

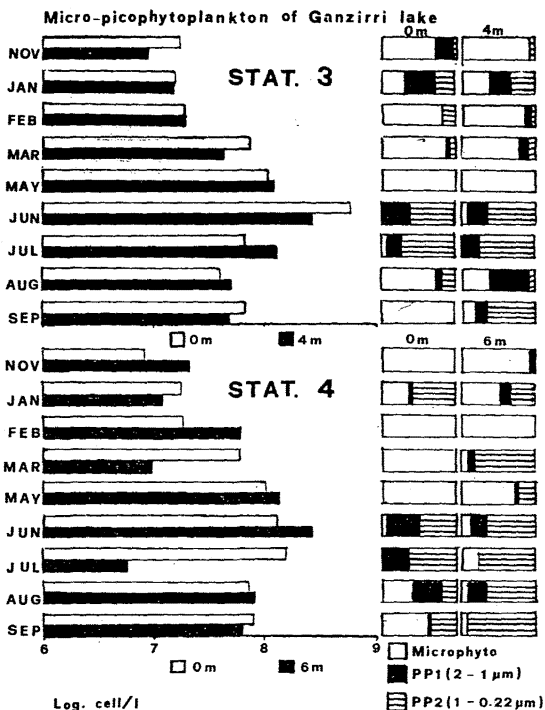
Picoplankton and Picophytoplankton in a Brackish Environment. (Lake of Ganzirri-Messina)

V. BRUNI, M.-L.-C. ACOSTA POMAR and G. GIUFFRÈ

Dipartimento di Biologia Animale ed Ecologia Marina, Università, Contrada Papardo, 31, 98106, Messina (Italia)

The present paper deals with the space-temporal variations of the micro-nano and picoplanktonic populations in a brackish environment near the Straits of Messina (Lake Ganzirri-Messina).

The ecological approach of this study follows that suggested by Sieburth (1981) and other authors. The planktonic organisms can be divided into different sized fractions within which different nutritional modalities can be recognized.



This method proves to be useful in fully understanding the relationship between the energy flows in the aquatic ecosystem.

The present research deals only with the above mentioned components capable of autoregulation.

The change in the picophytoplanktonic components (eucaryotic and procaryotic) in relation with the populations belonging to the nano and microphytoplankton has been demonstrated.

Moreover, a statistical study has been carried out on the total picoplanktonic and autofluorescent components in order to obtain some information about the homogeneity of the distribution of these organisms.

The non-randomization percentage has also been calculated.

For this purpose, monthly samplings have been carried out at two stations, on the surface and near the bottom.

Direct counts of the total picoplanktonic cells, autofluorescent (Porter and Feig, 1980, modified), nano and microphytoplanktonic (Utermöhl, 1958) components have been studied on water samples.

The microbiological parameters have been evaluated in relation to several environmental parameters in order to point out any eventual interdependence.

The results obtained are shown in figure.

During the period of our observation, the micro-nano- and picophytoplanktonic organisms at the two stations ranged between $5,82 \times 10^8$ cell/l (stat.3, 0m, June) and $8,3 \times 10^6$ cell/l (stat.4, 0m, November).

The micro- and nanoplanktonic component represents nearly 100% of the whole autotrophic population in the month of May, whereas the picophytoplanktonic component is predominant in the summer months.

Moreover, the results show a succession within the pico-, nano- and micro phytoplankton populations. In particular, as far as the picoplankton is concerned, an evident prevalence of the eucaryotic component is predominant in Winter and Spring, even though its absolute values seldom reach 10^6 cell/l; afterwards a bloom of the procaryotic component occurs and reaches its maximum density ($5,7 \times 10^6$ cell/l) in June, a month during which it represents nearly the whole autotrophic population. This evident predominance lasts until July.

Furthermore, during the year, the eutrophic characteristics of the lake bring about several micro- and nanoplanktonic, mono- and oligospecific blooms with an alternation of the main taxonomic groups.

Diatoms are particularly prevalent in winter, leading to a prevalence of peridinea by the beginning of Spring and followed by a lasting diffusion of small size diatoms (*Thalassiosira* sp. and *Skeletonema costatum*). This succession of autotrophic populations of different size led us to take into consideration the different biotic and abiotic factors which may affect the dynamics of these populations.

References

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