

Short Note

Do Weddell Seals Sing?

K. Green* and H. R. Burton

Antarctic Division, Channel Highway, Kingston, Tasmania 7150, Australia

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Summary. A series of underwater calls in the form of a recognisable sequence is described for the Weddell seal. The sequence was only heard from the period of pupping to the end of mating and was heard in 1984 but not 1983.

Introduction

Vocalizations of Weddell seals, *Leptonychotes weddellii*, were first described as “singing” by Weddell (1825). The first recordings (by phonograph) were made in 1934 in the Bay of Whales by Lindsey (Schevill and Watkins 1965). Thomas and Kuechle (1982) made the first quantitative analysis of acoustic characteristics of Weddell seal vocalizations in McMurdo Sound. Later work has concentrated on geographic variation in vocalizations (Thomas and Stirling 1983; Thomas et al., in press) and annual and diurnal variations (Green and Burton 1988). Although songs have been described for the hooded seal (Ray et al. 1969) this aspect of vocalization in the Weddell seal has not hitherto been examined. Thorpe (1964) described song as “a series of notes, generally of more than one type, uttered in succession and so related as to form a recognisable sequence or pattern in time”. The present note describes one such sequence in the Weddell seal.

Material and Methods

Recordings of the underwater vocalizations of Weddell seals were made fortnightly throughout 1984 in Long Fjord near Davis, Antarctica (68° 35'S 70° 00'E). Methods were as for Green and Burton (1988). The only seals observed in Long Fjord during the study period were Weddell seals. Elephant seals, *Mirounga leonina*, leopard seals, *Hydrurga leptonyx*, and crabeater seals, *Lobodon carcinophagus*, were observed only outside the confines of the fjord, usually more than ten kilometres away. Ross seals, *Ommatophoca rossii*, were not observed during 3000 km of travel over the fast ice in the vicinity of Davis.

Results and Discussion

During analysis of call types the repetition of one particular sequence (Fig. 1) became noticeable in spring. It was possible to predict the succeeding sequence from the first notes. This suggested that it was not a coincidental collection of individual calls. The sequence (Fig. 1) was first heard on 9 October and the complete sequence was heard 15 times with minor variations until it was last heard on 5 December.

Most sequences (12) had 6 elements, two had five and one spanned 2 to 6 with element 3 replaced by a “tweet”. On another 13 occasions during the period 9 October to 6 December, incomplete sequences containing at least 3 elements in the expected order were heard while two elements occurred together only once. On these 13 occasions, the first five elements occurred once, the first four three times, the first three eight times and the last three once. Elements of the sequence were always heard in the expected order indicating that the elements may have been fragments of the sequence. Ray et al. (1969) found the bearded seal occasionally gave fragments of a song.

It is assumed from volume levels that each sequence originated from one source. However, there is a remote possibility that each sequence could have originated from two seals contributing alternate phrases at equal distances from the hydrophone. If they were from one source then the sequence was a song by Thorpe's (1964) definition.

This sequence was the only one repeated among the 2871 vocalizations recorded over 12 months. Its presence in part or in full between 9 October and 6 December (from the day the first pup was borne to the presumed end of mating) indicates that it has a function likely to be related to territoriality or courtship. In this it would seem to correspond to the song in the bearded seal which is also essentially stereotyped, repetitive and seasonally produced (Ray et al. 1969). It differs in that each phrase is separated by silent periods whereas the song of the

* Present address: Department of Zoology, Australian National University, Canberra, A.C.T. 2601, Australia

