



Protecting *Manx Wildlife*
for the future

Dead marine megafauna strandings annual report 2016



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Introduction

On behalf of DEFA, Manx Wildlife Trust has collated all marine megafauna strandings from around the Isle of Man since 2013. This is the fourth year of data collection when official training of volunteers began. This report outlines the findings from the year 2016. The cetacean data also feeds into the CSIP-UK final report for the year of 2016.

Training

During 2016, there were 19 new volunteers trained over two courses.

Methodology

Any dead strandings of marine megafauna around the Isle of Man, are reported to the current Marine officer at Manx Wildlife Trust, either via phone, email or social media. This information is then given to a trained volunteer. Each volunteer is assigned a 'strandings pack' which comprises of everything needed to effectively record the data required (see appendix). On arrival the attendee will record all the necessary details on a printed recording sheet. Firstly, the time, date, location and number of individuals stranded. Secondly, the details of the carcass found, including; dead/alive, species, degree of composition, trauma or identifiable markings, sex and maturity. Once complete, using the tape measure provided, the measurements are taken, depending on whether the specimen is a cetacean, pinniped or other, the dimensions are taken accordingly. Photographs are also taken, especially of areas of trauma or damage. The form is then submitted to the marine officer where it is added into the database, along with the photographs. Cetacean forms are also sent to CSIP (UK Cetacean Strandings Investigation Programme) for inclusion in their annual reporting.

Stranding results

In total there were 42 stranded individuals found along the coastlines of the Isle of Man (figure 1). Of those, there were 28 seals, of which 22 were Grey seals and 6 unknown seal species; 8 Harbour porpoise; 1 unknown cetacean; 1 Common dolphin; 3 Loggerhead turtles and 1 Otter (figure 2).

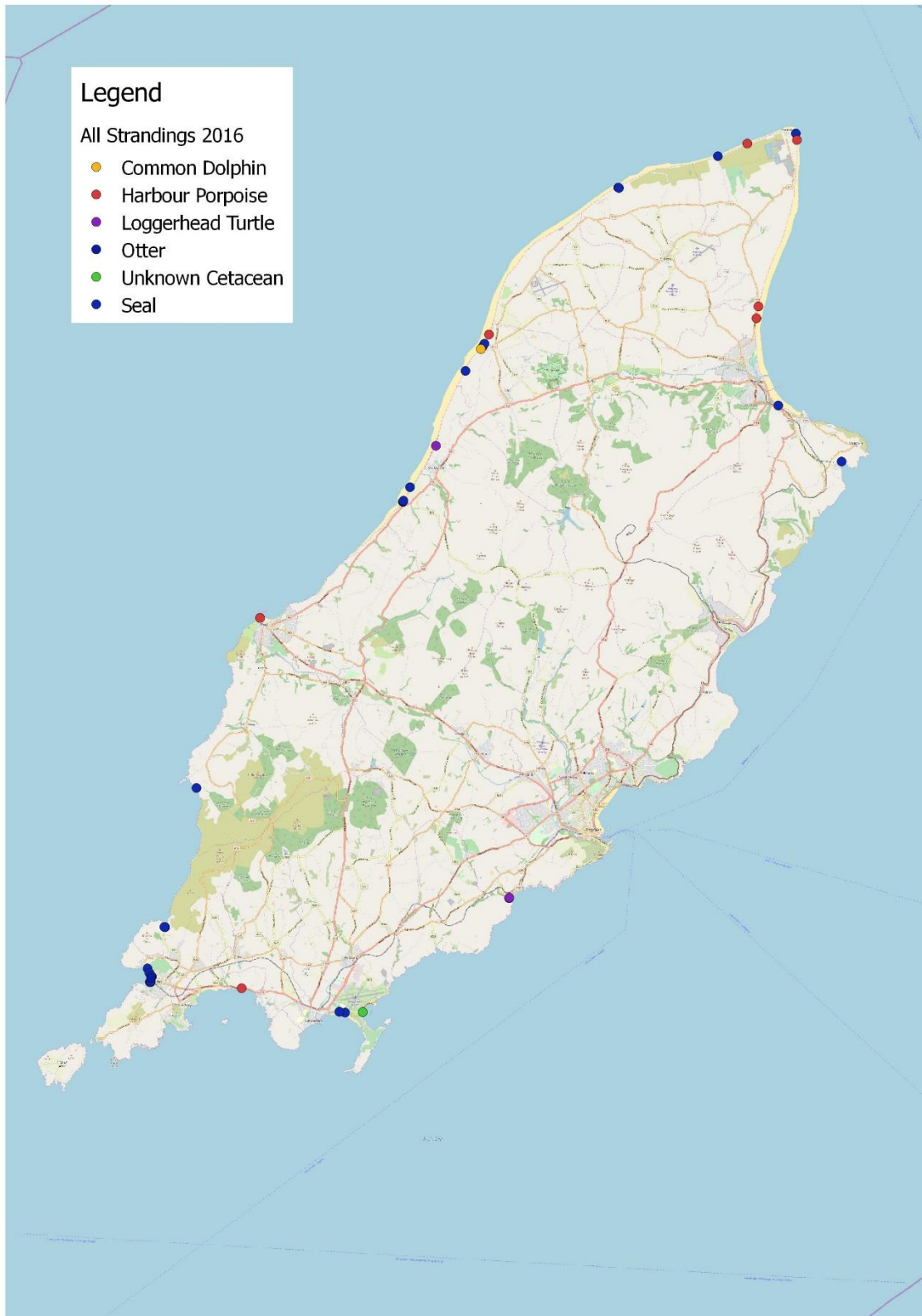


Figure 1. All strandings reported on the coasts of the Isle of Man in 2016.

