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The Macrobenthic Fauna of Sırakaraağaçlar Stream flowing into the Black Sea at Akliman, Sinop*

Akliman'dan Karadeniz'e Dökülen Sırakaraağaçlar Deresi'nin Makrobentik Faunası

Levent Bat, Mehmet Akbulut, Mehmet Çulha and Murat Sezgin

University of Ondokuz Mayıs, Sinop Fisheries Faculty, Department of Basic Science , 57000 Sinop, Turkey

Abstract

In the present study carried out between July 1997 and June 1998, samples of macrobenthic fauna were collected at Akliman (Sinop) where Sırakaraağaçlar stream flowed into the Black Sea. The physical parameters of water were measured. Sea, brackish water and fresh water species were determined, 39 in total including Mollusca, Insecta (larvae), Crustaceae, Polychaeta, Hirudinae and Turbellaria. The first sampling station was chosen at the mouth of the Sırakaraağaçlar stream. The results show that the Mollusc Fauna was predominant in respect to species diversity, while the species belonging to Insecta larvae, Crustaceae and Polychaeta Classis were in minority. The second and third stations were chosen at the inner place from the mouth of Sırakaraağaçlar stream near its spring. Insecta larvae was predominant in respect to species diversity, whereas the species belonging to Mollusca fauna, Crustaceae, Polychaeta, Hirudinae and Turbellaria Classis were in minority. Thus, the most predominant species in Sırakarağaçlar Stream were identified as euriform and found in less flowing part of the stream.

Key Words: Black Sea, Sırakaraağaçlar Stream, mouth of stream region, macrobenthic fauna

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Introduction

Biological production of rivers and lakes shows that water parameters in those ecosystems depend on the physical, chemical, biological and ecological factors. Such aquatic ecosystems benthic fauna is important at food recycle therefore benthic fauna at the determination of the productivity of rivers and lakes is the major organisms. The riches of benthic fauna cause the growth of fish population belonging to Cyprinidae, Mugilidae and Anguillidae (Çetinkaya, 1988).

In Turkey, studies dealing with the macrobenthic fauna of rivers, lakes and ponds have been intensified particularly in Aegean, Mediterreaen and inner Anatolia regions (Bildiren, 1991; Bilgin, 1967; Geldiay, 1949; Geldiay and Tareen, 1972; Kırgız, 1988 and 1989; Kırgız and Soylu, 1975; Şahin, 1984; Şeşen, 1992; Tanatmış, 1989; Tanyolaç and Karabatak, 1974; Ustaoğlu, 1980). However, such studies are limited in the Black Sea Region. Therefore, the present study was carried out at Sırakaraağaçlar stream (Sinop) where no studies have been done so far.

Study Area

Sırakaraağaçlar stream flows into the Black Sea Akliman location, Sinop at the West Black Sea Region. It is located at 42° 2' 24" N, 35° 1' 5" E and 42° 2' 40" N 35° 2' 10" E. The main length of Sırakaraağaçlar stream which has two branches is 3.2 km. The first branch near the mouth of the stream has also two branches. The second branch near the spring has two branches. Although water flows steadily in the first branch, water in the second branch, formed by 7 small streams can only be found running during rainy days. At the mouth of the two branches there is an accumulation of sand and mud coming from the stream and sea. Sea water enters into the inner streams as far as 3 km with strong waves.

There are areas of settlement and agriculture around the stream to which waste water is discharged.

The mean depth of Sırakaraağaçlar stream is 1.5 m and maximum depth is 2.5 m. Its bottom is muddy and the mouth of the streams sandy. During heavy rains, the agricultural areas turn into marshy areas caused by overflow.

There are reeds around the stream and seconder water plant present in abundance in the stream especially near springs at 60-100 cm deep. The

most common seconder water plants found are *Ceratophylum* sp., *Carex* sp., *Mryophylum* sp., and *Chara* sp. The common fish found are *Pleuronectes* sp., *Gobius* sp., *Aphanius* sp. and *Cyprinus carpio*. Other vertebrates were also found such as the smooth turtle (*Chlymys marmorata*) and water snail (*Natrix natrix*). Besides young fish could be observed.
Three sampling stations were chosen in Sırakaraağaçlar stream (Fig. 1).

