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Freshwater and brackish water Malacostraca (Crustacea-Arthropoda) fauna of Sinop and Samsun and their ecology

Sinop ve Samsun illeri tatlısu ve acısu Malacostraca (Crustacea-Arthropoda) faunası ve ekolojileri

Mehmet Akbulut[1*], M. Ruşen Ustaoğlu[2], Ekrem Şanver Çelik[1]

[1] Çanakkale Onsekiz Mart University, Fisheries Faculty, Çanakkale-Turkey
[2] Ege University, Fisheries Faculty, Izmir-Turkey

Abstract

Malacostraca fauna collected from freshwater and brackishwater in Sinop and Samsun were studied from 181 stations between February 1999 and September 2000. 19 species and 4 subspecies belonging to 15 genuses were found in 134 stations. In total, 23 taxon were found: 11 Amphipoda, 6 Decapoda, 4 Isopoda, and 2 Mysidacea. *Limnomysis benedeni* is the first time in Turkish Mysidacea fauna. In this work at the first time recorded group are *Gammarus pulex pulex, Gammarus aequicauda, Gammarus uludagi, Gammarus komareki, Gammarus longipedis, Gammarus balcanicus, Echinogammarus ischnus, Orchestia stephenseni Paramysis kosswigi, Idotea baltica basteri, Idotea hectica, Sphaeroma serratum, Palaemon adspersus, Crangon crangon, Potamon ibericum tauricum* and *Carcinus aestuarii* in the studied area. *Potamon ibericum tauricum* is the most encountered and widespread species.

Key words: Freshwater, brackish water, Malacostraca, Sinop, Samsun, Turkey

Introduction

The Malacostraca is the largest subgroup of crustaceans and includes the decapods such as crabs, mole crabs, lobsters, true shrimps and the stomatopods or mantis shrimps. There are more than 22,000 taxa in this group representing two third of all crustacean species and contains all the larger forms.

*Corresponding author: mehakbulut@comu.edu.tr

Malacostracans play an important role in aquatic ecosystems and therefore their conservation is important. They are consumed by fish and other aquatic organisms and are an important diet in the food web of the aquatic ecosystem (Pechenik 1996).

The first study on the crustacean biological diversity of Turkey was made by (Heller 1863) cited by Geldiay and Kocataş 1977. The other study about freshwater crayfish in Turkey was conducted by Ninni (1923) and reported *Potamobius leptodactylus* from Lake Sapanca. The study of Geldiay (1949) is determined *Potamobius (Astacus) fluviatilus* in Çubuk Reservoir was the first investigation of Turkish researchers on the subject.

Detailed studies on freshwater amphipods of Turkey were carried out by Karaman and Pinkster (1977a, b, 1987). Bott (1950) reported the presence of *A. astacus* and *A. pallipes* from Lake Apolyont and Manyas. Geldiay and Kocataş (1970) investigated the distribution and taxonomical identification of Turkish astacus populations. They surveyed Trachus, Black Sea Region and West Anatolia, and collected 112 individuals from *Astacus (Pontoastacus) leptodactylus salinus* and *Astacus leptodactylus leptodactylus*. The earliest study about freshwater crabs and Malacostraca fauna in Turkey was conducted by Heller in 1863 and reported the presence of *Potamon fluviatilis* around Istanbul (Geldiay and Kocataş 1977). Pesta (1926, 1937) reported *Potamon potamios* from Northwestern Anatolia, Middle Anatolia and East Anatolia. Coifman (1938) reported *Potamon edule* from Kusadası and Izmir. Holthuis (1961) reported *Potamon potamios* from Turkey and Balkans.

The most detailed study about Turkish Freshwater crab fauna was made by Pretzman (1975, 1976, 1983). Geldiay and Kocataş (1977) made a taxonomic revision on Turkish freshwater crabs and reported *Potamon ibericum tauricum* from Black Sea, Agean and Marmara Sea. Studies about freshwater amphipods of Turkey were investigated by Karaman and Pinkster (1977a, b, 1987).

