

**IRELAND PROGRESS REPORT ON CETACEAN RESEARCH  
MAY 2000 TO JUNE 2001**

Compiled by E. Rogan  
*Department of Zoology and Animal Ecology,  
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, Fisheries Research Centre, Dublin (FRC), Dalhousie University, Canada, British Antarctic Survey, Cambridge (BAS), Sea Mammal Research Unit, St. Andrews, Scotland (SMRU), University of Aberdeen, Department of Zoology (UADZ), Research Unit for Wildlife Population Assessment, St. Andrews (RUWPA), University of La Rochelle, France, Netherlands Institute for Sea Research (NIOZ).

## 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, 4, 5, 7, 8
Common dolphin	<i>Delphinus delphis</i>	NE Atlantic	2.1, 4, 5, 7, 8
Bottlenose dolphin	<i>Tursiops truncatus</i>	NE Atlantic	2.1, 3.1.1, 4, 5, 7, 8
Striped dolphin	<i>Stenella coeruleoalba</i>	NE Atlantic	2.1, 4, 5, 7, 8
White-sided dolphin	<i>Lagenorhynchus acutus</i>	NE Atlantic	2.1, 4, 5, 7, 8
Risso's dolphin	<i>Grampus griseus</i>	NE Atlantic	7, 4, 8
Pilot whale	<i>Globicephala melas</i>	NE Atlantic	2.1, 4, 8
Killer whale	<i>Orcinus orca</i>	NE Atlantic	2.1.2, 3.1.1
False killer whale	<i>Pseudorca crassidens</i>	NE Atlantic	2.1.2
Sperm whale	<i>Physeter macrocephalus</i>	NE Atlantic	2.1, 8
Pygmy sperm whale	<i>Kogia breviceps</i>	NE Atlantic	4, 8
Northern Bottlenose whale	<i>Hyperoodon ampullatus</i>	NE Atlantic	2.1
Cuvier's beaked whale	<i>Ziphius cavirostris</i>	NE Atlantic	2.1, 4, 8
Sowerby's beaked whale	<i>Mesoplodon bidens</i>	NE Atlantic	2.1
Minke whale	<i>Balaenoptera acutorostrata</i>	NE Atlantic	2.1, 4, 8
Fin whale	<i>Balaenoptera physalus</i>	NE Atlantic	2.1, 4, 6, 8
Humpback whale	<i>Megaptera novaeangliae</i>	NE Atlantic	2.1
North Atlantic right whale	<i>Eubalaena glacialis</i>	NE Atlantic	2.1.2, 3.1.1

## 2 Sightings data

### 2.1 Field work

#### 2.1.1 SYSTEMATIC

A sightings survey was conducted off the west coast of Ireland from 30 July to 22 August 2000 using methodology based on the SCANS survey (UCC and (RUWPA). Common and white-sided dolphins were the most commonly sighted species, for which abundance estimates have been derived (Ó'Cadhlá *et al.*, 2001).

UCC conducts standardised boat-based photo-ID surveys in the Shannon estuary for bottlenose dolphins. They also conduct land-based visual studies of fine-scale behaviour and distribution of *Tursiops* in core areas within the estuary (Ingram and Rogan, 2001).

The IWDG 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

UCC conducts visual surveys in the waters to the south, north and west of Ireland and the Rockall Trough (Mackey *et al.*, 2000). A casual sightings scheme co-ordinated by the IWDG continues to operate. Sightings are submitted on standardised forms and entered into a database, in conjunction with Seawatch Foundation, UK.

### 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 photographs of 287 identified individuals. Tour boats are also being used as platforms of opportunity for photo-identification purposes (SDWF). Photographs from a single humpback whale was sent to the College of the Atlantic for matching (IWDG) and photographs and acoustic recordings from a pod of three killer whales are available (UCC).

Species	Feature	Area/stock	Calendar year/season No. photographed	Catalogued	Contact person/institute
Bottlenose dolphin	Dorsal fin	NE Atlantic	> 50	Y	UCC
Killer whale	Dorsal fin /saddle patch Acoustics	NE Atlantic	3	Y	UCC
Humpback whale	Fluke	NE Atlantic	1	Y	IWDG/ College of Atlantic

### 4 Tissue/biological samples collected

#### 4.1 Biopsy

In collaboration with FRC, Aberdeen university, BAS and Dalhousie university, skin and blubber samples were taken from eight bottlenose dolphins in the Shannon estuary for organochlorine analysis (SWF).

#### 4.2 Samples from directed catches or bycatches

Samples from one harbour porpoise, one pregnant Rise's dolphin and a fin whale were taken.

#### 4.3 Samples from stranded animals

A summary of samples collected from stranded animals throughout Ireland during the period May 2000 – June 2001 is given in the following table.

Common Name	Area	Calendar year/Season total	Archived Y/N	Tissue type(s)	Contact person/institute
Harbour porpoise	NE Atlantic	15	Y	Skin, blubber etc.	UCC
Common dolphin	NE Atlantic	12	Y	Skin, blubber etc.	UCC
Striped dolphin	NE Atlantic	6	Y	Skin, blubber etc.	UCC
Risso's dolphin	NE Atlantic	1	Y	Skin, blubber Etc.	UCC
Pilot whale	NE Atlantic	1	Y	Skin	UCC
Pygmy sperm whale	NE Atlantic	1	Y	Skin, blubber etc.	UCC
Cuviers beaked whale	NE Atlantic	1	Y	Skin	UCC
Minke whale	NE Atlantic	1	Y	Skin, blubber etc	UCC
Fin whale	NE Atlantic	1	Y	Skin	UCC

#### 4.4 Analyses/development of techniques

Of the eight biopsied bottlenose dolphins six were male and two were female. The highest concentrations of individual OC were for DDE (41,979 and 32,502 µg per kg extractable lipid) followed by the PCB congeners CB153 (28,079 and 22,422 µg per kg extractable lipid) and CB138

(18,253 and 14,014 µg per kg extractable lipid). Concentrations of transnonachlor and CB180 were elevated in two individuals (Berrow *et al.*, in prep).

