Growth, mortality and recruitment of the yellow clam *Mesodesma mactroides* on Uruguayan beaches

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Abstract

We studied some aspects of the population dynamics of the yellow clam *Mesodesma mactroides* (Deshayes, 1854) which inhabits the eastern sandy beaches of Uruguay. Observations were made from March 1983 through March 1985 (harvesting season), and additional data from January 1988 to December 1989 (closed season) were also included in the analyses. Parameters of growth and mortality were estimated by methods that make use of age or length information. An age/length relationship was constructed by counting growth rings. Results were consistent with those obtained with modal class progression analysis and other length/frequency methods. The growth curve obtained from the age/length relationship did not account for seasonality in growth rate, and a seasonal growth model explained growth oscillations in a better way. The instantaneous coefficient of natural mortality (M) estimated for the closed season was 1.64, whereas an increase in fishing mortality (F) was observed during 1984. Age composition did not change during the 2 yr of study, and the first 6 mm class accounted for over 50% of the population. The main contribution of recruits was observed between late summer and early fall (February to April), and the recruitment pattern suggested one main settlement period per year. Growth and recruitment success appeared to be regulated by density-dependence processes. Some implications for management are considered in this context. Methodological aspects concerning the reliability of empirical equations and programs for estimating growth and mortality are discussed.