

National Whale & Dolphin Watch 2016



23rd – 31st July

Facts and Figures



 **1200** hours of observation

 **1424** sightings reported

 **7622** individual animals

 **12** different species

 **79** land watch sites

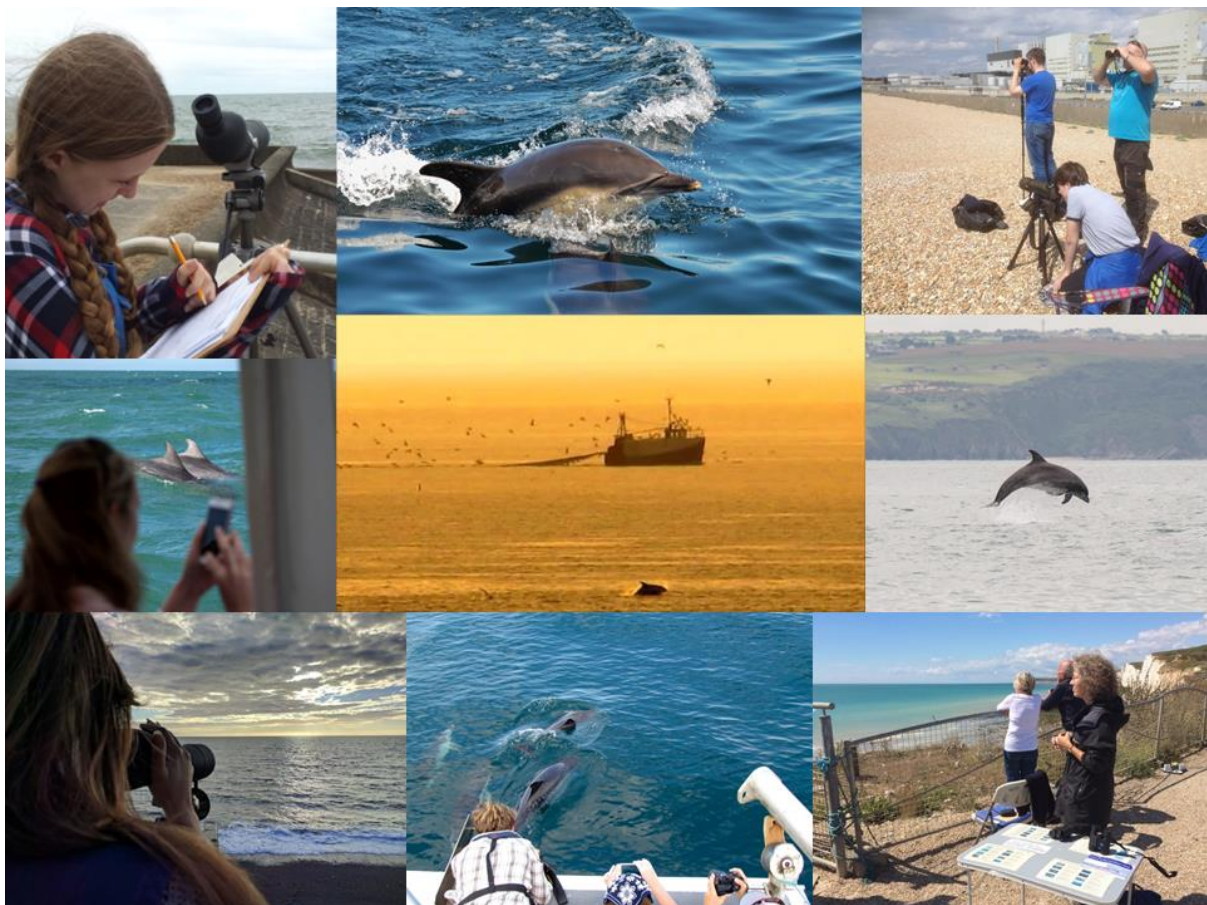
 **102** vessels

 UK sightings rate of **0.98**
animals per hour of watching!

Memorable sightings include... at least three humpback whales sighted around Scotland, three potential striped dolphin sightings in UK waters, a solitary sperm whale in offshore waters, Risso's dolphins all along our western shores and a 500 strong group of common dolphins!

The National Whale and Dolphin Watch (NWDW) is an annual, national recording event organised by the Sea Watch Foundation. The 2016 event was the fourteenth year of the huge collaboration between citizen scientists, wildlife enthusiasts, the general public and researchers alike. The event aims to raise the profile of British whales, dolphins and porpoises (collectively termed cetaceans) whilst finding out more about their distribution. Members of the public were invited to join organised whale and dolphin watches around the UK as well as conducting their own surveys and reporting their casual sightings.

The Director of Sea Watch Foundation pioneered this method of citizen science in the UK, as the first organisation to ask members of the public to record and report their cetacean sightings some forty-three years ago. Whilst the research organisation encourage such observations and recording throughout the year, the NWDW gives an opportunity to collect a large amount of scientifically valuable data over a concentrated period of time.



A selection of photographs from this year's event: (left to right, top to bottom) a teenage sea-watcher © Kathy James/SWF, common dolphin breaches over another swimming underwater © AK Wildlife Cruises, a team of sea-watchers at Dungeness © Jon Bramley, passengers up-close to bottlenose dolphins © Dolphin Spotting Boat Trips (New Quay), sunset dolphin spotting off Newbiggin-by-the-sea © Ivor Clark, leaping bottlenose dolphin off West Wales © Dolphin Spotting Boat Trips (New Quay), land watch from Aberystwyth promenade © Emlyn Jones, bow-riding common dolphins off North Cornwall © Newquay Sea Safaris & Fishing, a sunny watch from Birling Gap and the Seven Sisters National Trust site © Neil Clarke.

NWDW 2016 was the most successful ever, with the greatest amount of effort data collected over the fourteen year period and also the highest number of sightings recorded during the NWDW period!

The event is building in popularity year on year and in 2016 the reach of the campaign was aided by an effective, continued collaboration with various other conservation and recording organisations, not least with ORCA whose 'Ocean Watch' on offshore vessels was run alongside the NWDW to contribute data to the national recording event.



Pictured: Devon Wildlife Trust volunteer observers at Wembury Marine Centre



Effort

Thanks to the efforts of 162 volunteer cetacean observers all over the UK, 1211 hours of effort data were collected during the course of the nine day event. These observers, dedicatedly collecting effort-related data (whereby a timed watch takes place and environmental details are systematically recorded), were stationed at 79 land watch sites and on 36 vessels around Britain (Fig.1). In addition to these, 173 volunteer observers reported casual sightings both from land and at sea. A further 452 unnamed individuals were recorded in attendance at NWDW events. Despite our best efforts, it was difficult for Sea Watch to retrieve necessary information on the actual number of people who attended watches alongside the organisers. It is estimated that a further 500 people were present at events where the attendance was not recorded.

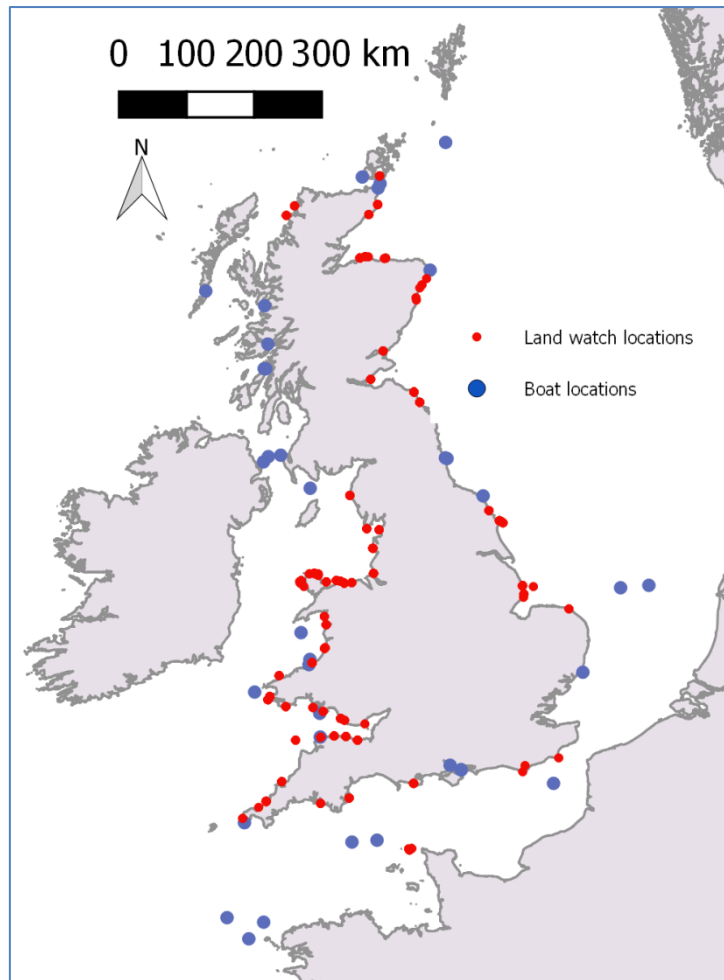


Figure 1. Watch locations for NWDW 2016 (n=115)

