

INVERTEBRATE
ZOOLOGY /
Crustacea

NOTE ON THE GENUS *PANDALINA* (CRUSTACEA
DECAPODA), WITH THE DESCRIPTION OF A NEW
SPECIES FROM EUROPEAN WATERS

by

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With one textfigure

When studying the European Caridea of the Rijksmuseum van Natuurlijke Historie at Leiden and of the Zoological Museum at Amsterdam, some specimens of the genus *Pandalina* came at hand, which proved to belong to a new species. These specimens had already been reported upon by Hoek (1882), who considered them to be *Pandalina brevirostris* (Rathke). Comparison with typical specimens of *Pandalina brevirostris*, however, showed various constant differences, which in my opinion justify the separation of Hoek's specimens as a distinct species.

In the present paper an enumeration of the specimens of both species of *Pandalina* present in the above mentioned Musea is given.

Pandalina profunda nov. spec. (fig. 1a-c)

Pandalus brevirostris Hoek, 1882, Niederl. Arch. Zool., suppl. vol. 1 pt. 7, p. 22, pl. 1 fig. 10 (non *Pandalus brevirostris* Rathke, 1843).

Pandalus brevirostris A. Milne Edwards, 1883, Rec. Fig. Crust. nouv. peu conn., pl. 26 fig. 2.

Pandalina brevirostris Schellenberg, 1928, Tierw. Deutschl., vol. 10 pt. 2, fig. 7 (non p. 16, figs. 8, 9).

Museum Leiden:

Barents Sea; 1878-1879; Willem Barents Expedition. — 4 specimens 24-28 mm¹).
Bergen, Norway; 1907. — 1 ovigerous ♀ 25 mm.

Description: The rostrum is short, it reaches to the middle of the second segment of the antennular peduncle; it is straight or directed slightly upward at the apex. The upper margin is provided with eight to ten teeth; the

1) The specimens reported by Hoek (1882) from the Shetlands obviously also belong to the present material.

anterior three or four of which are immovable, the posterior teeth articulate with the carapace. The lower margin of the rostrum is provided with three to seven small teeth (of the three specimens at my disposal in which the

