




National Whale and Dolphin Watch 2021



24th July - 1st August

Facts and Figures



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|  1,415 hours of observation |  286 land watch sites |
|  1,630 sightings reported |  87 vessels |
|  9,154 individual animals |  UK sightings rate of 0.69 animals |
|  11 different cetacean species | per hour of watching |
|  6 different non-cetacean species | |

Memorable sightings include... Humpback whales off Shetland and Inverness-shire; Atlantic white-sided dolphins off Shetland; Sowerby's beaked whales off the Firth of Forth, Fife; and striped dolphins off Queensferry, Lothian.

Introduction

2021 marked the twentieth year of Sea Watch Foundation's National Whale and Dolphin Watch event. Sea Watch Foundation has monitored whales, dolphins and porpoises in British waters for over forty years with the help of volunteer observers all around the country. For the past 19 years 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 wellbeing 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 our 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.



Harbour porpoises photographed off Point Lynas, Anglesey, on July 27st.

Photo credit: George Boyer.



A selection of photographs from this year's event: (left to right, top to bottom): Young Sea Watch volunteers looking out for cetaceans off Meikle Ross, Dumfries and Galloway, ©Colin Rienewerf. Sea Watch volunteer and her below dog are land-watching at Cardigan Park, Ceredigion, ©Angharad Carrington-Edmunds. Observer volunteers involved in a land-watch at Clachtoll Beach, Sutherland ©Andy Summers/High Life Highland Rangers. Front cover photo: ©Emily Babbage.

NWDW 2021 recorded eleven species of cetaceans, two of pinnipeds and four of non-cetacean species seen around the British Isles, which is higher than the number of species recorded last year but pretty solid considering the covid-19 restrictions which were set in place this year and the spell of bad weather which hit part of the country during the week.

This year's NWDW marks also the great collaborations with fifty-one different conservation and recording organisations (a full list is provided in the acknowledgements section), including the Hebridean Whale and Dolphin Trust (HWDT), Yorkshire Wildlife Trust, MARINELife, Whale and Dolphin Conservation (WDC), and Manx Whale and Dolphin Watch, who have contributed data collected from boats (inshore and offshore), and from land stations in different parts of the UK.

Results

Effort

During the 2021 NWDW, 1,454 volunteer observers all over the UK spent a total of 1,415 hours collecting effort-related data (including information on environmental parameters collected at regular intervals throughout each watch) stationed at 286 land watch sites and on 87 vessels around the British Isles (Fig.1). An additional 207 observers reported casual sightings both from land and at sea.

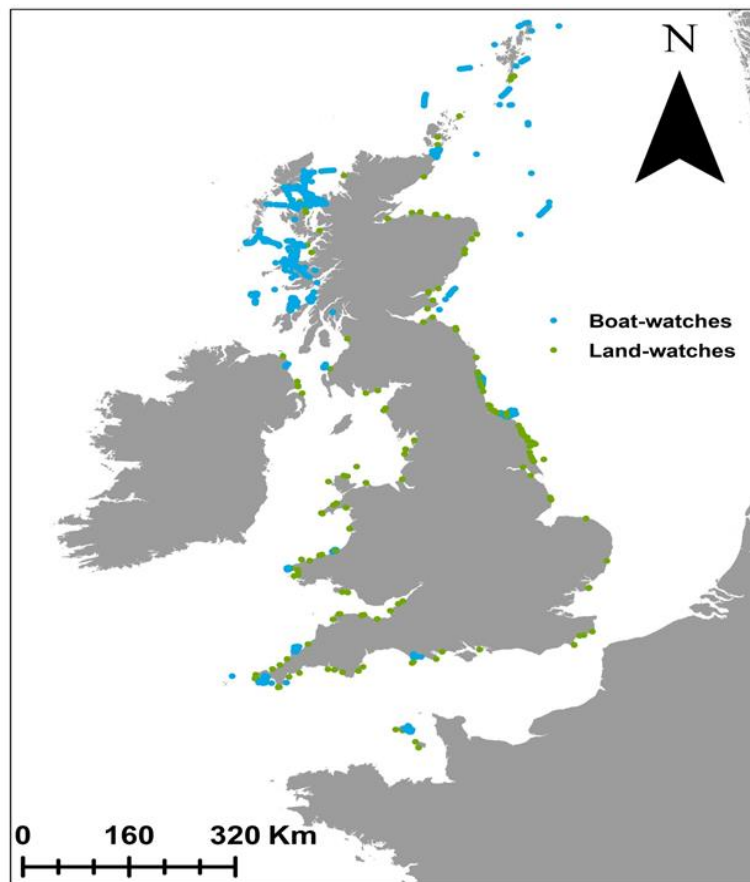


Figure 1. Watch locations for NWDW 2021 (n=286).
Blue are locations of boat watches, green are land watches.

The 2021 event totalled 1,415 hours of watches conducted, over 500 hours less than in 2020. Around eight percent of the total amount of hours spent collecting effort-related data came from land-based locations. Considering the hours spent conducting boat trips, John O’Groats Ferry out of John O’Groats, Caithness (47 hours), AK Wildlife Cruises based in Falmouth, Cornwall (43 hours), Marine Discovery Penzance based in Penzance, Cornwall (37 hrs), New Quay Boat Trips based in New Quay, Ceredigion (20 hours), Pelican of

London based in London (15 hours), spent the highest number of hours conducting boat trips during the event.

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 a regional coordinator, as well as links with other organisations which together produced the highest levels of effort data collection (Fig. 2).

