

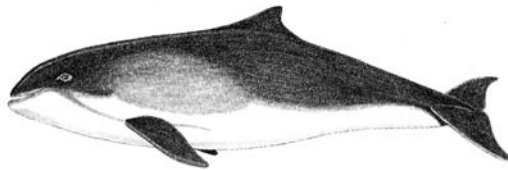


Marine Environmental Monitoring

www.strandings.com

Marine Mammal & Marine Turtle Strandings (Welsh Coast) Annual Report 2002

R.S.Penrose. January 2003



**Marine
Environmental
Monitoring**



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1. INTRODUCTION

In 1990, the 'Collaborative UK Marine Mammal Strandings Project' was initiated and part-funded by the UK Department of the Environment (now DEFRA). The project involves detailed pathological and other investigations of stranded marine mammal carcasses (mostly cetacean) from UK waters. It forms part of the Department's international obligations towards conservation agreements, including the 'Agreement on the conservation of Small Cetaceans of the Baltic and North Seas' (ASCOBANS). The UK DEFRA contract is held by the Natural History Museum (NHM), with research being co-ordinated in England and Wales by the Institute of Zoology (IOZ) now known as the Zoological Society of London (ZSL) and the Scottish Agricultural College (SAC) in Scotland. A number of other organisations are involved with the collaboration which include Marine Environmental Monitoring (MEM), the Centre for Environmental Fisheries and Aquaculture Science (CEFAS), the University College Cork and the Department of Agriculture for Northern Ireland. *Post-mortem* examinations of Welsh strandings are carried out by the Department of Veterinary Pathology, University of Liverpool and the Zoological Society of London. In addition to pathological and related investigations, a range of frozen and fixed material, collected *post-mortem*, are currently archived at the Zoological Society.

As from 2001, marine turtles have been included within the project and dead carcasses have been routinely collected wherever possible for *post-mortem* examination.

Records of live and dead marine mammal strandings together with sightings and strandings of live and dead marine turtles are kept by the Welsh Strandings Co-ordinator. Cetacean records are passed to Richard Sabin for correlation at the NHM. Since 1913, cetacean records have been, and continue to be kept, by the NHM, in co-operation with the Receiver of Wrecks and HM Coastguard.

Funding towards this project in Wales has been provided by the Welsh Assembly through the Countryside Council for Wales (CCW) and DEFRA through the Zoological Society of London. Support of certain items of equipment has been provided by the Environment Agency.

2. MATERIALS AND METHODS

A 24 hour Strandings Answerphone (**01348 875000**), is interrogated at regular intervals. A message requests callers to leave details of the stranding and location, along with their name and contact phone number, so they can be reached if confirmation of details are required. (If the stranding is a live stranding then a message on a answerphone informs the caller to contact the RSPCA immediately. see 2.1)

A network of volunteers, rangers, wardens, coastal officers, harbour masters etc. has been formed who can be contacted by the Strandings Co-ordinator to confirm the stranding, assess its condition and secure the animal from the effects of the tide, predation etc. until it can be dealt with.

The following criteria are applied: -

2.1 Live

(Condition code 1)¹

In 1994 the Marine Animal Rescue Coalition (MARC) was formed. This consists of all the major animal welfare and conservation bodies involved with marine mammals in the UK. It has been agreed that in the case of a live stranding the first point of call would be the RSPCA as they support a manned 24-hour emergency phone. The RSPCA would then contact the relevant organisations, Marine Environmental Monitoring etc.

2.2 Dead

(Condition code 2a extremely fresh as if just died)¹

(Condition code 2b slight decomposition)¹

The animal is retrieved using a 4-wheel drive vehicle and trailer. Health and safety precautions are followed with the animal only being handled with gloved hands. It is then taken immediately for *post-mortem* examination.

(Condition code 3 moderate decomposition)¹

The animal is retrieved using a 4-wheel drive vehicle and trailer. Health and safety precautions are followed with the animal only being handled with gloved hands. Preferably it is taken immediately for *post-mortem* examination. Storage at +4⁰ Celsius is permissible for a maximum of 1 week.

(Condition code 4 advanced decomposition)¹

(Condition code 5 mummified carcass)¹

Species identified, basic measurements and 6 teeth taken from the lower jaw if possible. Health and safety precautions being observed. Local council then contacted for safe disposal of remains.

All live and dead stranded cetaceans are reported to the NHM and are allocated a “SW” number. All dead seals are reported to the ZSL and are allocated an “SS” number. Dead marine turtles are reported to MEM and allocated a “T” number. Records of all strandings in Wales are kept by the Strandings Co-ordinator and passed on to the NHM and ZSL on a regular basis. Copies of *post-mortem* examination reports are sent from the Strandings Co-ordinator to the finder and others associated with the relevant stranding.

¹ Body condition based on the Institute of Zoology condition code.

3. RESULTS

3.1 Marine Mammals

Table 1.

