

Marine mammals of New Caledonia and the Loyalty islands Check list of the species

Claire GARRIGUE

Opération Cétacés, BP 12827, 98802 Noumea, New Caledonia
op.cetaces@offratel.nc

Résumé

Les mammifères marins de Nouvelle-Calédonie et des îles Loyauté sont représentés par 25 espèces réparties en 18 genres, 7 familles et 3 ordres. Quinze espèces ont été observées en mer et 10 espèces ne sont connues que par des échouages. La plupart des espèces répertoriées ont une large répartition et aucun endémisme n'a été relevé en Nouvelle-Calédonie, néanmoins quelques originalités peuvent être notées.

La présence d'une espèce de pinnipède, *Arctocephalus forsteri*, est le fait de quelques individus isolés probablement transportés accidentellement par les courants marins. La Nouvelle-Calédonie abrite une petite population reproductrice de Dugong (*Dugong dugon*) qui constitue la plus grande population d'Océanie et la troisième population mondiale. Les Cétacés comprennent 6 espèces de Mysticètes et 17 espèces d'Odontocètes dont certaines ne sont connues que par un unique spécimen (*Balaenoptera edeni*, *B. borealis*, *B. musculus breviceuda*, *Ziphius cavirostris*, *Delphinus delphis*, *Peponocephala electra*, *Steno bredanensis*). Parmi les îles du Pacifique sud la présence du cachalot pygmée (*Kogia breviceps*) ainsi que celle de la sous-espèce de baleine bleue pygmée (*Balaenoptera musculus breviceuda*) n'est confirmée qu'en Nouvelle-Calédonie. La baleine à bosse fait l'objet d'importantes recherches (biologie, écologie, génétique). Une petite population de baleines à bosse présentant une reproduction et une démographie autonome utilise le lagon sud comme zone de reproduction. Des études sont également conduites sur le dugong (*Dugong dugon*) et le grand dauphin de l'Indo Pacifique (*Tursiops aduncus*) pour lesquels la présence de populations reproductrices a été confirmée. De nombreuses espèces inventoriées en Nouvelle-Calédonie sont classées comme en danger ou menacées dans le livre rouge de l'UICN et inscrites dans les annexes des principales conventions internationales comme la Convention de Bonn (CITES). Les programmes de recherche menés en Nouvelle-Calédonie ont amélioré la connaissance sur certaines espèces mais la poursuite des études s'avère nécessaire pour établir leur statut et déterminer la distribution de nombreuses autres espèces de ce groupe zoologique.

Abstract

The marine mammal fauna of New Caledonia and the Loyalty islands is represented by 25 species distributed in 18 genera, 7 families and 3 orders. Fifteen species have been sighted at least once at sea and 10 species are only known from stranding. No endemism exists in New Caledonia as most of the species identify are widely distributed species nevertheless some originalities exist.

The occurrence of one Pinniped, *Arctocephalus forsteri*, probably correspond to erratic specimens accidentally transported by ocean currents. New Caledonia hosted the largest population of *Dugong dugon* in Oceania and the third world largest population. Cetacean comprised six species of baleen whales and seventeen species of toothed whales. Some of them are known by only one specimen (*Balaenoptera edeni*, *B. borealis*, *B. musculus breviceuda*, *Ziphius cavirostris*, *Delphinus delphis*, *Peponocephala electra*, *Steno bredanensis*). Among the South Pacific islands region the presence of the pygmy sperm whale (*Kogia breviceps*) and that of the subspecies of pygmy blue whale (*Balaenoptera musculus breviceuda*) was only confirmed in New Caledonia. The humpback whale (*Megaptera novaeangliae*) is subject of important researches (biology, ecology and genetic). A small population of humpback whales with reproductive and demographic autonomy is breeding in the Southern part of the lagoon. In a lesser extent studies are also conducted on Dugong (*Dugong dugon*) and Indian Ocean bottlenose dolphin (*Tursiops aduncus*) for which occurrence of reproductive populations has been confirmed.

