BLUE MARINE FOUNDATION

Opportunities for Nature Recovery within Offshore Wind Farms around the UK

Report of event | February 17 2022

Key messages

- **Reaching net zero and enhancing biodiversity** are two key policy goals that are both highly relevant for offshore wind farm development.
- **Effective collaboration** between government, offshore wind developers, marine users, and scientists is essential to meet these goals.
- **Challenges** to meeting these goals include costs, risks involved with new technologies, regulatory barriers, and challenges in engaging a diverse range of stakeholders.
- Marine spatial planning and collaborative projects in **the Netherlands provide useful insights** for similar processes in the UK. There is a need to develop a similar supporting framework within the UK.
- **Pilot projects for nature-inclusive design** in the Netherlands, such as providing habitats or supporting reintroductions, have seen notable successes.
- Stakeholders are producing a **range of useful tools** to enable nature recovery in offshore wind farms, including a multidisciplinary decision support tool and policy guides to the multi-use of offshore wind farms.
- Offshore wind farm development can have a range of both **positive and negative effects on biodiversity**. These effects are likely to vary based on the introduction of nature-inclusive designs.
- A key question is exploring how offshore wind, within a marine spatial planning context, will **contribute to conservation and biodiversity goals.**
- As the marine space becomes more crowded, **cross-sector considerations and adoption of innovative solutions** (such as compensation or artificial habitats respectively) are becoming ever-more important to ensure biodiversity and development can both be supported.

David Tudor, Projects Director at the Blue Marine Foundation (Blue Marine), welcomed attendees. He said the event aimed to bring together a diverse group of NGOs, academics, policymakers, industry representatives, and other stakeholders to explore opportunities for nature enhancement within the UK offshore wind network.

Rebecca Pow MP, Defra Minister for Nature Recovery and the Domestic Environment, gave the opening speech. She said the UK's offshore wind sector was world-leading, currently supplying 13% of UK electricity demand, and the government planned to increase capacity to 40GW by 2030. Alongside net zero commitments, she noted the government's pledge to ***"leave our environment in a better state than we found it"***, which includes marine habitats. She addressed the importance of cross-sector partnerships, with the government working alongside industry and scientists to deliver shared goals. She concluded by emphasising how two important goals - reaching net zero, and recovering the marine environment - were closely intertwined, especially within the context of offshore wind.

Session 1
Learning from Europe

Hans Nieuwenhuis, Head of Sea Policy at the Netherlands' Ministry of Infrastructure and Water Management, presented on the Netherlands' evolving approach to marine spatial planning, and on nature enhancement within Dutch offshore wind parks. He introduced five main objectives for Dutch marine spatial planning policy:

- To achieve good environmental status for marine areas.
- To provide energy, namely via offshore wind, but with potential for solar and hydrogen.
- To support a food transition from wild catch fisheries to static fisheries and aquaculture.
- To facilitate sand extraction for nature-based coastal protection.
- To enable shipping lanes to be efficient, safe, and clean.

A multi-sectoral roundtable resulted in the North Sea Agreement in 2020, which led to the formation of the proposed Dutch North Sea Programme. The programme is defined by a spatial plan which defines how marine use will change and how the government and other stakeholders will facilitate this. The plan accounts for ecological impacts, scope for compensating industry, neighbouring waters, and co-benefits - such as for offshore wind and nature enhancement.
Contact Hans' colleague, Senior Policy Advisor Lodewijk Abspoel, at Lodewijk.Abspoel@minienw.nl

Dr. Oscar Bos, Marine Ecologist at Wageningen University, presented on nature-inclusive design in the Netherlands. In a recently published Nature-Inclusive Design guide, which focused on OSPAR Convention species (such as cod and oyster) and commercial species (such as crab and lobster), design options included optimised scour protection around pilings and cables, and the creation of artificial reefs. He discussed research into the effectiveness of proposed measures, including test sites and ongoing monitoring techniques.
Contact Oscar at oscar.bos@wur.nl.

Renate Olie and Eline van Onselen, Marine Ecologists at The Rich North Sea, spoke on how the Rich North Sea initiative was facilitating nature enhancement. They talked about the importance of combining industry with science when developing offshore wind sites, and gave an overview of the different stages of development of such sites in Dutch waters. They highlighted pilot successes, including the reintroduction of flat oysters in Borssele 3 & 4 and the setup of artificial reefs at Borssele 1 & 2. Advice for pilot studies in the UK included:

- Considering the importance of local ecology.
- Defining a long-term vision.
- Building relationships with wind farm operators.
- Taking steps to understand other stakeholders' 'languages'.
- Accounting for local legislation, permits, and insurance.
- Ensuring effective ongoing monitoring.
- 'Learn by doing' - not stalling implementation due to knowledge gaps.
- Share findings and data nationally and internationally.
- Consider potential for scaling up, such as through standardised techniques.

