

Minke whale movements and usage of a Scottish MPA

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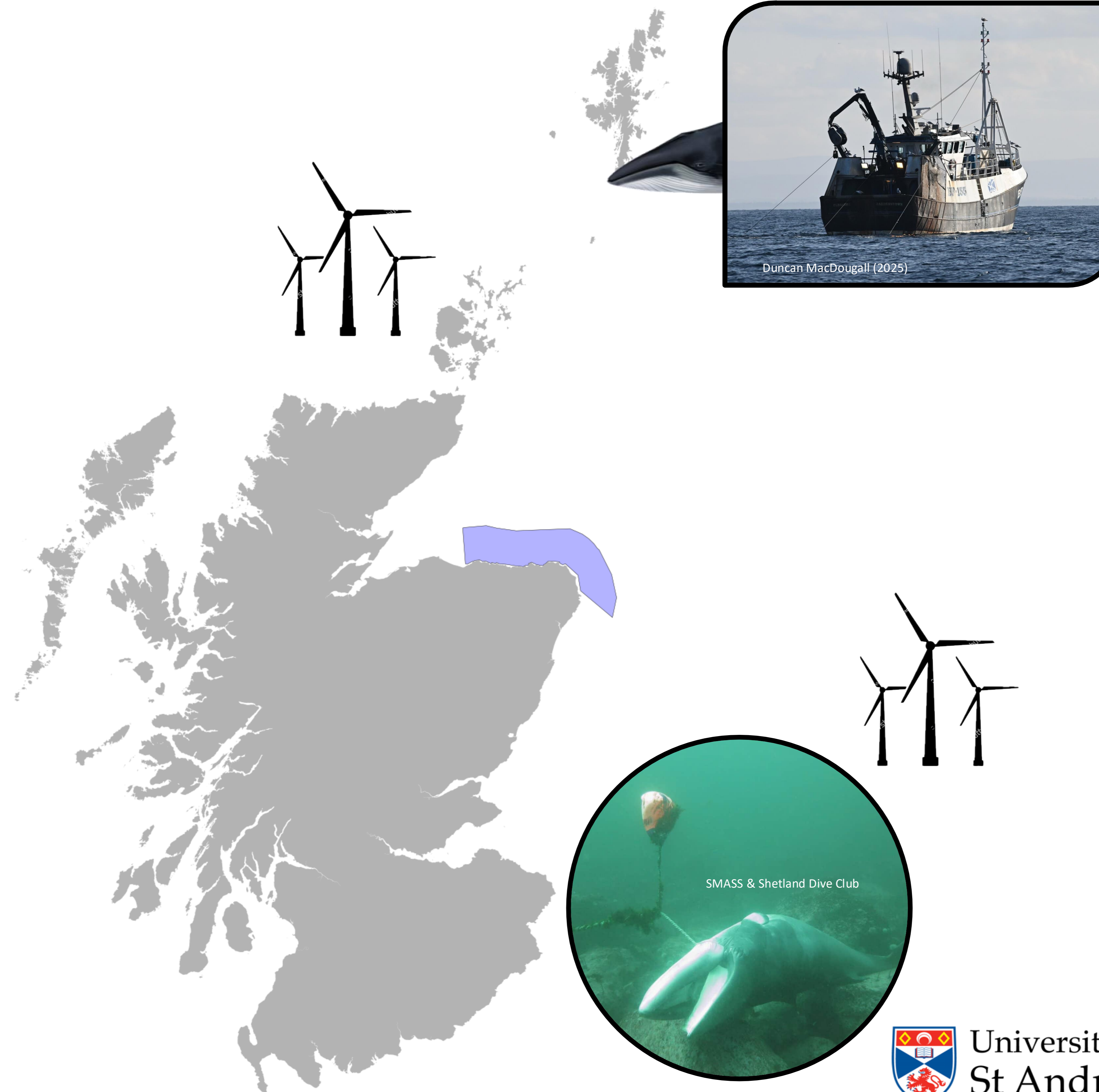


THE MORAY FIRTH & MINKE WHALES

- Southern Trench MPA established in 2020
- Minke whales feed in the Moray Firth from spring to autumn and are listed as a 'key feature' of the MPA¹

THE PROBLEM :

- Can MPAs be effective for vast-ranging species (e.g., migratory whales)?
- 'Paper parks' – many MPAs ineffective and unenforced
- Data lacking on minke whale behavioural ecology and susceptibility to threats



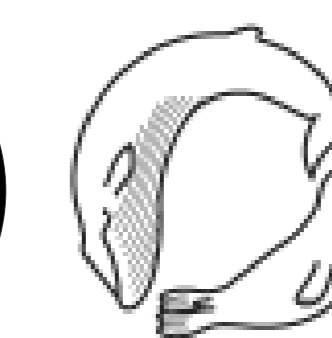
WHAT DO WE NEED TO KNOW?

HOW DO WHALES USE THE MPA?