Whilst the amount of effort-based watches is at an all-time high, the number of land watch sites around the UK this year was much reduced. 113 sites were watched during the 2015 event and 116 sites in 2014. During the 2016 event 79 sites were surveyed, closely matching the 2013 effort. This shows that observers at established watch sites are putting in more effort than ever before and the large contribution of ORCA's Ocean Watch should also be acknowledged. Going forward, the success of the event could be improved by encouraging new observers to set up watch sites of their own, in areas that are not necessarily known cetacean hotspots. Once again, the volume of effort data recorded in each region varied widely and was strongly linked to observer numbers. Areas with strong regional networks and links with other organisations once again produced the highest levels of effort data collection (Fig 2.). Note that effort-based observations contributed by ORCA's Ocean Watch have been omitted from this bar chart due to the difficulty of assigning one of the Sea Watch regions to their offshore data collection.

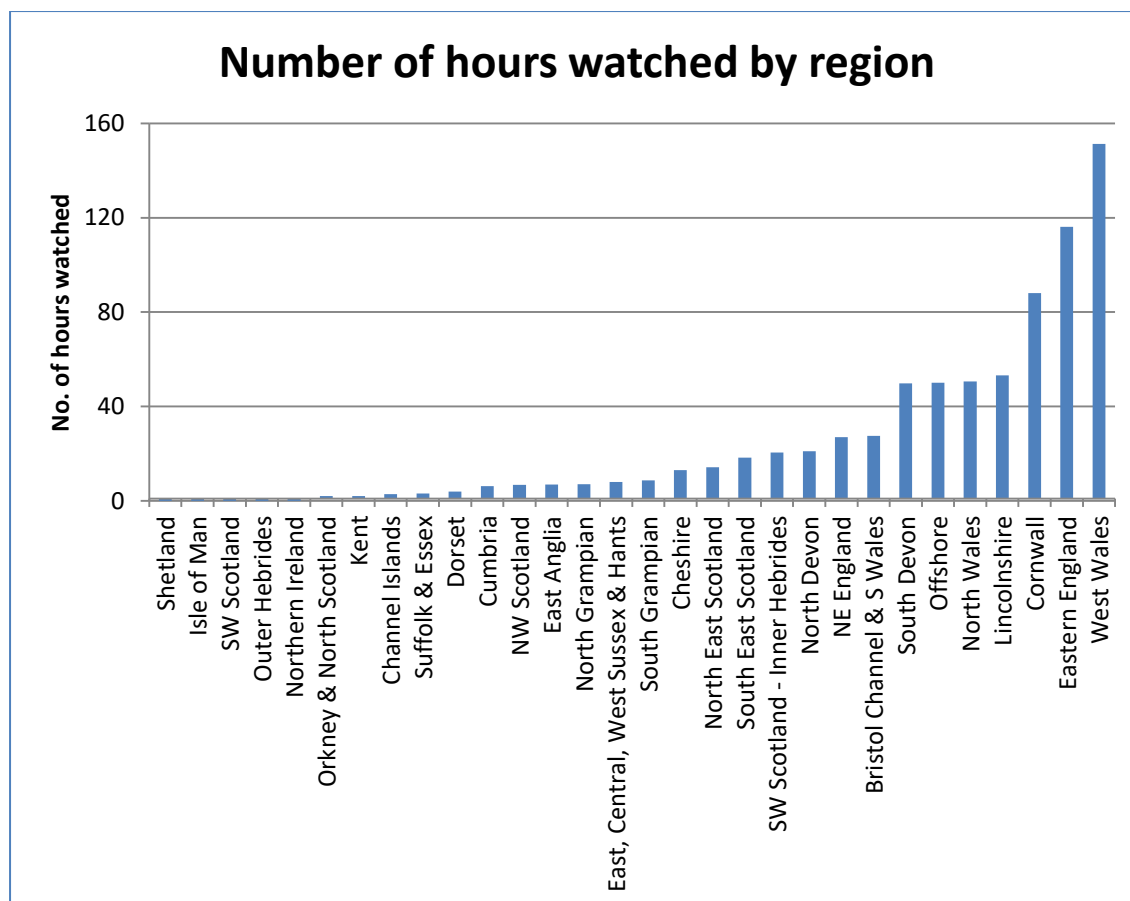


Figure 2. Number of hours of effort-related data collected by region

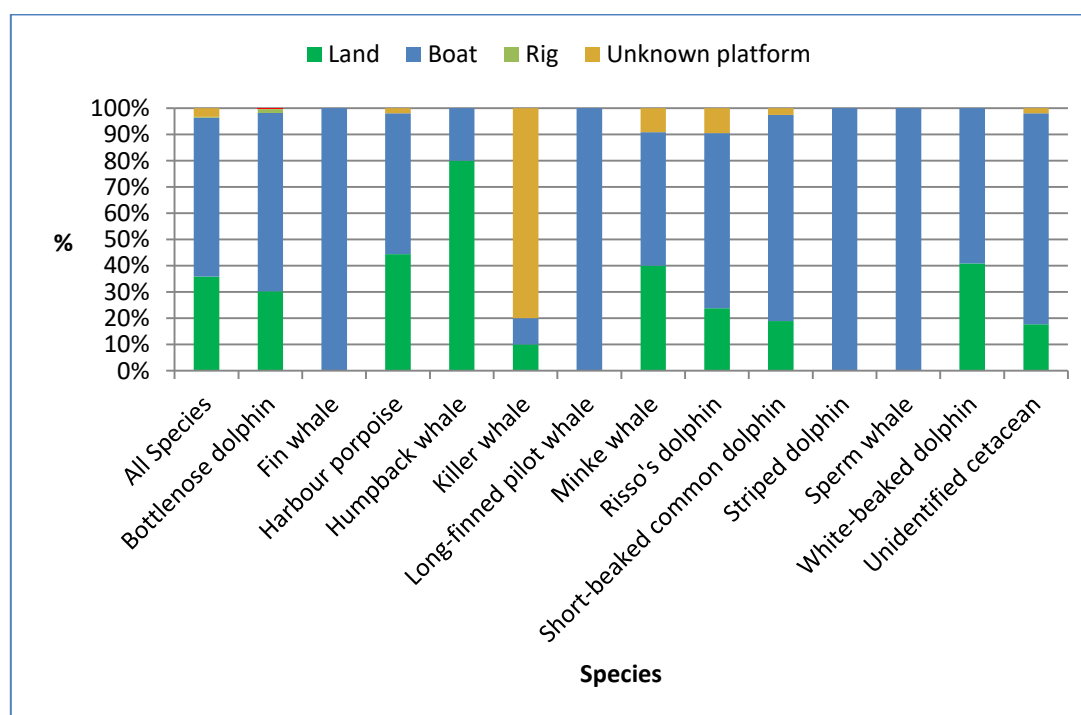


Figure 3 Proportion of sightings per species reported from land, boats, rigs or unknown platforms

More than 50% of effort data was recorded from a vessel during the 2015 event, a 20% increase on the previous year. The platform from which species were seen varied depending on the species in question (Fig.3). The widespread and coastal species, the harbour porpoise was seen equally from land and at sea, whereas deep water species such as fin whale and sperm whale were only seen from vessels. Similarly, long-finned pilot whales and striped dolphins were only seen from boats during the Ocean Watch ferry surveys.

Weather

Cetacean data collection is strongly weather dependant. Factors such as sea state, swell height and visibility to the horizon affect how easily animals can be detected during a watch. Heavy rain and wind can even cause watches to be cancelled altogether. For these reasons, every year, we rely heavily on good weather conditions for the success of NWDW. Similarly to previous years, this year's event was scheduled over nine days in order to increase the chances of coinciding with a favourable weather window. As it happened, the event took place during a very changeable weather window with frequent belts of rain, but with many southern areas remaining dry. It was generally wetter than average in Scotland, Northern Ireland, Cumbria and Snowdonia, but drier than average in South Wales and the southern half of England. A summary of the weather conditions and sightings by day is provided in Appendices 1 and 2.



