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Population Dynamics of *Corbicula* (*Corbiculina*) *papyracea* Heude from Chungpyeong, Korea

Dae Hyeon KWON and Yong Joo KANG

Department of Marine Biology, Pukyong National University

Introduction

Corbicula (*Corbiculina*) *papyracea* (Heude) is fresh water clam which lives on the sands and muds, its size was about 3~25 mm with yellow gray color. Shell width of the clam is thin and smooth and growth lines are marvelous and inside of shell colored pink or pink with red. And the clam reproduces itself through virgin generation (Park *et al.*, 1989), ovoviviparous (Kwon *et al.*, 2001) method.

There are reports about *Corbicula* by Kim and Yoo (2000), Kwon *et al.* (1987), and Lee *et al.* (1985) but there aren't many report about C. (C.) *papyracea*. The aim of this work is to present the dynamics of C. (C.) *papyracea* from Chungpyeong.

Method and Material

Corbicula were collected monthly from Semperber 1999 to August 2000 from Jojong stream of Chungpyeong. the shell length (SL, greates anterior-posterior dimension across the valves) of individuals was measured with dial calliper to the nearest 0.1 mm and total weight to 0.01 g, and shell rings were used as age determinant. Von Bertalanffy' growth model was used with estimating method of nonlinear regression through PC softwere SPSS (Release 10.1.3, SPSS Inc.), and basic estimating method was Levenberg-Marquardt' method, initial value of L_∞, t_0, and K were 50, t_0, and 0.1. Survival rate of *Cobicula* was estimated according to 7 methods - Heincke's method, catch curve method, Jackson's method, Chapman and Robson's method, mean age method, Hoenig's method, and Beverton and Holt's method. Instantaneous coefficient of total mortalities (Z) was estimated according to the formula as follows, $Z = -\ln S$. Natural

mortality (M) was estimated according to Alverson and Carney's method. Fishing mortality (F) was estimated according to the formula as follows, $F = Z - M$. Age at first capture (t_c) was estimated according to Pauly (1984)'s method. Adequate fishing mortality and age at first capture was estimated with Beverton and Holt (1957)'s YPR (Yield per rectuit) model and $F_{0.1}$ model.

Result and Abstract

L_∞, K, t_0, and W_∞ were estimated as 34.36 mm, 0.1531/year, -0.5246 year, and 11.42 g, respectively.

Survival rate, instantaneous coefficient of total mortality, and natural mortality, fishing mortality, and maximum age were 0.3368/year, 1.0883/year, 0.7367/year, 0.3516/year, and 8.3290 year, respectively. And age at recruiting in fishing ground (t_r) was 0.1772 year.

Current yield per recruit was 0.07 g at t_c, 2.0117 year, and F, 0.3516/year. We can expect YPR increase if F increase to 2.82/year and YPR increase to 0.10 g.

$F_{0.1}$ at current age at first capture of 2.0117 year was 2.8179/year, greater than current fishing mortality of 0.8062/year, will increase YPR with 0.03 g at the fishing mortality of 0.10/year.

Reference

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