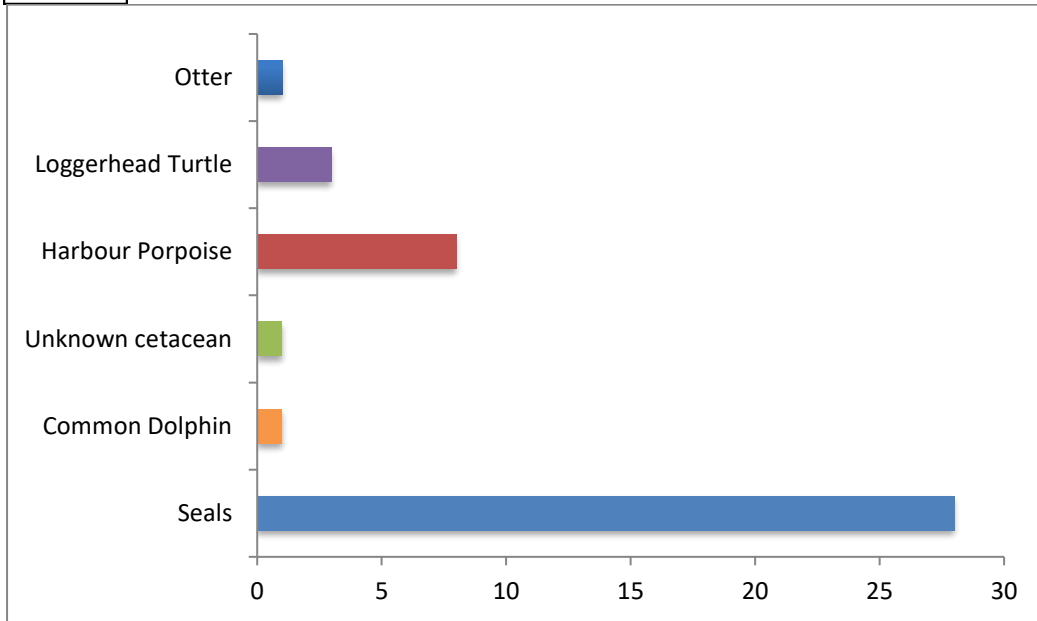


Figure 2. The total number of stranded individuals in 2016.

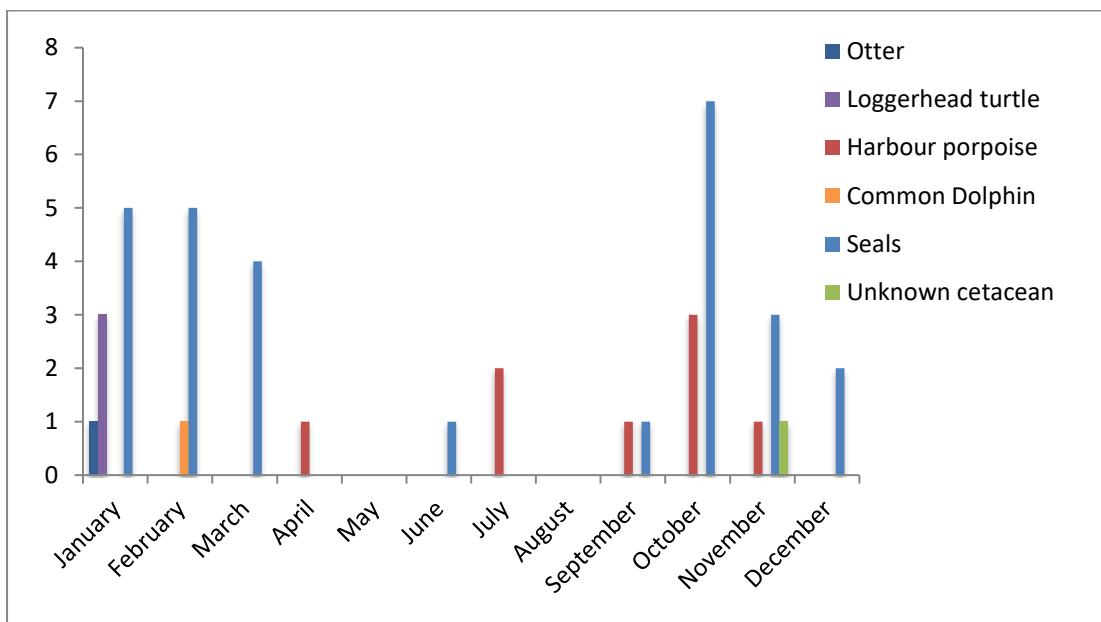


Figure 3. Showing the month each of the strandings were reported throughout 2016.

