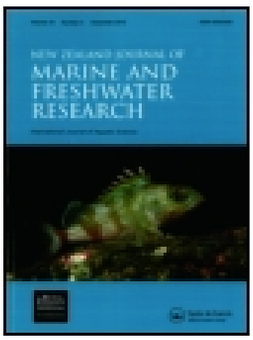

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Observations of Hooker's sea lion, *Phocarctos hookeri*, at a hauling ground on Otago Peninsula, New Zealand

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Abstract Observations made between January 1984 and December 1985 show that *Phocarctos hookeri* (Gray, 1844) has a fluctuating presence at Papanui Beach (45°52′S, 170°44′E), Otago Peninsula, with low numbers (≤ 7 animals) all year. Most individuals are small (< 2.0 m nose to tail length), subadult males. No females were identified. The animals often form small groups, and are generally inactive.

Keywords Hooker's sea lion; *Phocarctos hookeri*; Otariidae; Papanui Beach

INTRODUCTION

In recent years, Hooker's sea lion, *Phocarctos hookeri* (Gray, 1844), has been seen with increasing frequency along the southern east coast of South Island, New Zealand (Grob 1985). Gaskin (1972) reported that a few male animals winter over on the beaches south of Dunedin, but now individuals or groups (predominantly immature males) may be found in most months of the year at localities from Oamaru south.

There have been no detailed reports published on the distribution of *P. hookeri* on the New Zealand mainland. This paper presents the results of observations carried out during 1984 and 1985 at Papanui Beach, currently a favoured haul-out area on Otago Peninsula. In addition to determining the year-round abundance of Hooker's sea lion at this location, some information was obtained on behaviour patterns.

Fig. 1 An immature male Hooker's sea lion at Papanui Beach, 18 July 1985.

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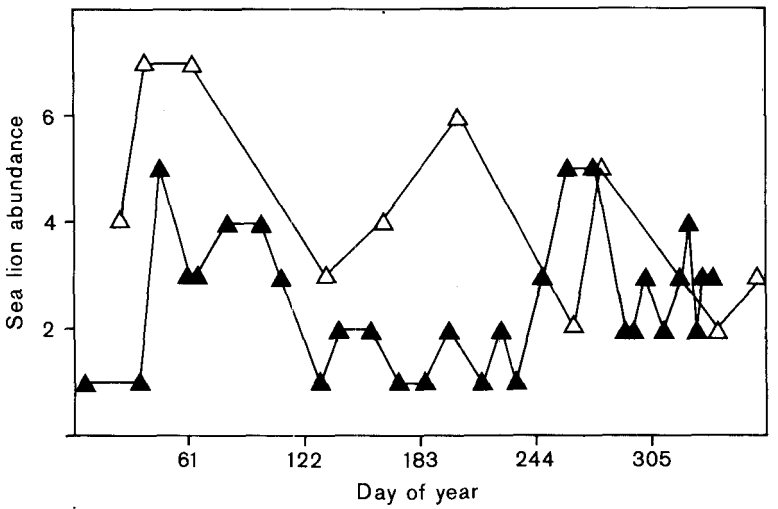

Fig. 2 The number of *P. hookeri* present at each observation. The open triangles give 1984 data, the filled triangles 1985 data.