2002 Total number of reported marine mammal strandings (Welsh Coast).													
Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Bottlenose dolphin	0	0	0	0	0	0	1	0	0	0	0	0	1
Common dolphin	2	0	1	0	0	0	0	1	0	1	0	1	6
Common/Striped dolphin	0	1	0	0	0	0	1	3	0	0	0	0	5
Harbour porpoise	4	5	1	4	5	39	24	13	6	11	4	3	119
Long-finned pilot whale	0	0	0	0	1	2	0	0	0	0	0	0	3
Minke whale	1	0	0	0	0	0	0	0	0	0	0	0	1
Risso's dolphin	0	0	0	0	0	0	0	0	0	1	0	0	1
Striped dolphin	0	0	0	0	0	0	0	0	0	0	0	0	0
White-sided dolphin	0	0	0	0	0	0	0	0	1	0	0	0	1
Cetacean sp. Ident.	0	0	2	0	1	0	1	0	2	0	0	0	6
Total cetaceans	7	6	4	4	7	41	27	17	9	13	4	4	143
Grey seal	1	4	1	1	2	8	3	32	41	38	37	6	174
Total animals	8	10	5	5	9	49	30	49	50	51	41	10	317

Table 2.

2002 Number of live cetacean strandings (Welsh Coast).													
Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Harbour porpoise	0	0	0	0	0	2	0	1	0	0	0	1	4
Total animals	0	0	0	0	0	2	0	1	0	0	0	1	4

Of the 143 cetacean strandings 2.8% live stranded (4 animals). Under *post-mortem* examination a larger number were determined as having live stranded.

Table 3.

2002 Number of animals suitable for <i>post-mortem</i> examination.													
Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Common dolphin	0	0	0	0	0	0	0	0	0	0	0	1	1
Harbour porpoise	2	2	0	4	2	12	4	4	4	1	1	1	37
White-sided dolphin	0	0	0	0	0	0	0	0	1	0	0	0	1
Total cetaceans	2	2	0	4	2	12	4	4	5	1	1	2	39
Grey seal	0	0	0	0	0	0	0	0	1	11	5	1	18
Total animals	2	2	0	4	2	12	4	4	6	12	6	3	57

Of the 143 cetacean strandings, 27.2% (39 animals) were suitable for *post-mortem* examination.

Table 4.

2002 Number of Animals decomposed / disposed of. (Welsh Coast).													
Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Bottlenose dolphin	0	0	0	0	0	0	1	0	0	0	0	0	1
Common dolphin	1	0	1	0	0	0	0	1	0	1	0	0	4
Common/Striped dolphin	0	1	0	0	0	0	1	3	0	0	0	0	5
Harbour porpoise	2	3	0	0	2	19	13	8	1	9	2	2	61
Long-finned pilot whale	0	0	0	0	1	1	0	0	0	0	0	0	2
Minke whale	1	0	0	0	0	0	0	0	0	0	0	0	1
Risso's dolphin	0	0	0	0	0	0	0	0	0	1	0	0	1
Cetacean sp. Inet.	0	0	2	0	0	0	0	0	1	0	0	0	3
Total cetaceans	4	4	3	0	3	20	15	12	2	11	2	2	78
Grey seal	1	4	1	1	2	8	2	12	10	14	25	5	85
Total animals	5	8	4	1	5	28	17	24	12	25	27	7	163

Of the 317 strandings, 51.4% (163 animals) were decomposed and the relevant local council contacted for safe disposal of remains.

The remaining 30.5% (97 animals) were confirmed reports but were found alive and returned to the sea, or were unable to be retrieved or disposed of due to various reasons. i.e. no access to stranding, washed away or retrospective report.

In addition, following the outbreak of Phocine Distemper Virus (PDV) in seals in the UK, funds were made available from the Welsh Assembly and DEFRA to enable seals from the Welsh coast to be routinely taken for *post-mortem* examination from August onwards in line with the rest of the UK.

Full details on results and findings of the PDV epizootic in Wales will be produced later in 2003 in a separate report funded by the Countryside Council for Wales.

Numbers of harbour porpoise strandings increased again in 2002 as indicated by the reported strandings shown in **Figure 1**.

It is not clear if the increase in reported porpoise strandings each year is as a result of increasing awareness by the general public of the Strandings Project. Certainly, porpoises killed by bottlenose dolphins would appear to be an increasing factor in the last few years (Figure 4) page 10.

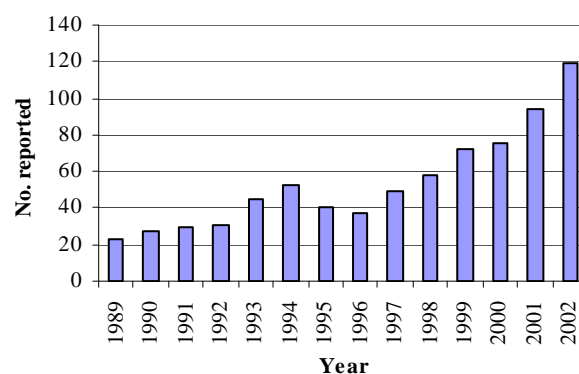


Figure 1. Reported harbour porpoise strandings from the Welsh coast.

