

Notes on the first stage phyllosoma of Scyllarid lobster, *Scyllarus bicuspidatus*

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Abstract

The paper describes the first stage phyllosoma of *Scyllarus bicuspidatus* obtained by the hatching of eggs. It measures 1.05 mm in body length and 0.64 mm in width. At this stage, *S. bicuspidatus* closely resemble *S. sordidus* described by PRASAD and TAMPI (1960). It seems that, within the genus *Scyllarus*, specific differences in the early stages are very little or no.

Introduction

Scyllarus bicuspidatus is one of the Scyllarid lobsters occurring on the Pacific coast of Japan. This species has rather western range of distribution in the Japanese waters, but according to HARADA (1962), it occurs also on the Japan Sea coast of Honshu and on the southern coast of Kii Peninsula, Central Japan. Like other Scyllarid lobsters in Japan, its spawning season extends from May to early August with its maximum activity in July. From June to July in 1963, thirteen adult females were caught at Kaimon-cho, Kagoshima prefecture, and of these thirteen ten were berried ones. The first stage phyllosomas were obtained from a female kept in a laboratory aquarium.

As to the genus *Scyllarus*, STEPHENSON (1923) described on the various stages of phyllosoma of *Scyllarus arctatus* and PRASAD and TAMPI (1960) published a report on the first stage phyllosoma of *Scyllarus sordidus*, but as to the Japanese *Scyllarus* no report has appeared. Concerning the Scyllarid phyllosomas collected from the coast of Japan, no oceanic life has yet been clarified. The present note is a record of observations on the newly hatched-out phyllosoma of *Scyllarus bicuspidatus*, in order to add something to the study of phyllosoma of the sea.

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Description of the phyllosoma

After five days' rearing, out of ten berried females, it was only one female with ripened eggs that released the larvae. The hatching occurred in the early morning, and the eggs hatched directly into the phyllosomas. The newly hatched-out phyllosomas have somewhat wrinkled body but later get swelled and become transparent. Chromatophores are distributed over the body and appendages as may be seen on other first stage phyllosomas.

Table 1. The measurements of the first stage phyllosoma of *Scyllarus bicuspidatus*.

Body length	Fore-body length	Fore-body width	Abdomen length	1st pereiopod length	2nd pereiopod length
1.05mm	0.65mm	0.64mm	0.18mm	1.52mm	1.70mm

It measures 1.05 mm in the body length and 0.64 mm in the fore-body width. The eyes are not stalked. The first antenna, exceeding the eye in length, bears a

