

IRELAND PROGRESS REPORT ON CETACEAN RESEARCH

April 2002 – May 2003

Compiled by E. Rogan
*Department of Zoology, Ecology & Plant Science,
 University College, Cork, Ireland.*

This report summaries cetacean research involving University College Cork (UCC), Dúchas (The Heritage Service), Shannon Dolphin and Wildlife Foundation (SDWF), Irish Whale and Dolphin Group (IWDG), University College, Dublin (UCD), Marine Institute (MI), Bord Iascaigh Mhara (BIM), University of Aberdeen, Department of Zoology (UADZ), University of La Rochelle, France, Netherlands Institute for Sea Research (NIOZ), National Museum of Scotland (NMS).

1. Species and stocks studied

All species that occur in waters around Ireland were studied to some extent.

Common Name	Scientific Name	Area	Items referred to
Harbour porpoise	<i>Phocoena phocoena</i>	NE Atlantic	2.1.1, 2.1.2, 4.3, 5, 7, 8, 9
Common dolphin	<i>Delphinus delphis</i>	NE Atlantic	2.1.2, 4.3, 5, 8, 9
Bottlenose dolphin	<i>Tursiops truncatus</i>	NE Atlantic	2.1.1, 2.1.2, 3.1.1, 4.3, 5, 7, 8
Striped dolphin	<i>Stenella coeruleoalba</i>	NE Atlantic	2.1.2, 4.3, 5, 8
White-sided dolphin	<i>Lagenorhynchus acutus</i>	NE Atlantic	2.1.2, 4.3, 5, 8
White-beaked dolphin	<i>L. albirostris</i>	NE Atlantic	2.1.2, 4.3, 8
Risso's dolphin	<i>Grampus griseus</i>	NE Atlantic	2.1.2, 4.3, 8
Pilot whale	<i>Globicephala melas</i>	NE Atlantic	2.1.2, 4.3, 8
Pygmy sperm whale	<i>Kogia breviceps</i>	NE Atlantic	2.1.2, 4.3, 5, 8
Sperm whale	<i>Physeter macrocephalus</i>	NE Atlantic	2.1.2, 4.3, 8
Cuvier's beaked whale	<i>Ziphius cavirostris</i>	NE Atlantic	2.1.2, 4.3, 8
Minke whale	<i>Balaenoptera acutorostrata</i>	NE Atlantic NW Atlantic	2.1.2, 4.3, 8
Fin whale	<i>Balaenoptera physalus</i>	NW Atlantic NW Atlantic	2.1.2
Humpback whale	<i>Megaptera novaeangliae</i>	NE Atlantic NW Atlantic	2.1.2, 3.1.1

2. Sightings data

2.1 Field work

2.1.1 SYSTEMATIC

UCC conducts standardised boat-based photo-ID surveys in the Shannon estuary for bottlenose dolphins and in Bantry Bay for harbour porpoise. They also conduct land-based visual studies of fine-scale behaviour and distribution of in core areas at both sites. Photo-identification surveys for bottlenose dolphins at selected locations along the west coast of Ireland were also carried out in the summer of 2002. Land-watch and acoustic monitoring using PODS was carried out in Broadhaven Bay SAC and northwest Mayo (O'Cadhla *et al.*, 2003). UCD carry out quantified effort, land-based visual surveys for harbour porpoises in Dublin Bay. The IWDG also carry out quantified effort, land-based visual surveys from the Old Head of Kinsale and other sites along the Irish coastline.

2.1.2 OPPORTUNISTIC PLATFORMS OF OPPORTUNITY

A casual sightings scheme co-ordinated by the IWDG continues to operate, along with visual surveys using POPs in the Irish and Celtic Seas. Sightings are submitted on standardised forms and entered into a database, in conjunction with Seawatch Foundation, UK. A review of sightings records has just been published (Berrow *et al.*, 2002). A whale-watching vessel was also used to examine distribution of fin, humpback and minke whales in the Bay of Fundy, Canada (UCC).

