

# **Cetacean research in Manx waters 2016**

**By Tom Felce and Jennifer Adams**

## **Boat based surveys**

Only 6 boat based surveys were carried out during 2016, resulting in 497.1kms of survey coverage in Manx waters. This is the least amount of survey effort during a calendar year since systematic surveys for cetaceans were started in 2007.

Of the 497.1kms surveyed, only 174.5km (35.1%) were surveyed in good conditions, in sea states 0 and 1, with 322.7km (64.9%) surveyed in sea states 2 and above. This makes a big difference on a single decked boat (used throughout 2016), as a surveyors eye height is only around 2 metres, making it very difficult to spot animals in sea states of 2 or above. The effect of sea state on sightings rate is very powerful; sightings rate decreases by an order of magnitude between sea states less than 1 and sea states of 2 and above.

Overall, there were only 29 sightings in 2016, equating to a sightings rate of 0.058/km. This is a significantly lower sightings rate (40%) than in previous years, which had an average rate of 0.100 sightings/km. As explained above, this is likely to be a result of the generally poor sea state in which surveys were carried out. Furthermore, the majority of the surveying was carried out relatively close inshore, in an attempt to gain some protection from the wind and hence lower sea states in which to survey. Data from previous years has shown that inshore waters have a lower relative abundance of cetaceans than offshore waters.

### **Species composition of boat based sightings in 2016**

<b>Species</b>	<b>No. of sightings</b>	<b>No. of individuals</b>	<b>No. of calves</b>
Harbour porpoise	20	86	4
Minke whale	4	7	2
Risso's dolphin	2	26	2
Short-beaked Common dolphin	3	16	3

As would be expected from previous surveys, Harbour porpoise were the most commonly seen cetacean species. For the first time since surveys began in 2007, there were no sightings of Basking sharks.

Despite a lack of sightings overall, there was one extraordinary collection of sightings during a survey carried out on the 3<sup>rd</sup> of June. Just over seven miles south of

the Calf, in an area of only 2 nautical miles squared (3.7km<sup>2</sup>), 44 Harbour porpoises, 5 Minke whales, including a calf and a new-born and 11 Short-beaked Common dolphins were seen. The number of marks on the vessel's fish finder suggested that this high density of cetaceans was due to a huge amount of fish in the area and certainly the activity seen from the vessel suggested that this was the case. This was a particularly interesting sighting, as it contained the first ever new-born Minke whale seen in Manx waters

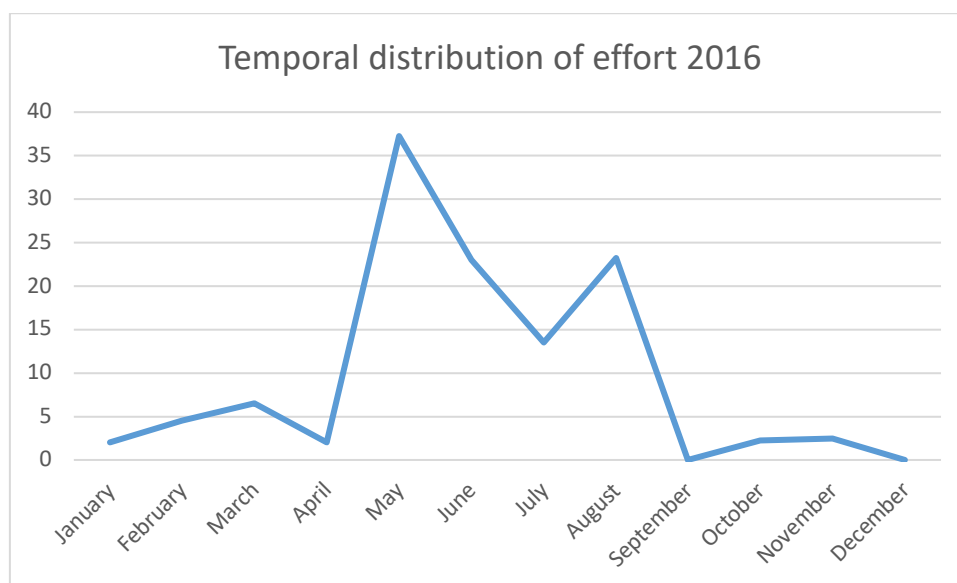


The lack of sightings in turn resulted in there being very few encounters good enough for photo-identification. There were only two encounters with Risso's dolphins in 2016, the lowest number in a year since surveys began. Five new individuals were recognised from the encounters, the minimum catalogue size now being 112 individuals.

There were two encounters with Short-beaked common dolphins, which yielded 5 new individuals, the catalogue size now being 27 individuals. There were also two encounters with Minke whales, but the images were of too poor quality to be able to recognise any new individuals.