1. **INDIVIDUAL USE**
 - site fidelity & feeding strategies
2. **DEMOGRAPHIC COHORT USE**
 - sexual & reproductive segregation
3. **POPULATION USE**
 - hotspots and susceptibility to threats within and around the MPA
4. **MOVEMENT PATTERNS**
 - scale of movements and migratory patterns

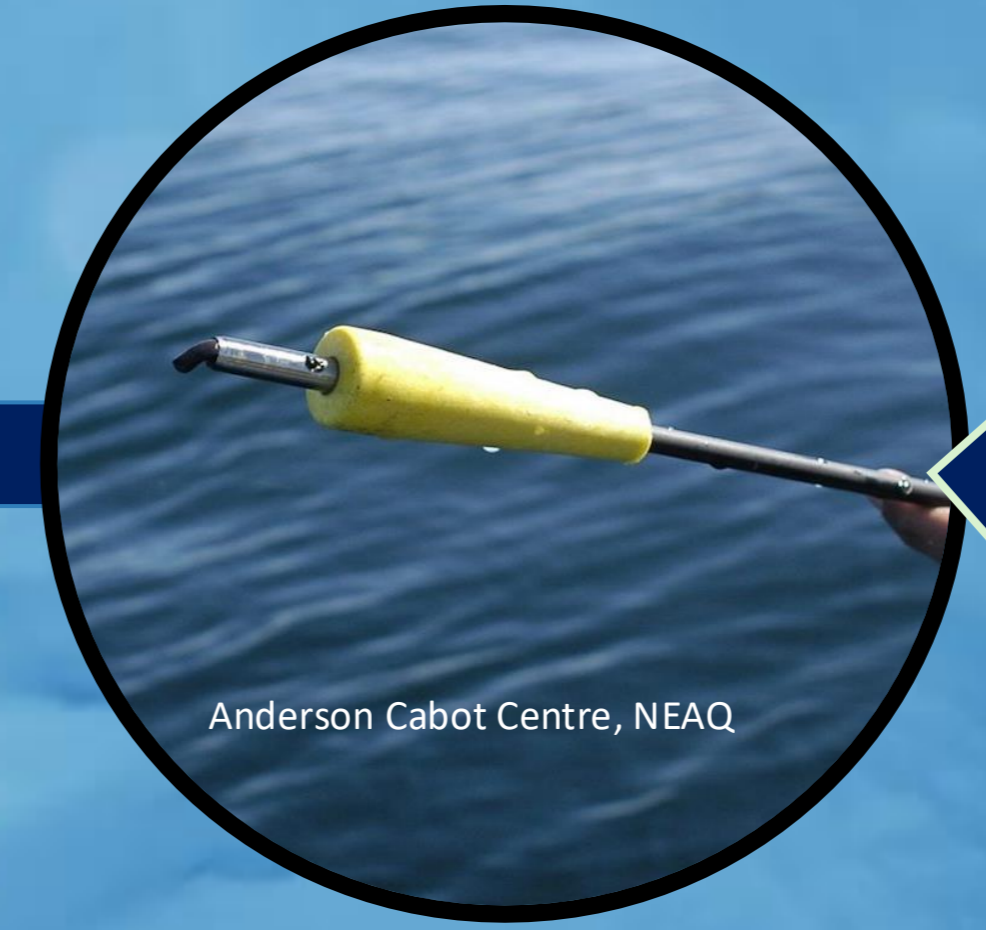


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How?



INDIVIDUAL USE

- Individual site fidelity
- Feeding behaviour

DEMOGRAPHIC USE

- Genetic sexing & progesterone analysis of biopsy samples
- eDNA 'flukeprint' sampling

POPULATION USE

- Hotspot modelling in MPA
- Threats (entanglement & vessels)

MOVEMENTS

- Telemetry
- Stable isotope analysis of baleen for broader-scale movements




THE 3 R's

- REPLACEMENT
- REFINEMENT
- REDUCTION

LICENSING

- PPL & PIL obtained May 2025 for regulated procedures

 Home Office
PROJECT LICENCE
Determination of movements and population structure of minke whales

 Home Office
PERSONAL LICENCE
Duncan MacDougall

Current status

Research area	Data available
Individual use of MPA	25-year photo-ID database >250 minutes drone footage (≥14 animals)
Demographic use of MPA	16 x biopsy samples (sampling ongoing) 13 x eDNA flukeprint samples (3 linked to biopsy)
Population use of MPA	~20-year dedicated effort and sightings data
Movements	10 x LIMPET tags (pending deployment) 27 x baleen plates – pending



EARLY INSIGHTS

- 117 marked animals
- 22 % **intra-annually** recaptured (between 2-75 days)
- 22 % **interannually** recaptured (2-19 years)
- Preliminary interannual matches (**4 +**) between W & E coast (CRRU 2025; HWDT 2023)

Have YOU got photos of minke whales?
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KEY REFERENCES

Cetacean Research and Rescue Unit (2025). Minke whale photo-ID catalogue. <https://crru.org.uk/research/catalogues?catalogue=minke-whale&page=1>

Hebridean Whale and Dolphin Trust (2023). Minke whale photo-ID catalogue for the west coast of Scotland, 1990-2020. A Hebridean Whale and Dolphin Trust Report (HWDT), Scotland, UK. 58 pp.