Pictured: Incoming rain and heavy mist brought an early end to a watch on Constitution Hill in Aberystwyth, West Wales. Photo by Kathy James/ Sea Watch Foundation.

Sightings

1424 sightings of cetaceans totalling 7622 individual animals were reported during the NWDW 2016 watch period (Fig.4). This represents the highest ever NWDW sightings figure and a 20% increase on the previous largest number of sightings (1150 during the 2014 event). Twelve different cetacean species were recorded around the UK, which was only surpassed in 2015 when an arctic beluga whale spotted off Northern Ireland added to the species total! The list of different species recorded during NWDW has varied year on year.

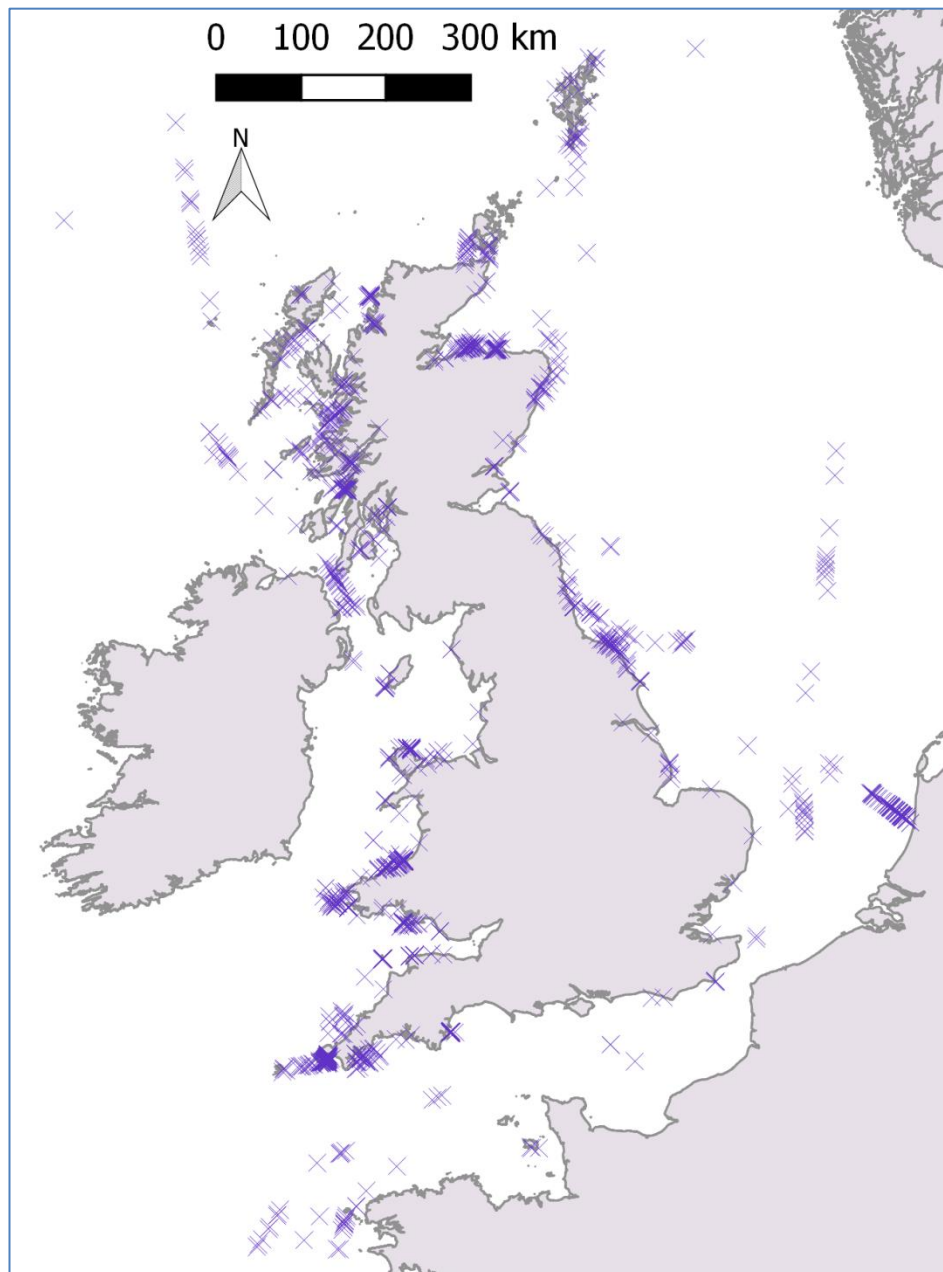


Figure 4. Sightings of cetaceans during NWDW 2016 (n=1424)

The heterogeneous distribution of sightings around the UK's coastline reflects a combination of factors: observer coverage, species distribution and sightability (how easily the cetaceans can be detected). For the first year, the highest number of sightings was reported around England (394 sightings, 27.7%). This was closely followed by Scotland which reported 374 sightings (26.3%). Observers in Wales recorded 277 sightings (19.4%) and 1 sighting (<0.1%) was recorded off Northern Ireland. The Isle of Man and the Channel Islands reported 9 sightings (0.6%) and 3 sightings (0.2%) respectively (figs 4 & 5). Additionally, offshore sightings (which could not reasonably be ascribed to one of our observer regions) accounted for 366 sightings (25.7%).

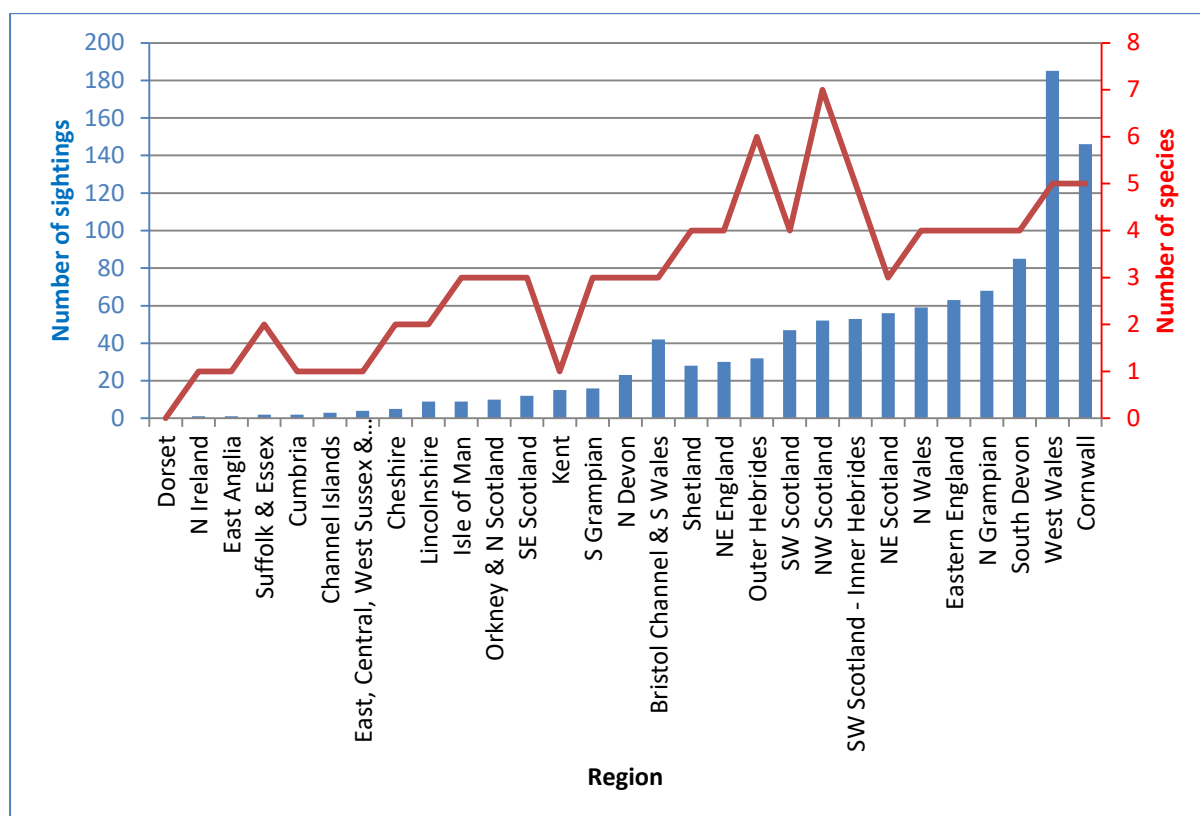


Figure 5. Number of sightings (casual and effort-related) and species per region during NWDW 2016

West Wales (185 sightings) and Cornwall (146 sightings) were the most successful regions in terms of the absolute number of sightings reported.

