







## National Whale and Dolphin Watch 2022






23<sup>rd</sup> July- 31<sup>st</sup> July

### Facts and Figures



-  1 229 hours of observation
-  1 775 sightings reported
-  12 052 individual animals
-  12 different species

-  160 land watch sites
-  33 vessels
-  0.76 UK sightings rate of animals per hour of watching!

## Introduction

2022 marked the twenty-first year of Sea Watch Foundation's National Whale and Dolphin Watch event. Sea Watch Foundation has been monitoring whales, dolphins and porpoises in British waters for over forty years with the help of volunteer observers all around the country. For the past two decades, this has been spearheaded through an annual national recording event, the National Whale and Dolphin Watch (NWDW), which marks the long-lasting collaboration between citizen scientists, wildlife enthusiasts, the general public, and researchers alike.

The aim of the survey has been to obtain a snapshot picture of the status and distribution of some of the species of cetaceans (whales, dolphins and porpoises) recorded in UK waters through systematic watches from both land and sea, as well as casual watches, whilst also raising public awareness of the wealth of marine mammals we have around our coasts.

The use of 'non-scientific members' of the general public or 'non-specialist volunteers' to collect data on cetaceans to investigate their status, distribution, abundance and well-being has been pioneered in the UK by the Director of Sea Watch Foundation. This organisation, dedicated to marine research, conservation and education, established a nationwide citizen science project in the 1970s by creating a network of voluntary observers who report sightings of cetaceans from all around the UK, and whose help is vital to improve the knowledge of the health of the marine environment and its inhabitants. Sea Watch Foundation encourages observations and recording throughout the year, but it is during the NWDW event that everyone is given a unique opportunity to collect a large amount of scientifically valuable data over a concentrated time period, and to learn from each other at publicised sites.



Volunteers conducting a watch from Broughty Castle, Dundee, ©Laura Blackie



A selection of photographs from this year's event: (left to right, top to bottom): Sea Watch Interns hosting a rock pool safari in New Quay, © SWF. Volunteers conducting a watch from Broughty Castle, Dundee, © Laura Blackie. Sea Watch Adopt a Dolphin Administrator Kirsten Hintner showing off some NWDW cookies made by Pedyr's Bake House, © SWF. Volunteers conducting a watch from Portland Bill, Dorset © Catherine de Bertrand. Bottlenose dolphins submitted to this year's photography competition, © Robert Dodd.

NWDW 2022 revealed striking biodiversity with as many as twelve different cetacean species seen around the British Isles, a number that was only previously higher in 2015, 2018 and 2019. In addition to those cetacean species, two species of pinnipeds and four non-mammal megafauna species were also seen.

The total number of sightings collected was greater than last year and is currently the second highest record, behind 2018.

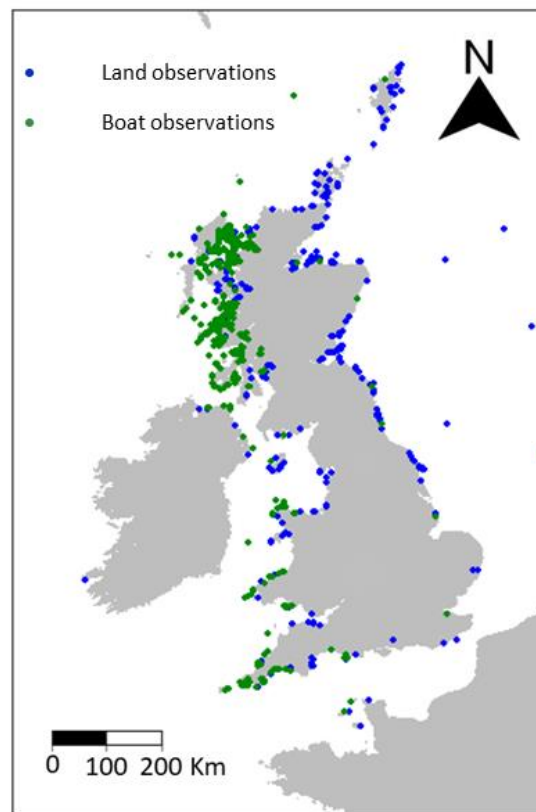
This year's NWDW marks also the great group collaborations with different conservation and recording organisations, including Whale and Dolphin Conservation (WDC), and Hebridean Whale and Dolphin Trust (HWDT) that contributed with extra data collected from boats (inshore and offshore) and from land stations in various parts of the country.



## Results

### Effort

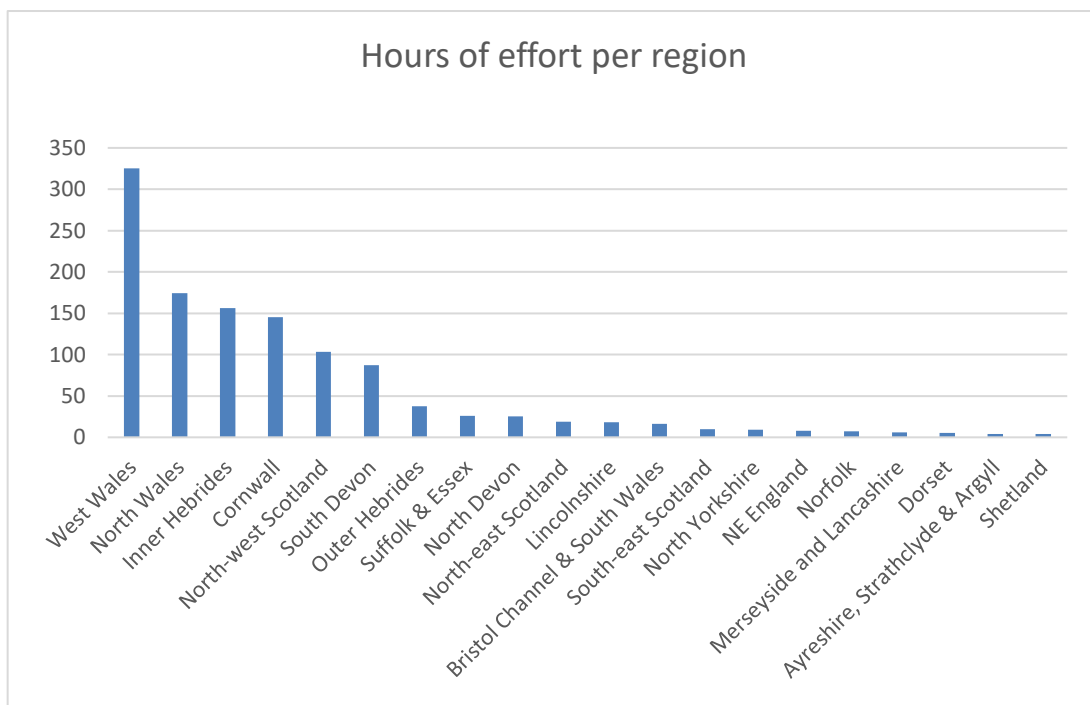
During the 2022 NWDW, 626 volunteer observers from all over the UK spent a total of 1,229 collecting effort-related data (including information on environmental parameters collected at regular intervals throughout each watch) stationed at 127 land watch sites and on 33 vessels around Britain (Fig.1). An additional 124 observers reported casual sightings both from land and at sea.



