INTEGRATED ECOLOGICAL MONITORING PLANS (IEMPs) FOR PROPOSED OFFSHORE WIND FARM SITES

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National Wind Coordinating Collaborative
Wind Wildlife Research Meeting IX
27 – 30 November 2012

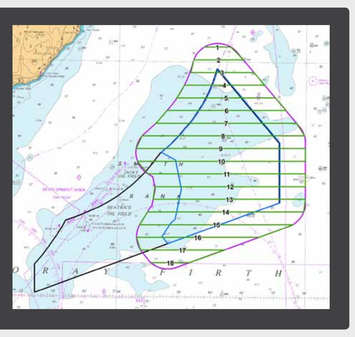
UK guidance[1] recommends the use of an integrated approach to ornithological monitoring to predict impacts at proposed Offshore Wind Farm (OWF) sites to feed into impact assessments. This poster presents the concept of the IEMP using examples from surveys undertaken for Offshore Wind Farms in the UK.

LEVELS 1 & 2: PRIMARY SURVEY OPTIONS

BIRD SURVEYS

e.g. boat-based methods[2,3] at Moray Firth Offshore Wind Farm

- Monthly species' distribution & abundance
- Flight height data
- Flight direction information
- Seasonal marine mammal data



MARINE MAMMAL SURVEYS

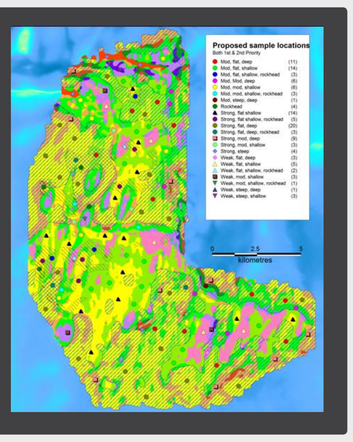
e.g. Passive Acoustic Monitoring

- Seasonal distributions
- Density estimates

BENTHIC SURVEYS

e.g. Video, grab & trawl surveys

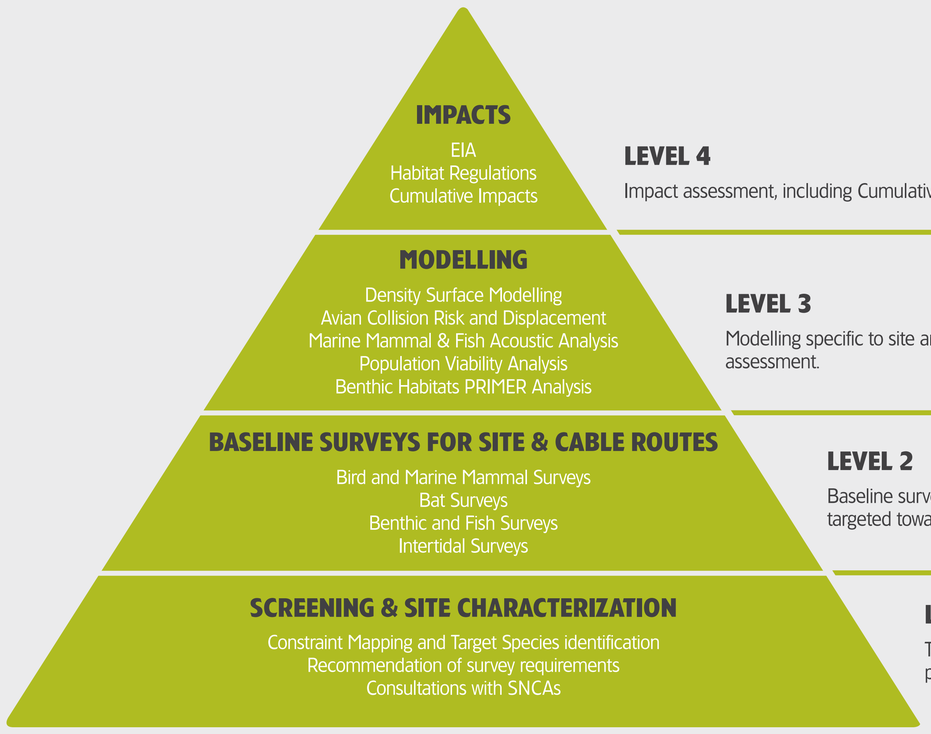
Characterize and map the marine habitats of the seabed, providing data on the extent and distribution of important benthic communities. Interpretation of geophysical data will further enhance this.



