Final Report of the Cetacean Strandings Scheme 2011 - 2013

Mick O'Connell and Simon Berrow

Irish Whale and Dolphin Group
Merchants Quay, Kilrush, Co Clare
Email: strandings@iwdg.ie

Summary

This final report covers the third and final year of funding by the Department of Arts, Heritage and the Gaeltacht (DAHG) of the Irish Whale and Dolphin Group (IWDG) Cetacean Strandings Scheme and reviews the data collected over the 2011-2013 period. During 2013 a total of 193 stranding records of 204 individual animals were received, an increase of almost 20% on 2012 when a total of 161 stranding records involving 163 individual cetaceans were reported. During 2013, 83% of records (n=161) were identified to species level, down from 91% during 2012 and 89% in 2011. A total of 14 species were identified and all were of single animals except for 2 mass strandings of common dolphins and 1 mass stranding of an unidentified dolphin species. Common dolphin and harbour porpoise accounted for 64% of all stranding records where these were identified to species level, up from 56% in 2012 and 59% in 2011. The increase in stranding records of common dolphins in 2013 was particularly noticeable with 66 stranding incidents accounting for 41% of identified strandings and it is likely that a large number of the 32 unidentified stranding records were also common dolphins. In the three years of this scheme there was a continuing upward trend in the number of records received. Prior to 2013, the highest number of stranding records reported in one year since IWDG recording began in 1990-91 was 2012. Prior to 2012 there was a slight increase in 2011 when there were 157 stranding records totaling 159 individual cetaceans.

Introduction

Records of stranded cetaceans in Ireland date back to at least AD 752 (Fairley 1981). Between 1913 and 1974 cetacean strandings in Ireland were recorded as part of the Whale Stranding Scheme run by the Natural History Museum in London. In 1976, O'Riordan (1972) published a provisional list of cetacean stranding records in Ireland and since 1983 cetacean stranding records were published under the *Cetacean Notes* section in the Irish Naturalists' Journal. However many of the earlier records were *ad-hoc* in nature and not recorded systematically with the result that many strandings remained unreported. In December 1990 the Irish Whale and Dolphin Group (IWDG) was formed and one of its objectives was to co-ordinate an all-Ireland cetacean stranding scheme via a network of local observers. This would improve geographic coverage and ensure that data collection and recording was carried out in a consistent and uniform way (Berrow *et al.* 2010). The stranding scheme was developed considerably under a project called ISCOPE (Berrow et al. 2006; 2010) with training courses held around the whole island and resources such as identification books, DVD and recording forms produced.

The current Cetacean Strandings Scheme has been funded by the DAHG National Parks and Wildlife Service (NPWS) since 2011 and is designed to complement and add value to the efforts of the existing IWDG volunteer network. Arising from the government's "Conservation Plan for Cetaceans in Irish waters" (DEHLG, 2009), key elements of the project are:

i. To implement a reliable recording and reporting scheme via the use and co-ordination of a stranding network, collecting details and scientific data on individual cetaceans stranded around the coast;
ii. to co-operate and liaise effectively with any post-mortem research that may arise;
iii. to record all metadata and data in appropriate agreed formats, and
iv. to conduct a comprehensive quality control exercise on all data generated prior to their delivery to the Department.

Since 1990 the number of stranded cetaceans reported to the IWDG has increased considerably and over the last 10 years has reached a plateau at approximately 90-160 records per annum (Fig. 1). How this relates to the actual number of strandings in Ireland is not known. In 2010 a total of only 92 strandings were reported, the lowest annual total since 2001-02 (Fig. 1; O'Connell and Berrow, 2013), whereas recorded strandings for 2011 and 2012 were the highest yearly totals to date with 157 and 161 records respectively. Records in 2013 confirm that numbers reported in 2010 were unusually low with a significant upward trend to 193 recorded strandings in 2013.

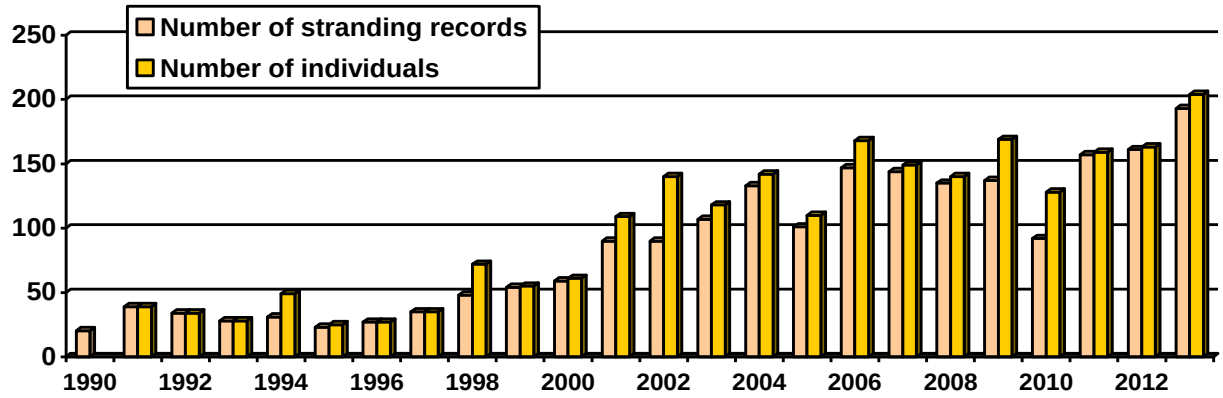


Figure 1. Total numbers of stranding records and individual cetaceans reported to the IWDG between 1990 and 2013.

Records are still published annually in the Irish Naturalists' Journal under the *Cetacean Notes* section. Since 2006 this has included a brief interpretation of the records in the annual reporting (O'Connell and Berrow, 2007).

Recording stranded cetaceans has been considered as a Marine Environmental Impact Indicator in Ireland (Boelens *et al*. 2004). A review of stranding records from 1901-1995 suggested that "stranding records were considered inadequate to determine population status but were sufficient to identify unusual stranding events such as those caused by fisheries bycatch or epizootics" (Berrow and Rogan, 1997). Most EU countries having established cetacean

stranding schemes some dating back to the last century (UK, Netherlands). The use of these schemes varies from recording basic strandings data to post-mortem programmes and modelling (Peltier et al. 2012). Since then the number of records each year has been more consistent and recent reviews have attempted to identify trends in the data (e.g., Voigt 2011; Kilpatrick 2011). These two reviews suggested that there were significant shifts in the range of some species notably striped dolphin with stranding records increasing in the northwest.

Methods

The reporting of cetacean strandings in Ireland has become a well-established scheme. Most records are reported to the IWDG either by phone or via the online recording form available at www.iwdg.ie. Many of these records are reported independently from a number of sources and the proportion of multiple reports of the same animals has increased over the last few years. This suggests that coverage is improving but what proportion of all strandings that occur and are reported to the IWDG is not known. Initially, a network of 71 volunteers based around the coast of Ireland was given training by the IWDG in cetacean recording and provided with stranding kits for recording and sampling stranded cetaceans. Currently, the network consists of 61 volunteers as a number have since moved overseas. There is also a requirement, for insurance purposes, that network volunteers are current members of the IWDG so a lapse in membership necessitates removal from the stranding network. In early 2014 we plan to hold a meeting of the stranding network to discuss results and project performance with the network and to seek feedback from the volunteers involved.

Reports by members of the public are usually followed up with an e-mail with photograph(s) attached. When a report has been received the scheme's Strandings Co-ordinator contacts one or more members of the IWDG Stranding Network who live relatively near the location of the stranding with a view to obtaining basic information on the animal(s). As a minimum in addition to recording the exact location of the carcass(es) and an approximate date of stranding we aim to determine species, total body length and gender with the help of accompanying photographs wherever possible. Depending on the size of the animal, the amount of scavenging/decomposition and the number of people present on the beach we also record the animal's girth in front of and behind the dorsal fin, unusual markings/injuries/lesions and age class (see Appendix I) where possible. Occasionally, girth measurements have been received for animals in poor or very poor condition but these figures have not been included as they have no practical use.

More information can be obtained from cetaceans that are stranded, or visited, when in good condition. All strandings recorded by the IWDG are given a condition score depending on scavenger damage and decomposition (Appendix I). In a smaller number of instances, members of the IWDG Stranding Network are either contacted directly by the public or find and record the stranding themselves. Information and photographs for each stranding event are uploaded onto the IWDG strandings database which can be viewed at www.iwdg.ie. Each year a list of stranding records is sent to the Irish Naturalists' Journal (INJ) for validation and publication and this provides a quality control mechanism for the data and the recording scheme.

In the first year of the Cetacean Strandings Scheme contracted by DAHG (i.e., 2011) members of the Irish stranding network were sent copies of Bycatch Evidence Evaluation Project (BEEP) recording sheets developed by the Cornwall Wildlife Trust's Marine Strandings Network (www.cwtstrandings.org). This research project aimed to develop a protocol for collecting standardised records of external signs on stranded animals and to robustly test whether certain signs may be used to diagnose or indicate particular pre-mortem conditions (e.g., disease, incidental capture in fishing gears known as bycatch). Circulation of this material to the Irish stranding network was designed to inform members about the recording of lesions and appropriate use of photography in order to maximise the information acquired from stranded animals.

Results

Between 1st January and 31st December 2013 the IWDG Cetacean Stranding Scheme received and validated 193 cetacean stranding records involving 204 individual cetaceans. Strandings were recorded in all counties of Ireland except Louth, Wicklow and Leitrim (Fig. 7). There were two stranding records in Leitrim and one in Louth in 2012 whereas there were no records received for these counties in 2011. In 2013, the highest numbers of strandings were recorded in counties Kerry (n=38), Mayo (n=37) and Cork (n=22). As in other years, stranding records were less frequent on the east coast, especially in counties Louth (n=0), Wicklow (n=0) and Meath (n=2). There were noticeable increases in stranding reports from Donegal and Kerry and a significant increase in Mayo (Fig. 7). The latter difference was primarily due to a significant number of Common dolphins stranded between Achill Island and the Mullet Peninsula in late January/early February. Several of these animals were removed by NPWS staff for full post-mortem examination with the assistance of experts from the UK Cetacean Strandings Investigation Programme, the Institute of Zoology, London and the Department of Agriculture's regional veterinary lab in Athlone. Post-mortem results from all five animals examined indicated that the animals stranded as a result of bycatch in fishery operations.

