

International Council for
the Exploration of the Sea

C.M. 1963
Plankton Committee
No. 13 *p*

The Seasonal Distribution of Microbiomass in the Kiel Bay 1958 - 1962

by
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Summary



In compliance with a recommendation of the Baltic-Belt Seas Committee long term observations of environmental elements and biological components (chlorophyll, protein, net plankton) were begun in 1957. The microbiomass discussed here forms a very important part of the total population of the pelagic room; it is limited here in size because of methodical reasons from 2 μ to 2 mm and includes all phytoplankton, the smaller sizes of zooplankton and most of the bacteria. The chosen units given in μ g protein equivalent/l are average figures for the total water column (0 - 26 m) and from the surface layer down to the density discontinuity layer.

The mean seasonal distribution is given in Figure 1. Apart from the early spring and autumn maxima a small peak is regularly observed in June. A similar one had already been observed by chlorophyll measurements 1939 very near to our present areas of observation. Further the extreme monthly mean values are given. In most cases the highest values were observed in 1962 and most of the lowest ones in 1958.

The average values for each year are given in a table:

year	1958	1959	1960	1961	1962
S ‰	16,9	18,7	19,3	19,5	18,6
Protein μ g/l	66	74	99	94	129

In Figure 2 all observations are represented. It is obvious, that the spring maximum is normally the highest and shortest one. But there are strong differences in its development between the different years. It is followed by a short and small summer maximum, which in 1962 is only to be observed as a rudiment just before the strong autumn bloom. These autumn maxima are obviously increasing during our period of observation. A small winter peak is observed almost in all years and is probably also caused mainly by admixture of living bottom material, which also reaches the upper parts of the water column.

The variations of all maxima from one year to the other are strong and still more extreme to be seen, if we only consider the surface layer (Figure 3). They are finally caused by meteorological reasons, first of all wind direction, force and length of periods of prevailing western or eastern winds.