First Station : It is the mouth of Sırakaraağaçlar stream. Its bottom is sandy. Its width varies due to the effect of waves. This station were declared as second degree site area. A lot of mollusc shells was observed at this station. More organisms were not encountered comparable to the other stations as it was a crossing zone. There are putrefied black plants at the bottom which create organic pollution. Besides, this area is polluted by picnickers in summer.
Second station : It is 100 m far from the mouth of the stream. Its bottom is muddy. There are *Carex* sp. at the side of the stream and a lot of seconder water plants in the water. It is the richest station as regards species diversity. There are many settlements and touristic establishements and agricultural fields around it. Consequently, it is polluted by their discharges.
Third Station : It is the place where the second branch joins the main stream. The distance between mouth of the stream and this station is 3.250 km long. Its bottom contains mud and clay. At this station there are a lot of seconder water plants, covering the surface of the water, so the light cannot pass over the bower. Eutrophication can be observed because of the high productivity of the plants. In addition there are a lot of *Cloeon dipterum* during the year. Some species were blind and longed their annennagy.

Material and Method

Water physical parameters like temperature, dissolved oxygen, pH, Conductivity and Turbidity were measured using specific equipments such as U-10 Horiba and 320 Oksi-Meter.

This study carried out between July 1997 and June 1998. Macrobenthic samples were collected from 3 stations every month at the depths of 80-100 cm by means of hand shovel. Sieves having 0.5-1 mm mesh size were used to collect macrobenthic material. Then organisms were put into small bottles containing 70% alcohol (Barnes, 1994; Demir, 1954; Kırgız, 1989; Zhadin, 1952) and were finally identified (Demirsoy, 1982 and

1998; Edmenson, 1959; Elliot and Mann, 1979; Elliot et al., 1988; Fauel, 1969; Fauehold, 1977; Fittkau and Roback, 1983; Geldiay and Geldiay, 1991; Gledhill et al., 1976; Kocataş and Katağan, 1980; Kocataş et al., 1991; Naylor, 1972; Ruffo, 1982; Şahin, 1991).

Results

The measurements of the physical parameters are given in Tables 1, 2 and 3. A total 39 benthic species were identified, including Gastropoda (9 species), Bivalvia (4 species), Insecta larvae (18 species), Crustacea (5 species), Polychaeta (1 species), Hirudinae (1 species) and Turbellaria (1 species).

The frequency rates of macrobenthic fauna are given in Table 4. The species belonging to Gastropoda and Bivalvia were predominant in the first station. While the second dominant group was Insecta larvae and Crustacea classis in the first station, Insecta classis were predominant in the second and third stations. The other dominant groups at the second and third station were Gastropoda and Crustaceae, respectively.