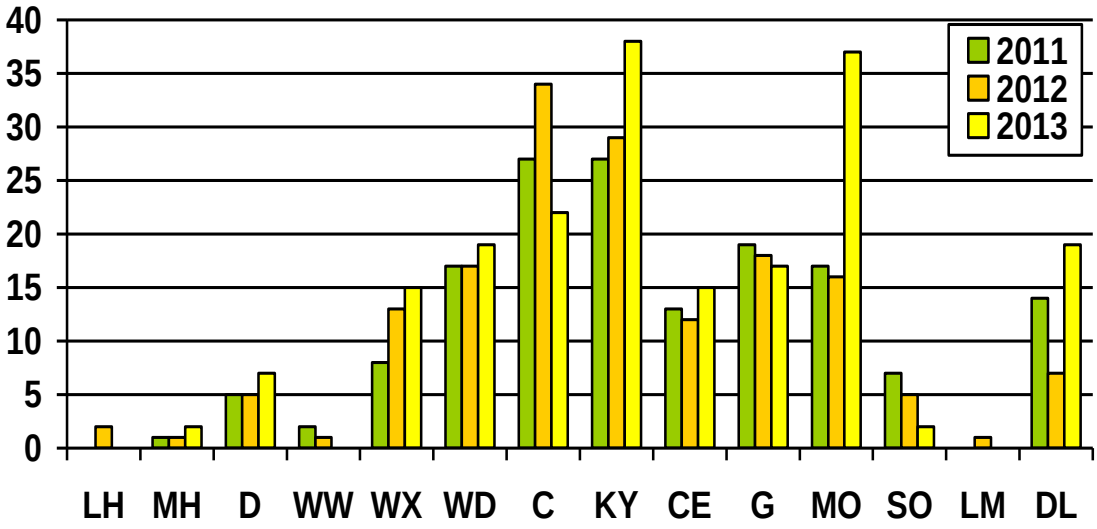


Figure 7. Cetacean stranding record totals arranged by county during 2011-2013. Counties are shown in a clockwise direction, starting in Louth (LH), Meath (MH), Dublin (D), Wicklow (WW),

Wexford (WX), Waterford (WD), Cork (C), Kerry (KY), Clare (CE), Galway (G), Mayo (MO), Sligo (SO), Leitrim (LM) and Donegal (DL).

All strandings were of single animals except for two Common dolphins stranded at Blacksod, Co. Mayo on 12th May 2013 two unidentified dolphin sp. stranded at Ring, Dungarvan, Co. Waterford on 6th June 2013 and ten Common dolphins in and around Elly Bay, Mullet Peninsula, Co. Mayo on 24th November 2013 This was consistent with recorded strandings in 2012 which were all single animals except for two Harbour porpoises stranded at Fanore, Co. Clare on 28th February 2012 and two Harbour porpoises stranded at Long Strand, Clonakilty, Co. Cork on 20th April 2012 and 2011 which were all single animals except for two Common dolphins at Blacksod, Co. Mayo on 22nd July 2011 and two Common dolphins at Inishmore on the Aran Islands, Co Galway on 30th August 2011

Of the total number of stranding records in 2013, 161 (83.4%) were identified to species level, down from 147 (91.3%) in 2012 and 140 (89.2%) in 2011. In 2013, a total of 14 species were identified: Atlantic white-sided dolphin (awsd), Bottlenose dolphin (bnd), Common dolphin (cd), Cuvier's beaked whale (cbw), Fin whale (fw), Harbour porpoise (hp), Long-finned pilot whale (pw), Minke whale (mw), Pygmy sperm whale (psw), Risso's dolphin (rd), Sperm whale (spw), Striped dolphin (sd), True's beaked whale (tbw) and White-beaked dolphin (wbd). This is similar to records received in 2011 and 2012 when cetacean species confirmed were; Atlantic white-sided dolphin (awsd), Bottlenose dolphin (bnd), Common dolphin (cd), Cuvier's beaked whale (cbw), Fin whale (fw), Harbour porpoise (hp), Minke whale (mw), Northern bottlenose whale (nbw), Long-finned pilot whale (pw), Risso's dolphin (rd), Sperm whale (sp), Striped dolphin (sd) and White-beaked dolphin (wbd.

During the last three years, Common dolphin, Harbour porpoise and Long-finned pilot whale were the most frequently recorded species stranded on the Irish coast. Two species (Common dolphin and Harbour porpoise) accounted for 64% of all stranding records in 2013 up from 56% in 2012 and 59% in 2011. Numbers of common dolphin stranding records were higher than the already historically high figures from 2011 and 2012 with 66 confirmed records compared to 43 in 2012 and 56 in 2011 and it is likely that the true figure would be higher as statistically, many of the 32 unidentified strandings were likely to be Common dolphins which could not be identified to species level due to insufficient evidence. In 2012 a noticeable increase was reported in the number of stranding records of Long-finned pilot whales, up from 13 in 2011 to 22 in 2012. Numbers of this species remained comparatively high in annual terms in 2013 with 20 records received (Fig. 2).
In 2013 there were also very notable strandings of True's beaked whale with three separate records of single animals from Five Fingers Strand, Malin, Co. Donegal on 12th May 2013 Trawbreaga, Malin, Co. Donegal on 14th May 2013 and Ballyconneely, Co. Galway on 27th May 2013. It is likely that the animal stranded at Trawbreaga was the calf of the adult female reported at Five Fingers Strand but we are awaiting confirmation through genetic analysis. Also of note was a single Pygmy sperm whale which live stranded and died at the Bull Wall, Dublin on 5th December 2013. This was the first ever stranding for this species recorded on the east coast of Ireland and it is unfortunate that it was buried before it could be examined.

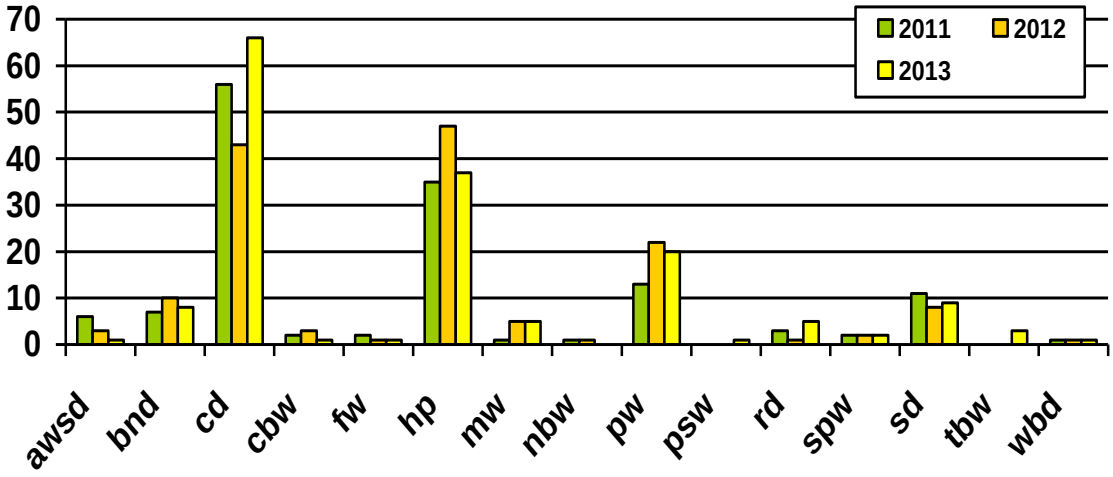


Figure 2. Total numbers of cetacean stranding records by species during 2011, 2012 and 2013 (see Appendix II for a full species list and associated codes).

In 2013, carcass condition scores were similar to those received during the previous two recording periods. During the year, IWDG received records for 32 'v. fresh' animals (compared to 23 in 2012 and 32 in 2011), 45 'fresh' animals (n=41 in 2012 and 35 in 2011), 59 'poor' animals (n=31 in 2012 and 45 in 2011) and 57 'very poor' animals (n=66 in 2012 and 45 in 2011). Members of the stranding network and/or NPWS Conservation Rangers attended 121 (63%) stranding sites as follows:

- 23 out of 32 (72%) 'very fresh' strandings (down from 74% in 2012),
- 31 out of 45 (69%) 'fresh' strandings (down from 78% in 2012),
- 38 out of 59 (64%) of 'poor' strandings (up from 55% in 2012) and
- 29 out of 57 (51%) of 'very poor' strandings (down from 58% in 2012) (Fig. 3).

Despite the fact that 116 of the 193 recorded strandings in 2013 were in 'poor' or 'very poor' condition it was still possible to identify 161 (83%) to species level, although this figure is down slightly from 91.3% in 2012 and 89% in 2011. Total body length (TBL) was recorded in 167 strandings (175 animals) in 2013 representing 87% of total.

Plate 1. Scavenger damage to a Striped dolphin, Doona Strand, Ballycroy, Co. Mayo 20th March 2013.

Credit: Irene O'Brien © DAHG

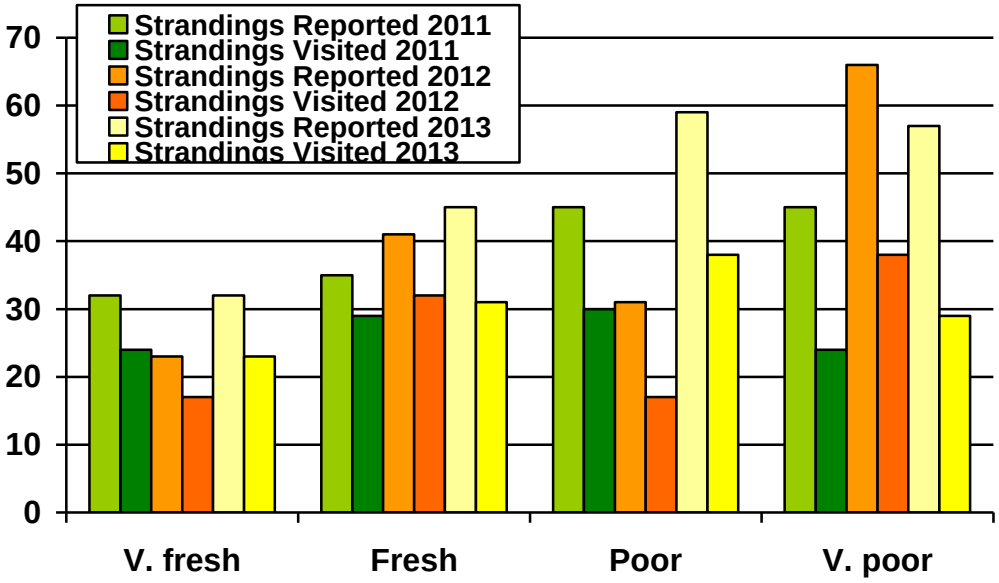


Figure 3. The occurrence of standard condition indices for stranded cetaceans recorded in 2011, 2012 and 2013.

