

# ON THE SYNONYMY OF *AMPHIGLENA PACIFICA* ANNENKOVA AND *A. MARITA* CHLEBOVITSCH (POLYCHAETA: SABELLIDAE: SABELLINAE)

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## ABSTRACT

*Amphiglena marita* Chlebovitsch, 1959 is reduced to a synonym of *Amphiglena pacifica* Annenkova, 1934. It is shown, that differences are trivial or mistakes due to the poor description by Annenkova. Data on the condition and location of type materials and redescription of *A. pacifica* are given. *A. pacifica* is certainly reported from the intertidal zone of the Kurile Islands, the south point of Kamchatka and the Commander Islands.

*Keywords:* *Amphiglena pacifica*, *Amphiglena marita*, North Pacific.

## INTRODUCTION

Two species of *Amphiglena* have been described from the north-west Pacific. The type locality of *Amphiglena pacifica* Annenkova, 1934 is Bering Island (Commander Islands) and the type locality of *Amphiglena marita* Chlebovitsch, 1959 is Paramushir Island (Kurile Islands). Both archipelagos are relatively close geographically and the two species are similar morphologically. Type material for each species was located and examined and redescribed. Additional collections, made since the original descriptions have also been studied. It is proposed that *A. marita* is a junior synonym of *A. pacifica*. The reasons for this are discussed and emendations are made to the description. The distribution of *A. pacifica* is given.

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## MATERIAL EXAMINED

Specimens of *A. pacifica* and *A. marita* from the collections of Zoological Insti-

tute (ZI), St. Petersburg and Institute of Marine Biology (IMB), Vladivostok were studied. Other material, deposited in the collection of Kamchatka Institute of Ecology and Environment (KIE), Petropavlovsk-Kamchatsky was also examined.

1. Syntypes of *A. pacifica* – 2 specimens (ZI, NN 1/47378, 1/47378 a, 1/47378 b). North-west part of Bering Island (Commander Islands), intertidally, coll. E. F. Gurjanova in 1930-31. Other data are absent.

2. Holotype of *A. marita* (ZI, N 40/41895). Paramushir Island (Kurile Islands), intertidal zone, on rock, st. 26, sample 1, 12.6.54, coll. V. S. Korotkevich.

3. Paratypes of *A. marita* – 10 specimens (ZI, N 13/5636). Label is the same as holotype.

4. *A. pacifica* – many specimens (about 250) (IMB, NN 1/4845, 2/4943, 4/11018, 6/11023, 7/11637, 8/11093). Commander Islands, intertidally, coll. Expedition of IMB in 1972 (M. B. Ivanova, O. G. Kussakin, V. V. Gulbin).

5. *A. marita* – many specimens (about 1000) (ZI, NN 1/5624 – 12/5635, 14/5637 – 37/5660, 38/6907). Kurile Islands, intertidally, coll. V. V. Chlebovitsch, O. G. Kussakin, V. S. Korotkevich in 1954-57.

6. *A. marita* – many specimens (about 800) (IMB, NN 1/4059, 2/4076, 3/4082, 5/4247, 7/4436, 8/4446, 9/4448, 10/4451, 11/4462, 12/4471, 13/4474, 14/4492, 15/4502, 16/4512, 20/11338). Kurile Islands, intertidally, coll. Expeditions of IMB and Department of Biology of the Far East University (FEU), Vladivostok in 1963, 1964, 1967 and 1969 (T. F. Tarakanova, M. B. Ivanova, E. I. Shornikov, I. A. Kashin, V. A. Kudrjashov).

7. *A. marita* – 6 specimens (IMB, NN 18/11135, 19/11171). Commander Islands, intertidally, coll. Expedition of IMB in 1972 (A. A. Karpenko).

8. *A. marita* – 5 specimens (IMB, NN 21/11784, 22/11785). The Sea of Okhotsk, coll. Expedition of FEU in 1971 (I. A. Kashin, N. M. Kulinich).

9. *A. pacifica* – 135 specimens (KIE, NN 1/1842, 2/1844, 3/1845). Kamchatka Peninsula (Lopatka Point), intertidally, coll. A. V. Rzhavsky in summer 1985.

Some other lots of *A. pacifica* and *A. marita*, deposited in the collection of IMB were in very poor condition and were not suited for examination.

Most of the worms were preserved in 70% alcohol. Syntypes of *A. pacifica* were on 3 slides, probably in Canada balsam. One of the preparations was softened and placed into 70% alcohol.