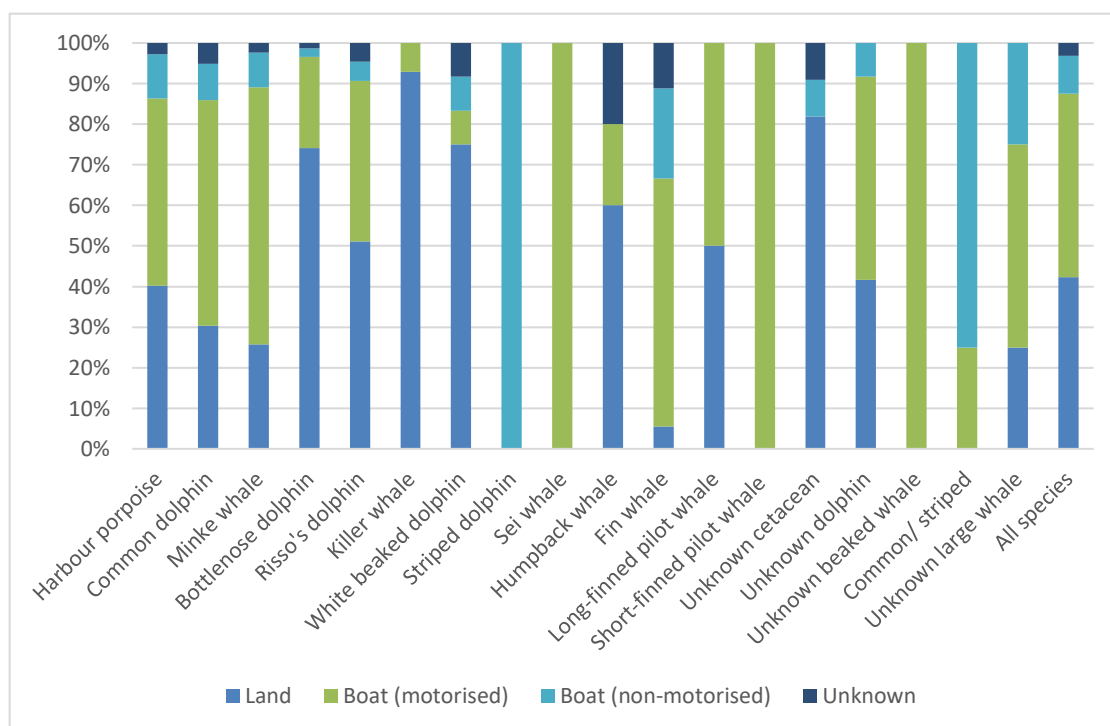
**Figure 1.** Watch locations for NWDW 2022 (n=160)

Over forty-four percent of the total amount of hours spent collecting effort-related data came from land-based locations. Dolphin Spotting Boat Trips, a Recommended Boat Operator based in New Quay, spent a total of 90 hours conducting commercial dolphin watching tours, while the Hebridean Whale & Dolphin Trust (HWDT), a regional charity operating in the Inner and Outer Hebrides, spent 29 hours of effort time conducting boat trips.

With regards to the amount of effort hours spent collecting data in each region around the country, this varied widely, and was strongly linked to observer numbers, the presence of regional coordinator as well as links with other organisations which produced the highest levels of effort data collection (Fig 2.).



**Figure 2.** Number of hours of effort-related data collected by region



**Figure 3.** Proportion of sightings per species reported from land, boats (motorised and non-motorised) and unknown platforms

Forty-five percent of all sightings were recorded from motorised boats during 2022 with forty-two percent being recorded from land. This is different from previous years where most sightings were recorded from land.

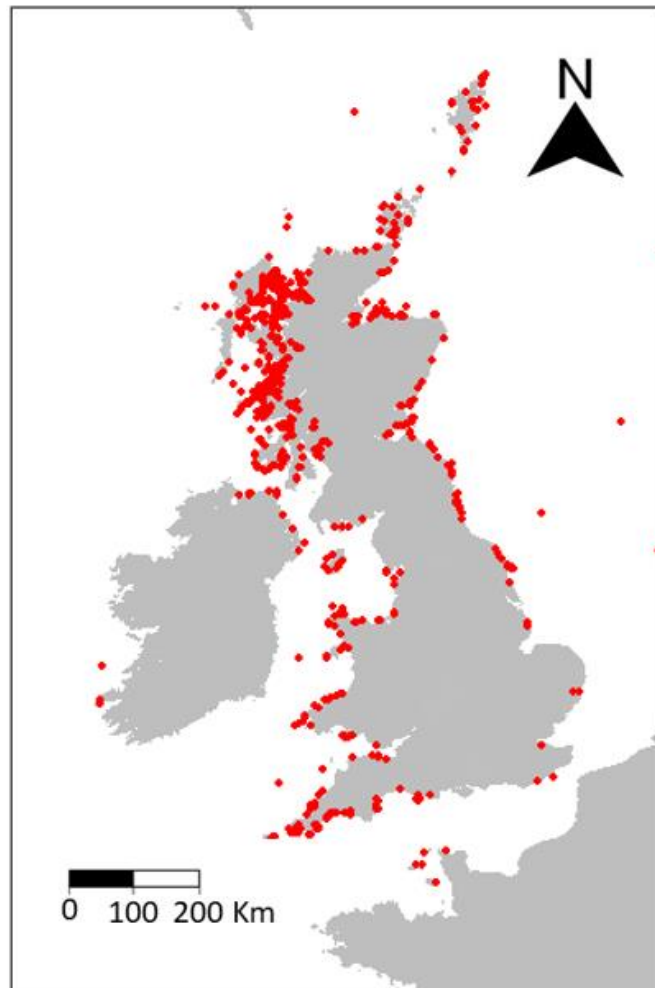
The type of platform from which whales and dolphins were sighted varied according to each species' distribution and habitat use (Fig.3). Species such as harbour porpoise, bottlenose dolphin, and minke whale have a widespread coastal distribution and as the results show they were often sighted from land. Short-beaked common dolphins, an ocean species known for their offshore distribution were mainly sighted from motorised vessels. Striped dolphins, which were only recorded once were also sighted from a vessel.

### **Weather**

The ability of detecting cetaceans and collect their sightings is strongly affected by several weather parameters such as sea state, glare, swell height and visibility. In case the weather deteriorates due to strong winds and heavy rain watches can be cancelled altogether as conditions are no longer ideal to collect presence and absence data. Taking this into account, every year NWDW is organised over nine days to increase the chances of getting favourable weather conditions to conduct land and boat watches around the UK. This year weather was changeable. The UK recorded low levels of rainfall with the lowest level of rainfall for July in England since 1935. A summary of the weather conditions and daily sighting maps are provided in Appendices 1 and 2.