As in previous years the gender of stranded cetaceans can sometimes be difficult to establish due to the level of decomposition and the fact that the genital area is among the first parts of the body to be attacked by scavengers (Plate 1). Despite this, gender was established for 101 stranding records (52%) in 2013 compared to 76 (47%) in 2012 and 82 (52%) in 2011. In 2013, 31 male Common dolphins were recorded, accounting for 61% of stranding records of this species where gender was determined. It is further interesting to note that in an unusual number of Common dolphin strandings recorded in Co. Mayo between 30th January and 5th February 2013 there were 14 males and no females. In a later mass stranding of Common dolphins in and around Elly Bay, Co. Mayo on 24th November 2013 during which ten animals died, all four adults in which the gender was determined were female. The three True's beaked whales which stranded during 2013 were also established to be females (Fig. 4). No major numerical differences were noted in the gender of stranded cetaceans in either 2012 (Fig. 5) or 2011 (Fig. 6).

Plate 2. Genital area (male) Common dolphin, Furbo, Co. Galway 20th January 2014.

Credit: Isabel Baker © DAHG

Plate 3. Genital area (female), Striped dolphin, Waterville, Co. Kerry 22nd February 2014.

Credit: Lucy Hunt © DAHG

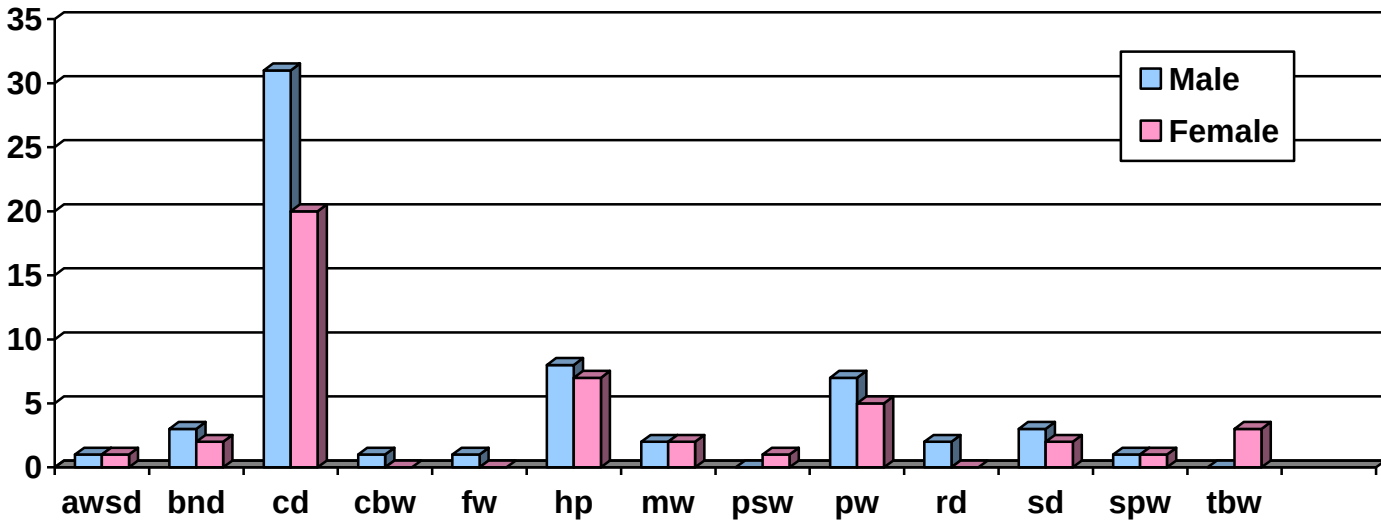


Figure 4. Gender (where established) of cetaceans recorded as stranded in 2013.

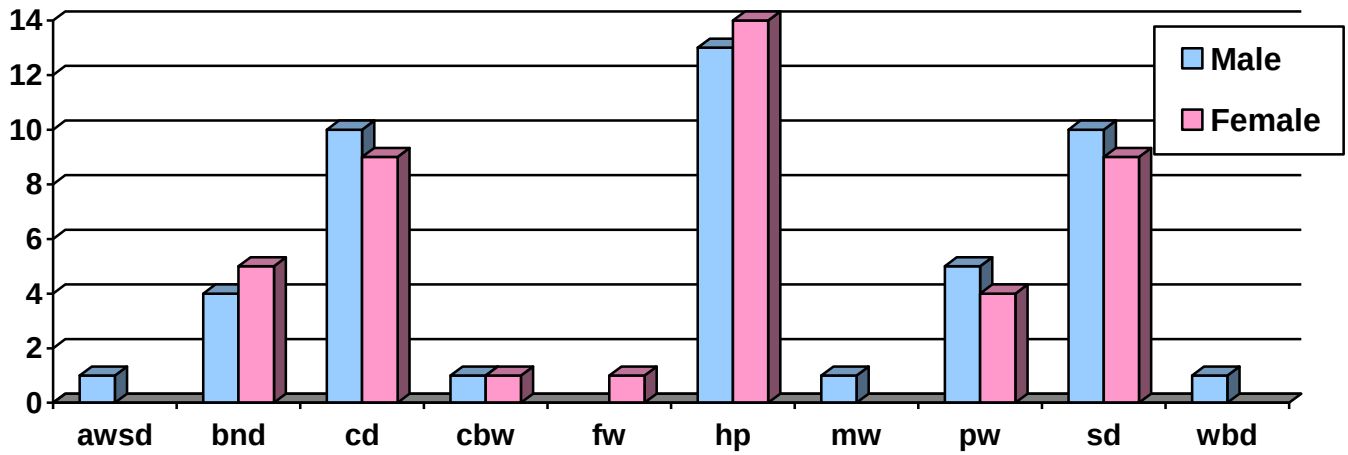


Figure 5. Gender (where established) of cetaceans recorded as stranded in 2012.

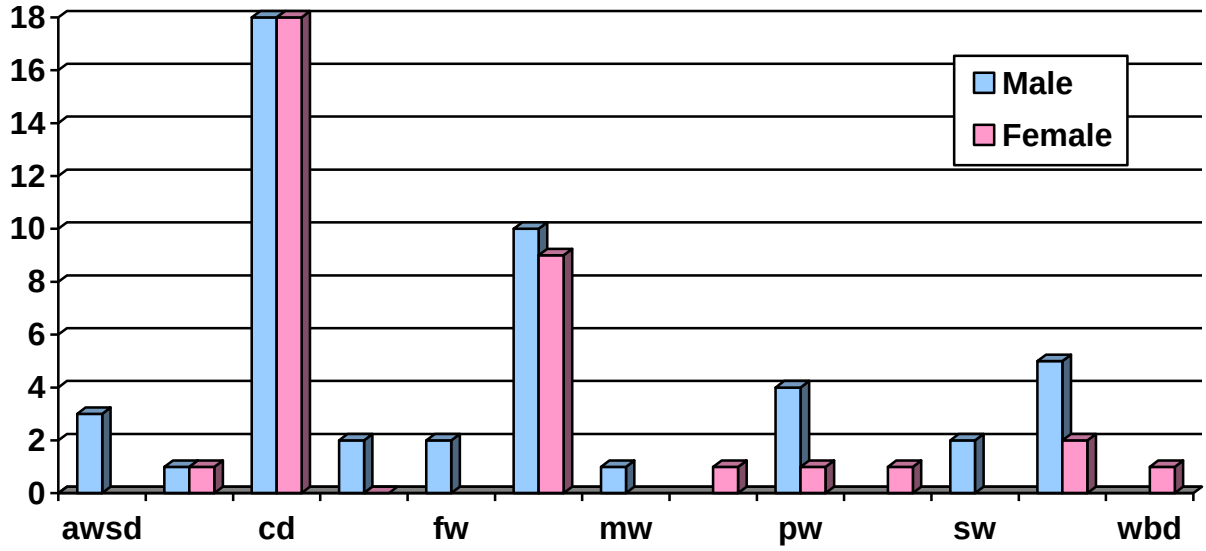


Figure 6. Gender (where established) of cetaceans recorded as stranded in 2011.

2013 was the third year in which the IWDG attempted to acquire measurements for girth in front of the dorsal fin (GFD) and girth behind the dorsal fin (GBD) from stranded cetaceans. These were obtained from 16 stranding records (8.3%) during the year. This compares to 20 in 2012 (12.4%) and 15 (10%) in 2011. As in previous years this low figure was due to a number of factors such as the body condition of the stranded animal, the size of the animal, environmental conditions, the number and physical ability of attendees, etc. Due to bloating, decomposition and scavenging, these measurements are only likely to be accurate where they are taken from freshly dead animals and in a small number of cases submitted figures were omitted from the records for this reason.

Trends in the number of records received

With 161 stranding records totaling 163 individual cetaceans, the total number of stranding records reported in 2012 had been the highest received in any one year since the IWDG recording scheme began in 1991, with 2011 comprising the second highest total with 157 stranding records and a total of 159 animals. The total number of individual cetaceans recorded was similar to data obtained in 2006 and 2009 (Fig. 1). However it must be borne in mind that the numbers presented for 2011-2013 do not include stranding records on the coastline of Northern Ireland or live strandings (unless the animal died or was euthanised in which case it was then considered as a 'very fresh' stranding).

It is difficult to make a comparison with the years prior to 2002 since recording effort was lower during the preceding years. However since 2005 the number of records reported annually around the country has been reasonably consistent albeit with some limited variation between years (Figs. 1, 8). Data from 2011 and 2012 supports the suggestion by O'Connell and Berrow (in press a; b) that the number of stranding records reported in 2010 was unusually low, which was attributed to predominantly easterly winds in the first few months of that year. The slight upward trend demonstrated in 2011 and 2012 increased sharply in 2013 with 193 records received totaling 204 animals (Fig. 8).

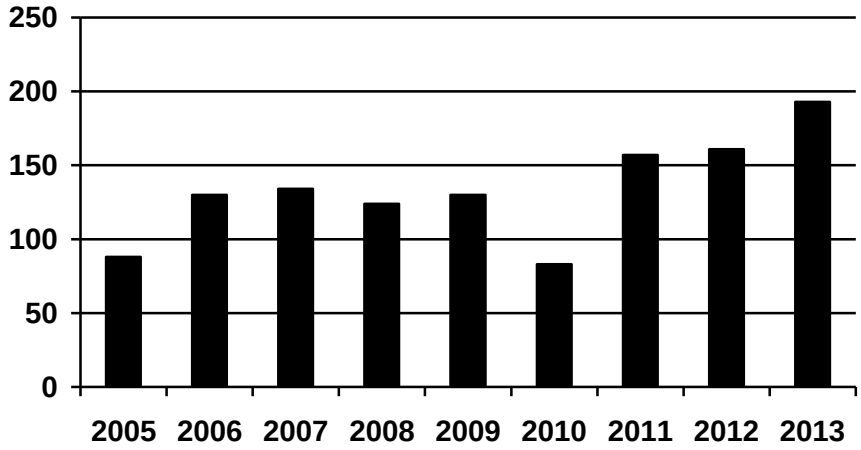


Figure 8. Total numbers of cetacean stranding records reported to the IWDG from 2005 to 2013.

