

The small-cetacean fauna of the west coast of Africa and Macaronesia: diversity and distribution

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This review is an attempt to summarize the existing information in the literature on distribution of small cetaceans in the region, by species and by country. A constraint on the time available for preparation has limited the scope of the review; it is not exhaustive, and records not noted here undoubtedly exist, especially for Macaronesia. The summary tables given here can serve as a basis for further review. The tables and list of references consulted are available from the authors as electronic files.

The area covered includes the entire west coast of Africa from Morocco to South Africa (Atlantic coast) and the archipelagos of Macaronesia

(Canary Islands, Madeira, Azores and Cape Verde Islands). Little is known about the distribution of most small cetaceans along the west coast of Africa; roughly 25-30 species are thought to occur there, depending on the source consulted (Jefferson *et al.*, 1993; Rice, 1998; Culik, 2004; IUCN Red List, 2007; others). The small cetacean fauna of most of Macaronesia is better known, as there have been a number of cetological surveys, stranding programs, and reviews initiated there in recent years (e.g. Steiner and Gordon, 1993; Martin *et al.*, 1992; Hazevoet and Wenzel, 2000; Moore *et al.*, 2003; Silva *et al.*, 2003). Records of a total of 31 species were found in the present review.

The records on which the table is based are of varying reliability. Some are confirmed by specimens, photographs, or the opinion of an on-site expert; many others are not. Unless it could be determined from data or photographs in the reference that the record was likely to be erroneous, it was included. The aim was to develop an overall picture of diversity and distribution. Before a definitive checklist can be developed for a country, the putative records should each be closely checked for likely validity. The tables are organized with countries and territories arranged roughly from north to south and the small-cetaceans grouped into 1) north-temperate, 2) tropical, 3) south-temperate, 4) antitropical, and 5) cosmopolitan species.

Some of the north-temperate species (Table 1) have been recorded as far south as Senegal (*Phocoena phocoena*) or Guinea Bissau (*Mesoplodon mirus*), but their core range is likely to be restricted to cooler waters from northern Mauritania.

Many of the mainly tropical species have been recorded from the Azores, reflecting the influence of the northeastern extension of the Gulf Stream. While all have been recorded from Senegal and many from Côte d'Ivoire, the small-cetacean fauna of most of the tropical waters of West Africa remains very poorly known. For example, none have been recorded in the references seen from São Tomé and Príncipe, Togo or Nigeria. All or most of the tropical dolphins and small toothed whales can be expected to occur along the entire coast, although it is possible that some species may have been extirpated by fisheries bycatch in the waters of some countries (e.g., see Van Waerebeek *et al.*, 2003, 2009 and Van Waere-

beek, 2006b on *Sousa teuszii*). The occurrence of both north-temperate and tropical species in the northern portions of the region is due to complex oceanographic structure, including seasonal and interannual shifts in sea-surface temperature and other features. For example, marked interannual differences occur in the species make-up of small cetaceans around the Azores (Clua and Grosvaler, 2001).

Three of four south-temperate species (Table 2) have only been recorded from the waters of Namibia and South Africa; the fourth, Heaviside's dolphin (*Cephalorhynchus heavisidii*), also occurs off Angola, in the south of the country.

Two species have antitropical distributions. *Mesoplodon mirus* has been recorded only from the Azores and the Canary Islands in the north and South Africa in the south. *Globicephala melas* has been recorded from as far south as Mauritania in the north and from South Africa in the south.

The more cosmopolitan species are well known from the north down to Senegal and from the far south but not from the intervening region, where they all can be expected to occur. The exception is the killer whale (*Orcinus orca*), which is easily seen and identified.

The relative lack of information on the distribution of tropical and cosmopolitan species in the waters of the countries of tropical West Africa suggests a need for increased field research there, to conduct surveys of distribution and abundance, collect data on bycatch in fisheries, and collect stranded and bycaught animals for confirmation of species and study of their systematics, life history and ecology.

