

# **Cetacean review 2012**

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## **Boat based data:**

### **Grampus:**

Due to a combination of bad weather, the tidal limitations of Peel harbour and lack of boat and skipper availability, only 1 trip was possible in 2012, in January, covering 99.4 kilometres and yielding two sightings, one of a group of Bottlenose dolphins in Douglas bay, containing 70 individuals (55 adults, 10 juveniles and 5 calves) and two Harbour Porpoise off Langness.

The lack of trips on Grampus is a problem that needs to be addressed, as although Manx Whale and Dolphin Watch (MWDW) has another vessel that can be chartered, this is only single decked. Estimates of density and hence abundance of a species can only be calculated from a two platformed vessel. Since this is one of the cornerstones of the research carried out by MWDW, it is vital that we carry out more surveys on Grampus in 2013.

### **Girl Pat:**

Girl Pat is a former pot fishing vessel that was newly chartered by MWDW in 2012. She is a 25 foot motor boat, which is single decked but is not restricted by tide as she is regularly left on the outer breakwater in Peel, so is particularly useful on days of low wind speed that are not forecast. Since the vessel is only single decked, actual density and abundance cannot be derived, so the vessel was mainly used for the purpose of photo-identification. Therefore, the majority of the surveys were carried out on the west coast and south and south-west of the Calf of Man, where previous trips have found the highest cetacean densities to be.

In 2012, 9 trips were carried out on Girl Pat, covering 876.4 kilometres and yielding 81 sightings of cetaceans and basking sharks. These sightings comprised 10 sightings of basking sharks (0.01 sightings per km) and 71 cetacean sightings (0.08 sightings per km). This compares to a sighting rate of 0.99 cetacean sightings on Grampus. The slightly lower sightings rate is most likely due to the lack of eye height on Girl Pat compared to Grampus (~1.8 metres and 3.5 metres respectively).

The species composition of sightings from Girl Pat is as follows:

**Table 1: Species composition of sightings from Girl Pat**

Species	No. of sightings	Total number of individuals	% of total sightings	% of total sightings 2007-2011
Bottlenose dolphin	1	70	1.2	0.3
Basking shark	10	14	12.3	25.9
Harbour Porpoise	59	111	72.8	55.5
Minke Whale	9	11	11.1	7.6
Risso's dolphin	2	4	2.5	7.6
Short-beaked Common dolphin	0	0	0.0	0.1
Unidentified Cetacean	0	0	0.0	2.2

### **Vessels of Opportunity:**

2012 was the first year that data was collected from so called vessels of opportunity, referring to tourist boats going from Peel and Port St Mary that are not being specifically chartered by MWDW. Such vessels can provide a valuable source of data, which although not directly comparable to data collected from Grampus or Girl Pat, due to the lack of dedicated observers, can provide useful detailed information about cetaceans in specific marine areas. Regarding vessels operating from Peel, this refers to between Kirk Michael and the Calf of Man, within 5 miles from land and regarding boats from Port St Mary, the area between Langness and the Calf of Man, within 3 miles from land.

In 2012, data was only collected from 2 vessels; Manx Sea Quest, operating from Peel and Gemini, operating from Port St Mary. It is hoped that data collection from vessels of opportunity will expand onto more vessels in 2013 and beyond, depending on the willingness of other boat skippers.

6 trips were carried out on the two vessels, comprising 165.6 kms and yielding 8 sightings at a rate of 0.048 sightings per km; 5 sightings of Harbour porpoise (13 adults and 2 calves), two sightings of Minke whale (2 individuals) and 1 sighting of Basking shark.

Using vessels of opportunity not only provides a valuable source of data on marine megafauna, but through guiding on these vessels, these trips can be used to

help to raise awareness of cetaceans and basking sharks in Manx waters and of Manx Whale and Dolphin Watch, Manx Basking Shark Watch and the support of these two organisations by DEFA. There is also the potential for these trips to increase encounter rates for photo-identification, without extra expenditure, of both cetaceans and basking sharks and to help raise awareness of how boat users in general should behave around marine megafauna, for example in terms of the best direction to approach and the vessel speed when near marine megafauna.

