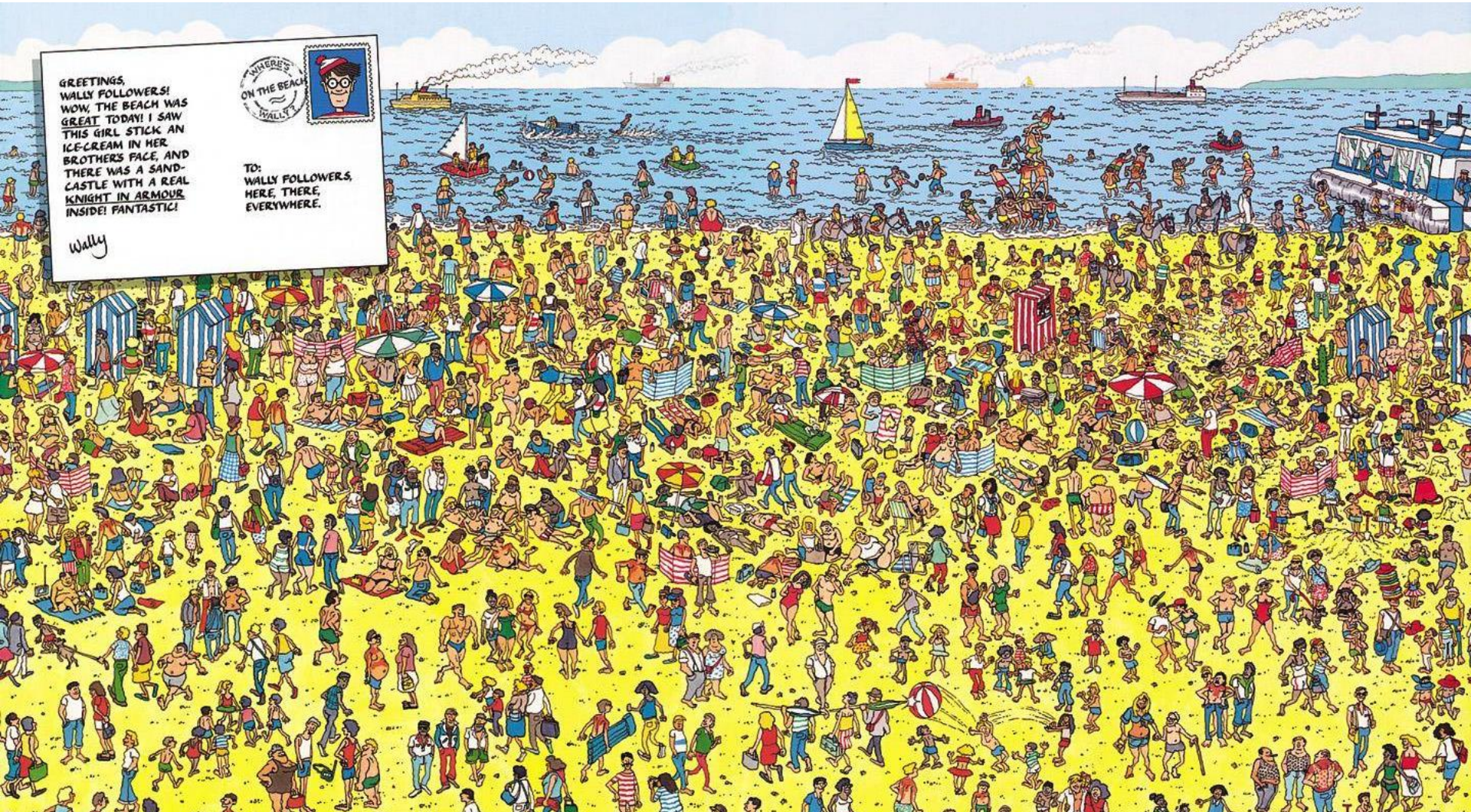


# Monitoring recreational activities in MPAs - a case study of collaborative research



Paula Lightfoot<sup>1</sup>, Catherine Scott<sup>2</sup> and Clare Fitzsimmons<sup>1</sup>