3. Markings data

3.1 Field work

3.1.1 NATURAL MARKING DATA

A photo-identification study of the Shannon estuary bottlenose dolphin group continues (UCC). The catalogue now contains in excess of 1000 photographs of over 250 identified individuals. A separate catalogue of 80 identified bottlenose dolphins was established for other sites along the west coast of Ireland (UCC). Tour boats are also being used as platforms of opportunity for photo-identification purposes (SDWF, UCC). A humpback whale survey at Cape Verde Islands was carried out by the IWDG between 28 March to 24 April 2002 as part of a project to try and locate the breeding grounds of humpback whales observed in Irish waters. During 15 days at sea, whales were observed at 12 locations mainly around the island of Boavista. No analyses of the data has been carried out to date but around eight fluke shots, suitable for photo-identification, were obtained and five hours of recordings of humpback whale vocalisations (IWDG). Fluke and dorsal fin shots were obtained from two humpback whales in Irish waters during 2002 making a total of 4 individuals in the Irish humpback whale catalogue (IWDG).

Species	Feature	Area/stock	Calendar year/season No. photographed	Catalogued	Contact person/institute
Bottlenose dolphin	Dorsal fin	NE Atlantic	> 120	Y	UCC
Humpback whales	Fluke, Dorsal fins	NE Atlantic	> 8	Y	IWDG

4. Tissue/biological samples collected

4.1 Biopsy

None

4.2 Samples from directed catches or bycatches

None

4.3 Samples from stranded animals

A summary of samples collected from stranded animals throughout Ireland during the period April 2002 – May 2003 is given in the following table. An additional 13 unidentified dolphins and six unidentified whales were recorded. There were a number of multiple mass strandings incidents involving common dolphins during this period.

Common Name	Area	Calendar year/Season total	Archived Y/N	Tissue type(s)	Contact person/institute
Harbour porpoise	NE Atlantic	20	Y	Skin, blubber etc.	UCC
Common dolphin	NE Atlantic	36	Y	Skin, blubber etc.	UCC
Striped dolphin	NE Atlantic	8	Y	Skin, blubber etc.	UCC
Bottlenose dolphin	NE Atlantic	2	Y	Skin, blubber etc.	UCC
Atlantic white-sided dolphin	NE Atlantic	4	Y	Skin, blubber etc.	UCC
White-beaked dolphin	NE Atlantic	1	Y	Skin	UCC
Risso's dolphin	NE Atlantic	3	Y	Skin, blubber etc.	UCC
Pygmy sperm whale	NE Atlantic	1	Y	Skin, blubber etc.	UCC
Pilot whale	NE Atlantic	3	Y	Skin	UCC
Minke whale	NE Atlantic	3	Y	Skin, blubber etc.	UCC
Cuviers' beaked whale	NE Atlantic	1	Y	Skin	UCC

Analyses/development of techniques

5. Pollution studies

Samples for contaminant analysis are routinely collected and archived. Samples for heavy metal analysis are sent to the University of La Rochelle and for POPs to NIOZ in the Netherlands.

6. Statistics for large whales

6.1 Direct catches for the calendar year 2002

None

6.2 Other non-natural mortality

None determined.

7. Statistics for small cetaceans

7.1 For the calendar year 2002

During the reporting period an observer schemes operated on modified pelagic trawls with targeting albacore tuna. While effort was low, no cetaceans were caught (BIM). Six animals (one bottlenose dolphin, five harbour porpoises) were diagnosed as bycatch during post-mortem examination.

8. Strandings

The IWDG, in conjunction with UCC and Dúchas co-ordinate the strandings scheme. All stranding records are published annually in the Irish Naturalists' Journal. During the reporting period, 104 stranded cetaceans, comprising 12 species were reported to the IWDG. Post-mortem examination was carried out on 38 of these by UCC. Three additional common dolphins live-stranded and were re-floated.

