E.Ü. Su Ürünleri Dergisi 2002
E.U. Journal of Fisheries & Aquatic Sciences 2002
Cilt/Volume 19, Sayı/Issue (1-2): 129 – 132

ISSN 1300 - 1590
http://jfas.ege.edu.tr/

The Zooplankton Fauna of Lake Burdur

Ahmet Altındağ, Sibel Yiğit

Department of Biology, Faculty of Science, University of Ankara, 06100, Ankara, Turkey.

Özet: ***Burdur gölü'nün zooplankton faunası.*** Nisan 1988 ve Kasım 1999 tarihleri arasında yapılan bu çalışmada Burdur gölü zooplankton faunası incelenmiştir. Bu çalışmada Rotifera'dan 10, Cladocera'dan 5 ve Copepoda'dan 2 olmak üzere toplam 17 zooplankton türü tespit edilmiştir. *Cephalodella catellina*, *C. gibba*, *Colurella adriatica*, *Lecane lamellata*, *Keratella quadrata*, *Synchaeata oblonga*, *Polyarthra vulgaris*, *Diaphanosoma brachyurum* türleri Burdur gölü için yeni kayıttır.

Key Words: Burdur Gölü, Rotifera, Cladocera, Copepoda.

Abtract: The zooplankton fauna of lake Burdur was studied between April 1998 and November 1999. A total of 17 species were identified. Of those, 10 belong to Rotifera, 5 Cladocera and 2 to Copepoda. *Cephalodella catellina, C. gibba, Colurella adriatica, Lecane lamellata, Keratella quadrata, Synchaeta oblonga, Polyarthra vulgaris, Diaphanosoma brachyurum,* are new record for Lake Burdur.

Anahtar Kelimeler: Burdur Lake, Rotifera, Cladocera, Copepoda.

Introduction

In the food chain of aquatic eco-system, zooplankton are a primary food source for many life forms, especially fish. They are also used as biological indicator for determination of water quality, pollution and eutrophication (2, 3, 4).

Although a lot of work has been conducted on the zooplankton of Turkey (5, 6, 7, 8, 9, 10, 11), the purpose of this study is to compare present studies with earlier ones and to provide information about the latest status of zooplankton fauna.

Material and Method

The lake Burdur is located at 37º45′ N – 30º13′ E in a closed river basin and therefore has bitter and salty water. It occupies a surface area of 205 km^2 with a maximum depth of 60 m and is categorized classs "A" watery area. The lake is fed by rainfall, seasonal and permanent streams, flood creeks and underground currents. Among streams, Bozçay in the South-West and Ulupınar, Bayındır, Buğduz, Kara Çerçin and Keçiborlu in the East are important. The lake loose water by evaporation. A fish, *Aphanius burduricus* of family Cypridontidae, whose taxonomic status is not well defined is surviving in the lake as endemic species (1).

The specimens were collected seasonally from 10 stations of the lake (Figure 1) with Hydro-Bios Kiel brand plankton scoop using it horizontally and vertically. Specimens were preserved in formaldehyde soon after collection. The identification of the species was made following Ward and Wipple (12), Edmondson (13), Needham (14), Sourfield and Harding (15), Dussart (16), Kolisko (17), Harding and Smith (18), Koste (19), Margaritora (20), Negrea (21) methods.

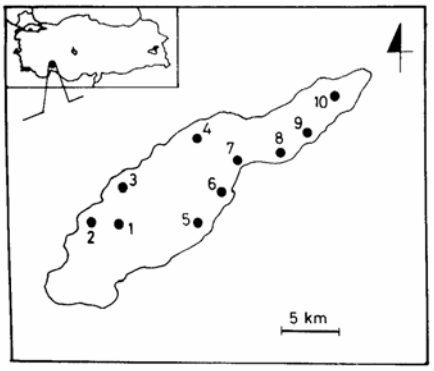

Figure 1. The location of Lake Burdur and sampling stations. 1. Burkent, 2. Tepecik, 3.Village İlyas, 4. Ardıçlı, 5. Mis Süt, 6. Sugar Plant, 7. Mouth of Sewage, 8. Sütaş, 9. Between Senir and Söğütlü, 10. Flamingo nests

Results and Discussion

The indentified zooplankton species of lake Burdur are:

