

Sea Birds and Marine Mammals of the First Indian Antarctic Expedition (1981-82)

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ABSTRACT

Thirteen species of sea birds and five species of marine mammals observed in the Antarctic and the subantarctic region are reported. Notes on occurrence, abundance, zoogeographic distribution and behaviour have been briefly mentioned.

INTRODUCTION

A review of the available literature on marine birds and mammals of Antarctica, including the land mass, oceanic part and subantarctic islands, reveal the relative paucity of information on the occurrence and distribution of seabirds and marine mammals of the Indian Ocean Sector or the intermediate region (Mathews 1937, Hart 1942, Holgerson 1945, Fallia 1952, Omura 1953, Paulian 1953, Brown 1954, Etchecopar and Prevost 1954, Yudin 1958, Eklund 1959, Sladen and Friedmann 1961, Eklund and Atwood 1962 and Stonehouse 1964 and 1965).

During the First Indian Antarctic Expedition of 1981-82, observations on sea birds and marine mammals encountered between the subtropical convergence and the Antarctic landmass (Fig. 1) were undertaken and the results are presented in this paper.

MATERIAL AND METHODS

Observations reported here, are from a wide area (Fig. 1) between 35 to 71°S and 10 to 51°E and covers approximately 44,90,640 sq. km. area of Antarctic region (i. e. south of 60°S) and 49,57,200 sq. km. area of sub-antarctic region (i.e. between 35 and 60°S). The area includes different biotopes, like open ocean, pack ice, floating ice, icy sea shelf, land mass and the environs of a large number of islands. The observations were carried out by visual examination, by using a field binocular, whenever necessary and the information on occurrence, distribution, abundance, zoogeographic range, morphological characters and behavioural patterns were recorded in the field diary. These observations were carried out daily over a total period of 38 days.

RESULTS AND DISCUSSION

The details of occurrence and distribution are presented in Fig. 1 and Tables 1 and 2. The species encountered were as follows:

Sea Birds

1. Wandering Albatross (*Diomedea exulans*) first sighted on 26th December, '81, around 37°40'S. A huge bird, white breasted; tips of the wing black; estimated wing span, over 1 m. Three birds and two white headed petrel, hovering and trailing the ship for more than 6 hours. Again sighted on 29th December 1981, in the vicinity of Crozet island (Fig. 1). On return cruise, sighted twice, once on 1st February 1982 and again on 2nd February 1982, but under diverse weather conditions, of very rough sea conditions in the first instance and under ideal sea conditions in the later occurrence. Zoogeographic range of distribution was between 37 to 54°S and 47 to 49°E. Total number of birds observed were 10.
2. Sooty Albatross (*Phoebastria fusca*). Sighted only once, 2 birds, alongwith the Wandering Albatross, on 29th December, 1981. Observed distributional limits between 45 to 48°S and 48 to 49°E i.e. in the vicinity of Crozet island (Fig. 1).