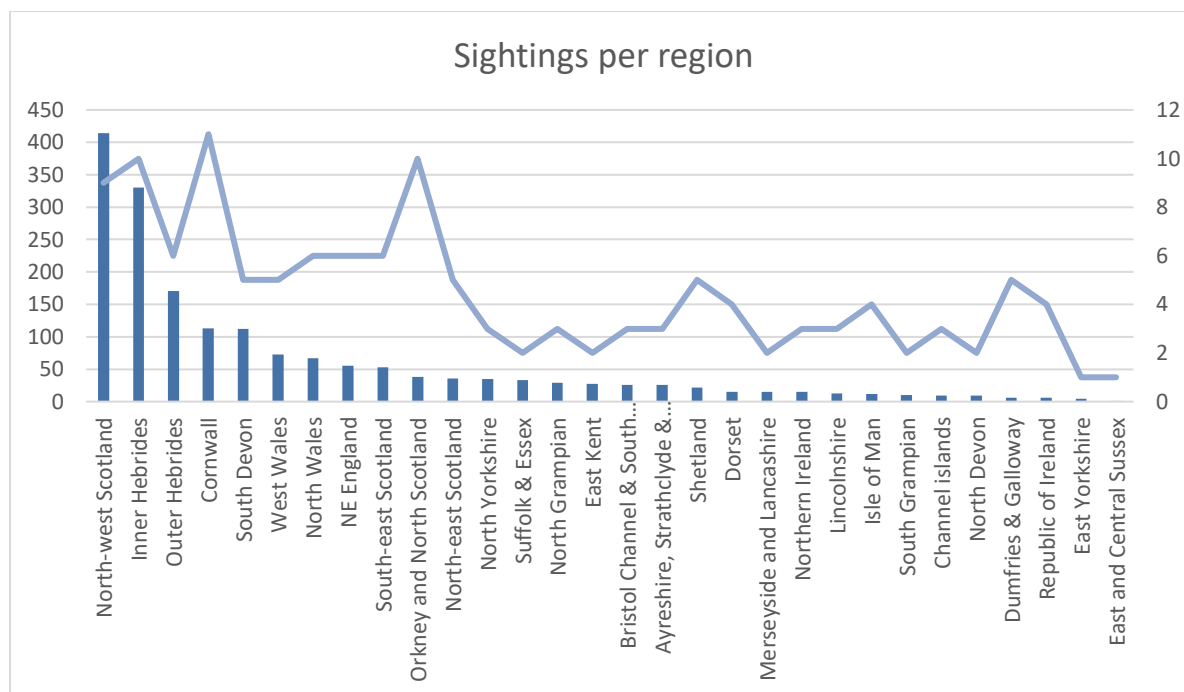
### **Sightings**

1775 sightings of cetaceans totalling 12052 individual animals were reported during NWDW 2022 (Fig.4). This number of sightings is second highest ever recorded. Thirteen different cetacean species and six non-cetacean species were recorded around the UK.



**Figure 4.** Sightings of cetaceans during NWDW 2022 (n=1775)

With regards to the distribution of cetacean sightings around the UK, this can be affected by various factors: the effort spent by each observer, the species distribution and their sightability (how easily the animals can be detected). Scotland significantly more sightings than other regions (n=1106, 62.31% of all the records), followed by England with 461 sightings (26% of total records), then Wales with 166 sightings (9.4% of total sightings records). Around Northern Ireland observers reported 15 sightings (0.85% of the total), and there were 12 reports around the Isle of Man (0.68%). Observes around the Channel Islands reported 9 sightings (0.51%).



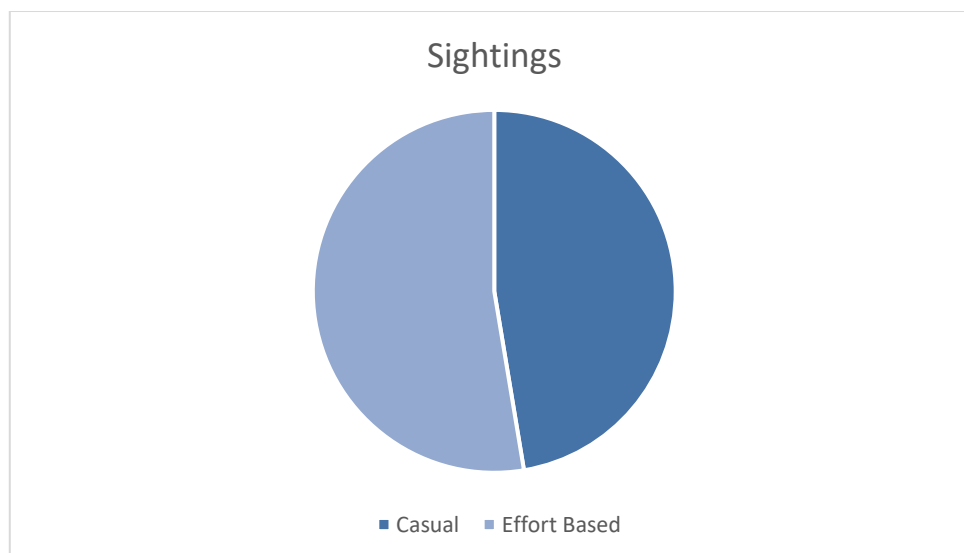
**Figure 5.** Number of sightings (casual and effort-related) and species per region during NWDW 2022

North-west Scotland (414 sightings), the Inner Hebrides (330 sightings) and the Outer Hebrides (171 sightings) were the regions which collected the highest number of sightings, closely followed by Cornwall (113 sightings).

Cornwall (n=11), recorded the highest number of species. The Inner Hebrides and Orkney & North Scotland (n=10) also recorded high species diversity, followed by North-east Scotland (n=10). Outer Hebrides, North Wales, North-east England, and South-east Scotland recorded each a total number of 6 species, showing a very high species diversity as well. East Yorkshire and Sussex had low species diversity (one species recorded).

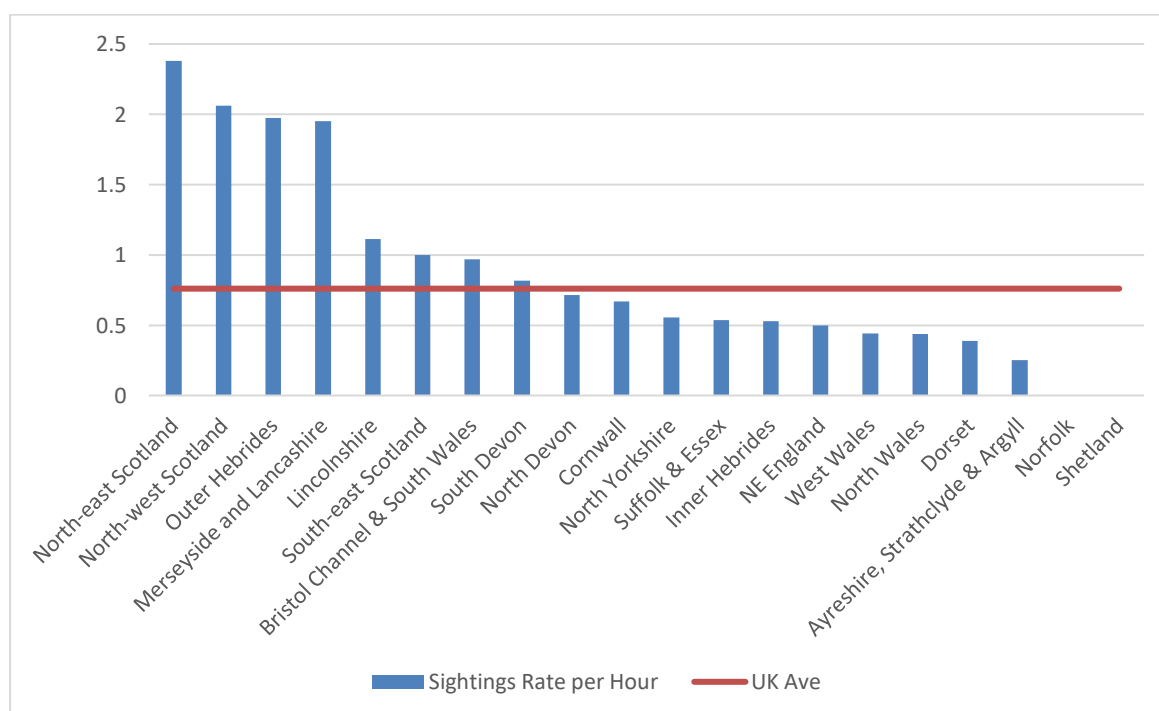
The proportion of “casual” sightings (without associated effort data) and “effort-related” sightings has changed compared to last year, with a larger number of casual sightings being collected, which accounts this year for 55% of all sighting records reported during the event. The casual sightings account for 45%.





**Figure 6.** Proportion of effort related sightings (n=934; 52.6%) and casual sightings (n=841; 47.4%) recorded during NWDW 2022

Figure 7 shows that North-east Scotland and North-west Scotland are at the top of the list with sighting rates superior to “2” (indicating an average of two or more cetaceans seen per hour of watching). Based on this year’s results, the UK’s national average sightings rate has increased compared to last year.