Offshore waters saw the highest species diversity (eleven species reported). From shore watches, North-west Scotland led the way (seven species recorded) and the Outer Hebrides (six species recorded). Elsewhere, West Wales and Cornwall also recorded high species diversity, with five species recorded in each region.

Once again, the South-eastern and North-western coasts of England recorded low numbers of sightings reports. However, these regions received a relatively low level of survey effort.

Additionally, these regions had the lowest levels of species diversity (one or two species where sightings were made). The Isle of Man continues to show relatively high species diversity (3) for the number of sighting reports made (9).

This year, the ratio of “casual” sightings (without associated effort data) to “effort-related” sightings has swung in favour of effort-related sightings (Fig. 6). Casual sightings accounted for just 27% of all sightings recorded during the event. The effort-related sightings percentage is 73% for 2016, up from 43% in 2015. Building on the success of last year’s event, 2016 again represents both an increase in effort-related watches and an improvement in the number of effort-related sightings as a proportion of the whole.

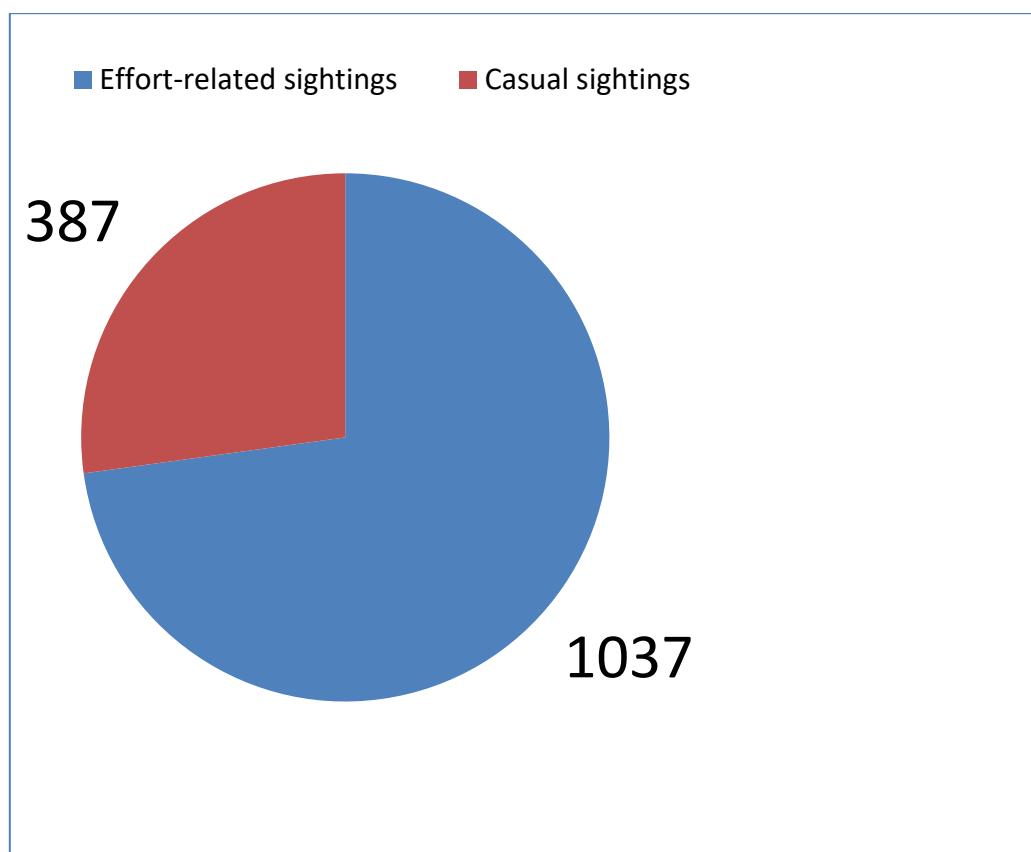


Figure 6. Proportion of effort related sightings (n=1037; 73%) and casual sightings (n=387; 27%) recorded during NWDW 2016

Figure 7 places North Grampian as well as North-east Scotland, North-west Scotland and Kent at the top of the list with sighting rates far superior to “1” (indicating an average of one or more cetaceans seen per hour of watching). Based on this year’s results, the UK’s national average sightings rate has increased to 0.98 or one cetacean seen each hour of watching.

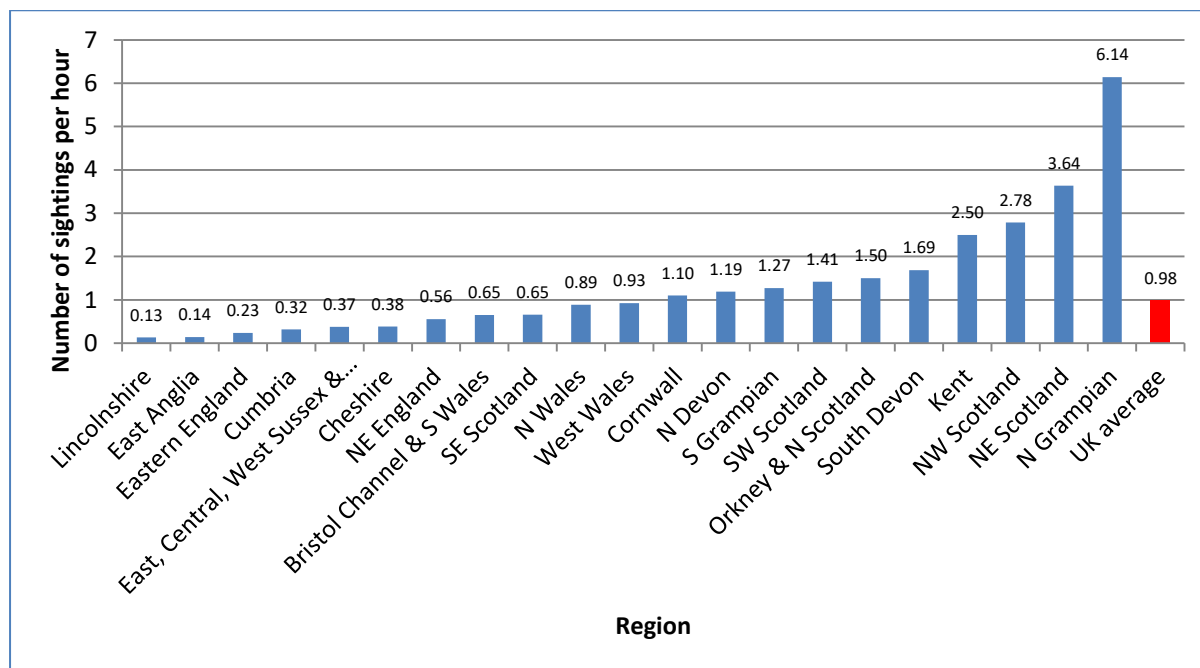


Figure 7. Sighting rate per region during NWDW 2016

Harbour Porpoise



Pictured: harbour porpoises photographed off Mousehole, Cornwall during NWDW 2016.

Photo by Marine Discovery

Harbour porpoises are common in most parts of the UK and this was once again reflected by this year's NWDW results. The species was recorded 713 times and made up half of all records for the event (50.07%). As illustrated in Figure 8, sightings were distributed around the whole of the UK coastline and concentrated in areas of high effort such as North-East England, the Inner Hebrides, North and West Wales, and Cornwall (Fig. 2). The size of groups of this species varied widely from a single individual to the largest aggregation of 20 animals which was seen in Mount's Bay, Cornwall (Table 1).

