

Cetacean Research in Manx Waters, 2017

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Boat based surveys

A series of mechanical and electrical problems with our research vessel, as well as another year of weather unsuitable for boat surveys, resulted in very few boat trips being carried out throughout 2017. For this reason, only two trips will be described in this report.

On May 2nd 2017, researchers from the Clyde Marine Mammal Project came to the Isle of Man to demonstrate the setting up and usage of a towed hydrophone array to be used during cetacean surveys. This trial was the first time that this type of acoustic surveying had been used in Manx waters. The sea state was at least a Beaufort scale three throughout the survey, conditions which would be unsuitable for carrying out visual surveys for cetaceans, as they become very difficult to spot in such conditions. The relationship between sea state and sightings rate is in fact negatively exponential (the sightings rate halves as the sea state increases by one). The trial was however very successful, despite the sea state. 93 kilometres were surveyed, during which the hydrophone detected 34 groups of harbour porpoise. This equates to a detection rate of 0.36 detections/km. The sightings rate (equivalent to detection rate) from boat surveys carried out since 2007 is only 0.010 sightings/kilometre, a significantly lower rate than produced from this one hydrophone trial. In comparison, only two visual “detections” were made throughout the trip, both of which were also detected by the hydrophone.

Using a hydrophone array (two hydrophones simultaneously) allows distance sampling to be carried out. This in turn allows density estimates for each cetacean species to be derived, from which abundances can be calculated. Since the hydrophone will detect in any sea state and will very rarely not detect a cetacean if within range of the hydrophone, the sample size gained from hydrophone based surveys should be very high, leading to much more accurate abundance estimates for each species.

One other complete boat survey was carried out on January 7th 2017. 97.8 kilometres of surveying were carried out, again in sea states not ideal for cetacean surveys, yielding just one sighting, a group of 10 bottlenose dolphins, including one juvenile and one calf. The sighting was just off Douglas head, a typical location for bottlenose dolphin sightings during the winter.

Land Based Surveys

In 2017, 149.5 hours of land based surveys were carried out, equating to 598 15-minute intervals. Compared to 2016, we surveyed 30 more hours but still lower than the average from previous years of 213.5 hours of effort. The majority of survey effort was carried out from May to August (Fig. 1).

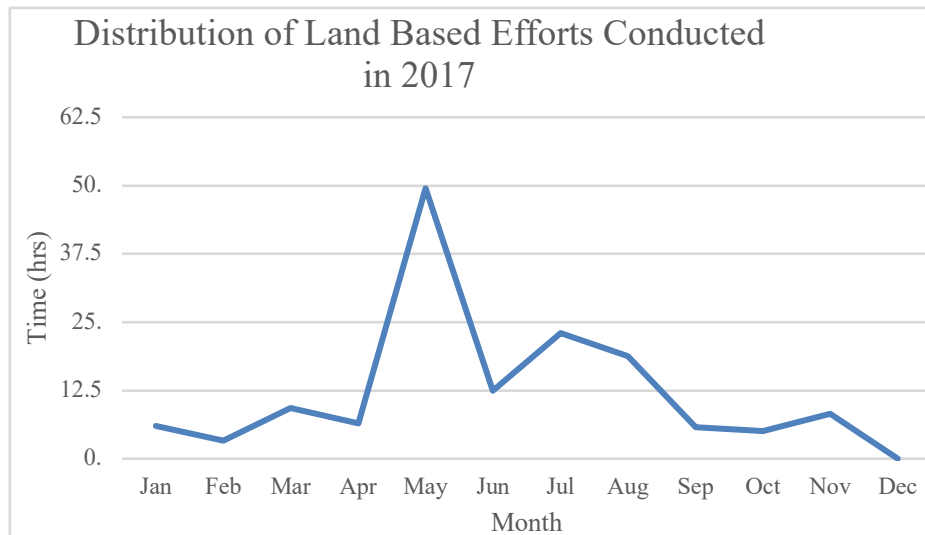


Fig.1 Temporal and spatial distribution of Land Based Efforts during 2017, most efforts recorded in May and least recorded in Dec.

Due to south-westerly and westerly prevailing winds, the majority of efforts were conducted in the South (43%) and the East Coast (43%). No surveys were carried out at Point of Ayre and Peel Castle.

Location	No. Survey Intervals	Total Hours of Effort
Calf East (S)	152	38
Calf West (S)	104	26
Marine Drive (E)	195	48.75
Niarbyl (W)	85	21.25
Port St Mary (E)	62	15.5
Total	598	149.5

Table 1. Number of intervals surveyed and hours of effort at each survey sight around Isle of Man in 2017

There were a total of 183 (30.6%) cetacean positive intervals (an interval in which at least one group of cetaceans or an individual was seen). Harbour porpoises were the most sighted species and short-beaked common dolphins were the least sighted species (Table 2).

30.6% cetacean positive intervals is a similar sighting frequency to previous years (between 25% and 35%). However, this does not mean that there were 183 different sightings made, as many of the sightings are repeats of sightings seen in previous effort intervals. Additionally, as more than one species can be seen per interval the positive intervals per species may equal more than the overall cetacean positive intervals.

