

## A New Species of the Genus *Gnorimosphaeroma* (Crustacea, Isopoda, Sphaeromatidae) from a Brackishwater Lake in Korea

In Kwon Jang and \*Do Heon Kwon

Department of Biology, College of Natural Sciences, Pusan National University, Pusan 609-735; \*Department of  
Biology, Inje University, Kimhae 621-749, Korea

***Gnorimosphaeroma anchialos*, n. sp. is described from a brackish-water lake in Korea. This species is distinguished from *G. naktongense* Kwon and Kim and *G. hoestlandti* Kim and Kwon by the morphology of pereonal coxal plates, and pereopods 1 and 2.**

**KEY WORDS:** Isopoda, Sphaeromatidae, *Gnorimosphaeroma*, Taxonomy, Korea, New species

The members of the genus *Gnorimosphaeroma* are exclusively distributed along the North Pacific coast and comprise eleven valid species, of which eight species are recorded from Korea (Kwon, 1990). While examining the Isopoda collections in the Department of Biology, Inje University (IJB), we came across another species of *Gnorimosphaeroma* collected from a brackish-water lake on the East Sea coast of Korea. This species is described in detail.

### ***Gnorimosphaeroma anchialos*, n. sp. (Figs. 1-3)**

**Holotype:** male, body length 6.9 mm, body width 3.6 mm, Kang-wŏn-do, Kosŏng-gun, Songjiho Lake, leg. I. K. Jang, 4. VII. 1991 (IJB).

**Paratypes:** 12 males, 6 females and 30 juveniles, collected together with the holotype (IJB).

**Description of male:** Body (Figs. 1A & B) ovate, about twice as long as wide; lateral margins subparallel. Dorsum smooth. Body color variable from yellowish brown to dark brown with darker polychromatic pattern. Cephalon (Fig. 1C) with a rostral process directed antero-ventrally. Epistome and upper lip as in Fig. 1D. Postero-lateral part of pereonite 1 triangular with rounded corner. Coxal

plates distinct on pereonites 2-7; outer margin of coxal plate 2 rounded; coxal plate 3 broad, with anterior and posterior margins evenly rounded; coxal plate 4 tapering, with concave posterior margin (Fig. 1B). Pleon 2-segmented, pleonite 1 hidden under pereonite 7; pleonite 2 with 2 pairs of incomplete suture lines, anterior one more approximating medially.

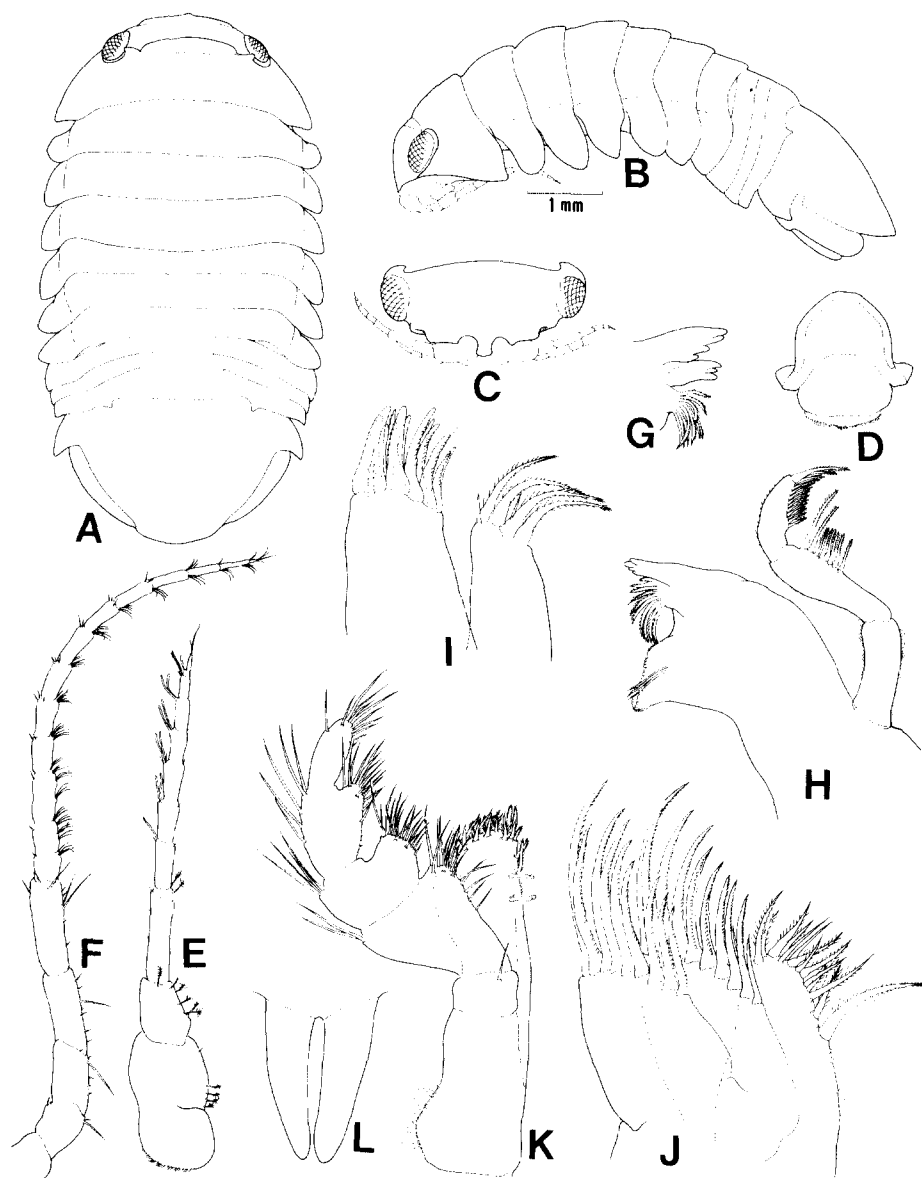
Antenna 1 (Fig. 1E) not reaching to posterior margin of pereonite 1; flagellum with 7-9 articles, shorter than peduncle.

