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Cetacean sightings and strandings at subantarctic Macquarie Island,
1968 to 1990

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CETACEAN SIGHTINGS AND STRANDINGS AT SUBANTARCTIC MACQUARIE ISLAND, 1968 TO 1990

by

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ABSTRACT

Some historical references to whales at Macquarie Island are given and the records of sightings and strandings made by members of the Australian National Antarctic Research Expeditions (ANARE) between 1968 and 1990 are reviewed and discussed. Eight species of cetaceans are reported here as having been positively identified at the island while another two species are reported as being of uncertain identity.

The annual visitation pattern, pod size and social structure of the most frequently sighted species, the killer whale, is reported and compared with records from subantarctic Marion Island. Killer whales feed on both penguins and seals at Macquarie Island and a list of bird species seen to associate with feeding whales is given.

1. INTRODUCTION

Macquarie Island, which lies in the Southern Ocean some 1500 km south-south-east of Tasmania, was discovered in 1810 by the sealing brig *Perseverance*. Early reports of the island indicate that whales were not common in the area:

- In 1821, a Captain Beveridge giving evidence at an inquiry held by Mr Commissioner Bigge stated, 'Black whales were not abundant at the island.' (Cumpston 1968).
- Raine (1824), in a general description of the island and its flora and fauna, states, 'Few whales have been seen at the island, and these were the black or proper whale. The fish called the killer is very common'. He also recorded the ribs and vertebrae of a whale on the west coast.
- In December 1923 a Norwegian whaling fleet, comprising of the factory ship *James Clark Ross* and five chasers visited the island but no whales were sighted during their short stay (Villiers 1925).

An ANARE station was established on the island in 1948 and has been staffed ever since. While biologists have been members of the ANARE every year, they have not always been present on the island over winter or necessarily moved extensively around the island.

The data reviewed here are part of a body of information gathered by Parks and Wildlife Service (PWS) staff and other ANARE members on an opportunistic basis. The movement of expeditioners around the island is irregular, with the main activity away from the station being in the summer period and along the east coast. While the majority of the sightings were made on the east coast, the majority of strandings were recorded on the west coast.

2. METHODS

The observations reported here were made on an opportunistic basis by ANARE personnel stationed at Macquarie Island and observers on Australian Antarctic Division resupply ships while in waters adjacent (within 20 n miles) to the island. They cover the period January 1968 to December 1990.

The detail and accuracy of the records vary considerably depending on the experience of the observers, the viewing point, weather conditions, duration of sighting and whether binoculars were used. A section containing uncertain identifications has been included in order to provide more complete data on the frequency of sightings.

3. OBSERVATIONS

The number of whale sightings/strandings recorded each year from 1968 to 1990 inclusive ranges from zero in 1969 and 1971, to 19 in 1984 and 1985. Of the 145 records included, 101 (69.7%) are from the last seven years (1984–1990) of the report period. Eighteen strandings or discoveries of skeletal remains are recorded; two from the east coast, fourteen from the west coast, and two uncertain.

3.1 DETAILS OF RECORDS

3.1.1 Baleen Whales (Mysticeti)

- Southern Right Whale (*Balaena glacialis*)

Two sightings and one stranding have been recorded.

2/9/76. Two whales were observed for approximately four hours in Buckles Bay. The observation was made by several people from a hillside at the ANARE station. No other details were recorded.

6/3/77. A southern right whale was stranded on the southwestern coast at Caroline Cove. It probably washed out to sea again as no remains have been reported.

15/6/78. A single southern right whale, estimated to be 18 m in length, was reported in Buckles Bay. It was observed by several people from a hillside above the ANARE station.

- Minke whale (*Balaenoptera acutorostrata*)

27/11/89. The captain of the ANARE resupply and marine science ship MS *Polar Queen* reported seeing a pod of minke whales when the ship was anchored in Buckles Bay.