COMMERCIAL FISH SURVEYS

Uses local fishing vessels to provide data on the non-target and undersized species captured and discarded during fishing. This builds up a picture of the fish & mobile shellfish using the area.

INTEGRATED ECOLOGICAL MONITORING PROGRAMME



LEVEL 4
Impact assessment, including Cumulative Impact Assessment.

LEVEL 3
Modelling specific to site and target species, to feed into impact assessment.

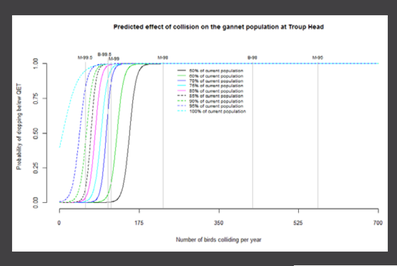
LEVEL 2
Baseline survey techniques used are based on results of scoping and targeted towards species of concern.

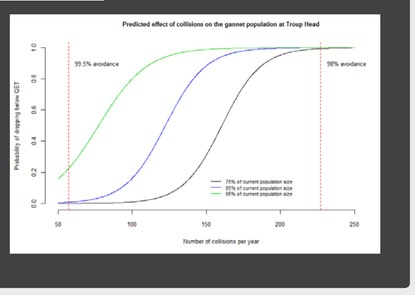
LEVEL 1
Targets determined from review of local breeding, wintering & passage species and their behavior. This informs survey design.

LEVELS 3 & 4: ANALYSIS OPTIONS

POPULATION VIABILITY ANALYSIS

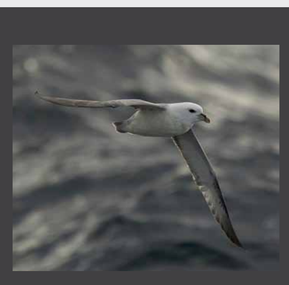
A tool for predicting the impacts at the population level.

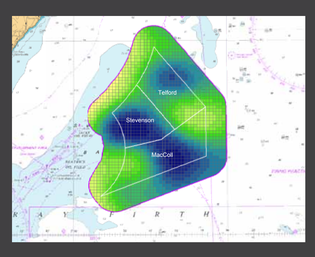


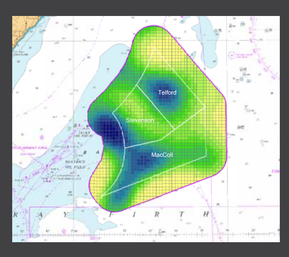


DENSITY ANALYSIS

- Density estimates
- Identification of hotspot areas
- Displacement Risk Analysis
- Collision Risk Analysis
- Cumulative Impacts Assessment

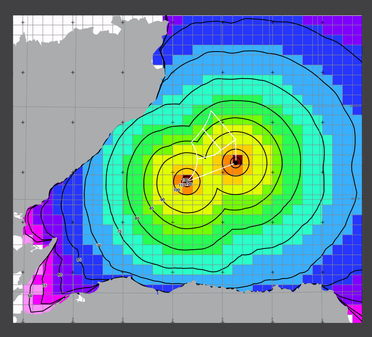






NOISE ANALYSIS

Prediction of noise propagation to allow linking with marine mammal distribution and calculation of numbers of animals impacted.



REFERENCES

1. Walls *et al*., 2009. Revised best practice guidance for use of remote techniques for ornithological monitoring at Offshore Wind Farms. COWRIE report. **2.** Camphuysen *et al*., 2004. Towards standardised seabirds at sea census techniques in connection with environmental impact assessments for Offshore Wind Farms in the UK. COWRIE report. **3.** Maclean *et al*., 2009. A review of assessment methodologies for Offshore Wind Farms. COWRIE report.

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