

## USE OF DEEP SEAWATER FOR JAPANESE SCAMPI LOBSTER *METANEPHROPS JAPONICUS* BROODSTOCK

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*Metanephrops japonicus* inhabits sandy–mud bottoms at a depth of 200–400 m, and supports a commercially important local fishery in Suruga Bay, Shizuoka Prefecture, Japan. A project to produce large amounts of seeds of *M. japonicus*, to release them in Suruga Bay, and to develop land-based aquaculture has been initiated. However, one of the major problems encountered in broodstock maintenance is the low-fecundity that results from excessive egg loss and a poor hatching rate. Therefore, efficient techniques that can help increase fecundity are required for broodstock maintenance. The environmental conditions prevalent during rearing might influence the fecundity of this species. The lobsters inhabit deep-sea environments that differ from surface environments. Therefore, an attempt was made to cultivate lobsters in deep seawater (DSW) in the laboratory. In comparison with surface seawater (SSW), DSW contains few pathogenic organisms or pollutants; is rich in inorganic nutrient salts such as nitrate, phosphate, and silicate; has a low temperature; and is physically, chemically, and microbiologically stable throughout the year. This study investigated the influence of DSW on survival, larval hatching, and molting of a broodstock of *M. japonicus*.

Wild-caught ovigerous female lobsters were reared individually in a laboratory at approximately 15°C with either DSW or SSW. The 200-day survival rates of lobsters reared in DSW (85.7%) was higher than those reared in SSW (40.7%). Approximately 7% of berried females died for both water types. The larvae hatched between April and July. Females that hatched larvae accounted for 71.4% and 33.3% of the total number of females reared in DSW and SSW, respectively. The average number of hatching larvae per hatching female was between 140 and 150 for both water types. Females molted from May to October about 1–2 months after larval hatching. Between 64% and 75% of females reared in either water type molted, and the average relative percentage increases in carapace length was between 6.5% and 7.9%. Average time taken by females from hatching to molting in DSW (30.0 days) was shorter than that in SSW (45.7 days). Premolt survival rates were similar (77% to 86%). However, the postmolt survival rate for DSW rearing (85.7%) was higher than that for SSW rearing (40.7%). Deep seawater is particularly suitable for rearing and hatching of the lobsters used as broodstock.