



# Offshore Wind – Monitoring at Scale

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# Offshore Wind

Is being deployed and operating in harmony with our natural marine environment.....



# Scale of ambition

- Net-zero by 2045 (interim target of 75% reduction in emissions by 2030)
- 8GW by 2030 in Scottish waters
- 30GW by 2030 UK (increasing to 40GW?)
- Sector Plan – up to 10GW opportunity
- Round 4 – up to 7GW opportunity









Scotland is internationally important  
for its seabird breeding colonies.

There are around  
**5 million seabirds**  
in **Scotland**

# SCOTLAND'S seabirds

Scotland is home to ...



**95%**  
of the EU's  
great skuas



**67%**  
of the EU's  
northern gannets



**65%**  
of the EU's  
black-legged  
kittiwakes



# Effects of Offshore Wind on Seabirds

Habitat change/loss (positive or negative)

Changes in prey or predators (positive or negative)

Disturbance causing displacement or altered behaviour

Additional energy cost of avoiding structures

Changes suitability of area for birds

Collision with structures

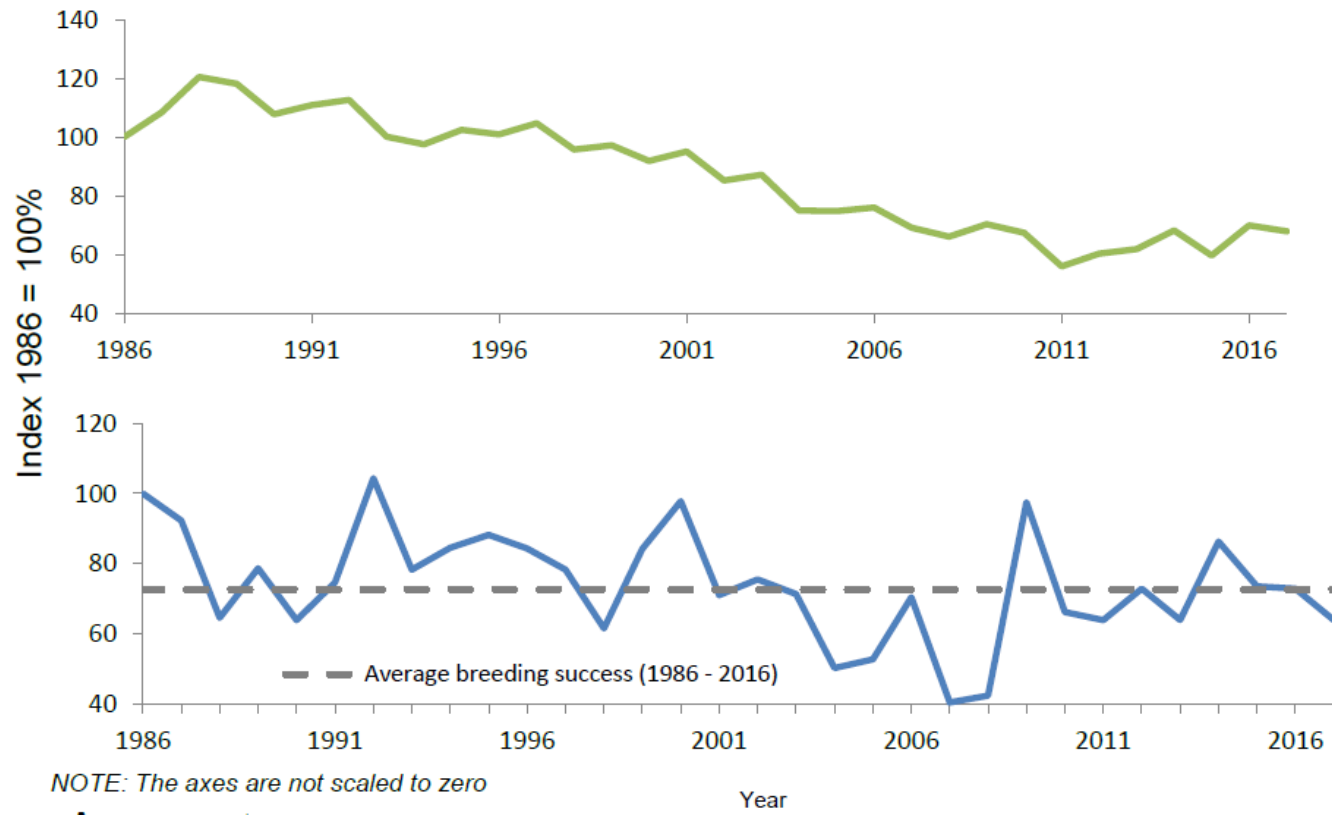
Kills birds







### Breeding numbers



NOTE: The axes are not scaled to zero

Courtesy: SNH  
February 2020

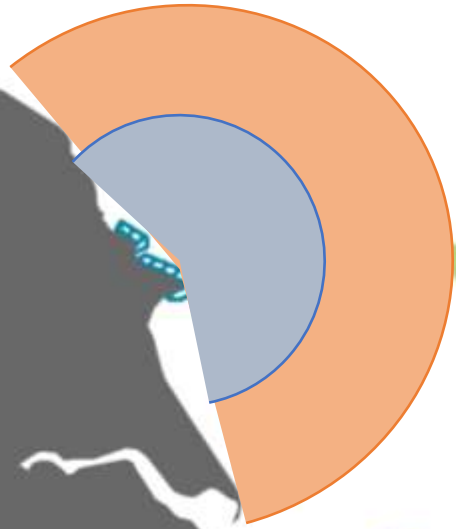
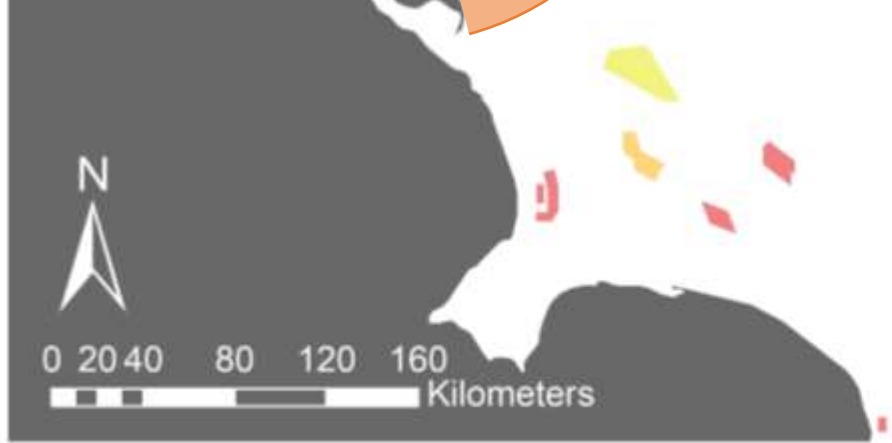


**Scale of risk?**



**“I am not convinced that a sea bird ‘appropriate assessment,’ however skilful, however conscientious, can aspire in the present state of knowledge to be more than a kind of structured haruspication**