3.1.2 Toothed Whales (Odontoceti)

- Cuvier's Beaked Whale (*Ziphius cavirostris*)

1975. Part of a skull was found at the high water mark in Sandell Bay on the west coast. It was clean and bleached and had probably been ashore for at least two years. No other remains were found at the site. The remains were identified by Dr E. Guiler and are now deposited with PWS in Hobart.

- Strap-toothed Whale (*Mesoplodon layardii*)

15/1/86. Parts of the skull and vertebrae of this whale were found at high water mark on the west coast, 1 km south of Cormorant Point. No flesh was left on the bones but they were 'oily'. As the author had traversed that section of coast during the previous summer they must have been ashore for less than twelve months. Approximately half of the vertebrae were found

30–40 m from the remains of the skull and other bones. The skull and all those parts of the jaws which could be located were returned to Australia where they were identified by Dr Guiler. They are now deposited with PWS in Hobart.

• **Sperm Whale (*Physeter macrocephalus*)**

Between 1968 and 1990 there were four sightings and one stranding of sperm whales reported at the island.

7/1/78. A pod of possibly five animals was seen out from Caroline Cove. Although the seas were moderately rough the observer had a clear view from a vantage point of approximately 150 m asl. They blew several times as they swam slowly southwards.

9/2/85. Two adults were seen swimming in a northerly direction 1 km out from Sandy Bay. They surfaced and blew at 20–30 second intervals. The observer was on a coastal slope 20 m above the beach with clear visibility. The seas were low to moderate.

18/1/87. A single, large sperm whale was seen swimming slowly south about 1 km out from Green Gorge on the east coast. It was close to the surface, in calm conditions and blowing every few seconds.

-/6/89. A sperm whale 'head' was washed ashore in Hasselborough Bay. The teeth were collected and are now deposited with PWS in Hobart.

22/12/89. One sperm whale was seen at Secluded Bay, North Head.

• **Longfin Pilot Whale (*Globicephala melaene*)**

Two sightings of pods, and three single-animals strandings were recorded between 1968 and 1990.

13/6/68. A single animal was found ashore in the Bauer Bay region.

5/4/76. The remains of a recently dead calf were found at Nuggets Point on the east coast. It measured 1.8 m from the snout tip to the deepest part of the fluke notch and 1.05 m from the snout tip to the uppermost point of the dorsal fin. The head was collected and is deposited in the Queen Victoria Museum and Art Gallery, Launceston, Tasmania.

17/6/77. A pod of about ten animals was sighted in Buckles Bay.

25/3/84. A pod of approximately 15 animals was seen moving in a southerly direction across the entrance of Buckles Bay.

15/11/84. The carcass of a single adult male was found in Hasselborough Bay. Details of this stranding with measurements of the animal were sent to R.N.P. Goodall but unfortunately no records were kept in Australia. The skull was collected and is now with PWS in Hobart.

• **Killer Whale (*Orcinus orca*)**

By far the most numerous sightings of whales at Macquarie Island are of killer whales. There were 120 sightings involving approximately 400 animals, and four strandings, recorded between 1968 and 1990. They have been seen around the island year-round. The number of

sightings and individuals recorded peaks in the spring/summer period. The number of individuals recorded at a sighting range from one animal to 'approximately 20' with the most common grouping being from two to five whales (78 records (65%)), Table 1.

Table 2 presents data for the years 1968–1990 inclusive, combined and presented on a monthly basis. The number of sightings each month range from lows of three in May and August to peaks of 21 in October and December with the number of individuals recorded ranging from nine in March to 95 in October. Of the 150 adult animals whose sexes were recorded, 63 were male and 87 female. Where estimates were made of the age classes of the whales sighted 150 were considered to be adults, 14 juveniles and 11 calves. The latter were separated from the juveniles in that they remained close alongside a female throughout the sighting.

Four known strandings, which have not been included in Table 2, are as follows:

25/6/68. The carcass of a killer whale was found on North Head.

