Report of the Cetacean Strandings Scheme January - December 2011

Mick O'Connell and Simon Berrow

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

Summary

The Cetacean Strandings Scheme funded by the National Parks and Wildlife Service of the Department of Arts, Heritage and the Gaeltacht is designed to complement and add value to the efforts of the existing Irish Whale and Dolphin Group volunteer network. A total of 157 stranding records involving 159 individual cetaceans were reported between 1st January and 31st December 2011. This was the highest number of stranding records reported in one year since Irish Whale and Dolphin Group recording began in 1990-91, yet the number of individual cetaceans stranded was similar to totals obtained in 2006 and 2009. A total of 140 records (89%) were identified to species level and these involved 13 species. Common dolphin and Harbour porpoise accounted for 59% of all stranding records, a figure which was also higher than previous years.

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 London Natural History Museum. In 1976, O'Riordan (1972) published a provisional list of cetacean strandings 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 National Parks and Wildlife Service of the Department of the Arts, Heritage and the Gaeltacht (DAHG) 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 90-150 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 in press).

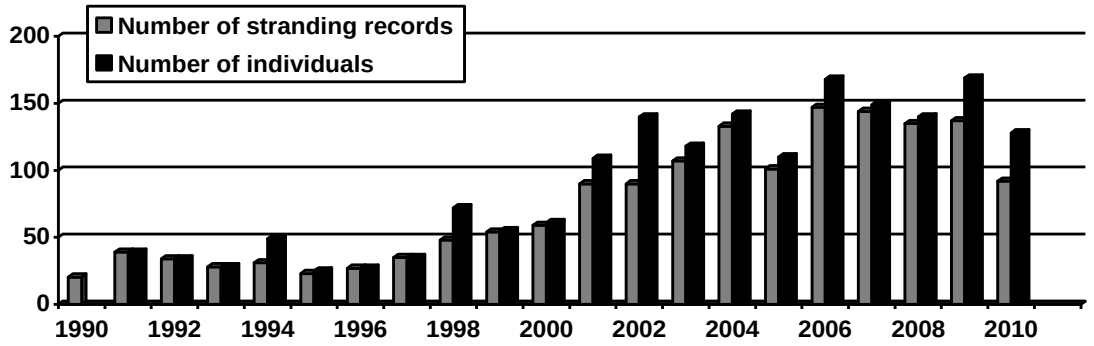


Figure 1. Total numbers of stranding records and individual cetaceans reported to the IWDG between 1990 and 2010.

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 is considered a Marine Environmental Impact Indicator in Ireland (Boelens *et al*. 2004). A review of stranding records from 1901-1995 suggested that "stranding records are considered inadequate to determine population status but are sufficient to identify unusual stranding events such as those caused by fisheries bycatch or epizootics" (Berrow and Rogan, 1997). 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 are significant shifts in species range notably striped dolphin strandings increasing in the northwest.

Methods

Since the reporting of cetacean strandings in Ireland has become a well-established practice, most records from accessible parts of the Irish coastline are reported to the Irish Whale and Dolphin Group 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. A network of 71 volunteers who are based around the coast of Ireland have been trained by the IWDG in cetacean recording and provided with stranding kits for recording and sampling stranded cetaceans.

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.

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.

Under the Cetacean Strandings Scheme contracted by DAHG, members of the Irish stranding network were sent copies of the current Bycatch Evidence Evaluation Project (BEEP) recording sheets developed by the Cornwall Wildlife Trust's Marine Strandings Network (www.cwtstrandings.org). This research project aims 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 2011 the Cetacean Stranding Scheme received and validated 157 stranding records involving 159 individual cetaceans. All strandings were of single animals except for two Common dolphins stranded at Blacksod, Co. Mayo on 22nd July 2011 (Ref: 2011_80) and two Common dolphins stranded at Inishmore, Aran Islands, Co. Galway on 30th August 2011 (Ref: 2011_95).

Of the total number of strandings, 140 (89.2%) were identified to species level and 13 species could be reliably confirmed; these include 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) (Appendix II). Although the total number of species recorded was consistent with previous years (Berrow et al. 2010), two species (Common dolphin and Harbour porpoise) accounted for 59% of all stranding records reported in 2011 (Fig. 2).

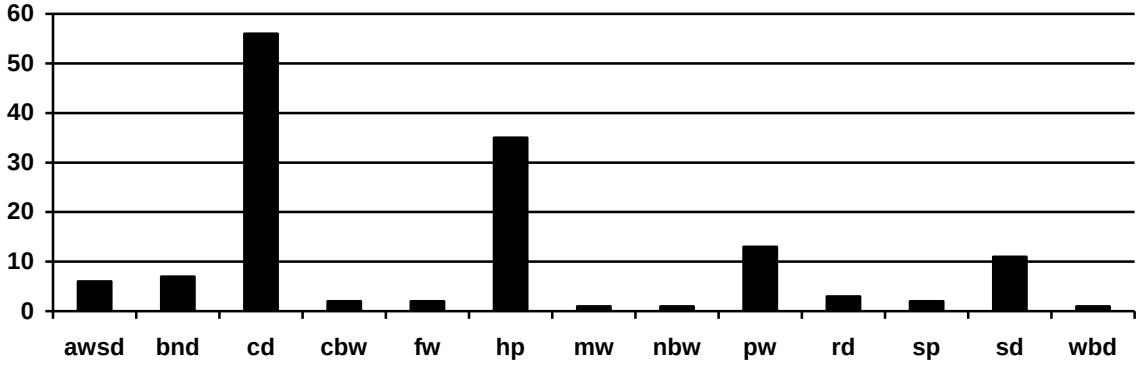


Figure 2. Total numbers of cetacean stranding records by species during 2011 (see Appendix II for species list).

In 2011, members of the stranding network visited 24 out of 32 (75%) 'very fresh' strandings, 29 out of 35 (83%) 'fresh' strandings, 30 out of 45 (67%) 'poor' strandings and 24 out of 45 (53%) 'very poor' strandings (Fig. 3). Despite the fact that 90 (57%) of the 157 recorded strandings were in poor or very poor condition, it was still possible to identify 140 (89%) to species level and to obtain total body length (TBL) measurements. Since the genital area of a stranded cetacean is one of the first places to be attacked by scavenging animals (Plates 1-2), it is often not possible to establish if the animal was male or female but gender was determined in 82 (52%) strandings in 2011.

