

Report of surveys conducted on small cetaceans off Guadeloupe 1998 to 2005

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ABSTRACT

Thirty-one cetacean species have been recorded in the Wider Caribbean Region. Considering the diversity of cetaceans, as well as the potential for developing tourism activities in some areas, data on and knowledge of some cetacean species including small odontocete populations in the area are limited or non-existent, and research efforts minimal.

Since 1992, Association Evasion Tropicale (A.E.T.) has been conducting dedicated research and conservation programs on sea turtles and cetaceans in the Eastern Caribbean. To date, 16 odontocete species have been recorded. The most commonly observed species include: the pantropical spotted dolphin (*Stenella attenuata*), bottlenose dolphin (*Tursiops truncatus*), beaked whales species and short-finned pilot whale (*Globicephala macrorhynchus*).

INTRODUCTION

Thirty-one species of cetaceans have been documented from the Wider Caribbean Region including 7 species of baleen whales (mysticetes) and 24 species of toothed whales (odontocetes) (Ward et al., 2001). For many species, these waters serve as primary habitat for critical activities including feeding, mating, and calving. While records (strandings, surveys, historical and opportunistic sightings, and incidental and directed catch) indicate that many species are known to occur either seasonally or year-round in the region, there is a paucity of data concerning the life history, zoogeography, and behaviour of many of the species present. In the Eastern Caribbean, near volcanic islands that have narrow submarine shelves, whales and oceanic dolphins can be seen quite close to land. Although much is now known about the seasonal movement of some species of whales to the Caribbean (e.g. humpback whales), the distribution, abundance, and behaviour of other species such as the beaked whales, and the smaller odontocetes have been poorly documented.

The purpose of this paper is to present an overview of the recorded occurrence of small odontocete species off Guadeloupe to support conservation efforts in the region and facilitate the development of responsible whale watching activities.

METHODS

Boat-based, visual surveys were conducted off the western, leeward coast of Guadeloupe. From January 1998 to December 2005, 5488 hours of visual observations were carried out from 3 vessels: a 14 meter catamaran (used for commercial whale watching), a 7 meter motor vessel (until mid 2003), and a 16 meter sailing vessel, dedicated to research (since 2003).

A directional underwater hydrophone was used to detect whale sounds. The positions of acoustic and visual sightings were recorded with a GPS and entered into an Excel database. Photo-identification of the dorsal fins of small cetaceans and other characteristic marks and scars were captured when possible on a digital video camera or a digital camera.

RESULTS

Effort

From January 1998 to December 2005, a total of 5488 hours of visual effort was conducted. Sighting effort is significantly lower in June and during the hurricane season (September to November).

Sightings data

During the survey period, 16 species of small cetaceans were observed (Table 1). The most commonly observed species are listed in Table 2. Encounters per month for these species are listed in Table 3.

Pantropical spotted dolphin was the species most frequently observed during research surveys and whale watching tours (991 encounters). Groups were composed of newborns, juveniles and adults, often seen feeding near the surface of the water (in that case, they were generally associated with sea birds). On occasion, pantropical dolphins were sighted in mixed groups with Fraser's dolphins (*Lagenodelphis hosei*), bottlenose

(*Tursiops truncatus*) and rough-toothed dolphins (*Steno bredanensis*). One individual, identified by a white flame on its sides, was sighted on 13% of all pantropical dolphin encounters. During the survey period, one occurrence of predation of pantropical spotted dolphins by false killer whales (*Pseudorca crassidens*) was recorded and one incident of accidental catch in a FAD (Fishing Attractive Dispositive). One dead newborn was observed off shore, supported by 5 animals. On two occasions, pantropical spotted dolphins were seen playing with and harassing a juvenile leatherback turtle (*Dermochelys cariacae*). Mating often was observed during the period of surveys.

False killer whales were generally observed year round (56 encounters), in groups of 20 to 50 individuals. While distribution of the species is poorly known, additional records exist from Dominica and Grenada (IFAW 1996; Evans 1997; Mignucci-Giannoni 1998) and St. Vincent (Caldwell *et al.* 1971b; Caldwell and Caldwell 1972; Mignucci-Giannoni 1989). False killer whales swim generally fast, sometimes close to other species (e.g. pantropical spotted dolphins and sperm whales). Two occurrences of predation on humpback whales (*Megaptera novaeangliae*), a female and calf and a male, was recorded.

