

ZOOPLANKTON BIOMASS IN THE SURFACE WATERS OF THE ADRIATIC SEA

by

Adam Benović

Biological Institute - Dubrovnik, Yugoslavia

Abstract

During the four cruises of the research vessel "A. Mohorovičić" zooplankton was collected from the surface layer (30-0 m) of the Adriatic Sea. The plankton biomass generally shows three zones of the plankton concentration.

Résumé

Pendant quatre croisières, effectuées tout le long de l'Adriatique on a fait des pêches planctoniques de 30 mètres de la profondeur jusqu' à la surface. On a constaté trois zones distincte de la concentration de la biomasse du zooplancton (poids sec).

The productivity of the Adriatic Sea has always been one of the most interesting topics and since the first attempt in describing the relationships in plankton distribution has been made by STEUER (1910) the same problem has been pointed out by several other authors (GAMULIN, 1954; VUČETIĆ, 1961; BULJAN, 1964; KARLOVAC et al., 1974).

Taking the opportunity to work on the research vessel "Andrija Mohorovičić" the zooplankton has been collected in offshore zones of the Adriatic Sea. Four cruises were carried out: September - October 1974, April - May 1975, February 1976 and July 1976.

This is a preliminary report of the zooplankton biomass (dry weight) and this is the first attempt to encompass the surface layers of the entire Adriatic Sea.

The material was collected using the IOSN plankton net, 250 microns mesh size, diameter 113 cm. Vertical hauls were performed always from the depth of 30 meter to the surface. The samples were dried at 60°C until a constant weight was obtained. The quantity of zooplankton is expressed in mg/m³. The data are given as an average of all four cruises.

The data about the quantity of zooplankton show higher values in the Northern Adriatic and almost the same quantity is found along the Italian coast. Outside this area, going from the north to the south, the values of the dry weight are falling. On the profile in the Northern Adriatic and along the Italian coast dry weight was from 10,3 mg/m³ to 15,7 mg/m³. In the Middle Adriatic the values of 5,0 mg/m³ to 9,3 mg/m³ were found, while the lowest quantity of 1,9 mg/m³ to 4,5 mg/m³ was found in the Southern Adriatic. This data indicates three zones of the zooplankton concentration in the Adriatic Sea (Fig. 1):

1. The Northern Adriatic and the area along the entire Italian coast with the highest values of the zooplankton quantity
2. The area in the Middle Adriatic that covers the largest part of the offshore waters of the Adriatic Sea and has transitive values of the zooplankton quantity

3. The Southern Adriatic, that covers the area southern of the Palagruža sill and shows the minimum quantity.

It should be pointed out that the values of the offshore waters along the Italian coast are very similar to our unpublished data of the island areas along the Yugoslav coast.

KARLOVAC et al. (1974) gives the averages of the zooplankton quantity based on the zones of productivity in BULJAN's (1964) paper. The average of $1,9 \text{ t/km}^3$ of the dry weight in the zone "A", covering the Southern and greatest part of the Middle Adriatic, is very similar to our data from the Southern Adriatic but our data for the Middle Adriatic indicates higher values.

References

- BULJAN (M.), 1964.- An estimate of productivity of the Adriatic Sea made on the basis of its hydrographic properties, *Acta Adriat.*, 11, 4, pp. 35-45.
- GAMULIN (T.), 1954.- La ponte et les aires de ponte de la Sardine (*Sardina pilchardus* WALB.) dans l'Adriatique de 1947 a 1950, *Reports Exped. "HVAR" 1948 - 1949*, 4, 4C, pp. 1-65.
- KARLOVAC (J.), PUCHER-PETKOVIĆ (T.), VUČETIĆ (T.) and ZORE-ARMANDA (M.), 1974.- Evaluation of biological resources in the Adriatic Sea based on plankton investigations, *Acta Adriat.*, 16, 9, pp. 157-184.
- VUČETIĆ (T.), 1961.- Some new data on the zooplankton standing crop measurements in the Adriatic, *Notes Inst. Oceanogr. Split*, 16, pp. 1-7.
- STEUER (A.), 1910.- *Planktonkunde*, B.G. Teubner, Leipzig-Berlin.