There was a significant increase in harbour porpoise strandings during June and July compared with previous years as shown in **Figure 2**.

June, July and August are the months when porpoise calve on the Welsh coast but this increase does not appear to be purely as a result of increased neonate mortality as the relationship between neonates and porpoises of other age classes appears to remain the same when compared to previous years **Figure 3**.

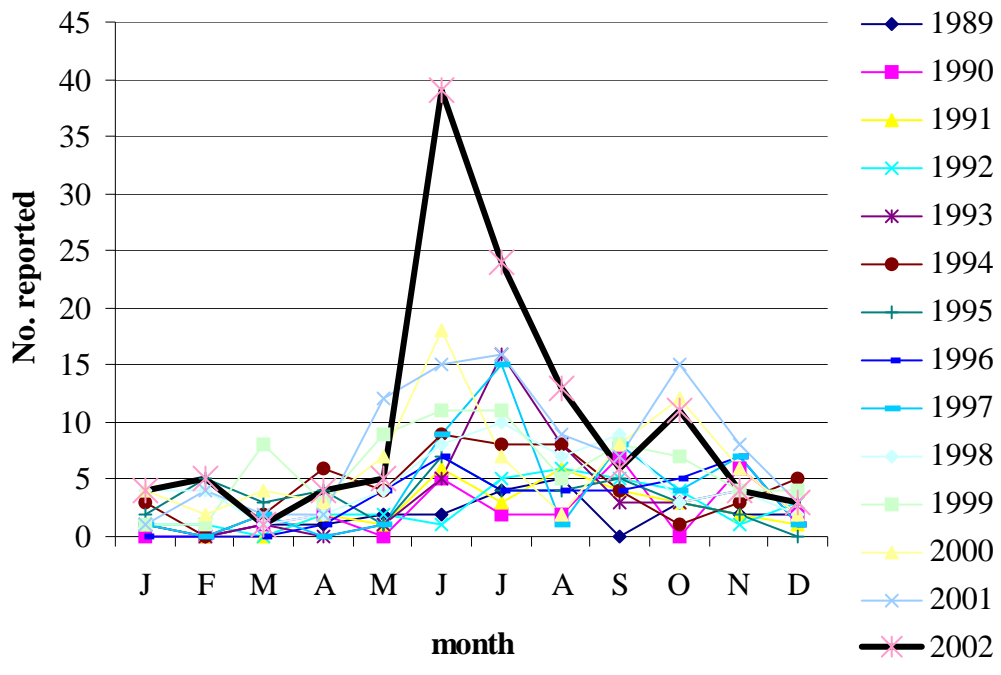


Figure 2. Reported harbour porpoise strandings by month.

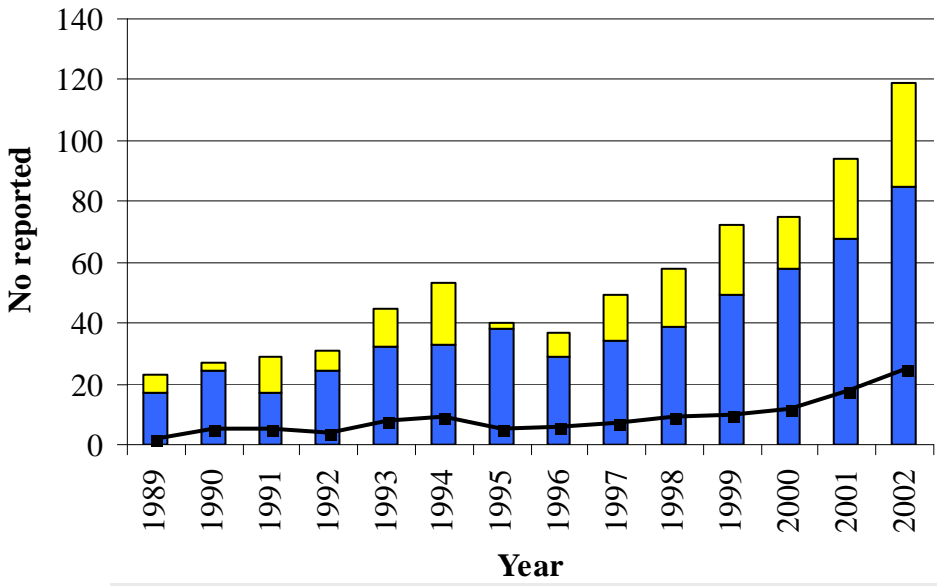


Figure 3. Relationship of neonate porpoises to other age classes.
 Black line = recorded neonate porpoises.
 Blue = Porpoises with recorded overall length data.
 Yellow = Porpoises with no recorded overall length data.