<sup>1</sup> Newcastle University, <sup>2</sup> Natural England





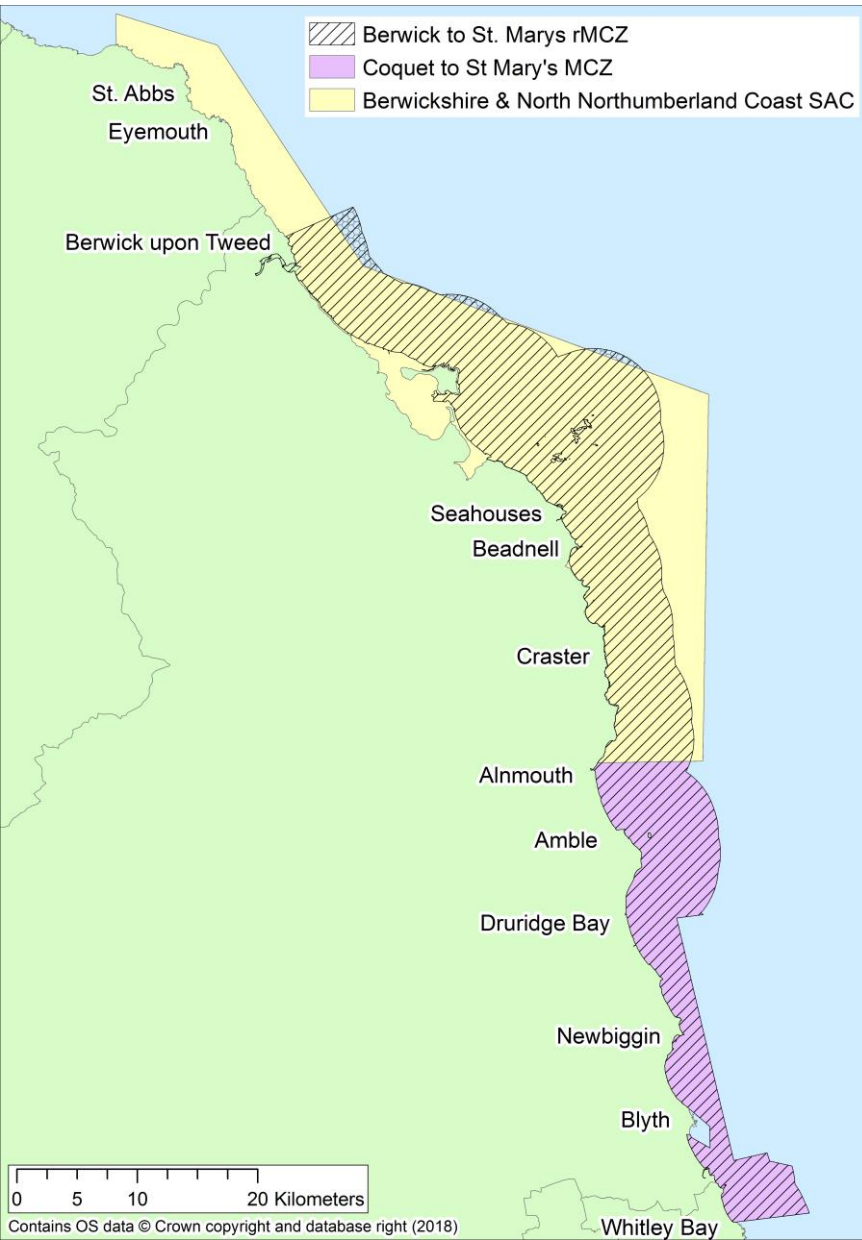
# The North East Coast



- The diverse habitats of the north east coast support spectacular marine life and thousands of breeding and over-wintering seabirds.
- Extensive network of Marine Protected Areas (MPAs) set up to protect nationally and internationally important species and habitats.
- Recreational activities on the shore and at sea are largely unregulated.
- They are increasing in duration and intensity on the north east coast.



