COMMENTATIONES BIOLOGICAE
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Notes on the invertebrate fauna of the northern Baltic area

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Below are given some new records on the distribution and occurrence of some of the most typical invertebrates of the northern Baltic area. Most of these notes refer to work carried out on board the R.V. »Aranda».

Prostoma obscurum (Schultze)

This viviparous brackish-water nemertean has been found to occur as high up the Gulf of Bothnia as Luleå (SVENONIUS 1949), Krunnit (VALTONEN 1964) and Hailuoto (Karlö) (SEGERSTRÅLE 1955, 1960 a; VALTONEN 1964) in the innermost part of the Bothnian Bay (Fig. 1). The species has mostly been captured in shallow water. However, in 1963 *Prostoma* was also found in deeper parts (max. c. 80 m) of the Bothnian Bay (LASSIG 1964). During the cruise of »Aranda» in June 1964 the author also searched for *Prostoma* in the northern Baltic proper and in the Bothnian Sea, on different kinds of bottoms, at depths exceeding 45 m, but in vain. Thus it cannot, at any rate, be common in the deeper parts of these areas. In the southern Bothnian Bay we again found the species at several stations, mostly on bottoms consisting of very fine sand. At the southernmost station (F 15: 63° 29.5′N, 21° 22.5′E, 48 m) where the species was recorded, the bottom consisted of black mud containing H_2S but with a brown oxidized surface layer. Many specimens contained young.

The Bothnian Bay is very poor in nutrients, especially phosphates (BUCH 1932). There exist only a few benthic species, and their density is low compared with the Bothnian Sea and other parts of the inner Baltic

area. Over wide areas of the southern part of the Bothnian Bay, the amphipod *Pontoporeia affinis* Lindstr. and *Prostoma obscurum* are the characteristic species of the monotonous community of the deeper waters.

It is astonishing that in the Bothnian Sea *Prostoma* was not found in conditions (kind of bottom, depth) corresponding to those in the Bothnian Bay, and it might be asked which ecological factors are responsible for this diversity in distribution. Prof. SEGERSTRÅLE (personal communication) suggested that dense populations of *Pontoporeia* perhaps kill young *Prostoma*, as seems to be the case in regard to newly settled *Macoma baltica* (cf. SEGERSTRÅLE 1960 b, 1962). In the Bothnian Bay *Pontoporeia* is sparse, while in the other parts of the inner Baltic it is very abundant, these facts supporting the hypothesis mentioned.

It is possible that the isopod *Mesidotea entomon* (L.) is also a competitor to be reckoned with, this species too being much less abundant in the Bothnian Bay than south of this area.

In the Gulf of Finland SEGERSTRÅLE (1933, p. 6) has found *Prostoma* in the archipelago of Pellinge/Pellinki, hitherto the easternmost locality known for this species in the area. Because in the Bothnian Bay *Prostoma* is found at a mean salinity as low as $2-3^0/_{00}$, it has been presumed to occur farther eastward than Pellinge in the Gulf of Finland (LASSIG 1964). The salinity in the Pellinge archipelago is about $4.5^0/_{00}$.

In the summers of 1963 and 1964, *P. obscurum* was found at three different stations (soft bottom: 4 m; sandy bottom: 2 and 10 m) in the archipelago of Kotka on the south coast of Finland. (For the location of Pellinge and Kotka, see Fig. 1). These records were kindly placed at my disposal by the Fisheries Foundation (Kalataloussäätiö—Fiskeristiftelsen). The new localities, situated about 60 km east of the islands of Pellinge, are quite separate (west, south and east of Kotka), and thus indicate that the species is not occasional here. The mean salinity is not exactly known, but is probably about $4.0^0/_{00}$. It hence seems probable that the species occurs still further east of Kotka.

In 1934, KARLING described a new nemertean species, *Sacconemertes arenosa*, from the area off the Peninsula of Hangö/Hanko (Fig. 1). The description was made on the basis of a single juvenile individual. The species has not been found since. According to the present opinion of Dr. KARLING (personal communication), the specimen concerned was possibly a teratological *Prostoma obscurum*.

