over the past five years, OWEC has supported work on many of the questions that matter most to the sector’s spatial interactions and integration. It has strengthened evidence on spatial planning, fisheries, strategic compensation, marine restoration, floating offshore wind and seabird assessment. The value of that work will be judged by how far it helps government, regulators, industry and environmental bodies to make informed decisions.

There are encouraging signs. OWEC-funded work is helping shape future use of the seabed through our **Marine Delivery Routemap**. Projects are improving spatial evidence on fisheries, restoration potential and ecological risk. Others are supporting more strategic approaches to marine net gain and compensation, and helping to build the evidence base for more proportionate assessment of offshore wind impacts.

The questions facing the sector are becoming more complex. Floating offshore wind will take development into new environments. Future leasing will require a clearer understanding of ecological, social and economic constraints. Consenting must remain robust and command public confidence, while being proportionate and well informed. The evidence landscape must also be easier to navigate and more effectively utilised, so effort can be directed where it will have the greatest effect. This is where the Offshore Wind Evidence and Knowledge Hub (OWEKH) comes in. Established through OWEC, it is our long-term contribution: an enduring home for evidence and shared understanding that will outlast individual projects and keep supporting better decisions as the sector evolves.

OWEC has also shown that evidence only delivers value when there is a clear route for it to be used. Findings need to be tested with the people who will rely on them, barriers need to be worked through, and responsibility for next steps needs to be clear. That is why the programme is so focused on impact, working closely with our projects to define clear pathways for turning project outputs into practical change.

As managers of the seabed and much of the coastline around England, Wales and Northern Ireland, The Crown Estate has a responsibility to take a long-term view in the national interest. Our investment in OWEC is part of that. It helps make the choices ahead clearer, better informed, and more collaborative.

We are grateful to everyone who continues to contribute their time, expertise and challenge to the programme. It began with a commitment to address shared challenges over the same space to enable the sustainable development of offshore wind, and it continues to deliver impact in line with that ambition. The next phase is about focus: using the resulting evidence to support critical decisions, targeting the gaps that matter most, and continuing to turn shared evidence into practical change.

# Ministerial Foreword

Offshore wind is the backbone of our clean power mission. After two fossil fuel crises in five years, one thing is clear: the more offshore wind we build, the more jobs we create, and the better we can protect the British people from volatile fossil fuel markets that we do not control

**Michael Shanks**
Minister for Energy, DESNZ

**Emma Hardy MP**
Minister of State, Defra

As we drive forward with more offshore wind through our upcoming renewables auction, we are clear that delivering clean, home-grown power and protecting nature must go hand in hand. That is why we are working closely to deliver the Offshore Wind Environmental Improvement Package, to unlock offshore wind while safeguarding our precious marine ecosystems.

As programme partners, the Department for Energy Security and Net Zero (DESNZ) and Department for Environment Food and Rural Affairs (Defra) are proud to support The Crown Estate's Offshore Wind Evidence and Change (OWEC) programme. OWEC plays a crucial role in bringing together industry, government, scientists and stakeholders to bridge knowledge gaps needed to accelerate the delivery of nature-positive offshore wind development. We look forward to seeing the programme's continued impact throughout 2027 and beyond.

"OWEC's greatest strength is its people. The commitment, collaboration and determination of our programme team, The Crown Estate technical teams, project teams, programme partners and steering group members have been the driving force behind everything the programme has achieved."

**Rachael Mills**
OWEC Programme Lead, The Crown Estate

Offshore wind turbine components being loaded at Blyth



Offshore Wind Evidence + Change Programme | HM Government | THE CROWN ESTATE

# OWEC: five years of evidence and change

## DECEMBER 2019

**Stakeholder workshop**

- 40+ organisations collaborate to define outcomes, priorities and planning.

## 2019

**Offshore wind and net zero ambitions are set**

- The Crown Estate commits to establishing a partnership to boost offshore wind and help achieve the UK's net zero goals by 2050.
- Offshore Wind Sector Deal launches, uniting industry and government to expand UK offshore wind power.

## SEPTEMBER 2020

**Inaugural Programme Steering Group** sets the programme's objectives and identifies key themes:

- Finding space for offshore wind.
- Understanding environmental impacts.
- Ensuring sensitivity to marine areas
- Investigating environmental benefits.

## DECEMBER 2020

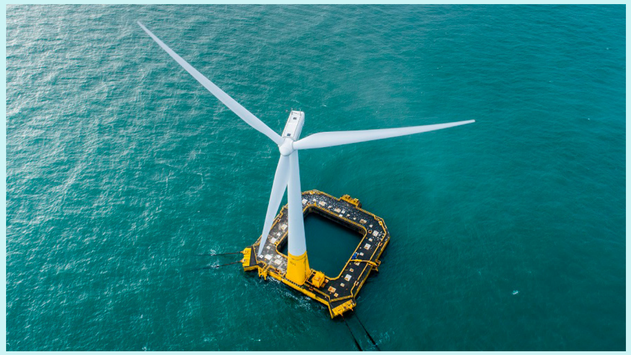
The Crown Estate **invests £25 million** to kickstart the programme. 26 organisations sign up to the Programme Steering Group.

## JUNE 2022

The Crown Estate **doubles its investment to £50 million.**

## DECEMBER 2023

**The Crown Estate launches Leasing Round 5 in the Celtic Sea**, with our engagement approach informed by OWEC project outputs



## JULY 2024

**Reviewing OWEC's impact**

An independent assessment of OWEC's value and impact across the industry finds:

- OWEC is recognised as highly valuable by industry
- Its agile model drives groundbreaking research
- Project impacts are enhanced by access to a broad stakeholder network through the Programme Steering Group.

## SEPTEMBER 2024

**Governance reset for greater impact**

Creation of a Technical Steering Group boosts cross-project collaboration alongside the Programme Steering Group.

Marine Delivery Routemap

**The Crown Estate publishes the Future of Offshore Wind report and sets out its approach to the Marine Delivery Routemap.**

- The Marine Delivery Routemap provides a collaborative, long-term tool for marine planning, supporting net zero, nature recovery and economic growth.
- OWEC data strengthens the evidence base behind the Marine Delivery Routemap and future leasing.



Offshore Wind Evidence + Change Programme | HM Government | THE CROWN ESTATE

## FEBRUARY 2025

Joint Nature Conservation Committee (JNCC) commence work to review the **Offshore Wind Environmental Evidence Register (OWEER)** to identify whether evidence gaps listed in it can be closed.

## SUMMER 2025

**ECOWind synthesis commences** to capitalise on opportunities by bringing together data and models across the projects

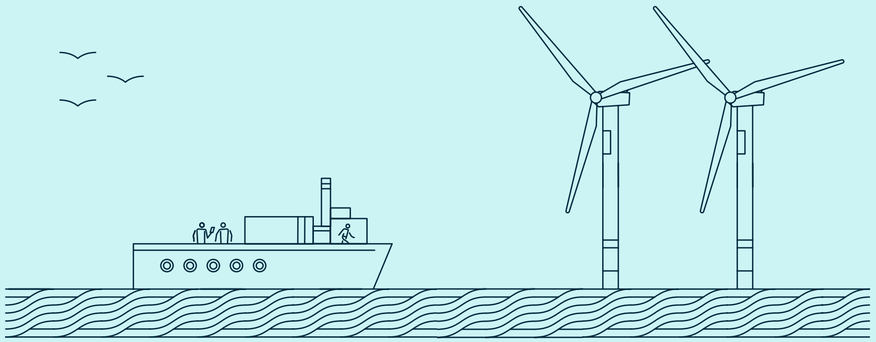
## NOVEMBER 2025

Offshore Wind Evidence + Knowledge Hub (OWEKH) publishes Evidence Review Note on Environmental Impact Assessment.

## DECEMBER 2024

**Project impact review**

A comprehensive review standardises impacts, defines actions and ensures continuous monitoring.