Birstein (1951) investigated freshwater isopoda of the U.S.S.R. and Turkey, and described the species found. Çamur and Kırgız (2000) studied freshwater isopoda fauna of Turkish Thrace Region. Kocataş and Katağan (1983) studied crustacean fauna of coastal lagoon in Marmara, Mediterranean an Aegean Sea and reported 31 crustacean species. Katağan and Ledoyer (1979) studied Turkish Mysidaea fauna of Turkish Marine and reported 23 taxa. Kocataş et al. (1991) reported on the general features, taxonomic situations, checklist and aquaculture of Turkish shrimps. Geldiay et al. (1977) investigated Peracaridae and Eucaridae of Lake Bafa and

reported the presence of Tanaidacea (1 species), Isopoda (3 species), Amphipoda (4 species) and Mysidacea (1 species). Bat et al. (2000) studied the benthic mactoinvertebrate fauna of Sırakaraağaçlar Stream at Akliman, Sinop. Akbulut et al. (2002) studied benthic macroinvertebrate fauna of Lake Sarıkum and Spring Waters. They reported 26 taxa belongin to Gastropoda, Bivalvia, Insecta, Crustacea, Polychaeta and Turbellaria.

Özbek and Ustaoğlu (1998) studied the amphipoda fauna of Izmir and adjacent areas Inland waters. They reported 8 species and 1 subspecies belonging to Amphipoda around Izmir region's inland waters between March 1994 and June 1996. Özbek and Ustaoğlu (2005) also studied Lake District inland water Malacostraca fauna. They found 26 taxa in total, 5 belonging to Decapoda, 17 to Amphipoda, two to Isopoda and 2 to Mysidacea from 75 stations.

Only very few studies were carried out so far on the freshwater and brackish isopoda, decapoda and mysidacea fauna in Sinop and Samsun. The aim of this study was performed new contributions to the Turkish biological diversity by studying the freshwater and brackish water malacostraca fauna of Sinop and Samsun.

Materials and Methods

Sampling Area

A total of 181 stations were sampled to determine the malacostraca fauna of Sinop and Samsun's freshwater and brackish waters between February 1999 and September 2000 (Figure 1). Sampling Stations consisted of 15 rivers and creeks (Sinop 7, Samsun 8), 60 streams (Sinop 44, Samsun 14), 40 spring water (Sinop 31, Samsun, 9), 9 lakes (Sinop 1, Samsun 8), 9 lagoons and rivermouths (Sinop 7, Samsun 3), 36 drinking basins (Sinop 33, Samsun 3), 2 standing water pools (Sinop 2) and 1 thermal spring (Samsun 1) (Table 4).

Sampling Method

Benthic organisms were sampled by hand deep net, dredge, and Ekman Grabe and were sieved by a 0.5 and 1 mm mesh. Benthos samples were fixed by 4% formaldehyde. They cleaned by washing with fresh water in the laboratory. Species selected under stereomicroscope were stored in 70% alcohol. Species were dissected under binocular microscope and the extremities were fixed on microscope slides with alcohol-glycerin mixtures. For taxonomic identification of decapoda, identification keys of Geldiay and Kocataş (1977), Pretzman (1983), Fischer (1973), Geldiay ve Kocataş (1970), Kocataş et al. (1991) were used; isopoda identification keys of Birstein (1951) and Naylor (1972), for Mysidacea identification key were

used Bacescu (1940) and Carauşu et al. (1955) and for Amphipoda identification keys Karaman and Pinkster (1977 a, b, 1987), Barnard and Barnard (1983 a b), Carausu et. al. (1955), Ruffo (1993), Bellan-Santini et al. (1982), Sket (1981) and Pinkster (1993) and Akbulut et al. (2001) were used.