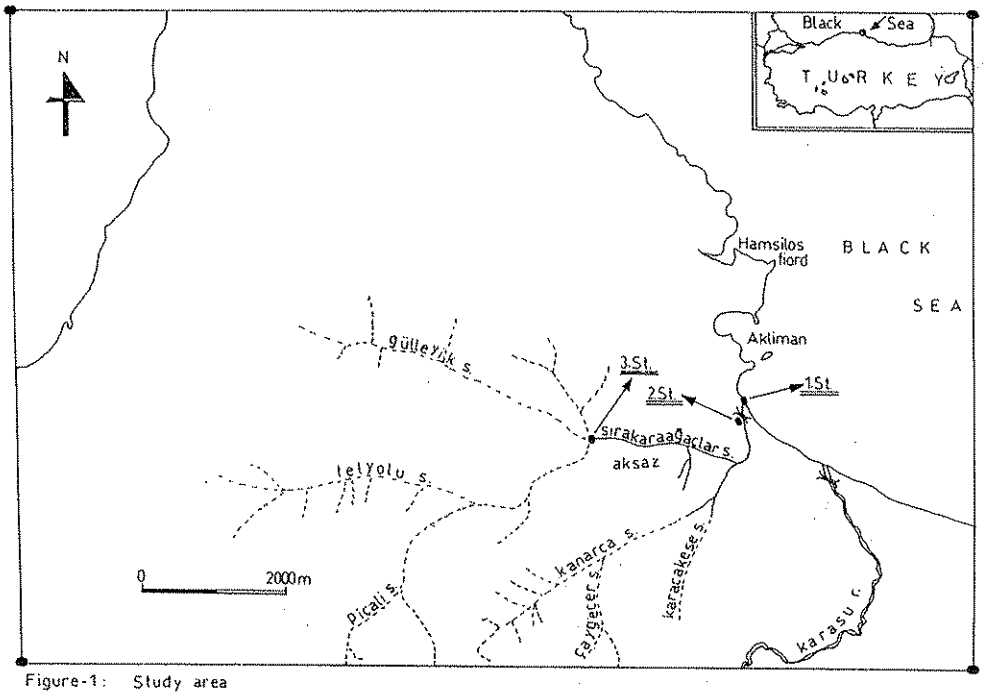

Figure-1: Study area

Table 1. Physical parameters of First Station

Parameters/Months	July 97	Aug. 97	Sep. 97	Oct. 97	Nov. 97	Dec. 97	Jan. 98	Feb. 98	Mar .98	Apr. 98	May.9 8	Jun. 98
pH	8.73	8.23	7.35	7.3	6.7	4.6	5.4	7.1	6.0	6.78	7.26	8.15
Conductivity (µmoh/cm)	8.47	10.3	16.8	5.8	4.2	0.38	0.7	0.19	0.33	20	1.25	7.84
Turbidity (NTU)	15	18	17	20	50	250	40	290	38	10	30	30
Dis. Oxygen (mg/lt.)	4.97	5.9	6.86	6.75	7	5.82	5.8	5.2	4.61	4.57	4.05	4.2
Temperature (°C)	26.5	26	20.4	14	13	7	8	5	8.3	12.8	22	27
Salinity (%0)	5	4	9.9	3	2	0	0	0	1	1	7	4.2

Table 2. Physical parameters of Second Station

Parameters/Months	July 97	Aug. 97	Sep. 97	Oct. 97	Nov. 97	Dec. 97	Jan. 98	Feb. 98	Mar. 98	Apr. 98	May.9 8	Jun. 98
pH	8.67	7.5	7.23	7.1	7.1	6.2	6.4	7.1	5.75	6.67	7.13	8.26
Conductivity (µmoh/cm)	9.7	11.6	16.8	6.7	4.3	0.37	0.53	1.19	0.32	16.7	0.93	7.54
Turbidity (NTU)	25	22	17	10	20	170	30	200	35	15	28	15
Dis. Oxygen (mg/lt.)	4.75	4.05	7.41	6.35	7.03	5.79	5.35	5.21	4.72	4.15	5.64	4.5
Temperature (°C)	25.5	26	20.3	15	12	7	8	5	7.7	12.5	24.2	27.7
Salinity (%0)	5	4	9.8	4	2	0	0	0	1	1	3	4.1

Table 3. Physical parameters of Third Station

Parameters/Months	July 97	Aug. 97	Sep. 97	Oct. 97	Nov. 97	Dec. 97	Jan. 98	Feb. 98	Mar. 98	Apr. 98	May.9 8	Jun. 98
pH	7.34	6.95	6.89	6.4	6.8	6	6.5	7.2	5.68	6.03	5.96	7.22
Conductivity (µmoh/cm)	0.37	0.42	0.47	0.46	0.7	0.29	0.44	0.1	0.25	0.53	0.24	0.52
Turbidity (NTU)	75	35	8	30	10	190	10	230	24	40	20	20
Dis. Oxygen (mg/lt.)	2.22	2.20	3.36	3.58	4.77	5.23	6.88	4.8	4.91	3.55	4.1	4.2
Temperature (°C)	24.4	25	20	15	11	7	8	8	6.4	13.7	23.8	23.2
Salinity (%0)	1	1	2	0	0	0	0	0	0	0.2	0	0.2

