Quantifying the effects of offshore wind farm (OWF) development on seabird–prey patch dynamics

ECOWINGS

BioSS

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RESEARCH OVERVIEW

01 PATCH DYNAMICS & SPECIES INTERACTIONS

Quantify spatiotemporal variation in (i) the scale and structure of predator–prey patches, and (ii) the nature and strength of interactions between seabirds and fish

02 OWF EFFECTS

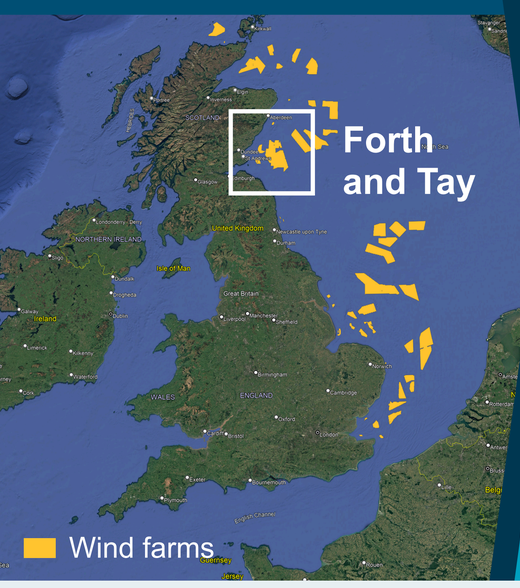
Assess whether and how patch dynamics and species interactions change across both space and time in response to OWF construction

03 TOOL INTEGRATION

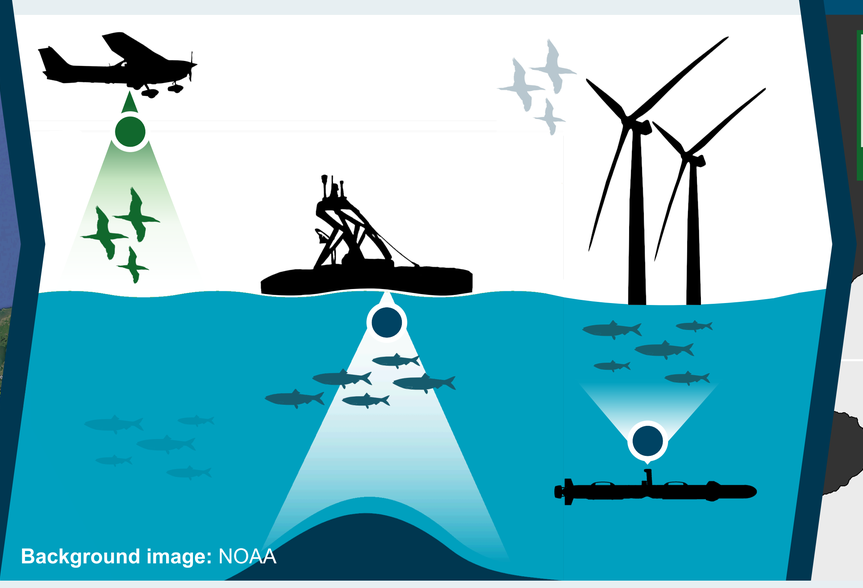
Incorporate model outputs into cumulative impact assessment tools to enhance realism and expand the knowledge base available for decision-making