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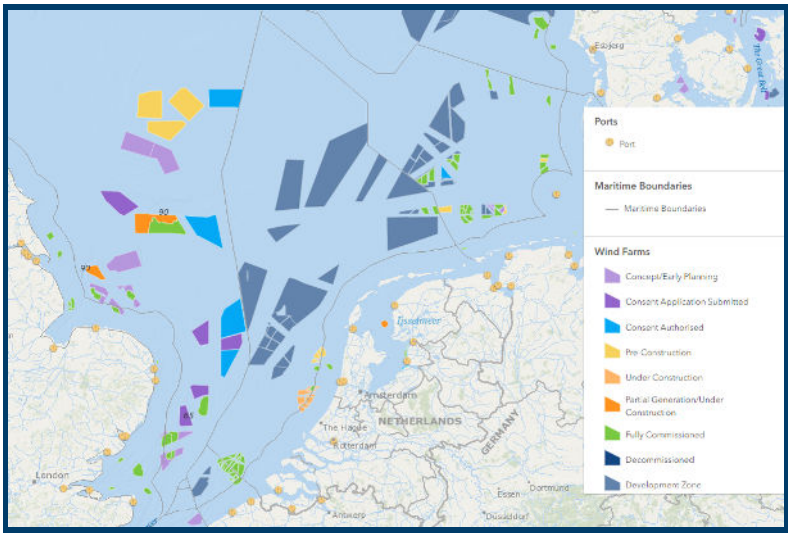
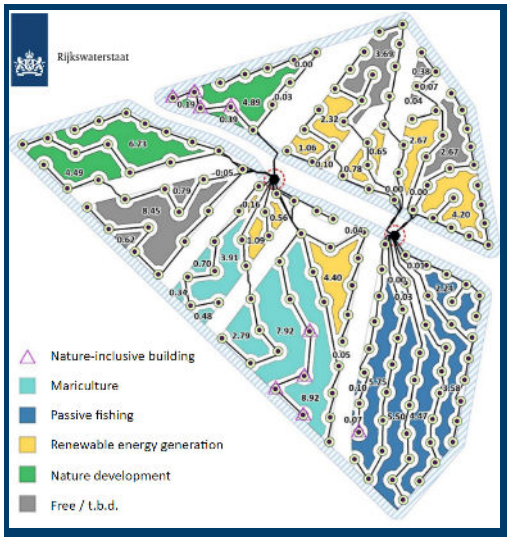


Spatial indication of wind farm developments in the southern North Sea
- Extract from presentation by Renate Olie and Eline van Onselen, The Rich North Sea

Zinzi Reinmert, Manager of North Sea Farmers' Offshore Test Site, introduced opportunities for the sustainable development of seaweed aquaculture within offshore wind farms, alongside nature recovery. She outlined the scope of nature-inclusive seaweed farming, such as through biodiversity-promoting anchor structures. She introduced the Netherlands' Offshore Test Site and its importance for developing and demonstrating strategies, and highlighted the importance of collaboration with government and wind farm owners.

Contact Zinzi at zinzi@northseafarmers.org



Designation of co-use areas within the Offshore Test Site
- Extract from presentation by Zinzi Reinmert, North Sea Farmers

Session 1 Panel Discussion

How can the Netherlands and the UK learn from each other in the context of marine spatial planning?

Huub den Rooijen, Managing Director, Marine, at The Crown Estate, emphasised that marine space is getting busy, so optimised use of space is essential. He said inclusion of all sectors is important, such as considering sustainable pathways for changes to the fishing sector. As the Netherlands and UK are joined by a 'common sea', a joined-up approach regarding the transformation of the marine environment is necessary.

What will be the role of fisheries in inclusive offshore wind farms?

Hans Nieuwenhuis said that bottom trawlers are excluded given challenges surrounding cables on the seabed and associated safety. Within the Borssele wind farm there are allocated areas for passive fishing.

Offshore wind developers in the UK may be concerned that nature-inclusive design could hinder maintenance once organisms have become established. How does the Netherlands address this?