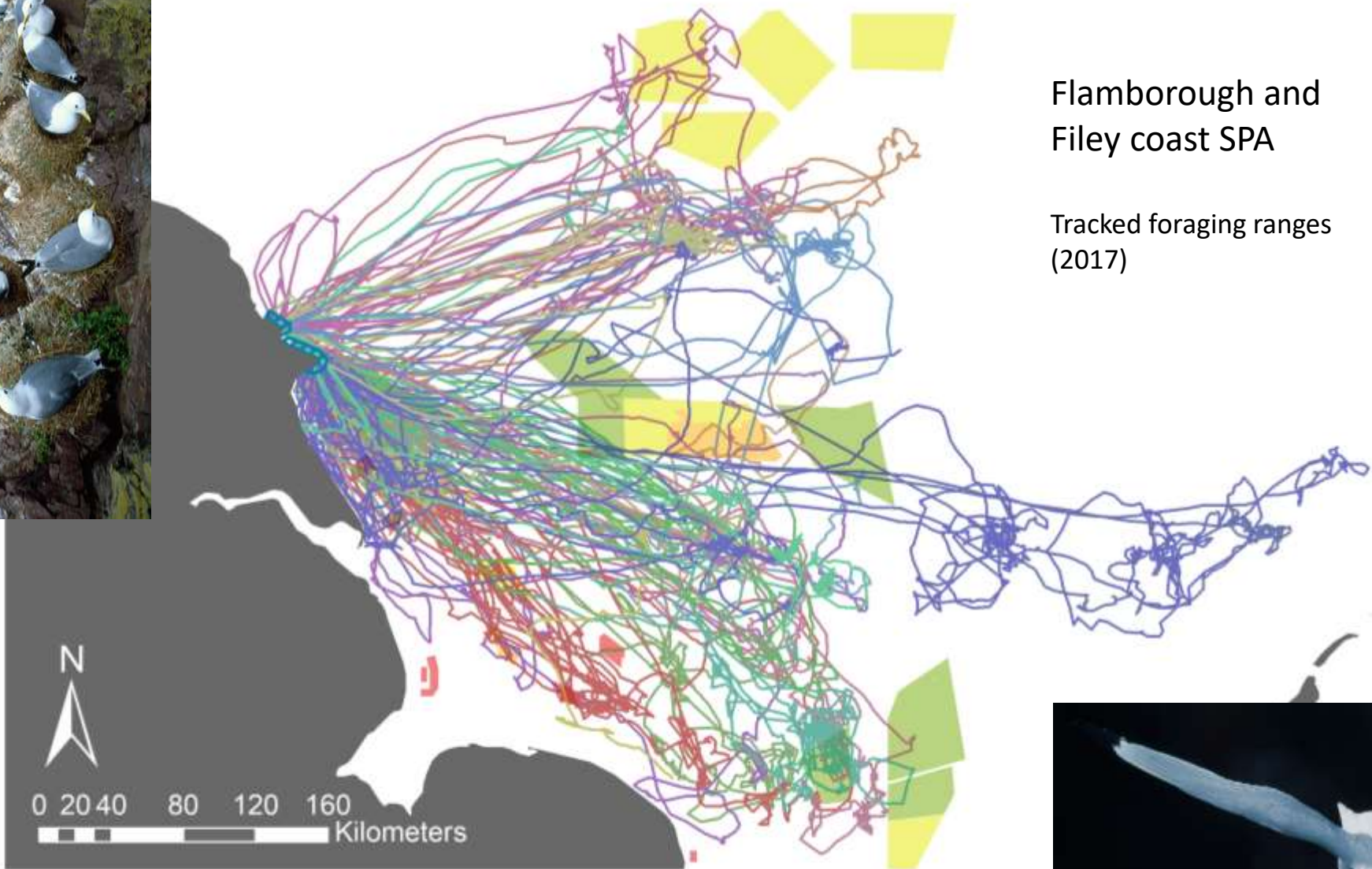
## Flamborough and Filey coast SPA

- Mean max foraging range (60km)
- Max foraging range (120km)