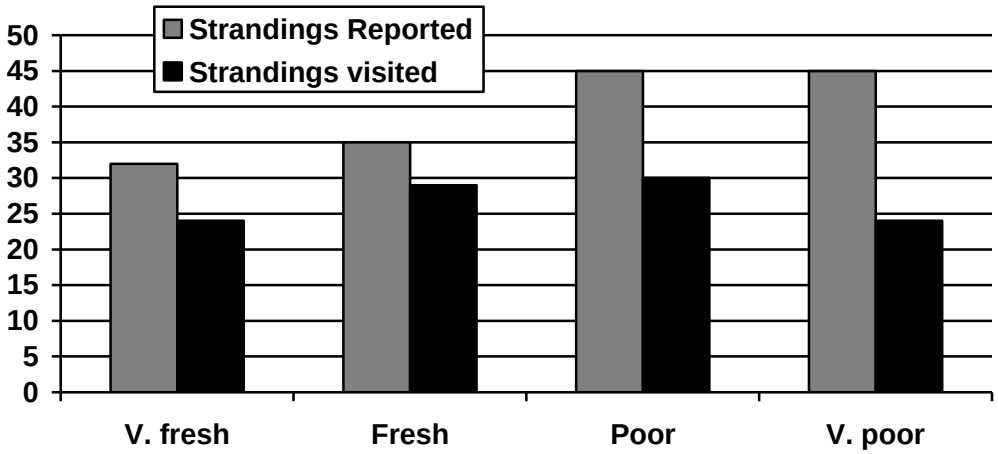


Figure 3. Condition of reported cetacean strandings during 2011.

This was the first year 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 and these were obtained from 15 strandings (c.10%). Due to bloating, decomposition and scavenging, these measurements are only likely to be accurate where they are taken from freshly dead animals. Other issues include the size and weight of the animal, the physical abilities of the person attending the stranding and the amount of assistance available to him/her. It is generally not possible for one person to lift a stranded cetacean and wrap a tape measure around the body to measure its girth and this suggests that these measurements will only be obtainable from a limited number of strandings.

Plates 1-2. Scavenger damage to the genital area of stranded cetaceans.
Credit: Deirdre Slevin & Joe Jordan © DAHG

In 2011, strandings were recorded in all coastal counties of Ireland except for Counties Louth and Leitrim but the majority of records were from the west and south coast (Fig. 4; Appendix IV). The highest numbers were recorded in counties Cork (n=27), Kerry (n=27) and Galway (n=19) whereas few records were received from the east coast counties of Meath (n=1), Dublin (n=5) and Wicklow (n=2).

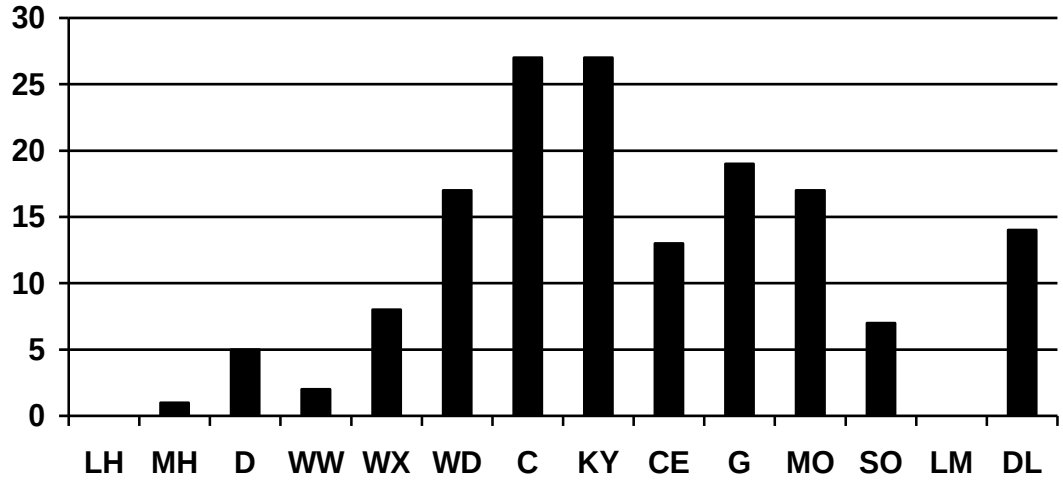


Figure 4. Cetacean stranding record totals arranged by county during 2011.

Between 22 November and 26 December 2011 there was an unusual mix of strandings reported from the Sligo Bay/Donegal Bay area with five species recorded from Dromore Bay, Co Sligo to Killybegs, Co Donegal. The species involved were a White-beaked dolphin on 22 November (2011_142), a Fin whale on 28 November (2011_144), a Striped dolphin on 5 December (2011_146), a Harbour porpoise on 6 December (2011_153), another Fin whale on 7 December (2011_148), another Harbour porpoise on 20 December (2011_154) and a Long-finned pilot whale on 26th December (2011_157). While it is unusual to have seven strandings of five cetacean species on a relatively small stretch of coastline over a five-week period, it is also notable that the two Fin whales recorded (28 November and 7 December) are the only records of this species reported so far from the County Sligo coast.

Trends in the number of records received

The total number of stranding records reported in 2011 (Fig. 5) was the highest obtained in any one year since the IWDG recording scheme began. However the total number of individual cetaceans recorded was similar to data obtained in 2006 and 2009 (Fig. 1). It is difficult to make a comparison with the years prior to 2002 as recording effort was lower during the preceding years. However since 2005 the number of records reported annually around the country has been reasonably consistent (Figs. 1, 5) albeit variable between years. This year's data also support the suggestion by Berrow and O'Connell (in press) that the number of strandings reported in 2010 was unusually low which may be attributed to predominantly easterly winds in the first few months of that year.

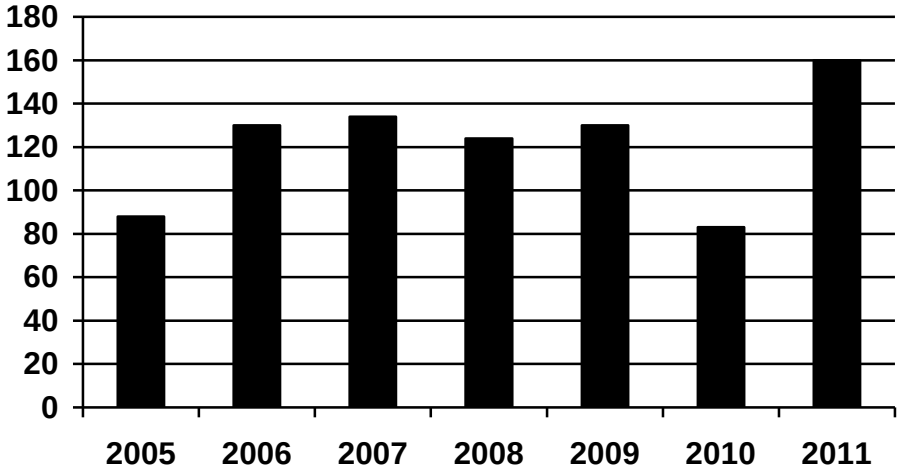


Figure 5. Total numbers of cetacean stranding records reported to the IWDG between 2005 and 2011.