From figure 3 it shows that it was only May and August that had no reports of strandings, whereas October had the most (n=10). January had the largest number of different species, with three in total: Otter, Loggerhead and seals. It shows that the two main species being recorded was the Grey seal and Harbour porpoise, which were present in all but two months. The warmer months April to September had no more than one stranding of each species.



Otter

The Otter was a dead stranding found in Port Erin bay of January this year measuring 1m long with 12mm claws. Its carcass was freshly stranded and complete with no signs of injury or obvious trauma. The individual was unable to be sexed or aged.

Loggerhead turtles

There were three Loggerhead turtles stranded in total and were all reported in January of this year (figure 3). They were all reported as dead strandings with complete carcasses, apart from one that was missing a flipper. Unfortunately none of the individuals could be sexed or aged. From figure 4 it shows the individuals were found on both sides of the island.

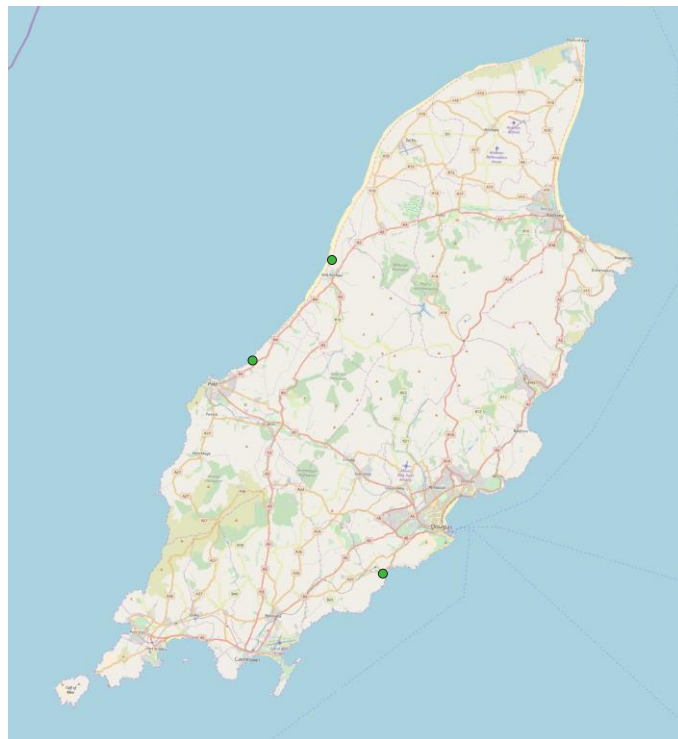


Figure 4. Map showing the locations of the Loggerhead turtle strandings.

Harbour porpoise

In total there were eight Harbour porpoise strandings over seven months, from April to November (figure 6). The colder months of October and November saw an increase in reported strandings. All eight were dead strandings; three were freshly stranded and the remainder were decomposed with one being in state of advanced decomposition. There were no obvious signs of trauma other than the natural wear and tear of a carcass washing ashore. One juvenile reported, was a fresh stranding that was recorded as malnourished.

Also one unknown species of cetacean was also reported in November at Derbyhaven. It was too decomposed to be identified and no measurements were taken as it was not found by the strandings volunteer.

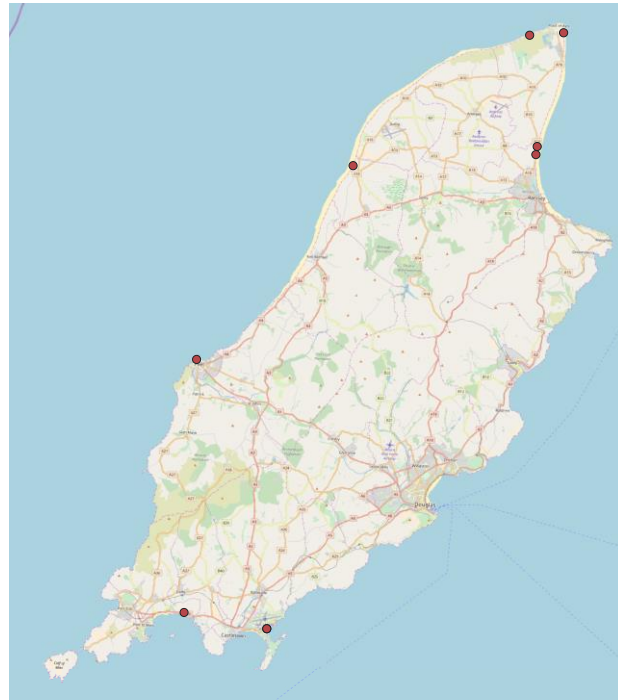


Figure 5. Locations of reported Harbour porpoise strandings.

From figure 5 it shows that the northern tip of the island, Point of Ayre towards Ramsey has the most reports. The four individuals in this area were the one reported in September and the three from October (figure 6).

