

SHORT  
COMMUNICATIONS

***Prognichthys sealei* (Exocoetidae)—a Species of Flying Fish New  
for the Russian Fauna**

V. E. Kharin<sup>a</sup>, V. V. Zemnukhov<sup>a</sup>, and A. A. Tolokonnikov<sup>b</sup>

<sup>a</sup>Institute of Marine Biology, Far East Division, Russian Academy of Sciences,  
ul. Palchevskogo 17, Vladivostok, 690041 Russia

<sup>b</sup>Far East State Technical Fisheries University, ul. Svetlanskaya 25, Vladivostok, 690050 Russia

E-mail: vkharin@imb.dvo.ru

Received December 6, 2005

DOI: 10.1134/S0032945207010134

According to today's notions, the family of flying fish Exocoetidae is represented in the Russian waters by five rare species. These are *Exocoetus monocirrhus* Richardson, 1846 (*E. volitans* of some authors); *Hirundichthys brachycephalus* (Günther, 1866) (*H. rondeletii*—see Fedorov and Parin, 1998); *Cypselurus heterurus doederleinii* (Steindachner, 1887) (*C. agoo agoo* of some authors); *C. hiraii* Abe, 1953; and *Cheilopogon pinnatibarbatus japonicus* (Franz, 1910) (Parin, 1960, 1961, 1962, 2002; Fedorov and Parin, 1998; Parin and Shakhovskoy, 2000; Novikov et al., 2002).

In summer 2005, one of the authors caught two living flying fish determined as *Prognichthys sealeyi* in the coastal zone of Vostok Gulf (Peter the Great Bay, the Sea of Japan) just on the beach, from 11 a.m. to 3 p.m. This capture significantly expands the notions of distribution of this species. It was previously known from the subtropical and tropical zones of the western part of the

Pacific and Indian oceans (Parin, 1960, 1961, 1962; Masuda et al., 1984; Nakabo, 2002). The present communication deals with description of these fish.

It may be assumed that the capture of this subtropical species in the Peter the Great Bay is related to the recent warming of climate (Ivankov et al., 2001).

***Prognichthys sealei* Abe, 1955**

(Fig. 1)

**Material.** Two specimens SL 113 mm and SL 87 mm (MIMB 14807). Srednyaya Cove of Vostok Gulf (Peter the Great Bay, the Sea of Japan), surf belt, August 24, 2005, coll. A.A. Tolokonnikov.

**Description.** Body elongated, slender, slightly laterally compressed. Its depth about 5.5 times in its length. Transverse body section almost rectangular. Head blunt, about four times in body length. Snout somewhat shorter than eye. Mouth not protractile.



Fig. 1. *Prognichthys sealei* (habit view): SL 113 mm (above), SL 87 mm (below).

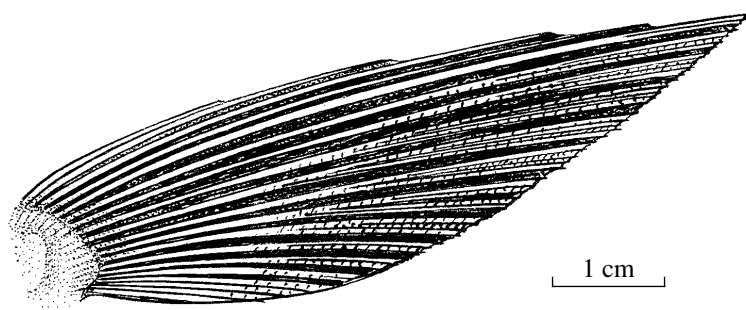


Fig. 2. Pectoral fin of *Prognichthys sealei*.

Interorbital space flat. Gill openings wide. Cutaneous fold behind operculum edge. Branchiostegal membranes not attached to isthmus. Pectoral fins rather short, slightly reaching beyond dorsal fin insertion. Ventral fins attain the end of anal; fin insertion, their longest ray is third one. Four nonbranched rays at anterior end of P (Fig. 2), their longest ray is sixth one. Base of V closer to posterior end of operculum than to beginning of C. Beginning of A insertion behind D insertion, under its fourth to sixth rays. Teeth on jaws of average size, conical, without additional apices. No teeth on palatinum. Pores of supraorbital seismosensory canal open into a ramified network of surface canaliculi developed on scales. Preopercular-mandibular canal connected with supraorbital canal. Pectoral branch of trunk canal absent. Secondary canaliculi on scales of lateral line canal few, arranged in one layer, and sparsely branching. No barbels.

