sea watch FOUNDATION

Orca Watch: 2021 Report

29th May - 6th June

- 54 hours of observation
- 154 sightings reported
- 747 individual animals
- 6 different cetacean species
- 3 different non-cetacean species
- 71 land watch sites
- UK sightings rate of 2.85 animals per hour of watching

1 Results

1.1 Effort

In 2021, 66 volunteer observers from Caithness, Sutherland, Orkney and Shetland spent a total of 54 hours collecting effort-related data (including information on environmental parameters collected at regular intervals throughout each watch) stationed at 71 land watch sites (Figure 1).

Figure 1. Land-watch locations for 2021 (n=71).

With regards to the amount of effort hours spent collecting data around Caithness, Sutherland, Orkney and Shetland this varied widely, and was mainly linked to observer numbers and availability, and weather conditions. The highest amount of effort hours was spent in the Pentland Firth where JOG Ferry run their trips (16.5 hrs), followed by Shetland where numerous land-locations were used to conduct watches (12 hrs), closely followed by Dunnet Head, Caithness (8.25) and Duncansby Head, Caithness (6.25 hrs). (See Figure 2).

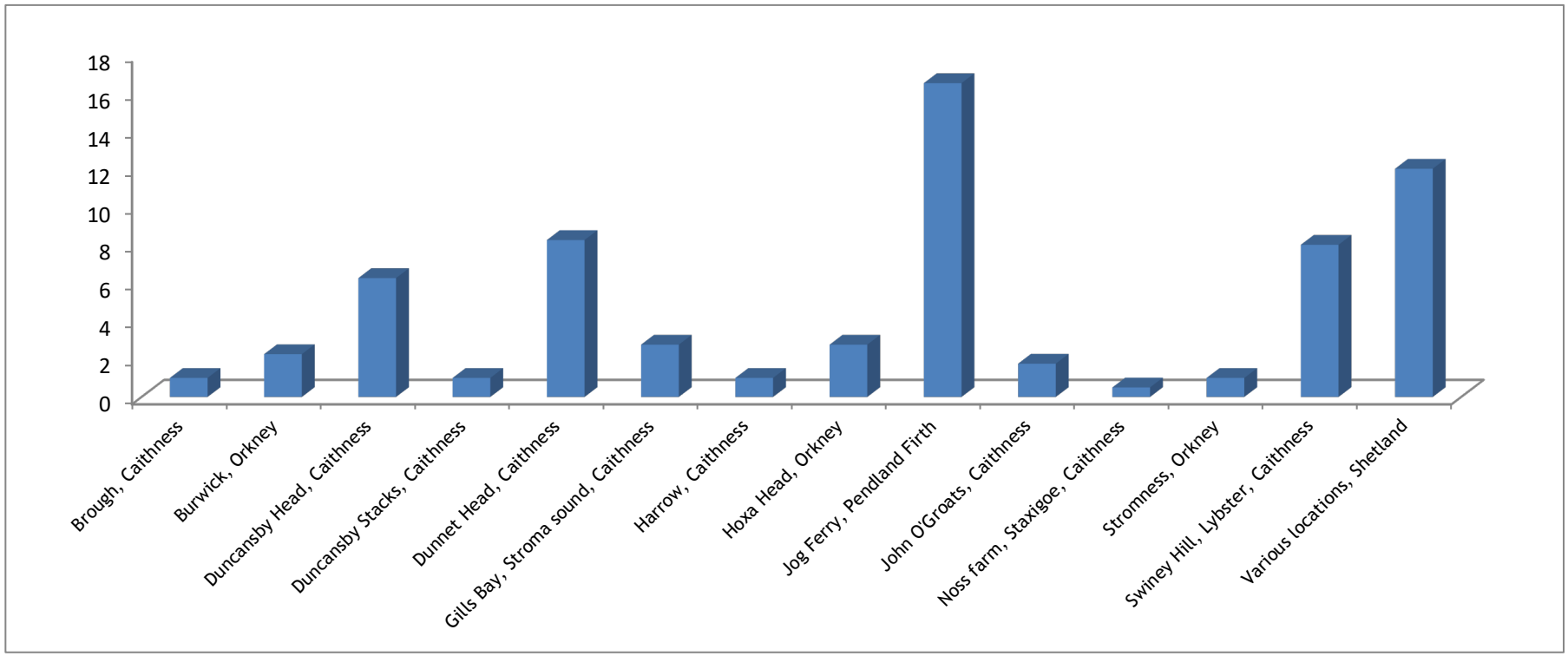

Figure 2. Number of hours of effort collected by land- or boat-watch locations

1.2 Sightings

154 sightings of marine mammals totalling 747 individual animals were reported in 2021 (Figure 3).