Table 4. Replicate rates of macrobenthic fauna (number of organisms / number of sampling %)

% 100-80 Constant common species
% 80-60 Majority common species
% 60-40 Mostly common species
% 40-20 Occasionally species
% 20-1 Rarely species

Sampling stations		1. st.	II. st.	III.st.
Number of sampling		12	12	12
Organisms				
Gastropoda	*Bittium reticulatum*	66.6	....	....
	Theodoxus fluviatilis	....	58.3	.....
	Planorbis planorbis	8.3	....	33.3
	Planorbarius corneus.	....	....	25
	Lymnaea stagnalis	....	....	25
	Hinia reticulata	16.6	.....	....
	Cyclope neritaeus	41.6	....	....
	Hydrobia ventrosa	41.6	100	....
	Rissoa sp.	8.3	8.3	....
Bivalvia	*Donax trunculus*	83.3	25	....
	Cardium edule	25	25	....
	Abra alba	75	75	.....
	Chamelea gallina	100	25	.....
Insecta (Larva)	*Chironomus thummi*	....	16.6	....
	Polypedilum aberrans	8.3	16.6	....
	Dicrodenipes nervosus	....	8.3	....
	Pentapedilum exestum	....	25	....
	Endochironomus	16.6	75	....
	tendens	....	....	16.6
	Brillia longifurca	....	8.3	....
	Procladius	....	....	....
	(Holotanyus) sp.	....	8.3	....
	Cardiocladius	8.3	8.3	....
	capucinus	....	....	100
	Fleura lacustris	....	16.6	8.3
	Dicrodentipes tritomus	....	16.6	8.3
	Cloeon dipterum	....	8.3	8.3
	Ischnura sp.	....	8.3	8.3
	Agrion sp.	....	....	16.6
	Platycnemis sp.	....	8.3	16.6
	Sympetrum sp.	....	....	33.3
	Aeschna sp.			
	Nepa cinerea			
	Ranatra linearis			
Crustaceae	*Asellus aquaticus*	....	16.6	100
	Palaemon elegans	....	8.3	....
	Idotea baltica	16.6	8.3	....
	Gammarus aequicauda	75	91.6	....
	Niphargus sp.	....	....	91.6
Polychaeta	*Hediste diversicolor*	83.3	91.6	8.3
Hirudinae	*Hirudo medicinalis*	....	8.3	100
Turbellaria	*Planaria* sp.	....	....	16.6

Table 5. Monthly distribution of species from First Station

Species / Months	July 97	Aug. 97	Sep. 97	Oct. 97	Nov. 97	Dec. 97	Jan. 98	Feb. 98	Mar .98	Apr. 98	May .98	Jun. 98
Donax trunculus	+	+	+		+	+	+	+	+	+		+
Chamelea gallina	+	+	+	+	+	+	+	+	+	+	+	+
Cardium edule	+	+					+					
Endochironomus tendens	+		+									
Hediste diversicolor		+	+	+		+	+	+	+	+	+	+
Planorbis planorbis			+									
Abra alba		+	+	+	+	+			+	+	+	+
G. aequicauda		+		+	+	+	+		+	+	+	+
Hydrobia ventrosa		+		+	+		+			+	+	+
Idotea baltica					+					+		
Cyclope neritaeus	+				+	+		+			+	
Bittium reticulatum	+	+			+	+	+	+	+			+
Poypedilum aberrans					+							
Hinia reticulata	+								+			
Dicrodentipes tritomus												+
Rissoa sp.			+									