Kittiwake foraging ranges



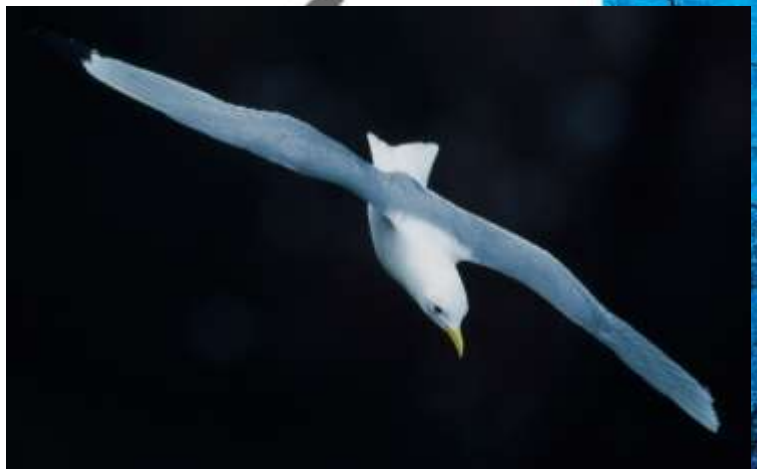




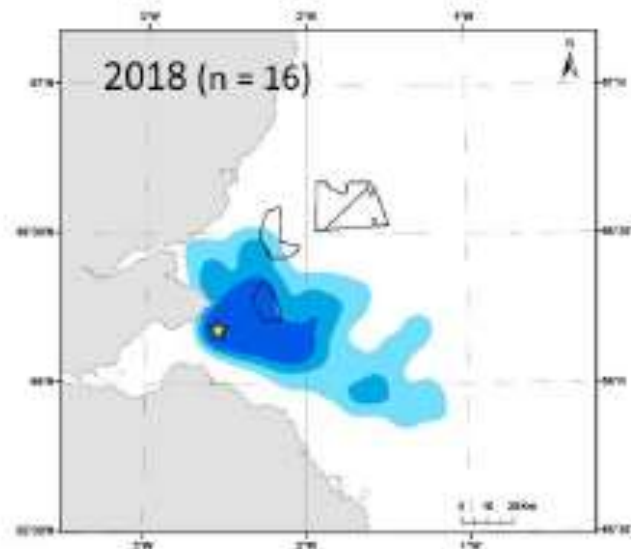
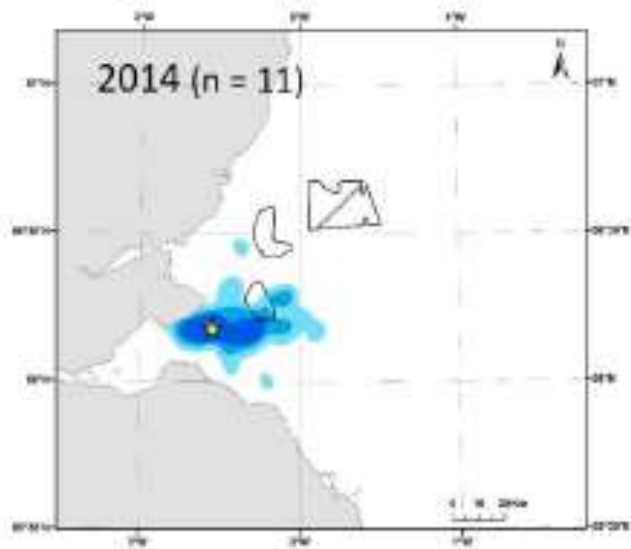