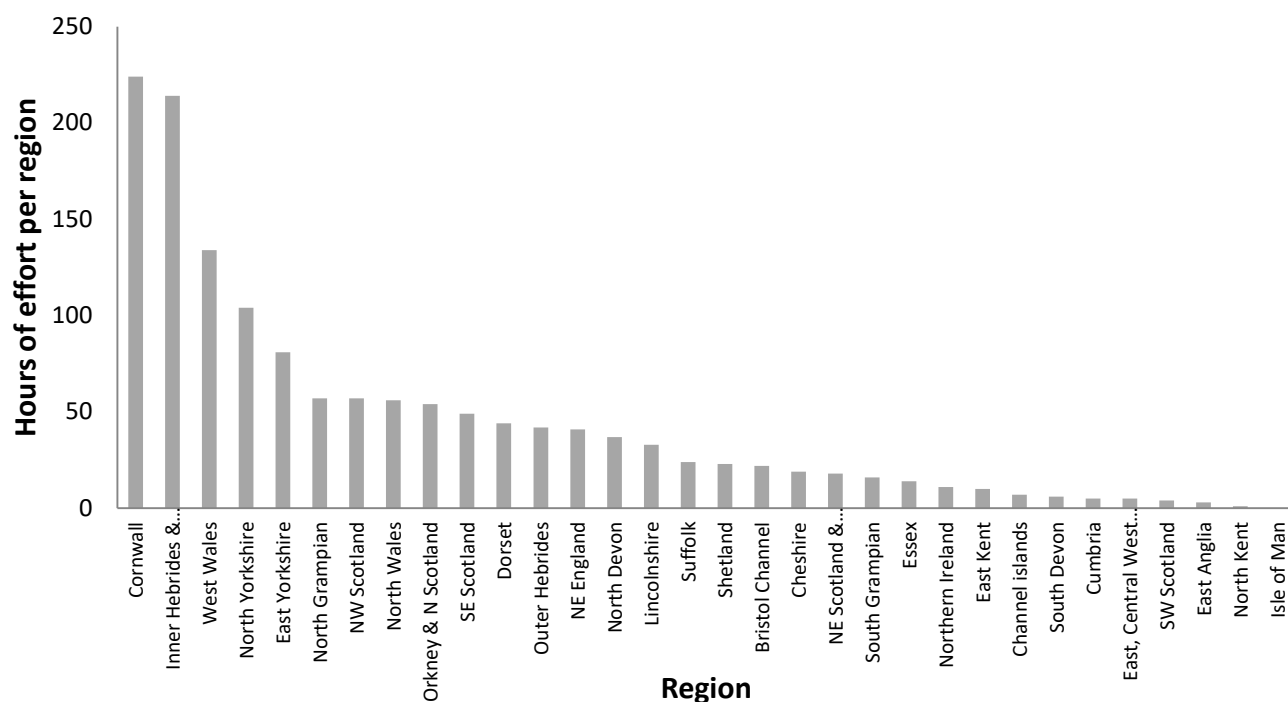


Figure 2. Number of hours of effort-related data collected by region.

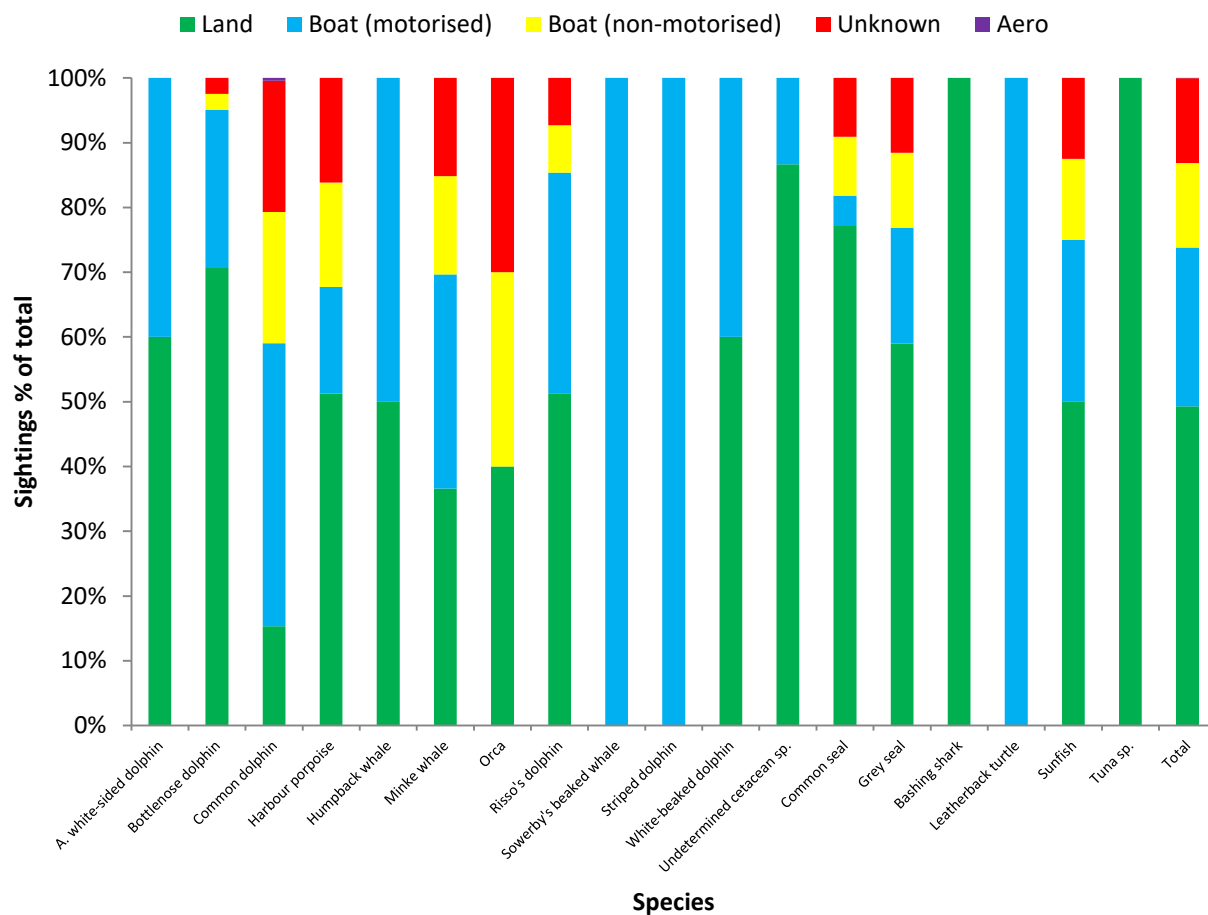


Figure 3. Proportion of sightings per species reported from land, boats (motorised and non-motorised), other (e.g. aerial), and unknown platforms

Fifty-one percent of all sightings were recorded from the land, and thirty-five were from various types of platforms at sea (motorized/non-motorized vessels). The type of platform from which particular whales and dolphins were sighted varied according to each species' distribution and habitat use (Fig.3).

Weather

The ability to detect cetaceans and collect sightings information is strongly affected by several weather parameters such as sea state, swell height, glare and visibility. When the weather deteriorates due to strong winds and/or heavy rain, watches may even be cancelled altogether as conditions are no longer suitable to collect presence and absence data. Taking this into account, every year NWDW is organized over a period of nine days to increase the chances of getting favourable weather conditions to conduct land and boat watches at different sites around the UK. This year, weather was very changeable, with rain and wind on and off throughout the event. A summary of the weather conditions and daily sighting maps are provided in Appendices 1 and 2.

Sightings

1,630 sightings of cetaceans totalling 9,154 individual animals were reported during NWDW 2021 (Fig.4). This number of sightings is higher than the numbers recorded in 2020 but lower than some previous years. However, circumstances this year differed from those of previous years that this event has been run. Eleven different cetacean species and six non-cetacean species were recorded around the UK, a number previously recorded only in 2014 and 2017. The lowest number of species (eight in total) was recorded in 2007, and the highest (13 species) in 2015.



Figure 4. Sightings of cetaceans during NWDW 2021 (n=1,630)

With regards to the distribution of cetacean sightings around the UK, this also depends on various factors: the effort spent by each observer, the species distribution, and their sightability (how easily the animals can be detected). Scotland recorded the highest number of sightings (n=766, 46.99% of all the records), closely followed by England with 594 sightings (36.44% of total records), then Wales with 261 sightings (16.01% of total sightings records). Nine sightings were recorded in Northern Ireland (0.55%).