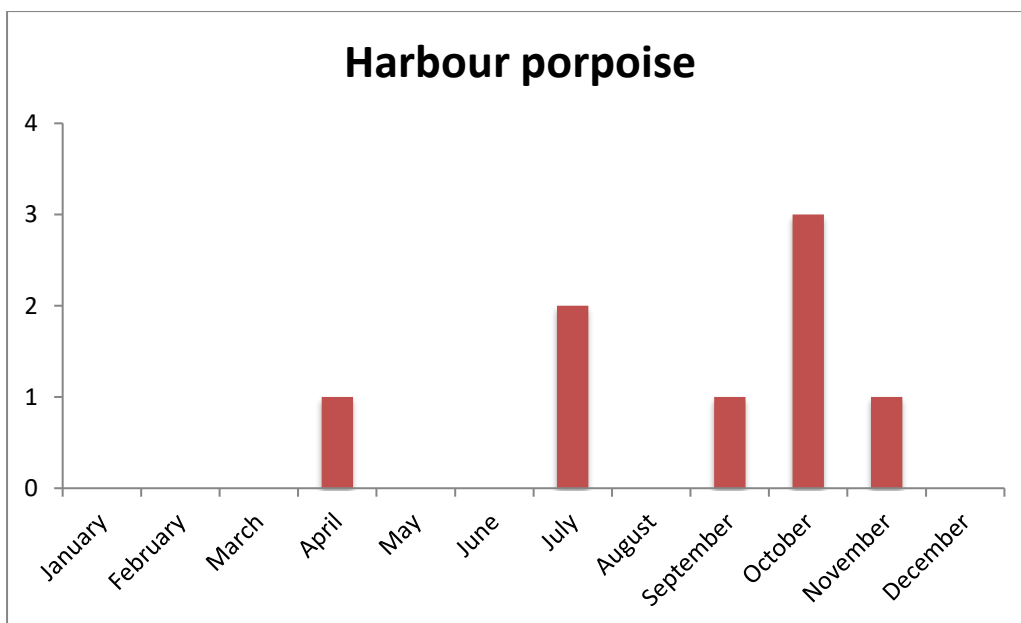


Figure 6. The monthly distribution of Harbour porpoise reported strandings.

Common Dolphin

There was a single, freshly stranded Common dolphin reported in February this year (figure 3). The adult male was over 2m long and had no obvious signs of trauma other



than the expected wear and tear of washing onto a rocky shore combined with being scavenged.

Seals

There were 28 seals reported as stranded around the coast of the Isle of Man during 2016, of which 22 were confirmed as Grey seals, whilst a further 6 could not be identified to species, however they are most likely Grey seals. The locations can be seen in figure 7. The reported strandings were found spread out along the entire coastline with a small gap of no strandings from Port Mooar to Port Soderick on the east coast. There is a small cluster of three in Port Erin in the southwest corner, near our resident population on the Calf. Unfortunately, of those reported, five were unable to be found and thus have no detailed information.

Of those attended, they were all dead strandings, seven of which were reported as fresh and the rest were decomposed or in a state of advanced decomposition. The natural wear and tear of a stranded animal results in the head missing or soft parts being scavenged, as seen in eight cases.

One juvenile was recorded to have only reached stage 2, still with a white coat and underweight. Similarly, three other individuals were recorded as underweight: two juveniles and one adult.

One female reported in September was heavily pregnant, recorded as only hours away from giving birth as the pup was in the birth canal at the time of death, suggesting a possibility of birth complications as a cause of death as both the mother and pup were reported to be in good health.

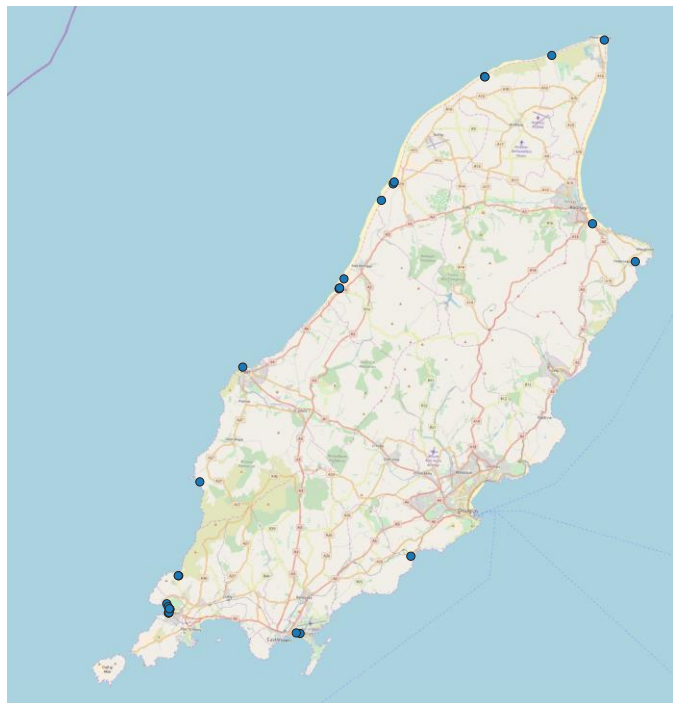


Figure 7. Locations of the seal strandings in 2016.