## FEBRUARY 2026

OWEKH publishes Evidence Review Notes on Shipping & Navigation and Seascape, Landscape & Visual

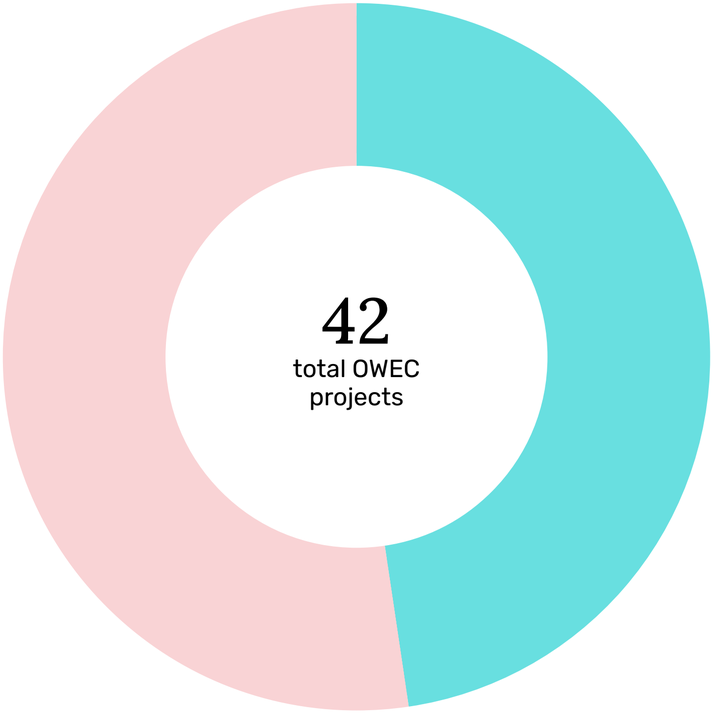
## MARCH 2026

**The Crown Estate announces its intention to launch Round 6** in the first half of 2027. Evidence from OWEC projects has been incorporated into the Marine Delivery Routemap, helping to define areas of search and ultimately the project development areas that will be offered to the market

## JULY 2026

OWEKH publishes Evidence Review Notes on Offshore Air Quality and Offshore Major Accidents and Disasters.

### The portfolio currently covers:




**20** completed projects

**22** live projects



Offshore Wind Evidence + Change Programme | HM Government | THE CROWN ESTATE

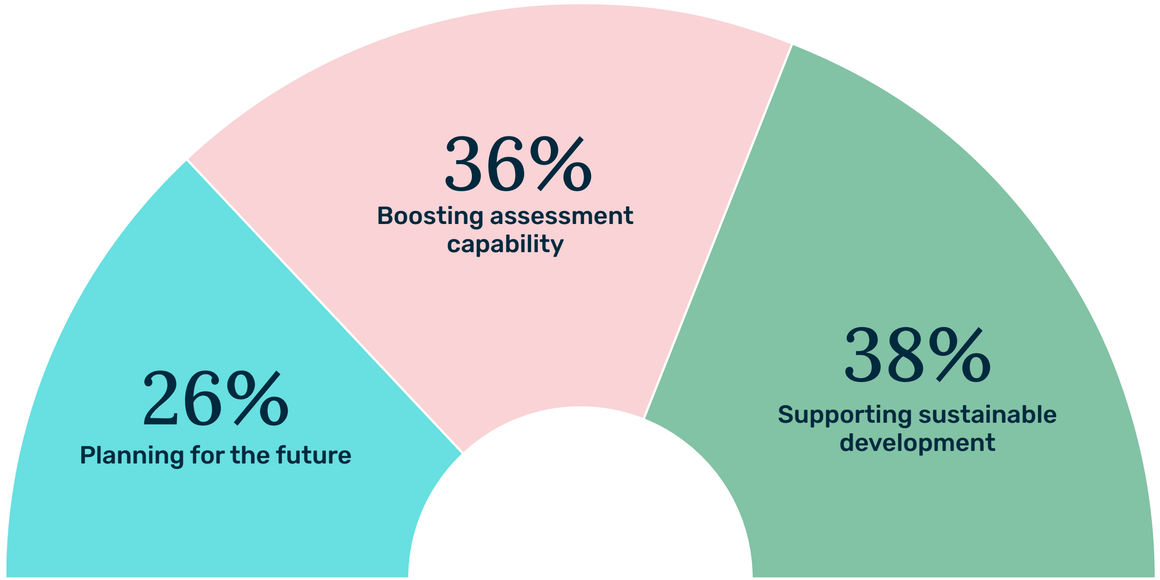
# Where OWEC is driving change

The OWEC Programme has been running for just over 5 years and has funded a total of 42 projects targeted at improving our understanding of the interactions between offshore wind and the marine environment.

The programme represents a step change in the resources and commitment to marine evidence. The £50m investment from TCE has been almost doubled by partner contributions of £2 million and in-kind contributions such as the use of general and specialist staff time, survey vessels or access to data, valued over £30 million. OWEC is delivered in partnership with Defra and DESNZ as a highly collaborative programme which engages UK and devolved governments, regulators, SNCBs, academia, NGOs and industry. The programme has also helped leverage wider research investment supporting £16.75m of investment into Natural Environment Research Council (NERC) programmes which are advancing understanding of how fixed and floating offshore wind interact with the marine environment.

The 'change' aspect of 'Offshore Wind Evidence and Change' is central, giving us an emphasis on delivering impact. The impacts the programme deliver cover key issues that the Offshore Wind sector, including where future development should take place, how environmental effects are assessed, how unavoidable impacts can be managed or compensated for, and how evidence can be made more usable for those taking decisions. Our Technical Steering Group that meets 3 times a year, focused on ensuring that project intended impacts are relevant and that the actions needed to deliver these impacts are achievable.

By contributing to the Ecological Consequences of Offshore Wind (ECOWind) and Ecological Effects of Floating Offshore Wind programme (ECOFlow) Programmes, OWEC together with NERC are also delivering major research initiatives taking a holistic, ecosystem approach to understanding the interactions between offshore wind (fixed and floating) and the marine environment.






Offshore Wind Evidence + Change Programme | HM Government | THE CROWN ESTATE

OWEC's projects have already had some key successes: NFFO's Virtual Wind Farm Planning project, which helped us to develop best practice for fisheries engagement, informed our approach to Leasing Round 5. Evidence from POSEIDON is being considered within broader consenting risk and spatial planning discussions for Leasing Round 6. Analysis from the Scottish Government's PrePARED project was incorporated into JNCC's review of Effective Deterrent Ranges (EDR) - informing updated guidance used to assess noise disturbance impacts on harbour porpoise in Marine Protected Areas. Following the updated guidance, the EDR for unabated monopiling was reduced from 26km to 20km, reducing the disturbed area assumed per pile installation and increasing the scope for construction activity while remaining within daily disturbance thresholds. This guidance, which is now in effect, could mean that twice as many piles can be installed per day in the Southern North Sea without exceeding disturbance thresholds.

OWIC's Strategic Compensation Studies (SCS) project has provided real-world evidence on the practicality of delivering strategic compensation, with early findings from the project on compensatory measures for seabirds being used to inform the measures proposed by four recent offshore wind projects - enabling up to 5.3GW of new capacity. Historic England's "MDE Heritage Accelerator project" has been recognised by the UN as supporting the Ocean Decade

Photo: © Kirsty Andrews, highly commended Underwater Photographer of the Year, 2026

"Our investment in OWEC is supporting better choices for the long-term future of the seabed. By working with partners, we can build the evidence needed to support clean energy, nature recovery and other users of the sea. That evidence is already feeding into the Marine Delivery Routemap and helping to shape Round 6, as well as strengthening the basis for future leasing."