While numbers of other cetacean species stranded remain comparatively consistent with previous years there was a marked increase in the number of strandings of Common dolphins and Harbour porpoises in 2011 (Table 1). A peak in Common dolphins occurred in February and Harbour porpoise in October, November and December 2011 (Fig. 6).

Table 1. Number of Harbour porpoise, Common dolphin, Long-finned pilot whale and striped dolphin strandings reported to the IWDG, 2002 – 2011.

Year	Harbour porpoise	Common dolphin	Long-finned pilot whale	Striped dolphin
2002	25	14	8	5
2003	30	32	4	6
2004	33	28	13	5
2005	19	20	5	4
2006	22	29	14	17
2007	32	38	13	7
2008	31	24	17	11
2009	27	21	13	10
2010	23	22	2	11
2011	38	59	13	11

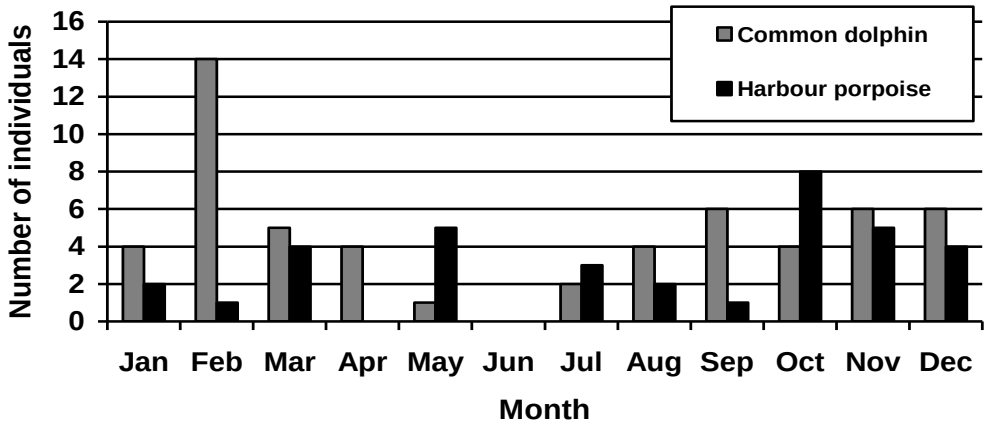


Figure 6. Common dolphin and Harbour porpoise strandings by month during 2011.

Discussion

One of the objectives of the stranding scheme is to have members of the stranding network visit as many reported strandings as possible in order to accurately record the species, gender and total body length of specimens (and to provide supporting photographs). Generally, coverage is good with the exception of Co. Donegal which has a large coastal area but is only served by two volunteers, both of whom are based in the southwest of the county. However records were received from all areas of Co. Donegal but more recorders in this county would be very useful.

There were 11 live strandings reported of a total of 13 individuals. Five species were reported live stranded: Harbour porpoise, Common, Bottlenose and Striped dolphin and Sperm whale. This was less than in recent years however prior to this year all live strandings were recorded whereas in the current protocol, live stranded cetaceans which are re-floated were not included in the records. In 2011 there were three live strandings which were re-floated and not included in this report which still makes the total much less than the previous five years.

One of the main difficulties with recording information from stranded cetaceans is the time delay between the actual stranding event, the reporting of it to the strandings scheme and the arrival on site of a member of the stranding network. When this duration is long (i.e., several days/weeks) there is a high probability of increased damage from scavengers (e.g., making it difficult to determine gender) or, in a worst case scenario, the animal may be washed out by the tide or removed by the Local Authority before being visited. The latter issue was addressed in 2011 by DAHG's direct contact with all Local Authorities and other marine-going government partners

informing them of the scheme and with a view to maximising data recovery from stranded cetaceans.

In addition, with the formalisation of a stranding network of dedicated volunteers in 2011 the Cetacean Strandings Scheme has become more effective at recovering data from stranded cetaceans. While no practical training was available to the network volunteers, those who attended more than one stranding during 2011 have shown marked improvement in data recording and reporting and in many cases are becoming known locally as someone to report strandings to. This localisation of reporting should lead to less stranding incidents going unrecorded.

During 2011, 57.3% of all cetacean strandings were recorded in 'poor' or 'very poor' condition resulting in limited information being recorded on general external pathology. Even in noteworthy cases (Appendix III), 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.

During 2011, 14.7% of cetacean stranding records received were in February compared to a low of 4.9% received in both January and April. This peak in February is primarily due to the spike in strandings of Common dolphins during that month (Fig. 6) and it is interesting to note that during 2010, February recorded the lowest percentage of the annual total of strandings at 2.2% whereas the peak months were June and October with 13% each.

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, 2007; Berrow *et al*. 2010) and the UK (Deaville and Jepson, 2011). However overall figures for these species in 2011 were the highest in a decade of recording effort (Table 1). Continued monitoring in 2012 may help to determine whether such uncommon data represent a new phenomenon or a temporary peak. It is anticipated that with continued co-ordinated monitoring of cetacean strandings in Ireland, such data features may be interpreted and compared more easily.

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. (in press) Records from the Irish Whale and Dolphin Group. Irish Naturalists' Journal.