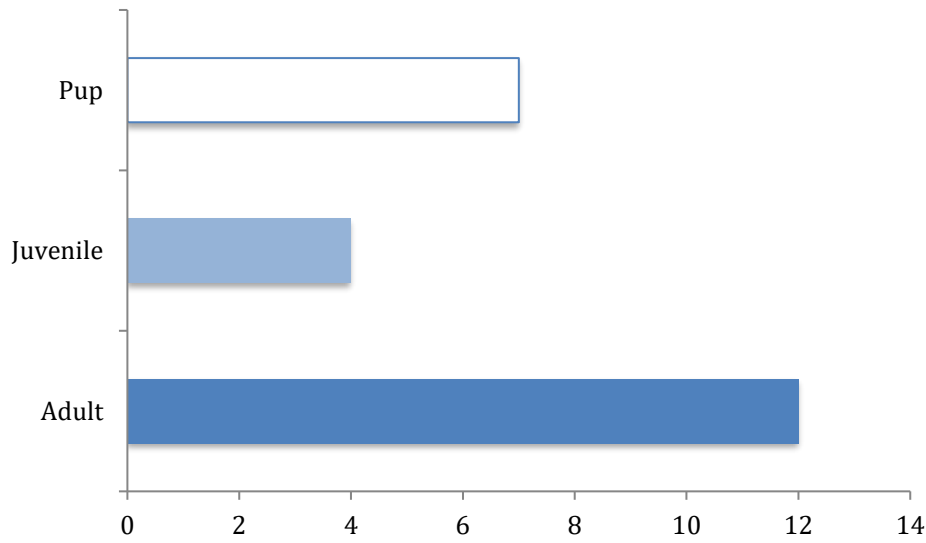


Figure 8. The maturity of the stranded seals in 2016.

Of the stranded seals that could be categorised, the most commonly found were adults (n=12) (figure 8) and male (n=6) (figure 9). Even though training was undertaken, in a state of decomposition it is difficult to determine the sex of a seal, explaining the high amount of unknown individuals (n=19).

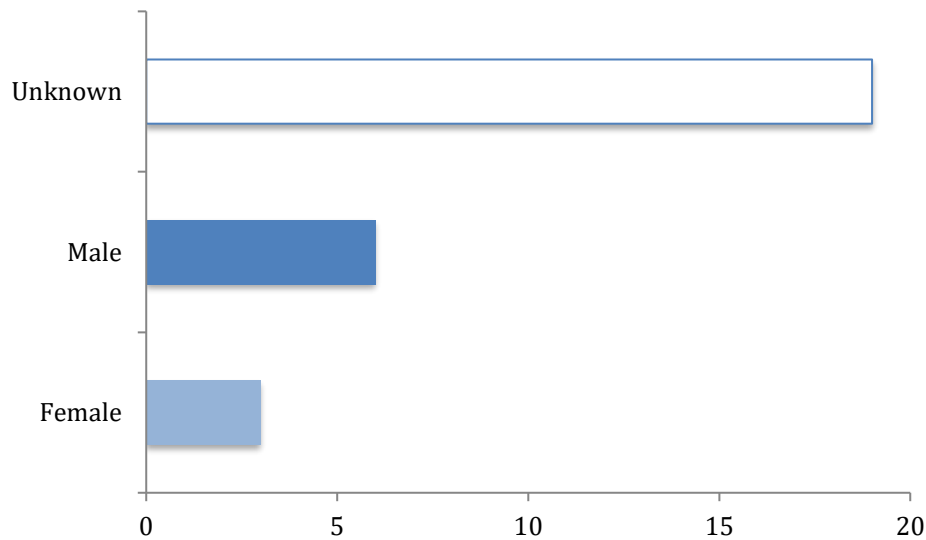


Figure 9. Sex ratios of stranded seals in 2016.