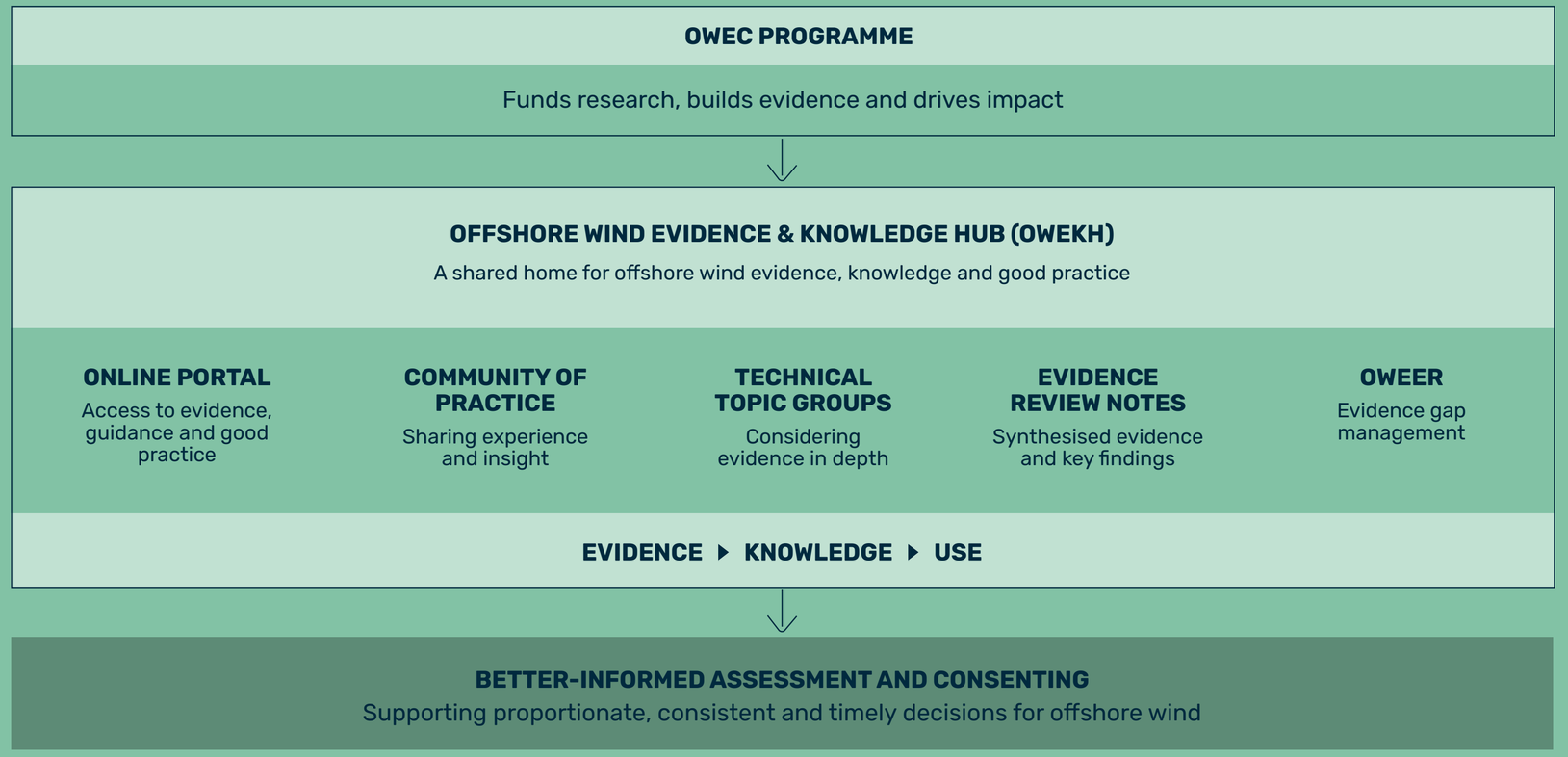
**Olivia Thomas**
Head of Planning & Technical, The Crown Estate

# The OWEKH and OWEER

OWEC established both the Offshore Wind Evidence and Knowledge Hub (OWEKH) and the Offshore Wind Environmental Evidence Register (OWEER) during the early stages of the programme as key enablers for the programme's activities –deciding which research opportunities to explore (OWEER) and debating and sharing research outputs (OWEKH).

OWEER provides a register of prioritised environmental evidence gaps and research projects, covering seabirds, marine mammals, fish, benthic habitats and wider ecosystem effects. The new digitalised "front end" for OWEER is available on the **OWEKH portal**. OWEKH supports the consenting process for offshore wind projects by providing a sector-wide online portal supporting a single point of access to data and information including the latest guidance and best practice documents.

The portal and the governance associated with it will collectively connect stakeholders across the industry and facilitate the assimilation of data and information into knowledge tools (guidance or statements of understanding). This coordinated approach will support impact assessments and consenting decisions by providing consistent and clear direction to support rapid high-quality consenting. Our goal is to support sustained and accelerated sustainable growth in generation of offshore wind energy






Offshore Wind Evidence + Change Programme | HM Government | THE CROWN ESTATE

# Impact: from evidence to action and change

The challenges facing the sector include identifying sites that are both technically and environmentally deliverable, reducing uncertainty in environmental assessment without weakening safeguards, and ensuring that nature-positive outcomes can be delivered at scale rather than project by project. Equally important is ensuring that the complex evidence needed to support decisions is accessible and usable.'

**To learn more, click on any project title**

OWEC is focused on these priorities, targeting areas where improved evidence can remove barriers to delivery and facilitate more informed decisions to address consenting and planning challenges. The principal system level processes we are seeking to support and enable through project impact include.

**Planning for the future:**
Enhancing the data available to decision-makers and developing tools to help us plan the deployment of future offshore wind

**Boosting assessment capability:**
Designing new assessment methods and enhancing existing ones to provide decision makers with greater certainty.

**Supporting sustainable development:**
Improving the evidence base to support minimising and compensating unavoidable impacts caused by offshore wind.

OWEC was established to support the expansion of offshore wind while maintaining healthy seas, creating benefits for both the sector and the natural environment. Its focus is on helping to de-risk the consenting process for offshore wind by delivering data, knowledge, and tools to enhance our understanding and provide greater certainty about the interactions between offshore wind and the marine environment.

Kelp on Infralittoral rock, Bonchurch, Isle of Wight, South Wight Maritime SAC. Credit: © Theo Vickers Photography



Offshore Wind Evidence + Change Programme
HM Government
THE CROWN ESTATE

Realising that goal requires more than simply producing more evidence. New techniques and findings often need to be tested, validated and combined before they can inform decisions. OWEC works with project partners and a multi stakeholder Steering Group to ensure outputs are taken through that process and translated into impact. Collaboration is critical to impact delivery. Our Technical Steering Group plays a central role shaping how impacts will be delivered, identifying who needs to be engaged and responsible for impact delivery, and advising how we navigate challenges to achieving the changes our projects are striving to deliver.