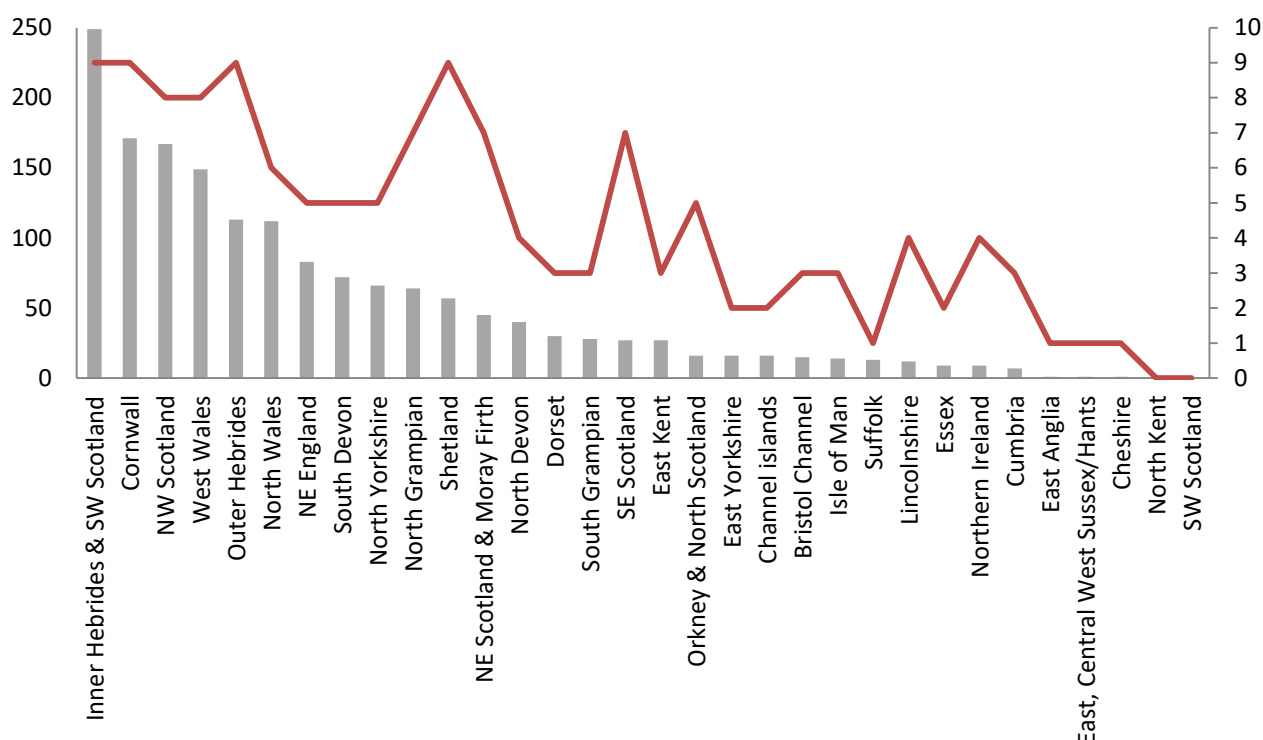


Figure 5. Number of sightings (casual and effort-related) and species per region during NWDW 2021

Inner Hebrides and SW Scotland (n=249), NW Scotland (n=167), Outer Hebrides (n=113) and North Grampian (n=64) were the top four regions with the highest number of sightings in Scotland. In England, the regions with the highest number of sightings were Cornwall (n=171), NE England (n=83), South Devon (n=72), and North Yorkshire (n=66). In Wales, the highest number of sightings was collected on the West coast (n=149).

The proportion of “casual” sightings (without associated effort data) and “effort-related” sightings has changed since last year, with the amount of effort data much larger (71.53%) compared with casual sightings (28.47%; Fig. 6).

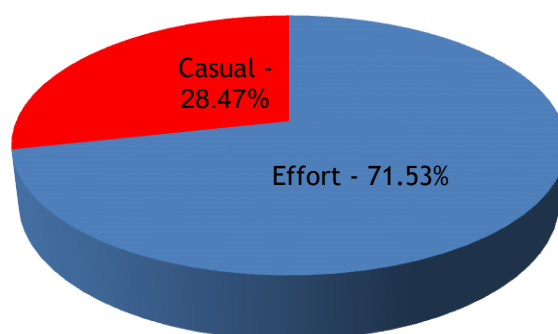


Figure 6. Proportion of effort related sightings (n=1,166; 71.53%) and effort sightings (n=464; 28.47%) recorded during NWDW 2021.

Figure 7 shows that East Kent and NW Scotland are at the top of the list with sighting rates greater than 2 (indicating an average of two or more cetaceans seen per hour of watching). North Wales, South Grampian, Outer Hebrides, West Wales, and Cumbria all recorded sighting rates greater than 1. Based on this year's results, the UK's national average sightings rate shows a marginal increase compared to last year (2020: average sightings rate = 0.59).

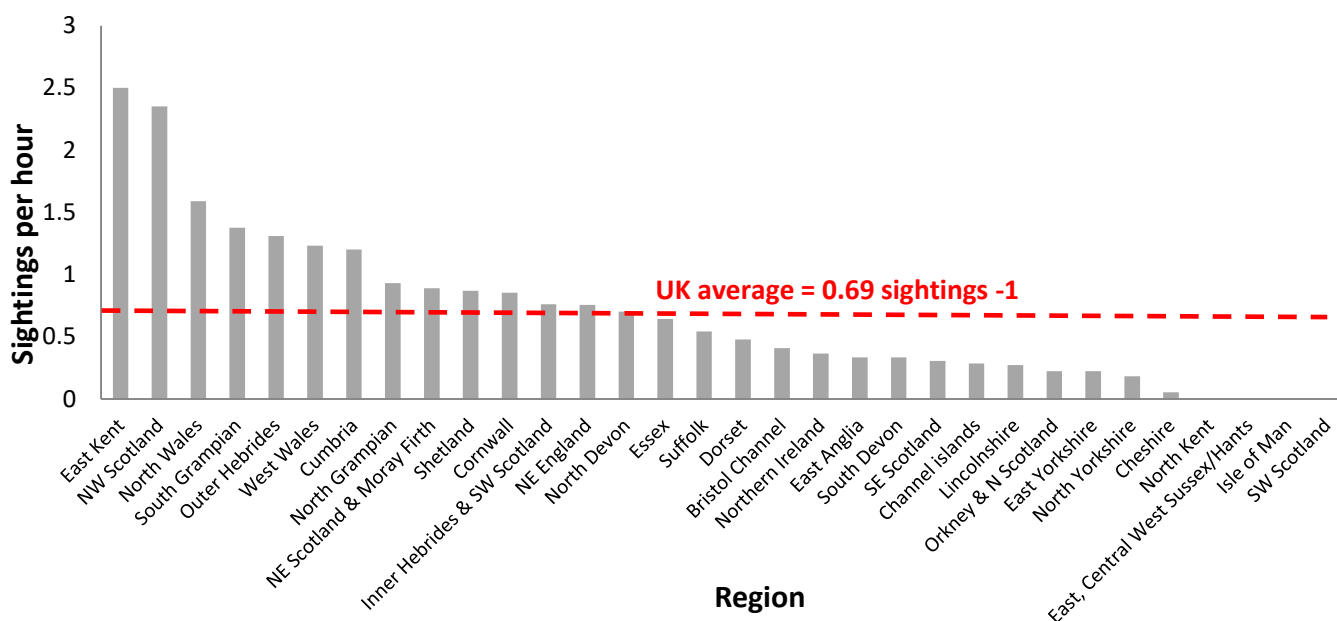


Figure 7. Sighting rates per region during NWDW 2021. The overall average UK sighting rate 0.69 sightings per hour

Harbour Porpoise



Harbour porpoises photographed off Point Lynas, Anglesey, on July 31st.
Photo credit: Ben Murcott.