Many of the species inventoried are listed as endangered or threatened on the IUCN Red List and are included on the Appendices of the major international conventions on wildlife such as CMS and CITES. The research programs conducted in New Caledonia provide a better knowledge on some species but further studies are required to establish the status and determine the distribution of many species of this zoological group.

With the exception of humpback whales (*Megaptera novaeangliae*) reported in New Caledonian archipelago in 1842 (Pisier, 1975; Bérard, 1854), the marine mammals fauna of New Caledonia was poorly known until recently. The first acquired knowledge came from biologists that occasionally documented stranding events (Rancurel, 1973 and 1975; Robineau and Rancurel, 1981; Sylvestre, 1988) but no published sighting of marine mammals was available for New Caledonia or the Loyalty Islands.

The first research program devoted to marine mammals began fifteen years ago and is still on going. It included numerous sea and land-based surveys (Garrigue, 2004a and b, 2005), collection of biological, behavioural and acoustic data at sea (Garrigue *et al.*, 2001, 2004a), collection of biological material and biometric measurements on stranding specimens (Opération Cétacés, unpublished data), collection of opportunistic sightings (Garrigue and Greaves, 2001).

A sampling effort of 557 days of sea surveys totalising more than 3,900 h of observation completed by 445 days of land-based survey totalising more than 2,300 h of observation (Garrigue, 2005), was developed during this scientific program. More than 800 opportunistic sightings was reported using form made available to public since 1991 (Garrigue and Greaves, 2001). Forty six stranding events were documented by the author and thirty five stranded animals were examined by the author (Bustamante *et al.*, 2003; Garrigue *et al.*, 2003 and 2000; Opération Cétacés, unpublished data).

A first checklist of marine mammals from New Caledonia was established in 2001 (Garrigue and Greaves, 2001). A revision was carried on using the synthesis of all the studies conducted since 1991 plus a few opportunistic data (Borsa, 2006). The marine mammal fauna of New Caledonia and the Loyalty islands now consists of 24 species distributed in 17 genera, 7 families and 3 orders. Fifteen species have been sighted at least once at sea and 9 species are only known from stranding.

The records of one Pinnipeds of the Otariidae family (*Arctocephalus forsteri*) in four occasions (Rancurel, 1975; King, 1976; Opération Cétacés, unpublished data) is interesting because records of Pinnipeds in the South Pacific tropics are rare (Reeves *et al.*, 1999). It is highly probable that these seals were accidentally transported by ocean currents from one of the nearest breeding colonies of Australia or New Zealand.

Only one Sirenian, the dugong (*Dugong dugon*) is inhabiting New Caledonia. This coastal species is mainly distributed inside of the lagoon more frequently on the west coast (Garrigue and Patenaude, 2004). New Caledonia houses the third worldwide largest population of dugong (Garrigue *et al.*, in prep.) which is extremely important because it is located close to the border of the species distribution (Nishiwaki *et al.*, 1979).

Concerning the Cetaceans, six species of baleen whales and seventeen toothed whales have been identified in New Caledonia. There is no endemism as most of the species identified are widely distributed nevertheless some originalities exist.

All the baleen whales found in New Caledonia present a cosmopolite distribution with the exception of the Bryde's whale (*Balaenoptera edeni*) which is only found in the tropic and subtropical areas. The humpback and minke whales (*Balaenoptera acutorostrata*, *Megaptera novaeangliae*) are regular inhabitants of New Caledonia. The former one (*M. novaeangliae*) has been identify in most of the South Pacific islands groups for which information are available, probably because of the habits of this species to congregate on breeding grounds (Garrigue *et al.*, 2002). In New Caledonia the southern lagoon has been identified as an important breeding ground for a small population of humpback whale (Garrigue *et al.*, 2001). Both Antarctic minke whales (*Balaenoptera bonaerensis*) and dwarf minke whales (*B. acutorostrata subspecies*) likely occur in South Pacific waters. There are records

