PRIMARY PRODUCTION IN THE GULF OF TRIEST (NORTH ADRIATIC)

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Primary pelagic production using ^{14}C method was studied in the Eastern part of the Gulf of Triest (North Adriatic).

On a étudu la production primaire pelagique dans la part occidentale de Golfe du Triest (Adriatique Nord) avec la methode ^{14}C.

In the spring 1979 a study of primary pelagic production and of other hydrological properties in the Eastern part of the Gulf of Triest using ^{14}C technique in situ started. These complex studies were performed at two stations (K-1 and MA) monthly, both having the maximal depth of 16 m.

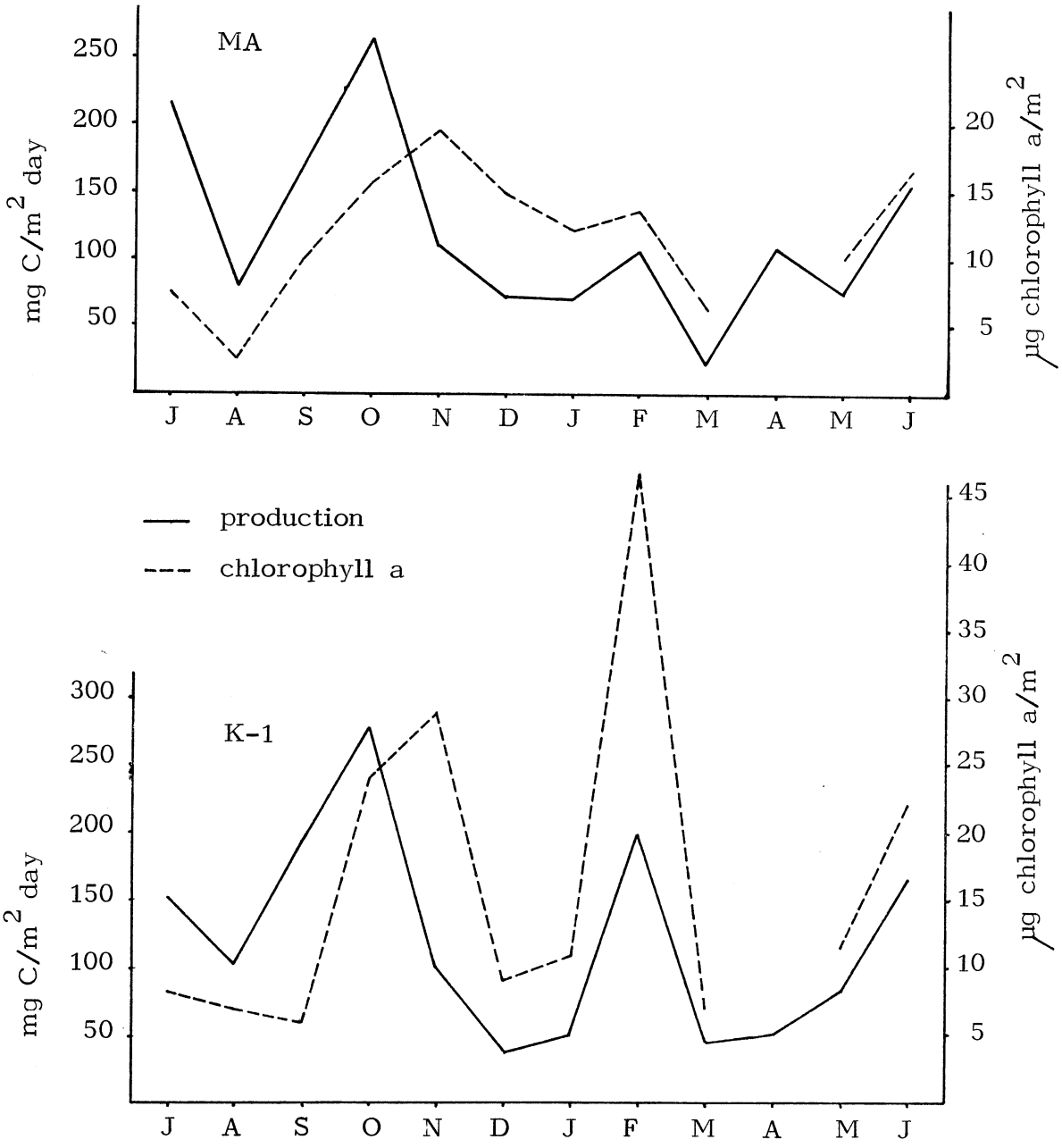
Samples were taken from four depths (surface, 5, 10, 15 m) using Van Dorn samplers. The rate of primary production was measured by the ^{14}C method of Steeman-Nielsen (1952). For each depth one light and one dark bottle (250 ml) were inoculated with 2 μCi ^{14}C and then the bottles incubated at the place of sampling in horizontal position for approximatively 4 hours. After incubation samples were filtrated by a vacuum of 100 torr on Millipore HA filters and the activity of filters estimated by Nuclear Enterprises (NELSC 1) liquid scintillation counter. The light bottle uptake of radiocarbon on the filter was corrected by subtraction of dark bottles.

For chlorophyll a determination 1 liter of seawater was filtrated through Millipore HA filters and chlorophyll a concentrations determined spectrophotometrically in the 90 % acetone homogenate (SCOR/UNESCO, 1966).

The primary production rates measured in situ varied between 1.3 - 23.1 mg C/m^2 hour at both stations. These values were somehow lower than those obtained by Revelante and Kveder (1971) in the Northern Adriatic offshore at

Rovinj but comparing both data it should be considered the shorter seawater column in the Gulf of Triest. The highest values of primary production were recorded in October 1979 (MA Station: 263 mgC/m^2 day, K-1 Station: 277 mgC/m^2 day) and the minimum in March 1980 (MA Station: 17 mgC/m^2 day, K-1 Station: 45 mgC/m^2 day). Higher values were observed

Primary production (mg C m^{-2} day^{-1}) and associated chlorophyll a concentrations (µg chl . a m^{-2}) in the water column of Gulf of Triest (Eastern part)



in the period from June - October probably in correlation with favourable temperature and especially with light conditions as pointed out by Revelante and Kveder (1971) for the sea offshore at Rovinj.

The annual primary production was estimated by integration of the area under the annual production curve and it coresponds to some 42 g C/m^2 year at both station. Again these values were somehow lower than those obtained by CIM research staff offshore at Rovinj (Kveder et al., 1971). Anyway, the values obtained indicated relatively low pelagic primary production in the Gulf of Triest.

Phytoplankton standing crop expressed as the biomass of chlorophyll a varied from 2.60 $\mu g/m^2$ to 46.90 $\mu g/m^2$. Its dynamics showed autumn and winter maximum, the same found for the near Gulf of Venice (Franco, 1967).