Dr. Oscar Bos said the design stage should incorporate forethought to ensure that piles and surrounding structures are strong and resilient enough to withstand marine growth.

What are the main barriers to nature-inclusive designs becoming default in offshore wind development?

Huub den Rooijen said that costs remain a barrier as the technology involved in nature-inclusive design is still new, leading to higher insurance premiums, uncertain maintenance requirements, and potentially unforeseen risks. He said there was a need to reframe offshore wind development to actively accelerate nature recovery. Additionally, he said that while an ***"intensively collaborative space"*** is a necessity, there are barriers to facilitating this - in particular, ensuring stakeholders with differing views, such as the fishing and environmental sectors, work together effectively and find common goals.

Hans Nieuwenhuis added that holistic design is a challenge across the North Sea, and there are the possibility of development bottlenecks regarding the compromise of protected species if there is not proactive investment in nature enhancement.

How will the innovative nature-inclusive tender described by Hans Nieuwenhuis be assessed and have confidence that proposals will work?

Hans Nieuwenhuis said that there will not be full certainty of impacts and the tender will involve the comparative analysis of different proposals. He said returning at a later stage will allow analysis of how impacts are seen in practice. He emphasised that the comparative analysis will involve ecological as well as economic expertise.

How do local boosts to benthic biodiversity as a result of artificial reefs translate to wider benefits for the North Sea in line with conservation targets?

Eline van Onselen said that the lack of defined criteria indicates a possible lack of a long-term vision. She said there was a need to consider aims for future ecosystem composition, and undertake monitoring to reach those aims.

Session 2
Opportunities in the UK for developing restoration projects – science, policy and key stakeholders

Ros Gaulton, Head of Offshore Wind Compensation and Impact at Defra, presented on opportunities for strategic compensation. Defra's Offshore Wind Enabling Actions Programme (OWEAP) aims to ensure that existing protections do not become a barrier to deployment, whilst simultaneously ensuring marine protection is not compromised. ***"Government is clear that achieving net zero and marine recovery means established ways of doing things need to change,"*** she said.

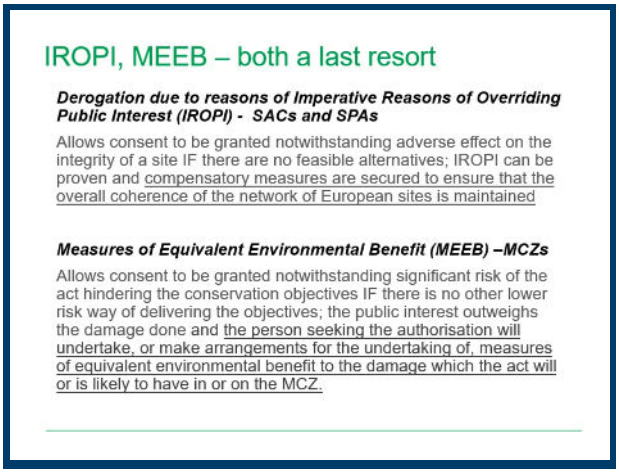
Examples of compensation, defined as ***"practical measures that mean that development does not hinder the site achieving its conservation objectives"***, included construction of additional seabird nesting areas, extending MPA boundaries, or shellfish bed restoration. These measures are distinct from net gain, which aims to improve a network and may help accelerate progress towards conservation objectives. The compensation approach, while deployed in the terrestrial space, remains novel in the marine environment. Three offshore wind farms have been granted consent to proceed by incorporating compensation, and many more are expected to follow.

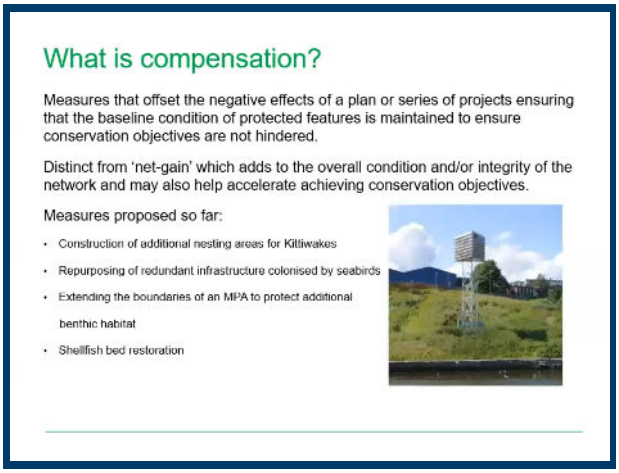
Contact Ros at Ros.Gaulton@defra.gov.uk.