Tablo 6 . Monthly distribution of species from Second Station

Species / Months	July 97	Aug. 97	Sep. 97	Oct. 97	Nov. 97	Dec. 97	Jan. 98	Feb. 98	Mar.9 8	Apr. 98	May. 98	Jun. 98
Hediste diversicolor	+	+	+	+	+	+	+	+	+	+		+
Endochironomus tendens	+	+	+		+	+	+	+	+		+	
Hirudo medicinalis	+											
Gammarus aequicauda	+	+	+	+	+	+	+	+	+	+	+	
Hydrobia ventrosa	+	+	+	+	+	+	+	+	+	+	+	+
Donax trunculus	+		+	+								
Cardium edule	+		+			+						
Abra alba		+	+	+	+	+	+	+		+	+	
Chamelea gallina	+		+	+								
Theodoxus fluviatilis		+	+				+	+		+	+	+
Pentapedilum exestum			+							+	+	
Palaemon elegans				+								
Chironomus thummi				+	+							
Ischnura sp.					+		+					
Agrion sp.					+		+					
Platycnemis sp.					+							
Asellus aquaticus						+		+				
Dicrodentipes nervosus					+							
Idotea baltica										+		
Nepa cinerea											+	
Procladius (Holotanypus) sp.								+				
Polypedilum aberrans									+	+		
Fleura lacustris									+			
Dicrodentpes tritomus									+			
Sympetrum sp.						+		+				
Rissoa sp.										+		

Tablo 7. Monthly distribution of species from Third Station

Species / Months	July 97	Aug. 97	Sep. 97	Oct. 97	Nov. 97	Dec. 97	Jan. 98	Feb. 98	Mar. 98	Apr. 98	May. 98	Jun. 98
Planorbis planorbis	+	+	+					+		+	+	+
Cloeon dipterum	+	+	+	+	+	+	+	+	+	+	+	+
Niphargus sp.	+	+		+	+	+	+	+	+	+	+	+
Asellus aquaticus	+	+	+	+	+	+	+	+	+	+	+	+
Ranatra linearis	+				+					+		+
Nepa cinerea	+										+	
Planorbarius corneus			+							+	+	+
Hirudo medicinalis	+	+	+	+	+	+	+	+	+	+	+	+
Ischnura sp.					+							
Planaria sp.						+	+					
Brillia longifurca							+		+			
Hediste diversicolor											+	
Lymnaea stagnalis		+									+	+
Agrion sp.										+		
Sympetrum sp.											+	
Aeschna sp.								+	+			

At the first, second and third stations, organisms belonging to Polychaeta, Hirudinae and Turbellaria classis were not predominant. But it is important that the species belonging to Polychaeta, at the first and second and the species belonging to Hirudinae at the third station were generally encountered abundant. The species belonging to Turbellaria were recorded as they are abundant and rare. Among the stations, while the species diversity of the first station was low, the second station was the richest.

The seasonal changes of the species :

a-) In Spring

In March, April and May 1998, while *Hediste diversicolor, Abra alba, Hydrobia ventrosa, Gammarus aequicauda* were predominant at the first and second stations, *Donax trunculus* and *Chamelia gallina* could only be found at the first station. Moreover, whereas *Theodoxus fluviatilis* and *Endochironomus tendens* were dominant at the second station, *Planorbis planorbis, Cloeon dipterium, Niphargus* sp., *Asellus aquaticus, Planorbarius corneus* and *Hirudo medicinalis* were predominant at the third station.

During these months, the following species *Cyclope neritaeus, Bittium reticulatum, Hinia reticulata* at the first station, *Idotea baltica, Nepa cinerea, Fleura lacustris* and *Dicrodentipes tritomus* at the second station, *Ranatra linearis, Nepa cinerea, Brillia longifura, Hediste diversicolor, Lynnaea stagnalis, Rissoa* sp., *Agrion* sp., *Sympetrum* sp.and *Aeschna* sp., at the third station were less abundant.

b-) In Summer

In June and August -1998, *G. aequicauda, H. ventrosa, H. diversicolor* were predominant at the first and second stations. *D. trunculus, C. edule, B. reticulatum* at the first station and *E. tendens, T. fluviatilis* at the second station were predominant and *P. planorbis, C. dipterum, Niphargus* sp., *A. aquaticus, R. linearus, H. medicinalis* were predominant at the third station.