-/9/73. The carcass of an adult male was found ashore in Hasselborough Bay. The skeleton, with part of the skin intact, remained in the edge of the tussock line for 4–5 years.

22/4/76. The carcass of an adult male was seen amongst the rocks in the surf line on the southern side of Caroline Point. It was washed out to sea shortly afterwards.

30/3/86. A freshly-dead female calf was found on The Isthmus, in Hasselborough Bay. There had been strong winds and heavy seas for the previous week but moderate swells with a thick fog on 30/3/86. The carcass was amongst large quantities of kelp that had been washed up onto the beach.

The total length of the calf from the tip of the upper jaw to the fluke notch was 2.31 m. The maximum blubber thickness was 35 mm and the average was approximately 25 mm. Milk was found in the stomach. There were no obvious signs of damage other than superficial cuts caused by giant petrels (*Macronectes* spp.) scavenging on the carcass.

3.1.3 Uncertain Identifications

14/11/70. A carcass was washed ashore at Bauer Bay and was tentatively identified as a southern bottlenose whale (*Hyperoodon planifrons*).

24/10/72. A small whale approximately 1.9 m long, was washed ashore at Lusitania Bay.

Johnstone (1977) in a paper on the diets of the giant petrels (*Macronectes* spp.) on Macquarie Island states 'Both petrel species were recorded feeding on the carcass of a small whale, probably a porpoise whale (*Berardius arnuxii*) that had washed ashore.'

6/10/88. Two records were made of the same sighting:

- First entry in logbook: 'Spouts of 2–3 whales were seen in Buckles Bay heading south. The fins were not conspicuous so assume that whales were Balcen whales.'

- Second entry in logbook: 'Pod of four whales in Buckles Bay, headed south around the Nuggets, 1600 hrs. Large baleens of some kind.'

26/12/88. Baleen species seen off North Head, spouting and surfacing, heading south.

3/1/89. *Baleen* spp. sighted off the coast below Mt Martin, heading south. Seen spouting. Appeared to be very large with a small dorsal fin low on the body.

13/8/89. A large whale sighted approximately 300 m off shore from Gadget Gully. Could be seen swimming slowly southward and spouting. Appeared to be a humpbacked whale—no apparent dorsal fin visible; may have been a southern right whale.

24/11/89. Three dolphins, species unknown, were sighted from the ANARE resupply ship *MS Polar Queen* approximately 15–20 n miles north-west of North Head.

The skeletal remains of a baleen whale are located approximately 100 m inland and 5 m above high water mark on the west coast at Langdon Point. The skeleton has been known of for at least 20 years and has probably been there a lot longer.

In February 1986 parts of a very old skull of a baleen whale were found in Sandell Bay. The skull was at the top of the beach embedded in a gravel/peat bank which was being eroded away by wave action. It was not possible to make a positive identification at the time and the skull has not been relocated since.

In addition to the above, two records prior to 1968 are worth including here as one is from a genus recorded only once and the other is of a species not recorded in the period covered below:

- On 17/2/1912 Ainsworth, a member of the Australasian Antarctic Expedition stationed on the island, came across a whale carcass on Hasselborough Bay beach. He described it as 'the carcase of a *Xiphoid* (Ziphid?) whale, about sixteen feet long, which had been cast up apparently only a few hours before.' (Mawson 1930, p. 349).

- The damaged skull of a spectacled porpoise (*Australochoeana dioptrica*) was found in Aerial Cove on 24/7/57 by Dr S. Csordas. It was returned to Australia and the specimen, collection number C10323, is in the Museum of Victoria, Melbourne. This was the second record of a spectacled porpoise whale from the south-west Pacific (Fordyce *et al.* 1984).