# Working Together



- Growing need to monitor and possibly manage recreational activities in the north east coast's MPAs.
- Collaborative research by Natural England and Newcastle University to understand:
  - distribution and intensity of recreational activities
  - potential impact on MPA features.

Presentation of methods using Common Eider as an example of a sensitive feature...

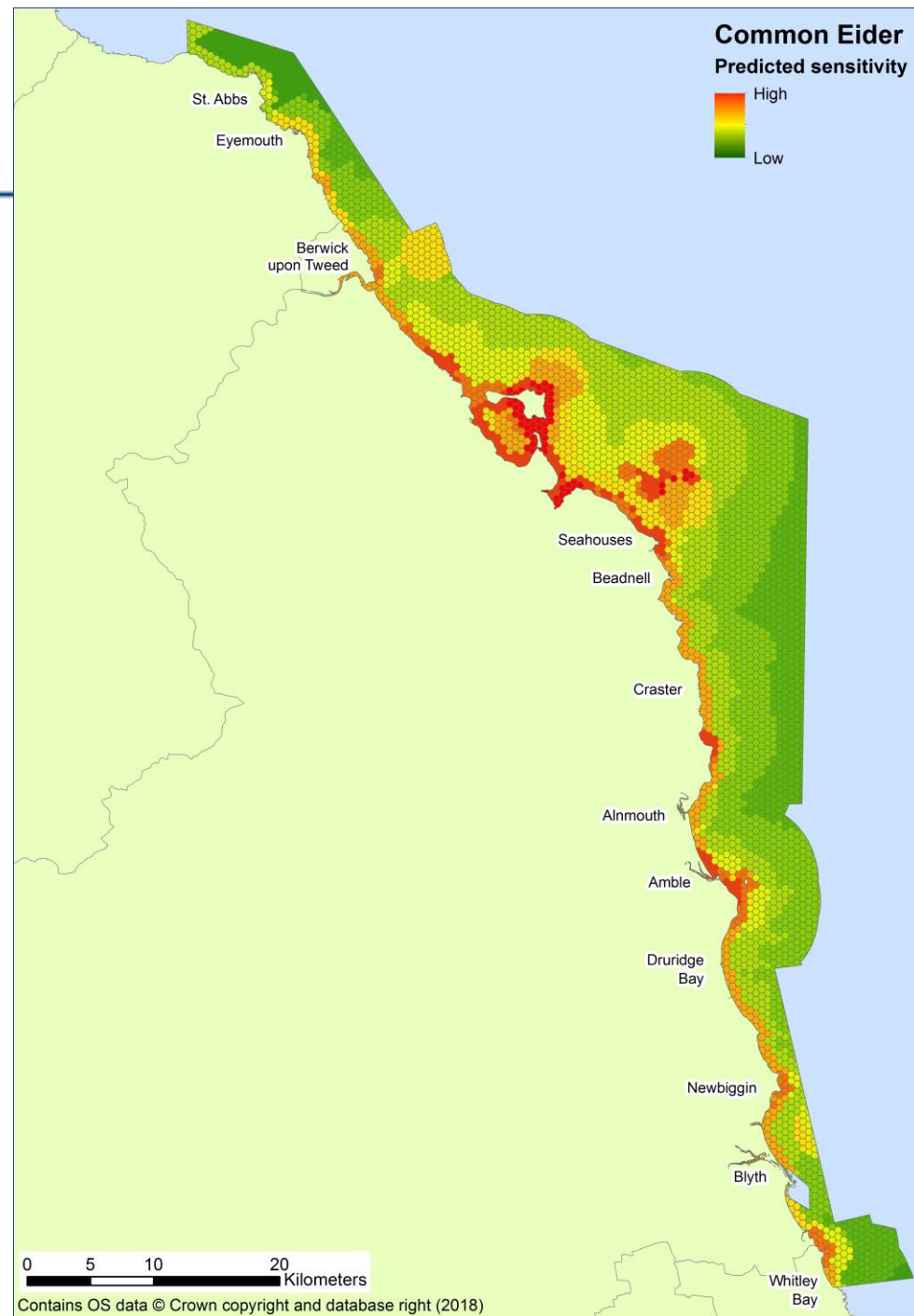




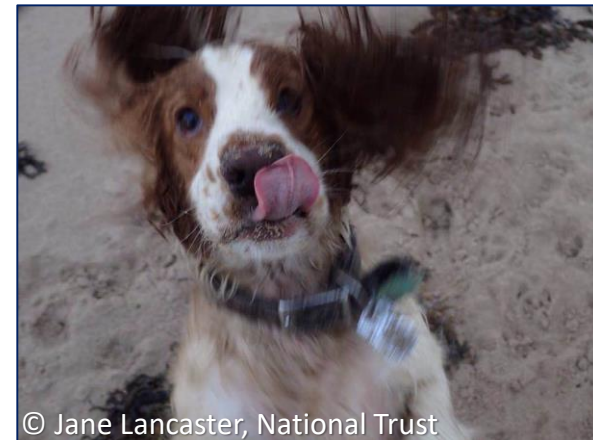
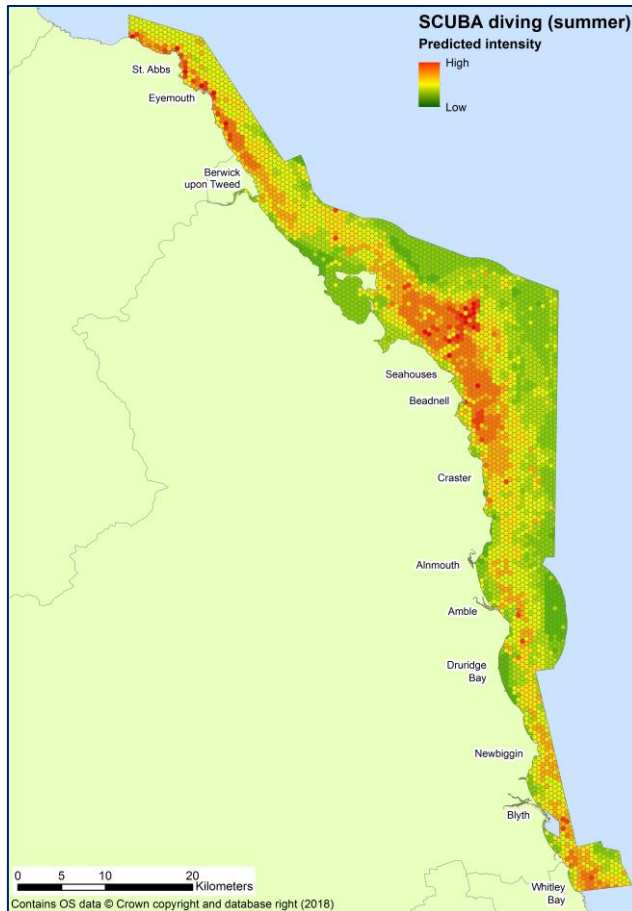
# Sensitivity Map

A sensitivity map for Common Eider was produced using:

- Species occurrence records downloaded from GBIF and the NBN Atlas.
- Data on the distribution of habitats used by Common Eider (e.g. mussel beds).
- Information on important areas provided by local ornithologists.



# Recreational Activity Maps



- Predictive maps of recreational activities (summer and winter) were created using multi-criteria evaluation in GIS.
- Used data on factors likely to influence the distribution and intensity of the activity.