(Neonate harbour porpoise (*P. phocoena*) classified as body length ≤ 90 cm.
 Calf classified as 91-110cm).

No obvious reason for this sudden increase in mortality can be offered except the weather during June was particularly bad. Of the 76 harbour porpoises reported stranded in June, July and August 26.3% (20 carcasses) were reported in suitable condition for *post-mortem* examination, the causes of death for these animals are given in **Table 5**.

Table 5.

SW Number	Sex	Length	Condition	Date	County	Locality	Cause of Death
SW 2002/198	M	1.34	moderate decomposition	01-Jun-02	Ceredigion	Borth	Bnd kill
SW 2002/203	F	1.54	slight decomposition	09-Jun-02	Ceredigion	Borth	Not determined
SW 2002/204	F	1.5	fresh	10-Jun-02	Gwynedd	Aberdovey	Bnd kill
SW 2002/211	F	0.77	slight/moderate decomposition	15-Jun-02	Gwynedd	Aberdovey	Bnd kill
SW 2002/214	F	1.33	fresh	18-Jun-02	Gwynedd	Tal-Y-Bont	Bnd kill
SW 2002/218	F	1.69	slight/moderate decomposition	19-Jun-02	Gwynedd	Tal-Y-Bont	Generalised <i>Shewanella putrifaciens</i> infection.
SW 2002/225	M	0.79	live	22-Jun-02	Gwynedd	Tywyn	Euthanased
SW 2002/228	M	0.77	slight decomposition	23-Jun-02	Gwynedd	Tywyn	Live stranding
SW 2002/229	M	1.24	slight/moderate decomposition	23-Jun-02	Ceredigion	Ynyslas	Massive sero-fibrinous pleuraleffusion.
SW 2002/230	M	1.10	slight/moderate decomposition	23-Jun-02	Gwynedd	Tywyn	Bnd kill
SW 2002/232	M	1.45	moderate decomposition	24-Jun-02	Gwynedd	Fairbourne	Decompression sickness?
SW 2002/241	F	0.70	fresh	28-Jun-02	Ceredigion	Tan y bwlch	Starvation/hypothermia
SW 2002/251	F	0.84	fresh	09-Jul-02	Gwynedd	Hell's Mouth	Bycatch
SW 2002/254	M	1.31	moderate decomposition	11-Jul-02	Gwynedd	Tywyn	Not determined
SW 2002/273	M	1.22	slight decomposition	21-Jul-02	Ceredigion	Gilfach-yr-Halen	Bnd kill
SW 2002/279	M	1.20+	slight/moderate decomposition	26-Jul-02	Ceredigion	Aberystwyth	Not determined
SW 2002/285	M	0.77	slight/moderate decomposition	05-Aug-02	Ceredigion	Aberaeron	Starvation
SW 2002/290	F	0.81	slight decomposition	12-Aug-02	Ceredigion	Aberystwyth	Starvation/hypothermia
SW 2002/294	M	0.94	moderate decomposition	15-Aug-02	Anglesey	Trearddur Bay	Bycatch ?
SW 2002/297	M	0.89	live	20-Aug-02	Ceredigion	Borth	Live stranding

The most common cause of death given over this period for the porpoises in Table 5 is “Physical trauma (bottlenose dolphin attacks)” (6 animals), followed by “Starvation” (4 animals, all of which were neonate porpoises, starvation possibly caused by maternal separation) “Live stranding” (2 animals) both neonate porpoises and “Bycatch” (2 animals, 1 neonate and 1 calf). It is possible that both the ‘Starvation’ neonates and the ‘Live stranding’ neonates may be as an indirect result of the bottlenose dolphin attacks.

3.2 Bottlenose Dolphin Attacks.

As stated above, harbour porpoise (*Phocoena phocoena*) were continued to be found through 2002 that had died of injuries consistent with attack by one or more bottlenose dolphin (Jepson & Baker 1998).

Not all harbour porpoise killed by bottlenose dolphin exhibit rake marks or other external indications. Full examination at *post-mortem* is the only way to positively identify this cause of death. The unique combination of injuries diagnostic of bottlenose dolphin kills, enabled an additional porpoise, killed in 1991, to be identified following a search through archived *post-mortem* examination reports.

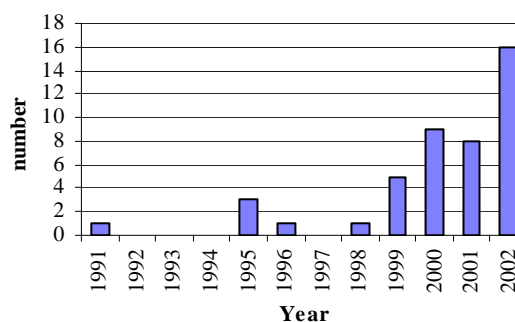


Figure 4. Porpoises killed by bottlenose dolphins from the Welsh coast.

