

THE BIOMASS DISTRIBUTION OF ZOOPLANKTON IN CILICIAN BASIN: SPRING AND AUTUMN 2008

Tuba Terbiyik Kurt ^{1*}, Zahit Uysal ², Yesim Ak-Örek ² and Sevim Polat ¹

¹ Cukurova University, Faculty of Fisheries, Department of Marine Sciences, 01330, Sarıçam, Adana, Turkey - tterbiyik@cu.edu.tr

² METU, Institute of Marine Sciences, P.O Box: 28, 33731, Erdemli, Mersin, Turkey

Abstract

The aim of the current study was to describe the biomass distribution of zooplankton in the Cilician Basin. A total of 20 stations were visited during March and September 2008 as a part of the SESAME (WP3) project. Zooplankton samples were taken from standart depth layers (i.e. 0–50, 50–100, and 100–200 m) using a WP-2 closing net (200 µm). In general, zooplankton biomass was more abundant in coastal areas and was concentrated in the upper layer (to a depth of 100 m) in sampling periods. A similar distribution in biomass was observed in previous studies conducted in other areas of the Eastern Mediterranean.

Keywords: North-Eastern Mediterranean, Zooplankton, Biomass

INTRODUCTION

The Cilician basin is one of the most important regions in the oligotrophic Eastern Mediterranean Sea due to its width and shallow continental shelf, including Mersin and Iskenderun Bays. River inputs, which seem to be the main fresh-water and nutrient sources for the entire Levantine Sea of the oligotrophic Eastern Mediterranean waters, and primary production levels were comparatively higher in the basin [1]. In this study, zooplankton biomass distribution was investigated in order to understand the status of secondary productivity in the Cilician basin.

MATERIAL AND METHODS

Two oceanographic cruises were conducted in the Cilician basin during March and September 2008. Zooplankton samples were taken vertically at 20 stations (Figure 1) from standard depth layers (i.e. 0–50, 50–100, and 100–200 m) using a WP2 closing net (200 µm). Zooplankton biomass was measured as dry weight (mg m⁻³) according to [2].

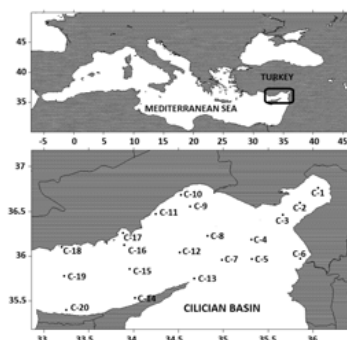


Fig. 1. Sampling stations

RESULTS

Mean zooplankton biomass in the integrated water column (0–200 m) was slightly more abundant in the spring ($7.96 \pm 6.3 \text{ mg m}^{-3}$) than the autumn ($5.7 \pm 3.1 \text{ mg m}^{-3}$) and fluctuated from 1.73 to 29.32 mg m⁻³ and from 1.68–to 11.5 mg m⁻³, respectively (Figure 2). The increase in zooplankton biomass was evident in the continental shelf region of the basin, including Mersin and Iskenderun Bays in the autumn. However, zooplankton biomass was higher only in the Iskenderun Bay and the northwestern part of the basin in the spring, excluding Mersin Bay. In the remaining areas of the Cilician Basin, zooplankton biomass showed a nearly homogeneous distribution throughout the study period. Zooplankton biomass was concentrated in the upper 100 m layer of the study area, and a decrease in biomass values was observed with depth (Figure 2). The observed pattern of distribution in zooplankton has been reported previously in the Mediterranean Sea [3] and closely follows the presence of potential food materials, mainly phyto- and microzooplankton with populations primarily condensed in the upper layer. Furthermore, a previous study conducted in the Cilician Basin [4] illustrated the presence of two contrasting ecosystems: (1) the coastal ecosystem with high concentrations of bacteria, cyanobacteria, phytoplankton, and

chlorophyll-*a*; and (2) an extreme oligotrophic offshore ecosystem that is almost denude of such food items. This productive structure in the coastal area could contribute to an increase in zooplankton biomass. We are currently assessing species identification assays and abundance measurements to complement the results already obtained. Furthermore, statistical analyses of ecological variables will be applied to understand the effects of environmental factors on zooplankton in the Cilician basin.

Acknowledgements Present study was conducted in the Cilician basin within the framework of SESAME. Thanks are also due to academic and technical staff of the Institute of Marine Sciences of METU.

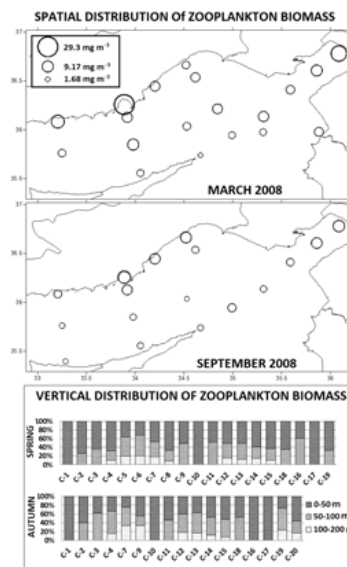


Fig. 2. Spatial and vertical distribution of zooplankton in Cilician basin.

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