



POPULATION DYNAMICS OF THE YELLOW CLAM *MESODESMA MACTROIDES* FROM A HIGH-ENERGY, TEMPERATE BEACH IN NORTHERN ARGENTINA

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The yellow clam *Mesodesma mactroides* Reeve, 1854 (Bivalvia: Mesodesmatidae) was once the most abundant intertidal species on the Atlantic coast of northern Argentina and an important commercial resource in South America. This study of a population inhabiting the intertidal zone of the sheltered-dissipative sandy beach Santa Teresita documents the species' population biology, including demographic structure, growth and production during December 2004 and December 2006, and adumbrates the critical state of *M. mactroides* at present. A total of 3,015 yellow clams were collected and measured, whereas individuals were found with an anterior–posterior shell length between 2 and 64 mm. A von Bertalanffy growth function with an asymptotic length (L_{∞}) of 85 mm and a growth constant (K) of 0.47 year⁻¹ was established from length–frequency distributions. The longevity of the species is estimated at approximately 6 years, and instantaneous mortality rate was about three times higher than 40 years ago. Besides, this study confirmed that the overall growth performance index (OGP) is habitat-specific and can be used to group *M. mactroides* and *M. donacium* from different areas into temperate and upwelling species. Furthermore, OGP is inversely correlated with the latitudinal distribution of *Mesodesma* populations. The intertidal biomass ranged between 0.06 and 0.07 g AFDM m⁻² year⁻¹. Individual production was observed to be highest at 47 mm length (0.35 g AFDM m⁻² year⁻¹), and annual production ranged between 0.12 and 0.19 g AFDM m⁻² year⁻¹, resulting in productivity values (P/B) between 1.84 and 2.93. The comparison of the results of the present study with those of growth studies conducted on *M. mactroides* 40 years ago revealed the following considerable differences in the population structure of *M. mactroides*, indicating the conservation status of this intertidal bivalve as endangered: (1) present growth rates are faster, but that the maximum length attained has decreased, (2) the numbers of individuals per square metre were many times higher in the past than in the present, (3) bivalves from the present work never reached the ‘commercial size’ of 60 mm and (4) 40 years ago, the population of *M. mactroides* was composed of up to three cohorts, whereas in this study, there was only one single cohort visible.