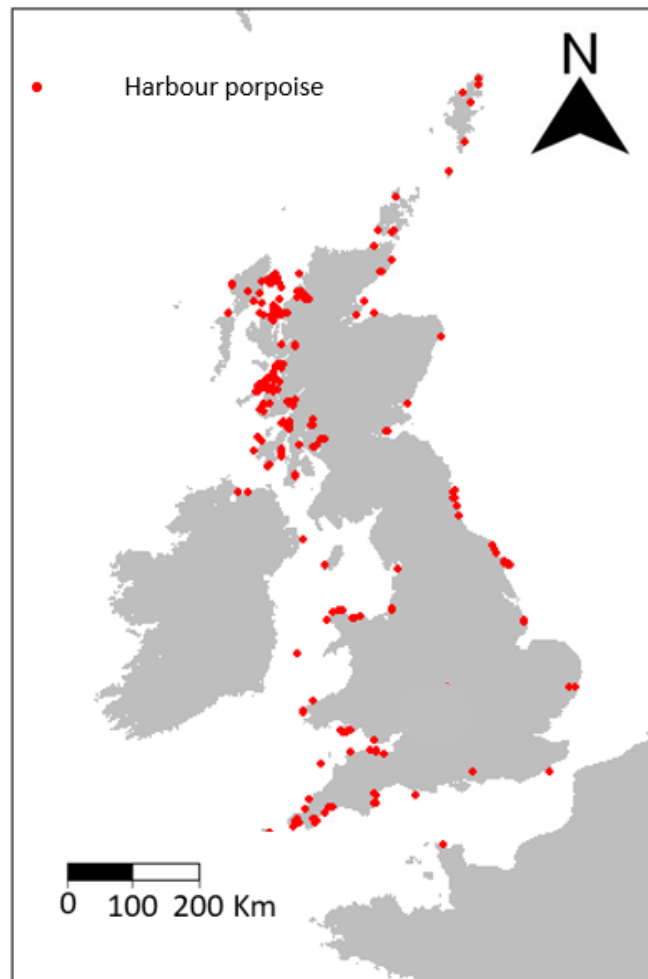
**Figure 7.** Sighting rates per region during NWDW 2022. The overall average UK sighting rate is equal to 0.76. Excluding effort time of >4 hours.

### Harbour Porpoise



Harbour porpoises photographed off Falmouth, Cornwall, on July 28<sup>th</sup>. Photo credit: AK Wildlife Cruises

Harbour porpoises are the most frequently seen species in most parts of the UK which was reflected also in this year's NWDW results. The species was recorded 539 times (30.4%). Figure 8 shows that sightings were distributed around the whole of the UK coastline and especially concentrated in North-east England, Cornwall, the Inner and Outer Hebrides, Bristol Channel and South Wales. The size of groups of this species varied from a single individual to the largest aggregation of 40 animals which was seen in Newport Bay, Pembrokeshire (Table 1).



**Figure 8.** Sightings of harbour porpoise during NWDW 2022 (n=539; 30.4%)

### Common dolphin

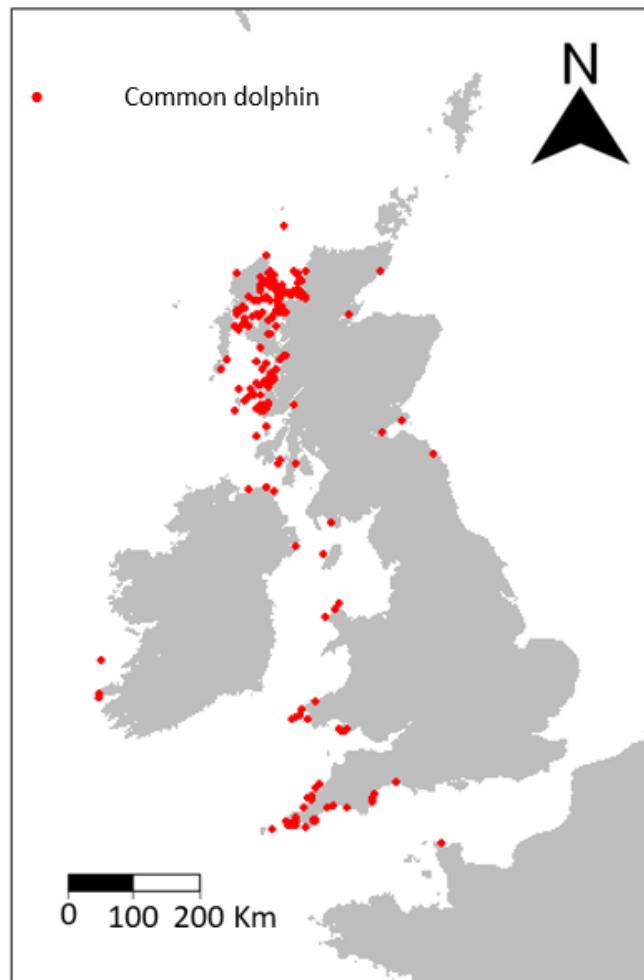


Common dolphins photographed off Falmouth, Cornwall, on 28<sup>th</sup> July. Photo credit: AK Wildlife Cruises.

Common dolphins were the second most abundant species recorded during the 2022 NWDW event, with 448 sightings being made accounting for 25.3% of all records. The species showed a predominantly westerly distribution (Fig 10) with the highest occurrence around the Inner and Outer Hebrides and off Cornwall. The largest group (200) was recorded off Opinan, Ross-shire (Table 1).



Common dolphin photographed off Penzance, Cornwall, on 29<sup>th</sup> July. Photo credit: Marine Discovery Penzance



**Figure 10.** Sightings of common dolphin during NWDW 2022 (n=448; 25.3%)

### **Minke whale**



Minke whale photographed off Kinnaird Head, Aberdeenshire on August 1<sup>st</sup>. Photo credit: Anne Ross

The minke whale was the most frequently reported whale species and the third most reported cetacean species with 257 sightings, accounting for 14.5 % of all sightings. The species was mainly seen along the west coast of Scotland and in the Minches, but with many sightings also in the Moray Firth, Firth of Forth and Northeast England as well as Shetland and Cornwall (Fig. 11). The largest aggregation of minke whales was 14 individuals seen off Opinan, Ross-shire (Table 1).





**Figure 11.** Sightings of minke whales during NWDW 2022 (n=257, 14.5%)

### **Bottlenose dolphin**

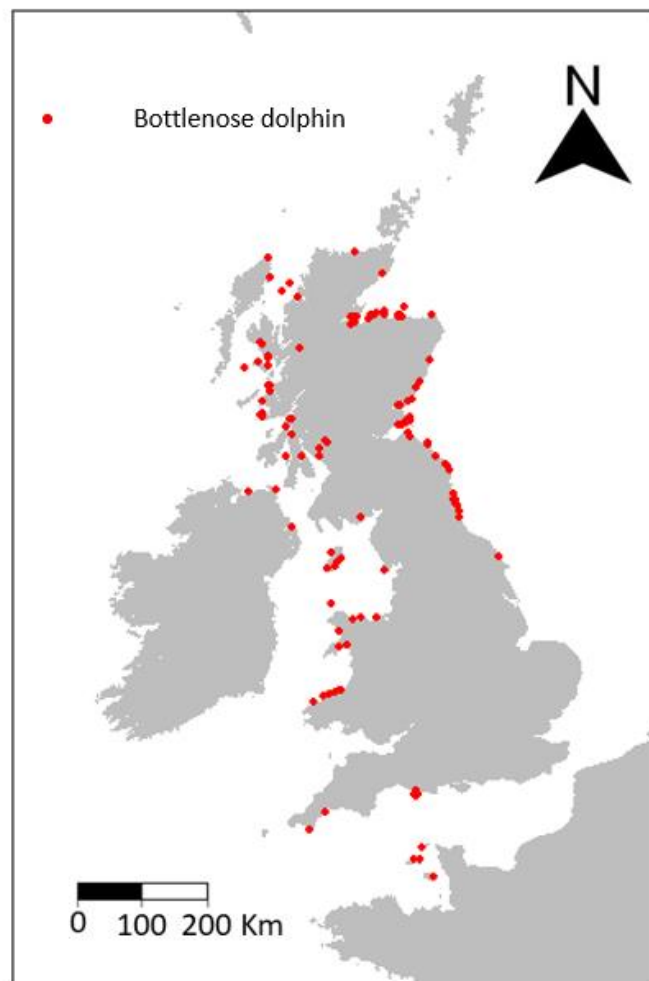


Bottlenose dolphins photographed off New Quay, Ceredigion, on July 28<sup>th</sup>. Photo credit: Dafydd Lewis/ Dolphin Spotting Boat Trips