Numbers of harbour porpoise carcasses reported to the project identified as being “killed by bottlenose dolphins” increased to twice that previously recorded for 2001. The stranding locations for these animals are plotted in **Figure 5**.

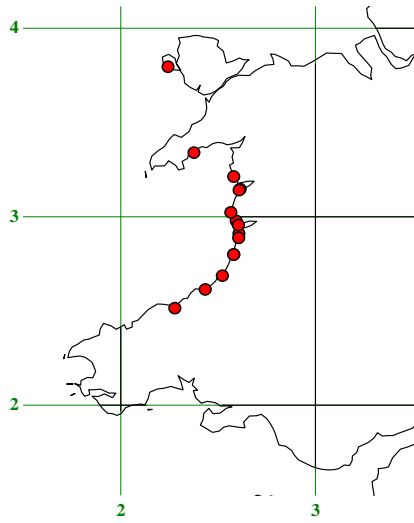


Figure 5. Stranding locations of the 16 porpoises killed by bottlenose dolphins in 2002.

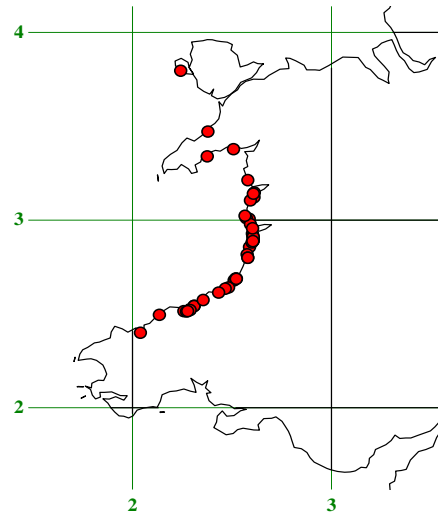


Figure 6. All 44 porpoises determined as having been killed by bottlenose dolphin from 1995-2002 are plotted here.

The plots of all harbour porpoises identified as being “killed by bottlenose dolphin” to date have been plotted in **Figure 6**.

All the carcasses were found in Cardigan Bay except for two animals, one was found at Trefor beach, Gwynedd the other at Porth y Post, Anglesey. Both carcasses were in a ‘fresh’ or ‘slight decomposition’ condition which would indicate they had not drifted far from where they were killed.



Plate 1. SW2002/346 from Fairbourne Gwynedd 29th Oct. Showing multiple tears and haemorrhagic cavities in the white blubber layer caused by being rammed by bottlenose dolphin.

Following a neonate porpoise found exhibiting all the indications of being killed by bottlenose dolphins in 2002 all age classes now appear to be susceptible to this phenomena.

Pregnant porpoises have also been targeted as shown in **Plate 2**. There is no reason not to suppose that ultrasound used by dolphins in their echolocation to detect their prey and surroundings should also be able to scan other cetaceans. Varying rates of intensity of ultrasound, similar to the ultrasound technique used on humans to investigate the health status of babies in

the womb, should easily give dolphins the ability to clearly determine differences in males and females and also detect pregnant animals. Indeed pregnant porpoises may even be targeted by bottlenose dolphins but present information would indicate that competition for food might be the reason for this species conflict.

Although the current sample size of 'Bottlenose dolphin killed porpoises' for Wales is small $n=44$ a trend towards males may be developing males=28, females=16.

3.3 Unusual Occurrences.

Whilst investigating a report of a common dolphin stranding at Freshwater West, Pembrokeshire in January, a mass of stranded monofilament fishing gear on the same beach was opportunistically investigated.

A headless juvenile seal together with a skull from an adult seal and common dolphin were found entangled in the mass.

Plate 3. Seal and common dolphin skull found entangled in netting.



Plate 2. A 120mm male foetus found in SW2002/346. This is the third pregnant porpoise found to have been killed by bottlenose dolphins in Cardigan Bay.



A female minke whale (*Balaenoptera acutorostrata*) SW2002/72 was reported in January on Black Rock Sands. The 8.8 metre carcass was in a state of advanced decomposition but exhibited signs that it had previously been stranded/sampled elsewhere. Areas of skin and blubber had been removed from the left flank and a copper wire **Plate 5**, which had presumably secured a label at some point, remained tied around one of the mandibles. No previous reports of a stranded minke whale existed for the UK although a report had been recorded by the Natural History Museum of a dead whale floating in the sea off Land's End. Enquiries were made on various cetacean/marine mammal listservers and directly to Ireland but no information on its previous stranding could be found. The carcass was safely disposed of thus preventing it from re-stranding by Gwynedd County Council.



Plate 4. Remains of the Minke whale SW2002/72 on Black Rock Sands, Gwynedd.