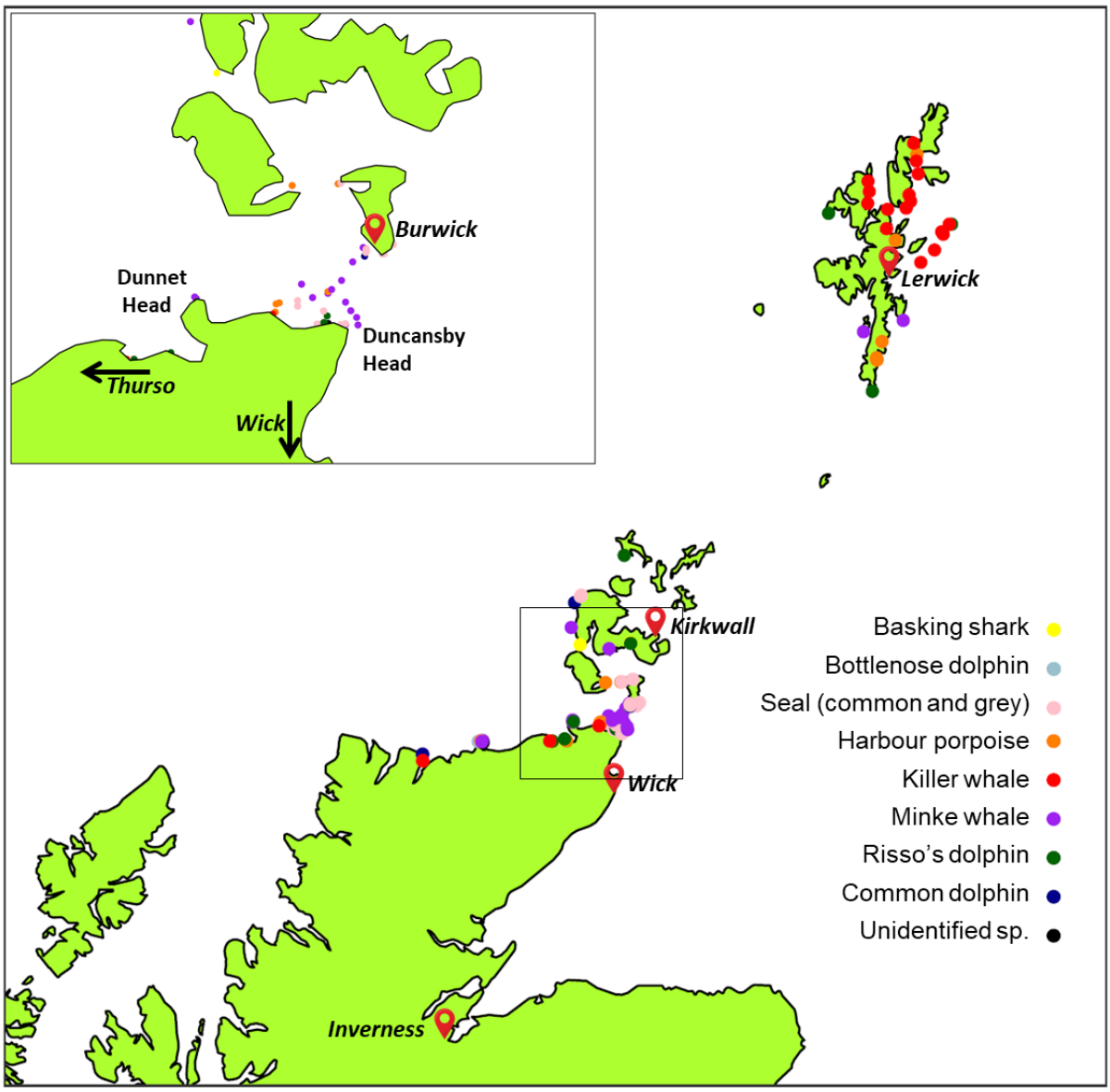

Figure 3. Sightings of marine mammal species during 2021 (n=747)

With regards to the distribution of marine mammal sightings in Caithness, Sutherland, Orkney and Shetland, this depends on various factors: the effort spent by each observer, the species distribution, and their sightability (how easily the animals can be detected).

Table 1. Quantitative description of sightings per species in 2021.

Species	No. of sightings	%	No. of individuals	%	Av. Group Size
Bottlenose dolphin	1	2%	6		6.00
Harbour porpoise	34	22%	118		3.47
Killer whale	36	23%	181		5.03
Minke whale	30	19%	40		1.33
Risso's dolphin	17	11%	100		5.88
Common dolphin	4	3%	23		5.75
Unidentified dolphin sp.	2	1%	8		4.00
Common (harbour) seal	3	2%	23		6.67
Grey seal	22	14%	243		11.04
Bashing shark	5	3%	5		1.00
Totals	154	100%	747		4.85

2 School visit

A virtual school visit to Canisbay and Castletown Schools was organized on June 4th when Sea Watch Sightings Officer, met with around 50 children from both schools and talked about whales, dolphins, beach-cleaning and orcas in Scottish waters. A dedicated talk with the older children also covered the Sightings Officer journey as a marine biologist and a woman in a STEM field.

Figure 4. Canisbay and Castletown kids attending the Zoom school visit led by Sea Watch Sightings Officer Chiara G Bertulli.
Photo credit: Rhona Moodie/Headteacher, Canisbay and Castletown Schools.

2 How effort and sightings data are used

2.1 Sightings data

Sightings are important because they give us information about where and when species occur, from which we can identify important areas and habitats, as well as determine changes in their status and distribution. Such knowledge helps provide better informed conservation measures.

More than two thousand people have contributed sightings to the national database that currently comprises over 60,000 records, making it one of the largest and longest-running sightings schemes in the world.

Sightings can be plotted, and maps can also be used on a finer scale at a regional level, in order to identify specific localities important for a particular species, and how these may vary seasonally or yearly.

Estimating group size can be challenging as training is necessary to make sure volunteers familiarize with counting individual whales, dolphins and porpoises in the wild. A possible source of bias existing in this data set refers to the use of methods implied by local volunteer observers to report and count animals, in the different duration of watches as well as in the experienced of observers. Observers who are experienced marine mammal observers, using scoping views and/or spending prolonged period of times reporting animals and counting them reported more sightings and larger group size estimate e.g. 31 minke whales seen off Staithes. Another existing bias in group estimates lies in the fact that individuals are not photo-identified so there is a possibility that group estimates are overestimates.

2.2. Effort data

Taking sightings records and adding environmental data such as water depth, sea surface temperature, salinity, and measures of primary productivity, one can build up profiles of the habitat requirements of various cetacean populations and better understand the ways in which they are affected by their environment. This can enable us to identify potential hotspots for particular species so that recommendations can be made for where to establish Special Areas of Conservation (SAC) under the EU habitats and Species Directive.

