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Cephalopods in the food of Weddell seals from the Admiralty Bay (King George Island, South Shetland Islands)*)

It has been a long known fact that Weddell seals eat cephalopods. Bertram (1940) has found that Weddell seals from Graham Land fed equally on fish and cephalopods. Deaborn (1965) has observed that Weddell seals from the surroundings of McMudro Sound fed mainly on fish (97% of stomachs with food). Cephalopods were found in 14% of stomachs. These were octopuses from the subfamily *Eledoninae*, not identified any further. In one of the stomachs there were 7 octopuses and 42 beaks. Wilton (1908) and Pohle (1927) have pointed out the significance of squids (*Teuthoidea*) in the food of Weddell seals.

Material for this study was collected on the King George Island on February 17, 1979. Stomach contents of 17 seals were fixed in 70% ethyl alcohol. Species composition of fish found in stomachs of seals examined will be discussed in a separate paper (Weiner, Woyciechowski and Zieliński 1981). Identification of cephalopods without comparative

Table I

Species composition of octopus catches in the Admiralty Bay (February 25, 1979)

Species	Number of individuals	Sex	DML *) range (mm)	Range of total length (mm)
Megaeledone senoi Taki, 1961	2	male female	210 78	840 330
Thaumeledone brevis (Hoyle, 1885)	1	male	50	138
Pareledone charcoti (Joubin, 1905)	21	males females	35—55	90—148
Pareledone turqueti (Joubin, 1905)	7	males females	22—65	55—185

*) Dorsal Mantle Length

*) Research conducted within problem MR-II-16 on the basis of material collected during the Third Antarctic Expedition in 1978—1979.

material had been impossible. Therefore samples obtained by means of otter trawl in the Admiralty Bay on the stern trawler "Taurus" on February 25, 1979 at the depth of 470—550 m were used as a comparative material. Thirty-one specimens of octopuses were obtained and their beaks were separated after identification of each whole cephalopod. This allowed to identify the species of cephalopods eate by seals examined, because the material consisted mainly of beaks and also of fragments of the buccal mass. Criteria and terminology of Clarke (1962, 1980) were used in identifications.

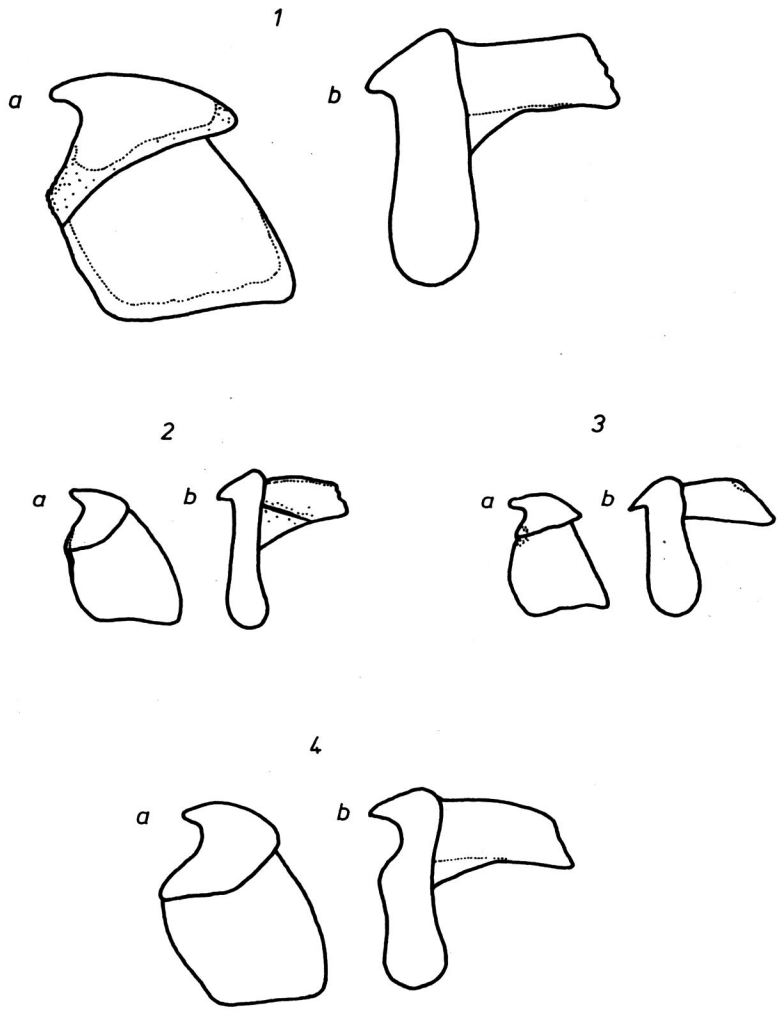

Fig. 1. Upper (a) and lower (b) beaks of octopuses of the subfamily *Eledoninae*
1. *Megaeledone senoi* Taki, 1961
2. *Thaumeledone brevis* (Hoyle, 1885)
3. *Pareledone turqueti* (Joubin, 1905)
4. *Pareledone charcoti* (Joubin, 1905)

Table II.

