

FRANCE. PROGRESS REPORT ON CETACEAN RESEARCH, APRIL 2001 TO APRIL 2002, WITH STATISTICAL DATA FOR THE CALENDAR YEAR 2002.

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This report compiles information obtained from: Centre Culturel et Sportif (CCS), Saint Pierre et Miquelon ; Centre National de la Recherche Scientifique/Centre d'Etudes Biologiques de Chizé (CEBC), Chizé ; Centre d'Océanologie de Marseille (COM), Marseille ; Centre de Recherche sur les Mammifères Marins (CRMM), La Rochelle ; Ecole Pratique des Hautes Etudes (EPHE), Montpellier ; Evasion Tropicale (ETr), Guadeloupe ; Groupe Cétacés Corse (GCC), Bastia ; Groupe d'Etude des Cétacés du Cotentin (GECC), Cherbourg ; Groupe d'Etude de la Faune Marine Atlantique (GEFMA), Capbreton ; Groupe de Recherche sur les Cétacés (GREC), Antibes ; Institut Français pour la recherche et l'exploitation de la Mer (IFREMER) ; Muséum National d'Histoire Naturelle (MNHN), Biarritz. ; Océanopolis, Brest ; Opération Cétacés Nouvelle Calédonie (OCNC), Nouméa ; Réserve Naturelle du Banc d'Arguin (RNBA), Arcachon ; Société Française d'Etude et de Protection des Mammifères (SFPEM), Bourges ; Université de La Rochelle (LBEM/ULR), La Rochelle.

1. Species and stocks studied

Common name	Scientific name	Area/stock(s)	Items referred to
Cetaceans	<i>Cetacea</i>	French continental coast	4.3, 5, 7.1, 8
Cetaceans	<i>Cetacea</i>	French continental waters	2.1.1, 2.1.2, 3.1.1, 7.1, 9
Cetaceans	<i>Cetacea</i>	Mediterranean Sea	2.1.1, 2.1.2, 3.1.1, 4.3, 5,
Cetaceans	<i>Cetacea</i>	North-East Atlantic	2.1.2
Bottlenose dolphin	<i>Tursiops truncatus</i>	French coasts	2.1.1, 2.1.2, 3.1.1, 9
Killer whale	<i>Orcinus orca</i>	Southern Indian Ocean	3.1.1
Cetaceans	<i>Cetacea</i>	Caribbean Sea	2.1.2
Sperm whale	<i>Physeter macrocephalus</i>	Caribbean Sea	3.1.1
Sperm whale	<i>Physeter macrocephalus</i>	Mediterranean Sea	2.1.1, 2.2, 3.1.1, 9
Cetaceans	<i>Cetacea</i>	St-Pierre & Miquelon	2.1.2, 3.1.1
Fin whale	<i>Balaenoptera physalus</i>	Mediterranean Sea	3.1.1, 3.1.2, 3.2, 4.1
Cetaceans	<i>Cetacea</i>	French Polynesia	2.1.2
Humpback whale	<i>Megaptera novaeangliae</i>	French Polynesia	2.1.2, 3.1.1, 9
Humpback whale	<i>Megaptera novaeangliae</i>	New Caledonia	2.1.1, 2.2, 3.1.1, 3.2, 4.1, 5,
Cetaceans	<i>Cetacea</i>	New Caledonia	2.1.2, 2.2, 4.3

2. Sightings data

2.1 Field work

2.1.1 SYSTEMATIC

- Sperm whale and other cetaceans, Mediterranean Sea (GREC) : dedicated distribution survey from small boat (June-July 2001).
- Fin whale, Ligurian basin, Mediterranean Sea (CEBC) : dedicated distribution survey were conducted from a sailing boat in July-August 2001.
- All cetaceans, Bay of Biscay (CEBC, CRMM) : as a by-product of seabird aerial survey conducted throughout the Bay of Biscay, from the coastline to the 1000m depth contour, all cetaceans are censused during monthly surveys of the area. These distributional data will be included in a GIS to investigate the role of oceanographic, productivity and living resource spatial features in shaping the distribution of cetacean species.
- Small cetaceans are surveyed year round by boat in the southern Bay of Biscay (GEFMA and MNHN)
- Systematic summer surveys of coastal bottlenose dolphins along the English Channel coasts (GECC), off western Brittany (Océanopolis), along the Atlantic coast (CRMM) and in the Arcachon basin (RNBA).
- Survey of all species of cetaceans across north-western Mediterranean Sea carried out by EPHE by using various platforms (oceanographic cruises, ferry routes).
- Humpback whales, New Caledonia (OCNC). Survey held from 1 July to 21 September, 2001, in the southern lagoon and the northern lagoon of New Caledonia.