Bottlenose dolphins were the fourth most frequently reported species during NWDW, with 232 sightings (13.1%). Two large semi-resident populations of bottlenose dolphins occur in UK waters: one in Cardigan Bay, West Wales, and the other in the Moray Firth, Northeast Scotland. Dolphins from both these populations were recorded during the event, and were recorded over much wider areas as shown in Figure 9. A total of 1,589 individual bottlenose dolphins were recorded during this year's event, although we cannot be sure that they were of different individuals since Photo-ID images were collected during all sightings. There is therefore the possibility that several individuals were spotted more than once. The largest group of 75 individuals was seen off Isle of Gigha in the Hebrides (Fig. 9, Table 1).



Bottlenose dolphin calf photographed off Caithness, on July 24<sup>th</sup>. Photo credit: Andy Lawson



**Figure 9.** Sightings of bottlenose dolphins during NWDW 2022 (n=232; 13.1%)

## Orca



Orcas photographed off Shetland, on July 22<sup>nd</sup>. Photo credit: Georgie Bryce

Orcas were reported 14 times during the event, all in Scotland and, in particular, in the waters around Shetland and Orkney. The largest group consisted of six animals around Shetland (Fig. 12; Table 1).



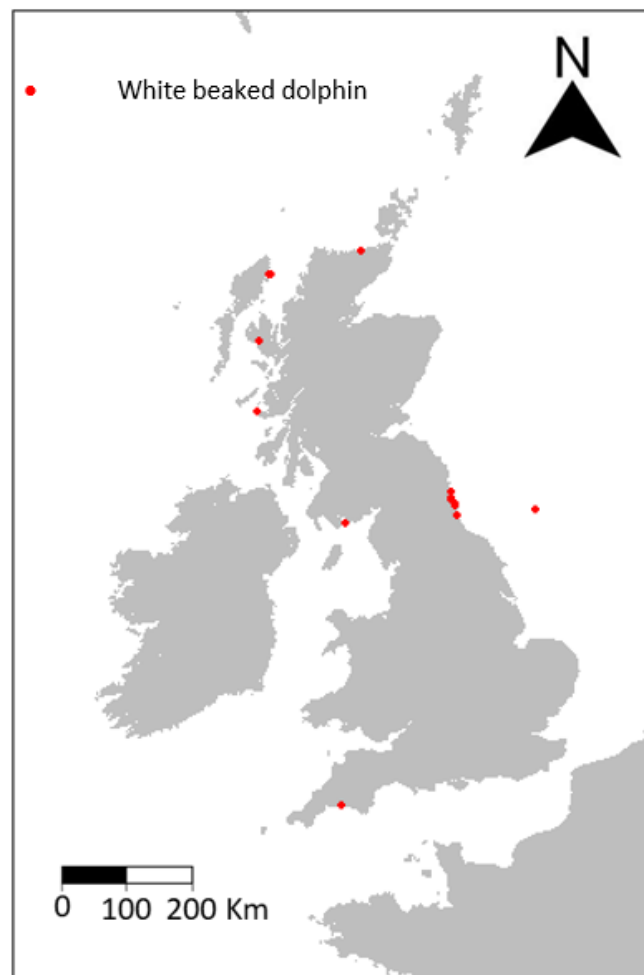
**Figure 12.** Sightings of killer whales during NWDW 2022 (n=14; 0.8%)

### White-beaked dolphin



White-beaked dolphin photographed off Roker Pier, Sunderland on 26<sup>th</sup> July. Photo credit: Anthony Skordis

White-beaked dolphins were reported 24 times (1.35% of total sighting reports) and were concentrated off North-east England, in both Inner and Outer Hebrides, and with one sighting off Cornwall. The maximum observed group size for this species was 12 animals, seen off Marsden, Tyne and Wear (Fig. 13, Table 1).



**Figure 13.** Sightings of white-beaked dolphins during NWDW 2022 (n=24; 1.35%)



### Risso's dolphin



Risso's dolphin photographed near Gairloch 27<sup>th</sup> July. Photo credit: Steve Truluck / Hebridean Whale Cruises

Risso's dolphins were recorded around Anglesey in North Wales, in Orkney and Shetland, and the Inner and Outer Hebrides. This species appeared 43 times (2.42% of all sightings). Group sizes varied from one animal to 12, as seen off Point Lynas, Anglesey (Fig. 14; Table 1).



**Figure 14.** Sightings of Risso's dolphins during NWDW 2022 (n=43; 2.42%)



## Fin Whale



Fin whale photographed in the Minch, on July 27<sup>th</sup>. Photo credit: Steve Truluck / Hebridean Whale Cruises

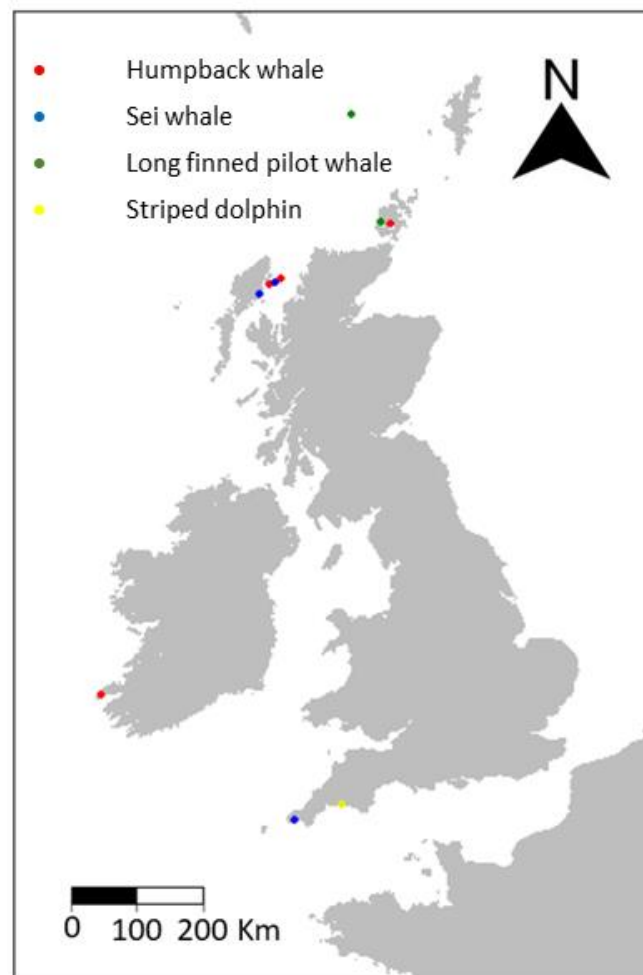
There were 18 records of fin whale (1.01% of all records) sighted in North-west Scotland, the Outer Hebrides and North Devon, with groups ranging from 1 to 2 individuals (Fig. 15, Table 1).



