

## Microphytobenthic chlorophyll biomass in the Gulf of Trieste (Northern Adriatic)

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Microphytobenthos, that is sediment associated microflora, have recently been recognized as important primary producers in shallow nearshore areas. While phytoplankton structure, biomass and production as well as benthic macroalgae have been extensively investigated in the Gulf of Trieste little attention has been paid to benthic microflora.

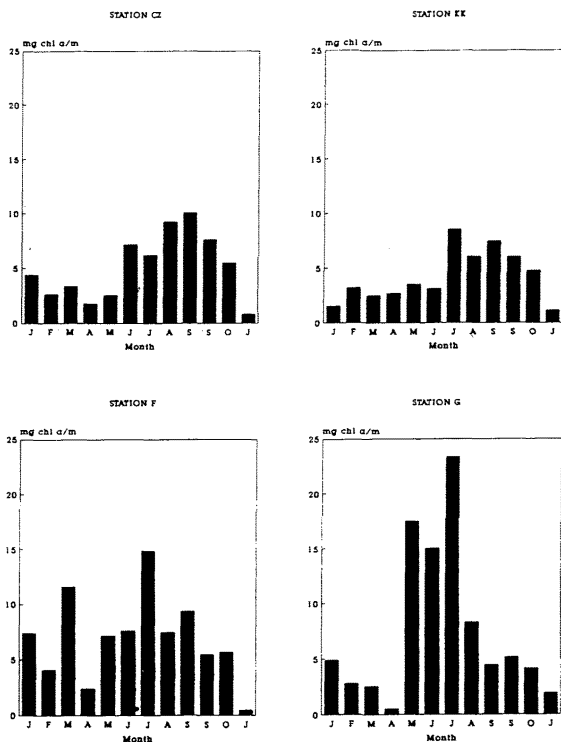
Within Alpe-Adria campaign we have followed microphytobenthic biomass with approx. monthly frequency at four locations having depths 20 to 22 m. Sediment was sampled with a gravity core sampler and the top 1 cm was used for analyses. Chl *a* and phaeopigment were determined following the procedure 2 described by SUNDBACK (1986). Chl *a* values varied between 0.47 and 23.37 mg/m with lower values found at locations in the central part of the Gulf of Trieste (stations KK, CZ). At these stations the variations were moderate (mean 4.68 mg/m<sup>2</sup>, SD 2.60), while higher values with larger variation were measured at the entrance into the Gulf (stations F, G; mean 7.25 mg/m<sup>2</sup>, SD 5.65).

Generally, at all stations the highest microphytobenthic chl *a* biomass occurred in "summer clear waters", that is during the period with favourable temperature and light conditions (Fig. 1).

The phaeopigment contents of the sediment varied between 1.29 to 80.84 mg/m and also showed peak values in summer, partly reflecting increased sedimentation of phytoplankton. This is also indicated by increased sedimentation rates measured during this time of the year (POSEDEL & FAGANELLI, 1991).

Microphytobenthic chl *a* was generally lower than respective value of the phytoplankton representing from 5 to 60 % of the total chlorophyll *a* at particular station; larger proportions of total chl *a* due to benthic microalgae were recorded in July (> 40 % at all stations). However, higher concentrations observed during summer-autumn may partly originate from sedimentation of viable phytoplankton cells.

The differences observed among the stations could not be attributed to different nutrient and transparency conditions and we believe that besides sediment type and particular hydrodynamic conditions (causing accumulations of microphytobenthos at some areas) the disturbance of the sediment due to human activities (fishing with beam trawl) may control the distribution of benthic microalgae.



### REFERENCES

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