4. DISCUSSION

Macquarie Island (54°30'S, 158°57'E) is the exposed crest of Macquarie Ridge which stretches from the south island of New Zealand to near the Antarctic Continent (Williams 1988). The island lacks a well-developed continental shelf (Anon 1991) with the minimum distance to the 1000 m isobath being only 1.3 n m (Williams 1988) and part of the 5500 m isobath of the Macquarie Trench being within 12 n m of the east coast.

Macquarie Island lies just north of the Antarctic Convergence which passes within about 40 km of the southeastern corner of the island (Williams 1988). Simpson (1976) reports the monthly mean sea temperatures as ranging from 4.3°C (July) to 6.8°C (January) although a mean temperature for July as low as 2.8°C was reported by Kenny and Haysom (1962) which would indicate that the Antarctic Convergence moves north of the island at times.

The island was visited and occupied intermittently by work gangs for 110 years after its discovery, firstly exploiting the fur seals (*Arctocephalus* spp.) for skins, then the southern elephant seals (*Mirounga leonina*), king penguins (*Aptenodytes patagonicus*) and royal penguins (*Eudyptes schegeli*) for oil. At no time were shore-based whaling operations undertaken at the island and visits by pelagic whalers were infrequent and of short duration (Cumpston 1968).

Several expeditions exploring the Southern Ocean and Antarctica also called in at the island last century and early this century (Cumpston 1968). The Australasian Antarctic Expedition led by Douglas Mawson maintained a scientific station on the island between 1911 and 1914 (Mawson 1930). In 1948 the Australian Government set up the ANARE station on The Isthmus and this has been staffed ever since.

During the period reported on above (1968–90) biologists and/or wildlife officers were usually present on the island. The records of sightings and strandings presented here, while not a complete picture, tend to support the earlier observations that whales are not common in the waters around Macquarie Island, with the possible exception of the killer whale.

The data appear to show a substantial increase in sightings, due almost entirely to killer whale sightings, in the 1984–90 period. Although unable to prove it due to the opportunistic nature of the records, it is felt that this 'increase' is more a product of greater effort in observation and record keeping than an actual increase in whale sightings. Similarly, in considering the preponderance of sightings from the east coast, the movements of observers would need to be taken into account. The fact that most whale remains have been found on the west coast, which has far fewer visits by expeditioners, would indicate that most of the animals are dying at sea and being washed ashore by the currents and wind action.

There is a seasonal cycle to the occurrence of killer whales at Macquarie Island with the number of sightings peaking in October, November and December, and the highest numbers of individuals being recorded in October and December. Their numbers decline in January before dropping sharply in February and remaining low until increasing again in September.

A very similar pattern of occurrence has been recorded on Marion Island where Condry *et al.* (1978) have shown a good degree of association between the abundance of killer whales and

southern elephant seals. The timing of the annual breeding cycle of the elephant seals at Macquarie Island, with cows hauling out from early September and most pups being born in October, is very similar to that at Marion Island. This contrasts with the seasonal cycle reported from Amsterdam and Saint-Paul Islands, in the Indian Ocean, where killer whales are rare in July and August but common in February and March i.e. 3-5 months later than the peaks at the subantarctic islands (Roux 1986).

Killer whales have been observed feeding on both elephant seal pups and cows, and on penguins at Macquarie Island. The main areas where they have been recorded close inshore are The Isthmus, which is the main breeding area of elephant seals on the island, and Sandy Bay where there is also a concentration of seal colonies and breeding colonies of king penguins and royal penguins.

Killer whales feeding off Macquarie Island are often accompanied by mixed flocks of birds. Bird species almost always recorded in these flocks were giant petrels (*Macronectes giganteus* and *M. halli*), black-browed albatrosses (*Diomedea melanophrys*), kelp gulls (*Larus dominicanus*) and skuas (*Stercoarius skua*) while occasionally Cape petrels (*Daption capense*), which do not breed at the island, would be seen.

