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Life history and reproduction of the amphipod *Synchelidium trioostegitum* (Crustacea, Oedicerotidae) in a temperate sandy shore, southern Korea

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Introduction

Reproductive and life history patterns of marine amphipods are influenced by a variety of biotic and abiotic factors. Those factors may vary on local scales or along geographic patterns and result local or geographic variations in reproduction and life history. Although many studies in life history of amphipods were carried out at various habitats, limited information on the life history and reproduction at a shallow sandy shore < 1 m depth is available (Bear and Moore, 1996). The oedicerotid amphipod *Synchelidium trioostegitum* Jo, 1990, is common in fine sandy shores around the south and west coasts of Korea (Jo 1990). *S. trioostegitum* co-exists with *S. lenorsotralum* in the shallow sandy shore of Dolsando and their distribution center of 1 m depth below spring tide low water, with no diel and tidal movement (Suh and Yu, 1997). We examined the life history traits and reproductive patterns of *S. trioostegitum* in a shallow sandy shore, based on quantitative investigation.

Materials and Methods

Samples were collected monthly from July 1996 to June 1997, from grounds 1 m deep at spring tide low water situated off Dolsando, southern Korea (34°37'39'' N, 127° 47'44'' E). Five replicate samples were carried out with a sledge net (12 x 30 cm mouth, 300 ㎛ mesh) over a distance of 20 m parallel to the shoreline at a speed of approximately 1 m s^{-1} . Laboratory experiment showed that *S. trioostegitum* was a very shallow burrower (< 1 cm depth). Thereby this method of collection provided the sufficiency to capture the population of *S. trioostegitum*. Samples were fixed immediately in 5 % buffered formalin in seawater. All amphipods were sexed and divided into four developmental categories: juvenile, male, female and

ovigerous female with eggs or juveniles. The size of individuals was measured from the tip of the rostrum to the end of the telson by an image analysis system (Image Pro Plus 2.0).

Results and Discussion

The highest density of *Synchelidium trioostegitum* occurred from February to March. Ovigerous females were recorded virtually year-round, with particularly high proportion in fall and early spring, indicating continuous recruitments with two dominant periods. The occurrence of ovigerous females was not correlated with a range of environmental factors such as temperature and salinity. There was no significant difference between the body length of female and male. The mean adult body length was greater in early spring breeding period than in fall. The brood size and egg volume were positively related to body length of ovigerous females. Broods significantly decreased with development of egg stage. Egg volume was significantly larger in fall breeding than in early spring, but brood size was significantly smaller in fall breeding. There was no difference in reproductive effort between in fall and early spring breeding periods.

Literature cited

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