

A note on observations of southern right whales at Campbell Island, New Zealand

R. STEWART* AND B. TODD†

Contact e-mail: te.kauika@actrix.co.nz

ABSTRACT

Southern right whales were observed at Campbell Island, in New Zealand's sub-Antarctic ocean, over four field seasons (1983, 1994, 1995 and 1997). Whales were present in both the winter and autumn of 1994. An average of 7-21 whales were seen each season, with a maximum of 44 whales per day in July 1995. Individual whales were resighted in the area over periods of several days to two months. A change to shorter residence periods occurred between the early 1980s and 1990s. Some interchange occurs between Campbell Island and the Auckland Islands, with a recent decrease in number at the former and an increase at the latter.

KEYWORDS: SOUTHERN RIGHT WHALE; SUB-ANTARCTIC; CENSUS; PHOTO-IDENTIFICATION; BEHAVIOUR

INTRODUCTION

Southern right whales (*Eubalaena australis*) were once widely distributed around New Zealand's mainland and sub-Antarctic islands. Pre-European Maori chants and narratives identified right whales as 'Tohora'. Richards (1993) estimated that before exploitation there were at least 10,000 animals in these waters. In 1829, shore-based whaling from New Zealand began at Cook Strait and Preservation Inlet, and by the 1840s, approximately 80 shore-based whaling stations had been established. In addition, bay whaling from pelagic vessels began in the early 1830s and these operations also expanded quickly (McNab, 1913). This pressure was too great and by the mid-1840s southern right whales were considered to be commercially extinct (Dawbin, 1986). Although international protection for all right whales came into effect in 1935, the New Zealand 'population' has shown little sign of recovery in mainland coastal waters (IWC, 2001).

Historic whaling records confirm the occurrence of southern right whales in Northwest Bay, Campbell Island, during the winter months (e.g. Townsend, 1935), and between 1909 and 1916, two small whaling stations operated there (Kerr and Judd, 1978). Isolation, extreme weather conditions and poor catches caused the early closure of these operations. A New Zealand meteorological base operated at Campbell Island from the early 1940s until 1995 and opportunistic whale sightings were reported periodically by staff members between 1942 and 1964 (Gaskin, 1968). In 1973, the Fisheries Research Division of the New Zealand Ministry of Agriculture and Fisheries set up a New Zealand marine mammals sighting programme. Sporadic observations of southern right whales at Campbell Island included reports of numbers and signs of highly active social groups, and the occasional presence of cow/calf pairs (Cawthorn, 1978; 1982; 1988; 1993). From the mid-1980s until 1995, information from Campbell Island was largely based on opportunistic sightings. However, in 1988, a Department of Conservation team worked with meteorological staff to monitor the number of whales visiting Campbell Island throughout that year (Moore and Moffat, 1990).

In 1982-1983, one of us (RS) made detailed observations and obtained photographs for individual identification of whales at Campbell Island as one of the meteorological staff. In 1994-1995 an expedition was based at Northwest Bay and sightings of right whales were recorded from February to March 1994 and in July 1995. These records led to a dedicated programme of observations under the aegis of the especially established Project Tohora Trust. The Project's first three-month winter investigation was at Northwest Bay from June to September 1997. Its objectives are to:

- (1) estimate winter residency by photo-identification of individual right whales at Campbell Island;
- (2) determine winter abundance and minimal population estimate by daily census counts;
- (3) record behaviour and habitat use of southern right whales at Campbell Island;
- (4) develop educational material on the southern right whale for teaching purposes;
- (5) bring an indigenous perspective to the science of the sea.

This report summarises Project Tohora's 1997 observations, as well as those made in 1983, 1994 and 1995.

METHODS

In 1983, 1994, 1995 and 1997, observations of southern right whales were made at Northwest Bay, Campbell Island (52°33'S, 169°09'E, Fig. 1). Shore-based observations were recorded and photographs of callosity patterns and unique markings of whales were obtained from shore-based stations or from small boats. In all seasons, observers used 35mm SLR cameras equipped with a range of 80-200mm, 440mm or 500mm lenses. *Fuji Neopan* 400 and 1600, *Fujichrome* 400, *Ektachrome* 400 and *Ilford* 400 film was used.

Prior to 1997

In 1983, shore-based counts of whales at Northwest Bay and Perseverance Harbour were conducted opportunistically by a single observer. Watch periods were also devoted to behavioural observations of whales. During February-March 1994, onshore observers conducted opportunistic counts of

* P.O. Box 15, Whataroa, South Westland, New Zealand.