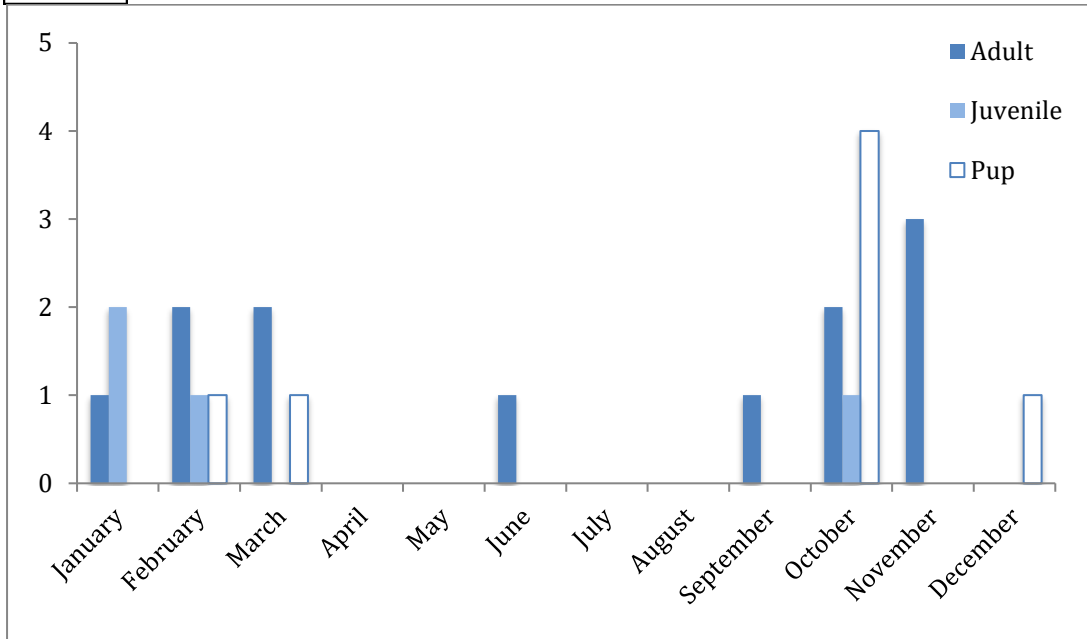


Figure 10. Monthly distribution of seal strandings of different maturity reported throughout the year.

As seen in figure 10, the warmer summer months from April to August had a total of one seal stranding in June. Otherwise it was the colder, stormier months of September to March whereby majority were reported (n=27). October had the most strandings reported with four pups, one juvenile and two adults. This coincides with the breeding season and rougher seas during the early winter months, October and November. The presence of juvenile strandings throughout the winter could be from last year's cohort and it would be the first bout of harsh, stormy weather that they would have experienced since weaning.

Environmental Contamination Testing

- 2014

In 2014, blubber, muscle and liver samples were taken from the Minke whale found on 12th July and tested for heavy metals and polycyclic aromatic hydrocarbons (PAH's). Alongside this, the Harbour porpoise found in Peel on 20th June had blubber and muscle samples taken that were also tested for PAH's.

- 2015

The results from the Harbour porpoise found in Gansey Point on 4th November had blubber and muscle samples taken that were tested for PAH's.

- 2016

The Harbour porpoise found in Gansey Hall on 2nd April had a sample of blubber and muscle taken that were tested for heavy metals and PAH's.



Heavy metal analysis

Heavy metals are environmental pollutants from industrial and agricultural discharge and have been shown to cause adverse health affects to marine mammals. The tissue samples had been frozen until May 2016 when analysis was carried out.

Table 1. Heavy metal analysis results for the Harbour porpoise and the Minke whale. Concentrations in ppm wet weight.

| | | As | Cd | Cr | Cu | Ni | Pb | Zn |
|--------------------------------|---------|------|------|------|-------|------|------|--------|
| Harbour Porpoise (2016) | Liver | 0.45 | 0.11 | 0.00 | 15.10 | 0.03 | 0.21 | 259.60 |
| | Blubber | 2.00 | 0.00 | 0.15 | 5.11 | 0.55 | 0.35 | 65.03 |
| Minke Whale (2014) | Liver | 0.38 | 0.02 | 0.06 | 5.24 | 0.09 | 0.40 | 6.31 |
| | Blubber | 1.80 | 0.00 | 0.02 | 1.59 | 0.16 | 0.22 | 2.13 |
| | Muscle | 0.23 | 0.00 | 0.00 | 2.14 | 0.01 | 0.13 | 6.93 |

Compared to data collected from nine scientific papers from stranded marine mammals across the UK, the table shows that for the Minke whale analysis, all heavy metals were within normal parameters. The Harbour porpoise analysis has slightly raised Copper (Cu) and Zinc (Zn) levels. The content found was above that of the average 0.94 (range 0.21 – 2.7), however research denotes that an elevated level of Copper in the blubber is unlikely to have an impact. It still remains below normal concentrations found within the liver (n=15.10).

Similarly, for the raised hepatic Zinc concentration (259.6) although it is higher than that found in any of the publications, it is considered to be within the natural parameters (Andersen and Rebsdorff, 1976). Zinc values fluctuate naturally and can be affected by food availability and health (Das *et al.*, 2004). It has been shown that hepatic Zinc levels are increased during fasting periods and during an infection. High levels of Zinc has been linked to those dying of infectious diseases (Mahfouz *et al.*, 2014) but this cannot be confirmed in this case.

Polycyclic aromatic hydrocarbon analysis

Polycyclic aromatic hydrocarbons (PAH's) found in the tissues of marine mammals has been directly linked to development of genetic disease with higher concentrations shown to cause DNA damage and cancer (Gauthier *et al.*, 1999). The samples had been stored and analysis in December 2016.

Table 2. Total PAH content (ppm dry weight) measured in the three Harbour porpoises and one Minke whale.

| | Harbour porpoise 2014 | Harbour porpoise 2015 | Minke Whale 2016 | Harbour porpoise 2016 |
|----------------|-----------------------|-----------------------|------------------|-----------------------|
| Liver | 0.15 | 0.07 | 0.06 | 0.13 |
| Blubber | 0.21 | 0.26 | - | 0.56 |
| Muscle | - | - | 0.02 | - |



Comparing the results (table 2) with other scientific reports these concentrations are within acceptable limits. One report showed a Minke whale in Korea had a PAH concentration of 0.52ppm in its liver (Moon *et al.*, 2012) and in Canada a harbour porpoise muscle had a PAH concentration of 1.21ppm (Hellou *et al.*, 1990).