Sebastian Hennige, Senior Lecturer at the University of Edinburgh, discussed opportunities for restoring deep-water ecosystems. He described the 'four horsemen' of threats to these ecosystems: destructive human activity, ocean acidification, warming temperatures, and deoxygenation. He highlighted that decommissioned oil drilling platforms often have coldwater coral ecosystems comparable to 'natural' ecosystems, and may also possibly act as climate refugia into the future. He showed how modelling can predict optimal conditions for coral growth, and highlighted an extract from a IPBES-IPCC co-sponsored workshop report that stated, ***"connecting the climate and biodiversity spheres is especially crucial at this moment when the world seems to be gearing up for stronger actions on both."***

Contact Sebastian at s.hennige@ed.ac.uk

Contact Murray Roberts, Professor of Applied Marine Biology & Ecology, at Murray.Roberts@ed.ac.uk





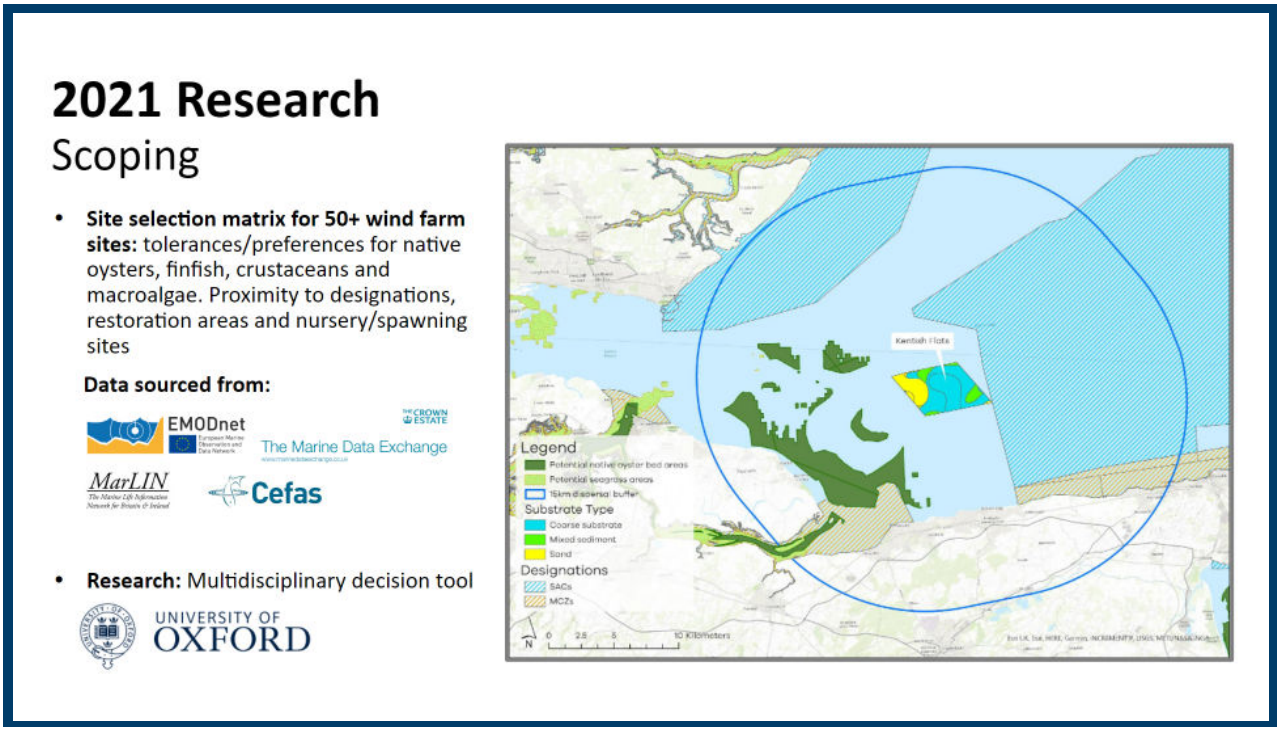
Information on the government's approach to compensation and Marine Spatial Prioritisation
– Extracts from presentation by Ros Gaulton, Defra

Sophie Locke, Research & Projects Manager at the Blue Marine Foundation, spoke about progress towards nature-inclusive design within offshore wind farms in UK waters. She highlighted that offshore wind presented both benefits and risks to biodiversity, with the latter including habitat loss, invasive species, influence on trophic cascades, electromagnetic influences, and disturbance from operation, construction, and decommissioning. To assess opportunities and challenges, Blue Marine had launched a scoping study, drawing on international examples such as the Netherlands. With the University of Oxford, Blue Marine assembled a multidisciplinary decision support tool to guide the development and implementation of offshore wind projects. She highlighted the need to fill knowledge gaps and the challenges of navigating marine spatial plans.

