

Panomya nipponica Nomura et Hatai, 1935 (Bivalvia, Hiatellidae) in the Northwestern Sea of Japan (East Sea)

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= 국문 요약 =

동해산 *Panomya nipponica* Nomura et Hatai, 1935 (Bivalvia, Hiatellidae)의 종 기재

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*Panomya nipponica*는 모식산지로 알려진 일본 혼슈 북동부에서만 발견되는 것으로 알려져 있으며, 일부학자들은 *P. norvegica*와 동일종으로 간주하기도 하나 패각의 형태에서는 뚜렷이 차이가 난다. 본 종은 드물게 발견되기 때문에 분류학적 위치가 아직 불분명하며, 일본에서 조차 근래에는 이 종에 대한 인용이나 보고가 거의 없어 동해(일본 북서해)에서 채집된 *Panomya nipponica*에 대한 종 기재를 하였다.

Key words : *Panomya nipponica*, *P. norvegica*, Taxonomy, Bivalvia

INTRODUCTION

The genus *Panomya* Gray, 1857, comprises five species in the northern Pacific: *Panomya ampla* Dall, 1898; *P. norvegica* (Spengler, 1793) (commonly known as *P. arctica* (Lamarck, 1819)); *P. priapus* (Tilesius, 1822) (commonly known as *P. beringiana* Dall, 1916); *P. nipponica* Nomura et Hatai, 1935; and *P. aquaticavis* Tiba, 1988 (Habe, 1977; Scarlato, 1981; Bernard, 1983; Tiba, 1988; Coan *et al.*, in prep.). The systematics of *Panomya* are much in need of reconsideration because the shell in this genus is very variable in shape, thickness, and the position of the broken pallial line. There are no exact data on the distribution of the species in the north-western Pacific Ocean.

During 18 cruise of the R/V 'Akademik Oparin'

(Far East Branch of the Russian Academy of Sciences) in September - October 1995, we collected shells of one of the poorly known *Panomya* species - *P. nipponica*, in Peter the Great Bay, Sea of Japan. This species was not listed in the comprehensive monograph by Scarlato (1981), which treats this area as well as all the Russian Far East seas. Re-study of the *Panomya* in largest malacological collection in the Russian Far East, the Zoological Museum of the Far East State University, has shown that this species is rather common in Peter the Great Bay and has been identified earlier as "*Panomya arctica*". This is probably the first record not only for continental coast but also for the Sea of Japan, based on available literature.

Panomya nipponica has been known only from northeastern Honshu (Iwate Prefecture, Japan), which includes its type locality (Nomura and Hatai,

1935), and along Hokkaido Island (Habe, 1977). Examination of the literature on recent marine mollusks of Japan revealed that this species has rarely been mentioned. Most likely, the species has never been cited or figured from the Neogene or Quaternary deposits of Japan (Kazutaka Amano, personal communication).

Panomya nipponica is well distinguished by conchological features from most similar species - *P. norvegica* (see Plates 1, 2), as well as from other species of this genus, although some authors (Coan *et al.*, in preparation) have thought that they may be conspecific. However, comparison of conchological features (Table 1) shows distinct differences.

Because of *P. nipponica* is rarely found and has been of unclear taxonomic status, I provide here a description and illustrations of this species based on material from northwestern part of the Sea of Japan.

Abbreviations used throughout the text are as follows: ZIN - Zoological Institute, Russian Academy of Sciences, St.-Petersburg (Russia), ZMFU - Zoological Museum, Far East State University, Vladivostok (Russia), MIMB - The Institute Museum, Institute of Marine Biology, Far East Branch of the Russian Academy of Sciences, Vladivostok (Russia).

DESCRIPTION

Family Hiatellidae Gray, 1824

Panomya nipponica Nomura et Hatai, 1935

Plate 1, figs. A-F; Fig. 1

Panomya nipponica Nomura and Hatai, 1935, p. 20, pl. 1, figs. 7 a-b; Kuroda and Habe, 1952, p. 27; Habe, 1977, p. 285; Tiba, 1988, p. 94, pl. 36, figs. 1-4; Tsuchida and Kurozumi, 1996, p. 12, pl. 5, fig. 1.