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

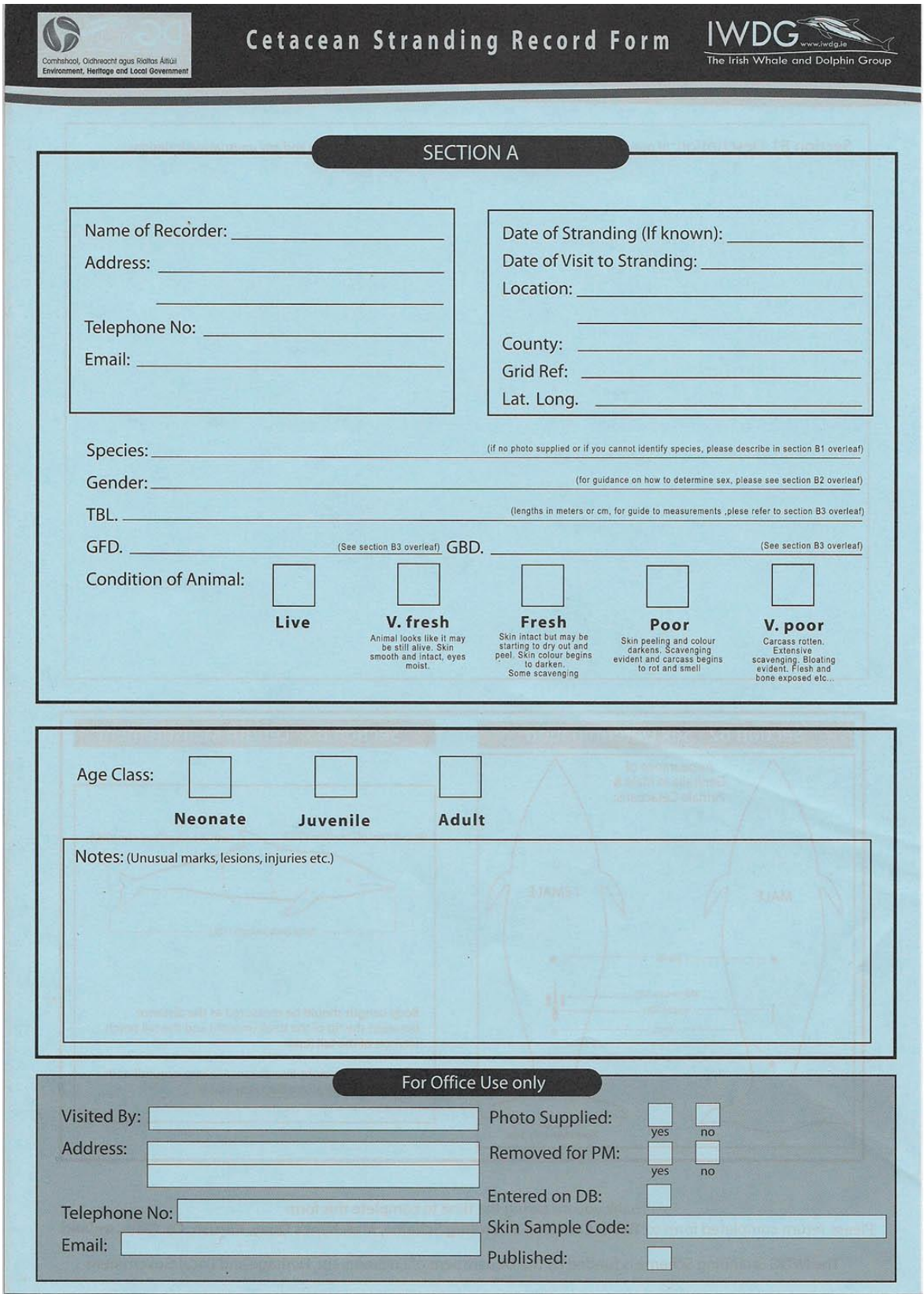
O'Riordan, C.E. (1972) Provisional list of Cetacea and turtles stranded or captured on the Irish coast. *Proceedings of the Royal Irish Academy* 72 (15), 253–74.

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

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 the year.

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

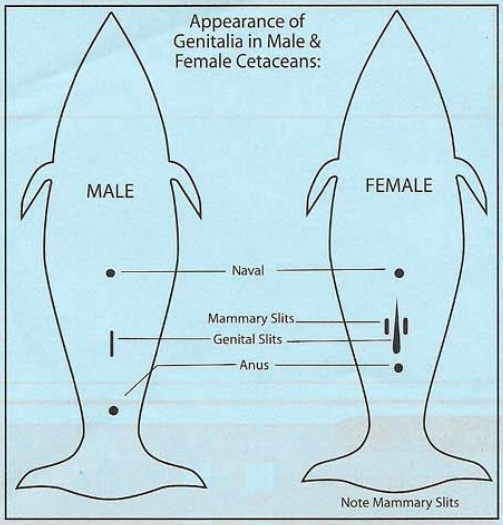
Visited By:
Address:
Telephone No:
Email:

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

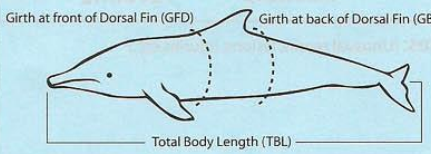
Section B1-Description: (If possible, please provide photos of entire animal, genital area and any unusual marks/lesions.)

Section B2 - Sex Determination

Appearance of Genitalia in Male & Female Cetaceans:



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 authorities of species referred to in the text.

Harbour porpoise *Phocoena phocoena* (L.) - hp
Short-beaked common dolphin *Delphinus delphis* (L.) - cd
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

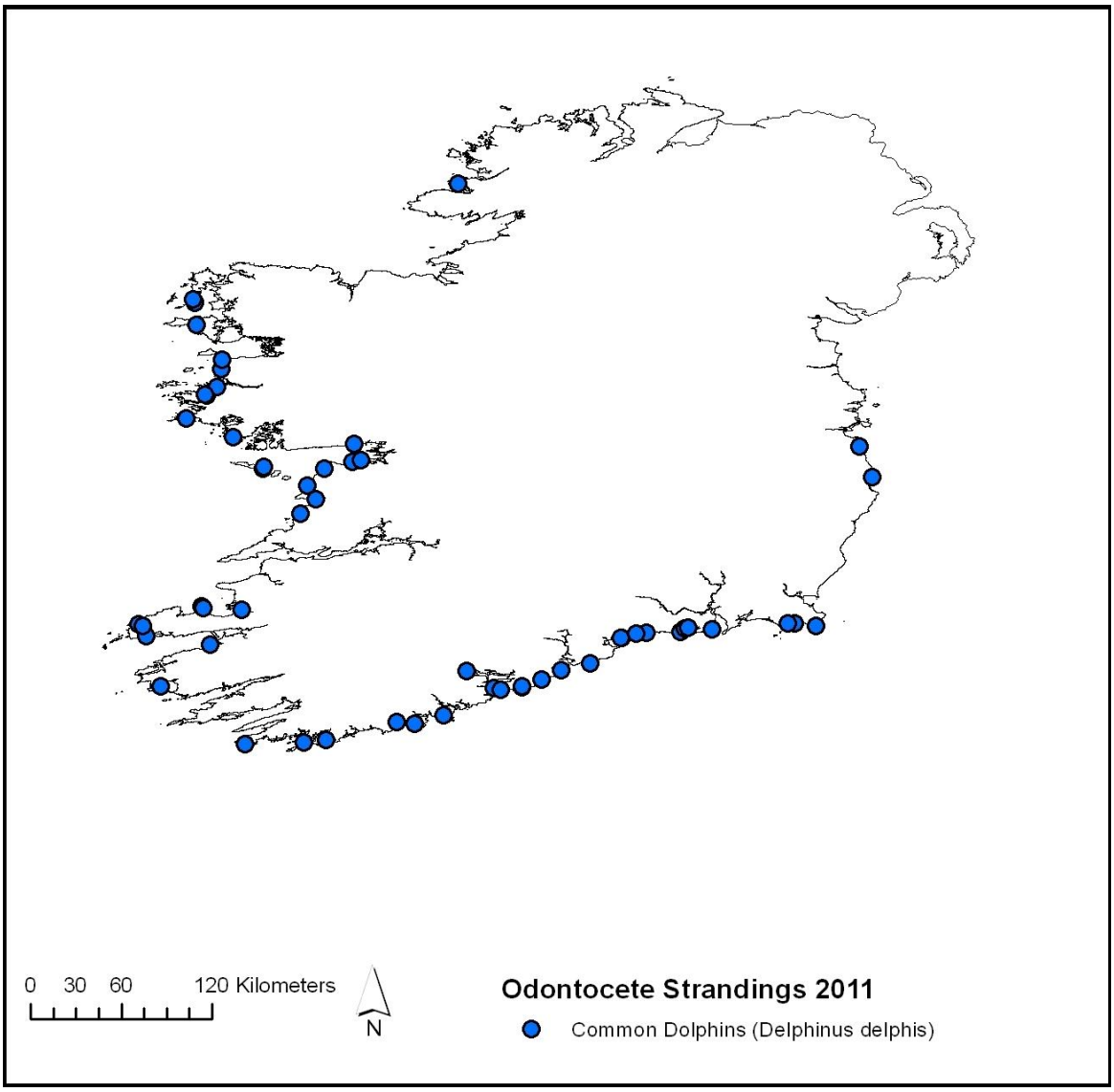
Appendix III: Examples of external damage or lesions recorded under the Cetacean Strandings Scheme in 2011.

