



Marine  
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## **Review of Post-consent Monitoring (PCM) Information at Offshore Wind Farms: Key Outcomes**

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# Introduction

## The MMO's role in licensing offshore renewable energy installations

- Up to 100MW in English and Welsh offshore waters – MMO issues Marine Licence (also grant s36 consent in Wales).
- >100 MW may be consented by the Secretary of State following a recommendation from the Planning Inspectorate (PINS). MMO are statutory advisers to PINS and responsible for the enforcement of any deemed Marine Licence (dML) conditions.
- Marine Licences (+dML) contain conditions for post consent monitoring (PCM).

# Why and How Should PCM be Used?

Incorporated into Licence Conditions to:

- Validate, or reduce the uncertainty in predictions made in the EIA or HRA
- Provide evidence on the effectiveness of mitigation measures
- Allows the identification of any unforeseen impacts.
- Be proportionate, targeted, and based on actual **risk**
- Inform adaptive management

# The Habitats and Wild Birds Directives Implementation Review

November 2011, Govt. announced a review of The Habitats and Wild Birds Directives with a view to reducing regulatory burden on business.

The review put forward various measures including:

- (18) ***New rolling programme of post construction monitoring reviews on priority marine sectors***, which is to be undertaken by Cefas and the MMO
- In response to the Habitats/Bird Directive (and other) reviews an updated **independent** review of Offshore Wind Farm (OWF) monitoring data has been undertaken in a project managed by MMO and Cefas.
- Offshore Wind is the 1<sup>st</sup> marine sector to be reviewed.

# PCM Review Project

## When:

Started November 2012, Completed end 2013.

## Who:

Undertaken by



Funded by



Department  
for Environment  
Food & Rural Affairs



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Managed by MMO and Cefas

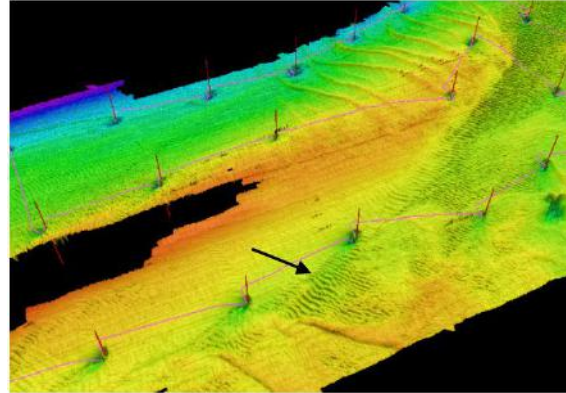
Project Steering Group comprising regulators, advisors, and industry, including members of the Offshore Renewable Energy Licensing Group (ORELG) advised the project team.

# PCM Review Project (Cont.)

Review is being broken down into 6 topic areas:



