

# A note on the first record of the dwarf minke whale (*Balaenoptera acutorostrata*) in Chilean waters

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## ABSTRACT

Two species of minke whale have been recognised, the larger Antarctic minke whale (*Balaenoptera bonaerensis*) restricted to the Southern Hemisphere, and the common minke whale (*B. acutorostrata*), which is distributed globally. The common minke whale of the Southern Hemisphere is referred to as the dwarf minke whale. The occurrence and identity of minke whales in the coastal waters of Chile are examined based on animals stranded and sighted in the Patagonia Channels. A total of three strandings and five sightings of the minke whale were examined in this study. Comparative analysis of external characteristics between the stranded animals and the two recognised species of minke whale identified these animals as dwarf minke whales. Of the five sightings, two were identified as Antarctic and two as dwarf minke whales based on observation of the presence/absence of the white patch on the flippers. This is the first record of the dwarf minke whale in the coastal waters of Chile. Based on available information on temporal distribution of sightings in the western south Atlantic, it is suggested that the population of dwarf minke whales wintering off Brazil may move to the south in summer, some moving into the Patagonia Channels.

KEYWORDS: SOUTH AMERICA; DWARF MINKE WHALE; ANTARCTIC MINKE WHALE; DISTRIBUTION; COLOURATION

## INTRODUCTION

Rice (1998) reviewed morphological (e.g. Omura, 1975) and genetic (e.g. Pastene *et al.*, 1994; Wada *et al.*, 1991) data collected from extant minke whales and sub-divided them into two species; the larger Antarctic minke whale (*Balaenoptera bonaerensis*) restricted to the Southern Hemisphere and the common minke whale (*B. acutorostrata*), which is distributed globally. In the Southern Hemisphere the common minke whale is referred to as the 'dwarf' or 'diminutive' minke whale (Arnold *et al.*, 1987; Best, 1985).

Records of the dwarf minke whale are scarce but cover a wide longitudinal area: Paraíba, Brazil (da Rocha and Braga, 1982; Zerbini *et al.*, 1996); New Zealand (Baker, 1983); Durban, South Africa (Best, 1985); and northern Queensland, Australia (Arnold *et al.*, 1987). The dwarf minke whale was only believed to be found between 7–41°S (Best, 1985) as no dwarf minke whales had been identified in past commercial catches near the ice-edge. However, the occurrence of dwarf minke whales in the catches made during the earlier part of the JARPA (Japanese Whale Research Program under Special Permit in the Antarctic) surveys in Areas IV and V was mainly between 55–61°S, although one individual was caught at 65°S (Kasamatsu *et al.*, 1993), showing that the dwarf minke whale can be found much farther south than previously thought.

Off the Chilean coast, minke whales have been reported in oceanic waters from Mejillones Bay (23°20'S) to the Drake Passage, including waters around Eastern Island (Aguayo-Lobo *et al.*, 1998a; Aguayo-Lobo *et al.*, 1998b). This study reports on strandings and sightings of minke whales in the Patagonia Channels and describes the first observed occurrence of the dwarf minke whale in Chile.

## MATERIALS AND METHODS

### Strandings

Three stranded minke whales were available for this study. The strandings occurred in April 2004 at Navarino Island (Fig. 1). The strandings were found by local fishermen and

pilots of a local commercial air company (DAP) who informed the government authorities of Puerto Williams. The authorities then informed scientists of the Marine Biology Group of the CEQUA (Center for the Studies of the Quaternary), which is based in Punta Arenas and scientists from this group visited the strandings. No stranding network or systematic survey to search for carcasses exists in Chile.

External characteristics (morphological) and observations of the baleen plates of the stranded animals were recorded in the field. Species identification was made by comparing external morphology in photographs of the stranded individuals with those of known minke whale species. Tissues samples collected were preserved in 95% ethanol for future genetic analysis. Osteological material and external measurements were collected by the Puerto Williams Museum but were not available for this study.

### Sightings

Marine mammal surveys in the Magellan Strait, Beagle Channel and Cape Horn areas were conducted in the spring and summer seasons during the period 1999–2004. Surveys were made from vessels. Some were systematic (e.g. those conducted by the Marine Biology Group of CEQUA since September 2002) and others were opportunistic (observations made from vessels transiting between Punta Arenas and the Antarctic Peninsula). Field observations were made by marine mammal specialists from the bridge or front bridge (bridge wings) of the vessel. For each sighting, geographic location, species identity, school size, estimated body length and behaviour were recorded.

