



Using Citizen Science and Photo ID to better understand presence of Risso's dolphin in Northeast Scotland and the Northern Isles

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Summary

- There is no population estimate for Risso's dolphin in Scotland and although regularly sighted, their distribution in Scottish waters is not well understood.
- We demonstrate the value of citizen science data to establish the coastal waters of northeast Scotland and the Northern Isles as critical habitat for Risso's dolphin.
- We recommend ongoing monitoring and the designation of appropriate protection mechanisms for Risso's dolphin in these areas.

Methods

Sightings records of Risso's dolphin provided by local data custodians were collated to illustrate the presence of Risso's dolphin over time.

We requested images of Risso's dolphin taken from within the study locations (Figure 1) through call outs on Social Media. 49 people contributed and these images (n=1,884) were collated to create two Photo Identification (Photo ID) catalogues.

Photo ID Catalogues

Two Risso's Dolphin Photo ID catalogues were developed by analysing photographs taken by citizen scientists and members of the public.

We present the Orkney and North/Northeast Scotland Risso's Dolphin Photo ID Catalogue (1) and the Shetland Risso's Dolphin Photo ID Catalogue (2).

The Photo ID Catalogues can be viewed by scanning the QR code.

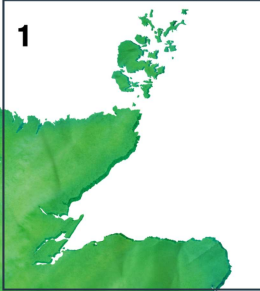


Figure 1: Map of Photo ID Catalogues and Study Locations - northeast Scotland and Orkney (1) and Shetland (2).

Acknowledgements:

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Image 1: A selection of photographs taken in Shetland (study location 2) submitted by citizen scientists (© Hugh Harrop, Robbie Brookes, Gary Bell, Ryan Leith, Craig Nisbet).

Photo ID

Risso's dolphins exhibit distinct markings and can be individually identified through photographs

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Distinct scars and markings on dorsal fin



Distinct nicks and notches in the dorsal fin



Presence of lesions and white scarring on the body

Results

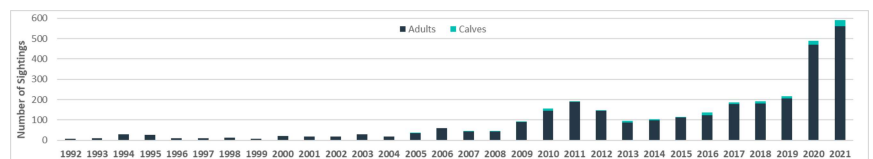


Figure 2: Annual sightings data (1992-2021), collated for both study locations.

Review of sightings records (n = 1839) showed a historical presence of Risso's dolphins in the study locations, with an increase in sightings reports over time (Figure 2) and higher numbers of sightings in the summer months (Figure 3).

Collation of photographs (n = 1,884) taken by members of the public resulted in the establishment of two Risso's dolphin Photo ID catalogues. Evidence of inter- and intra-annual site fidelity was observed.

Within the Photo ID catalogues, there are 159 individual Risso's dolphins. Of these, 39 individuals were re-sighted. A long distance match (Caithness, 2010 & Shetland, 2014) was made for two individuals. 25 mothers were catalogued (seen with calf).

Individual NE 019 aka 'Arrow' (Figure 4) was re-sighted 6 times between 2014 and 2020. This dolphin was photographed by 4 individuals from 4 locations along the Caithness coastline.

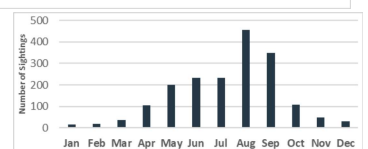


Figure 3: Monthly sightings data (1993-2022) for both study locations.



Figure 4: Individual NE019 (Arrow), identified using distinct markings on the dorsal fin.



Image 2: A selection of photographs taken in northeast Scotland and Orkney (study location 1) submitted by citizen scientists (© Alan Mackinnon, Alan McGee, Anita Cook, Colin Bird, Becky Austin).