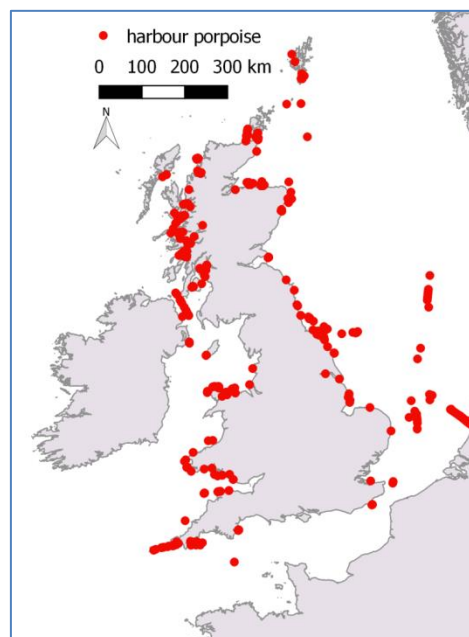


Figure 8. Sightings of harbour porpoise during NWDW 2016 (n=713; 50.07%)

Bottlenose dolphin



Pictured: Bottlenose dolphins photographed during a boat-based survey off West Wales during NWDW 2016.

Photo by Peter Evans/ Sea Watch Foundation.

Once again, bottlenose dolphins were the second most frequently reported species during NWDW, with 234 sightings (16.43%). Two large semi-resident populations of bottlenose dolphins can be found in UK waters: one occupying Cardigan Bay, West Wales; the other largely in the Moray Firth, North-East Scotland. Animals from both these populations were well recorded during the event as illustrated in Figure 9. However, bottlenose dolphin sightings were actually widespread around the UK during the 2016 event.

1276 individual bottlenose dolphins were recorded during the event. We cannot assume that all of these sightings were of different dolphins, many animals will have been spotted more than once. The largest group recorded was 50 individuals off the Calf of Man (Table 1).

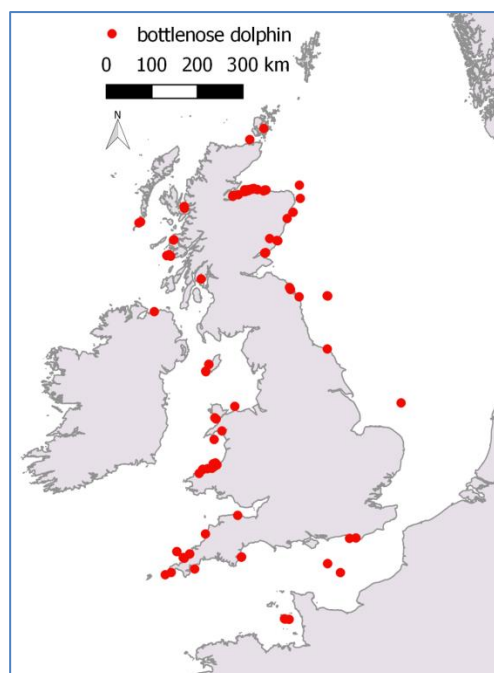


Figure 9. Sightings of bottlenose dolphins during NWDW 2016 (n=234; 16.43%)

Minke whale



Pictured: no pictures of minke whales were received from NWDW 2016; however this stunning shot from 2015 was chosen to advertise and represent the 2016 event. Photo by David Ainsley.

The most frequently reported whale species was the minke whale, accounting for 8.43% of the entire sightings total. The species was mainly seen in the northern half of the British Isles, but with further sightings reported off Cornwall and Pembrokeshire (Fig. 10). The largest group of four minke whales was seen off Whitby, North Yorkshire (Table 1).

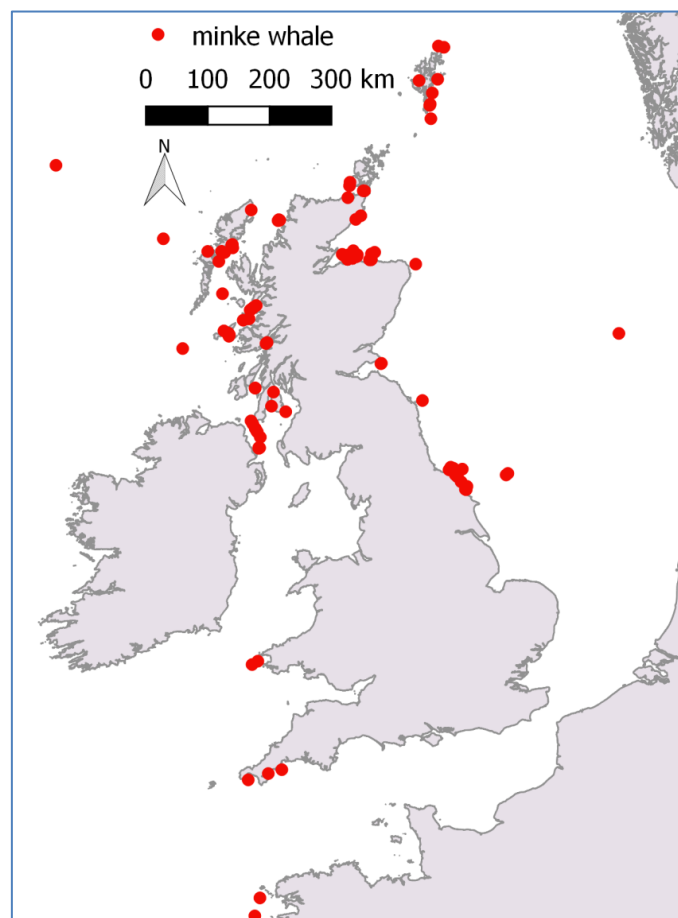


Figure 10. Sightings of minke whales during NWDW 2016 (n=120; 8.43%)

Short-beaked common dolphin

Common dolphins were the third most abundant species recorded during the 2016 NWDW event, with 199 sightings being made accounting for 13.97% of all records. The species showed a predominantly westerly distribution, with two reports off the eastern coast of the British Isles. The largest group (500) was recorded in Falmouth Bay, Cornwall (Fig.11, Table 1).

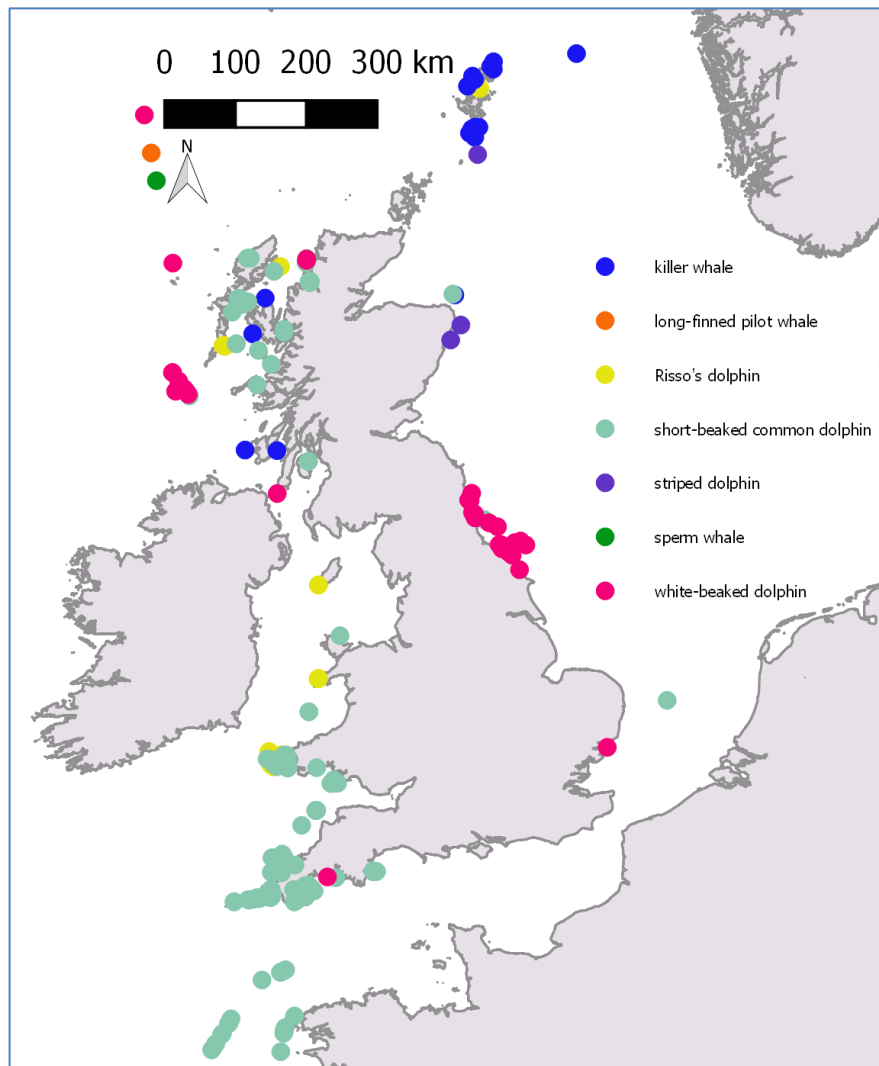


Figure 11. Killer whale (n=21; 1.47%), long-finned pilot whale (n=1; 0.07%), Risso's dolphin (n=21; 1.47%), short-beaked common dolphin (n=199; 13.97%), striped dolphin (n=3; 0.21%), sperm whale (n=1; 0.07%), white-beaked dolphin (n=44; 3.09%) during NWDW 2016.