† P.O. Box 24, Nelson, New Zealand.

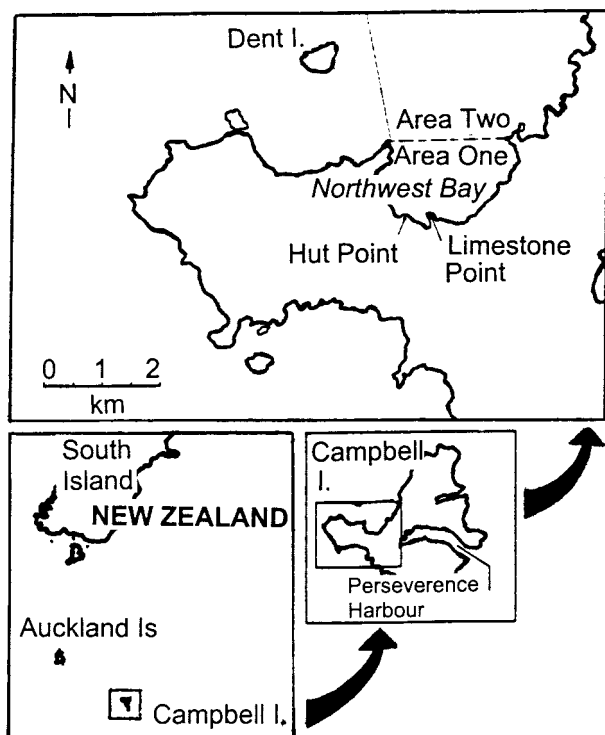


Fig. 1. The Northwest Bay (52°33'S, 169°09'E) area of concentration of southern right whales at Campbell Island.

whales at Northwest Bay. Boat and shore-based observations were made from 1-24 July 1995. Counts were obtained on days during periods of high social activity when whales were more visible. Sea-based operations were conducted from two 3.8m *Naiad* rigid-hull inflatables with 25hp *Yamaha* outboards.

1997

In 1997, a team of six people worked at Northwest Bay from 21 June to 1 September. From 24 June to 26 August, two systematic whale counts were made daily at 0900 and 1400hrs. Weather, seastate and visibility were noted for each count. Additional behavioural observations and opportunistic counts were conducted throughout the day. The 0900hr count was made from Hut Point (Fig. 1). Two areas (Areas One and Two, see Fig. 1) were divided into segments and observers scanned their assigned segment for a period of ten minutes. Observers communicated when whales entered or departed from their segment to ensure that no whales were double-counted. The number of whales and their positions were entered onto a grid map. Group size and whale activity was also recorded. The 1400hrs count was conducted either from Hut Point or from Hut Point and Limestone Point (Fig. 1). Simultaneous counts from more than one location were coordinated through the use of VHF radios.

In addition, two *Naiad* rigid-hull inflatables, as in 1995, were deployed with a crew of two on nine days, with the priority to photograph whales. Socially active whales were given precedence over single 'resting' individuals. If the whales showed signs of disturbance, i.e. dramatic behaviour changes, observers either approached a different group or re-approached the same group after a 'rest' period of 20-30 minutes. Boat days were limited by either unfavourable sea conditions or lack of whales.

RESULTS

A summary of whale sightings at Campbell Island is given by year in Table 1. In the 1980s, 58 days of observations from shore were made. In the 1990s, 91 days of observations from shore and 17 days of boat observations were made.

11 June-26 September 1983

A number of individually identifiable whales were resident in Northwest Bay during 1983 (Table 2): one cow with a new-born calf (83-05); one cow with a new-born albino calf (83-11); one whale with a saddle blaze (SB-01); and one sub-adult (83-13). The sub-adult was resighted interacting with New Zealand sea lion pups at Perseverance Harbour on 20 November. There were seven previous sightings of the same whale interacting with sea lion pups in Northwest Bay (10 July-21 August). Similar accounts of such behaviour had been noted in previous seasons (D. Harris, pers. comm.).

Whales were seen resting and travelling slowly within Northwest Bay until late June. Socially active groups of between 2-9 individuals were observed from July-September. Whales were observed engaging in sexual activity. Single whales were occasionally seen with open mouths but feeding behaviour was not observed.