**Figure 15.** Sightings of fin whales during NWDW 2022 (n=18; 1.01%)

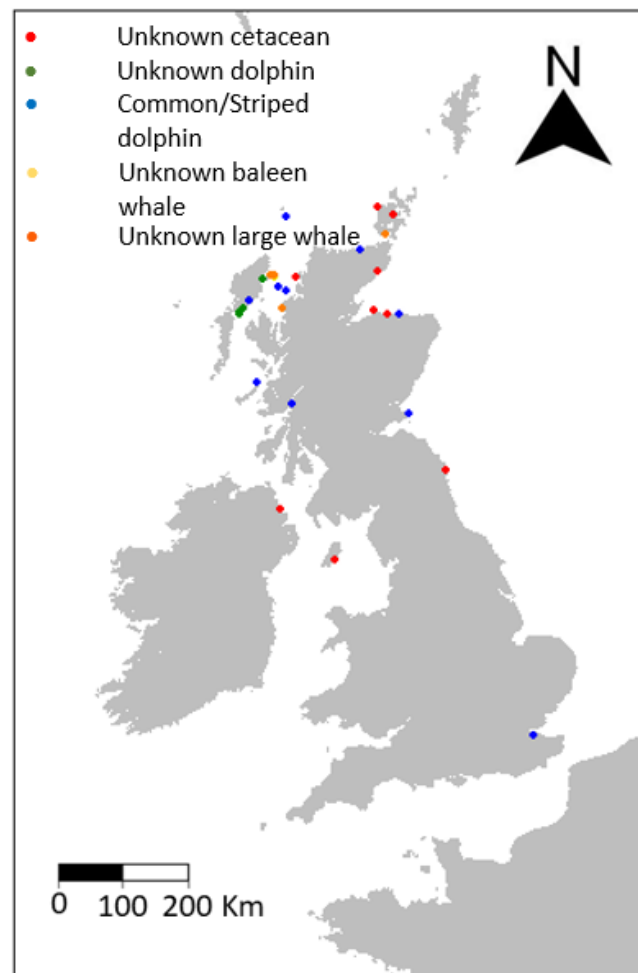
### Other cetacean species

Humpback whales were reported five times (0.28%) with four sightings in Scotland (Orkney and the Outer Hebrides) and one off the Dingle Peninsula, Co. Kerry in the Republic of Ireland (Fig. 14, Table 1). There were four sightings of sei whales (0.22% of all sightings), three of these were recorded in the Outer Hebrides and one was from Penzance, Cornwall. There were three sightings of long-finned pilot whales during the NWDW, accounting for 0.11% of the total number of sightings. One sighting recorded from a ship off Orkney counted 50 individuals (Fig. 14; Table 1). One striped dolphin record was reported offshore of Torpoint, south Cornwall.



**Figure 16.** Distribution of humpback whales (n=5; 0.28%), sei whale (n=4, 0.22%), long-finned pilot whales, (n=3; 0.16%), and striped dolphins (n=1; 0.056%) during NWDW 2022

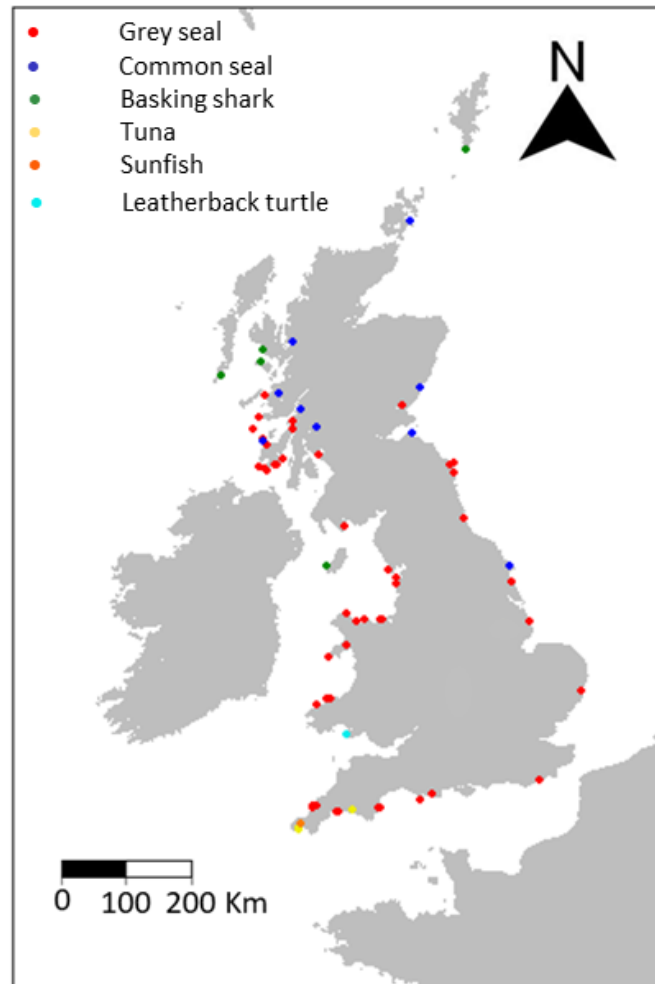
There were 33 reports of unidentified cetacean species totalling 190 individuals. These unidentified sightings reports were spread around the UK (Fig. 16, Table 1).



**Figure 16.** Unidentifiable cetacean species during NWDW 2022 (n=33, 1.86%)

### Non-cetacean species

One hundred and twenty-five grey seal sightings (7.04%) and seventeen harbour seal (common seal) sightings (1%) were reported around the UK. There were six sightings of basking sharks (0.34% of all records) around the Inner and Outer Hebrides and the Isle of Man. There were also three sightings of a tuna species (0.17%) recorded in North Devon and Cornwall, and two sunfish sightings, one off Cornwall (0.11%) and the other offshore of the Isles of Scilly. There was one sighting of a leatherback turtle recorded off the Gower Peninsula in South Wales, accounting for 0.06% of the total number of sightings (Fig. 17; Table 1).



**Figure 17.** Distribution of grey seals (n=125; 7.04%), common/harbour seals (n=17; 1%), basking shark (n=6; 0.34%), tuna sp. (n=3, 0.17%), sunfish (n=2, 0.11%) and leatherback turtle (n=1, 0.06%) during NWDW 2022

**Table 1.** Quantitative description of sightings per species during NWDW 2022

Species	No. Sightings	% Sightings	No. Individuals	% Individuals	Ave. Group Size
Harbour porpoise	539	30.38	1369	11.36	2.54
Common dolphin	448	25.25	7458	61.88	16.65
Minke whale	257	14.49	382	3.17	1.49
Bottlenose dolphin	232	13.08	1589	13.18	6.85
Grey seal	125	7.05	304	2.52	2.43
Risso's dolphin	43	2.42	199	1.65	4.63
White beaked dolphin	24	1.35	135	1.12	5.63
Fin whale	18	1.01	24	0.20	1.33
Common seal	17	0.96	205	1.70	12.06
Killer whale	14	0.79	55	0.46	3.93
Unknown dolphin	12	0.68	81	0.67	6.75
Unknown cetacean	11	0.62	57	0.47	5.18
Basking shark	6	0.34	6	0.05	1.00
Humpback whale	5	0.28	9	0.07	1.80
Sperm whale	4	0.23	4	0.03	1.00
Common/ striped dolphin	4	0.23	42	0.35	10.50
Unknown whale	4	0.23	6	0.05	1.50
Tuna	3	0.17	3	0.02	1.00
Long-finned pilot whale	2	0.11	52	0.43	26.00
Unknown beaked whale	2	0.11	4	0.03	2.00
Sunfish	2	0.11	4	0.03	2.00
Short-finned pilot whale	1	0.06	61	0.51	61.00
Striped dolphin	1	0.06	2	0.02	2.00
Leatherback turtle	1	0.06	1	0.01	1.00
<b>Total</b>	<b>1775</b>	<b>100.00</b>	<b>12052</b>	<b>100.00</b>	<b>6.79</b>



## ACKNOWLEDGEMENTS

The Sea Watch Foundation staff would like to thank Katherine McGregor, 2022 National Whale and Dolphin Watch Assistant, for her hard work, creativity and enthusiasm. They would also like to thank Holly Selman for her creative and incredible work creating videos and images to advertise and promote the event.