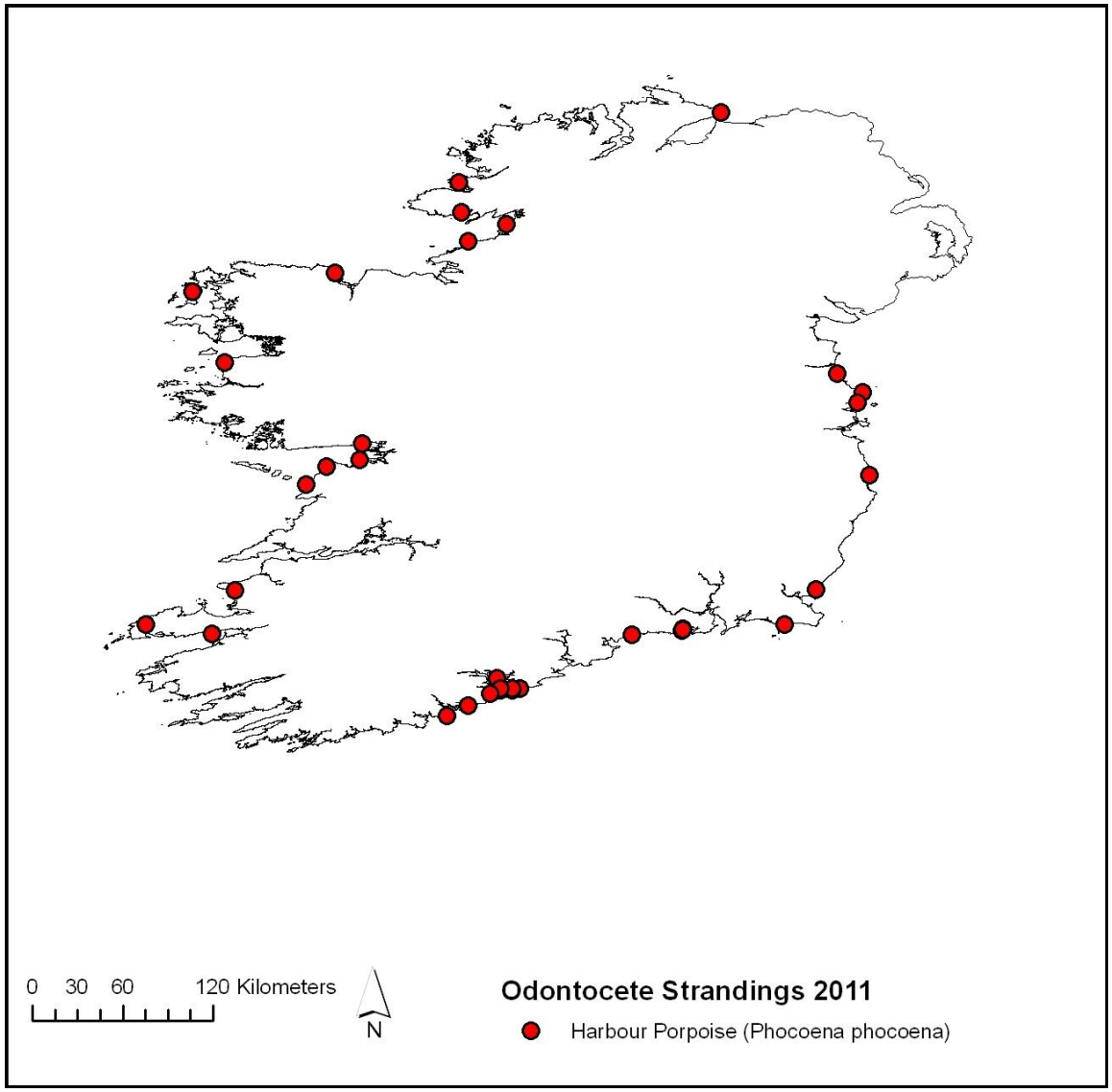
Ref: 2011_018: Common dolphin with broken upper jaw, Tramore, Co. Waterford, 15th February 2011. Credit: Clare Scott © DAHG