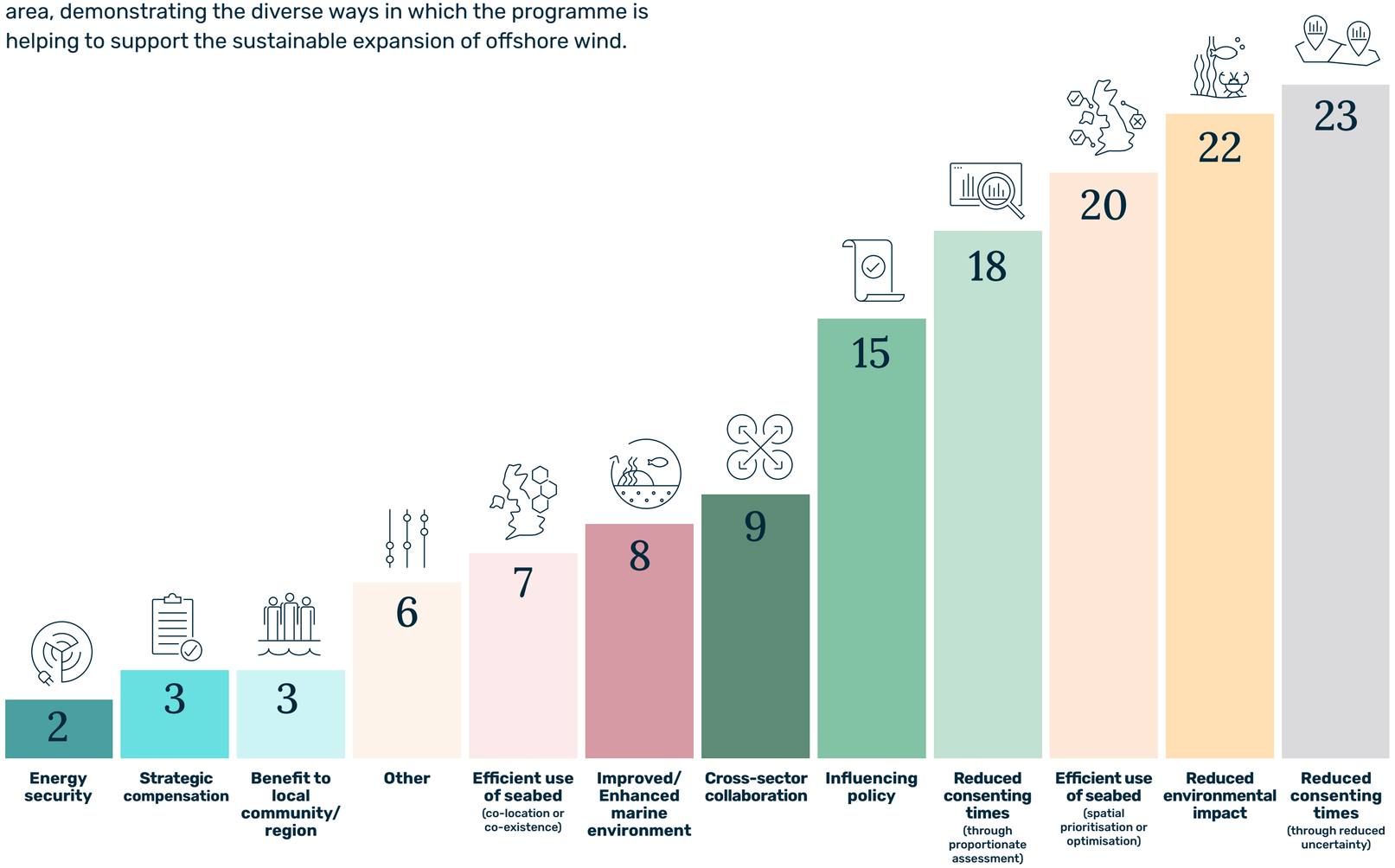
Early and sustained engagement with evidence users is critical. Projects are designed to involve the organisations most likely to apply the outputs, helping to ensure that findings are relevant and usable. OWEC projects each define a clear Impact Pathway, setting out the intended change and the actions required to achieve it, during and beyond the life of the project. This includes working with the organisations responsible for implementation to resolve barriers and support adoption where needed.

"Impact is central to OWEC. We ensure our research adds more than knowledge. By turning insights from projects into practical outcomes, we strengthen the foundations for policy and decisions, supporting offshore wind to grow sustainably."

**Sean Jamshidi**
Evidence & Impact Manager, The Crown Estate

## Expected impacts by category

Every OWEC project is linked to one or more intended impacts. This chart shows the number of projects contributing to each impact area, demonstrating the diverse ways in which the programme is helping to support the sustainable expansion of offshore wind.






Offshore Wind Evidence + Change Programme
HM Government
THE CROWN ESTATE

# Planning for the future

## Spatial planning is becoming more challenging. We need to optimise the use of the marine environment to deliver economic growth and clean power, while protecting nature.

As demand on the seabed and coastline increases, a long-term, systems-led and holistic approach is needed to effectively manage competing priorities. This requires clearer understanding of environmental limits, cumulative effects and interactions with other users of the sea, including fisheries, shipping and nature recovery.

The OWEC programme includes projects designed to bolster the data and methods used to identify where future offshore wind sites could be placed. Outputs feed directly into the **Marine Delivery Routemap**, The Crown Estate's digital tool for the seabed and coastline around England, Wales and Northern Ireland that can dynamically model and map the potential use scenarios over coming decades. Over time, this will support a more coordinated approach to planning the future of offshore wind.

The projects presented in this section represent approximately 12% of the OWEC portfolio.

### Marine Restoration Potential Mapping + enhancement (MaRePo+) - led by Natural England ▸

Habitat restoration is the process of supporting ecosystem recovery where it has been damaged. Identifying areas where restoration may be feasible is a major step in targeting activities to deliver the greatest environmental benefits. MaRePo+ has built on the MaRePo pilot study. Both studies were funded by OWEC and together they have mapped climate change hotspots, as well as mapping hard and soft constraints that may influence the successful delivery of a habitat restoration project.

The guidance delivered by this project can support strategic marine recovery, strategic compensation and nature positive planning. Habitat suitability models from MAREPO+ are being used in The Crown Estate's Marine Delivery Routemap to help identify areas with strong potential for habitat restoration and nature recovery. These layers are used to identify potential areas for the restoration of kelp, native oyster, horse mussel beds, and seapens and burrowing megafauna habitats.

**To learn more, click on any project title**

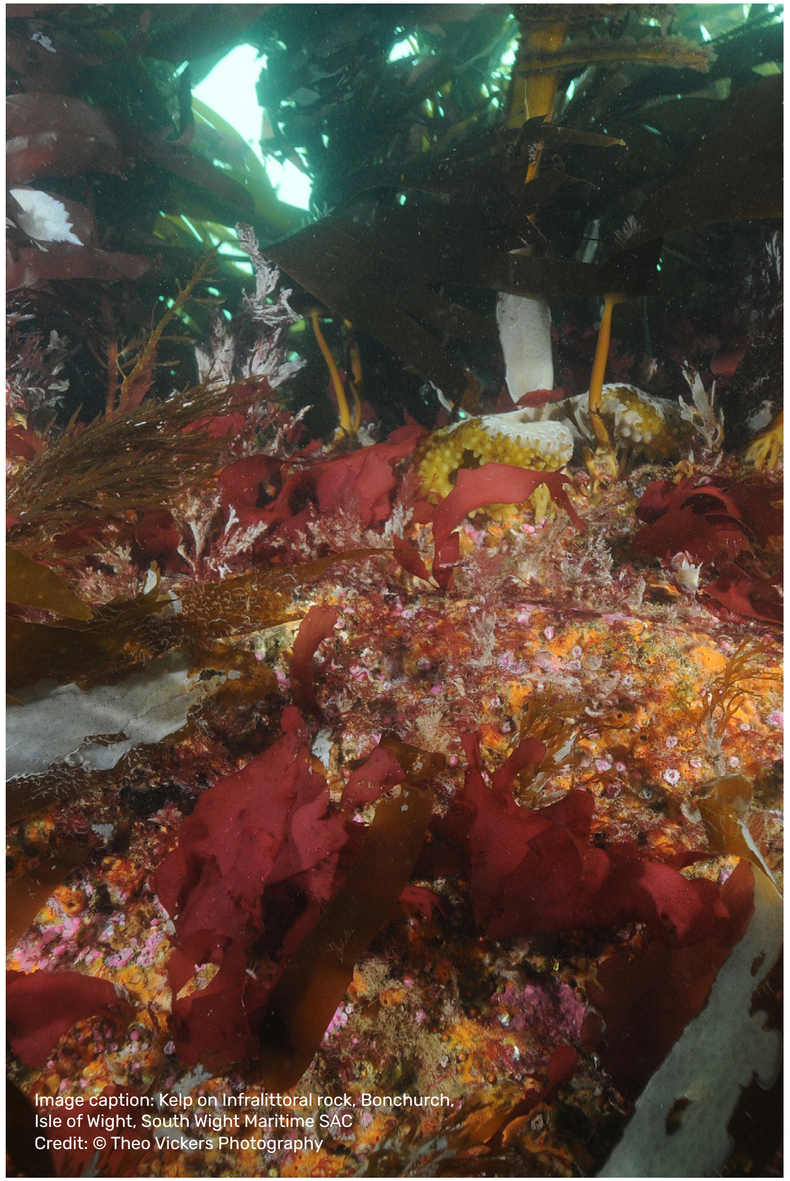


Image caption: Kelp on Infralittoral rock, Bonchurch, Isle of Wight, South Wight Maritime SAC
Credit: © Theo Vickers Photography

