

Myodocopina亜目のカイミジンコSarsiella japonicaの生活史について

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Notes on the Life History of *Sarsiella japonica* Hiruta (Ostracoda : Myodocopina)

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蛭田 真一: Myodocopina 亜目のカイミジンコ *Sarsiella japonica*
の生活史について

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In a previous report (Hiruta, 1977), the morphology of the developmental stages of *Sarsiella japonica* Hiruta, 1977 was described based upon some specimens collected from Oshoro, a small inlet on the Japan Sea coast of Hokkaido. As a biological report, the present paper deals with the life history of *S. japonica*, especially the seasonal occurrence of its developmental stages, together with some biological observations. Specimens were collected from the bottom sediment of sand or muddy sand (0–5 m depth) sampled at Oshoro Bay (Fig. 1) during a period from July, 1975 to September, 1976.

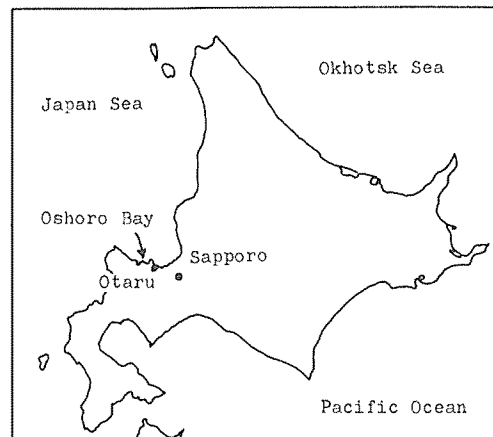


Fig. 1. Location of Oshoro Bay.

Life history

Sarsiella japonica was not especially abundant in Oshoro during the period when collections were made. Nevertheless, two hundred and seventy-two individuals were collected and examined. Fig. 2 shows the seasonal occurrence of the successive developmental stages (with regard to the determination of the stages and sex, see Hiruta, op. cit.) and the seasonal change of water

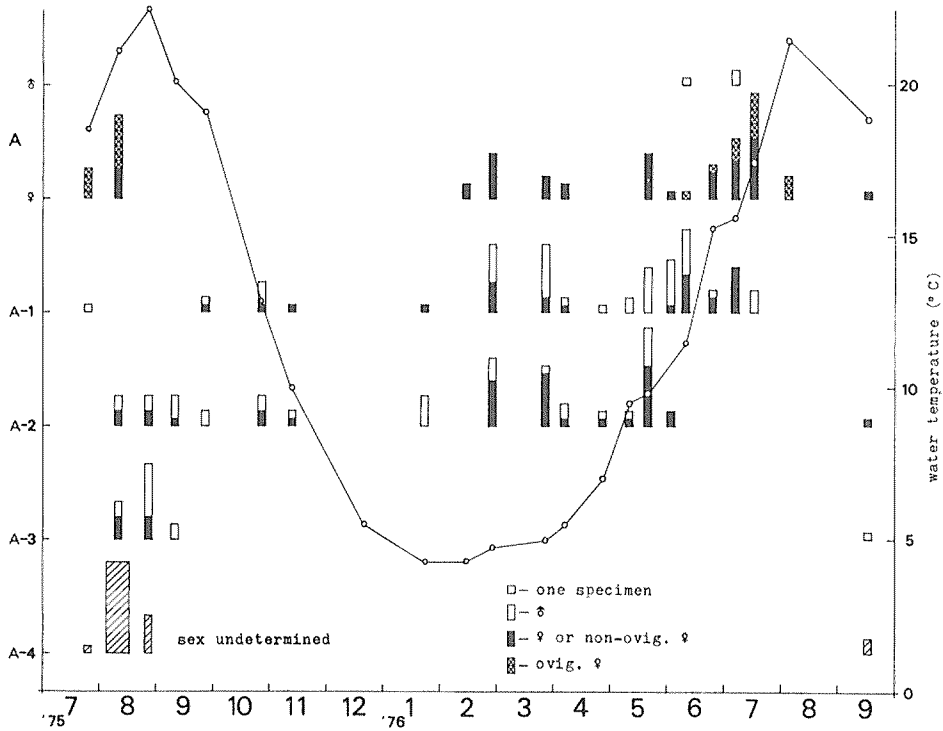


Fig. 2. Seasonal occurrence of the developmental stages of *Sarsiella japonica* on the basis of 272 specimens.

temperature. No specimen was collected on 19th December, 1975. The occurrence of ovigerous females, as shown in the figure, exhibited a greater seasonality, and further, it was detected by the observation of individuals of A-1 instar that one male specimen on 24th July, 1975, four male specimens on 10th June, 1976, and all the specimens on and after 24th June, 1976, showed a sign of moulting. As far as we can judge from the facts above mentioned, the present species seems to have only one generation per year. Namely, A-4 instars hatched in the summer develop into at least A-2 instars before winter comes. All the A-1 and A-2 instars gradually develop into adults from winter and participate in the reproduction during the next summer. Then, after the breeding season, adults die. Thus one generation lasts from summer to the next summer. The similar life history of mydocopid ostracod was found in *Parasterope polex* Kornicker, 1967, by Hulings (1969) from Hadley Harbor, Massachusetts.