? *Panomya arctica*: Scarlato, 1981 (part.), p. 307, photo 276 (non Lamarck, 1818).

Type material : Holotype reg. no. 4738 (?Tohoku University, Sendai, Japan), one valve, length 61 mm.

Type locality : Tadaide, Iwate Prefecture

(northeastern Honshu), Japan.

Description : Shell elongate, oval-subrectangular; anterior margin gently rounded, curving at an obtuse angle into nearly straight ventral margin; posterior margin distinctly truncate. Dorsal margin nearly straight, subparallel to ventral margin. Shell relatively thin, fragile. The shell covered by relatively regular, commonly not rugged growth lines, surface rather smooth. Growth lines in the area of anterodorsal corner distinctly subparallel. Slope (depression) with a broad, flat medial field distinct. Nymph relatively short. Beaks low, not massive, somewhat flattened. Left valve with two small, spine-like teeth, which are frequently broken off. Inner shell surface smooth, porcelain, dull; muscle scars glossy. Pallial line consisting of 4-5 separate scars. Periostracum brownish to yellowish (especially in young specimens), thin, and when dried easily eroded. The largest specimen in collection examined was 86 mm in length and 59 mm in height (Peter the Great Bay, Sea of Japan).

Comparisons : This species can be easily distinguished from the closely related *Panomya norvegica* (Spengler, 1793) (Table 1; Plate 1, figs. G, H; Plate 2, figs. A-F) in having a typical oval-subrectangular shell shape, thin shell, regular

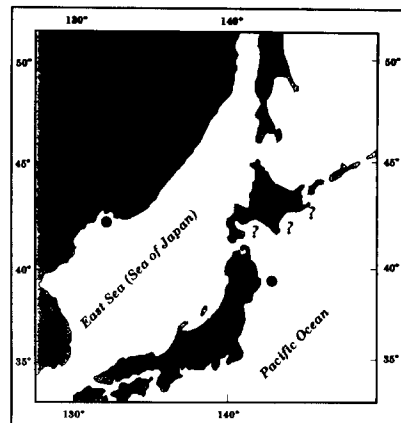


Fig. 1. Distribution of *Panomya nipponica* Nomura et Hatai, 1935, in the northwest Pacific Ocean

Panomya nipponica (Bivalvia, Hiatellidae) in the Northwestern Sea of Japan (East Sea)

Table 1. Comparison of shell characteristics of two closely related *Panomya* species (Hiatellidae): *Panomya nipponica* Nomura et Hatai, 1935, and *Panomya norvegica* (Spengler, 1793)

Shell characteristics	<i>Panomya nipponica</i>	<i>Panomya norvegica</i>
1. Overall shape	Elongate-subrectangular	Nearly quadrate, sometimes ovate-subquadrate
2. Margins		
2a. Conjunction of anterior and ventral margins	Anterior margin curving at an obtuse angle into ventral	Generally, anterior margin curving into ventral margin in a wide arc
2b. Anterior margin	Gently rounded	Generally, more acute
2c. Ventral margin	Nearly straight	Widely arcuated
2d. Posterior margin	Truncated	Truncated
2e. Dorsal margin	Nearly straight	Anterior part of dorsal margin shortened and arched
3. Shell thickness	Relatively thin	Generally thickened, even in young specimens
4. Shell surface	Growth lines regular	Growth lines not subparallel to ventral margin anteriorly
5. Shell length	Up to 60-80 mm	Up to 120-130 mm
6. Periostracum	Brownish to yellowish, thin	Brownish, thick

growth lines, and more central beaks. It differs from *Panomya ampla* Dall, 1898 (Plate 2, fig. G), and *Panomya priapus* (Tilesius, 1822) (Plate 2, fig. H) in having a less depressed area on the central slope, and in the shell shape. It also differs from *Panomya aquaticavis* Tiba, 1988 in its shell shape (see Tiba, 1988).