Membranipora crustulenta Pall.

This bryozoan, which is very common in shallow waters throughout the Baltic, e.g. on stones, holdfasts of *Fucus*, shells of *Mytilus edulis* and on all

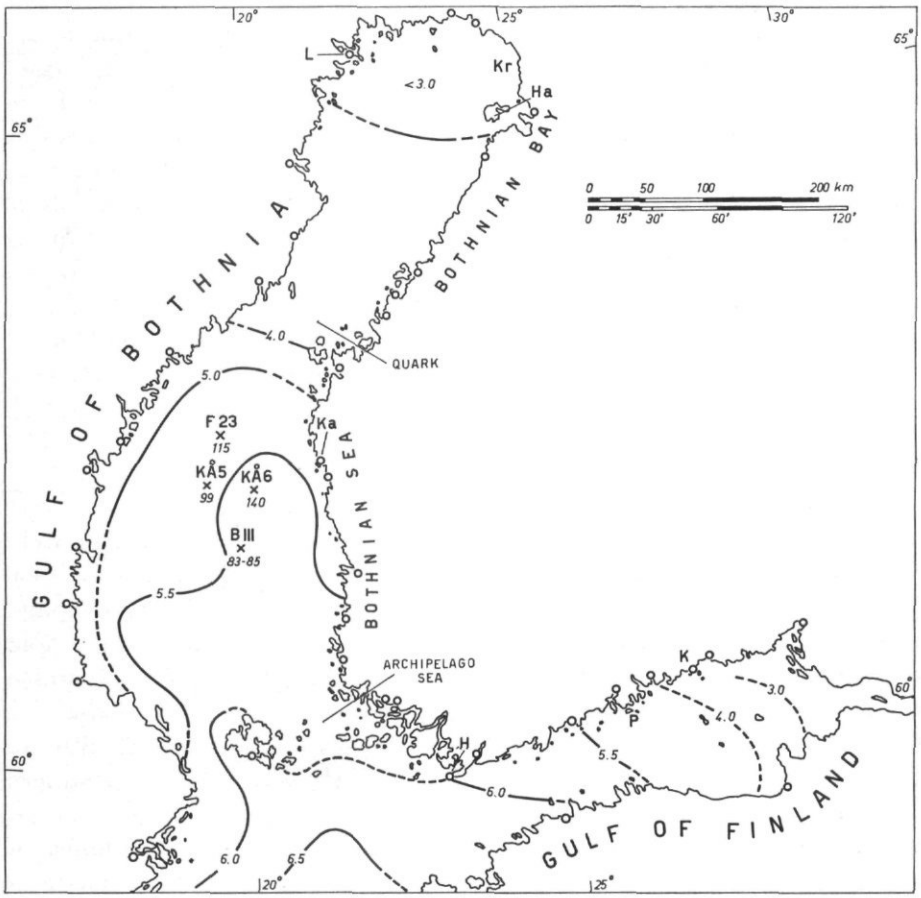

Fig. 1. The northern Baltic area and the location of the stations F 23, KÅ 5, KÅ 6 and B III with corresponding depths.

The surface isohalines (‰) mainly follow the July isohaline for 1954–1956, as shown in the Atlas of Finland 1960. Those for the easternmost part of the Gulf of Finland were taken from the 1925 edition.

H = Hangö/Hanko, Ha = Hailuoto (Karlö), K = Kotka, Ka = Kaskö/Kaskinen, Kr = Krunnit, L = Luleå, P = Pellinge/Pellinki.

kinds of underwater constructions, is seldom found in deep water. Where the hydrographic conditions are satisfactory, the reason for this seems to be only the sparse occurrence of a firm substrate. NORDQVIST (1890 p. 98) reported it from 94 m depth in the Archipelago Sea. The depth record is probably not quite exact, the sample having been obtained by dredging, but there is no reason to believe that the error is considerable in either direction. The author does not mention anything about the nature of the bottom.