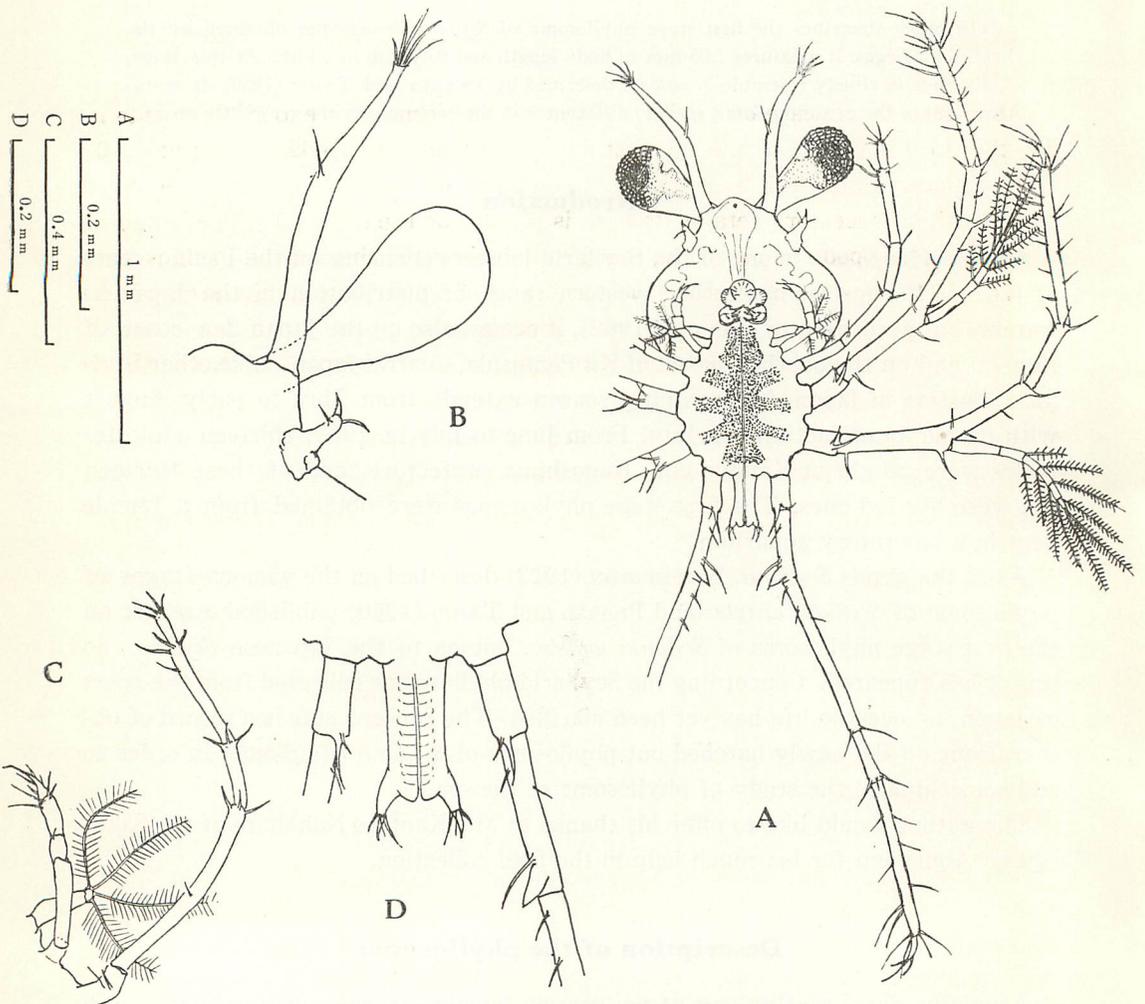


Fig. 1. The first stage phyllosoma of *Scyllarus bicuspidatus*.
 A. The ventral view of the phyllosoma.
 B. The first antenna and the second antenna, ventral view.
 C. The second maxilla, first maxillipede and second maxillipede, ventral view.
 D. The abdomen and the third pereiopod, ventral view.

tuft of setae at the distal end, and it also bears another short seta on its middle part. The first antenna has no segmentation at all. The second antenna, also unsegmented, is exceedingly short and is armed with a spinous process and two setae. It sticks to the ventral side of the fore-body. The second maxilla has two segments, the distal segment being small and bearing four long plumose setae. The first maxillipede is invisible at this stage, whereas the second maxillipede has five segments, with no exopod. The third maxillipede is long but it has no exopod as in other Scyllarid larvae.

There are three pereopods, the first and the second of which have well developed exopod respectively, but the third has only a rudimentary one. The fourth pereopod is not present yet, but a small primodium is between the third pereopod and the abdomen.

As is seen in the case of *Parribacus antarcticus*, the formula of exopod segments is, for the third maxillipede and the first and the second pereopods respectively, 0-5-5, which is to be seen by counting the number of featherlike setae. A coxal spine with an accessory seta at its base is present on the third maxillipede and on the three pereopods respectively, though the one on the third maxillipede is very small. On the segments of each pereopod, a lot of small setae can be seen but its number is not so big as in *Ibacus ciliatus*. The abdomen is small, 0.18 mm in length, and it has nearly parallel sides ending in a pair of strong spines and three pairs of small setae. It is about half the length of the hind-body.

Table 2. The berried *Scyllarus bicuspidatus* and their eggs.

No.	Total length	Carapace length*	Body weight	Total number of eggs	Diameter of eggs in average
1	61 mm	17 mm	10.3 g	16500	0.5 mm
2	57	17	8.5	15070	0.62**
3	52	15	6.7	12200	0.52
4	44	12	3.8	9250	0.48
5	35	10.5	2.3	3100	0.52

* The length from the level of the posterior margin of orbits along the median line down to the posterior boarder of the carapace.

** Just before hatching.

The first stage phyllosoma of *Scyllarus sordidus*, described by PRASAD and TAMPI (1960), closely resemble *Scyllarus bicuspidatus*, though it differs slightly from *S. bicuspidatus* in the shape of the second antenna, the abdomen and in the number of exopod segments. As GURNEY indicated in his "Larvae of Decapod Crustacea", the specific differences in the early larvae seem very slight or non-existent.

According to HARADA (1962) among the genus *Scyllarus* seven species in the Japanese waters have, so far, been reported. In the collection made in this area the *Scyllarus* larvae are relatively rare, though the other types are more common. The berried females carry 3000-16500 eggs each, as is shown in Table 2. The scarcity of larvae can be explain, in part, by this limited egg-laying, and the small

body size in early stages may probably be due to their tiny sized eggs.

The attempts to rear the phyllosoma with brineshrimps as their food was not successful.

Reference

- GURNEY, R. (1936): Larvae of Decapod Crustacea. Part III. Phyllosoma, *Discovery Rep.*, **12**: 400-440.
- HARADA, E. (1962): On the genus *Scyllarus* (Crustacea Decapoda: Reptantia) from Japan. *Publ. Seto. Mar. Biol. Lab.*, **X**(1), 109-132.
- PRASAD, R. R. & P. R. TAMPPI (1957): On the phyllosoma of Mandapam. *Proc. Nat. Inst. Sci. India*, **23** B. 48-67.
- (1960a): Phyllosomas of Scyllarid lobsters from the Arabian Sea. *J. Mar. Biol. Ass. India*, **2** (2), 241-249.
- (1960b): On the newly hatched phyllosoma of *Scyllarus sordidus* (Stimpson). *J. Mar. Biol. Ass. India*, **2** (2), 250-252.
- SAISHO, T. (1962): Notes on the early development of a Scyllarid lobster, *Parribacus antarcticus* (Lund). *Mem. Fac. Fish. Kagoshima Univ.* **11** (2), 174-178.
- STEPHENSON, T. (1923): Decapoda Macrula. *Rep. Danish. Oceanog. Exped.* 1908-10. (**ii**) D3, 1-85.