In the same way, *C. neritaeus, H. reticulata, D. tritomus* at the first station, *C.edule, A.alba, C. gallina, T. fluviatilis* at the second station *N.cinerea, P. corneus* and *L. stagnalis* at the third station were scarce.

c-) In Autumn

In September, October and November -1998, while *C. gallina, H. diversicolor, A. alba, G. aequicauda* and *H. ventrosa* were predominant at the first and second stations, *E. tendens* and *T. fluviatilis* were only predominant at the second station. On the other hand *C. dipterum, Niphargus* sp., *A. aquaticus* and *H. medicinalis* were predominant at the third station. *E. tendens, I. baltica, C. neritaeus, B. reticulatum* and *P. aberrans* at the first station, *C. edule, T. fluviatilis, P. exestum, P.*

elegans, Ischnura sp., *Agrion* sp., *Platycnemis* sp., *D. nervosus* and *Rissoa* sp. at the second station, *P. planorbis* and *Ischnura* sp., *P. corneus*, at the third station were less encountered.

d-) In Winter

In December 1997, January and February -1998 *H. diversicolor, G. aequicauda* and *H. ventrosa* were predominant at the first and second stations. *D. trunculus, C. gallina, C. neriteaus, B. reticulatum* were only found at the first station and *E. tendens, A. alba, C. thummi* were predominant at the second station. At the third station, *C. dipterum, Niphargus* sp., *A. aquaticus, H. medicinalis* were predominant. *C. edule, H. ventrosa* at the first station *C. edule, Ischnura* sp., *Agrion* sp., *A. aquaticus, Procladius* (*Holoanypus*) sp., *Sympetrum* sp., at the second station, *Planaria* sp., and *P. planorbis* were less encountered.

Discussion

A total of 39 macrobenthic species was determined from 3 stations chosen at Sırakaraağaçlar stream flowing into Black Sea at Akliman region (Sinop) (Table 4).

16, 26 and 16 species were encountered at the 3 stations. Although shells of *Donax trunculus, Chamelea gallina, Cardium edule, Hinia reticulata* and *Bittium reticulatum* were found, none was alive. This could be due to the low salinity of the water. Only 11 species, 24 species and 16 species were determined as alive at the first, second and third stations, respectively. The results show that the species diversity of the first station is low whereas high in the second station. This can be due to not only the location of the first station (at the mouth of the stream) but also, the variable physico-chemical parameters as well as the presence of winds and waves.

The constant common species (90-100%) *Donax trunculus, Chamelea gallina*, the majority common species are (60-80%) *Abra alba, Gammarus aequicauda, Bittium reticulatum*. The mostly common species are (40-60%) *Cyclope neritaeus, Hydrobia ventrosa* . The rarely species (1-20%) *Planorbis planorbis, Hinia reticulata, Endochrinomus tendens , Idotea baltica, Polypedilum aberrans* and *Rissoa* sp. At the first station, the Mollusc species, one Polychaeta species and one Amphipoda species are predominant. The predominant species at the first station are euriform. Besides, it was seen that three species prefered sandy zones because some Insecta larvae, Mollusc species and one Isopoda species at

the first station were stenoterm. They were only encountered in a certain time of year.

At the second station, the constant existing species are *Hediste diversicolor, Gammarus aequicauda, Hydrobia ventrosa*, the majority common species *Abra alba, Endochironomus tendens* and the mostly common species *Thedoxus fluviatilis.* The occasionally species *Donax trunculus, Cardium edule, Pentapedilum exestum,* the rarely common species *Hirudo medicinalis, Palaemon elegans, Chironomus thummi, Ischnura* sp. , *Agrion* sp., *Platycnemis* sp., *Sympetrum* sp., *Asellus aquaticus, Dicrodentipes nervosus, Dicrodentipes tritomus, Pentapedilum exestum, Idotea baltica, Nepa cinera, Procladius* sp., *Polypedilum aberrans, Fleura lacustris* and *Rissoa* sp. More species were found at the second station compared to the other stations because this area is at the inner part of the stream and safe from waves of the sea relatively. It causes the physico-chemical parameters of the second station to change less (Table 2). Besides, the bottom of the second station is muddy and its bottom and coast have a lot of seconder aquatic plants. It has more species than the other stations.