of minke whales from many islands but in most cases there is insufficient information to confirm which of the two species they are. The presence of dwarf minke whales has been confirmed genetically only in New Caledonia and Tonga. Antarctic minke whales have been identified from pigmentation patterns in New Caledonia and Samoa (Borsa, 2006; Walsh *et al.*, 2003) and genetically in French Polynesia. Three species of baleen whales have only been documented stranded: the bryde's whale (*B. edeni*), the sei whale (*Balaenoptera borealis*) and the pygmy blue whale (*Balaenoptera musculus breviceuda*) (Reeves *et al.*, 1999; Borsa 2006; Clua, 2002; Garrigue *et al.*, 2003; Borsa and Hoarau, 2004). Blue whale (*B. musculus*) has been identify in few island but the presence of the subspecies of pygmy blue whale (*B. musculus breviceuda*) was only confirmed in New Caledonia (Clua, 2002; Garrigue *et al.*, 2003; Borsa and Hoarau, 2004).

Four families of toothed whales are represented in New Caledonia. The Physeteridae family only hosts the sperm whale (*Physeter macrocephalus*) which has a cosmopolite distribution. It is a common species in the oceanic waters surrounding the New Caledonian archipelago and it has been largely identify in the South Pacific (Reeves *et al.*, 1999; Opération Cétacés unpublished data). Sperm whales are mainly encountered in the end of spring and in summer but the vocalisations recorded in winter (Garrigue, 2004a) and the temporal distribution of the stranding events (N=24, Borsa, 2006; Opération Cétacés unpublished data) lets suppose that the species could be found year around in New Caledonia. The sighting of large pods and the observation of stranded calves in summer suggest that sperm whales may reproduce in New Caledonian waters.

Both representatives of the Kogiidae family, the pygmy and the dwarf sperm whale (*Kogia breviceps* and *Kogia sima*) have been listed among the most commonly stranded cetaceans in some parts of the world (Ploen, 2004). They are commonly reported stranded in New Caledonia where the good condition of carcasses and the distribution of events year round suggest that *Kogia* could be a regular inhabitant of the waters outside/surrounding of the barrier reef. These species are considered to be rare, mainly because of their offshore distribution (Ploen, 2004). One opportunistic sighting has recently been reported but confirmation of the species was not possible as there are no reliable criteria to distinguish sightings of these lifelike species (Leatherwood and Reeves, 1983). Although these species are distributed in tropical and warm temperate waters, sighting are still rare probably because of the discreet behaviour of both species which make them difficult to observe at sea. Dwarf sperm whale (*K. sima*) has only been reported in three of the South Pacific islands: New Caledonia, French Polynesia and Samoa and pygmy sperm whale (*K. breviceps*) has only been notified in New Caledonia.

Two species of beaked whales belonging to the Ziphiidae family have been identified in New Caledonia. The dense beaked whale (*Mesoplodon densirostris*) is the mostly widely distributed species in the genus *Mesoplodon*. It was first identify from tooth that came from a stranding animal (Garrigue and Greaves, 2001). A second stranding event allowed confirmation of identity through DNA taxonomy. The maternal lineage (mitochondrial DNA haplotype) represented by this animal has also been found in animals from French Polynesia and Chile (M. Dalebout pers. comm.). Opportunistic sightings in the Loyalty basin (Borsa and Robineau, 2005) and the New Caledonia basin (Opération Cétacés, unpublished data) let suppose that the species, which occurs in temperate and tropical waters of all the oceans, could be largely distributed around New Caledonia. The presence of the second species, Cuvier's beaked whale (*Ziphius cavirostris*), was confirmed through the DNA identification of a decomposed animal found stranded in Ouvea (Loyalty island) in October 2003 (D. Steel, pers. comm.). The maternal lineage represented by this whale is relatively common throughout the range of this species, but occurs most frequently among animals from the North pacific (Dalebout *et al.*, 2005; M. Dalebout, pers. comm.).