While the number of stranding records of the other cetacean species remained quite consistent in comparison with previous years (Fig. 2), there was a marked increase in the number of stranding records of Common dolphins in 2013 and Harbour porpoises in 2012. In 2012, numbers of Common dolphin stranding records dropped by 27% from a high of 59 in 2011 down to 43, but in 2013 the figure for this species increased to an all time high of 66 animals, an increase of over 53%. The true figure for this species is likely to be somewhat higher as a large proportion of the 32 unidentified cetacean records for 2013 were likely to have been Common dolphins in an advanced state of decomposition. Figures for Harbour porpoise stranding records, which were already at their highest recorded annual total of 38 in 2011, rose by a further 24% to 47 in 2012 and figures for 2013 showed a drop to slightly below the 2011 figures, with 37 records received.

In relation to other species, stranding records of Long-finned pilot whales increased to 22 in 2012, a rise of 70% from 13 in 2011 and this was the highest annual total recorded for this species in Ireland since 2002. This higher number of records was maintained in 2013 with 20 records received via the Strandings Scheme. Striped dolphin stranding records have remained quite stable after a peak in 2006 when there were 17 records for this species (Table 1).

Table 1. Strandings reported to the IWDG, 2004 – 2013.

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Cetacean sp.	4	2	10	4	2	3	0	2	1	1
Dolphin sp.	12	17	15	16	15	17	16	13	12	31
Whale sp.	3	4	7	4	5	2	1	1	4	4
Atlantic white-sided dolphin	6	6	5	13	10	2	1	6	3	2
Bottlenose dolphin	9	8	6	8	5	14	3	7	12	9
Common dolphin	28	20	28	38	24	21	22	59	49	74
Cuvier's beaked whale	1	2	1	1	4	3	0	2	3	1
Fin whale	0	0	0	2	2	3	0	2	1	1
Harbour porpoise	32	19	19	30	30	27	23	39	49	43
Humpback whale	0	0	1	0	0	0	1	0	0	0
Killer whale	1	0	0	0	0	0	0	0	0	0
Minke whale	2	3	3	1	4	4	8	1	6	6
Northern bottlenose whale	0	1	4	0	0	2	0	1	1	0
Pilot whale	13	5	14	13	16	13	2	13	21	22
Pygmy sperm whale	0	1	0	0	0	2	0	0	0	1
Risso's dolphin	4	3	2	1	1	3	3	3	1	5
Sei whale	0	0	1	0	0	0	0	0	0	1
Sowerby's beaked whale	2	0	2	0	1	3	0	0	0	0
Sperm whale	3	4	1	2	1	4	0	2	3	2
Striped dolphin	4	4	17	7	11	10	11	10	8	11
True's beaked whale	0	0	0	0	0	1	0	0	0	3
White-beaked dolphin	3	1	3	1	2	2	0	1	1	1

During May 2013, three strandings of True's beaked whales were recorded, two from Co. Donegal and one from Co. Galway. These were the first stranding records for this species since 2009 in Co. Sligo and with only 13 recorded strandings since 1899 it is the first time that more than one of these animals has been recorded stranded in a single year.

Also of interest in terms of very rare species, on the 5th December 2013 a Pygmy sperm whale live stranded and died at the Bull Wall in Dublin. This was only the eighth record of this species in Ireland and it was the first ever record reported from the east coast.

In 2011 a peak in Common dolphin stranding records occurred in February and Harbour porpoises in October, November and December but both of these patterns changed quite considerably in 2012. In 2012 Common dolphin stranding records peaked in January (n=11), December (n=9) and March (n=7), with these three months accounting for 63% of the annual total. In 2013, the highest number of records for Common dolphins were received in January (n=14) and February (n=18) with these two months alone accounting for 48% of the annual total (Fig. 9). Harbour porpoise stranding records in 2012 showed a very significant peak in February with 13 recorded strandings which alone accounted for almost 28% of the annual total for this species. In 2013, figures for this species were more evenly spread throughout the year with January (n=6), February (n=5) and June (n=5) having the highest numbers and no records received for April or November (Fig. 10).

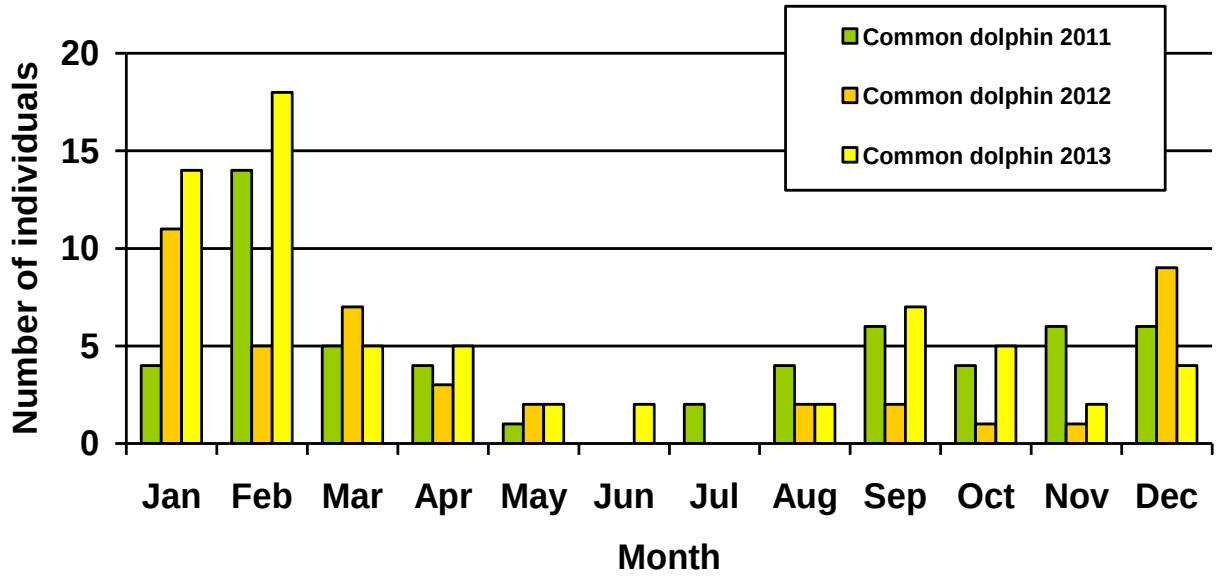


Figure 9. Common dolphin stranding records by month during 2011 - 2013.

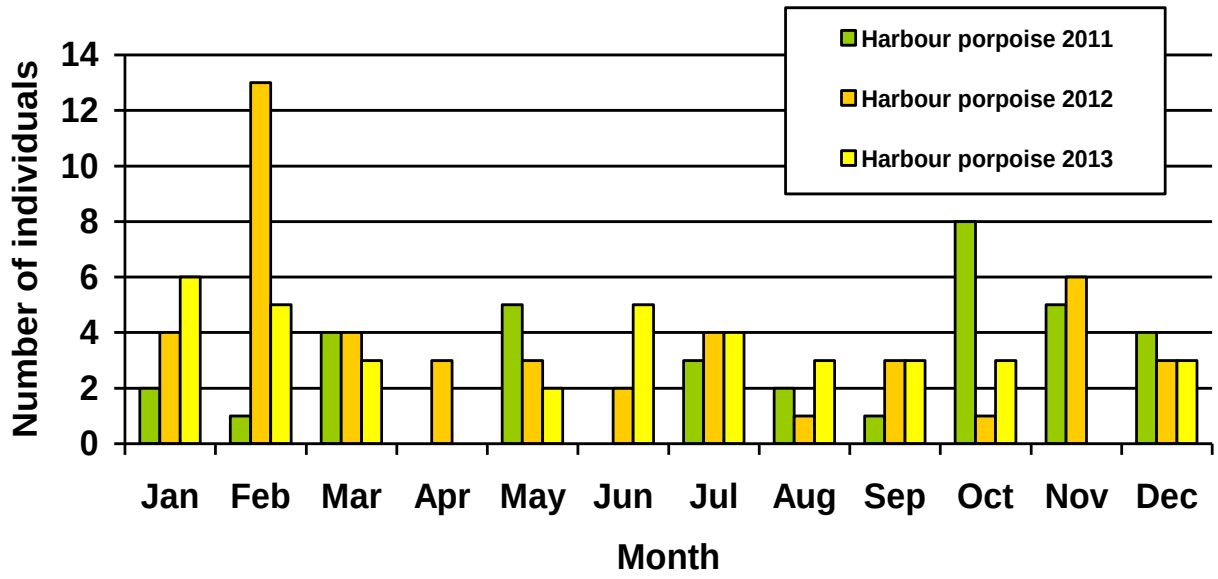


Figure 10. Harbour porpoise stranding records by month during 2011 - 2013.

Discussion

One of the objectives of the IWDG stranding scheme is to collect data from as many cetaceans reported to the scheme as possible to acquire more detailed information. Coverage during this reporting period was good and in 2013 members of the stranding network attended 121 (63%) stranded cetaceans reported to IWDG. In many of the other strandings the animal was no longer on the beach when a member of the network visited the site before it could be examined, usually due to the action of wind or waves. Occasionally an animal was removed by the relevant local authority before examination (such as the Pygmy sperm whale at Bull Island, Dublin on the 5 December 2013). This is now an irregular occurrence due to the high profile of the IWDG Stranding Scheme assisted by DAHG's direct contact with all Local Authorities and other relevant government partners informing them of the scheme with a view to maximising data recovery from stranded cetaceans.

Even in the case of strandings not visited by members of the stranding network, photographs accompany virtually all records sent in by members of the public and this helps to account for the fact that 83.4% of records in 2013 were identified to species level. Also 87% were also recorded for total body length (TBL) and which represents a valuable dataset. Gender is more difficult to establish due to decomposition, scavenging and the ability of an individual to determine gender in cetaceans and this accounts for gender being determined in only 52% of stranding records in 2013. This is the third year that the stranding scheme has attempted to record girth in front of the dorsal fin (GFD) and girth behind the dorsal fin (GBD) and this was recorded in 8.3% of stranding records in 2013, down from 12.4% in 2012 and 10% in 2011. The majority of these girth records are received from cetaceans which have been removed for post-mortem examination by research institutions (i.e., Galway-Mayo Institute of Technology, University College Cork) and thus have access to better facilities. There are a number of reasons for this including the poor condition of the animal, its size, the physical constraints of lifting a carcass to place measuring tape around the girth, and due to the need for the animal to be in very fresh condition (i.e., no significant bloating). It may be worth reconsidering whether any usable data can be obtained from this exercise in the future unless the animal has been recovered for post-mortem examination.

Under the current stranding scheme, stranding records from Northern Ireland and live strandings which are refloated but not reported or discovered again were excluded from further analysis (live stranding animals which die or were euthanised were classified as 'V. fresh' strandings). When these stranding records are included (as in the IWDG Strandings database – www.iwdg.ie), the total figure for the coastline of Ireland in 2013 rises to 217 (as of February 2014). This difference in data collection can lead to difficulties when comparing figures from 2011-2013 with those from 2010 and earlier years since, particularly in the case of live strandings, it can be difficult to establish if the animal would now be considered 'Live' or 'V. fresh'. We recommend that all stranded animals , both (i) live and refloated and (ii) initially live but which subsequently died or were euthanised, are also recorded for greater consistency of recording in the long-term.

