ZOOPLANKTON VARIABILITY IN TWO PO RIVER DELTA LAGOONS

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Summary. - Results of many-year researches on zooplankton variability in two lagoons of the Po River Delta (Sacca del Canarin and Sacca di Scardovari) are summarized. Biocoenosis distribution has been analyzed in relation to variations of hydrographic parameters and trophic status parameters. Segregation of two species of Acartia complex in the Sacca di Scardovari is pointed out.

Résumé. - On a synthétisé les résultats de recherches sur la variabilité du zooplancton dans deux lagunes du Delta du Pô (Sacca del Canarin et Sacca di Scardovari). La distribution des biocénoses a été analysée par rapport aux variations des paramètres hydrographiques et d'état trophique des lagunes. On a documenté la ségrégation de deux espéces du genre Acartia (A. margalefi et A. latisetosa) dans la zone la plus interne de la Sacca di Scardovari.

Zooplankton researches were carried out from 1978 onwards in two lagoons of the Po River Delta (Sacca di Scardovari and Sacca del Canarin) and in the lower reach of the main deltaic branch, the Po di Pila. Samples were collected monthly during many years; in addition several diel cycles of sampling were made, especially in summer. A 90 µm mesh size net was generally used. Density data of zooplankton taxa were processed by using statistical and mathematical methods (multivariate analysis, time series analysis) in order to evaluate the patterns of space-time distribution in relation to variations of hydrodynamic (current velocity, tide height) and hydrological (temperature, salinity) parameters (FERRARI et al., 1982a, 1982b and 1982c).

Some specifical subjects are here tackled. Firstly, the different methods of data processing in order to analyze zooplankton short-term variabilty are compared; for this aim zooplankton samples gathered over 24 hour cycles in Sacca del Canarin and Sacca di Scardovari during summer 1981 and 1982 were analyzed. Secondly,

estimates of zooplankton biomass transport by the river are given; furthermore daily balance of biomass exchanges between lagoon and sea is calculated for Sacca del Canarin, where suitable hydrographical and morphological conditions allowed to estimate a global daily water balance.

Lastly, a typology of zooplankton assemblages in relation to the hydrodynamic characteristics is proposed; in this connection structure of Copepod taxocoenoses is analyzed. In Sacca del Canarin, a small lagoon with a fast water renewal, Copepod dominant species are the neritic ones, in particular Acartia clausi, Paracalanus parvus, Oithona nana and Euterpina acutifrons. In Sacca di Scardovari there is a clear zonation: in the southern zone, directly influenced by the sea, Copepod taxocoenosis is dominated by the above mentioned marine species; in the northern zone, which is characterized by a slower water renewal and a higher phytoplankton production, Copepods belong prevailingly to other species (Acartia latisetosa, Acartia margalefi, copepodites of Canuella perplexa), typical of the more sheltered areas of the lagoons (ALCARAZ, 1983). Segregation of "r" strategist species of Acartia complex in the inner zone of the Sacca di Scardovari seems to be correlated with the higher seasonal variability of trophic status parameters in this zone.

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