**Benthos**



**Coastal Processes**



**Seabirds**



**Fish & Shellfish**

**Mammals**



**Noise**

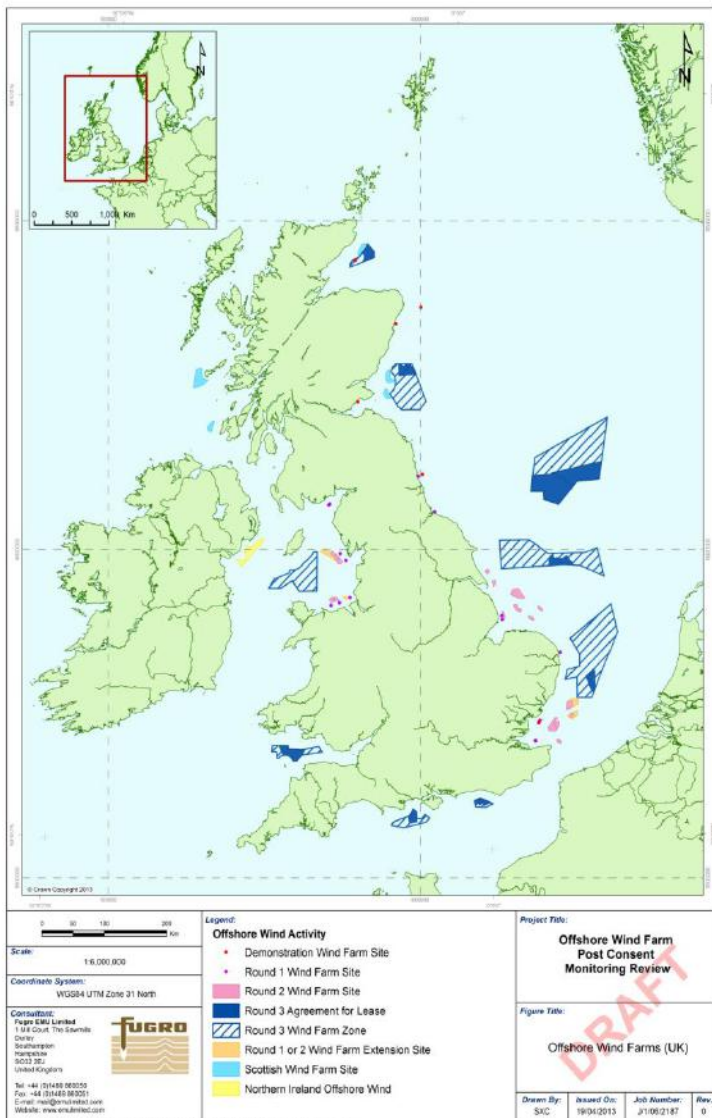
# UK and Overseas Wind Farms

## Scope

Information available from 18 UK projects

Reviews also undertaken of monitoring data collected overseas including:

- Belgium (e.g. Thornton Bank)
- Germany (e.g. Alpha Ventus)
- Denmark (e.g. Horns Rev, Nysted)
- The Netherlands (Egmond aan Zee).



# Some Key Questions Addressed

- What lessons have been learnt regarding **best practice monitoring and assessment** techniques applied?
- What have we learnt regarding the **environmental impacts** associated with offshore wind farm development which has been informed by PCM?
- Should standard licence conditions be **maintained/ revised/ removed**?



# Key Findings: Coastal Processes

## Scour

- PCM **not** always required since significant impacts on receptors not evident.
- Scour monitoring 'after a storm' condition is logistically challenging and results would be of limited value.

## Suspended Sediment Concentrations (SSC)

- Only required if sensitive receptors present and used as a trigger for adaptive management. SSC monitoring is **not** now routinely required on Marine Licences.

# Key Findings: Underwater Noise

- Noise monitoring has evolved over-time. Some earlier R1 wind farms had conditions for operational noise monitoring only and construction noise was not monitored.
- Survey design: Measurements need to be standardised and monitoring should be undertaken along transects (rather than static) from the (noise) source to validate model predictions.
- No ISO standard presently exists for noise measurements. Standard metrics should be adopted based on the best practice guidance on noise measurements being developed by Marine Scotland and The Crown Estate (due for publication early 2014).

# Key Findings: Benthic Ecology

- Nothing to suggest from this review that significant impacts on benthic habitats and associated macro-faunal communities are evident in the short-term (~3 years)
- **However**, there is some evidence from the Thornton Bank wind farm (Belgium) suggesting that localised scour may result in changes in infaunal community structure and composition, which in time (e.g. >5 years) may become spatially extended and result in longer term consequences to higher trophic levels (fish, shellfish, seabirds and marine mammals).

# Key Findings: Fish and Shellfish

- Survey design: Present practice of PCM is often at too broad a scale to distinguish between predicted impacts and those due to natural variability.
- PCM needs to be more narrower and focussed on sensitive receptors as identified through the EIA.
- No evidence from this review that Electromagnetic Fields (EMF) pose a significant population-level threat to elasmobranchs (sharks, rays).

# Key Findings: Marine Mammals

- Key concerns relate to auditory injury and displacement due to **construction** activity – notably piling noise.
- **Operation** phase: no negative impacts detected in non-UK wind farms assessed.
- Survey design: PCM should focus on validating the noise exposure predictions along a gradient at the ranges that are predicted to disturb marine mammals.

# Key Findings: Birds

- **Pre-construction** monitoring data should be used to conduct a power analysis to help determine the most appropriate survey design to demonstrate disturbance/displacement.
- Survey design: have not always included robust truly comparable reference sites for monitoring seabird displacement.
- Alternative approaches to measuring seabird displacement are recommended (e.g. modelling techniques to correlate environmental variables with seabird density).

# Summary of Work Undertaken and Next Steps

- Independent expert review of UK and overseas PCM data.
- Workshop in July 2013 to discuss initial report findings with various stakeholders including UK and European Regulators, Advisors, industry reps, NGOs...
- Final **project expert group** report to be published MMO website January 2014.  
(<http://www.marinemanagement.org.uk/evidence/register-reports.htm>)
- This report is a key milestone, but **not the end** of the process.
- Report recommendations to be reviewed by MMO and our advisors.
- Regulator response to the experts report to be published Spring 2014.
- Future PCM reviews for OWF to be commissioned.

**Any Questions?**