## RESULTS AND DISCUSSION

### Strandings

Three whales were found stranded at Navarino Island (Table 1, Figs 1 and 2). One of the carcasses (UCM1 in Fig. 2) was found in an advanced state of decomposition while the other two (UCM2 and UCM3 in Fig. 2) were in a relatively fresh state. These individuals were identified as dwarf minke

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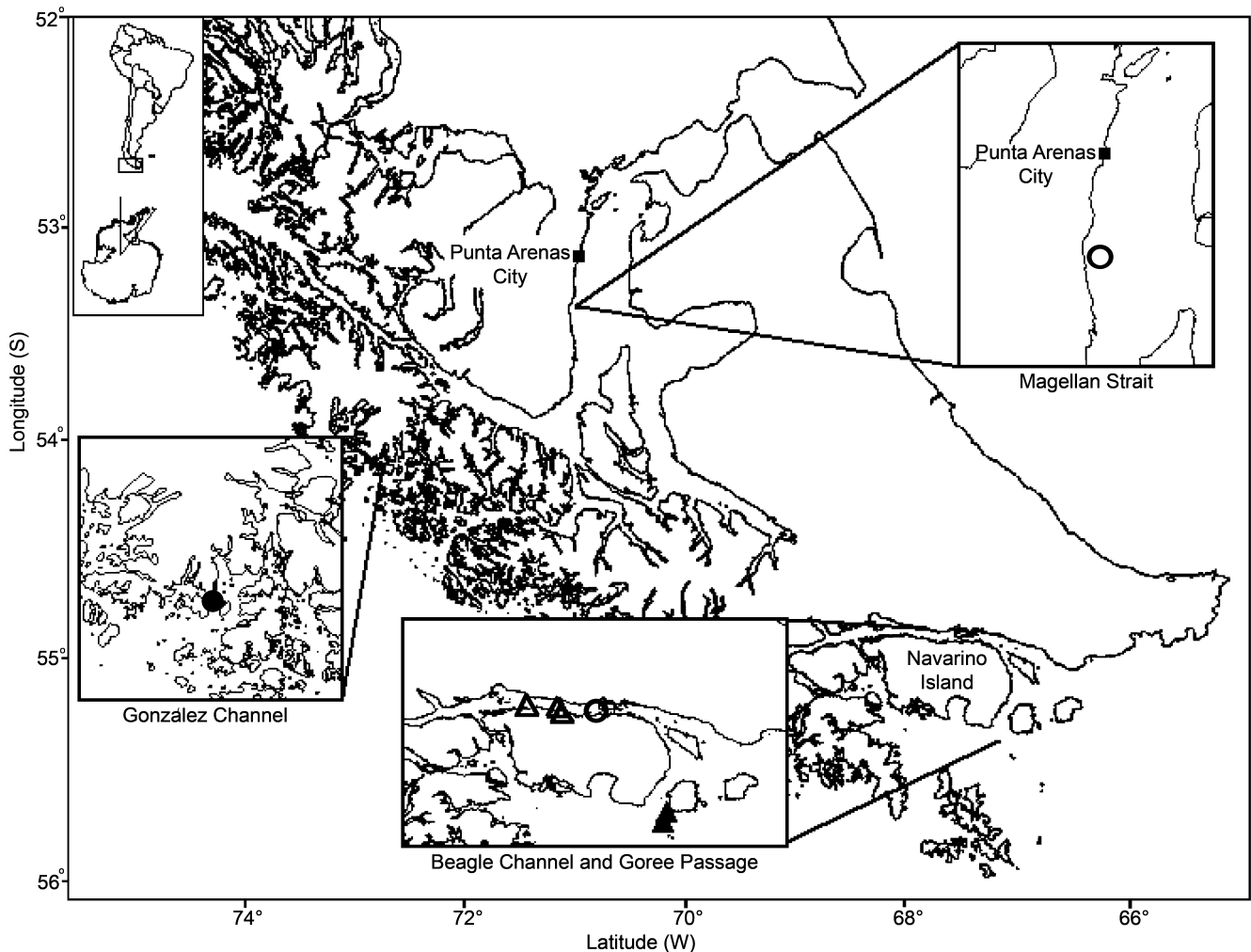


Fig. 1. Map showing the location of the stranding of dwarf minke whales (open triangle), sightings of dwarf minke whale (closed triangle), sightings of Antarctic minke whale (open circle) and unidentified minke whale (closed circle), in the waters off the southern tip of South America, Chile.

whales, based on the presence of a white patch on the flipper and white 'shoulder', and dark pigmentation on the ventral grooves (e.g. Arnold *et al.*, 1987; Best, 1985); Table 2.

