

**STOCK ASSESSMENT, RECRUITMENT AND HARVESTING OF
RUDITAPES PHILIPPINARUM (ADAMS AND REEVE, 1850) IN A SMALL
NORTHERN ADRIATIC LAGOON: AN ECONOMIC AND BIOLOGICAL
APPROACH**

*Massimo Ponti*², *Alessandra Castellini*¹, *Alessandro Ragazzoni*¹, *Lucia Devenuto*¹,
*Victor Ugo Ceccherelli*², *Marco Abbiati*²

¹DEIAgra - University of Bologna

²CIRSA - University of Bologna

*Corresponding author massimo.ponti@unibo.it

The Manila clam, *Ruditapes philippinarum*, was introduced in the Venice Lagoon for experimental aquaculture in 1983, and then rapidly expanded outside the farming areas, colonising most of the nearby coastal lagoons and replacing the native *R. decussatus*. Nowadays the Manila clam represents one of the most important commercially-exploited resources of these lagoons. Abundance, size-class and biomass distribution of the natural population of clams living in the Pialassa Baiona, a small northern Adriatic lagoon, were assessed and related to the hydrological and sediment characteristics. The commercially available stock was estimated at 40 t (CL95% 23-52) in July 2002, 30 t (CL95% 22-37) in April 2003, and 10 t (CL95% 6-15) in October 2003. Despite the lagoon being affected by eutrophication, and chemical and thermal pollution from treatment and power plants, the clams were harvested by about thirty professional fishermen in summer 2003. Stock estimations and observed mortality were in good accordance with the data provided by the fishermen. The reduction of the available stock could be due to both overfishing and the 2003 summer heat wave, which may increase mortality. The juvenile recruitment appeared insufficient to annually restore the natural stock. The paper's methodology is based on an approach that considers both the biological and the socio-economic aspects of the sector aimed at evaluating its sustainability. Monetary and non-monetary models will be considered in order to determine the most adaptable for an economic and a non-economic analysis. Finally, the adequacy of the methodology and the bio-socio-economic results will be evaluated in depth.

Keywords: Manila clam, exotic species, clam harvesting, sustainability, northern Adriatic Sea