Killer whale

Other species of dolphins were less frequently reported but nevertheless presented very distinct distributions. Killer whales were reported 21 times during the event in the waters around Shetland and the west coast of Scotland. The largest group consisted of 25 animals seen in the Yell Sound, Shetland (Fig. 11; Table 1).

Risso's dolphin

Risso's dolphins were recorded along the west coast from Pembrokeshire right up to North-west Scotland and Shetland. This species appeared the same number of times as killer whales, with 21 sightings made in total (1.47% of all sightings). Group size varied from one animal to fifteen seen off Eriskay in the Outer Hebrides and in Yell Sound, Shetland (Fig. 11; Table 1).



Pictured: a Risso's dolphin photographed off Pembrokeshire.

Photo by Katrin Lohrengel/ Sea Watch Foundation.

White-beaked dolphin

White-beaked dolphins were reported 44 times (3.09% of total sighting reports) and were concentrated off the north-east coast of England and offshore from the west coast of Scotland, with the odd sighting off southern Cornwall and Suffolk. The maximum observed group size for this species was 100 animals, seen off Whitby, North Yorkshire (Fig. 11, Table 1).

Striped dolphin

Striped dolphins made a surprising three appearances during the NWDW, off Eastern Scotland and south of Shetland. The largest group size, 35, was observed approximately 23 kilometres north-west of Fair Isle (Fig. 11, Table 1). These records were recorded by the North Link crew as part of the ORCA Ocean Watch data set. If indeed they can be confirmed as this species, these would be very interesting records as the species usually occurs largely well to the south of the British Isles.

Long-finned pilot whale

There was just one sighting of pilot whales during the NWDW accounting for 0.07% of the total number of sightings. It is assumed that these four were all long-finned pilot whales rather than their tropical counterpart, the short-finned pilot whale (Fig. 11; Table 1).

Sperm whale

An exciting addition to the events' species tally was a solitary sperm whale recorded from a vessel taking part in Ocean Watch (Fig. 11, Table 1).

Other whales

All of the five fin whale records were aggregated offshore of North-west Scotland. A single humpback whale was regularly observed off Aberdeenshire at close range with other sightings cropping up in the outer Moray Firth and in the Outer Hebrides. There were 52 reports of unidentified cetaceans accounting for 172 animals. These unidentified sightings reports were spread around the UK (Fig. 12, Table 1).

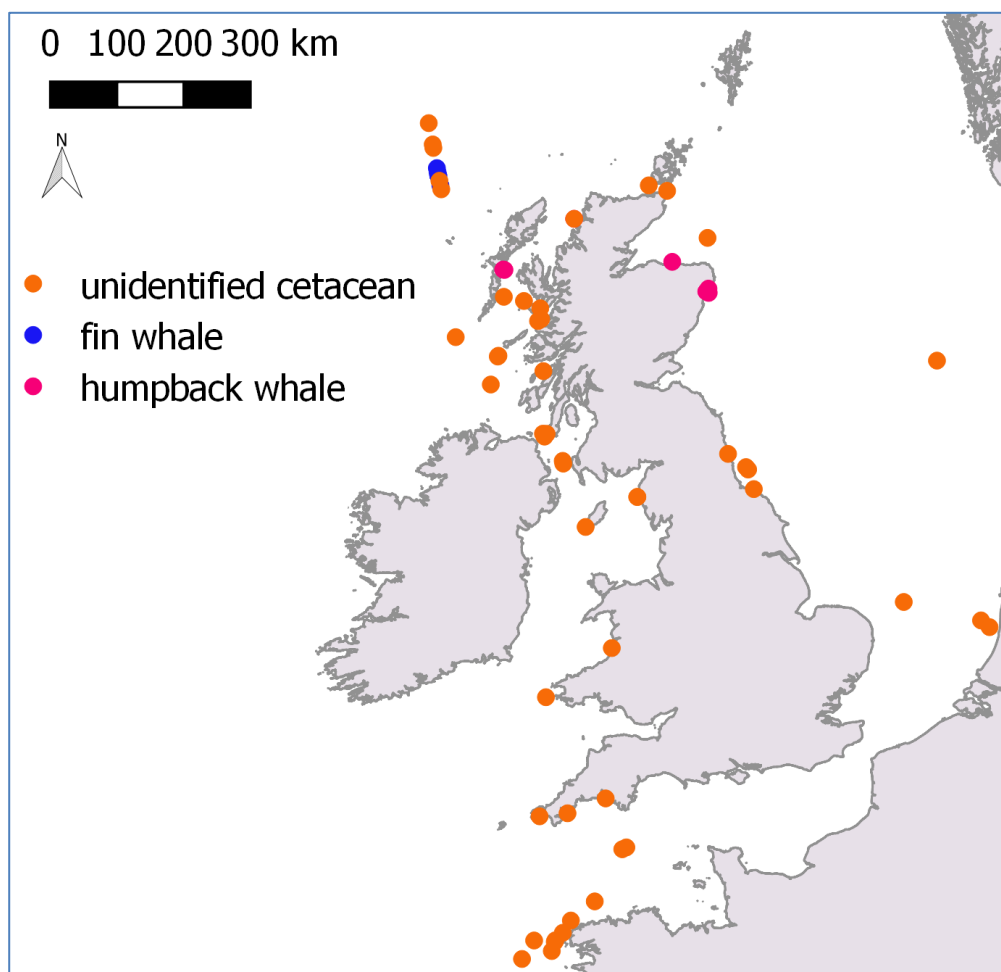


Figure 12. Distribution of fin whales (n=5, 0.35%), humpback whales (n=10; 0.70%) and unidentified cetaceans (n=52; 3.65%) during NWDW 2016



Pictured: the humpback whale seen off Aberdeenshire. Photo by Eilidh Watson.

Table 1. Quantitative description of sightings per species during NWDW 2016

Species	No. of sightings	%	No. of individuals	%	Av Group Size
Bottlenose dolphin	234	16.43	1292	16.95	5.52
Fin whale	5	0.35	9	0.12	1.80
Harbour porpoise	713	50.07	1736	22.78	2.43
Humpback whale	10	0.70	10	0.13	1.00
Killer whale	21	1.47	111	1.46	5.29
Long-finned pilot whale	1	0.07	4	0.05	4.00
Minke whale	120	8.43	152	1.99	1.27
Risso's dolphin	21	1.47	126	1.65	6.00
Short-beaked common dolphin	199	13.97	3531	46.33	17.74
Sperm whale	1	0.07	1	0.01	1.00
Striped dolphin	3	0.21	39	0.51	13.00
White-beaked dolphin	44	3.09	439	5.76	9.98
Unidentified cetacean	52	3.65	172	2.26	3.31
Totals	1424	100	7622	100.00	5.35

ACKNOWLEDGEMENTS

Sea Watch, and its Sightings Officer in particular, would like to extend thanks to the incredible volunteers who give up their time to record cetaceans during the National Whale and Dolphin Watch and throughout the year. Amongst these are the Regional Coordinators spread around the UK who tirelessly strive to improve knowledge about, and monitoring of, the UK's cetaceans. We are ever grateful for your support. Additional thanks to Oli Claydon of the Met Office for his provision of satellite maps for the report and to Angharad James, Anna Pääkkönen, Beth Smith, Frankie Simpson, Julia Gostischa, Liz Allyn, Mathew Clough, Marta Gil Molinero, Nick Goldsmith, and Thomas Bell for their assistance with data entry. Lastly, thanks to Lili Wilson and Georgina Davies along with our team of enthusiastic research interns for their invaluable assistance in the run up to, during and after the event with regards to recording and advertising watches, organising and running NWDW themed educational events, speaking with observers and undertaking data entry.

APPENDIX 1.

General overview of the weather by country for the period of NWDW 2016 (Met Office – metoffice.gov.uk)

It was generally warmer and sunnier [than the first half of July] between the 17th and 23rd, with a brief hot spell from the 18th to 20th, which triggered a thundery breakdown in the north and across parts of East Anglia. Changeable weather resumed during the last week, with further frequent belts of rain, but again many southern areas often stayed dry.