### Sightings

A total of five minke whale sightings were recorded during the 1999-2004 surveys in the Patagonia Channels (Table 3, Fig. 1): two were identified as dwarf, two as Antarctic minke whales and one remained unidentified. One of the Antarctic minke whales was sighted in the Beagle Channel and the

other in the Magellan Strait, 40km southwest of Punta Arenas. In both cases there were good opportunities for observations; the closest distance between the vessel and the whale was about 25m. Whales were identified as Antarctic minke whales by absence of the white patch on the flippers. The animal observed near Punta Arenas was feeding very near to the coast probably on sardines, which occur in the area around the sighting. Both dwarf minke whales were sighted at Goree Passage (south of Navarino Island). There were good opportunities for observations; the closest distance from the vessels to the animals was 10m. Both animals were swimming to the north and the survey vessel was steaming to the south. These whales were identified as dwarf minke whales by the striking white patch observed on the flippers.

The results of this study suggest that both Antarctic and dwarf minke whales occur in the Patagonia Channel in summer and early autumn. One of the questions to be resolved is the location of the wintering grounds for these animals. Minke whales are rarely observed in the eastern South Pacific, but they are commonly observed in the western South Atlantic. This is similar to the situation in southern Africa where they are rare off southwestern Africa but are common off southeastern Africa (Williamson, 1975). Both species occur in the wintering ground off Brazil, indicating a degree of overlapping in their distributions (Zerbini *et al.*, 1996), but the dwarf minke whale is more commonly observed near the coast, as has also been



Fig. 2. Individual dwarf minke whales stranded at Navarino Island. UCM 1 shows a white patch on the flipper; UCM 2 shows a white patch on the flipper and white shoulder; UCM 3 shows a white patch on the flipper, white shoulder and white pattern of coloration of baleen plates.

Table 1  
Place, date, geographical position and biological information for three minke whales stranded in southern Chile.

	Place	Date	Latitude	Longitude	Sex	Condition of the carcass
UCM1	Honda Bay	12/04/04	54°52'18''S	68°02'14''W	Unknown	Decomposed
UCM2	Robalo Beach	17/04/04	54°54'02''S	67°47'19''W	Male	Fresh
UCM3	Robalo Island	19/04/04	54°53'02''S	67°42'33''W	Male	Fresh

Table 2  
Comparison of external characters between UCM2, 3 and dwarf and Antarctic minke whales examined by Best (1985) and Arnold *et al.* (1987).

	UCM2	UCM3	Dwarf minke whale	Antarctic minke whale
Body length	6.75m	6.87m	7.01m	9.50m
Baleen plate colouration	Predominantly white with a thin black band	Predominantly white; no black band	Predominantly white with a thin black band	Some white; some with a black band occupying 2/3 or 1/2 of the surface; some completely black
Proportion of white baleen plates	+80%	100%	70-100%	-50%
Size of largest baleen plate	19.0cm	20.5cm	18-20cm	<22cm
Flipper white patch	Present	Present	Present	Absent
Shoulder white patch	Present	Present	Present	Absent
Dark pigmentation in ventral grooves	Present	Present	Present	Absent

Table 3  
Species, sighting date and location and school sizes of five sightings of minke whales recorded in the coastal waters of southern Chile.

Species	Date	Place	Latitude	Longitude	No. of whales
Antarctic minke whale	02/99	Beagle Channel	54°53'S	67°36'W	1
Common minke whale (dwarf)	14/02/01	Goree Passage	55°19'S	67°05'W	1
Common minke whale (dwarf)	14/02/01	Goree Passage	55°20'S	67°04'W	1
Unidentified minke whale	14/02/04	González Channel	54°06'S	72°34'W	1
Antarctic minke whale	12/03/04	Magellan Strait	53°29'S	70°52'W	1

reported for Durban in South Africa (Best, 1985). It seems therefore that the minke whales of both species observed in the southern tip of South America (Patagonia Channel) could be related to minke whales in the western South Atlantic off Brazil.

Dwarf minke whales have been observed in Brazil from July to February but with most individuals recorded in the austral winter and spring, suggesting that these whales present some degree of seasonal north/south movement (Zerbini *et al.*, 1996). The records of this species presented in this study were made mainly in April, a month when whales were not recorded further north in tropical latitudes. This suggests that the population of dwarf minke whales wintering off Brazil may move towards the south in the summer and that some whales move into the Patagonia Channels. Due to the scarcity of data, it is not possible to determine whether or not these whales are normally distributed within the channels in summer. Not all sighting surveys in the Patagonia Channels have been conducted in a systematic manner and the searching effort has been limited.

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