At the third station, the constant common species are *Cloeon dipterum, Niphargus* sp., *Asellus aquaticus, Hirudo medicinalis*, the occasionally common species are *Planorbis planorbis, Planorbarius corneus, Ranatra linearis* and *Lymnaea stagnalis*. The rarely existing species are *Nepa cinera, Ischnura* sp. are less present at the third station compared to the second station because the water is very stable and there is rich vegetation at the bottom, coast and at surface of the water. All species except *Hediste diversicolor* determined at this station are fresh water species.
When comparing the species from every station, the common species between the first station and the second station are *Hediste diversicolor, Chamelea gallina, Cardium edule, Hydrobia ventrosa, Endochironomus tendens, Abra alba, Idotea baltica, Hinia reticulata, Rissoa* sp. (Tables 5 and 6).

The common species between the first and second stations are *Hediste diversicolor.* The common species between the second and third stations are *Hediste diversicolor, Planorbis planorbis, Asellus aquaticus, Nepa cinera, Hirudo medicinalis* and *Ischnura* sp. (Tables 6 and 7). Moreover, *Hirudo medicinalis* encountered at the third station every month but only existed once at the second station. In the same way, *Hediste diversicolor*

encountered at the second station during 11 months was only present during one month.

A similar study on the macrobenthic fauna was carried out at Sarıkum Lake and Sarıkum lagoon lakes (Akbulut, 1996). There are similarities and differences between the macrobenthic fauna of Sarıkum Lake and those Sırakaraagaçlar stream regarding to species variety, bottom water quality parameters and connection with Black Sea.
The first station of Sırakaraağaçlar stream is similar to the third station of Sarıkum lake regarding their bottom constitution which was sandy. The second station of Sırakaraağaçlar stream is similar to the third station of Sarıkum lake in the riches of aquaplant at the bottom and water edge. The third station at the Sırakaraağaçlar stream is not similar to the stations at Sarıkum lake from the points of view of its bottom structure of the presence of seconder aquaplants and of its light does not penetrate water. This can be due to a low flow stream and a very rich flora.

At the present study and Akbulut's (1996) study the most abundant macrobenthic species found are *Thedoxus fluviatilis, Planorbis planorbis* belonging to Mollusca phylum; *Chironomus thummi, Polypedilum aberrans, Endochironomus tendens, Procladius (Holotanypus)* sp. belonging to Chironomidae larvae; *Hediste diversicolor* belonging to Polychaeta classis; *Asellus aquaticus* belonging to Isopoda ordo; *Cloeon dipterum* belonging to Ephemeroptera ordo. They are cosmopolite species that can live both in rivers and in lakes. The other species can live either in river or lakes. Although the amphipoda species from Sarıkum lake are *Gammarus insensibilis, Talorchestia deshayesii*, those from Sırakaraağaçlar stream are *Gammarus aequicauda* and *Niphargus* sp.
This is the preliminary study in this region, additional studies are needed.

Özet

Bu araştırmada Temmuz 1997-Haziran 1998 tarihleri arasında Sinop İli Akliman mevkiinden Karadeniz'e dökülen Sırakaraağaçlar Deresi'nin makrobentik faunası ve suyun fiziksel parametreleri incelenmiştir. Mollusca, İnsekta (larva), Crustaceae, Polychaeta, Hirudinae ve Turbellaria'ya ait denizel, acı su ve tatlı su türlerinden oluşan makrobentik fauna 39 türden oluşmuştur. Karadeniz'e dökülen nehir ağzında seçilen 1. örnekleme istasyonunda Mollusk faunası tür çeşitliliği bakımından dominant olmuştur. Bunu İnsekta larvaları, Crustaceae ve Polychaeta Sınıfı'na ait türler izlemiştir. Nehir ağzından daha iç noktada ve kaynağa yakın noktada seçilen II. ve III. istasyonlarda tür çeşitliliği bakımından insekta larvaları dominant olmuştur. Bunu Mollusk faunası ve Crustaceae, Polychaeta, Hirudinae ve Turbellaria sınıfına ait türler izlemiştir. Genel olarak

Sırakaraağaçlar Deresi makrobentik faunasında tanımlanan türlerin çoğunluğu euriform türlerden oluşan az akıntılı nehirlerde bulunan organizmalardır.

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