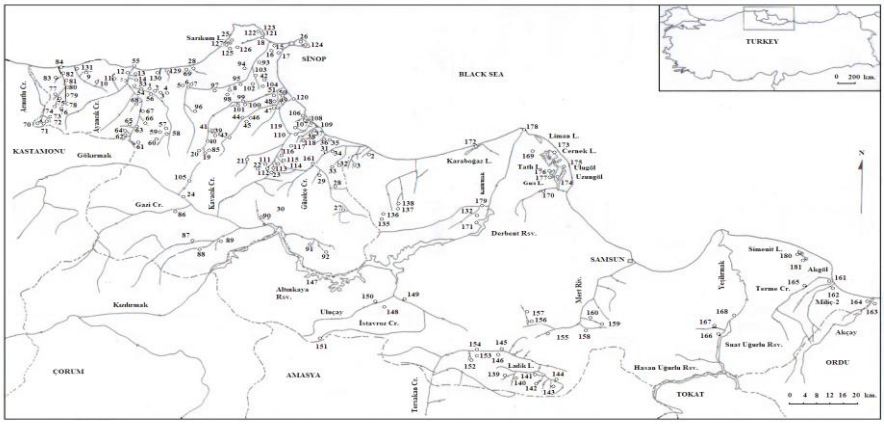

Figure 1. Sampling stations in Sinop and in Samsun (Abbreviations and symbols: Cr.=Creek, L.= Lake, Rsv.=Reservoir -- --= Province borders, ◦ = Sampling stations)

Results and Discussion

Taxonomical results

Malacostraca fauna of Sinop and Samsun from the sampled stations between February 1999 and September 2000 were given in Table 1.

Taxa, sampling stations, sampling date in Sinop and Samsun were given in Table 2 and 3.

Table 1. Determined taxa in the study.

Order	Familia	Genus	Species
Amphipoda	Gammaridae	Gammarus	*Gammarus pulex pulex* (L. 1758)
			Gammarus aequicauda (Martynov,1931)
			Gammarus uludagi Karaman, 1975
			Gammarus komareki Schäferna, 1922
			Gammarus longipedis Karaman ve Pinkster, 1987
			Gammarus balcanicus Schäferna, 1922
		Echinogammarus	*Echinogammarus ischnus* (Stebbing, 1899)
		Niphargus	*Niphargus valachicus E.Dobreanu şi Manolache, 1933*
		Stygobromus	*Stygobromus ambulans* (Fr. Müller, 1846)
	Talitridae	Orchestia	*Orchestia stephenseni* Cecchini, 1928
			Orchestia cavimana Heller, 1865
Isopoda	Asellidae	Asellus	*Asellus aquaticus* (L., 1758)
	Idoteidae	Idotea	*Idotea baltica basteri* Audouin, 1827
			Idotea hectica (Pallas, 1772)
	Sphaeromatidae	Sphaeroma	*Sphaeroma serratum* (Fabricius, 1787)
Mysidacea	Mysidae	Paramysis	*Paramysis kosswigi* Bacescu, 1948
		Limnomysis	*Limnomysis benedeni* Czerniavsky, 1882
Decapoda	Palaemonidae	Palaemon	*Palaemon elegans* Rathke, 1837
			Palaemon adspersus Rathke, 1937
	Crangonidae	Crangon	*Crangon crangon* (Linnaeus, 1758)
	Astacidae	Astacus	*Astacus leptodactylus leptodactylus* Eschscholtz, 1823
	Potamidae	Potamon	*Potamon ibericum tauricum* (Czerniavsky, 1884)
	Portunidae	Carcinus	*Carcinus aestuarii* Nardo, 1847

Table 2. Taxa at the sampling stations in Sinop (**Abbreviations**: Vill. = Village, S.W.=Spring Water, D.B.=Drinking Basin, Str.=Stream, Crk.=Creek)