Harbour porpoises are the most commonly seen species in most parts of the UK, which was reflected by this year's NWDW results with sightings all around the British Isles. The species was recorded 581 times (35.64%). Figure 8 shows that sightings were distributed around the whole of the UK coastline and especially concentrated in Yorkshire, Kent, Cornwall, around the Bristol Channel, and in SW Scotland. The size of groups of this species varied from a single individual to the largest aggregation of 38 animals which was seen at Newbiggin-by-the-Sea east beach, Northumberland (Table 1).



Figure 8. Sightings of harbour porpoise during NWDW 2021 (n=581; 35.64%)

Bottlenose dolphin

Bottlenose dolphins were the second most frequently reported species during NWDW, with 285 sightings (17.48%). 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, as shown in Figure 9. A total of 1,838 individual bottlenose dolphins were recorded during this year's event, although, most likely, several individuals were spotted more than once, but photo-ID images were not collected from many sightings. The largest group of 40 individuals was seen south of Corrie, Buteshire, an unusually high number for coastal sightings during summer months (Fig. 9, Table 1).



Bottlenose dolphins photographed off Portland, Dorset, on July 25th.

Photo credit: Catherine de Bertrand/Dorset Dolphin Watch



Bottlenose dolphins photographed off Traeth Bychan, Anglesey, on July 28th.

Photo credit: Amy-Rose Baxter



Figure 9. Sightings of bottlenose dolphins during NWDW 2021 (n=285; 17.48%)

Minke whale

The minke whale was the third most frequently reported species (n=244), accounting for 14.97% of all sightings. The species was mainly seen in the Inner and Outer Hebrides, but with several sightings also around Orkney, Shetland, Caithness, Moray and Fife, NE England, Yorkshire, Devon, Cornwall and Northern Ireland (Figure 10). The largest aggregation was of fifteen minke whales seen off Stornoway, Outer Hebrides (Table 1).



Common minke whale photographed off Point Lynas, Anglesey, on August 1st.
Photo credit: Ben Murcott.



Common minke whale photographed off Penzance, Cornwall, on July 26th.
Photo credit: Marine Discovery Penzance.



Figure 10. Sightings of minke whales during NWDW 2021 (n=244; 14.97%)

Common dolphin



Common dolphins photographed off Falmouth, Cornwall, on July 25th.
Photo credit: AK Wildlife Cruises

Common dolphins were the fourth most abundant species recorded during the 2021 NWDW event, with 205 sightings being made, accounting for 12.58% of all records. The species showed a predominantly westerly distribution (Figure 11) with the highest occurrence around Pembrokeshire in West Wales, Cornwall, and the Inner and Outer Hebrides. The largest group (300) was recorded SE of Tiree, Argyllshire (Table 1).



Common dolphins photographed off Falmouth, Cornwall, on August 1st.
Photo credit: AK Wildlife Cruises



Figure 11. Sightings of common dolphin during NWDW 2021 (n=205; 12.58%)

Risso's dolphin

Risso's dolphins were recorded around Cornwall, Pembrokeshire, Anglesey, Inner and Outer Hebrides, Caithness, and Shetland. This species appeared 41 times (2.52% of all sightings). Group size varied from one animal to a maximum of 16 seen off St Bride's Bay, Pembrokeshire (Fig. 12; Table 1).



Risso's dolphins photographed off Penzance, Cornwall. Photo credit: Marine Discovery Penzance



Figure 12. Sightings of Risso's dolphins during NWDW 2021 (n=41; 2.52%)

White-beaked dolphin

White-beaked dolphins were reported 16 times (0.98% of total sighting reports) and were seen off Northumberland, Orkney, Shetland, and Aberdeenshire. The maximum observed

group size for this species was 20 animals, seen off Seaton Sluice, Northumberland (Fig. 13, Table 1).



White-beaked dolphins photographed off Druridge, Northumberland, in 2020.
Photo credit: Martin Kitching / www.northernexperiencepelagics.co.uk.

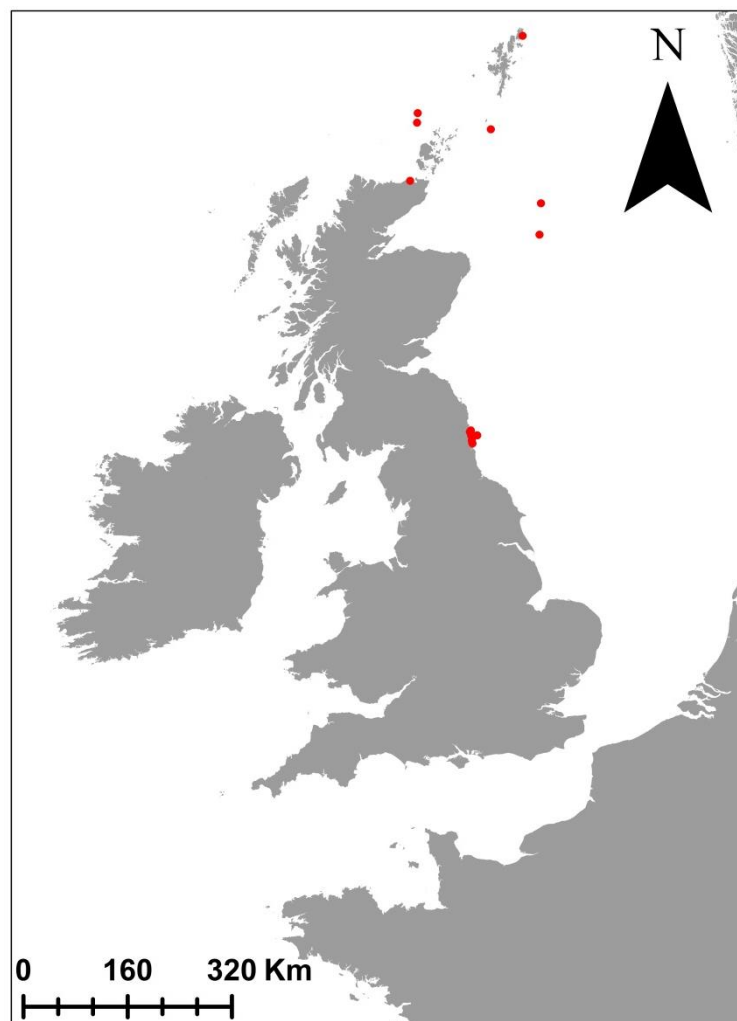


Figure 13. Sightings of white-beaked dolphins during NWDW 2021 (n=16; 0.98%)

Orca



Killer whale photographed during past events. Photo credit: Colin Birds.

Orcas were reported 8 times during the event, all in Scotland and in particular around Shetland, as well as off Fife, Inverness-shire and Argyllshire. The largest group consisted of six animals sighted in two locations: off the platform Tern Alpha, east of Shetland, and NW of Uist Inverness-shire (Fig. 14; Table 1).