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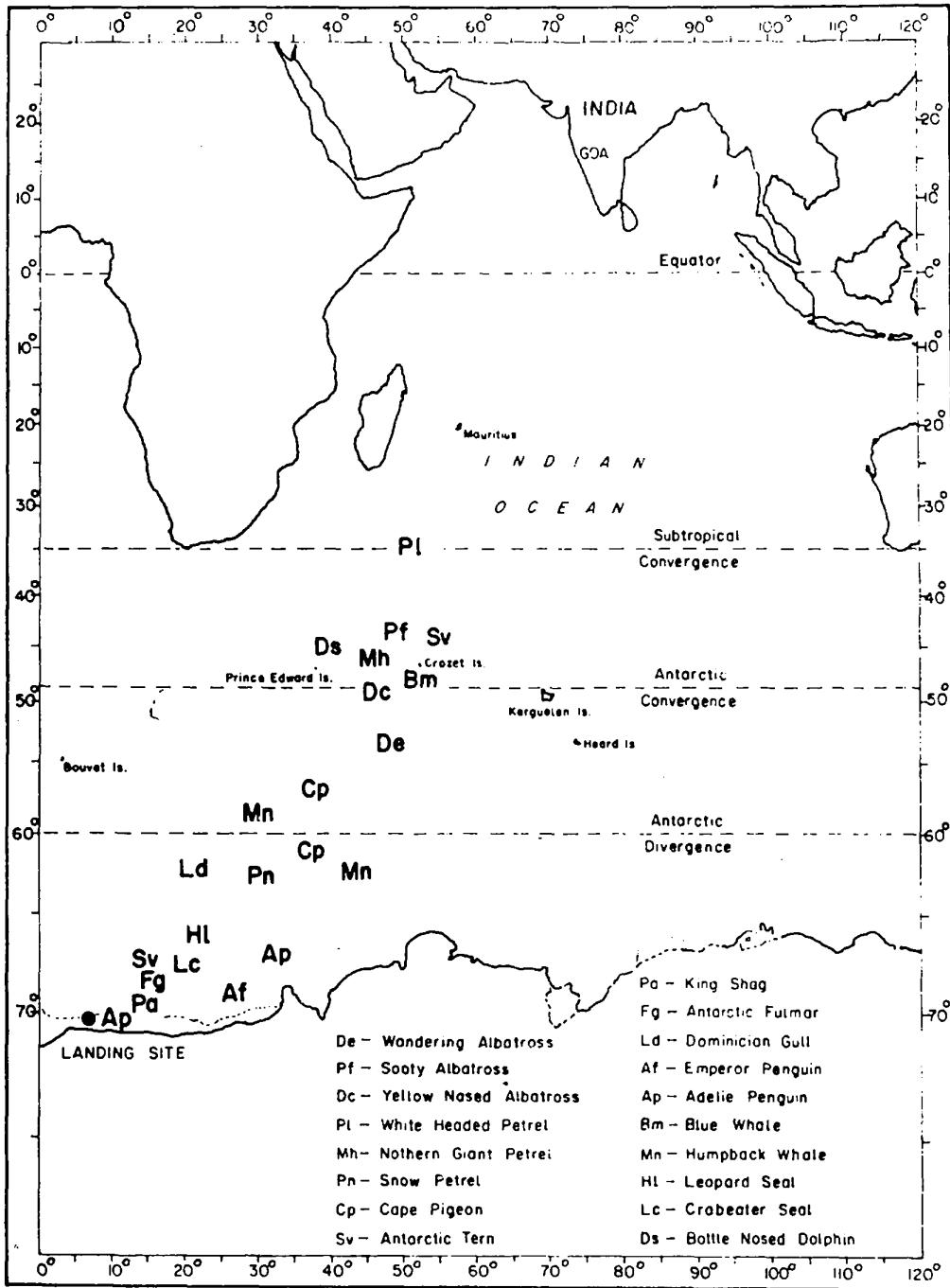


Fig. 1 : Seabirds and marine mammals in Antarctica

TABLE 1

Sea birds and marine mammals observed during the First Indian Antarctica Expedition — 1981-82