## Land based surveys

115.25 hours of land based surveys were carried out in 2016 equating to 461 intervals (environmental and sightings data collected once every fifteen minute interval). This is higher than in 2015 when only 72.5 hours of effort were carried out, but lower than the average from previous years of 213.5 hours of effort. The temporal and spatial distribution of effort are as follows:



As would be expected, the majority of effort was carried out between April and August. The lack of effort during September and December was due to some persistently windy weather in the two months.

Location	No. of interval surveyed	Hours of effort
Calf East	134	33.5
Calf West	24	6
Marine Drive	74	18.5
Niarbyl	99	24.75
Peel Castle	22	5.5
Port St Mary	103	25.75
Sartfield	5	1.25

As would be expected in an area with south-westerly and westerly prevailing winds, the majority of effort (67.4%) was carried out on the east coast.

There were a total of 148 cetacean positive intervals (an interval in which at least one group of cetaceans or an individual was seen). Therefore, 32.1% of effort intervals were cetacean positive. This is a similar sighting frequency to previous years (between 25% and 35% sighting frequency). However, this does not mean that there were 148 different sightings made, as many of the sightings are repeats of sightings seen in previous effort intervals. The composition of the cetacean positive intervals was as follows:

<b>Species</b>	<b>No. of +ve intervals</b>	<b>No. of different groups</b>	<b>No. of individuals seen</b>
BND	3	1	20
HP	123	48	99
RD	37	12	39

As expected from previous years surveys, Harbour porpoise were the most commonly seen cetacean species seen during land based surveys. 2016 was the first year since surveying began in 2016 that no Minke whales or Short-beaked common dolphins were seen during land based surveys. All boat sightings of these two species were more than 5 miles offshore, suggesting their distribution was less coastal than it has been previously. Conversely, there were an unusually high number of Risso's dolphin positive intervals, perhaps suggesting a more coastal distribution than usual. It is unlikely however that the two results are related as Minke whales and Short-beaked common dolphins do not share the same ecological niche as Risso's dolphins.

The sightings rates at each of the surveyed sites was is as follows:

<b>Location</b>	<b>No. of cetacean +ve intervals</b>	<b>% of cetacean +ve intervals</b>
Calf East	42	31.3
Calf West	8	33.3
Marine Drive	16	21.6
Niarbyl	41	41.4
Peel Castle	1	11.1
Port St Mary	40	38.8
Sartfield	0	0

Unusually, Niarbyl had the highest sightings rate of any of the sites. In previous years, Niarbyl often had the lowest sightings rate of any of the sites, at around 25%. Risso's dolphins in particular were seen unusually often at Niarbyl, perhaps suggesting a slight movement in their prey. Port St Mary on the other hand had a much lower sightings rate in 2016 than in previous years. This is most likely due to the weather in 2016 as Port St Mary has little elevation, making it harder to spot animals in a sea state two or above.

## **Opportunistic sightings**

238 opportunistic sightings were reported to MWDW in 2016 through various media, including the website, Facebook, by phone or by word of mouth. Some sightings were also reported to us using our Boat Users logbooks, given out to recreational boat users for the first time in 2016. The species composition of the sightings is as follows:

<b>Species</b>	<b>Total no. sightings</b>	<b>Total No. of Individuals</b>	<b>Total No. of juveniles</b>	<b>% of total sightings</b>
Bottlenose dolphin	22	819	80	9.2
Fin whale	4	7	0	1.6
Harbour porpoise	82	229	11	34.5
Minke whale	21	34	3	8.8
Risso's dolphin	87	465	12	36.5

For the second year in a row, there were more sightings of Risso's dolphins reported than Harbour porpoise. This initially seems unlikely as there is a much larger population of Harbour porpoise in Manx waters than of Risso's dolphins. However, in choppy seas, Harbour porpoise are very difficult to spot due to their size and behaviour, whereas Risso's are still highly visible as their dorsal fins are tall and they often display very high energy behaviours such as leaping and porpoising.

As would be expected from data collected during land based surveys, there were very few sightings of either Minke whales or Short beaked common dolphins, likely to be a result of the offshore distribution of their most important prey, herring.

Despite the weather being generally unsuitable for surveying for most of the year, it was also very mild, particularly throughout the autumn. This led to some

anomalous sightings during November and December, including Risso's dolphins, Short beaked common dolphins and Minke whales on Christmas Eve. This is the latest time of the year that all three of these species have been reported in Manx waters.

## **Manx Whale and Dolphin Watch in 2016**

2016 from a research perspective, as in 2014 and 2015, has again been characterised by a lack of surveying from land or sea, caused by persistent windy weather throughout the year. Even when boat surveys were carried out, incorrect forecasting often made conditions very difficult for spotting cetaceans, hence the low number of sightings and low sightings rate.

