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Short Communication

Bacterial activity in sandy sediments

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For sandy beaches of the Baltic Sea seasonal fluctuations and correlations of the following microbiological and chemical variables were investigated: bacterial number and biomass, concentration of natural free dissolved glucose, gross uptake and respiration rate of ^{14}C-glucose, actual uptake rate and turnover time of glucose, sand grain size and shape, water content and organic matter of the sediment.

Based on correlation analysis significant relationships could be shown between cell number, biomass and actual uptake rate of glucose. The concentration of natural glucose varied with sand grain shape, and the uptake rate of glucose was inversely correlated with the water content of the sediment. A significant relationship was noted between sand grain size and organic matter content of the sediment.

In the water overlying the sediment cell number and biomass were significantly correlated with the concentration of glucose as well as with the uptake rate of glucose.

Both the concentration and the uptake rate of glucose in the sediment demonstrated significant correlations with the corresponding variables in the water overlying the sediment.

Details of the investigations are subject of the following publications (i) ''Uptake of glucose by bacteria in the sediment'', Marine Biology **44**, 293–298 (1978), and (ii) ''Fluctuations and interactions of bacterial activity in sandy beach sediments and overlying waters'', Marine Biology **48**, 161–171 (1978).