## 5 Pollution studies

Samples for contaminant analysis are routinely collected and archived. Baseline data on polychlorinated biphenyls and organochlorines in by-caught harbour porpoise and common dolphins from Irish coastal waters were published (Smyth *et al.*, 2000). Samples for heavy metal analysis are sent to University of La Rochelle and for POPs to NIOZ in the Netherlands and are being analysed under an EU funded project "BIOCET".

## 6 Statistics for large whales

6.1 *Direct catches for the calendar year 2000* – None

6.2 *Other non-natural mortality*

Species	Area/stock	Total	Cause	Methodology
Fin whale	NE Atlantic	1	Entanglement	Post-mortem

## 7 Statistics for small cetaceans

7.1 *For the calendar year 2000*

During the reporting period an observer scheme on bottom set gillnets was in operation for part of the season. Furthermore, some stranded animals were diagnosed as bycatch at post-mortem.

Species	Incidental mortality		Bycatch determined from post-mortems
	Reported	Source	
Harbour porpoise	2	Tangle net Set gillnet	1
Risso's dolphin	1	Tangle net	

## 8 Strandings

The IWDG, in conjunction with UCC and Dúchas co-ordinate the strandings scheme. All strandings are published annually in the Irish Naturalists' Journal. During the reporting period, 67 stranded cetaceans, comprising 13 species were reported to the IWDG. Post-mortem examination was carried out on 42 of these by UCC. One additional fin whale, two striped dolphins, and eight common dolphins live-stranded and were re-floated.

## 9 Other studies and analyses

The population structure of Icelandic and Irish harbour porpoises is being studied by UCD using mtDNA sequences (UCD unpublished data). The population structure of bottlenose dolphins is being studied by UADZ using mtDNA sequences from *Tursiops* from different sites around the UK and Ireland (Aberdeen university, unpublished data). Morphometric and reproductive studies continue on a number of species, including common dolphins (Murphy *et al.*, 2001)

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

- Berrow, S.D., McHugh, B., Parsons, K., Baird, R.W., Hooker, S. (in prep). Organochlorine concentrations in resident bottlenose dolphins *Tursiops truncatus* sampled by biopsy darts in the Shannon estuary, Ireland.
- Ingram, S.N. and Rogan, E. 2001. Shared friends or shared resources? The social structure of bottlenose dolphins using the Shannon estuary, Ireland. Paper presented at 15<sup>th</sup> Annual conference of the European Cetacean Society, Roma, May 2001.
- Ó'Cadhlá O., Borchers, D.L., Burt, M.L. & Rogan, E. (2001) Summer distribution and abundance of cetaceans in western Irish waters and the Rockall Trough. *IWC document SC/53/O15*
- Mackey M., Ó'Cadhlá O., Aguilar de Soto N., Fennessey G., Kelly T., Rogan E. & Connolly N. (2000) Cetaceans and seabirds in Irish waters. 2<sup>nd</sup> interim report presented to the Rockall and Porcupine Studies Group (unpublished). 90pp.

Murphy, S. Collet, A. and Rogan, E. Does size matter? Gonadal development in the male common dolphin *Delphinus delphis*. Poster presented at 15<sup>th</sup> Annual conference of the European Cetacean Society, Roma, May 2001.

Smyth, M., Berrow, S., Nixon, E. & Rogan, E. (2000). Polychlorinated biphenyls and organochlorines in by-caught harbour porpoise *Phocoena phocoena* and common dolphins *Delphinus delphis* from Irish coastal waters. *Biol. and Envir. Proc. Royal Ir. Acad.* 100b (2), 85 - 96

## **11 Publications**

### *11.1 Published or 'In Press' papers only*

Bennett, P.M., Jepson, Law, R.J., Kuiken, T., Baker, J.R., Rogan, E. & Kirkwood, J.K. 2000 Exposure to heavy metals and infectious disease mortality in harbour porpoises from England and Wales. *Environmental Pollution* 112, 33 – 40.

Rogan, E. and Penrose, R. (in press). Collaborative Celtic marine mammal strandings programme. Marine Institute Technical Report Series. 56pp

Smyth, M., Berrow, S.D., Nixon, E. & Rogan, E. 2000. Polychlorinated biphenyls and organochlorines in by-caught harbour porpoises *Phocoena phocoena* and common dolphins *Delphinus delphis* from Irish coastal waters. *Biol. and Envir. Proc. Royal Ir. Acad.* 100b (2), 85 - 96.

### *11.2 Unpublished literature*

Mackey M., Ó'Cadhla O., Aguilar de Soto N., Fennessey G., Kelly T., Rogan E. & Connolly N. (2000) Cetaceans and seabirds in Irish waters. 2<sup>nd</sup> interim report presented to the Rockall and Porcupine Studies Group (unpublished). 90pp.

Sea Mammal Research Unit, University College, Cork, Cornish Fisherman's Association, Irish South and West Fishermans' Organisation 2000. Reduction of porpoise bycatch in bottom set gillnet fisheries. Study contract 97/095. Report to the European Commission, DG Fisheries.