

SEASONAL DYNAMICS OF MARINE DIATOMS IN AN AREA PERIODICALLY INFLUENCED BY SUBMARINE SPRINGS AND RIVER INFLOW (MALI STON BAY, SOUTH-EASTERN ADRIATIC)

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Fine vertical and temporal phytoplankton resolution, based on physico-chemical properties and small herbivorous zooplankton, has been observed in Mali Ston Bay which is traditionally an area of shellfish farming. The bay is influenced by the freshwater income from the submarine springs (vruljas) in the inner part and from the Neretva River at the outer part; together with precipitation these are significant sources of nutrients in the bay. An extensive year-through research was conducted during 2002. Diatoms dominated microphytoplankton abundance mostly in winter and autumn, positively correlated with NO_3 , NO_2 and PO_4 and negatively with temperature and NH_4 . Their development was not silicate-limited. The most abundant taxa were *Chaetoceros affinis* (1.5×10^4 cells L^{-1}) in late March, *Chaetoceros socialis* (1.0×10^4 cells L^{-1}) in late April and *Chaetoceros* spp. (3×10^4 cells L^{-1}) in mid May. *Thalassionema nitzschioides* and various undetermined pennate diatoms were the most frequent Bacillariophyta during the year. The abundances of the diatoms were controlled by herbivorous zooplankton grazing ('top-down' control) more than is the case for other groups of microphytoplankton. The results showed a significant difference in environmental conditions, as well as in the annual phytoplankton succession and community structure, as compared with studies carried out more than 20 years ago in this area. Diatoms that were previously identified as the dominant group of phytoplankton, in terms of both number of taxa and abundance, are replaced by dinoflagellates.