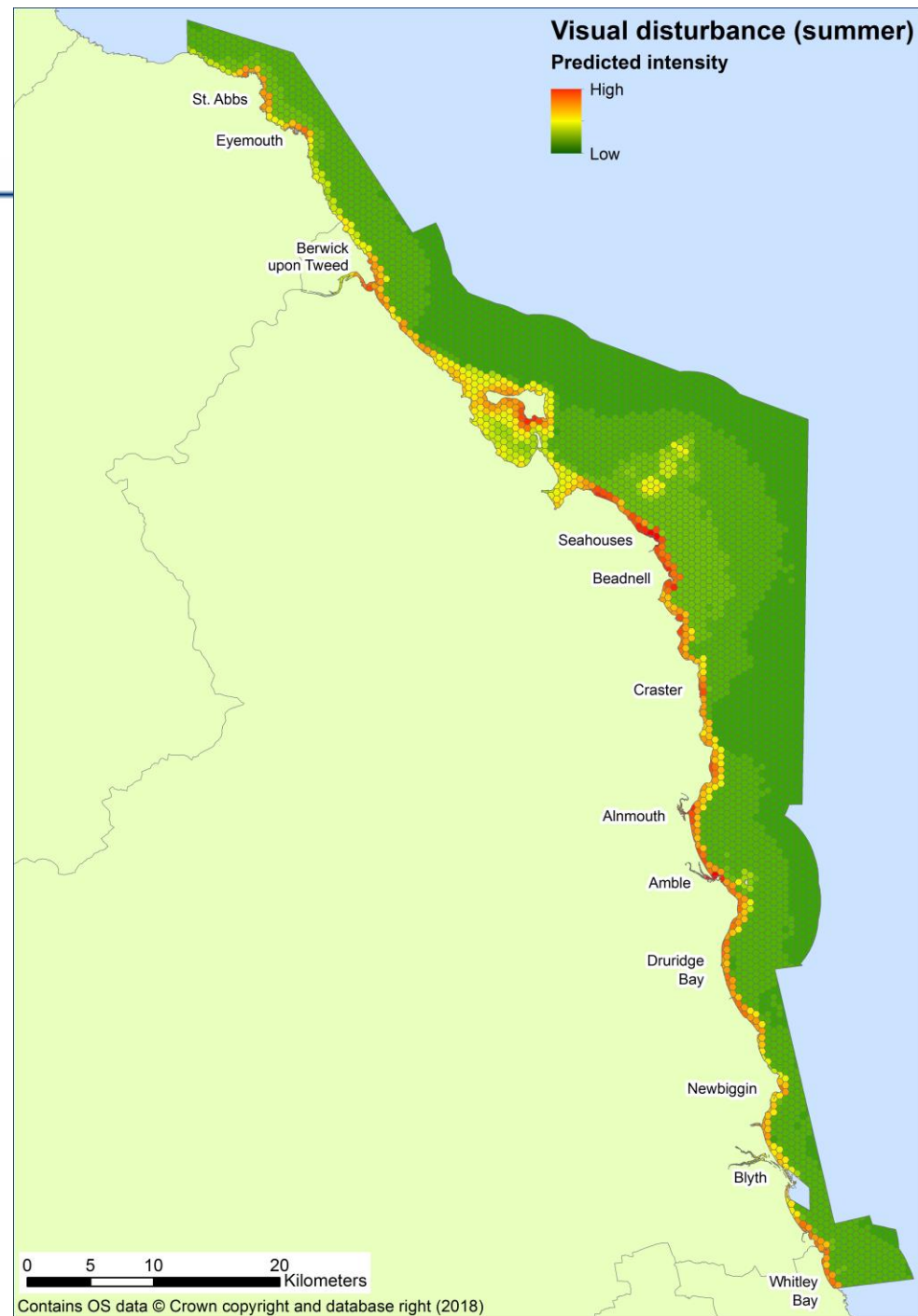
# Pressure Maps

Activity maps were combined to create pressure maps.

These are based on existing activity-pressure-feature matrices.

Common Eider are sensitive to:

- Above water noise
- Collision below water
- Collision above water
- Introduction of light
- Litter
- Removal of non-target species
- Visual disturbance