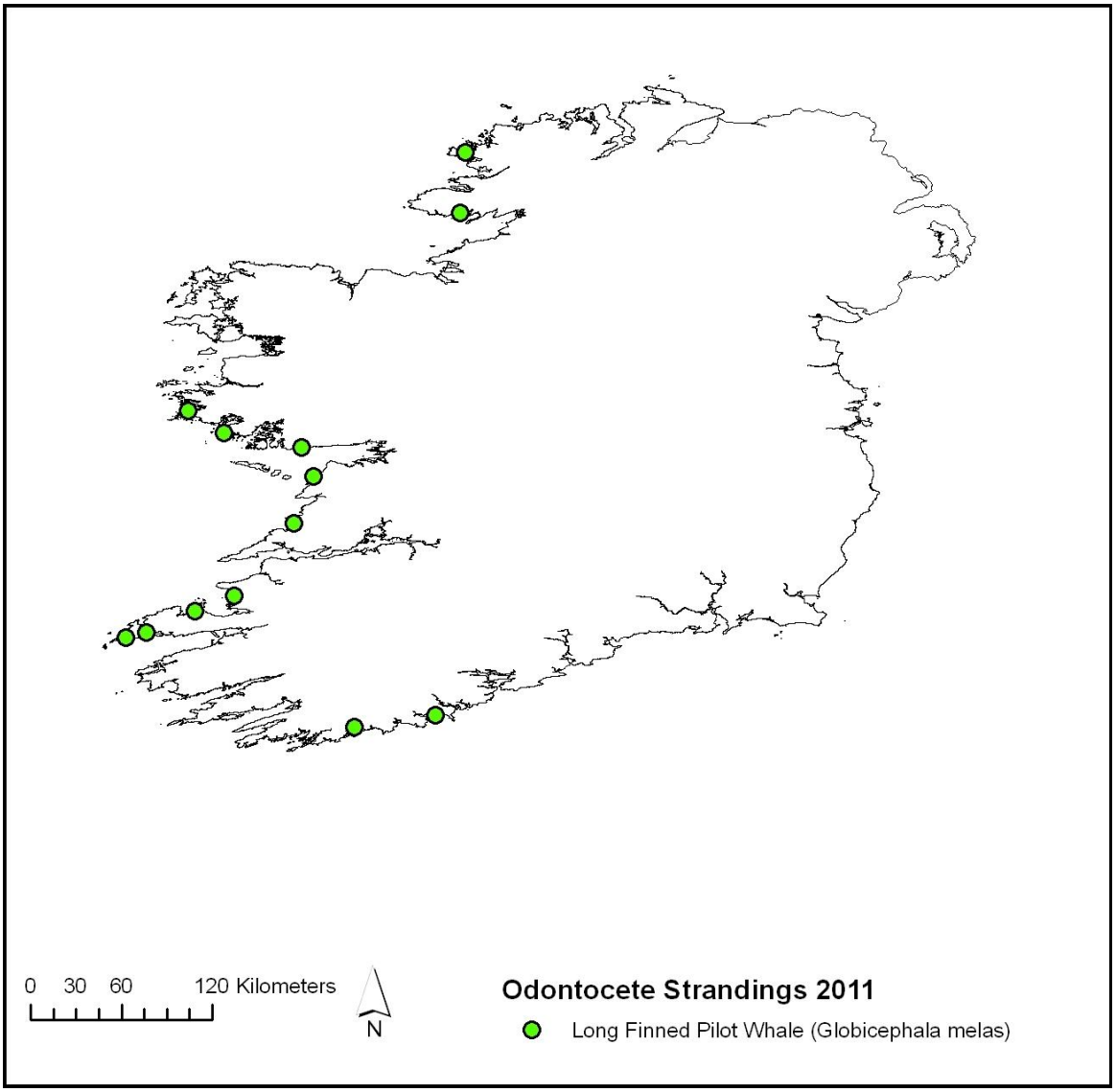
Ref: 2011_138: Sperm whale with broken lower jaw, Omey Island, Co. Galway, 28th December 2011. Credit: Dermot Breen © DAHG

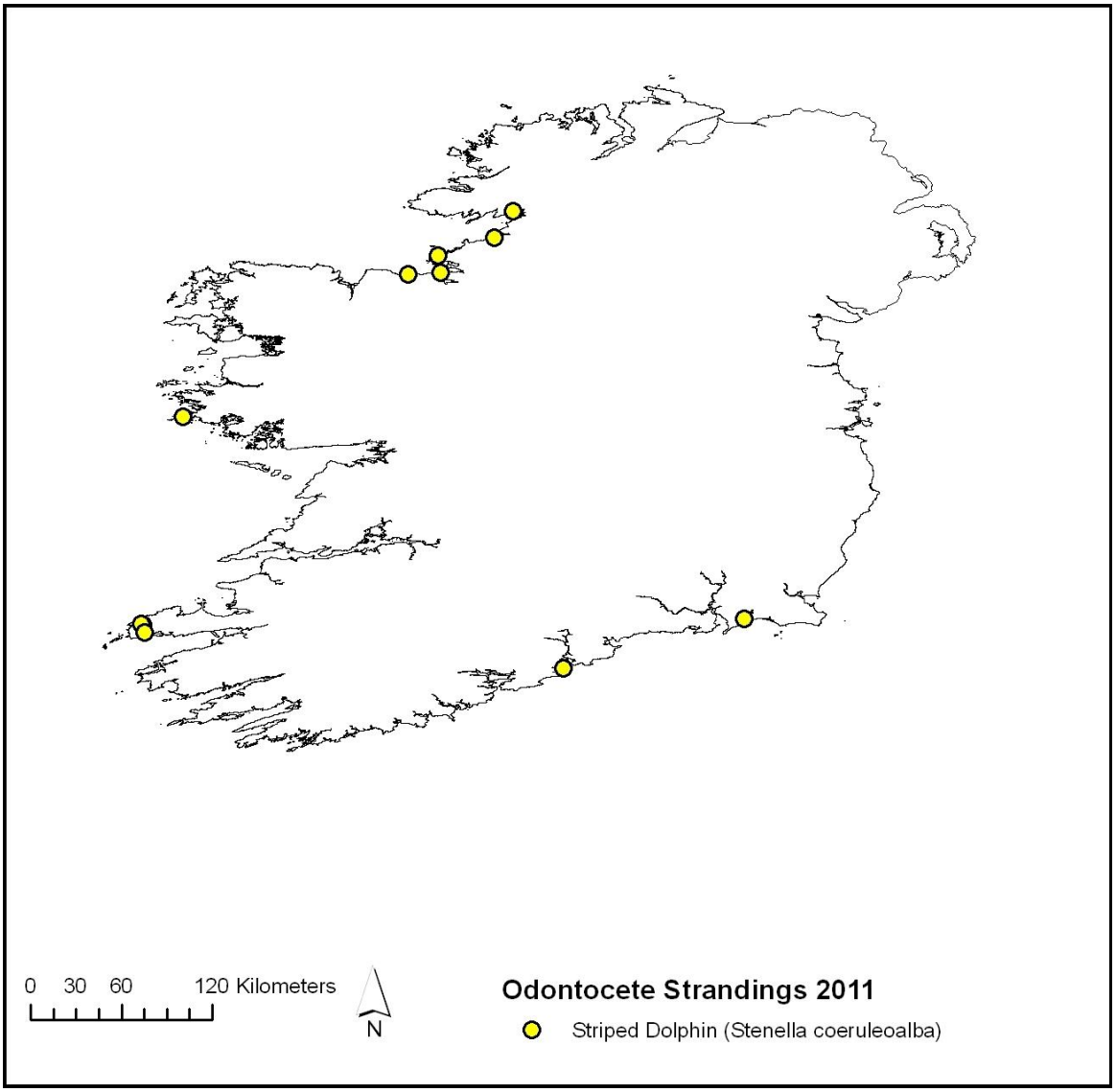
Ref: 2011_143: Common dolphin with tail stock cut away, Newcastle, Co. Wicklow, 19th November 2011. Credit: Sarah Varian © DAHG