Rotifera
Brachionus plicatilis (O.F. Müller, 1786)
Hexarthra fennica (Levander, 1892)
Keratella quadrata (O.F. Müller, 1786)
Synchaeta oblonga Ehrenberg, 1831
Colurella adriatica Ehrenberg, 1831
Polyarthra vulgaris Carlin, 1943
Lecane lamellata (Daday, 1893)
Cephalodella catellina (O.F. Müller, 1796)
Cephalodella gibba (Ehrenberg, 1838)
Notholca acuminata (Ehrenberg, 1832).
Cladocera
Daphnia magna Straus, 1820
Daphnia longispina O.F. Müller, 1785
Diaphanosoma brachyurum(Lievin, 1848)
Chydorus sphaericus (O.F. Müller, 1776)
Alona sp. Baird, 1850
Copepoda
Arctodiaptomus burduricus Kiefer, 1939
Canthocampus sp. Westwood, 1836

Out of total 17 species, 10 belong to Rotifera, 5 to Cladocera and 2 to Copepoda. The density of species with regard to the stations are given in Table 1. The dominant zooplankton species of the lake are *Arctodiaptomus burduricus, Brachionus plicatilis* and *Hexarthra fennica*. although the density of Cladocera species in the lake is very low, *Daphnia magna, Daphnia longispina, Alona* sp. *Diaphanosoma brachyurum* were observed at some stations of the lake. Among Copepods, *Arctodiaptomus burduricus* is an endemic species of the lake (33). *Brachionus plicatilis* and *Hexarthra fennica* are the characteristic species of the salty waters. *B. plicatilis* and *H. fennica* species were found at all the stations of the lake (Table 1). Both species have been reported as characteristic salty water species by various workers (2, 3, 4, 19, 23).

A some work has been carried out on the zooplankton fauna of the lake Burdur. Ongan *et al*. (24) studied the Cladocera fauna of the lake for the first time and reported four species, *C. sphaericus, D. magna, D. longispina* and *Moina rectirostris*. ın present study, except *M. rectirostris*, all other species alongwith *Alona* sp. have been recorded from the lake. Kazancı (25) studied the zooplankton fauna alongwith biological and ecological aspects of the lake Burdur and reported a total of 9 species; 8 from Rotifera and 1 from Copepoda. ın present study, among Rotifers, *B. plicatilis, N. acuminata, H. fennica* and from Copepod, *Arctodiaptomus burduricus* have been observed. However, *Platyias quadricornis, B. urceolaris, L. patella, F. longiseta* were not recorded.

In present study identified species of Rotifera, *Cephalodella catellina, C. gibba, Colurella adriatica, Lecane lamellata, Keratella quadrata, Synchaeata oblonga, Polyarthra vulgaris;* Cladocera, *Diaphanosoma brachyurum,* are new records for lake Burdur.

Table 1. The density and distribution of zooplankton species at different stations of the lake Burdur.

ZOOPLANKTON	**1.**	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
Rotifera	**ist.**	**ist.**	**ist.**	**ist.**	**ist.**	**ist.**	**ist.**	**ist.**	**ist.**	**ist.**
Brachionus plicatilis	3x	3x	2x	3x	3x	3x	3x	3x	1x	3x
Hexarthra fennica	2x	3x	3x	3x	3x	2x	3x	3x	1x	3x
Keratella quadrata	1x		1x	1x	1x	1x	1x			
Synchaeta oblonga	2x	2x	3x	1x	1x	1x				
Colurella adriatica	2x	1x		2x	1x	2x		2x		2x
Polyarthra vulgaris	1x	1x								
Lecane lamellata				1x						
Cephalodella catellina						1x	2x			
Cephalodella gibba							1x			
Notholca acuminata				1x						
Cladocera										
Daphnia magna	1x	1x								
Daphnia longispina		1x								
Diaphanosoma brachyurum						1x	1x			
Chydorus sphaericus										
Alona sp.	1x									
Copepoda										
Arctodiaptomus burduricus	2x	3x	2x	1x	3x	2x			2x	2x
Canthocampus sp.						1x				1x

(1x = Very few, 2x = Frequent, 3x = Abundant)

References

Anonymous, Burdur Gölü Sulak Alan Yönetim Plânı Alt Projesi Sonuç Raporu. Kod. No: 97KI00020, Ankara Üniversitesi, 1999.