Geographical distribution : Pacific near-Asiatic low-boreal species in zonal-geographical terminology (see Scarlato, 1981); it occurs on the Pacific coast of the north-eastern Honshu (Iwate Prefecture), along Hokkaido and in Peter the Great Bay (Sea of Japan) (Fig. 1). There are no records of *Panomya* species in Korean waters of the Sea of Japan (East Sea) (Je, 1993). Some of specimens referred to "*P. arctica*" from Peter the Great Bay (Scarlato, 1981; collection stored in ZIN) and in Possjet Bay (western part of Peter the Great Bay) (Lutaenko, 1994; Darkina and Lutaenko, 1996; collection stored in ZMFU) are actually *P. nipponica*.

Habitat : This species has frequently been taken

on sandy open beaches (beach drift) and from 10-33 m on sand and muddy sand (both alive and dead shells) in Peter the Great Bay. Living specimens were found in Far East State Marine Reserve (same Bay) in 15-45 m, in muddy sand (collection of MIMB).

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Explanations to Plates

PLATE 1

- Fig. A.** *Panomya nipponica* Nomura et Hatai, 1935: Sea of Japan, Possjet Bay, length 85 mm. MIMB. Outer view.
- Fig. B.** *P. nipponica*: Sea of Japan, Narva Bay, length 74 mm. ZMFU reg. no. 8956/Bv-56. Inner view.
- Fig. C.** *P. nipponica*: Sea of Japan, Possjet Bay, Reid Pallada Inlet, Churhado Spit, length 78 mm, ZMFU reg. no. 11374/Bv-1375. Outer view.
- Fig. D.** *P. nipponica*: Sea of Japan, Possjet Bay, length 36 mm. ZMFU reg. no. 10115/Bv-552. Outer view.
- Fig. E.** *P. nipponica*: Sea of Japan, Peter the Great Bay, Boysman Bay, length 48 mm. ZMFU re. no. 8957/Bv-57. Outer view.
- Fig. F.** *P. nipponica*: Sea of Japan, Narva Bay, length 74 mm. ZMFU reg. no. 8956/Bv-56. Outer view.
- Fig. G.** *Panomya norvegica* (Spengler, 1793): Sea of Japan, Peter the Great Bay, Bolshoy Pelis Island, length 48 mm. ZMFU reg. no. 8961/Bv-61. Outer view.
- Fig. H.** *P. norvegica*: Sea of Japan, Peter the Great Bay, Reineke Island, length 47 mm. ZMFU re. no. 10111/Bv-548. Outer view.

PLATE 2

- Fig. A.** *Panomya norvegica* (Spengler, 1793): Kuril Islands, near Zeleny Island, length 108 mm. MIMB. Inner view.
- Fig. B.** *P. norvegica*: Sea of Japan, Possjet Bay, Novgorodskaya Inlet, length 59 mm. ZMFU reg. no. 8960/Bv-60. Inner view.
- Fig. C.** *Panomya norvegica*: Sea of Japan, Peter the Great Bay, Reineke Island, length 54 mm. ZMFU reg. no. 10111/Bv-548. Outer view.
- Fig. D.** *P. norvegica*: Sea of Japan, Possjet Bay, Novgorodskaya Inlet, length 59 mm. ZMFU reg. no. 8960/Bv-60. Outer view.
- Fig. E.** *P. norvegica*: Kuril Islands, near Zeleny Island, length 93 mm. MIMB. Outer view.
- Fig. F.** *P. norvegica*: Sea of Japan, Nakhodka Bay, Vrangel Inlet, length 43 mm. MIMB. Outer view.
- Fig. G.** *Panomya ampla* Dall, 1898: Sea of Japan, length 62 mm. ZMFU reg. no. 10707/Bv-972. Outer view.
- Fig. H.** *Panomya priapus* (Tilesius, 1822): Kamchatka, Avacha Bay, length 117 mm. ZMFU reg. no. 11332/Bv-1364. Outer view.