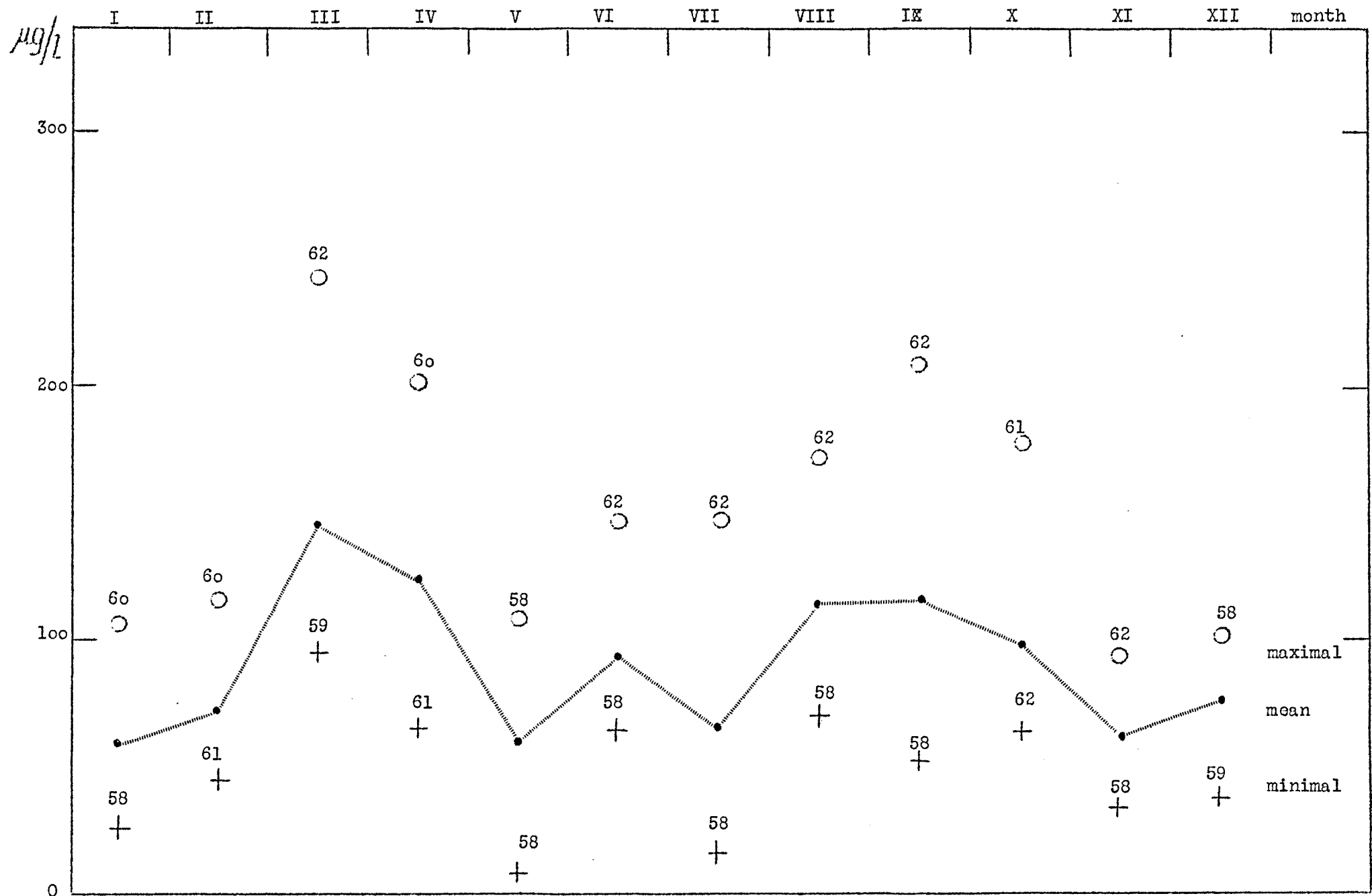


Figure 1. Mean monthly values of protein (JMC) 1958-1962.

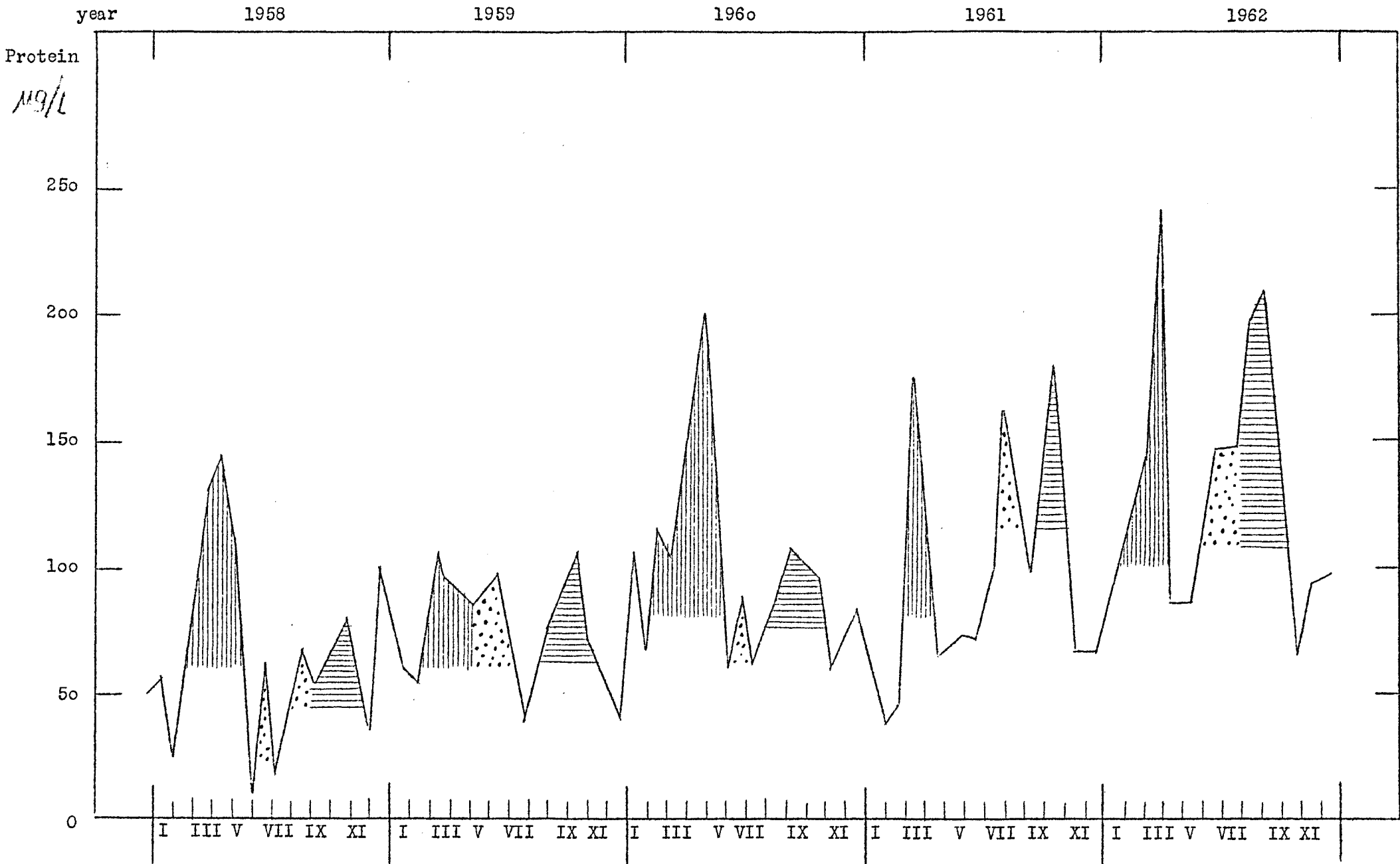


Figure 2. Protein observations (JMC). Boknis Eck 1958-1962. Total.

μg/l

300

200

100

0

I III V VII IX XI I III V VII IX XI I III V VII IX XI I III V VII IX XI I III V VII IX XI
1958 1959 1960 1961 1962

Figure 3. Protein observations (JMC). Boknis Eck 1958-1962. Surface layer.