Antenna 2 (Fig. 1F) reaching to pereonite 3; flagellum with 12-14 articles, about 1.5 times as long as peduncle.

Left and right mandibles (Figs. 1G & H) asymmetrical. Incisor with 4 teeth; lacinia mobilis of right mandible with 3 stout setae, of left with 3 sclerotized teeth; setal row with 7-10 serrate setae. Mandibular palp 3-articulated; article 1 setose, articles 2 and 3 with 8-12 and 11-13 serrate setae respectively.

Maxilla 1 (Fig. 1I) apically with 4 pappose and 2 unequal simple setae on inner ramus; 11 stout serrate setae apically and 1 plumose seta subapically on outer ramus.

Maxilla 2 (Fig. 1J) with 2 simple and 13



**Fig. 1.** *Gnorimosphaeroma anchialos*, n. sp., holotype male. A, habitus, dorsal view; B, habitus, lateral view; C, cephalon, dorsal view; D, epistome and upper lip; E, antenna 1; F, antenna 2; G, left mandible, incisor region; H, right mandible; I, maxilla 1; J, maxilla 2; K, maxilliped; L, penes.

plumose setae on inner ramus; bilobed outer ramus with 9-10 serrate setae each on medial and lateral lobes.

Maxillipedal endite (Fig. 1K) with 15 apical and 2 medial plumose setae; palp 5-articulated, articles 2-4 produced mediolaterally into setigerous lobes, article 1 with 1 simple seta on inner distal corner;

articles 2 and 3 with 2 and 3-4 setae on outer distal corner respectively; article 4 with 2-3 setae on outer margin and 1-3 setae on outer distal corner.

Pereopods increasing in length posteriorly ( $P1 < P2 < P3 = P4 = P5 < P6 < P7$ ). All pereopods with bases and ischia each bearing 1 simple seta on

