



Our specialist team of ecologists and hydrologists provide advice and stakeholder negotiation alongside implementation of monitoring and management plans.



Our monitoring experience includes onshore and offshore renewables projects for terrestrial and marine ecology, ornithology, and hydrology. We encourage adding value to monitoring work through appropriate data analysis and dissemination of final reports.

We provide the following services:

Management and Monitoring Plans

- Production and management of Habitat and Land Management Plans
- Production and management of operational phase environmental monitoring plans
- Consultation with site Working Groups and other stakeholders

Monitoring for Onshore Sites

- Ornithology and ecology monitoring for onshore sites, including flight activity (vantage point) surveys, species-specific surveys, and carcass surveys
- Vegetation monitoring
- Water quality and peat monitoring

Monitoring for Offshore Sites

- Monitoring at offshore sites for ornithology, marine mammals, fish and benthic habitats, including boat-based and aerial surveys
- Under water video inspection surveys of foundations

Co-ordination of Management Plans

- Ditch blocking, tree planting, tree felling, deer control, heather management

Data Analysis

- Analysing changes compared to baseline



// a robust monitoring program with appropriate analysis can feed into EIAs as part of a Levelised Cost of Energy strategy for new sites, life extensions and re-powering //

Chris Pendlebury, Director of Ecology and Hydrology





Case Study 1 **Tullo Wind Farm, Aberdeenshire**

Natural Power has overseen implementation of the Habitat Management Plan (HMP) since operation began in 2011. This has involved management of scrub woodland enhancement and hedgerow creation, and undertaking breeding bird surveys each year to determine any effects of these habitat enhancement measures. Although in early stages of operation, benefits to breeding birds are becoming apparent, with increased habitat suitability and 'hot spots' of breeding activity around the scrub woodland areas. Hedgerows are in early stages of growth but are establishing well, and benefits to the breeding bird population are expected in future years.

Case Study 2 **Mynydd Portref Wind Farm, South Wales**

Natural Power undertook vegetation monitoring in 2015 as part of a programme of post-construction ecological monitoring. The aim of the habitat management is to reduce the dominance of rank purple moor-grass and rushes in both valley mire and marshy grassland habitats and thereby increase their sward diversity. A walkover survey and sampling methodology based on JNCC Common Standards Monitoring Guidance was used to assess whether habitat management techniques were achieving these objectives. As the habitats were found to be in unfavourable condition, recommendations were produced to implement a suitable grazing regime with appropriate grazing stock. Additional habitat management will be considered if progress towards favourable condition through grazing alone has not been achieved at the next monitoring cycle due in 2018.

Case Study 3 **Camster Wind Farm, Caithness**

Natural Power has undertaken the first three years of operational monitoring at this site. The aim was to monitor the success of the Land Management Plan, which was set up to restore the felled forest habitat to heathland and peatland, improve the hydrological conditions of the existing blanket bog, and conserve the local populations of hen harrier, merlin and short-eared owl. This has involved vantage point surveys, upland breeding bird surveys, vegetation monitoring, fixed point photography, and dipwell monitoring. The results to date show that the works are generally working, with continuing regeneration of vegetation on site and discouragement of hen harrier away from breeding within the wind farm.

Case Study 4 **Robin Rigg Offshore Wind Farm, Solway Firth**

Natural Power has carried out operational phase ecology monitoring at E.ON's Robin Rigg since construction in 2005. This included bird, marine mammal, benthic fish and intertidal monitoring. Natural Power also undertook extensive data analysis to examine the impacts of construction and operation of the wind farm - the results are published on the Marine Scotland website.

Natural Power has also assisted E.ON with Marine Licence applications for operational work, such as emergency cable repair works and turbine decommissioning/re-installation. In addition, Natural Power has also carried out foundation inspections on turbines and substations using drop down cameras and ROVs in order to assess the level of biofouling and state of the sacrificial anodes on these structures.



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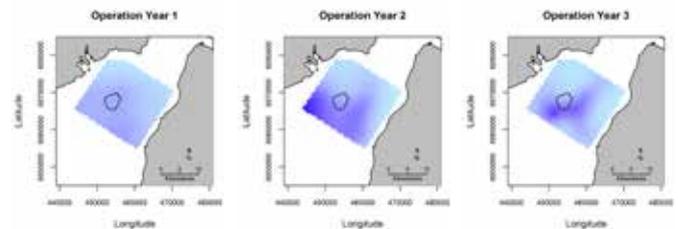


Figure showing changing receptor density across operational years

