

# PrePARED

Predators + Prey Around Renewable Energy Developments

## Predators and Prey Around Renewable Energy Developments

### Project Summary

Solway Firth © Istockphoto

#### What is PrePARED?

PrePARED is a collaborative research project, funded by the Offshore Wind Evidence & Change programme and Crown Estate Scotland. It will concurrently study 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. Bringing together expertise from government, academia, nature conservation agencies and industry, PrePARED will address critical knowledge gaps that currently are barriers to sustainable offshore wind development, required to help meet the government's renewable energy targets and subsequently reach net zero emissions.

#### Background

Ambitious targets of 40GW of installed offshore wind by 2030 in the UK require development at an unprecedented pace and scale. Uncertainties around environmental impacts from offshore wind farm (OWF) development on protected seabird and marine mammal populations currently constrain impact assessments and delay the planning process. There is therefore an urgent need to better understand how seabirds and marine mammals respond to OWF development and the mechanisms underpinning these responses, particularly changes to prey distribution. Increased certainty on magnitude of cumulative impacts will facilitate deployment of OWF at the pace and scale needed.



Black-legged kittiwake © Gregory Smith

#### Funding

PrePARED is funded by the Offshore Wind Evidence and Change Programme, Crown Estate Scotland and in kind contributions from Marine Scotland, University of Aberdeen, University of Exeter, Natural England and NatureScot. The project will also use data collected by offshore wind developers in Scotland.

#### Project team

The PrePARED project brings together experts who are leading research into environmental effects of OWF development from Marine Scotland, University of Aberdeen, University of Exeter, SMRU, SMRU Consulting, Aarhus University, BioSS, UKCEH, NatureScot and Natural England.

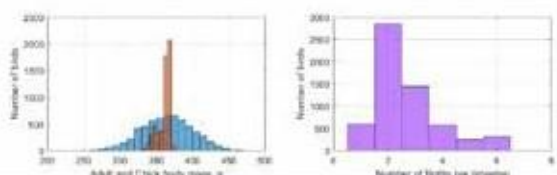
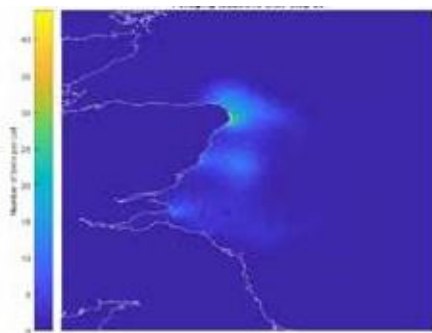
## Activities

- Fish, seabird and marine mammal data collection in 2022-24 in and around OWF in the Moray Firth and Firth of Forth, Scotland
- Fish biomass acoustic surveys, trawls, baited fish traps, cameras, fish tagging
- Concurrent with fish surveys, data collection on seabird distribution and movement data from developer-funded GPStracking
- Collect data on harbour porpoise distribution and behaviour from developer-funded passive acoustic monitoring
- Characterise broad- and fine-scale fish distribution, biomass, abundance and behaviour
- Identification of minimum prey data requirements for modelling predator distribution



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- Characterising predator distribution and behaviour in relation to prey, OWF construction and operation, vessel noise and environmental covariates
- Development of context-specific dose response curves for harbour porpoise incorporating prey data
- Identification of generalities in prey response to OWF development and subsequent predator response, applicable across the UK
- Increasing certainty on auk displacement rates by inclusion of prey data in models
- Integration of new knowledge and understanding into impact assessment models (SeabORD, iPCoD and DEPONS) and model testing/validation
- Improved cumulative impact assessment approaches for marine mammals and seabirds informed by project findings
- Scoping of predator-prey studies for otherparts of the UK
- Extensive dissemination of project findings



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## Outcomes

- Increased stakeholder confidence in magnitude of cumulative effects – delivery of guidance, technical reports and dissemination of outcomes to inform impact assessments, reduce uncertainty, and improve stakeholder (SNCBs, regulators, etc) confidence in sustainable delivery of OWF
- Evaluation of both negative and positive effects of OWF development on key receptors – assessment of changes in fish communities in and around OWF and how this might benefit key receptors
- De-risking consenting – ability to provide applicants with clearer guidance on how cumulative impacts are assessed and evidence to support this, which leads to less uncertainty in decision-making and reduces risk of delays in the planning and licensing process for OWF development
- Improved post-consent monitoring – identification of the most important variables for post consent monitoring of seabird and marine mammal responses to OW development, and provision of a framework for targeted and cost effective monitoring to better understand the magnitude of cumulative effects and future planning



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- Better-informed marine spatial planning – improved understanding of how and why seabirds and marine mammals are distributing themselves in the marine environment in relation to OWF and prey, providing evidence to inform mapping of constraints and opportunities for future OWF development
- Understanding of fish distribution in OWF for fisheries co-existence/co-location - distributions of commercial fish species will be monitored in and around OWFs, which will provide useful information when considering the potential for co-location and multi-use of sea space



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