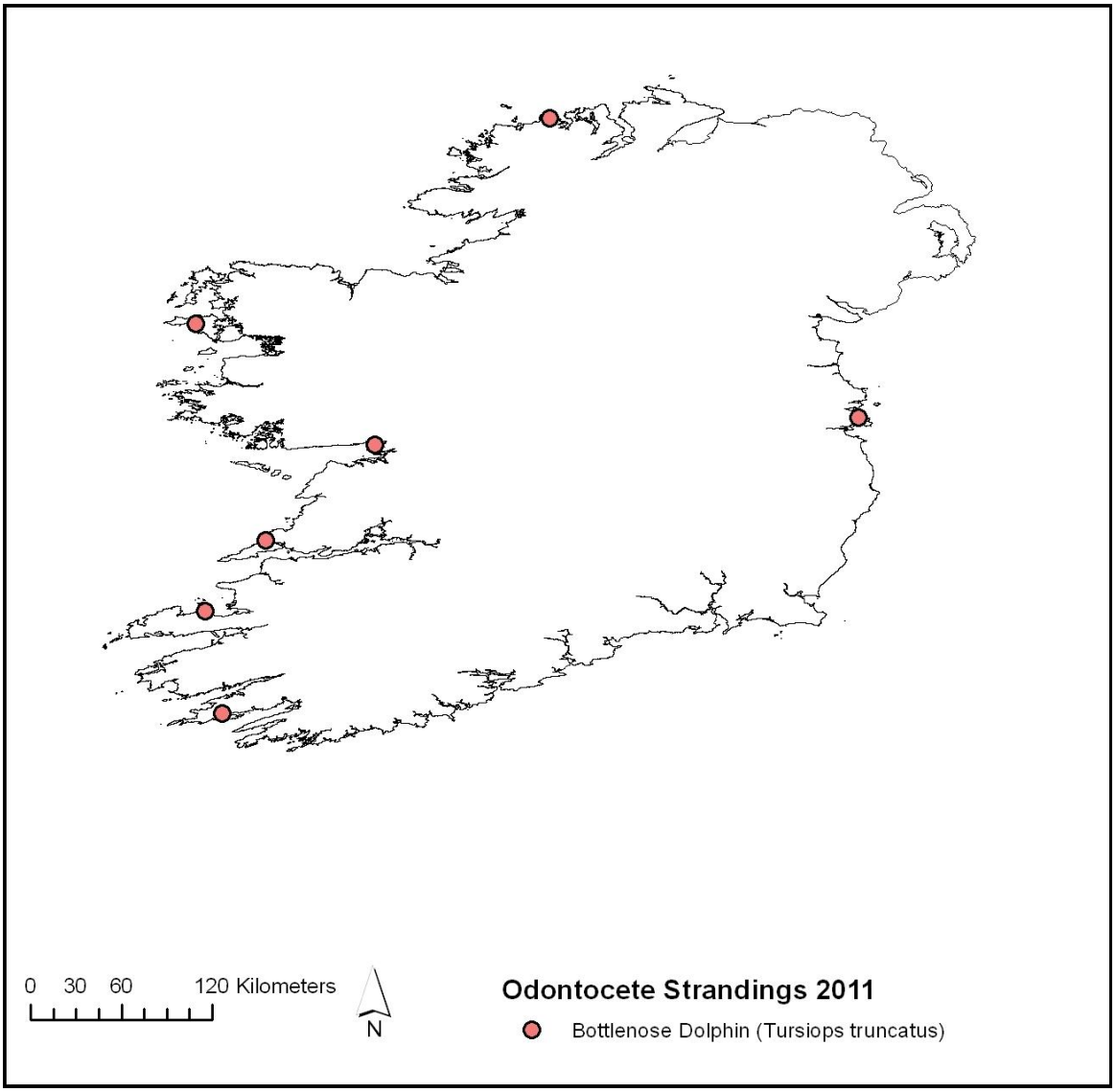
Appendix IV: Maps of strandings recorded under the Cetacean Strandings Scheme in 2011.