Figure 14. Sightings of orcas during NWDW 2021 (n=8; 0.49%)

Other cetacean species

Atlantic white-sided dolphins were reported five times (0.31% of total sighting reports), all sightings being around Shetland. The maximum observed group size for this species was six animals, seen off Catfirth, Shetland (Figure 15, Table 1).

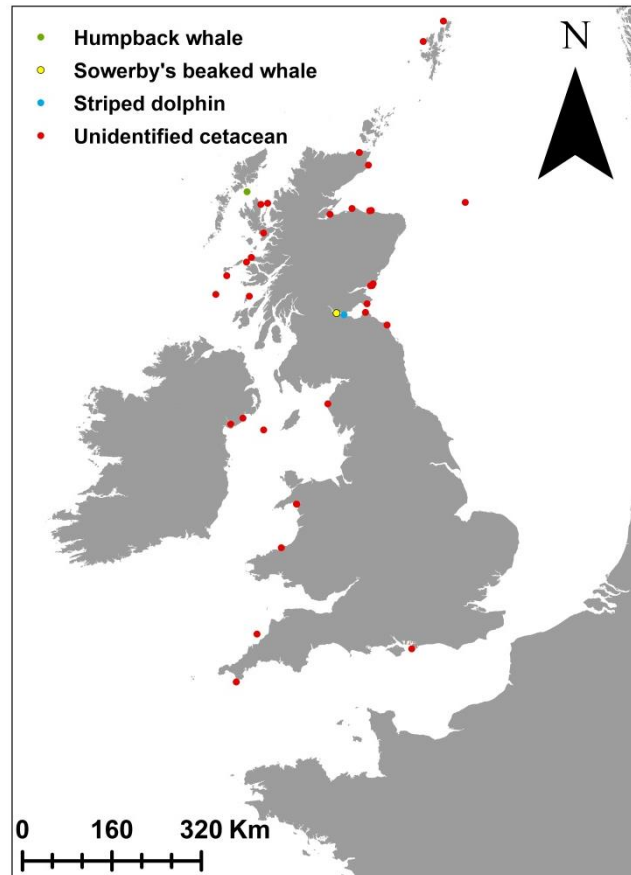


Figure 15. Sightings of humpback whales (n=2, 0.12%), striped dolphin (n=1, 0.06%), Sowerby's beaked whale (n=1, 0.06%), and undetermined cetaceans (n=35, 2.15%) during NWDW 2021

There were two humpback whale records (0.12% of all sightings), from Shetland and the Outer Hebrides. There was also one sighting of a Sowerby's beaked whale (0.6%) recorded off the Firth of Forth, Fife, and one of a striped dolphin (0.6%) off South Queensferry, Lothian.

Finally, there were also 35 reports of undetermined cetacean species which made at different locations around the country (Fig. 15, Table 1).

Non-cetacean species

One hundred and seventy-one grey seal sightings (10.49%) and twenty-four common/harbour seal sightings (1.47%) were reported around the UK. There was one record of basking sharks (0.06% of all records) off Berry Head, Devon. There were two sightings of leatherback turtle, recorded off Aird of Sleat and Elgol, Inverness-shire (probably the same individual), accounting for 0.12% of the total number of sightings. There were also seven sightings of sunfish (0.43%) recorded in North Devon and Cornwall, and one of a Tuna sp. off Lizard Point, Cornwall (0.06%; Fig. 16; Table 1).

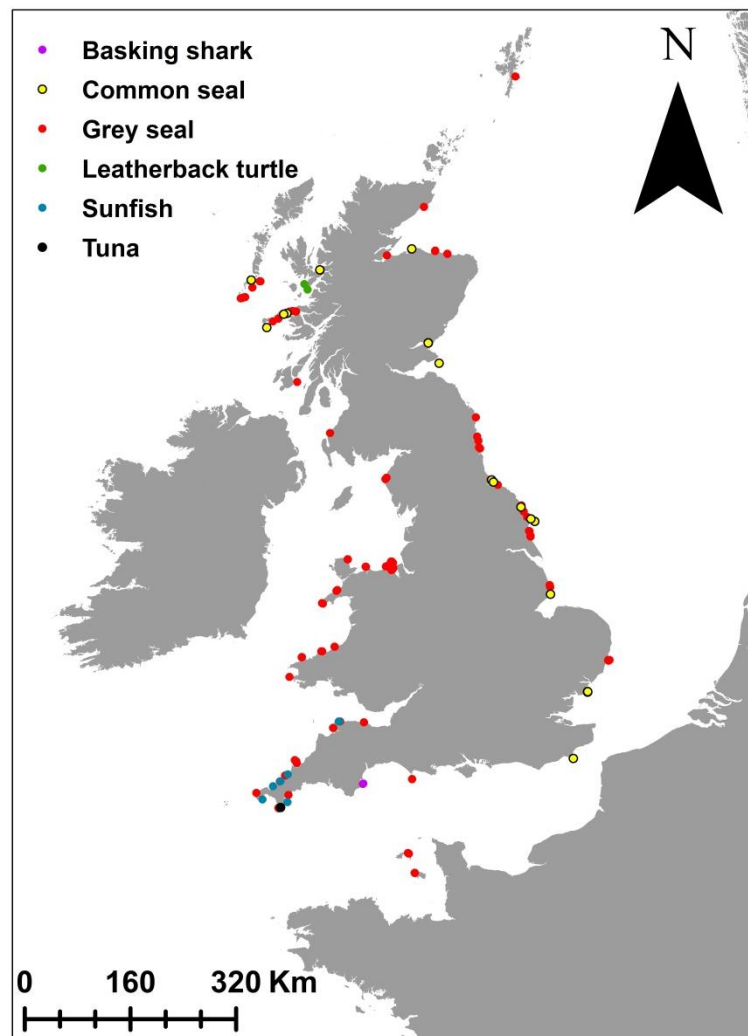


Figure 16. Sightings of grey seal (n=171, 10.49%), common seal (n=24, 1.47%), sunfish (n=7, 0.43%), leatherback (n=2, 0.12%), basking shark, and Tuna sp. (each n=1, 0.06%) during NWDW 2021

Table 1. Quantitative description of sightings per species during NWDW 2021

Cetacean Species	No. of sightings	%	No. of individuals	%	Av. Group Size
Atlantic white-sided dolphin	5	0.31	22	0.24	4.40
Bottlenose dolphin	285	17.48	1838	20.08	6.45
Common dolphin	205	12.58	4,686	51.19	22.86
Harbour porpoise	581	35.64	1,472	16.08	2.53
Humpback whale	2	0.12	4	0.04	2.00
Minke whale	244	14.97	318	3.47	1.30
Orca	8	0.49	33	0.36	3.67
Risso's dolphin	41	2.52	183	2.00	4.46
Sowerby's beaked whale	1	0.06	2	0.02	2.00
Striped dolphin	1	0.06	1	0.01	1.00
White-beaked dolphin	16	0.98	115	1.26	7.19
Unidentified cetacean	35	2.15	202	2.21	5.94
Common (harbour) seal	24	1.47	43	0.47	1.79
Grey seal	171	10.49	224	2.45	1.31
Basking Shark	1	0.06	1	0.01	1.00
Leatherback turtle	2	0.12	2	0.02	1.00
Sunfish	7	0.43	7	0.08	1.00
Tuna sp.	1	0.06	1	0.01	1.00
Totals	1,630	100	9,154	100	5.62

ACKNOWLEDGEMENTS

The Sea Watch Foundation staff would like to thank Chloe Brice, Lauren Elliott, Rhiannon Firth, Vicki Hall, Isabelle King, Jessica Mather, Altea Narici, Emma Wilson, our 2021 National Whale and Dolphin Watch Assistants, for their endless support and help throughout. We would also like to thank Cam Camarillo, Steve Marquis, Lauren Storer, Massimiliano Venezia, Emily Wood, and for their dedication and commitment in advertising the event on our Facebook, Twitter and Instagram accounts.