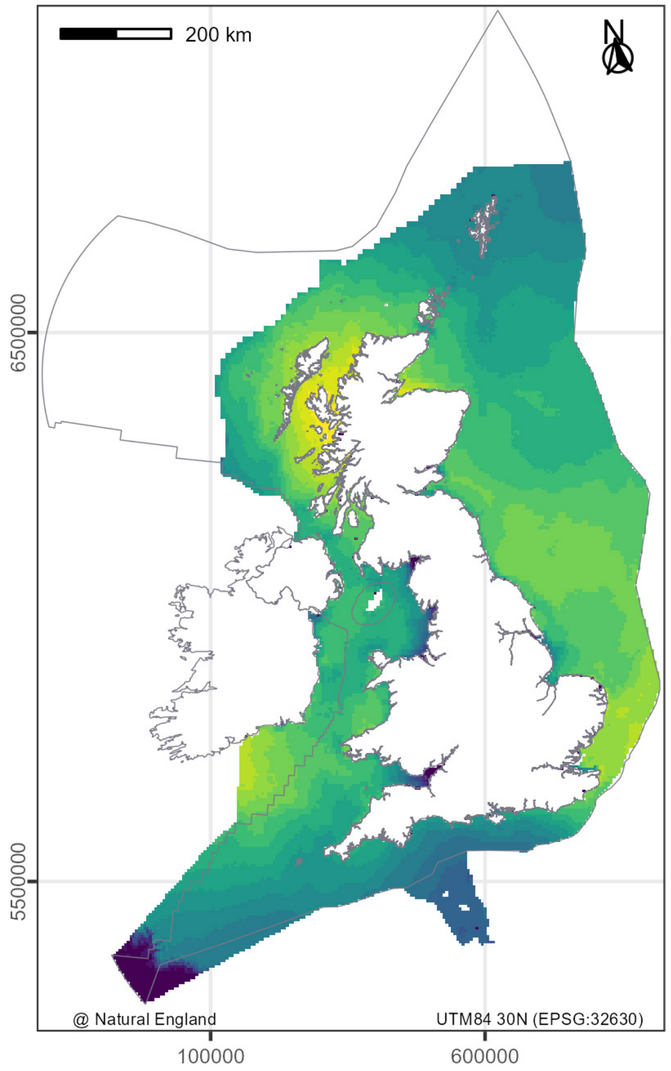


Offshore Wind Evidence + Change Programme
HM Government
THE CROWN ESTATE

## Planning Offshore Wind Strategic Environmental Impact Decisions (POSEIDON) - led by Natural England ▸

There is a high demand for spatial data on marine mammals, birds, and benthic habitats, which can be patchy or disjointed. The POSEIDON project brought together existing information and collected new data through two years of aerial surveys capturing images of almost 60,000 seabirds and more than 5,000 marine mammals, and grab sampling over 800 samples on the seabed to identify which habitats exist in different areas.

It produced maps showing species distribution, survey coverage, confidence levels and potential ecological or consenting context for 20 seabird species, 5 marine mammal species, and the benthic environment. In total, more than 13,000 map layers have been produced, creating comprehensive spatial data to inform future decisions through the **Marine Delivery Routemap**. Evidence from POSEIDON is being considered within broader consenting risk and spatial planning discussions for Leasing Round 6. Species distribution maps will also prove useful more generally, beyond offshore wind and Routemap




POSEIDON (Paxton,C.G.M, McNie,F.M, Banks,A.N, Burt,M.L, Evans,P, Waggitt,J, et al, 2026). Coastlines from https://www.naturalearthdata.com. Plots FMc.2026-07-04 CP2 data (OGL) https://jncc.gov.uk/resources/86a761a7-8564-4c22-9ddb-ee1d0aa50003

Harbour porpoise ecological risk map developed through the POSEIDON project

## Fisheries Sensitivity Mapping and Displacement Modelling (FiSMaDiM) - led by Cefas ▸

The FiSMaDiM project has mapped commercial fishing activity for vessels over 12m across UK waters, identifying areas of economic importance and modelling potential displacement and economic impacts from offshore wind. Layers produced by the FiSMaDiM project are now being used in the **Marine Delivery Routemap** and NESO's Strategic Spatial Energy Plan to identify areas that are important for commercial fishing.

OWEC has also supported additional work to ensure the long-term usability of the FiSMaDiM tool and is funding Cefas and Seafish to carry out user analysis which will identify how the tool should be maintained in the long term, and further industry validation work to test the maps with fishers to ensure views are represented at a local as well as a national level.

"It was a great experience to lead FiSMaDiM. It allowed us to work with the industry and policy and to start the discussion on how fisheries should and could be included into marine spatial planning."

**Angela Muench**
Principal Fisheries Economist, Cefas.



Offshore Wind Evidence + Change Programme
HM Government
THE CROWN ESTATE

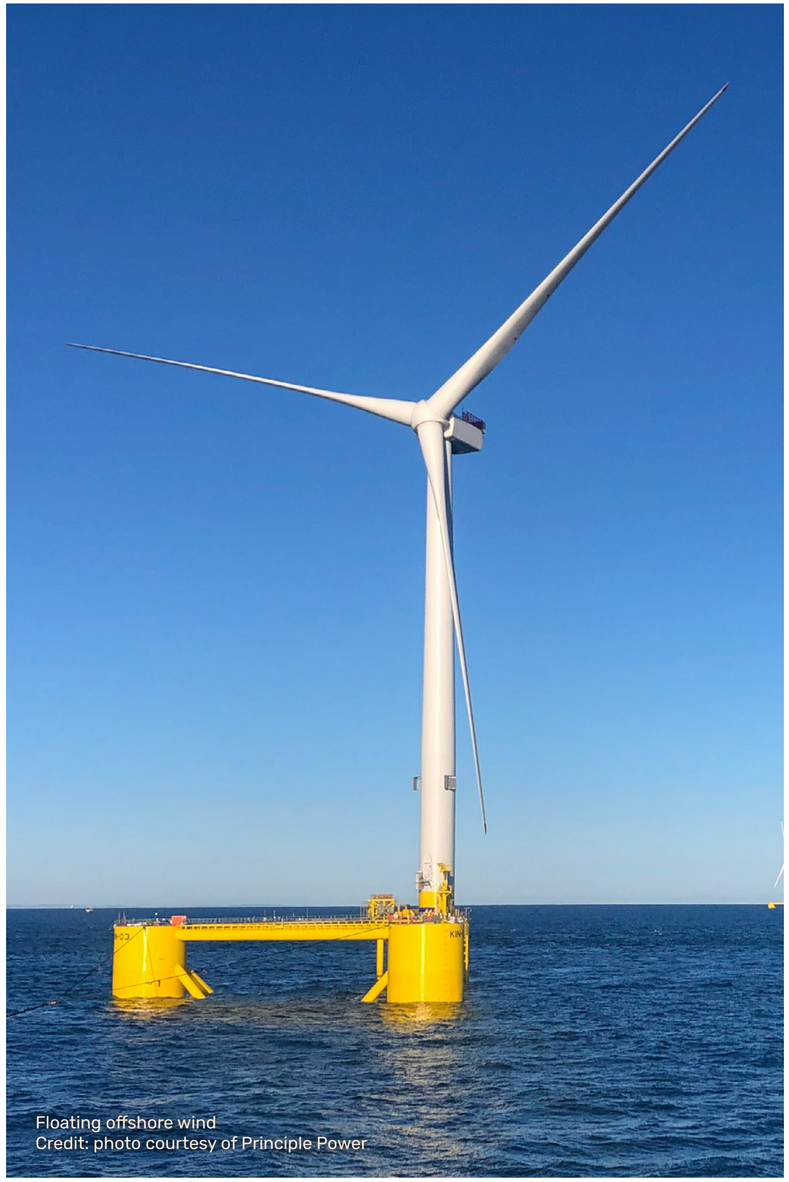
### Impacts of FLOW on Celtic Sea Ocean Fronts and Biodiversity (Frontline) - led by Heriot-Watt University ▸

ECOFlow's Frontline project will deliver new insights into the way in which FLOW development could have ecosystem-level impacts. Using novel sampling technology, the project will explore how FLOW developments affect ocean fronts and the resulting influences on the ecosystem including fish and seabirds.

### Quantifiable Evidence and Impact of Ecosystem Change Throughout the Lifecycle of UK Floating Offshore Wind Farms (EQUIFy) - led by Plymouth Marine Laboratory ▸

ECOFlow's EQUIFy project will establish a framework for evidence to enhance our understanding of how future floating offshore wind development interacts with the marine environment, with a focus on the planned development in the Celtic Sea.

The project team have collaborated and contributed to the development of the marine spatial planning tool, ASPACE. Now publicly available, ASPACE is a spatial prioritisation tool to support strategic spatial planning by helping users explore spatial challenges, understand the options that may be available and identify opportunities for different marine industries to coexist.