No	Stations	Sampling date	Taxon	No	Stations	Sampling Date	Taxon
1	Demirci Vill. Aysel Yüksel D.B.	29.06.1999	*G. p. pulex*	**9**	Silahcı Stream	30.06.1999	*P. i. tauricum*
2	Yemişen Vill. Çatal Çeşme D.B.	29.06.1999	*G. p. pulex*	**10**	Doğanlı Vill. Stream	30.06.1999	--
3	Aksu Vill. Drinking Basin-1	29.06.1999	*G. komareki*	**11**	Ömerdüz Vill. Stream	30.06.1999	--
4	Aksu Vill. Drinking Basin-2	29.06.1999	--	**12**	Zaviye Stream	30.06.1999	--
5	Atbaşı Vill. Drinking Basin	29.06.1999	G. uludagi	**13**	Aşağıköyü Stream	30.06.1999	*G. p. pulex*
6	DB between Terziyeri-Gökçebel	29.06.1999	--	**14**	Pazarcık Stream	28.09.1999	*G. p. pulex*
7	Sakarabası Vill. D.B.	29.06.1999	*G. p. pulex*	**15**	Bostancılı Vill. Drinking Basin	02.07.1999	*G. p. pulex*
8	Çaykas Stream	29.06.1999	--	**16**	Bostancılı Vill. Springs	02.07.1999	----

Table 2 (continued)

No	Stations	Sampling date	Taxon	No	Stations	Sampling date	Taxon
17	Korucuk Vill. D.B.	28.06.1999	*G. p. pulex,, A. aquaticus*	**38**	Yenikent Stream	10.09.1999	*G. p. pulex*
18	Karasu Creek	28.06.1999	----	**39**	Ağcapınar Springs	17.09.1999	*G. p. pulex*
19	Springs of Kabalı Creek-1	06.07.1999	*G. komareki, G. balcanicus*	**40**	Sazlı Vill. Springs.	17.09.1999	*G. balcanicus*
20	Sprins of Kabalı Creek-2.	06.07.1999	*G. longipedis,*	**41**	Sazlık Stream	17.09.1999	*G. komareki, G. balcanicus*
21	Sprins of Kavacık Creek.	06.07.1999	*G. komareki*	**42**	Taşmanlı Reservoir	17.09.1999	--
22	Uyuzsuyu Spring.	06.07.1999	*G. komareki*	**43**	Yukarı Sazlı Vill. Drinking Basin	17.09.1999	*G. balcanicus*
23	Subaşı S.W.	06.07.1999	*G. komareki*	**44**	Springs-1 at the side of Müsellem Stream	17.09.1999	*G. p. pulex, P. i. tauricum*
24	Gökırmak River	06.07.1999	*G. komareki, G. longipedis*	**45**	Müsellem Stream	17.09.1999	*G. p. pulex*
25	Sarıkum Vill. S.W.	06.07.1999	*G. p. pulex*	**46**	Springs-2 at Müsellem Stm.	17.09.1999	*G. p. pulex*
26	Radar S.W.	30.06.1999	*G. p. pulex*	**47**	Çırnık Sprins-1.	17.09.1999	*G. p. pulex, P. i. tauricum*
27	Soğuk Stream	10.09.1999	*G. p. pulex, G. komareki*	**48**	Çırnık Springs-2 .	17.09.1999	*G. p. pulex, P. i. tauricum*
28	Ayıpçı Stream	10.09.1999	*G. p. pulex,* G. uludagi, *G.komareki*	**49**	Çırnık Springs-3.	17.09.1999	*G. p. pulex*
29	Kemet Vill. Stream	10.09.1999	*P. i. tauricum*	**50**	Yaykıl Vill. Tiryaki District D. B.	17.09.1999	*G. p. pulex*
30	Saray Creek	10.09.1999	--	**51**	Karacasu Springs	17.09.1999	*G. p. pulex, P. i. tauricum*
31	Kızıklı Vill. Drinking Basin.	10.09.1999	*G. p. pulex, G. komareki*	**52**	Flood Water Pool between	28.09.1999	*G. p. pulex*
32	Alacasu Spring	10.09.1999	*G. p. pulex, G. komareki*	**53**	DB between Akçakese-Gemre Vill.	28.09.1999	*P. i. tauricum*
33	Akçasu Spring	10.09.1999	*G. p. pulex, G. komareki*	**54**	Ayancık Creek.	28.09.1999	*G. p. pulex*
34	Güzelceçay	10.09.1999	*G. p. pulex, G. komareki*	**55**	Ayancık Creek- river mouth.	29.06.1999	--
35	Sepetçioğlu Stream	10.09.1999	*G. p.pulex*	**56**	Yenikonak Stream	28.09.1999	*P. i. tauricum*
36	Hacıselli Stream	10.09.1999	*G. p.pulex*	**57**	Çangal Vill. Springs	28.09.1999	*G. balcanicus*
37	Yenikent D B.	10.09.1999	*G. p. pulex, A. aquaticus*	**58**	Çangal Vill. Stream.	28.09.1999	*G. balcanicus*