Sl. No.	Common Name	Binomial Nomenclature	Date of Sighting	Geographical Latitude (S)	Position Longitude (E)
SEABIRDS					
1.	Wandering Albatross	<i>Diomedea exulans</i>	26/XII/1981; 29/XII/1981; 1/II/1982 & 2/II/1982	37°40.88' to 54°10.25'	47°37.98' to 49°51.57'
2.	Sooty Albatross	<i>Phoebastria fusca</i>	29/XII/1981	45°40.19' to 48°14.25'	48°14.25' to 49°57.77'
3.	Yellow Nosed Albatross	<i>Diomedea chlororhynchos</i>	30/XII/1981	48°14.25' to 52°37.80'	48°19.65' to 49°57.77'
4.	White Headed Petrel	<i>Pterodroma lessoni</i>	26/XII/1981 & 2/II/1982	35°56.88' to 40°41.87'	47°37.98' to 51°00.8'
5.	Northern Giant Petrel	<i>Macronectes halli</i>	29/XII/1981	45°40.19' to 48°14.25'	48°35.98' to 49°57.77'
6.	Snow Petrel	<i>Pagodroma nivea</i>	6/I/1982; 13/I/1982; 18/I/1982 & 26/I/1982	60°12.57' to 68°16.24'	26°20.78' to 26°27.10'
7.	Cape Pigeon	<i>Daption capensis</i>	1/I/1982 & 13/I/1982	58°59.41' 69°59.12'	11°55.07' 46°15.64'
8.	Antarctic Tern	<i>Sterna vittata</i>	27/XII/1981 to 29/XII/1981 20/I/1982 to 22/I/1982	43°29.19' to 48°41.58' 67°41.58' to 69°57.77'	67°46.37' to 68°43.50' 11°06.7' to 12°00.0'
9.	Antarctic Fulmar	<i>Fulmarus galcialoides</i>	13/I/1982 to 18/I/1982 & 21/I/1982 to 22/I/1982	57°46.37' to 69°59.12'	11°55.07' to 12°00.0'
10.	Dominican Gull	<i>Larus dominicanus</i>	29/XII/1981; & 21/I/1982 22/I/1982 & 27/I/1982	45°40.19' to 48°14.25' 57°21.27' to 68°24.65'	48°35.98' to 49°57.77' 11°11.67' to 29°45.46'
11.	King Shag	<i>Phalacrocorax albiventer</i>	10/I/1982 to 18/I/1982	69°59.12'	11°55.07'
12.	Emperor Penguin	<i>Aptenodytes forsteri</i>	6/I/1982	68°16.24'	26°20.78'
13.	Adelie Penguin	<i>Pygoscelis adeliae</i>	3/I/1982; 9/I/1982 to 18/I/1982; 20/I/1982	65°52.30' to 69°59.12°	11°06.7' to 40°41.9'

TABLE 1 (Contd.)

Sl. No.	Common Name	Binomial Nomenclature	Date of Sighting	Geographical Latitude (S)	Position Longitude (E)
MARINE MAMMALS					
1.	Blue Whale	<i>Balenoptera musculus</i>	30/XII/1981	48°14.25' to 52°37.80'	48°14.65' to 49°51.77'
2.	Humpback Whale	<i>Megaptera novaeangliae</i>	2/I/1982	61°21.01' to 65°52.30'	40°41.90' to 43°44.31'
3.	Leopard Seal	<i>Hydrurga leptonyx</i>	27/I/1982	58°15.53'	28°42.41'
			4/I/1982; 9/I/1982	65°53.29' & to	11°55.07' to
			20/I/1982	69°59.12'	34°45.06'
4.	Crabeater Seal	<i>Lobodon carcinophagus</i>	4/I/1982	65°52.30' & to	11°55.07' to
			6/I/1982	69°59.12'	40°41.9'
5.	Bottle Nosed Dolphin	<i>Hype. oodon rostratus</i>	31/I/1982	45°38.07'	40°24.62'

3. Yellow Nosed Albatross (*Diomedea chlororhychos*). Only once sighted (Table 1) in the region beyond the Antarctic Convergence i.e. south of 48°S. Number of birds sighted were 3.
4. White Headed Petrel (*Pterodroma lessoni*). First sighted, 2 birds, on 26th December 1981. flying alongwith the Wandering Albatross. Second sighting, of 3 birds, was on 2nd February 1982, again in association with Wandering Albatross. Observed distribution, restricted to the northernmost region of the subantarctic i.e. in the proximity of subtropical convergence (Fig. 1)
5. Northern Giant Petrel (*Macronectes halli*). Sighted one bird, that too, only once on 29th December 1981 alongwith the two species of albatross, namely *D. exulans* and *P. fusca*. Zoogeographic distribution - subantarctic more restricted, in the proximity of Antarctic convergence, especially, Crozet island.
6. Snow Petrel (*Pagodroma nivea*). Observed (Table 1) within the Antarctic circle i. e. south of 60°S. Bird of pack and floating ice and distribution extends upto the icy sea shelf of the continent. Occurring in a group of 3-4 and frequently diving into the sea for feeding. Total number of birds observed was 43.
7. Cape Pigeon (*Daption capensis*). Sighted twice, once on 1st January 1982 and again on 13th January 1982. Distribution extends from floating ice, through pack ice almost to the icy sea shelf of the Antarctic land mass. Very wide zoogeographic distribution extending between 58 to 69°S and 11 to 47°E. Total number of birds sighted were 17.
8. Antarctic Tern (*Sterna vittata*). Sighted twice, but in widely separated zoogeographic regions (Table 1). First sighting was in the region of Antarctic convergence and second one was in the sea shelf (Fig. 1). Small sized birds flying in group of 5-6.
9. Antarctic Fulmar (*Fulmarus glacialisoides*). Sighted on many occasions. While in the base camp (69°59.42'S; 11°55.07'E) from 9th to 18th January 1982, as also in the vicinity of the Antarctic coastline (Fig. 1). Flying usually in pair and diving together in the sea for food.
10. Dominican Gull (*Larus dominicanus*). Observed, many a times, in widely separated areas, either north of Antarctic convergence or south of Antarctic divergence (Fig. 1 and Table 1). Very wide