Conclusion

During the January of 2016, storm Ophelia hit the UK with severe weather and huge storms. This may account for the Otter stranding, a species that does not inhabit the Isle of Man but may have washed ashore from elsewhere. The presence of the Loggerhead turtle is also likely a result of the strong southern winds that blew at the beginning of the year. The windier conditions may also account for the higher number of stranding that have been reported this year (n=42) compared to previous years. This increase may also be a result of the increased awareness by the public to report these sightings.

Although numbers of Harbour Porpoise and Seals have been reported in 2016 their presence around the Island is common year round so are likely to be seen more regularly than other species and does not constitute a high percentage of the respective populations. There were no obvious signs of trauma and in most cases individuals have died of disease or natural causes. However, disease cannot be confirmed.

The heavy metals and PAH analysis results reassure us that levels remain within normal parameters.

CSIP 2016 report is yet to be released and therefore comparisons cannot be made to the wider UK.



References

Andersen, S.H. and Rebsdorff, A. (1976). Polychlorinated hydrocarbons and heavy metals in harbour porpoise (*Phocoena phocoena*) and whitebeaked dolphin (*Lagenorhynchus albirostris*) from Danish waters. *Aquatic Mammals*, 4(1), 14-20.

Das, K., Siebert, U., Fontaine, M., Jauniaux, T., Holsbeek, L. and Bouquegneau, J.M. (2004). Ecological and pathological factors related to trace metal concentrations in harbour porpoises *Phocoena phocoena* from the North Sea and adjacent areas. *Marine Ecology Progress Series*, 281, 283-295

Gauthier, J.M., Dubeau, H., Rassart, E., Jarman, W.M. and Wells, R.S. (1999). Biomarkers of DNA damage in marine mammals. *Mutation Research/Genetic Toxicology and Environmental Mutagenesis*, 444(2), 427-439.

Hellou, J., Stenson, G., Ni, I.H. and Payne, J.F. (1990). Polycyclic aromatic hydrocarbons in muscle tissue of marine mammals from the Northwest Atlantic. *Marine Pollution Bulletin*, 21(10), 469-473.

Mahfouz, C., Henry, F., Courcot, L., Pezeril, S., Bouveroux, T., Dabin, W. and Amara, R. (2014). Harbour porpoises (*Phocoena phocoena*) stranded along the southern North Sea: An assessment through metallic contamination. *Environmental Research*, 133, 266-273.

Moon, H.B., An, Y.R., Choi, S.G., Choi, M. and Choi, H.G. (2012). Accumulation of PAHs and synthetic musk compound in minke whales (*Balanoptera acutorostrata*) and long-beaked common dolphins (*Delphinus capensis*) from Korean coastal waters. *Environmental Toxicology and Chemistry*, 31(3), 477-485.



7. Appendix

Form NHM136 w3/20010501

This form should be filled in and posted, immediately after telephoning or sending a fax, to:

Department of Zoology,
The Natural History Museum,
Cromwell Road, London SW7 5BD
Tel: 0207 942 5155 Fax: 020 7942 5054



Stranded Whales, Dolphins and Porpoises

Note: Rubber gloves should be worn when handling cetaceans, alive or dead.

Place and date where carcass first seen
The position of a locality not likely to be given on an OS map should be indicated by its relation to some better known place, bay or headland.

Place _____ **Date** _____

County _____ **Grid ref.** _____

Name of Finder _____

Is the tail horizontal? If the answer to this question is 'No', it is not necessary to fill up the rest of this form as the animal is therefore not a whale, dolphin or porpoise.

Yes No

Is there a hole ('blowhole') on the top of the head? Yes No

Is it a single hole or a pair of holes? Single Pair

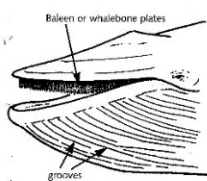
Does the mouth contain teeth/tooth sockets or baleen/whalebone plates? Teeth Baleen

If neither teeth nor baleen can be found, state whether the two halves of the lower jaw are:

(a) **Arched outwards and widely separated half way back** (In which case the specimen is a Whalebone Whale, and the baleen has been washed out); (a)

(b) **Close together in front, where the jaw is accordingly narrow** (A Toothed Whale in which the teeth are concealed beneath the gum). (b)

Whalebone Whales if baleen present, state:


 (a) **The colour of the baleen plates.** If not everywhere alike indicate the arrangement; e.g. 'white for ... cm at front end of right side, the rest as stated' _____

(b) **The colour of the hairy fringes of the plates** _____

Grooves Is the throat marked by numerous deep grooves? Yes No

Grooves Is the throat marked by a pair of grooves? Yes No

Toothed Whales if teeth are present, state:

 (a) **Whether they occur in both jaws or in the lower jaw only.** Both Lower

(b) **The number of teeth and empty sockets of one side of the upper jaw.** Teeth Empty sockets

(c) **The number of teeth and empty sockets of one side of the lower jaw.** Teeth Empty sockets

(d) **If only few teeth & sockets present, their position in the jaw.** Front Middle Back

(e) **The diameter of one of the largest teeth.** Diameter

(f) **Whether teeth spade-shaped or conical/needle-shaped.** Spade-shaped Needle-shaped

Appendix 1. The recording sheet used by volunteers when attending a stranded Whale, Dolphin or Porpoise.