The Delphinidae family is well represented in New Caledonia with 10 species. Most of them have a large oceanic distribution in tropical to subtropical or warm temperate waters and are found in other South Pacific islands region. Six representatives of the Globicephalinae subfamily have been identified in New Caledonia. The short-finned pilot whale (*Globicephala macrorhynchus*) has regularly

been encountered at sea, where as the false killer whale (*Pseudorca crassidens*), the killer whale (*Orcinus orca*) and the Risso's dolphin (*Grampus griseus*) have been less frequently observed. The melon-headed whale (*Peponocephala electra*) and the pygmy killer whale (*Feresa attenuata*) have only been documented by stranding. From the five members of the Delphinidae subfamily listed in New Caledonia three are oceanic species. The spinner dolphin (*Stenella longirostris*) which is actively feeding at night in the mesopelagic waters, is commonly observed in some back reef areas of the lagoon where shallow sandy waters are used as resting areas during the day. The pan tropical spotted dolphin (*Stenella attenuata*) has been sighted around New Caledonia and the Loyalty islands, and the common dolphin (*Delphinus delphis*) has only been documented by a skull preserved in the National Museum of Natural History in Paris (Borsa, 2006). The originality of the Delphinidae in New Caledonia comes from the existence of two species of *Tursiops*. The bottlenose dolphins (genus *Tursiops*) are found in tropical and temperate waters with both coastal and pelagic populations (Mead and Brownell 1993; Rice, 1998). *T. truncatus* has only been encountered in the oceanic environments outside of the barrier reef of New Caledonia and in the Loyalty islands where as its congeneric species the Indian Ocean bottlenose dolphin (*T. aduncus*) is one of the most frequently sighted species into the lagoon of Grande Terre. Photo-identification studies supported the existence of resident coastal populations (Garrigue, 2004b; Opération Cétacés, unpublished data). Identifications of the two *Tursiops* species has been confirmed by genetic analyses (Moller and Beheregaray, 2001; Wang *et al.*, 1999, de Tesanos Pinto *et al.*, 2005). *T. truncatus* is largely represented in the South Pacific where as *T. aduncus* has only been reported in New Caledonia where its presence extends the eastern range of distribution of this species (Ross, 1977; Ross and Cockcroft, 1990; Wang *et al.*, 2000). One member of the Steninae subfamily, the rough-toothed dolphin (*Steno bredanensis*) has recently been identified using molecular tools.

There is a large gap in the knowledge of marine mammals in the South Pacific as there have been few dedicated offshore cetacean surveys in the region. Limited data on distribution and status of these animals are available in many of the islands groups and no information exist in other islands. Due to the vastness of the region a huge sampling effort will be necessary to identify the pelagic species and to obtain data on their distribution. Until recently most of the available information came from whaling data (Townsend, 1935; Dawbin, 1959 and 1964), or consisted of opportunistic sightings from non-systematic efforts of individual scientists. Coastal surveys have recently been conducted by the SPWRC and local researchers in Samoa, Fiji and Vanuatu (SPWRC, 2004; Garrigue and Russell, 2004; Garrigue *et al.*, 2004b; Walsh *et al.*, 2003) and will be carried on in Tuvalu and Kiribati later this year (SPWRC, 2006). Using the available information the diversity of marine mammals in the South Pacific Islands region have been established to be 33 species of which 30 cetaceans (8 baleen whales and 22 toothed whales), 1 sirenian and 2 carnivores emphasizing the importance of the area for conservation of marine mammals (Reeves *et al.*, 1999; Garrigue and Russell, 2004; Garrigue *et al.*, 2004b; Walsh *et al.*, 2003; SPWRC, 2003). Many of the species inventoried are listed as endangered or threatened on the IUCN Red List and are included on the Appendices of the major international conventions on wildlife (such as CMS and CITES). The diversity of marine mammals in New Caledonia represents a good proportion of species actually known to inhabit the region but it is highly probable that more species could be found if dedicated surveys would be undertaken outside of the barrier reef because the presence of a huge lagoon, especially around Grande Terre, prevents pelagic species to be observed.

