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Zooplankton Grazing in the Inner Part of Izmir Bay

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ABSTRACT: Chlorophyll-a and phaeo-pigment concentrations were measured at one station through the year in the inner part of Izmir Bay which has been polluted. It was tried to obtain the information about the zooplankton grazing. The phaeo-pigment concentrations had shown that the grazing only was unimportant during March diatom bloom and was important during the other phytoplankton blooms in April, June and September.

INTRODUCTION: Chlorophyll-a concentrations in the seawater have been used as a measurement of phytoplankton biomass (YENTSCH, 1966). Phaeo-pigment concentrations have determined the zooplankton grazing (YENTSCH, 1965). At the pH of digestive track, the phaeo-pigment have been formed releasing Mg atom from the chlorophyll-a of phytoplankton which is taken by filtration of herbivore zooplankton (LORENZEN, 1967). LORENZEN (1967) had reported that bacterial effect on the chlorophyll-a was unimportant and phaeo-pigments have been formed as a residue of zooplankton grazing. The aim of this investigation was to state the fluctuations of phytoplankton biomass and zooplankton grazing activity through the year.

RESULTS & DISCUSSION: The trends of the nutrients and pigments were given in the figure 1. Total inorganic nitrogen decreased to minimum levels from January to March, April and phytoplankton biomass also followed the same trend. As a result of the bloom of phytoplankton in fall, phytoplankton biomass decreased with the effect of decreasing the level of nutrients. This situation fits well the reports before (BUYUKISIK, 1988).

In March, low phaeo-pigment concentrations comparing chlorophyll-a indicated that the grazing on the diatom bloom were relatively unimportant. It is probably due to the low water temperature which may caused decreasing activity of zooplankton.

Increased phaeo-pigment concentrations in April, June and September reflected the effect of zooplankton grazing on the phytoplankton community, although it was not coincident to this condition regularly. The growth of phytoplankton had been also affected positively by increased turnover rate due to the direct regeneration.

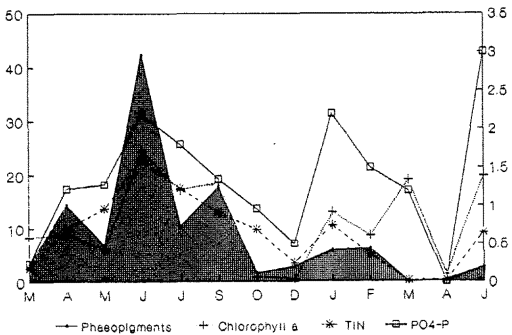


Figure 1. Monthly fluctuations of chlorophyll-a (µg/l.), phaeo-pigments (µg/l.), Total Inorganic Nitrogen (µg-atN/l.) and reactive phosphate (µg-atP/l.). TIN and pigments were explained on the left scale and phosphate on the right scale.

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