### **Land based surveys:**

148 hours of land based surveys were carried out in 2012, equating to 592 fifteen minute intervals. The time spent surveying at each location is as follows:

**Table 2: The breakdown, by location, of land based surveys in 2012**

<b>Location</b>	<b>Time surveyed</b>	<b>% of total time surveying</b>
The Ayres	1hr 30 mins	1.0
Calf East	44 hrs	29.7
Calf West	16 hrs 30 mins	11.1
Lynague	2 hrs	1.4
Marine Drive	18 hrs 30 mins	12.5
Niarbyl	23 hrs 15 mins	15.7
Peel	4 hrs 45 mins	3.2
Port St Mary	37 hrs 30 mins	25.3

Of the 592 intervals surveyed, 145 were cetacean positive intervals (24.5%), with only 2 basking shark positive intervals (0.3%). These differ considerably compared to sightings rates of cetaceans and basking sharks between 2006 and 2011 (18.7% and 13.2% respectively).

The species composition of cetacean sightings from land based surveys in 2012 is as follows:

**Table 3: Species composition of cetacean sightings from land based surveys**

Species	% +ve intervals 2012	% of +ve intervals 2006-2011
Bottlenose dolphin	1.01	0.39
Harbour Porpoise	21.96	13.98
Minke Whale	0.68	1.31
Risso's dolphin	3.21	2.37
Short-beaked Common dolphin	0.68	0.56

The sighting frequency of cetaceans at each site is as follows:

**Table 4: Sighting frequency per site**

Site	No. of intervals surveyed	% Cetacean +ve intervals 2012	% Cetacean +ve intervals 2006-2011
Calf East	176	20.5	17.5
Calf West	66	25.8	12.5
Lynague	8	0.0	0.0
Marine Drive	74	27.0	13.4
Niarbyl	93	8.6	18.4
Peel	19	0.0	0.4
Port St Mary	150	41.3	38.6

**NB The total number of intervals surveyed in this table does not add up to the aforementioned total number of intervals surveyed, as the table above does not include the Ayres, a new site for 2012.**

A much smaller sample size in 2012 compared to the previous six years makes direct comparison between the two samples potentially misleading. However, there do appear to be marked differences in the frequency of cetacean sightings at certain sites between 2012 and previous years, namely Calf West, Marine Drive and Niarbyl,

suggesting possible changes in the spatial distribution of cetaceans in Manx waters in 2012.

Calf East has a significantly lower cetacean sighting frequency in 2012 than Port St Mary ( $X^2 = 11.19$ ;  $p \leq 0.001$ ) and a significantly higher sighting frequency than Niarbyl ( $X^2=4.28$ ;  $0.01 \leq p \leq 0.05$ ). Niarbyl also had a significantly lower sighting frequency than Calf West ( $X^2=7.04$ ;  $0.001 \leq p \leq 0.01$ ), Marine Drive ( $X^2=8.21$ ;  $0.001 \leq p \leq 0.01$ ) and Port St Mary ( $X^2=20.64$ ;  $p \leq 0.001$ ). In previous years, Port St Mary had a significantly higher cetacean sighting frequency than all other sites. This was not the case in 2012, but this is because of the relatively high sighting frequency at Calf West and Marine Drive. Niarbyl also had a much lower sighting frequency in 2012 than in previous years.

The presence of calves and behaviour seen during sightings has only been analysed for Harbour Porpoise, as the sample sizes for all other species are too small for analyses. In 2012, 15 different groups were seen with at least one calf, all between May and August, representing 21.4% of groups seen overall. This is compared to 23.3% of all groups seen in previous years. As in previous years, the average group size when calves are present, of 3.53, is significantly higher than the average group size when there are no calves present (Kruskal-Wallis test,  $H=25.099$ ;  $p \leq 0.001$ ).

Behaviourally, there was a significantly higher frequency of both suspected feeding and fast swimming behaviours in 2012 than in previous years ( $X^2=6.6$ ;  $p \leq 0.05$  and  $X^2=4.4$ ;  $p \leq 0.05$ ). Anecdotal evidence from local fishermen suggests that 2012 was a particularly good year for herring stocks in Manx waters, which may be causative of the higher frequency of suspected feeding behaviours and fast swimming, a behaviour often seen as part of feeding or just after feeding has been observed.

### **Opportunistic sightings:**

280 sightings were reported to the website in 2012, comprising six different species. The species composition of these sightings is as follows:

**Table 5: Species composition of opportunistic sightings**

<b>Species</b>	<b>No. of sightings</b>	<b>Total No. of individuals</b>	<b>% of total sightings 2012</b>	<b>% of total sightings 2006-2011</b>
Bottlenose dolphin	46	987	16.4	5.9
Harbour porpoise	162	367	57.8	51.5
Orca	3	11	1.1	1.1
Minke whale	33	45	11.8	14.6
Risso's dolphin	31	234	11.1	18.5
Short-beaked Common dolphin	3	34	1.1	4.7
Unidentified cetacean	2	10	0.7	3.7

There were significantly more sightings of Bottlenose dolphins reported to the website in 2012 compared to previous years ( $X^2=37.09$ ;  $p\leq 0.001$ ). Furthermore, there were significantly less sightings of Risso's dolphins reported to the website in 2012 than in previous years ( $X^2=7.13$ ;  $0.001\leq p\leq 0.01$ ).