The provisional UK mean temperature was 15.3 °C, which is 0.2 °C above the 1981-2010 long-term average. Mean minimum temperatures were slightly above average in all regions, but mean maximum temperatures were slightly below average in the west. Rainfall was 104% of average, but with a strong north-south contrast. It was generally wetter than average in Scotland, Northern Ireland, Cumbria and Snowdonia, but drier than average in south Wales and the southern half of England, with less than 5 mm of rain locally in the far south. Sunshine was 92% of average, and it was cloudier than average in Scotland, Northern Ireland, west Wales and parts of western England, but sunshine was slightly above average over much of eastern England.

England

Mainly very warm and dry conditions on the 23rd, particularly for the south, with 28.6 °C recorded at Heathrow and 13.9 hrs of sunshine at Shoeburyness (Essex). It stayed warm and sunny in the south-east on the 24th, but with cloud and rain elsewhere. It was fresher and breezier than of late on the 25th with scattered showers and sunny spells. It was dry and sunny in the south-east on the 26th, but cloudy elsewhere with patchy rain, turning wet over the northwest from mid-afternoon. Bright over the north on the 27th, cloud and rain elsewhere cleared away southwards leaving a few isolated showers over East Anglia by early evening. Dry and bright over the bulk of the country to start the 28th, before rain, heaviest over the north, spread from the west to affect all areas by evening. It was warmer but cloudy for most on the 29th with further showers, occasionally heavy, affecting mainly northern parts. Fresher conditions dominated on the 30th with showers across southern counties and East Anglia. The 31st was mostly dry with sunny spells although isolated showers broke out in northern areas later.

Wales

It stayed warm on the 23rd and was mostly dry, albeit quite cloudy, with a few showers for western coasts overnight. The 24th and 25th were mostly cloudy and showery days but staying mild and breezier than of late. It was cloudy with patchy rain for most on the 26th, turning very wet in most places during the evening. Patchy rain in the morning of the 27th cleared away southwards, leaving a bright and dry afternoon for all parts. More rain to start the 28th, clearing away eastwards to leave a mix of sunshine and showers for the afternoon. Showers mainly affected the south on the 29th, but elsewhere it was humid with variable cloud. It was mostly dry with sunshine on the 30th but cooler than of late. Mainly dry and bright on the 31st with only some isolated showers in the north.

Scotland

There was patchy rain for the Western Isles, Orkney and Borders early on the 23rd, but otherwise it was warm and mostly dry, albeit mostly cloudy. It stayed quite warm on the 24th but it was wet across all parts. The 25th was quite warm in the east but cooler in the west, and it was mostly showery and breezy.

It was generally cloudy with patchy rain on the 26th, turning wet everywhere from mid-afternoon onwards. Dry and bright over most parts early on the 27th but rain over the north-west spread east, turning showery by early afternoon. There was a sunny start in the north-east on the 28th, cloudy elsewhere with rain moving eastwards but staying confined to the Borders area. The 29th was showery across the north-west Highlands but it was otherwise dry and warm, and sunny in the south-west with 14.5 hours of sunshine recorded at Glasgow. There were scattered showers on the 30th, heaviest in the east and a fresher feel in a northwest wind. The showers were more widespread on the 31st with the showers most frequent and heaviest in the north-west.

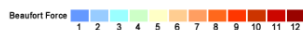
Northern Ireland

The 23rd remained cloudy with showers, the showers heaviest in the east. The 24th started dry but rain spread in from the west during the morning. The 25th was a cloudy and increasingly showery day. It was cloudy with patchy rain at first on the 26th, and then turned wet everywhere from mid-afternoon. It was still cloudy for the 27th but with just light showery rain. There was a very wet start to the 28th, the rain turning lighter and patchier into the afternoon. The 29th was a much brighter day, and it was warm near the east coast. It turned cooler on the 30th with sunny spells but afternoon showers became increasingly frequent. There was a mix of sunshine and widespread showers on the 31st, after a chilly start with a minimum of 3.3 °C at Katesbridge (County Down).

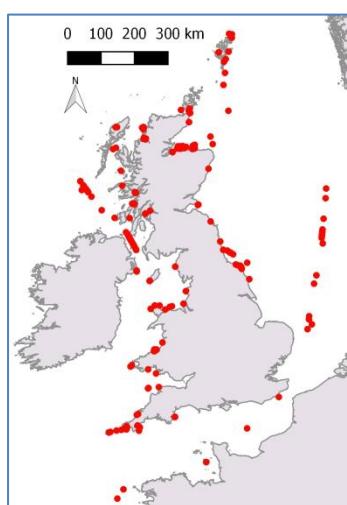
APPENDIX 2 – Weather

General overview of the weather by day during the period of NWDW 2016 using pressure maps from Magic Seaweed and satellite maps from the Met Office.

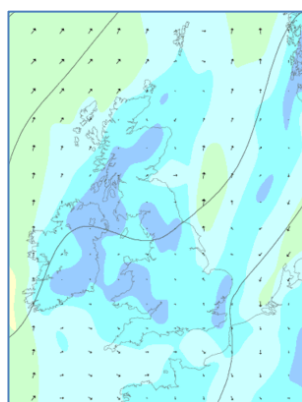
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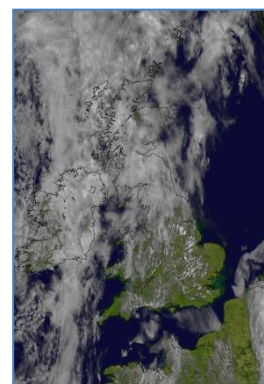
Saturday, 23rd July



Cetacean sightings on day 1 of NWDW 2016 (23rd July)

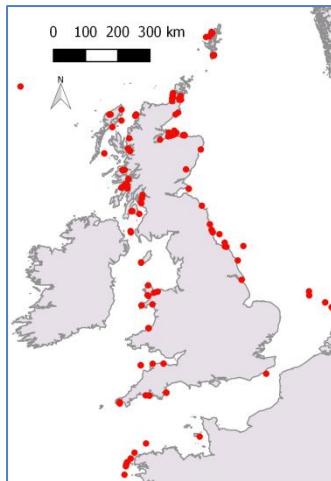


Pressure map on day 1 of NWDW 2016 (23rd July)

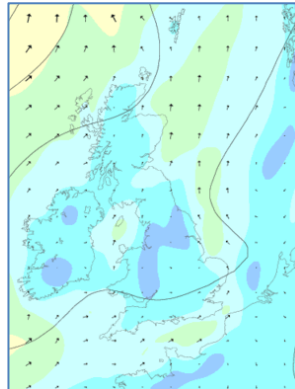


Satellite map on day 1 of NWDW 2016 (23rd July)

Sunday, 24th July



Cetacean sightings on day 2 of NWDW 2016 (24th July)



Pressure map on day 2 of NWDW 2016 (24th July)

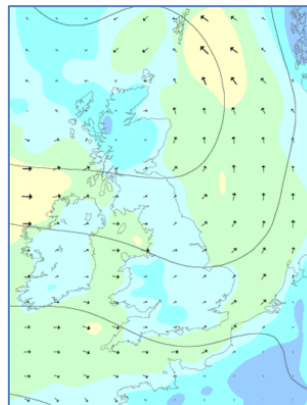


Satellite map on day 2 of NWDW 2016 (24th July)

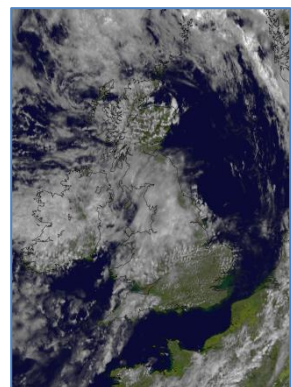
Monday, 25th July



Cetacean sightings on day 3 of NWDW 2016 (25th July)



Pressure map on day 3 of NWDW 2016 (25th July)

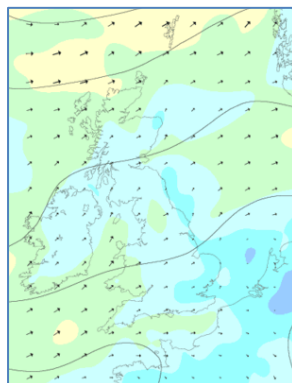


Satellite map on day 3 of NWDW 2016 (25th July)