2.1.2 OPPORTUNISTIC, PLATFORMS OF OPPORTUNITY

- Cetaceans, French waters (CRMM). In 2001 the CRMM recorded 182 sightings of cetaceans: 126 in the Atlantic (mostly in the Bay of Biscay), 27 in the English Channel and 22 in the Western Mediterranean Sea.
- In the English Channel, 187 opportunistic sightings of bottlenose dolphins and 30 of other cetaceans were collected by GECC in 2001 and 300 by Océanopolis over the period 1995-2001.
- In the Mediterranean Sea, opportunistic sightings are collected by EPHE, with a total of 15000 data available to date.
- In the NW Atlantic, 353 observations at sea were recorded from the general public in 2001 (CCS) in an area of c.250 km² around the St-Pierre and Miquelon islands.
- Cetaceans, New Caledonia (OCNC). Sighting data are collected from incidental sighting forms returned by the general public.
- Humpback whale opportunistic sightings from French Polynesia, collected by GREC.

2.2 Analyses/development of techniques

- Cetaceans, New Caledonia (OCNC). The total population of humpback whales using New Caledonia was estimated at 314 (243-386) by photographic capture-recapture. Exchange with groups in various south Pacific locations is in progress by comparing photo-ID catalogues.
- Estimation of the humpback whale population ranged between 243 and 386 individuals using weighted mean of Petersen estimates (Garrigue et al. 2000). The crude birth rate is included in between 3.4 and 10 % (Garrigue et al. 2000).
- Development of acoustic survey for sperm whale by GREC.

3. Marking data

3.1 Field work

3.1.1 NATURAL MARKING DATA

Species	Feature	Area/stock	Calendar year/season/ no.	Catalogue d (Y/N)	Catalogue total	Contact person/institute
Humpback	Fluke	NW	2001/not available	Y	Few	CCS
Humpback	Fluke	N.	2000/57 (27 new	Y	250	OCNC
Fin whale	Dors	NW Med	2001/15	Y	15	CEBC
Fin whale	Dors	NW Med	2001/summer/180	Y	70	EPHE
Fin whale	Dors	NW Med	2001/summer/140	Y		GREC
Sperm whales	Fluke	NW Med	2001/summer/few	Y	Few	EPHE
Sperm whale	Fluke	NW Med	2001/25	Y		GREC & NAMSWC
Sperm whale	Fluke	Caribbean	2001/100	Y	100	Etr
Bottlenose	Dors	Eng.	2001/summer/50	Y	80+	GECC
Bottlenose	Dors	Brittany	2001/summer/NA	Y	42	Océanopolis
Bottlenose	Dors.Fi	Bay of	2001/summer/6	Y	6	CRMM
Bottlenose	Dors	Bay of	2001/summer/15	Y	15	GEFMA
Bottlenose	Dors	NW Med	2001/summer/150	Y	80	EPHE
Common	Dors	Bay of	2001/summer/30	Y	30	GEFMA
Risso's	Dors	NW Med	2001/summer/160	Y		GREC
Risso's	Dors	NW Med	2001/summer/500	Y	200	EPHE
Long fin Pilot	Dors	NW Med	2001/summer/few	Y	Few	EPHE
Long fin pilot	Dors	Bay of	2001/summer/30	Y	30	GEFMA
Long-fin. pilot	Dors	NE	2001/summer/26	Y	47	CRMM
Killer whale	Dors	Southern	2001	Y	63	CEBC

3.1.2 TRACKING DATA

Species	Area/stock	Calendar year/season	Type of tag	Number of individuals	Max. duration in months	Contact person/institute
Fin whale	Mediterrane	2001/summer	Satellit	4	<1	CEBC

3.2 Analyses/ development of techniques

- Humpback whale, New Caledonia (OCNC)

Photographic comparison have been done on a regularly basis with eastern Australia. More comparisons have been realized during two workshops of the South Pacific Whale Research Consortium. Theses involved catalogues of humpback whales in New Zealand, Tonga, East Australia, French Polynesia, Cook Islands, Antarctic Peninsula (INACH), part of Columbia and Ecuador. The number of re-sightings are : East Australia : 9, New Zealand : 2, Tonga : 7, other countries or areas : 0.

- Fin whale, Mediterranean Sea (CEBC)

Analyses of dive profile and activity budget from pressure data loggers.

4. Tissue/biological samples collected

4.1 Biopsy samples

Species	Area/stock	Calendar year/ season /	Archived (Y/N)	No. Analyses	Total holdings	Contact person/institute
Fin whale	Mediterrane	2001/sum	N	0	17	CEBC
Humpback w.	N. Caledonia	2001	Y		217	OCNC & S. Baker, Univ Auckland.

Biopsy samples listed above are collected for genetic and contaminant analyses.

4.3 Samples from stranded animals

Species	Area/stock	Calendar year/	Archived (Y/N)	Tissue type(s)*	Contact person/institute
Ceataceans	Mediterrane	2001/NA	Y	miscellaneous	EPHE
Fin whale	Atlantic &	2000/3	Y	Various tissues	CRMM
Sperm whale	New	2001/1	Y	Skin, liver	OCNC
Delphinids	Atlantic	2000/2	Y	Various tissues	CRMM
Common	Atlantic	2000/126	Y	Various tissues	CRMM
Striped dolph.	Atlantic	2000/12	Y	Various tissues	CRMM
White-beaked	Atlantic	2000/1	Y	Various tissues	CRMM
Bottlenose	Atlantic.	2000/7	Y	Various tissues	CRMM
Long fin.	Atlantic	2000/2	Y	Various tissues	CRMM
Harbour	Atlantic	2000/11	Y	Various tissues	CRMM

*e.g. liver, skin, blubber etc.

