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First stage larva of the lobster shrimp *Allaxius princeps* (Boas, 1880) (Decapoda: Axiidea: Axiidae) obtained in the laboratory

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Abstract

First stage larva of the lobster shrimp *Allaxius princeps* (Boas, 1880) (Decapoda: Axiidea: Axiidae) obtained from the ovigerous female is described and illustrated for the first time. It is the first description of the larva of lobster shrimp from West Pacific. Zoea I of *A. princeps* is characterized by the presence of four dorsal spines on the pleonal somites 2–5 and by the shape of the telson with a deep cleft but without a median process. Under these characters, zoea I of *A. princeps* is similar to the first larva of *Axiopsis serratifrons*.

Key words: Axiidea, Axiidae, *Allaxius*, larva, zoea, Peter the Great Bay, Sea of Japan

Introduction

Axiidean shrimps are seldom caught with the traditional fishing gears. Therefore, their reproduction biology, especially the larval life, has been given little attention so far. Axiidae represent the family with the fewest known larvae; the larvae of the family Callianassidae are the best known (Pohle *et al*. 2011). At present, the family Axiidae comprises 108 species (De Grave *et al*. 2009). Partial descriptions based on laboratory-reared and plankton-collected material exist for two species from East Atlantic: *Axius stirhynchus* and *Calocaris macandreae* (Gurney 1942; Barnich 1996). Only the first zoea of *Axiopsis serratifrons* from Brazil was obtained in the laboratory from an ovigerous female (Rodrigues 1994). The most detailed description of the complete larval development of *Axius serratus* from Northwest Atlantic was performed based on the plankton-collected material (Pohle *et al*. 2011). Among axiids found in the West Pacific, only the larvae of *Axius* sp. A (zoea I–III) and *Axius* sp. B (zoea IV–VI, megalopa) were described and illustrated from plankton-collected material (Kurata 1965).

In July 2011, we obtained several specimens of the first zoeal stage from an ovigerous female of *Allaxius princeps* (Boas, 1880) (Decapoda: Thalassinidea: Axiidae), collected in Peter the Great Bay (Russian waters of the Sea of Japan). The large lobster shrimp, *A. princeps*, is widely distributed in Peter the Great Bay. The Vladivostok region is the type locality of this species (Makarov 1938; Sakai & de Saint Laurent 1989). *Allaxius princeps* is also known from Hokkaido and Honshu (Yamagata Prefecture and Sagami Bay), from depths of 30 to 300 m (Sakai & de Saint Laurent 1989; Komai 2000). Previously, this species was assigned to the genus *Axiopsis* Borradaile, 1903. In 1989, it was tentatively included in a new genus, *Allaxius* Sakai & de Saint Laurent, because of the comma-shaped antennal acicles (Sakai & de Saint Laurent 1989).

In so far as axiid larvae are very poorly known, our intent was to describe at least the first zoeal stage of *A. princeps* and to compare it with the larvae of closely related species. The present paper is the first description of the larvae of the lobster shrimp from the West Pacific obtained in the laboratory, and thus of known parentage.

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