At very nearly the same location on Black Rock Sands in February a harbour porpoise (*Phocoena phocoena*) SW2002/98a was reported to the project. **Plate 6**. The report had somewhat been delayed for several days due to the insistence and involvement of bird-watchers. An Ivory gull (*Pagophila eburnean*) had been sighted feeding on the carcass of SW2002/98a which had in turn attracted a large number of 'Twitchers'. The porpoise carcass was not investigated due to the time it had spent on the beach together with the associated scavenger damage.



Plate 5. Copper wire around the left mandible presumably had secured a label.

On the 12th June a dead grey seal (*Halichoerus grypus*) **SS2002/22** was reported at Llangennith beach on the Gower, Swansea. The animal was tagged with a red plastic tag in its right rear flipper and displayed the number '61110' with 'Inform London Zoo' on the reverse. This information was passed on to the RSPCA who held details.

Tag return details.

The animal was picked up from Ceibwr Bay, Pembrokeshire SN109458 by the RSPCA on the 30th September 2000 and taken to Eastwinch. It was released back into the wild near St Davids, Pembrokeshire on the 27th March 2001.



Plate 6. Ivory gull feeding on harbour porpoise SW2002/98a.

photo courtesy of: Maritime Service - Gwynedd Council.

On the 20th July a harbour porpoise (*Phocoena phocoena*) **SW2002/270** was reported by Swansea Coastguard on Rhossili beach, Gower.

In the short time it took the auxiliary coastguard to return to the carcass the porpoise had its ventral surface repeatedly slashed and the word 'TENSE' carved into the left flank.

Plate 7.

The National Trust head warden at Rhossili, Sian Musgrave, was contacted in an attempt to ascertain if the carcass was still suitable for a *post-mortem* examination, by the time she arrived at the scene somebody had tried and almost succeeded in removing the tail.

I am surprised at this activity considering how many people were present on this busy beach.



Plate 7. Harbour porpoise SW2002/270 on Rhossili beach, Gower with 'TENSE' carved into the carcass.

On the 26th July a harbour porpoise (*Phocoena phocoena*) SW2002/279 was reported at North beach, Aberystwyth. The animal exhibited indentations in the skin around the head consistent with those caused by monofilament netting. The tail had also been cleanly removed presumably to facilitate removal from fishing gear. **Plate 8.**

The animal was delivered to Dr John Baker at Liverpool University for *post-mortem* examination, the cause of death could not be established but the tail was found to have been removed *post-mortem*.

Presumably the animal had died and drifted into fishing gear after death.



Plate 8. Harbour porpoise SW2002/279 stranded at Aberystwyth with tail cut off.

SW2002.279b was a 1.05 metre neonate bottlenose dolphin (*Tursiops truncatus*) in a state of advanced decomposition. The animal had stranded at Lanon in Ceredigion on the 28th July.

This represents the sole bottlenose dolphin reported stranded through 2002. In the previous year five adult bottlenose dolphins were reported and investigated. Skin and muscle was taken and archived at -20C the carcass was then tagged and the local authority contacted for disposal.



Plate 9. SW2002/279b Bottlenose dolphin neonate at Lanon, Ceredigion.

SW2002/322 was a 2.63 metre male atlantic white-sided dolphin (*Lagenorhynchus acutus*). The animal had stranded at Cei bach near New Quay, Ceredigion on the 25th September. The animal was delivered to Dr John Baker at Liverpool University where the cause of death was established as starvation due to a massive submucosal fibrosis of the cardiac stomach associated with parasitic infestation.

The tip of the lower jaw appeared to be broken and was bent sharply downwards however the *post-mortem* investigation revealed this to be a healed osteomyelitis.

Plate 11.



Plate 10. SW2002/322 Atlantic white-sided dolphin.



Plate 11. SW2002/322 Showing deformity of the lower jaw.

3.4 Live Strandings.

SW2002/205 was a neonate harbour porpoise (*Phocoena phocoena*) which live-stranded at New Quay, Ceredigion on the 10th June. The animal was floated back out to sea by Steve Hartley to where a adult harbour porpoise had been seen. No further info.

SW2002/225 was a 0.79 metre male neonate harbour porpoise (*Phocoena phocoena*) which was reported live-stranded at Tywyn, Gwynedd on the 22nd June by Milford Haven Coastguard. The animal was cared for by Sal Shipley until Paul Edwards Gwynedd Maritime Services, RSPCA, local vet Glyn Jenkins and the Strandings Co-ordinator were able to attend. A watch had been maintained by Dave Kendall for evidence of an adult porpoise in the surf but no animal had been sighted. A decision to euthanise the animal was made. The carcass was delivered for *post-mortem* examination. Cause of death: Live Stranding.

SW2002/297 was a 0.89 metre male neonate harbour porpoise (*Phocoena phocoena*) which was reported live-stranded at Borth, Ceredigion on the 20th August by Milford Haven Coastguard. The animal was cared for by members of the Borth Inshore Lifeboat crew but unfortunately the neonate died before either Insp. Phil Lewis RSPCA or the Strandings Co-ordinator arrived. The carcass was delivered for *post-mortem* examination. Cause of death: Live Stranding.