Bottlenose dolphins (*Tursiops truncatus*), are considered the most common inshore species of cetaceans in areas of the Caribbean. Sixty-five encounters were recorded off Guadeloupe. Nearshore bottlenose dolphins were observed in groups of approximately 10 individuals on both the east and west coast of Guadeloupe. Nearshore encounters too on the wind side off Guadeloupe (St François, PetiteTerre, les Saintes). Animals coming near to the shore stayed sometimes with divers or followed boats. Larger groups (20 to 80) were recorded off shore. Dolphin groups were composed of newborns, juveniles and adults. Mating was observed on occasion.

Pygmy killer whales (*Feresa attenuate*) (total of 62 encounters) were observed off shore, often resting at the surface when sea conditions were calm. Encounters varied from 1 to over 10 individuals. Animals would generally dive at the approach of the boat, staying approximately 5 minutes underwater and surfacing a distance away. Newborns were observed in some of the groups.

Eighty-two encounters of beaked whales *species* were recorded off Guadeloupe. A majority of the sightings (60% in 2005) were of Gervais' beaked whale (*Mesoplodon europeaeus*). Encounters were generally of two or three individuals (two adults and a juvenile) and often brief, with three surfacings. Occasionally, encounters lasted over 30 minutes with animals approaching the boat. Sightings of Cuvier's beaked whales (*Ziphius cavirostris*) were less frequent (20% of the encounters in 2005); Blainville's beaked whales (*Mesoplodon densirostris*) were also recorded.

Short-finned pilot whales (*Globicephala macrorhynchus*) (total of 67 encounters) were generally seen moving slowly at the surface in groups around 50 individuals. Some photo-identified individuals have been resighted between years.

Fraser's dolphins (*Lagenodelphis hosei*) were seen in groups of 20 to 50 individuals, frequently associated with Pantropical spotted dolphins and once with rough-toothed dolphins (*Steno bredanensis*). They swim fast and in close proximity, alternating periods underwater of 3 to 4 minutes and periods at the surface of approximately 50 seconds. On occasion, Individuals would approach the boat.

Encounters of rough-toothed dolphins were rare and primarily offshore. When nearshore, animals were observed swimming with dive boats. Steno is the only species that catch the lures of fishermen.

Encounters of orcas (*Orcinus orca*), spinner dolphins (*Stenella longirostris*), and striped dolphins (*Stenella coeruleoalba*) were rare.

Strandings

Strandings of 8 species of small odontocetes, *Kogia sp* and beaked whales *sp* were recorded (Table 4). On examination, one of the false killer whales was found to have a plastic bag in its stomach. Stomach contents of a stranded bottlenose dolphin included small squid and unidentified small fish. One mass stranding of 36 pilot whales was observed. The whales stranded on the French island of St Marteen; some of the animals were still alive. In general, strandings are more common on the east coast off Guadeloupe.

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Encounters	1998	1998/100h	1999	1999/100h	2000	2000/100h	2001	2001/100h	2002	2002/100h	2003	2003/100h	2004	2004/100h	2005	2005/100h	Total	Total/100h
<i>Stenella attenuata</i>	20	9,85	51	12,66	99	15,23	115	20,21	124	21,75	168	23,76	252	21,89	162	13,12	991	138,48
<i>Pseudorca crassidens</i>	2	0,99	3	0,74	7	1,08	5	0,88	8	1,40	10	1,41	19	1,65	2	0,16	56	8,32
<i>Tursiops truncatus</i>	9	4,43	2	0,50	8	1,23	3	0,53	5	0,88	12	1,70	12	1,04	14	1,13	65	11,44
<i>Orcinus orca</i>	1	0,49	0	0,00	1	0,15	2	0,35	1	0,18	0	0,00	0	0,00	2	0,16	7	1,34
<i>Feresa attenuata</i>	1	0,49	5	1,24	10	1,54	13	2,28	0	0,00	15	2,12	9	0,78	9	0,73	62	9,19
Beaked whales <i>sp</i>	4	1,97	3	0,74	6	0,92	7	1,23	9	1,58	15	2,12	15	1,30	23	1,86	82	11,73
<i>Globicephala macrorhynchus</i>	6	2,96	6	1,49	7	1,08	4	0,70	17	2,98	7	0,99	9	0,78	11	0,89	67	11,87
<i>Kogia sp</i>	1	0,49	0	0,00	2	0,31	2	0,35	3	0,53	2	0,28	5	0,43	1	0,08	16	2,48
<i>Lagenodelphis hosei</i>	0	0,00	1	0,25	6	0,92	6	1,05	10	1,75	3	0,42	17	1,48	13	1,05	56	6,93
<i>Stenella frontalis</i>	0	0,00	0	0,00	1	0,15	0	0,00	0	0,00	0	0,00	0	0,00	0	0,00	1	0,15
<i>Steno bredanensis</i>	0	0,00		0,00		0,00	2	0,35	1	0,18	2	0,28	6	0,52	3	0,24	14	1,57
<i>Stenella coeruleoalba</i>	0	0,00	1	0,25	0	0,00	2	0,35	1	0,18	0	0,00	1	0,09	0	0,00	5	0,86
<i>Stenella longirostris</i>	1	0,49	0	0,00	0	0,00	0	0,00	0	0,00	0	0,00	5	0,43	0	0,00	6	0,93
<i>Peponocephala electra</i>	0	0,00	0	0,00	0	0,00	0	0,00	0	0,00	0	0,00	0	0,00	0	0,00	0	0,00
Non identified	2	0,99	0	0,00	7	1,08	8	1,41	4	0,70	6	0,85	0	0,00	6	0,49	33	5,50
Total number of encounters	47	23,15	72	17,87	154	23,69	169	29,70	183	32,11	240	33,95	350	30,41	246	19,92	1461	210,79
Effort (in hours)	203		403		650		569		570		707		1151		1235		5488	