Table 2 (continued)

No	Stations	Sampling date	Taxon	No	Stations	Sampling date	Taxon
59	Çangal Stm. Spring's-1	28.09.1999	*G. balcanicus*	**80**	Yeşiloba Vill. Drinking basin	30.09.1999	*G. balcanicus*
60	Çangal Stream's spring-2	28.09.1999	*G. balcanicus*	**81**	Yeşiloba Vill. Sarpıca District DB.	30.09.1999	*G. balcanicus*
61	Lake Akgöl	28.09.1999	*G. balcanicus*	**82**	Flood Water Pool Turhan Vill.	30.09.1999	*G. p. pulex*
62	İnaltı Creek's Tributary-1	28.09.1999	*G. p. pulex, G. balcanicus*	**83**	Bolla Stream	30.09.1999	*P. i. tauricum*
63	İnaltı Creek's Tributary-2.	28.09.1999	*G. p. pulex, P. i. tauricum*	**84**	Türkeli Creek	30.09.1999	*P. i. tauricum*
64	İnaltı Vill. DB.	28.09.1999	*G. balcanicus*	**85**	Bürnük Springs	04.07.2000	--
65	Avdullu Vill. Stream	28.09.1999	*G. balcanicus*	**86**	Gazi Creek Gökırmak's	04.07.2000	*G. balcanicus*
66	İnaltı Stream's Tributary.	28.09.1999	*G. balcanicus*	**87**	Asarcık Stream	04.07.2000	*G. komareki*
67	İnaltı Stream	28.09.1999	*G. balcanicus*	**88**	Uluköy Stream	04.07.2000	--
68	Bakırlık Vill. Stream	28.09.1999	*G. balcanicus*	**89**	Arım Stream	04.07.2000	--
69	Gebelit Vill. D.B	30.09.1999	*G. p. pulex*	**90**	Durağan Reservoir.	04.07.2000	--
70	Armutlu Creek's Sprinds-1	30.09.1999	*G. balcanicus*	**91**	Terelik Springs	04.07.2000	--
71	Armutlu Creek's Springs-2	30.09.1999	*G. balcanicus*	**92**	Soğucak Springs	04.07.2000	*G. komareki*
72	Çatalörencik Vill. Kuzgece District DB.	30.09.1999	*G. balcanicus*	**93**	Kılıçlı Vill. D.B	06.07.2000	*G. p. pulex*
73	Çatalörencik Vill. Kuzgece District's	30.09.1999	*G. balcanicus*	**94**	Bektaşağa Resevoir	06.07.2000	--
74	Ulugürleyik Stream's springs	30.09.1999	*G. balcanicus*	**95**	Çelen Vill. Springs	06.07.2000	--
75	Ulugürleyik Stream	30.09.1999	*G. balcanicus*	**96**	Karasu River's SW.	06.07.2000	*P. i. tauricum*
76	Hamzalar District D.B	30.09.1999	*G. balcanicus*	**97**	Kuzsökü Vill. Drinking Basin	06.07.2000	--
77	Hamzalar District Stream	30.09.1999	*G. komareki*	**98**	Ahat Vill. Drinking Basin	06.07.2000	--
78	Kabalıoğlu Stream	30.09.1999	*G. komareki, P. i. tauricum*	**99**	Kabalı Creek	06.07.2000	*P. i. tauricum*
79	Kösealan District Drinking basin	30.09.1999	*G. balcanicus*	**100**	Karapınar Vill. springs	06.07.2000	*G. p. pulex*