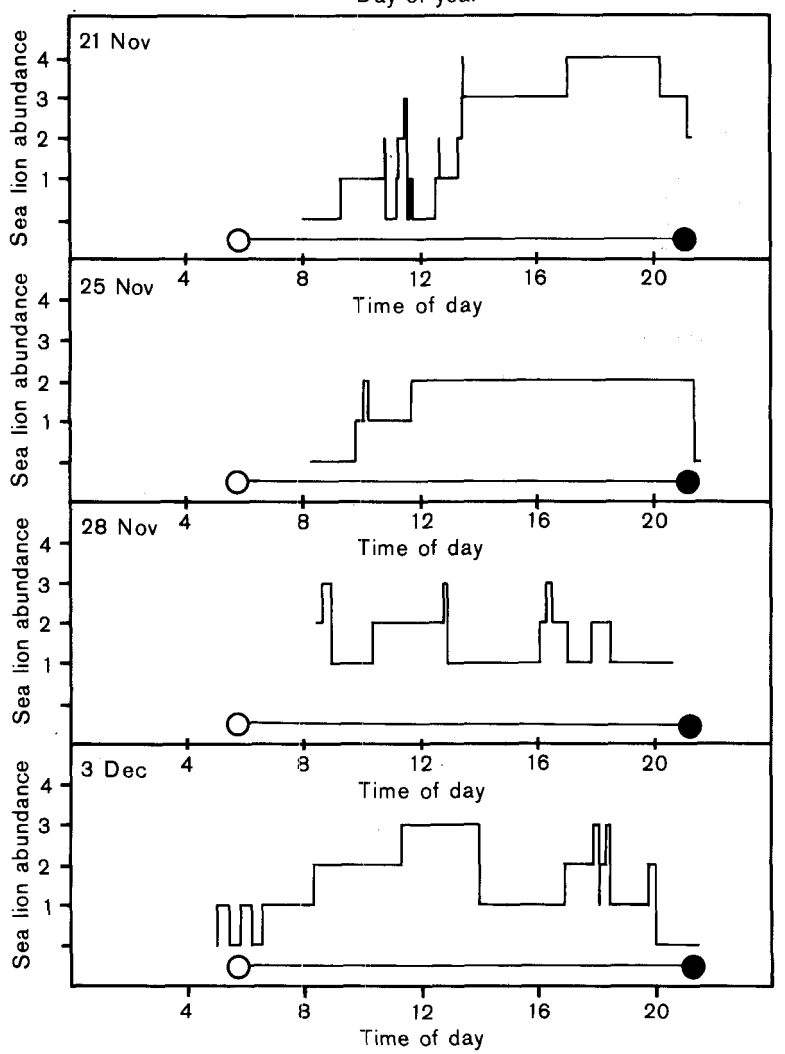

Fig. 3 Instantaneous beach population of *P. hookeri* over four days in November and December 1985. The open circles represent sunrise, the closed circles sunset (New Zealand Daylight Time).

STUDY AREA

Papanui Beach (45°52'S, 170°44'E) is at the head of a bay c. 1 km wide, toward the eastern extremity of Otago Peninsula. The bay is oriented almost due east, with the northern section of the bay consisting of boulder beach and rocky reefs, and the southern section having a sandy beach, sheltered from the predominating southerly sea conditions. Both ends of the bay are marked by high bluffs. Three small streams enter the sea from the surrounding farmland.

P. hookeri is usually found on the sandy area at the southern end. The New Zealand fur seal, *Arctocephalus forsteri*, is present on the reefs and boulder beaches; 129 were recorded in one count in June 1985. The area also supports a resident population of yellow-eyed penguins, *Megadyptes antipodes*, which occupies the small patches of low scrub and nettles. Various other seabirds breed on the rock bluffs, or on the beach itself.

METHODS

Abundance

Regular observations of about one hour were made between January 1984 and December 1985, once per month in 1984 and once per fortnight in 1985. Most were made in the mid to late afternoon, when beach occupancy is most stable. Weekends were avoided to minimise the effect of human disturbance.

The number of animals present, their positions relative to each other on the beach, activity status, relative size, and colour were noted. Any unusual or distinctive events were recorded.

To check the effect of time of day on the beach population, observations were made over several days in late spring 1985, between 0800 h New Zealand Daylight Time (NZDT) and nightfall, at around 2130 h NZDT. One observation was also made from daybreak at 0500 h NZDT. The beach was watched continually from an unobtrusive vantage point for arrivals and departures of sea lions. When animals were present, behaviour was assessed at five minute intervals, as active (e.g., walking, rolling in the sand, sitting, or intrasexual activity) or inactive (lying down, asleep or awake).

Site assessment

To form a basis for an easy to use size classification system, six animals encompassing the size range of animals normally observed were measured for nose to tail length using a trigonometric or a photographic method.

The trigonometric method involves measuring the animal's angular displacement using a protractor equipped with sights, then using a range finder to determine the distance from the observer to the animal. Simple trigonometry allows the calculation of the animal's length. The photographic method involves placing a rod of known length adjacent to the length of the animal then taking a transparency photograph, which can be projected onto a screen and the length of the animal calculated. This method is simpler and more precise (± 0.1 m vs. ± 0.2 m) than the trigonometric method, but is not applicable to alert individuals.

Using these measurements as a basis, the relative size of each individual sea lion was visually assessed, as small, medium, or large. "Small" refers to an animal of less than about 2.0 m nose to tail length, and includes all females and many younger immature males. An example is shown in Fig. 1. Typically, small immature males (as seen at Papanui Beach) have no obvious mane development, and are dark grey with a tawny coloured belly, muzzle, and flippers. However, many gradings of colour between an overall tawny brown colour and an overall dark grey or black were observed within this size range.

A "medium" sized animal is one of between about 2.0 and 2.3 m nose to tail length. Such an animal will usually be a male with an obvious mane, a characteristically compressed face, and an overall black coloration.

No "large" animals were observed at Papanui Beach during the observation period. However, such an animal is similar in appearance to a medium animal, but noticeably larger, often with a brownish coloured coat (Marlow 1975, pers. obs.).

RESULTS AND DISCUSSION

Abundance with time

Fig. 2 shows that between one and seven animals were present on each sampling date, with no seasonal effect being discernible. At least one animal was present at every observation. No females were identified. Small animals dominated the distribution, but medium animals were seen on eight occasions (7 February, 3 March, 12 June, and 23 July 1984, and 14 August, 18 September, 2 October, and 18 November 1985). On each of these occasions, only one medium sized individual was present, always with smaller animals in the vicinity.