11 February-18 March 1994

Whales were seen feeding on most days; breaching was occasionally observed and no whales were seen resting. A cow and her calf were resident for 28 days between 19 February and 18 March.

1-24 July 1995

Whales were observed in socially active groups of 2-9 individuals. No calves were observed. The highest concentration of socially active groups occurred on the eastern side of Northwest Bay. Courting and sexual activity were evident. On nine days there were between 3-5 socially active groups present in the Northwest Bay study area.

22 June-29 August 1997

During this time, whales were generally observed resting or cruising slowly within the bay. No calves were seen. Breaching, lobtailing and social activity intensified in late August. Whales were observed feeding on two occasions.

Table 1
Records of southern right whales at Campbell Island, 1983-97.

Year	Period	Locality	Total days observed	No. of whales per day			Mean residency period of recognised individuals	Total no. identified animals
				Maximum	Minimum	Average		
1983	11 Jun.-26 Sep.	Northwest Bay	56	30	2	14.4 (n=56)	75 days, n=4, range 60-85	34
1983	19 Jun.-25 Jun.	Perseverance Harbour	2	2	1	1.5 (n=2)	Non-resident whales	0
1994	11 Feb.-18 Mar.	Northwest Bay	13	5	1	2.3 (n=13)	22.3 days, n=3, range 3-36	3
1995	1 Jul.-24 Jul.	Northwest Bay	24	44	5	20.6 (n=12)	0 (not recorded)	7
1997	22 Jun.-29 Aug.	Northwest Bay	54	28	1	7.2 (n=67)	13.8 days, n=5, range 2-27	31

Table 2
Northwest Bay residency periods of recognised individuals,
1983, 1994 and 1997¹.

ID no.	First and last sightings	No. days
1983²		
83-05	19 Jun. - 28 Aug.	71
83-11	29 Jul. - 26 Sep.	60
SB-01	5 Jun. - 28 Aug.	85
83-13	3 Jul. - 25 Sep.	84
1994		
94-01	11 Feb. - 18 Mar.	36
94-02	19 Feb. - 18 Mar.	28
94-03	3 Mar. - 5 Mar.	3
1997		
SB-02	24 Jul. - 19 Aug.	27
14	27 Jul. - 9 Aug.	14
08	2 Aug. - 8 Aug.	7
31	6 Aug. - 24 Aug.	19
25	8 Aug. - 9 Aug.	2

¹1995 residency periods were not recorded. ²1983 Perseverance Harbour, no residency (i.e. whales did not remain).

Repeated sightings of five photo-identified right whales revealed that some animals remain resident in the area for several weeks, the longest known period being 27 days (Table 2).

DISCUSSION

Southern right whales were observed at Campbell Island during February to March and June to September, with peaks in abundance between July and September. These observations are consistent with earlier records that show whales to be present here between March and October, with peaks between June and August (Cawthorn, 1978; 1982; 1988; 1993; Moore and Moffat, 1990).

At least some animals remain in the Bay in the winter and early spring (June-September). In the one late summer observation period, one cow-calf pair was resident over a 28 day period. Individual whales remained in Northwest Bay for 8-12 weeks in 1983, including two cow-calf pairs (Table 2). Shorter residency periods of recognised individuals and the absence of cow-calf pairs in the 1990s may reflect a change in habitat use since the early 1980s.

In 1983 in Northwest Bay, the average number of whales seen daily was 14.4 and most whales arrived in mid-winter (9 July). The average number was smaller (7.2) in 1997 and most whales arrived later (20 August). It is possible that the expedition left the Island before the peak in occupancy. It is clear that Campbell Island is an important habitat for right whales in this part of the Southern Ocean but it seems likely that relatively large annual variations occur in numbers visiting the island. Photo-identification work carried out with the University of Auckland revealed that some interchange between Campbell Island and the Auckland Islands occurs (Patenaude *et al.*, 2001).

Patenaude *et al.* (1998) and Patenaude and Baker (2001) found concentrations of right whales in Port Ross and nearby Enderby Island in the Auckland Island Group between 1995 and 1997. The population increased there during the 1997 season, whereas the Campbell Island sightings decreased. Further observations and individual identifications will be necessary to examine the relationship between the occupancy of these two habitats. [It is unclear whether these animals represent a remnant of the New Zealand mainland population or a distinct stock that never migrated to the mainland's coastline (Gaskin, 1968).]

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