DATA COLLECTION

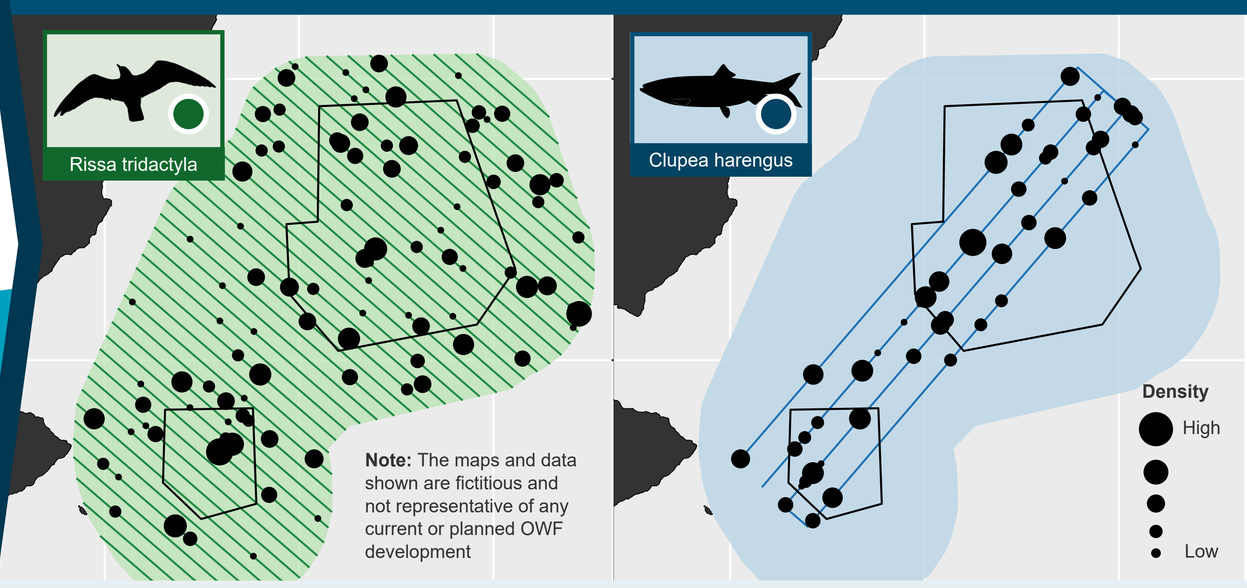
Study area



Aerial & in-water surveys



Seabird sightings & fish acoustic detections



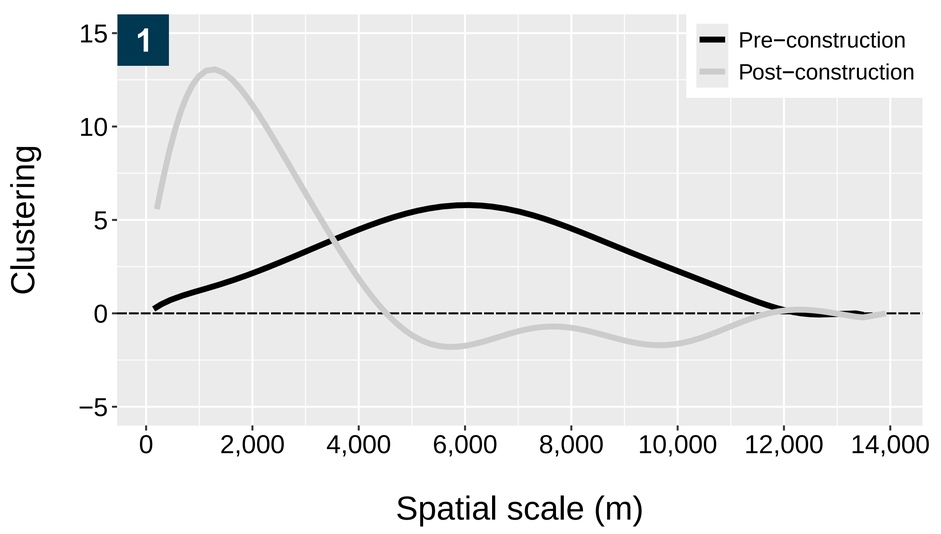
STATISTICAL ANALYSIS

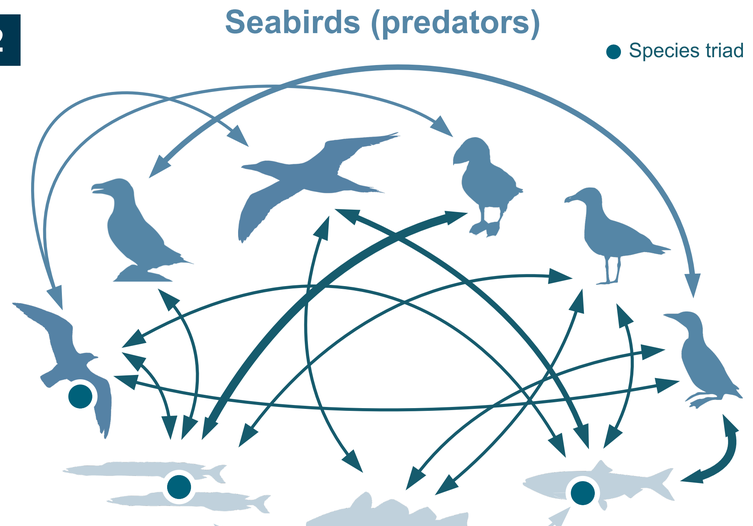
PATCH DYNAMICS

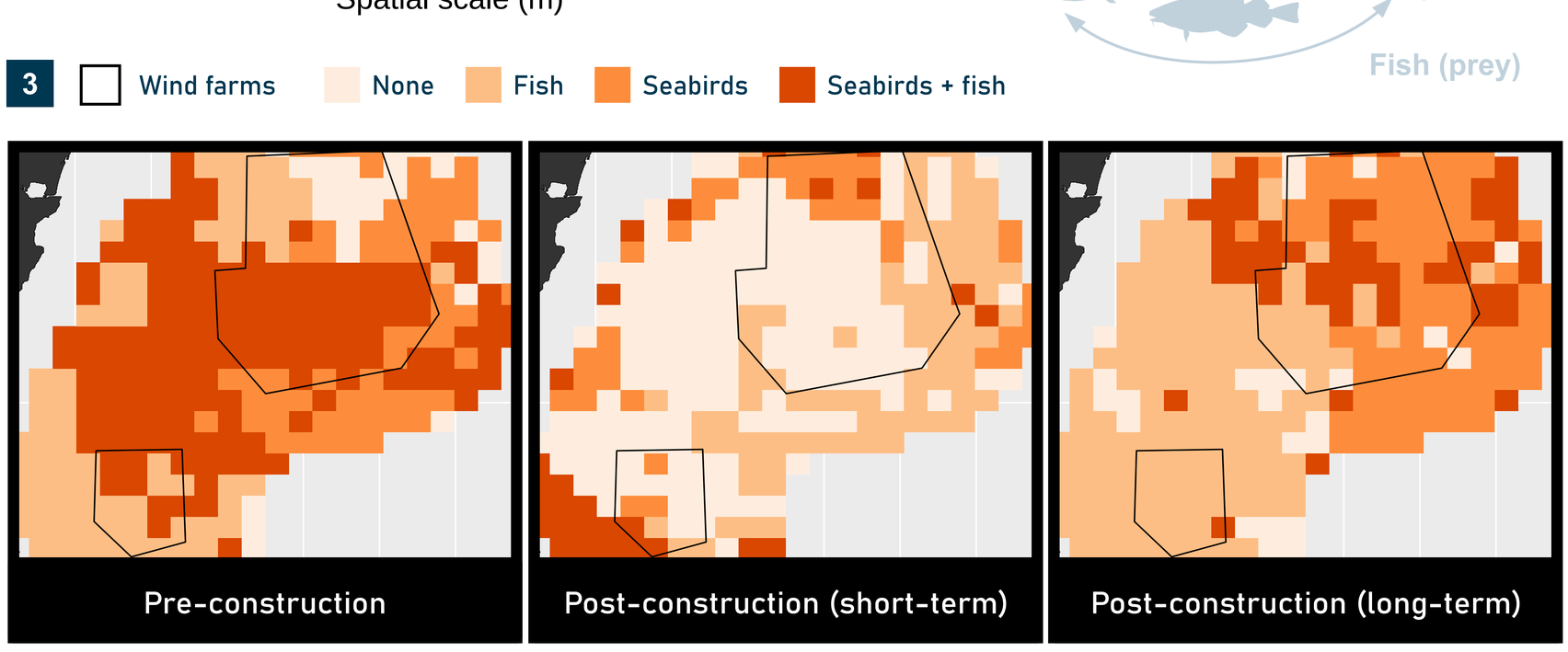
We will test for patterns in the spatial structure (i.e., crowding and patch radius) of predator and prey aggregations along linear gradients away from OWF sites **(Fig. 1)**.

SPECIES INTERACTIONS

We will build models that quantify the direction and magnitude of inter-specific interactions within predator–prey triads (e.g., kittiwakes, sandeels, and clupeids) **(Fig. 2)**. We will also develop approaches for estimating changes in seabird and fish distributions within and around OWFs over time, allowing us to assess the degree to which OWF construction may result in displacement and avoidance **(Fig. 3)**.







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