SW2002/374a was a 1.43 metre male harbour porpoise (*Phocoena phocoena*) which was reported live-stranded at Pwllheli, Gwynedd on the 16th December by the RSPCA. The animal died and was retrieved with the help of Ken Fitzpatrick Gwynedd Maritime Services. The carcass was delivered for *post-mortem* examination. Cause of death: Pulmonary parasitism (heavy).

4. OTHER MARINE ANIMALS REPORTED TO THE NETWORK.

4.1 Turtles.

Around the coast of Wales, only two marine turtles were reported to the network. These were live sightings, in Carmarthen Bay, of leatherback turtles (*Dermochelys coriacea*) T2002/52a and T2002/52b sighted together on the 21st September.

5. PHOCINE DISTEMPER VIRUS.

Phocine Distemper Virus (PDV) was detected in the UK seal population in August. A separate contract was issued by DEFRA to enable the disease to be monitored within the UK and this will be covered in a separate report, funded by the Countryside Council for Wales, later in the year.

6. SAMPLES.

The normal procedure for the taking of samples is from fresh animals that have been taken for *post-mortem* examination.

Samples of muscle have continued to be taken by the Strandings Co-ordinator from animals which would normally have been disposed of. These samples have been stored at -20° C for later radionuclide comparisons with samples taken in Ireland.

Since 1998 skin has also been collected from these cetacean carcasses and archived at -20° C for ZSL, hopefully for later DNA analysis.

7. FUNDING.

The Welsh Assembly/ Countryside Council for Wales contract continues until 31st March 2003.

DEFRA, through the Zoological Society, London, continue to cover transportation costs and the Environment Agency has also maintained support of a high-powered microscope.

A gantry has been purchased funded by the Environment Agency to enable the mechanical handling of carcasses at the Aberporth site. Unfortunately, access to the Aberporth site has still not been finalised.

8. PUBLICITY.

The Strandings Web-site has been maintained to provide details of both the ‘Collaborative UK & Celtic Strandings Projects’. Although this is intended primarily for Wales, key contact details are given for England, Scotland and Ireland. The pages can be viewed at www.strandings.com and I would be grateful for any comments on the Web site and any further links to other sites that may be of interest.

Morphometrics for turtles has been added to the site at www.strandings.com/biometrics.html Posters and leaflets produced to increase awareness of the project have continued to be distributed throughout the coast of Wales. Turtle Codes have also been distributed throughout the Welsh coast.

9. EQUIPMENT.

Following an electrical storm the Strandings telephone was found not to be working from the 20th – 27th May. The line was eventually correctly diverted to a mobile number during this period. A telephone and mains electricity surge protector has now been purchased and fitted to the telephone in an attempt to address this recurring problem.

Following a major upgrade to digital communication equipment, Swansea Coastguard very kindly enabled 2 redundant IR30's and a ICR64 recorder to be made available to the project. These communication recorders should prove invaluable assisting with deciphering and archiving telephone reports from the public.

Negotiations are still continuing with QinetiQ, formerly DERA, for temporary storage facilities at their Aberporth site.

Funds for a refrigerated vehicle are still being sought.

10. TRAVEL.

In excess of 20,196 miles were covered on the project in retrieval and transportation of animals in 2002.

The European Cetacean Society Conference in Liege, Belgium on the 7th – 11th April 2002 was attended and a poster was presented on “The use of Welsh coastal habitat as calving and nursery grounds for the Harbour porpoise (*Phocoena phocoena*)” Appendix 2.

11. ADMINISTRATION.

In excess of 105 copies of *post-mortem* examination reports were posted out to finders and associated interested parties concerning each relevant stranding.

12. LIST OF SCIENTIFIC NAMES USED IN THIS REPORT.

Table 6.

Common name	Scientific name
Atlantic White-sided dolphin	<i>Lagenorhynchus acutus</i>
Bottle-nose dolphin	<i>Tursiops truncatus</i>
Common dolphin	<i>Delphinus delphis</i>
Grey seal	<i>Halichoerus grypus</i>
Harbour porpoise	<i>Phocoena phocoena</i>
Leatherback turtle	<i>Dermochelys coriacea</i>
Long-finned Pilot whale	<i>Globicephala melas</i>
Minke whale	<i>Balaenoptera acutorostrata</i>
Risso's dolphin	<i>Grampus griseus</i>
Striped dolphin	<i>Stenella coeruleoalba</i>

13. CAUSE OF DEATH.

The cause of death is given in **Table 7**, for the 39 cetaceans found in a suitable condition to undergo a full *post-mortem* examination at either Liverpool University or the Zoological Society of London (ZSL).

Table 7.