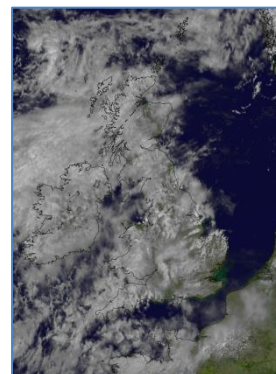
Tuesday, 26th July



Cetacean sightings on day 4 of NWDW 2016 (26th July)

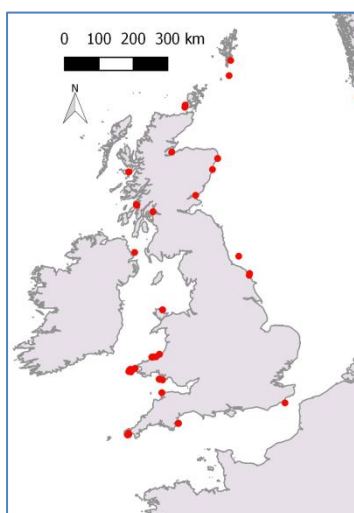


Pressure map on day 4 of NWDW 2016 (26th July)

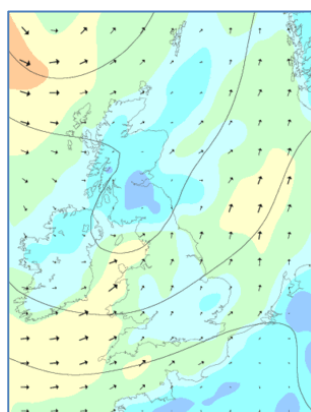


Satellite map on day 4 of NWDW 2016 (26th July)

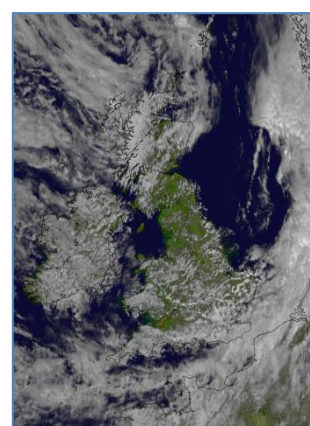
Wednesday, 27th July



Cetacean sightings on day 5 of NWDW 2016 (27th July)

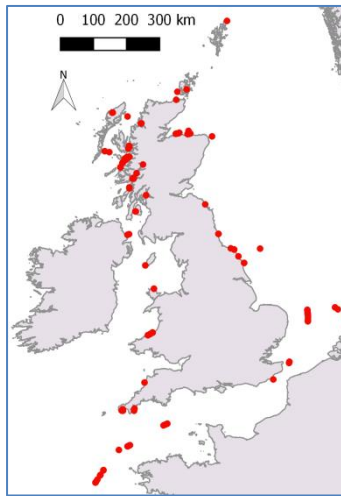


Pressure map on day 5 of NWDW 2016 (27th July)

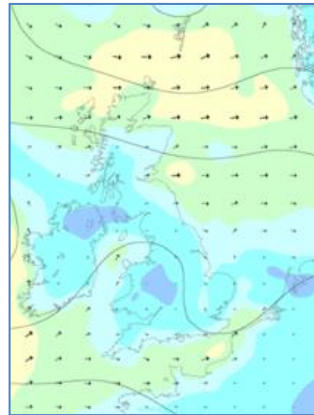


Satellite map on day 5 of NWDW 2016 (27th July)

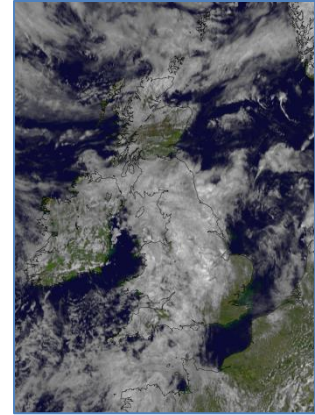
Thursday, 28th July



Cetacean sightings on day 6 of NWDW 2016 (28th July)

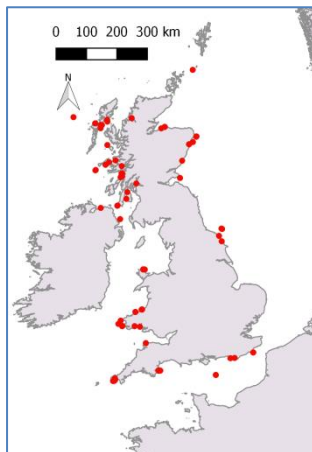


Pressure map on day 6 of NWDW 2016 (28th July)



Satellite map on day 6 of NWDW 2016 (28th July)

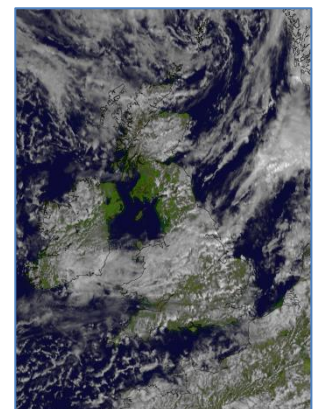
Friday, 29th July



Cetacean sightings on day 7 of NWDW 2016 (29th July)

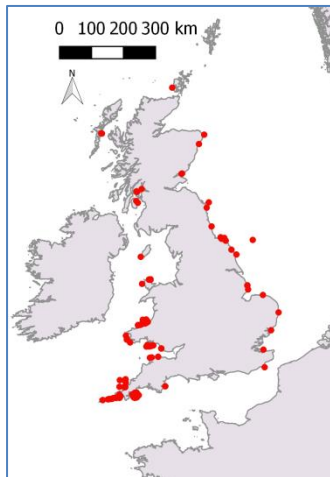


Pressure map on day 7 of NWDW 2016 (29th July)

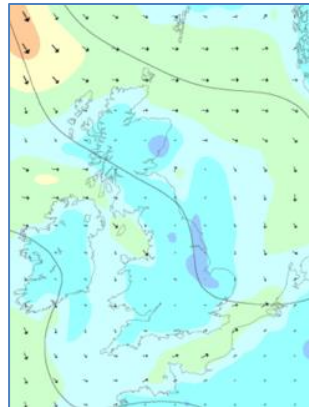


Satellite map on day 7 of NWDW 2016 (29th July)

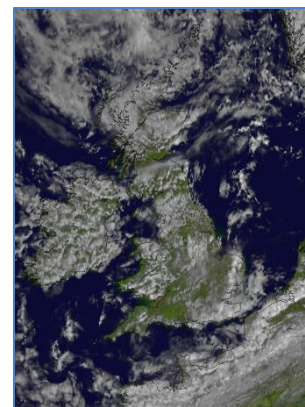
Saturday, 30th July



Cetacean sightings on day 8 of NWDW 2016 (30th July)

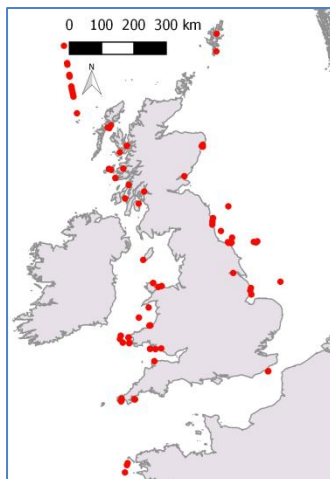


Pressure map on day 8 of NWDW 2016 (30th July)

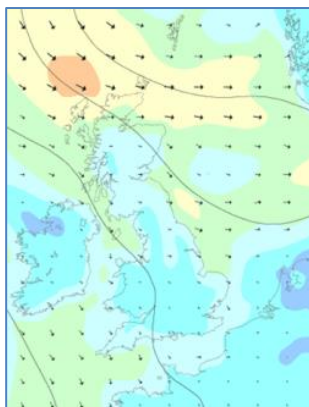


Satellite map on day 8 of NWDW 2016 (30th July)

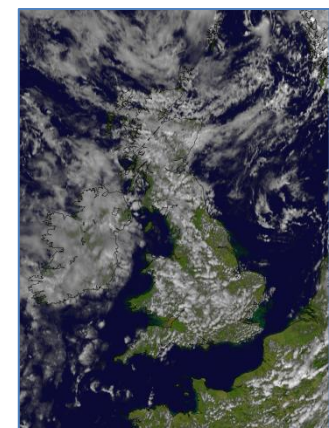
Sunday, 31st July



Cetacean sightings on day 9 of NWDW 2016 (31st July)



Pressure map on day 9 of NWDW 2016 (31st July)



Satellite map on day 9 of NWDW 2016 (31st July)