

PRELIMINARY RESULTS ON ECOLOGICAL RESEARCH CARRIED  
OUT IN LA VOTA LAKE (Catanzaro, Italy)

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Riassunto : Vengono riferiti i primi dati ecologici e i risultati delle ricerche morfometriche effettuate nei mesi di marzo e giugno 1978 nel lago la Vota.

Résumé : On rapporte sur les premières données écologiques et les résultats des recherches morphométriques effectuées pendant les mois de Mars et de Juin 1978 dans le lac La Vota.

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After having carried out research in some brackish water environments, located along the Sicilian coasts, in order to know the fundamental ecological data in view also of a possible use of these environments for the aquaculture activity, it has been examined a lagoonal zone, placed southward Capo Suvero along the Tyrrhenian coasts of Catanzaro. The planned research will last one year with seasonal investigations, either of La Vota lake or of the connected lagoonal zone. Particularly, investigations of chemico-physical characteristics of the Waters, nutrients, primary production, chlorophyll, phytoplankton and zooplankton, benthos and fish, are expected. Furthermore, it has been preliminarily carried out a study on the morphometry of the above environment, as support to all the programmed research.

In the present paper results of the morphometric observations and the first data obtained with campaigns carried out in the months of March and June 1978, are reported.

#### Results

For what it is concerning the morphometric characteristics, it is clear that this is an environment affected by the detritus transported by the streams that are flowing in it. The lake probably takes its origin from sand accumulation operated by sea and wind action. The morphometrical characters may be summarized as follows :

- Geographical position =	38°56'.7 - 16°11'.0	(East Greenwich)
- Height =	sea level	
- Surface =	elongated in S-N direction, with the main axis of 804 m	
- Width =	greatest 3.0 m ; mean (Z) 1.99 m	
- Water cubic content =	from 0 to 1 m	90.187,2 m <sup>3</sup>
	from 1 to 1.5	36.851,0
	from 1.5 to 2.0	31.795,5
	from 2.0 to 2.5	26.574,1
	from 2.5 to 3.0	17.937,8
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	Total	203.345,6

From the chemical characteristics lake La Vota may be classified according to the "Venice System", among myxohalines waters, particularly myxomesohalines ones, having shown salinity values among 11.87 and 12.34‰. Nutrients are characteristic of a brackish environment and seem to indicate a positive eutrophic level with values included among 1.246 and 2.896  $\mu\text{g-a/l}$  N-NH<sub>3</sub>, 0.141 and 0.082  $\mu\text{g-a/l}$  N-NO<sub>2</sub><sup>-</sup>, 2.804 and 1.617  $\mu\text{g-a/l}$  N-NO<sub>3</sub><sup>-</sup>, 3.722 and 3.367  $\mu\text{g-a/l}$  P-PO<sub>4</sub><sup>3-</sup>, 4.264 and 3.614  $\mu\text{g-a/l}$  total-P. Satisfactory is the oxygen level in the waters with 10.42 ml/l in March and 3.97 ml/l in June. Per cent saturation has always been more than 100. Chlorophyll a, with 20.95 and 10.74 mg/m<sup>3</sup>, is also confirming the good trophic level of these waters. The microbiological research have indicated a good qualitative level of the examined waters, with poor or none fecal contamination rates (until a maximum of fecal coliforms/100 ml). Total heterotrophic counts were always among 19 and 285 heterotrophes/ml. It is clear that the normal self-depurations processes of the waters, obviously due to a very poor polluting supply, are able to keep at a very good level the water quality of La Vota lake. The study of the benthic populations has clearly indicated the brackish peculiarities of this lake, in which they are scarce and restricted to few species, in any case of wide ecological valence. For what it is concerning the substrate, it is composed by sediments with a thick muddy block which includes thin and homogeneous sandy detritus. Muds are either of vegetal and animal origin or of telluric one and are representing about the 60% of the whole sample. The sandy portion of non calcareous nature, shows granules with the typical appearance of tectosilicates. In the sedimentation process the eolian supply probably assumes a non negligible role. Meiobenthic fauna is represented by only three taxa, which frequency is greatest for polychaetes (56.3%), fairly good for copepods (35.2%), while ostracods (8.5%) are appearing relatively rare. Total population density (48.168 specimen/m<sup>2</sup>) may be considered certainly modest. Until now there is no evidence of the presence of any important macrobenthic settlement, with the exception of the presence of rare individuals of the euryhaline *Hydrobia ulvae*. Larval stages of Chironomids are also present and, noteworthy is the occurrence of edible crustaceans of small size (*Palaemon elegans*). Also from the study of zooplankton samples, collected either on surface or at 2 m depth, it was possible to note an extreme scarcity of individuals and a restricted number of species. Copepods are the more represented group, mainly with ovigerous or bearing spermatophores females of *Calanipeda aquae dulcis* and with the parasitic copepod *Ergasilus* sp. Abundant were larvae of crustacean decapod *P. elegans* in various stages of development. A well represented population of *Ceratium* has been observed in zooplankton samples.

General considerations on the examined environment will be possible only at the end of the annual cycle of research, to carry out mainly in order to know the existing ecological differences among the lake, the lagoonal zone and the sea before them.