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List of taxa

English and French name are given after the name of each species.

BALAELOPTERIDAE

- Balaenoptera musculus brevicauda* (Ichira, 1966) Zemsky and Boronin, 1964
 Pygmy blue whale - baleine bleue pygmée
- Balaenoptera acutorostrata* subspecies (Lacépède, 1804)
 Dwarf minke whale - petit rorqual pygmée
- Balaenoptera bonaerensis* (Burmeister, 1867)
 Antarctic minke whale – petit rorqual Antarctique
- Balaenoptera borealis* (Lesson, 1828)

Sei whale - Rorqual de Rudolphi ou rorqual boréal
Balaenoptera edeni (Anderson, 1878)
Bryde's whale – Rorqual de Bryde ou rorqual tropical
Megaptera novaeangliae (Borowski, 1781)
Humpback whale – Baleine à bosse ou jubarte

PHYSETERIDAE

Physeter macrocephalus (Linnaeus, 1758)
Sperm whale – Grand cachalot

KOGIIDAE

kogia breviceps (de Blainville, 1838)
Pygmy sperm whale – Cachalot pygmée
kogia sima (Owen, 1866)
Dwarf sperm whale – Cachalot nain

ZIPHIIDAE

Ziphius cavirostris (Cuvier, 1823)
Cuvier's beaked whale – Baleine à bec de Cuvier
Mesoplodon densirostris (de Blainville, 1817)
Dense beaked whale – Baleine à bec de Blainville

DELPHINIDAE

ORCININAE

Orcinus orca (Linnaeus, 1758)
Killer whale - Orque
Pseudorca crassidens (Owen, 1846)
False killer whale – Fausse Orque

GLOBICEPHALINAE

Globicephala macrorhynchus (Gray, 1846)
Short-finned pilot whale – Globicéphale tropical
Feresa attenuata (Gray, 1875)
Pygmy killer whale – Orque pygmée
Peponocephala electra (Gray, 1846)
Melon-headed whale – Péponocéphale ou dauphin d'Electre
Grampus griseus (Cuvier, 1812)
Risso's dolphin – Grampus ou Dauphin de Risso

DELPHININAE

Tursiops truncatus (Montagu, 1821)
Bottlenose dolphin – Grand dauphin
Tursiops aduncus (Ehrenberg, 1832)
Indian Ocean Bottlenose dolphin – Grand dauphin de l'Indo Pacifique
Stenella attenuata (Gray, 1846)
Pan troical spotted dolphin – Dauphin tacheté du Pacifique
Stenella longirostris (Gray, 1828)
Spinner dolphin - Dauphin à long bec
Delphinus delphis (Linnaeus, 1758)
Common dolphin – Dauphin commun

STENINAE

Steno bredanensis (Lesson, 1828)
Rough-toothed dolphin - Sténo, dauphin à bec étroit

SIRENIA OF NEW CALEDONIA

DUGONGIDAE

Dugong dugon (Müller, 1776)
Dugong – Dugong ou vache marine

CARNIVORA OF NEW CALEDONIA

OTARIIDAE

Artcephalus forsteri (Lesson, 1828)
New Zealand fur seal – Otarie de Nouvelle-Zélande



© Benjamin Adoux

Pseudorca crassidens



© M. Orenus

Mesoplodon densirostris



© Sabrina Vrily

Balaenoptera acutorostrata



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Globicephala macrorhynchus



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Stenella longirostris



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Dugong dugon



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Tursiops aduncus



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Tursiops truncatus

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II7

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Deuxième édition

COMPENDIUM
of marine species from
New Caledonia



Edited by
Claude E. PAYRI
Bertrand RICHER DE FORGES



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CENTRE DE NOUMEA

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Centre IRD de Nouméa
BP A5, 98848 Nouméa CEDEX
Nouvelle-Calédonie
Téléphone : (687) 26 10 00
Fax : (687) 26 43 26

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