

On a New Species of *Lepeophtheirus* (Copepoda parasitica) from *Pseudopleuronectis americanus* Walbaum

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IN EARLY APRIL 1961 while I was looking for parasitic copepods in fish specimens preserved in our specimen gallery, I discovered two different kinds of parasite coexisting on a single flat-fish, *Pseudopleuronectis americanus* Walbaum (26.5 cm long). Some of them, 19 in number, were found on the inner margin of the operculum, and have been identified as the present new species. The other 22 individuals, restricted to the gill filaments, were identified as belonging to the Lernaeopodidae. Because I do not have complete references at hand, I shall leave them to be studied later. It is interesting to find two kinds of parasites belonging to two different families on the same fish.

It is regrettable that the locality and collecting date of the host of these parasites are unknown, but it is believed that this fish was not collected from near the Island of Formosa, since, up to the present, *Pseudopleuronectis americanus* is reported only from American waters. Moreover, this flat-fish was not collected recently, but has been preserved for at least 17 years. Fortunately, however, the parasites in its branchial chambers have remained unchanged.

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Lepeophtheirus hidekoi n. sp.

OCCURRENCE: Eighteen mature and 1 immature females were taken from the inner mar-

gin of the operculum of *Pseudopleuronectis americanus* Walbaum, 10 of them from the "colored side" and others from the "white side."

MEASUREMENTS: Body length without egg string 6.24–7.02 mm; length of carapace 2.47–2.56, width of the same 2.15–2.20; length of free thoracic segment 0.20–0.26, width of the same 0.55–0.58; length of genital segment 1.92–1.98, width of the same 1.45–1.52; length of abdomen 1.56–2.28, width of the same 0.42–0.59; length of egg string 3.14–3.28.

DESCRIPTION OF ADULT FEMALE: One of the parasites taken from the "color side" is selected as holotype.

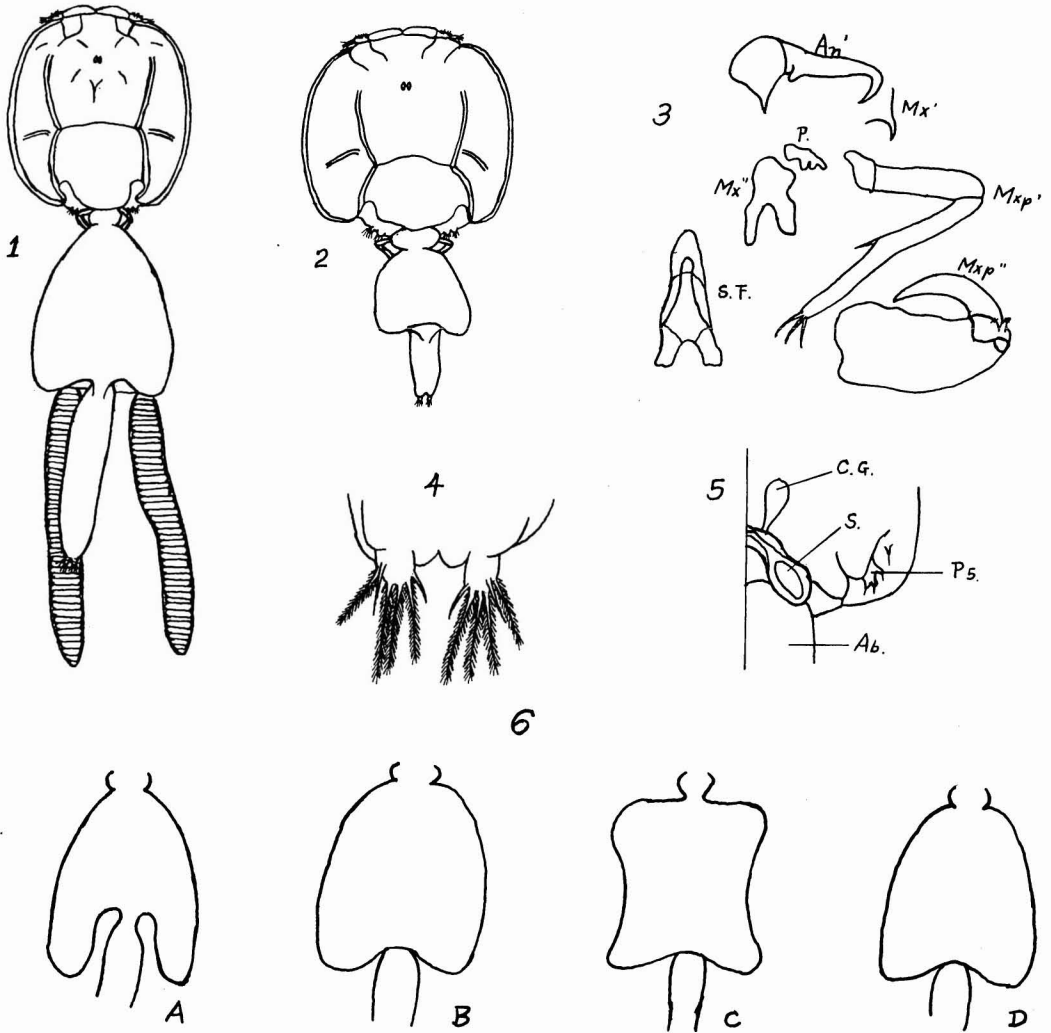
Carapace ovate, 2.40 × 2.08 mm, with marginal semitransparent membrane; frontal plate well defined, broadly incised at center; posterior sinus moderately deep; posterior median lobe rounded, with posterior margin projecting slightly beyond lateral lobes, its width about half as broad as carapace; dorsal rib nearly H-shaped, with two rather wide lateral arms curved nearly at middle where fine transverse suture arises; another pair of transverse ribs situate laterally at this sinus. Free thoracic segment short, 0.20 × 0.48 mm, lateral margin round, not projected.