Blue Marine's 2022 research pipeline regarding offshore wind includes a technical feasibility study into nature recovery within offshore wind farms in the UK, investigating ways for new offshore wind farms to encompass nature-inclusive design, and building an interactive GIS StoryMap of scoping work. For the feasibility study, Locke encouraged prospective industry and academic partners to get in contact.
Contact Sophie at Sophie@bluemarinefoundation.com

Frith Dunkley, MPA Officer at the Marine Conservation Society, spoke on her recent research project entitled: 'Do offshore wind farms affect fishing activity? An assessment of fishing before, during and after offshore wind farm construction'. She noted there were ecological 'losers', such as some seabirds and potentially harbour porpoises in the short term, but also 'winners' such as common seals, juvenile fish, and benthic (bottom-living) species. MCS used fishing vessel tracking data at eight UK sites, and found that towed gear activity in particular reduced during wind farm construction and to a lesser extent during operation. Fixed gear appeared less affected, though limitations to the study were noted. She concluded that offshore wind farms were not akin to Marine Protected Areas in terms of biodiversity protection, but did offer benefits especially for benthic species.
Contact Frith at frith.dunkley@mcsuk.org

Samir Whitaker, Biodiversity Lead Specialist at Ørsted, gave a perspective from the offshore wind sector. Ørsted aims for all commissioned projects to have a net positive impact on biodiversity by 2030 at the latest. He highlighted partnerships with academia and NGOs to incorporate nature-inclusive designs, such as 'biohuts' and pipe reefs for juvenile cod, and oyster shells as a substrate for benthic organisms. He highlighted successes and failures of pilot projects, and the importance of these lessons for future operations.
Contact Samir at samwh@orsted.com



Insight into Blue Marine's multidisciplinary support tool, developed in collaboration with the University of Oxford.
- Extract from presentation by Blue Marine Foundation

Session 2
Panel Discussion

What does success look like for compensation?

Ros Gaulton noted that proposed compensation solutions won't apply in all scenarios, so success differs depending on context. She said the Crown Estate's Offshore Wind Evidence and Change Programme have made significant advances in filling knowledge gaps, but accepted that compensatory measures were not a "silver bullet", which is why collaboration was needed.

Jean-Luc Solandt, Principal Specialist in Marine Protected Areas at the Marine Conservation Society, added that there is an assumption that the transformation from soft sediments to hard habitats within offshore wind sites was an improvement, but there is also a need for sediment recovery – which may just involve preventing disturbance.

To what extent are offshore wind arrays designed with fishing in mind?

Frith Dunkley noted that as turbines increase in size, so the spaces in between turbines increase, which may help facilitate fishing. She said that this relies upon effective stakeholder engagement in the planning stage.

Ros Gaulton added that Defra and partners are increasingly working with the fishing industry to address such questions upfront. She said that better inclusion of stakeholders within early design conversations could be a "double win" for both nature-inclusive design and sustainable fishing.

Where does the debate stand on repurposing oil and gas infrastructure for biodiversity?

Sebastian Hennige said the view has become more forward-looking in recent months, though there are no firm decisions currently. There are ongoing conversations regarding who pays – the oil and gas industry, or taxpayers.

What is the quality of data regarding post-installation monitoring?

Sophie Locke said that monitoring should be frequent and at a high standard. Collaboration and communication can help facilitate this and inform new projects.

Samir Whitaker said that cumulative impact monitoring was important and should tie in with strategic compensation.

Ros Gaulton agreed, and referred to challenges regarding data accessibility and imperfections of Environmental Impact Assessments. She said strategic monitoring was crucial for her team and highlighted the complexity of marine planning across the UK.

Jean-Luc Solandt said there were many ecosystem aspects in need of monitoring, including benthic ecology, mobile species, plankton communities, and ecosystem services.

David Tudor, Projects Director at the Blue Marine Foundation, offered some concluding remarks.

"There are lots of barriers, but clearly none of these are insurmountable. There is a huge potential for offshore wind farms to enable both nature enhancement and a net zero carbon world."

Find the event recording on YouTube or Vimeo.

Report written and designed by Mindfully Wired Communications Ltd.