SHORT MESSAGES

ON THE FINDING OF A NEW PRICKLEBACK SPECIES FOR THE FAUNA OF RUSSIA, THE MOSSHEAD WARBONNET *CHIROLOPHIS NUGATOR* (STICHAEIDAE), IN THE INTERTIDAL ZONE OF BERING ISLAND (COMMANDER ISLANDS)

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The article presents data on the first discovery of a new species of pricklebacks (Stichaeidae) for the fauna of Russia in the intertidal zone of Bering Island (Commander Islands), the mosshead warbonnet *Chirolophis nugator* (Jordan et Williams, 1895). Its specimen, with a total length of 47 mm, was most likely brought to the waters off Bering Island at the pelagic larval stage from the nearby Aleutian Islands by the westward-flowing Aleutian Current.

Keywords: pricklebacks, Stichaeidae, mosshead warbonnet *Chirolophis nugator*, intertidal zone, Bering Island, Commander Islands.

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INTRODUCTION

Peacock Mosshead Dog *Chirolophis nugator*(Jordan et Williams, 1895) is a representative of the subfamily Chirolophinae of the family Stichaeidae, first described by Jordan and Williams in the summary of Jordan and Starks (Jordan, Starks, 1895) from 5 specimens, two of which were caught in

the coastal waters of the Pacific coast of North America near Seattle, and three more in rocky pools in the Channel Rocks area of Southern California. According to currently available literature data (Hubbard, Reeder 1965; Quast, 1968; Miller, Lea, 1972; Hart, 1973; Mecklenburg et al., 2002;

Mecklenburg, Sheiko, 2004; Love et al., 2005; Parin et al., 2014), this species of sticheid fish, the

maximum length of which reaches 146 mm, is common in the coastal waters of the northeastern Pacific Ocean from the Aleutian Islands to Southern California. Although one of the latest domestic reports on fish in the seas of Russia (Parin et al., 2014) indicates that it can be found in the coastal waters of the Commander Islands.

MATERIAL AND METHODS

On 04.12.2024, during a survey of a tidal area exposed during low tide (water level +0.2 m) near Cape Vkhodnoy Reef, located not far from the village of Nikolskoye on the northwestern side of Bering Island (Commander Islands), in a tide pool (coordinates 55°11′24″ N, 165°59′30″ E) situated ~43 m above the maximum low tide line, one of the authors of this report discovered and caught by hand a specimen of a prickleback fish species previously unknown in the Commander Islands. Upon identification, the specimen turned out to be a peacock warbonnet – a typical representative of the sublittoral ichthyofauna of the Aleutian Islands waters, found for the first time in Russian waters (Fig. 1). The caught specimen is currently stored in the collection fund of the Commander Islands National Park in the village of Nikolskoye on Bering Island.

RESULTS AND DISCUSSION

The depth of the pool, located on a basalt plate and bounded by large boulders with a diameter of ~80 cm, in which the peacock warbonnet was caught, did not exceed 14.5 cm. The water temperature at the time of capture was 2.2°C. Except for the coralline algae (Corallinaceae) covering the bottom and boulders, no other aquatic vegetation was present in the pool. In addition to the caught specimen, the pool contained large colonies of the gastropod mollusk *Littorina sitkana* , specimens of isopod crustaceans *Idotea aleutica* , and hermit crabs *Pagurus* sp.

Total length (*TL*) of the captured specimen of the peacock blenny was 47 mm. Since this is the first case of catching a bottom-dwelling individual of this species in Russian waters, we provide some of its diagnostic features below. The number of rays in the dorsal (LVII), anal (I 42), pectoral