## RESULTS

### *Amphiglena pacifica* Annenkova, 1934

#### Fig. 1

*Amphiglena pacifica*: Annenkova, 1934, pp. 322, 328-329, fig. 9 a-e; Ushakov, 1955, p.412, fig. O, R (by Annenkova, 1934); Tarakanova, 1978 a, p. 161.

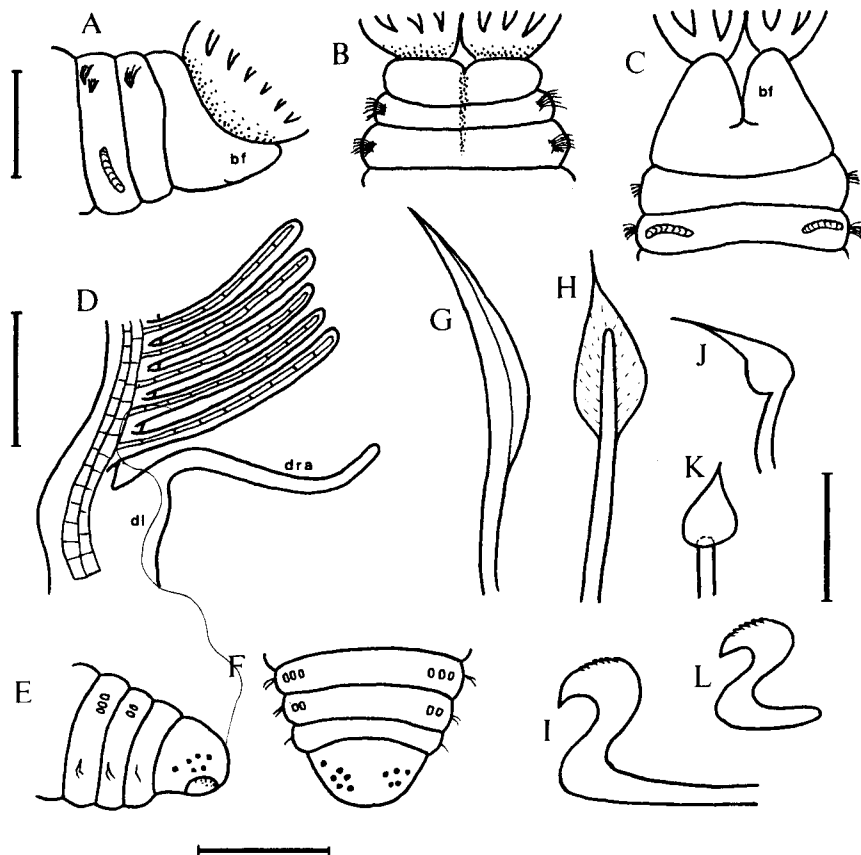


Fig. 1. *Amphiglena pacifica* Annenkova, 1934. A-C – side, dorsal and ventral view of peristomium with crown base and anterior setigers; D – basal part of radiole; E, F – side and dorsal view of pygidium and posterior setigers; G – superior thoracic notochaeta; H – inferior thoracic notochaeta; I – thoracic uncinus; J, K – side and dorsal view of companion chaeta; L – abdominal uncinus. bf basal flange, dl – dorsal lip, dra – dorsal radiolar appendage. Scale: 1 mm for A-D; 0.5 mm for E, F; 0.05 mm for G-L.

*Amphiglena marita*: Chlebovitch, 1959, pp.179-181, figs 9 A-D, 10 A, B; 1961, pp. 228-230, fig. 12 A, B; Tarakanova, 1974 a, p. 124 (partim); 1975, p.42 (partim).

**Description.** The syntypes are two fragments of anterior regions without branchial crowns, and thoracic chaetae separately, preserved in Canada balsam on slides. The condition of specimens was roughly identical, so no lectotype was designated. Since the syntypes were incomplete, other specimens from the type locality were used for redescription. No juveniles were found in the deposited material, so their features are cited from Chlebovitch (1959).

Total length when adult up to 20 mm (usually about 15 mm), maximum

width about 2.0 mm. Eight thoracic setigers and up to 45 abdominal setigers. Last 1 or 2 segments may be asetigerous.

Only 3 pairs of radioles when juvenile (Chlebovitsch 1959) and 5-8 pairs when adult. Radiolar skeleton with two rows of cells (Fig. 1 D). Palmate membrane and radiolar flanges absent. Radioles each with two rows of numerous (more than 30 in each row) long pinnules (Fig. 1 D), shortening along distal region of radiole. Dorsal lips (Fig. 1 D) rectangular with long dorsal radiolar appendages. Dorsal pinnular appendages absent. Ventral lips absent.