SW Number	Family/Genus	Species	County	Locality	Cause of Death
SW2002/003	Phocoena	phocoena	Swansea	Swansea	Bycatch
SW2002/004	Phocoena	phocoena	Dengighshire	Prestatyn	Generalised bacterial infection
SW2002/102	Phocoena	phocoena	Ceredigion	Borth	Parasitic and mycotic pneumonia
SW2002/104	Phocoena	phocoena	Ceredigion	Aberaeron	Starvation
SW2002/151	Phocoena	phocoena	Gwynedd	Pwllheli	Physical trauma (bottlenose dolphin attack)
SW2002/170	Phocoena	phocoena	Anglesey	Porth Y Post	Physical trauma (bottlenose dolphin attack)
SW2002/178	Phocoena	phocoena	Gwynedd	Fairbourne	Physical trauma (bottlenose dolphin attack)
SW2002/179	Phocoena	phocoena	Ceredigion	Aberystwyth	Physical trauma (bottlenose dolphin attack)
SW2002/192	Phocoena	phocoena	Carmarthenshire	Pendine	Starvation
SW2002/197	Phocoena	phocoena	Carmarthenshire	Pembrey	Starvation (neonate)
SW2002/198	Phocoena	phocoena	Ceredigion	Borth	Physical trauma (bottlenose dolphin attack)
SW2002/203	Phocoena	phocoena	Ceredigion	Borth	Not established
SW2002/204	Phocoena	phocoena	Gwynedd	Aberdovey	Physical trauma (bottlenose dolphin attack)
SW2002/211	Phocoena	phocoena	Gwynedd	Aberdovey	Physical trauma (possible bnd attack)
SW2002/214	Phocoena	phocoena	Gwynedd	Tal-Y-Bont	Physical trauma (bottlenose dolphin attack)
SW2002/218	Phocoena	phocoena	Gwynedd	Tal-Y-Bont	Not established
SW2002/225	Phocoena	phocoena	Gwynedd	Tywyn	Live Stranding
SW2002/228	Phocoena	phocoena	Gwynedd	Tywyn	Starvation (neonate)
SW2002/229	Phocoena	phocoena	Ceredigion	Ynyslas	Generalised bacterial infection
SW2002/230	Phocoena	phocoena	Gwynedd	Tywyn	Physical trauma (bottlenose dolphin attack)
SW2002/232	Phocoena	phocoena	Gwynedd	Fairbourne	Not established
SW2002/241	Phocoena	phocoena	Ceredigion	Tan y bwlch	Starvation (neonate)
SW2002/251	Phocoena	phocoena	Gwynedd	Hell's Mouth	Bycatch
SW2002/254	Phocoena	phocoena	Gwynedd	Tywyn	Not established
SW2002/273	Phocoena	phocoena	Ceredigion	Gilfach-yr-Halen	Physical trauma (bottlenose dolphin attack)
SW2002/279	Phocoena	phocoena	Ceredigion	Aberystwyth	Not established
SW2002/285	Phocoena	phocoena	Ceredigion	Aberaeron	Starvation (neonate)
SW2002/290	Phocoena	phocoena	Ceredigion	Aberystwyth	Starvation (neonate)
SW2002/294	Phocoena	phocoena	Anglesey	Trearddur Bay	Bycatch
SW2002/297	Phocoena	phocoena	Ceredigion	Borth	Live Stranding
SW2002/322	Lagenorhynchus	acutus	Ceredigion	Cei Bach	Starvation
SW2002/323	Phocoena	phocoena	Ceredigion	Tresaith	Physical trauma (bottlenose dolphin attack)
SW2002/324	Phocoena	phocoena	Ceredigion	Borth	Physical trauma (bottlenose dolphin attack)
SW2002/326	Phocoena	phocoena	Ceredigion	Gilfach-yr-Halen	Physical trauma (bottlenose dolphin attack)
SW2002/328	Phocoena	phocoena	Ceredigion	Llanrhystud	Physical trauma (bottlenose dolphin attack)
SW2002/346	Phocoena	phocoena	Gwynedd	Fairbourne	Physical trauma (bottlenose dolphin attack)
SW2002/348	Phocoena	phocoena	Ceredigion	Tan y bwlch	Physical trauma (bottlenose dolphin attack)
SW2002/362	Delphinus	delphis	Pembrokes hire	Poppit Beach	Physical trauma
SW2002/374a	Phocoena	phocoena	Gwynedd	Pwllheli	Pulmonary parasitism (heavy)

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Welsh Assembly / Countryside Council for Wales for providing funds towards the project.

Environment Agency for funds to purchase mechanical handling gantry.

Swansea Coastguard for donation of redundant recording equipment.

Milford Haven Coastguard for copy of user manual for IR30.

15. APPENDICES.

Appendix 1. Cetacean stranding data for 2002.

Appendix 2. A4 copy of poster presented at the European Cetacean Conference.