Comparison among three farming methods of the hard clam *Meretrix lusoria*

Yasuhisa Henmi
Aitsu Marine Station, Center for Water Cycle, Marine Environment and Disaster Management, Kumamoto University, Kumamoto, Japan

E-mail: henmi@kumamoto-u.ac.jp

Keywords: Bioresource management, condition index, Culture pond, Hanging culture, Meretrix lusoria

Abstract

Meretrix lusoria is a medium-sized bivalve that inhabits sand-mud flats in intertidal and subtidal areas of Japan and Korea. It was formerly a commercially important bivalve in Japan, but decreased rapidly since 1980s. Though the cause of steep decline is still unclear and it might differ among locations, overfishing for young small clams is thought to be one of the main decreasing factors. Therefore, the development of aquaculture technics after collecting clams should be important, because the clams could breed if fishermen keep them in the farms without selling. In the present study, I sampled *M. lusoria* every month in a fishing ground in Ariake Sea and examined the seasonal fluctuation of condition index from April 2009 to March 2010. Moreover, I cultured *M. lusoria* with three farming methods in Kami-Amakusa City, Kumamoto Prefecture in 2009–2011; (1) hanging culture: rearing in baskets hanged from pearl rafts (subtidal, baskets were always submerged), (2) pond culture: cage rearing in a culture pond of Kuruma Prawn (intertidal, cages were emerged only during spring low tides because sea water flow was controlled by two water gates) and (3) tidal-flat culture: cage rearing in a natural habitat (intertidal, cages were emerged every day), and compared growth, survival and the condition index among the three methods. The condition index was high during spring (max in March) and low during summer (min in September). Among the three methods, in the hanging culture, clams grew fast and the condition index during reproductive season was highest (summer), but most have died until October. The fast growth may be because the clams can feed rich suspended particles all day and high mortality may be because excessive reproductive output. In the pond culture, growth rate and the condition index were low perhaps because of low food condition and restricted foraging time, but survival rate was high perhaps because of low reproductive output. In the tidal-flat culture, growth rate was medium, the condition index was low and survival rate was high. The combination of the two farming methods of *M. lusoria*, i.e. the culture in pearl raft baskets in winter and the culture in Kuruma Prawn ponds in summer, may be most excellent and these also contribute effective utilization of unused old pearl rafts and Kuruma Prawn ponds.