Biological notes

1) Table 1 shows the total number of males and females collected in the present study in each stage. Though the number of adult males was too small in contrast to that of adult females, this does not mean that the male population is initially smaller than that of female, as the number of males of A-1~A-3 instars was not less than the number of females.

Table 1. Number of males and females in each stage.

	Adult	A-1	A-2	A-3	A-4
male	3	43	27	12	44
female	75	25	37	6	sex undetermined

The small number of adult males in the result obtained could be explained by the following reasons. The adult male seems to have a short life span and dies soon after copulation, because of its weakly developed mouth parts. As an another possibility, it might be supposed that the distribution range is different between the sexes, because the swimming behaviour in glass

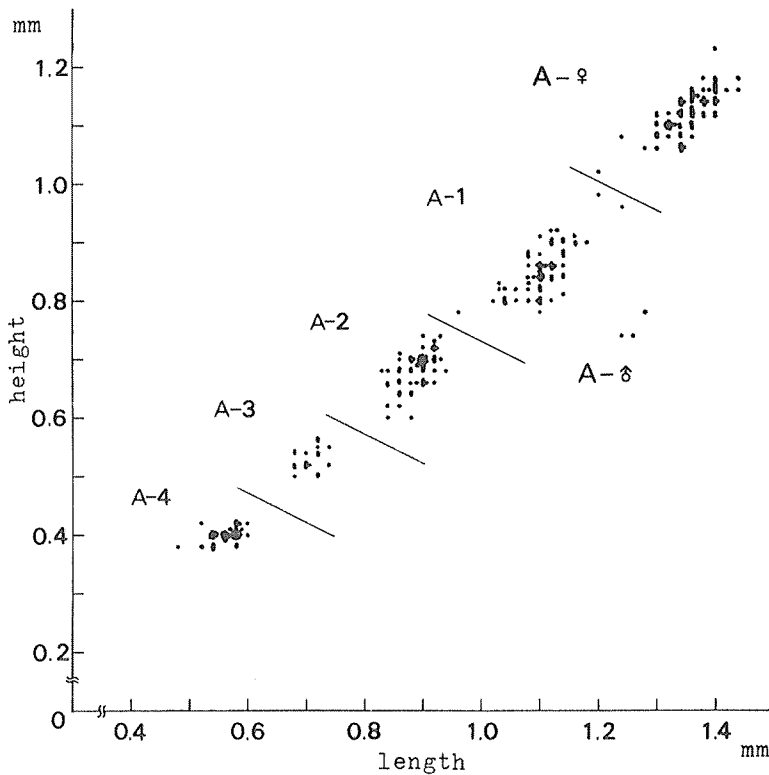


Fig. 3. Length-height distribution of growth stages of *Sarsiella japonica*.

vessels is different between male and female, namely the male can swim much more fast than the female. In this connection, the following fact seems to support the assumption stated above. The author has collected a number of adult males only of a myodocopid ostracod, *Euphilomedes nipponica* Hiruta, 1976, which shows a similar difference in swimming behaviour between male and female as in *S. japonica*, from the bottom sediment at Oshoro, while a number of adult female of the same species has been found in the vicinity.

2) It is noticeable that only one adult female (on 17th September, 1976) possessed several large eggs in ovary, though its brood pouch was empty, forming a vacant cavity. This suggests that the female had liberated her embryos, and, therefore, that adult females seem to be able to deposit eggs at least twice during a reproductive period.

3) The length-height distribution of the growth stages is shown in Fig. 3. In the present investigation, as has been stated in the previous report (Hiruta, op. cit.), almost no sexual dimorphism was recognized in the size and shape of the carapace of A-1~A-3 instars. The mean length of carapace and the growth rate against each previous stage are given in Table 2.

Table 2. Mean carapace length and growth rate on the basis of 272 specimens. Each number in the parenthesis is minimum and maximum value respectively.

	A-4	A-3	A-2	A-1	Adult
Female		0.706	0.891	1.116	1.356
Mean length (mm)	0.562	(0.68, 0.74)	(0.83, 0.93)	(1.06, 1.16)	(1.20, 1.44)
Male	(0.48, 0.60)	0.705	0.889	1.096	1.260
		(0.68, 0.74)	(0.84, 0.94)	(0.96, 1.24)	(1.24, 1.28)
Female		25.6	26.2	25.3	21.5
Growth rate (%)	—				
Male		25.4	26.1	23.3	15.0

4) It is known that the *Sarsiella*-species, as well as some other species within the family Sarsiellidae, are voracious carnivores (see, Kornicker, 1969). In the present species, complete and/or fragmental copepod bodies were recognized in the gut of A-1, A-2 instars and adult females. Diatoms and fine-grained materials were also detected in the gut of some of A-1~A-3 instars, both adult males and females.

Summary

The life history of a myodocopid ostracod, *Sarsiella japonica* from Oshoro, was studied. The present species seems to have only one generation per year, which lasts from one summer to the next.

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