During 2011 57% of all cetacean stranding records were recorded in 'poor' or 'very poor' condition and this figure rose to 60% in both 2012 and 2013. This limits the information recorded on general external pathology as per the Bycatch Evidence Evaluation Project (BEEP).

Even in noteworthy cases, it can be difficult to assess whether the damage was caused pre- or post-mortem and this is especially true on rocky/stony shores where a carcass may be damaged by the combined effect of wave action and abrasive substrates. Observations made on general external pathology during 2013 are noted in Table 2.

Table 2. Comments on external pathology of stranded cetaceans in 2013 from comments received or observed from photographs by network volunteers and members of the public.

Comment	2011	2012	2013
Tail fluke removed	5	10	5
Pregnant/lactating	2	2	1
Tip of beak broken	2	2	5
Scarring/bad rake marks	2	3	2
Bruising and/or broken ribs	2	3	0
Live stranded and died/euthanised	5	8	15
Virus lesions	1	3	0
Head, tail fluke and fins missing	0	1	0
Puncture wound, flesh cut away	0	1	1
Dorsal fin and part of head missing	0	1	0
Rope on tailstock/entangled in rope/netting	2	3	2
Malnourished	0	1	0
Damaged skin with large lice burden	0	1	0
Total	21	39	31

During 2011, 15% of cetacean stranding records received were in February and 36% of stranding records were recorded during February, October and March. In 2012, February also had the largest number of stranding records (17%) however, January, February and March had the highest number of stranding records with the three months accounting for 43% of the total for the year. In 2013, January and February were peak months accounting for 27% of the yearly total. The high figures for stranding records during February 2011 and 2012 were predominantly due to the numbers of Common dolphins and Harbour porpoises recorded whereas in 2013 the primary cause was the high numbers of Common dolphins reported with 18 records in February alone. In the Cetacean Stranding Report for 2011 it says that the "predominance in 2011 of Common dolphin and Harbour porpoise within the annual strandings dataset is consistent with recent published reports from Ireland (e.g., O'Connell and Berrow 2008; 2009; in press a; b) and the UK (Deaville and Jepson, 2011). However, overall figures for these species in 2011 were the highest in a decade of recording stranded cetaceans and while figures for Harbour porpoises have stabilised to some degree, the slight increase in Common dolphin stranding records in 2012 followed by a notable increase in 2013 raises concerns.

Acknowledgements

The Cetacean Strandings Scheme is funded by the National Parks and Wildlife Service of the Department of Arts, Heritage and Local Government. The IWDG would like to thank all those people who reported stranded cetaceans to the IWDG and to the network of volunteers who visited, recorded and sampled cetaceans during all years of the scheme.

References

Berrow, S.D. and Rogan, E. (1997) Cetaceans stranded on the Irish coast, 1901-1995. Mammal Review 27(1), 51-76.

Berrow S., Wall D. and Rogan E. (2005) Recording stranded cetaceans in Ireland. Proceedings of Workshop on Strandings Networks, 19th Annual Conference, European Cetacean Society, La Rochelle, France.

Berrow, S.D., Whooley, P. and Wall, D. (2006) ISCOPE-Irish Scheme for Cetacean Observation and Recording. Final Report. Irish Whale and Dolphin Group. 36 pp.

Berrow, S., Whooley, P., O'Connell, M. and Wall, D. (2010) Irish Cetacean Review (2000-2009). Irish Whale and Dolphin Group, 60pp. ISBN 0-9540552-4-1.

Boelens, R., Gray, J. and Parsons, A. (2004) Review and evaluation of marine environmental impact indicators and their application in Ireland. Marine Institute.

Deaville, R. and Jepson, P.D. (eds.) (2011) *UK Cetacean Strandings Investigation Programme (CSIP) - Final report for the period 1st January 2005 – 31st December 2010*. CSIP, Institute of Zoology, Zoological Society of London, UK. 98pp.

DEHLG (2009). Conservation plan for cetaceans in Irish waters. Department of the Environment, Heritage and Local Government, 7 Ely Place, Dublin 2. 97pp.

Fairley, J.S. (1981). Irish Whales and Whaling, Blackstaff Press, Belfast.

Kilpatrick, C. (2011) An analysis of the trends and causes of cetacean stranding in the UK and Ireland between 1989 and 2009. Advanced Diploma in Environmental Conservation. University of Oxford, UK.

O'Connell, M. and Berrow, S. (2007) Records from the Irish Whale and Dolphin Group for 2006. Irish Naturalists' Journal 28(11), 459-466.

O'Connell, M. and Berrow, S. (2008) Records from the Irish Whale and Dolphin Group for 2007. Irish Naturalists' Journal 29(1), 40-45.

O'Connell, M. and Berrow, S. (2009) Records from the Irish Whale and Dolphin Group for 2008. Irish Naturalists' Journal 30(1), 57-62.

O'Connell, M. and Berrow, S. (2010) Records from the Irish Whale and Dolphin Group for 2009. Irish Naturalists' Journal 31(1), 50-55.

O'Connell, M., and Berrow, S. (2013) Records from the Irish Whale and Dolphin Group for 2010. Irish Naturalists Journal 32(2), 154-158.

O'Connell, M., and Berrow, S. (in press a) Records from the Irish Whale and Dolphin Group for 2011. Irish Naturalists Journal.

O'Connell, M., and Berrow, S. (in press b) Records from the Irish Whale and Dolphin Group for 2012. Irish Naturalists Journal.

O'Riordan, C.E. (1972) Provisional list of Cetacea and turtles stranded or captured on the Irish coast. *Proceedings of the Royal Irish Academy* 72 (15), 253–74.

Peltier, H., Dabin, W., Daniel, P., Canneyt, O. Van, Dorémus, G., Huon, M. and Ridoux, V. (2012) The significance of stranding data as indicators of cetacean populations at sea: Modelling the drift of cetacean carcasses. Ecological Indicators 18, 278–290.

Voigt, K. (2011) Review of Irish cetacean stranding data from 1901-2010. Final Year thesis. University of Portsmouth, England.

Appendix I: Cetacean Stranding Scheme recording form

Comhshaol, Oidhreacht agus Rialtas Áitiúil
Environment, Heritage and Local Government

Cetacean Stranding Record Form

IWDG www.iwdg.ie
The Irish Whale and Dolphin Group

SECTION A

Name of Recorder: _____
Address: _____
_____
Telephone No: _____
Email: _____

Date of Stranding (If known): _____
Date of Visit to Stranding: _____
Location: _____
_____
County: _____
Grid Ref: _____
Lat. Long. _____

Species: _____ (if no photo supplied or if you cannot identify species, please describe in section B1 overleaf)
Gender: _____ (for guidance on how to determine sex, please see section B2 overleaf)
TBL. _____ (lengths in meters or cm, for guide to measurements ,plese refer to section B3 overleaf)
GFD. _____ (See section B3 overleaf) GBD. _____ (See section B3 overleaf)

Condition of Animal:

☐ Live	☐ V. fresh	☐ Fresh	☐ Poor	☐ V. poor
	Animal looks like it may be still alive. Skin smooth and intact, eyes moist.	Skin intact but may be starting to dry out and peel. Skin colour begins to darken. Some scavenging	Skin peeling and colour darkens. Scavenging evident and carcass begins to rot and smell	Carcass rotten. Extensive scavenging. Bloating evident. Flesh and bone exposed etc...

Age Class: ☐ Neonate ☐ Juvenile ☐ Adult

Notes: (Unusual marks, lesions, injuries etc.)

For Office Use only

Visited By: _____
Address: _____
_____
Telephone No: _____
Email: _____

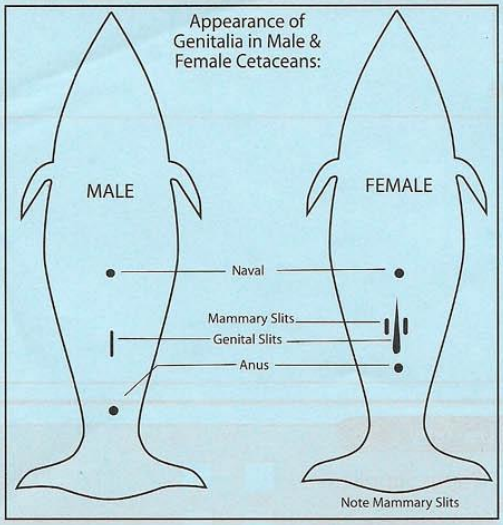
Photo Supplied: ☐ yes ☐ no
Removed for PM: ☐ yes ☐ no
Entered on DB: ☐
Skin Sample Code: _____
Published: ☐

Comhshaol, Oidhreacht agus Rialtas Áitiúil
Environment, Heritage and Local Government

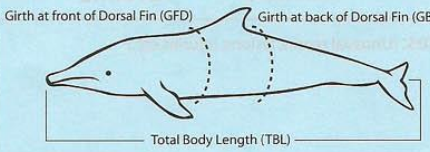
IWDG www.iwdg.ie
The Irish Whale and Dolphin Group

Section B1-Description: (If possible, please provide photos of entire animal, genital area and any unusual marks/lesions.)

Section B2 - Sex Determination



Section B3 - Length Measurement



Body Length should be measured as the distance between the tip of the beak (mouth) and the tail notch (centre) of the tail fluke.

Measure the straight-line distance (along ground) and not the distance along the body curve.

Thank you for taking the time to complete this form

Please return completed form to: **IWDG Cetacean Stranding Scheme, Merchant's Quay, Kilrush, Co. Clare, Ireland**

The IWDG Stranding Scheme is funded by the Department of Environment, Heritage and Local Government

Appendix II: Scientific names and abbreviation codes for species referred to in the text.