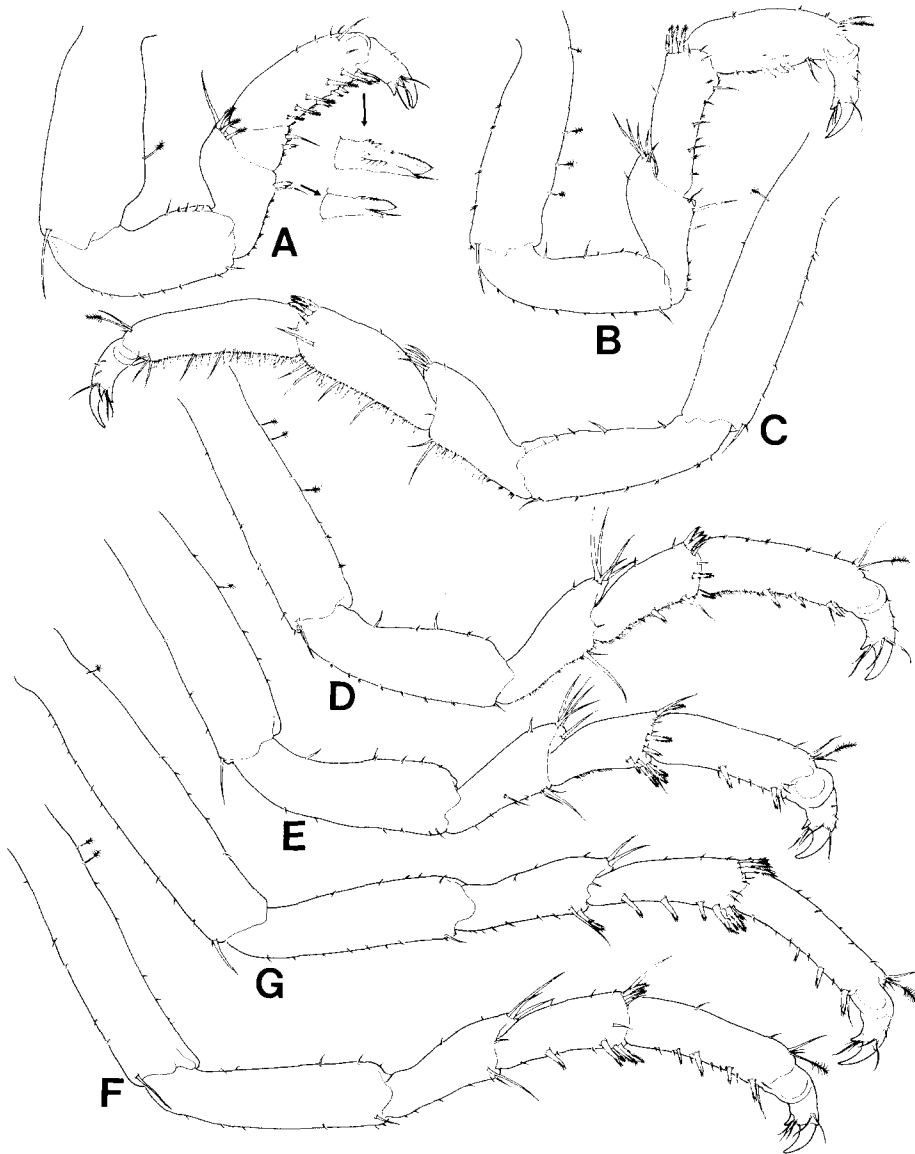
infero-distal angle.

Pereopod 1 (Fig. 2A) propodus with 3-4 cuspidate setae on inferior margin and 4-6 serrate setae on rostral surface; carpus with 1 simple and 1 cuspidate setae on inferior margin; merus with 1 simple and 1 cuspidate setae on inferior margin, 1 simple and 1 cuspidate setae on infero-distal margin, 1 long simple and 4-6 shorter serrate

setae on supero-distal angle.

Pereopod 2 (Fig. 2B) propodus with evenly expanded inferior margin bearing 2-5 cuspidate setae; carpus with 4 serrate setae on supero-distal angle; merus with 2-3 simple or cuspidate setae on infero-distal margin, 4-5 simple setae on supero-distal angle.

Pereopods 3 (Fig. 2C) and 4 (Fig. 2D) with



**Fig. 2.** *Gnorimosphaeroma anchialos*, n. sp., holotype male. A, pereopod 1; B, pereopod 2; C, pereopod 3; D, pereopod 4; E, pereopod 5; F, pereopod 6; G, pereopod 7.

propodi, carpi and meri densely fringed with fine setules (much longer in pereopod 3) on inferior faces.

Pereopods 5-7 (Figs. 2E-G) similar. Pereopod 7 propodus with 3 cuspidate setae on inferior margin; carpus with 4 cuspidate setae on inferior margin and 3 serrate setae on supero- and infero-distal angles each; merus with 2 simple setae on supero-distal angle, 1 simple and 1 serrate setae on infero-distal angle.

Penes (Fig. 1L) separate to base, 3 times as long as wide.

Pleopods 1-3 protopods with 5 or 6 plumodenticulate setae on medio-distal corner; pleopods 2-4 protopods with 1-2 setae on latero-