(12), and pelvic (I 4) fins, and gill rakers (7) on the first gill arch almost corresponds to their values in representatives of the species from the Northeast Pacific (Mecklenburg et al., 2002). The gill membranes are united together and not attached to the isthmus. Teeth on the jaws are arranged in two tightly closed rows with a single cutting edge. Twelve dark ocellated spots, so characteristic of this species, are clearly visible on the dorsal fin, and numerous skin outgrowths are present on the upper part of the head and snout, with a small number also on the upper part of the cheeks (Fig. 1). In this regard, the Russian name used in the annotated catalog "Fishes of the Seas of Russia" (Parin et al., 2014) - "banal'naya mohokholovaya sobachka" (banal shaggy blenny) - in our opinion, seems clearly unsuccessful, since this blenny is scarce throughout the Northeast Pacific (Mecklenburg et al., 2002) and has a rather bright coloration. Taking into account the characteristic ocellated spots on the dorsal fin of this species, somewhat resembling those on the tails of male peacocks (*Pavo* sp.), as well as the fact that its specific name translates from Latin as a dandy, and considering the recommendation of one of the reviewers, we propose to give it the Russian name "pavlin'ya mohokholovaya sobachka" (peacock shaggy blenny).

According to the available literature data, adult specimens of the peacock blenny, like representatives of other species of the subfamily Chirolophinae, are not good swimmers, so they do not typically make significant horizontal movements. Usually, they lead a typically bottom-dwelling, sedentary lifestyle in a bathymetric range from the intertidal zone to a depth of 80 m (but most often found at depths < 20 m), hiding under stones, in rock crevices, and in empty mollusk shells (Mecklenburg et al., 2002; Mecklenburg, Sheiko, 2004; Love et al., 2005). In this regard, it is very unlikely that individuals of this species that have transitioned to a bottom-dwelling lifestyle can migrate through the Blizhny Strait separating the Commander and Aleutian Islands, which is 363 km wide and has an average depth of 650 m (Zonn et al., 2012). Since the peacock blenny, like other representatives of stichaeid fish, passes through a pelagic stage in its development (Matarese et al., 1989), it is more likely to assume that its larvae are transported to the coastal areas of the Commander

Islands from nearby groups of the Aleutian Islands - Near or Rat Islands (catches of this species are known here in the coastal zone of the islands of Agattu and Amchitka, respectively) - by the waters of the Aleutian Current flowing along them from the American coast in a westerly direction (Fig. 2). It is this latter option that some researchers (Kodolov et al., 1991; Dudnik et al., 1998; Orlov, 2000; Tokranov, Orlov, 2015) consider as the main pathway for the penetration of representatives of American ichthyofauna in the early stages of development (in the form of eggs, pelagic larvae, and young-of-the-year) to the Asian coast. This is confirmed, among other things, by the increasing cases since the late 1990s of the appearance in the Pacific waters of Southeastern Kamchatka and the northern Kuril Islands of such a typical representative of the Vancouver-Oregon flatfish complex as the rex sole *Glyptocephalus zachirus* (Tokranov, Vinnikov, 2000; Orlov et al., 2002; Orlov, 2004). However, it is possible that the peacock blenny in the waters of the Commander Islands is a native but rare representative of the coastal ichthyofauna inhabiting the western boundary of its range, which, due to its secretive lifestyle and the rather weak degree of study of the sublittoral fish of these islands, has remained unknown here until now.

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COMPLIANCE WITH ETHICAL STANDARDS

This study was approved by the Bioethics Commission of the Kamchatka Branch of the Pacific Institute of Geography, Far Eastern Branch of the Russian Academy of Sciences, which confirmed that the authors complied with all international, national, and/or institutional principles for the use of animals (Protocol No. 02 dated May 30, 2024).

CONFLICT OF INTEREST

The authors of this paper declare that they have no conflict of interest.

REFERENCES

Dudnik Yu.I., Kodolov L.S., Polutov V.I. 1998. On the distribution and reproduction of sablefish *Anoplopoma fimbria* near the Kuril Islands and Kamchatka // J. Ichthyol. Vol. 38. No. 1. P. 16–21.

Zonn I.S., Kostyanov A.G., Kumantsov M.I. 2012. The Bering Sea. Encyclopedia. Moscow: Mezhdunar. otnosheniya, 264 p.

Kodolov L.S., Kulikov M.Yu., Syusina T.I. 1991. Features of distribution and allocation of fish on the continental slope and underwater rises of the northern Pacific // Biology of fish and invertebrates in the northern part of the Pacific Ocean. Vladivostok: DVGU Publishing. P. 21–38.