Harbour porpoise *Phocoena phocoena* (L.) - **hp**

Short-beaked common dolphin *Delphinus delphis* (L.) - **cd**

Common bottlenose dolphin *Tursiops truncatus* (Montagu) **- bnd**

Atlantic white-sided dolphin *Lagenorhynchus acutus* (Gray) - **awsd**

White-beaked dolphin *Lagenorhynchus albirostris* (Gray) - **wbd**

Risso's dolphin *Grampus griseus* (Cuvier) - **rd**

Striped dolphin *Stenella coeruleoalba* (Meyen) - **sd**

Long-finned pilot whale *Globicephala melas* (Traill) - **pw**

Cuvier's beaked whale *Ziphius cavirostreis* (Cuvier) - **cbw**

Northern bottlenose whale *Hyperoodon ampullatus* (Forster) - **nbw**

Minke whale *Balaenoptera acutorostrata* (Lacépède) - **mw**

Fin whale *Balaenoptera physalus* (L.) - **fw**

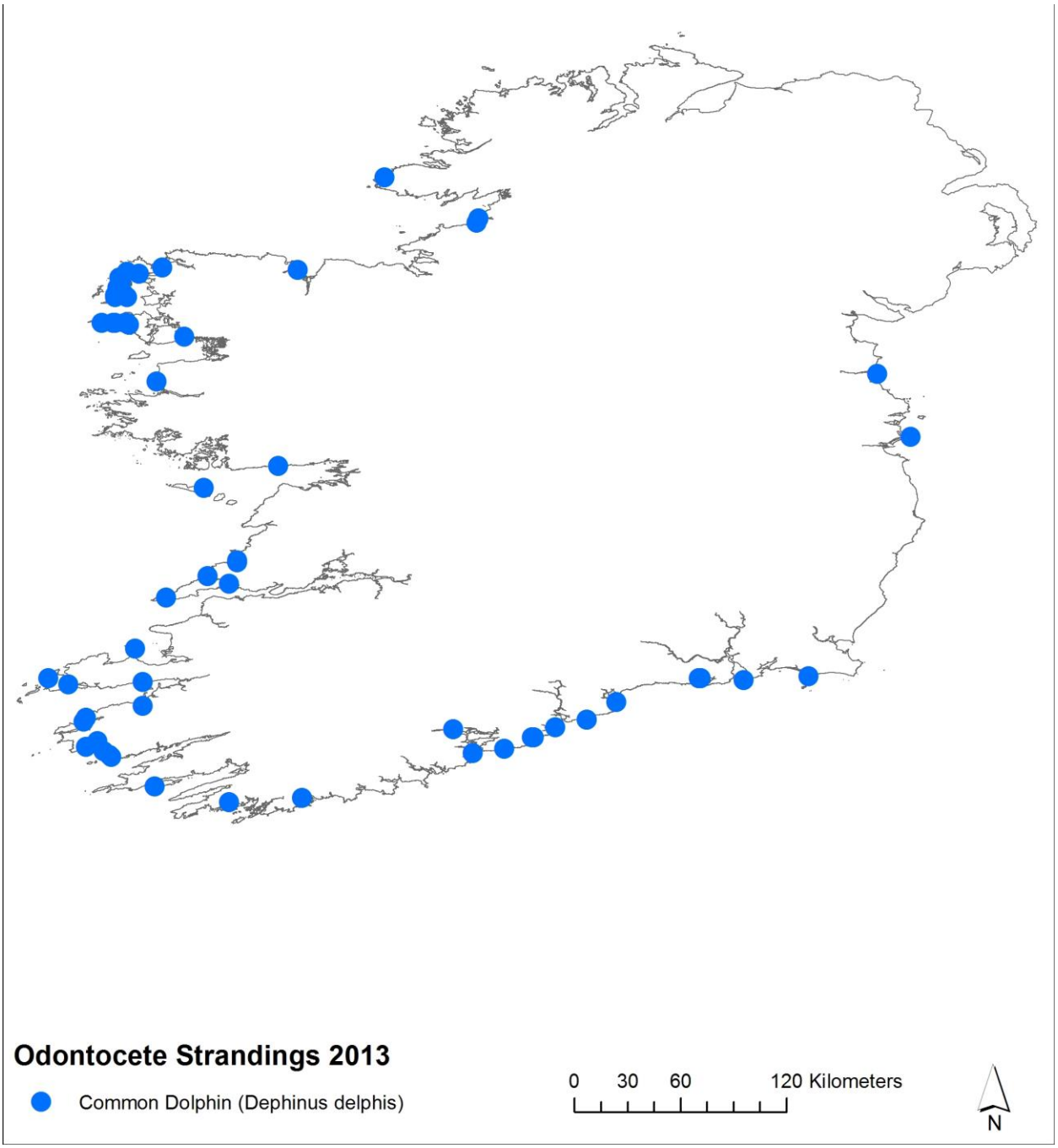
Humpback whale *Megaptera novaeangliae* (Borowski) - **hw**

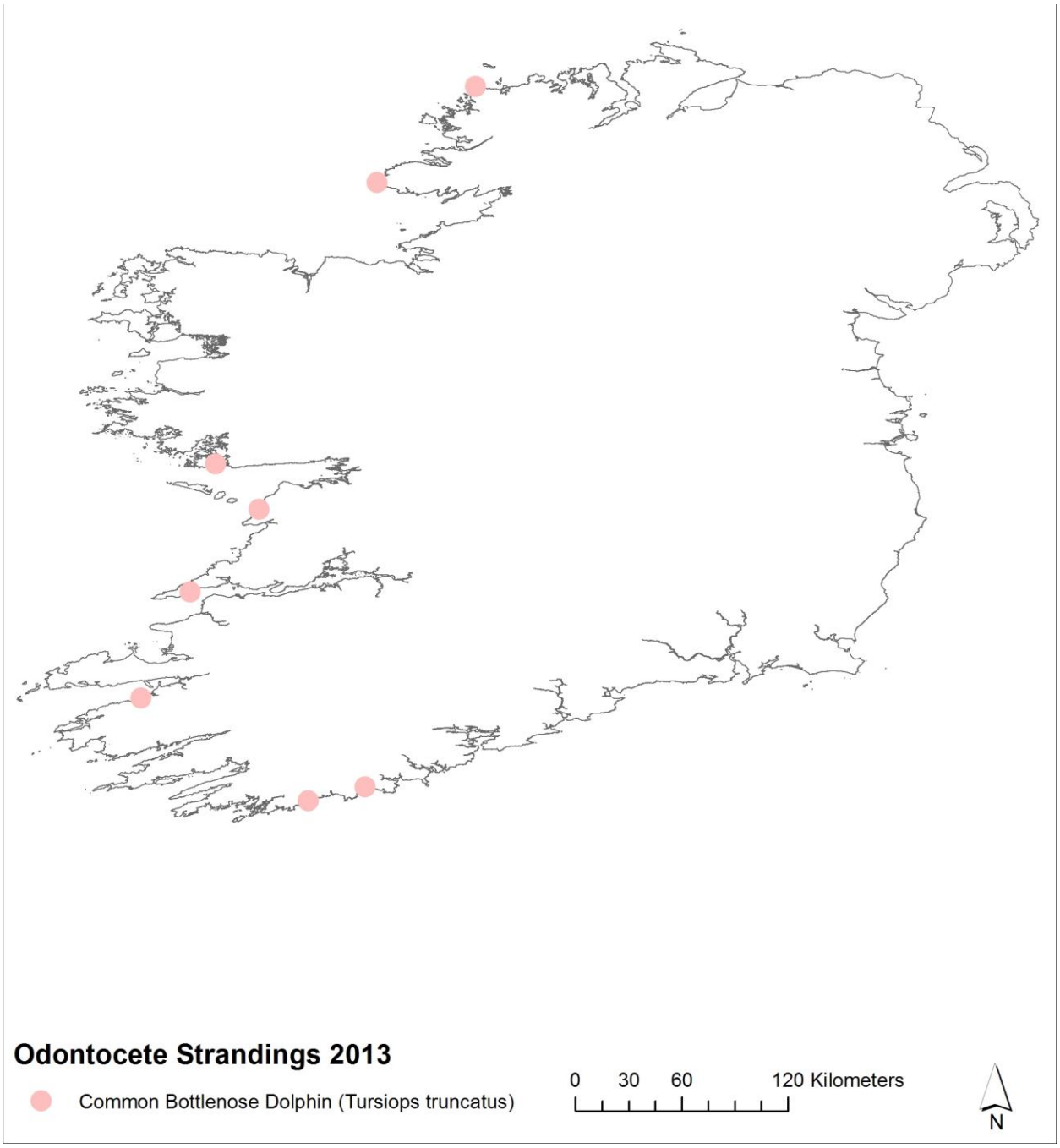
Sperm whale *Physeter macrocephalus* (L.) - **spw**

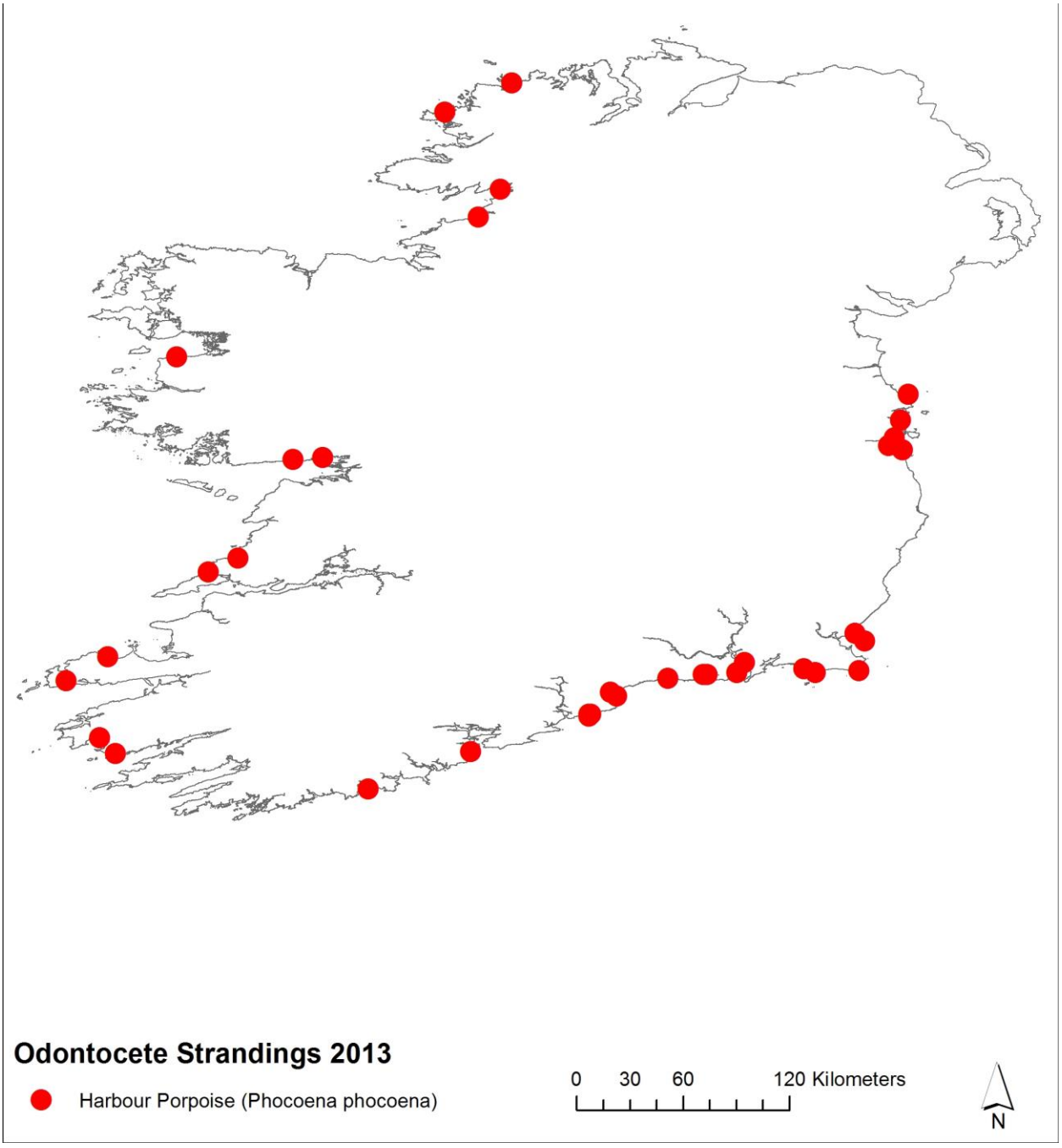
Pygmy sperm whale *Kogia breviceps* (De Blainville) - **psw**