Table 1. List of small cetacean species observed from 1998 to 2005 off Guadeloupe

Species	% encounters per 100 h effort
<i>Stenella attenuata</i>	65.69%
<i>Globicephala macrorhynchus</i>	5.63%
Beaked whale species	5.56%
<i>Tursiops truncatus</i>	5.43%
<i>Feresa attenuata</i>	4.36%
<i>Pseudorca crassidens</i>	3.95%

Table 2. Species most commonly sighted off Guadeloupe

ENCOUNTERS PER MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
<i>Stenella attenuata</i>	447	633	1004	756	444	145	420	593	128	174	273	487	5371
Encounters /100 h	126,1	130,4	135,2	126,9	136,2	119,8	120,0	118,5	145,5	121,2	120,0	113,4	126,9
<i>Pseudorca crassidens</i>	4	0	7	14	4	5	0	6	0	3	0	1	44
Encounters /100 h	1,1	0,0	0,9	2,4	1,2	4,1	0,0	1,2	0,0	2,1	0,0	0,2	1,0
<i>Tursiops truncatus</i>	1	4	9	4	6	3	6	2	1	4	4	1	45
Encounters /100 h	0,3	0,8	1,2	0,7	1,8	2,5	1,7	0,4	1,1	2,8	1,8	0,2	1,1
<i>Feresa attenuata</i>	5	1	6	4	4	2	1	7	1	1	10	2	44
Encounters /100 h	1,4	0,2	0,8	0,7	1,2	1,7	0,3	1,4	1,1	0,7	4,4	0,5	1,0
Beaked whales sp	5	5	8	11	3	0	7	14	3	5	4	2	67
Encounters /100 h	1,4	1,0	1,1	1,8	0,9	0,0	2,0	2,8	3,4	3,5	1,8	0,5	1,6
<i>Globicephala macrorhynchus</i>	6	3	8	5	1	0	3	5	3	3	7	4	48
Encounters /100 h	1,7	0,6	1,1	0,8	0,3	0,0	0,9	1,0	3,4	2,1	3,1	0,9	1,1
<i>Lagenodelphis hosei</i>	2	2	7	8	2	1	3	1	0	0	4	5	35
Encounters /100 h	0,6	0,4	0,9	1,3	0,6	0,8	0,9	0,2	0,0	0,0	1,8	1,2	0,8

Table 3. Encounters per month

<i>Stenella attenuata</i>	3
<i>Pseudorca crassidens</i>	1
<i>Tursiops truncatus</i>	3
<i>Feresa attenuata</i>	1
<i>Mesoplodon europaeus</i>	1
<i>Ziphius cavirostris</i>	2
Beaked whales N.I.	2
<i>Globicephala macrorhynchus</i>	3
<i>Kogia sp</i>	1
<i>Steno bredanensis</i>	1
<i>Stenella longirostris</i>	1

Table 4. Strandings from 1998 to 2005