Cephalopods in the food of Weddell seals caught in the Admiralty Bay (February 17, 1979)

No of specimen	Biological data of a given seal	Stomach content	LCL*) (octopuses) or LRL*) (squids)	Total weight of consumed cephalopods (g)	Species composition of seal food	Remarks
1	male, 260 cm long, 202 kg	3 pairs of beaks – – octopuses	6.5; 7.0; 9.5	520	*Megaeledone senoi*	
2	female, 287 cm long, 259 kg	4 upper beaks, 2 lower beaks – – octopuses	8.5; 28.0	4300+840**)	*Megaeledone senoi*	1 pair of large beaks of *M. senoi*
3	female, 265 cm long, 282 kg	7 pairs of beaks + separately 5 upper beaks – – octopuses; 1 lower beak of a squid; 1 buccal crown	8.5—12.0; 9.5 (squid)	2100+100**)	*Pareledone turqueti* 2 pairs of unidentified *Octopoda* *Kondakovia longimana*	long rostrum determined acc. to *Clarke* (1980) .
4	male, 230 cm long, 156 kg	2 pairs of beaks – – octopuses: 2 buccal crowns	8.0; 8.5	420	*Megaeledone senoi*	
5	female, 265 cm long, 313 kg	8 pairs of beaks – – octopuses; 1 buccal crown	5.0—9.5	1530	*Megaeledone senoi* *Pareledone turqueti* *Pareledone charcoti*	
6	female, 236 cm long, 185 kg	5 pairs of beaks – – octopuses; 2 buccal crowns	2.5—10.5	1200	*Pareledone turqueti* *Pareledone charcoti*	2 pairs of very small beaks not identified
7	male, 260 cm long, 202 kg	8 pairs of beaks + 1 upper beak – – octopuses; 6 buccal crowns	5.5—9.5	1520	*Pareledone charcoti*	
8	male, 268 cm long, 226 kg	8 pairs of beaks – – octopuses; 8 buccal crowns	6.0—10.0	1600	*Megaeledone senoi*	
9	male, 270 cm long, 288 kg	1 pair of beaks – – an octopus	8.4	210	*Megaeledone senoi*	
10	female, 267 cm long, 220 kg	1 lower beak – – an octopus	10.3	340	*?Pareledone turqueti*	
11	male, 267 cm long, 228 kg	1 pair of beaks +1 1 upper beak – octopuses	9.0	250	*Pareledone turqueti*	

*) Lower Crest Length (octopuses); Lower Rostrum Length (squid)

**) swallowed at different time (different degree of beak darkening)

Usually lower beaks were used for identification. The relationships determined by Clarke (1962) allowed to calculate the approximate weight of cephalopods found in stomachs of seals.

Octopuses caught by the otter trawl in the Admiralty Bay belonged to four species (Table I). Beaks of caught individuals of the species (Fig. 1) were useful for identification of cephalopods found in stomachs of seals examined.

Cephalopods as far as quality is concerned contributed quite considerably to the food of Weddell seals in the Admiralty Bay: 11 out of 17 had remains of cephalopods in stomachs (65%); five stomachs were empty and thus cephalopods were found in 92% of full stomachs. In the food of seals fish dominated quantitatively; they were on the average 70—80% of the weight of stomach contents (Weiner, Woyciechowski and Zieliński 1981).

Of the 11 seal stomachs examined, in one — three species were found, in three — two species, and in other — one in each (Table II).

The Admiralty Bay is a new locality of two species of octopuses: *Thaumeledone brevis*, up to now only known from the northern part of The Argentinian shelf (Robson 1932, Castellanos and Menni 1969), and *Megaeledone senoi*, found in the eastern part of Antarctic shelf (66°31′7″S, 92 59′E and 67°51′5″S, 33°13′5″E by Nesis and Propp 1968). Also the males of both species have not been known. A specimen of *Megaeledone senoi* of total length 84 cm (Table I) is the biggest known representative of this species (Nesis and Propp 1968).

It has been found that cephalopods — octopuses first of all — are an important part of the diet of Weddell seals living in the Admiralty Bay in February 1979. Species composition and the weight of cephalopods consumed by adult seals indicate that seals do not prefer octopuses of a specific size or species — they consume all octopuses they can catch.

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