Table 1. Reported distribution of north-temperate and tropical small cetaceans on the west coast of Africa and in Macaronesia. P = reported present.

	NORTH-TEMPERATE SPECIES				TROPICAL SPECIES												
	<i>Hyperoodon ampullatus</i>	<i>Mesoplodon bidens</i>	<i>Mesoplodon europaeus</i>	<i>Phocoena phocoena</i>	<i>Mesoplodon densirostris</i>	<i>Feresa attenuata</i>	<i>Globicephala macrorhynchus</i>	<i>Grampus griseus</i>	<i>Lagenodelphis hosei</i>	<i>Peponocephala electra</i>	<i>Pseudorca crassidens</i>	<i>Sousa teuszii</i>	<i>Stenella attenuata</i>	<i>Stenella clymene</i>	<i>Stenella frontalis</i>	<i>Stenella longirostris</i>	<i>Steno bredanensis</i>
Azores (Portugal)	P	P	P		P		P	P			P				P		
Morocco	P			P				P			P						
Western Sahara				P								P					
Madeira (Portugal)		P			P		P										P
Canary Islands (Spain)	P	P	P		P	P	P	P							P	P	P
Mauritania			P	P	P		P	P		P		P	P	P	P		P
Cape Verde Islands					P	P	P		P			P		P	P	P	P
Senegal				P	P	P	P	P	P	P	P	P	P	P	P	P	P
The Gambia							P				P		P				
Guinea Bissau			P				P	P		P		P					
Guinea - Conakry							P				P	P		P	P	P	
Sierra Leone																	
Liberia																P	
Ivory Coast							P	P			P		P		P	P	P
Ghana						P	P	P	P	P		P	P	P	P	P	P
Togo												P					
Benin									P						P		
Nigeria																	
Cameroon											P						
Equatorial Guinea						P						P		P			
Sao Tome & Principe																	
Gabon										P	P	P					
Congo - Brazzaville													P				
Dem. Rep. of the Congo																	
Angola											P		P				
Namibia						P											P
South Africa (Atl. Coast)					P	P		P									

Table 2. Reported distribution of south-temperate, antitropical and cosmopolitan small cetaceans on the west coast of Africa and in Macaronesia. P = reported present.

	SOUTH-TEMPERATE SPECIES					ANTI-TROPICAL SPP.	COSMOPOLITAN SPECIES								
	<i>Mesoplodon grayi</i>	<i>Mesoplodon layardii</i>	<i>Cephalorhynchus heavisidii</i>	<i>Lagenorhynchus obscurus</i>	<i>Lissodelphis peronii</i>	<i>Mesoplodon mirus</i>	<i>Globicephala melas</i>	<i>Kogia breviceps</i>	<i>Kogia sima</i>	<i>Ziphius cavirostris</i>	<i>Delphinus capensis</i>	<i>Delphinus delphis</i>	<i>Orcinus orca</i>	<i>Stenella coeruleoalba</i>	<i>Tursiops truncatus</i>
Azores						P	P	P	P	P			P	P	P
Morocco							P			P		P	P		P
Western Sahara												P	P		
Madeira								P				P	P		P
Canary Islands						P	P	P		P	P		P	P	P
Mauritania							P	P		P			P	P	P
Cape Verde Islands							P			P		P	P	P	P
Senegal								P	P	P	P	P	P	P	P
The Gambia							P				P		P		P
Guinea Bissau												P			P
Guinea - Conakry								P				P			P
Sierra Leone															
Liberia													P		
Ivory Coast													P		P
Ghana									P	P	P		P		P
Togo											P		P		
Benin															
Nigeria															
Cameroon															
Equatorial Guinea													P		
Sao Tome & Principe													P		P
Gabon											P	P	P		
Congo - Brazzaville											P	P			
Dem. Rep. Congo											P	P			
Angola			P								P	P		P	
Namibia	P		P	P	P			P		P			P		P
South Africa (Atl.)		P	P	P		P	P	P		P		P	P	P	P

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