During the cruise of »Aranda» in June 1962, *Membranipora* was found in the Bothnian Sea at a depth of 85 m (B III: 61°37′N, 19°47′E), settled on concretions of iron-manganese (Fig. 1). Concretions of this kind are common over wide areas of the Gulf of Bothnia. Especially in the Bothnian Sea they often exhibit a peculiar appearance, with cavities and tunnels. Where they are abundant their hardness often makes it very difficult to obtain good quantitative samples. In 1964 *Membranipora* was again found at the same station (depth 83 m) and also at a depth of 99 m at station KÅ 5 (62°14′N, 19°41′E).

BAGGE, JUMPPANEN, LEPPÄKOSKI & TULKKI (1965, p. 48) report *Membranipora* down to 80 m depth on concretions of «limonite» in the Lohm area in the Archipelago Sea.

Harmothoë sarsi (Kinb.)

According to unpublished tables of the Institute of Marine Research, referring to material collected in the Bothnian Sea in the summer of 1956 by VEIKKO SJÖBLOM, Ph.D. and the late NILS-OLOF LAURELL, Lic.phil., this polychaete species was found at several stations in the southern and central parts of the area. The position of the northernmost station at which *Harmothoë* was captured was 62°21′N, 21°13′E (11 m, off Kaskö/Kaskinen; collector, SJÖBLOM). The northernmost record of *Harmothoë* hitherto published was from the island of Lypertti (Lypertö) in the southern Bothnian Sea (SJÖBLOM 1955).

The records of 1956 probably indicated a widening of the range of *Harmothoë* in the Bothnian Sea, due to high salinity (cf. salinity diagrams published by LINDQUIST 1959, Fig. 7). For corresponding phenomena as for other species, cf. LINDQUIST (1959) and SJÖBLOM (1956). Unfortunately, very little previous work has been done on the bottom fauna of this area, for which reason it is not possible to make comparisons with earlier periods of raised salinity.

At present the species seems to be less common, but whether owing to reduced salinity or to some other factor is unknown. During the cruise of »Aranda» in June 1964 the only finds of *Harmothoë* in the central Bothnian Sea was from the stations B III and KÅ 6 (Fig. 1).

Gammarus oceanicus Segerstr.

This marine, chiefly coastal amphipod, mostly inhabiting the algal zone, is only occasionally observed at depths greater than 25 m (cf. SEGERSTRÅLE 1959, p. 6), the deepest find being from a depth of 30—50 m in the Quark (F 15, K. M. LEVANDER, cf. SEGERSTRÅLE 1960 a). There are a

number of records from the open sea between Rügen and the Danish Isles from depths of c. 20 m (SEGERSTRÅLE 1947, p. 236).

During the cruise of »Aranda» in June 1964 this species (3 specimens) was captured in a dredge haul from c. 115 m depth in the open northern part of the Bothnian Sea (F 23: 62°39'N, 19°31'E). In Baltic waters the nocturnal pelagic occurrence of *G. oceanicus* is observed in autumn and winter (SEGERSTRÅLE 1959, p. 6). The present sample, however, was taken at the most luminous time of year and in daytime (14.15 hrs), for which reason the possibility that the specimens found would have been caught in mid-water, can probably be ignored. This observation shows that *G. oceanicus* may (occasionally?) occur in deep water, far from the coast, in a biotope devoid of algal vegetation.

Additional note

Because this paper has been a long time at the printers, I have the opportunity to add some notes referring to the cruise of »Aranda» in May 1965.

During this cruise *Prostoma obscurum* was found also in deeper water of the Bothnian Sea (southern part, 61° 12.5' N, 17° 38.5' E; 64 m, very fine sand). It should be mentioned that the population of *Pontoporeia affinis* was very sparse at the locality (cf. p. 2).

Gammarus oceanicus was found in the southern part of the Bothnian Sea at a depth of 67 m (61° 08' N, 19° 06' E; stones, gravel, iron-manganese concretions) and in the central part of the Gulf of Finland at a depth of 54 m (59° 55' N, 25° 36' E; very fine sand, iron-manganese concretions).

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