

DISTRIBUTION OF *OIKOPLEURA (VEXILLARIA) DIOICA* FOL, 1872 (CLASS: APPENDICULARIA) IN THE SOUTHERN BLACK SEA IN 2006-2007

Funda Üstün^{1*}, Levent Bat¹ and Sengül Besiktepe²

¹ Sinop University, Fisheries Faculty - fundastun@gmail.com

² Dokuz Eylül University, The Institute of Marine Sciences and Technology

Abstract

Distribution and abundance of *Oikopleura (Vexillaria) dioica* in the southern Black Sea (the Turkish EEZ) were studied in June, October 2006 and May 2007. The abundance of *O. dioica* was observed between 0.14-66.06 ind.m⁻³ in June 2006; 2.56-344.11 ind.m⁻³ in October 2006 and 0.85-187.18 ind.m⁻³ in May 2007. During sampling periods, four size classes (<0.5, 0.5-1, 1-2 and 2-3 mm) of *O. dioica* were determined and the contributions of 0.5-1 and 1-2 mm size classes were >35%.

Keywords: Zooplankton, Black Sea

Introduction

Oikopleura (Vexillaria) dioica Fol, 1872 is the only representative of Appendicularia living in Black Sea. As they are feeding by filtration, they are very important in the nutrition food web of Black Sea [1]. They trap small food particles such as nano-pico phytoplankton, bacteria and even dissolved organic matter by their mucus structure named "the house". The house is ready for renewal when the old one is disposed of and the disposal occurs every 4-6 hours (chaetognat, copepod, ctenophore, juvenile and adult fish, juvenile and adult fish) and provide contribution to vertical movement of organic matter from sea surface to sea bottom [2]. The aim of this study was to investigate distribution and abundance of *O. dioica* in southern Black Sea.

Material and method

The study was performed on 10-25 June 2006, 7-25 October 2006 and 8-27 May 2007 in the southern Black Sea (the Turkish EEZ). Samples were collected with Nansen plankton net (0.7 m mouth opening and 112µm mesh size) from the bottom to surface in coastal stations and from the depth of the beginning of anoxic zone to the surface in the offshore stations. The depth of the beginning of H₂S layer (sigma theta, σ_θ= 16.2) was determined by Tugrul et al. [3]. Samples were preserved in 4% buffered formaldehyde until microscopic analysis. For the microscopic identification and counts, sub-samples were taken two times from a known volume of a container with 2.5 ml Stempel pipette. The results were then averaged and extrapolated to the whole sample. Sea water temperature was recorded by using a Seabird CTD sensor.

Results and Discussion

Sea surface temperature was changed between 17.49°C and 24.65°C in June, 17.39°C and 22.07°C in October, and 10.22°C and 19.69°C in May. Abundance values of *O. dioica* were higher in October varying between 2.56-344.11 ind.m⁻³ as observed in the previous studies (Ünal [4], Üstün [5], Yildiz and Feyzioglu [6]). In May 2007 their abundance ranged between 0.85-187.18 ind.m⁻³ and lowest abundance were observed in June between 0.14-66.06 ind.m⁻³. The distribution of *O. dioica* abundance value was high on the eastern Black Sea (Trabzon shores) in June, central Black Sea (Sinop Türkeli shore) in October and western and central Black Sea (Sinop Türkeli shore) in May in (fig. 1). The total average abundance value of *O. dioica* was calculated to be 9.1±16.12 ind.m⁻³ in June 2006, 60.6±70.36 ind.m⁻³ in October 2006 and 29.37±42.39 ind.m⁻³ in May 2007. During sampling period, we determined four size class (<0.5, 0.5-1, 1-2 and 2-3 mm) of *O. dioica*. Quantity of individuals with size class of 0.5-1 mm and 1-2 mm were determined to be more. The maximum contribution of the 0.5-1 mm size class was 59.46% in October. The highest contribution of 1-2 mm size group was observed in June (58.21%).

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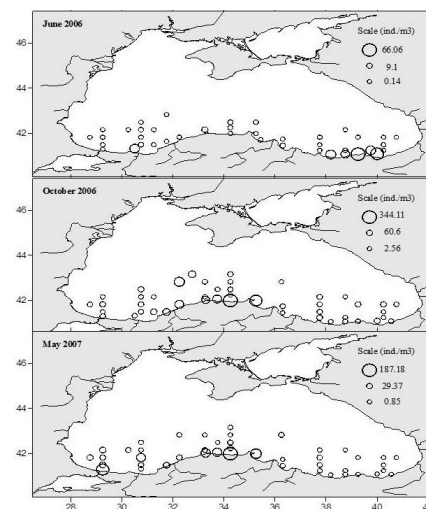


Fig. 1. Distribution of *O. dioica* abundance values (ind.m⁻³) in stations in June 2006, October 2006 and May 2007

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