Immense gratitude goes to all volunteer observers who patiently spent their time collecting data from land and from the sea, and to the volunteer observers who are part of the Sea Watch Sightings Network and who report their sightings to the charity all year long. Thanks to Lorna Bointon, Altea Narici, and HWDT for helping out with online NWDW Training Courses and for turning them into interactive, fun and warm events. Special thanks are due to all Regional Coordinators and Recommended Boat Operators who are the backbone of this event and who made it all possible.

Thank you to Fran Fitzpatrick, Emma Fox, Kate Byrne, Jordan Williams and Jordan Owen for helping out with educational and outreach activities in New Quay during the event. Thank you to all 2021 Sea Watch seasonal interns for conducting land and boat watches during NWDW.

Thank you also to the following organisations that have greatly contributed to the success of this year's National Whale and Dolphin Watch: Hebridean Whale and Dolphin Trust, Yorkshire Wildlife Trust, Tees Valley Wildlife Trust, Durham Wildlife Trust, MARINELife, Lincolnshire Wildlife Trust, Manx Whale and Dolphin Watch, National Coastwatch Institutes (Rame Head, Penzance), Irish Whale and Dolphin Group Northern Ireland, Whale and Dolphin Conservation, Somerset Wildlife Trust, Alderney Wildlife Trust, Bangor University, Windhaven Cafe, Camping and B & B, Dundee Ranger Service, Lincolnshire Wildlife Trust, Stilla Finest Scotland Ltd, RSPB Bempton, Cornwall Wildlife Trust, RSPB Scotland, Scottish Natural Heritage, High Life Highland Rangers, ERIC North East, Orkney Marine Mammal Research Initiative, Scottish Natural Heritage, Hebridean Adventures, Sealife Adventures, Kent Marine Mammal Group, Scottish Woodlands Ltd, Falcon Boats, Coastalwatch Scotland, Countryside rangers - Dorset Council, Cumbria Wildlife Trust, Guernsey Biological Record Center, Out of the Blue Charters - Guernsey, Wembury Marine Center, Devon Wildlife Trust, Sea Mammal research Unit - Citizen Fins, John O'Groats Ferry, Wyre Forest District Council and Rangers, Torbay Coast and Countryside Trust, Treewise Cornwall, Scottish Seabird Centre, New Quay Spotting Boat Trips, Newquay Sea Safaris and Fishing, Dolphin Watch UK, AK Wildlife Cruises, Sealife Adventures, Seatrek Outer Hebrides, Misty Isle Boat Trips, Falcon Boats, Gower Coast Adventures, Marine Discovery Penzance, Seafari Adventures Oban, Sea Kayaking Wales, Berwickshire Marine Reserve.

Lastly, very special thanks go to Rip Curl, Made of Sundays, Dani Williams Art, the Felt Meadow, the Heron on the Roof, Falcon Boats, Lee Renée Jewellery, Fabio Santoro, Padstow Sealife Safaris, Giuditta Migiani, and Newquay Sea Safaris and Fishing, who sponsored our event by donating free gifts for our participants.

APPENDIX 1.

General overview of the weather by country for the period of NWDW 2020 (*Met Office July-August Summaries* - <https://www.metoffice.gov.uk/research/climate/maps-and-data/summaries/index>)

The final week of July was much more unsettled once again, with temperatures back to near average and frequent showery rain. Thunderstorms in the last days of July brought flooding to roads, railway infrastructure and homes across many areas, as well as power outages as properties were struck by lightning. Scotland and south-east England reported the most impacts, with some rescues from stranded vehicles in London. Storm Evert brought strong winds and heavy rain on the 30th, with damaged tents at campsites, power outages, and trees blocking roads in the south. Isle of Wight hovercraft services were cancelled. Widespread flooding in Leicestershire and Derbyshire caused various stranded vehicles, transport disruption and road closures. In the 24 hours ending at 0900 UTC on the 26th, 87.9 mm of rain fell at Bethersden (Kent). A wind gust of 67 knots (77 mph) was recorded at Needles (Isle of Wight) on the 30th. Early August was broadly unsettled.

England

In July, much of the country was cloudy on the 24th, and cooler, with showers and thunderstorms over the southern third of England. The 25th was still warm, but mostly cloudy, with rain or showers to start in parts of the south, locally heavy; increasing sunny spells into the afternoon led to thunderstorms in the south-east with localised flooding in some areas. Most areas started sunny on the 26th, with mist or low cloud in a few places; it became very warm, but cloud increased by the afternoon with some heavy showers or thunderstorms forming, mainly across parts of the south-west and the West Midlands. The 27th brought some sunny spells but also showers, heavy and thundery in places. The 28th again saw a mixture of sunny spells and showers, with scattered thunderstorms forming by late morning, but with longer spells of sunshine in the afternoon away from the showers. Early sunshine on the 29th in central and southern areas did not last, with rain pushing in from the south-west by noon, while the north-west was cloudy throughout with patchy rain, and the northeast had isolated showers with sunny spells. The 30th was wet and windy, due to the passage of Storm Evert, with showers or longer spells of rain for all, some heavy and thundery, and windiest in the south with a gust to 77 mph at Needles (Isle of Wight). The 31st was generally cloudy with some showers, and thunderstorms developed across the south-east in the afternoon and evening.

In August, the 1st was mostly cloudy, with some heavy showers which became organised into bands, and increasingly frequent and thundery in the far south.

Wales

In July, it was rather cloudy on the 24th, with showers for many places, heaviest and most frequent across the south with a few isolated thunderstorms. Most places started cloudy on the 25th, with patchy drizzle in some southern and central areas, but the west was sunnier, this sunshine spreading to other areas on what became a warm afternoon. Some places had a cool start on the 26th, with a minimum of 5.4 °C at St Harmon (Powys), then a mostly sunny morning; clouds grew readily, giving heavy showers or thunderstorms,

mainly across the south, with 52.2 mm of rainfall at Caio (Carmarthenshire). The 27th was mostly cloudy with showers, some heavy and thundery. The 28th was cooler with a mixture of sunny spells and showers, and isolated thunderstorms forming by mid-morning, but longer spells of sunshine in the afternoon. The 29th started fine and bright, apart from isolated showers in central areas, with some sunny spells ahead of rain pushing in from the south-west. The 30th was cloudy and breezy, indeed windy in the south, with widespread showers or longer spells of rain, heavy at times, and a maximum gust of 48 mph at Mumbles (West Glamorgan); it was also cool with temperatures not exceeding 14.5 °C at Lake Vyrnwy (Powys). The 31st was generally cloudy with patchy light rain or scattered showers.