Immense gratitude goes to all volunteer observers who patiently spent their time collecting data from land and from the sea, and to those who are part of the Sea Watch Sightings Network and report their sightings to the charity all year long. Special thanks are due to all the Regional Coordinators and Recommended Boat Operators who form the backbone of this event, and who make it all possible. And, of course, a massive thank you to all 2022 Sea Watch's seasonal interns and assistants for conducting land and boat watches themselves during NWDW.

Lastly, a very special thank you goes to our sponsors who donated to our fundraising events. Your generosity is massively appreciated.

## APPENDIX 1.

**General overview of the weather by country for the period of NWDW 2018** (*Met Office July-August Summaries – <https://www.metoffice.gov.uk>*)

### England

Apart from early showers over the east coast, the 27th was generally fine, but with increasing cloud and showers developing over central, eastern and south-eastern counties. The 28th was generally cloudy, with rain over the north, this turning showery in the afternoon with an isolated thunderstorm, and scattered showers developing over some central and southern parts through the day. The 29th began with rain from the north Midlands northwards, becoming lighter and more showery through the morning, other areas remaining generally cloudy but the south coast seeing the best of any sunshine. Rain or showers over central and northern counties moved away east by early afternoon, but more showers or longer spells of rain, occasionally heavy, developed over central and northern parts during the afternoon. Many places started wet on the 31st, with rain or showers locally heavy but slowly clearing away south-eastwards, turning drier and brighter generally, any remaining showers becoming isolated, while the far south stayed mostly dry and humid

### Wales

The 21st was fine, but cloudy at times. The 22nd was cloudy with some showers. It was cloudy, dull and rather windy on the 23rd, Capel Curig (Gwynedd) gusting to 56 mph, with rain or showers for all areas at times. The 24th brought further wind and rain, with showers or longer spells of rain for many through the day, heavy over some areas for a time in the afternoon, Capel Curig (Gwynedd) again reporting gusts to 56 mph. Further bands of showers crossed the country through the 25th. Isolated showers on the morning of the 26th gave way to a brighter afternoon. It was chilly in some spots overnight into the 27th, Sennybridge (Powys) falling to 2.9 °C, then after a bright start cloud increased with light rain or scattered showers spreading east in the afternoon. The 28th was cloudy with showers or longer spells of rain. Only the south-west saw any brightness on the 29th, and there were light

scattered showers over the north. The 30th brought showers or longer spells of rain, with coastal mist and fog, the rain heaviest over the north during the morning; showers became fewer for a time, ahead of another area of rain spreading quickly east to all parts by early evening, Dinas Reservoir (Dyfed) wettest with 50.6 mm. A dull and wet morning on the 31st brought rain to many places and some coastal mist and fog, the rain slowly clearing away south with the afternoon gradually turning drier and brighter.

### **Scotland**

Early brightness over the Borders on the 21st gave way to scattered showers for all. The 22nd was cloudy, with showers heaviest and most frequent in central and southern districts, scattered elsewhere. The 23rd was dull, with rain and drizzle persisting over the bulk of the country, and heavy rain crossing the Western Isles and north-west during the afternoon, spreading into central and southern districts later. There was further rain on the 24th, a windy day with showers or longer spells of rain for all parts, these turning heavy and thundery at times during the afternoon. Showers or longer spells of rain continued during the 25th, heavy at times, moving south through the day. The 26th saw some respite, dry and bright in the south, cloudier and cool with scattered showers further north. Central and southern areas started fine and rather cold on the 27th, Tyndrum (Perthshire) falling to 2.3 °C overnight, with cloud and scattered showers in the north, becoming generally cloudy through the afternoon. The Borders started wet on the 28th, with the rain spreading slowly north through the day, reaching all but the north-west by evening, turning showery in the south by afternoon with isolated thunderstorms. The 29th saw early sunshine in the north, with more cloud elsewhere, any rain for the eastern part of the Borders clearing away late morning, but isolated showers developing over eastern counties in the afternoon, and more significant rain reaching the west coast by evening. The 30th started with showers or longer spells of rain for some places, and coastal mist and fog, clearing east during the morning, then some sunshine, showers becoming isolated but still locally heavy over the south. Showers for central and eastern areas early on the 31st slowly died out, and it became generally dry and bright with just isolated showers over the north in the afternoon.

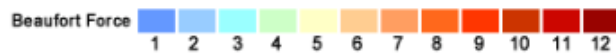
### **Northern Ireland**

The 20th was cooler and cloudy with patchy rain or scattered showers, a similar pattern continuing on the 21st. There were sunny intervals and isolated showers on the 22nd. It was wet on the 23rd, with rain for many places during the morning and showers, some turning heavy and thundery, during the afternoon, Magilligan (Londonderry) recording 70.4 mm. The morning of the 24th was showery with some longer spells of rain, then the afternoon saw very heavy rain crossing central and northern parts, followed by showers and thunderstorms for central and southern counties. The 25th was cloudy and breezy with showers, Orlock Head (Down) recording gusts to 43 mph. Showers on the 26th were more scattered, with lighter winds and clearer skies then allowing a cooler night ahead of an overcast day on the 27th, with any local mist and fog clearing during the morning, and patchy light rain and drizzle in places through the day. The 28th was rather cloudy with scattered showers. Sheltered spots began chilly on the 29th, with Katesbridge (Down) falling to 4.2 °C, then it was fine after the clearance of any coastal mist and fog, with cloud increasing through the afternoon, bringing scattered showers initially then rain, occasionally heavy, spreading from the west and becoming widespread by evening. The 30th was cloudy with showers or longer spells of rain, turning particularly wet over the south later. The 31st saw a few showers in the morning but brighter skies in the afternoon.

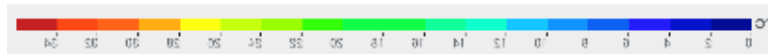
## APPENDIX 2 – Weather

*General overview of the weather by day during the period of NWDW 2018 using pressure maps from Magic Seaweed and SST maps from Magic Seaweed.*

*Key for Wind force maps:*



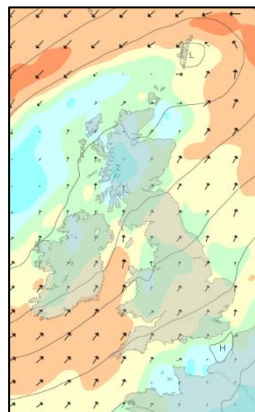
*Key of Sea Surface Temperature (SST) maps:*



*Saturday, 23<sup>rd</sup> July*



Cetacean sightings on day 1 of NWDW 2022 (23<sup>rd</sup> July)



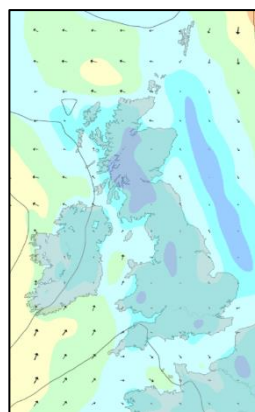
Wind map on day 1 of NWDW 2022 (23<sup>rd</sup> July)

SST map for day 1 unavailable

*Sunday, 24<sup>th</sup> July*



Cetacean sightings on day 2 of NWDW 2022 (24<sup>th</sup> July)