The decrease in the number of Risso's dolphin sightings is unlikely to be a result of increased niche competition from the increasing number of Bottlenose dolphins in Manx waters, as the two species are seasonally distinct and do not have the same diet. The increase in the number of Bottlenose dolphin sightings is more likely to be caused by increased awareness of this species in winter due to high levels of press coverage. The decrease in the number of Risso's dolphin sightings is probably caused by the unusually high wind speeds that occurred for the majority of the season that Risso's dolphins are present in Manx waters, making spotting them more difficult.

## **Photo-identification:**

### **Bottlenose dolphin (*Tursiops truncatus*)**

There were four encounters with Bottlenose dolphins in 2012, although one of these was in northern Irish territorial waters, so is not included as part of these results. The catalogue currently consists of 48 well marked individuals (those recognisable from images of either the left hand side (LHS) or right hand side (RHS) of the dorsal fin), seven individuals which though recognisable from either side of the dorsal fin, only have very small nicks in the fin, six individuals recognisable from the LHS only and seven recognisable from the RHS only. This translates to a minimum of 62 identified individuals in Manx waters.

Of these, only 10 individuals have been re-sighted. This low number of resightings is more likely to be due to a lack of encounters at sea (n=3) than a lack of site fidelity to Manx waters. The majority of encounters have been from land and hence irrespective of group size, most individuals are just too far away to be able to gain images of good enough quality for photo-identification.

Sharing of images with Sea Watch Foundation (SWF) has shown that of these 62 individuals, 44 are also contained in their catalogue, containing images from Anglesey down to Aberteifi at the southern end of Cardigan Bay. This hence proves that there is movement of individuals between Manx waters and Cardigan Bay, which is of particular interest as this seasonal migration may go through the proposed wind farm development in the northern Irish Sea.

Of equal interest is that there are a number of individuals which have not been recognised in the SWF catalogue. This is unlikely to be because these animals have simply not been photographed whilst in Welsh waters, as the catalogue is very extensive and has been in place for 30 years. Therefore, the most likely explanation is that some individuals seen in Manx waters belong to a sub-population outside Cardigan Bay and Anglesey.

MWDW currently also shares Bottlenose dolphin images with the Hebridean Whale and Dolphin Trust (HWDT), the Irish Whale and Dolphin Group (IWDG) and Marine Discovery South West (MDSW), although the matching process is yet to be completed. The department will be updated once the process has been completed.

### **Risso's dolphin (*Grampus griseus*)**

There were two encounters with Risso's dolphins in 2012, with 4 individuals identified in the first, one of which was a newly recognised individual and 3 individuals in the second encounter. The catalogue currently contains 30 well marked individuals, 16 recognisable from the LHS only and 15 recognisable from the RHS only. This equates to a minimum of 46 individuals.

Of these individuals, at least 8 are showing high levels of site fidelity to Manx waters, having been re-sighted at least 4 times, in at least two different years. 10 other individuals have been re-sighted, although it is premature to suggest that these individuals are seasonally resident to Manx waters.

Since it is now thought that Risso's dolphins in British waters are genetically isolated (Gaspari et al., 2007), it is particularly important to understand the ecology of Risso's dolphins in the British Isles, including range, social structure and abundance. The Irish Sea Risso's dolphin catalogue, contributed to by MWDW, SWF, HWDT, Whale and Dolphin Conservation, IWDG, Friends of Cardigan Bay and MDSW, is the first attempt to try and achieve this. The catalogue currently consists of 111 well marked individuals, 60 recognisable from the LHS only and 72 recognisable from the RHS only, translating to a minimum of 183 individuals.

There are however many more encounters to analyse, from the Hebrides, north Wales and Cornwall, so the catalogue is bound to increase in size once the matching has been completed. The department will be updated once the process has been completed.

### **Other species catalogues**

Of the other catalogues managed by MWDW (Common dolphin, Minke whale and Humpback whale), only the Minke whale catalogue has changed since 2011, now containing 7 individuals, two of which were newly recognised in 2012.

### **Reference**

Gaspari, S., Airoidi, S and Hoelzel, A.R. (2007), Risso's dolphins (*Grampus griseus*) in UK waters are differentiated from a population in the Mediterranean Sea and genetically less diverse, *Conservation Genetics*, **8**: 727-732.