In August, the 1st was partly cloudy with isolated showers, but brighter by late afternoon.

Scotland

In July the 24th started rather cloudy, with patchy fog for central and northern parts, the cloud burning back to the coasts during the morning to leave a sunny warm day. The 25th was mainly sunny and warm, after any patchy fog or low cloud had cleared. The 26th began with more cloud, and localised mist and patchy rain in the far north-east, but central areas had sunshine, this spreading to other areas by afternoon but with heavy thundery showers developing in places, and it was warm again. The 27th started mostly cloudy, with rain in parts of the west, and showers elsewhere, soon turning heavier with thunderstorms developing in many central and northern areas and persisting into the night, giving 57.9 mm of rainfall at Cawdor Castle (Nairnshire). Heavy rain continued across parts of the north on the 28th, with sunshine and showers elsewhere, and it was cooler. The 29th was mostly cloudy with intermittent rain and sunny spells, but brighter and drier in the south with only a few showers. The 30th was mostly cloudy, with showers for central parts and more persistent rain over the Borders. It remained cloudy with patchy light rain or scattered showers on the 31st.

In August, central and western areas saw sunny spells on the 1st, while scattered showers continued for a time across Grampian and Tayside, then it became mainly fine in the afternoon except in northern and eastern areas.

Northern Ireland

In July the 25th was warm but cloud increased in the afternoon with very isolated showers in the south. The last few days were cooler and unsettled. Isolated showers at first on the 26th gave way to a band of rain which slowly pushed in from the south-west from mid-afternoon. A band of heavy and persistent rain pushed westwards during the 27th, with a few isolated thunderstorms by the afternoon, and 42.0 mm of rainfall at Belfast Newforge. The 28th brought showers, heavy and thundery in places, and sunny spells. The 29th was cloudy and cool, with light rain at times, but became brighter in the afternoon with sunny spells, and winds increased with a maximum gust of 39 mph at Orlock Head (County Down). The 30th was cloudy and showery. It stayed broadly cloudy and cool on the 31st, temperatures not exceeding 13.1 °C at Ballypatrick Forest (County Antrim), with light rain or scattered showers.

August 1st was partly cloudy, with very isolated showers, but brighter by late afternoon.

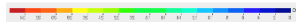
APPENDIX 2 - Weather Maps

General overview of the weather by day during the period of NWDW 2020 using pressure maps and SST maps from Magic Seaweed.

Key for Wind force maps:



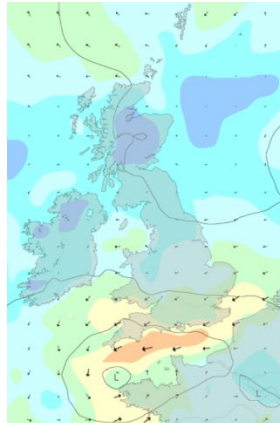
Key of SST force maps:



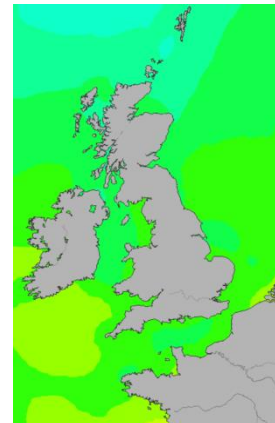
Saturday, 24th July



Cetacean sightings on day 1 of NWDW 2021 (24th July)



Wind map on day 1 of NWDW 2021 (24th July)

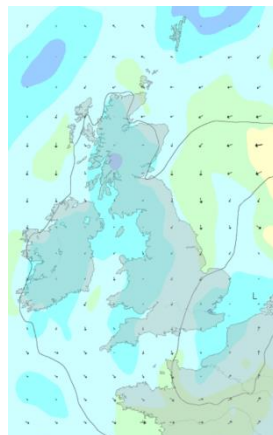


SST map on day 1 of NWDW 2021 (24th July)

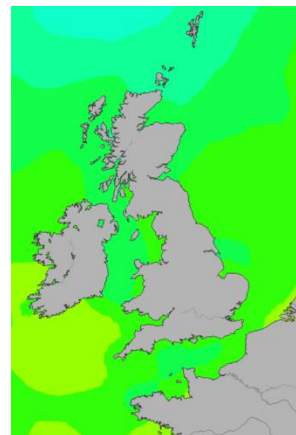
Sunday, 25th July



Cetacean sightings on day 2 of NWDW 2021 (25th July)

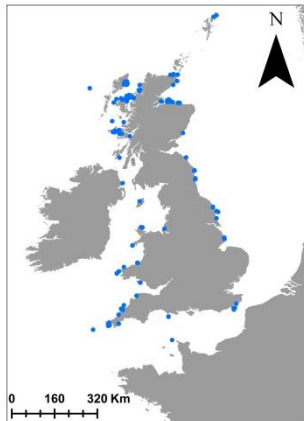


Wind map on day 2 of NWDW 2021 (25th July)

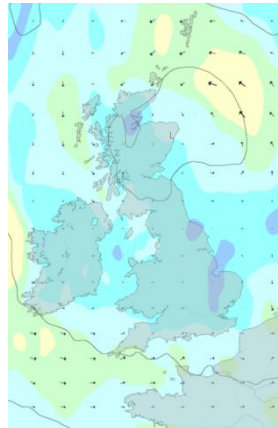


SST map on day 2 of NWDW 2021 (25th July)

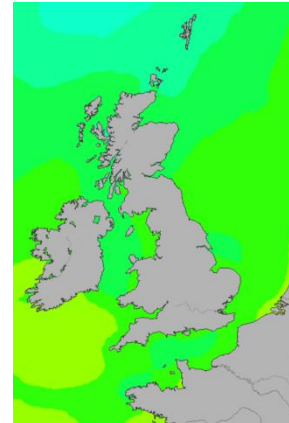
Monday, 26th July



Cetacean sightings on day 3 of NWDW 2021 (26th July)

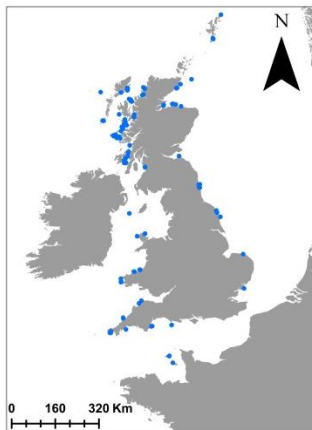


Wind map on day 3 of NWDW 2021 (26th July)

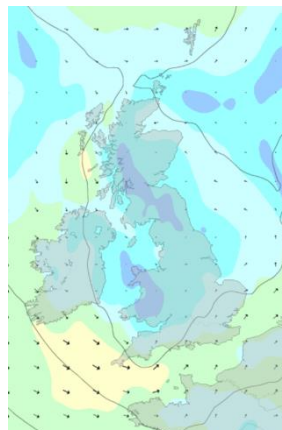


SST map on day 3 of NWDW 2021 (26th July)