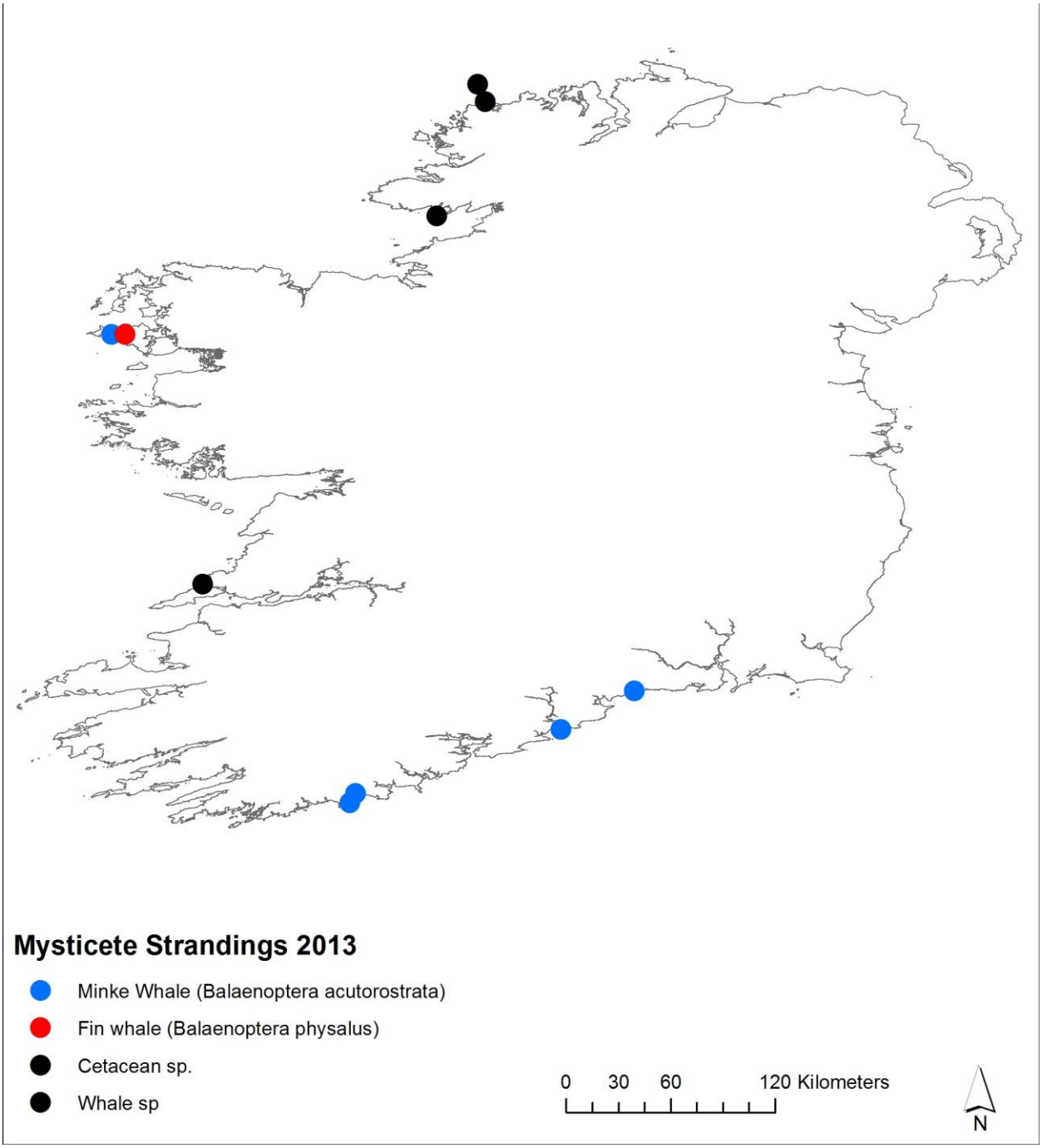
True's beaked whale *Mesoplodon mirus* (True)- **tbw**

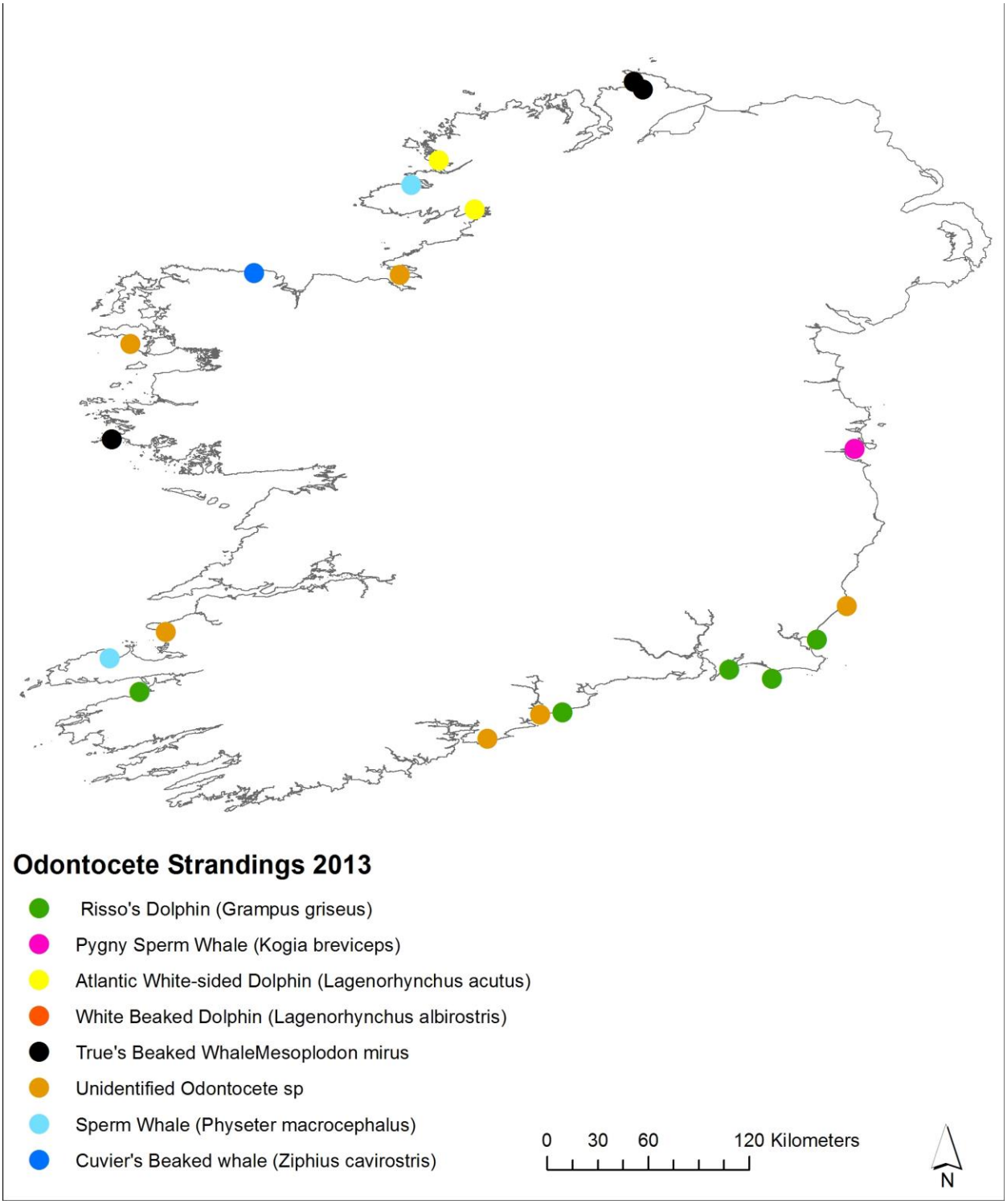
Appendix III: Maps showing location of all stranding records obtained via the Strandings Scheme in 2013.