The border between anterior and posterior peristomial rings not visible (Fig. 1 A-C). Peristomial collar absent. Two anterior extensions from peristomium form distinct basal triangular flanges (Fig. 1 A, C) connected to radioles.

Peristomial eyes absent when adult, juveniles with one pair of eyes on peristomium (Chlebovitsch 1959). Pygidium with two groups of small rounded deep red eyes, which may sometimes disappear after preservation. Faecal groove indistinct, anal opening ventrally on pygidium (Fig. 1 E, F). Statocysts not visible in preserved material, but these have been observed in live specimens of other *Amphiglena* species (Rouse 1993, 1994).

Thoracic notochaetae of first thoracic setiger broadly hooded, 7-10 per fascicle. Superior thoracic notochaetae of remaining thoracic setigers broadly hooded, 7-10 per fascicle. Inferior thoracic notochaetae in setigers 2-8 paleate, 9-13 per fascicle (Fig. 1 G, H). Thoracic uncini, 10-12 per fascicle, with small teeth of similar size above main fang. Handles long (Fig. 1 I). Companion chaetae 10-14 per fascicle, with straight shaft and elongate mucro (Fig. 1 J, K). Abdominal uncini 9-11 per fascicle anteriorly and 1-3 posteriorly, with several rows of small teeth above main fang. Handles short (Fig. 1 L). Abdominal chaetae broadly hooded, 9-11 per fascicle anteriorly and 1-3 posteriorly.

Body light, yellowish or flesh-coloured, branchial crown brownish, with more dark pigmentation basally. Tubes consist of transparent membranous material, firm, incrustated by sand and silt, often connected with each other.

Examination of material defined by Tarakanova data showed, that some of her identifications were erroneous. The specimens from the Sea of Okhotsk (IMB, NN 21/11784, 22/11785) and in part from the Kurile Islands (IMB, NN 2/4076, 3/4082, 4/4246, 5/4247, 20/11338) appear related to the genus *Potamilla*. The specimens of *A. pacifica* from the Anadyrskij Gulf (Kresta Bay) and in part from the Commander Islands (Tarakanova 1978 a, b) and from the Sea of Japan (Bagaveeva 1975, as *A. marita*) were not retained and I cannot comment on these records. They may be erroneous, so I did not include these in the list of synonymies and did not plot them on the distribution map.

Both *A. pacifica* and *A. marita* were cited in a number of compilation lists of invertebrate animals or in the lists of species on biocenosis (Tarakanova 1974 b, Kussakin et al. 1974, Kussakin 1975, 1976, Kussakin & Ivanova 1978). These records were not original and duplicated previous papers or lists.

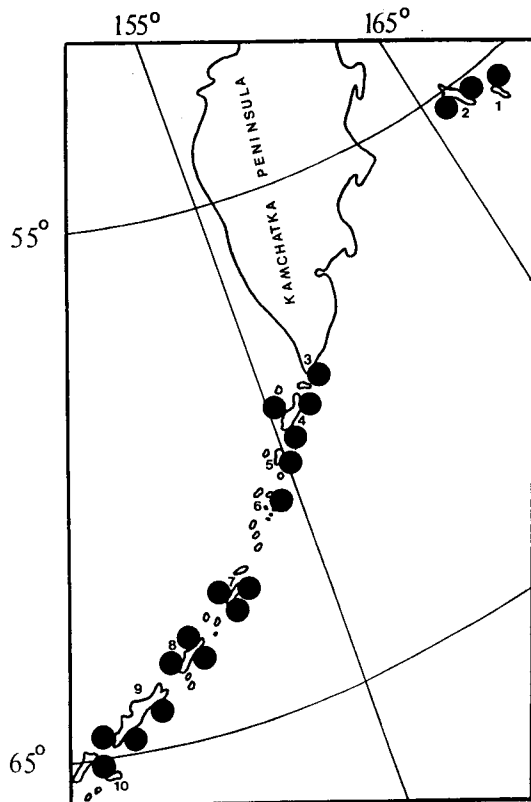


Fig. 2. Distribution of *Amphiglena pacifica*. 1 – Medny Isl., 2 – Bering Isl., 3 – Lopatka point, 4 – Paramushir Isl., 5 – Onekotan Isl., 6 – Shiashkotan Isl., 7 – Simushir Isl., 8 – Urup Isl., 9 – Iturup Isl., 10 – Shicotan Isl.

Once the species name *A. marita* was used for sabellid worms from Eastern Island in tropical waters (Kohn & Lloyd 1973). The name was used “tentatively” and these specimens almost certainly belong to another species, maybe one of the *Amphiglena* described by Rouse (1994) or a new species. The material must be deposited in the collection of Smithsonian Institute, Washington.