The purchase of our new research vessel should overcome some of these problems, as it has a fly-bridge. This increases our eye height from around 2 metres (on our previous research vessel) to around 4 metres. This makes spotting much easier in higher sea states. Furthermore, as the vessel is ours, this allows us to take opportunities to survey in spells of calm weather that have not been forecast and at unsociable times, such as early morning and late evening, times when it is often much less windy than during the day.

Having a fly-bridge also allows us to carry out line transect surveys, as it gives observers the ability to see the transect line that is being followed at all times. Furthermore, having a fly-bridge allows you to have two sets of observers; the primary observers on the fly-bridge and an independent observer, on the front deck. A correction factor derived from the sightings data collected by the independent observer can then be applied to the density estimate derived from the sightings data collected by the primary observers, resulting in a much more accurate density estimate.

MWDW are also hoping to attain a hydrophone array and the software required to analyse the data collected from the array. The software used (PAMguard) is so advanced that it is able to derive density estimates just from the acoustic data collected from the array. This in turn allows surveys to be carried out even in conditions not suitable for visual surveys. This will increase the number of surveys carried out in a year, as the weather does not have to be good for a survey to be

viable. A trial is to be carried out in May, using an array provided by the Clyde Marine Mammal Project.

A correlation of visual data, if calm enough and acoustic data will allow the calculation of availability bias. This is a correction factor applied to a density estimate to allow for animals that are not seen on the transect line being followed because they are underwater. A similar correction factor can also be applied to account for perception bias (animals that are simply missed by both sets of observers). The application of these two correction factors will make any density estimate derived from visual data as precise as it can possibly be.

Having a hydrophone array and a two decked vessel will result in line transects being followed on all boat surveys. It is also hoped that the vessel will be able to be moored, on occasions, in ports other than Peel. This will facilitate surveys being carried out on the east coast, an area that is currently lacking in boat survey data.

MWDW will continue to collect images for photo-identification and maintain data sharing agreements with other cetacean research organisations around the Irish Sea and beyond.

An agreement has been reached with the Manx Fish Producers union regarding giving out Sea users record books to local fishermen. As the union know the fishermen so well, they are aware who is likely to actually record sightings in the record books and who is unlikely to. It is hoped that this will provide valuable data about cetaceans in offshore waters, on days when we are unable to survey.

## **Education and Outreach 2016**

2016 was a very important year for MWDW, marking our 10th anniversary, and our first year as a registered charity. We started the year with a full re-branding including a new logo, a new website and uniforms for staff and key volunteers. With charitable status, we were able to offer membership to the public and opened up three categories: adult, junior and family. Membership allows the public to get actively involved in our work and all annual fees go directly towards charity running costs.

In March, we had our first ever charity collection tins made up, which are currently in circulation in local establishments.

From early May through to September we were joined by 5 full-time volunteers from England, who were selected for our Marine Research and Outreach Internship.



In May, we were delighted to receive financial support from the Manx Lottery Trust to run a 2 year project entitled 'The Development of a Network of Local Marine Mammal Surveyors'. We ran a series of 3 training workshops with a total of 55 attendees from all over the island. The project has been a huge success so far and has really helped to increase public awareness of cetaceans in Manx waters. It is hoped that this will provide a valuable source of extra land based survey data in the coming years.

Throughout the summer, we worked hard to increase our public profile and one key aspect of this was purchasing a new, larger gazebo for our information stall at summer shows. Generous support from Pokerstars allowed us to buy a 3 x 4.5m gazebo with 2 banners, this enabled us to offer a 'walk in' travelling stall, which we took to 8 events over 12 days.

Our public awareness efforts attracted the attention of various media companies who asked to film and interview us. These were:

- BBC North West Tonight
- [www.britainisgreat.com](http://www.britainisgreat.com) (Geocast TV) interview with Ben Fogle
- BBC Radio 4, Open Country
- Manx Radio and Manx Radio TT

Regular talks to youth groups, such as the Scouts, have been undertaken and very well received. The biggest achievement of 2016, was the opportunity to purchase our very own research vessel, with incredibly generous support from the Scheinburg Family. We brought her back to the island from Dartmouth in July, and she is now re-named 'Galps' in honour of our founder John Galpin.

In September, we ran our very first charity AGM and information night, which was well attended. We now have a wonderful team of Trustees on board who continue to go out of their way to provide support.

We now own a number of important items, allowing us to expand our work and have more to offer. The charity now owns a projector and screen which has given us flexibility when organising talks to groups and clubs. We now also have 20 pairs of binoculars, suitable for adults and children, allowing us to start running public watch events in 2017, this was made possible thanks to funds from Lloyds Bank staff dress down days.