Besides seasonal changes, systematic observations from both land and offshore can reveal longer-term trends in abundance of a species. Although difficult to generalize using information from a single site, when a wider network of sites are providing information on a regular basis, it becomes possible to draw more general conclusions about status changes, bearing in mind that if those sites are all coastal, one is only seeing variation

applying to that coastal zone. This is the reason why it is important to also monitor populations further offshore, with survey vessels.

2.3 How do results inform and influence conservation measures

The collation of information on abundance and distribution of whales, dolphins and porpoises is valuable in many ways. Besides increasing our general knowledge of the cetacean fauna that inhabits the seas around the British Isles, it can inform us of important areas and times of year for particular species, enabling better decision making on the risk of harm to local populations from certain human activities. It may also indicate where dedicated research should be directed or draw attention to possible status changes on a local wider basis.

The Sea Watch Foundation provides information on cetaceans to a variety of governmental and non-governmental organisations in the UK, including the Department for the Environment, Food and Rural Affairs (Defra), the Joint Nature Conservation Committee (JNCC; the Government's advisers on nature conservation), the national statutory conservation agencies (English Nature, Countryside Council for Wales, and Scottish Natural Heritage), Environment Agency, Wildlife Trusts, World Wide Fund for Nature (WWF), Marine Conservation Society, International Fund for Animal Welfare, RSPCA, Greenpeace UK, Whale and Dolphin Conservation Society, Institute of Zoology, London Natural History Museum, and British Divers Marine Life Rescue, as well as to a wide spectrum of other users of the marine environment from recreation, commerce and industry.

Sea Watch, and its predecessor the Cetacean Group, contributed to the creation of the most important European Legislation to date for the protection of cetaceans – the Agreement on the Conservation of Small Cetaceans in the Baltic and North Seas (ASCOBANS), and had input to the UK Wildlife and Countryside Act, EU Habitats and Species Directive, and UK Biodiversity Action Plan for Cetaceans. Sea Watch currently provides information for Environmental Impact Assessments (e.g. for harbour construction, wind farms, seismic activities), and offers briefs to the media publicising its work and informing on matters relating to cetacean conservation. Training aids, survey and monitoring methodologies and computer software developed by Sea Watch are available for use worldwide. Cetacean Status Reviews using both casual and effort-related sightings data have been commissioned by the Nature Conservancy Council (2986), UK Department of the Environment (1992) and English Nature and Countryside Council for Wales (2003).

Sea Watch contributes to the Joint Cetacean Database (JCD), which is the amalgamation of three cetacean databases from the Joint Nature Conservation Committee (JNCC), the Sea Mammal Research Unit (SMRU) and Sea Watch Foundation (SWF). The JCD must be one of the largest of its type in the world and has been used in the production of the recently published European Cetacean Distribution Atlas (Reid, J.B., Evans, P.G.H. and Northridge, S.P. 2003 Atlas of Cetacean Distribution in North-West European Waters. Joint Nature Conservation Committee, Peterborough 76p.

Sea Watch staff currently participate in the following committees: ASCOBANS Advisory Committee, European Cetaceans Society Executive Council, Species Action Plans (SAP) Group for Cetaceans and Marine Turtles, Wildlife and Countryside Link Groups on Whaling and Fisheries, BBC Wildlife Advisory Panel, External Advisory Panel of Association of Oil and Gas Producers, and Advisory Panel of the World Society for the Protection of Animals (WSPA).

3 Acknowledgements

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Orca Watch 2021 would not have been possible without the generous participation of a group of unpaid volunteers, in particular: Lucy Baldwin, Clare Boardman, Karen Hall, Hugh Harrop, Emma Neave-Webb, Hannah Parkinson, Robin Petch, Steve Truluck, and Christina Worth.

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Finally, a special mention to our funder for Orca Watch 2021 - NatureScot, through the PlungeIn! Year of Coasts and Waters fund, and to Philip Barnes, producer of our online programming which brought the sightings to a wider, home audience. (These daily round-ups can still be seen on the Sea Watch youtube channel.)