*A. pacifica* forms abundant populations in the middle and lower intertidal zone on rocks. Some data on the ecology and reproduction of *A. pacifica* was described by Chlebovitsch (1959, 1961 – as *A. marita*) for a population from Kurile Islands.

*Distribution.* Kurile Islands (Paramushir, Onekotan, Shicotan, Simushir, Urup, Iturup, Shiashkotan Islands); East Kamchatka (Lopatka Point); Commander Islands (Bering, Medny (- Cooper) Islands) – Fig. 2.

#### DISCUSSION

*Amphiglena pacifica* was described from the intertidal zone of Bering Island (Commander Islands). There was not any information on the locality of type

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The same, more probably, for record of *A. pacifica* from Australian coasts. (Hutchings and Rainer. A key to estuarine polychaetes in New South Wales. – Proc. Linn. Soc. N.S. Wales, v.

material in the original description by Annenkova (1934). Some years ago it was found by employees of ZI, Dr. G. N. Buzhinskaja and V. V. Potin, and deposited in the collection of ZI (see above).

Chlebovitsch (1959) described *Amphiglena marita* from the intertidal zone of the Kurile Islands, but he did not indicate the existence of type material in the paper. They were, however, deposited in the collection of ZI (see above). Many specimens in addition to the type series were also deposited at the same time, but, unfortunately, without tubes and juveniles.

Five species of *Amphiglena* have been described to date: *A. pacifica*, *A. marita*, *Amphiglena mediterranea* (Leydig, 1851), *Amphiglena terebro* Rouse, 1993, and *Amphiglena nathae* Rouse, 1994. I did not examine specimens of the last three species. But, according to Fauvel (1927) *A. mediterranea* differs very distinctly from other species in having pigmented loops at the basal part of the radioles. Only *A. terebro* has more than 10 thoracic setigers (Rouse 1993). Both *A. mediterranea* and *A. nathae* have short handles of the thoracic uncini (Fauvel 1927, Rouse 1994). Besides *A. terebro* and *A. nathae* are very small, with total length of the body about 3 mm when adult (Rouse 1993, 1994).

In a differential diagnosis for *A. pacifica* and *A. marita* Chlebovitsch (1959) stated, that both species were similar, but *A. marita* was larger (up to 20 mm against 6 mm), had more numerous radioles (5-8 pairs against 5-6 pairs) and had no peristomial eyes. Chlebovitsch did not see the type material of *A. pacifica* and was guided only by Annenkova's (1934) description. Reexamination of material from both species reveals the differences to be trivial.

Annenkova (1934) stated that the body length of *A. pacifica* was 6 mm. However, this refers to the length of fragments only, which consist of the thoracic region and some abdominal segments. Their full length should be about 15-20 mm, similar to *A. marita*. It is clear, that Annenkova studied complete specimens with pygidium, but for some reason failed to indicate total length or that the measurement of 6 mm was for fragments.

With regard to peristomial eyes, Chlebovitsch (1959) stated that young specimens of *A. marita* have a pair of eyes in the peristomium and that they disappear with age. Moreover, the type specimens of *A. pacifica* examined lack peristomial eyes, though Annenkova (1934) stated that these were present. The eyes may have disappeared after preservation, but all *Amphiglena* specimens collected later from the intertidal zone of Commander Islands (type locality of *A. pacifica*) are completely identical to the description and type material of *A. marita*.

The number of radioles in *A. pacifica* are similar to those of *A. marita* and cannot be used for division of species.

I therefore propose that *A. marita* is a junior synonym of *A. pacifica*. The differences indicated by Chlebovitsch (1959) were mainly mistakes due to the poor description by Annenkova (1934) and the missing types.

Fitzhugh (1989) includes in the diagnosis of *Amphiglena* such features as: 1)

anterior peristomial ring low and even all around and 2) ventral basal flanges extending from the posterior peristomial ring. These were observed in *A. mediterranea* and the new species described by Rouse (1993, 1994). But in *A. pacifica* I did not find an outer morphological division on the anterior and posterior peristomial rings, though the specimens were examined both under dissecting microscope and SEM. In all other features the species is adequate to the diagnosis of the genus.