Table 2 (continued)

No	Stations	Sampling	Taxon	No	Stations	Sampling	Taxon
101	Ebe Stream	06.07.2000	*P. i. tauricum*	**117**	Edilli Valley Spring Basin	07.07.2000	*G. p. pulex, G. balcanicus*
102	Aloğlu Vill. 1. Drinking Basin	07.07.2000	*G. p. pulex*	**118**	Karadevret Stream	07.07.2000	*G. komareki*
103	Tasaklar Stream	07.07.2000	*G. p. pulex, P. i. tauricum*	**119**	Değirmen Stream	07.07.2000	--
104	Aloğlu Vill. 2. Drinking Basin	07.07.2000	--	**120**	Sarımsaklı Creek (Rivermouth)	07.07.2000	*G. p. pulex, P. i. tauricum*
105	Maruf Reservoir.	04.07.2000	--	**121**	Sırakarağaçlar Stream	03.07.2000	*G. aequicauda, A. aquaticus*
106	Çakallı Vill. Yusufoğlu District	07.07.2000	*G. p. pulex*	**122**	Sırakarağaçlar Stream Spring	03.07.2000	*N. valachicus, S. ambulans*
107	Çakallı Vill.. Strm.	07.07.2000	*G. p. pulex*	**123**	Hamsiloz Fiyord's Stream.	05.06.2000	*A. aquaticus, I. hectica*
108	Çakallı Vill. Taşkın Drinking Basin	07.07.2000	--	**124**	Nisi Reservoir	15.09.1999	*G. p. pulex*
109	Gebe Creek	07.07.2000	*P. i. tauricum*	**125**	Keçideresi Spring Water	02.07.2000	*G. p. pulex, A. aquaticus*
110	Çeçe Vill. Stream	07.07.2000	*G. p. pulex, G. komareki,*	**126**	Keçideresi Spring Water ,Basin-2.	02.07.2000	*G. p. pulex*
111	Çağlayan Vill. S.B	07.07.2000	*G. komareki*	**127**	Lake Sarıkum	29.06.1999	*G. aequicauda, C. crangon*
112	Çağlayan Vill. Waterfalls	07.07.2000	*G. komareki, P. i. tauricum*	**128**	Gebelit Stream (Rivermouth)	29.06.1999	*G. aequicauda, I. b. basteri*
113	Çağlayan Vill. Stream	07.07.2000	*G. komareki, P. i. tauricum*	**129**	Harzane Stream	29.06.1999	--
114	Alıç Stream	07.07.2000	*G. komareki, G. balcanicus*	**130**	Işığan Creek	29.06.1999	--
115	İmamlı Stream	07.07.2000	*G. komareki*	**131**	Helaldı Creek	30.06.1999	--
116	Sarımsaklı Vill. Spring	07.07.2000	*G. komareki, G. balcanicus*				

Table 3. Encountered taxa at the sampling stations in Samsun.