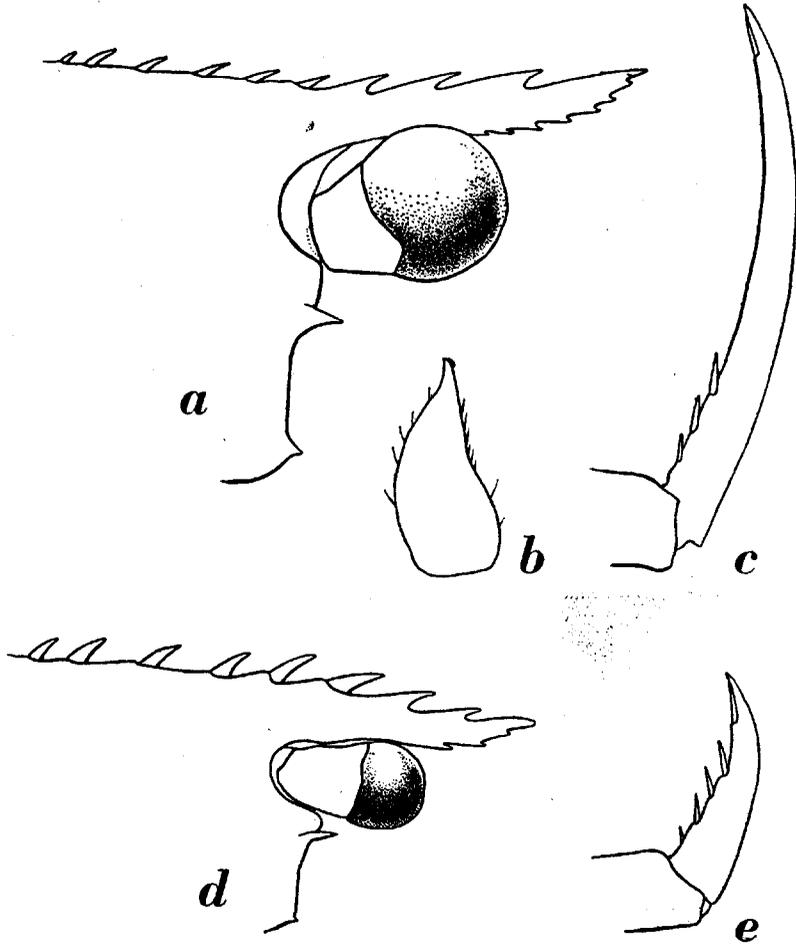


Fig. 1. a-c, *Pandalina profunda* nov. spec.; a, anterior part of the carapace in lateral view; b, endopod of first pleopod of the male; c, dactylus of third pereiopod. d and e, *Pandalina brevirostris* (Rathke); d, anterior part of the carapace in lateral view; e, dactylus of third pereiopod. a, b and d, $\times 20$, c and e, $\times 40$.

rostrum is undamaged, one bears three lower teeth, though indications of a fourth and fifth tooth are visible, two bear five teeth and the last is provided with seven); Milne Edwards figured only two lower teeth. The

carapace is smooth, a well developed antennal and a small pterygostomial spine are present.

The abdominal segments are smooth. The pleurae of the first, second and third segments are rounded or slightly truncate at the top. Those of the fourth and fifth segments end in a small posteriorly directed spine. The sixth segment is about twice as long as the fifth. The telson is elongate triangular and gradually narrows posteriorly; it is about as long as the sixth abdominal segment. The upper surface of the telson at each side is provided with a lateral row of about nine spinules. The tip of the telson bears three pairs of spines: the outer pair is very short, the intermediate long and curved, while the inner pair again is shorter than the intermediate.

The eyes are large and globular. The cornea is very much broader than the peduncle. Some variation may be observed in the size of the cornea: four of my specimens have the cornea of about the size as figured here, but in the fifth the cornea is very much broader. A distinct ocellus is present.

The antennula has the first segment of the peduncle hollowed above, forming thereby a protection for the eye. The stylocerite is short and rounded. The second segment of the antennular peduncle is about as long as the third; together these two segments are slightly shorter than the first. There are two flagella, the inner of which is stouter than the outer.

The scaphocerite is well developed and gradually narrows towards the apex. It is about four times as long as broad. The lamella reaches somewhat beyond the final tooth. The antennal peduncle bears a distinct exterior spine at its base. The flagellum is very long.

The third maxillipede reaches almost to the end of the scaphocerite, it bears no exopod. The last segment of the third maxillipede is about twice as long as the penultimate, which is slightly shorter than the antepenultimate segment.

Epipods are present at the bases of the first four pereopods. The first pereopod is slender, it is provided with a microscopical small chela. The propodus is shorter than the carpus, which is about as long as the merus. The left second pereopod is differently built from that of the right side of the body. The left leg is longer, it generally fails, however, to reach the end of the scaphocerite (sometimes it slightly overreaches that scale). The chela is small; the carpus, which is about eight times as long as the chela, is subdivided into some fourteen joints. The merus is slightly longer than half the carpus and shorter than the ischium. The right leg is much shorter than the left. The chela is about half as long as the carpus, which is subdivided into four or five joints. The basal of these joints is longer than

the three or four distals together. The merus is about as long as the basal joint of the carpus. The ischium is slightly longer than the merus. The last three pairs of pereiopods are long, slender, and of about the same shape. The dactylus is very long and slender, it is almost half as long as the propodus in the third and fourth legs, in the fifth pereiopod it is relatively shorter; just below its apex the dactylus bears one tooth, while furthermore a row of about four teeth is present in the proximal part of the posterior margin of the dactylus; the median part of the posterior margin is naked for a long distance. The carpus is slightly longer than half the propodus. The merus is slightly longer than the propodus. The propodus, the carpus and the merus are provided with spines. The fifth pereiopod is more slender than the two preceding legs and bears less spines.

The pleopods have the same shape as those of *Pandalina brevirostris*. The endopod of the first pleopod of the male is figured here for comparison.

The uropods are long and slender, they reach slightly beyond the tip of the telson.

The eggs are numerous and small, they are 3.5-5.0 mm in diameter.

Vertical distribution. The species was collected in depths varying between 238 and 1068 m. Probably *Pandalina profunda* may be considered to be the representative of *P. brevirostris* in deeper water. It is very well possible that specimens from large depths recorded in literature under the name *Pandalina* (or *Pandalus*) *brevirostris* belong to the present species.