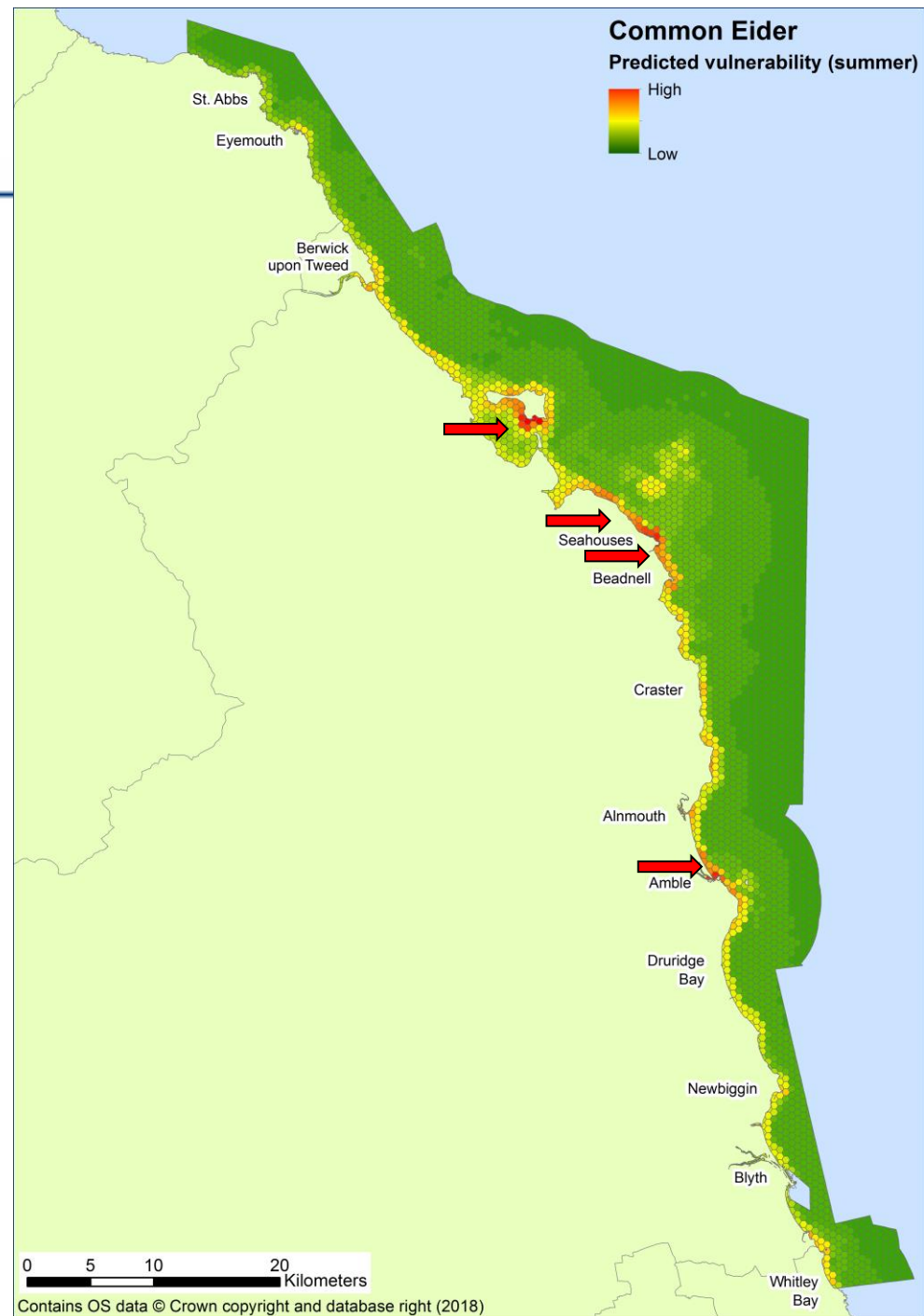


# Vulnerability Maps

Sensitivity maps and pressure maps were combined to produce vulnerability maps.

‘Hotspot’ areas where Common Eider may be vulnerable to impact from recreational activities can be identified:

- Amble
- Beadnell
- Seahouses
- South coast of Lindisfarne.