No	Stations	Sampling date	Taxon	No	Stations	Sampling date	Taxon
132	Selemenlik Vill. Tırnaklar District springs	08.10.1999	*G. uludagi, P. i. tauricum*	**154**	Hamamayapı Thermal Springs	21.06.2000	--
332	Asmapınar Stream.	08.10.1999	*P. i. tauricum*	**155**	Mert River	21.06.2000	*P. i. tauricum*
134	Spring on the edge of Yünlüce Stream	08.10.1999	*P. i. tauricum*	**156**	Kavak (Güven) Reservoir	21.06.2000	*A. l. leptodactylus*
135	Pelitbüküsekicek Vill. DB.	11.10.1999	--	**157**	Kavak Reservoir's stream	21.06.2000	--
136	Yukarıısırganlı Vill. DB.	11.10.1999	--	**158**	Kozansıkı Stream	21.06.2000	*P. i. tauricum*
137	Karadere Drinking Basin	11.10.1999	*G. uludagi*	**159**	Köseli Vill. Stream	21.06.2000	*P. i. tauricum*
138	Karadere Stream	11.10.1999	*G. p. pulex*	**169**	Köseli Vill. Spring	21.06.2000	--
139	Küçükkızoğlu Vill. Stream	12.10.1999	*G. p. pulex, G. uludagi*	**161**	Miliç 1 River. (Rivermouth region)	22.06.2000	*P. kosswigi,, A. l.*
140	Büyükkızoğlu Vill. Stream	12.10.1999	*G. uludagi,*	**162**	Miliç 2 River	22.06.2000	*O. stephenseni,*
141	Çakıl Stm.Çakırgümüş	12.10.1999	*G. uludagi, G. komareki*	**163**	Akçay	22.06.2000	--
142	Bolat Vill. Stream.	12.10.1999	*G. komareki*	**164**	Springs on the edge of Akçay.	22.06.2000	--
143	Küpecik Vill. Stream	12.10.1999	--	**165**	Terme Creek	22.06.2000	*A. aquaticus, A. l. leptodactylus*
144	Lake Ladik	12.10.1999	--	**173**	Lake Cernek	29.06.2000	*I. b. basteri*
145	Tersakan Creek	12.10.1999	*G. komareki*	**174**	Uzungöl.	29.06.2000	*L. benedeni, A. l.*
146	Springs on the edge of Tersakan Creek	12.10.1999	--	**175**	Ulugöl (Lake Balık)	22.06.1999	*L. benedeni, A. l.*
147	Altınkaya Reservoir	19.06.2000	*A. l. leptodactylus,*	**176**	Lake Tatlı.	22.06.1999	*L. benedeni, A. l.*
148	Kapaklıçeşme Springs.	20.06.2000	--	**177**	Lake Gıcı	22.06.1999	*L. benedeni, A. l.*
149	İstavroz Creek	20.06.2000	--	**178**	Kızılırmak River.(rivermouth)	05.10.1999	*A. l. leptodactylus*
150	Uluçay	20.06.2000	--	**179**	Çayağzı Stream	30.06.2000	--
151	İstavroz Creek Spring.	20.06.2000	*G. komareki*	**180**	Lake.Simenit	25.06.1999	--
152	Kocapınar Springs	21.06.2000	--	**181**	Akgöl	25.06.1999	--
153	Hamamayağı Stream.	21.06.2000	--				

Ecological results

A total of 181 sampling stations in Sinop and Samsun's freshwater and Brackish Water were given in Table 4. The stations were classified as river and creek, stream, spring water, reservoir, lagoon and river mouth, drinking basin, flood water pool, and thermal spring water. Distribution of taxa in the different freshwater and brackish water ecosystems were given in Table 4. While nine taxa were found in lagoons and river mouths, one taxon was encountered in flood water pool and lakes.

Table 4.Stations' classifications in Sinop and in Samsun.

Categories	Sinop	Samsun
River and Creek	24, 30, 34, 84, 86, 99, 131	145, 149, 150, 155, 162, 163, 165, 168
Stream	8, 9, 10, 11, 12, 13, 14, 27, 28, 29, 36, 38, 41, 45, 54, 56, 58, 62, 63, 65, 66, 67, 68, 73, 75, 77, 78, 79,83, 87, 88, 89, 101, 103, 107, 109, 110, 113, 114, 115, 118, 119, 129, 130	133 139 140, 141, 142, 143, 153, 157, 158, 159, 167, 169, 170, 179
Spring water	16, 19, 20, 21, 22, 23, 25, 32, 33, 35, 47, 48, 49, 51, 57, 59, 60, 70, 71, 74, 85, 91, 92, 95, 96, 100, 111, 112, 116, 122, 125, 126	132 134, 138, 146 147, 151 152 160 164
Lake	61	144, 173, 174,175 176, 177, 180, 181
Reservoir	42, 90, 94, 105, 124	147, s156,, 166, 171
Lagoon and river mouth	18, 55, 120, 121, 123, 127, 128	161, 171, 178
Drinking basin	1, 2, 3, 4, 5, 6, 7, 15, 17, 26, 31, 37, 39, 40, 43, 44, 46, 50, 53, 64, 69, 72, 76, 80, 81, 93, 97, 98, 102, 104, 106, 108, 117	135, 136, 137
Flood water pool	52. 82	
Thermal spring water		154