Floating offshore wind
Credit: photo courtesy of Principle Power

### Benthic-Offshore Wind Interactions (BOWIE) - led by University of Southampton ▸

ECOWind's BOWIE project is enhancing understanding of how offshore wind, alongside other seabed pressures and climate change, affects benthic habitats, invertebrates and fish communities. Combining environmental and social research, seabed engineering, autonomous monitoring, machine learning and climate/ecosystem modelling, it examines consequences for biodiversity, carbon sequestration, nutrient cycling and ecosystem function. BOWIE is integrating engineering, ecological, social and economic evidence into novel decision-support tools for sustainable offshore wind planning, marine recovery and net gain.

"OWEC is helping us build a shared understanding of the evidence we have, the gaps that remain and the questions that matter most, so we can focus our efforts where they will make the greatest impact"

**Gareth Johnson**
Marine Data & Insights Director, The Crown Estate



Offshore Wind Evidence + Change Programme
HM Government
THE CROWN ESTATE

# Boosting assessment capability

A vital step in identifying the right places for offshore wind is understanding what development could mean for the marine environment and for other users of the sea. These can affect birds, marine mammals, fish and seabed habitats, as well as activities such as fisheries and navigation.

Many OWEC projects aim to provide the evidence and knowledge to better understand the many interdependencies in the marine environment. This will help decision-makers build a clearer picture of potential impacts and support more informed, proportionate decisions about where and how offshore wind is developed.

The projects presented in this section represent approximately 21% of the OWEC portfolio.

### Displacement in the Non-Breeding Season (DisNBS) - led by The Carbon Trust, through ORJIP Offshore Wind ▸

Understanding how offshore wind affects birds during the non-breeding season is a long-standing evidence gap in offshore wind assessments. During the non-breeding season, birds travel much further than during the breeding season, and can mix between colonies. This makes it much harder to predict how many seabirds are likely to be impacted by a particular wind farm, and particularly for displacement impacts, which are difficult to measure and monitor.

DisNBS delivers a framework for developing models to assess non breeding season impacts from displacement. The project built a model that predicts the time and energy used by seabirds during the non-breeding season, and translates these into projections of adult annual survival and productivity. These models can then be populated with data for different species.

Two species have been modelled to date (the guillemot and the red throated diver) and OWEC is working with the Carbon Trust and SNCBs to understand what more is needed before the framework can be adopted more widely. This work will support more ecologically-realistic assessments through the use of robust, validated evidence.

**To learn more, click on any project title**

### Predators and Prey Around Renewable Energy Developments (PrePARED) - led by Scottish Government Marine Directorate ▸

This project concurrently studies predator (seabird and marine mammal) and prey (fish) distribution and behaviour in and around offshore wind farms, providing critical insight into cumulative effects from large scale development for key species.

An example of how this project is increasing understanding of seabird impacts is through the development of the SeabORD tool, which assesses breeding season impacts from displacement and barrier effects on seabird breeding success and subsequent overwinter survival. This tool could bring additional biological realism to assessments

A red-throated diver

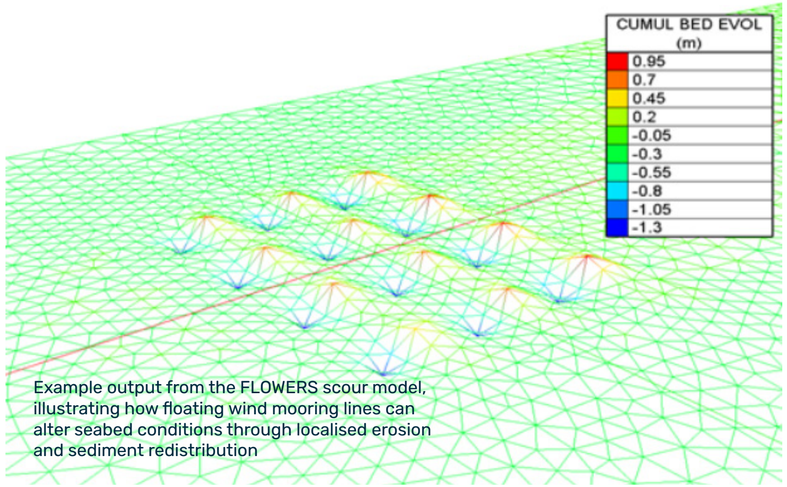


Offshore Wind Evidence + Change Programme
HM Government
THE CROWN ESTATE

## Floating Offshore Wind Environmental Response to Stressors (FLOWERS) - led by Cefas ▸

Building on previous OWEC work (**EMF Modelling Workshop**), the project has created modelling frameworks that can be used in EIA scoping and assessment for floating offshore wind. This includes modelling of scour (how FLOW mooring lines affect the seabed conditions) and electromagnetic fields research (measuring EMFs from subsea cables, and a framework for strategic assessment of impacts on fish). It has also developed an integrated approach for comprehensive environmental impact assessments to understand how impacts may interact with each other.

CEFAS are sharing outputs with stakeholders in government and industry. To ensure the outputs of this project can be used in impact assessment, further work will be required to compare modelled data with field data.




Example output from the FLOWERS scour model, illustrating how floating wind mooring lines can alter seabed conditions through localised erosion and sediment redistribution

One of three target arrays set-up either side of the runway at Predannack airfield
Credit: Andrew Harwood, Natural England

## Reducing Seabird Collisions Using Evidence (ReSCUE) - led by Natural England ▸

ReSCUE seeks to provide a better understanding of the flight heights of seabirds and their vulnerability to collision with offshore wind turbines by improving the way we collect, interpret, and use seabird flight height data. Better quality data, and reduced uncertainty, will provide increased confidence in offshore wind impact assessments. It will also inform ways to mitigate impacts thereby ensuring that seabird conservation is a key consideration in the deployment of offshore wind.

## Subsea Soundscape - led by Offshore Renewable Energy Catapult ▸

This project will pioneer a new regional framework in the Celtic Sea to provide valuable insights into existing underwater noise conditions and marine mammal presence. It will involve extensive long-term passive monitoring study to create an acoustic ‘soundscape’ to support a regional characterisation of marine mammal distribution. Understanding these baseline conditions will support with future environmental assessments for new floating offshore wind in the region.