Genital segment large and swollen, nearly triangular, truncate posteriorly, 1.92 × 1.48 mm, with conical lobe at each posterior corner. Segmentation between this and the following segment indistinct, merely indicated by two lateral notches.

Abdomen elongate, cylindrical and unsegmented, 2.16 × 0.56 mm, a little longer than the genital segment, slightly tapering both forwards and backwards.

Caudal ramus (Fig. 4) small, furnished with four plumose setae and two spines, inner side

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FIGS. 1-6. *Lepeophtheirus hidekoi* n. sp. female. 1, Dorsal view of adult female; 2, dorsal view of young female; 3, appendages on mouth part (for explanation, see description); 4, ventral view of caudal rami; 5, ventral view of posterior left half of young female. 6, Configuration of genital segments of: A, *longiventralis*; B, *salmonis*; C, *pollachius*; D, *longipalpus*.

armed with one spine, tip with three plumose setae, and outer side with one spine ventrally and one plumose seta dorsally.

Egg strings narrower than the abdomen, 3.28 mm long, containing one series of discoid eggs, commences just above 5th pereopod.

First antenna about $\frac{3}{4}$ of the frontal plate, two-jointed, with terminal joint shorter than the basal joint, the latter with numerous pointed teeth at distal end of posterior margin; terminal joint rod-shaped with eight setae at tip.

Second antenna (Fig. 3 *An'*) curved at the apex, with a large basal joint associating with an accessory piece armed with a stout spine on the posterior border; the hooked terminal joint having a spine protruding backward at its base.

First maxilla (Fig. 3 *Mx'*) stout spiniform, situated rather towards the border of carapace than the median line, its apex not much curved.

Second maxilla (Fig. 3 *Mx''*) biramose, with the outer ramus stronger and shorter than the inner ramus.

Palp (oral tube) (Fig. 3 *P*) short, situated between the bases of second antenna and second maxilla, and inside to the first maxilliped; its terminal end trifurcate.

Sternal fork (furca or forcula) (Fig. 3 *F*) not a well U-shaped, longer than wide, its anterior part much longer than the posterior branches which are short, stout but not pointed at tip, as are those of common species of *Lepeophtheirus*.

First maxillipede (Fig. 3 *Mxp'*) long and slender, two-jointed, with the terminal joint much longer than the proximal joint, armed with three terminal spines and a small spine at middle of inner border.

Second maxilliped (Fig. 3 *Mxp''*) having an enlarged basal joint and a sharply curved distal joint which is hook-like and used for prehension while attaching on its host; a blunt spine situated at laterobasal margin of the distal joint, other parts bared.

First, second, third, and fourth pereopod. Armation of all of these is much like that of *L. salmonis*.

Fifth pereopod (Fig. 5 *P5*). Rudimentary, projecting from a small lobe on the ventral surface of genital segment; this lobe bears a trifurcate protuberance, each branch of it armed with one seta; another seta arises from ventral surface

of genital segment, close to anterior border of fifth pereopod.

YOUNG FEMALE: One immature specimen, obtained from "white side" of *Pseudopleuronectis americanus*. Compared with the adult female, the juvenile form is shorter in the abdomen, and has a rounder and larger carapace, and a smaller genital segment. On the posteroventral surface of the genital segment, two pairs of sacs are seen (Fig. 5); the anterior pair, being smaller, is the cement gland, and the oval-shaped posterior pair is the spermatophore which is not found in the adult female. Other characteristics are similar to those of the adult female.

MALE: Unknown.

DIAGNOSIS: The new species closely resembles *L. salmonis* (Kroyer), *longiventralis* Yu & Wu, *pollachius* Bassett-Smith, and *longipalpus* Bassett-Smith in the presence of the elongated abdomen and configuration of the carapace, but the following dissimilarities make the present new species easily recognized:

1. Presence of fifth pereopod. This character distinguishes the new species, for *L. salmonis*, *longiventralis*, and *longipalpus* are lacking for this appendage. Because of the poor original description made by Bassett-Smith in 1896 for *pollachius*, I am unable to compare this character in his species and mine.

2. Trifurcate palp. This character is also present in *salmonis*, but *longipalpus* and *pollachius* have merely a spiniform palp. The palp of *longiventralis* was not described by Yu and Wu.

3. Two posterior branches of sternal fork truncate at tip. Usually, in the species of genus *Lepeophtheirus*, the divergent branches of the sternal fork are blunt or conical, but this new species has its own peculiarity.

4. A genital segment with narrower anterior portion and wider posterior portion. As shown in Figs. 1 and 6, the genital segment of *hidekoi* is nearly triangular, but differs from that of *longiventralis* in lacking two large lateral lobes; while the genital segments of *salmonis*, *pollachius*, and *longipalpus* are rather trapezoid.

Specimens of this new caligoid copepod have been deposited in the U. S. National Museum. The numbers are: holotype, 107281; paratype, 107282.

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