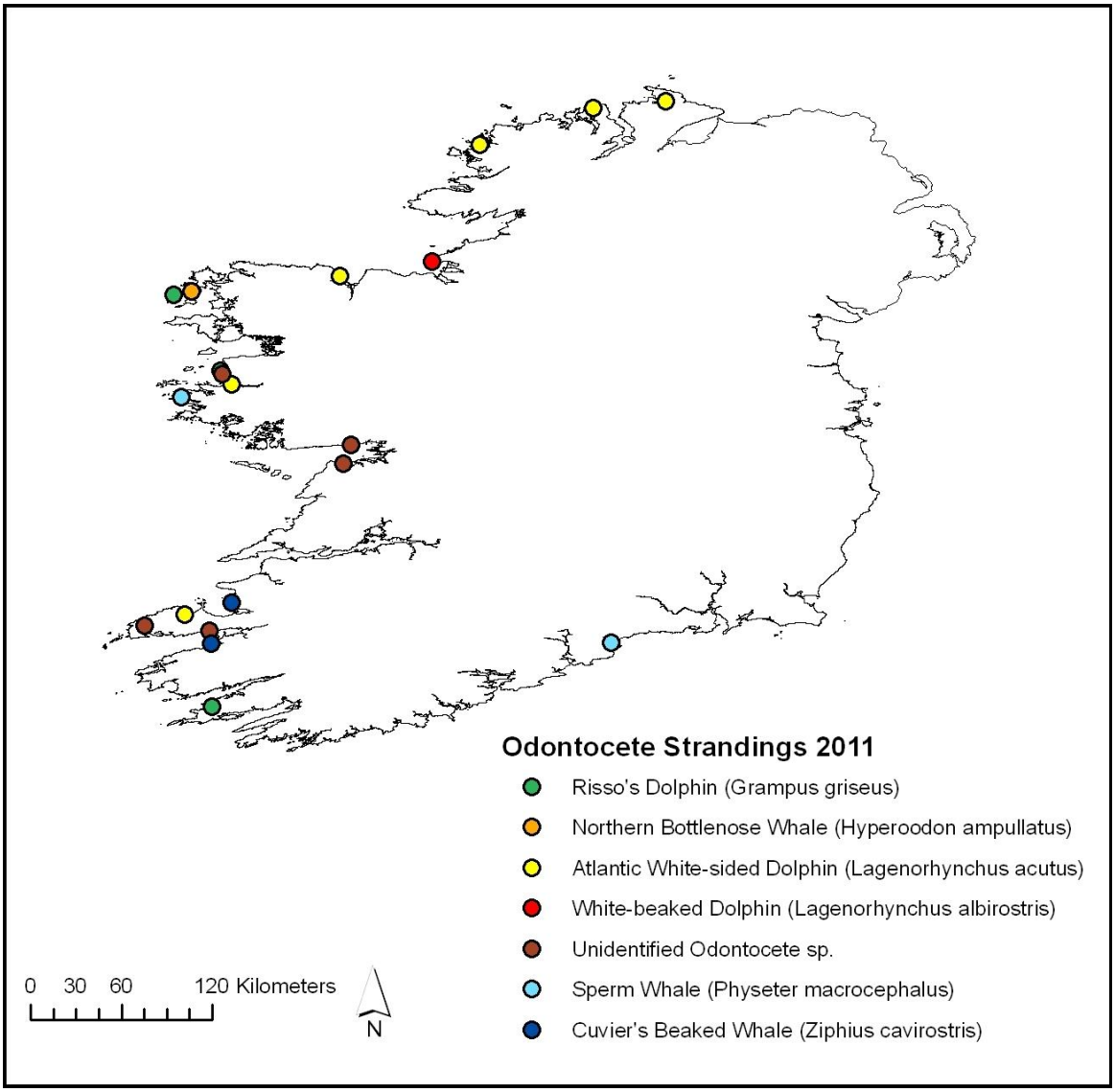


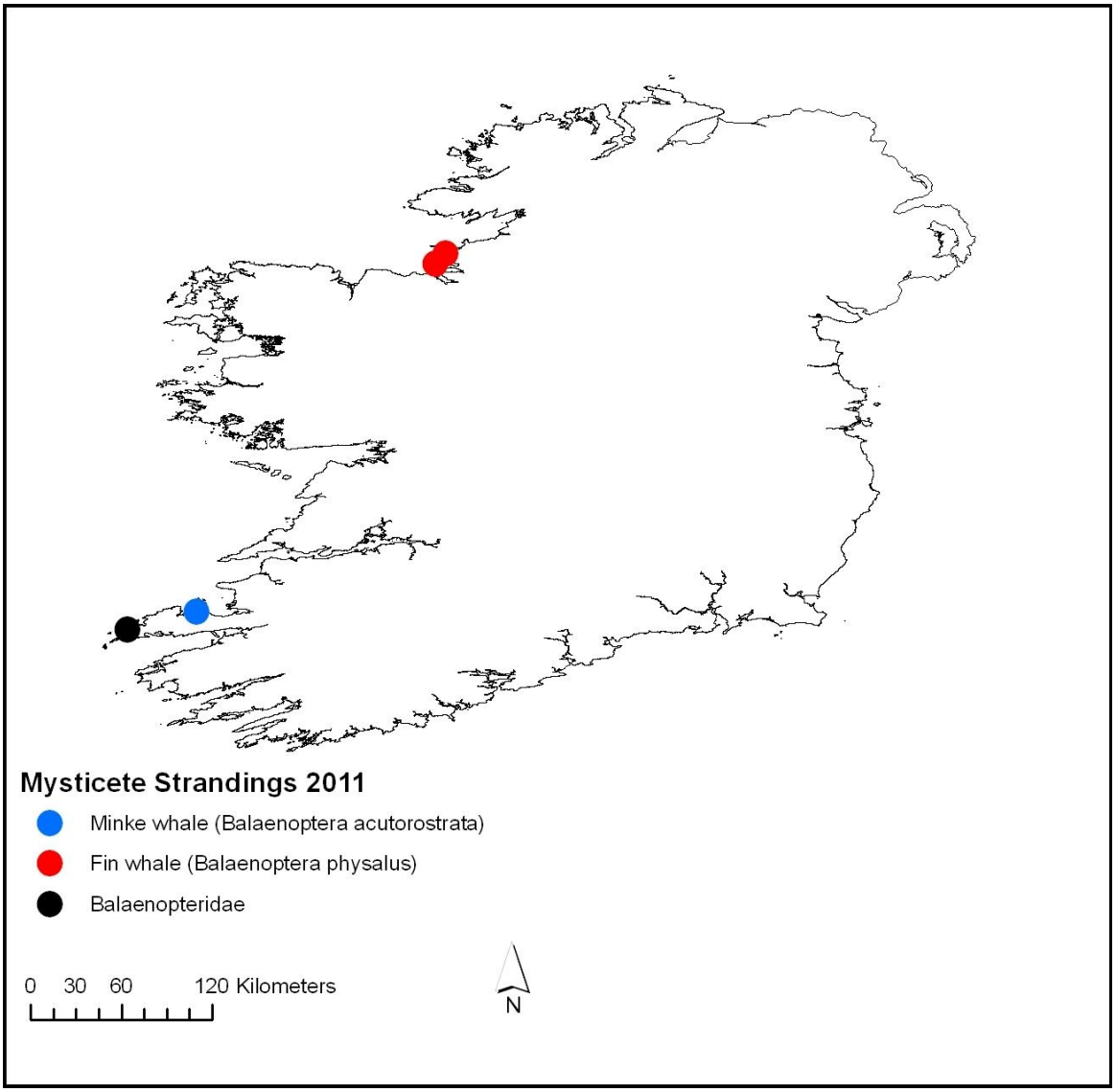

0 30 60 120 Kilometers
N
Odontocete Strandings 2011
Harbour Porpoise (Phocoena phocoena)


0 30 60 120 Kilometers
N
Odontocete Strandings 2011
Long Finned Pilot Whale (Globicephala melas)


0 30 60 120 Kilometers
N
Odontocete Strandings 2011
Striped Dolphin (Stenella coeruleoalba)


0 30 60 120 Kilometers
N
Odontocete Strandings 2011
Bottlenose Dolphin (Tursiops truncatus)


Odontocete Strandings 2011
Risso's Dolphin (Grampus griseus)
Northern Bottlenose Whale (Hyperoodon ampullatus)
Atlantic White-sided Dolphin (Lagenorhynchus acutus)
White-beaked Dolphin (Lagenorhynchus albirostris)
Unidentified Odontocete sp.
Sperm Whale (Physeter macrocephalus)
Cuvier's Beaked Whale (Ziphius cavirostris)
0 30 60 120 Kilometers
N


Mysticete Strandings 2011
Minke whale (Balaenoptera acutorostrata)
Fin whale (Balaenoptera physalus)
Balaenopteridae
0 30 60 120 Kilometers
N