G. pulex pulex was the most abundant species in 6 different stations which shows that this taxon has a very high tolerance and does not belong to any particular ecosystem. *P. i. tauricum* was the second most abundant species in 5 different habitats which shows that this taxon has a very high tolerance and does not belong to any particular ecosystem. In addition it was found at 34 sampling stations; it was the widest distributed taxa. The other taxon, *A. aquaticus* was encountered in 4 different habitats. *G. komareki and G. balcanicus, A. l. leptodactylus* was also encountered in 3 habitats. *G. aequicauda O. cavimana, O. stephenseni, N. valachicus, S. ambulans, E.*

ischnus I. hectica, S. serratum, P. elegans, P. adspersus, C. crangon, P. kosswigi and, L. benedeni were found in only one habitat.

Table 5. Distribution of taxa in the different freshwater and brackish water ecosystem.

Taxon/ ecosystem	River, Creek	Stream	Spring water	Lake	Reservoir	Lagoon, river mouth	Drinking basin	Flood water pool
G. pulex pulex	+	+	+		+		+	+
G. komareki	+	+	+				+	
G. uludagi		+	+				+	
G. balcanicus		+	+	+			+	
G. longipedis	+		+					
G. aequicauda						+		
O. cavimana						+		
O.stephenseni						+		
N. valachicus			+					
S. ambulans			+					
E. ischnus					+			
A. aquaticus			+		+	+	+	
I. b. basteri						+		
I. hectica						+		
S. serratum						+		
P. elegans						+		
P. adspersus						+		
C. crangon						+		
P. kosswigi						+		
L. benedeni				+				
P.i.tauricum	+	+	+			+	+	
A. l. leptodactylus	+			+	+			

Some taxa have peculiar habitat preferences. Some taxa were not found at some habitats meaning that they can be characteristic for certain habitats. For instance, *I. hectica, S. serratum, P. elegans, P. adspersus, C. crangon, P. kosswigi* were peculiar to lagoon and river mouth and *I. benedeni* was encountered only in lakes (Table 5).

In this study, 4 Malacostracan Orders's research area has been expanded. It is illustrated that *Limnomysis benedeni* was the first record for the Turkish Freshwater. *Idotea hectica* and *Paramysis kosswigi* are the first records for the Turkish Black Sea Region. Thus, this research contributes to Malacostaca fauna and biologic diversity of Turkey.

Özet

Sinop ve Samsun İl sınırları içinde toplanan tatlısu ve acısu Malacostraca faunası 181 istasyondan Şubat 1999-Ekim 2000 tarihleri arasında araştırılmıştır. 134 istasyonda 15 genusa ait 19 tür ve 4 alttür toplam olarak da 23 taksa bulunmuştur: 11'i Amphipoda'ya, 6'sı Decapoda'ya, 4'ü İsopoda'ya, 2'si Mysidacea'ye aittir. Tespit edilen türlerden *Limnomysis benedeni* Türkiye faunası için yeni kayıttır. Diğer türlerden *Gammarus pulex pulex, G. aequicauda, G. uludagi, G. komareki, G. longipedis, G. balcanicus, Echinogammarus ischnus, Orchestia stephenseni Paramysis kosswigi, Idotea baltica basteri, Idotea hectica, Sphaeroma serratum, Palaemon adspersus, Crangon crangon, Potamon ibericum tauricum* ve *Carcinus aestuarii* verilen lokalitelerde ilk defa tespit edilmiştir. *Potamon ibericum tauricum* en yaygın ve en çok istasyonlarda rastlanan tür olmuştur.

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