Support vessel for the subsea soundscape project



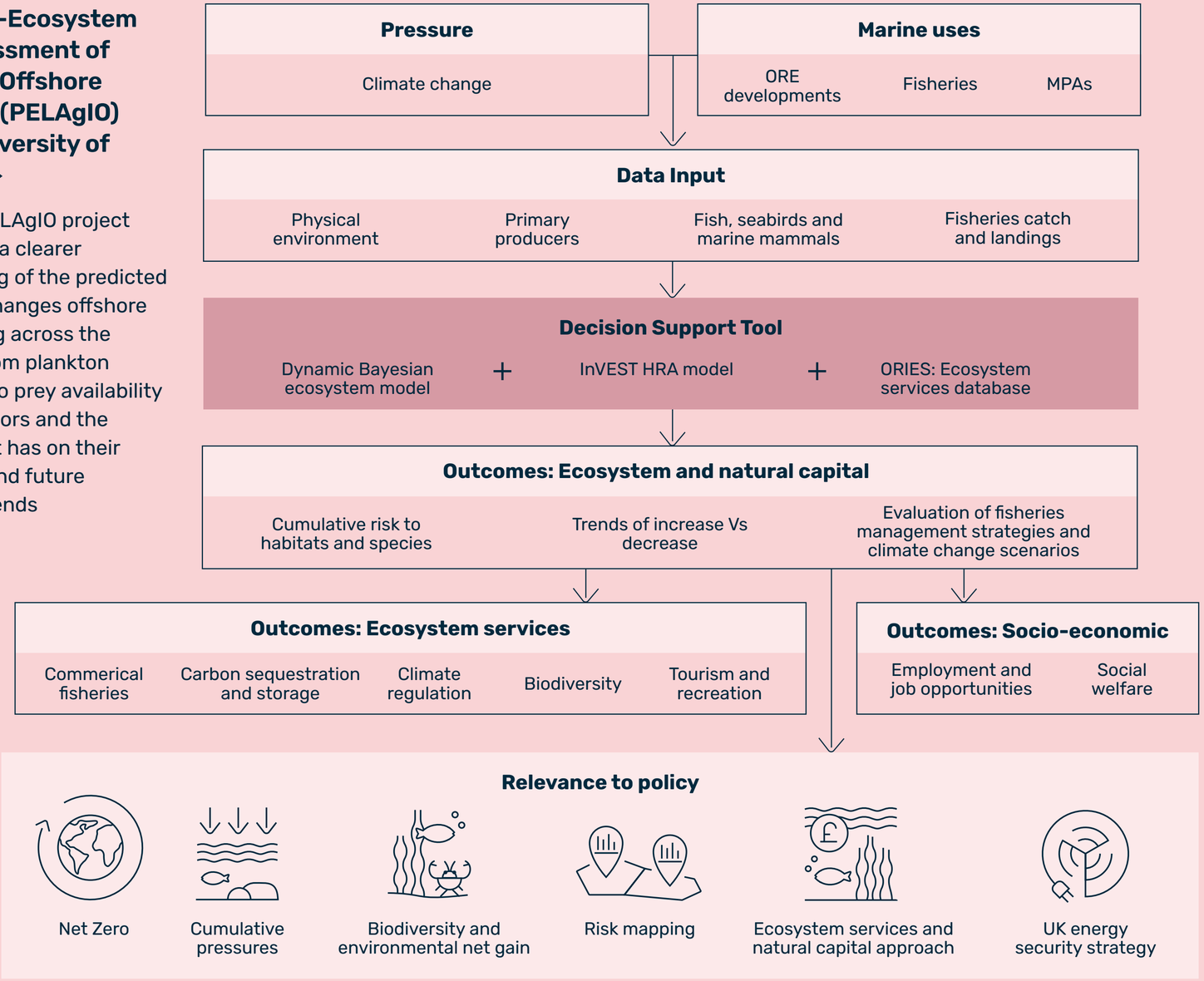
Offshore Wind Evidence + Change Programme
HM Government
THE CROWN ESTATE

## Ecological Implications of Accelerated Seabed Mobility around Windfarms (ACCELERATE) - led by Bangor University ▸

ECOWind's ACCELERATE project is investigating how both climate change and turbine foundations affect natural ocean currents, and the influence these changes have on the seabed, on the animals that live there and on the seabirds that dive to the seabed for their food.

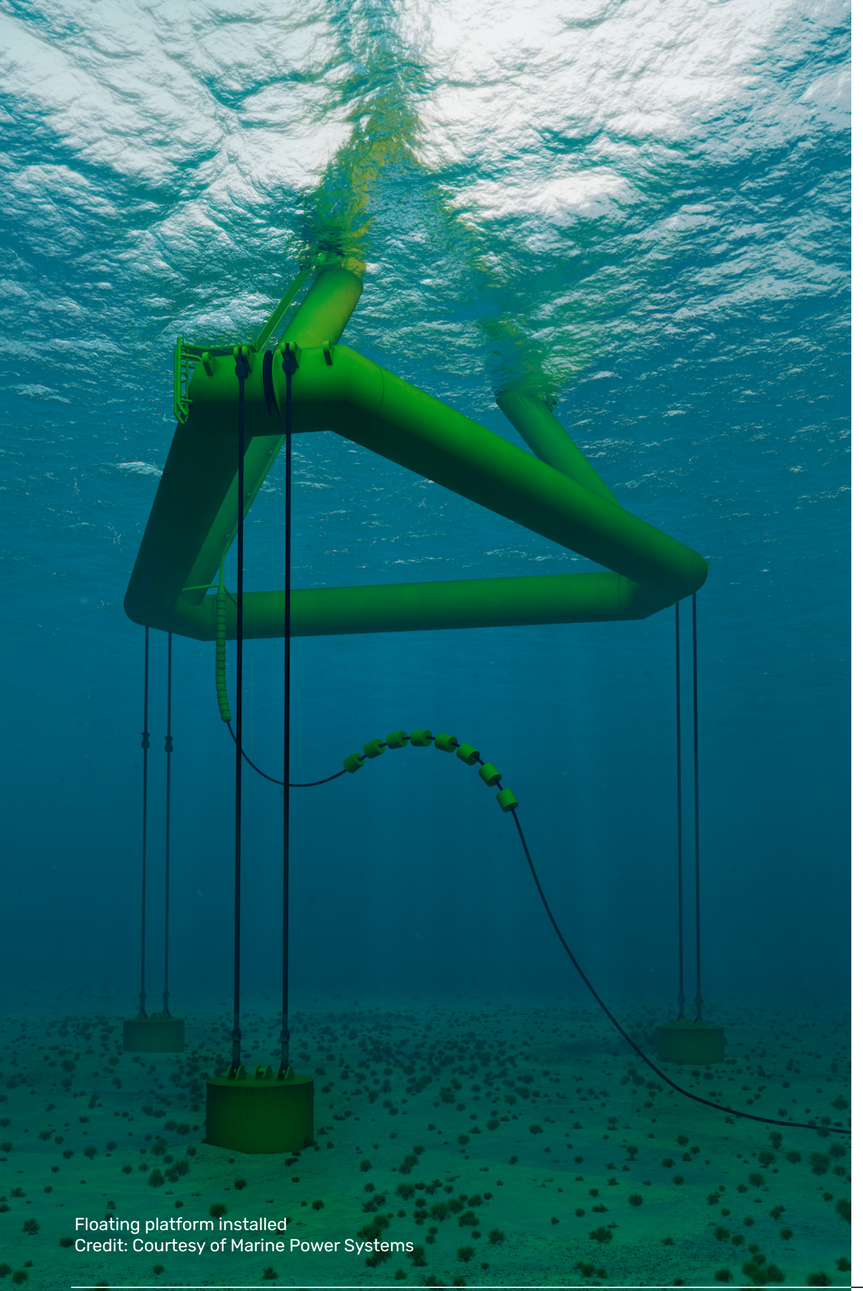
## Physics-to-Ecosystem Level Assessment of Impacts of Offshore Windfarms (PELAgIO) - led by University of Aberdeen ▸

ECOWind's PELAgIO project is developing a clearer understanding of the predicted cumulative changes offshore wind will bring across the food chain from plankton productivity to prey availability for top predators and the influence that has on their distribution and future population trends






Offshore Wind Evidence + Change Programme | HM Government | THE CROWN ESTATE



Floating platform installed
Credit: Courtesy of Marine Power Systems

## Floating Offshore Wind Noise Measurement, Interpretation and Tools (FLOWN-MIT) - led by Offshore Renewable Energy Catapult ▸

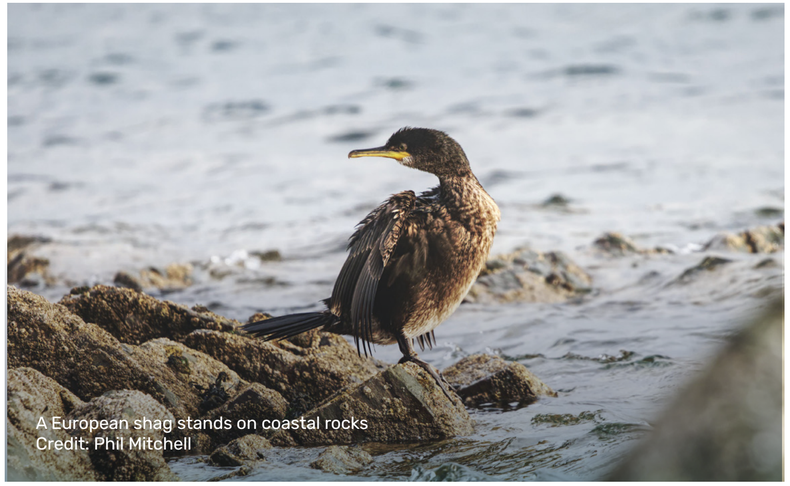
Underwater noise is a key consideration in the environmental impact assessment of offshore wind projects, but there is less evidence available for floating offshore wind than for bottom-fixed offshore wind. FLOWN-MIT is measuring, analysing, and modelling underwater noise from floating wind infrastructure, with a particular focus on spar buoy and semi-submersible platforms operating under real-world conditions.