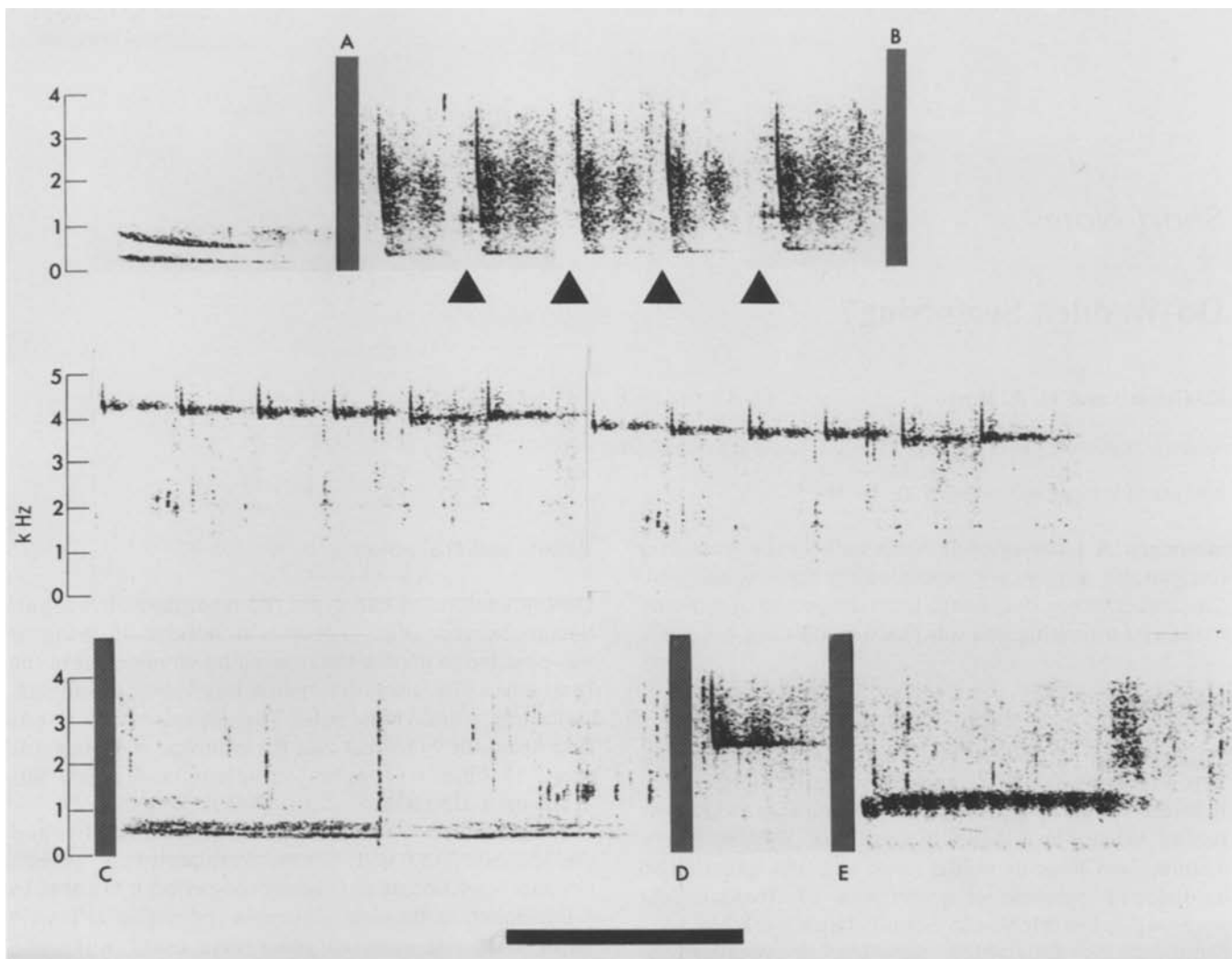


Fig. 1. The sequence of Weddell seal vocalizations showing an introductory "owww" of 1.5 s duration which was present in 11 of the 15 replicates, a 4.3 s break at A, five low frequency "chew"s (each with at least two echos) spaced over 12.5 s (time has been cut out at ▲), a 3.75 s break at B, a series of "te"s descending in frequency lasting 11 s, a 4.5 s break at C, a long and low "choor!" lasting 5 s, a 6.0 s break at D, a single tweet, a 6.0 s break at E and a series of 11 gulps lasting 2 s bringing the total length of the sequence to 56.7 s. The horizontal bar represents 2 s

bearded seal may have only one silent period preceding the irregular, final moan (Ray et al. 1969).

In 1983 we were unable to detect the song or fragments of it despite examination of 27 h of seal vocalizations recorded by Puddicombe (Thomas et al., in press) in the Davis area. These recordings included 13.5 h during the period 27 September to 19 December which overlaps the period when the song was recorded in 1984. In view of the geographical isolation of a number of seal vocalizations (Thomas and Stirling 1983; Thomas et al., in press) this song, apparently not present in 1983, may have been introduced by an immigrant male or males.

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