Orlov A.M. 2000. Representatives of Oregon ichthyofauna near Asian shores // Fishery and biological studies of fish in the Pacific waters of the Kuril Islands and adjacent areas of the Sea of Okhotsk and Bering Sea in 1992-1998. Moscow: VNIRO Publishing. P. 187–214.

Parin N.V., Evseenko S.A., Vasilyeva E.D. 2014. Fishes of the Russian Seas: Annotated Catalog. Moscow: KMK Scientific Press, 733 p.

Tokranov A.M., Vinnikov A.V. 2000. On the finding of longfin sole *Glyptocephalus zachirus* (Pleuronectidae) in the waters of South-Eastern Kamchatka // Journal of Ichthyology. V. 40. № 3. P. 397–398.

Tokranov A.M., Orlov A.M. 2015. Thermophilic and eastern Pacific migrants in the ichthyofauna of Pacific waters of the northern Kuril Islands and Kamchatka in the XX–XXI centuries // Russian Journal of Biological Invasions. № 3. P. 50–70.

Hart J.L. 1973. Pacific fishes of Canada // Bull. Fish. Res. Board Can. № 180. 740 p.

Hubbard J.D., Reeder W.C. 1965. New locality records for Alaskan fishes // Copeia. V. 1965. № 4. P. 506–508. https://doi.org/10.2307/1441000

Jordan D.S., Starks E.S. 1895. Fishes of Puget Sound // Proc. Calif. Acad. Sci. Ser. 2. V. 5. P. 785–855. Pls. 76–104. https://doi.org/10.5962/bhl.title.14765

Love M.S., Mecklenburg C.W., Mecklenburg T.A., Thorsteinson L.K. 2005. Resource inventory of marine and estuarine fishes of the West Coast and Alaska: a checklist of North Pacific and Arctic Ocean species from Baja California to the Alaska – Yukon border. Seattle: US Dept. Interior, US Geol. survey, Biol. Res. division, 276 p. https://doi.org/10.3133/70179564

Matarese A.C., Kendall A.W. Jr., Blood D.M., Vinter B.M. 1989. Laboratory guide to early life history stages of Northeast Pacific fishes // US Dept. Comm. NOAA Tech. Rept. NMFS. № 80. 652 p.

Mecklenburg C.W., Sheiko B.A. 2004. Family Stichaeidae Gill 1864 – pricklebacks // Calif. Acad. Sci. Annot. Checklists Fishes. № 35. 36 p.

Mecklenburg C.W., Mecklenburg T.A., Thorsteinson L.K. 2002. Fishes of Alaska. Bethesda, MD: Am. Fish. Soc. , XXXVII + 1037 p. + 40 Pl.

Miller D.J., Lea R.N. 1972. Guide to the coastal marine fishes of California // Calif. Dep. Fish Game Fish Bull. № 157. 235 p.

Orlov A.M. 2004. Migrations of various fish species between Asian and American waters in the North Pacific Ocean // Aqua J. Ichthyol. Aquat. Biol. V. 8. № 3. P. 109–124.

Orlov A.M., Tokranov A.M., Biryukov I.A. 2002. New records of rex sole *Glyptocephalus zachirus* Lockington, 1879 (Teleostei: Pleuronectidae) from the north-western Pacific // Ibid. V. 5. № 3. P. 89–98.

Quast J.C. 1968. New records of thirteen cottoid and blennioid fishes for southeastern Alaska // Pac. Sci. V. 22. № 4. P. 482–487.

FIGURE CAPTIONS

Fig. 1. Decorated warbonnet *Chirolophis nugator TL* 47 mm, caught on 12.04.2024 in the intertidal zone of Bering Island (Commander Islands) (photo by M.S. Vakurov).

Fig. 2. Direction (←) of possible transport of pelagic larvae of the decorated warbonnet *Chirolophis nugator* by the Aleutian Current in the western direction from the area of the Near or Rat Islands of the Aleutian Archipelago to the coast of Bering Island: (●) – location where the specimen of this species was caught.