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zoogeographic distribution (45 to 69°S and 11 to 50° E) covering a number of biotopes, including islands, open sea, pack ice, floating ice and frozen sea shelf.

11. King Shag (*Phalacrocorax albiventer*). Common occurrence in the frozen sea shelf area. Brownish plumage, black beak and red eyes are the characteristic features of this fairly big-sized bird. Observed to be moving singly or freely mingling with the Adelie penguins.
12. Emperor Penguin (*Aptenodytes forsteri*). Single sighting, on 6th January 1982. Well-grown adult (Plate 1) measuring about 1 to 1.2 m in height, found stranded on floating/pack ice.
13. Adelie Penguin (*Pygoscelis adeliae*). First and second sighting, of 3rd and 6th January, 1982, respectively, was in the region of floating ice. Later on, between 9th and 19th January 1982, a number of specimens were observed in the proximity of the base camp (Plate 1). An inquisitive and friendly bird, rarely found singly, especially in the icy sea shelf region, where large assemblages or rookeries exist. The last sighting (20th January 1982) was in open sea area with less floating ice (68°43.5'S: 11°06.7'E) when an individual was observed to be swimming-diving and being chased by a Leopard Seal.

Marine Mammals

1. Blue Whale (*Balenoptera musculus*). Sighted only once a pair in open sea waters, in the vicinity of Crozet island (Fig. 1). The pair approximately 20 metres in length, was sighted through a binocular, at a distance of about 100 metres, on the port side of the ship. No detailed observations could be made.
2. Humpback Whale (*Megaptera novaeangliae*). First sighting on 2nd January 1982, was of 3 whales, in waters characterized by icebergs. More detailed observations could be carried out, during the second sighting — this time a pair, cruising merrily, probably an act of courtship, for more than 2 hours, on 27th January 1982, when the ship was at an oceanographic station — G. 11 (58° 15.53'S; 28° 42.41'E). The estimated length of the animal was about 12 metres. A number of sea birds, especially the Antarctic Tern, were observed to be following the whales.
3. Leopard Seal (*Hydrurga leptonyx*). First sighted on 4th January 1982, a pair on floating ice. Second time, it was a single animal, a bull, about 1.8 metres in length, found basking on the icy sea shelf, in the vicinity of landing site. Last sighting, was of a solitary specimen, chasing a penguin, in open sea, on 20th January 1982.
4. Crabeater Seal (*Lobodon carcinophagus*). Sighted twice, both the times on floating or pack ice. First time on 4th January 1982, 2 individuals, alongwith Leopard Seals and Adelie Penguins on a huge mass of floating ice. Second sighting was of 6 animals, 10 Adelie Penguins and a solitary Emperor Penguin, again on floating ice. The specimens, could be observed at a very close range, and varied from 1.5 to 2 metres in length.
5. Bottle Nosed Dolphin (*Hyperoodon rostratus*). Two full grown specimens measuring about 1 metre in length, were observed on 31st January 1982, while at an oceanographic station, G14 (45° 38.07' S; 40° 26.62' E). Specimens were observed to be playing around the ship for about ½ hour.

