

Seed Production of the Crucifix Crab *Charybdis feriatu*s

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*Charybdis feriatu*s, a portunid crab formerly classified as *C. cruciata* and commonly known as the crucifix crab¹, is a commercially important species but is not being cultured commercially. *C. feriatu*s is a good potential aquaculture species because of its meat quality, taste, and size. Berried females caught from the wild usually weigh from 150 to 350 g, but the males can grow up to 1 kg in body weight. This species can easily be identified because of its striking red and white color pattern². It is often caught in deeper portions of the sea along with other portunids such as the blue swimming crabs *Portunus pelagicu*s, but in much lesser quantities.

Studies directed towards seed production of *C. feriatu*s began at SEAFDEC last July 2000 after earlier attempts³ resulted in massive mortalities during the zoeal stages and megalopa could not be produced. Larval runs conducted last year at the SEAFDEC/AQD hatchery produced megalopa and crab instar through techniques based on mud crab larval rearing⁴. Berried females caught from the wild were disinfected with 200 ppm formalin for 30 minutes before placing in spawning tanks. The eggs attach to the pleopods of the female and turn from yellow to dark gray then hatch after 5 to 7 days. Zoeae were fed the rotifer *Brachionu*s. *Artemia* nauplii were added when the larvae reached the Z4 stage. Among zoeae stocked in tanks, 20 to 26% metamorphosed to the megalopa stage. High mortality was experienced immediately after molting to the megalopa stage and survival at crab instar 1 was 2 to 5% of the original number of zoeae stocked.

*C. feriatu*s has six zoeal stages and one megalopa stage. Its zoeal and megalopa stages have previously been described^{3,5}. Based on our larval rearing runs, it takes 18 to 26 days before the zoea 1 (Z1, Fig. 2) metamorphoses to the megalopa stage and another 5-10 days to the crab instar 1 stage when temperature is 26 to 28°C.

Nursery culture

Three days after molting to megalopa stage (Fig. 3), larvae were transported in oxygenated plastic bags and transferred to 5 x 4 m net cages (hapa) installed in ponds. Nets were used for easier retrieval of juveniles. Techniques for nursery rearing were similar to those used for mud crab⁶. Megalopa stocked at 30 individuals/m² and fed with mussel meat had a survival of 25% and body weight of 1 to 7g after one month (see Fig. 4). Juveniles were stocked in grow-out ponds but did not survive. Mortality must have been due to the unsuitable salinity levels in the pond which went down to as low as 11 ppt. Laboratory tests conducted after pond stocking showed that survival is significantly lower in juveniles reared in 20 ppt salinity compared to those in full salinity water (32 ppt).



The crucifix crab, *Charybdis feriatu*s

Breeding trials

Breeding of *C. feriatu*s is presently being investigated. Adults caught from the wild were held in twelve-ton concrete tanks at a density of 6 to 10 individuals/ tank. Better survival and spawning were achieved when holding tanks were covered and opened only during feeding than when kept open and exposed to ambient lighting (12h light, 12h dark). Cannibalism and shell disease was also more rampant when water depth in the holding tanks was maintained at 0.5 meter than at 1 meter.

Adults were fed mussel meat and the marine annelid *Perinereis*. After 10 to 14 days in the holding tank, females began to spawn even without ablation. However, they produced significantly fewer zoeae (248,357 ± 14,989 Z1 or 867 Z1/ g body weight of the spawner) per spawning compared to females that were already berried when caught from the wild (559,527 ± 107,206 Z1 or 3,259 Z1/ g body weight). The fecundity of this species has been reported to be between 52,350 and 309,250 eggs/ female⁷. In our runs, females that spawned in captivity produced up to 490,000 and wild-caught berried females produced up to 1,200,000 zoea 1. Females that spawned in captivity spawned again 1 to 5 days after their eggs hatched into the zoea stage. A similar number of zoeae are released after this second spawning.

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