FLOWN-MIT is investigating the various noise sources that contribute to the underwater acoustic profile of floating offshore wind turbines. It is also evaluating the role of design decisions and innovations in influencing underwater noise, while developing a framework of recommendations for assessing underwater noise at the consenting stage and across the lifecycle of floating offshore wind arrays.

## Prevalence of Seabird Species and Collision Events in Offshore Windfarms (PrediCtOr) - led by The Carbon Trust, through ORJIP Offshore Wind ▸

Reducing uncertainty around seabird collision risk is a key issue for offshore wind consenting. A lack of coordinated monitoring methodology and insufficient empirical data mean collision risk predictions can carry a high level of uncertainty. PrediCtOr is developing a co-ordinated approach to reducing uncertainty around bird collision risk and the factors that influence it.

PrediCtOr brings together data from multiple offshore wind farms to develop an analytical framework that can integrate evidence from different monitoring campaigns and help understand key drivers of exposure to bird collision risk. It has also published best-practice guidance on data collection and equipment installation for seabird collision monitoring, helping future monitoring campaigns produce more comparable evidence. The project is now working on the development of a roadmap to accelerate the commercial acceptance of seabird collision detection systems for offshore use.



A European shag stands on coastal rocks
Credit: Phil Mitchell



Offshore Wind Evidence + Change Programme
HM Government
THE CROWN ESTATE

# Supporting sustainable development

The process of developing offshore wind farms requires a thorough assessment of potential impacts on the environment and other sea users, both positive and negative. As part of these assessments, developers must detail steps taken to avoid, mitigate or compensate for negative impacts.

OWEC projects help inform all stages of this hierarchy across prevention, reduction, and compensation. As the pipeline of offshore wind development grows, there is an increasing need for developers, Government and stakeholders to be able to take a more coordinated and strategic approach to identifying and delivering any required environmental mitigation and compensation measures. A strategic approach is important because it allows for this to be planned and delivered at scale, across multiple projects, improving both ecological outcomes and the efficiency of offshore wind consenting.

The projects presented in this section represent approximately 10% of the OWEC portfolio.

### Unexploded ordnance clearance trials - led by Department for Environment, Food and Rural Affairs (Defra)

This is a Defra-led project, in partnership with National Physical Laboratory (NPL), to test quieter alternatives unexploded ordnance (UXO) clearance technologies as an alternative to high order detonation. The project delivered technical reports that document the results of the quarry trials, including effectiveness and acoustic performance of each technology. The data collected will be made available for the wider offshore wind and Explosive Ordnance Disposal (EOD) community.

### Ecosystem Change, Offshore Wind, Net Gain and Seabirds (ECOWINGS) - led by UK Centre for Ecology & Hydrology ▸

ECOWind's ECOWINGS is transforming the evidence base on the cumulative effects of offshore wind on key seabird species including kittiwakes, guillemots, razorbills and puffins. The project is establishing pathways for strategic compensation for seabirds and the wider marine ecosystem. ECOWINGS is also delivering insights to ensure that the assessments of offshore wind effects, and associated compensatory measures, are robust to future projections of climate change.

**To learn more, click on any project title**

### Strategic Compensation Studies (SCS) - led by Offshore Wind Industry Council ▸

OWIC's Strategic Compensation Studies (SCS) project is expected to shift the dial on a key consenting challenge for offshore wind. It will support nature by ensuring that impacts on protected species and habitats are effectively compensated for. It will also inform Government policy by providing valuable lessons learned to support delivery of strategic compensation measures via the Marine Recovery Fund. This includes work on avian predation, building evidence on whether reducing predator pressure at seabird colonies could support future strategic compensation measures.

Early findings from the project on compensatory measures for seabirds have been used to inform compensation measures proposed by four recent offshore wind farms (Outer Dowsing, North Falls, Five Estuaries, and Dogger Bank South), together enabling up to 5.3 GW of new capacity.

Carrion crow disturbance photographed as part of the Strategic Compensation Studies avian predation monitoring work.
Credit: GoBe



Offshore Wind Evidence + Change Programme
HM Government
THE CROWN ESTATE

## Strategic Marine Net Gain - led by The Seabed User and Developer Group ▸

The T&F Group is a coalition of The Crown Estate, SUDG, marine industries, conservation organisations, Statutory Nature Conservation Bodies (SNCBs), Defra and environmental consultancies. Since 2021 they have focused on Marine Net Gain (MNG) policy and delivery options. The Group recently concluded the third phase of work, entitled “Local Application of Strategic Marine Net Gain Targets".

This work looked to apply strategic marine net gain (SMNG) in the East Marine Plan area, and resulted in the development of a SMNG framework, governance structures and a comprehensive set of recommendations to facilitate delivery of nature recovery and a strategic level. The delivery of this work and its backing by a wide range of stakeholders is testament to commitment of Task and Finish Group which despite the project closing in 2026, continues to be an important forum for co-ordinating broader work on nature recovery policy, building on the principles and framework established by the OWEC-funded projects.

"The work would have been impossible without OWEC funding and the team provided valuable support and advice throughout. It is already having a considerable impact, plus the outcomes and lessons learnt will support and inform consideration of any future net gain policies.”

**Peter Barham, MBE**
Chair, SUDG

Photo: © Malcolm Nimmo, highly commended, Underwater Photographer of the Year, 2026

"It is critical that we address the dual crises our seas are facing, biodiversity loss and climate change, and getting marine net gain right is essential for that. The OWEC funded Marine Net Gain project involving industry, regulators, sea users, statutory and environmental nature conservation bodies was exactly the right step to take in developing principles for a strategic approach to marine net gain.”

**Tammy Marie Smalley**
Head of Conservation, Lincolnshire Wildlife Trust

# Where next for OWEC?

Over the past five years, OWEC has built a strong evidence base to support the sustainable and coordinated expansion of offshore wind, while supporting healthy marine and coastal ecosystems. As this report shows, many projects are now moving from research into use, strengthening planning, improving assessment, and giving decision makers clearer evidence to draw on.

OWEC is deeply invested in maximising the value of the evidence that our projects' are delivering. In a constantly shifting planning and consenting landscape, the Programme has adapted to ensure that it is focused on where evidence will add value and can influence real change. The **Marine Delivery Routemap**, launched 5 years after OWEC's inception, now provides an opportunity to bring OWEC outputs together with wider data and insight, supporting the evidence base for Round 6 and future leasing rounds.

As more OWEC projects draw to a close, OWEER and OWEKH will play an important role in showing where evidence is strong, where uncertainty remains, and where further work should be prioritised. The OWEKH Technical Topic Groups will debate and consider OWEC project outputs and how they should be reflected in the OWEKH Evidence Review Notes, bringing project outputs and wider evidence together in a form that supports more consistent understanding by decision makers, developers, and advisers.

OWEC's longer term future will build on it's initial legacy ensuring that effort is focussed on where evidence can have the greatest impact, and making sure research continues to translate into meaningful change.

As this report shows, many projects are now moving from research into use. Taken together, the outputs from OWEC will support an earlier and better understanding of environmental impacts - allowing sensitive areas to be avoided, mitigation to be built into project design at an earlier stage, and strengthening confidence in compensation measures. This will result in better outcomes for nature, more certainty over project costs and timelines due to earlier understanding of environmental impacts, and a more consistent, proportionate, streamlined approach to consenting.

Further information about the OWEC programme, including its live and completed projects and published outputs, is available on the OWEC pages of the **Marine Data Exchange**.

> The OWEC programme is demonstrating the power of collaboration between industry, government, regulators and academia. By generating robust evidence to address key consenting challenges, it has the potential to accelerate offshore wind deployment, strengthen environmental understanding and help deliver a clean power future more quickly. We very much value being part of the OWEC programme and seeing it develop and deliver impact."
>
> **Kat Route-Stephens**
> Head of Environment & Consents, RenewableUK



Offshore Wind Evidence + Change Programme
HM Government
THE CROWN ESTATE

# Thank you to our steering group members

26 organisations working together to support the adoption of OWEC recommendations and maximise programme impact.

Offshore Wind Evidence + Change Programme

HM Government

THE CROWN ESTATE