Fig. 3 shows the instantaneous beach population through each of the periods of day-long observation in spring 1985. The beach population shows considerable fluctuation with an apparent tendency for numbers to increase during the morning then

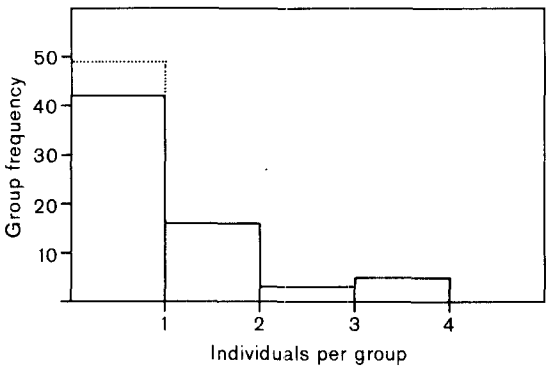

Fig. 4 Histogram showing frequency of *P. hookeri* social group sizes. The dotted section represents the presence of only one animal on the beach.

to decrease at around sunset, consistent with a night feeding routine. These observations explain some of the fluctuation in numbers seen in Fig. 2. However, on two occasions animals recognisable by distinctive size, colour, and behaviour patterns were noted. (Very few individuals are readily identifiable, notwithstanding the presence of characteristic marks or scars.) One was observed repeatedly for six weeks (to give a maximum stay of nine weeks), the other for four months, or a maximum stay of six months. Neither animal has been seen again. It therefore appears that the population at Papanui Beach is itinerant, with individuals using the beach as a haul-out for varying periods before moving elsewhere. In the absence of tagged animals, it is difficult to be more definite about population mobility.

It is worthwhile comparing the results presented here with those obtained at the Snares Islands in the summer of 1970–71 by Crawley and Cameron (1972). Both locations are outside the main breeding area on the Auckland Islands. Notwithstanding the continuous presence of *P. hookeri* on Papanui Beach, there is much less age and sex diversity on Otago Peninsula than that reported for the Snares. At the Snares, a mixture of immature and adult animals of both sexes was reported, with the likelihood of limited breeding. On the beaches of Otago Peninsula, immature males predominate, with few sightings of more mature animals, especially females.

Behaviour patterns

Data were collected from 1138 five minute activity determinations during the series of four day-long observations in November and December 1985. Analysis of the results shows that animals on the beach spent 89.7% of their time inactive, with a standard deviation of 7.1% on a day to day basis. This confirms the general observations made during the year-round observations, that animals are inactive most of the time.

On 28 November 1985, a 1.7 m (estimated length) immature male was observed directing a small (1.00 m nose to tail length) male New Zealand fur seal to the water's edge, where the sea lion assumed a copulatory position on top of the fur seal. After 40 minutes, the sea lion chased the fur seal further up the beach over a period of 45 min, whereupon the copulatory position was resumed for a further 15 min. By this time, the fur seal had ceased moving. The sea lion then lay alongside for 40 min before entering the sea in the company of another animal. At this time, the fur seal was examined, and found to be dead. Later in the day, a sea lion of similar appearance to the first appeared on the beach. It carried the dead fur seal behind sand dunes, where it slept in contact with the fur seal for some hours. A similar event was observed at Port Pegasus, Stewart Island, by Wilson (1979).

Social group size was defined as the number of individuals present in a locality with a distance of about 5 m between nearest neighbours. A range of one to four individuals per group was found (Fig. 4) using the year-round data, with the most common being a solitary individual. Approximately equal numbers of animals were solitary and accompanied.

Within the sandy section of Papanui Beach, there are three distinct areas which were favoured haul-out sites. The two main ones are toward opposite ends of the beach, about 200 m apart, at the foot of low sand dunes. The third is at the southern extremity of the sandy beach against large boulders. Sometimes, individuals were found in tussock on top of or immediately behind the sand dunes at the head of the beach. No sea lions were observed in the low scrub or nettles which exist in small areas and are used by *M. antipodes* for roosting and breeding.

CONCLUSIONS

Papanui Beach is an established hauling ground for *P. hookeri*, with a small presence of immature males throughout the year. The appearance of an itinerant population on mainland New Zealand gives an opportunity for convenient year-round monitoring of the species.

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REFERENCES

Crawley, M. C.; Cameron, D. B. 1972: New Zealand sea lions, *Phocarctos hookeri*, on the Snares Islands. *New Zealand journal of marine and freshwater research 6(1&2)*: 127–132.

Gaskin, D. E. 1972: Whales, dolphins and seals, with special reference to the New Zealand region. London, Heinemann. 200 p.

Grob, R. 1985: Seals on southern coast creates interest. *Catch 12(3)*: 18–19.

Marlow, B. J. 1975: The comparative behaviour of the Australasian sea lions *Neophoca cinerea* and *Phocarctos hookeri* (Pinnipedia: Otariidae). *Mammalia 39(2)*: 159–260.

Wilson, G. J. 1979: Hooker's sea lions in southern New Zealand. *New Zealand journal of marine and freshwater research 13*: 373–375.