PLATE 1

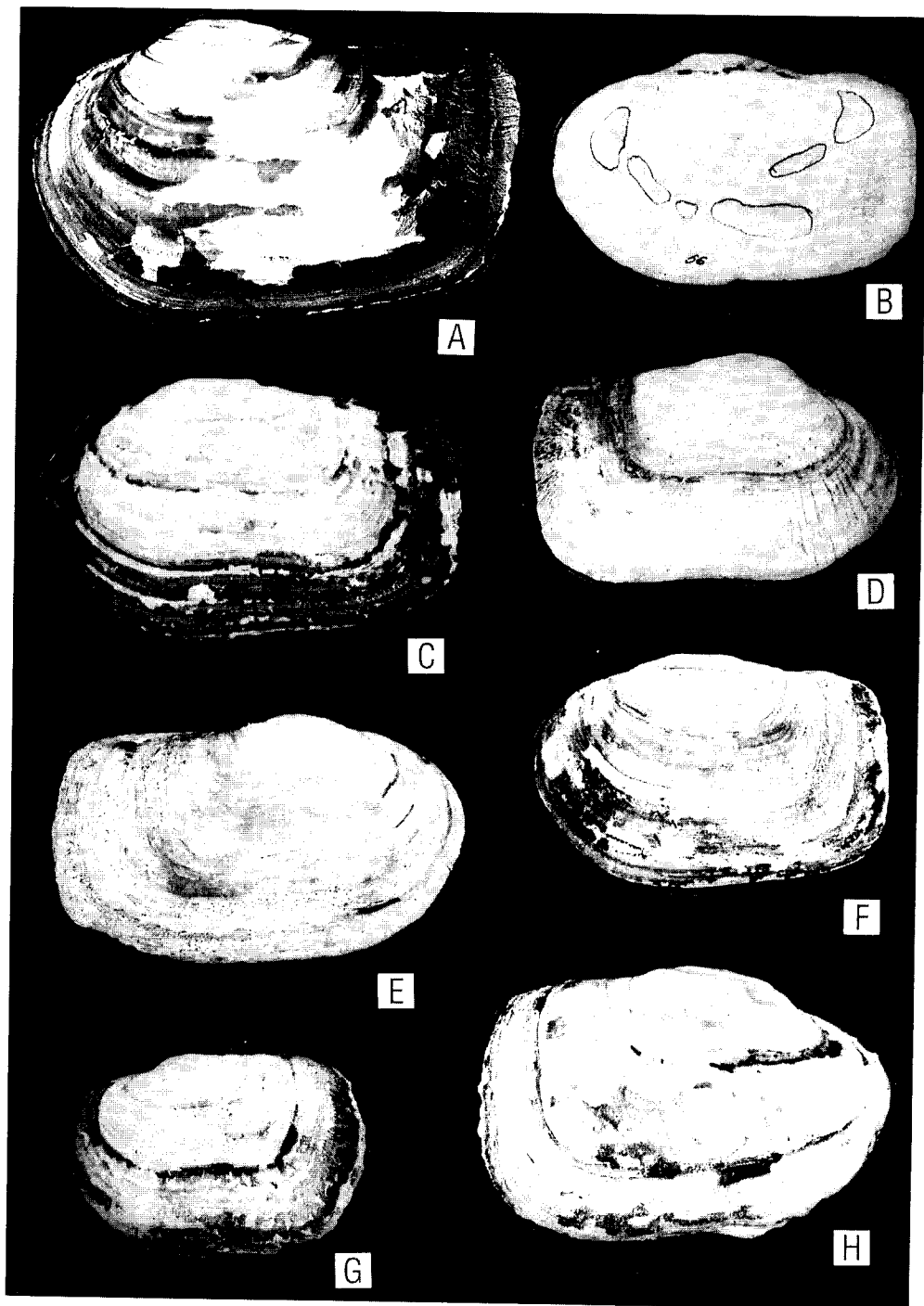


PLATE 2