9. Other studies and analyses

Within-population differences in the Icelandic harbour porpoise were found between animals from the Southeast and those from the rest of the country (Southwest, West and North). This was hypothesised to be due to either a) the bycaught Southeast samples actually being part of some other population, possibly the Faroes Islands. Or b) the Southeast Icelandic animals could be resident year round, but could have originated from a later, separate colonisation event than those which are resident in the Southwest, West and North of the country. Irish animals were examined for any structure that may exist within them. The sample size was however small, only 49 animals from around the whole coast of Ireland. The results suggest that animals from the Celtic Sea and the Atlantic Ocean sides of Ireland are more similar to each other than to the Irish Sea animals (Duke, 2003).

Morphometric and reproductive studies continue on a number of species, including common dolphins (UCC, NMS). Skulls are archived in the National Museum of Scotland. Studies to examine social structure using genetics in common, striped and Atlantic white-sided dolphins have commenced (UCC), as well as a study of helminth parasites in small cetaceans (UCC).

The Shannon estuary has been nominated as a candidate Special Area of Conservation (cSAC) under the EU Habitats Directive. As part of the designation procedure, guidelines are being established for dolphin watching boats (Dúchas) and other activities within the estuary. A monitoring programme is being established.

10. Literature cited

- Duke, S. 2003. The Population genetic structure of the Icelandic and Irish harbour porpoise (*Phocoena phocoena*). PhD thesis, National University of Ireland, Dublin.
- Ó Cadhla, O., Englund, A., Philpott, E., Mackey, M. & Ingram, S. (2003). Marine mammal monitoring in the waters of Broadhaven Bay & northwest Mayo: 2001-2002. Report to Enterprise Energy Ireland, Ltd. Coastal & Marine Resources Centre, University College, Cork. 74pp.

11. Publications

Published or 'In Press' papers only

- Berrow, S.D., McHugh, B., Glynn, D., McGovern, E., Parsons, K., Baird, R.W. & Hooker, S.K. (2002) Organochlorine concentrations in resident bottlenose dolphins (*Tursiops truncatus*) in the Shannon estuary, Ireland. *Marine Pollution Bulletin* 44, 1296-1313.
- Berrow, S.D., Whooley, P. & Ferriss, S. (2002) Irish Whale and Dolphin Group Cetacean Sighting Review (1991-2001). Irish Whale and Dolphin Group. 34pp. ISBN 0-9540552-1-7.
- Berrow, S. (2002) Biological diversity of cetaceans (whales, dolphins and porpoises) in Irish waters. In *Marine Biodiversity in Ireland*. Pages, 115-119. Eds. Nunn, J. Pages 115-119. Ulster Museum, Belfast.
- Berrow, S.D. (2002) Is Ireland a sanctuary ? The protection of cetaceans (whales, dolphin and porpoises) in Irish waters. In Convery, F. and Feehan, J. (eds.) *Achievement and Challenge: Rio+ and Ireland*. Pages, 358-363. The Environmental Institute, University College, Dublin.
- Das, K., Beans, C., Holsbeek, L., Mauger, G., Berrow, S.D., Rogan, E. & Bouquegneau, J.M. 2003. Marine mammals from northeast Atlantic: relationship between their trophic status as determined by $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ measurements and their trace metal concentrations. *Mar. Envir. Res.* 45, 349 – 365.
- Ingram, S.N. and Rogan, E. 2002. Identifying critical areas and habitat preferences of bottlenose dolphins *Tursiops truncatus*. *Mar. Ecol. Prog. Ser.* 244, 247 – 255.
- Ó Cadhla, O., Englund, A., Philpott, E., Mackey, M. & Ingram, S. (2003). Marine mammal monitoring in the waters of Broadhaven Bay & northwest Mayo: 2001-2002. Report to Enterprise Energy Ireland, Ltd. Coastal & Marine Resources Centre, University College, Cork. 74pp.
- Power, E. & Murphy, S. (2002) *Staphylococcus aureus* septicaemia in a killer whale. *The Veterinary Journal*, June, p819
- Santos M.B., Pierce G.J., Kuiken T, García Hartmann M., Smeenk C., Addink M.J., Reid R.J., Patterson I.A.P., Lordan C., & Rogan, E. (2002) Additional notes on stomach contents of sperm whales *Physeter macrocephalus* stranded in the NE Atlantic. *Journal Marine Biological Association*, 82, 501 – 507.