The observations reported on above must present an incomplete picture of cetacean occurrence around Macquarie Island. However, they do indicate a low visitation rate by the larger whales. Also, the records of killer whales around the island show a similar visitation cycle to that recorded at Marion Island (Condy *et al.* 1977). It is hoped that the data presented here will stimulate a further study, or at least the continued recording, of whales around Macquarie Island.

Table 1. The pod size frequency of killer whales (*Orcinus orca*) recorded at Macquarie Island from January 1968 to December 1990.

Number of individuals in a pod	1	2 - 5	6 - 20	20+	?
Number of sightings	23	78	13	1	5

Table 2. Sightings of killer whales (*Orcinus orca*) at Macquarie Island from 1968 to 1990 inclusive. Where recorded the numbers of the individuals by sex (M, male; F, female) and age class (A, adult; J, juvenile; C, calf) are given.

	Number of Sightings	Number of Individuals		Sex		Numbers by Age Group		
		Min	Max	M	F	A	J	C
January	14	51	57	8	13	21	1	2
February	6	19	20	1	3	4	—	—
March	5	9	9	4	3	7	—	1
April	5	25	26	5	8	13	—	1
May	3	12	12	1	2	3	—	1
June	7	17	19	—	—	—	—	—
July	7	14	14	7	2	9	1	—
August	3	6	6	1	2	3	—	1
September	11	18	18	5	5	10	1	—
October	21	93	95	9	7	16	—	1
November	17	43	43	5	12	17	3	—
December	21	80	82	17	30	47	8	4
Total	120	387	401	63	87	150	14	11

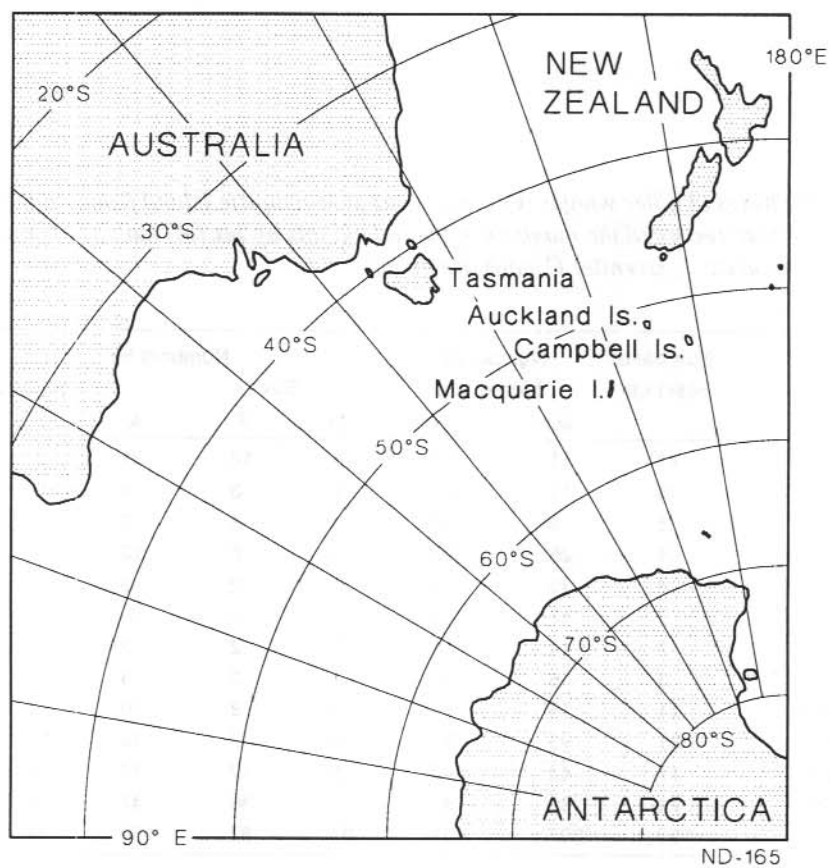


Figure 1. Macquarie Island in relation to Australia and Antarctica.