## REFERENCES

- Annenkova, N., 1934. Kurze Übersicht der Polychaeten der litoralzone der Bering Insel (Kommandor-Inseln) nebst beschreibung neuer arten. – Zool. Anz. **106** (12): 322-331.
- Bagaveeva, E. V., 1975. Polychaetes: the fouling of hydrotechnical constructions. – In G. B. Zevina (ed.): Fouling in the Japan and Okhotsk Seas, pp. 79-91. Far East Branch Acad. Sci. Press, Vladivostok (in Russian).
- Chlebovitsch, V. V., 1959. Species of Polychaete worms from the Kurile Islands, which are new or recorded for the first time in the USSR fauna. – Zoologicheskyy zhurnal **38** (2): 167-181 (in Russian).
- Chlebovitsch, V. V., 1961. The Polychaetous Annelids of the tidal zone of the Kurile Islands. – Explor. Far East Seas USSR **7**: 151-260 (in Russian).
- Fauvel, P., 1927. Polychetes sedentaires. – Faune de France **16**. 494 pp.
- Fitzhugh, K., 1989. A systematic revision of the Sabellidae-Caobangiidae-Sabellongidae complex (Annelida: Polychaeta). – Bull. Am. Mus. Nat. Hist. **192**: 1-104.
- Kohn, A. J. & M. C. Lloyd, 1973. Marine Polychaete Annelids of Eastern Island. – Int. Revue ges. Hydrobiol. **58** (5): 691-712.
- Kussakin, O. G., 1975. A list of macrofauna in the intertidal zone of the Kurile Islands, with remarks on the zoogeographical structure of the region. – Publ. Seto Mar. Biol. Lab. **22** (1/4): 47-74.
- Kussakin, O. G., 1976. Structure and distribution of the macrobenthos in the intertidal zone of the Simushir (Kurile Islands). – In A. V. Zhirmunsky (ed.): Coastal communities of the Far Eastern seas, pp. 5-20. Far East Branch Acad. Sci. Press., Vladivostok (in Russian).
- Kussakin, O. G. & M. B. Ivanova, 1978. The intertidal zone of the Bering Sea coast of Chucotka. – In O. G. Kussakin (ed.): The intertidal zone of the Bering Sea and south-eastern Kamchatka, pp. 10-40. Nauka Press, Moscow (in Russian).
- Kussakin, O. G., V. A. Kudrjashov, T. F. Tarakanova & E. I. Shornikov, 1974. The belt-forming flora-fauna communities from the intertidal zone of the Kurile Islands. – In A. V. Zhirmunsky (ed.): Flora and fauna of the intertidal zone of the Kurile Islands, pp. 5-75. Nauka Press, Novosibirsk (in Russian).
- Rouse, G. W., 1993. *Amphiglena terebro* sp. nov. (Polychaeta: Sabellidae: Sabellinae) from eastern Australia, including a description of larval development and sperm ultrastructure. – Ophelia **37** (1): 1-18.
- Rouse, G. W., 1994. New species of *Oriopsis* Caullery and Mesnil from Florida, Belize, and Aldabra Atoll (Seychelles), and a new species of *Amphiglena* Claparède from Seychelles (Polychaeta: Sabellidae: Sabellinae). – Bull. Mar. Sci. **54** (1): 180-202.
- Tarakanova, T. F., 1974 a. The quantitative distribution of the polychaetes from the intertidal zone of the Kurile Islands. – In A. V. Zhirmunsky (ed.): Flora and fauna of the intertidal zone of the Kurile Islands, pp. 111-127. Nauka Press, Novosibirsk (in Russian).
- Tarakanova, T. F., 1974 b. A list of the animal species from the intertidal zone of the Kurile Islands. Polychaeta. – In A. V. Zhirmunsky (ed.): Flora and fauna of the intertidal zone of the Kurile Islands, pp. 351-354. Nauka Press, Novosibirsk (in Russian).

- Tarakanova, T. F., 1975. Fauna and ecology of the Polychaetes in the intertidal zone of the Urup Island (Kurile Islands). – *Biologia morya* 4: 36-45 (in Russian).
- Tarakanova, T. F., 1978 a. A list of the animal species from the intertidal zone of the eastern Kamchatka and western coast of the Bering Sea. Polychaeta. – *In* O. G. Kussakin (ed.): The intertidal zone of the Bering Sea and south-eastern Kamchatka, pp. 158-161. Nauka Press, Moscow (in Russian).
- Tarakanova, T. F., 1978 b. The quantitative distribution of intertidal macrobenthos of the Bering Island (Commander Islands). – *In* O. G. Kussakin (ed.): The intertidal zone of the Bering Sea and south-eastern Kamchatka, pp. 63-77. Nauka Press, Moscow (in Russian).
- Uschakov, P. V., 1955. Polychaeta of the Far Eastern Seas of the USSR. – *Opredeliteli po faune SSSR, izdavaemye Zoologicheskim institutom AN SSSR* 56: 445 pp. (in Russian).