



Review of environmental data associated with post-consent monitoring of licence conditions of offshore wind farms

Aim

The project reviewed post-consent monitoring data from offshore wind farm (OWF) developments to provide the evidence associated with observed environmental impacts and make recommendations for maximising the effectiveness of future monitoring.

Introduction and methodology

Monitoring conditions are legally required as part of the consent to develop OWFs in UK waters. Monitoring must be carried out for defined durations and the results must be reported to the regulator to:

- validate predictions made in an environmental impact assessment or Habitats Regulations assessment
- detect any unforeseen impacts
- make sure compliance with measures identified in assessments to mitigate significant impacts

Previous reviews of post-consent monitoring produced recommendations, but identified few conditions that could be amended or removed from licences. This was due, in part, to the limited number of cases and evidence available. Another recommendation was to review data collection strategies and the evidence gained during monitoring.

In 2011, the government announced a review of the Habitats Directive and Wild Birds Directive and established a Habitats and Wild Birds Directives Marine Evidence Group. A priority of the group was to develop a more strategic approach to post-construction monitoring of marine developments so it was better designed and targeted to inform future development proposals, mitigation measures and conditions.

In response to this, the Department for Environment, Food and Rural Affairs and the

Marine Management Organisation commissioned an updated review of OWF monitoring data to inform recommendations on improving future licence-related monitoring strategies.

Results

The report examined environmental monitoring associated with physical processes, underwater noise, benthic ecology, fish and shellfish, marine mammals and birds.

There are varied approaches to data collection and assessment methodologies between sites and across the UK. Historically there has been no single set of agreed standards to fully use previous reports. However, monitoring conditions have generally evolved where the understanding of impacts has changed.

A general lesson from monitoring physical processes is areas with similar geological, sedimentary and metocean conditions respond similarly to one another after OWF construction.

The evidence from monitoring underwater noise demonstrates that operating wind turbines is unlikely to result in significant impacts on marine fauna, but underwater noise associated with marine piling does have the potential to impact marine fauna.

Results suggest that OWFs in the UK have not had significant impacts on benthic communities although limitations in the information make a conclusion of no significant impact uncertain.

No significant impacts to fish and shellfish have been identified through post-consent monitoring in the UK. However, monitoring has tended to focus on long-term operational effects with less emphasis upon construction effects. This is because of the temporary nature of construction activities and there is now a general agreement that piling noise at OWFs poses the greatest threat to fish populations.



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There is a general agreement that noise produced during construction has the greatest potential impact to marine mammals. This is reflected by the fact that it tends to be associated with mitigation measures during piling rather than when an OWF is operating. However, a significant decrease in marine mammal density during construction involving piling was generic to all reviewed impact monitoring studies.

OWFs principally affect bird populations through collisions, disturbance or displacement, and barrier effects. However, lessons learned regarding the environmental impacts of OWFs on birds were limited by the number of complete studies.

Conclusions and recommendations

The report contains recommendations on each topic but many were relevant to all themes.

Generally, post-consent monitoring conditions for current licences were appropriate and should not be removed but some would benefit from restructuring. This would make sure that they would provide information that would improve understanding.

Environmental monitoring should be focused on areas identified in the environmental statement to be most likely to result in potential impacts on a sensitive receptor(s). Monitoring should be designed using pre-construction site-specific knowledge so collected data can reduce uncertainty in impact significance statements.

Monitoring should not be required for impacts where there is already high certainty. For impacts where there is a significant impact with a high degree of certainty, mitigation should be used to protect the environment. Where uncertainty remains in the effectiveness of potential mitigation monitoring should be

assessed to reduce uncertainty for future studies.

In some cases, a strategic research programme may provide more certainty than site-specific monitoring.

If appropriate and required, an inter-agency specialist team of experts to work across all regions and all topics could be established to help develop and adopt best practice. This would be supported if one organisation compiled relevant documentation on post-consent monitoring within a centralised and accessible database with a common structure across all projects to enable regular reviews of monitoring requirements.

Future offshore renewable energy projects (like wave and tidal) would benefit from the bank of knowledge gained from the wind industry bringing down industry costs while still ensuring suitable protection for the environment.

MMO comments

The project provides a useful review of post-consent monitoring data for offshore wind farms and recommendations on future post-consent monitoring.

The recommendations contained within the report will be considered by MMO, in consultation with relevant stakeholders, in order to determine how they could be taken forward into decision making processes.

Further information

Please direct any correspondence to the Evidence Team by emailing evidence@marinemanagement.org.uk