Horizontal distribution. The species at present is only known from four localities: Barents Sea, 74° 16' N, 29° 47' E (Hoek, 1882), East of the Shetlands, 61° 52' N, 1° 42' E (Hoek, 1882), Bergen, Norway (present record) and off the Portuguese coast, 41° 13' N, 11° 39'.6 E (A. Milne Edwards, 1883). The range of distribution of *Pandalina profunda* seems to extend much farther northward than that of *Pandalina brevirostris*, while the former is known from the Barents Sea, the latter is never recorded farther northward than Malangen on the Norwegian coast.

Remarks. *Pandalina profunda* is very closely related to *Pandalina brevirostris*, which is already shown by the fact that it up till now always has been considered to be identical with that species. The differences between the two species are:

1. the number of immovable teeth on the rostrum usually is larger in *P. profunda* than in *P. brevirostris*. Also the lower teeth of the rostrum generally are more numerous in the former species.

2. the eyes in *P. profunda* are distinctly larger than those of *P. brevirostris*, in some specimens even very much larger.

3. the longer second pereiopod in *P. profunda* generally fails to reach the end of the scaphocerite, while in *P. brevirostris* it reaches distinctly beyond that scale.

4. the dactylus of the last three pereiopods is long and slender in *P. profunda*, where the posterior margin of this joint is entire for a considerable distance, while in *P. brevirostris* the dactylus is much shorter and has the spines of the posterior margin regularly divided over the entire length of that margin.

5. *Pandalina profunda* is a form from deeper water, while *P. brevirostris* generally is found in smaller depths.

The present species was first mentioned and figured in Hoek's report on the Crustacea of the Willem Barents Expedition; Hoek's specimens are at my disposal and after them the above description is made. A year after Hoek's paper was published, the species again was figured, namely in A. Milne Edwards's (1883) *Recueil de Figures de Crustacés nouveaux ou peu connus*; just as in Hoek's paper the species was named there *Pandalus brevirostris*. Milne Edwards's figure distinctly shows the principal characters of the present species: here too the eyes are large and globular, four teeth of the upper margin of the rostrum are immovable, the longer second pereiopod fails to reach the end of the scaphocerite, the dactyli of the last three pairs of pereiopods are slender (their dentition, however, cannot be seen in the figure); the only difference between Milne Edwards's figure and my specimens is the fact that the rostrum in the former bears only two ventral teeth, while in my specimens this number is much larger. Milne Edwards's figure is reproduced in Schellenberg's (1928) volume on the Decapod Crustacea of "Die Tierwelt Deutschlands" under *Pandalina brevirostris*; the forms dealt with by Schellenberg of course belong to the typical *Pandalina brevirostris*. It is very well possible that the present species is reported by other authors under the name *Pandalina brevirostris*. Kemp (1910), for instance, observed that his specimens of *Pandalina* from deeper water had the eyes much larger than those of smaller depths; furthermore he stated the rostrum in his specimens from larger depths to be much longer than that of the shallow water forms; this feature, however, is not distinct my material.

Pandalina brevirostris (Rathke, 1843) (fig. 1 d, e)

Museum Leiden:

North Sea. — 2 specimens 25 and 26 mm.

Off Cape South Foreland, English Channel; February, 1902; cruise with the "Wodan".—5 specimens 18-25 mm.

Off the coast of Finisterre near Roscoff, Brittany; August or September, 1928; leg. Miss. W. L. Wrede.—2 specimens 22 and 24 mm.

Museum Amsterdam:

Parknasilla, Sound near Garinish Island, Ireland; July, 1907; leg. L. F. de Beaufort.—1 specimen 22 mm.

North Sea, up to 10 miles off the Belgian coast; leg. G. Gilson.—1 specimen 29 mm.

Except the above material also three specimens of this species from Cape South Foreland, which are present in the collection of the Zoological Station at Den Helder, could be examined.

For comparison with *Pandalina profunda* figures are given here of the anterior part of the carapace and of the dactylus of the third pereopod of the present species.

Vertical distribution. The species is known with certainty only from shallow waters, the specimens recorded in literature from deeper water may belong to the previous species, so that the exact vertical range of the present species is not known.

Horizontal distribution. *Pandalina brevirostris* is known from the Mediterranean northward to Malangen on the Norway coast.