Hecky, R. E., Kilham, P., Diatoms in Alkaline, Saline Lakes: Ecology and Geochemical. Limnol. Oceanogr. 18: 53/71, 1973.

Sharma, B. K., The Indian Species of The Genus *Brachionus* (Eurotatoria: Monogononta: Brachionida) Hydrobiol. 104: 31-39, 1983.

Saksena, N. D., Rotifera as indicators of water quality. Acta. Hydrochim. Hydrobiol.15: 481-485, 1987.

Dumont, H. J., Kratergöl, a deep hypersaline crater lake in the steppic zone of Western Anatolia (Turkey), Subject to occasional Limnometeorological Pertubations. Hydrobiologia, 82: 271-279, 1981.

Gündüz, E., Türkiye İç Sularında Yaşayan Cladocera (Crustacea) Türlerinin Listesi. Doğa Tu J. Zooloji D., 21, 37-45, 1997.

Dumont, H. J., M. De Ridder, Rotifers from Turkey. Hydrobiologia, 147: 65-73, 1987.

Güher, H., Kırgız, T., Edirne Bölgesi Cladocera (Crustacea), Türleri. XI. Ulusal Biyoloji Kongresi-Elazığ, 1992.

Emir, N., Demirsoy, A., Karamuk Gölü Zooplanktonik Organizmalarının Mevsimsel Değişimleri. Tr. J. of Zoology. 20: 137-144, 1995.

Ustaoğlu, M. R., Zooplankton (Metazoa) of the Lake Marmara (Turkey) Biologia Gallo Hellenica, 20, 1, 259-266, 1993.

Altındağ, A., Taxonomical study on the rotifera fauna of Abant (Bolu), Tr. J. Zoology, 23, 211-214, 1999.

Ward, H. B., Whipple, G. C., Freshwater Biology. John Wiley and Sons Inc. New York (Second Edition), 1945.

Edmondson, W. T., Freshwater Biology, Second Edition, John Wiley Sons, Inc. London, Chapman & Hall Limited, 1248 p, 1959.

Needham, J. G., A guide to the study of Freshwater Biology, Holden Day Inc. San Francisco, 1962.

Scourfiled, D. J., Harding, J.P., A key to the British Freshwater Cladocera, Freshwater Biol., Ass. Sci. publ., No. 5, 1966.

Dussart, B., Les Copepodes des Eaux Continentales D'Europe Occidentale, Tome 2:X Cyclopoides et Biologie, Editions N. Boubee et Cie, Paris, 292, 1969.

Ruttner-Kolisko, R. M., Plankton Rotifers Biology And Taxonomy Biological Station. Lunz of the Austrian Academy of Science, Stuttgart, 974 p, 1974.

Harding, J. P., smith, W. A., A key to the British Freshwater Cyclopoid and Calonoid Copepods, Freshwater Biol. Ass. Sci. Publ. (2nd. Ed.), 1974.

Koste, W., Die Radertiere Mitteleuropas I. Textband, Berlin, Stuttgart, 673 p, 1978.

Margaritora, F., Guide Per IL Riconoscimento Delle Specie Animali Delle Acque interne Italiane Clodoceri. Consiglio Nazionale Delle Ricerche, 1983.

Negrea, S., Fauna. Republich Socialiste Romania. Crustacea Volumul IV, Fascicula 12, Cladocera, Bucuresti, 1983.

Kosswig, C., Zoogeography of Turkish Freshwater Fishes. Hidrobiyoloji Mecmuası A. 2(1): 3-20, 1954.

Bayly, I. A. E., The plankton of lake Eyre. Aust. J. Mar. Freshwater Res., 27: 661-665, 1976.

Ongan, T., Akdağ, O., Kırgız, T., Kaftancıoğlu, M., Burdur, Yarışlı, Karataş ve Beyşehir Gölleri Cladocera (Crustacea) türleri. İstanbul Üniv. Fen Fak. Hidrobiyoloji Araştırma Enstitüsü Yayınları, 12, 1-19, 1972.

Kazancı, N., Uluslararası Önemi Olan Sulak Alanların Biyolojik ve Ekolojik Yönden Araştırılması, Ankara, 1996.