Seal Stranding Recording Form

| Please remember your own health and safety is paramount: watch for the tide, always wear gloves and do not lift heavy weights. | |
|---|---|
| Reported by: Telephone: Date/Time: | Recorded by: Telephone: Date recorded: |
| Location: | Grid ref: |
| Alive when stranded? | yes no |
| Species (see id notes below): | grey common harp hooded |
| Sex (male, female or unknown): | male female unknown |
| Age (adult, juvenile, pup or unknown): | adult juvenile pup unknown |
| Is carcass complete (head, tail, all flippers present): | yes no |
| Carcass condition (e.g. fresh, decomposed or advanced decomposition): | fresh decomp adv decomp |
| Obvious traumas other than scavenging (e.g. gunshot, net marks, etc.): | |
| Identifiable markings (scars, patterns on coat, missing claws, digits, etc.): | |
| Flipper tags, or hole between digits where tag may have been (if so please note which flipper, tag colour and any number or address): | |
| Hat tags (colour and number): | |
| Body Measurements: (cm) | |
| 1. Head – hind flipper. Tip of the nose to the end of the hind flippers. | |
| 2. Head – tail. Tip of the nose to the end of the tail. | |
| 3. Girth. Taken beneath the flipper pits around the body. | |
| 4. Head. Tip of the nose to the back of the head. | |
| 5. Partial digit. Measured on the leading digit from the joint below the claw to the knuckle. | |
| Photos: If possible please take photos (digital are ideal) of the whole body and also close-ups of the left and right hand side of the head. If there are any unusual traumas such as gunshot, net marks, missing head, etc., please photograph those too. | |
| Seal Species Identification: There are two resident species of seal in the UK, the common seal and almost exclusively encountered around the Cornish coast, the grey seal. It is the head shape and its characteristics that offer most easily recognisable features: The common seal has a small head with rounded crown and a blunt nose which is sloping forming a concave bridge between the forehead and nose. The nostrils form a V shape, joining at the base. The grey seal has a large head with flattened crown and a straight long roman nose which offers a straight or convex profile. The nostrils are parallel and do not meet. Occasionally other species such as harp or hooded seals visit our waters. For identification of these and other species use a reliable reference book or id chart. | |

Please return this form and your photos to:

Strandings Records Coordinator, c/o Cornwall Wildlife Trust, Five Acres, Allet, Truro TR4 9DJ
Email: records@cwtsstrandings.org Website: www.cwtsstrandings.org

CORNWALL WILDLIFE TRUST WORKING IN ASSOCIATION WITH C-SMOG, THE NATIONAL SEAL SANCTUARY AND THE GODREVY SEAL GROUP

Appendix 2. The recording sheet used by volunteers when attending a seal stranding.



Basking Shark Stranding Recording Form

| | |
|---|---|
| Reported by: Telephone: Address: | Recorded by: Telephone: Date recorded: |
| Date first seen: Time first seen: Alive when stranded? <input type="checkbox"/> YES <input type="checkbox"/> NO | Location: Grid ref: |
| | |
| Total length: m | Claspers present? <input type="checkbox"/> YES (male) <input type="checkbox"/> NO (female) |
| Snout to 1 st dorsal length: cm | Gill rakers present? <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 1 st dorsal to caudal: cm | Food in back of throat (orange paste)? <input type="checkbox"/> YES <input type="checkbox"/> NO |
| Snout to 1 st gill slit: cm | Tissue samples taken (*where requested): |
| 1 st dorsal height: cm | Muscle for genetic analysis? <input type="checkbox"/> YES <input type="checkbox"/> NO |
| Pectoral length: cm | Fin sample? <input type="checkbox"/> YES <input type="checkbox"/> NO |
| Girth (half way around x2): cm | Skin sample? <input type="checkbox"/> YES <input type="checkbox"/> NO |
| Caudal height: cm | Photos taken? <input type="checkbox"/> YES <input type="checkbox"/> NO |
| Natural scars/markings (take photos if possible): | By-catch evidence (take photos if possible): |

Please return this form and your photos to:

Strandings Co-ordinator, Cornwall Wildlife Trust, Five Acres, Allet, Truro TR4 9DJ
 Email: coordinator@cwststrandings.org Website: www.cwststrandings.org



CORNWALL WILDLIFE TRUST IN ASSOCIATION WITH THE MARINE BIOLOGICAL ASSOCIATION



Appendix 3. Recording sheet template for a stranded Basking shark as provided by Cornwall Wildlife Trust.