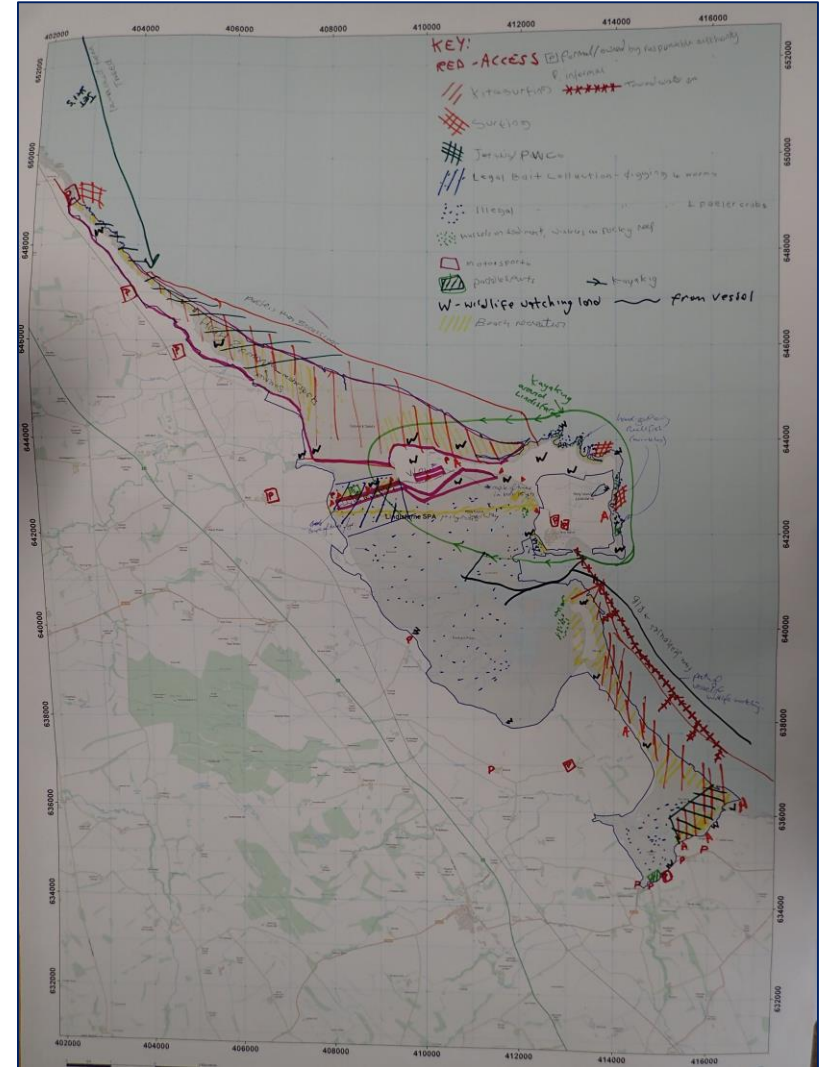
# Using Local Knowledge



Maps were validated and methods improved with input from local stakeholders working in tourism, recreation, conservation and marine management.



Stakeholder Workshop, Dove Marine Laboratory





# Conclusions



- Multi-criteria evaluation is a rapid and repeatable method which can be refined as new or better data become available.
- This method reliably identifies 'hotspots' where recreational activities occur at high intensity or in combination.
- This has considerable potential as a decision-support tool to aid marine management and conservation, for example:
  - Identifying areas where species or habitats may be particularly vulnerable to impact from recreational activities
  - Providing additional evidence to target management of recreational activities at sensitive locations, particularly during bird breeding seasons.





# Biodiversity Data



## Protected Species





# Biodiversity Data



## Influencing factors



© Kevin Lee

© Martin Kitching/[www.newt ltd.co.uk](http://www.newt ltd.co.uk)

© Tom Cadwallender, BTO

© Tom Cadwallender, BTO



# Questions? Come for a chat by my poster!

## Thank you!

- Natural England for supporting this research
- Photographs: Tom Cadwallender (BTO), Martin Kitching (Northern Experience Wildlife Tours), Jane Lancaster (National Trust) and Kevin Lee (Seasearch).
- Species Data Providers: Biological Records Centre, British Trust for Ornithology, Cornell Laboratory of Ornithology, Environmental Records Information Centre North East, JNCC, Mammal Society, Marine Biological Association, National Trust, National Trust for Scotland, Porcupine Marine Natural History Society, Royal Society for the Protection of Birds, Scottish Ornithologists Club, Seasearch, Whale and Dolphin Conservation.