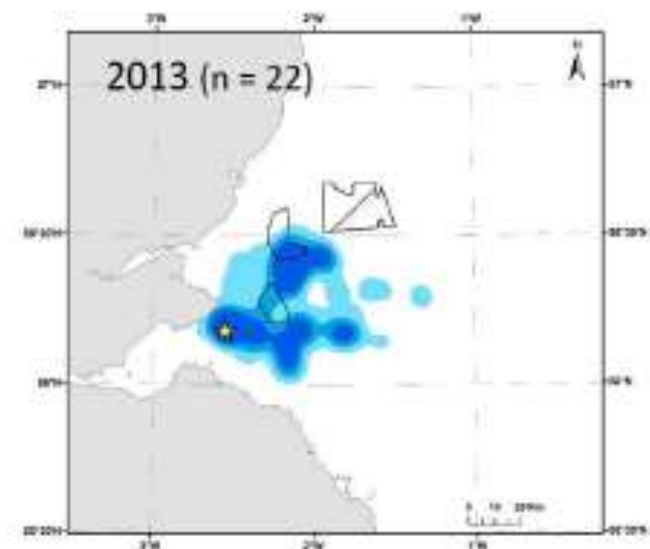
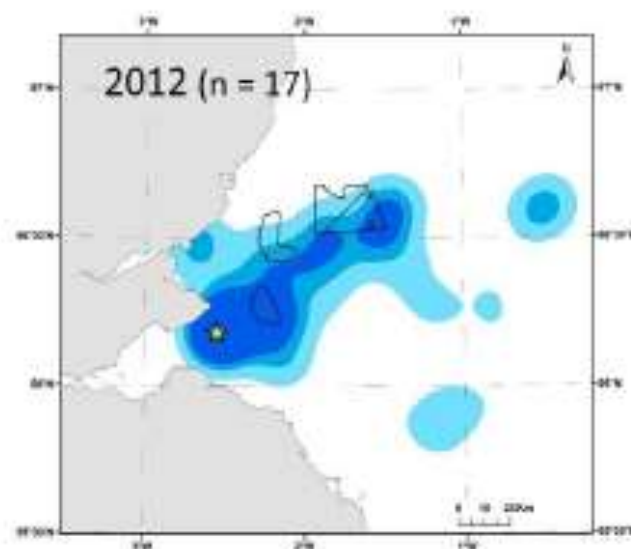
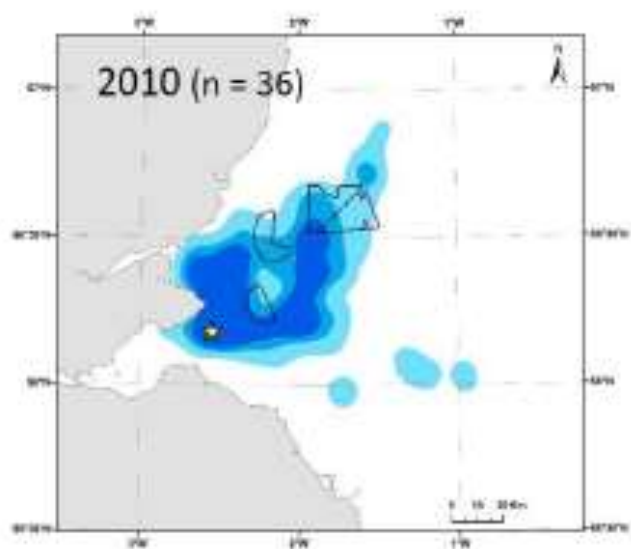
Flamborough and  
Filey coast SPA