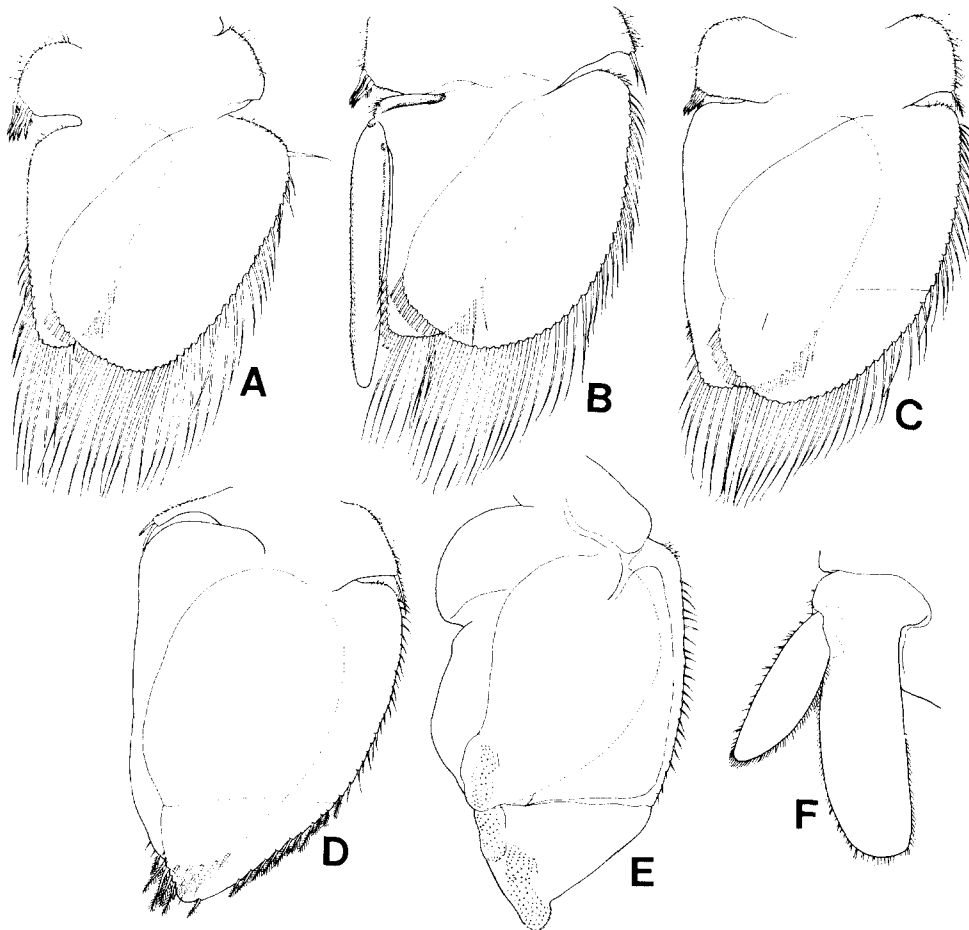
distal corner.

Pleopod 1 (Fig. 3A) endopod triangular with 19-24 marginal plumose setae; exopod sub-elliptical with 39-46 marginal plumose setae, 1 stout simple seta outer-proximally.

Pleopod 2 (Fig. 3B) endopod and exopod with 20-23 and 45-51 marginal plumose setae respectively; appendix masculinum surpassing tip of endopod.

Pleopod 3 (Fig. 3C) exopod incompletely 2-articulated with bi-lobed medial margin; endopod and exopod with about 20 and 50 marginal plumose setae respectively.

Pleopod 4 (Fig. 3D) completely 2-articulated with bilobed medial margin; endopod with 7



**Fig. 3.** *Gnorimosphaeroma anchialos*, n. sp., holotype male. A, pleopod 1; B, pleopod 2; C, pleopod 3; D, pleopod 4; E, pleopod 5; F, uropod, dorsal view. Marginal simple setae on pleopods 1-3 represent natatory plumose setae.

plumose setae on distal margin; exopod with about 15 plumose and 20 simple setae.

Pleopod 5 (Fig. 3E) completely 2-articulated; exopod with about 23 simple setae along outer margin of proximal article.

Uropodal inner ramus (Fig. 3F) with slightly rounded apex, not extending beyond tip of pleotelson; outer ramus elliptical, about 2/3 length of endopod.

**Female:** Similar to male in habitus. Besides the primary sexual dimorphism, pereopod 2 propodus without expanded inferior margin; pereopods 3 and 4 propodi, carpi and meri without setules on inferior faces.

**Variation:** Seven adult males (6.1-8.3 mm in body length) were examined to reveal the degree of variation in the antennae, the mouthparts, the pereopod 1, and the pleopods 1 and 2. It is shown that there are i) no variation in the number of setation of the inner ramus of maxilla 1, the maxillipedal palpal articles 1 and 2, and the infero-distal angle of basis of pereopod 1; ii) a little variation in the setation of the mandibular palpal articles 2 and 3, the outer ramus of maxilla 2, the maxillipedal palpal articles 3-5; and iii) increasing number, due to the growth in general, in the flagellar articles of antennae, and of the marginal plumose setae of pleopods 1 and 2. It is noted that the variation sometimes occurs in the right and left appendages of the same specimen.