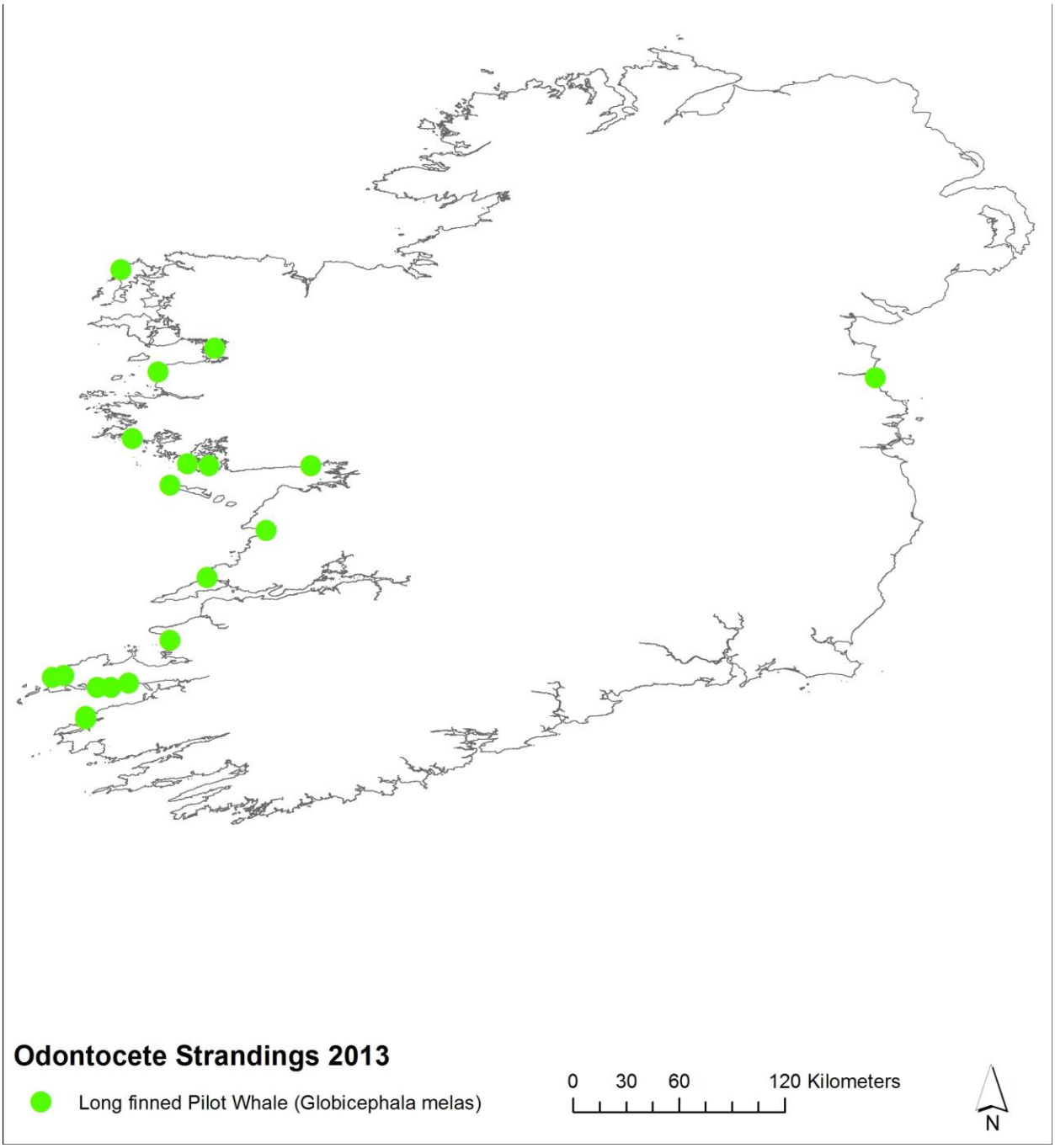


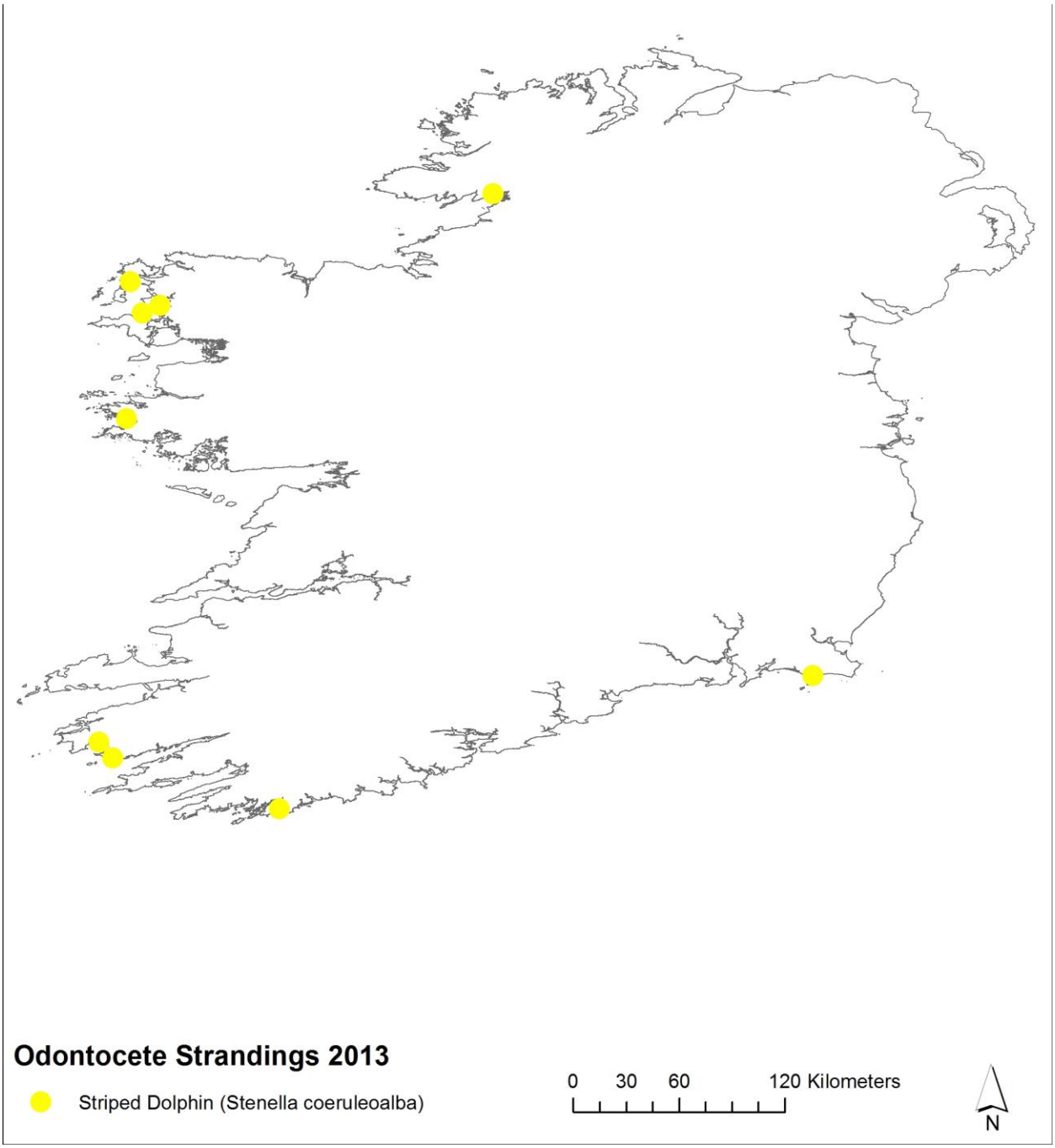

Odontocete Strandings 2013
Common Bottlenose Dolphin (Tursiops truncatus)
0 30 60 120 Kilometers
N

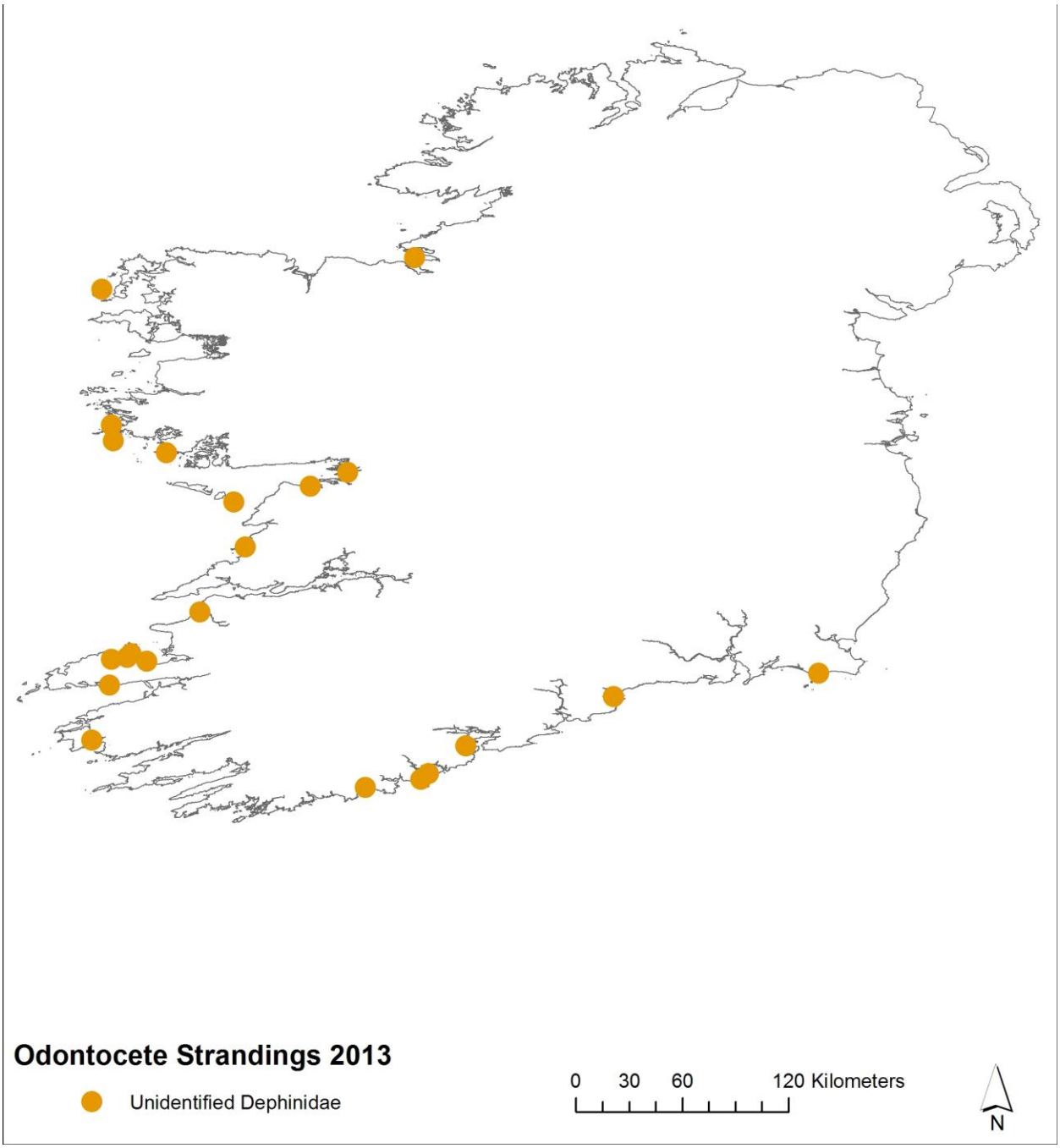

Odontocete Strandings 2013
Harbour Porpoise (Phocoena phocoena)
0 30 60 120 Kilometers
N


Mysticete Strandings 2013
Minke Whale (Balaenoptera acutorostrata)
Fin whale (Balaenoptera physalus)
Cetacean sp.
Whale sp
0 30 60 120 Kilometers
N


Odontocete Strandings 2013
Risso's Dolphin (Grampus griseus)
Pygny Sperm Whale (Kogia breviceps)
Atlantic White-sided Dolphin (Lagenorhynchus acutus)
White Beaked Dolphin (Lagenorhynchus albirostris)
True's Beaked WhaleMesoplodon mirus
Unidentified Odontocete sp
Sperm Whale (Physeter macrocephalus)
Cuvier's Beaked whale (Ziphius cavirostris)
0 30 60 120 Kilometers
N


Odontocete Strandings 2013
Long finned Pilot Whale (Globicephala melas)
0 30 60 120 Kilometers
N


Odontocete Strandings 2013
Striped Dolphin (Stenella coeruleoalba)
0 30 60 120 Kilometers
N


Odontocete Strandings 2013
Unidentified Dephinidae
0 30 60 120 Kilometers
N