In the course of the expedition, a total number of 13 species of sea-birds and 5 species of marine mammals were observed. As presented in Table 2, most of the species exhibited a distinct zoogeographic distribution and accordingly 7 species of avifauna and 3 species of mammals occur in Antarctic region as against 6 species of birds and 2 species of mammals in the subantarctic region.



Plate 1A: A solitary Emperor Penguin (Aptenodytes forsteri) on pack ice.



Plate 1B: A flock of Adelie Penguin (Pygoscelis adeliae), with Indian base camp in the background.

TABLE 2
*Days spent and species of sea birds and marine mammals observed in
 antarctica and subantarctic region*

Region	Geographical Limits	Days Spent	Number of species	
			Sea Birds	Marine Mammals
Antarctic	South of 60° latitude	25	7	3
Subantarctic	Between 45 and 60° south latitude	13	6	2

Marine birds and mammals make only sparing use of the Antarctic Continent (Stonehouse 1965). With few exceptions, they spend most of the time at sea than on land and feed entirely from water. Out of 55 species of birds, reported from the Antarctic region i.e. on islands and coast within the bounds of the Antarctic convergence, south of 48°S, only 12 species of birds breed on or near the shores of Antarctic continent.

Seabirds are not uniformly distributed throughout their preferred water type (Brown 1981). They tend to be most abundant close to islands (Fig. 1). They also depend on smaller scale oceanographic phenomena to concentrate their prey for them. For instance, in the present study maximum concentration of sea birds was found near the convergence fronts, where one body of water sinks beneath another and plankton and other small prey are trapped along the boundary line. They feed on the edges, on the fish, krill, plankton and other small prey that live on the underside of the pack or floating ice and on the planktonic prey brought up to the surface by upwelling waters at glacier faces (Stonehouse 1964).

The Antarctic avifauna is characterized by large numbers but represented by few species (Eklund 1959). For convenience, the region is divided into two main areas, the Antarctic proper (south of 60°S) and the subantarctic (north of 60°S and upto subtropical convergence) which itself can be divided into three sectors, the Australian/New Zealand Sector, the Atlantic Sector and the Indian Ocean Sector. The subantarctic sector, explored during the present expedition was Indian Ocean sector, which so far is less investigated (Sladen and Friedmann 1961). Within this sector, certain species have a circumpolar distribution while other species are characteristic of the sector. Many more species which do not breed in the area, fly there to feed. The Antarctic seas are rich in food which is exploited by birds. By comparison, in the Antarctic proper, the land is completely barren and offers only nesting sites. This is evident from the paucity of land species.

Amongst the marine mammals, more than 12 species of Whale, 3 species of dolphin and 8 species of seal are reported from the Antarctic waters (Stonehouse 1965). In the present study, 2 species, each of whale and seal and only one species of Dolphin were encountered.

Whales, belonging to the family Mysticetes are devoid of teeth but are provided with comb-like baleen plates. In contrast, the dolphins, belonging to the family Odontocetti, are small toothed whales. Largest of all the living marine organisms, are the blue or sulphar-bottom whale (*Balenoptera musculus*). Both the names are derived from the yellow film of diatoms which covers the skin and imparts a blue grey or yellow tint to the otherwise black skin. The largest blue whale grows over 30 metres in length and weighs about 150 tons.

The Humpback whale (*Megaptera novaeangliae*) is rather a slow and relatively small-sized creature. Due to intensive hunting, it is now restricted only to deep waters.

Dolphins, are one of the most authenticated species and have been identified well within the pack ice i.e. along the Antarctic coast and also in warm waters close to the convergence.

The Phocid seals are widely distributed in Antarctic (Eklund and Atwood 1962). Crabeater seal (*Lobodon carcinophagus*) feeds entirely on Antarctic krill and other planktonic crustaceans. The Leopard seal (*Hydrurga leptonyx*) hunts penguins, fishes and also other seals. Both the species are essentially the animals of the pack ice. While crabeaters are seldom seen away from the pack ice, Leopard seals, are often encountered near the coastline. the convergence region and the wandering specimens are known from as far north as the tropic.

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