**Habitat:** The Songjiho Lake is a shallow (about 1 m deep) brackish-water lake which is connected to the nearby sea by a long and narrow channel. The salinity was not measured but the water was somewhat salty. The lake was also inhabited with numerous *Corbicula* sp. throughout the bottom. *Gnorimosphaeroma anchialos* was populated densely (above 1,000 individuals/m<sup>2</sup>) on some patches of the muddy sand substrate.

The genus *Gnorimosphaeroma* includes several species that are euryhaline or recorded from brackish-water, viz., *G. oregonense* (Dana) and *G. insulare* (Van Name) from the Pacific coasts of North America, and *G. chinense* (Tattersall), *G. ovatum* (Gurjanova) and *G. naktongense* Kwon and Kim from the Northwest Pacific coasts.

**Etymology:** Latin, *anchialos* = near the sea.

**Remarks:** *Gnorimosphaeroma anchialos* is close

to *G. oregonense*, *G. ovatum*, *G. insulare*, *G. naktongense*, *G. rayi* Hoestlandt and *G. hoestlandti* Kim and Kwon in the morphology of pleonite 2 with two pairs of incomplete suture lines which are subequal in length. But the new species is readily distinguished from *G. insulare* by two pairs of suture lines of pleonite 2 reaching to the lateral margins (vs. one pair); from *G. rayi* by the pereopod 1 basis with one seta at infero-distal corner (vs. 4-8 setae in *G. rayi*); from *G. oregonense* and *G. ovatum* by the pereopod 1 merus with 5-7 setae at supero-distal corner (vs. 12-15 in *G. oregonense*; 2 in *G. ovatum*).

The new species is most close to *G. hoestlandti* and *G. naktongense* from which it differs by the morphology of pereonite coxal plates. The morphology of coxal plates was rarely given attention before Kim and Kwon (1985) who described *G. ovatum* and *G. hoestlandti* and illustrated the lateral habitus. In our opinion, it is taxonomically significant and can give a good criterion between closely related species (see Fig. 2 of Kwon, 1990). *G. anchialos* has the coxal plate 2 with evenly rounded lateral margin, while *G. naktongense* with abruptly tapering one, and *G. hoestlandti* with truncate one; the coxal plate 3 of *G. anchialos* is broader and the anterior and posterior margins are nearly symmetrical, compared with those of the latter two species. Furthermore, the coxal plates 5-7 in *G. naktongense* have the transverse dorsal ridges which *G. anchialos* and *G. hoestlandti* do not have. These three species also differ each other in the setation on supero-distal corner of pereopod 1 merus and the shape of male pereopod 2 propodus (see key below). On the basis of the criteria mentioned above, 'key to the species of Korean *Gnorimosphaeroma*' (Kwon, 1990, p. 155) is amended as follows:

4. Pereopod 1 merus with 2 setae at supero-distal corner.....*ovatum*  
Pereopod 1 merus with 3 or more setae at supero-distal corner..... 5
5. Coxal plate of pereonite 2 with truncate lateral margin; pereopod 1 merus with 7-8 setae (4-5 longer than the rest) on supero-distal corner;

male pereopod 2 propodus prominently expanded on proximal half of inferior margin ..... *hoestlandti*  
 Coxal plate of pereonite 2 tapering laterally; pereopod 1 merus with 3-4 subequal setae on supero-distal corner; male pereopod 2 propodus moderately expanded .....  
 ..... *naktongense*  
 Coxal plate of pereonite 2 with rounded lateral margin; pereopod 1 merus with 1 long simple and 4-6 shorter serrate setae on supero-distal corner; male pereopod 2 propodus slightly expanded along entire inferior margin .....  
 ..... *anchialos*, n. sp.

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동해안의汽水湖에서 채집된 잔벌레屬 等脚類(甲殼類)의 1 新種  
 장인권 · \*권도현(부산대학교 자연과학대학 생물학과, \*인제대학교 자연과학대학 생물학과)

강원도 고성군의 해안에 위치한 기수호인 송지호에서 채집된 잔벌레속의 1 신종, *Gnorimosphaeroma anchialos* (국명: 기수잔벌레(신칭))를 기재한다. 본 종은 胸節의 coxal plate와 제 1·2胸肢의 형태에 의해서 유사종인 *G. naktongense* Kwon and Kim(낙동잔벌레) 및 *G. hoestlandti* Kim and Kwon(꼬마갯가잔벌레)와 구분된다.