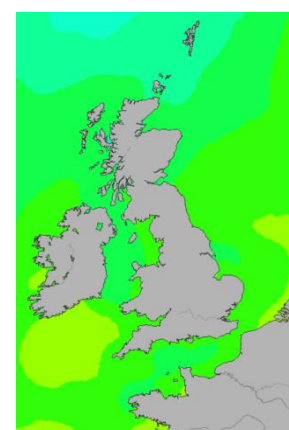
Tuesday, 27th July



Cetacean sightings on day 4 of NWDW 2021 (27th July)

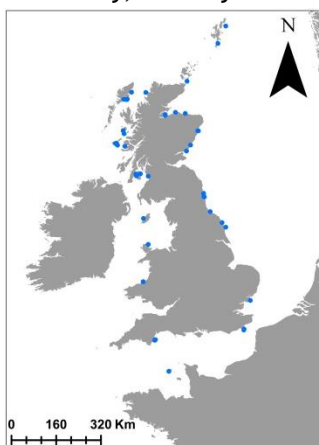


Wind map on day 4 of NWDW 2021 (27th July)

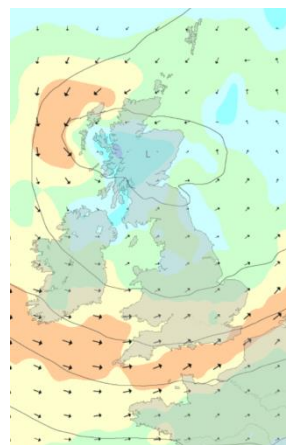


SST map on day 4 of NWDW 2021 (27th July)

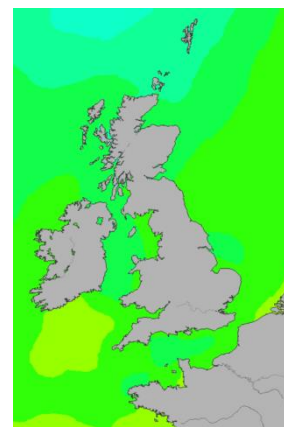
Wednesday, 28th July



Cetacean sightings on day 5 of NWDW 2021 (28th July)



Wind map on day 5 of NWDW 2021 (28th July)

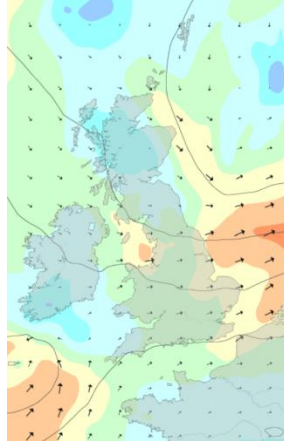


SST map on day 5 of NWDW 2021 (28th July)

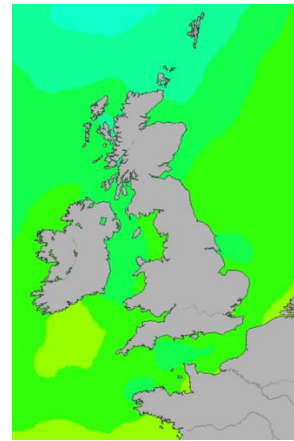
Thursday, 29th July



Cetacean sightings on day 6 of NWDW 2021 (29th July)



Wind map on day 6 of NWDW 2021 (29th July)

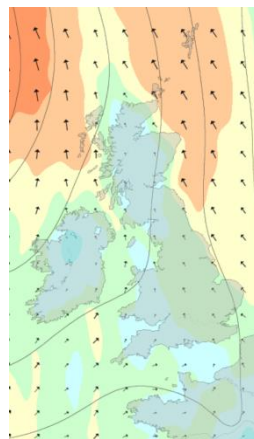


SST map on day 6 of NWDW 2021 (29th July)

Friday, 30st July



Cetacean sightings on day 7 of NWDW 2021 (30th July)

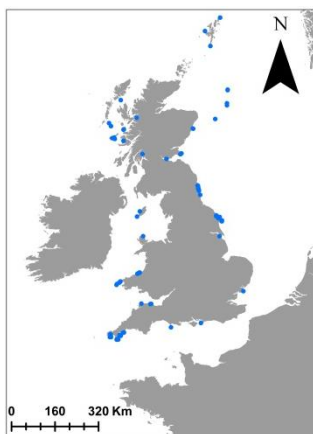


Wind map on day 7 of NWDW 2021 (30th July)

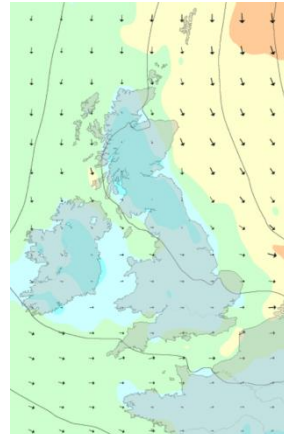


SST map on day 7 of NWDW 2021 (30th July)

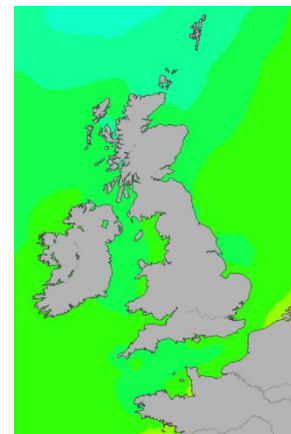
Saturday, 31st July



Cetacean sightings on day 8 of NWDW 2021 (31st July)

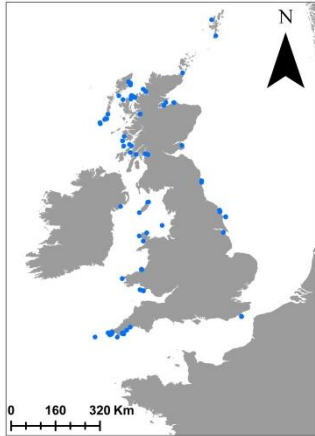


Wind map on day 8 of NWDW 2021 (31st July)

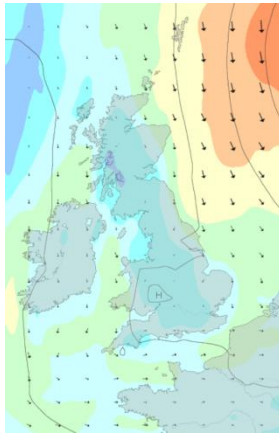


SST map on day 8 of NWDW 2021 (31st July)

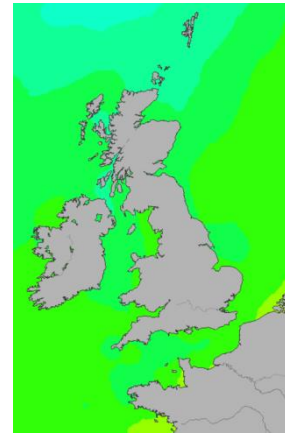
Sunday, 1st August



Cetacean sightings on day 9 of NWDW 2021 (1st August)



Wind map on day 9 of NWDW 2021 (1st August)



SST map on day 9 of NWDW 2021 (1st August)