5. Pollution studies

- Samples are collected from stranded specimens on the coasts of France by CRMM and pollutant analysis (heavy metals) are carried out by the LBEM, University of La Rochelle. In 2000, 70 specimens were sampled for ecotoxicological study, including 3 Bottlenose dolphin, 7 Striped dolphins, 50 Common dolphins, 9 Harbour porpoises, 1 White beaked dolphin.

- Three stranded striped and 1 bottlenose dolphins were sampled for contaminant analyses by GCC.

- Humpback whales, New Caledonia (OCNC). 54 blubber samples collected in 2000 (total holding: 197).

7. Statistics for small cetaceans

7.1 For the calendar year 2001

- In 2001, CRMM recorded 153 stranded cetaceans with marks suggesting incidental by-catch in fishing gear.

Species	Area/stock	Directed catch		Incidental mortality			Live-capture
		Report	Est. Total	Reported	Est. total	Source	Reported
Spotted dolphin	Caribbean	0	0	1	No data	Etr	
Common dolphin	Eng. Channel	0	0	1	No data	CRMM	
Common dolphin	Atlantic	0	0	117	No data	CRMM	
Striped dolphin	Atlantic	0	0	7	No data	CRMM	
Striped dolphin		0	0	4	No data	CRMM	
Bottlenose dolphin	Eng. Channel	0	0	2	No data	CRMM	
Bottlenose dolphin	Atlantic	0	0	7	No data	CRMM	
Bottlenose dolphin	Mediterranean	0	0	1	No data	CRMM	
Long finned pilot	Atlantic	0	0	1	No data	CRMM	
Long finned pilot w	Mediterranean	0	0	1	No data	CRMM	

Harbour porpoise	English Ch.	0	0	3	No data	CRMM	
Harbour porpoise	Atlantic	0	0	9	No data	CRMM	

- In the Mediterranean Sea, the French blue-fin tuna purse seine fishery was estimated to catch incidentally 326+/- 146 individual striped dolphins, young animals in the summer being the most heavily impacted (COM). The use of experimental purse seines fitted with low power ultrasonic deterrents located every 200m along the seine allowed the catch to be reduced by 80% (COM). The Ministry of Agriculture and Fishery should help extending this device to the whole fishery in the future.

8. Strandings

In 2001, CRMM recorded 634 stranded cetaceans along the coasts of France, among which there were 8 unidentified cetaceans, 555 delphinids, 60 harbour porpoises, 4 balaenopterid whales, 3 beaked whales, 3 sperm whales and 1 pygmy sperm whale. Stranded cetaceans found in overseas territories are not exhaustively recorded : however partial data are available for New Caledonia (OCNC), St-Pierre and Miquelon (CCS), Guadeloupe (ETr) and French Polynesia (GREC).

9. Other studies and analyses

- Good acoustic recordings are used by GREC (Antibes), to study the stock identity of two whale species:
 - Humpback whale, French Polynesia: breeding songs (1997, 1998, 1999, 2000 data/analog and digital tapes/several individuals recorded);
 - Sperm whale, Mediterranean Sea: social vocalisations (1999, 2000 data/analog and digital tapes/feeding and nursery schools recorded).
- Humpback whale, New Caledonia (OCNC). 7 acoustic recording of songs were collected during 1999 breeding season (total holding 57 recordings).
- CRMM and ULR contributed to the EU funded project BIOCET (Bioaccumulation of persistent organic pollutants in small cetaceans of European coastal water : transport pathway and effect on reproduction). The project started in January 2001, CRMM is in charge of collecting tissue and organ samples from stranded or by-caught individuals and to carry out biological analyses (necropsies, determinations of age and breeding status, stomach content analyses) for all samples collected along the French Atlantic coasts. ULR is in charge of the heavy metal analyses of samples collected in all contributing countries (Scotland, Ireland, The Netherlands, Spain and France).
- CEBC, MNHN, CRMM and ULR all contributed to a survey of the effect of the Erika oil spill on marine mammals, notably delphinids. The project started in November 2001 and combines aerial surveys, boat surveys, analyses of stranding data and assessment of Vanadium and Nickel burdens (two heavy metals associated to oil) in tissues of small cetaceans.
- ULR takes part in the Bay of Biscay part of *Programme National d'Environnement Côtier*, an IFREMER large scale project of fishery ecology looking at the functioning of the pelagic ecosystems in relation to the abundance of several target species, notably the anchovy and the albacore tuna. In this framework, ULR is in charge of investigating the trophic and competitive relationships of the common and striped dolphins. This approach includes dietary analyses and ecosystem modelling.
- Studies of home range and habitat usage by coastal bottlenose dolphins are conducted in relation to conservation issues by Océanopolis in Brittany (Marine National Park in preparation).
- As part of a national zoonoses survey programme, Brucellosis in stranded cetaceans was investigated by SFEPM.

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