Tracked foraging ranges  
(2017)

Kittiwake foraging ranges







### Kittiwake utilisation distribution

★ Isle of May

- 50%
- 70%
- 90%





**Action to reduce  
uncertainty...**

## **Monitoring, research and analysis**

- Ramp-up effort & investment
- Make it long term
- Coordinate
- Collaborate
- Feasibility



# Examples





# Seabirds Count

- A complete census of all breeding seabirds in Britain and Ireland
- 25 species across c.10500 sites

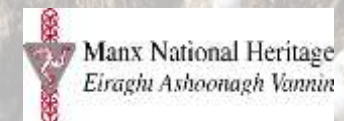
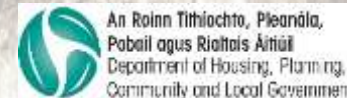
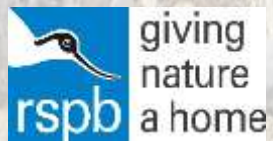




# Partnership



the National Trust  
for Scotland  
a place for everyone







# Flamborough & Filey Coast Seabird Monitoring Group

- Collaboration: statutory agencies, developers, (Orsted & SSE) local bird observatories, East Riding of Yorkshire and the RSPB
- Helping to fill major knowledge gaps





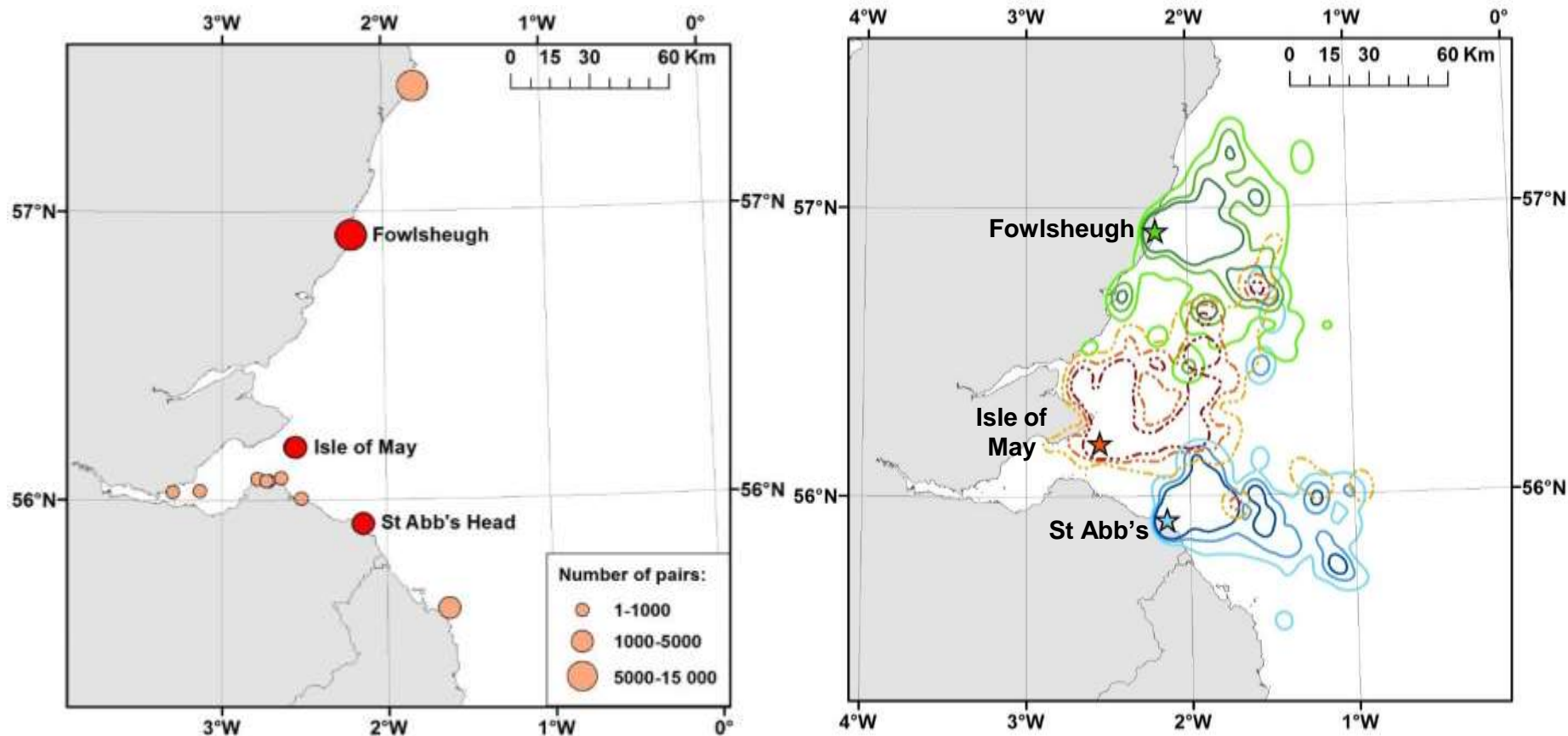
# Scotland's East Coast:

- Tagging
- Turbine mounted devices
- Enhanced colony monitoring
- Collaborative survey effort





# Multiple SPAs in 2020



- Shared empirical and analytical approaches on kittiwakes
- Effects of OWFs across multiple SPAs interacting with the wind farms
- Expanding baseline monitoring at Fowlsheugh and St Abbs to match Isle of May



# Ongoing actions...

- Scottish Marine Energy Research (ScotMER)
- Offshore Wind Strategic Monitoring and Research Forum (OWSMRF)
- Offshore Renewables Joint Industry Programme (ORJIP)
- Offshore Energy Strategic Environmental Assessment (OESEA)
- The Crown Estates: Enabling Actions







# Moving forward....

Who should lead on increasing the investment and delivery of environmental monitoring, research and analysis for offshore wind?

What opportunities are there to further improve coordination and focus of this research to help realise our net-zero targets in harmony with nature?





Thank you