D 10, A 8–9, P IV 13–14, predorsal scales 26–27, scales in longitudinal row along the body side 45–46, sp. br. 7 + 21 = 28, vert. 14 + 29 = 43 (15 + 30 = 45).

**Measurements** in % SL: head length (c) 22.1–23.0, snout length (ao) 5.7–6.2, postorbital distance (po) 10.3–11.5, eye diameter (o) 5.7–7.9, interorbital space (io) 6.9–9.7, upper jaw length (lmx) 5.3–5.7, lower jaw length (lmd) 5.3–5.7, head depth (hc) 13.8–16.3, greatest body depth 16.0–18.4, depth of caudal peduncle 6.9–7.0, antedorsal distance 68.1–68.9, antepectoral distance 26.4–26.5, anteventral distance 54.8–57.4, anteanal distance 73.4–83.9, D base length 22.1–24.1, P base length 3.4–4.4, V base length 1.7–2.6, A base length 9.0–11.5, length of largest ray of D 22.1–24.1, length of largest ray of P 60.1–62.0, length of largest ray of V 29.8–37.1, length of largest ray of A 9.0–10.3.

In % c: ao 25.0–28.0, o 25.0–36.0, po 45.0–52.0, io 30.0–44.0, lmx 24.0–25.0, lmd 24.0–25.0, hc 60.0–74.0.

**Coloration** (in 70% ethanol). The upper side of the body and head is light brown with violet shade; bottom side white; dorsal, pectoral, and ventral fins are gray; anal fin is transparent; in ventral fins the first and last rays more light than other fins. The caudal fin is light gray, with two dark gray spots on each lobe.

#### ACKNOWLEDGMENTS

The authors are grateful to S.G. Baran for aid in measurements of fish, to P.G. Milovankin for making the photograph, and to V.P. Cheblukov for the original drawing of the pectoral fin.

#### REFERENCES

1. V. V. Fedorov and N. V. Parin, *Pelagic and Benthopelagic Fishes of the Pacific Waters of Russia (within a 200-mile Economic Zone)* (VNIRO, Moscow, 1998) [in Russian].
2. V. N. Ivankov, Z. G. Ivankova, and O. A. Rutenko, "Penetration of Warm-Water Fish Species into the Northwestern Part of the Sea of Japan in the 1990s," *Vopr. Ikhtiol.* **41** (5), 710–713 (2001) [*J. Ichthyol.* **41** (8), 677–679 (2001)].
3. T. Nakabo, *Fishes of Japan with Pectoral Keys and Species, English Edition* (Tokai Univ., Tokyo, 2002), Vols. 1 and 2.
4. N. P. Novikov, A. S. Sokolovskii, T. G. Sokolovskaya, and Yu. M. Yakovlev, *Fishes of Primor'ye* (Dal'rybvtuz, Vladivostok, 2002) [in Russian].
5. N. V. Parin, "Flying Fishes (Exocoetidae) of the Northwestern Part of the Pacific Ocean," *Tr. Inst. Okeanol. Akad. Nauk SSSR* **31**, 205–285 (1960).
6. N. V. Parin, "Foundations of the System of Flying Fish (Families Oxyporhamphidae and Exocoetidae)," *Tr. Inst. Okeanol. Akad. Nauk SSSR* **43**, 92–183 (1961).
7. N. V. Parin, "Flying Fishes (Exocoetidae and Oxyporhamphidae) of the Sea of Japan and Adjacent Waters," *Vopr. Ikhtiol.* **2** (2(23)), 224–229 (1962).
8. N. V. Parin, "An Annotated Catalog of Fishlike, Vertebrates and Fishes of the Seas of Russia and Adjacent Countries. Part 1. Order Myxiniiformes-Gasterosteiformes," *J. Ichthyol.* **41** (Suppl. 1), 51–131 (2001).
9. N. V. Parin and I. B. Shakhovskoy, "A Review of the Flying Fish Genus *Exocoetus* (Exocoetidae) with Descriptions of Two New Species from the Southern Pacific Ocean," *J. Ichthyol.* **40** (Suppl. 1), 31–63 (2000).
10. *The Fishes of the Japanese Archipelago*, Ed. by H. Masuda, K. Amaoka, C. Araga, et al. (Tokai Univ., Tokyo, 1984), Vols. 1 and 2.

Translated by N.N. Smirnov