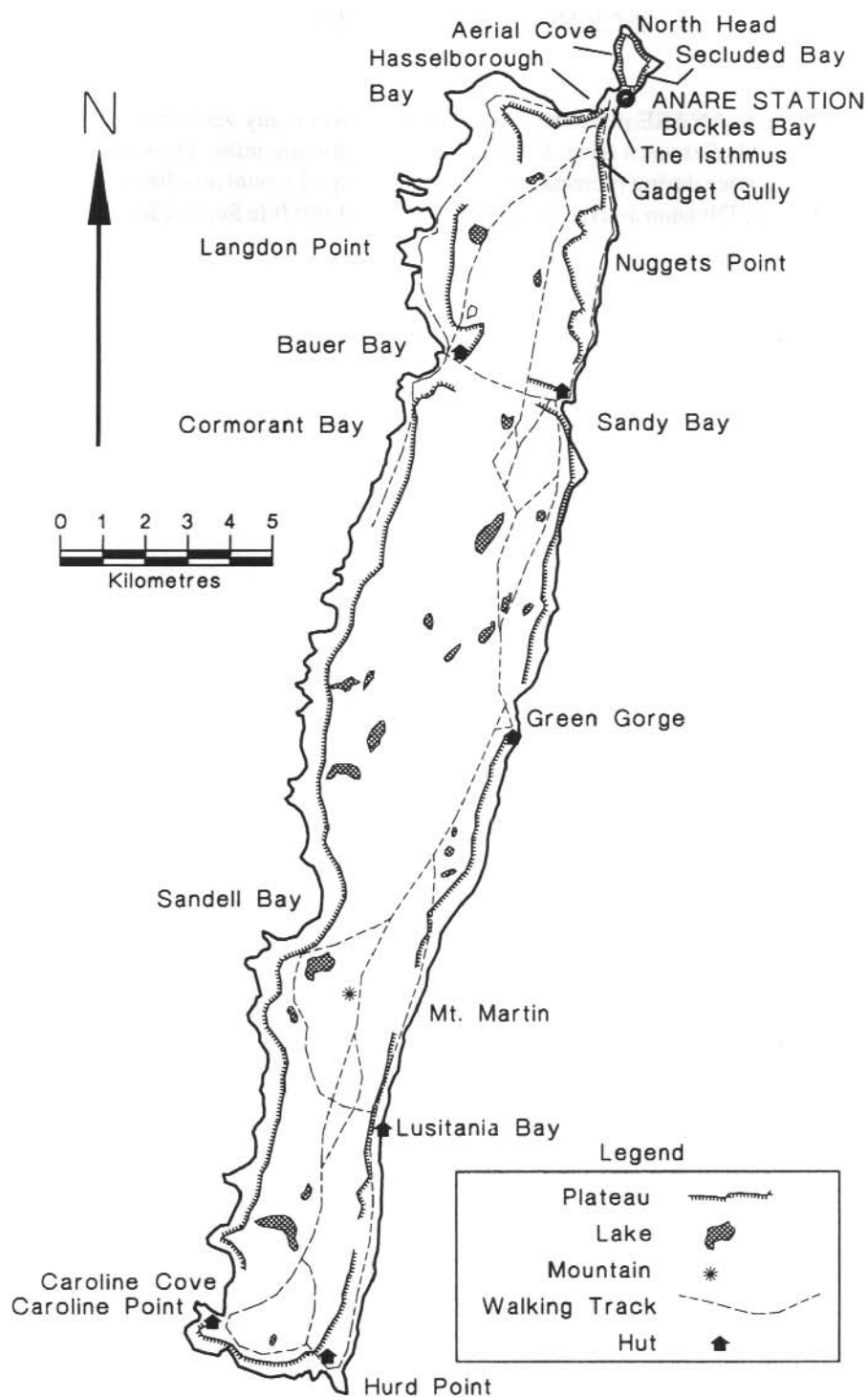


Figure 2. Macquarie Island.

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