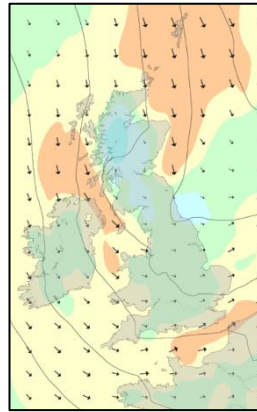
Wind map on day 2 of NWDW 2022 (24<sup>th</sup> July)

SST map for day 2 unavailable

*Monday, 25<sup>th</sup> July*



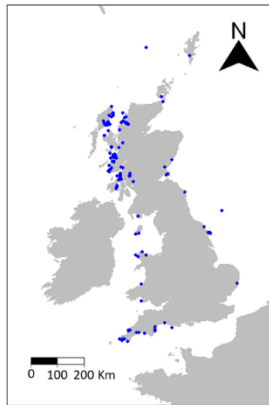
Cetacean sightings on day 3 of NWDW 2022 (25<sup>th</sup> July)



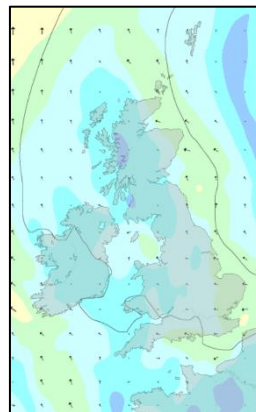
Wind map on day 3 of NWDW 2022 (30<sup>th</sup> July)

SST map for day 3 unavailable

*Tuesday, 26<sup>th</sup> July*



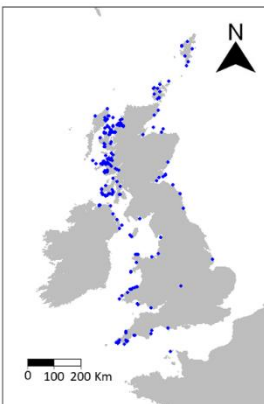
Cetacean sightings on day 4 of NWDW 2022 (26<sup>th</sup> July)



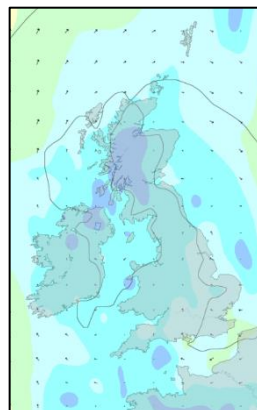
Wind map on day 4 of NWDW 2022 (26<sup>th</sup> July)

SST map for day 4 unavailable

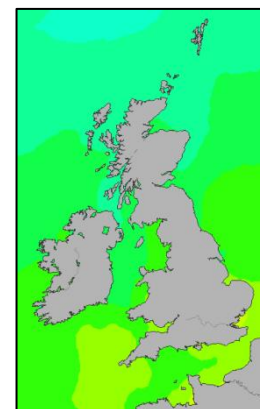
*Wednesday, 27<sup>th</sup> July*



Cetacean sightings on day 5 of NWDW 2022 (27<sup>th</sup> July)

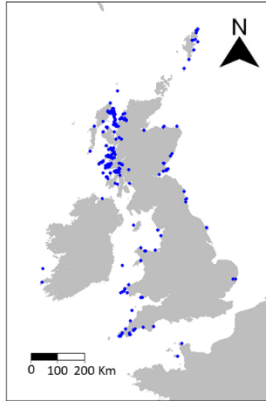


Wind map on day 5 of NWDW 2022 (27<sup>th</sup> July)



SST map on day 5 of NWDW 2018 (27<sup>th</sup> July)

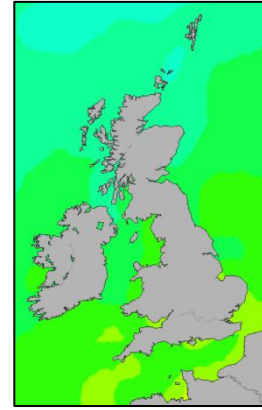
*Thursday, 28<sup>th</sup> July*



Cetacean sightings on day 6 of NWDW 2022 (28<sup>th</sup> July)



Wind map on day 6 of NWDW 2022 (28<sup>th</sup> July)

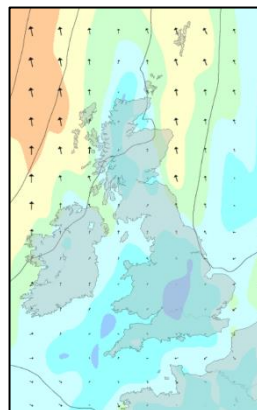


SST map on day 6 of NWDW 2022 (28<sup>th</sup> July)

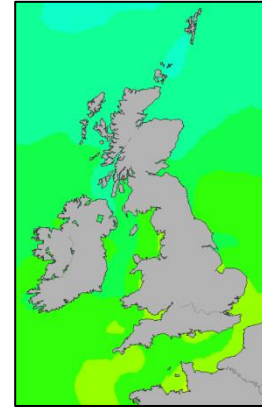
*Friday, 29<sup>th</sup> July*



Cetacean sightings on day 7 of NWDW 2022 (29<sup>th</sup> July)



Wind map on day 7 of NWDW 2022 (29<sup>th</sup> July)

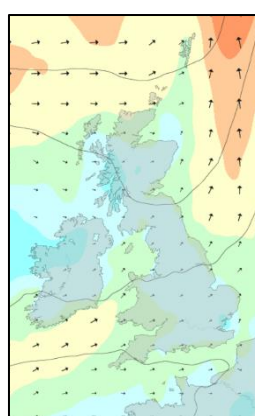


SST map on day 7 of NWDW 2022 (29<sup>th</sup> July)

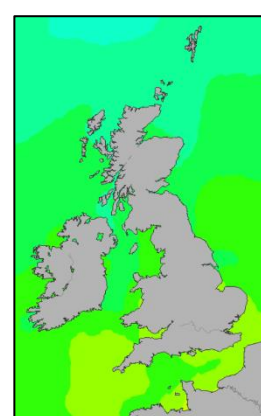
*Saturday, 30<sup>th</sup> July*



Cetacean sightings on day 8 of NWDW 2022 (30<sup>th</sup> July)



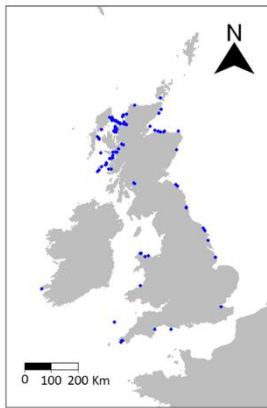
Wind map on day 8 of NWDW 2022 (30<sup>th</sup> July)



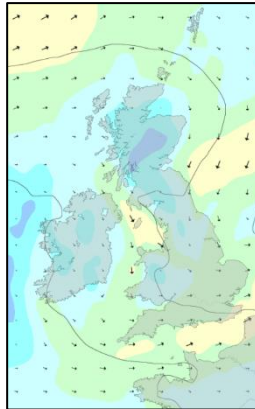
SST map on day 8 of NWDW 2022 (30<sup>th</sup> July)



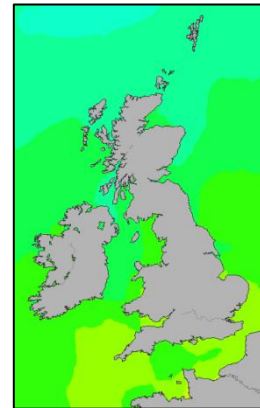
*Sunday, 31<sup>st</sup> July*



Cetacean sightings on day 9 of NWDW 2022 (31<sup>st</sup> July)



Wind map on day 9 of NWDW 2022 (31<sup>st</sup> July)



SST map on day 9 of NWDW 2022 (31<sup>st</sup> July)