

SEAI National Energy Research, Development & Demonstration Funding Programme

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CETUS: Interactions of sharks, seabirds and dolphins with existing and future offshore windfarms

Abstract

Irish maritime waters are home to a rich diversity of aquatic fauna (e.g., sharks, seabirds, and dolphins) and will over the next two decades contain significant offshore windfarm (OWF) devices. To identify potential interactions between sensitive aquatic animals and offshore renewable wind energy, CETUS aims to (i) compile available datasets to understand their distributions, (ii) address knowledge gaps on selected species through targeted biotelemetry studies using satellite tracking, acoustic tracking and bioacoustics recorders, and (iii) synthesise available data to determine spatial and temporal overlap with existing and planned offshore windfarms.

Research Outcomes

- **Top sharks:** 23 tagged inc. potentially pregnant females and mature males in the western Irish Sea **and identified seasonal residency.**
- **Catsharks:** 25 tagged at Ireland's only offshore windfarm and at high-relief sand bank. 230,000 detections recorded, with many detections near **the wind farm (~300 m).**
- Critically Endangered **flapper skate** ($n = 37$) were detected 750,000 times **demonstrating individuals have high residency and site fidelity.**
- CETUS members were part of **2 advisory boards** established by the Minister for the DHLGH to conduct **sensitivity analysis of the Irish and Celtic Seas** to inform future designation of Marine Protected Areas.
- A hydrophone near Arklow wind farm

identified dolphins and porpoises regularly use this area.

- **Innovation:** Field and aquarium trials of a low-cost hydrophone found that they are **good for detecting the lower-frequency whistles of dolphins.**
- **Methods:** New analyses (in development) that will provide better insight into seabird activity and time-energy budgets for species at risk of displacement from OWFs. One year of **kittiwake GPS tracking data** from Wicklow shows a **restricted foraging range** within the footprint identified for OWF development.

Recommendations

1. Integrating acoustic monitoring devices with new and existing infrastructure can help collect vital baseline data for sensitive species.
2. Targeted scientific studies should be resourced and implemented to improve our understanding of sensitive aquatic species.
3. EIAs require fine-scale data currently lacking for many species; partnering academia and industry is key to answering questions on species ecology and their sensitivity.



Figure 1: A satellite tagged flapper skate