Table 2: Number of cetacean positive intervals, different groups sighted, and number of individuals for each species recorded around the Isle of Man during land based surveys in 2017

Species	No. of +ve intervals	No. of different groups	No. of individuals
Bottlenose dolphin	9	3	9
Short-beaked common dolphin	3	2	11
Risso's dolphin	12	4	31
Harbour porpoise	118	64	131
Minke whale	41	25	28

Location	No. Cetacean Positive Intervals	Percentage Cetacean Positive Intervals
Calf East	26	14.3
Calf West	13	7.2
Marine Drive	58	32.2
Niarbyl	40	22.2
Port St Mary	43	23.9
Total	180	

Table 3. Number and percentages of cetacean positive intervals recorded at survey sights on the Isle of Man.

Species	Total no. sightings	Total No. of Individuals	Total No. of juveniles	% of total sightings
Bottlenose dolphin	53	1087	97	19.5
Common dolphin	11	188	20	4.0
Harbour porpoise	110	313	23	40.5
Humpback whale	1	1	0	0.4
Minke whale	57	130	7	21.0
Risso's dolphin	40	312	22	14.7

Photo-identification

Risso's dolphins:

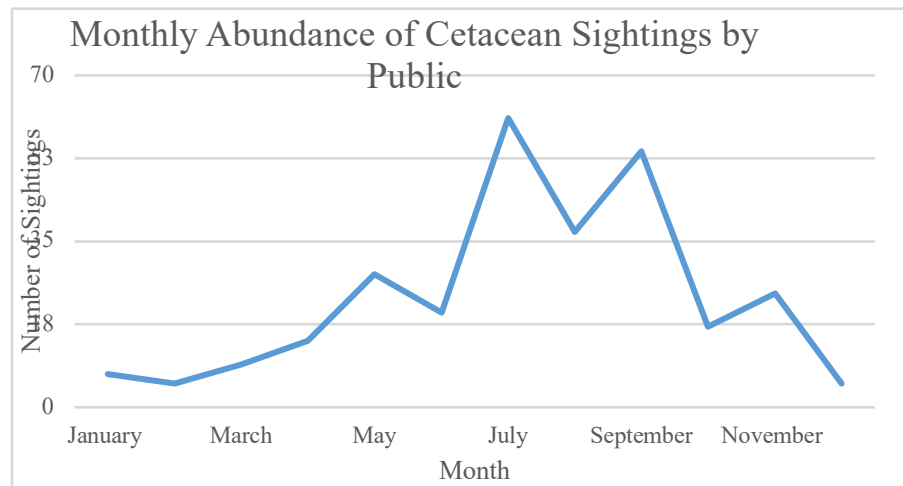
In 2017, [XX] new individuals of Risso's dolphins were identified. [XX] well marked individuals were added to our catalogue, while we added [XX] individuals to the right side and [XX] to the left side catalogue.

No new Bottlenose dolphin, Short beaked common dolphin and Minke whale individuals were identified during 2018.

Opportunistic (Public) Sightings

282 opportunistic sightings were reported to MWDW in 2017 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:

Species	Total no of sightings	Total no of individuals
Harbour porpoise	86	259
Risso's dolphin	34	115
Bottlenose dolphin	19	246
Common dolphin	7	86
Minke whale	48	115
Humpback whale	1	1
Unidentified species	7	22
Total	202	844



Education and Outreach 2017

instagram account made

whatsapp group

21 people trained

In May 2017, MWDW were joined by researchers from the Clyde Marine Mammal Project to trial a Passive Acoustic Monitoring (PAM) device or hydrophone. This is towed behind a research vessel to record the high frequency clicks of cetaceans. The Clyde Project and Hebridean Whale and Dolphin Group both use similar devices, and MWDW aim to work closely with these groups on this project, and to share data. This was the first time that this sort of study was conducted in Manx Waters. A hydrophone is an extremely useful piece of equipment and would enable us to survey in higher sea states than normal and still collect vital data. Figure 3. shows the clicks recorded during this trial run in May.

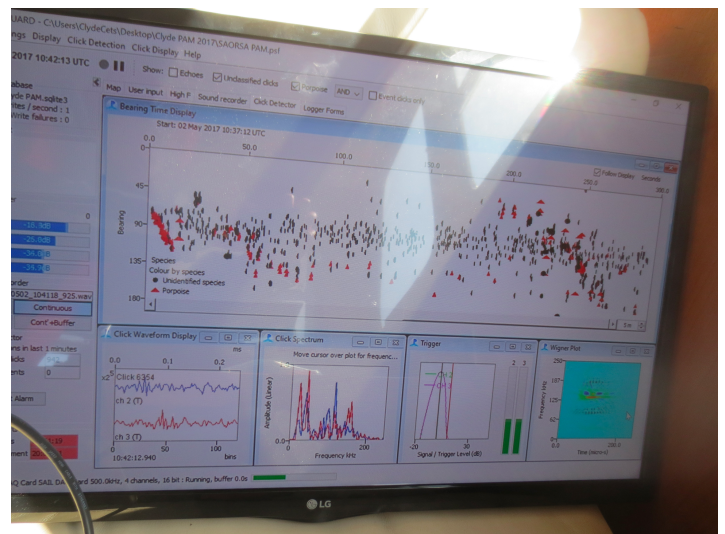


Fig.3 showing hydrophone recording near the calf on 2nd of May due to heightened porpoise activity